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1.354 gcc-run-time 10.3.0
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1.355 util-linux-libuuid 2.38
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1.356 libgcc 10.3.0
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1.357 inetutils 2.0
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1.363 shadow 4.8.1
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1.369 usleep 1.0
1.369.1 Available under license
1.370 iputils s20200821
1.370.1 Available under license
1.371 protobuf 3.15.2
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1.372 packaging 20.4
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1.376 go-md2man 2.0.0-20190314233015-f79a8a8ca69d
1.376.1 Available under license
1.377 mnuralp-fileutils 0.5.0
1.377.1 Available under license
1.378 init-ifupdown 1.0
1.378.1 Available under license
1.379 tipc-utils 2.2.0+gitAUTOINC+7ab2211b87
1.379.1 Available under license
1.380 base-passwd 3.5.29
1.380.1 Available under license
1.381 run-postinsts 1.0
1.381.1 Available under license
1.382 os-release 1.0
1.382.1 Available under license
1.383 shadow-securetty 4.6

1.383.1 Available under license
1.384 modutils-initscripts 1.0
1.384.1 Available under license
1.385 keymaps 1.0
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1.386 thread-pool 0.2.5
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1.387 mingetty 1.08
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1.388 update-rc-d 0.8
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1.389 python-six 1.15.0
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1.396.1 Available under license
1.397 ptyprocess 0.7.0
1.397.1 Available under license
1.398 base-files 3.0.14
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1.399 which 2.21
1.399.1 Available under license
1.400 psmisc 23.4
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1.401 errors 0.9.1
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1.407 libdbd-sqlite-perl 1.66
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1.409 ixgbevf 4.11.1
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1.410 xinetd 2.3.15.4
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1.411 example 21.12
1.411.1 Available under license
1.412 automat 20.2.0
1.412.1 Available under license
1.413 constantly 15.1.0
1.413.1 Available under license
1.414 incremental 21.3.0
1.414.1 Available under license
1.415 hyperlink 21.0.0
1.415.1 Available under license
1.416 ndg-httpsclient 0.5.1
1.416.1 Available under license
1.417 attrs 20.3.0
1.417.1 Available under license
1.418 kbd 2.4.0
1.418.1 Available under license

1.1 lua 5.0.2

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1.2 libjpeg 6b

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README for release 6b of 27-Mar-1998
==========

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This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION
ROADMAP
==========

This file contains the following sections:

OVERVIEW General description of JPEG and the IJG software.
LEGAL ISSUES Copyright, lack of warranty, terms of distribution.
REFERENCES Where to learn more about JPEG.
ARCHIVE LOCATIONS Where to find newer versions of this software.
RELATED SOFTWARE Other stuff you should get.
FILE FORMAT WARS Software *not* to get.
TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:
install.doc How to configure and install the IJG software.
usage.doc Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1 Unix-style man pages for programs (same info as usage.doc).
wizard.doc Advanced usage instructions for JPEG wizards only.
change.log Version-to-version change highlights.
Programmer and internal documentation:
libjpeg.doc How to use the JPEG library in your own programs.
example.c Sample code for calling the JPEG library.
structure.doc Overview of the JPEG library's internal structure.
filelist.doc Road map of IJG files.
coderules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW
========

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images.
JPEG is intended for compressing
"real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the
hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments
in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the

REFERENCES section for introductory material.) Rather, it is intended to
be reliable, portable, industrial-strength code. We do not claim to have
achieved that goal in every aspect of the software, but we strive for it.

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that you must include source code if you redistribute it. (See the file
ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part
of any program generated from the IJG code, this does not limit you more than
the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltconfig, ltmain.sh). Another support script, install-sh, is copyright
by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by
patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic
 coding cannot
legally be used without obtaining one or more licenses. For this reason,
support for arithmetic coding has been removed from the free JPEG software.
(Since arithmetic coding provides only a marginal gain over the unpatented
Huffman mode, it is unlikely that very many implementations will support it.)
So far as we are aware, there are no patent restrictions on the remaining
code.

The IJG distribution formerly included code to read and write GIF files.
To avoid entanglement with the Unisys LZW patent, GIF reading support has
been removed altogether, and the GIF writer has been simplified to produce
"uncompressed GIFs". This technique does not use the LZW algorithm; the
resulting GIF files are larger than usual, but are readable by all standard
GIF decoders.

We are required to state that
   "The Graphics Interchange Format(c) is the Copyright property of

CompuServe Incorporated. GIF(sm) is a Service Mark property of
CompuServe Incorporated."

REFERENCES
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We
highly recommend reading one or more of these references before trying to
understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is
Wallace, Gregory K. "The JPEG Still Picture Compression Standard",
Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.
(Adjacent articles in that issue discuss MPEG motion picture compression,
applications of JPEG, and related topics.) If you don't have the CACM issue
handy, a PostScript file containing a revised version of Wallace's article is
available at ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz. The file (actually
a preprint for an article that appeared in IEEE Trans. Consumer Electronics)
omits the sample images that appeared in CACM, but it includes corrections
and some added material. Note: the Wallace article is copyright ACM and IEEE,
and it may not be used for commercial purposes.

A somewhat less technical, more
leisurely introduction to JPEG can be found in
"The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by
M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides
good explanations and example C code for a multitude of compression methods
including JPEG. It is an excellent source if you are comfortable reading C
code but don't know much about data compression in general. The book's JPEG
sample code is far from industrial-strength, but when you are ready to look
at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data
Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published
by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US$59.95, 638 pp.
The book includes the complete text of the ISO JPEG standards (DIS 10918-1
and draft DIS 10918-2). This is by far the most complete exposition of JPEG
in existence, and we highly recommend it.

The
JPEG standard itself is not available electronically; you must order a
paper copy through ISO or ITU. (Unless you feel a need to own a certified
official copy, we recommend buying the Pennebaker and Mitchell book instead;
it's much cheaper and includes a great deal of useful explanatory material.)
In the USA, copies of the standard may be ordered from ANSI Sales at (212)
642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI
doesn't take credit card orders, but Global does.) It's not cheap: as of

1992, ANSI was charging $95 for Part 1 and $47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still
Images, Part 2: Compliance testing" and has document
numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:
Literature Department
C-Cube Microsystems, Inc.
1778 McCarthy Blvd.
Milpitas, CA 95035
phone (408) 944-6300, fax (408) 944-6314
A PostScript version of this document is available by FTP at ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz. There is also a plain text version at ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz. The JPEG incorporation
scheme
found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from ftp.sgi.com or from ftp://ftp.uu.net/graphics/jpeg/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from ftp://ftp.sgi.com/graphics/tiff/.

ARCHIVE LOCATIONS

The "official" archive site for this software is ftp.uu.net (Internet address 192.48.96.9). The most recent released version can always be found there in directory graphics/jpeg. This particular version will be archived as ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz. If you don't

have
direct Internet access, UUNET's archives are also available via UUCP; contact
help@uunet.uu.net for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only
ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from
the SimTel archives (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/), or
on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12
"JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net
release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of
general information about JPEG. It is updated constantly and therefore is
not included in this distribution. The FAQ is posted every two weeks to
Usenet newsgroups comp.graphics.misc, news.answers, and other groups.
It is available on the World Wide Web at http://www.faqs.org/faqs/jpeg-faq/
and other news.answers
archive sites, including the official news.answers
archive at rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/.
If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu
with body
send usenet/news.answers/jpeg-faq/part1
send usenet/news.answers/jpeg-faq/part2

RELATED SOFTWARE
==========

Numerous viewing and image manipulation programs now support JPEG. (Quite a
few of them use this library to do so.) The JPEG FAQ described above lists
some of the more popular free and shareware viewers, and tells where to
obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free
PBMPLUS software, which provides many useful operations on PPM-format image
files. In particular, it can convert PPM images to and from a wide range of
other formats, thus making cjpeg/djpeg considerably more useful. The latest
version is distributed by the NetPBM group, and is available from numerous
sites,
notably ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/.
Unfortunately PBMPLUS/NETPBM is not nearly as portable as the IJG software is;
you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford,
is available from ftp://havefun.stanford.edu/pub/jpeg/. This program
is designed for research and experimentation rather than production use;

it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

FILE FORMAT WARS

Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO

The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary

smoothing, "poor man's variable quantization", and other means of improving
quality-vs-file-size performance without
sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG
Part 3 extensions --- principally, variable quantization and the SPIFF file
format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

1.3 log4cxx 0.10.0

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1.4 mongoose-web-server 3.5

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1.5 xinetd 2.3.15

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1.6 bzip2 1.0.6

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bzip2/libbzip2 version 1.0.2 of 30 December 2001

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1.7 unzip 6.0

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The original unzip source code has been extensively modified and
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  *
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71150.2731@compuserve.com]:

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Verheijen (Macintosh), Hunter Goatley (more VMS), Mike White (Windows
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1.8 net-snmp 5.7.3

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1.12 boost 1.58.0

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Aleksey Gurtovoy (agurtovoy@meta-comm.com)
Andrei Alexandrescu (andrewalex - at - hotmail.com) (See Boost list message of August 12, 2004 11:06:58 AM EST)
Andrew Lumsdaine ()
Anthony Williams (anthony -at- justsoftwaresolutions.co.uk)
Beman Dawes (bdawes@acm.org)
Brad King (brad.king -at- kitware.com) (See Boost list message of Wed, 21 Jul 2004 11:15:46 -0400)
Brian Osman (osman -at- vvisions.com) (See CVS log)
Bruce Barr (schmoost -at- yahoo.com) (See Boost list of Mon, 16 Aug 2004 15:06:43 -0500)
Bruno da Silva de Oliveira (bruno - at - esss.com.br)
Christain Engstrom (christian.engstrom -at- glindra.org) (See Boost list message of Mon, 30 Aug 2004 14:31:49 +0200)
Cromwell D Enage (sponage -at- yahoo.com) (See Boost list message of August 12, 2004 11:49:13 AM EST)
Dan Gohman (djg
-at- cray.com) (See Boost list messsage of Sat, 21 Aug 2004 10:54:59 +0100)
Dan Nuffer (dan -at- nuffer.name)
Daniel Frey (d.frey -at- gmx.de, daniel.frey -at- aixigo.de)
Daniel Nuffer (dan -at- nuffer.name)
Darin Adler (darin -at- bentspoon.com) (Email to Andreas Huber, see change log)
Daryle Walker (darylew - at - hotmail.com)
Dave Abrahams (dave@boost-consulting.com)
Dave Moore (dmoore -at- viefinancial.com) (See Boost list message of 18 Dec 2003 15:35:50 -0500)
David Abrahams (dave@boost-consulting.com)

Dietmar Kuehl (dietmar_kuehl -at- yahoo.com) (Email to Andreas Huber, see change log)
Douglas Gregor (gregod -at- cs.rpi.edu, dgregor -at- cs.indiana.edu, doug.gregor -at- gmail.com)
Dr John Maddock (john - at - johnmaddock.co.uk)
Edward D. Brey (brey -at- ductape.net) (Email to Andreas Huber, see change log)
Eric Ford (un5o6n902 -at- sneakemail.com) (See Boost list message of Sun, 15 Aug 2004 10:29:13 +0100)
Eric Friedman (ebf@users.sourceforge.net)
Eric Niebler (eric@boost-consulting.com)
Fernando
Cacciola (fernando_cacciola@ciudad.com.ar)
Fernando Luis Cacciola Carballal (fernando_cacciola@ciudad.com.ar)
Francois Faure (Francois.Faure -at- imag.fr) (See CVS log)
Gary Powell (powellg - at - amazon.com) (See Boost list message of 10 Feb 2004 14:22:46 -0800)
Gennadiy Rozental (rogeeff -at- mail.com) (Email to Andreas Huber, see change log)
Gottfried Ganssauge (Gottfried.Ganssauge -at- HAUFE.DE) (See Boost List message of Mon, 16 Aug 2004 10:09:19 +0200)
Gottfried Ganauge (Gottfried.Ganssauge -at- HAUFE.DE) (Alternative spelling of Gottfried Ganssauge)
Greg Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gregory Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gunter Winkler (gunter.winkler -at- unibw-muenchen.de) (See Boost List message of Mon, 16 Aug 2004 10:24:17 +0200)
Hartmut Kaiser (hartmut.kaiser -at- gmail.com)
Herve Bronnimann (hbr -at- poly.edu)
Herv
Brnnimann (hbr -at- poly.edu)
Housemarque Oy (Ilari Kuittinen ilari.kuittinen -at- housemarque.fi)
Howard Hinnant (hinnant -at- twcny.rr.com) (See Boost list message of July 25, 2004 3:44:49 PM EST)
Hubert Holin (hubert_holin -at- users.sourceforge.net)
Indiana University ()
Itay Maman (imaman -at- users.sourceforge.net)
Jaakko Jrvi (jajarvi -at- osl.iu.edu)
Jaap Suter (j.suter -at- student.utwente.nl) (See Boost list message of Thu, 16 Sep 2004 09:32:43 -0700)
Jeff Garland (jeff - at - crystalclearsoftware.com) (see Boost list post of July 25, 2004 19:31:09 -0700)
Jens Maurer (Jens.Maurer@gmx.net)
Jeremy G Siek (jsiek@osl.iu.edu)
Jeremy Siek (jsiek@osl.iu.edu)
Joel de Guzman (joel -at- boost-consulting.com) (See Boost list message of July 25, 2004 8:32:00 PM EST)
John Bandela (jbandela-at-ufl.edu)
John Maddock (john - at - johnmaddock.co.uk)
John R Bandela (jbandela-at-ufl.edu)
Jonathan Turkanis (turkanis -at- coderage dot com)
Juergen Hunold (hunold -at- ive.uni-hannover.de) (See Boost
List Message of Fri, 13 Aug 2004 19:39:55 +0200)
Kevlin Henney (kevlin -at- curbralan.com) (See Boost list message of Wed, 15 Sep 2004 18:15:17 +0200)
Kresimir Fresl (fresl -at- master.grad.hr) (See Boost List message of August 16, 2004 8:23:35 AM EST)
Lars Gullik Bjnnes (larsbj -at- lyx.org) (See Boost list message of Tue, 17 Aug 2004 15:49:02 +0100)
Lie-Quan Lee (liequan - at - slac.stanford.edu, llee - at - cs.indiana.edu)
Maarten Keijzer (mkeijzer -at- cs.vu.nl) (See Boost list message of Wed, 18 Aug 2004 21:43:18 +0100)
Mac Murrett (mmurrett -at- mac.com)

Marc Wintermantel (wintermantel -at- imes.mavt.ethz.ch, wintermantel -at- even-ag.ch) (See CVS log)
Michael Glassford (glassfordm - at - hotmail.com)
Michael Stevens (Michael.Stevens - at - epost.de)
Multi Media Ltd. (pdimov@mmltd.net)
Nicolai M Josuttis (solutions -at- josuttis.com) (See Boost list message of Mon, 30 Aug 2004 10:52:00 +0100)
Nikolay Mladenov (nickm -at- sitius.com) (See Boost list message of Tue, 17 Aug 2004
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Paul Mensonides (pmenso57 -at- comcast.net) (See Boost list message of July 21, 2004 1:12:21 AM EST)
Pavol Droba (droba -at- topmail.sk)
Peter Dimov (pdimov@mmltd.net)
R W Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Ralf W. Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Rational Discovery LLC (Greg Landrum Landrum -at- RationalDiscovery.com) (See Boost list post of Tue, 17 Aug 2004 10:35:36 +0100)
Rene Rivera (grafik/redshift-software.com, rrivera/acm.org)
Robert Ramey (ramey@www.rrsd.com)
Roland Richter (roland -at- flll.jku.at) (See Boost list post of Mon, 16 Aug 2004 22:16:55 +0200)
Roland Schwarz (roland.schwarz -at- chello.at)
Ronald Garcia (garcia -at- cs.indiana.edu) (Email to Andreas Huber, see change log)
Samuel Krempp (krempp -at- crans.ens-cachan.fr) (See Boost list message of Mon, 27 Sep 2004 13:18:36 +0200)
Stefan Seefeld (seefeld -at- sympatico.ca)
Stephen Cleary (scleary -at- jerviswebb.com) (See Boost list message of Tue, 28 Sep 2004 13:11:46 +0100)
Steve
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Thomas Witt (witt - at - ive.uni-hannover.de, witt - at - acm.org, witt - at - styleadvisor.com)
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This is an attempt to acknowledge early contributions to the garbage
collector. Later contributions should instead be mentioned in
README.changes.

HISTORY -

Early versions of this collector were developed as a part of research
projects supported in part by the National Science Foundation
and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for
the Russell programming language implementation. The first version of the
garbage collector was written primarily by Al Demers. It was then refined
and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U.,
the University of Washington, Rice University (where it was first used for
C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant
contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in
README.changes. My apologies for any omissions.

The SPARC specific code was
originally contributed by Mark Weiser.
The Encore Multimax modifications were supplied by
Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely
due to Vernon Lee, on machines made available to Rice by IBM.
Much of the HP specific code and a number of good suggestions for improving the
generic code are due to Walter Underwood.
Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code.
Al Dosser (dosser@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk)
subsequently provided updates and information on variation between ULTRIX
systems. Parag Patel (parag@netcom.com) supplied the A/UX code.

Jesper Peterson(jep@mtiame.mtia.oz.au), Michel Schinz, and
Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.
Thomas Funke (thf@zelator.in-berlin.de(?)) and
Brian D.Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.
Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.
Bill Janssen (janssen@parc.xerox.com) supplied
the SunOS dynamic loader
specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and
Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and
Dave Detlefs(detlefs@src.dec.com) also provided several generic bug fixes.
Alistair G. Crooks(agc@uts.amdahl.com) supplied the NetBSD and 386BSD ports.
Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port.
Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to
a Motorola 88K processor running CX/UX (Harris NightHawk).
Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to
nonIBM development environments (a nontrivial task).
Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port.
David Chase, then at Olivetti Research, suggested several improvements.
Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the
code to save and print call stacks for leak detection on a SPARC.
Jesse Hull and John Ellis supplied the C++ interface code.
Zhong Shao performed much of the
experimentation that led to the
current typed allocation facility. (His dynamic type inference code hasn't
made it into the released version of the collector, yet.)

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1.16 open-ldap 2.4.46

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1.17 libtool 2.4.6

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If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts,
replace the ``with@dots{}Texts."@: line with this:

@smallexample
@group
  with the Invariant Sections being @var{list their titles}, with
  the Front-Cover Texts being @var{list}, and with the Back-Cover Texts
  being @var{list}.
@end group
@end smallexample

If you have Invariant
 Sections without Cover Texts, or some other
combination of the three, merge those two alternatives to suit the
situation.

If your document contains nontrivial examples of program code, we
recommend releasing these examples in parallel under your choice of
free software license, such as the GNU General Public License,
to permit their use in free software.

@c Local Variables:
@c ispell-local-pdict: "ispell-dict"
@c End:

1.18 curl 7.61.0

1.19 libwww 5.4.2

1.19.1 Available under license :

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and the ordinary General Public License
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1.20 free-type 2.9.1

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2006-Jan-27

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# Don't put empty lines into this file!
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#
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#
docs/FTL.TXT
docs/GPLv2.TXT
#
include/freetype/internal/fthash.h
#
src/base/fthash.c
src/base/md5.c
src/base/md5.h
#
src/bdf/bdf.c
src/bdf/bdf.h
src/bdf/bdfdrivr.c
src/bdf/bdfdrivr.h
src/bdf/bdferror.h
src/bdf/bdflib.c
src/bdf/module.mk
src/bdf/README
src/bdf/rules.mk
#
src/pcf/module.mk
src/pcf/pcf.c
src/pcf/pcf.h
src/pcf/pcfdrivr.c
src/pcf/pcfdrivr.h
src/pcf/pcferror.h
src/pcf/pcfread.c
src/pcf/pcfread.h
src/pcf/pcfutil.c
src/pcf/pcfutil.h
src/pcf/README
src/pcf/rules.mk
#
src/gzip/adler32.c
src/gzip/infblock.c
src/gzip/infblock.h
src/gzip/infcodes.c
src/gzip/infcodes.h
src/gzip/inffixed.h
```

src/gzip/inflate.c
src/gzip/inftrees.c
src/gzip/inftrees.h
src/gzip/infutil.c
src/gzip/infutil.h
src/gzip/zconf.h
src/gzip/zlib.h
src/gzip/zutil.c
src/gzip/zutil.h
#
src/tools/apinames.c
src/tools/ftrandom/ftrandom.c
#
#
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1.21 diffutils 3.7

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1.22 libxml2 2.9.9

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1.23 berkeley-db 6.0.30

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*
* $Id$
*/

#include "db_config.h"

#include
 "db_int.h"
#include "dbinc/blob.h"
#include "dbinc/crypto.h"
#include "dbinc/db_page.h"
#include "dbinc/db_swap.h"
#include "dbinc/btree.h"
#include "dbinc/lock.h"
#include "dbinc/mp.h"
#include "dbinc/partition.h"
#include "dbinc/fop.h"

static void __bam_init_meta __P((DB *, BTMETA *, db_pgno_t, DB_LSN *));

/*
* __bam_open --
* Open a btree.
*
* PUBLIC: int __bam_open __P((DB *, DB_THREAD_INFO *,
* PUBLIC:      DB_TXN *, const char *, db_pgno_t, u_int32_t));
*/
int
__bam_open(dbp, ip, txn, name, base_pgno, flags)
```

```
 DB *dbp;
 DB_THREAD_INFO *ip;
 DB_TXN *txn;
 const char *name;
 db_pgno_t base_pgno;
 u_int32_t flags;
{
 BTREE *t;

 COMPQUIET(name, NULL);
 t = dbp->bt_internal;

 /*
  * We don't permit the user to specify a prefix routine if they didn't
  * also specify a comparison routine, they can't know enough about our
  * comparison routine to get it right.
  */
 if (t->bt_compare == __bam_defcmp && t->bt_prefix != __bam_defpfx)
 {
  __db_errx(dbp->env, DB_STR("1006",
"prefix comparison may not be specified for default comparison routine"));
  return (EINVAL);
 }

 /*
  * Verify that the bt_minkey value specified won't cause the
  * calculation of ovflsize to underflow [#2406] for this pagesize.
  */
 if (B_MINKEY_TO_OVFLSIZE(dbp, t->bt_minkey, dbp->pgsize) >
     B_MINKEY_TO_OVFLSIZE(dbp, DEFMINKEYPAGE, dbp->pgsize)) {
  __db_errx(dbp->env, DB_STR_A("1007",
      "bt_minkey value of %lu too high for page size of %lu",
      "%lu %lu"), (u_long)t->bt_minkey, (u_long)dbp->pgsize);
  return (EINVAL);
 }

 /* Start up the tree. */
 return (__bam_read_root(dbp, ip, txn, base_pgno, flags));
}

/*
* __bam_metachk --
*
* PUBLIC: int __bam_metachk __P((DB *, const char *, BTMETA *));
*/
int
__bam_metachk(dbp, name, btm)
 DB *dbp;
```

```
const char *name;
BTMETA *btm;
{
ENV *env;
u_int32_t vers;
int ret;

env = dbp->env;
ret = 0;

/*
 * At this point, all we know
is that the magic number is for a Btree.
 * Check the version, the database may be out of date.
 */
vers = btm->dbmeta.version;
if (F_ISSET(dbp, DB_AM_SWAP))
 M_32_SWAP(vers);
switch (vers) {
case 6:
case 7:
 __db_errx(env, DB_STR_A("1008",
    "%s: btree version %lu requires a version upgrade",
    "%s %lu"), name, (u_long)vers);
 return (DB_OLD_VERSION);
case 8:
case 9:
case 10:
 break;
default:
 __db_errx(env, DB_STR_A("1009",
    "%s: unsupported btree version: %lu", "%s %lu"),
    name, (u_long)vers);
 return (EINVAL);
}

/* Swap the page if we need to. */
if (F_ISSET(dbp, DB_AM_SWAP) &&
   (ret = __bam_mswap(env, (PAGE *)btm)) != 0)
 return (ret);

/*
 * Check application info against metadata info, and set info, flags,
 * and type based on metadata info.
 */
if ((ret =
   __db_fchk(env, "DB->open", btm->dbmeta.flags, BTM_MASK)) != 0)
 return (ret);
```

```
if (F_ISSET(&btm->dbmeta, BTM_RECNO)) {
 if (dbp->type
== DB_BTREE)
  goto wrong_type;
 dbp->type = DB_RECNO;
 DB_ILLEGAL_METHOD(dbp, DB_OK_RECNO);
} else {
 if (dbp->type == DB_RECNO)
  goto wrong_type;
 dbp->type = DB_BTREE;
 DB_ILLEGAL_METHOD(dbp, DB_OK_BTREE);
}

if (F_ISSET(&btm->dbmeta, BTM_DUP))
 F_SET(dbp, DB_AM_DUP);
else
 if (F_ISSET(dbp, DB_AM_DUP)) {
  __db_errx(env, DB_STR_A("1010",
 "%s: DB_DUP specified to open method but not set in database",
      "%s"), name);
  return (EINVAL);
 }

if (F_ISSET(&btm->dbmeta, BTM_RECNUM)) {
 if (dbp->type != DB_BTREE)
  goto wrong_type;
 F_SET(dbp, DB_AM_RECNUM);

 if ((ret = __db_fcchk(env,
     "DB->open", dbp->flags, DB_AM_DUP, DB_AM_RECNUM)) != 0)
  return (ret);
} else
 if (F_ISSET(dbp, DB_AM_RECNUM)) {
  __db_errx(env, DB_STR_A("1011",
    "%s: DB_RECNUM specified to open method but not set in database",
      "%s"), name);
  return (EINVAL);
 }

if (F_ISSET(&btm->dbmeta, BTM_FIXEDLEN)) {
 if (dbp->type != DB_RECNO)
  goto
wrong_type;
 F_SET(dbp, DB_AM_FIXEDLEN);
} else
 if (F_ISSET(dbp, DB_AM_FIXEDLEN)) {
  __db_errx(env, DB_STR_A("1012",
```

```
 "%s: DB_FIXEDLEN specified to open method but not set in database",
  "%s"), name);
  return (EINVAL);
 }

 if (F_ISSET(&btm->dbmeta, BTM_RENUMBER)) {
  if (dbp->type != DB_RECNO)
   goto wrong_type;
  F_SET(dbp, DB_AM_RENUMBER);
 } else
  if (F_ISSET(dbp, DB_AM_RENUMBER)) {
   __db_errx(env, DB_STR_A("1013",
     "%s: DB_RENUMBER specified to open method but not set in database",
      "%s"), name);
  return (EINVAL);
 }

 if (F_ISSET(&btm->dbmeta, BTM_SUBDB))
  F_SET(dbp, DB_AM_SUBDB);
 else
  if (F_ISSET(dbp, DB_AM_SUBDB)) {
   __db_errx(env, DB_STR_A("1014",
     "%s: multiple databases specified but not supported by file",
      "%s"), name);
  return (EINVAL);
  }

 if (F_ISSET(&btm->dbmeta, BTM_DUPSORT)) {
  if (dbp->dup_compare == NULL)
   dbp->dup_compare = __bam_defcmp;
  F_SET(dbp, DB_AM_DUPSORT);
 }
 else
  if (dbp->dup_compare != NULL) {
   __db_errx(env, DB_STR_A("1015",
  "%s: duplicate sort specified but not supported in database",
      "%s"), name);
  return (EINVAL);
  }

#ifdef HAVE_COMPRESSION
 if (F_ISSET(&btm->dbmeta, BTM_COMPRESS)) {
  F_SET(dbp, DB_AM_COMPRESS);
  if ((BTREE *)dbp->bt_internal != NULL &&
     !DB_IS_COMPRESSED(dbp) &&
     (ret = __bam_set_bt_compress(dbp, NULL, NULL)) != 0)
   return (ret);
 } else {
```

```
 if ((BTREE *)dbp->bt_internal != NULL &&
     DB_IS_COMPRESSED(dbp)) {
  __db_errx(env, DB_STR_A("1016",
"%s: compresssion specified to open method but not set in database",
      "%s"), name);
  return (EINVAL);
 }
}
#else
 if (F_ISSET(&btm->dbmeta, BTM_COMPRESS)) {
  __db_errx(env, DB_STR_A("1017",
     "%s: compression support has not been compiled in", "%s"),
     name);
 return (EINVAL);
 }
#endif

 /* Set the page size. */
 dbp->pgsize = btm->dbmeta.pagesize;

 dbp->blob_threshold = btm->blob_threshold;
 GET_BLOB_FILE_ID(env,
 btm, dbp->blob_file_id, ret);
 if (ret != 0)
  return (ret);
 GET_BLOB_SDB_ID(env, btm, dbp->blob_sdb_id, ret);
 if (ret != 0)
  return (ret);
 /* Blob databases must be upgraded. */
 if (vers == 9 && (dbp->blob_file_id != 0 || dbp->blob_sdb_id != 0)) {
    __db_errx(env, DB_STR_A("1207",
"%s: databases that support blobs must be upgraded.", "%s"),
     name);
 return (EINVAL);
 }
#ifndef HAVE_64BIT_TYPES
 if (dbp->blob_file_id != 0 || dbp->blob_sdb_id != 0) {
  __db_errx(env, DB_STR_A("1199",
     "%s: blobs require 64 integer compiler support.", "%s"),
     name);
 return (EINVAL);
 }
#endif

 /* Copy the file's ID. */
 memcpy(dbp->fileid, btm->dbmeta.uid, DB_FILE_ID_LEN);

 return (0);
```

```
wrong_type:
 if (dbp->type == DB_BTREE)
  __db_errx(env, DB_STR("1018",
      "open method type is Btree, database type is Recno"));
 else
  __db_errx(env, DB_STR("1019",
      "open method type is Recno, database type is Btree"));
 return
 (EINVAL);
}

/*
* __bam_read_root --
* Read the root page and check a tree.
*
* PUBLIC: int __bam_read_root __P((DB *,
* PUBLIC:      DB_THREAD_INFO *, DB_TXN *, db_pgno_t, u_int32_t));
*/
int
__bam_read_root(dbp, ip, txn, base_pgno, flags)
 DB *dbp;
 DB_THREAD_INFO *ip;
 DB_TXN *txn;
 db_pgno_t base_pgno;
 u_int32_t flags;
{
 BTMETA *meta;
 BTREE *t;
 DBC *dbc;
 DB_LOCK metalock;
 DB_MPOOLFILE *mpf;
 int ret, t_ret;

 COMPQUIET(flags, 0);

 meta = NULL;
 t = dbp->bt_internal;
 LOCK_INIT(metalock);
 mpf = dbp->mpf;
 ret = 0;

 /* Get a cursor.  */
 if ((ret = __db_cursor(dbp, ip, txn, &dbc,
     F_ISSET(dbp, DB_AM_RECOVER) ? DB_RECOVER : 0)) != 0)
  return (ret);

 /* Get the metadata page. */
```

```
if ((ret =
    __db_lget(dbc, 0, base_pgno, DB_LOCK_READ, 0, &metalock)) != 0)
 goto err;
if ((ret = __memp_fget(mpf, &base_pgno, ip, dbc->txn, 0, &meta)) != 0)
 goto err;

/*
 * If the magic number is set, the tree has been
created.  Correct
 * any fields that may not be right.  Note, all of the local flags
 * were set by DB->open.
 *
 * Otherwise, we'd better be in recovery or abort, in which case the
 * metadata page will be created/initialized elsewhere.
 *
 * Ignore the last_pgno on the metadata page for snapshot transactions:
 * we may be reading an old version of the page, and we've already
 * set last_pgno from the file size.  The only time this would matter
 * is if we don't have ftruncate and there are some free pages at the
 * end of the file: we could end up with holes.
 */
if (meta->dbmeta.magic == DB_BTREEMAGIC) {
 t->bt_minkey = meta->minkey;
 t->re_pad = (int)meta->re_pad;
 t->re_len = meta->re_len;

 t->bt_meta = base_pgno;
 t->bt_root = meta->root;
 t->revision = dbp->mpf->mfp->revision;
 if (PGNO(meta) == PGNO_BASE_MD &&
     !F_ISSET(dbp, DB_AM_RECOVER) &&
     (txn == NULL || !F_ISSET(txn, TXN_SNAPSHOT)) && (ret =
     __memp_set_last_pgno(mpf,
meta->dbmeta.last_pgno)) != 0)
  goto err;
} else {
 DB_ASSERT(dbp->env,
     IS_RECOVERING(dbp->env) || F_ISSET(dbp, DB_AM_RECOVER));
}

/*
 * !!!
 * If creating a subdatabase, we've already done an insert when
 * we put the subdatabase's entry into the master database, so
 * our last-page-inserted value is wrongly initialized for the
 * master database, not the subdatabase we're creating.  I'm not
 * sure where the *right* place to clear this value is, it's not
 * intuitively obvious that it belongs here.
```

```
 */
 t->bt_lpgno = PGNO_INVALID;

err: /* Put the metadata page back. */
 if (meta != NULL && (t_ret = __memp_fput(mpf,
     ip, meta, dbc->priority)) != 0 && ret == 0)
  ret = t_ret;
 if ((t_ret = __LPUT(dbc, metalock)) != 0 && ret == 0)
  ret = t_ret;

 if ((t_ret = __dbc_close(dbc)) != 0 && ret == 0)
  ret = t_ret;
 return (ret);
}

/*
* __bam_init_meta --
*
* Initialize a btree meta-data page.  The following fields may
 need
* to be updated later: last_pgno, root.
*/
static void
__bam_init_meta(dbp, meta, pgno, lsnp)
 DB *dbp;
 BTMETA *meta;
 db_pgno_t pgno;
 DB_LSN *lsnp;
{
 BTREE *t;
#ifdef HAVE_PARTITION
 DB_PARTITION *part;
#endif
 ENV *env;

 env = dbp->env;
 t = dbp->bt_internal;

 memset(meta, 0, sizeof(BTMETA));
 meta->dbmeta.lsn = *lsnp;
 meta->dbmeta.pgno = pgno;
 meta->dbmeta.magic = DB_BTREEMAGIC;
 meta->dbmeta.version = DB_BTREEVERSION;
 meta->dbmeta.pagesize = dbp->pgsize;
 if (F_ISSET(dbp, DB_AM_CHKSUM))
  FLD_SET(meta->dbmeta.metaflags, DBMETA_CHKSUM);
 if (F_ISSET(dbp, DB_AM_ENCRYPT)) {
  meta->dbmeta.encrypt_alg = env->crypto_handle->alg;
```

```
 DB_ASSERT(env, meta->dbmeta.encrypt_alg != 0);
 meta->crypto_magic = meta->dbmeta.magic;
 }
 meta->dbmeta.type = P_BTREEMETA;
 meta->dbmeta.free = PGNO_INVALID;
 meta->dbmeta.last_pgno = pgno;
 if (F_ISSET(dbp, DB_AM_DUP))
  F_SET(&meta->dbmeta, BTM_DUP);
 if (F_ISSET(dbp, DB_AM_FIXEDLEN))
  F_SET(&meta->dbmeta,
 BTM_FIXEDLEN);
 if (F_ISSET(dbp, DB_AM_RECNUM))
  F_SET(&meta->dbmeta, BTM_RECNUM);
 if (F_ISSET(dbp, DB_AM_RENUMBER))
  F_SET(&meta->dbmeta, BTM_RENUMBER);
 if (F_ISSET(dbp, DB_AM_SUBDB))
  F_SET(&meta->dbmeta, BTM_SUBDB);
 if (dbp->dup_compare != NULL)
  F_SET(&meta->dbmeta, BTM_DUPSORT);
#ifdef HAVE_COMPRESSION
 if (DB_IS_COMPRESSED(dbp))
  F_SET(&meta->dbmeta, BTM_COMPRESS);
#endif
 if (dbp->type == DB_RECNO)
  F_SET(&meta->dbmeta, BTM_RECNO);
 memcpy(meta->dbmeta.uid, dbp->fileid, DB_FILE_ID_LEN);

 meta->minkey = t->bt_minkey;
 meta->re_len = t->re_len;
 meta->re_pad = (u_int32_t)t->re_pad;
 meta->blob_threshold = dbp->blob_threshold;
 SET_BLOB_META_FILE_ID(meta, dbp->blob_file_id, BTMETA);
 SET_BLOB_META_SDB_ID(meta, dbp->blob_sdb_id, BTMETA);

#ifdef HAVE_PARTITION
 if ((part = dbp->p_internal) != NULL) {
  meta->dbmeta.nparts = part->nparts;
  if (F_ISSET(part, PART_CALLBACK))
   FLD_SET(meta->dbmeta.metaflags, DBMETA_PART_CALLBACK);
  if (F_ISSET(part,
 PART_RANGE))
   FLD_SET(meta->dbmeta.metaflags, DBMETA_PART_RANGE);
 }
#endif
}

/*
* __bam_new_file --
```

```
* Create the necessary pages to begin a new database file.
*
* This code appears more complex than it is because of the two cases (named
* and unnamed).  The way to read the code is that for each page being created,
* there are three parts: 1) a "get page" chunk (which either uses malloc'd
* memory or calls __memp_fget), 2) the initialization, and 3) the "put page"
* chunk which either does a fop write or an __memp_fput.
*
* PUBLIC: int __bam_new_file __P((DB *,
* PUBLIC:      DB_THREAD_INFO *, DB_TXN *, DB_FH *, const char *));
*/
int
__bam_new_file(dbp, ip, txn, fhp, name)
 DB *dbp;
 DB_THREAD_INFO *ip;
 DB_TXN *txn;
 DB_FH *fhp;
 const char *name;
{
 BTMETA *meta;
 DBT pdbt;
 DB_LSN lsn;
 DB_MPOOLFILE *mpf;
 DB_PGINFO pginfo;
 ENV *env;
 PAGE *root;
 db_pgno_t pgno;
 int ret, t_ret;
 void *buf;

 env = dbp->env;
 mpf =
 dbp->mpf;
 root = NULL;
 meta = NULL;
 buf = NULL;

 if (F_ISSET(dbp, DB_AM_INMEM)) {
  /* Build the meta-data page. */
  pgno = PGNO_BASE_MD;
  if ((ret = __memp_fget(mpf, &pgno,
      ip, txn, DB_MPOOL_CREATE | DB_MPOOL_DIRTY, &meta)) != 0)
   return (ret);
  LSN_NOT_LOGGED(lsn);
  __bam_init_meta(dbp, meta, PGNO_BASE_MD, &lsn);
  meta->root = 1;
  meta->dbmeta.last_pgno = 1;
  if ((ret =
```

```
    __db_log_page(dbp, txn, &lsn, pgno, (PAGE *)meta)) != 0)
  goto err;
 ret = __memp_fput(mpf, ip, meta, dbp->priority);
 meta = NULL;
 if (ret != 0)
  goto err;

 /* Build the root page. */
 pgno = 1;
 if ((ret = __memp_fget(mpf, &pgno,
    ip, txn, DB_MPOOL_CREATE | DB_MPOOL_DIRTY, &root)) != 0)
  goto err;
 P_INIT(root, dbp->pgsize, 1, PGNO_INVALID, PGNO_INVALID,
    LEAFLEVEL, dbp->type == DB_RECNO ? P_LRECNO : P_LBTREE);
 LSN_NOT_LOGGED(root->lsn);
 if ((ret =
    __db_log_page(dbp, txn, &root->lsn, pgno, root)) != 0)
  goto err;
 ret =
__memp_fput(mpf, ip, root, dbp->priority);
 root = NULL;
 if (ret != 0)
  goto err;
} else {
 memset(&pdbt, 0, sizeof(pdbt));

 /* Build the meta-data page. */
 pginfo.db_pagesize = dbp->pgsize;
 pginfo.flags =
    F_ISSET(dbp, (DB_AM_CHKSUM | DB_AM_ENCRYPT | DB_AM_SWAP));
 pginfo.type = dbp->type;
 pdbt.data = &pginfo;
 pdbt.size = sizeof(pginfo);
 if (dbp->blob_threshold) {
  if ((ret = __blob_generate_dir_ids(dbp, txn,
     &dbp->blob_file_id)) != 0)
   return (ret);

 }
 if ((ret = __os_calloc(env, 1, dbp->pgsize, &buf)) != 0)
  return (ret);
 meta = (BTMETA *)buf;
 LSN_NOT_LOGGED(lsn);
 __bam_init_meta(dbp, meta, PGNO_BASE_MD, &lsn);
 meta->root = 1;
 meta->dbmeta.last_pgno = 1;
 if ((ret = __db_pgout(
    dbp->dbenv, PGNO_BASE_MD, meta, &pdbt)) != 0)
```

```
  goto err;
 if ((ret = __fop_write(env, txn, name, dbp->dirname,
     DB_APP_DATA, fhp,
     dbp->pgsize, 0, 0, buf, dbp->pgsize, 1, F_ISSET(
     dbp, DB_AM_NOT_DURABLE)
 ? DB_LOG_NOT_DURABLE : 0)) != 0)
  goto err;
 meta = NULL;

 /* Build the root page. */
#ifdef DIAGNOSTIC
 memset(buf, CLEAR_BYTE, dbp->pgsize);
#endif
 root = (PAGE *)buf;
 P_INIT(root, dbp->pgsize, 1, PGNO_INVALID, PGNO_INVALID,
     LEAFLEVEL, dbp->type == DB_RECNO ? P_LRECNO : P_LBTREE);
 LSN_NOT_LOGGED(root->lsn);
 if ((ret =
     __db_pgout(dbp->dbenv, root->pgno, root, &pdbt)) != 0)
  goto err;
 if ((ret =
     __fop_write(env, txn, name, dbp->dirname, DB_APP_DATA,
     fhp, dbp->pgsize, 1, 0, buf, dbp->pgsize, 1, F_ISSET(
     dbp, DB_AM_NOT_DURABLE) ? DB_LOG_NOT_DURABLE : 0)) != 0)
  goto err;
 root = NULL;
 }

err: if (buf != NULL)
 __os_free(env, buf);
 else {
 if (meta != NULL &&
     (t_ret = __memp_fput(mpf, ip,
     meta, dbp->priority)) != 0 && ret == 0)
  ret = t_ret;
 if (root != NULL &&
     (t_ret = __memp_fput(mpf, ip,
     root, dbp->priority)) != 0 && ret == 0)
  ret = t_ret;
 }
 return (ret);
}

/*
 * __bam_new_subdb --
* Create a metadata page and a root page for a new btree.
*
* PUBLIC: int __bam_new_subdb __P((DB *, DB *, DB_THREAD_INFO *, DB_TXN *));
```

```
*/
int
__bam_new_subdb(mdbp, dbp, ip, txn)
 DB *mdbp, *dbp;
 DB_THREAD_INFO *ip;
 DB_TXN *txn;
{
 BTMETA *meta;
 DBC *dbc;
 DB_LOCK metalock;
 DB_LSN lsn;
 DB_MPOOLFILE *mpf;
 ENV *env;
 PAGE *root;
 int ret, t_ret;

 env = mdbp->env;
 mpf = mdbp->mpf;
 dbc = NULL;
 meta = NULL;
 root = NULL;

 if (dbp->blob_threshold) {
  if ((ret = __blob_generate_dir_ids(dbp, txn,
      &dbp->blob_sdb_id)) != 0)
   return (ret);
 }

 if ((ret = __db_cursor(mdbp, ip, txn,
     &dbc, CDB_LOCKING(env) ?  DB_WRITECURSOR : 0)) != 0)
  return (ret);

 /* Get, and optionally create the metadata page. */
 if ((ret = __db_lget(dbc,
     0, dbp->meta_pgno, DB_LOCK_WRITE, 0, &metalock)) != 0)
  goto err;
 if ((ret = __memp_fget(mpf, &dbp->meta_pgno,
     ip, txn, DB_MPOOL_CREATE | DB_MPOOL_DIRTY, &meta))
 != 0)
  goto err;

 /* Build meta-data page. */
 lsn = meta->dbmeta.lsn;
 __bam_init_meta(dbp, meta, dbp->meta_pgno, &lsn);
 if ((ret = __db_log_page(mdbp,
     txn, &meta->dbmeta.lsn, dbp->meta_pgno, (PAGE *)meta)) != 0)
  goto err;
```

```
 /* Create and initialize a root page. */
 if ((ret = __db_new(dbc,
     dbp->type == DB_RECNO ? P_LRECNO : P_LBTREE, NULL, &root)) != 0)
  goto err;
 root->level = LEAFLEVEL;

 if (DBENV_LOGGING(env) &&
#if !defined(DEBUG_WOP)
     txn != NULL &&
#endif

     (ret = __bam_root_log(mdbp, txn, &meta->dbmeta.lsn, 0,
     meta->dbmeta.pgno, root->pgno, &meta->dbmeta.lsn)) != 0)
  goto err;

 meta->root = root->pgno;
 if ((ret =
     __db_log_page(mdbp, txn, &root->lsn, root->pgno, root)) != 0)
  goto err;

 /* Release the metadata and root pages. */
 if ((ret = __memp_fput(mpf, ip, meta, dbc->priority)) != 0)
  goto err;
 meta = NULL;
 if ((ret = __memp_fput(mpf, ip, root, dbc->priority)) != 0)
  goto err;
 root = NULL;
err:
 if
 (meta != NULL)
  if ((t_ret = __memp_fput(mpf, ip,
  meta, dbc->priority)) != 0 && ret == 0)
   ret = t_ret;
 if (root != NULL)
  if ((t_ret = __memp_fput(mpf, ip,
  root, dbc->priority)) != 0 && ret == 0)
   ret = t_ret;
 if ((t_ret = __LPUT(dbc, metalock)) != 0 && ret == 0)
  ret = t_ret;
 if (dbc != NULL)
  if ((t_ret = __dbc_close(dbc)) != 0 && ret == 0)
   ret = t_ret;
 return (ret);
}
```

1.24 bind 9.11.4

1.24.1 Available under license :

Redistribution terms Automated Testing Framework

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* configure.ac, Makefile.am: The original versions were derived from the ones in the XML Catalog Manager project, version 2.2.

Author: Julio Merino <jmmv@users.sourceforge.net>

* atf-c/ui.c: The format_paragraph and format_text functions were derived form the ones in the Monotone project, revision 3a0982da308228d796df35f98d787c5cff2bb5b6.

Author: Julio Merino <jmmv@NetBSD.org>

* atf-c++/detail/io.hpp, atf-c++/detail/io.cpp, atf-c++/detail/io_test.cpp: These files were derived from the file_handle, systembuf, pipe and pistream classes and tests found in the Boost.Process library.

Author: Julio Merino <jmmv84@gmail.com>

* admin/check-style.sh,
admin/check-style-common.awk,
admin/check-style-cpp.awk, admin/check-style-shell.awk: These files,
except the first one, were first implemented in the Buildtool project.
They were later adapted to be part of Boost.Process and, during that
process, the shell script was created.

Author: Julio Merino <jmmv84@gmail.com>

==========

vim: filetype=text:textwidth=75:expandtab:shiftwidth=2:softtabstop=2

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  <xsl:param name="text"/>
  <xsl:value-of select="$isc.copyright.leader"/>
  <xsl:value-of select="normalize-space(substring-before($text, '&#10;'))"/>
  <xsl:text>&#10;</xsl:text>
  <xsl:variable name="rest" select="substring-after($text, '&#10;')"/>
  <xsl:if test="translate($rest, '&#9;&#32;', '')">

    <xsl:call-template name="isc.copyright.format">
      <xsl:with-param name="text" select="$rest"/>
    </xsl:call-template>
  </xsl:if>
 </xsl:template>

 <xsl:variable name="isc.copyright.text">
  <xsl:text>
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  </xsl:text>
 </xsl:variable>

 <xsl:variable name="isc.copyright">
  <xsl:call-template name="isc.copyright.format">
    <xsl:with-param name="text">
      <xsl:for-each select="book/info/copyright | refentry/docinfo/copyright">
```

```
  <xsl:text>Copyright (C) </xsl:text>
  <xsl:call-template name="copyright.years">
    <xsl:with-param name="years" select="year"/>
  </xsl:call-template>
  <xsl:text> </xsl:text>
  <xsl:value-of select="holder"/>
       <xsl:value-of select="$isc.copyright.breakline"/>
  <xsl:text>&#10;</xsl:text>
 </xsl:for-each>
 <xsl:value-of
 select="$isc.copyright.text"/>
    </xsl:with-param>
  </xsl:call-template>
 </xsl:variable>
</xsl:stylesheet>

<!--
 - Local variables:
 - mode: sgml
 - End:
-->
```

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1.25 apache-http-server 2.4.39

1.26 kerberos 1.17

1.27 bzip2 1.0.8

1.28 dmidecode 3.5

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1.30 json-c 0.13.1

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1.31 zeromq 4.2.3

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1.32 cyrus-sasl 2.1.20

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1.33 net-tools 2.10

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1.35 attr 2.4.47

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long as you offer spare parts or customer support for that product
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c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

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@c ispell-local-pdict: "ispell-dict"

@c End:

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Version 3, 29 June 2007

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1.46 protobuf 3.6.1

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This file contains a list of people who have made large contributions
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Original Protocol Buffers design and implementation:
Sanjay Ghemawat <sanjay@google.com>
Jeff Dean <jeff@google.com>
Daniel Dulitz <daniel@google.com>
Craig Silverstein
Paul Haahr <haahr@google.com>
Corey Anderson <corin@google.com>
(and many others)

Proto2 C++ and Java primary author:
Kenton Varda <kenton@google.com>

Proto2 Python primary authors:
Will Robinson <robinson@google.com>
Petar Petrov <petar@google.com>

Java Nano primary authors:
Brian Duff <bduff@google.com>

Tom Chao <chaot@google.com>
Max Cai <maxtroy@google.com>
Ulas Kirazci <ulas@google.com>

Large code contributions:
Jason Hsueh <jasonh@google.com>
Joseph Schorr <jschorr@google.com>
Wenbo Zhu <wenboz@google.com>

Large quantity of code reviews:
Scott Bruce <sbruce@google.com>
Frank Yellin
Neal Norwitz <nnorwitz@google.com>
Jeffrey Yasskin <jyasskin@google.com>
Ambrose
Feinstein <ambrose@google.com>

Documentation:
Lisa Carey <lcarey@google.com>

Maven packaging:
Gregory Kick <gak@google.com>

Patch contributors:
Kevin Ko <kevin.s.ko@gmail.com>
  * Small patch to handle trailing slashes in --proto_path flag.
Johan Euphrosine <proppy@aminche.com>
  * Small patch to fix Python CallMethod().
Ulrich Kunitz <kune@deine-taler.de>
  * Small optimizations to Python serialization.
Leandro Lucarella <llucax@gmail.com>
  * VI syntax highlighting tweaks.
  * Fix compiler to not make output executable.
Dilip Joseph <dilip.antony.joseph@gmail.com>
  * Heuristic detection of sub-messages when printing unknown fields in
    text format.
Brian Atkinson <nairb774@gmail.com>
  * Added @Override annotation to generated Java code where appropriate.
Vincent Choinire <Choiniere.Vincent@hydro.qc.ca>
  * Tru64 support.
Monty Taylor <monty.taylor@gmail.com>
  * Solaris 10 + Sun Studio fixes.
Alek Storm <alek.storm@gmail.com>

  * Slicing support for repeated scalar fields for the Python API.
Oleg Smolsky <oleg.smolsky@gmail.com>
  * MS Visual Studio error format option.
  * Detect unordered_map in stl_hash.m4.

Brian Olson <brianolson@google.com>
  * gzip/zlib I/O support.
Michael Poole <mdpoole@troilus.org>
  * Fixed warnings about generated constructors not explicitly initializing
    all fields (only present with certain compiler settings).
  * Added generation of field number constants.
Wink Saville <wink@google.com>
  * Fixed initialization ordering problem in logging code.
Will Pierce <willp@nuclei.com>
  * Small patch improving performance of in Python serialization.
Alexandre Vassalotti <alexandre@peadrop.com>
  * Emacs mode for Protocol Buffers (editors/protobuf-mode.el).
Scott Stafford <scott.stafford@gmail.com>
  * Added Swap(), SwapElements(), and RemoveLast() to Reflection interface.
Alexander Melnikov <alm@sibmail.ru>
  * HPUX support.
Oliver Jowett <oliver.jowett@gmail.com>
   * Detect whether zlib is new enough in configure script.
  * Fixes for Solaris 10 32/64-bit confusion.
Evan Jones <evanj@mit.edu>
  * Optimize Java serialization code when writing a small message to a stream.
  * Optimize Java serialization of strings so that UTF-8 encoding happens only
    once per string per serialization call.
  * Clean up some Java warnings.
  * Fix bug with permanent callbacks that delete themselves when run.
Michael Kucharski <m.kucharski@gmail.com>
  * Added CodedInputStream.getTotalBytesRead().
Kacper Kowalik <xarthisius.kk@gmail.com>
  * Fixed m4/acx_pthread.m4 problem for some Linux distributions.
William Orr <will@worrbase.com>
  * Fixed detection of sched_yield on Solaris.
  * Added atomicops for Solaris
Andrew Paprocki <andrew@ishiboo.com>
  * Fixed minor IBM xlC compiler build issues
  * Added atomicops for AIX (POWER)

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1.47 netcf 0.2.8

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Aleksey Gurtovoy (agurtovoy@meta-comm.com)
Andrei Alexandrescu (andrewalex - at - hotmail.com) (See Boost list message of August 12, 2004 11:06:58 AM EST)
Andrew Lumsdaine ()
Anthony Williams (anthony -at- justsoftwaresolutions.co.uk)
Beman Dawes (bdawes@acm.org)
Brad King (brad.king -at- kitware.com) (See Boost list message of Wed, 21 Jul 2004 11:15:46 -0400)
Brian Osman (osman -at- vvisions.com) (See CVS log)
Bruce Barr (schmoost -at- yahoo.com) (See Boost list of Mon, 16 Aug 2004 15:06:43 -0500)
Bruno da Silva de Oliveira (bruno - at - esss.com.br)
Christain Engstrom (christian.engstrom -at- glindra.org) (See Boost list message of Mon, 30 Aug 2004 14:31:49 +0200)
Cromwell D Enage (sponage -at- yahoo.com) (See Boost list message of August 12, 2004 11:49:13 AM EST)
Dan Gohman (djg
-at- cray.com) (See Boost list messsage of Sat, 21 Aug 2004 10:54:59 +0100)
Dan Nuffer (dan -at- nuffer.name)
Daniel Frey (d.frey -at- gmx.de, daniel.frey -at- aixigo.de)
Daniel Nuffer (dan -at- nuffer.name)
Darin Adler (darin -at- bentspoon.com) (Email to Andreas Huber, see change log)
Daryle Walker (darylew - at - hotmail.com)
Dave Abrahams (dave@boost-consulting.com)
Dave Moore (dmoore -at- viefinancial.com) (See Boost list message of 18 Dec 2003 15:35:50 -0500)
David Abrahams (dave@boost-consulting.com)
Dietmar Kuehl (dietmar_kuehl -at- yahoo.com) (Email to Andreas Huber, see change log)
Douglas Gregor (gregod -at- cs.rpi.edu, dgregor -at- cs.indiana.edu, doug.gregor -at- gmail.com)
Dr John Maddock (john - at - johnmaddock.co.uk)
Edward D. Brey (brey -at- ductape.net) (Email to Andreas Huber, see change log)
Eric Ford (un5o6n902 -at- sneakemail.com) (See Boost list message of Sun, 15 Aug 2004 10:29:13 +0100)
Eric Friedman (ebf@users.sourceforge.net)
Eric Niebler (eric@boost-consulting.com)
Fernando
Cacciola (fernando_cacciola@ciudad.com.ar)
Fernando Luis Cacciola Carballal (fernando_cacciola@ciudad.com.ar)
Francois Faure (Francois.Faure -at- imag.fr) (See CVS log)
Gary Powell (powellg - at - amazon.com) (See Boost list message of 10 Feb 2004 14:22:46 -0800)

Gennadiy Rozental (rogeeff -at- mail.com) (Email to Andreas Huber, see change log)
Gottfried Ganssauge (Gottfried.Ganssauge -at- HAUFE.DE) (See Boost List message of Mon, 16 Aug 2004 10:09:19 +0200)
Gottfried Ganauge (Gottfried.Ganssauge -at- HAUFE.DE) (Alternative spelling of Gottfried Ganssauge)
Greg Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gregory Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gunter Winkler (gunter.winkler -at- unibw-muenchen.de) (See Boost List message of Mon, 16 Aug 2004 10:24:17 +0200)
Hartmut Kaiser (hartmut.kaiser -at- gmail.com)
Herve Bronnimann (hbr -at- poly.edu)
Herv
Brnnimann (hbr -at- poly.edu)
Housemarque Oy (Ilari Kuittinen ilari.kuittinen -at- housemarque.fi)
Howard Hinnant (hinnant -at- twcny.rr.com) (See Boost list message of July 25, 2004 3:44:49 PM EST)
Hubert Holin (hubert_holin -at- users.sourceforge.net)
Indiana University ()
Itay Maman (imaman -at- users.sourceforge.net)
Jaakko Jrvi (jajarvi -at- osl.iu.edu)
Jaap Suter (j.suter -at- student.utwente.nl) (See Boost list message of Thu, 16 Sep 2004 09:32:43 -0700)
Jeff Garland (jeff - at - crystalclearsoftware.com) (see Boost list post of July 25, 2004 19:31:09 -0700)
Jens Maurer (Jens.Maurer@gmx.net)
Jeremy G Siek (jsiek@osl.iu.edu)
Jeremy Siek (jsiek@osl.iu.edu)
Joel de Guzman (joel -at- boost-consulting.com) (See Boost list message of July 25, 2004 8:32:00 PM EST)
John Bandela (jbandela-at-ufl.edu)
John Maddock (john - at - johnmaddock.co.uk)
John R Bandela (jbandela-at-ufl.edu)
Jonathan Turkanis (turkanis -at- coderage dot com)
Juergen Hunold (hunold -at- ive.uni-hannover.de) (See Boost
List Message of Fri, 13 Aug 2004 19:39:55 +0200)
Kevlin Henney (kevlin -at- curbralan.com) (See Boost list message of Wed, 15 Sep 2004 18:15:17 +0200)
Kresimir Fresl (fresl -at- master.grad.hr) (See Boost List message of August 16, 2004 8:23:35 AM EST)
Lars Gullik Bjnnes (larsbj -at- lyx.org) (See Boost list message of Tue, 17 Aug 2004 15:49:02 +0100)
Lie-Quan Lee (liequan - at - slac.stanford.edu, llee - at - cs.indiana.edu)
Maarten Keijzer (mkeijzer -at- cs.vu.nl) (See Boost list message of Wed, 18 Aug 2004 21:43:18 +0100)
Mac Murrett (mmurrett -at- mac.com)
Marc Wintermantel (wintermantel -at- imes.mavt.ethz.ch, wintermantel -at- even-ag.ch) (See CVS log)
Michael Glassford (glassfordm - at - hotmail.com)
Michael Stevens (Michael.Stevens - at - epost.de)
Multi Media Ltd. (pdimov@mmltd.net)
Nicolai M Josuttis (solutions -at- josuttis.com) (See Boost list message of Mon, 30 Aug 2004 10:52:00 +0100)
Nikolay Mladenov (nickm -at- sitius.com) (See Boost list message of Tue, 17 Aug 2004
15:45:33 +0100)
Paul Mensonides (pmenso57 -at- comcast.net) (See Boost list message of July 21, 2004 1:12:21 AM EST)
Pavol Droba (droba -at- topmail.sk)
Peter Dimov (pdimov@mmltd.net)
R W Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Ralf W. Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)

Rational Discovery LLC (Greg Landrum Landrum -at- RationalDiscovery.com) (See Boost list post of Tue, 17 Aug 2004 10:35:36 +0100)
Rene Rivera (grafik/redshift-software.com, rrivera/acm.org)
Robert Ramey (ramey@www.rrsd.com)
Roland Richter (roland -at- flll.jku.at) (See Boost list post of Mon, 16 Aug 2004 22:16:55 +0200)
Roland Schwarz (roland.schwarz -at- chello.at)
Ronald Garcia (garcia -at- cs.indiana.edu) (Email to Andreas Huber, see change log)
Samuel Krempp (krempp -at- crans.ens-cachan.fr) (See Boost list message of Mon, 27 Sep 2004 13:18:36 +0200)
Stefan Seefeld (seefeld -at- sympatico.ca)
Stephen Cleary (scleary -at- jerviswebb.com) (See Boost list message of Tue, 28 Sep 2004 13:11:46 +0100)
Steve
Cleary (Variant of Stephen Cleary)
Sylvain Pion (Sylvain.Pion - at - sophia.inria.fr)
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Thomas Witt (witt - at - ive.uni-hannover.de, witt - at - acm.org, witt - at - styleadvisor.com)
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This is an attempt to acknowledge early contributions to the garbage collector. Later contributions should instead be mentioned in README.changes.

HISTORY -

Early versions of this collector were developed as a part of research projects supported in part by the National Science Foundation and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for the Russell programming language implementation. The first version of the garbage collector was written primarily by Al Demers. It was then refined and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U., the University of Washington, Rice University (where it was first used for C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in README.changes. My apologies for any omissions.

The SPARC specific code was
originally contributed by Mark Weiser.
The Encore Multimax modifications were supplied by
Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely due to Vernon Lee, on machines made available to Rice by IBM.
Much of the HP specific code and a number of good suggestions for improving the generic code are due to Walter Underwood.
Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code.
Al Dosser (dosser@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk) subsequently provided updates and information on variation between ULTRIX systems. Parag Patel (parag@netcom.com) supplied the A/UX code.
Jesper Peterson(jep@mtiame.mtia.oz.au), Michel Schinz, and
Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.
Thomas Funke (thf@zelator.in-berlin.de(?)) and
Brian D.Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.
Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.
Bill Janssen (janssen@parc.xerox.com) supplied
the SunOS dynamic loader
specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and Dave Detlefs(detlefs@src.dec.com) also provided several generic bug fixes.
Alistair G. Crooks(agc@uts.amdahl.com) supplied the NetBSD and 386BSD ports.
Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port.

Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to
a Motorola 88K processor running CX/UX (Harris NightHawk).
Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to
nonIBM development environments (a nontrivial task).
Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port.
David Chase, then at Olivetti Research, suggested several improvements.
Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the
code to save and print call stacks for leak detection on a SPARC.
Jesse Hull and John Ellis supplied the C++ interface code.
Zhong Shao performed much of the
experimentation that led to the
current typed allocation facility. (His dynamic type inference code hasn't
made it into the released version of the collector, yet.)
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////

[#mpl]
MPL Support, <boost/mp11/mpl.hpp>
:toc:
:toc-title:
:idprefix:

The header `<boost/mp11/mpl.hpp>`, when included, defines the
necessary support infrastructure for `mp_list` and `std::tuple`
to be valid link:../../../../libs/mpl[MPL] sequences.

NOTE: `mpl.hpp` is not included by `<boost/mp11.hpp>`.

1.51 screen 4.6.2

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1.54 libunwind 1.2-rc1

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For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use
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Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this
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Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables

containing that work also fall under Section 6,
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6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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That's all there is to it!
I would like to thank the following people (in alphabetical order):

- Seth Arnold, for contributing to the documentation.
- Daniel Black, (former) maintainer of the Gentoo GNU/Linux BeeCrypt package.
- Jan-Rudolph Bhrmann, for helping me get started on the 64-bit multi-
precision integer library.
- Luca Filipozzi, (former) maintainer/packager of BeeCrypt for Debian GNU/Linux.
- Jeff Johnson, the guy behind RedHat's Package Manager, who has inspired
and contributed to many of the changes for version 3.0.0. He also provided
the new hash functions for version 4.2.0. 73 de Bob.
- Anibal Monsalve Salazar, (current) maintainer/packager of BeeCrypt for
Debian GNU/Linux.
- Jon Sturgeon, bug hunter extraordinaire.

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- ARM Ltd, for donating a copy of "ARM Architecture Reference Manual".
- HP/Compaq, for their testdrive program, which gave me the opportunity to
test and BeeCrypt on many new
platforms.
- FSF France, for providing me with access to the GCC Compile Farm.
- SourceForge, for their excellent open source development platform.

Last but not least: thanks to everyone who provided bits of information,
reported bugs, provided feedback, or works on including BeeCrypt in any
other distros.

If I've missed anyone, it's due to oversight. Drop me a line and I'll
rectify the situation as quickly as possible.

1.57 lm-sensors 3.4.0

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the

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1.59 dhcp 4.4.1

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* configure.ac, Makefile.am: The original versions were derived from the
ones in the XML Catalog Manager project, version 2.2.

Author: Julio Merino <jmmv@users.sourceforge.net>

* atf-c/ui.c: The format_paragraph and format_text functions were
derived form the ones in the Monotone project, revision
3a0982da308228d796df35f98d787c5cff2bb5b6.

Author: Julio Merino <jmmv@NetBSD.org>

* atf-c++/detail/io.hpp, atf-c++/detail/io.cpp, atf-c++/detail/io_test.cpp:
These files were derived from the file_handle, systembuf, pipe and pistream
classes and tests found in the Boost.Process library.

Author: Julio Merino <jmmv84@gmail.com>

* admin/check-style.sh,
admin/check-style-common.awk,
admin/check-style-cpp.awk, admin/check-style-shell.awk: These files,
except the first one, were first implemented in the Buildtool project.
They were later adapted to be part of Boost.Process and, during that
process, the shell script was created.

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<xsl:stylesheet version="1.0"
 xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
```

```
 xmlns:xi="http://www.w3.org/2001/XInclude"
 xmlns:db="http://docbook.org/ns/docbook">

 <xsl:template name="isc.copyright.format">
   <xsl:param name="text"/>
   <xsl:value-of select="$isc.copyright.leader"/>
   <xsl:value-of select="normalize-space(substring-before($text, '&#10;'))"/>
   <xsl:text>&#10;</xsl:text>
   <xsl:variable name="rest" select="substring-after($text, '&#10;')"/>
   <xsl:if test="translate($rest, '&#9;&#32;', '')">
     <xsl:call-template name="isc.copyright.format">
       <xsl:with-param
 name="text" select="$rest"/>
     </xsl:call-template>
   </xsl:if>
 </xsl:template>

 <xsl:variable name="isc.copyright.text">
   <xsl:text>
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     file, You can obtain one at http://mozilla.org/MPL/2.0/.
   </xsl:text>
 </xsl:variable>

 <xsl:variable name="isc.copyright">
   <xsl:call-template name="isc.copyright.format">
     <xsl:with-param name="text">
       <xsl:for-each select="book/info/copyright | refentry/docinfo/copyright">
   <xsl:text>Copyright (C) </xsl:text>
   <xsl:call-template name="copyright.years">
     <xsl:with-param name="years" select="year"/>
   </xsl:call-template>
   <xsl:text> </xsl:text>
   <xsl:value-of select="holder"/>
        <xsl:value-of select="$isc.copyright.breakline"/>
   <xsl:text>&#10;</xsl:text>
 </xsl:for-each>
 <xsl:value-of select="$isc.copyright.text"/>
     </xsl:with-param>
    </xsl:call-template>
 </xsl:variable>
</xsl:stylesheet>

<!--
 - Local variables:
 - mode: sgml
 - End:
```

-->
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1.60 bridgeutils 1.6

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1.61 ncurses 6.2

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1.70 coreutils 8.32

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<one line to give the program's name and a brief idea of what it does.>
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1.71 gnutls 3.3.30

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##########

Constant-time SSSE3 AES core implementation.
version 0.1
##
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1.72 websocketpp 0.8.1

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base64.cpp and base64.h

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Ren Nyffenegger rene.nyffenegger@adp-gmbh.ch

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L. Peter Deutsch
ghost@aladdin.com

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1.73 sed 4.8

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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of

free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library
in order to run.
^L

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly
into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation
and installation of the library.

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you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

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a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under
the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and
can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms
of the ordinary GNU General Public
License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.
^L
Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the
complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy

from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a
"work that uses the
library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute
the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work

during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2)

will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.
^L
7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

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END OF TERMS AND CONDITIONS

^L

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

EFFECTIVE OCT 2008, LICENSE IS BEING CHANGED TO LGPL-2.1 (though not reflected in released code until Nov 2009 - slow release cycle...)

Discussion thread from mailing list archive, with approval from everyone actively involved or holding original licensing rights included.

[Cracklib-devel] cracklib license
From: Mike Frysinger <vapier@ge...> - 2007-10-02 01:16

Attachments: Message as HTML
looks like 2.8.11 is out and marked as "GPL-2" ... releasing libraries unde=
r=20
GPL-2 is not desirable at all ... this is why the LGPL-2.1 exists
=2Dmike

> Re: [Cracklib-devel] cracklib license
> From: Neulinger, Nathan <nneul@um...> - 2007-10-02 01:18
> I understand that, and you're welcome to bring it up with Alec directly
> and see if he wants to relicense his code as LGPL... but at this point,
> it was enough to just get it consistent and documented as to what it was
> released under. This wasn't actually a license change, just a
> clarification of the licensing that was already in place.=20
>
> -- Nathan
> =20
> ---
> Nathan Neulinger EMail: nneul@um...
> University of Missouri - Rolla Phone: (573) 341-6679
> UMR Information Technology Fax: (573) 341-4216
>
> > -----Original Message-----
> > From: cracklib-devel-bounces@li...
> > [mailto:cracklib-devel-bounces@li...] On Behalf Of
> > Mike Frysinger
> > Sent: Monday, October 01, 2007 8:15 PM
> > To: cracklib-devel@li...
> > Subject: [Cracklib-devel] cracklib license
> >=20
> > looks like 2.8.11 is out and marked as "GPL-2" ... releasing
> > libraries under
> > GPL-2 is not desirable at all ... this is why the LGPL-2.1 exists
> > -mike

Re: [Cracklib-devel] cracklib license
From: Mike Frysinger <vapier@ge...> - 2007-10-02 01:33

Attachments: Message as HTML
On Monday 01 October 2007, Neulinger, Nathan
wrote:
> I understand that, and you're welcome to bring it up with Alec directly
> and see if he wants to relicense his code as LGPL... but at this point,
> it was enough to just get it consistent and documented as to what it was
> released under. This wasn't actually a license change, just a
> clarification of the licensing that was already in place.

the original license (before moving to sourceforge -- aka, 2.7) was not=20
GPL-2 ... it was a modified artistic license ... i didnt notice the license=
=20
change until it was mentioned in the latest notes.

unlike the old license, GPL-2 prevents people from using cracklib unless th=
eir=20
applications are also GPL-2 which imo is just wrong. it isnt the place of =
a=20
library to dictact to application writes what license they should be using.=
=20
thus LGPL-2.1 enters to fill this void.
=2Dmike

Re: [Cracklib-devel]
cracklib license
From: Neulinger, Nathan <nneul@um...> - 2007-10-02 01:46
Seems like the ideal thing here would be for you and the other distro
maintainers to get together with Alec in a conversation and come to a
decision as to what licensing scheme y'all want. I haven't really done
much other than cleaning up the packaging and patches and a small bit of
additional code, so whatever licensing y'all come up with is fine by me.

-- Nathan
=20

Nathan Neulinger EMail: nneul@um...
University of Missouri - Rolla Phone: (573) 341-6679
UMR Information Technology Fax: (573) 341-4216

> -----Original Message-----
> From: cracklib-devel-bounces@li...
> [mailto:cracklib-devel-bounces@li...] On Behalf Of

> Mike Frysinger
> Sent: Monday, October 01, 2007 8:33 PM
> To: Neulinger, Nathan
> Cc: cracklib-devel@li...; Alec Muffett
> Subject: Re: [Cracklib-devel] cracklib license
>=20
> On Monday 01 October 2007, Neulinger, Nathan wrote:
> > I understand that, and you're welcome to bring it up with Alec
> directly
> > and see if he wants to relicense his code as LGPL... but at this
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>=20
> unlike the old license, GPL-2 prevents people from using cracklib
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> applications are also GPL-2 which imo is just wrong. it isnt the
> place of a
> library
to dictact to application writes what license they should
> be using.
> thus LGPL-2.1 enters to fill this void.
> -mike

Re: [Cracklib-devel] cracklib license
From: Alec Muffett <alecm@cr...> - 2007-10-02 08:57
> Seems like the ideal thing here would be for you and the other distro
> maintainers to get together with Alec in a conversation and come to a
> decision as to what licensing scheme y'all want. I haven't really done
> much other than cleaning up the packaging and patches and a small
> bit of
> additional code, so whatever licensing y'all come up with is fine
> by me.

I am sympathetic. Guys, what do you reckon?

What I am hearing so far is that LGPL makes sense, since it can be
linked with any code, not just GPL...

-a

Re: [Cracklib-devel] cracklib license
From: Devin Reade <gdr@gn...> - 2007-10-02 15:04
I would like to see it under LGPL as well. I
think it is in everyone's
best interests to have as secure systems as possible, and I think tainting
it via GPL will just make it less likely that the library gets used, and
will not usually cause companies/developers to GPL the dependent code
(where it is not already GPL).

I like GPL, I use it when I can, but I don't think that it's the correct
license in this situation.

Devin
--
If it's sinful, it's more fun.

Re: [Cracklib-devel] cracklib license
From: Nalin Dahyabhai <nalin@re...> - 2008-01-28 16:32
On Tue, Oct 02, 2007 at 09:57:31AM +0100, Alec Muffett wrote:
> > Seems like the ideal thing here would be for you and the other distro
> > maintainers to get together with Alec in a conversation and come to a
> > decision as to what licensing scheme y'all want. I haven't really done
> > much other than cleaning up the packaging and patches and a small
> > bit of
> > additional
code, so whatever licensing y'all come up with is fine
> > by me.
>
> I am sympathetic. Guys, what do you reckon?
>
> What I am hearing so far is that LGPL makes sense, since it can be
> linked with any code, not just GPL...

My apologies for not chiming in in anything resembling a reasonable
timeframe.

I'd also suggest the LGPL, for the reason you noted above. Alternately,
GPLv2 with the option of using the library under a later version of the
GPL would permit applications which were released under version 3 of the
GPL to use the library, too, which would be sufficient for the packages
which are included in Fedora. FWIW, I'd personally lean toward LGPL.

In any case, I thank you both for working on sorting this out.

Cheers,

Nalin

Re: [Cracklib-devel] cracklib license
From: Mike Frysinger <vapier@ge...> - 2008-10-05 21:27

Attachments: Message as HTML

On Monday 28 January 2008, Nalin Dahyabhai wrote:
> On Tue, Oct 02, 2007 at 09:57:31AM +0100, Alec Muffett wrote:
> > > Seems like the ideal thing here would be for you and the other distro
> > > maintainers to get together with Alec in a conversation and come to a
> > > decision as to what licensing scheme y'all want. I haven't really done
> > > much other than cleaning up the packaging and patches and a small
> > > bit of
> > > additional code, so whatever licensing y'all come up with is fine
> > > by me.
> >
> > I am sympathetic. Guys, what do you reckon?
> >
> > What I am hearing so far is that LGPL makes sense, since it can be
> > linked with any code, not just GPL...
>
> My apologies for not chiming in in anything resembling a reasonable
> timeframe.
>
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> GPL to use the library, too, which would be sufficient for the packages
> which are included in Fedora. FWIW, I'd personally lean toward LGPL.
>
> In any case, I thank you both for working on sorting this out.

looks like everyone is OK with LGPL-2.1 (GNU Lesser license), so can we make
the change now ?
-mike

Re: [Cracklib-devel] cracklib license
From: Alec Muffett <alecm@cr...> - 2008-10-05 23:18
>> In any case, I thank you both for working on sorting this out.
>
> looks like everyone is OK with LGPL-2.1 (GNU Lesser license), so can we make
> the change now ?

yes. go for it. thanks++

-a

Re: [Cracklib-devel] cracklib license
From: Mike Frysinger <vapier@ge...> - 2008-10-25 22:34

Attachments: Message as HTML
On Sunday 05 October
2008, Alec Muffett wrote:
> >> In any case, I thank you both for working on sorting this out.
> >
> > looks like everyone is OK with LGPL-2.1 (GNU Lesser license), so can we
> > make the change now ?
>
> yes. go for it. thanks++

Nathan Neulinger is the only one who can actually make said change ...
-mike

BELOW IS ORIGINAL LICENSING DISCUSSION RE CHANGING TO GPL from Artistic.

CrackLib was originally licensed with a variant of the Artistic license. In the
interests of wider acceptance and more modern licensing, it was switched with
the original author's blessing to GPL v2.

This approval was carried out in email discussions in 2005, and has been reconfirmed
as of 2007-10-01 with the following email from Alec Muffett.

The below email references nneul@umr.edu address, as that is the address
that was used at the time. For any future emails regarding this, please
use nneul@neulinger.org.

From
alecm@crypticide.com Mon Oct 1 12:26:03 2007
Received: from umr-exproto2.cc.umr.edu ([131.151.0.192]) by UMR-CMAIL1.umr.edu with Microsoft
SMTPSVC(6.0.3790.3959);
Mon, 1 Oct 2007 12:26:03 -0500

Received: from scansrv2.srv.mst.edu ([131.151.1.114]) by umr-exproto2.cc.umr.edu with Microsoft SMTPSVC(6.0.3790.3959);
 Mon, 1 Oct 2007 12:26:02 -0500
Received: (qmail 8022 invoked from network); 1 Oct 2007 16:59:55 -0000
Received: from smtp1.srv.mst.edu (131.151.1.43)
 by scanin-ipvs.cc.umr.edu with SMTP; 1 Oct 2007 16:59:55 -0000
Received: from spunkymail-mx8.g.dreamhost.com (mx1.spunky.mail.dreamhost.com [208.97.132.47])
 by smtp1.srv.mst.edu (8.13.1/8.13.1) with ESMTP id l91Gxtpr020623
 for <nneul@umr.edu>; Mon, 1 Oct 2007 11:59:55 -0500
Received: from rutherford.zen.co.uk (rutherford.zen.co.uk [212.23.3.142])
 by spunkymail-mx8.g.dreamhost.com (Postfix) with ESMTP id 2C7734D311
 for <nneul@neulinger.org>; Mon, 1 Oct 2007 09:59:50 -0700 (PDT)
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 [82.68.43.14] (helo=[192.168.1.3])
 by rutherford.zen.co.uk with esmtp (Exim 4.50)
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 for nneul@neulinger.org; Mon, 01 Oct 2007 16:59:49 +0000
Mime-Version: 1.0 (Apple Message framework v752.2)
In-Reply-To: <1b1b3fd80710010908k11dac0afp1f2dd471059ff9a4@mail.gmail.com>
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Message-Id: <117A1264-F6DC-4E25-B0DD-56FBFEBE6E9F@crypticide.com>
Content-Transfer-Encoding: 7bit
From: Alec Muffett <alecm@crypticide.com>
Subject: Re: cracklib license
Date: Mon, 1 Oct 2007 17:59:46 +0100
To: Nathan Neulinger <nneul@neulinger.org>
X-Mailer: Apple Mail (2.752.2)
X-Originating-Rutherford-IP: [82.68.43.14]
Return-Path: alecm@crypticide.com
X-OriginalArrivalTime: 01 Oct 2007 17:26:03.0008 (UTC) FILETIME=[2420C000:01C80450]
Status: RO
Content-Length:
 585
Lines: 21

>
> ---------- Forwarded message ----------
> From: Neulinger, Nathan <nneul@umr.edu>
> Date: Sep 27, 2007 2:58 PM
> Subject: RE: cracklib license
> To: alecm@crypto.dircon.co.uk
>
> Any chance you could write me a self-contained email stating clearly
> that the license is being changed to GPL, so I could include that
> email

> in the repository and clean up the repository/tarballs? I have all the
> original discussion, but something succinct and self contained
> would be
> ideal.

The license for my code in the Cracklib distribution is henceforth GPL.

Happy now? :-)

-a

1.77 libnl3 3.5.0

1.77.1 Available under license :

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1.79 websocketpp 0.8.2

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base64.cpp and base64.h

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Ren Nyffenegger rene.nyffenegger@adp-gmbh.ch

****** SHA1 Library (sha1/sha1.hpp) ******
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md5.hpp is a reformulation of the md5.h and md5.c code from
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L. Peter Deutsch

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1.81 jansson 2.13.1

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1.82 numactl 2.0.12

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1.93 redis 3.5.3

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1.96 python3-asn1crypto 1.4.0

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1.97 libidn 1.36

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1.98 json-c 0.15

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1.99 brotli 1.0.9

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1.100 logrus 1.7.0

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1.101 multipart-parser-c NA

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Found in path(s):
* /opt/cola/permits/1102738801_1610534739.81/0/multipart-parser-c-master-3-zip/multipart-parser-c-master/multipart_parser.c
* /opt/cola/permits/1102738801_1610534739.81/0/multipart-parser-c-master-3-zip/multipart-parser-c-master/multipart_parser.h

1.102 bridgeutils 1.7

1.102.1 Available under license :

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it
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@subheading END OF TERMS AND CONDITIONS

@page
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stating
 that you changed the files and the date of any change.

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part thereof, to be licensed as a whole at no charge to all third
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does not normally print such an announcement, your work based on
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Accompany it with a written offer, valid for at least three
years, to give any third party, for a charge no more than your

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machine-readable copy of the corresponding source code, to be
distributed under the terms of Sections 1 and 2 above on a medium
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Accompany it with the information you received as to the offer
to distribute corresponding source code. (This alternative is
allowed only for noncommercial
distribution and only if you
received the program in object code or executable form with such
an offer, in accord with Subsection b above.)
@end enumerate

The source code for a work means the preferred form of the work for
making modifications to it. For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable. However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
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@end enumerate

@iftex
@heading END OF TERMS AND CONDITIONS
@end iftex
@ifinfo
@center END OF TERMS AND CONDITIONS

@end ifinfo

@page
@heading Appendix: How to Apply These Terms to Your New Programs

 If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.

 To do so, attach the following notices to the program. It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the ``copyright'' line and a pointer to where the full notice is found.

@smallexample
@var{one line to give the program's name
 and a brief idea of what it does.}
Copyright (C) @var{yyyy} @var{name of author}

This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

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@end smallexample

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

@smallexample
Gnomovision version
 69, Copyright (C) @var{year} @var{name of author}
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
@end smallexample

The hypothetical commands @samp{show w} and @samp{show c} should show
the appropriate parts of the General Public License. Of course, the
commands you use may be called something other than @samp{show w} and
@samp{show c}; they could even be mouse-clicks or menu items---whatever
suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a ``copyright disclaimer'' for the program, if
necessary. Here is a sample; alter the names:

@example
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.

@var{signature of Ty Coon}, 1 April 1989
Ty Coon, President of Vice
@end example

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 Public License does not permit incorporating your program into
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The gettext-runtime package is partially under the LGPL and partially under
the GPL.

The following parts are under the LGPL, see file intl/COPYING.LIB:
- the libintl and libasprintf libraries and their header files,
- the libintl.jar Java library,
- the GNU.Gettext.dll C# library,
- the gettext.sh shells script function library.

The following parts are under the GPL, see file COPYING in the toplevel
directory:
- the _programs_ gettext, ngettext, envsubst,
- the documentation.

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Version 2.1, February 1999

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[This is the first released version of the Lesser GPL. It also counts
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For example, if you distribute copies of the library,
whether gratis
or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original

author's reputation will not be affected by problems that might be introduced by others.
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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in

non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in
order to run.
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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation
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Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If

identifiable sections of that work are not derived from the Library, and
 can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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 4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the
 complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

 If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the

source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.
^L
6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the

copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will
operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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1.107 pycrypto 2.6.1

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~~~~~~

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4. Removing some modules altogether without replacing them.
~~~~~~

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PyCrypto Code Submission Requirements - Rev. C

Last updated: 2009-02-28

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=== EOF ===

1.108 pyasn1 0.4.8

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Metadata-Version: 1.2
Name: pyasn1
Version: 0.4.8
Summary: ASN.1 types and codecs

Home-page: https://github.com/etingof/pyasn1
Author: Ilya Etingof
Author-email: etingof@gmail.com
Maintainer: Ilya Etingof <etingof@gmail.com>
License: BSD
Description: Pure-Python implementation of ASN.1 types and DER/BER/CER codecs (X.208)
Platform: any
Classifier: Development Status :: 5 - Production/Stable
Classifier: Environment :: Console
Classifier: Intended Audience :: Developers
Classifier: Intended Audience :: Education
Classifier: Intended Audience :: Information Technology
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Classifier: Programming Language :: Python :: 2
Classifier: Programming Language :: Python :: 2.4
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Classifier: Programming Language :: Python :: 3
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Classifier: Programming Language :: Python :: 3.3
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Classifier: Programming Language :: Python :: 3.6
Classifier: Programming Language :: Python :: 3.7
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Classifier: Topic :: Software Development :: Libraries :: Python Modules

Found in path(s):
* /opt/cola/permits/1110812511_1607462013.57/0/pyasn1-0-4-8-tar-gz/pyasn1-0.4.8/PKG-INFO
* /opt/cola/permits/1110812511_1607462013.57/0/pyasn1-0-4-8-tar-gz/pyasn1-0.4.8/pyasn1.egg-info/PKG-INFO
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1.109 jackson-databind 2.12.0

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1.110 jackson 2.12.0

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1.113 pciutils 3.7.0

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derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed
under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library". Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library". The executable is therefore covered by this
License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the

Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable
source code for the Library including whatever
changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user
installs one, as long as the modified version is
interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more

than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

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That's all there is to it!

1.119 kmod 28

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library does the same job as widely used non-free libraries. In this
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software only, so we use
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In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
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Although the Lesser General Public License is Less protective of the
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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed
under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data

structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables
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6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user
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components (compiler, kernel, and so on) of the operating system on
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Aleksey Gurtovoy (agurtovoy@meta-comm.com)
Andrei Alexandrescu (andrewalex - at - hotmail.com) (See Boost list message of August 12, 2004 11:06:58 AM EST)
Andrew Lumsdaine ()
Anthony Williams (anthony -at- justsoftwaresolutions.co.uk)
Beman Dawes (bdawes@acm.org)
Brad King (brad.king -at- kitware.com) (See Boost list message of Wed, 21 Jul 2004 11:15:46 -0400)

Brian Osman (osman -at- vvisions.com) (See CVS log)
Bruce Barr (schmoost -at- yahoo.com) (See Boost list of Mon, 16 Aug 2004 15:06:43 -0500)
Bruno da Silva de Oliveira (bruno - at - esss.com.br)
Christain Engstrom (christian.engstrom -at- glindra.org) (See Boost list message of Mon, 30 Aug 2004 14:31:49 +0200)
Cromwell D Enage (sponage -at- yahoo.com) (See Boost list message of August 12, 2004 11:49:13 AM EST)
Dan Gohman (djg
-at- cray.com) (See Boost list messsage of Sat, 21 Aug 2004 10:54:59 +0100)
Dan Nuffer (dan -at- nuffer.name)
Daniel Frey (d.frey -at- gmx.de, daniel.frey -at- aixigo.de)
Daniel Nuffer (dan -at- nuffer.name)
Darin Adler (darin -at- bentspoon.com) (Email to Andreas Huber, see change log)
Daryle Walker (darylew - at - hotmail.com)
Dave Abrahams (dave@boost-consulting.com)
Dave Moore (dmoore -at- viefinancial.com) (See Boost list message of 18 Dec 2003 15:35:50 -0500)
David Abrahams (dave@boost-consulting.com)
Dietmar Kuehl (dietmar_kuehl -at- yahoo.com) (Email to Andreas Huber, see change log)
Douglas Gregor (gregod -at- cs.rpi.edu, dgregor -at- cs.indiana.edu, doug.gregor -at- gmail.com)
Dr John Maddock (john - at - johnmaddock.co.uk)
Edward D. Brey (brey -at- ductape.net) (Email to Andreas Huber, see change log)
Eric Ford (un5o6n902 -at- sneakemail.com) (See Boost list message of Sun, 15 Aug 2004 10:29:13 +0100)
Eric Friedman (ebf@users.sourceforge.net)
Eric Niebler (eric@boost-consulting.com)
Fernando
Cacciola (fernando_cacciola@ciudad.com.ar)
Fernando Luis Cacciola Carballal (fernando_cacciola@ciudad.com.ar)
Francois Faure (Francois.Faure -at- imag.fr) (See CVS log)
Gary Powell (powellg - at - amazon.com) (See Boost list message of 10 Feb 2004 14:22:46 -0800)
Gennadiy Rozental (rogeeff -at- mail.com) (Email to Andreas Huber, see change log)
Gottfried Ganssauge (Gottfried.Ganssauge -at- HAUFE.DE) (See Boost List message of Mon, 16 Aug 2004 10:09:19 +0200)
Gottfried Ganauge (Gottfried.Ganssauge -at- HAUFE.DE) (Alternative spelling of Gottfried Ganssauge)
Greg Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gregory Colvin (gregory.colvin -at- oracle.com) (See Boost list message of Sat, 14 Aug 2004 10:57:00 +0100)
Gunter Winkler (gunter.winkler -at- unibw-muenchen.de) (See Boost List message of Mon, 16 Aug 2004 10:24:17 +0200)
Hartmut Kaiser (hartmut.kaiser -at- gmail.com)
Herve Bronnimann (hbr -at- poly.edu)
Herv
Brnnimann (hbr -at- poly.edu)
Housemarque Oy (Ilari Kuittinen ilari.kuittinen -at- housemarque.fi)
Howard Hinnant (hinnant -at- twcny.rr.com) (See Boost list message of July 25, 2004 3:44:49 PM EST)
Hubert Holin (hubert_holin -at- users.sourceforge.net)
Indiana University ()
Itay Maman (imaman -at- users.sourceforge.net)
Jaakko Jrvi (jajarvi -at- osl.iu.edu)
Jaap Suter (j.suter -at- student.utwente.nl) (See Boost list message of Thu, 16 Sep 2004 09:32:43 -0700)
Jeff Garland (jeff - at - crystalclearsoftware.com) (see Boost list post of July 25, 2004 19:31:09 -0700)

Jens Maurer (Jens.Maurer@gmx.net)
Jeremy G Siek (jsiek@osl.iu.edu)
Jeremy Siek (jsiek@osl.iu.edu)
Joel de Guzman (joel -at- boost-consulting.com) (See Boost list message of July 25, 2004 8:32:00 PM EST)
John Bandela (jbandela-at-ufl.edu)
John Maddock (john - at - johnmaddock.co.uk)
John R Bandela (jbandela-at-ufl.edu)
Jonathan Turkanis (turkanis -at- coderage dot com)
Juergen Hunold (hunold -at- ive.uni-hannover.de) (See Boost
List Message of Fri, 13 Aug 2004 19:39:55 +0200)
Kevlin Henney (kevlin -at- curbralan.com) (See Boost list message of Wed, 15 Sep 2004 18:15:17 +0200)
Kresimir Fresl (fresl -at- master.grad.hr) (See Boost List message of August 16, 2004 8:23:35 AM EST)
Lars Gullik Bjnnes (larsbj -at- lyx.org) (See Boost list message of Tue, 17 Aug 2004 15:49:02 +0100)
Lie-Quan Lee (liequan - at - slac.stanford.edu, llee - at - cs.indiana.edu)
Maarten Keijzer (mkeijzer -at- cs.vu.nl) (See Boost list message of Wed, 18 Aug 2004 21:43:18 +0100)
Mac Murrett (mmurrett -at- mac.com)
Marc Wintermantel (wintermantel -at- imes.mavt.ethz.ch, wintermantel -at- even-ag.ch) (See CVS log)
Michael Glassford (glassfordm - at - hotmail.com)
Michael Stevens (Michael.Stevens - at - epost.de)
Multi Media Ltd. (pdimov@mmltd.net)
Nicolai M Josuttis (solutions -at- josuttis.com) (See Boost list message of Mon, 30 Aug 2004 10:52:00 +0100)
Nikolay Mladenov (nickm -at- sitius.com) (See Boost list message of Tue, 17 Aug 2004
15:45:33 +0100)
Paul Mensonides (pmenso57 -at- comcast.net) (See Boost list message of July 21, 2004 1:12:21 AM EST)
Pavol Droba (droba -at- topmail.sk)
Peter Dimov (pdimov@mmltd.net)
R W Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Ralf W. Grosse-Kunstleve (RWGrosse-Kunstleve@lbl.gov)
Rational Discovery LLC (Greg Landrum Landrum -at- RationalDiscovery.com) (See Boost list post of Tue, 17 Aug 2004 10:35:36 +0100)
Rene Rivera (grafik/redshift-software.com, rrivera/acm.org)
Robert Ramey (ramey@www.rrsd.com)
Roland Richter (roland -at- flll.jku.at) (See Boost list post of Mon, 16 Aug 2004 22:16:55 +0200)
Roland Schwarz (roland.schwarz -at- chello.at)
Ronald Garcia (garcia -at- cs.indiana.edu) (Email to Andreas Huber, see change log)
Samuel Krempp (krempp -at- crans.ens-cachan.fr) (See Boost list message of Mon, 27 Sep 2004 13:18:36 +0200)
Stefan Seefeld (seefeld -at- sympatico.ca)
Stephen Cleary (scleary -at- jerviswebb.com) (See Boost list message of Tue, 28 Sep 2004 13:11:46 +0100)
Steve
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Sylvain Pion (Sylvain.Pion - at - sophia.inria.fr)
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Thorsten Jrgen Ottosen (nesotto - at - cs.auc.dk)
Thorsten Ottosen (nesotto - at - cs.auc.dk)
Toon Knapen (toon dot knapen - at - fft.be)
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Vladimir Prus (ghost@cs.msu.su)
William E. Kempf () (email to Beman Dawes, 9/14/2006 4:18 PM)
Joerg Walter (jhr.walter - at - t-online.de : email to ublas mailing list Mon, 17 Sep 2007 10:17:08 +0200)
Mathias Koch (mkoch - at - idesis.de 7 : email to boost-owner@lists.boost.org Sep 2007 13:20:09 +0200)

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////

[#mpl]
MPL Support, <boost/mp11/mpl.hpp>
:toc:
:toc-title:
:idprefix:

The header `<boost/mp11/mpl.hpp>`, when included, defines the
necessary support infrastructure for `mp_list` and `std::tuple`
to be valid link:../../../../libs/mpl[MPL] sequences.

NOTE: `mpl.hpp` is not included by `<boost/mp11.hpp>`.

It's also possible to only enable support for `mp_list` by
including `<boost/mp11/mpl_list.hpp>`, and for `std::tuple`
by including `<boost/mp11/mpl_tuple.hpp>`. This may be required
because some libraries, such as Boost.Fusion, contain their own MPL
support for `std::tuple`, which conflicts with Mp11's one.
<!DOCTYPE html>
<html>
 <head></head>
 <body>
  <h3>
   Copyright Test
  </h3>
  <p class="copyright">
   1963, 1964, 1965 Jane Doe

```
  </p>
  <p class="copyright">
   2018 Joe Blow, John Coe
  </p>
  <p class="copyright">
   1977, 1985 Someone else
  </p>
 </body>
</html>
```

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xmlns:xi="http://www.w3.org/2001/XInclude">
 <title>Copyright Test</title>
 <articleinfo>
  <copyright>
   <year>1963</year> <year>1964</year> <year>1965</year> <holder>Jane Doe</holder>
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   <year>2018</year> <holder>Joe Blow, John Coe</holder>
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   <year>1977</year> <year>1985</year> <holder>Someone else</holder>
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1.126 iptables 1.8.7

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1.131 dmidecode 3.3

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1.133 rrdtool 1.7.2

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1.135 rng-tools 6.11

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1.138 jemalloc 5.2.1

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c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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1.140 libpcap 1.10.0

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1.141 glibc 2.33

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same job as widely used non-free libraries. In this
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@enumerate a
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in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the

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application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
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it
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Section 6 states terms for distribution of such executables.

When a ``work that uses the Library'' uses material from a header file
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derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise,
if the work is a derivative of the Library, you may
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@item

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@enumerate a
@item
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with the Library, with the complete machine-readable ``work that
uses the Library'', as object code and/or source code, so that the
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@item
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and (2) will operate
properly with a modified version of the library, if the user installs
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1.145 grep 3.6

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1.149 kerberos 1.16.1

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cmd/krb5/slave/kpropd_rpc.c
lib/gss_mechs/mech_krb5/et/kdb5_err.c
lib/gss_mechs/mech_spnego/mech/gssapiP_spnego.h
lib/gss_mechs/mech_spnego/mech/spnego_mech.c
lib/krb5/kadm5/kadm_host_srv_names.c
lib/krb5/kdb/kdb_convert.c
lib/krb5/kdb/kdb_hdr.h
lib/krb5/kdb/kdb_log.c
lib/krb5/kdb/kdb_log.h
lib/libgss/g_accept_sec_context.c
lib/libgss/g_acquire_cred.c
lib/libgss/g_canon_name.c
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lib/libgss/g_context_time.c

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lib/libgss/g_dup_name.c
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lib/libgss/g_seal.c
lib/libgss/g_sign.c
lib/libgss/g_store_cred.c
lib/libgss/g_unseal.c
lib/libgss/g_userok.c
lib/libgss/g_utils.c
lib/libgss/g_verify.c
lib/libgss/gssd_pname_to_uid.c
uts/common/gssapi/include/gssapi_err_generic.h
uts/common/gssapi/include/mechglueP.h

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lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
lib/gssapi/mechglue/g_compare_name.c
lib/gssapi/mechglue/g_context_time.c
lib/gssapi/mechglue/g_delete_sec_context.c
lib/gssapi/mechglue/g_dsp_name.c
lib/gssapi/mechglue/g_dsp_status.c
lib/gssapi/mechglue/g_dup_name.c
lib/gssapi/mechglue/g_exp_sec_context.c
lib/gssapi/mechglue/g_export_name.c
lib/gssapi/mechglue/g_glue.c
lib/gssapi/mechglue/g_imp_name.c
lib/gssapi/mechglue/g_imp_sec_context.c
lib/gssapi/mechglue/g_init_sec_context.c
lib/gssapi/mechglue/g_initialize.c
lib/gssapi/mechglue/g_inquire_context.c
lib/gssapi/mechglue/g_inquire_cred.c
lib/gssapi/mechglue/g_inquire_names.c
lib/gssapi/mechglue/g_process_context.c
lib/gssapi/mechglue/g_rel_buffer.c
lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c
lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c
lib/gssapi/mechglue/g_utils.c
lib/gssapi/mechglue/g_verify.c
lib/gssapi/mechglue/gssd_pname_to_uid.c

lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation,
including
the following new or changed files:

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
kprop/kpropd_rpc.c
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Linux-syscall-note

1.153 sqlite 3.35.0

1.153.1 Available under license :

No license file was found, but licenses were detected in source scan.

<p>Yes. SQLite is in the public domain. No claim of ownership is made

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/www/faq.tcl
No license file was found, but licenses were detected in source scan.

/opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/art/SQLite.eps:
binary file matches

Found in path(s):
* /bin/grep
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public domain.

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/www/changes.tcl
No license file was found, but licenses were detected in source scan.

%define name sqlite
%define version SQLITE_VERSION
%define release 1

Name: %{name}
Summary: SQLite is a C library that implements an embeddable SQL database engine
Version: %{version}
Release: %{release}
Source: %{name}-%{version}.tar.gz
Group: System/Libraries
URL: http://www.hwaci.com/sw/sqlite/
License: Public Domain
BuildRoot: %{_tmppath}/%{name}-%{version}-root

```
%description
SQLite is a C library that implements an embeddable SQL database engine.
Programs that link with the SQLite library can have SQL database access
without running a separate RDBMS process. The distribution comes with a
standalone command-line access program (sqlite) that can be used to
administer an SQLite database and which serves as an example of how to
use the SQLite library.

%package -n %{name}-devel
Summary: Header files and libraries for developing apps which will use sqlite
Group: Development/C
Requires: %{name} = %{version}-%{release}

%description
 -n %{name}-devel
The sqlite-devel package contains the header files and libraries needed
to develop programs that use the sqlite database library.

%prep
%setup -q -n %{name}

%build
CFLAGS="%optflags -DNDEBUG=1" CXXFLAGS="%optflags -DNDEBUG=1" ./configure --prefix=%{_prefix}

make
make doc

%install
install -d $RPM_BUILD_ROOT/%{_prefix}
install -d $RPM_BUILD_ROOT/%{_prefix}/bin
install -d $RPM_BUILD_ROOT/%{_prefix}/include
install -d $RPM_BUILD_ROOT/%{_prefix}/lib
make install prefix=$RPM_BUILD_ROOT/%{_prefix}

%clean
rm -fr $RPM_BUILD_ROOT

%files
%defattr(-, root, root)
%{_libdir}/*.so*
%{_bindir}/*

%files -n %{name}-devel
%defattr(-, root, root)
%{_libdir}/pkgconfig/sqlite.pc
%{_libdir}/*.a
%{_libdir}/*.la
%{_includedir}/*
```

%doc doc/*

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/spec.template
No license file was found, but licenses were detected in source scan.

/*
* This code implements the MD5 message-digest algorithm.
* The algorithm is due to Ron Rivest. This code was
* written by Colin Plumb in 1993, no copyright is claimed.
* This code is in the public domain; do with it what you wish.
*
* Equivalent code is available from RSA Data Security, Inc.
* This code has been tested against that, and is equivalent,
* except that you don't need to include two pages of legalese
* with every copy.
*
* To compute the message digest of a chunk of bytes, declare an
* MD5Context structure, pass it to MD5Init, call MD5Update as
* needed on buffers full of bytes, and then call MD5Final, which
* will fill a supplied 16-byte array with the digest.
*/

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/src/md5.c
No license file was found, but licenses were detected in source scan.

/* The IncrKey opcode is only applied to keys generated by
 ** MakeKey or MakeIdxKey and the results of those operands
 ** are always dynamic strings or zShort[] strings. So we
 ** are always free to modify the string in place.
 */

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/src/vdbe.c
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2001 September 15
#
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a legal notice, here is a blessing:
#
May you do good and not evil.
May you find forgiveness for yourself and forgive others.
May you share freely, never taking more than you give.
#
#***
This file implements regression tests for SQLite library. The

```
# focus of this file is testing built-in functions.
#
# $Id: func.test,v 1.16.2.2 2004/07/18 21:14:05 drh Exp $

set testdir [file dirname $argv0]
source $testdir/tester.tcl

# Create a table to work with.
#
do_test func-0.0 {
 execsql {CREATE TABLE tbl1(t1 text)}
 foreach word {this program is free software} {
   execsql "INSERT INTO tbl1 VALUES('$word')"
 }
 execsql {SELECT t1 FROM tbl1 ORDER BY t1}
} {free is program software this}
do_test func-0.1 {
 execsql {
    CREATE TABLE t2(a);

   INSERT INTO t2 VALUES(1);
    INSERT INTO t2 VALUES(NULL);
    INSERT INTO t2 VALUES(345);
    INSERT INTO t2 VALUES(NULL);
    INSERT INTO t2 VALUES(67890);
    SELECT * FROM t2;
 }
} {1 {} 345 {} 67890}

# Check out the length() function
#
do_test func-1.0 {
 execsql {SELECT length(t1) FROM tbl1 ORDER BY t1}
} {4 2 7 8 4}
do_test func-1.1 {
 set r [catch {execsql {SELECT length(*) FROM tbl1 ORDER BY t1}} msg]
 lappend r $msg
} {1 {wrong number of arguments to function length()}}
do_test func-1.2 {
 set r [catch {execsql {SELECT length(t1,5) FROM tbl1 ORDER BY t1}} msg]
 lappend r $msg
} {1 {wrong number of arguments to function length()}}
do_test func-1.3 {
 execsql {SELECT length(t1), count(*) FROM tbl1 GROUP BY length(t1)
         ORDER BY length(t1)}
} {2 1 4 2 7 1 8 1}
do_test func-1.4 {
 execsql {SELECT coalesce(length(a),-1) FROM t2}
```

```
} {1 -1 3 -1 5}

# Check out the substr() function
#
do_test func-2.0 {
 execsql {SELECT substr(t1,1,2) FROM tbl1 ORDER BY t1}
}
 {fr is pr so th}
do_test func-2.1 {
 execsql {SELECT substr(t1,2,1) FROM tbl1 ORDER BY t1}
} {r s r o h}
do_test func-2.2 {
 execsql {SELECT substr(t1,3,3) FROM tbl1 ORDER BY t1}
} {ee {} ogr ftw is}
do_test func-2.3 {
 execsql {SELECT substr(t1,-1,1) FROM tbl1 ORDER BY t1}
} {e s m e s}
do_test func-2.4 {
 execsql {SELECT substr(t1,-1,2) FROM tbl1 ORDER BY t1}
} {e s m e s}
do_test func-2.5 {
 execsql {SELECT substr(t1,-2,1) FROM tbl1 ORDER BY t1}
} {e i a r i}
do_test func-2.6 {
 execsql {SELECT substr(t1,-2,2) FROM tbl1 ORDER BY t1}
} {ee is am re is}
do_test func-2.7 {
 execsql {SELECT substr(t1,-4,2) FROM tbl1 ORDER BY t1}
} {fr {} gr wa th}
do_test func-2.8 {
 execsql {SELECT t1 FROM tbl1 ORDER BY substr(t1,2,20)}
} {this software free program is}
do_test func-2.9 {
 execsql {SELECT substr(a,1,1) FROM t2}
} {1 {} 3 {} 6}
do_test func-2.10 {
 execsql {SELECT substr(a,2,2) FROM t2}
} {{} {} 45 {} 78}

# Only do the following tests if TCL has UTF-8 capabilities and
# the
 UTF-8 encoding is turned on in the SQLite library.
#
if {[sqlite -encoding]=="UTF-8" && "\u1234"!="u1234"} {

# Put some UTF-8 characters in the database
#
do_test func-3.0 {
```

```
 execsql {DELETE FROM tbl1}
 foreach word "contains UTF-8 characters hi\u1234ho" {
   execsql "INSERT INTO tbl1 VALUES('$word')"
 }
 execsql {SELECT t1 FROM tbl1 ORDER BY t1}
} "UTF-8 characters contains hi\u1234ho"
do_test func-3.1 {
 execsql {SELECT length(t1) FROM tbl1 ORDER BY t1}
} {5 10 8 5}
do_test func-3.2 {
 execsql {SELECT substr(t1,1,2) FROM tbl1 ORDER BY t1}
} {UT ch co hi}
do_test func-3.3 {
 execsql {SELECT substr(t1,1,3) FROM tbl1 ORDER BY t1}
} "UTF cha con hi\u1234"
do_test func-3.4 {
 execsql {SELECT substr(t1,2,2) FROM tbl1 ORDER BY t1}
} "TF ha on i\u1234"
do_test func-3.5 {
 execsql {SELECT substr(t1,2,3) FROM tbl1 ORDER BY t1}
} "TF- har ont i\u1234h"
do_test func-3.6 {
 execsql {SELECT substr(t1,3,2) FROM tbl1 ORDER BY t1}
} "F- ar nt \u1234h"
do_test func-3.7 {
 execsql {SELECT
 substr(t1,4,2) FROM tbl1 ORDER BY t1}
} "-8 ra ta ho"
do_test func-3.8 {
 execsql {SELECT substr(t1,-1,1) FROM tbl1 ORDER BY t1}
} "8 s s o"
do_test func-3.9 {
 execsql {SELECT substr(t1,-3,2) FROM tbl1 ORDER BY t1}
} "F- er in \u1234h"
do_test func-3.10 {
 execsql {SELECT substr(t1,-4,3) FROM tbl1 ORDER BY t1}
} "TF- ter ain i\u1234h"
do_test func-3.99 {
 execsql {DELETE FROM tbl1}
 foreach word {this program is free software} {
   execsql "INSERT INTO tbl1 VALUES('$word')"
 }
 execsql {SELECT t1 FROM tbl1}
} {this program is free software}

} ;# End [sqlite -encoding]==UTF-8 and \u1234!=u1234

# Test the abs() and round() functions.
```

```
#
do_test func-4.1 {
 execsql {
   CREATE TABLE t1(a,b,c);
   INSERT INTO t1 VALUES(1,2,3);
   INSERT INTO t1 VALUES(2,1.2345678901234,-12345.67890);
   INSERT INTO t1 VALUES(3,-2,-5);
 }
 catchsql {SELECT abs(a,b) FROM t1}
} {1 {wrong number of arguments to function abs()}}
do_test func-4.2 {
 catchsql {SELECT abs() FROM t1}
} {1 {wrong number
 of arguments to function abs()}}
do_test func-4.3 {
 catchsql {SELECT abs(b) FROM t1 ORDER BY a}
} {0 {2 1.2345678901234 2}}
do_test func-4.4 {
 catchsql {SELECT abs(c) FROM t1 ORDER BY a}
} {0 {3 12345.67890 5}}
do_test func-4.4.1 {
 execsql {SELECT abs(a) FROM t2}
} {1 {} 345 {} 67890}
do_test func-4.4.2 {
 execsql {SELECT abs(t1) FROM tbl1}
} {this program is free software}

do_test func-4.5 {
 catchsql {SELECT round(a,b,c) FROM t1}
} {1 {wrong number of arguments to function round()}}
do_test func-4.6 {
 catchsql {SELECT round(b,2) FROM t1 ORDER BY b}
} {0 {-2.00 1.23 2.00}}
do_test func-4.7 {
 catchsql {SELECT round(b,0) FROM t1 ORDER BY a}
} {0 {2 1 -2}}
do_test func-4.8 {
 catchsql {SELECT round(c) FROM t1 ORDER BY a}
} {0 {3 -12346 -5}}
do_test func-4.9 {
 catchsql {SELECT round(c,a) FROM t1 ORDER BY a}
} {0 {3.0 -12345.68 -5.000}}
do_test func-4.10 {
 catchsql {SELECT 'x' || round(c,a) || 'y' FROM t1 ORDER BY a}
} {0 {x3.0y x-12345.68y x-5.000y}}
do_test func-4.11
 {
 catchsql {SELECT round() FROM t1 ORDER BY a}
```

```
} {1 {wrong number of arguments to function round()}}
do_test func-4.12 {
 execsql {SELECT coalesce(round(a,2),'nil') FROM t2}
} {1.00 nil 345.00 nil 67890.00}
do_test func-4.13 {
 execsql {SELECT round(t1,2) FROM tbl1}
} {0.00 0.00 0.00 0.00 0.00}

# Test the upper() and lower() functions
#
do_test func-5.1 {
 execsql {SELECT upper(t1) FROM tbl1}
} {THIS PROGRAM IS FREE SOFTWARE}
do_test func-5.2 {
 execsql {SELECT lower(upper(t1)) FROM tbl1}
} {this program is free software}
do_test func-5.3 {
 execsql {SELECT upper(a), lower(a) FROM t2}
} {1 1 {} {} 345 345 {} {} 67890 67890}
do_test func-5.4 {
 catchsql {SELECT upper(a,5) FROM t2}
} {1 {wrong number of arguments to function upper()}}
do_test func-5.5 {
 catchsql {SELECT upper(*) FROM t2}
} {1 {wrong number of arguments to function upper()}}

# Test the coalesce() and nullif() functions
#
do_test func-6.1 {
 execsql {SELECT coalesce(a,'xyz') FROM t2}
} {1 xyz 345 xyz 67890}
do_test
 func-6.2 {
 execsql {SELECT coalesce(upper(a),'nil') FROM t2}
} {1 nil 345 nil 67890}
do_test func-6.3 {
 execsql {SELECT coalesce(nullif(1,1),'nil')}
} {nil}
do_test func-6.4 {
 execsql {SELECT coalesce(nullif(1,2),'nil')}
} {1}
do_test func-6.5 {
 execsql {SELECT coalesce(nullif(1,NULL),'nil')}
} {1}


# Test the last_insert_rowid() function
#
```

```
do_test func-7.1 {
 execsql {SELECT last_insert_rowid()}
} [db last_insert_rowid]

# Tests for aggregate functions and how they handle NULLs.
#
do_test func-8.1 {
 execsql {
   SELECT sum(a), count(a), round(avg(a),2), min(a), max(a), count(*) FROM t2;
 }
} {68236 3 22745.33 1 67890 5}
do_test func-8.2 {
 execsql {
   SELECT max('z+'||a||'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOP') FROM t2;
 }
} {z+67890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOP}
do_test func-8.3 {
 execsql {
   CREATE TEMP TABLE t3 AS SELECT a FROM t2 ORDER BY a DESC;
   SELECT min('z+'||a||'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOP') FROM t3;
 }
} {z+1abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOP}
do_test
 func-8.4 {
 execsql {
   SELECT max('z+'||a||'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOP') FROM t3;
 }
} {z+67890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOP}

# How do you test the random() function in a meaningful, deterministic way?
#
do_test func-9.1 {
 execsql {
   SELECT random() is not null;
 }
} {1}

# Use the "sqlite_register_test_function" TCL command which is part of
# the text fixture in order to verify correct operation of some of
# the user-defined SQL function APIs that are not used by the built-in
# functions.
#
db close
set ::DB [sqlite db test.db]
sqlite_register_test_function $::DB testfunc
do_test func-10.1 {
 catchsql {
   SELECT testfunc(NULL,NULL);
```

```
 }
} {1 {first argument to test function may not be NULL}}
do_test func-10.2 {
 execsql {
   SELECT testfunc(
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'int', 1234
   );
 }
} {1234}
do_test func-10.3 {
 execsql {
   SELECT
 testfunc(
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'string', NULL
   );
 }
} {{}}
do_test func-10.4 {
 execsql {
   SELECT testfunc(
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'double', 1.234
   );
 }
} {1.234}
do_test func-10.5 {
 execsql {
   SELECT testfunc(
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'int', 1234,
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'string', NULL,
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'double', 1.234,
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'int', 1234,
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'string', NULL,
    'string', 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ',
    'double', 1.234
   );
 }
} {1.234}

# Test the built-in sqlite_version(*) SQL function.
#
```

```
do_test func-11.1 {
 execsql {

   SELECT sqlite_version(*);
 }
} [sqlite -version]

finish_test
```

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/test/func.test
No license file was found, but licenses were detected in source scan.

```
/*
** The "printf" code that follows dates from the 1980's.  It is in
** the public domain.  The original comments are included here for
** completeness.  They are very out-of-date but might be useful as
** an historical reference.  Most of the "enhancements" have been backed
** out so that the functionality is now the same as standard printf().
**
**************************************************************************
**
** The following modules is an enhanced replacement for the "printf" subroutines
** found in the standard C library.  The following enhancements are
** supported:
**
**      +  Additional functions.  The standard set of "printf" functions
**         includes printf, fprintf, sprintf, vprintf, vfprintf, and
**         vsprintf.  This module adds the following:
**
**           *  snprintf -- Works like sprintf, but has an extra argument
**                          which is the size of the buffer written
 to.
**
**           *  mprintf --  Similar to sprintf.  Writes output to memory
**                          obtained from malloc.
**
**           *  xprintf --  Calls a function to dispose of output.
**
**           *  nprintf --  No output, but returns the number of characters
**                          that would have been output by printf.
**
**           *  A v- version (ex: vsnprintf) of every function is also
**              supplied.
**
**      +  A few extensions to the formatting notation are supported:
**
**           *  The "=" flag (similar to "-") causes the output to be
```

```
**           be centered in the appropriately sized field.
**
**         *  The %b field outputs an integer in binary notation.
**
**         *  The %c field now accepts a precision.  The character output
**            is repeated by the number of times the precision specifies.
**
**         *  The %' field works like %c, but takes as its character the
**            next character of the
 format string, instead of the next
**            argument.  For example,  printf("%.78'-")  prints 78 minus
**            signs, the same as  printf("%.78c",'-').
**
**     +  When compiled using GCC on a SPARC, this version of printf is
**        faster than the library printf for SUN OS 4.1.
**
**     +  All functions are fully reentrant.
**
*/
```

Found in path(s):
* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/src/printf.c
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* /opt/cola/permits/1151440481_1663906961.0080585/0/sqlite-2-8-17-orig-11-tar-gz/sqlite-2.8.17/www/index.tcl

1.154 berkeley-db 5.3.28

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/*-
* Id
*/

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=-=

```
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1.156 zope-interface 5.3.0

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Bogdan Piloca <boo@google.com>
Chandler Carruth <chandlerc@google.com>
Dave MacLachlan <dmaclach@gmail.com>
David Anderson <danderson@google.com>
Dean Sturtevant
Gene Volovich <gv@cite.com>
Hal Burch <gmock@hburch.com>
Jeffrey Yasskin <jyasskin@google.com>
Jim Keller <jimkeller@google.com>
Joe Walnes <joe@truemesh.com>
Jon Wray <jwray@google.com>

Keir Mierle <mierle@gmail.com>
Keith Ray <keith.ray@gmail.com>
Kostya Serebryany <kcc@google.com>
Lev Makhlis
Manuel Klimek <klimek@google.com>
Mario Tanev <radix@google.com>
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Markus Heule <markus.heule@gmail.com>
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Ajay Joshi <jaj@google.com>
Balzs Dn <balazs.dan@gmail.com>
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Patrick Hanna <phanna@google.com>
Patrick Riley <pfr@google.com>
Peter Kaminski <piotrk@google.com>
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1.163 stunnel 5.59

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The original
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The initial developer of the original code is Rainer Budde (http://www.speed-soft.de).

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1.164 click 7.1.2

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binary only, patch it back to the system, and then use a wrapper

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* /opt/cola/permits/1160566381_1620335255.38/0/pallets-click-7-1-2-0-g1784558-1-tar-gz/pallets-click-1784558/src/click/_compat.py
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```
import io
import re

from setuptools import find_packages
from setuptools import setup

with io.open("README.rst", "rt", encoding="utf8") as f:
  readme = f.read()

with io.open("src/click/__init__.py", "rt", encoding="utf8") as f:
  version = re.search(r'__version__ = "(.*?)"', f.read()).group(1)

setup(
  name="click",
  version=version,
  url="https://palletsprojects.com/p/click/",
  project_urls={
     "Documentation": "https://click.palletsprojects.com/",
     "Code": "https://github.com/pallets/click",
     "Issue tracker": "https://github.com/pallets/click/issues",
  },
```

```
  license="BSD-3-Clause",
  maintainer="Pallets",
  maintainer_email="contact@palletsprojects.com",
  description="Composable command line interface toolkit",
  long_description=readme,
  packages=find_packages("src"),
  package_dir={"": "src"},
  include_package_data=True,
  python_requires=">=2.7, !=3.0.*,
!=3.1.*, !=3.2.*, !=3.3.*, !=3.4.*",
  classifiers=[
      "Development Status :: 5 - Production/Stable",
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      "Operating System :: OS Independent",
      "Programming Language :: Python",
      "Programming Language :: Python :: 2",
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  ],
)
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* /opt/cola/permits/1160566381_1620335255.38/0/pallets-click-7-1-2-0-g1784558-1-tar-gz/pallets-click-1784558/setup.py
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```
.. _contrib:

=============
click-contrib
=============

As the userbase of Click grows, more and more major feature requests pop up in
Click's bugtracker. As reasonable as it may be for those features to be bundled
with Click instead of being a standalone project, many of those requested
features are either highly experimental or have unproven practical use, while
potentially being a burden to maintain.

This is why click-contrib_ exists. The GitHub organization is a collection of
possibly experimental third-party packages whose featureset does not belong
into Click, but also a playground for major features that may be added to Click
in the future. It is also meant to coordinate and concentrate effort on writing
third-party extensions for Click, and to ease the effort of searching for such
extensions. In that sense it could be described as a low-maintenance
alternative to extension repositories of other frameworks.

Please
```

note that the quality and stability of those packages may be different
than what you expect from Click itself. While published under a common
organization, they are still projects separate from Click.

.. _click-contrib: https://github.com/click-contrib/

Found in path(s):
* /opt/cola/permits/1160566381_1620335255.38/0/pallets-click-7-1-2-0-g1784558-1-tar-gz/pallets-click-1784558/docs/contrib.rst
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Found in path(s):
* /opt/cola/permits/1160566381_1620335255.38/0/pallets-click-7-1-2-0-g1784558-1-tar-gz/pallets-click-1784558/tests/test_formatting.py

1.165 cffi 1.14.5

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1.169 ply 3.11

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PLY (Python Lex-Yacc) Version 3.11

[![Build Status](https://travis-ci.org/dabeaz/ply.svg?branch=master)](https://travis-ci.org/dabeaz/ply)

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Introduction
============

PLY is a 100% Python implementation of the common parsing tools lex
and yacc. Here are a few highlights:

- PLY is very closely modeled after traditional lex/yacc.
  If you know how to use these tools in C, you will find PLY
  to be similar.

- PLY provides *very* extensive error reporting and diagnostic
  information to assist in parser construction. The original
  implementation was developed for instructional purposes. As
  a result, the system tries to identify the most common types
  of errors made by novice users.

- PLY provides full support for empty productions, error recovery,
  precedence specifiers, and moderately ambiguous grammars.

- Parsing is based on LR-parsing which is fast, memory efficient,
  better suited to large grammars, and which has a number of nice
  properties when dealing with syntax errors and other parsing problems.
  Currently, PLY builds its parsing tables using the LALR(1)
  algorithm used in yacc.

- PLY uses Python introspection features to build lexers and parsers.
  This greatly simplifies the task of parser construction since it reduces
  the number of files and eliminates the need to run a separate lex/yacc
  tool before running your program.

- PLY can be used to build parsers for "real" programming languages.
  Although it is not ultra-fast due to its Python implementation,
  PLY can be used to parse grammars consisting of several hundred
  rules (as might be found for a language like C). The lexer and LR
  parser are also reasonably efficient when parsing typically
  sized programs. People have used PLY to build parsers for
  C, C++, ADA, and other real programming languages.

How to Use
==========

PLY consists of two files : lex.py and yacc.py. These are contained
within the 'ply' directory which may also be used as a Python package.
To use PLY, simply copy the 'ply' directory to your project and import
lex and yacc from the associated 'ply' package. For example:

```
import ply.lex as lex
import ply.yacc as yacc
```

Alternatively, you can copy just the files lex.py and yacc.py
individually and use them as modules. For example:

```
import lex
import yacc
```

The file setup.py can be used to install
ply using distutils.

The file doc/ply.html contains complete documentation on how to use
the system.

The example directory contains several different examples including a
PLY specification for ANSI C as given in K&R 2nd Ed.

A simple example is found at the end of this document

Requirements
============
PLY requires the use of Python 2.6 or greater. However, you should
use the latest Python release if possible. It should work on just
about any platform. PLY has been tested with both CPython and Jython.
It also seems to work with IronPython.

Resources
=========
More information about PLY can be obtained on the PLY webpage at:

    http://www.dabeaz.com/ply

For a detailed overview of parsing theory, consult the excellent
book "Compilers : Principles, Techniques, and Tools" by Aho, Sethi, and
Ullman. The topics found in "Lex & Yacc" by Levine, Mason, and Brown
may also be useful.

The GitHub page for PLY can be found at:

    https://github.com/dabeaz/ply

An old and
relatively inactive discussion group for PLY is found at:

    http://groups.google.com/group/ply-hack

Acknowledgments
===============
A special thanks is in order for all of the students in CS326 who
suffered through about 25 different versions of these tools :-).

The CHANGES file acknowledges those who have contributed patches.

Elias Ioup did the first implementation of LALR(1) parsing in PLY-1.x.
Andrew Waters and Markus Schoepflin were instrumental in reporting bugs
and testing a revised LALR(1) implementation for PLY-2.0.

Special Note for PLY-3.0
========================
PLY-3.0 the first PLY release to support Python 3. However, backwards
compatibility with Python 2.6 is still preserved. PLY provides dual
Python 2/3 compatibility by restricting its implementation to a common
subset of basic language features. You should not convert PLY using
2to3--it is not necessary and may in fact break the implementation.

Example
=======

Here is a simple example showing a PLY implementation
 of a calculator
with variables.

```
  # -----------------------------------------------------------------------------
  # calc.py
  #
  # A simple calculator with variables.
  # -----------------------------------------------------------------------------

  tokens = (
     'NAME','NUMBER',
     'PLUS','MINUS','TIMES','DIVIDE','EQUALS',
     'LPAREN','RPAREN',
     )

  # Tokens

  t_PLUS    = r'\+'
  t_MINUS   = r'-'
  t_TIMES   = r'\*'
  t_DIVIDE  = r'/'
  t_EQUALS  = r'='
  t_LPAREN  = r'\('
  t_RPAREN  = r'\)'
  t_NAME    = r'[a-zA-Z_][a-zA-Z0-9_]*'

  def t_NUMBER(t):
     r'\d+'
     t.value = int(t.value)
     return t

  # Ignored characters
  t_ignore = " \t"

  def t_newline(t):
     r'\n+'
     t.lexer.lineno += t.value.count("\n")

  def t_error(t):
     print("Illegal character '%s'" % t.value[0])
     t.lexer.skip(1)

  # Build the lexer
  import ply.lex as lex
```

```
  lex.lex()

  # Precedence
rules for the arithmetic operators
  precedence = (
     ('left','PLUS','MINUS'),
     ('left','TIMES','DIVIDE'),
     ('right','UMINUS'),
     )

  # dictionary of names (for storing variables)
  names = { }

  def p_statement_assign(p):
     'statement : NAME EQUALS expression'
     names[p[1]] = p[3]

  def p_statement_expr(p):
     'statement : expression'
     print(p[1])

  def p_expression_binop(p):
     '''expression : expression PLUS expression
                   | expression MINUS expression
                   | expression TIMES expression
                   | expression DIVIDE expression'''
     if p[2] == '+'  : p[0] = p[1] + p[3]
     elif p[2] == '-': p[0] = p[1] - p[3]
     elif p[2] == '*': p[0] = p[1] * p[3]
     elif p[2] == '/': p[0] = p[1] / p[3]

  def p_expression_uminus(p):
     'expression : MINUS expression %prec UMINUS'
     p[0] = -p[2]

  def p_expression_group(p):
     'expression : LPAREN
expression RPAREN'
     p[0] = p[2]

  def p_expression_number(p):
     'expression : NUMBER'
     p[0] = p[1]

  def p_expression_name(p):
     'expression : NAME'
     try:
        p[0] = names[p[1]]
```

```
    except LookupError:
        print("Undefined name '%s'" % p[1])
        p[0] = 0

def p_error(p):
    print("Syntax error at '%s'" % p.value)

import ply.yacc as yacc
yacc.yacc()

while True:
    try:
        s = raw_input('calc > ')   # use input() on Python 3
    except EOFError:
        break
    yacc.parse(s)
```

Bug Reports and Patches
=======================
My goal with PLY is to simply have a decent lex/yacc implementation
for Python. As a general rule, I don't spend huge amounts of time
working on it unless I receive very specific bug reports and/or
patches to fix problems. I also try to incorporate submitted feature
requests and enhancements into each new version. Please visit the PLY
github page
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1.170 pexpect 4.8.0

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1.171 runc 1.0.0+rc5+git0+6a2c155968

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1.172 pika 1.2.0

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1.173 binutils 2.36.1

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(This file is under construction.) -*- text -*-

If you've contributed to gas and your name isn't listed here, it is
not meant as a slight. I just don't know about it. Email me,
nickc@redhat.com and I'll correct the situation.

This file will eventually be deleted: The general info will go into
the documentation, and info on specific files will go into an AUTHORS
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++++++++++++++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for
gdb-specific debug information and the 68k series machines, most of
the preprocessing pass, and extensive changes in messages.c,
input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various
enhancements and many bug fixes, including merging support for several
processors, breaking gas up to handle multiple object file format
backends (including heavy rewrite, testing, an integration of the coff
and b.out backends), adding configuration
 including heavy testing and
verification of cross assemblers and file splits and renaming,
converted gas to strictly ansi C including full prototypes, added
support for m680[34]0 & cpu32, considerable work on i960 including a
coff port (including considerable amounts of reverse engineering), a
sparc opcode file rewrite, decstation, rs6000, and hp300hpux host
ports, updated "know" assertions and made them work, much other
reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of
the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan.
Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of

Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith
Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation
that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many
small
bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost;
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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes

a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we
use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without
limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for

making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish
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appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified
Library refers to a function or a
table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,
then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License
to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form

under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be
distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered
by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any
executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work

under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for

reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

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[This is the first released version of the library GPL. It is
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

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complete object files to the recipients so that they can relink them
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Our method of protecting your rights has two steps: (1) copyright
the library, and (2) offer you this license which gives you legal

permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based

on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition,
mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the
Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or

linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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a) Accompany the work with the complete corresponding

machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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1.175 fail2ban 0.11.2

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```
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```

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```
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 <signature of Ty Coon>, 1 April 1989
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1.176 tar 1.34

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1.177 urllib3 1.26.5

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Contributions to the urllib3 project

Creator & Maintainer

* Andrey Petrov <andrey.petrov@shazow.net>

Contributors

In chronological order:

* victor.vde <http://code.google.com/u/victor.vde/>
 * HTTPS patch (which inspired HTTPSConnectionPool)

* erikcederstrand <http://code.google.com/u/erikcederstrand/>
 * NTLM-authenticated HTTPSConnectionPool
 * Basic-authenticated HTTPSConnectionPool (merged into make_headers)

* niphlod <niphlod@gmail.com>
 * Client-verified SSL certificates for HTTPSConnectionPool
 * Response gzip and deflate encoding support
 * Better unicode support for filepost using StringIO buffers

* btoconnor <brian@btoconnor.net>
 * Non-multipart encoding for POST requests

* p.dobrogost <http://code.google.com/u/@WBRSRlBZDhBFXQB6/>
 * Code review, PEP8 compliance, benchmark fix

* kennethreitz <me@kennethreitz.com>
 * Bugfixes, suggestions, Requests integration

* georgemarshall <https://github.com/georgemarshall>
 * Bugfixes, Improvements and Test
 coverage

* Thomas Kluyver <thomas@kluyver.me.uk>
 * Python 3 support

* brandon-rhodes <http://rhodesmill.org/brandon>
 * Design review, bugfixes, test coverage.

* studer <theo.studer@gmail.com>
 * IPv6 url support and test coverage

* Shivaram Lingamneni <slingamn@cs.stanford.edu>
 * Support for explicitly closing pooled connections

* hartator <hartator@gmail.com>
 * Corrected multipart behavior for params

* Thomas Weischuh <thomas@t-8ch.de>
 * Support for TLS SNI
 * API unification of ssl_version/cert_reqs
 * SSL fingerprint and alternative hostname verification
 * Bugfixes in testsuite

* Sune Kirkeby <mig@ibofobi.dk>
 * Optional SNI-support for Python 2 via PyOpenSSL.

* Marc Schlaich <marc.schlaich@gmail.com>
 * Various bugfixes and test improvements.

* Bryce Boe <bbzbryce@gmail.com>
 * Correct six.moves conflict
 * Fixed pickle support of some exceptions

* Boris Figovsky <boris.figovsky@ravellosystems.com>
 * Allowed to skip SSL hostname verification

* Cory Benfield
 <https://lukasa.co.uk/about/>
 * Stream method for Response objects.
 * Return native strings in header values.
 * Generate 'Host' header when using proxies.

* Jason Robinson <jaywink@basshero.org>
 * Add missing WrappedSocket.fileno method in PyOpenSSL

* Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
 * Fixed a race condition

* Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
 * Added HTTPS (CONNECT) proxy support

* Stephen Holsapple <sholsapp@gmail.com>

* Added abstraction for granular control of request fields

* Martin von Gagern <Martin.vGagern@gmx.net>
* Support for non-ASCII header parameters

* Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
* Support for separate connect and request timeouts

* Peter Waller <p@pwaller.net>
* HTTPResponse.tell() for determining amount received over the wire

* Nipunn Koorapati <nipunn1313@gmail.com>
* Ignore default ports when comparing hosts for equality

* Danilo @dbrgn <https://dbrgn.ch/>
* Disabled TLS compression by default on Python 3.2+
* Disabled TLS compression in pyopenssl contrib module
* Configurable cipher suites in pyopenssl contrib module

* Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
* Account retries on proxy errors

* Nicolas Delaby <nicolas.delaby@ezeep.com>
* Use the platform-specific CA certificate locations

* Josh Schneier <https://github.com/jschneier>
* HTTPHeaderDict and associated tests and docs
* Bugfixes, docs, test coverage

* Tahia Khan <http://tahia.tk/>
* Added Timeout examples in docs

* Arthur Grunseid <https://grunseid.com>
* source_address support and tests (with https://github.com/bui)

* Ian Cordasco <graffatcolmingov@gmail.com>
* PEP8 Compliance and Linting
* Add ability to pass socket options to an HTTP Connection

* Erik Tollerud <erik.tollerud@gmail.com>
* Support for standard library io module.

* Krishna Prasad <kprasad.iitd@gmail.com>
* Google App Engine documentation

* Aaron Meurer
<asmeurer@gmail.com>
* Added Url.url, which unparses a Url

* Evgeny Kapun <abacabadabacaba@gmail.com>
 * Bugfixes

* Benjamen Meyer <bm_witness@yahoo.com>
 * Security Warning Documentation update for proper capture

* Shivan Sornarajah <github@sornars.com>
 * Support for using ConnectionPool and PoolManager as context managers.

* Alex Gaynor <alex.gaynor@gmail.com>
 * Updates to the default SSL configuration

* Tomas Tomecek <ttomecek@redhat.com>
 * Implemented generator for getting chunks from chunked responses.

* tlynn <https://github.com/tlynn>
 * Respect the warning preferences at import.

* David D. Riddle <ddriddle@illinois.edu>
 * IPv6 bugfixes in testsuite

* Thea Flowers <magicalgirl@google.com>
 * App Engine environment tests.
 * Documentation re-write.

* John Krauss <https://github.com/talos>
 * Clues to debugging problems with `cryptography` dependency in docs

* Disassem <https://github.com/Disassem>
 * Fix pool-default headers not applying for url-encoded
 requests like GET.

* James Atherfold <jlatherfold@hotmail.com>
 * Bugfixes relating to cleanup of connections during errors.

* Christian Pedersen <https://github.com/chripede>
 * IPv6 HTTPS proxy bugfix

* Jordan Moldow <https://github.com/jmoldow>
 * Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
 * Bugfix for ``ConnectionPool.urlopen(release_conn=False)``.
 * Creation of ``HTTPConnectionPool.ResponseCls``.

* Predrag Gruevski <https://github.com/obi1kenobi>
 * Made cert digest comparison use a constant-time algorithm.

* Adam Talsma <https://github.com/a-tal>

* Bugfix to ca_cert file paths.

* Evan Meagher <https://evanmeagher.net>
* Bugfix related to `memoryview` usage in PyOpenSSL adapter

* John Vandenberg <jayvdb@gmail.com>
* Python 2.6 fixes; pyflakes and pep8 compliance

* Andy Caldwell <andy.m.caldwell@googlemail.com>
* Bugfix related to reusing connections in indeterminate states.

* Ville Skytt <ville.skytta@iki.fi>
* Logging efficiency
improvements, spelling fixes, Travis config.

* Shige Takeda <smtakeda@gmail.com>
* Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response

* Jess Shapiro <jesse@jesseshapiro.net>
* Various character-encoding fixes/tweaks
* Disabling IPv6 DNS when IPv6 connections not supported

* David Foster <http://dafoster.net/>
* Ensure order of request and response headers are preserved.

* Jeremy Cline <jeremy@jcline.org>
* Added connection pool keys by scheme

* Aviv Palivoda <palaviv@gmail.com>
* History list to Retry object.
* HTTPResponse contains the last Retry object.

* Nate Prewitt <nate.prewitt@gmail.com>
* Ensure timeouts are not booleans and greater than zero.
* Fixed infinite loop in ``stream`` when amt=None.
* Added length_remaining to determine remaining data to be read.
* Added enforce_content_length to raise exception when incorrect content-length received.

* Seth Michael Larson <sethmichaellarson@protonmail.com>
* Created selectors backport that supports PEP 475.

* Alexandre Dias <alex.dias@smarkets.com>
* Don't retry on timeout if method not in whitelist

* Moinuddin Quadri <moin18@gmail.com>
* Lazily load idna package

* Tom White <s6yg1ez3@mail2tor.com>

 * Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.

* Tim Burke <tim.burke@gmail.com>
 * Stop buffering entire deflate-encoded responses.

* Tuukka Mustonen <tuukka.mustonen@gmail.com>
 * Add counter for status_forcelist retries.

* Erik Rose <erik@mozilla.com>
 * Bugfix to pyopenssl vendoring

* Wolfgang Richter <wolfgang.richter@gmail.com>
 * Bugfix related to loading full certificate chains with PyOpenSSL backend.

* Mike Miller <github@mikeage.net>
 * Logging improvements to include the HTTP(S) port when opening a new connection

* Ioannis Tziakos <mail@itziakos.gr>
 * Fix ``util.selectors._fileobj_to_fd`` to accept ``long``.
 * Update appveyor tox setup to use the 64bit python.

* Akamai
 (through Jess Shapiro) <jshapiro@akamai.com>
 * Ongoing maintenance; 2017-2018

* Dominique Leuenberger <dimstar@opensuse.org>
 * Minor fixes in the test suite

* Will Bond <will@wbond.net>
 * Add Python 2.6 support to ``contrib.securetransport``

* Aleksei Alekseev <alekseev.yeskela@gmail.com>
 * using auth info for socks proxy

* Chris Wilcox <git@crwilcox.com>
 * Improve contribution guide
 * Add ``HTTPResponse.geturl`` method to provide ``urllib2.urlopen().geturl()`` behavior

* Bruce Merry <https://www.brucemerry.org.za>
 * Fix leaking exceptions when system calls are interrupted with zero timeout

* Hugo van Kemenade <https://github.com/hugovk>
 * Drop support for EOL Python 2.6

* Tim Bell <https://github.com/timb07>
 * Bugfix for responses with Content-Type: message/* logging warnings

* Justin Bramley <https://github.com/jbramleycl>

* Add ability to handle multiple Content-Encodings

* Katsuhiko YOSHIDA <https://github.com/kyoshidajp>
* Remove Authorization header
regardless of case when redirecting to cross-site

* James Meickle <https://permadeath.com/>
* Improve handling of Retry-After header

* Chris Jerdonek <chris.jerdonek@gmail.com>
* Remove a spurious TypeError from the exception chain inside
HTTPConnectionPool._make_request(), also for BaseExceptions.

* Jorge Lopez Silva <https://github.com/jalopezsilva>
* Added support for forwarding requests through HTTPS proxies.

* Benno Rice <benno@jeamland.net>
* Allow cadata parameter to be passed to underlying ``SSLContext.load_verify_locations()``.

* Keiichi Kobayashi <abok.1k@gmail.com>
* Rename VerifiedHTTPSConnection to HTTPSConnection

* Himanshu Garg <garg_himanshu@outlook.com>
* DOC & LICENSE Update

* Hod Bin Noon <bin.noon.hod@gmail.com>
* Test improvements

* Chris Olufson <tycarac@gmail.com>
* Fix for connection not being released on HTTP redirect and response not preloaded

* [Bastiaan Bakker] <https://github.com/bastiaanb>
* Support for logging session keys
via environment variable ``SSLKEYLOGFILE`` (Python 3.8+)

* [Ezzeri Esa] <https://github.com/savarin>
* Ports and extends on types from typeshed

* [Your name or handle] <[email or website]>
* [Brief summary of your changes]

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If the program does terminal interaction, make it output a short
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1.181 openosc 1.0.5

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1.183 netbase 6.2

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Jay Fenlason maintained gas for a while, adding support for
gdb-specific debug information and the 68k series machines, most of
the preprocessing pass, and extensive changes in messages.c,
input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various
enhancements and many bug fixes, including merging support for several
processors, breaking gas up to handle multiple object file format
backends (including heavy rewrite, testing, an integration of the coff
and b.out backends), adding configuration
 including heavy testing and
verification of cross assemblers and file splits and renaming,
converted gas to strictly ansi C including full prototypes, added
support for m680[34]0 & cpu32, considerable work on i960 including a
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sparc opcode file rewrite, decstation, rs6000, and hp300hpux host
ports, updated "know" assertions and made them work, much other
reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of
the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan.
Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of
Buffalo University and Torbjorn Granlund of the Swedish Institute of
Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation
that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many
small
bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000
series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30
(tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error
checking, updating the code, and improving the 16 bit support, using
patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If
you've contributed significant work and are not mentioned on this list, and
want to be, let us know. Some of the history has been lost;
 we aren't
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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

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4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any
executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

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d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

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<signature of Ty Coon>, 1 April 1989
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1.188 procps 3.3.17

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1.189 debianutils 4.11.2

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1.192 python-setuptools 58.1.0

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1.193 librabbitmq 0.11.0

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1.194 luajit 2.1.0.beta3

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1.198 blackfriday 2.0.1

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1.199 sanitized-anchor-name 1.0.0

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1.200 opencontainers-runtime-spec 1.0.3-0.20200929063507-e6143ca7d51d

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1.201 x-sys 0.0.0-20201119102817-f84b799fce68

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1.202 protobuf 1.23.0

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1.203 sys-mountinfo 0.4.0

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1.204 containerd-console 1.0.1

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1.212 concurrentloghandler 0.9.1

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1.216 apache-log4j 2.17.1

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1.219 crs-log 0.6.0

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Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library.
It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has
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1.222 crs-client 0.6.0

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1.225 shared-mime-info 2.1

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include/bsd/stdlib.h
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man/bitstring.3bsd
man/errc.3bsd
man/explicit_bzero.3bsd
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man/reallocarray.3bsd
man/reallocf.3bsd
man/setmode.3bsd
man/strmode.3bsd
man/strnstr.3bsd
man/strtoi.3bsd
man/strtou.3bsd
man/unvis.3bsd
man/vis.3bsd
man/wcslcpy.3bsd
src/getbsize.c
src/heapsort.c
src/merge.c
src/nlist.c
src/pwcache.c
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man/strtonum.3bsd
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src/arc4random_openbsd.h
src/arc4random_uniform.c
src/arc4random_unix.h
src/arc4random_win.h
src/closefrom.c
src/freezero.c
src/getentropy_aix.c
src/getentropy_bsd.c
src/getentropy_hpux.c
src/getentropy_hurd.c
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1.228 dtc 1.6.0

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A. HISTORY OF THE SOFTWARE
==========

Python was created in the early 1990s by Guido van Rossum at Stichting
Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands
as a successor of a language called ABC. Guido remains Python's
principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for
National Research Initiatives (CNRI, see http://www.cnri.reston.va.us)
in Reston, Virginia where he released several versions of the
software.

In May
2000, Guido and the Python core development team moved to
BeOpen.com to form the BeOpen PythonLabs team. In October of the same
year, the PythonLabs team moved to Digital Creations (now Zope
Corporation, see http://www.zope.com). In 2001, the Python Software

Foundation (PSF, see http://www.python.org/psf/) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see http://www.opensource.org for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now	PSF	yes

Footnotes:

(1) GPL-compatible doesn't mean that we're distributing Python under the GPL. All Python licenses, unlike the GPL, let you distribute a modified version without making your changes open source. The GPL-compatible licenses make it possible to combine Python with other software that is released under the GPL; the others don't.

(2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

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==========
Advice for new contributors
==========

New contributor and not sure what to do? Want to help but just don't know how
to get started? This is the section for you.

.. admonition:: Basic tools and workflow

If you are new to contributing to Django, the :doc:`/intro/contributing`
tutorial will give you an introduction to the tools and the workflow.

First steps
==========

Start with these easy tasks to discover Django's development process.

* **Triage tickets**

  If an `unreviewed ticket`_ reports a bug, try and reproduce it. If you
  can reproduce it and it seems valid, make a note that you confirmed the bug
  and accept the ticket. Make sure the ticket is filed under the correct
  component area. Consider writing a patch that adds a test for the bug's
  behavior, even if you don't fix the bug itself. See more at
  :ref:`how-can-i-help-with-triaging`

* **Look for tickets that are accepted and review patches to build familiarity

  with the codebase and the process**

  Mark the appropriate flags if a patch needs docs or tests. Look through the
  changes a patch makes, and keep an eye out for syntax that is incompatible
  with older but still supported versions of Python. :doc:`Run the tests
  </internals/contributing/writing-code/unit-tests>` and make sure they pass.
  Where possible and relevant, try them out on a database other than SQLite.
  Leave comments and feedback!

* **Keep old patches up to date**

  Oftentimes the codebase will change between a patch being submitted and the
  time it gets reviewed. Make sure it still applies cleanly and functions as
  expected. Simply updating a patch is both useful and important! See more on
  :doc:`writing-code/submitting-patches`.

* **Write some documentation**

  Django's documentation is great but it can always be improved. Did you find
  a typo? Do you think that something should be clarified? Go ahead and
  suggest a documentation patch! See also the guide on
   :doc:`writing-documentation`.

  .. note::

     The `reports page`_ contains links to many useful Trac queries, including
     several that are useful for triaging tickets and reviewing patches as
     suggested above.

     .. _reports page: https://code.djangoproject.com/wiki/Reports

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Guidelines
==========

As a newcomer on a large project, it's easy to experience frustration. Here's
some advice to make your work on Django more useful and rewarding.

* **Pick a subject
area that you care about, that you are familiar with, or
that you want to learn about**

You don't already have to be an expert on the area you want to work on; you
become an expert through your ongoing contributions to the code.

* **Analyze tickets' context and history**

Trac isn't an absolute; the context is just as important as the words.
When reading Trac, you need to take into account who says things, and when
they were said. Support for an idea two years ago doesn't necessarily mean
that the idea will still have support. You also need to pay attention to who
hasn't spoken -- for example, if an experienced contributor hasn't been
recently involved in a discussion, then a ticket may not have the support
required to get into Django.

* **Start small**

It's easier to get feedback on a little issue than on a big one. See the
`easy pickings`_.

* **If you're going to engage in a big task, make sure that your idea has
support first**

This means getting
someone else to confirm that a bug is real before you fix
the issue, and ensuring that there's consensus on a proposed feature before
you go implementing it.

* **Be bold! Leave feedback!**

Sometimes it can be scary to put your opinion out to the world and say "this
ticket is correct" or "this patch needs work", but it's the only way the

project moves forward. The contributions of the broad Django community ultimately have a much greater impact than that of any one person. We can't do it without **you**!

* **Err on the side of caution when marking things Ready For Check-in**

If you're really not certain if a ticket is ready, don't mark it as such. Leave a comment instead, letting others know your thoughts. If you're mostly certain, but not completely certain, you might also try asking on IRC to see if someone else can confirm your suspicions.

* **Wait for feedback, and respond to feedback that you receive**

Focus on one or two tickets, see them through from start to finish, and repeat. The shotgun approach of taking on lots of tickets and letting some fall by the wayside ends up doing more harm than good.

* **Be rigorous**

When we say ":pep:`8`, and must have docs and tests", we mean it. If a patch doesn't have docs and tests, there had better be a good reason. Arguments like "I couldn't find any existing tests of this feature" don't carry much weight--while it may be true, that means you have the extra-important job of writing the very first tests for that feature, not that you get a pass from writing tests altogether.

.. _easy pickings: https://code.djangoproject.com/query?status=!closed&easy=1

.. _new-contributors-faq:

FAQ
===

1. **This ticket I care about has been ignored for days/weeks/months! What can I do to get it committed?**

   First off, it's not personal. Django is entirely developed by volunteers (except the Django fellow), and sometimes folks just don't have time. The best thing to do is to send a gentle reminder to the |django-developers| mailing list asking for review on the ticket, or to bring it up in the `#django-dev` IRC channel.

2. **I'm sure my ticket is absolutely 100% perfect, can I mark it as RFC myself?**

   Short answer: No. It's always better to get another set of eyes on a

ticket. If you're having trouble getting that second set of eyes, see question 1, above.

1.233 libaio 0.3.112

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control
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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can
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Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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^L
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This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or
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under the terms of Sections 1 and 2 above provided that you accompany
it with the complete
corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the
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therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
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that uses the
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When a "work that uses the Library" uses material from a header file
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derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library. The
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work. (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute
the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.
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6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a)
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d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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to most
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Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!

1.234 libpwquality 1.4.4

1.234.1 Available under license :

No license file was found, but licenses were detected in source scan.

/*
* pw.h
*
* Password routines, adopted from IOX
*
* May 2000 Mark Eklund
* July 2005, Craig MacFarlane
*
* Copyright (c) 2000-2005, 2007, 2010, 2014, 2018 by cisco Systems, Inc.
* All rights reserved.
*/
/*
* edt: * pw_type_t
* Possible formats of saving the password in SysDB.
*
* item: PW_TYPE_CLEAR
* The password in the clear, visible for anybody.
*
* item: PW_TYPE_1WAY
* The password encrypted to an MD5 digest. This is not reversible.
*
* item: PW_TYPE_1WAY_2
* The password encrypted to an sha256 digest. This is not reversible.

*
* item: PW_TYPE_2WAY
*   The Cisco type 7 password encryption. This is reversible
* by both Cisco products and several public domain programs.
*/

Found in path(s):
* /opt/cola/permits/1273716988_1648046860.0/0/pw-tar/pw/include/pw.h
No license file was found, but licenses were detected in source scan.

/*
* pw_defs.h
*
* Password defines.
*
* July 2005, Craig MacFarlane
*
* Copyright (c) 2005, 2007, 2010, 2014, 2018-2019 by cisco Systems, Inc.
* All rights reserved.
*
*/

Found in path(s):
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Found in path(s):
* /opt/cola/permits/1273716988_1648046860.0/0/pw-tar/pw/Makefile.binos
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/*
* pw.c
*
* AAA password routines, adopted from IOX
*
* January 2005, Naiming Shen
* July 2005, Craig MacFarlane
*
* Copyright (c) 2005, 2007, 2010, 2014-2015, 2018 by cisco Systems, Inc.
* All rights reserved.
*
*--
* pw.c -- password encryption/decryption routines
*
* May 08 2000, Mark Eklund
*

```
* Copyright (c) 2002-2005, 2007, 2010, 2014-2015, 2018 by cisco Systems, Inc.
* All rights reserved.
*-----------------------------------------------------------------
*/

Found in path(s):
* /opt/cola/permits/1273716988_1648046860.0/0/pw-tar/pw/src/pw.c
No license file was found, but licenses were detected in source scan.

/*
* pw_const.tph
*
* Copyright (c) 2019 by Cisco Systems, Inc.
* All rights reserved.
*/

@DIRECTIVES{
  auto_import_stg = false;
  skip_auto_tdl_include = true;
}@

@IMPORT_STG{
  import "constant_gen.stg";
}@

@TDL{
  import "pw_const.tdl"
}@

@CODE{

#ifndef __TDLC_GEN_PW_CONST_H__
#define __TDLC_GEN_PW_CONST_H__

  $constant_generate()$

#endif /* __TDLC_GEN_PW_CONST_H__ */

}@

Found in path(s):
* /opt/cola/permits/1273716988_1648046860.0/0/pw-tar/pw/include/pw_const.tph
```

1.235 libaio 0.3.111

1.235.1 Available under license :

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Version 2.1, February 1999

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We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

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^L
Finally, software
patents pose a constant threat to the existence of
any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits
such linking only if the
entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to

encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting
the free library to free
software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

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The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order
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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into

another language. (Hereinafter, translation is
included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation
and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under
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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility

is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can
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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6,

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^L
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1.236 fdisk 2.38.0

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NR START END SECTORS SIZE NAME UUID
1 32 7679 7648 3.7M 8f8378c0-01
2 7680 16383 8704 4.3M 8f8378c0-02
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6 12544 16127 3584 1.8M

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1.240 pcre 10.40

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Email local part: Philip.Hazel
Email domain: gmail.com

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1.241 pycparser 2.20

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1.244 xdelta 3.1.0

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Upstream-Contact: Thorsten Kukuk <kukuk@thkukuk.de>
Source: https://github.com/thkukuk/libnsl

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 config.h.in
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 src/internal.h
 src/libnsl.map
 src/nisplus/nis_error.c
 src/taddr2host.c
 src/taddr2ipstr.c
 src/taddr2port.c
 src/yp_first.c
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 src/nisplus/nis_add.c
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 src/nisplus/nis_call.c

src/nisplus/nis_callback.c
src/nisplus/nis_checkpoint.c
src/nisplus/nis_clone_dir.c
src/nisplus/nis_clone_obj.c
src/nisplus/nis_clone_res.c
src/nisplus/nis_creategroup.c
src/nisplus/nis_defaults.c
src/nisplus/nis_destroygroup.c
src/nisplus/nis_domain_of.c
src/nisplus/nis_domain_of_r.c
src/nisplus/nis_file.c
src/nisplus/nis_findserv.c
src/nisplus/nis_free.c
src/nisplus/nis_getservlist.c
src/nisplus/nis_hash.c
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src/nisplus/nis_ismember.c
src/nisplus/nis_local_names.c
src/nisplus/nis_lookup.c
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src/nisplus/nis_modify.c
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src/nisplus/nis_print_group_entry.c
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src/nisplus/nis_removemember.c
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src/nisplus/nis_server.c
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m4/host-cpu-c-abi.m4

m4/iconv.m4
m4/intlmacosx.m4
m4/lib-ld.m4
m4/lib-link.m4
m4/lib-prefix.m4
m4/libtool.m4
m4/ltoptions.m4
m4/ltsugar.m4
m4/ltversion.m4
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po/Makefile.in.in
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[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any

other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary

one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data

prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices

stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the

ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the
Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative
work of the Library, and
therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of

the object
file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a
copy of this License. If the work
during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work
with a written offer, valid for at
least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

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10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the

original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Library General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each
version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

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DAMAGES.

END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
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<name of author>

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Also add information on how to contact you by electronic and paper mail.

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the names:

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library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

That's all there is to it!
@ignore
@c Set file name and title for man page.
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@settitle GNU General Public License
@c man begin SEEALSO
gfdl(7), fsf-funding(7).
@c man end
@c man begin COPYRIGHT
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@heading Preamble

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The
licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
the GNU General Public License is intended to guarantee your freedom
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free software for all its users. We, the Free Software Foundation,
use the GNU General Public License for most of our software; it
applies also to any other work released this way by its authors. You

can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights
or asking you to surrender the rights. Therefore, you
have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous
versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish

to avoid the special danger that patents applied to a free program
could make it effectively proprietary.
To prevent this, the GPL
assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and
modification follow.

@heading TERMS AND CONDITIONS

@enumerate 0
@item Definitions.

``This License'' refers to version 3 of the GNU General Public License.

``Copyright'' also means copyright-like laws that apply to other kinds
of works, such as semiconductor masks.

``The Program'' refers to any copyrightable work licensed under this
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``recipients'' may be individuals or organizations.

To ``modify'' a work means to copy from or adapt all or part of the work
in a fashion requiring copyright permission, other than the making of
an exact copy. The resulting work is called a ``modified version'' of
the earlier work or a work ``based on'' the earlier work.

A ``covered work'' means either the unmodified Program or a work based
on the Program.

To ``propagate'' a
work means to do anything with it that, without
permission, would make you directly or secondarily liable for
infringement under applicable copyright law, except executing it on a
computer or modifying a private copy. Propagation includes copying,
distribution (with or without modification), making available to the
public, and in some countries other activities as well.

To ``convey'' a work means any kind of propagation that enables other
parties to make or receive copies. Mere interaction with a user
through a computer network, with no transfer of a copy, is not
conveying.

An interactive user interface displays ``Appropriate Legal Notices'' to
the extent that it includes a convenient and prominently visible
feature that (1) displays an appropriate copyright notice, and (2)
tells the user that there is no warranty for the work (except to the
extent that warranties are provided), that licensees may convey the

work under this License, and how to view a copy of this License. If the interface
presents a list of user commands or options, such as a
menu, a prominent item in the list meets this criterion.

@item Source Code.

The ``source code'' for a work means the preferred form of the work for making modifications to it. ``Object code'' means any non-source form of a work.

A ``Standard Interface'' means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The ``System Libraries'' of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A ``Major Component'', in this context,
means a major essential component
(kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The ``Corresponding Source'' for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms
and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

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facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

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forbid
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keep intact all notices of the absence of any warranty; and give all
recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey,
and you may offer support or warranty protection for a fee.

@item
Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to
produce it from the Program, in the form of source code under the
terms of section 4, provided that you also meet all of these
conditions:

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@item
The work must carry prominent notices stating that you modified it,
and giving a relevant date.

@item
The work must carry prominent notices stating that it is released
under this License and any conditions added under section 7. This
requirement modifies the requirement in section 4 to ``keep intact all
notices''.

@item
You must license the entire work, as a whole, under this License to
anyone who comes into possession of a copy. This License will
therefore apply, along with any applicable section 7 additional terms,
to the whole of the work, and all its parts, regardless of how they
are packaged. This License gives no permission to license the work in
any other way, but it does not invalidate such permission if
you have
separately received it.

@item
If the work has interactive user interfaces, each must display
Appropriate Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your work
need not make them do so.
@end enumerate

A compilation of a covered work with other separate and independent
works, which are not by their nature extensions of the covered work,
and which are not combined with it such as to form a larger program,
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``aggregate" if the compilation and its resulting copyright are not
used to limit the access or legal rights of the compilation's users
beyond what the individual works permit. Inclusion of a covered work
in an aggregate does not cause this License to apply to the other
parts of the aggregate.

@item Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of
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 the machine-readable
Corresponding Source under the terms of this License, in one of these
ways:

@enumerate a
@item
Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium customarily
used for software interchange.

@item
Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a written
offer, valid for at least three years and valid for as long as you
offer spare parts or customer support for that product model, to give
anyone who possesses the object code either (1) a copy of the
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covered by this License, on a durable physical medium customarily used
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cost of physically performing this conveying of source, or (2) access
to copy the Corresponding Source from a network
 server at no charge.

@item
Convey individual copies of the object code with a copy of the written
offer to provide the Corresponding Source. This alternative is
allowed only occasionally and noncommercially, and only if you
received the object code with such an offer, in accord with subsection
6b.

@item
Convey the object code by offering access from a designated place
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Corresponding Source in the same way through the same place at no
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Corresponding Source along with the object code. If the place to copy
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ensure that it is available for as long as needed to
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Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

@end enumerate

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

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a) Accompany
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b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate
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1.249 talloc 2.3.3

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/*
Unix SMB/CIFS implementation.
Samba temporary memory allocation functions

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1.250 json-glib 1.6.2

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1.251 gobject-introspection 1.66.1

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1.252 gperftools 2.9.1

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1.253 lttng-ust 2.12.1

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1.255 libatomic 10.3.0

1.255.1 Available under license :

This is the Debian GNU/Linux prepackaged version of the GNU compiler collection, containing Ada, C, C++, D, Fortran 95, Go, Objective-C, Objective-C++, and Modula-2 compilers, documentation, and support libraries. In addition, Debian provides the gm2 compiler, either in the same source package, or built from a separate same source package. Packaging is done by the Debian GCC Maintainers <debian-gcc@lists.debian.org>, with sources obtained from:

ftp://gcc.gnu.org/pub/gcc/releases/ (for full releases)
svn://gcc.gnu.org/svn/gcc/ (for prereleases)
ftp://sourceware.org/pub/newlib/ (for newlib)
git://git.savannah.gnu.org/gm2.git (for Modula-2)

The current gcc-10 source package is taken from the SVN gcc-10-branch.

Changes: See changelog.Debian.gz

Debian splits the GNU Compiler Collection into packages for each language, library, and documentation as follows:

Language	Compiler package	Library package	Documentation
Ada	gnat-10	libgnat-10	gnat-10-doc
BRIG	gccbrig-10	libhsail-rt0	
C	gcc-10		gcc-10-doc
C++	g++-10	libstdc++6	libstdc++6-10-doc
D	gdc-10		
Fortran 95	gfortran-10	libgfortran5	gfortran-10-doc
Go	gccgo-10	libgo0	
Objective C	gobjc-10	libobjc4	
Objective C++	gobjc++-10		
Modula-2	gm2-10	libgm2	

For some language run-time libraries, Debian provides source files, development files, debugging symbols and libraries containing position-independent code in separate packages:

Language	Sources	Development	Debugging	Position-Independent
C++			libstdc++6-10-dbg	libstdc++6-10-pic
D	libphobos-10-dev			

Additional packages include:

All languages:
libgcc1,
libgcc2, libgcc4 GCC intrinsics (platform-dependent)
gcc-10-base Base files common to all compilers
gcc-10-soft-float Software floating point (ARM only)
gcc-10-source The sources with patches

Ada:
libgnat-util10-dev, libgnat-util10 GNAT version library

C:
cpp-10, cpp-10-doc GNU C Preprocessor
libssp0-dev, libssp0 GCC stack smashing protection library
libquadmath0 Math routines for the __float128 type
fixincludes Fix non-ANSI header files

C, C++ and Fortran 95:
libgomp1-dev, libgomp1 GCC OpenMP (GOMP) support library
libitm1-dev, libitm1 GNU Transactional Memory Library

Biarch support: On some 64-bit platforms which can also run 32-bit code, Debian provides additional packages containing 32-bit versions of some libraries. These packages have names beginning with 'lib32' instead of 'lib', for example lib32stdc++6. Similarly, on some 32-bit platforms which can
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- libssp
- libstdc++-v3
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GCC RUNTIME LIBRARY EXCEPTION

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Written by Tobias Burnus <burnus@net-b.de>

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 * Conversion to long double by Ulrich Drepper,
 * Cygnus Support, drepper@cygnus.com.

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D:
gdc-10 GNU D Compiler
libphobos-10-dev D standard runtime library

The D source package is made up of the following components.

The D front-end for GCC:
- d/*

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The DMD Compiler implementation of the D programming language:
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The Phobos standard runtime library:
- d/phobos/*

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1.259 apr-util 1.6.3

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 misc/unix/getopt.c,
file_io/unix/mktemp.c, strings/apr_strings.c:

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From dso/aix/dso.c:

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From strings/apr_strnatcmp.c, include/apr_strings.h:

 strnatcmp.c -- Perform 'natural order' comparisons of strings in C.
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1.260 open-ldap 2.5.12

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1.261 bash 5.1

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1.262 openssh 9.1p1

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* @author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
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Julian Seward, Cambridge, UK.

jseward@bzip.org
bzip2/libbzip2 version 1.0.4 of 20 December 2006
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From strings/apr_fnmatch.c, include/apr_fnmatch.h,
 misc/unix/getopt.c,
file_io/unix/mktemp.c, strings/apr_strings.c:

/*

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From network_io/unix/inet_ntop.c, network_io/unix/inet_pton.c:

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From dso/aix/dso.c:

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From strings/apr_strnatcmp.c, include/apr_strings.h:

 strnatcmp.c -- Perform 'natural order' comparisons of strings in C.
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From test/CuTest.c, test/CuTest.h:

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1.266 sysv-init 2.99

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1.267 eudev 3.2.10

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1.269 zstd 1.4.9

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available free
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Protocol Buffers for Go with Gadgets

Go support for Protocol Buffers - Google's data interchange format

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procfs provides functions to retrieve system, kernel and process
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The End

1.279 golang 1.19.4

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Julian Seward, jseward@bzip.org
bzip2/libbzip2 version 1.0.6 of 6 September 2010

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Version 3.1, 31 March 2009

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DRuntime: Runtime Library for the D Programming Language
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The following individuals contributed in part to the Network Time Protocol Distribution Version 4 and are acknowledged as authors of this work.

1. [1]Takao Abe <takao_abe@xurb.jp> Clock driver for JJY receivers
2. [2]Mark Andrews <mark_andrews@isc.org> Leitch atomic clock controller
3. [3]Bernd Altmeier <altmeier@atlsoft.de> hopf Elektronik serial line and PCI-bus devices
4. [4]Viraj Bais <vbais@mailman1.intel.com> and [5]Clayton Kirkwood <kirkwood@striderfm.intel.com> port to WindowsNT 3.5
5. [6]Michael Barone <michael,barone@lmco.com> GPSVME fixes
6. [7]Karl Berry <karl@owl.HQ.ileaf.com> syslog to file option
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8. [9]Marc Brett <Marc.Brett@westgeo.com> Magnavox GPS clock driver
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10. [11]Nelson B Bolyard <nelson@bolyard.me> update and complete broadcast and crypto features in sntp
11. [12]Jean-Francois Boudreault <Jean-Francois.Boudreault@viagenie.qc.ca> IPv6 support
12. [13]Reg Clemens <reg@dwf.com> Oncore driver (Current maintainer)
13. [14]Steve Clift <clift@ml.csiro.au> OMEGA clock driver
14. [15]Casey Crellin <casey@csc.co.za> vxWorks (Tornado) port and help with target configuration
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16. [17]Sven Dietrich <sven_dietrich@trimble.com> Palisade reference clock driver, NT adj. residuals, integrated Greg's Winnt port.
17. [18]John A. Dundas III <dundas@salt.jpl.nasa.gov> Apple A/UX port
18. [19]Torsten Duwe <duwe@immd4.informatik.uni-erlangen.de> Linux port
19. [20]Dennis Ferguson <dennis@mrbill.canet.ca> foundation code for NTP Version 2 as specified in RFC-1119
20. [21]John Hay <jhay@icomtek.csir.co.za> IPv6 support and testing
21. [22]Dave Hart <davehart@gmail.com> General maintenance, IPv6 cleanup, Windows PPSAPI
22. [23]Claas Hilbrecht <neoclock4x@linum.com> NeoClock4X clock driver
23. [24]Glenn Hollinger <glenn@herald.usask.ca> GOES clock driver
24. [25]Mike Iglesias <iglesias@uci.edu> DEC Alpha port
25. [26]Jim Jagielski <jim@jagubox.gsfc.nasa.gov> A/UX port

26. [27]Jeff Johnson <jbj@chatham.usdesign.com> massive prototyping overhaul
27. [28]Hans Lambermont <Hans.Lambermont@nl.origin-it.com> or [29]<H.Lambermont@chello.nl> ntpsweep
28. [30]Poul-Henning Kamp <phk@FreeBSD.ORG> Oncore driver (Original author)
29. [31]Frank Kardel [32]<kardel (at) ntp (dot) org> PARSE <GENERIC> (driver 14 reference clocks), STREAMS modules for PARSE, support scripts, syslog cleanup, dynamic interface handling
30. [33]Johannes Maximilian Kuehn <kuehn@ntp.org> Rewrote sntp to comply with NTPv4 specification, ntpq saveconfig
31. [34]William L. Jones <jones@hermes.chpc.utexas.edu> RS/6000 AIX modifications, HPUX modifications
32. [35]Dave Katz <dkatz@cisco.com> RS/6000 AIX port
33. [36]Craig Leres <leres@ee.lbl.gov> 4.4BSD port, ppsclock, Magnavox GPS clock driver
34. [37]George Lindholm <lindholm@ucs.ubc.ca> SunOS 5.1 port
35. [38]Louis A. Mamakos <louie@ni.umd.edu> MD5-based authentication
36. [39]Lars H. Mathiesen <thorinn@diku.dk> adaptation of foundation code for Version 3 as specified in RFC-1305
37. [40]Danny Mayer <mayer@ntp.org>Network I/O, Windows Port, Code Maintenance
38. [41]David L. Mills <mills@udel.edu> Version 4 foundation, precision kernel; clock drivers: 1, 3, 4, 6, 7, 11, 13, 18, 19, 22, 36
39. [42]Wolfgang Moeller <moeller@gwdgv1.dnet.gwdg.de> VMS port
40. [43]Jeffrey Mogul <mogul@pa.dec.com> ntptrace utility
41. [44]Tom Moore <tmoore@fievel.daytonoh.ncr.com> i386 svr4 port
42. [45]Kamal A Mostafa <kamal@whence.com> SCO OpenServer port
43. [46]Derek Mulcahy <derek@toybox.demon.co.uk> and [47]Damon Hart-Davis <d@hd.org> ARCRON MSF clock driver
44. [48]Rob Neal <neal@ntp.org> Bancomm refclock and config/parse code maintenance
45. [49]Rainer Pruy <Rainer.Pruy@informatik.uni-erlangen.de> monitoring/trap scripts, statistics file handling
46. [50]Dirce Richards <dirce@zk3.dec.com> Digital UNIX V4.0 port
47. [51]Wilfredo Snchez <wsanchez@apple.com> added support for NetInfo
48. [52]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules
49. [53]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory
50. [54]Ray Schnitzler <schnitz@unipress.com> Unixware1 port
51. [55]Michael Shields <shields@tembel.org> USNO clock driver
52. [56]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
53. [57]Harlan Stenn <harlan@pfcs.com> GNU automake/autoconfigure makeover, various other bits (see the ChangeLog)
54. [58]Kenneth

Stone <ken@sdd.hp.com> HP-UX port
55. [59]Ajit Thyagarajan <ajit@ee.udel.edu>IP multicast/anycast support
56. [60]Tomoaki TSURUOKA <tsuruoka@nc.fukuoka-u.ac.jp>TRAK clock driver
57. [61]Brian Utterback <brian.utterback@oracle.com> General codebase, Solaris issues
58. [62]Loganaden Velvindron <loganaden@gmail.com> Sandboxing (libseccomp) support
59. [63]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver
60. [64]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD

References

1. mailto:%20takao_abe@xurb.jp
2. mailto:%20mark_andrews@isc.org
3. mailto:%20altmeier@atlsoft.de
4. mailto:%20vbais@mailman1.intel.co
5. mailto:%20kirkwood@striderfm.intel.com
6. mailto:%20michael.barone@lmco.com
7. mailto:%20karl@owl.HQ.ileaf.com
8. mailto:%20greg.brackley@bigfoot.com
9. mailto:%20Marc.Brett@westgeo.com
10. mailto:%20Piete.Brooks@cl.cam.ac.uk
11. mailto:%20nelson@bolyard.me
12. mailto:%20Jean-Francois.Boudreault@viagenie.qc.ca
13. mailto:%20reg@dwf.com
14. mailto:%20clift@ml.csiro.au
15. mailto:%20casey@csc.co.za
16. mailto:%20phdm@macqel.be
17. mailto:%20Sven_Dietrich@trimble.COM
18. mailto:%20dundas@salt.jpl.nasa.gov
19. mailto:%20duwe@immd4.informatik.uni-erlangen.de
20. mailto:%20dennis@mrbill.canet.ca
21. mailto:%20jhay@icomtek.csir.co.za
22. mailto:%20davehart@gmail.com
23. mailto:%20neoclock4x@linum.com
24. mailto:%20glenn@herald.usask.ca
25. mailto:%20iglesias@uci.edu
26. mailto:%20jagubox.gsfc.nasa.gov
27. mailto:%20jbj@chatham.usdesign.com
28. mailto:%20Hans.Lambermont@nl.origin-it.com
29. mailto:H.Lambermont@chello.nl
30. mailto:%20phk@FreeBSD.ORG
31. http://www4.informatik.uni-erlangen.de/%7ekardel
32. mailto:%20kardel%20%28at%29%20ntp%20%28dot%29%20org
33. mailto:kuehn@ntp.org

34. mailto:%20jones@hermes.chpc.utexas.edu
35. mailto:%20dkatz@cisco.com
36. mailto:%20leres@ee.lbl.gov
37. mailto:%20lindholm@ucs.ubc.ca
38. mailto:%20louie@ni.umd.edu
39. mailto:%20thorinn@diku.dk
40. mailto:%20mayer@ntp.org
41. mailto:%20mills@udel.edu
42. mailto:%20moeller@gwdgv1.dnet.gwdg.de
43. mailto:%20mogul@pa.dec.com
44. mailto:%20tmoore@fievel.daytonoh.ncr.com
45. mailto:%20kamal@whence.com
46. mailto:%20derek@toybox.demon.co.uk
47. mailto:%20d@hd.org
48. mailto:%20neal@ntp.org
49. mailto:%20Rainer.Pruy@informatik.uni-erlangen.de
50. mailto:%20dirce@zk3.dec.com
51. mailto:%20wsanchez@apple.com
52. mailto:%20mrapple@quack.kfu.com
53. mailto:%20jack@innovativeinternet.com
54. mailto:%20schnitz@unipress.com
55. mailto:%20shields@tembel.org
56. mailto:%20pebbles.jpl.nasa.gov
57. mailto:%20harlan@pfcs.com
58. mailto:%20ken@sdd.hp.com
59. mailto:%20ajit@ee.udel.edu
60. mailto:%20tsuruoka@nc.fukuoka-u.ac.jp
61. mailto:%20brian.utterback@oracle.com
62. mailto:%20loganaden@gmail.com
63. mailto:%20vixie@vix.com
64. mailto:%20Ulrich.Windl@rz.uni-regensburg.de

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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must be distributed under the terms of Sections 1 and 2 above on a
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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

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1.286 dnsmasq 2.85

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The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The

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```
#!/usr/bin/env bash
# MIT licenses will each have a unique MD5 sum since they contain a unique copyright.
# This script will read the license file into memory, strip out the copyright, and then
# generate an MD5 that is not unique and can be matched against a known MIT MD5 sum.
set -e

calculate_md5_sum() {
 local FILE="$1"

 # Read the contents of the file into a variable
 local raw_license_text=$(<"$FILE")

 # Convert to lowercase
 local lowercase_license_text="${raw_license_text,,}"

 # Remove anything before the beginning of the license
 local stripped_license_text=$(awk '/permission is hereby granted,/{p=1} p' <<< "$lowercase_license_text")

 # Replace line breaks (Windows or Linux) with a single space
 local replaced_linebreaks=$(tr '\r\n' ' ' <<< "$stripped_license_text")

 # Replace multiple spaces with a single space
```

```
 local normalized_license_text=$(tr -s ' ' <<< "$replaced_linebreaks")

 # Strip away any non-printable, non-whitespace characters
 local clean_unprintable_license_text=$(tr
 -cd '[:print:][:space:]' <<< "$normalized_license_text")

 # Remove punctuation and special characters
 local clean_license_text=$(echo "$clean_unprintable_license_text" | sed 's/[^a-zA-Z ]//g')

 # Calculate the MD5 sum of the cleaned license text
 local MD5SUM=$(echo -n "$clean_license_text" | md5sum | awk '{print $1}')

 # Output the MD5 sum
 echo "$MD5SUM"
}

# Check if the FILE argument is provided
if [ -z "$1" ]; then
 echo "Please provide a FILE as an argument."
 exit 1
fi

# Invoke the function with the provided FILE argument
calculate_md5_sum "$1"
WEV @@ WEV[B  "1
x   ?"U@,5  @mISmIN<GimCN7g1u|E
43mI,5WEV @@ WEV   @mImImIAmImImI0mImImI*mImI
A0mImImI...
lost+found...

;9GimCN7g

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()*+,-
./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~WEV @@
WEV[B  "1
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1.292 syslog-ng 3.36.1

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====

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1.293 hwloc 1.11.13

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1.294 acl 2.2.53

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1.295 perl 5.32.1

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1.296 file 5.39

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This is the Debian GNU/Linux prepackaged version of the static EXT2
file system consistency checker (e2fsck.static). The EXT2 utilities
were written by Theodore Ts'o <tytso@mit.edu> and Remy Card
<card@masi.ibp.fr>.

Sources were obtained from http://sourceforge.net/projects/e2fsprogs

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```
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#
# This is a Makefile stub which handles the creation of BSD shared
# libraries.
#
# In order to use this stub, the following makefile variables must be defined.
#
# BSDLIB_VERSION = 1.0
# BSDLIB_IMAGE = libce
# BSDLIB_MYDIR = et
# BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
 @echo " MKDIR pic"
 @mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image:  $(BSD_LIB)

$(BSD_LIB): $(OBJS)
 (cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
 $(MV) pic/$(BSD_LIB) .
 $(RM) -f ../$(BSD_LIB)
 (cd ..; $(LN) $(LINK_BUILD_FLAGS) \
  `echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
 @echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
 @$(INSTALL_PROGRAM) $(BSD_LIB) \
  $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
 @-$(LDCONFIG)

install-strip: install

install-shlibs-strip:: install-shlibs

uninstall-shlibs uninstall::
 $(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
```

clean::
 $(RM)
 -rf pic
 $(RM) -f $(BSD_LIB)
 $(RM) -f ../$(BSD_LIB)
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Theodore Ts'o <tytso@mit.edu> on Fri Dec 14 22:24:35 EST 2007

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Index: tdbsa/tdb.c
===
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
 /*
-   Unix SMB/CIFS implementation.
+   trivial database library - standalone version

-   trivial database library - private includes
-
-   Copyright (C) Andrew Tridgell   2005
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+   Copyright (C) Jeremy Allison   2000-2006
+   Copyright (C) Paul `Rusty' Russell   2000

    ** NOTE! The following LGPL license applies to the tdb
    ** library. This does NOT imply that all of Samba is released
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Gadi Oxman, August 1995

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Theodore Ts'o
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This package was added to the e2fsprogs debian source package by
Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

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Upstream Author: Theodore Ts'o <tytso@mit.edu>

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1.300 sysstat 12.4.3

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Python was created in the early 1990s by Guido van Rossum at Stichting
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as a successor of a language called ABC. Guido remains Python's
principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for
National Research Initiatives (CNRI, see http://www.cnri.reston.va.us)
in Reston, Virginia where he released several versions of the
software.

In May 2000, Guido and the Python core development team moved to
BeOpen.com to form the BeOpen PythonLabs team. In October of the same
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1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no

2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
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Julian Seward, jseward@bzip.org
bzip2/libbzip2 version 1.0.6 of 6 September 2010

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DRuntime: Runtime Library for the D Programming Language
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Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below,
refers to any such software library or work
which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if

its contents constitute a work based
on the Library (independent of the use of the Library in a tool for
writing it). Whether that is true depends on what the Library does
and what the program that uses the Library does.

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You may charge a fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a
fee.

2. You may modify your copy or copies of the Library or any portion
of it, thus forming a work based on the Library, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you
also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices
stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no
charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a
table of data to be supplied by an application program that uses
the facility, other than as an argument passed when the facility
is invoked, then you must make a good faith effort to ensure that,
in the event an application does not supply such function or
table, the facility still operates, and performs whatever part of
its purpose remains meaningful.

(For example, a function in a library to compute square roots has
a purpose that is entirely well-defined independent of the
application. Therefore, Subsection 2d requires
that any
application-supplied function or table used by this function must
be optional: if the application does not supply it, the square
root function must still compute square roots.)

These requirements apply to the modified work as a whole. If

identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution
of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not

compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference

directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable
runs, unless that component itself accompanies
the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise

permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

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all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
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 <signature of Ty Coon>, 1 April 1990
 Ty Coon, President of Vice

That's all there is to it!

1.312 rsync 3.2.7

1.312.1 Available under license :

REGARDING OPENSSL AND XXHASH

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Version 3, 29 June 2007

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For the developers' and authors' protection, the GPL clearly explains
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changed, so that their problems will not be attributed erroneously to
authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can
do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying,
distribution and
modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright

law, except executing it on a
computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source
code" for a work means the preferred form of the work
for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or
a compiler used to
produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but

which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

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You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

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5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

a) The work must carry prominent notices stating that you modified it, and giving a relevant date.

b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate

Legal Notices; however, if the Program has interactive
interfaces that do not display Appropriate Legal Notices, your
work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey
the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by the
Corresponding Source fixed on a durable physical medium
customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product
(including a physical distribution medium), accompanied by a
written offer, valid for at least three years and valid for as
long as you offer spare parts or customer support for that product
model, to give anyone who possesses the object code either (1) a
copy of the Corresponding Source for all the software in the
product that is covered by this License, on a durable physical
medium customarily used for software interchange, for a price no
more than your reasonable cost of physically performing this
conveying of source, or (2) access to copy the
Corresponding Source from a network server at no charge.

c) Convey individual copies of the object
code with a copy of the
written offer to provide the Corresponding Source. This
alternative is allowed only occasionally and noncommercially, and
only if you received the object code with such an offer, in accord
with subsection 6b.

d) Convey the object code by offering access from a designated
place (gratis or for a charge), and offer equivalent access to the

Corresponding Source in the same way through the same place at no
further charge. You need not require recipients to copy the
Corresponding Source along with the object code. If the place to
copy the object code is a network server, the Corresponding Source
may be on a different server (operated by you or a third party)
that supports equivalent copying facilities, provided you maintain
clear directions next to the object code saying where to find the
Corresponding Source. Regardless of what server hosts the
Corresponding Source, you remain obligated to ensure that
it is
available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided
you inform other peers where the object code and Corresponding
Source of the work are being offered to the general public at no
charge under subsection 6d.

A separable portion of the object code, whose source code is excluded
from the Corresponding Source as a System Library, need not be
included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any
tangible personal property which is normally used for personal, family,
or household purposes, or (2) anything designed or sold for incorporation
into a dwelling. In determining whether a product is a consumer product,
doubtful cases shall be resolved in favor of coverage. For a particular
product received by a particular user, "normally used" refers to a
typical or common use of that class of product, regardless of the status
of
the particular user or of the way in which the particular user
actually uses, or expects or is expected to use, the product. A product
is a consumer product regardless of whether the product has substantial
commercial, industrial or non-consumer uses, unless such uses represent
the only significant mode of use of the product.

"Installation Information" for a User Product means any methods,
procedures, authorization keys, or other information required to install
and execute modified versions of a covered work in that User Product from
a modified version of its Corresponding Source. The information must
suffice to ensure that the continued functioning of the modified object
code is in no case prevented or interfered with solely because
modification has been made.

If you convey an object code work under this section in, or with, or
specifically for use in, a User Product, and the conveying occurs as
part of a transaction in which the right of possession and use of the
User Product

is transferred to the recipient in perpetuity or for a
fixed term (regardless of how the transaction is characterized), the
Corresponding Source conveyed under this section must be accompanied
by the Installation Information. But this requirement does not apply
if neither you nor any third party retains the ability to install
modified object code on the User Product (for example, the work has
been installed in ROM).

The requirement to provide Installation Information does not include a
requirement to continue to provide support service, warranty, or updates
for a work that has been modified or installed by the recipient, or for
the User Product in which it has been modified or installed. Access to a
network may be denied when the modification itself materially and
adversely affects the operation of the network or violates the rules and
protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided,
in accord with this section
must be in a format that is publicly
documented (and with an implementation available to the public in
source code form), and must require no special password or key for
unpacking, reading or copying.

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1.313 pcre 8.44

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1.314 libevent 2.0.22

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1.315 python-pip 21.2.4

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Version 2.1, February 1999

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A. HISTORY OF THE SOFTWARE
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Python was created in the early 1990s by Guido van Rossum at Stichting
Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands
as a successor of a language called ABC. Guido remains Python's
principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for
National Research Initiatives (CNRI, see http://www.cnri.reston.va.us)
in Reston, Virginia where he released several versions of the
software.

In May 2000, Guido and the Python core development team moved to
BeOpen.com to form the BeOpen PythonLabs team. In October of the same
year, the PythonLabs team moved to Digital Creations (now Zope
Corporation, see http://www.zope.com). In 2001, the Python Software
Foundation (PSF, see http://www.python.org/psf/) was formed, a
non-profit organization created specifically to own Python-related
Intellectual Property. Zope Corporation is a sponsoring member
of
the PSF.

All Python releases are Open Source (see http://www.opensource.org for
the Open Source Definition). Historically, most, but not all, Python
releases have also been GPL-compatible; the table below summarizes
the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes

2.1.2	2.1.1	2002	PSF	yes
2.1.3				
2.1.2	2002	PSF	yes	
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009	PSF	yes
2.6.5	2.6.4	2010	PSF	yes
3.0	2.6	2008	PSF	yes
3.0.1	3.0	2009	PSF	yes
3.1	3.0.1	2009	PSF	yes
3.1.1	3.1	2009	PSF	yes
3.1.2	3.1	2010	PSF	yes
3.2	3.1	2010	PSF	yes

Footnotes:

(1) GPL-compatible doesn't mean that we're distributing Python under the GPL. All Python licenses, unlike the GPL, let you distribute a
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(2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's
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1.317 libjitterentropy 3.4.1

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1.318 python-pip 20.0.2

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see http://www.cnri.reston.va.us) in Reston, Virginia where he released several versions of the software.

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2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009	PSF	yes
2.6.5	2.6.4	2010	PSF	yes
3.0	2.6	2008	PSF	yes

3.0.1	3.0	2009	PSF	yes
3.1	3.0.1	2009	PSF	yes
3.1.1	3.1	2009	PSF	yes
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A. HISTORY OF THE SOFTWARE
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Python was created in the early 1990s by Guido van Rossum at Stichting
Mathematisch Centrum (CWI, see http://www.cwi.nl) in the Netherlands
as a successor of a language called ABC. Guido remains Python's
principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for
National Research Initiatives (CNRI, see http://www.cnri.reston.va.us)
in Reston, Virginia where he released several versions of the
software.

In May 2000, Guido and the Python core development team moved to
BeOpen.com to form the BeOpen PythonLabs team. In October of the same
year, the PythonLabs team moved to Digital Creations (now Zope
Corporation, see http://www.zope.com). In 2001, the Python Software
Foundation (PSF, see http://www.python.org/psf/) was formed, a
non-profit organization created specifically to own Python-related

Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see http://www.opensource.org for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009	PSF	yes
2.6.5	2.6.4	2010	PSF	yes

3.0	2.6	2008	PSF	yes
3.0.1	3.0	2009	PSF	yes
3.1	3.0.1	2009	PSF	yes
3.1.1	3.1	2009	PSF	yes
3.1.2	3.1	2010	PSF	yes
3.2	3.1	2010	PSF	yes

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(2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

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1.320 tornado 6.1

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1.324 python-certifi 2020.12.5

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ca-bundle.crt -- Bundle of CA Root Certificates

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This is a bundle of X.509 certificates of public Certificate Authorities
(CA). These were automatically extracted from Mozilla's root certificates
file (certdata.txt). This file can be found in the mozilla source tree:
http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#
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@(#) $RCSfile: certdata.txt,v $
$Revision: 1.80 $ $Date: 2011/11/03 15:11:58 $

1.325 init-system-helpers 1.60

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1.326 netkit-telnet 0.17

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* $Id: ring.h,v 1.13 1996/08/13 08:43:28 dholland Exp $
*/

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* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-

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* $Id: telnetd.h,v 1.2 1999/03/27 07:46:21 dholland Exp $
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* $Id: defs.h,v 1.7 1999/08/02 03:14:03 dholland Exp $
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* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/slc.c
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/termstat.c
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/utility.c
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/telnetd.c
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/sys_term.c
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* from: @(#)general.h 5.2 (Berkeley) 3/1/91

* $Id: general.h,v 1.1 1996/07/16 05:17:22 dholland Exp $
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* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/general.h
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* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/telnetd.8
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* $Id: types.h,v 1.2 1996/07/27 00:45:54 dholland Exp $
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* $Id: fdset.h,v 1.1 1996/07/16 05:17:22 dholland Exp $
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* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/fdset.h
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*

/opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/network.cc
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/tn3270.cc
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/utilities.cc
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* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/ptrarray.h
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*
/opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/authenc.cc
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Found in path(s):
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/pathnames.h
No license file was found, but licenses were detected in source scan.

/*
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*
* From: @(#)conf.c 8.243 (Berkeley) 11/20/95
*/

Found
in path(s):
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/setproctitle.c

1.327 gawk 5.1.0

1.327.1 Available under license :

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Version 2, June 1991

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[This is the first released version of the library GPL. It is
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The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License

treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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This option is useful when you wish to copy part of the code of the

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END OF TERMS AND CONDITIONS

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Ty Coon, President of Vice

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Version 3, 29 June 2007

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Some devices are designed to deny users access to install or run

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jloup@gzip.org madler@alumni.caltech.edu

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The following list of people, sorted by last name, have contributed
code or patches to this implementation of sudo since I began
maintaining it in 1993. This list is known to be incomplete--if
you believe you should be listed, please send a note to sudo@sudo.ws.

Ackeret, Matt
Adler, Mark
Allbery, Russ
Anderson, Jamie
Andrew, Nick
Andric, Dimitry
Barron, Danny
Bates, Tom
Behan, Zdenk
Bellis, Ray
Benali, Elias
Beverly, Jamie
Boardman, Spider
Bos, Sander
Bostley, P.J.
Bowes, Keith
Boyce, Keith Garry
Brantley, Michael
Braun, Rob
Bezina, Pavel
Brooks, Piete
Brown, Jerry
Burr, Michael E
Burton, Ross
Bussjaeger, Andreas
Calvin, Gary
Campbell, Aaron
Chazelas, Stephane

Cheloha, Scott
ek, Vtzslav
Coleman, Chris
Corzine, Deven T.
Cusack, Frank
Dai, Wei
Dill, David
Earickson, Jeff
Eckhardt, Drew
Edgington, Ben
Esipovich, Marc
Espie, Marc
Faigon, Ariel
Farrell, Brian
Fobes, Steve
Frysinger, Mike
G., Daniel Richard
Gailly, Jean-loup
Gelman, Stephen
Gerraty, Simon J.
Graber, Stephane
Guillory, B.
Hayman, Randy M.
Henke, Joachim
Hideaki, Yoshifuji
Hieb, Dave
Holloway, Nick
Hoover, Adam
Hunter, Michael T.
Hutchings, Ben
Irrgang, Eric
Jackson, Brian
Jackson, John R.
Jackson, Richard L., Jr.
Janssen, Mark
Jepeway, Chris
Jorge, Joel Pele
Jover, Guillem
Juhani, Timo
Kikuchi, Ayamura
Kadow, Kevin
Kasal, Stepan
Kienenberger, Mike
King, Dale
King, Michael
Klyachkin, Andrey
Knoble, Jim
Knox, Tim

Komarnitsky, Alek O.
Kondrashov, Nikolai
Kopeek, Daniel
Kranenburg, Paul
Krause, David
Lakin, Eric
Larsen, Case
Levin, Dmitry V.
Libby, Kendall
Lobbes, Phillip E.
McIntyre, Jason
MacKenzie, David J.
McLaughlin, Tom
Makey, Jeff
Mallayya, Sangamesh
Manner, Rbert
Marchionna, Michael D.
Markham, Paul
Martinian, Emin
Meskes, Michael
Michael, David
Miller, Todd C.
Minier, Loc
Moffat, Darren
Moldung, Jan Thomas
Morris, Charles
Mueller, Andreas
Mller, Dworkin
Nieusma, Jeff
Nikitser, Peter A.
Nussel, Ludwig
Orbn, Lszl
Ouellet, Jean-Philippe
Paquet, Eric
Paradis, Chantal
Pasteleurs, Frederic
Percival, Ted
Perera, Andres
Peron, Christian S.J.
Peschel, Aaron
Peslyak, Alexander
Peterson, Toby
Petten, Diego Elio
Pickett, Joel
Plotnick, Alex
de Raadt, Theo
Rasch, Gudleik
Reid, Steve

Richards, Matt
Rossum, Guido van
Rouillard, John P.
Rowe, William A., Jr.
Roy, Alain
Ruusame, Elan
Ryabinkin, Eygene
Sato, Yuichi
Snchez, Wilfredo
Sanders, Miguel
Sasaki, Kan
Saucier, Jean-Francois
Schoenfeld, Patrick
Schuring, Arno
Schwarze, Ingo
Scott, Dougal

Sieger, Nick
Simon, Thor Lancelot
Slemko, Marc
Smith, Andy
Sobrado, Igor
Soulen, Steven
Spangler, Aaron
Spradling, Cloyce D.
Spradling, Michael
Stier, Matthew
Stoeckmann, Tobias
Street, Russell
Stritzky, Tilo
Stroucken, Michael
Tarrall, Robert
Thomas, Matthew
Todd, Giles
Toft, Martin
Torek, Chris
Tucker, Darren
Uhl, Robert
Uzel, Petr
Valery, Reznic
Van Dinter, Theo
Venckus, Martynas
de Vries, Maarten
Wagner, Klaus
Walsh, Dan
Warburton, John
Webb, Kirk
Wetzel, Timm

Wieringen, Marco van
Wilk, Jakub
Winiger, Gary
Wood, David
Zacarias, Gustavo
Zolnowsky, John

The following people have worked to translate sudo into other languages as part of the Translation Project, see https://translationproject.org for more details.

Albuquerque, Pedro
Blttermann, Mario
Bogusz, Jakub
Buo-ren, Lin
Casagrande, Milo
Castro, Felipe
Cho, Seong-ho
Chornoivan, Yuri
Diguez, Francisco
Fontenelle, Rafael
Garca-Fontes, Walter
Gezer, Volkan
Hamasaki, Takeshi
Hamming, Peter
Hansen, Joe
Hantrais, Frdric
Hein, Jochen
Hufthammer, Karl Ove
Jerovek, Damir
Karvonen, Jorma
Kazik, Duan
Kelemen, Gbor
Keeci, Mehmet
Koir, Klemen
Kozlov, Yuri
Kramer, Jakob
Krznar, Tomislav
Marchal, Frdric
Margeviius, Algimantas
Maryanov, Pavel
Florentina Muat
Nurmi, Lauri
Nikoli, Miroslav
Nylander, Daniel
Pan, Yi-Jyun
Psa, Petr
Puente, Enol

Putanec, Boidar
Qun, Trn Ngc
Rasmussen, Sebastian
Regueiro, Leandro
Sarer, zgr
Sendn, Abel
erbnescu, Daniel
Sikrom, ka
Spingos, Dimitris
Taniguchi, Yasuaki
Tomat, Fbio
r, Balzs
Uranga, Mikel Olasagasti
Vorotnikov, Artem
Wang, Wylmer
Yang, Boyuan

The following people designed the artwork used on the sudo website:

Shield logo: Badger, Trent
Sandwich logo: Stillman, Mark

1.329 traceroute 2.0

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Ren Nyffenegger rene.nyffenegger@adp-gmbh.ch

****** SHA1 Library (sha1/sha1.hpp) ******
sha1.hpp is a repackaging of the sha1.cpp and sha1.h files from the shallsha1
library (http://code.google.com/p/smallsha1/) into a single header suitable for
use as a header only library. This conversion was done by Peter Thorson
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****** MD5 Library (common/md5.hpp) ******
md5.hpp is a reformulation of the md5.h and md5.c code from
http://www.opensource.apple.com/source/cups/cups-59/cups/md5.c to allow it to
function as a component of a header only library. This conversion was done by
Peter Thorson (webmaster@zaphoyd.com) in 2012 for the WebSocket++ project. The
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L. Peter Deutsch
ghost@aladdin.com

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utf8_validation.hpp is adapted from code originally written by Bjoern Hoehrmann
<bjoern@hoehrmann.de>. See http://bjoern.hoehrmann.de/utf-8/decoder/dfa/ for
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Brian Wengert (bwengert79)
Leslie Brody (Les1966)
Michael M (M1xa)

Matt Peterson (MattPeterson1)
Dmitry Kolomiets (kolomiets)
rdeterre
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Illumina Inc.
Gery Vessere (gery@vessere.com)

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```
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*
* Module Name: prparser.l - Flex input file for preprocessor lexer
*
*****************************************************************************/

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*
*****************************************************************************/

#include "aslcompiler.h"
#include "prparser.y.h"

/* Buffer to pass strings to the parser */

#define STRING_SETUP    strcpy (AslGbl_StringBuffer, PrParsertext);\
  PrParserlval.str = AslGbl_StringBuffer

#define _COMPONENT          ACPI_COMPILER
     ACPI_MODULE_NAME    ("prscanner")


/* Local prototypes */

static char
PrDoCommentType1 (
  void);

static char
PrDoCommentType2 (
  void);
%}

%option noyywrap
```

```
Number          [0-9a-fA-F]+
HexNumber       0[xX][0-9a-fA-F]+
WhiteSpace      [ \t\v\r]+
NewLine         [\n]
Identifier      [a-zA-Z][0-9a-zA-Z]*

%%
"/*"
          { if (!PrDoCommentType1 ()) {yyterminate ();} }
"//"          { if (!PrDoCommentType2 ()) {yyterminate ();} }

\(              return (EXPOP_PAREN_OPEN);
\)              return (EXPOP_PAREN_CLOSE);
\~              return (EXPOP_ONES_COMPLIMENT);
\!              return (EXPOP_LOGICAL_NOT);
\*              return (EXPOP_MULTIPLY);
\/              return (EXPOP_DIVIDE);
\%              return (EXPOP_MODULO);
\+              return (EXPOP_ADD);
\-              return (EXPOP_SUBTRACT);
">>"            return (EXPOP_SHIFT_RIGHT);
"<<"            return (EXPOP_SHIFT_LEFT);
\<              return (EXPOP_LESS);
\>              return (EXPOP_GREATER);
"<="            return (EXPOP_LESS_EQUAL);
">="            return (EXPOP_GREATER_EQUAL);
"=="            return (EXPOP_EQUAL);
"!="            return (EXPOP_NOT_EQUAL);
\&              return (EXPOP_AND);
\^              return (EXPOP_XOR);
\|              return (EXPOP_OR);
"&&"            return (EXPOP_LOGICAL_AND);
"||"
          return (EXPOP_LOGICAL_OR);

"defined"       return (EXPOP_DEFINE);
{Identifier}    {STRING_SETUP; return (EXPOP_IDENTIFIER);}

<<EOF>>         return (EXPOP_EOF); /* null end-of-string */

{Number}        return (EXPOP_NUMBER);
{HexNumber}     return (EXPOP_HEX_NUMBER);
{NewLine}       return (EXPOP_NEW_LINE);
{WhiteSpace}    /* Ignore */

.               return (EXPOP_EOF);
%%
```

```
/*
* Local support functions
*/
static YY_BUFFER_STATE        LexBuffer;


/*****************************************************************************
*
* FUNCTION:    PrInitLexer
*
* PARAMETERS:  String             - Input string to be parsed
*
* RETURN:      TRUE if parser returns NULL. FALSE otherwise.
*
* DESCRIPTION: Initialization routine for lexer. The lexer needs
*              a buffer to handle strings instead of a file.
*
*****************************************************************************/

int
PrInitLexer (
  char                *String)
{

  LexBuffer
 = yy_scan_string (String);
  return (LexBuffer == NULL);
}


/*****************************************************************************
*
* FUNCTION:    PrTerminateLexer
*
* PARAMETERS:  None
*
* RETURN:      None
*
* DESCRIPTION: Termination routine for thelexer.
*
*****************************************************************************/

void
PrTerminateLexer (
  void)
{

  yy_delete_buffer (LexBuffer);
```

```
}


/*****************************************************************************
*
* FUNCTION:    PrDoCommentType1
*
* PARAMETERS:  none
*
* RETURN:      none
*
* DESCRIPTION: Process a new legacy comment. Just toss it.
*
*****************************************************************************/

static char
PrDoCommentType1 (
  void)
{
  int               c;


Loop:
  while (((c = input ()) != '*') && (c != EOF))
  {
  }
  if (c == EOF)
  {
     return (FALSE);
  }

  if (((c = input ()) != '/') && (c != EOF))
  {
      unput (c);
     goto Loop;
  }
  if (c == EOF)
  {
     return (FALSE);
  }

  return (TRUE);
}


/*****************************************************************************
*
* FUNCTION:    PrDoCommentType2
```

```
*
* PARAMETERS:  none
*
* RETURN:      none
*
* DESCRIPTION: Process a new "//" comment. Just toss it.
*
*****************************************************************************/

static char
PrDoCommentType2 (
  void)
{
  int               c;


  while (((c = input ()) != '\n') && (c != EOF))
  {
  }
  if (c == EOF)
  {
     return (FALSE);
  }

  return (TRUE);
}
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/prparser.l
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20210105/source/include/platform/acdragonfly.h
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NoEcho('
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*
```

* Module Name: asltokens.y - Bison/Yacc token types
*
***/

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*
*****************************************************************************/

')

/*****************************************************************************
*
* Token types: These are returned by the lexer
*
* NOTE: This list MUST match the AslKeywordMapping table found
*       in aslmap.c EXACTLY!  Double check any changes!
*
*****************************************************************************/

/*
* Most tokens are defined to return <i>, which is a UINT64.
*
* These tokens return <s>, a pointer to the associated lexed string:
*
*  PARSEOP_NAMESEG
*  PARSEOP_NAMESTRING
*  PARSEOP_STRING_LITERAL
*  PARSEOP_STRUCTURE_NAMESTRING
 */
%token <i> PARSEOP_ACCESSAS
%token <i> PARSEOP_ACCESSATTRIB_BLOCK
%token <i> PARSEOP_ACCESSATTRIB_BLOCK_CALL
%token <i> PARSEOP_ACCESSATTRIB_BYTE
%token <i> PARSEOP_ACCESSATTRIB_BYTES
%token <i> PARSEOP_ACCESSATTRIB_QUICK
%token <i> PARSEOP_ACCESSATTRIB_RAW_BYTES
%token <i> PARSEOP_ACCESSATTRIB_RAW_PROCESS
%token <i> PARSEOP_ACCESSATTRIB_SND_RCV
%token <i> PARSEOP_ACCESSATTRIB_WORD
%token <i> PARSEOP_ACCESSATTRIB_WORD_CALL
%token <i> PARSEOP_ACCESSTYPE_ANY
%token <i> PARSEOP_ACCESSTYPE_BUF
%token <i> PARSEOP_ACCESSTYPE_BYTE
%token <i> PARSEOP_ACCESSTYPE_DWORD
```

%token <i> PARSEOP_ACCESSTYPE_QWORD
%token <i> PARSEOP_ACCESSTYPE_WORD
%token <i> PARSEOP_ACQUIRE
%token <i> PARSEOP_ADD
%token <i> PARSEOP_ADDRESSINGMODE_7BIT
%token <i> PARSEOP_ADDRESSINGMODE_10BIT
%token <i> PARSEOP_ADDRESSTYPE_ACPI
%token <i> PARSEOP_ADDRESSTYPE_MEMORY
%token <i> PARSEOP_ADDRESSTYPE_NVS
%token <i> PARSEOP_ADDRESSTYPE_RESERVED
%token <i> PARSEOP_ALIAS
%token <i> PARSEOP_AND
%token <i> PARSEOP_ARG0
%token
<i> PARSEOP_ARG1
%token <i> PARSEOP_ARG2
%token <i> PARSEOP_ARG3
%token <i> PARSEOP_ARG4
%token <i> PARSEOP_ARG5
%token <i> PARSEOP_ARG6
%token <i> PARSEOP_BANKFIELD
%token <i> PARSEOP_BITSPERBYTE_EIGHT
%token <i> PARSEOP_BITSPERBYTE_FIVE
%token <i> PARSEOP_BITSPERBYTE_NINE
%token <i> PARSEOP_BITSPERBYTE_SEVEN
%token <i> PARSEOP_BITSPERBYTE_SIX
%token <i> PARSEOP_BREAK
%token <i> PARSEOP_BREAKPOINT
%token <i> PARSEOP_BUFFER
%token <i> PARSEOP_BUSMASTERTYPE_MASTER
%token <i> PARSEOP_BUSMASTERTYPE_NOTMASTER
%token <i> PARSEOP_BYTECONST
%token <i> PARSEOP_CASE
%token <i> PARSEOP_CLOCKPHASE_FIRST
%token <i> PARSEOP_CLOCKPHASE_SECOND
%token <i> PARSEOP_CLOCKPOLARITY_HIGH
%token <i> PARSEOP_CLOCKPOLARITY_LOW
%token <i> PARSEOP_CONCATENATE
%token <i> PARSEOP_CONCATENATERESTEMPLATE
%token <i> PARSEOP_CONDREFOF
%token <i> PARSEOP_CONNECTION
%token <i> PARSEOP_CONTINUE
%token <i> PARSEOP_COPYOBJECT
%token <i> PARSEOP_CREATEBITFIELD
%token <i> PARSEOP_CREATEBYTEFIELD
%token <i> PARSEOP_CREATEDWORDFIELD
%token

<i> PARSEOP_CREATEFIELD
%token <i> PARSEOP_CREATEQWORDFIELD
%token <i> PARSEOP_CREATEWORDFIELD
%token <i> PARSEOP_DATABUFFER
%token <i> PARSEOP_DATATABLEREGION
%token <i> PARSEOP_DEBUG
%token <i> PARSEOP_DECODETYPE_POS
%token <i> PARSEOP_DECODETYPE_SUB
%token <i> PARSEOP_DECREMENT
%token <i> PARSEOP_DEFAULT
%token <i> PARSEOP_DEFAULT_ARG
%token <i> PARSEOP_DEFINITION_BLOCK
%token <i> PARSEOP_DEREFOF
%token <i> PARSEOP_DEVICE
%token <i> PARSEOP_DEVICEPOLARITY_HIGH
%token <i> PARSEOP_DEVICEPOLARITY_LOW
%token <i> PARSEOP_DIVIDE
%token <i> PARSEOP_DMA
%token <i> PARSEOP_DMATYPE_A
%token <i> PARSEOP_DMATYPE_COMPATIBILITY
%token <i> PARSEOP_DMATYPE_B
%token <i> PARSEOP_DMATYPE_F
%token <i> PARSEOP_DWORDCONST
%token <i> PARSEOP_DWORDIO
%token <i> PARSEOP_DWORDMEMORY
%token <i> PARSEOP_DWORDSPACE
%token <i> PARSEOP_EISAID
%token <i> PARSEOP_ELSE
%token <i> PARSEOP_ELSEIF
%token <i> PARSEOP_ENDDEPENDENTFN
%token <i> PARSEOP_ENDIAN_BIG
%token <i> PARSEOP_ENDIAN_LITTLE
%token
<i> PARSEOP_ENDTAG
%token <i> PARSEOP_ERRORNODE
%token <i> PARSEOP_EVENT
%token <i> PARSEOP_EXTENDEDIO
%token <i> PARSEOP_EXTENDEDMEMORY
%token <i> PARSEOP_EXTENDEDSPACE
%token <i> PARSEOP_EXTERNAL
%token <i> PARSEOP_FATAL
%token <i> PARSEOP_FIELD
%token <i> PARSEOP_FINDSETLEFTBIT
%token <i> PARSEOP_FINDSETRIGHTBIT
%token <i> PARSEOP_FIXEDDMA
%token <i> PARSEOP_FIXEDIO
%token <i> PARSEOP_FLOWCONTROL_HW
%token <i> PARSEOP_FLOWCONTROL_NONE

%token <i> PARSEOP_FLOWCONTROL_SW
%token <i> PARSEOP_FROMBCD
%token <i> PARSEOP_FUNCTION
%token <i> PARSEOP_GPIO_INT
%token <i> PARSEOP_GPIO_IO
%token <i> PARSEOP_I2C_SERIALBUS
%token <i> PARSEOP_I2C_SERIALBUS_V2
%token <i> PARSEOP_IF
%token <i> PARSEOP_INCLUDE
%token <i> PARSEOP_INCLUDE_END
%token <i> PARSEOP_INCREMENT
%token <i> PARSEOP_INDEX
%token <i> PARSEOP_INDEXFIELD
%token <i> PARSEOP_INTEGER
%token <i> PARSEOP_INTERRUPT
%token <i> PARSEOP_INTLEVEL_ACTIVEBOTH
%token <i> PARSEOP_INTLEVEL_ACTIVEHIGH
%token <i> PARSEOP_INTLEVEL_ACTIVELOW
%token <i>
PARSEOP_INTTYPE_EDGE
%token <i> PARSEOP_INTTYPE_LEVEL
%token <i> PARSEOP_IO
%token <i> PARSEOP_IODECODETYPE_10
%token <i> PARSEOP_IODECODETYPE_16
%token <i> PARSEOP_IORESTRICT_IN
%token <i> PARSEOP_IORESTRICT_NONE
%token <i> PARSEOP_IORESTRICT_OUT
%token <i> PARSEOP_IORESTRICT_PRESERVE
%token <i> PARSEOP_IRQ
%token <i> PARSEOP_IRQNOFLAGS
%token <i> PARSEOP_LAND
%token <i> PARSEOP_LEQUAL
%token <i> PARSEOP_LGREATER
%token <i> PARSEOP_LGREATEREQUAL
%token <i> PARSEOP_LLESS
%token <i> PARSEOP_LLESSEQUAL
%token <i> PARSEOP_LNOT
%token <i> PARSEOP_LNOTEQUAL
%token <i> PARSEOP_LOAD
%token <i> PARSEOP_LOADTABLE
%token <i> PARSEOP_LOCAL0
%token <i> PARSEOP_LOCAL1
%token <i> PARSEOP_LOCAL2
%token <i> PARSEOP_LOCAL3
%token <i> PARSEOP_LOCAL4
%token <i> PARSEOP_LOCAL5
%token <i> PARSEOP_LOCAL6
%token <i> PARSEOP_LOCAL7

%token <i> PARSEOP_LOCKRULE_LOCK
%token <i> PARSEOP_LOCKRULE_NOLOCK
%token <i> PARSEOP_LOR
%token <i> PARSEOP_MATCH
%token <i> PARSEOP_MATCHTYPE_MEQ
%token <i> PARSEOP_MATCHTYPE_MGE
%token
<i> PARSEOP_MATCHTYPE_MGT
%token <i> PARSEOP_MATCHTYPE_MLE
%token <i> PARSEOP_MATCHTYPE_MLT
%token <i> PARSEOP_MATCHTYPE_MTR
%token <i> PARSEOP_MAXTYPE_FIXED
%token <i> PARSEOP_MAXTYPE_NOTFIXED
%token <i> PARSEOP_MEMORY24
%token <i> PARSEOP_MEMORY32
%token <i> PARSEOP_MEMORY32FIXED
%token <i> PARSEOP_MEMTYPE_CACHEABLE
%token <i> PARSEOP_MEMTYPE_NONCACHEABLE
%token <i> PARSEOP_MEMTYPE_PREFETCHABLE
%token <i> PARSEOP_MEMTYPE_WRITECOMBINING
%token <i> PARSEOP_METHOD
%token <i> PARSEOP_METHODCALL
%token <i> PARSEOP_MID
%token <i> PARSEOP_MINTYPE_FIXED
%token <i> PARSEOP_MINTYPE_NOTFIXED
%token <i> PARSEOP_MOD
%token <i> PARSEOP_MULTIPLY
%token <i> PARSEOP_MUTEX
%token <i> PARSEOP_NAME
%token <s> PARSEOP_NAMESEG
%token <s> PARSEOP_NAMESTRING
%token <i> PARSEOP_NAND
%token <i> PARSEOP_NOOP
%token <i> PARSEOP_NOR
%token <i> PARSEOP_NOT
%token <i> PARSEOP_NOTIFY
%token <i> PARSEOP_OBJECTTYPE
%token <i> PARSEOP_OBJECTTYPE_BFF
%token <i> PARSEOP_OBJECTTYPE_BUF
%token <i> PARSEOP_OBJECTTYPE_DDB
%token
<i> PARSEOP_OBJECTTYPE_DEV
%token <i> PARSEOP_OBJECTTYPE_EVT
%token <i> PARSEOP_OBJECTTYPE_FLD
%token <i> PARSEOP_OBJECTTYPE_INT
%token <i> PARSEOP_OBJECTTYPE_MTH
%token <i> PARSEOP_OBJECTTYPE_MTX
%token <i> PARSEOP_OBJECTTYPE_OPR

%token <i> PARSEOP_OBJECTTYPE_PKG
%token <i> PARSEOP_OBJECTTYPE_POW
%token <i> PARSEOP_OBJECTTYPE_PRO
%token <i> PARSEOP_OBJECTTYPE_STR
%token <i> PARSEOP_OBJECTTYPE_THZ
%token <i> PARSEOP_OBJECTTYPE_UNK
%token <i> PARSEOP_OFFSET
%token <i> PARSEOP_ONE
%token <i> PARSEOP_ONES
%token <i> PARSEOP_OPERATIONREGION
%token <i> PARSEOP_OR
%token <i> PARSEOP_PACKAGE
%token <i> PARSEOP_PACKAGE_LENGTH
%token <i> PARSEOP_PARITYTYPE_EVEN
%token <i> PARSEOP_PARITYTYPE_MARK
%token <i> PARSEOP_PARITYTYPE_NONE
%token <i> PARSEOP_PARITYTYPE_ODD
%token <i> PARSEOP_PARITYTYPE_SPACE
%token <i> PARSEOP_PINCONFIG
%token <i> PARSEOP_PINFUNCTION
%token <i> PARSEOP_PINGROUP
%token <i> PARSEOP_PINGROUPCONFIG
%token <i> PARSEOP_PINGROUPFUNCTION
%token <i> PARSEOP_PIN_NOPULL
%token
 <i> PARSEOP_PIN_PULLDEFAULT
%token <i> PARSEOP_PIN_PULLDOWN
%token <i> PARSEOP_PIN_PULLUP
%token <i> PARSEOP_POWERRESOURCE
%token <i> PARSEOP_PROCESSOR
%token <i> PARSEOP_QWORDCONST
%token <i> PARSEOP_QWORDIO
%token <i> PARSEOP_QWORDMEMORY
%token <i> PARSEOP_QWORDSPACE
%token <i> PARSEOP_RANGETYPE_ENTIRE
%token <i> PARSEOP_RANGETYPE_ISAONLY
%token <i> PARSEOP_RANGETYPE_NONISAONLY
%token <i> PARSEOP_RAW_DATA
%token <i> PARSEOP_READWRITETYPE_BOTH
%token <i> PARSEOP_READWRITETYPE_READONLY
%token <i> PARSEOP_REFOF
%token <i> PARSEOP_REGIONSPACE_CMOS
%token <i> PARSEOP_REGIONSPACE_EC
%token <i> PARSEOP_REGIONSPACE_FFIXEDHW
%token <i> PARSEOP_REGIONSPACE_GPIO
%token <i> PARSEOP_REGIONSPACE_GSBUS
%token <i> PARSEOP_REGIONSPACE_IO
%token <i> PARSEOP_REGIONSPACE_IPMI

%token <i> PARSEOP_REGIONSPACE_MEM
%token <i> PARSEOP_REGIONSPACE_PCC
%token <i> PARSEOP_REGIONSPACE_PCI
%token <i> PARSEOP_REGIONSPACE_PCIBAR
%token <i> PARSEOP_REGIONSPACE_PRM
%token <i> PARSEOP_REGIONSPACE_SMBUS
%token
<i> PARSEOP_REGISTER
%token <i> PARSEOP_RELEASE
%token <i> PARSEOP_RESERVED_BYTES
%token <i> PARSEOP_RESET
%token <i> PARSEOP_RESOURCETEMPLATE
%token <i> PARSEOP_RESOURCETYPE_CONSUMER
%token <i> PARSEOP_RESOURCETYPE_PRODUCER
%token <i> PARSEOP_RETURN
%token <i> PARSEOP_REVISION
%token <i> PARSEOP_SCOPE
%token <i> PARSEOP_SERIALIZERULE_NOTSERIAL
%token <i> PARSEOP_SERIALIZERULE_SERIAL
%token <i> PARSEOP_SHARETYPE_EXCLUSIVE
%token <i> PARSEOP_SHARETYPE_EXCLUSIVEWAKE
%token <i> PARSEOP_SHARETYPE_SHARED
%token <i> PARSEOP_SHARETYPE_SHAREDWAKE
%token <i> PARSEOP_SHIFTLEFT
%token <i> PARSEOP_SHIFTRIGHT
%token <i> PARSEOP_SIGNAL
%token <i> PARSEOP_SIZEOF
%token <i> PARSEOP_SLAVEMODE_CONTROLLERINIT
%token <i> PARSEOP_SLAVEMODE_DEVICEINIT
%token <i> PARSEOP_SLEEP
%token <i> PARSEOP_SPI_SERIALBUS
%token <i> PARSEOP_SPI_SERIALBUS_V2
%token <i> PARSEOP_STALL
%token <i> PARSEOP_STARTDEPENDENTFN
%token <i> PARSEOP_STARTDEPENDENTFN_NOPRI
%token <i> PARSEOP_STOPBITS_ONE
%token <i> PARSEOP_STOPBITS_ONEPLUSHALF
%token
<i> PARSEOP_STOPBITS_TWO
%token <i> PARSEOP_STOPBITS_ZERO
%token <i> PARSEOP_STORE
%token <s> PARSEOP_STRING_LITERAL
%token <i> PARSEOP_SUBTRACT
%token <i> PARSEOP_SWITCH
%token <i> PARSEOP_THERMALZONE
%token <i> PARSEOP_TIMER
%token <i> PARSEOP_TOBCD
%token <i> PARSEOP_TOBUFFER

%token <i> PARSEOP_TODECIMALSTRING
%token <i> PARSEOP_TOHEXSTRING
%token <i> PARSEOP_TOINTEGER
%token <i> PARSEOP_TOSTRING
%token <i> PARSEOP_TOUUID
%token <i> PARSEOP_TRANSLATIONTYPE_DENSE
%token <i> PARSEOP_TRANSLATIONTYPE_SPARSE
%token <i> PARSEOP_TYPE_STATIC
%token <i> PARSEOP_TYPE_TRANSLATION
%token <i> PARSEOP_UART_SERIALBUS
%token <i> PARSEOP_UART_SERIALBUS_V2
%token <i> PARSEOP_UNICODE
%token <i> PARSEOP_UNLOAD
%token <i> PARSEOP_UPDATERULE_ONES
%token <i> PARSEOP_UPDATERULE_PRESERVE
%token <i> PARSEOP_UPDATERULE_ZEROS
%token <i> PARSEOP_VAR_PACKAGE
%token <i> PARSEOP_VENDORLONG
%token <i> PARSEOP_VENDORSHORT
%token <i> PARSEOP_WAIT
%token <i> PARSEOP_WHILE
%token <i> PARSEOP_WIREMODE_FOUR
%token
 <i> PARSEOP_WIREMODE_THREE
%token <i> PARSEOP_WORDBUSNUMBER
%token <i> PARSEOP_WORDCONST
%token <i> PARSEOP_WORDIO
%token <i> PARSEOP_WORDSPACE
%token <i> PARSEOP_XFERSIZE_8
%token <i> PARSEOP_XFERSIZE_16
%token <i> PARSEOP_XFERSIZE_32
%token <i> PARSEOP_XFERSIZE_64
%token <i> PARSEOP_XFERSIZE_128
%token <i> PARSEOP_XFERSIZE_256
%token <i> PARSEOP_XFERTYPE_8
%token <i> PARSEOP_XFERTYPE_8_16
%token <i> PARSEOP_XFERTYPE_16
%token <i> PARSEOP_XOR
%token <i> PARSEOP_ZERO

/* ToPld macro */

%token <i> PARSEOP_TOPLD
%token <i> PARSEOP_PLD_REVISION
%token <i> PARSEOP_PLD_IGNORECOLOR
%token <i> PARSEOP_PLD_RED
%token <i> PARSEOP_PLD_GREEN
%token <i> PARSEOP_PLD_BLUE

```
%token <i> PARSEOP_PLD_WIDTH
%token <i> PARSEOP_PLD_HEIGHT
%token <i> PARSEOP_PLD_USERVISIBLE
%token <i> PARSEOP_PLD_DOCK
%token <i> PARSEOP_PLD_LID
%token <i> PARSEOP_PLD_PANEL
%token <i> PARSEOP_PLD_VERTICALPOSITION
%token <i> PARSEOP_PLD_HORIZONTALPOSITION
%token <i> PARSEOP_PLD_SHAPE
%token <i> PARSEOP_PLD_GROUPORIENTATION
%token
 <i> PARSEOP_PLD_GROUPTOKEN
%token <i> PARSEOP_PLD_GROUPPOSITION
%token <i> PARSEOP_PLD_BAY
%token <i> PARSEOP_PLD_EJECTABLE
%token <i> PARSEOP_PLD_EJECTREQUIRED
%token <i> PARSEOP_PLD_CABINETNUMBER
%token <i> PARSEOP_PLD_CARDCAGENUMBER
%token <i> PARSEOP_PLD_REFERENCE
%token <i> PARSEOP_PLD_ROTATION
%token <i> PARSEOP_PLD_ORDER
%token <i> PARSEOP_PLD_RESERVED
%token <i> PARSEOP_PLD_VERTICALOFFSET
%token <i> PARSEOP_PLD_HORIZONTALOFFSET

/*
* C-style expression parser. These must appear after all of the
* standard ASL operators and keywords.
*
* Note: The order of these tokens implements the precedence rules
* (low precedence to high). See aslrules.y for an exhaustive list.
*/
%right <i> PARSEOP_EXP_EQUALS
        PARSEOP_EXP_ADD_EQ
        PARSEOP_EXP_SUB_EQ
        PARSEOP_EXP_MUL_EQ
        PARSEOP_EXP_DIV_EQ
        PARSEOP_EXP_MOD_EQ
        PARSEOP_EXP_SHL_EQ
        PARSEOP_EXP_SHR_EQ
        PARSEOP_EXP_AND_EQ
        PARSEOP_EXP_XOR_EQ
         PARSEOP_EXP_OR_EQ

%left <i>  PARSEOP_EXP_LOGICAL_OR
%left <i>  PARSEOP_EXP_LOGICAL_AND
%left <i>  PARSEOP_EXP_OR
%left <i>  PARSEOP_EXP_XOR
```

```
%left <i>  PARSEOP_EXP_AND
%left <i>  PARSEOP_EXP_EQUAL
        PARSEOP_EXP_NOT_EQUAL
%left <i>  PARSEOP_EXP_GREATER
        PARSEOP_EXP_LESS
        PARSEOP_EXP_GREATER_EQUAL
        PARSEOP_EXP_LESS_EQUAL
%left <i>  PARSEOP_EXP_SHIFT_RIGHT
        PARSEOP_EXP_SHIFT_LEFT
%left <i>  PARSEOP_EXP_ADD
        PARSEOP_EXP_SUBTRACT
%left <i>  PARSEOP_EXP_MULTIPLY
        PARSEOP_EXP_DIVIDE
        PARSEOP_EXP_MODULO

%right <i> PARSEOP_EXP_NOT
        PARSEOP_EXP_LOGICAL_NOT

%left <i>  PARSEOP_EXP_INCREMENT
        PARSEOP_EXP_DECREMENT

%left <i>  PARSEOP_OPEN_PAREN
        PARSEOP_CLOSE_PAREN

/* Brackets for Index() support */

%left <i>  PARSEOP_EXP_INDEX_LEFT
%right <i> PARSEOP_EXP_INDEX_RIGHT

/* Macros */

%token <i> PARSEOP_PRINTF
%token <i> PARSEOP_FPRINTF
%token <i> PARSEOP_FOR

/* Structures
 */

%token <i> PARSEOP_STRUCTURE
%token <s> PARSEOP_STRUCTURE_NAMESTRING
%token <i> PARSEOP_STRUCTURE_TAG
%token <i> PARSEOP_STRUCTURE_ELEMENT
%token <i> PARSEOP_STRUCTURE_INSTANCE
%token <i> PARSEOP_STRUCTURE_REFERENCE
%token <i> PARSEOP_STRUCTURE_POINTER

/* Top level */
```

```
%token <i> PARSEOP_ASL_CODE


/******************************************************************************
*
* Tokens below are not in the aslmap.c file
*
******************************************************************************/


/* Tokens below this are not in the aslmap.c file */

/* Specific parentheses tokens are not used at this time */
        /* PARSEOP_EXP_PAREN_OPEN */
        /* PARSEOP_EXP_PAREN_CLOSE */

/* ASL+ variable creation */

%token <i> PARSEOP_INTEGER_TYPE
%token <i> PARSEOP_STRING_TYPE
%token <i> PARSEOP_BUFFER_TYPE
%token <i> PARSEOP_PACKAGE_TYPE
%token <i> PARSEOP_REFERENCE_TYPE


/*
* Special functions. These should probably stay at the end of this
* table.
*/
%token
 <i> PARSEOP___DATE__
%token <i> PARSEOP___FILE__
%token <i> PARSEOP___LINE__
%token <i> PARSEOP___PATH__
%token <i> PARSEOP___METHOD__

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-
20210105/source/compiler/asltokens.y
No license file was found, but licenses were detected in source scan.

NoEcho('
/******************************************************************************
*
* Module Name: aslsupport.y - Bison/Yacc C support functions
*
******************************************************************************/
```

```
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*
*****************************************************************************/

')

/*****************************************************************************
*
* Local support functions
*
*****************************************************************************/

/*! [Begin] no source code translation */
int
AslCompilerwrap(void)
{
 return (1);
}
/*! [End] no source code translation !*/


void *
AslLocalAllocate (
  unsigned int        Size)
{
  void                *Mem;


  DbgPrint (ASL_PARSE_OUTPUT,
     "\nAslLocalAllocate: Expanding Stack to %u\n\n", Size);

  Mem = ACPI_ALLOCATE_ZEROED (Size);
  if (!Mem)

 {
     AslCommonError (ASL_ERROR, ASL_MSG_MEMORY_ALLOCATION,
        AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
        AslGbl_InputByteCount, AslGbl_CurrentColumn,
        AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
     exit (1);
  }
```

```
  return (Mem);
}

ACPI_PARSE_OBJECT *
AslDoError (
  void)
{

  return (TrCreateLeafOp (PARSEOP_ERRORNODE));
}


/*******************************************************************************
*
* FUNCTION:    UtGetOpName
*
* PARAMETERS:  ParseOpcode         - Parser keyword ID
*
* RETURN:      Pointer to the opcode name
*
* DESCRIPTION: Get the ascii name of the parse opcode
*
******************************************************************************/

char *
UtGetOpName (
  UINT32                ParseOpcode)
{
#ifdef ASL_YYTNAME_START
  /*
   * First entries (ASL_YYTNAME_START) in yytname are special reserved names.
   * Ignore first 8 characters of the name
   */
  return ((char *) yytname
      [(ParseOpcode - ASL_FIRST_PARSE_OPCODE) + ASL_YYTNAME_START] + 8);
#else
  return ("[Unknown parser generator]");
#endif
}
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslsupport.y
No license file was found, but licenses were detected in source scan.

---

05 January 2021. Summary of changes for version 20210105:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Updated all copyrights to 2021. This affects all ACPICA source code
modules.

2) iASL Compiler/Disassembler and ACPICA tools:

ASL test suite (ASLTS): Updated all copyrights to 2021.

Tools and utilities: Updated all signon copyrights to 2021.

iASL Table Compiler: Removed support for obsolete ACPI tables: VRTC,
MTMR. Al Stone.

---

17 December 2020. Summary of changes for version 20201217:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Note: The implementation of ACPI 6.4 is underway, and is expected to be
mostly finished next month, when ACPI 6.4 is released.

From qzed:- fixed-ae-class-macros. Fix exception code class checks. Added

several new macros, such as ACPI_CNTL_EXCEPTION(Status) in order to
enable this.

AcpiExec/iASL/AcpiHelp: Added a few changes for support of GCC 10.2.0.
These included a few casts, as well as a null pointer check.

Fix -Wfallthrough: GCC 7.1 gained -Wimplicit-fallthrough to warn on
implicit fallthrough, as well as __attribute__((__fallthrough__)) and
comments to explicitly denote that cases of fallthrough were intentional.
Clang also supports this warning and statement attribute, but not the
comment form. Added a new macro, ACPI_FALLTHROUGH to support this feature
of GCC. With assistance from @nickdesaulniers.

2) iASL Compiler/Disassembler and ACPICA tools:

Added improvement to method call analysis by saving the return type and
relaxing certain cases of type checking.

iASL Table Compiler: Improved info messages. Added a message to the -T
option for when the default template (DSDT) is used.
Also added a note for when multiple SSDTs are created with a DSDT that
the SSDTs
are created in the same file as the DSDT.

---

13 November 2020. Summary of changes for version 20201113:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Interpreter: fixed a memory leak by using use existing buffer in _HID
repair. There was a memory leak that occurred when a _CID object is
defined as a package containing string objects. When _CID is checked for
any possible repairs, it calls a helper function to repair _HID (because
_CID basically contains multiple _HID entries). The _HID repair function
assumes that string objects are standalone objects that are not contained
inside of any packages. The _HID repair function replaced the string
object with a brand new object and attempted to delete the old object by
decrementing the reference count of the old object. Strings inside of
packages have a reference count of 2 so the _HID repair function leaves
this object in a dangling state
and causes a memory leak. Instead of
allocating a brand new object and removing the old object, use the
existing object when repairing the _HID object.

Added function trace macros to improve namespace debugging. The namespace
repair mechanism does not have function tracing macros. Add several trace
macros to improve debuggability.

Handle "orphan" _REG methods for GPIO OpRegions. Before this change
AcpiEvExecuteRegMethods() had special handling to handle "orphan" (no
matching OpRegion declared) _REG methods for EC nodes. On Intel Cherry
Trail devices there are 2 possible ACPI OpRegions for accessing GPIOs.
The standard GeneralPurposeIo OpRegion and the Cherry Trail - specific
UserDefined 0x9X OpRegions. Having 2 different types of OpRegions leads
to potential issues with checks for OpRegion availability, or in other
words checks if _REG has been called for the OpRegion which the ACPI code
wants to use. Except for the "orphan" EC handling, ACPICA core does not
call _REG
on an ACPI node which does not define an OpRegion matching the
type being registered; and the reference design DSDT, from which most

Cherry Trail DSDTs are derived, does not define GeneralPurposeIo, nor
UserDefined(0x93) OpRegions for the GPO2 (UID 3) device, because no pins
were assigned ACPI controlled functions in the reference design. Together
this leads to the perfect storm, at least on the Cherry Trail based
Medion Akayo E1239T. This design does use a GPO2 pin from its ACPI code
and has added the Cherry Trail specific UserDefined(0x93) opregion to its
GPO2 ACPI node to access this pin. But it uses a "has _REG been called"
availability check for the standard GeneralPurposeIo OpRegion. This
clearly is a bug in the DSDT, but this does work under Windows. This
issue leads to the intel vbtn driver reporting the device always being in
tablet-mode at boot, even if it is in laptop mode. Which in turn causes
userspace to ignore touchpad events. So in other words, this issue
causes
the touchpad to not work at boot. This change fixes this by extending the
"orphan" _REG method handling to also apply to GPIO address-space
handlers.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: Added more info to namespace dump file (-ln option). In a separate
section of the dump file (after the main namespace dump), emit the full
pathname for each namespace node, its type, and the ASL filename and line
number where it is declared.

AcpiHelp: Added an option to display/decode iASL exceptions. Option is: -
x [Hex Value] where "Hex Value" is the iASL exception code. If Hex Value
is omitted, all iASL exceptions are displayed.

iASL: Use StringLiteral instead of StringData for some ASL macros. The
use of the stringData rule allows for some "string" oriented opcodes
(Such as ToString, ToHexString, etc.) None of which make sense with the
macros in question. This change modifies the StringData part of the rule
for these macros to a simple string literal - thus
disallowing the use
of ToString, ToHexString, etc.
The following ASL operators (macros) are affected:
EisaId
Fprintf
Printf
ToUuid
Unicode
Note: The MS compiler requires the use of string literals for these
operators also.

iASL: Added a remark for an unknown UUID: ASL_MSG_UUID_NOT_FOUND. Search
the list of "known" UUIDs for the input to the ToUUID macro.

Added 5 new UUIDs to the known UUID table. All related to NVDIMM and the NFIT table.

---

25 September 2020. Summary of changes for version 20200925:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Preserve memory opregion mappings. The ACPICA's strategy with respect to the handling of memory mappings associated with memory operation regions is to avoid mapping the entire region at once which may be problematic at least in principle (for example, it may lead to conflicts with overlapping mappings having different attributes created by drivers). It may also be wasteful, because memory opregions on some systems take up vastchunks of address space while the fields in those regions actually accessed by AML are sparsely distributed.

For this reason, a one-page "window" is mapped for a given opregion on the first memory access through it and if that "window" does not cover an address range accessed through that opregion subsequently, it is unmapped and a new "window" is mapped to replace it. Next, if the new "window" is not sufficient to access memory through the opregion in question in the future, it will be replaced with yet another "window" and so on. That may lead to a suboptimal sequence of memory mapping and unmapping operations, for example if two fields in one opregion separated from each other by a sufficiently wide chunk of unused address space are accessed in an alternating pattern.

Added support for 64 bit risc-v compilation. Useful for acpica tools and incorporating ACPICA into the Firmware Test Suite. Colin Ian King <colin.king@canonical.com>.

Added support for SMBus predefined names (from SMBus Control Method Interface Specification, Version 1.0, December 10, 1999. New predefined names:

_SBA
_SBI
_SBR
_SBT
_SBW

AML Disassembler: Added a new command, "All <NameSeg>". This command will
evaluate all objects in the current namespace whose NameString contains
the input NameSeg as the last element of the NameString. Useful for
debugging.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: fixed a crash that occurred when predefined objects return packages
with lengths that exceed the initializer list.

iASL: added more detail to external resolution error message when
compiling multiple definition blocks.

iASL: added a remark for an attempt to create a nameseg or namestring
containing lower-case letters. This should prevent declaring multiple
namesegs or namestrings in an attempt to refer to different objects (with
different cases), but
actually refer to the same object(s).

iASL: improve alias analysis by saving object type. If the alias is a
method type, the parameter count is also recorded.

AcpiExec: Increase the default loop timeout value. Was 1 second, is now
10 seconds. Prevents unnecessary timeouts when executing control methods
from the command line.

AcpiHelp/disassembler: Added a bunch of "known" UUIDs to the internal
list. Includes:
  Memory Device
  Generic Buttons Device
  NVDIMM Root Device
  Control Method Battery
  Device Graphs for _DSD method
  Hierarchical Data Extension
....ARM CoreSight Graph

---

17 July 2020. Summary of changes for version 20200717:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Do not increment OperationRegion reference counts for field units. Recent

server firmware has revealed that this reference count can overflow on
large servers that declare many field units (thousands)
 under the same
OperationRegion. This occurs because each field unit declaration will add
a reference count to the source OperationRegion. This release solves the
reference count overflow for OperationRegion objects by preventing
fieldUnits from incrementing their parent OperationRegion's reference
count.

Replaced one-element arrays with flexible-arrays, which were introduced
in C99.

Restored the readme file containing the directions for generation of
ACPICA from source on MSVC 2017. Updated the file for MSVC 2017. File is
located at: generate/msvc2017/readme.txt

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: Fixed a regression found in version 20200214. Prevent iASL from
emitting an extra byte of garbage data when control methods declared a
single parameter type without using braces. This extra byte is known to
cause a blue screen on the Windows AML interpreter.

iASL: Made a change to allow external declarations to specify the type of
a named object even
 when some name segments are not defined.
This change allows the following ASL code to compile (When DEV0 is not
defined or not defined yet):

```
  External (\_SB.DEV0.OBJ1, IntObj)
  External (\_SB.DEV0, DeviceObj)
```

iASL: Fixed a problem where method names in "Alias ()" statement could be
misinterpreted. They are now interpreted correctly as method invocations.

iASL: capture a method parameter count (Within the Method info segment,
as well as the argument node) when using parameter type lists.

---

28 May 2020. Summary of changes for version 20200528:

1) ACPICA kernel-resident subsystem:

Removed old/obsolete Visual Studio files which were used to build the
Windows versions of the ACPICA tools. Since we have moved to Visual

Studio 2017, we are no longer supporting Visual Studio 2006 and 2009
project files. The new subdirectory and solution file are located at:

acpica/generate/msvc2017/AcpiComponents.sln

2) iASL Compiler/Disassembler
and ACPICA tools:

iASL: added support for a new OperationRegion Address Space (subtype):
PlatformRtMechanism. Support for this new keyword is being released for
early prototyping. It will appear in the next release of the ACPI
specification.

iASL: do not optimize the NameString parameter of the CondRefOf operator.
In the previous iASL compiler release, the NameString parameter of the
CondRefOf was optimized. There is evidence that some implementations of
the AML interpreter do not perform the recursive search-to-parent search
during the execution of the CondRefOf operator. Therefore, the CondRefOf
operator behaves differently when the NameString parameter is a single
name segment (a NameSeg) as opposed to a full NamePath (starting at the
root scope) or a NameString containing parent prefixes.

iASL: Prevent an inadvertent remark message. This change prevents a
remark if within a control method the following exist:
1) An Operation Region is defined, and
2) A Field operator
is defined that refers to the region.
This happens because at the top level, the Field operator does not
actually create a new named object, it simply references the operation
region.

Removed support for the acpinames utility. The acpinames was a simple
utility used to populate and display the ACPI namespace without executing
any AML code. However, ACPICA now supports executable opcodes outside of
control methods. This means that executable AML opcodes such as If and
Store opcodes need to be executed during table load. Therefore, acpinames
would need to be updated to match the same behavior as the acpiexec
utility and since acpiexec can already dump the entire namespace (via the
'namespace' command), we no longer have the need to maintain acpinames.

In order to dump the contents of the ACPI namespace using acpiexec,
execute the following command from the command line:

acpiexec -b "n" [aml files]

---

30 April 2020. Summary
of changes for version 20200430:

1) ACPICA kernel-resident subsystem:

Cleaned up the coding style of a couple of global variables
(AcpiGbl_NextCmdNum and AcpiProtocolLengths) caught by static analyzers.
AcpiProtocolLengths was made static, and the definition of
AcpiGbl_NextCmdNum was moved to acglobal.h.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL DataTable Compiler: Fixed a segfault on errors that aren't directly
associated with a field.

Disassembler: has been made more resilient so that it will continue to
parse AML even if the AML generates ACPI namespace errors. This enables
iASL to disassemble some AML that may have been compiled using older
versions of iASL that no longer compile with newer versions of iASL.

iASL: Fixed the required parameters for _NIH and _NIG. Previously, there
was a mixup where _NIG required one parameter and _NIH required zero
parameters. This change swaps these parameter requirements. Now it is
required that _NIH must be called
with one parameter and _NIG requires
zero parameters.

iASL: Allow use of undefined externals as long as they are protected by
an if (CondRefOf (...)) block when compiling multiple definition blocks.

iASL: Fixed the type override behavior of named objects that are declared
as External. External declarations will no longer override the type of
the actual definition if it already exists.

AcpiNames: Added setargv.obj to the MSVC 2017 link sequence to enable
command line wildcard support on Windows. Note: the AcpiNames utility is
essentially redundant with the AcpiExec utility (using the "namespace"
command) and is therefore deprecated. It will be removed in future
releases of ACPICA.

Disassembler: ignore AE_ALREADY_EXISTS status when parsing create*
operators. The disassembler is intended to emit existing ASL code as-is.
Therefore, error messages emitted during disassembly should be ignored or
handled in a way such that the disassembler can continue to parse the
AML. This

change ignores AE_ALREADY_EXISTS errors during the deferred Op
parsing for create operators in order to complete parsing ASL termlists.

iASL DataTable Compiler: IVRS table: fix potentially uninitialized
variable warning. Some compilers catch potential uninitialized variables.
This is done by examining branches of if/else statements. This change
replaces an "else if" with an "else" to fix the uninitialized variable
warning.

---

26 March 2020. Summary of changes for version 20200326:

1) ACPICA kernel-resident subsystem:

Performed a code clean-up to prevent build errors on early versions of
GCC-10.

Added the NHLT table signature. iASL data table compiler/disassembler
support for this table is coming soon.

2) iASL Compiler/Disassembler and ACPICA tools:

AcpiExec: Fixed several problems with the namespace initialization file
(-fi<filename> option). Includes fixes to prevent AE_ALREADY_EXISTS
errors, several seg faults, and enhancements
to line parsing within the
init file. In addition, each object found in the init file and it's new
value is displayed, as well as any such entries that do not have a
corresponding name in the namespace. For reference, the syntax for the
various supported data types are presented below:
PCHG 0x777788889999BBBB // Integer
\DEV1.STR1 "XYZ" // String
BUF1 (88 99 AA) // Buffer
PKG1 [0x1111 0x2222] // Package
\BF1 0x7980 // BufferField
RCRV 0x0123456789ABCDEF // Field Unit

iASL: Added a custom iASL macro __EXPECT__(iASL-Error-Code). This macro
can be used anywhere in a given ASL file to configure iASL to expect an
iASL compiler error code on the line where this macro was placed. If the
error code does not exist, an error is generated. This is intended to be
used for ACPICA's ASL test suite, but can be used by ASL developers as
well.

iASL: table compiler: Implemented IVRS IVHD type 11h parsing. The AMD

IVRS table parsing supported only IVHD type 10h structures.
Parsing an
IVHD type 11h caused the iasl to report unknown subtable type. Add
necessary structure definition for IVHD type 11h and apply correct
parsing method based on subtable type. Micha? ?ygowski.

iASL: table compiler: Fixed IVRS table IVHD type 10h reserved field name
According to AMD IOMMU Specification Revision 3.05 the reserved field
should be IOMMU Feature Reporting. Change the name of the field to the
correct one. Micha? ?ygowski.

acpiexec: removed redeclaration of AcpiGbl_DbOpt_NoRegionSupport. Patch
based on suggestions by David Seifert and Benjamin Berg.

iASL: table compiler: removed an unused variable (DtCompilerParserResult)
causing linking errors. Patch based on suggestions by David Seifert and
Benjamin Berg.

iASL: table compiler: make LexBuffer static to avoid linking errors in
newer compilers. Patch based on suggestions by David Seifert and Benjamin
Berg.

iASL: fixed type matching between External and Named objects. External
object types can only be expressed
with ACPI object type values that are
defined in the ACPI spec. However, iASL uses ACPI object type values that
are local to ACPICA in addition to the values defined in the ACPI spec.
This change implements type matching to map some object type values
specific to ACPICA to ones that are defined in the ACPI spec.

iASL: Dropped the type mismatch compiler error that can arise from
External declarations to a warning. This warning can occur when there is
a type difference between the external declaration and the actual object
declaration (when compiling multiple files/modules simultaneously).

iASL: removed an incorrect error message regarding externals. This change
removes an incorrect error that is emitted when a duplicate external
declaration does not contain a type that opens a scope. This is incorrect
because the duplicate external with conflicting types are already caught
by iASL and it doesn't make any sense to enforce what this conflicting
type should be.

AcpiXtract:
fix AX_IS_TABLE_BLOCK_HEADER macro. This macro needs to be
surrounded by parens. Otherwise, a logical statement that applies a
logical not operator to this macro could result in a computation that
applies the operator to the left side of the logical and but not the
right. Reported-by: John Levon <john.levon@joyent.com>

Fixed a problem with the local version of sprint(): On 32-bit, the
provided sprintf() is non-functional: with a size of ACPI_UINT32_MAX,
String + Size will wrap, meaning End < Start, and
AcpiUtBoundStringOutput() will never output anything as a result. The
symptom seen of this was acpixtract failing to output anything -- with a
custom build that included utprint.c. Signed-off-by: John Levon
<john.levon@joyent.com>

iASL: Changed the "PlatformCommChannel" ASL keyword to "PCC", as per the
ACPI specification.

---

14 February 2020. Summary of changes for version 20200214:

1) ACPICA kernel-resident subsystem:

Enable
sleep button on ACPI legacy wake: Hibernation (S4) is triggered
in a guest when it receives a sleep trigger from the hypervisor. When the
guest resumes from this power state, it does not see the SleepEnabled
bit. In other words, the sleepHibernation (S4) is triggered in a guest
when it receives a sleep trigger from the hypervisor. When the guest
resumes from this power state, it does not see the SleepEnabled bit. In
other words, the sleep button is not enabled on waking from an S4 state.
This causes subsequent invocation of sleep state to fail since the
guest.button is not enabled on waking from an S4 state. This causes
subsequent invocation of sleep state to fail in the guest. Fix this
problem by enabling the sleep button in ACPI legacy wake. From Anchal
Agarwal <anchalag@amazon.com>.

Implemented a new external interface, AcpiAnyGpeStatusSet (). To be used
for checking the status bits of all enabled GPEs in one go. It is needed
to distinguish spurious SCIs from genuine
ones when deciding whether or
not to wake up the system from suspend-to-idle.

Generic Makefiles: replace HOST name with ACPI_HOST: Some machines may be
using HOST in their environment to represent the host name for their
machines. Avoid this problem by renaming this variable from HOST to
ACPI_HOST.

MSVC 2017 project files: Enable multiprocessor generation to improve
build performance.

Added a macro to get the byte width of a Generic Address structure. New

ACPI_ACCESS_BYTE_WIDTH is in addition to the existing
ACPI_ACCESS_BIT_WIDTH. From Mika Westerberg.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: Implemented full support for the (optional, rarely used) ReturnType
and ParameterTypesList for the Method, Function, and External operators.
For Method declarations, the number of individual ParameterTypes must
match the declaration of the number of arguments (NumArgs). This also
Fixes a problem with the External operator where extra/extraneous bytes
were emitted
in the AML code if the optional ReturnType/ParameterTypes
were specified for a MethodObj declaration.
New error message:
1) Method NumArgs count does not match length of ParameterTypes list

iASL: Implemented detection of type mismatches between External
declarations and named object declarations. Also, detect type mismatches
between multiple External declarations of the same Name.
New error messages:
1) Type mismatch between external declaration and actual object
declaration detected
2) Type mismatch between multiple external declarations detected

iASL: Implemented new error messages for External operators that specify
a ReturnType and/or ParameterTypesList for any object type other than
control methods (MethodObj).
New error messages:
1) Return type is only allowed for Externals declared as MethodObj
2) Parameter type is only allowed for Externals declared as MethodObj

iASL: Implemented two new remark/warning messages for ASL code that
creates named objects from within a control
method. This is very
inefficient since the named object must be created and deleted each time
the method is executed.
New messages:
1) Creation of named objects within a method is highly inefficient, use
globals or method local variables instead (remark)
2) Static OperationRegion should be declared outside control method
(warning)

iASL: Improved illegal forward reference detection by adding support to
detect forward-reference method invocations.

iASL: Detect and issue an error message for NameStrings that contain too
many individual NameSegs (>255). This is an AML limitation that is

defined in the ACPI specification.
New message:
1) NameString contains too many NameSegs (>255)

acpidump: windows: use GetSystemFirmwareTable API for all tables except
SSDT. By using this API, acpidump is able to get all tables in the XSDT

iASL: Removed unused parser file and updated msvc2017 project files.
Removed the obsolete AslCompiler.y from the repository.

iASL: msvc2017: Fixed macros
in the file dependency list to prevent
unnecessary rebuilds. Replace %(Directory) with %(RelativeDir).

Disassembler: Prevent spilling error messages to the output file. All
errors are directed to the console instead. These error messages
prevented re-compilation of the resulting disassembled ASL output file
(.DSL).

---
10 January 2020. Summary of changes for version 20200110:

1) ACPICA kernel-resident subsystem:

Updated all copyrights to 2020. This affects all ACPICA source code
modules.

2) iASL Compiler/Disassembler and ACPICA tools:

ASL test suite (ASLTS): Updated all copyrights to 2020.

Tools and utilities: Updated all signon copyrights to 2020.

iASL: fix forward reference analysis for field declarations. Fixes
forward reference analysis for field declarations by searching the
parent scope for the named object when the object is not present in
the current scope.

iASL: Improved the error output for ALREADY_EXISTS errors. Now,
the
full pathname of the name that already exists is printed.

iASL: Enhance duplicate Case() detection for buffers. Add check for
buffers with no initializer list (these buffers will be filled with
zeros at runtime.)

---
13 December 2019. Summary of changes for version 20191213:

1) ACPICA kernel-resident subsystem:

Return a Buffer object for all fields created via the CreateField
operator. Previously, an Integer would be returned if the size of
the field was less than or equal to the current size of an Integer.
Although this goes against the ACPI specification, it provides
compatibility with other ACPI implementations. Also updated the
ASLTS test suite to reflect this new behavior.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: Implemented detection of (and throw an error for) duplicate
values for Case statements within a single Switch statement. Duplicate
Integers, Strings, and Buffers are supported.

iASL: Fix error logging issue
during multiple file compilation --
Switch to the correct input file during error node creation.

iASL: For duplicate named object creation, now emit an error instead
of a warning - since this will cause a runtime error.

AcpiSrc: Add unix line-ending support for non-Windows builds.

iASL: Add an error condition for an attempt to create a NameString
with > 255 NameSegs (the max allowable via the AML definition).

---
18 October 2019. Summary of changes for version 20191018:

1) ACPICA kernel-resident subsystem:

Debugger: added a new command: ?Fields [address space ID]?. This command
dumps the contents of all field units that are defined within the
namespace with a particular address space ID.

Modified the external interface AcpiLoadTable() to return a table index.
This table index can be used for unloading a table for debugging.
  ACPI_STATUS
  AcpiLoadTable (

```
    ACPI_TABLE_HEADER       *Table,
    UINT32                  *TableIndex))
```

Implemented
a new external interface: AcpiUnloadTable() This new function
takes a table index as an argument and unloads the table. Useful for
debugging only.

```
  ACPI_STATUS
  AcpiUnloadTable (
    UINT32                  TableIndex))
```

Ported the AcpiNames utility to use the new table initialization
sequence. The utility was broken before this change. Also, it was
required to include most of the AML interpreter into the utility in order
to process table initialization (module-level code execution.)

Update for results from running Clang V8.0.1. This fixes all "dead
assignment" warnings. There are still several "Dereference of NULL
pointer" warnings, but these have been found to be false positive
warnings.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: numerous table compiler changes to ensure that the usage of
yacc/bison syntax is POSIX-compliant.

iASL/disassembler: several simple bug fixes in the data table
disassembler.

Acpiexec: expanded the initialization
file (the -fi option) to initialize
strings, buffers, packages, and field units.

---

16 August 2019. Summary of changes for version 20190816:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Modified the OwnerId mechanism to allow for more Owner Ids. The previous
limit was 256 Ids, now it is 4096 Ids. This prevents OWNER_ID_LIMIT
exceptions on machines with a large number of initialization threads,
many CPU cores and nested initialization control methods.

Introduced acpi_dispatch_gpe() as a wrapper around AcpiEvDetectGpe() for
checking if the given GPE (as represented by a GPE device handle and a
GPE number) is currently active and dispatching it (if that's the case)
outside of interrupt context.

Table load: exit the interpreter before initializing objects within the
new table This prevents re-acquiring the interpreter lock when loading
tables

Added the "Windows 2019" string
to the _OSI support (version 1903). Jung-
uk Kim

Macros: removed pointer math on a null pointer. Causes warnings on some
compilers and/or tools. Changed ACPI_TO_POINTER to use ACPI_CAST_PTR
instead of using arithmetic.

Fully deployed the ACPI_PRINTF_LIKE macro. This macro was not being used
across all "printf-like" internal functions. Also, cleanup all calls to
such functions (both in 32-bit mode and 64-bit mode) now that they are
analyzed by the gcc compiler via ACPI_PRINTF_LIKE.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: implemented a new data table compiler flex/bison front-end. This
change is internal and is not intended to result in changes to the
compiled code. This new compiler front-end can be invoked using the -tp
option for now, until the old mechanism is removed.

ASLTS: Implemented a new data table compiler test suite. This test suite
generates all table templates and compile/disassemble/re-compile/binary-
compare each file.

iASL: return -1 if
AML files were not generated due to compiler errors

iASL: added a warning on use of the now-legacy ASL Processor () keyword.

iASL: added an error on _UID object declaration that returns a String
within a Processor () declaration. A _UID for a processor must be an
Integer.

iASL: added a null terminator to name strings that consist only of
multiple parent prefixes (^)

iASL: added support to compile both ASL and data table files in a single
command.

Updated the tool generation project files that were recently migrated to
MSVC 2017 to eliminate all new warnings. The new project files appear in
the directory \acpica\generate\msvc2017. This change effectively
deprecates the older project files in \acpica\generate\msvc9.

---
03 July 2019. Summary of changes for version 20190703:

1) ACPICA kernel-resident subsystem:

Remove legacy module-level support code. There were still some remnants
of the legacy module-level code executions. Since we
no longer support
this option, this is essentially dead code and has been removed from the
ACPICA source.

iASL: ensure that _WAK, _PTS, _TTS, and _Sx are declared only at the root
scope. If these named objects are declared outside the root scope, they
will not be invoked by any host Operating System.

Clear status of GPEs on first direct enable. ACPI GPEs (other than the EC
one) can be enabled in two situations. First, the GPEs with existing _Lxx
and _Exx methods are enabled implicitly by ACPICA during system
initialization. Second, the GPEs without these methods (like GPEs listed
by _PRW objects for wakeup devices) need to be enabled directly by the
code that is going to use them (e.g. ACPI power management or device
drivers).

In the former case, if the status of a given GPE is set to start with,
its handler method (either _Lxx or _Exx) needs to be invoked to take care
of the events (possibly) signaled before the GPE was enabled. In the
latter case, however, the first
caller of AcpiEnableGpe() for a given GPE
should not be expected to care about any events that might be signaled
through it earlier. In that case, it is better to clear the status of
the GPE before enabling it, to prevent stale events from triggering
unwanted actions (like spurious system resume, for example).

For this reason, modify AcpiEvAddGpeReference() to take an additional
boolean argument indicating whether or not the GPE status needs to be
cleared when its reference counter changes from zero to one and make
AcpiEnableGpe() pass TRUE to it through that new argument.

2) iASL Compiler/Disassembler and ACPICA tools:

The tool generation process has been migrated to MSVC 2017, and all
project files have been upgraded. The new project files appear in the
directory \acpica\generate\msvc2017. This change effectively deprecates
the older project files in \acpica\generate\msvc9.

iASL: ensure that _WAK, _PTS, _TTS, and _Sx are declared only at the root
scope. If these named
 objects are declared outside the root scope, they
will not be invoked by any host Operating System

---
09 May 2019. Summary of changes for version 20190509:

1) ACPICA kernel-resident subsystem:

Revert commit 6c43e1a ("ACPICA: Clear status of GPEs before enabling
them") that causes problems with Thunderbolt controllers to occur if a
dock device is connected at init time (the xhci_hcd and thunderbolt
modules crash which prevents peripherals connected through them from
working). Commit 6c43e1a effectively causes commit ecc1165b8b74 ("ACPICA:
Dispatch active GPEs at init time") to get undone, so the problem
addressed by commit ecc1165b8b74 appears again as a result of it.

2) iASL Compiler/Disassembler and ACPICA tools:

Reverted iASL: Additional forward reference detection. This change
reverts forward reference detection for field declarations. The feature
unintentionally emitted AML bytecode with incorrect package lengths for
some ASL
 code related to Fields and OperationRegions. This malformed AML
can cause systems to crash
during boot. The malformed AML bytecode is emitted in iASL version
20190329 and 20190405.

iASL: improve forward reference detection. This change improves forward
reference detection for named objects inside of scopes. If a parse object
has the OP_NOT_FOUND_DURING_LOAD set, it means that Op is a reference to
a named object that is declared later in the AML bytecode. This is
allowed if the reference is inside of a method and the declaration is
outside of a method like so:

```
DefinitionBlock(...)
{
  Method (TEST)
  {
```

```
    Return (NUM0)
  }
  Name (NUM0,0)
}
```

However, if the declaration and reference are both in the same method or outside any methods, this is a forward reference and should be marked as an error because it would result in runtime errors.

```
DefinitionBlock(...)
{
  Name (BUFF, Buffer (NUM0) {}) // Forward reference
  Name (NUM0, 0x0)

  Method (TEST)
  {

    Local0 = NUM1
    Name (NUM1, 0x1) // Forward reference
    return (Local0)
  }
}
```

iASL: Implemented additional buffer overflow analysis for BufferField declarations. Check if a buffer index argument to a create buffer field operation is beyond the end of the target buffer.

This affects these AML operators:

```
 AML_CREATE_FIELD_OP
 AML_CREATE_BIT_FIELD_OP
 AML_CREATE_BYTE_FIELD_OP
 AML_CREATE_WORD_FIELD_OP
 AML_CREATE_DWORD_FIELD_OP
 AML_CREATE_QWORD_FIELD_OP
```

There are three conditions that must be satisfied in order to allow this validation at compile time:

```
 1) The length of the target buffer must be an integer constant
 2) The index specified in the create* must be an integer constant
 3) For CreateField, the bit length argument must be non-zero.
```

Example:

```
  Name (BUF1, Buffer() {1,2})
  CreateField (BUF1, 7, 9, CF03)  // 3: ERR

dsdt.asl    14:    CreateField (BUF1, 7, 9, CF03)  // 3: ERR
```

Error 6165 - ^ Buffer
index beyond end of
target buffer

---

05 April 2019. Summary of changes for version 20190405:

1) ACPICA kernel-resident subsystem:

Event Manager: History: Commit 18996f2db918 ("ACPICA: Events: Stop unconditionally clearing ACPI IRQs during suspend/resume") was added earlier to stop clearing of event status bits unconditionally on suspend and resume paths. Though this change fixed an issue on suspend path, it introduced regressions on several resume paths. In the case of S0ix, events are enabled as part of device suspend path. If status bits for the events are set when they are enabled, it could result in premature wake from S0ix. If status is cleared for any event that is being enabled so that any stale events are cleared out. In case of S0ix, events are enabled as part of device suspend path. If status bits for the events are set when they are enabled, it could result in premature wake from S0ix.

This change ensures that status
is cleared for any event that is being
enabled so that any stale events are cleared out.

2) iASL Compiler/Disassembler and ACPICA tools:

iASL: Implemented an enhanced multiple file compilation that combines named objects from all input files to a single namespace. With this feature, any unresolved external declarations as well as duplicate named object declarations can be detected during compilation rather than generating errors much later at runtime. The following commands are examples that utilize this feature:

```
iasl dsdt.asl ssdt.asl
iasl dsdt.asl ssdt1.asl ssdt2.asl
iasl dsdt.asl ssdt*.asl
```

---

29 March 2019. Summary of changes for version 20190329:

1) ACPICA kernel-resident subsystem:

Namespace support: Remove the address nodes from global list after method termination. The global address list contains pointers to namespace nodes

that represent Operation Regions. This change properly removes Operation Region namespace
nodes that are declared dynamically during method
execution.

Linux: Use a different debug default than ACPICA. There was a divergence between Linux and the ACPICA codebases. In order to resolve this divergence, Linux now declares its own debug default in aclinux.h

Renamed some internal macros to improve code understanding and maintenance. The macros below all operate on single 4-character ACPI NameSegs, not generic strings (old -> new):
ACPI_NAME_SIZE -> ACPI_NAMESEG_SIZE
ACPI_COMPARE_NAME -> ACPI_COMPARE_NAMESEG
ACPI_MOVE_NAME -> ACPI_COPY_NAMESEG

Fix for missing comma in array declaration for the AcpiGbl_GenericNotify table.

Test suite: Update makefiles, add PCC operation region support

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented additional illegal forward reference detection. Now detect and emit an error upon detection of a forward reference from a Field to an Operation Region. This will fail at runtime if allowed to pass the compiler.

AcpiExec:
Add an address list check for dynamic Operation Regions. This feature performs a sanity test for each node the global address list. This is done in order to ensure that all dynamic operation regions are properly removed from the global address list and no dangling pointers are left behind.

Disassembler: Improved generation of resource pathnames. This change improves the code that generates resource descriptor and resource tag pathnames. The original code used a bunch of str* C library functions that caused warnings on some compilers.

iASL: Removed some uses of strncpy and replaced with memmove. The strncpy function can overwrite buffers if the calling code is not very careful. In the case of generating a module/table header, use of memmove is a better implementation.

3) Status of new features that have not been completed at this time:

iASL: Implementing an enhanced multiple file compilation into a single
namespace feature (Status): This feature will be released
 soon, and
allows multiple ASL files to be compiled into the same single namespace.
By doing so, any unresolved external declarations as well as duplicate
named object declarations can be detected during compilation (rather than
later during runtime). The following commands are examples that utilize
this feature:
  iasl dsdt.asl ssdt.asl
  iasl dsdt.asl ssdt1.asl ssdt2.asl
  iasl dsdt.asl ssdt*.asl

ASL tutorial status: Feedback is being gathered internally and the
current plan is to publish this tutorial on the ACPICA website after a
final review by a tech writer.

---
15 February 2019. Summary of changes for version 20190215:

0) Support for ACPI specification version 6.3:

Add PCC operation region support for the AML interpreter. This adds PCC
operation region support in the AML interpreter and a default handler for
acpiexec. The change also renames the PCC region address space keyword to
PlatformCommChannel.

Support for new
 predefined methods _NBS, _NCH, _NIC, _NIH, and _NIG.
These methods provide OSPM with health information and device boot
status.

PDTT: Add TriggerOrder to the PCC Identifier structure. The field value
defines if the trigger needs to be invoked by OSPM before or at the end
of kernel crash dump processing/handling operation.

SRAT: Add Generic Affinity Structure subtable. This subtable in the SRAT
is used for describing devices such as heterogeneous processors,
accelerators, GPUs, and IO devices with integrated compute or DMA
engines.

MADT: Add support for statistical profiling in GICC. Statistical
profiling extension (SPE) is an architecture-specific feature for ARM.

MADT: Add online capable flag. If this bit is set, system hardware
supports enabling this processor during OS runtime.

New Error Disconnect Recover Notification value. There are a number of scenarios where system Firmware in collaboration with hardware may disconnect one or more devices from the rest of the system for purposes of error containment. Firmware can use this new notification value to alert OSPM of such a removal.

PPTT: New additional fields in Processor Structure Flags. These flags provide more information about processor topology.

NFIT/Disassembler: Change a field name from "Address Range" to "Region Type".

HMAT updates: make several existing fields to be reserved as well as rename subtable 0 to "memory proximity domain attributes".

GTDT: Add support for new GTDT Revision 3. This revision adds information for the EL2 timer.

iASL: Update the HMAT example template for new fields.

iASL: Add support for the new revision of the GTDT (Rev 3).

1) ACPICA kernel-resident subsystem:

AML Parser: fix the main AML parse loop to correctly skip erroneous extended opcodes. AML opcodes come in two lengths: 1-byte opcodes and 2-byte extended opcodes. If an error occurs during an AML table load, the AML parser will continue loading the table by skipping the offending opcode. This implements a "load table at any cost" philosophy.

2) iASL Compiler/Disassembler and Tools:

iASL: Add checks for illegal object references, such as a reference outside of method to an object within a method. Such an object is only temporary.

iASL: Emit error for creation of a zero-length operation region. Such a region is rather pointless. If encountered, a runtime error is also implemented in the interpreter.

Debugger: Fix a possible fault with the "test objects" command.

iASL: Makefile: support parent directory filenames containing embedded spaces.

iASL: Update the TPM2 template to revision 4.

iASL: Add the ability to report specific warnings or remarks as errors.

Disassembler: Disassemble OEMx tables as actual AML byte code.
Previously, these tables were treated as "unknown table".

iASL: Add definition and disassembly for TPM2 revision 3.

iASL: Add support for TPM2 rev 3 compilation.

---

08 January 2019. Summary of changes for
version 20190108:

1) ACPICA kernel-resident subsystem:

Updated all copyrights to 2019. This affects all source code modules.

2) iASL Compiler/Disassembler and Tools:

ASL test suite (ASLTS): Updated all copyrights to 2019.

Tools: Updated all signon copyrights to 2019.

AcpiExec: Added a new option to dump extra information concerning any
memory leaks detected by the internal object/cache tracking mechanism. -
va

iASL: Updated the table template for the TPM2 table to the newest version
of the table (Revision 4)

---

13 December 2018. Summary of changes for version 20181213:

1) ACPICA Kernel-resident Subsystem:

Fixed some buffer length issues with the GenericSerialBus, related to two
of the bidirectional protocols: AttribRawProcessBytes and AttribRawBytes,
which are rarely seen in the field. For these, the LEN field of the ASL
buffer is now ignored. Hans de Goede

Implemented a new object evaluation trace mechanism for control methods

and data objects. This includes nested control methods. It is
particularly useful for examining the ACPI execution during system
initialization since the output is relatively terse. The flag below
enables the output of the trace via the ACPI_DEBUG_PRINT_RAW interface:
 #define ACPI_LV_EVALUATION   0x00080000

Examples:
 Enter evaluation   : _SB.PCI0._INI (Method)
 Exit evaluation   : _SB.PCI0._INI
 Enter evaluation   : _OSI (Method)
 Exit evaluation   : _OSI
 Enter evaluation   : _SB.PCI0.TEST (Method)
 Nested method call   :   _SB.PCI0.NST1
 Exit nested method   :   _SB.PCI0.NST1
 Exit evaluation   : _SB.PCI0.TEST

Added two recently-defined _OSI strings. See
https://docs.microsoft.com/en-us/windows-hardware/drivers/acpi/winacpi-
osi.
 "Windows 2018"
 "Windows 2018.2"

Update for buffer-to-string conversions via the ToHexString ASL operator.
A "0x" is now prepended to each of the hex values in the output string.

This provides compatibility with other ACPI implementations. The ACPI
specification is somewhat vague on this issue.
 Example output string after conversion:
"0x01,0x02,0x03,0x04,0x05,0x06"

Return a run-time error for TermArg expressions within individual package
elements. Although this is technically supported by the ASL grammar,
other ACPI implementations do not support this either. Also, this fixes a
fault if this type of construct is ever encountered (it never has been).

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented a new compile option (-ww) that will promote individual
warnings and remarks to errors. This is intended to enhance the firmware
build process.

AcpiExec: Implemented a new command-line option (-eo) to support the new
object evaluation trace mechanism described above.

Disassembler: Added support to disassemble OEMx tables as AML/ASL tables

instead of a "unknown table" message.

AcpiHelp: Improved support for the "special" predefined names
such as
_Lxx, _Exx, _EJx, _T_x, etc. For these, any legal hex value can now be
used for "xx" and "x".

---
31 October 2018. Summary of changes for version 20181031:

An Operation Region regression was fixed by properly adding address
ranges to a global list during initialization. This allows OS to
accurately check for overlapping regions between native devices (such as
PCI) and Operation regions as well as checking for region conflicts
between two Operation Regions.

Added support for the 2-byte extended opcodes in the code/feature that
attempts to continue parsing during the table load phase. Skip parsing
Device declarations (and other extended opcodes) when an error occurs
during parsing. Previously, only single-byte opcodes were supported.

Cleanup: Simplified the module-level code support by eliminating a
useless global variable (AcpiGbl_GroupModuleLeveCode).

2) iASL Compiler/Disassembler and Tools:

iASL/Preprocessor: Fixed a
regression where an incorrect use of ACPI_FREE
could cause a fault in the preprocessor. This was an inadvertent side-
effect from moving more allocations/frees to the local cache/memory
mechanism.

iASL: Enhanced error detection by validating that all NameSeg elements
within a NamePatch actually exist. The previous behavior was spotty at
best, and such errors could be improperly ignored at compiler time (never
at runtime, however. There are two new error messages, as shown in the
examples below:

dsdt.asl 33: CreateByteField (TTTT.BXXX, 1, CBF1)
Error 6161 - ^ One or more objects within
the Pathname do not exist (TTTT.BXXX)

dsdt.asl 34: CreateByteField (BUF1, UUUU.INT1, BBBB.CBF1)
Error 6160 - One or more prefix Scopes do not exist ^
(BBBB.CBF1)

iASL: Disassembler/table-compiler: Added support for the static data
table TPM2 revision 3 (an older version of TPM2). The support has been
added for the compiler and the disassembler.

Fixed
 compilation of DOS format data table file on Unix/Linux systems.
iASL now properly detects line continuations (\) for DOS format data
table definition language files on when executing on Unix/Linux.

---
03 October 2018. Summary of changes for version 20181003:

2) iASL Compiler/Disassembler and Tools:

Fixed a regression introduced in version 20180927 that could cause the
compiler to fault, especially with NamePaths containing one or more
carats (^). Such as: ^^_SB_PCI0

Added a new remark for the Sleep() operator when the sleep time operand
is larger than one second. This is a very long time for the ASL/BIOS code
and may not be what was intended by the ASL writer.

---
27 September 2018. Summary of changes for version 20180927:

1) ACPICA kernel-resident subsystem:

Updated the GPE support to clear the status of all ACPI events when
entering any/all sleep states in order to avoid premature
 wakeups. In
theory, this may cause some wakeup events to be missed, but the
likelihood of this is small. This change restores the original behavior
of the ACPICA code in order to fix a regression seen from the previous
"Stop unconditionally clearing ACPI IRQs during suspend/resume" change.
This regression could cause some systems to incorrectly wake immediately.

Updated the execution of the _REG methods during initialization and
namespace loading to bring the behavior into closer conformance to the
ACPI specification and other ACPI implementations:

From the ACPI specification 6.2A, section 6.5.4 "_REG (Region):
  "Control methods must assume all operation regions are inaccessible
until the _REG(RegionSpace, 1) method is executed"

  "The exceptions to this rule are:
1. OSPM must guarantee that the following operation regions are always

accessible:
  SystemIO operation regions.
  SystemMemory operation regions when accessing memory returned by the
System Address
 Map reporting interfaces."

Since the state of both the SystemIO and SystemMemory address spaces are defined by the specification to never change, this ACPICA change ensures that now _REG is never called on them. This solves some problems seen in the field and provides compatibility with other ACPI implementations. An update to the upcoming new version of the ACPI specification will help clarify this behavior.

Updated the implementation of support for the Generic Serial Bus. For the "bidirectional" protocols, the internal implementation now automatically creates a return data buffer of the maximum size (255). This handles the worst-case for data that is returned from the serial bus handler, and fixes some problems seen in the field. This new buffer is directly returned to the ASL. As such, there is no true "bidirectional" buffer, which matches the ACPI specification. This is the reason for the "double store" seen in the example ASL code in the specification, shown below:

```
Word
 Process Call (AttribProcessCall):
  OperationRegion(TOP1, GenericSerialBus, 0x00, 0x100)
  Field(TOP1, BufferAcc, NoLock, Preserve)
  {
     FLD1, 8, // Virtual register at command value 1.
  }

  Name(BUFF, Buffer(20){}) // Create GenericSerialBus data buffer
                           // as BUFF
  CreateWordField(BUFF, 0x02, DATA) // DATA = Data (Word)

  Store(0x5416, DATA)              // Save 0x5416 into the data buffer
  Store(Store(BUFF, FLD1), BUFF)    // Invoke a write/read Process Call
transaction
                       // This is the "double store". The write to
                       // FLD1 returns a new buffer, which is stored
                       // back into BUFF with the second Store.
```

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented detection of extraneous/redundant uses of the Offset() operator within a Field Unit list. A remark is now issued for these. For example, the first two of the Offset() operators below

are extraneous.
Because both the compiler and the interpreter track the offsets
automatically, these Offsets simply refer to the current offset and are
unnecessary. Note, when optimization is enabled, the iASL compiler will
in fact remove the redundant Offset operators and will not emit any AML
code for them.

```
  OperationRegion (OPR1, SystemMemory, 0x100, 0x100)
  Field (OPR1)
  {
     Offset (0),     // Never needed
     FLD1, 32,
     Offset (4),     // Redundant, offset is already 4 (bytes)
     FLD2, 8,
     Offset (64),    // OK use of Offset.
     FLD3, 16,
  }
dsdt.asl     14:        Offset (0),
Remark   2158 -                 ^ Unnecessary/redundant use of Offset
operator

dsdt.asl     16:        Offset (4),
Remark   2158 -                 ^ Unnecessary/redundant use of Offset
operator
```

---
10 August 2018. Summary of changes for version 20180810:

1) ACPICA kernel-resident subsystem:

Initial ACPI table
loading: Attempt to continue loading ACPI tables
regardless of malformed AML. Since migrating table initialization to the
new module-level code support, the AML interpreter rejected tables upon
any ACPI error encountered during table load. This is a problem because
non-serious ACPI errors during table load do not necessarily mean that
the entire definition block (DSDT or SSDT) is invalid. This change
improves the table loading by ignoring some types of errors that can be
generated by incorrect AML. This can range from object type errors, scope
errors, and index errors.

Suspend/Resume support: Update to stop unconditionally clearing ACPI IRQs
during suspend/resume. The status of ACPI events is no longer cleared
when entering the ACPI S5 system state (power off) which caused some
systems to power up immediately after turning off power in certain
situations. This was a functional regression. It was fixed by clearing
the status of all ACPI events again when entering S5 (for

system-wide
suspend or hibernation the clearing of the status of all events is not
desirable, as it might cause the kernel to miss wakeup events sometimes).
Rafael Wysocki.

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Enhanced the -fi option (Namespace initialization file). Field
elements listed in the initialization file were previously initialized
after the table load and before executing module-level code blocks.
Recent changes in the module-level code support means that the table load
becomes a large control method execution. If fields are used within
module-level code and we are executing with the -fi option, the
initialization values were used to initialize the namespace object(s)
only after the table was finished loading. This change Provides an early
initialization of objects specified in the initialization file so that
field unit values are populated during the table load (not after the
load).

AcpiExec: Fixed a small memory leak regression that could result
in
warnings during exit of the utility. These warnings were similar to
these:

```
0002D690 Length 0x0006 nsnames-0502 [Not a Descriptor - too small]
0002CD70 Length 0x002C utcache-0453 [Operand] Integer RefCount 0x0001
```

---

29 June 2018. Summary of changes for version 20180629:

1) iASL Compiler/Disassembler and Tools:

iASL: Fixed a regression related to the use of the ASL External
statement. Error checking for the use of the External() statement has
been relaxed. Previously, a restriction on the use of External meant that
the referenced named object was required to be defined in a different
table (an SSDT). Thus it would be an error to declare an object as an
external and then define the same named object in the same table. For
example:

```
DefinitionBlock (...)
{
   External (DEV1)
   Device (DEV1){...} // This was an error
}
```

However, this behavior has caused regressions in some existing ASL code,
because there

is code that depends on named objects and externals (with
the same name) being declared in the same table. This change will allow
the ASL code above to compile without errors or warnings.

iASL: Implemented ASL language extensions for four operators to make some
of their arguments optional instead of required:
  1) Field (RegionName, AccessType, LockRule, UpdateRule)
  2) BankField (RegionName, BankName, BankValue,
        AccessType, LockRule, UpdateRule)
  3) IndexField (IndexName, DataName,
        AccessType, LockRule, UpdateRule)
For the Field operators above, the AccessType, LockRule, and UpdateRule
are now optional arguments. The default values are:
    AccessType: AnyAcc
    LockRule: NoLock
    UpdateRule: Preserve
  4) Mutex (MutexName, SyncLevel)
For this operator, the SyncLevel argument is now optional. This argument
is rarely used in any meaningful way by ASL code, and thus it makes sense
to make it optional. The default value
is:
    SyncLevel: 0

iASL: Attempted use of the ASL Unload() operator now results in the
following warning:
  "Unload is not supported by all operating systems"
This is in fact very true, and the Unload operator may be completely
deprecated in the near future.

AcpiExec: Fixed a regression for the -fi option (Namespace initialization
file. Recent changes in the ACPICA module-level code support altered the
table load/initialization sequence . This means that the table load has
become a large method execution of the table itself. If Operation Region
Fields are used within any module-level code and the -fi option was
specified, the initialization values were populated only after the table
had completely finished loading (and thus the module-level code had
already been executed). This change moves the initialization of objects
listed in the initialization file to before the table is executed as a
method. Field unit values are now initialized before the table execution
is
performed.

---
31 May 2018. Summary of changes for version 20180531:

1) ACPICA kernel-resident Subsystem:

Implemented additional support to help ensure that a DSDT or SSDT is
fully loaded even if errors are incurred during the load. The majority of
the problems that are seen is the failure of individual AML operators
that occur during execution of any module-level code (MLC) existing in
the table. This support adds a mechanism to abort the current ASL
statement (AML opcode), emit an error message, and to simply move on to
the next opcode -- instead of aborting the entire table load. This is
different than the execution of a control method where the entire method
is aborted upon any error. The goal is to perform a very "best effort" to
load the ACPI tables. The most common MLC errors that have been seen in
the field are direct references to unresolved ASL/AML symbols (referenced
directly without the use of the CondRefOf operator to validate
the
symbol). This new ACPICA behavior is now compatible with other ACPI
implementations.

Interpreter: The Unload AML operator is no longer supported for the
reasons below. An AE_NOT_IMPLEMENTED exception is returned.
1) A correct implementation on at least some hosts may not be possible.
2) Other ACPI implementations do not correctly/fully support it.
3) It requires host device driver support which is not known to exist.
(To properly support namespace unload out from underneath.)
4) This AML operator has never been seen in the field.

Parser: Added a debug option to dump AML parse sub-trees as they are
being executed. Used with ACPI_DEBUG_PRINT, the enabling debug level is
ACPI_DB_PARSE_TREES.

Debugger: Reduced the verbosity for errors incurred during table load and
module-level code execution.

Completed an investigation into adding a namespace node "owner list"
instead of the current "owner ID" associated with namespace nodes. This
list would link together all nodes
that are owned by an individual
control method. The purpose would be to enhance control method execution
by speeding up cleanup during method exit (all namespace nodes created by
a method are deleted upon method termination.) Currently, the entire
namespace must be searched for matching owner IDs if (and only if) the
method creates named objects outside of the local scope. However, by far
the most common case is that methods create objects locally, not outside
the method scope. There is already an ACPICA optimization in place that
only searches the entire namespace in the rare case of a method creating
objects elsewhere in the namespace. Therefore, it is felt that the
overhead of adding an additional pointer to each namespace node to
implement the owner list makes this feature unnecessary.

2) iASL Compiler/Disassembler and Tools:

iASL, Disassembler, and Template generator: Implemented support for
Revision D of the IORT table. Adds a new subtable that is used to specify

SMMUv3 PMCGs. rmurphy-arm.

Disassembler: Restored correct table header validation for the "special"
ACPI tables -- RSDP and FACS. These tables do not contain a standard ACPI
table header and must be special-cased. This was a regression that has
been present for apparently a long time.

AcpiExec: Reduced verbosity of the local exception handler implemented
within acpiexec. This handler is invoked by ACPICA upon any exceptions
generated during control method execution. A new option was added: -vh
restores the original verbosity level if desired.

AcpiExec: Changed the default base from decimal to hex for the -x option
(set debug level). This simplifies the use of this option and matches the
behavior of the corresponding iASL -x option.

AcpiExec: Restored a force-exit on multiple control-c (sigint)
interrupts. This allows program termination even if other issues cause
the control-c to fail.

ASL test suite (ASLTS): Added tests for the recently implemented package
element
 resolution mechanism that allows forward references to named
objects from individual package elements (this mechanism provides
compatibility with other ACPI implementations.)

---

8 May 2018. Summary of changes for version 20180508:

1) ACPICA kernel-resident subsystem:

Completed the new (recently deployed) package resolution mechanism for
the Load and LoadTable ASL/AML operators. This fixes a regression that
was introduced in version 20180209 that could result in an
AE_AML_INTERNAL exception during the loading of a dynamic ACPI/AML table
(SSDT) that contains package objects.

2) iASL Compiler/Disassembler and Tools:

AcpiDump and AcpiXtract: Implemented support for ACPI tables larger than

1 MB. This change allows for table offsets within the acpidump file to be up to 8 characters. These changes are backwards compatible with existing acpidump files.

---

27 April 2018. Summary of changes for version 20180427:

1) ACPICA kernel-resident subsystem:

Debugger: Added support for Package objects in the "Test Objects" command. This command walks the entire namespace and evaluates all named data objects (Integers, Strings, Buffers, and now Packages).

Improved error messages for the namespace root node. Originally, the root was referred to by the confusing string "___". This has been replaced by "Namespace Root" for clarification.

Fixed a potential infinite loop in the AcpiRsDumpByteList function. Colin Ian King <colin.king@canonical.com>.

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented support to detect and flag illegal forward references. For compatibility with other ACPI implementations, these references are now illegal at the root level of the DSDT or SSDTs. Forward references have always been illegal within control methods. This change should not affect existing ASL/AML code because of the fact that these references have always been illegal in the other ACPI implementation.

iASL: Added error messages for the case where a table OEM ID and OEM TABLE ID strings are longer than the ACPI-defined length. Previously, these strings were simply silently truncated.

iASL: Enhanced the -tc option (which creates an AML hex file in C, suitable for import into a firmware project):
1) Create a unique name for the table, to simplify use of multiple SSDTs.
2) Add a protection #ifdef in the file, similar to a .h header file.
With assistance from Sami Mujawar, sami.mujawar@arm.com and Evan Lloyd, evan.lloyd@arm.com

AcpiExec: Added a new option, -df, to disable the local fault handler. This is useful during debugging, where it may be desired to drop into a

debugger on a fault.

---
13 March 2018. Summary of changes for version 20180313:

1) ACPICA kernel-resident subsystem:

Implemented various improvements to the GPE support:

1) Dispatch all active GPEs at initialization time so that no GPEs are
lost.
2)
Enable runtime GPEs earlier. Some systems expect GPEs to be enabled
before devices are enumerated.
3) Don't unconditionally clear ACPI IRQs during suspend/resume, so that
IRQs are not lost.
4) Add parallel GPE handling to eliminate the possibility of dispatching
the same GPE twice.
5) Dispatch any pending GPEs after enabling for the first time.

AcpiGetObjectInfo - removed support for the _STA method. This was causing
problems on some platforms.

Added a new _OSI string, "Windows 2017.2".

Cleaned up and simplified the module-level code support. These changes
are in preparation for the eventual removal of the legacy MLC support
(deferred execution), replaced by the new MLC architecture which executes
the MLC as a table is loaded (DSDT/SSDTs).

Changed a compile-time option to a runtime option. Changes the option to
ignore ACPI table load-time package resolution errors into a runtime
option. Used only for platforms that generate many AE_NOT_FOUND errors
during boot. AcpiGbl_IgnorePackageResolutionErrors.

Fixed
the ACPI_ERROR_NAMESPACE macro. This change involves putting some
ACPI_ERROR_NAMESPACE parameters inside macros. By doing so, we avoid
compilation errors from unused variables (seen with some compilers).

2) iASL Compiler/Disassembler and Tools:

ASLTS: parallelized execution in order to achieve an (approximately) 2X
performance increase.

ASLTS: Updated to use the iASL __LINE__ and __METHOD__ macros. Improves

error reporting.

---
09 February 2018. Summary of changes for version 20180209:

1) ACPICA kernel-resident subsystem:

Completed the final integration of the recent changes to Package Object handling and the module-level AML code support. This allows forward references from individual package elements when the package object is declared from within module-level code blocks. Provides compatibility with other ACPI implementations.

The new architecture for the AML module-level code has been completed and is now the default for the ACPICA code. This new architecture executes the module-level code in-line as the ACPI table is loaded/parsed instead of the previous architecture which deferred this code until after the table was fully loaded. This solves some ASL code ordering issues and provides compatibility with other ACPI implementations. At this time, there is an option to fallback to the earlier architecture, but this support is deprecated and is planned to be completely removed later this year.

Added a compile-time option to ignore AE_NOT_FOUND exceptions during resolution of named reference elements within Package objects. Although this is potentially a serious problem, it can generate a lot of noise/errors on platforms whose firmware carries around a bunch of unused Package objects. To disable these errors, define ACPI_IGNORE_PACKAGE_RESOLUTION_ERRORS in the OS-specific header. All errors are always reported for ACPICA applications such as AcpiExec.

Fixed a regression related to the explicit type-conversion AML operators (ToXXXX). The regression was introduced early in 2017 but was not seen until recently because these operators are not fully supported by other ACPI implementations and are thus rarely used by firmware developers. The operators are defined by the ACPI specification to not implement the "implicit result object conversion". The regression incorrectly introduced this object conversion for the following explicit conversion operators:

ToInteger
ToString
ToBuffer
ToDecimalString
ToHexString
ToBCD

FromBCD

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with the compiler constant folding feature as related to the ToXXXX explicit conversion operators. These operators do not support the "implicit result object conversion" by definition. Thus, ASL expressions that use these operators cannot be folded to a simple Store operator because Store implements the implicit conversion. This change uses the CopyObject operator for the ToXXXX operator folding instead. CopyObject is defined to not implement implicit result conversions and is thus appropriate for folding the ToXXXX operators.

iASL: Changed the severity of an error condition to a simple warning for the case where a symbol is declared both locally and as an external symbol. This accommodates existing ASL code.

AcpiExec: The -ep option to enable the new architecture for module-level code has been removed. It is replaced by the -dp option which instead has the opposite effect: it disables the new architecture (the default) and enables the legacy architecture. When the legacy code is removed in the future, the -dp option will be removed also.

---

05 January 2018. Summary of changes for version 20180105:

1) ACPICA kernel-resident subsystem:

Updated all copyrights to 2018. This affects all source code modules.

Fixed a possible build error caused by an unresolved reference to the AcpiUtSafeStrncpy function.

Removed NULL pointer arithmetic in the various pointer manipulation macros. All "(void *) NULL" constructs are converted to "(void *) 0". This eliminates warnings/errors in newer C compilers. Jung-uk Kim.

Added support for A32 ABI compilation, which uses the ILP32 model. Anuj Mittal.

2) iASL Compiler/Disassembler and Tools:

ASLTS: Updated all copyrights to 2018.

Tools: Updated all signon copyrights to 2018.

AcpiXtract: Fixed a regression related to ACPI table signatures where the signature was truncated to 3 characters (instead of 4).

AcpiExec: Restore the original terminal mode after the use of the -v and -vd options.

ASLTS: Deployed the iASL __METHOD__ macro across the test suite.

---

14 December 2017. Summary of changes for version 20171214:

1) ACPICA kernel-resident subsystem:

Fixed a regression in the external (public) AcpiEvaluateObjectTyped interface where the optional "pathname" argument had inadvertently become a required argument returning an error if omitted (NULL pointer argument).

Fixed two possible memory leaks related to the recently developed "late resolution" of reference objects within ASL Package Object definitions.

Added two recently defined _OSI strings: "Windows 2016" and "Windows 2017". Mario Limonciello.

Implemented and deployed a safer version of the C library function strncpy: AcpiUtSafeStrncpy. The intent is to at least prevent the creation of unterminated strings as a possible result of a standard strncpy.

Cleaned up and restructured the global variable file (acglobal.h). There are many changes, but no functional changes.

2) iASL Compiler/Disassembler and Tools:

iASL Table Compiler: Fixed a problem with the DBG2 ACPI table where the optional OemData field at the end of the table was incorrectly required for proper compilation. It is now correctly an optional field.

ASLTS: The entire suite was converted from standard ASL to the ASL+ language, using the ASL-to-ASL+ converter which is integrated into the iASL compiler. A binary compare of all output files has verified the

correctness of the conversion.

iASL: Fixed the source code build for platforms where "char" is unsigned.
This affected the iASL lexer only. Jung-uk Kim.

---
10 November 2017. Summary of changes for version 20171110:

1) ACPICA kernel-resident subsystem:

This release implements full support for ACPI 6.2A:
  NFIT - Added a new subtable, "Platform Capabilities Structure"
No other changes to ACPICA were required, since ACPI 6.2A is primarily an
errata release of the specification.

Other ACPI table changes:
  IORT: Added the SMMUv3 Device ID mapping index. Hanjun Guo
  PPTT: Added cache attribute flag definitions to actbl1.h. Jeremy
Linton

Utilities: Modified the string/integer conversion functions to use
internal 64-bit divide support instead of a native divide. On 32-bit
platforms,
 a 64-bit divide typically requires a library function which
may not be present in the build (kernel or otherwise).

Implemented a targeted error message for timeouts returned from the
Embedded Controller device driver. This is seen frequently enough to
special-case an AE_TIME returned from an EC operation region access:
  "Timeout from EC hardware or EC device driver"

Changed the "ACPI Exception" message prefix to "ACPI Error" so that all
runtime error messages have the identical prefix.

2) iASL Compiler/Disassembler and Tools:

AcpiXtract: Fixed a problem with table header detection within the
acpidump file. Processing a table could be ended early if a 0x40 (@)
appears in the original binary table, resulting in the @ symbol appearing
in the decoded ASCII field at the end of the acpidump text line. The
symbol caused acpixtract to incorrectly think it had reached the end of
the current table and the beginning of a new table.

AcpiXtract: Added an option (-f) to ignore
 some errors during table
extraction. This initial implementation ignores non-ASCII and non-

printable characters found in the acpidump text file.

TestSuite(ASLTS)/AcpiExec: Fixed and restored the memory usage statistics
for ASLTS. This feature is used to track memory allocations from
different memory caches within the ACPICA code. At the end of an ASLTS
run, these memory statistics are recorded and stored in a log file.

Debugger (user-space version): Implemented a simple "Background" command.
Creates a new thread to execute a control method in the background, while
control returns to the debugger prompt to allow additional commands.
  Syntax: Background <Namepath> [Arguments]

---
29 September 2017. Summary of changes for version 20170929:

1) ACPICA kernel-resident subsystem:

Redesigned and implemented an improved ASL While() loop timeout
mechanism. This mechanism is used to prevent infinite loops in the kernel
AML interpreter caused
 by either non-responsive hardware or incorrect AML
code. The new implementation uses AcpiOsGetTimer instead of a simple
maximum loop count, and is thus more accurate and constant across
different machines. The default timeout is currently 30 seconds, but this
may be adjusted later.

Renamed the ACPI_AML_INFINITE_LOOP exception to AE_AML_LOOP_TIMEOUT to
better reflect the new implementation of the loop timeout mechanism.

Updated the AcpiGetTimerDuration interface to cleanup the 64-bit support
and to fix an off-by-one error. Jung-uk Kim.

Fixed an EFI build problem by updating the makefiles to for a new file
that was added, utstrsuppt.c

2) iASL Compiler/Disassembler and Tools:

Implemented full support for the PDTT, SDEV, and TPM2 ACPI tables. This
includes support in the table disassembler, compiler, and template
generator.

iASL: Added an exception for an illegal type of recursive method
invocation. If a method creates named objects, the first recursive call
will fail
 at runtime. This change adds an error detection at compile time
to catch the problem up front. Note: Marking such a method as

"serialized" will not help with this problem, because the same thread can acquire the method mutex more than once. Example compiler and runtime output:

```
  Method (MTH1)
  {
     Name (INT1, 1)
     MTH1 ()
  }

  dsdt.asl     22: MTH1 ()
  Error    6152 -  ^ Illegal recursive call to method
                   that creates named objects (MTH1)

Previous runtime exception:
  ACPI Error: [INT1] Namespace lookup failure,
  AE_ALREADY_EXISTS (20170831/dswload2-465)
```

iASL: Updated support for External() opcodes to improve namespace management and error detection. These changes are related to issues seen with multiple-segment namespace pathnames within External declarations, such as below:

```
  External(\_SB.PCI0.GFX0, DeviceObj)
  External(\_SB.PCI0.GFX0.ALSI)
```

iASL: Implemented support for multi-line error/warning messages. This enables
 more detailed and helpful error messages as below, from the
initial deployment for the duplicate names error:

```
  DSDT.iiii   1692:       Device(PEG2) {
  Error    6074 -                 ^ Name already exists in scope
(PEG2)

      Original name creation/declaration below:
      DSDT.iiii     93:   External(\_SB.PCI0.PEG2, DeviceObj)
```

AcpiXtract: Added additional flexibility to support differing input hex dump formats. Specifically, hex dumps that contain partial disassembly and/or comments within the ACPI table data definition. There exist some dump utilities seen in the field that create this type of hex dump (such as Simics). For example:

```
  DSDT @ 0xdfffd0c0 (10999 bytes)
     Signature DSDT
     Length 10999
     Revision 1
```

Checksum 0xf3 (Ok)
OEM_ID BXPC
OEM_table_id BXDSDT
OEM_revision 1
Creator_id 1280593481
Creator_revision 537399345
0000: 44 53 44 54 f7 2a 00 00 01 f3 42 58 50 43 00 00
...
2af0: 5f 4c 30 46 00 a4 01

Test suite: Miscellaneous changes/fixes:
More cleanup and simplification of makefiles
Continue compilation of test cases after a compile failure
Do not perform binary compare unless both files actually exist

iASL: Performed some code/module restructuring. Moved all memory allocation functions to new modules. Two new files, aslallocate.c and aslcache.c

---
31 August 2017. Summary of changes for version 20170831:

1) ACPICA kernel-resident subsystem:

Implemented internal support for full 64-bit addresses that appear in all Generic Address Structure (GAS) structures. Previously, only the lower 32 bits were used. Affects the use of GAS structures in the FADT and other tables, as well as the GAS structures passed to the AcpiRead and AcpiWrite public external interfaces that are used by drivers. Lv Zheng.

Added header support for the PDTT ACPI table (Processor Debug Trigger Table). Full support in
the iASL Data Table Compiler and disassembler is
forthcoming.

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Fixed a problem with the PPTT ACPI table (Processor Properties Topology Table) where a flag bit was specified in the wrong bit position ("Line Size Valid", bit 6).

iASL: Implemented support for Octal integer constants as defined by the ASL language grammar, per the ACPI specification. Any integer constant that starts with a zero is an octal constant. For example,
Store (037777, Local0) /* Octal constant */
Store (0x3FFF, Local0) /* Hex equivalent */

```
  Store (16383,  Local0) /* Decimal equivalent */
```

iASL: Improved overflow detection for 64-bit string conversions during
compilation of integer constants. "Overflow" in this case means a string
that represents an integer that is too large to fit into a 64-bit value.
Any 64-bit constants within a 32-bit DSDT or SSDT are still truncated to
the low-order 32 bits with a warning, as previously implemented.
Several
new exceptions are defined that indicate a 64-bit overflow, as well as
the base (radix) that was used during the attempted conversion. Examples:

```
  Local0 = 0xAAAABBBBCCCCDDDDEEEEFFFF        // AE_HEX_OVERFLOW
  Local0 = 01111222233334444555566667777     // AE_OCTAL_OVERFLOW
  Local0 = 11112222333344445555666677778888  // AE_DECIMAL_OVERFLOW
```

iASL: Added a warning for the case where a ResourceTemplate is declared
with no ResourceDescriptor entries (coded as "ResourceTemplate(){}"). In
this case, the resulting template is created with a single END_TAG
descriptor, which is essentially useless.

iASL: Expanded the -vw option (ignore specific warnings/remarks) to
include compilation error codes as well.

---

28 July 2017. Summary of changes for version 20170728:

1) ACPICA kernel-resident subsystem:

Fixed a regression seen with small resource descriptors that could cause
an inadvertent AE_AML_NO_RESOURCE_END_TAG exception.

AML
interpreter: Implemented a new feature that allows forward references
from individual named references within package objects that are
contained within blocks of "module-level code". This provides
compatibility with other ACPI implementations and supports existing
firmware that depends on this feature. Example:

```
  Name (ABCD, 1)
  If (ABCD)                   /* An If() at module-level */
  {
     Name (PKG1, Package()
     {
        INT1                  /* Forward reference to object INT1
*/
     })
     Name (INT1, 0x1234)
  }
```

AML Interpreter: Fixed a problem with the Alias() operator where aliases to some ASL objects were not handled properly. Objects affected are: Mutex, Event, and OperationRegion.

AML Debugger: Enhanced to properly handle AML Alias objects. These objects have one level of indirection which was not fully supported by the debugger.

Table Manager: Added support to detect and ignore duplicate SSDTs within the XSDT/RSDT. This
error in the XSDT has been seen in the field.

EFI and EDK2 support:
Enabled /WX flag for MSVC builds
Added support for AcpiOsStall, AcpiOsSleep, and AcpiOsGetTimer
Added local support for 64-bit multiply and shift operations
Added support to compile acpidump.efi on Windows
Added OSL function stubs for interfaces not used under EFI

Added additional support for the _DMA predefined name. _DMA returns a buffer containing a resource template. This change add support within the resource manager (AcpiWalkResourceBuffer) to walk and parse this list of resource descriptors. Lorenzo Pieralisi <lorenzo.pieralisi@arm.com>

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem where the internal input line buffer(s) could overflow if there are very long lines in the input ASL source code file. Implemented buffer management that automatically increases the size of the buffers as necessary.

iASL: Added an option (-vx) to "expect" particular remarks, warnings
and
errors. If the specified exception is not raised during compilation, the compiler emits an error. This is intended to support the ASL test suite, but may be useful in other contexts.

iASL: Implemented a new predefined macro, __METHOD__, which returns a string containing the name of the current control method that is being compiled.

iASL: Implemented debugger and table compiler support for the SDEI ACPI table (Software Delegated Exception Interface). James Morse <james.morse@arm.com>

Unix/Linux makefiles: Added an option to disable compile optimizations.

The disable occurs when the NOOPT flag is set to TRUE.
theracermaster@gmail.com

Acpidump: Added support for multiple DSDT and FACS tables. This can occur
when there are different tables for 32-bit versus 64-bit.

Enhanced error reporting for the ASL test suite (ASLTS) by removing
unnecessary/verbose text, and emit the actual line number where an error
has occurred. These changes are intended to improve the usefulness
 of the
test suite.

---
29 June 2017. Summary of changes for version 20170629:

1) ACPICA kernel-resident subsystem:

Tables: Implemented a deferred ACPI table verification. This is useful
for operating systems where the tables cannot be verified in the early
initialization stage due to early memory mapping limitations on some
architectures. Lv Zheng.

Tables: Removed the signature validation for dynamically loaded tables.
Provides compatibility with other ACPI implementations. Previously, only
SSDT tables were allowed, as per the ACPI specification. Now, any table
signature can be used via the Load() operator. Lv Zheng.

Tables: Fixed several mutex issues that could cause errors during table
acquisition. Lv Zheng.

Tables: Fixed a problem where an ACPI warning could be generated if a
null pointer was passed to the AcpiPutTable interface. Lv Zheng.

Tables: Added a mechanism to handle imbalances for the AcpiGetTable and
AcpiPutTable interfaces.
 This applies to the "late stage" table loading
when the use of AcpiPutTable is no longer required (since the system
memory manager is fully running and available). Lv Zheng.

Fixed/Reverted a regression during processing of resource descriptors
that contain only a single EndTag. Fixes an AE_AML_NO_RESOURCE_END_TAG
exception in this case.

Headers: IORT/SMMU support: Updated the SMMU models for Revision C of the
I/O Remapping specification. Robin Murphy <robin.murphy@arm.com>

Interpreter: Fixed a possible fault if an Alias operator with an invalid

or duplicate target is encountered during Alias creation in
AcpiExCreateAlias. Alex James <theracermaster@gmail.com>

Added an option to use designated initializers for function pointers.
Kees Cook <keescook@google.com>

2) iASL Compiler/Disassembler and Tools:

iASL: Allow compilation of External declarations with target pathnames
that refer to existing named objects within the table. Erik Schmauss.

iASL: Fixed a regression
when compiling FieldUnits. Fixes an error if a
FieldUnit name also is declared via External in the same table. Erik
Schmauss.

iASL: Allow existing scope names within pathnames used in External
statements. For example:
External (ABCD.EFGH) // ABCD exists, but EFGH is truly external
Device (ABCD)

iASL: IORT ACPI table: Implemented changes required to decode the new
Proximity Domain for the SMMUv3 IORT. Disassembler and Data Table
compiler. Ganapatrao Kulkarni <ganapatrao.kulkarni@cavium.com>

Disassembler: Don't abort disassembly on errors from External()
statements. Erik Schmauss.

Disassembler: fixed a possible fault when one of the Create*Field
operators references a Resource Template. ACPICA Bugzilla 1396.

iASL: In the source code, resolved some naming inconsistences across the
parsing support. Fixes confusion between "Parse Op" and "Parse Node".
Adds a new file, aslparseop.c

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31 May 2017. Summary of changes for version
20170531:

0) ACPI 6.2 support:

The ACPI specification version 6.2 has been released and is available at
http://uefi.org/specifications

This version of ACPICA fully supports the ACPI 6.2 specification. Changes
are summarized below.

New ACPI tables (Table Compiler/Disassembler/Templates):
  HMAT (Heterogeneous Memory Attributes Table)
  WSMT (Windows SMM Security Mitigation Table)
  PPTT (Processor Properties Topology Table)

New subtables for existing ACPI tables:
  HEST (New subtable, Arch-deferred machine check)
  SRAT (New subtable, Arch-specific affinity structure)
  PCCT (New subtables, Extended PCC subspaces (types 3 and 4))

Simple updates for existing ACPI tables:
  BGRT (two new flag bits)
  HEST (New bit defined for several subtables, GHES_ASSIST)

New Resource Descriptors and Resource macros (Compiler/Disassembler):
  PinConfig()
  PinFunction()
  PinGroup()
  PinGroupConfig()
  PinGroupFunction()
  New type for hardware error notification (section
18.3.2.9)

New predefined names/methods (Compiler/Interpreter):
  _HMA (Heterogeneous Memory Attributes)
  _LSI (Label Storage Information)
  _LSR (Label Storage Read)
  _LSW (Label Storage Write)

ASL grammar/macro changes (Compiler):
  For() ASL macro, implemented with the AML while operator
  Extensions to Concatenate operator
  Support for multiple definition blocks in same ASL file
  Clarification for Buffer operator
  Allow executable AML code underneath all scopes (Devices, etc.)
  Clarification/change for the _OSI return value
  ASL grammar update for reference operators
  Allow a zero-length string for AML filename in DefinitionBlock

Miscellaneous:
  New device object notification value
  Remove a notify value (0x0C) for graceful shutdown
  New UUIDs for processor/cache properties and
    physical package property
  New _HID, ACPI0014 (Wireless Power Calibration Device)

1) ACPICA kernel-resident subsystem:

Added support to disable
ACPI events on hardware-reduced platforms.
Eliminates error messages of the form "Could not enable fixed event". Lv Zheng

Fixed a problem using Device/Thermal objects with the ObjectType and DerefOf ASL operators. This support had not been fully/properly implemented.

Fixed a problem where if a Buffer object containing a resource template was longer than the actual resource template, an error was generated -- even though the AML is legal. This case has been seen in the field.

Fixed a problem with the header definition of the MADT PCAT_COMPAT flag. The values for DUAL_PIC and MULTIPLE_APIC were reversed.

Added header file changes for the TPM2 ACPI table. Update to new version of the TCG specification. Adds a new TPM2 subtable for ARM SMC.

Exported the external interfaces AcpiAcquireMutex and AcpiReleaseMutex. These interfaces are intended to be used only in conjunction with the predefined _DLM method (Device Lock Method). "This object appears in a device scope when AML access
to the device must be synchronized with the
OS environment".

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 143.1K Code, 60.0K Data, 203.1K Total
Debug Version: 204.0K Code, 84.3K Data, 288.3K Total
Previous Release:
Non-Debug Version: 141.7K Code, 58.5K Data, 200.2K Total
Debug Version: 207.5K Code, 82.7K Data, 290.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem where an External() declaration could not refer to a Field Unit. Erik Schmauss.

Disassembler: Improved support for the Switch/Case operators. This feature will disassemble AML code back to the original Switch operators

when possible, instead of an If..Else sequence. David Box

iASL and disassembler: Improved the handling
of multiple extraneous
parentheses for both ASL input and disassembled ASL output.

Improved the behavior of the iASL compiler and disassembler to detect
improper use of external declarations

Disassembler: Now aborts immediately upon detection of an unknown AML
opcode. The AML parser has no real way to recover from this, and can
result in the creation of an ill-formed parse tree that causes errors
later during the disassembly.

All tools: Fixed a problem where the Unix application OSL did not handle
control-c correctly. For example, a control-c could incorrectly wake the
debugger.

AcpiExec: Improved the Control-C handling and added a handler for
segmentation faults (SIGSEGV). Supports both Windows and Unix-like
environments.

Reduced the verbosity of the generic unix makefiles. Previously, each
compilation displayed the full set of compiler options. This has been
eliminated as the options are easily inspected within the makefiles. Each
compilation now results in a single
line of output.

---
03 March 2017. Summary of changes for version 20170303:

0) ACPICA licensing:

The licensing information at the start of each source code module has
been updated. In addition to the Intel license, the dual GPLv2/BSD
license has been added for completeness. Now, a single version of the
source code should be suitable for all ACPICA customers. This is the
major change for this release since it affects all source code modules.

1) ACPICA kernel-resident subsystem:

Fixed two issues with the common asltypes.h header that could cause
problems in some environments: (Kim Jung-uk)
  Removed typedef for YY_BUFFER_STATE ?
    Fixes an error with earlier versions of Flex.
  Removed use of FILE typedef (which is only defined in stdio.h)

2) iASL Compiler/Disassembler and Tools:

Disassembler: fixed a regression introduced in 20170224. A fix for a memory leak related to resource descriptor tags (names) could fault when the
disassembler was generated with 64-bit compilers.

The ASLTS test suite has been updated to implement a new testing architecture. During generation of the suite from ASL source, both the ASL and ASL+ compilers are now validated, as well as the disassembler itself (Erik Schmauss). The architecture executes as follows:

For every ASL source module:
Compile (legacy ASL compilation)
Disassemble the resulting AML to ASL+ source code
Compile the new ASL+ module
Perform a binary compare on the legacy AML and the new ASL+ AML
The ASLTS suite then executes normally using the AML binaries.

---
24 February 2017. Summary of changes for version 20170224:

1) ACPICA kernel-resident subsystem:

Interpreter: Fixed two issues with the control method return value auto-repair feature, where an attempt to double-delete an internal object could result in an ACPICA warning (for _CID repair and others). No fault occurs, however,
because the attempted deletion (actually a release to an internal cache) is detected and ignored via object poisoning.

Debugger: Fixed an AML interpreter mutex issue during the single stepping of control methods. If certain debugger commands are executed during stepping, a mutex acquire/release error could occur. Lv Zheng.

Fixed some issues generating ACPICA with the Intel C compiler by restoring the original behavior and compiler-specific include file in acenv.h. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 141.7K Code, 58.5K Data, 200.2K Total
Debug Version: 207.5K Code, 82.7K Data, 290.2K Total
Previous Release:
Non-Debug Version: 137.4K Code, 52.6K Data, 190.0K Total
Debug Version: 201.5K
Code, 82.2K Data, 283.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: A preliminary version of a new ASL-to-ASL+ conversion tool has been designed, implemented, and included in this release. The key feature of this utility is that the original comments within the input ASL file are preserved during the conversion process, and included within the converted ASL+ file -- thus creating a transparent conversion of existing ASL files to ASL+ (ASL 2.0). Erik Schmauss.

Usage: iasl -ca <ASL-filename> // Output is a .dsl file with converted code

iASL/Disassembler: Improved the detection and correct disassembly of Switch/Case operators. This feature detects sequences of if/elseif/else operators that originated from ASL Switch/Case/Default operators and emits the original operators. David Box.

iASL: Improved the IORT ACPI table support in the following areas. Lv Zheng:
Clear MappingOffset if the MappingCount is zero.
Fix the disassembly of the SMMU GSU interrupt offset.
Update the template file for the IORT table.

Disassembler: Enhanced the detection and disassembly of resource template/descriptor within a Buffer object. An EndTag descriptor is now required to have a zero second byte, since all known ASL compilers emit this. This helps eliminate incorrect decisions when a buffer is disassembled (false positives on resource templates).

---
19 January 2017. Summary of changes for version 20170119:

1) General ACPICA software:

Entire source code base: Added the 2017 copyright to all source code legal/licensing module headers and utility/tool signons. This includes the standard Linux dual-license header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and

the ACPICA test suite.

2) iASL Compiler/Disassembler and Tools:

iASL: Removed/fixed an inadvertent remark when a method argument
containing a reference is used as a target
operand within the method (and
never used as a simple argument), as in the example below. Jeffrey Hugo.

```
dsdt.asl   1507:    Store(0x1, Arg0)
Remark   2146 -              ^ Method Argument is never used (Arg0)
```

All tools: Removed the bit width of the compiler that generated the tool
from the common signon for all user space tools. This proved to be
confusing and unnecessary. This includes similar removal of HARDWARE_NAME
from the generic makefiles (Thomas Petazzoni). Example below.

```
Old:
ASL+ Optimizing Compiler version 20170119-32
ASL+ Optimizing Compiler version 20170119-64

New:
ASL+ Optimizing Compiler version 20170119
```

---

22 December 2016. Summary of changes for version 20161222:

1) ACPICA kernel-resident subsystem:

AML Debugger: Implemented a new mechanism to simplify and enhance
debugger integration into all environments, including kernel debuggers
and user-space utilities, as well as remote debug
services. This
mechanism essentially consists of new OSL interfaces to support debugger
initialization/termination, as well as wait/notify interfaces to perform
the debugger handshake with the host. Lv Zheng.

```
New OSL interfaces:
    AcpiOsInitializeDebugger (void)
    AcpiOsTerminateDebugger (void)
    AcpiOsWaitCommandReady (void)
    AcpiOsNotifyCommandComplete (void)

New OS services layer:
    osgendbg.c -- Example implementation, and used for AcpiExec
```

Update for Generic Address Space (GAS) support: Although the AccessWidth and/or BitOffset fields of the GAS are not often used, this change now fully supports these fields. This affects the internal support for FADT registers, registers in other ACPI data tables, and the AcpiRead and AcpiWrite public interfaces. Lv Zheng.

Sleep support: In order to simplify integration of ACPI sleep for the various host operating systems, a new OSL interface has been introduced. AcpiOsEnterSleep allows the host
to perform any required operations
before the final write to the sleep control register(s) is performed by ACPICA. Lv Zheng.

New OSL interface:
AcpiOsEnterSleep(SleepState, RegisterAValue, RegisterBValue)

Called from these internal interfaces:
AcpiHwLegacySleep
AcpiHwExtendedSleep

EFI support: Added a very small EFI/ACPICA example application. Provides a simple demo for EFI integration, as well as assisting with resolution of issues related to customer ACPICA/EFI integration. Lv Zheng. See:

source/tools/efihello/efihello.c

Local C library: Implemented several new functions to enhance ACPICA portability, for environments where these clib functions are not available (such as EFI). Lv Zheng:
putchar
getchar
strpbrk
strtok
memmove

Fixed a regression where occasionally a valid resource descriptor was incorrectly detected as invalid at runtime, and a AE_AML_NO_RESOURCE_END_TAG was returned.

Fixed a problem with the recently
implemented support that enables
control method invocations as Target operands to many ASL operators. Warnings of this form: "Needed type [Reference], found [Processor]" were seen at runtime for some method invocations.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and

has a much larger code and data size.

Current Release:
Non-Debug Version: 141.5K Code, 58.5K Data, 200.0K Total
Debug Version: 201.7K Code, 82.7K Data, 284.4K Total
Previous Release:
Non-Debug Version: 140.5K Code, 58.5K Data, 198.9K Total
Debug Version: 201.3K Code, 82.7K Data, 284.0K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Enhanced output by adding the capability to detect and disassemble ASL Switch/Case statements back to the original ASL source code instead of if/else blocks. David Box.

AcpiHelp:
Split a large file into separate files based upon functionality/purpose. New files are:
ahaml.c
ahasl.c

---

17 November 2016. Summary of changes for version 20161117:

1) ACPICA kernel-resident subsystem:

Table Manager: Fixed a regression introduced in 20160729, "FADT support cleanup". This was an attempt to remove all references in the source to the FADT version 2, which never was a legal version number. It was skipped because it was an early version of 64-bit support that was eventually abandoned for the current 64-bit support.

Interpreter: Fixed a problem where runtime implicit conversion was incorrectly disabled for the ASL operators below. This brings the behavior into compliance with the ACPI specification:
FromBCD
ToBCD
ToDecimalString
ToHexString
ToInteger
ToBuffer

Table Manager: Added a new public interface, AcpiPutTable, used to release and free an ACPI table returned by AcpiGetTable and related interfaces. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 140.5K Code, 58.5K Data, 198.9K Total
Debug Version: 201.3K Code, 82.7K Data, 284.0K Total
Previous Release:
Non-Debug Version: 140.4K Code, 58.1K Data, 198.5K Total
Debug Version: 200.7K Code, 82.1K Data, 282.8K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a regression for disassembly of Resource Template. Detection of templates in the AML stream missed some types of templates.

iASL: Fixed a problem where an Access Size error was returned for the PCC address space when the AccessSize of the GAS register is greater than a DWORD. Hoan Tran.

iASL: Implemented several grammar changes for the operators below. These

changes are slated for the next version of the ACPI specification:
RefOf - Disallow method invocation as an operand
CondRefOf - Disallow method invocation as an operand
DerefOf - Disallow operands that use the result from operators that
do not return a reference (Changed TermArg to SuperName).

iASL: Control method invocations are now allowed for Target operands, as per the ACPI specification. Removed error for using a control method invocation as a Target operand.

Disassembler: Improved detection of Resource Templates, Unicode, and Strings within Buffer objects. These subtypes do not contain a specific opcode to indicate the originating ASL code, and they must be detected by other means within the disassembler.

iASL: Implemented an optimization improvement for 32-bit ACPI tables (DSDT/SSDT). For the 32-bit case only, compute the optimum integer opcode only after 64-bit to 32-bit truncation. A truncation warning message is

still emitted, however.

AcpiXtract: Implemented handling for both types of line terminators (LF or CR/LF) so that it can accept AcpiDump output files from any system. Peter Wu.

AcpiBin: Added two new options for comparing AML files:
  -a: compare and display ALL mismatches
  -o: start compare at this offset into the second file

---
30 September 2016. Summary of changes for version 20160930:

1) ACPICA kernel-resident subsystem:

Fixed a regression in the internal AcpiTbFindTable function where a non AE_OK exception could inadvertently be returned even if the function did not fail. This problem affects the following operators:
  DataTableRegion
  LoadTable

Fixed a regression in the LoadTable operator where a load to any namespace location other than the root no longer worked properly.

Increased the maximum loop count value that will result in the AE_AML_INFINITE_LOOP exception. This is a mechanism that is intended to prevent infinite
 loops within the AML interpreter and thus the host OS kernel. The value is increased from 0xFFFF to 0xFFFFF loops (65,535 to 1,048,575).

Moved the AcpiGbl_MaxLoopIterations configuration variable to the public acpixf.h file. This allows hosts to easily configure the maximum loop count at runtime.

Removed an illegal character in the strtoul64.c file. This character caused errors with some C compilers.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

 Current Release:
  Non-Debug Version: 140.4K Code, 58.1K Data, 198.5K Total
  Debug Version: 200.7K Code, 82.1K Data, 282.8K Total
 Previous Release:
  Non-Debug Version: 140.0K Code, 58.1K Data, 198.1K Total
  Debug Version: 200.3K Code, 82.1K Data, 282.4K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler:
Fixed a problem with the conversion of Else{If{ blocks into
the simpler ASL ElseIf keyword. During the conversion, a trailing If
block could be lost and missing from the disassembled output.

iASL: Fixed a missing parser rule for the ObjectType operator. For ASL+,
the missing rule caused a parse error when using the Index operator as an
operand to ObjectType. This construct now compiles properly. Example:
ObjectType(PKG1[4]).

iASL: Correctly handle unresolved symbols in the hardware map file (-lm
option). Previously, unresolved symbols could cause a protection fault.
Such symbols are now marked as unresolved in the map file.

iASL: Implemented support to allow control method invocations as an
operand to the ASL DeRefOf operator. Example:
DeRefOf(MTH1(Local0))

Disassembler: Improved support for the ToPLD ASL macro. Detection of a
possible _PLD buffer now includes examination of both the normal buffer
length (16 or 20) as well as the surrounding AML package
length.

Disassembler: Fixed a problem with the decoding of complex expressions
within the Divide operator for ASL+. For the case where both the quotient
and remainder targets are specified, the entire statement cannot be
disassembled. Previously, the output incorrectly contained a mix of ASL-
and ASL+ operators. This mixed statement causes a syntax error when
compiled. Example:
Divide (Add (INT1, 6), 128, RSLT, QUOT) // was incorrectly
disassembled to:
Divide (INT1 + 6, 128, RSLT, QUOT)

iASL/Tools: Added support to process AML and non-AML ACPI tables
consistently. For the disassembler and AcpiExec, allow all types of ACPI
tables (AML and data tables). For the iASL -e option, allow only AML
tables (DSDT/SSDT).

---
31 August 2016. Summary of changes for version 20160831:

1) ACPICA kernel-resident subsystem:

Improve support for the so-called "module-level code", which is defined to be math, logical and control AML opcodes
that appear outside of any
control method. This change improves the support by adding more opcodes that can be executed in the manner. Some other issues have been solved, and the ASL grammar changes to support such code under all scope operators (Device, etc.) are complete. Lv Zheng.

UEFI support: these OSL functions have been implemented. This is an additional step toward supporting the AcpiExec utility natively (with full hardware access) under UEFI. Marcelo Ferreira.
AcpiOsReadPciConfiguration
AcpiOsWritePciConfiguration

Fixed a possible mutex error during control method auto-serialization. Lv Zheng.

Updated support for the Generic Address Structure by fully implementing all GAS fields when a 32-bit address is expanded to a 64-bit GAS. Lv Zheng.

Updated the return value for the internal _OSI method. Instead of 0xFFFFFFFF, the "Ones" value is now returned, which is 0xFFFFFFFFFFFFFFFF for 64-bit ACPI tables. This fixes an incompatibility with other ACPI implementations,
and will be reflected and clarified in the next version
of the ACPI specification.

Implemented two new table events that can be passed to an ACPICA table handler. These events are used to indicate a table installation or uninstallation. These events are used in addition to existed table load and unload events. Lv Zheng.

Implemented a cleanup for all internal string-to-integer conversions. Consolidate multiple versions of this functionality and limit possible bases to either 10 or 16 to simplify the code. Adds a new file, utstrtoul64.

Cleanup the inclusion order of the various compiler-specific headers. This simplifies build configuration management. The compiler-specific headers are now split out from the host-specific headers. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much
larger code and data size.

Current Release:
Non-Debug Version: 140.1K Code, 58.1K Data, 198.1K Total
Debug Version: 200.3K Code, 82.1K Data, 282.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL/AcpiExec: Added a command line option to display the build date/time
of the tool (-vd). This can be useful to verify that the correct version
of the tools are being used.

AML Debugger: Implemented a new subcommand ("execute predef") to execute
all predefined control methods and names within the current namespace.
This can be useful for debugging problems with ACPI tables and the ACPI
namespace.

---
29 July 2016. Summary of changes for version 20160729:

1) ACPICA kernel-resident subsystem:

Implemented basic UEFI support for the various ACPICA tools. This
includes:
1) An OSL to implement the various AcpiOs* interfaces on UEFI.
2) Support to obtain the ACPI tables on UEFI.
3) Local implementation of required C library functions
not available on
UEFI.
4) A front-end (main) function for the tools for UEFI-related
initialization.

The initial deployment of this support is the AcpiDump utility executing
as an UEFI application via EDK2 (EDKII, "UEFI Firmware Development Kit").
Current environments supported are Linux/Unix. MSVC generation is not
supported at this time. See the generate/efi/README file for build
instructions. Lv Zheng.

Future plans include porting the AcpiExec utility to execute natively on
the platform with I/O and memory access. This will allow viewing/dump of
the platform namespace and native execution of ACPI control methods that
access the actual hardware. To fully implement this support, the OSL
functions below must be implemented with UEFI interfaces. Any community
help in the implementation of these functions would be appreciated:
AcpiOsReadPort
AcpiOsWritePort
AcpiOsReadMemory
AcpiOsWriteMemory

AcpiOsReadPciConfiguration
AcpiOsWritePciConfiguration

Restructured
and standardized the C library configuration for ACPICA,
resulting in the various configuration options below. This includes a
global restructuring of the compiler-dependent and platform-dependent
include files. These changes may affect the existing platform-dependent
configuration files on some hosts. Lv Zheng.

The current C library configuration options appear below. For any issues,
it may be helpful to examine the existing compiler-dependent and
platform-dependent files as examples. Lv Zheng.

1) Linux kernel:
ACPI_USE_STANDARD_HEADERS=n in order not to use system-provided C
library.
ACPI_USE_SYSTEM_CLIBRARY=y in order not to use ACPICA mini C library.
2) Unix/Windows/BSD applications:
ACPI_USE_STANDARD_HEADERS=y in order to use system-provided C
library.
ACPI_USE_SYSTEM_CLIBRARY=y in order not to use ACPICA mini C library.
3) UEFI applications:
ACPI_USE_STANDARD_HEADERS=n in order not to use system-provided C
library.
ACPI_USE_SYSTEM_CLIBRARY=n
in order to use ACPICA mini C library.
4) UEFI applications (EDK2/StdLib):
ACPI_USE_STANDARD_HEADERS=y in order to use EDK2 StdLib C library.
ACPI_USE_SYSTEM_CLIBRARY=y in order to use EDK2 StdLib C library.

AML interpreter: "module-level code" support. Allows for execution of so-
called "executable" AML code (math/logical operations, etc.) outside of
control methods not just at the module level (top level) but also within
any scope declared outside of a control method - Scope{}, Device{},
Processor{}, PowerResource{}, and ThermalZone{}. Lv Zheng.

Simplified the configuration of the "maximum AML loops" global option by
adding a global public variable, "AcpiGbl_MaxLoopIterations" which can be
modified at runtime.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and

data size.

Current Release:
Non-Debug Version: 139.1K Code, 22.9K Data, 162.0K Total
Debug Version: 199.0K Code, 81.8K Data, 280.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Add full support for the RASF ACPI table (RAS Features Table). Includes disassembler, data table compiler, and header support.

iASL Expand "module-level code" support. Allows for compilation/disassembly of so-called "executable" AML code (math/logical operations, etc.) outside of control methods not just at the module level (top level) but also within any scope declared outside of a control method - Scope{}, Device{}, Processor{}, PowerResource{}, and ThermalZone{}.

AcpiDump: Added support for dumping all SSDTs on newer versions of Windows. These tables are now easily available -- SSDTs are not available through the registry on older versions.

---

27 May 2016. Summary of changes for version 20160527:

1) ACPICA kernel-resident subsystem:

Temporarily
reverted the new arbitrary bit length/alignment support in AcpiHwRead/AcpiHwWrite for the Generic Address Structure. There have been a number of regressions with the new code that need to be fully resolved and tested before this support can be finally integrated into ACPICA. Apologies for any inconveniences these issues may have caused.

The ACPI message macros are not configurable (ACPI_MSG_ERROR, ACPI_MSG_EXCEPTION, ACPI_MSG_WARNING, ACPI_MSG_INFO, ACPI_MSG_BIOS_ERROR, and ACPI_MSG_BIOS_WARNING). Lv Zheng.

Fixed a couple of GCC warnings associated with the use of the -Wcast-qual option. Adds a new return macro, return_STR. Junk-uk Kim.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 136.8K Code, 51.6K Data, 188.4K
Total
Debug Version: 201.5K Code, 82.2K Data, 283.7K Total
Previous Release:
Non-Debug Version: 137.4K Code, 52.6K Data, 190.0K Total
Debug Version: 200.9K Code, 82.2K Data, 283.1K Total

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22 April 2016. Summary of changes for version 20160422:

1) ACPICA kernel-resident subsystem:

Fixed a regression in the GAS (generic address structure) arbitrary bit support in AcpiHwRead/AcpiHwWrite. Problem could cause incorrect behavior and incorrect return values. Lv Zheng. ACPICA BZ 1270.

ACPI 6.0: Added support for new/renamed resource macros. One new argument was added to each of these macros, and the original name has been deprecated. The AML disassembler will always disassemble to the new names. Support for the new macros was added to iASL, disassembler, resource manager, and the acpihelp utility. ACPICA BZ 1274.

I2cSerialBus -> I2cSerialBusV2
SpiSerialBus -> SpiSerialBusV2
UartSerialBus -> UartSerialBusV2

ACPI
6.0: Added support for a new integer field that was appended to the package object returned by the _BIX method. This adds iASL compile-time and AML runtime error checking. ACPICA BZ 1273.

ACPI 6.1: Added support for a new PCCT subtable, "HW-Reduced Comm Subspace Type2" (Headers, Disassembler, and data table compiler).

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 137.4K Code, 52.6K Data, 190.0K Total
Debug Version: 201.5K Code, 82.2K Data, 283.7K Total
Previous Release:
Non-Debug Version: 137.1K Code, 51.5K Data, 188.6K Total
Debug Version: 201.0K Code, 82.0K Data, 283.0K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented an ASL grammar extension to allow/enable executable "module-level
code" to be created and executed under the various
operators that create new scopes. This type of AML code is already supported in all known AML interpreters, and the grammar change will appear in the next version of the ACPI specification. Simplifies the conditional runtime creation of named objects under these object types:

Device
PowerResource
Processor
Scope
ThermalZone

iASL: Implemented a new ASL extension, a "For" loop macro to add greater ease-of-use to the ASL language. The syntax is similar to the corresponding C operator, and is implemented with the existing AML While opcode -- thus requiring no changes to existing AML interpreters.

For (Initialize, Predicate, Update) {TermList}

Grammar:

```
ForTerm :=
    For (
        Initializer    // Nothing | TermArg => ComputationalData
        Predicate      // Nothing | TermArg => ComputationalData
        Update         // Nothing | TermArg => ComputationalData
    ) {TermList}
```

iASL:
The _HID/_ADR detection and validation has been enhanced to search under conditionals in order to allow these objects to be conditionally created at runtime.

iASL: Fixed several issues with the constant folding feature. The improvement allows better detection and resolution of statements that can be folded at compile time. ACPICA BZ 1266.

iASL/Disassembler: Fixed a couple issues with the Else{If{}...} conversion to the ASL ElseIf operator where incorrect ASL code could be generated.

iASL/Disassembler: Fixed a problem with the ASL+ code disassembly where sometimes an extra (and extraneous) set of parentheses were emitted for some combinations of operators. Although this did not cause any problems

with recompilation of the disassembled code, it made the code more difficult to read. David Box. ACPICA BZ 1231.

iASL: Changed to ignore the unreferenced detection for predefined names of resource descriptor elements, when the resource descriptor is created/defined within
a control method.

iASL: Disassembler: Fix a possible fault with externally declared Buffer objects.

---

18 March 2016. Summary of changes for version 20160318:

1) ACPICA kernel-resident subsystem:

Added support for arbitrary bit lengths and bit offsets for registers defined by the Generic Address Structure. Previously, only aligned bit lengths of 8/16/32/64 were supported. This was sufficient for many years, but recently some machines have been seen that require arbitrary bit-level support. ACPICA BZ 1240. Lv Zheng.

Fixed an issue where the _SB._INI method sometimes must be evaluated before any _REG methods are evaluated. Lv Zheng.

Implemented several changes related to ACPI table support (Headers/Disassembler/TableCompiler):
NFIT: For ACPI 6.1, updated to add some additional new fields and constants.
FADT: Updated a warning message and set compliance to ACPI 6.1 (Version 6).
DMAR: Added new constants per the 10/2014 DMAR spec.
IORT:
Added new subtable per the 10/2015 IORT spec.
HEST: For ACPI 6.1, added new constants and new subtable.
DBG2: Added new constants per the 12/2015 DBG2 spec.
FPDT: Fixed several incorrect fields, add the FPDT boot record structure. ACPICA BZ 1249.
ERST/EINJ: Updated disassembler with new "Execute Timings" actions.

Updated header support for the DMAR table to match the current version of the related spec.

Added extensions to the ASL Concatenate operator to allow any ACPI object to be passed as an operand. Any object other than Integer/String/Buffer simply returns a string containing the object type. This extends the usefulness of the Printf macros. Previously, Concatenate would abort the control method if a non-data object was encountered.

ACPICA source code: Deployed the C "const" keyword across the source code where appropriate. ACPICA BZ 732. Joerg Sonnenberger (NetBSD).

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft
Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 137.1K Code, 51.5K Data, 188.6K Total
Debug Version: 201.0K Code, 82.0K Data, 283.0K Total
Previous Release:
Non-Debug Version: 136.2K Code, 51.5K Data, 187.7K Total
Debug Version: 200.4K Code, 82.0K Data, 282.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Improved the heuristic used to determine the number of arguments for an externally defined control method (a method in another table). Although this is an improvement, there is no deterministic way to "guess" the number of method arguments. Only the ACPI 6.0 External opcode will completely solve this problem as it is deployed (automatically) in newer BIOS code.

iASL/Disassembler: Fixed an ordering issue for emitted External() ASL statements that could cause errors when the disassembled
file is
compiled. ACPICA BZ 1243. David Box.

iASL: Fixed a regression caused by the merger of the two versions of the local strtoul64. Because of a dependency on a global variable, strtoul64 could return an error for integers greater than a 32-bit value. ACPICA BZ 1260.

iASL: Fixed a regression where a fault could occur for an ASL Return statement if it invokes a control method that is not resolved. ACPICA BZ 1264.

AcpiXtract: Improved input file validation: detection of binary files and non-acpidump text files.

---
12 February 2016. Summary of changes for version 20160212:

1) ACPICA kernel-resident subsystem:

Implemented full support for the ACPI 6.1 specification (released in
January). This version of the specification is available at:
http://www.uefi.org/specifications

Only a relatively small number of changes were required in ACPICA to
support ACPI 6.1, in these areas:
- New predefined names
- New _HID values
- A new subtable
 for HEST
- A few other header changes for new values

Ensure _SB_._INI is executed before any _REG methods are executed. There
appears to be existing BIOS code that relies on this behavior. Lv Zheng.

Reverted a change made in version 20151218 which enabled method
invocations to be targets of various ASL operators (SuperName and Target
grammar elements). While the new behavior is supported by the ACPI
specification, other AML interpreters do not support this behavior and
never will. The ACPI specification will be updated for ACPI 6.2 to remove
this support. Therefore, the change was reverted to the original ACPICA
behavior.

ACPICA now supports the GCC 6 compiler.

Current Release: (Note: build changes increased sizes)
  Non-Debug Version: 136.2K Code, 51.5K Data, 187.7K Total
  Debug Version: 200.4K Code, 82.0K Data, 282.4K Total
Previous Release:
  Non-Debug Version: 102.7K Code, 28.4K Data, 131.1K Total
  Debug Version: 200.4K Code, 81.9K Data, 282.3K Total

2)
 iASL Compiler/Disassembler and Tools:

Completed full support for the ACPI 6.0 External() AML opcode. The
compiler emits an external AML opcode for each ASL External statement.
This opcode is used by the disassembler to assist with the disassembly of
external control methods by specifying the required number of arguments
for the method. AML interpreters do not use this opcode. To ensure that
interpreters do not even see the opcode, a block of one or more external
opcodes is surrounded by an "If(0)" construct. As this feature becomes
commonly deployed in BIOS code, the ability of disassemblers to correctly
disassemble AML code will be greatly improved. David Box.

iASL: Implemented support for an optional cross-reference output file.

The -lx option will create a the cross-reference file with the suffix
"xrf". Three different types of cross-reference are created in this file:
- List of object references made from within each control method
- Invocation (caller) list for each
 user-defined control method
- List of references to each non-method object in the namespace

iASL: Method invocations as ASL Target operands are now disallowed and
flagged as errors in preparation for ACPI 6.2 (see the description of the
problem above).

---
8 January 2016. Summary of changes for version 20160108:

1) ACPICA kernel-resident subsystem:

Updated all ACPICA copyrights and signons to 2016: Added the 2016
copyright to all source code module headers and utility/tool signons.
This includes the standard Linux dual-license header. This affects
virtually every file in the ACPICA core subsystem, iASL compiler, all
ACPICA utilities, and the ACPICA test suite.

Fixed a regression introduced in version 20151218 concerning the
execution of so-called module-level ASL/AML code. Namespace objects
created under a module-level If() construct were not properly/fully
entered into the namespace and could cause an interpreter fault when
accessed.

Example
 Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Current Release:
  Non-Debug Version: 102.7K Code, 28.4K Data, 131.1K Total
  Debug Version: 200.4K Code, 81.9K Data, 282.4K Total
 Previous Release:
  Non-Debug Version: 102.6K Code, 28.4K Data, 131.0K Total
  Debug Version: 200.3K Code, 81.9K Data, 282.3K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a problem with the compilation of the GpioIo and GpioInt resource
descriptors. The _PIN field name was incorrectly defined to be an array
of 32-bit values, but the _PIN values are in fact 16 bits each. This
would cause incorrect bit width warnings when using Word (16-bit) fields

to access the descriptors.

---
18 December 2015. Summary of changes for version 20151218:

1)
ACPICA kernel-resident subsystem:

Implemented per-AML-table execution of "module-level code" as individual ACPI tables are loaded into the namespace during ACPICA initialization. In other words, any module-level code within an AML table is executed immediately after the table is loaded, instead of batched and executed after all of the tables have been loaded. This provides compatibility with other ACPI implementations. ACPICA BZ 1219. Bob Moore, Lv Zheng, David Box.

To fully support the feature above, the default operation region handlers for the SystemMemory, SystemIO, and PCI_Config address spaces are now installed before any ACPI tables are loaded. This enables module-level code to access these address spaces during the table load and module-level code execution phase. ACPICA BZ 1220. Bob Moore, Lv Zheng, David Box.

Implemented several changes to the internal _REG support in conjunction with the changes above. Also, changes to the AcpiExec/AcpiNames/Examples

utilities for the changes above. Although these tools were changed, host operating systems that simply use the default handlers for SystemMemory, SystemIO, and PCI_Config spaces should not require any update. Lv Zheng.

For example, in the code below, DEV1 is conditionally added to the namespace by the DSDT via module-level code that accesses an operation region. The SSDT references DEV1 via the Scope operator. DEV1 must be created immediately after the DSDT is loaded in order for the SSDT to successfully reference DEV1. Previously, this code would cause an AE_NOT_EXIST exception during the load of the SSDT. Now, this code is fully supported by ACPICA.

```
DefinitionBlock ("", "DSDT", 2, "Intel", "DSDT1", 1)
{
    OperationRegion (OPR1, SystemMemory, 0x400, 32)
    Field (OPR1, AnyAcc, NoLock, Preserve)
    {
        FLD1, 1
    }
    If (FLD1)
    {
```

```
        Device (\DEV1)
        {
        }
    }
  }
  DefinitionBlock ("",
 "SSDT", 2, "Intel", "SSDT1", 1)
  {
    External (\DEV1, DeviceObj)
    Scope (\DEV1)
    {
    }
  }
```

Fixed an AML interpreter problem where control method invocations were not handled correctly when the invocation was itself a SuperName argument to another ASL operator. In these cases, the method was not invoked. ACPICA BZ 1002. Affects the following ASL operators that have a SuperName argument:

Store
Acquire, Wait
CondRefOf, RefOf
Decrement, Increment
Load, Unload
Notify
Signal, Release, Reset
SizeOf

Implemented automatic String-to-ObjectReference conversion support for packages returned by predefined names (such as _DEP). A common BIOS error is to add double quotes around an ObjectReference namepath, which turns the reference into an unexpected string object. This support detects the problem and corrects it before the package is returned to the caller that invoked the method. Lv Zheng.

Implemented extensions to the Concatenate operator. Concatenate now accepts any type of object, it is not restricted to simply Integer/String/Buffer. For objects other than these 3 basic data types, the argument is treated as a string containing the name of the object type. This expands the utility of Concatenate and the Printf/Fprintf macros. ACPICA BZ 1222.

Cleaned up the output of the ASL Debug object. The timer() value is now optional and no longer emitted by default. Also, the basic data types of Integer/String/Buffer are simply emitted as their values, without a data type string -- since the data type is obvious from the output. ACPICA BZ 1221.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 102.6K Code, 28.4K Data, 131.0K Total
Debug Version:
200.3K Code, 81.9K Data, 282.3K Total
Previous Release:
Non-Debug Version: 102.0K Code, 28.3K Data, 130.3K Total
Debug Version: 199.6K Code, 81.8K Data, 281.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed some issues with the ASL Include() operator. This operator was incorrectly defined in the iASL parser rules, causing a new scope to be opened for the code within the include file. This could lead to several issues, including allowing ASL code that is technically illegal and not supported by AML interpreters. Note, this does not affect the related #include preprocessor operator. ACPICA BZ 1212.

iASL/Disassembler: Implemented support for the ASL ElseIf operator. This operator is essentially an ASL macro since there is no AML opcode associated with it. The code emitted by the iASL compiler for ElseIf is an Else opcode followed immediately by an If opcode. The disassembler will now emit an ElseIf if it finds an Else immediately followed by an If.
This simplifies the decoded ASL, especially for deeply nested If..Else and large Switch constructs. Thus, the disassembled code more closely follows the original source ASL. ACPICA BZ 1211. Example:

Old disassembly:

```
Else
{
    If (Arg0 == 0x02)
    {
        Local0 = 0x05
    }
}
```

New disassembly:

```
ElseIf (Arg0 == 0x02)
{
    Local0 = 0x05
}
```

AcpiExec: Added support for the new module level code behavior and the early region installation. This required a small change to the initialization, since AcpiExec must install its own operation region handlers.

AcpiExec: Added support to make the debug object timer optional. Default is timer disabled. This cleans up the debug object output -- the timer data is rarely used.

AcpiExec: Multiple ACPI tables are now loaded in the order that they appear on the command line. This can be important when there are interdependencies/references between
the tables.

iASL/Templates. Add support to generate template files with multiple SSDTs within a single output file. Also added ommand line support to specify the number of SSDTs (in addition to a single DSDT). ACPICA BZ 1223, 1225.

---

24 November 2015. Summary of changes for version 20151124:

1) ACPICA kernel-resident subsystem:

Fixed a possible regression for a previous update to FADT handling. The FADT no longer has a fixed table ID, causing some issues with code that was hardwired to a specific ID. Lv Zheng.

Fixed a problem where the method auto-serialization could interfere with the current SyncLevel. This change makes the auto-serialization support transparent to the SyncLevel support and management.

Removed support for the _SUB predefined name in AcpiGetObjectInfo. This interface is intended for early access to the namespace during the initial namespace device discovery walk. The _SUB method has been seen to access operation
regions in some cases, causing errors because the
operation regions are not fully initialized.

AML Debugger: Fixed some issues with the terminate/quit/exit commands that can cause faults. Lv Zheng.

AML Debugger: Add thread ID support so that single-step mode only applies to the AML Debugger thread. This prevents runtime errors within some kernels. Lv Zheng.

Eliminated extraneous warnings from AcpiGetSleepTypeData. Since the _Sx methods that are invoked by this interface are optional, removed warnings emitted for the case where one or more of these methods do not exist. ACPICA BZ 1208, original change by Prarit Bhargava.

Made a major pass through the entire ACPICA source code base to standardize formatting that has diverged a bit over time. There are no functional changes, but this will of course cause quite a few code differences from the previous ACPICA release.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft
Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 102.0K Code, 28.3K Data, 130.3K Total
Debug Version: 199.6K Code, 81.8K Data, 281.4K Total
Previous Release:
Non-Debug Version: 101.7K Code, 27.9K Data, 129.6K Total
Debug Version: 199.3K Code, 81.4K Data, 280.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL/acpiexec/acpixtract/disassembler: Added support to allow multiple definition blocks within a single ASL file and the resulting AML file. Support for this type of file was also added to the various tools that use binary AML files: acpiexec, acpixtract, and the AML disassembler. The example code below shows two definition blocks within the same file:

```
DefinitionBlock ("dsdt.aml", "DSDT", 2, "Intel", "Template",
0x12345678)
{
}
DefinitionBlock ("", "SSDT", 2, "Intel", "Template", 0xABCDEF01)

{
}
```

iASL: Enhanced typechecking for the Name() operator. All expressions for the value of the named object must be reduced/folded to a single constant at compile time, as per the ACPI specification (the AML definition of Name()).

iASL: Fixed some code indentation issues for the -ic and -ia options (C and assembly headers). Now all emitted code correctly begins in column 1.

iASL: Added an error message for an attempt to open a Scope() on an
object defined in an SSDT. The DSDT is always loaded into the namespace
first, so any attempt to open a Scope on an SSDT object will fail at
runtime.

---
30 September 2015. Summary of changes for version 20150930:

1) ACPICA kernel-resident subsystem:

Debugger: Implemented several changes and bug fixes to assist support for
the in-kernel version of the AML debugger. Lv Zheng.
- Fix the "predefined" command for in-kernel debugger.
- Do not enter debug command loop for the help and version commands.
-
Disallow "execute" command during execution/single-step of a method.

Interpreter: Updated runtime typechecking for all operators that have
target operands. The operand is resolved and validated that it is legal.
For example, the target cannot be a non-data object such as a Device,
Mutex, ThermalZone, etc., as per the ACPI specification.

Debugger: Fixed the double-mutex user I/O handshake to work when local
deadlock detection is enabled.

Debugger: limited display of method locals and arguments (LocalX and
ArgX) to only those that have actually been initialized. This prevents
lines of extraneous output.

Updated the definition of the NFIT table to correct the bit polarity of
one flag: ACPI_NFIT_MEM_ARMED --> ACPI_NFIT_MEM_NOT_ARMED

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and
data size.

Current Release:
Non-Debug Version: 101.7K Code, 27.9K Data, 129.6K Total
Debug Version: 199.3K Code, 81.4K Data, 280.7K Total
Previous Release:
Non-Debug Version: 101.3K Code, 27.7K Data, 129.0K Total
Debug Version: 198.6K Code, 80.9K Data, 279.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Improved the compile-time typechecking for operands of many of the ASL operators:

-- Added an option to disable compiler operand/operator typechecking (-ot).

-- For the following operators, the TermArg operands are now validated when possible to be Integer data objects: BankField, OperationRegion, DataTableRegion, Buffer, and Package.

-- Store (Source, Target): Both the source and target operands are resolved and checked that the operands are both legal. For example, neither operand can be a non-data object such as a Device, Mutex, ThermalZone, etc. Note, as per the ACPI specification, the CopyObject operator can be used to store an object to any type of target object.

-- Store (Source, Target): If the source is a Package object, the target must be a Package object, LocalX, ArgX, or Debug. Likewise, if the target is a Package, the source must also be a Package.

-- Store (Source, Target): A warning is issued if the source and target resolve to the identical named object.

-- Store (Source, <method invocation>): An error is generated for the target method invocation, as this construct is not supported by the AML interpreter.

-- For all ASL math and logic operators, the target operand must be a data object (Integer, String, Buffer, LocalX, ArgX, or Debug). This includes the function return value also.

-- External declarations are also included in the typechecking where possible. External objects defined using the UnknownObj keyword cannot be typechecked, however.

iASL and Disassembler: Added symbolic (ASL+) support for the ASL Index operator:
- Legacy code: Index(PKG1, 3)
- New ASL+ code: PKG1[3]
This completes the ACPI 6.0 ASL+ support as it was the only operator not supported.

iASL: Fixed the file suffix for the preprocessor output file (.i). Two spaces were inadvertently appended to the filename, causing file access

and deletion problems on some systems.

ASL Test Suite (ASLTS): Updated the master makefile to generate all possible compiler output files when building the test suite -- thus exercising these features of the compiler. These files are automatically deleted when the test suite exits.

---

18 August 2015. Summary of changes for version 20150818:

1) ACPICA kernel-resident subsystem:

Fix a regression for AcpiGetTableByIndex interface causing it to fail. Lv Zheng. ACPICA BZ 1186.

Completed development to ensure that the ACPICA Disassembler and Debugger are fully standalone components of ACPICA. Removed cross-component dependences. Lv Zheng.

The max-number-of-AML-loops is now runtime configurable (previously was compile-time
only). This is essentially a loop timeout to force-abort
infinite AML loops. ACPCIA BZ 1192.

Debugger: Cleanup output to dump ACPI names and namepaths without any trailing underscores. Lv Zheng. ACPICA BZ 1135.

Removed unnecessary conditional compilations across the Debugger and Disassembler components where entire modules could be left uncompiled.

The aapits test is deprecated and has been removed from the ACPICA git tree. The test has never been completed and has not been maintained, thus becoming rather useless. ACPICA BZ 1015, 794.

A batch of small changes to close bugzilla and other reports:
- Remove duplicate code for _PLD processing. ACPICA BZ 1176.
- Correctly cleanup after a ACPI table load failure. ACPICA BZ 1185.
- iASL: Support POSIX yacc again in makefile. Jung-uk Kim.
- ACPI table support: general cleanup and simplification. Lv Zheng, Bob Moore.
- ACPI table support: fix for a buffer read overrun in AcpiTbFindTable. ACPICA BZ 1184.
- Enhance parameter validation
for DataTableRegion and LoadTable ASL/AML
operators.
- Debugger: Split debugger initialization/termination interfaces. Lv Zheng.

- AcpiExec: Emit OemTableId for SSDTs during the load phase for table identification.
- AcpiExec: Add debug message during _REG method phase during table load/init.
- AcpiNames: Fix a regression where some output was missing and no longer emitted.
- Debugger: General cleanup and simplification. Lv Zheng.
- Disassembler: Cleanup use of several global option variables. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 101.3K Code, 27.7K Data, 129.0K Total
Debug Version: 198.6K Code, 80.9K Data, 279.5K Total
Previous Release:
Non-Debug Version: 100.9K Code, 24.5K Data, 125.4K Total
Debug Version: 197.8K Code, 81.5K Data, 279.3K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Fixed a problem where any more than 32 ACPI tables in the XSDT were not handled properly and caused load errors. Now, properly invoke and use the ACPICA auto-reallocate mechanism for ACPI table data structures. ACPICA BZ 1188

AcpiNames: Add command-line wildcard support for ACPI table files. ACPICA BZ 1190.

AcpiExec and AcpiNames: Add -l option to load ACPI tables only. For AcpiExec, this means that no control methods (like _REG/_INI/_STA) are executed during initialization. ACPICA BZ 1187, 1189.

iASL/Disassembler: Implemented a prototype "listing" mode that emits AML that corresponds to each disassembled ASL statement, to simplify debugging. ACPICA BZ 1191.

Debugger: Add option to the "objects" command to display a summary of the current namespace objects (Object type and count). This is displayed if the command is entered with no arguments.

AcpiNames: Add
-x option to specify debug level, similar to AcpiExec.

---
17 July 2015. Summary of changes for version 20150717:

1) ACPICA kernel-resident subsystem:

Improved the partitioning between the Debugger and Disassembler components. This allows the Debugger to be used standalone within kernel code without the Disassembler (which is used for single stepping also). This renames and moves one file, dmobject.c to dbobject.c. Lv Zheng.

Debugger: Implemented a new command to trace the execution of control methods (Trace). This is especially useful for the in-kernel version of the debugger when file I/O may not be available for method trace output. See the ACPICA reference for more information. Lv Zheng.

Moved all C library prototypes (used for the local versions of these functions when requested) to a new header, acclib.h
Cleaned up the use of non-ANSI C library functions. These functions are implemented locally in ACPICA. Moved all such functions
to a common
source file, utnonansi.c

Debugger: Fixed a problem with the "!!" command (get last command executed) where the debugger could enter an infinite loop and eventually crash.

Removed the use of local macros that were used for some of the standard C library functions to automatically cast input parameters. This mostly affected the is* functions where the input parameter is defined to be an int. This required a few modifications to the main ACPICA source code to provide casting for these functions and eliminate possible compiler warnings for these parameters.

Across the source code, added additional status/error checking to resolve issues discovered by static source code analysis tools such as Coverity.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current
Release:
Non-Debug Version: 100.9K Code, 24.5K Data, 125.4K Total
Debug Version: 197.8K Code, 81.5K Data, 279.3K Total
Previous Release:
Non-Debug Version: 100.6K Code, 27.6K Data, 128.2K Total
Debug Version: 196.2K Code, 81.0K Data, 277.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a regression where the device map file feature no longer
worked properly when used in conjunction with the disassembler. It only
worked properly with the compiler itself.

iASL: Implemented a new warning for method LocalX variables that are set
but never used (similar to a C compiler such as gcc). This also applies
to ArgX variables that are not defined by the parent method, and are
instead (legally) used as local variables.

iASL/Preprocessor: Finished the pass-through of line numbers from the
preprocessor to the compiler. This ensures that compiler errors/warnings
have the correct original line numbers and filenames, regardless of any
#include files.

iASL/Preprocessor:
Fixed a couple of issues with comment handling and the
pass-through of comments to the preprocessor output file (which becomes
the compiler input file). Also fixed a problem with // comments that
appear after a math expression.

iASL: Added support for the TCPA server table to the table compiler and
template generator. (The client table was already previously supported)

iASL/Preprocessor: Added a permanent #define of the symbol "__IASL__" to
identify the iASL compiler.

Cleaned up the use of the macros NEGATIVE and POSITIVE which were defined
multiple times. The new names are ACPI_SIGN_NEGATIVE and
ACPI_SIGN_POSITIVE.

AcpiHelp: Update to expand help messages for the iASL preprocessor
directives.

---

19 June 2015. Summary of changes for version 20150619:

Two regressions in version 20150616 have been addressed:

Fixes some problems/issues with the C library macro removal (ACPI_STRLEN,
etc.) This update changes ACPICA
to only use the standard headers for
functions, or the prototypes for the local versions of the C library
functions. Across the source code, this required some additional casts

for some Clib invocations for portability. Moved all local prototypes to
a new file, acclib.h

Fixes several problems with recent changes to the handling of the FACS
table that could cause some systems not to boot.

---
16 June 2015. Summary of changes for version 20150616:

1) ACPICA kernel-resident subsystem:

Across the entire ACPICA source code base, the various macros for the C
library functions (such as ACPI_STRLEN, etc.) have been removed and
replaced by the standard C library names (strlen, etc.) The original
purpose for these macros is no longer applicable. This simplification
reduces the number of macros used in the ACPICA source code
significantly, improving readability and maintainability.

Implemented support for a new ACPI table, the OSDT. This table,
the
"override" SDT, can be loaded directly by the host OS at boot time. It
enables the replacement of existing namespace objects that were installed
via the DSDT and/or SSDTs. The primary purpose for this is to replace
buggy or incorrect ASL/AML code obtained via the BIOS. The OSDT is slated
for inclusion in a future version of the ACPI Specification. Lv Zheng/Bob
Moore.

Added support for systems with (improperly) two FACS tables -- a "32-bit"
table (via FADT 32-bit legacy field) and a "64-bit" table (via the 64-bit
X field). This change will support both automatically. There continues to
be systems found with this issue. This support requires a change to the
AcpiSetFirmwareWakingVector interface. Also, a public global variable has
been added to allow the host to select which FACS is desired
(AcpiGbl_Use32BitFacsAddresses). See the ACPICA reference for more
details Lv Zheng.

Added a new feature to allow for systems that do not contain an FACS.
Although this is already
supported on hardware-reduced platforms, the
feature has been extended for all platforms. The reasoning is that we do
not want to abort the entire ACPICA initialization just because the
system is seriously buggy and has no FACS.

Fixed a problem where the GUID strings for NFIT tables (in acuuid.h) were
not correctly transcribed from the ACPI specification in ACPICA version
20150515.

Implemented support for the _CLS object in the AcpiGetObjectInfo external interface.

Updated the definitions of the TCPA and TPM2 ACPI tables to the more recent TCG ACPI Specification, December 14, 2014. Table disassembler and compiler also updated. Note: The TCPA "server" table is not supported by the disassembler/table-compiler at this time.

ACPI 6.0: Added definitions for the new GIC version field in the MADT.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the
debug output trace mechanism and
has a much larger code and data size.

Current Release:
Non-Debug Version: 100.6K Code, 27.6K Data, 128.2K Total
Debug Version: 196.2K Code, 81.0K Data, 277.2K Total
Previous Release:
Non-Debug Version: 99.9K Code, 27.5K Data, 127.4K Total
Debug Version: 195.2K Code, 80.8K Data, 276.0K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with the new symbolic operator disassembler where incorrect ASL code could be emitted in some cases for the "non-commutative" operators -- Subtract, Divide, Modulo, ShiftLeft, and ShiftRight. The actual problem cases seem to be rather unusual in common ASL code, however. David Box.

Modified the linux version of acpidump to obtain ACPI tables from not just /dev/mem (which may not exist) and /sys/firmware/acpi/tables. Lv Zheng.

iASL: Fixed a problem where the user preprocessor output file (.i) contained extra data that was not expected. The compiler was using
this
file as a temporary file and passed through #line directives in order to keep compiler error messages in sync with the input file and line number across multiple include files. The (.i) is no longer a temporary file as the compiler uses a new, different file for the original purpose.

iASL: Fixed a problem where comments within the original ASL source code file were not passed through to the preprocessor output file, nor any listing files.

iASL: Fixed some issues for the handling of the "#include" preprocessor directive and the similar (but not the same) "Include" ASL operator.

iASL: Add support for the new OSDT in both the disassembler and compiler.

iASL: Fixed a problem with the constant folding support where a Buffer object could be incorrectly generated (incorrectly formed) during a conversion to a Store() operator.

AcpiHelp: Updated for new NFIT GUIDs, "External" AML opcode, and new description text for the _REV predefined name. _REV now permanently returns
2, as per the ACPI 6.0 specification.

Debugger: Enhanced the output of the Debug ASL object for references produced by the Index operator. For Buffers and strings, only output the actual byte pointed to by the index. For packages, only print the single package element decoded by the index. Previously, the entire buffer/string/package was emitted.

iASL/Table-compiler: Fixed a regression where the "generic" data types were no longer recognized, causing errors.

---

15 May 2015. Summary of changes for version 20150515:

This release implements most of ACPI 6.0 as described below.

1) ACPICA kernel-resident subsystem:

Implemented runtime argument checking and return value checking for all new ACPI 6.0 predefined names. This includes: _BTH, _CR3, _DSD, _LPI, _MTL, _PRR, _RDI, _RST, _TFP, _TSN.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug
version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 99.9K Code, 27.5K Data, 127.4K Total
Debug Version: 195.2K Code, 80.8K Data, 276.0K Total
Previous Release:
Non-Debug Version: 99.1K Code, 27.3K Data, 126.4K Total
Debug Version: 192.8K Code, 79.9K Data, 272.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL compiler: Added compile-time support for all new ACPI 6.0 predefined
names (argument count validation and return value typechecking.)

iASL disassembler and table compiler: implemented support for all new
ACPI 6.0 tables. This includes: DRTM, IORT, LPIT, NFIT, STAO, WPBT, XENV.

iASL disassembler and table compiler: Added ACPI 6.0 changes to existing
tables: FADT, MADT.

iASL preprocessor: Added a new directive to enable inclusion of binary
blobs into ASL code. The new directive is #includebuffer. It takes a
binary file as input and emits a named
 ascii buffer object into the ASL
code.

AcpiHelp: Added support for all new ACPI 6.0 predefined names.

AcpiHelp: Added a new option, -d, to display all iASL preprocessor
directives.

AcpiHelp: Added a new option, -t, to display all known/supported ACPI
tables.

---
10 April 2015. Summary of changes for version 20150410:

Reverted a change introduced in version 20150408 that caused
a regression in the disassembler where incorrect operator
symbols could be emitted.

---
08 April 2015. Summary of changes for version 20150408:

1) ACPICA kernel-resident subsystem:

Permanently set the return value for the _REV predefined name. It now
returns 2 (was 5). This matches other ACPI implementations. _REV will be
deprecated in the future, and is now defined to be 1 for ACPI 1.0, and 2
for ACPI 2.0 and later. It should never be used to differentiate or
identify operating systems.

Added the "Windows 2015" string to
the _OSI support. ACPICA will now
return TRUE to a query with this string.

Fixed several issues with the local version of the printf function.

Added the C99 compiler option (-std=c99) to the Unix makefiles.

Current Release:
Non-Debug Version: 99.9K Code, 27.4K Data, 127.3K Total
Debug Version: 195.2K Code, 80.7K Data, 275.9K Total
Previous Release:
Non-Debug Version: 98.8K Code, 27.3K Data, 126.1K Total
Debug Version: 192.1K Code, 79.8K Data, 271.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented an enhancement to the constant folding feature to
transform the parse tree to a simple Store operation whenever possible:
Add (2, 3, X) ==> is converted to: Store (5, X)
X = 2 + 3 ==> is converted to: Store (5, X)

Updated support for the SLIC table (Software Licensing Description Table)
in both the Data Table compiler and the disassembler. The SLIC table
support now conforms to "Microsoft Software Licensing Tables (SLIC and

MSDM). November 29, 2011. Copyright 2011 Microsoft". Note: Any SLIC data
following the ACPI header is now defined to be "Proprietary Data", and as
such, can only be entered or displayed as a hex data block.

Implemented full support for the MSDM table as described in the document
above. Note: The format of MSDM is similar to SLIC. Any MSDM data
following the ACPI header is defined to be "Proprietary Data", and can
only be entered or displayed as a hex data block.

Implemented the -Pn option for the iASL Table Compiler (was only
implemented for the ASL compiler). This option disables the iASL
preprocessor.

Disassembler: For disassembly of Data Tables, added a comment field
around the Ascii equivalent data that is emitted as part of the "Raw
Table Data" block. This prevents the iASL Preprocessor from possible
confusion if/when the table is compiled.

Disassembler: Added an option (-df) to force the disassembler to assume
that the table being disassembled contains valid AML.

This feature is
useful for disassembling AML files that contain ACPI signatures other
than DSDT or SSDT (such as OEMx or other signatures).

Changes for the EFI version of the tools:
1) Fixed a build error/issue
2) Fixed a cast warning

iASL: Fixed a path issue with the __FILE__ operator by making the
directory prefix optional within the internal SplitInputFilename
function.

Debugger: Removed some unused global variables.

Tests: Updated the makefile for proper generation of the AAPITS suite.

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04 February 2015. Summary of changes for version 20150204:

ACPICA kernel-resident subsystem:

Updated all ACPICA copyrights and signons to 2014. Added the 2014
copyright to all module headers and signons, including the standard Linux
header. This affects virtually every file in the ACPICA core subsystem,
iASL compiler, all ACPICA utilities, and the test suites.

Events: Introduce ACPI_GPE_DISPATCH_RAW_HANDLER to fix GPE storm issues.
A raw gpe handling
mechanism was created to allow better handling of GPE
storms that aren't easily managed by the normal handler. The raw handler
allows disabling/renabling of the GPE so that interrupt storms can be
avoided in cases where events cannot be timely serviced. In this
scenario, handlers should use the AcpiSetGpe() API to disable/enable the
GPE. This API will leave the reference counts undisturbed, thereby
preventing unintentional clearing of the GPE when the intent in only to
temporarily disable it. Raw handlers allow enabling and disabling of a
GPE by removing GPE register locking. As such, raw handlers much provide
their own locks while using GPE API's to protect access to GPE data
structures.
Lv Zheng

Events: Always modify GPE registers under the GPE lock.
Applies GPE lock around AcpiFinishGpe() to protect access to GPE register
values. Reported as bug by joe.liu@apple.com.

Unix makefiles: Separate option to disable optimizations and
_FORTIFY_SOURCE. This change removes the

_FORTIFY_SOURCE flag from the
NOOPT disable option and creates a separate flag (NOFORTIFY) for this
purpose. Some toolchains may define _FORTIFY_SOURCE which leads redefined
errors when building ACPICA. This allows disabling the option without
also having to disable optimazations.
David Box

Current Release:
Non-Debug Version: 101.7K Code, 27.9K Data, 129.6K Total
Debug Version: 199.2K Code, 82.4K Data, 281.6K Total

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07 November 2014. Summary of changes for version 20141107:

This release is available at https://acpica.org/downloads

This release introduces and implements language extensions to ASL that
provide support for symbolic ("C-style") operators and expressions. These
language extensions are known collectively as ASL+.

1) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with disassembly of the UartSerialBus
macro. Changed "StopBitsNone" to the correct "StopBitsZero". David E.
Box.

Disassembler:
Fixed the Unicode macro support to add escape sequences.
All non-printable ASCII values are emitted as escape sequences, as well
as the standard escapes for quote and backslash. Ensures that the
disassembled macro can be correctly recompiled.

iASL: Added Printf/Fprintf macros for formatted output. These macros are
translated to existing AML Concatenate and Store operations. Printf
writes to the ASL Debug object. Fprintf allows the specification of an
ASL name as the target. Only a single format specifier is required, %o,
since the AML interpreter dynamically converts objects to the required
type. David E. Box.

```
(old)   Store (Concatenate (Concatenate (Concatenate (Concatenate
          (Concatenate (Concatenate (Concatenate ("", Arg0),
          ": Unexpected value for "), Arg1), ", "), Arg2),
          " at line "), Arg3), Debug)

(new)   Printf ("%o: Unexpected value for %o, %o at line %o",
          Arg0, Arg1, Arg2, Arg3)
```

(old)
Store (Concatenate (Concatenate (Concatenate (Concatenate
("", Arg1), ": "), Arg0), " Successful"), STR1)

(new) Fprintf (STR1, "%o: %o Successful", Arg1, Arg0)

iASL: Added debug options (-bp, -bt) to dynamically prune levels of the ASL parse tree before the AML code is generated. This allows blocks of ASL code to be removed in order to help locate and identify problem devices and/or code. David E. Box.

AcpiExec: Added support (-fi) for an optional namespace object initialization file. This file specifies initial values for namespace objects as necessary for debugging and testing different ASL code paths that may be taken as a result of BIOS options.

2) Overview of symbolic operator support for ASL (ASL+)

As an extension to the ASL language, iASL implements support for symbolic (C-style) operators for math and logical expressions. This can greatly simplify ASL code as well as improve both
readability and
maintainability. These language extensions can exist concurrently with all legacy ASL code and expressions.

The symbolic extensions are 100% compatible with existing AML interpreters, since no new AML opcodes are created. To implement the extensions, the iASL compiler transforms the symbolic expressions into the legacy ASL/AML equivalents at compile time.

Full symbolic expressions are supported, along with the standard C precedence and associativity rules.

Full disassembler support for the symbolic expressions is provided, and creates an automatic migration path for existing ASL code to ASL+ code via the disassembly process. By default, the disassembler now emits ASL+ code with symbolic expressions. An option (-dl) is provided to force the disassembler to emit legacy ASL code if desired.

Below is the complete list of the currently supported symbolic operators with examples. See the iASL User Guide for additional information.

ASL+ Syntax Legacy ASL

```
 Equivalent
-----------      ---------------------

  // Math operators

Z = X + Y       Add (X, Y, Z)
Z = X - Y       Subtract (X, Y, Z)
Z = X * Y       Multiply (X, Y, Z)
Z = X / Y       Divide (X, Y, , Z)
Z = X % Y       Mod (X, Y, Z)
Z = X << Y      ShiftLeft (X, Y, Z)
Z = X >> Y      ShiftRight (X, Y, Z)
Z = X & Y       And (X, Y, Z)
Z = X | Y       Or (X, Y, Z)
Z = X ^ Y       Xor (X, Y, Z)
Z = ~X          Not (X, Z)
X++             Increment (X)
X--             Decrement (X)

  // Logical operators

(X == Y)        LEqual (X, Y)
(X != Y)        LNotEqual (X, Y)
(X < Y)         LLess (X, Y)
(X > Y)         LGreater (X, Y)
(X <= Y)        LLessEqual (X, Y)
(X >= Y)        LGreaterEqual (X, Y)
(X && Y)        LAnd (X, Y)
(X || Y)        LOr (X, Y)
(!X)            LNot (X)

  // Assignment and compound assignment operations

X = Y           Store (Y, X)
X += Y          Add (X, Y, X)
X -= Y          Subtract (X, Y, X)
X *= Y          Multiply (X, Y, X)
X
 /= Y          Divide (X, Y, , X)
X %= Y          Mod (X, Y, X)
X <<= Y         ShiftLeft (X, Y, X)
X >>= Y         ShiftRight (X, Y, X)
X &= Y          And (X, Y, X)
X |= Y          Or (X, Y, X)
X ^= Y          Xor (X, Y, X)
```

3) ASL+ Examples:

Legacy ASL:

```
    If (LOr (LOr (LEqual (And (R510, 0x03FB), 0x02E0), LEqual (
       And (R520, 0x03FB), 0x02E0)), LOr (LEqual (And (R530,
0x03FB),
       0x02E0), LEqual (And (R540, 0x03FB), 0x02E0))))
    {
       And (MEMB, 0xFFFFFFF0, SRMB)
       Store (MEMB, Local2)
       Store (PDBM, Local1)
       And (PDBM, 0xFFFFFFFFFFFFFFF9, PDBM)
       Store (SRMB, MEMB)
       Or (PDBM, 0x02, PDBM)
    }
```

ASL+ version:

```
    If (((R510 & 0x03FB) == 0x02E0) ||
       ((R520 & 0x03FB) == 0x02E0) ||
       ((R530 & 0x03FB) == 0x02E0) ||
       ((R540 & 0x03FB) == 0x02E0))
    {
       SRMB = (MEMB & 0xFFFFFFF0)
       Local2 = MEMB
       Local1
 = PDBM
       PDBM &= 0xFFFFFFFFFFFFFFF9
       MEMB = SRMB
       PDBM |= 0x02
    }
```

Legacy ASL:

```
    Store (0x1234, Local1)
    Multiply (Add (Add (Local1, TEST), 0x20), Local2, Local3)
    Multiply (Local2, Add (Add (Local1, TEST), 0x20), Local3)
    Add (Local1, Add (TEST, Multiply (0x20, Local2)), Local3)
    Store (Index (PKG1, 0x03), Local6)
    Store (Add (Local3, Local2), Debug)
    Add (Local1, 0x0F, Local2)
    Add (Local1, Multiply (Local2, Local3), Local2)
    Multiply (Add (Add (Local1, TEST), 0x20), ToBCD (Local1), Local3)
```

ASL+ version:

```
    Local1 = 0x1234
    Local3 = (((Local1 + TEST) + 0x20) * Local2)
    Local3 = (Local2 * ((Local1 + TEST) + 0x20))
    Local3 = (Local1 + (TEST + (0x20 * Local2)))
    Local6 = Index (PKG1, 0x03)
```

Debug = (Local3 + Local2)
Local2 = (Local1 + 0x0F)
Local2 = (Local1 + (Local2 * Local3))
Local3 = (((Local1 + TEST) + 0x20) * ToBCD (Local1))

26
September 2014. Summary of changes for version 20140926:

1) ACPICA kernel-resident subsystem:

Updated the GPIO operation region handler interface (GeneralPurposeIo).
In order to support GPIO Connection objects with multiple pins, along
with the related Field objects, the following changes to the interface
have been made: The Address is now defined to be the offset in bits of
the field unit from the previous invocation of a Connection. It can be
viewed as a "Pin Number Index" into the connection resource descriptor.
The BitWidth is the exact bit width of the field. It is usually one bit,
but not always. See the ACPICA reference guide (section 8.8.6.2.1) for
additional information and examples.

GPE support: During ACPICA/GPE initialization, ensure that all GPEs with
corresponding _Lxx/_Exx methods are disabled (they may have been enabled
by the firmware), so that they cannot fire until they are enabled via
AcpiUpdateAllGpes.
Rafael J. Wysocki.

Added a new return flag for the Event/GPE status interfaces --
AcpiGetEventStatus and AcpiGetGpeStatus. The new
ACPI_EVENT_FLAGS_HAS_HANDLER flag is used to indicate that the event or
GPE currently has a handler associated with it, and can thus actually
affect the system. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Current Release:
Non-Debug Version: 99.1K Code, 27.3K Data, 126.4K Total
Debug Version: 192.8K Code, 79.9K Data, 272.7K Total
Previous Release:
Non-Debug Version: 98.8K Code, 27.3K Data, 126.1K Total
Debug Version: 192.1K Code, 79.8K Data, 271.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a memory allocation/free regression introduced in 20140828
that could cause the compiler
to crash. This was introduced inadvertently
during the effort to eliminate compiler memory leaks. ACPICA BZ 1111,
1113.

iASL: Removed two error messages that have been found to create false
positives, until they can be fixed and fully validated (ACPICA BZ 1112):
1) Illegal forward reference within a method
2) Illegal reference across two methods

iASL: Implemented a new option (-lm) to create a hardware mapping file
that summarizes all GPIO, I2C, SPI, and UART connections. This option
works for both the compiler and disassembler. See the iASL compiler user
guide for additional information and examples (section 6.4.6).

AcpiDump: Added support for the version 1 (ACPI 1.0) RSDP in addition to
version 2. This corrects the AE_BAD_HEADER exception seen on systems with
a version 1 RSDP. Lv Zheng ACPICA BZ 1097.

AcpiExec: For Unix versions, don't attempt to put STDIN into raw mode
unless STDIN is actually a terminal. Assists with batch-mode processing.
ACPICA BZ 1114.

Disassembler/AcpiHelp:
Added another large group of recognized _HID
values.

---

28 August 2014. Summary of changes for version 20140828:

1) ACPICA kernel-resident subsystem:

Fixed a problem related to the internal use of the Timer() operator where
a 64-bit divide could cause an attempted link to a double-precision math
library. This divide is not actually necessary, so the code was
restructured to eliminate it. Lv Zheng.

ACPI 5.1: Added support for the runtime validation of the _DSD package
(similar to the iASL support).

ACPI 5.1/Headers: Added support for the GICC affinity subtable to the
SRAT table. Hanjun Guo <hanjun.guo@linaro.org>.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and

has a much larger code and data size.

Current Release:
Non-Debug Version: 98.8K Code, 27.3K
Data, 126.1K Total
Debug Version: 192.1K Code, 79.8K Data, 271.9K Total
Previous Release:
Non-Debug Version: 98.7K Code, 27.3K Data, 126.0K Total1
Debug Version: 192.0K Code, 79.7K Data, 271.7K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Fixed a problem on unix systems where the original terminal state was not always properly restored upon exit. Seen when using the -v option. ACPICA BZ 1104.

iASL: Fixed a problem with the validation of the ranges/length within the Memory24 resource descriptor. There was a boundary condition when the range was equal to the (length -1) caused by the fact that these values are defined in 256-byte blocks, not bytes. ACPICA BZ 1098

Disassembler: Fixed a problem with the GpioInt descriptor interrupt polarity
flags. The flags are actually 2 bits, not 1, and the "ActiveBoth" keyword is
now supported properly.

ACPI 5.1: Added the GICC affinity subtable to the SRAT table. Supported in the disassembler, data table
compiler, and table template generator.

iASL: Added a requirement for Device() objects that one of either a _HID or _ADR must exist within the scope of a Device, as per the ACPI specification. Remove a similar requirement that was incorrectly in place for the _DSD object.

iASL: Added error detection for illegal named references within control methods that would cause runtime failures. Now trapped as errors are: 1) References to objects within a non-parent control method. 2) Forward references (within a method) -- for control methods, AML interpreters use a one-pass parse of control methods. ACPICA BZ 1008.

iASL: Added error checking for dependencies related to the _PSx power methods. ACPICA BZ 1029.
1) For _PS0, one of these must exist within the same scope: _PS1, _PS2, _PS3.
2) For _PS1, _PS2, and PS3: A _PS0 object must exist within the same scope.

iASL and table compiler: Cleanup miscellaneous memory leaks by fully
deploying the existing object and string caches
 and adding new caches for
the table compiler.

iASL: Split the huge parser source file into multiple subfiles to improve
manageability. Generation now requires the M4 macro preprocessor, which
is part of the Bison distribution on both unix and windows platforms.

AcpiSrc: Fixed and removed all extraneous warnings generated during
entire ACPICA source code scan and/or conversion.

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24 July 2014. Summary of changes for version 20140724:

The ACPI 5.1 specification has been released and is available at:
http://uefi.org/specs/access

0) ACPI 5.1 support in ACPICA:

ACPI 5.1 is fully supported in ACPICA as of this release.

New predefined names. Support includes iASL and runtime ACPICA
validation.
  _CCA (Cache Coherency Attribute).
  _DSD (Device-Specific Data). David Box.

Modifications to existing ACPI tables. Support includes headers, iASL
Data Table compiler, disassembler, and the template generator.
  FADT - New fields and flags.
 Graeme Gregory.
  GTDT - One new subtable and new fields. Tomasz Nowicki.
  MADT - Two new subtables. Tomasz Nowicki.
  PCCT - One new subtable.

Miscellaneous.
  New notification type for System Resource Affinity change events.

1) ACPICA kernel-resident subsystem:

Fixed a regression introduced in 20140627 where a fault can happen during
the deletion of Alias AML namespace objects. The problem affected both
the core ACPICA and the ACPICA tools including iASL and AcpiExec.

Implemented a new GPE public interface, AcpiMarkGpeForWake. Provides a simple mechanism to enable wake GPEs that have no associated handler or control method. Rafael Wysocki.

Updated the AcpiEnableGpe interface to disallow the enable if there is no handler or control method associated with the particular GPE. This will help avoid meaningless GPEs and even GPE floods. Rafael Wysocki.

Updated GPE handling and dispatch by disabling the GPE before clearing the status bit for edge-triggered GPEs. Lv
Zheng.

Added Timer() support to the AML Debug object. The current timer value is now displayed with each invocation of (Store to) the debug object to enable simple generation of execution times for AML code (method execution for example.) ACPICA BZ 1093.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 98.7K Code, 27.3K Data, 126.0K Total
Debug Version: 192.0K Code, 79.7K Data, 271.7K Total
Previous Release:
Non-Debug Version: 98.7K Code, 27.2K Data, 125.9K Total
Debug Version: 191.7K Code, 79.6K Data, 271.3K Total

2) iASL Compiler/Disassembler and Tools:

Fixed an issue with the recently added local printf implementation, concerning width/precision specifiers that could cause incorrect output. Lv Zheng. ACPICA
BZ 1094.

Disassembler: Added support to detect buffers that contain UUIDs and disassemble them to an invocation of the ToUUID operator. Also emit commented descriptions of known ACPI-related UUIDs.

AcpiHelp: Added support to display known ACPI-related UUIDs. New option, -u. Adds three new files.

iASL: Update table compiler and disassembler for DMAR table changes that were introduced in September 2013. With assistance by David Woodhouse.

---
27 June 2014. Summary of changes for version 20140627:

1) ACPICA kernel-resident subsystem:

Formatted Output: Implemented local versions of standard formatted output utilities such as printf, etc. Over time, it has been discovered that there are in fact many portability issues with printf, and the addition of this feature will fix/prevent these issues once and for all. Some known issues are summarized below:

1) Output of 64-bit values is not portable. For example, UINT64 is %ull for the Linux
kernel and is %uI64 for some MSVC versions.
2) Invoking printf consistently in a manner that is portable across both 32-bit and 64-bit platforms is difficult at best in many situations.
3) The output format for pointers varies from system to system (leading zeros especially), and leads to inconsistent output from ACPICA across platforms.
4) Certain platform-specific printf formats may conflict with ACPICA use.
5) If there is no local C library available, ACPICA now has local support for printf.

-- To address these printf issues in a complete manner, ACPICA now directly implements a small subset of printf format specifiers, only those that it requires. Adds a new file, utilities/utprint.c. Lv Zheng.

Implemented support for ACPICA generation within the EFI environment. Initially, the AcpiDump utility is supported in the UEFI shell environment. Lv Zheng.

Added a new external interface, AcpiLogError, to improve ACPICA portability. This allows the host to redirect error messages
from the
ACPICA utilities. Lv Zheng.

Added and deployed new OSL file I/O interfaces to improve ACPICA portability:
AcpiOsOpenFile
AcpiOsCloseFile
AcpiOsReadFile
AcpiOsWriteFile
AcpiOsGetFileOffset
AcpiOsSetFileOffset
There are C library implementations of these functions in the new file service_layers/oslibcfs.c -- however, the functions can be implemented by the local host in any way necessary. Lv Zheng.

Implemented a mechanism to disable/enable ACPI table checksum validation
at runtime. This can be useful when loading tables very early during OS
initialization when it may not be possible to map the entire table in
order to compute the checksum. Lv Zheng.

Fixed a buffer allocation issue for the Generic Serial Bus support.
Originally, a fixed buffer length was used. This change allows for
variable-length buffers based upon the protocol indicated by the field
access attributes. Reported by Lan Tianyu. Lv Zheng.

Fixed a problem where an object detached from a
namespace node was not
properly terminated/cleared and could cause a circular list problem if
reattached. ACPICA BZ 1063. David Box.

Fixed a possible recursive lock acquisition in hwregs.c. Rakib Mullick.

Fixed a possible memory leak in an error return path within the function
AcpiUtCopyIobjectToIobject. ACPICA BZ 1087. Colin Ian King.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Current Release:
Non-Debug Version: 98.7K Code, 27.2K Data, 125.9K Total
Debug Version: 191.7K Code, 79.6K Data, 271.3K Total
Previous Release:
Non-Debug Version: 96.8K Code, 27.2K Data, 124.0K Total
Debug Version: 189.5K Code, 79.7K Data, 269.2K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Add dump of ASCII equivalent text within a comment at the

end of each line of the output for the Buffer() ASL operator.

AcpiDump: Miscellaneous changes:
Fixed repetitive table dump in -n mode.
For older EFI platforms, use the ACPI 1.0 GUID during RSDP search if
the ACPI 2.0 GUID fails.

iASL: Fixed a problem where the compiler could fault if incorrectly given
an acpidump output file as input. ACPICA BZ 1088. David Box.

AcpiExec/AcpiNames: Fixed a problem where these utilities could fault if

they are invoked without any arguments.

Debugger: Fixed a possible memory leak in an error return path. ACPICA BZ 1086. Colin Ian King.

Disassembler: Cleaned up a block of code that extracts a parent Op object. Added a comment that explains that the parent is guaranteed to be valid in this case. ACPICA BZ 1069.

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24 April 2014. Summary of changes for version 20140424:

1) ACPICA kernel-resident subsystem:

Implemented support to skip/ignore NULL address entries in the RSDT/XSDT. Some of these tables
are known to contain a trailing NULL entry. Lv Zheng.

Removed an extraneous error message for the case where there are a large number of system GPEs (> 124). This was the "32-bit FADT register is too long to convert to GAS struct" message, which is irrelevant for GPEs since the GPEx_BLK_LEN fields of the FADT are always used instead of the (limited capacity) GAS bit length. Also, several changes to ensure proper support for GPE numbers > 255, where some "GPE number" fields were 8-bits internally.

Implemented and deployed additional configuration support for the public ACPICA external interfaces. Entire classes of interfaces can now be easily modified or configured out, replaced by stubbed inline functions by default. Lv Zheng.

Moved all public ACPICA runtime configuration globals to the public ACPICA external interface file for convenience. Also, removed some obsolete/unused globals. See the file acpixf.h. Lv Zheng.

Documentation: Added a new section to the ACPICA reference describing the
maximum number of GPEs that can be supported by the FADT-defined GPEs in block zero and one. About 1200 total. See section 4.4.1 of the ACPICA reference.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 96.8K Code, 27.2K Data, 124.0K Total
Debug Version: 189.5K Code, 79.7K Data, 269.2K Total
Previous Release:
Non-Debug Version: 97.0K Code, 27.2K Data, 124.2K Total
Debug Version: 189.7K Code, 79.5K Data, 269.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL and disassembler: Add full support for the LPIT table (Low Power Idle Table). Includes support in the disassembler, data table compiler, and template generator.

AcpiDump utility:
1) Add option to force the use of the RSDT (over the XSDT).
2) Improve validation of the RSDP signature (use 8 chars instead of 4).

iASL: Add check for predefined packages that are too large. For predefined names that contain subpackages, check if each subpackage is too large. (Check for too small already exists.)

Debugger: Updated the GPE command (which simulates a GPE by executing the GPE code paths in ACPICA). The GPE device is now optional, and defaults to the GPE 0/1 FADT-defined blocks.

Unix application OSL: Update line-editing support. Add additional error checking and take care not to reset terminal attributes on exit if they were never set. This should help guarantee that the terminal is always left in the previous state on program exit.

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25 March 2014. Summary of changes for version 20140325:

1) ACPICA kernel-resident subsystem:

Updated the auto-serialize feature for control methods. This feature automatically serializes all methods that create named objects in order

to prevent runtime errors. The update adds support to ignore the currently executing AML SyncLevel when invoking such a method, in order to prevent disruption of any existing SyncLevel priorities that may exist in the AML code. Although the use of SyncLevels is relatively rare, this change fixes a regression where an AE_AML_MUTEX_ORDER exception can appear on some machines starting with the 20140214 release.

Added a new external interface to allow the host to install ACPI tables very early, before the namespace is even created. AcpiInstallTable gives the host additional flexibility for ACPI table management. Tables can be installed directly by the host as if they had originally appeared in the XSDT/RSDT. Installed tables can be SSDTs or other ACPI data tables (anything except the DSDT and FACS). Adds a new file, tbdata.c, along with additional internal restructuring and cleanup. See the ACPICA Reference for interface details. Lv Zheng.

Added validation of the checksum for
all incoming dynamically loaded
tables (via external interfaces or via AML Load/LoadTable operators). Lv Zheng.

Updated the use of the AcpiOsWaitEventsComplete interface during Notify and GPE handler removal. Restructured calls to eliminate possible race conditions. Lv Zheng.

Added a warning for the use/execution of the ASL/AML Unload (table) operator. This will help detect and identify machines that use this operator if and when it is ever used. This operator has never been seen in the field and the usage model and possible side-effects of the drastic runtime action of a full table removal are unknown.

Reverted the use of #pragma push/pop which was introduced in the 20140214 release. It appears that push and pop are not implemented by enough compilers to make the use of this feature feasible for ACPICA at this time. However, these operators may be deployed in a future ACPICA release.

Added the missing EXPORT_SYMBOL macros for the install and remove SCI handler interfaces.

Source
code generation:
1) Disabled the use of the "strchr" macro for the gcc-specific generation. For some versions of gcc, this macro can periodically expose a compiler bug which in turn causes compile-time error(s).
2) Added support for PPC64 compilation. Colin Ian King.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 97.0K Code, 27.2K Data, 124.2K Total
Debug Version: 189.7K Code, 79.5K Data, 269.2K Total

Previous Release:
Non-Debug Version: 96.5K Code, 27.2K Data, 123.7K Total
Debug Version: 188.6K Code, 79.0K Data, 267.6K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Added several new features to improve the readability of the resulting ASL code. Extra information is emitted within comment fields in the ASL code:
1) Known _HID/_CID values are decoded to descriptive text.
2) Standard values for the Notify() operator are decoded to descriptive text.
3) Target operands are expanded to full pathnames (in a comment) when possible.

Disassembler: Miscellaneous updates for extern() handling:
1) Abort compiler if file specified by -fe option does not exist.
2) Silence unnecessary warnings about argument count mismatches.
3) Update warning messages concerning unresolved method externals.
4) Emit "UnknownObj" keyword for externals whose type cannot be determined.

AcpiHelp utility:
1) Added the -a option to display both the ASL syntax and the AML encoding for an input ASL operator. This effectively displays all known information about an ASL operator with one AcpiHelp invocation.
2) Added substring match support (similar to a wildcard) for the -i (_HID/PNP IDs) option.

iASL/Disassembler: Since this tool does not yet support execution on big-endian machines, added detection of endianness and an error message if execution is attempted on big-endian. Support for big-endian within iASL is a feature that is on the ACPICA to-be-done list.

AcpiBin utility:
1) Remove option to extract binary files from an acpidump; this function is made obsolete by the AcpiXtract utility.
2) General cleanup of open files and allocated buffers.

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14 February 2014. Summary of changes for version 20140214:

1) ACPICA kernel-resident subsystem:

Implemented a new mechanism to proactively prevent problems with ill-behaved reentrant control methods that create named ACPI objects. This behavior is illegal as per the ACPI specification, but is nonetheless frequently seen in the field. Previously, this could lead to an AE_ALREADY_EXISTS exception if the method was actually entered by more than one thread. This new mechanism detects such methods at table load time and marks them "serialized" to prevent reentrancy. A new global

option, AcpiGbl_AutoSerializeMethods, has been added to disable this feature if desired. This mechanism and global option obsoletes and supersedes the previous AcpiGbl_SerializeAllMethods option.

Added the "Windows 2013" string to the _OSI support. ACPICA will now respond TRUE to _OSI queries with this string. It is the stated policy of ACPICA to add new strings to the _OSI support as soon as possible after they are defined. See the full ACPICA _OSI policy which has been added to the utilities/utosi.c file.

Hardened/updated the _PRT return value auto-repair code:
1) Do not abort the repair on a single subpackage failure, continue to check all subpackages.
2) Add check for the minimum subpackage length (4).
3) Properly handle extraneous NULL package elements.

Added support to avoid the possibility of infinite loops when traversing object linked lists. Never allow an infinite loop, even in the face of corrupted object lists.

ACPICA headers: Deployed the use of #pragma pack(push)
and #pragma
pack(pop) directives to ensure that the ACPICA headers are independent of compiler settings or other host headers.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 96.5K Code, 27.2K Data, 123.7K Total
Debug Version: 188.6K Code, 79.0K Data, 267.6K Total
Previous Release:
Non-Debug Version: 96.2K Code, 27.0K Data, 123.2K Total
Debug Version: 187.5K Code, 78.3K Data, 265.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Table-compiler: Fixed a problem with support for the SPMI table. The first reserved field was incorrectly forced to have a value of zero. This change correctly forces the field to have a value of one. ACPICA BZ 1081.

Debugger: Added missing support for the "Extra" and
"Data" subobjects
when displaying object data.

Debugger: Added support to display entire object linked lists when displaying object data.

iASL: Removed the obsolete -g option to obtain ACPI tables from the Windows registry. This feature has been superseded by the acpidump utility.

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14 January 2014. Summary of changes for version 20140114:

1) ACPICA kernel-resident subsystem:

Updated all ACPICA copyrights and signons to 2014. Added the 2014 copyright to all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the test suites.

Improved parameter validation for AcpiInstallGpeBlock. Added the following checks:
1) The incoming device handle refers to type ACPI_TYPE_DEVICE.
2) There is not already a GPE block attached to the device.
Likewise, with AcpiRemoveGpeBlock, ensure that the incoming object is a device.

Correctly
support "references" in the ACPI_OBJECT. This change fixes the support to allow references (namespace nodes) to be passed as arguments to control methods via the evaluate object interface. This is probably most useful for testing purposes, however.

Improved support for 32/64 bit physical addresses in printf()-like output. This change improves the support for physical addresses in printf debug statements and other output on both 32-bit and 64-bit hosts. It consistently outputs the appropriate number of bytes for each host. The %p specifier is unsatisfactory since it does not emit uniform output on all hosts/clib implementations (on some, leading zeros are not supported, leading to difficult-to-read output).

Example Code and Data Size: These are the sizes for the OS-independent

acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 96.2K Code, 27.0K Data, 123.2K Total
Debug Version: 187.5K Code, 78.3K Data, 265.8K Total
Previous Release:
Non-Debug Version: 96.1K Code, 27.0K Data, 123.1K Total
Debug Version: 185.6K Code, 77.3K Data, 262.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fix a possible fault when using the Connection() operator. Fixes a problem if the parent Field definition for the Connection operator refers to an operation region that does not exist. ACPICA BZ 1064.

AcpiExec: Load of local test tables is now optional. The utility has the capability to load some various tables to test features of ACPICA. However, there are enough of them that the output of the utility became confusing. With this change, only the required local tables are displayed (RSDP, XSDT, etc.) along with the actual tables loaded via the command line specification. This makes the default output simler and easier to understand. The -el command line option restores
the original behavior
for testing purposes.

AcpiExec: Added support for overlapping operation regions. This change expands the simulation of operation regions by supporting regions that overlap within the given address space. Supports SystemMemory and SystemIO. ASLTS test suite updated also. David Box. ACPICA BZ 1031.

AcpiExec: Added region handler support for PCI_Config and EC spaces. This allows AcpiExec to simulate these address spaces, similar to the current support for SystemMemory and SystemIO.

Debugger: Added new command to read/write/compare all namespace objects. The command "test objects" will exercise the entire namespace by writing new values to each data object, and ensuring that the write was successful. The original value is then restored and verified.

Debugger: Added the "test predefined" command. This change makes this test public and puts it under the new "test" command. The test executes each and every predefined name within the current namespace.

December 2013. Summary of changes for version 20131218:

Global note: The ACPI 5.0A specification was released this month. There are no changes needed for ACPICA since this release of ACPI is an errata/clarification release. The specification is available at acpi.info.

1) ACPICA kernel-resident subsystem:

Added validation of the XSDT root table if it is present. Some older platforms contain an XSDT that is ill-formed or otherwise invalid (such as containing some or all entries that are NULL pointers). This change adds a new function to validate the XSDT before actually using it. If the XSDT is found to be invalid, ACPICA will now automatically fall back to using the RSDT instead. Original implementation by Zhao Yakui. Ported to ACPICA and enhanced by Lv Zheng and Bob Moore.

Added a runtime option to ignore the XSDT and force the use of the RSDT. This change adds a runtime option that will force ACPICA to use the RSDT instead
of the XSDT (AcpiGbl_DoNotUseXsdt). Although the ACPI spec requires that an XSDT be used instead of the RSDT, the XSDT has been found to be corrupt or ill-formed on some machines. Lv Zheng.

Added a runtime option to favor 32-bit FADT register addresses over the 64-bit addresses. This change adds an option to favor 32-bit FADT addresses when there is a conflict between the 32-bit and 64-bit versions of the same register. The default behavior is to use the 64-bit version in accordance with the ACPI specification. This can now be overridden via the AcpiGbl_Use32BitFadtAddresses flag. ACPICA BZ 885. Lv Zheng.

During the change above, the internal "Convert FADT" and "Verify FADT" functions have been merged to simplify the code, making it easier to understand and maintain. ACPICA BZ 933.

Improve exception reporting and handling for GPE block installation. Return an actual status from AcpiEvGetGpeXruptBlock and don't clobber the status when exiting AcpiEvInstallGpeBlock. ACPICA
BZ 1019.

Added helper macros to extract bus/segment numbers from the HEST table. This change adds two macros to extract the encoded bus and segment numbers from the HEST Bus field - ACPI_HEST_BUS and ACPI_HEST_SEGMENT. Betty Dall <betty.dall@hp.com>

Removed the unused ACPI_FREE_BUFFER macro. This macro is no longer used

by ACPICA. It is not a public macro, so it should have no effect on existing OSV code. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 96.1K Code, 27.0K Data, 123.1K Total
Debug Version: 185.6K Code, 77.3K Data, 262.9K Total
Previous Release:
Non-Debug Version: 95.9K Code, 27.0K Data, 122.9K Total
Debug Version: 185.1K Code, 77.2K Data, 262.3K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Improved pathname support for emitted External() statements. This change adds full pathname support for external names that have been resolved internally by the inclusion of additional ACPI tables (via the iASL -e option). Without this change, the disassembler can emit multiple externals for the same object, or it become confused when the Scope() operator is used on an external object. Overall, greatly improves the ability to actually recompile the emitted ASL code when objects a referenced across multiple ACPI tables. Reported by Michael Tsirkin (mst@redhat.com).

Tests/ASLTS: Updated functional control suite to execute with no errors. David Box. Fixed several errors related to the testing of the interpreter slack mode. Lv Zheng.

iASL: Added support to detect names that are declared within a control method, but are unused (these are temporary names that are only valid during the time the method is executing). A remark is issued for these cases.
ACPICA BZ 1022.

iASL: Added full support for the DBG2 table. Adds full disassembler, table compiler, and template generator support for the DBG2 table (Debug Port 2 table).

iASL: Added full support for the PCCT table, update the table definition. Updates the PCCT table definition in the actbl3.h header and adds table compiler and template generator support.

iASL: Added an option to emit only error messages (no warnings/remarks).

The -ve option will enable only error messages, warnings and remarks are suppressed. This can simplify debugging when only the errors are important, such as when an ACPI table is disassembled and there are many warnings and remarks -- but only the actual errors are of real interest.

Example ACPICA code (source/tools/examples): Updated the example code so that it builds to an actual working program, not just example code. Added ACPI tables and execution of an example control method in the DSDT. Added makefile support for Unix generation.

15
November 2013. Summary of changes for version 20131115:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Resource Manager: Fixed loop termination for the "get AML length" function. The loop previously had an error termination on a NULL resource pointer, which can never happen since the loop simply increments a valid resource pointer. This fix changes the loop to terminate with an error on an invalid end-of-buffer condition. The problem can be seen as an infinite loop by callers to AcpiSetCurrentResources with an invalid or corrupted resource descriptor, or a resource descriptor that is missing an END_TAG descriptor. Reported by Dan Carpenter <dan.carpenter@oracle.com>. Lv Zheng, Bob Moore.

Table unload and ACPICA termination: Delete all attached data objects during namespace node deletion. This fix updates namespace node deletion to delete the entire list of attached objects (attached via AcpiAttachObject) instead of just one of the attached items. ACPICA BZ 1024. Tomasz Nowicki (tomasz.nowicki@linaro.org).

ACPICA termination: Added support to delete all objects attached to the root namespace node. This fix deletes any and all objects that have been attached to the root node via AcpiAttachData. Previously, none of these objects were deleted. Reported by Tomasz Nowicki. ACPICA BZ 1026.

Debug output: Do not emit the function nesting level for the in-kernel build. The nesting level is really only useful during a single-thread execution. Therefore, only enable this output for the AcpiExec utility. Also, only emit the thread ID when executing under AcpiExec (Context switches are still always detected and a message is emitted). ACPICA BZ 972.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has
 a much larger code and data size.

 Current Release:
   Non-Debug Version: 95.9K Code, 27.0K Data, 122.9K Total
   Debug Version: 185.1K Code, 77.2K Data, 262.3K Total
 Previous Release:
   Non-Debug Version: 95.8K Code, 27.0K Data, 122.8K Total
   Debug Version: 185.2K Code, 77.2K Data, 262.4K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec/Unix-OSL: Use <termios.h> instead of <termio.h>. This is the
correct portable POSIX header for terminal control functions.

Disassembler: Fixed control method invocation issues related to the use
of the CondRefOf() operator. The problem is seen in the disassembly where
control method invocations may not be disassembled properly if the
control method name has been used previously as an argument to CondRefOf.
The solution is to not attempt to emit an external declaration for the
CondRefOf target (it is not necessary in the first place). This prevents
disassembler object type confusion. ACPICA BZ 988.

Unix Makefiles:
 Added an option to disable compiler optimizations and the
_FORTIFY_SOURCE flag. Some older compilers have problems compiling ACPICA
with optimizations (reportedly, gcc 4.4 for example). This change adds a
command line option for make (NOOPT) that disables all compiler
optimizations and the _FORTIFY_SOURCE compiler flag. The default
optimization is -O2 with the _FORTIFY_SOURCE flag specified. ACPICA BZ
1034. Lv Zheng, Bob Moore.

Tests/ASLTS: Added options to specify individual test cases and modes.
This allows testers running aslts.sh to optionally specify individual
test modes and test cases. Also added an option to disable the forced
generation of the ACPICA tools from source if desired. Lv Zheng.

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27 September 2013. Summary of changes for version 20130927:

This release is available at https://acpica.org/downloads

1) ACPICA kernel-resident subsystem:

Fixed a problem with store operations to reference objects. This change fixes
a problem where a Store operation to an ArgX object that contained a
reference to a field object did not complete the automatic dereference and
then write to the actual field object. Instead, the object type of the
field object was inadvertently changed to match the type of the source
operand. The new behavior will actually write to the field object (buffer
field or field unit), thus matching the correct ACPI-defined behavior.

Implemented support to allow the host to redefine individual OSL
prototypes. This change enables the host to redefine OSL prototypes found
in the acpiosxf.h file. This allows the host to implement OSL interfaces
with a macro or inlined function. Further, it allows the host to add any
additional required modifiers such as __iomem, __init, __exit, etc., as
necessary on a per-interface basis. Enables maximum flexibility for the
OSL interfaces. Lv Zheng.

Hardcoded the access width for the FADT-defined reset register. The ACPI
specification requires
the reset register width to be 8 bits. ACPICA now
hardcodes the width to 8 and ignores the FADT width value. This provides
compatibility with other ACPI implementations that have allowed BIOS code
with bad register width values to go unnoticed. Matthew Garett, Bob
Moore,
Lv Zheng.

Changed the position/use of the ACPI_PRINTF_LIKE macro. This macro is
used
in the OSL header (acpiosxf). The change modifies the position of this
macro in each instance where it is used (AcpiDebugPrint, etc.) to avoid
build issues if the OSL defines the implementation of the interface to be
an inline stub function. Lv Zheng.

Deployed a new macro ACPI_EXPORT_SYMBOL_INIT for the main ACPICA
initialization interfaces. This change adds a new macro for the main init
and terminate external interfaces in order to support hosts that require
additional or different processing for these functions. Changed from
ACPI_EXPORT_SYMBOL to ACPI_EXPORT_SYMBOL_INIT for these functions. Lv
Zheng, Bob Moore.

Cleaned
up the memory allocation macros for configurability. In the
common
case, the ACPI_ALLOCATE and related macros now resolve directly to their

respective AcpiOs* OSL interfaces. Two options:
1) The ACPI_ALLOCATE_ZEROED macro uses a simple local implementation by
default, unless overridden by the USE_NATIVE_ALLOCATE_ZEROED define.
2) For AcpiExec (and for debugging), the macros can optionally be
resolved
to the local ACPICA interfaces that track each allocation (local tracking
is used to immediately detect memory leaks).
Lv Zheng.

Simplified the configuration for ACPI_REDUCED_HARDWARE. Allows the kernel
to predefine this macro to either TRUE or FALSE during the system build.

Replaced __FUNCTION_ with __func__ in the gcc-specific header.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code
and data size.

Current Release:
Non-Debug Version: 95.8K Code, 27.0K Data, 122.8K Total
Debug Version: 185.2K Code, 77.2K Data, 262.4K Total
Previous Release:
Non-Debug Version: 96.7K Code, 27.1K Data, 123.9K Total
Debug Version: 184.4K Code, 76.8K Data, 261.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented wildcard support for the -e option. This simplifies use
when there are many SSDTs that must be included to resolve external
method
declarations. ACPICA BZ 1041. Example:
iasl -e ssdt*.dat -d dsdt.dat

AcpiExec: Add history/line-editing for Unix/Linux systems. This change
adds a portable module that implements full history and limited line
editing for Unix and Linux systems. It does not use readline() due to
portability issues. Instead it uses the POSIX termio interface to put the
terminal in raw input mode so that the various special keys can be
trapped
(such as up/down-arrow for history support and left/right-arrow for
line
editing). Uses the existing debugger history mechanism. ACPICA BZ 1036.

AcpiXtract: Add support to handle (ignore) "empty" lines containing only
one or more spaces. This provides compatible with early or different

versions of the AcpiDump utility. ACPICA BZ 1044.

AcpiDump: Do not ignore tables that contain only an ACPI table header. Apparently, some BIOSs create SSDTs that contain an ACPI table header but no other data. This change adds support to dump these tables. Any tables shorter than the length of an ACPI table header remain in error (an error message is emitted). Reported by Yi Li.

Debugger: Echo actual command along with the "unknown command" message.

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23 August 2013. Summary of changes for version 20130823:

1) ACPICA kernel-resident subsystem:

Implemented support for host-installed System Control Interrupt (SCI) handlers. Certain ACPI functionality requires the host to handle raw SCIs. For example, the "SCI Doorbell" that is defined for memory power state support requires the host device driver to handle SCIs to examine if the doorbell has been activated. Multiple SCI handlers can be installed to allow for future expansion. New external interfaces are AcpiInstallSciHandler, AcpiRemoveSciHandler; see the ACPICA reference for details. Lv Zheng, Bob Moore. ACPICA BZ 1032.

Operation region support: Never locally free the handler "context" pointer. This change removes some dangerous code that attempts to free the handler context pointer in some (rare) circumstances. The owner of the handler owns this pointer and the ACPICA code should never touch it. Although not seen to be an issue in any kernel, it did show up as a problem (fault) under AcpiExec. Also, set the internal storage field for the context pointer to zero when the region is deactivated, simply for sanity. David Box. ACPICA BZ 1039.

AcpiRead: On error, do not modify the return value target location. If an error happens in the middle of a split 32/32 64-bit I/O operation, do not modify the target of the return value pointer. Makes the code consistent with the rest of ACPICA. Bjorn Helgaas.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 96.7K Code, 27.1K Data, 123.9K Total
Debug Version: 184.4K Code, 76.8K Data, 261.2K Total

Previous Release:
Non-Debug Version: 96.2K Code, 27.1K Data, 123.3K Total
Debug Version: 185.4K Code, 77.1K Data, 262.5K Total

2) iASL Compiler/Disassembler and Tools:

AcpiDump: Implemented several new features and fixed some problems:
1) Added support to dump the RSDP, RSDT, and XSDT tables.
2) Added support for multiple table instances (SSDT, UEFI).
3) Added option to dump "customized" (overridden) tables (-c).
4)
Fixed a problem where some table filenames were improperly
constructed.
5) Improved some error messages, removed some unnecessary messages.

iASL: Implemented additional support for disassembly of ACPI tables that contain invocations of external control methods. The -fe<file> option allows the import of a file that specifies the external methods along with the required number of arguments for each -- allowing for the correct disassembly of the table. This is a workaround for a limitation of AML code where the disassembler often cannot determine the number of arguments required for an external control method and generates incorrect ASL code. See the iASL reference for details. ACPICA BZ 1030.

Debugger: Implemented a new command (paths) that displays the full pathnames (namepaths) and object types of all objects in the namespace. This is an alternative to the namespace command.

Debugger: Implemented a new command (sci) that invokes the SCI dispatch mechanism and any installed
handlers.

iASL: Fixed a possible segfault for "too many parent prefixes" condition. This can occur if there are too many parent prefixes in a namepath (for example, ^^^^^^PCI0.ECRD). ACPICA BZ 1035.

Application OSLs: Set the return value for the PCI read functions. These functions simply return AE_OK, but should set the return value to zero also. This change implements this. ACPICA BZ 1038.

Debugger: Prevent possible command line buffer overflow. Increase the size of a couple of the debugger line buffers, and ensure that overflow cannot happen. ACPICA BZ 1037.

iASL: Changed to abort immediately on serious errors during the parsing phase. Due to the nature of ASL, there is no point in attempting to compile these types of errors, and they typically end up causing a

cascade of hundreds of errors which obscure the original problem.

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25 July 2013. Summary of changes for version 20130725:

1) ACPICA kernel-resident subsystem:

Fixed
a problem with the DerefOf operator where references to FieldUnits
and BufferFields incorrectly returned the parent object, not the actual
value of the object. After this change, a dereference of a FieldUnit
reference results in a read operation on the field to get the value, and
likewise, the appropriate BufferField value is extracted from the target
buffer.

Fixed a problem where the _WAK method could cause a fault under these
circumstances: 1) Interpreter slack mode was not enabled, and 2) the _WAK
method returned no value. The problem is rarely seen because most kernels
run ACPICA in slack mode.

For the DerefOf operator, a fatal error now results if an attempt is made
to dereference a reference (created by the Index operator) to a NULL
package element. Provides compatibility with other ACPI implementations,
and this behavior will be added to a future version of the ACPI
specification.

The ACPI Power Management Timer (defined in the FADT) is now optional.
This provides
compatibility with other ACPI implementations and will
appear in the next version of the ACPI specification. If there is no PM
Timer on the platform, AcpiGetTimer returns AE_SUPPORT. An address of
zero in the FADT indicates no PM timer.

Implemented a new interface for _OSI support, AcpiUpdateInterfaces. This
allows the host to globally enable/disable all vendor strings, all
feature strings, or both. Intended to be primarily used for debugging
purposes only. Lv Zheng.

Expose the collected _OSI data to the host via a global variable. This
data tracks the highest level vendor ID that has been invoked by the BIOS
so that the host (and potentially ACPICA itself) can change behaviors
based upon the age of the BIOS.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Current
Release:
Non-Debug Version: 96.2K Code, 27.1K Data, 123.3K Total
Debug Version: 184.4K Code, 76.8K Data, 261.2K Total
Previous Release:
Non-Debug Version: 95.9K Code, 26.9K Data, 122.8K Total
Debug Version: 184.1K Code, 76.7K Data, 260.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Created the following enhancements for the -so option (create
offset table):
1)Add offsets for the last nameseg in each namepath for every supported
object type
2)Add support for Processor, Device, Thermal Zone, and Scope objects
3)Add the actual AML opcode for the parent object of every supported
object type
4)Add support for the ZERO/ONE/ONES AML opcodes for integer objects

Disassembler: Emit all unresolved external symbols in a single block.
These are external references to control methods that could not be
resolved, and thus, the disassembler had to make a guess at the number of
arguments to parse.

iASL: The argument to the -T option (create table template)
is now
optional. If not specified, the default table is a DSDT, typically the
most common case.

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26 June 2013. Summary of changes for version 20130626:

1) ACPICA kernel-resident subsystem:

Fixed an issue with runtime repair of the _CST object. Null or invalid
elements were not always removed properly. Lv Zheng.

Removed an arbitrary restriction of 256 GPEs per GPE block (such as the
FADT-defined GPE0 and GPE1). For GPE0, GPE1, and each GPE Block Device,
the maximum number of GPEs is 1016. Use of multiple GPE block devices
makes the system-wide number of GPEs essentially unlimited.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Current Release:
Non-Debug Version: 95.9K Code, 26.9K Data, 122.8K Total
Debug Version:
184.1K Code, 76.7K Data, 260.8K Total
Previous Release:
Non-Debug Version: 96.0K Code, 27.0K Data, 123.0K Total
Debug Version: 184.1K Code, 76.8K Data, 260.9K Total

2) iASL Compiler/Disassembler and Tools:

Portable AcpiDump: Implemented full support for the Linux and FreeBSD hosts. Now supports Linux, FreeBSD, and Windows.

Disassembler: Added some missing types for the HEST and EINJ tables: "Set Error Type With Address", "CMCI", "MCE", and "Flush Cacheline".

iASL/Preprocessor: Implemented full support for nested #if/#else/#elif/#endif blocks. Allows arbitrary depth of nested blocks.

Disassembler: Expanded maximum output string length to 64K. Was 256 bytes max. The original purpose of this constraint was to limit the amount of debug output. However, the string function in question (UtPrintString) is now used for the disassembler also, where 256 bytes is insufficient. Reported by RehabMan@GitHub.

iASL/DataTables: Fixed some problems and issues with compilation of DMAR
tables. ACPICA BZ 999. Lv Zheng.

iASL: Fixed a couple of error exit issues that could result in a "Could not delete <file>" message during ASL compilation.

AcpiDump: Allow "FADT" and "MADT" as valid table signatures, even though the actual signatures for these tables are "FACP" and "APIC", respectively.

AcpiDump: Added support for multiple UEFI tables. Only SSDT and UEFI tables are allowed to have multiple instances.

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17 May 2013. Summary of changes for version 20130517:

1) ACPICA kernel-resident subsystem:

Fixed a regression introduced in version 20130328 for _INI methods. This change fixes a problem introduced in 20130328 where _INI methods are no longer executed properly because of a memory block that was not

initialized correctly. ACPICA BZ 1016. Tomasz Nowicki
<tomasz.nowicki@linaro.org>.

Fixed a possible problem with the new extended sleep registers in the
ACPI
5.0 FADT. Do not use these registers (even if populated)
unless the HW-
reduced bit is set in the FADT (as per the ACPI specification). ACPICA BZ
1020. Lv Zheng.

Implemented return value repair code for _CST predefined objects: Sort
the
list and detect/remove invalid entries. ACPICA BZ 890. Lv Zheng.

Implemented a debug-only option to disable loading of SSDTs from the
RSDT/XSDT during ACPICA initialization. This can be useful for debugging
ACPI problems on some machines. Set AcpiGbl_DisableSsdtTableLoad in
acglobal.h - ACPICA BZ 1005. Lv Zheng.

Fixed some issues in the ACPICA initialization and termination code:
Tomasz Nowicki <tomasz.nowicki@linaro.org>
1) Clear events initialized flag upon event component termination. ACPICA
BZ 1013.
2) Fixed a possible memory leak in GPE init error path. ACPICA BZ 1018.
3) Delete global lock pending lock during termination. ACPICA BZ 1012.
4) Clear debug buffer global on termination to prevent possible multiple
delete. ACPICA BZ 1010.

Standardized all switch() blocks across the entire
source base. After
many
years, different formatting for switch() had crept in. This change makes
the formatting of every switch block identical. ACPICA BZ 997. Chao Guan.

Split some files to enhance ACPICA modularity and configurability:
1) Split buffer dump routines into utilities/utbuffer.c
2) Split internal error message routines into utilities/uterror.c
3) Split table print utilities into tables/tbprint.c
4) Split iASL command-line option processing into asloptions.c

Makefile enhancements:
1) Support for all new files above.
2) Abort make on errors from any subcomponent. Chao Guan.
3) Add build support for Apple Mac OS X. Liang Qi.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and

has a much larger code and data size.

Current Release:
Non-Debug Version: 96.0K Code, 27.0K Data, 123.0K Total
Debug
Version: 184.1K Code, 76.8K Data, 260.9K Total
Previous Release:
Non-Debug Version: 95.6K Code, 26.8K Data, 122.4K Total
Debug Version: 183.5K Code, 76.6K Data, 260.1K Total

2) iASL Compiler/Disassembler and Tools:

New utility: Implemented an easily portable version of the acpidump utility to extract ACPI tables from the system (or a file) in an ASCII hex
dump format. The top-level code implements the various command line options, file I/O, and table dump routines. To port to a new host, only three functions need to be implemented to get tables -- since this functionality is OS-dependent. See the tools/acpidump/apmain.c module and the ACPICA reference for porting instructions. ACPICA BZ 859. Notes:
1) The Windows version obtains the ACPI tables from the Registry.
2) The Linux version is under development.
3) Other hosts - If an OS-dependent module is submitted, it will be distributed with ACPICA.

iASL: Fixed a regression for -D preprocessor option (define symbol). A
restructuring/change to the initialization sequence caused this option to no longer work properly.

iASL: Implemented a mechanism to disable specific warnings and remarks. Adds a new command line option, "-vw <messageid> as well as "#pragma disable <messageid>". ACPICA BZ 989. Chao Guan, Bob Moore.

iASL: Fix for too-strict package object validation. The package object validation for return values from the predefined names is a bit too strict, it does not allow names references within the package (which will be resolved at runtime.) These types of references cannot be validated at compile time. This change ignores named references within package objects for names that return or define static packages.

Debugger: Fixed the 80-character command line limitation for the History command. Now allows lines of arbitrary length. ACPICA BZ 1000. Chao Guan.

iASL: Added control method and package support for the -so option (generates AML offset table for BIOS support.)

iASL:
issue a remark if a non-serialized method creates named objects. If
a thread blocks within the method for any reason, and another thread
enters the method, the method will fail because an attempt will be made
to
create the same (named) object twice. In this case, issue a remark that
the method should be marked serialized. NOTE: may become a warning later.
ACPICA BZ 909.

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18 April 2013. Summary of changes for version 20130418:

1) ACPICA kernel-resident subsystem:

Fixed a possible buffer overrun during some rare but specific field unit
read operations. This overrun can only happen if the DSDT version is 1 --
meaning that all AML integers are 32 bits -- and the field length is
between 33 and 55 bits long. During the read, an internal buffer object
is
created for the field unit because the field is larger than an integer
(32
bits). However, in this case, the buffer will be incorrectly written
beyond the end because the buffer length
is less than the internal
minimum
of 64 bits (8 bytes) long. The buffer will be either 5, 6, or 7 bytes
long, but a full 8 bytes will be written.

Updated the Embedded Controller "orphan" _REG method support. This refers
to _REG methods under the EC device that have no corresponding operation
region. This is allowed by the ACPI specification. This update removes a
dependency on the existence an ECDT table. It will execute an orphan _REG
method as long as the operation region handler for the EC is installed at
the EC device node and not the namespace root. Rui Zhang (original
update), Bob Moore (update/integrate).

Implemented run-time argument typechecking for all predefined ACPI names
(_STA, _BIF, etc.) This change performs object typechecking on all
incoming arguments for all predefined names executed via
AcpiEvaluateObject. This ensures that ACPI-related device drivers are
passing correct object types as well as the correct number of arguments
(therefore identifying
any issues immediately). Also, the ASL/namespace
definition of the predefined name is checked against the ACPI
specification for the proper argument count. Adds one new file,
nsarguments.c

Changed an exception code for the ASL UnLoad() operator. Changed the

exception code for the case where the input DdbHandle is invalid, from AE_BAD_PARAMETER to the more appropriate AE_AML_OPERAND_TYPE.

Unix/Linux makefiles: Removed the use of the -O2 optimization flag in the global makefile. The use of this flag causes compiler errors on earlier versions of GCC, so it has been removed for compatibility.

Miscellaneous cleanup:
1) Removed some unused/obsolete macros
2) Fixed a possible memory leak in the _OSI support
3) Removed an unused variable in the predefined name support
4) Windows OSL: remove obsolete reference to a memory list field

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug
version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:
Non-Debug Version: 95.2K Code, 26.4K Data, 121.6K Total
Debug Version: 183.0K Code, 76.0K Data, 259.0K Total
Previous Release:
Non-Debug Version: 95.6K Code, 26.8K Data, 122.4K Total
Debug Version: 183.5K Code, 76.6K Data, 260.1K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Added installation of a handler for the SystemCMOS address space. This prevents control method abort if a method accesses this space.

AcpiExec: Added support for multiple EC devices, and now install EC operation region handler(s) at the actual EC device instead of the namespace root. This reflects the typical behavior of host operating systems.

AcpiExec: Updated to ensure that all operation region handlers are installed before the _REG methods are executed. This prevents a _REG method from aborting if it accesses an address space has no handler.

AcpiExec installs a handler for every possible address space.

Debugger: Enhanced the "handlers" command to display non-root handlers. This change enhances the handlers command to display handlers associated with individual devices throughout the namespace, in addition to the currently supported display of handlers associated with the root

namespace
node.

ASL Test Suite: Several test suite errors have been identified and
resolved, reducing the total error count during execution. Chao Guan.

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28 March 2013. Summary of changes for version 20130328:

1) ACPICA kernel-resident subsystem:

Fixed several possible race conditions with the internal object reference
counting mechanism. Some of the external ACPICA interfaces update object
reference counts without holding the interpreter or namespace lock. This
change adds a spinlock to protect reference count updates on the internal
ACPICA objects. Reported by and with assistance from Andriy
Gapon
(avg@FreeBSD.org).

FADT support: Removed an extraneous warning for very large GPE register
sets. This change removes a size mismatch warning if the legacy length
field for a GPE register set is larger than the 64-bit GAS structure can
accommodate. GPE register sets can be larger than the 255-bit width
limitation of the GAS structure. Linn Crosetto (linn@hp.com).

_OSI Support: handle any errors from AcpiOsAcquireMutex. Check for error
return from this interface. Handles a possible timeout case if
ACPI_WAIT_FOREVER is modified by the host to be a value less than
"forever". Jung-uk Kim.

Predefined name support: Add allowed/required argument type information
to
the master predefined info table. This change adds the infrastructure to
enable typechecking on incoming arguments for all predefined
methods/objects. It does not actually contain the code that will fully
utilize this information, this is still under development. Also condenses
some duplicate code for the
predefined names into a new module,
utilities/utpredef.c

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Previous Release:
Non-Debug Version: 95.0K Code, 25.9K Data, 120.9K Total
Debug Version: 182.9K Code, 75.6K Data, 258.5K Total

Current Release:
Non-Debug Version: 95.2K Code, 26.4K Data, 121.6K Total
Debug Version: 183.0K Code, 76.0K Data, 259.0K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented a new option to simplify the development of ACPI-related
BIOS code. Adds support for a new "offset table" output file. The -so
option will create a C table containing the AML table offsets of various
named objects in the namespace so that BIOS code can modify them easily at
boot time. This can simplify BIOS runtime code by eliminating expensive
searches for "magic values", enhancing boot times and adding greater
reliability. With assistance from Lee Hamel.

iASL: Allow additional predefined names to return zero-length packages.
Now, all predefined names that are defined by the ACPI specification to
return a "variable-length package of packages" are allowed to return a
zero length top-level package. This allows the BIOS to tell the host that
the requested feature is not supported, and supports existing BIOS/ASL
code and practices.

iASL: Changed the "result not used" warning to an error. This is the case
where an ASL operator is effectively a NOOP because the result of the
operation is not stored anywhere. For example:
Add (4, Local0)
There is no target (missing 3rd argument), nor is the function return
value used. This is potentially a very serious problem -- since the code
was probably intended to do something, but for whatever reason, the value
was not stored. Therefore, this issue has been upgraded from a warning to
an error.

AcpiHelp: Added allowable/required argument types to the predefined names
info display. This feature utilizes the recent update to the predefined
names table (above).

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14 February 2013. Summary of changes for version 20130214:

1) ACPICA Kernel-resident Subsystem:

Fixed a possible regression on some hosts: Reinstated the safe return
macros (return_ACPI_STATUS, etc.) that ensure that the argument is
evaluated only once. Although these macros are not needed for the ACPICA

code itself, they are often used by ACPI-related host device drivers where
the safe feature may be necessary.

Fixed several issues related to the ACPI 5.0 reduced hardware support (SOC): Now ensure that if the platform declares itself as hardware-reduced
via the FADT, the following functions become NOOPs (and always return AE_OK) because ACPI is always enabled by definition on these machines:
AcpiEnable
AcpiDisable
AcpiHwGetMode
AcpiHwSetMode

Dynamic Object Repair: Implemented additional runtime repairs for predefined name return values. Both of these repairs can simplify code in the related device drivers that invoke these methods:
1) For the _STR and _MLS names, automatically repair/convert an ASCII string to a Unicode buffer.
2) For the _CRS, _PRS, and _DMA names, return a resource descriptor with a
lone end tag descriptor in the following cases: A Return(0) was executed, a null buffer was returned, or no object at all was returned (non-slack mode only). Adds a new file, nsconvert.c
ACPICA BZ 998. Bob Moore, Lv Zheng.

Resource Manager: Added additional code to prevent possible infinite loops
while traversing corrupted or ill-formed resource template buffers. Check for zero-length resource descriptors in all code that loops through resource templates (the length field is used to index through the template). This change also hardens the external AcpiWalkResources and AcpiWalkResourceBuffer
interfaces.

Local Cache Manager: Enhanced the main data structure to eliminate an unnecessary mechanism to access the next object in the list. Actually provides a small performance enhancement for hosts that use the local ACPICA cache manager. Jung-uk Kim.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 94.5K Code, 25.4K Data, 119.9K Total
Debug Version: 182.3K Code, 75.0K Data, 257.3K Total

Current Release:
Non-Debug Version: 95.0K Code, 25.9K Data, 120.9K Total
Debug Version: 182.9K Code, 75.6K Data, 258.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Fixed several issues with the definition of the ACPI 5.0 RASF table (RAS Feature Table). This change incorporates late changes that
were made to the ACPI 5.0 specification.

iASL/Disassembler: Added full support for the following new ACPI tables:
1) The MTMR table (MID Timer Table)
2) The VRTC table (Virtual Real Time Clock Table).
Includes header file, disassembler, table compiler, and template support for both tables.

iASL: Implemented compile-time validation of package objects returned by predefined names. This new feature validates static package objects returned by the various predefined names defined to return packages. Both object types and package lengths are validated, for both parent packages and sub-packages, if any. The code is similar in structure and behavior to
the runtime repair mechanism within the AML interpreter and uses the existing predefined name information table. Adds a new file, aslprepkg.c. ACPICA BZ 938.

iASL: Implemented auto-detection of binary ACPI tables for disassembly. This feature detects a binary file with a valid ACPI table header and invokes the disassembler
automatically. Eliminates the need to
specifically invoke the disassembler with the -d option. ACPICA BZ 862.

iASL/Disassembler: Added several warnings for the case where there are unresolved control methods during the disassembly. This can potentially cause errors when the output file is compiled, because the disassembler assumes zero method arguments in these cases (it cannot determine the actual number of arguments without resolution/definition of the method).

Debugger: Added support to display all resources with a single command. Invocation of the resources command with no arguments will now display all
resources within the current namespace.

AcpiHelp: Added descriptive text for each ACPICA exception code displayed via the -e option.

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17 January 2013. Summary of changes for version 20130117:

1) ACPICA Kernel-resident Subsystem:

Updated the AcpiGetSleepTypeData interface: Allow the _Sx methods to return either 1 or 2 integers.
Although the ACPI spec defines the _Sx objects to return a package containing one integer, most BIOS code returns two integers and the previous code reflects that. However, we also need to support BIOS code that actually implements to the ACPI spec, and this change reflects this.

Fixed two issues with the ACPI_DEBUG_PRINT macros:
1) Added the ACPI_DO_WHILE macro to the main DEBUG_PRINT helper macro for C compilers that require this support.
2) Renamed the internal ACPI_DEBUG macro to ACPI_DO_DEBUG_PRINT since ACPI_DEBUG is already used by many of the various hosts.

Updated all ACPICA copyrights and signons to 2013. Added the 2013 copyright to all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the test suites.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 94.5K Code, 25.5K Data, 120.0K Total
Debug Version: 182.2K Code, 74.9K Data, 257.1K Total
Current Release:
Non-Debug Version: 94.5K Code, 25.4K Data, 119.9K Total
Debug Version: 182.3K Code, 75.0K Data, 257.3K Total

2) iASL Compiler/Disassembler and Tools:

Generic Unix OSL: Use a buffer to eliminate multiple vfprintf()s and prevent a possible fault on some hosts. Some C libraries modify the arg pointer parameter to vfprintf making it difficult to call it twice in the AcpiOsVprintf function. Use a local buffer to workaround this issue. This does not affect the Windows OSL since the Win C library does not modify the arg pointer. Chao Guan, Bob Moore.

iASL: Fixed a possible infinite loop when the maximum error count is reached. If an output file other than the .AML file is specified (such as a listing
file), and the maximum number of errors is reached, do not attempt to flush data to the output file(s) as the compiler is aborting. This can cause an infinite loop as the max error count code essentially keeps calling itself.

iASL/Disassembler: Added an option (-in) to ignore NOOP opcodes/operators.
Implemented for both the compiler and the disassembler. Often, the NOOP opcode is used as padding for packages that are changed dynamically by the
BIOS. When disassembled and recompiled, these NOOPs will cause syntax errors. This option causes the disassembler to ignore all NOOP opcodes (0xA3), and it also causes the compiler to ignore all ASL source code NOOP
statements as well.

Debugger: Enhanced the Sleep command to execute all sleep states. This change allows Sleep to be invoked with no arguments and causes the debugger to execute all of the sleep states, 0-5, automatically.

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20 December 2012. Summary of changes for version 20121220:

1)
ACPICA Kernel-resident Subsystem:

Implemented a new interface, AcpiWalkResourceBuffer. This interface is an alternate entry point for AcpiWalkResources and improves the usability of the resource manager by accepting as input a buffer containing the output of either a _CRS, _PRS, or _AEI method. The key functionality is that the input buffer is not deleted by this interface so that it can be used by the host later. See the ACPICA reference for details.

Interpreter: Add a warning if a 64-bit constant appears in a 32-bit table (DSDT version < 2). The constant will be truncated and this warning reflects that behavior.

Resource Manager: Add support for the new ACPI 5.0 wake bit in the IRQ, ExtendedInterrupt, and GpioInt descriptors. This change adds support to both get and set the new wake bit in these descriptors, separately from the existing share bit. Reported by Aaron Lu.

Interpreter: Fix Store() when an implicit conversion is not possible. For example, in the

cases such as a store of a string to an existing package
object, implement the store as a CopyObject(). This is a small departure
from the ACPI specification which states that the control method should
be
aborted in this case. However, the ASLTS suite depends on this behavior.

Performance improvement for the various FUNCTION_TRACE and DEBUG_PRINT
macros: check if debug output is currently enabled as soon as possible to
minimize performance impact if debug is in fact not enabled.

Source code restructuring: Cleanup to improve modularity. The following
new files have been added: dbconvert.c, evhandler.c, nsprepkg.c,
psopinfo.c, psobject.c, rsdumpinfo.c, utstring.c, and utownerid.c.
Associated makefiles and project files have been updated.

Changed an exception code for LoadTable operator. For the case where one
of the input strings is too long, change the returned exception code from
AE_BAD_PARAMETER to AE_AML_STRING_LIMIT.

Fixed a possible memory leak in dispatcher error
path. On error, delete
the mutex object created during method mutex creation. Reported by
tim.gardner@canonical.com.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Previous Release:
Non-Debug Version: 94.3K Code, 25.3K Data, 119.6K Total
Debug Version: 175.5K Code, 74.5K Data, 250.0K Total
Current Release:
Non-Debug Version: 94.5K Code, 25.5K Data, 120.0K Total
Debug Version: 182.2K Code, 74.9K Data, 257.1K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Disallow a method call as argument to the ObjectType ASL operator.
This change tracks an errata to the ACPI 5.0 document. The AML grammar
will not allow the interpreter to differentiate between a method and a
method invocation when these are used as an argument to the ObjectType
operator.
The ACPI specification change is to disallow a method
invocation
(UserTerm) for the ObjectType operator.

Finish support for the TPM2 and CSRT tables in the headers, table compiler, and disassembler.

Unix user-space OSL: Fix a problem with WaitSemaphore where the timeout always expires immediately if the semaphore is not available. The original code was using a relative-time timeout, but sem_timedwait requires the use of an absolute time.

iASL: Added a remark if the Timer() operator is used within a 32-bit table. This operator returns a 64-bit time value that will be truncated within a 32-bit table.

iASL Source code restructuring: Cleanup to improve modularity. The following new files have been added: aslhex.c, aslxref.c, aslnamesp.c, aslmethod.c, and aslfileio.c. Associated makefiles and project files have been updated.

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14 November 2012. Summary of changes for version 20121114:

1) ACPICA Kernel-resident Subsystem:

Implemented a performance enhancement for ACPI/AML Package objects. This change greatly increases the performance of Package objects within the interpreter. It changes the processing of reference counts for packages by optimizing for the most common case where the package sub-objects are either Integers, Strings, or Buffers. Increases the overall performance of the ASLTS test suite by 1.5X (Increases the Slack Mode performance by 2X.)
Chao Guan. ACPICA BZ 943.

Implemented and deployed common macros to extract flag bits from resource descriptors. Improves readability and maintainability of the code. Fixes a problem with the UART serial bus descriptor for the number of data bits flags (was incorrectly 2 bits, should be 3).

Enhanced the ACPI_GETx and ACPI_SETx macros. Improved the implementation of the macros and changed the SETx macros to the style of (destination, source). Also added ACPI_CASTx companion macros. Lv Zheng.

Example Code and Data Size: These are the sizes for

the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a much larger code and data size.

Previous Release:
Non-Debug Version: 93.9K Code, 25.2K Data, 119.1K Total
Debug Version: 175.5K Code, 74.5K Data, 250.0K Total
Current Release:
Non-Debug Version: 94.3K Code, 25.3K Data, 119.6K Total
Debug Version: 175.5K Code, 74.5K Data, 250.0K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Added the new ACPI 5.0 interrupt sharing flags. This change
adds the ShareAndWake and ExclusiveAndWake flags which were added to the
Irq, Interrupt, and Gpio resource descriptors in ACPI 5.0. ACPICA BZ 986.

Disassembler: Fixed a problem with external declaration generation. Fixes
a problem where an incorrect pathname could be generated for an external
declaration if the original reference to the object includes leading
carats (^). ACPICA BZ 984.

Debugger:
Completed a major update for the Disassemble<method> command.
This command was out-of-date and did not properly disassemble control
methods that had any reasonable complexity. This fix brings the command
up
to the same level as the rest of the disassembler. Adds one new file,
dmdeferred.c, which is existing code that is now common with the main
disassembler and the debugger disassemble command. ACPICA MZ 978.

iASL: Moved the parser entry prototype to avoid a duplicate declaration.
Newer versions of Bison emit this prototype, so moved the prototype out
of
the iASL header to where it is actually used in order to avoid a
duplicate
declaration.

iASL/Tools: Standardized use of the stream I/O functions:
1) Ensure check for I/O error after every fopen/fread/fwrite
2) Ensure proper order of size/count arguments for fread/fwrite
3) Use test of (Actual != Requested) after all fwrite, and most fread
4) Standardize I/O error messages
Improves reliability and maintainability
of the code. Bob Moore, Lv
Zheng.

ACPICA BZ 981.

Disassembler: Prevent duplicate External() statements. During generation
of external statements, detect similar pathnames that are actually
duplicates such as these:
External (\ABCD)
External (ABCD)
Remove all leading '\' characters from pathnames during the external
statement generation so that duplicates will be detected and tossed.
ACPICA BZ 985.

Tools: Replace low-level I/O with stream I/O functions. Replace
open/read/write/close with the stream I/O equivalents
fopen/fread/fwrite/fclose for portability and performance. Lv Zheng, Bob
Moore.

AcpiBin: Fix for the dump-to-hex function. Now correctly output the table
name header so that AcpiXtract recognizes the output file/table.

iASL: Remove obsolete -2 option flag. Originally intended to force the
compiler/disassembler into an ACPI 2.0 mode, this was never implemented
and the entire concept is now obsolete.

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18 October
2012. Summary of changes for version 20121018:

1) ACPICA Kernel-resident Subsystem:

Updated support for the ACPI 5.0 MPST table. Fixes some problems
introduced by late changes to the table as it was added to the ACPI 5.0
specification. Includes header, disassembler, and data table compiler
support as well as a new version of the MPST template.

AcpiGetObjectInfo: Enhanced the device object support to include the ACPI
5.0 _SUB method. Now calls _SUB in addition to the other PNP-related ID
methods: _HID, _CID, and _UID.

Changed ACPI_DEVICE_ID to ACPI_PNP_DEVICE_ID. Also changed
ACPI_DEVICE_ID_LIST to ACPI_PNP_DEVICE_ID_LIST. These changes prevent
name collisions on hosts that reserve the *_DEVICE_ID (or *DeviceId)
names for their various drivers. Affects the AcpiGetObjectInfo external
interface, and other internal interfaces as well.

Added and deployed a new macro for ACPI_NAME management: ACPI_MOVE_NAME.
This macro resolves to a simple 32-bit move of the 4-character

ACPI_NAME
on machines that support non-aligned transfers. Optimizes for this case rather than using a strncpy. With assistance from Zheng Lv.

Resource Manager: Small fix for buffer size calculation. Fixed a one byte error in the output buffer calculation. Feng Tang. ACPICA BZ 849.

Added a new debug print message for AML mutex objects that are force-released. At control method termination, any currently acquired mutex objects are force-released. Adds a new debug-only message for each one that is released.

Audited/updated all ACPICA return macros and the function debug depth counter: 1) Ensure that all functions that use the various TRACE macros also use the appropriate ACPICA return macros. 2) Ensure that all normal return statements surround the return expression (value) with parens to ensure consistency across the ACPICA code base. Guan Chao, Tang Feng, Zheng Lv, Bob Moore. ACPICA Bugzilla 972.

Global source code changes/maintenance: All extra lines at the start and end
of each source file have been removed for consistency. Also, within comments, all new sentences start with a single space instead of a double space, again for consistency across the code base.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 93.7K Code, 25.3K Data, 119.0K Total
Debug Version: 175.0K Code, 74.4K Data, 249.4K Total
Current Release:
Non-Debug Version: 93.9K Code, 25.2K Data, 119.1K Total
Debug Version: 175.5K Code, 74.5K Data, 250.0K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Improved the algorithm used for memory leak/corruption detection. Added some intelligence to the code that maintains the global list of allocated memory. The list is now ordered by allocated memory address,
significantly improving performance. When running AcpiExec on the ASLTS test suite, speed improvements of 3X to 5X are seen, depending on the platform and/or the environment. Note, this performance enhancement affects the AcpiExec utility only, not the kernel-resident

ACPICA code.

Enhanced error reporting for invalid AML opcodes and bad ACPI_NAMEs. For the disassembler, dump the 48 bytes surrounding the invalid opcode. Fix incorrect table offset reported for invalid opcodes. Report the original 32-bit value for bad ACPI_NAMEs (as well as the repaired name.)

Disassembler: Enhanced the -vt option to emit the binary table data in hex format to assist with debugging.

Fixed a potential filename buffer overflow in osunixdir.c. Increased the size of file structure. Colin Ian King.

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13 September 2012. Summary of changes for version 20120913:

1) ACPICA Kernel-resident Subsystem:

ACPI 5.0: Added two new notify types for the Hardware Error Notification
Structure within the Hardware Error Source Table (HEST) table -- CMCI(5) and
MCE(6).

Table Manager: Merged/removed duplicate code in the root table resize functions. One function is external, the other is internal. Lv Zheng, ACPICA
BZ 846.

Makefiles: Completely removed the obsolete "Linux" makefiles under acpica/generate/linux. These makefiles are obsolete and have been replaced
by
the generic unix makefiles under acpica/generate/unix.

Makefiles: Ensure that binary files always copied properly. Minor rule change
to ensure that the final binary output files are always copied up to the appropriate binary directory (bin32 or bin64.)

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug
version of the code includes the debug output trace mechanism and has a much
larger code and data size.

Previous Release:
Non-Debug Version: 93.8K Code, 25.3K Data,
119.1K Total
Debug Version: 175.7K Code, 74.8K Data, 250.5K Total
Current Release:
Non-Debug Version: 93.7K Code, 25.3K Data, 119.0K Total
Debug Version: 175.0K Code, 74.4K Data, 249.4K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a possible fault during the disassembly of resource descriptors when a second parse is required because of the invocation of external control methods within the table. With assistance from adq@lidskialf.net. ACPICA BZ 976.

iASL: Fixed a namepath optimization problem. An error can occur if the parse
node that contains the namepath to be optimized does not have a parent node
that is a named object. This change fixes the problem.

iASL: Fixed a regression where the AML file is not deleted on errors. The AML
output file should be deleted if there are any errors during the compiler.
The
only exception is if the -f (force output) option is used. ACPICA BZ 974.

iASL: Added a feature to automatically increase
internal line buffer
sizes.
Via realloc(), automatically increase the internal line buffer sizes as necessary to support very long source code lines. The current version of the
preprocessor requires a buffer long enough to contain full source code lines.
This change increases the line buffer(s) if the input lines go beyond the current buffer size. This eliminates errors that occurred when a source code
line was longer than the buffer.

iASL: Fixed a problem with constant folding in method declarations. The SyncLevel term is a ByteConstExpr, and incorrect code would be generated if a
Type3 opcode was used.

Debugger: Improved command help support. For incorrect argument count,

display
full help for the command. For help command itself, allow an argument to specify a command.

Test Suites: Several bug fixes for the ASLTS suite reduces the number of errors during execution of the suite. Guan Chao.

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16 August 2012. Summary of changes
for version 20120816:

1) ACPICA Kernel-resident Subsystem:

Removed all use of the deprecated _GTS and _BFS predefined methods. The _GTS
(Going To Sleep) and _BFS (Back From Sleep) methods are essentially deprecated and will probably be removed from the ACPI specification. Windows
does not invoke them, and reportedly never will. The final nail in the coffin
is that the ACPI specification states that these methods must be run with interrupts off, which is not going to happen in a kernel interpreter. Note:
Linux has removed all use of the methods also. It was discovered that invoking these functions caused failures on some machines, probably because
they were never tested since Windows does not call them. Affects two external
interfaces, AcpiEnterSleepState and AcpiLeaveSleepStatePrep. Tang Feng. ACPICA BZ 969.

Implemented support for complex bit-packed buffers returned from the _PLD (Physical Location of Device) predefined method. Adds a new external interface,
AcpiDecodePldBuffer that parses the buffer into a more usable C
structure. Note: C Bitfields cannot be used for this type of predefined structure since the memory layout of individual bitfields is not defined by
the C language. In addition, there are endian concerns where a compiler will
change the bitfield ordering based on the machine type. The new ACPICA interface eliminates these issues, and should be called after _PLD is executed. ACPICA BZ 954.

Implemented a change to allow a scope change to root (via "Scope (\)") during

execution of module-level ASL code (code that is executed at table load time.) Lin Ming.

Added the Windows8/Server2012 string for the _OSI method. This change adds a new _OSI string, "Windows 2012" for both Windows 8 and Windows Server 2012.

Added header support for the new ACPI tables DBG2 (Debug Port Table Type 2) and CSRT (Core System Resource Table).

Added struct header support for the _FDE, _GRT, _GTM, and _SRT predefined names. This simplifies access to the buffers returned by these predefined names. Adds a new file, include/acbuffer.h. ACPICA BZ 956.

GPE support: Removed an extraneous parameter from the various low-level internal GPE functions. Tang Feng.

Removed the linux makefiles from the unix packages. The generate/linux makefiles are obsolete and have been removed from the unix tarball release packages. The replacement makefiles are under generate/unix, and there is a top-level makefile under the main acpica directory. ACPICA BZ 967, 912.

Updates for Unix makefiles:
1) Add -D_FORTIFY_SOURCE=2 for gcc generation. Arjan van de Ven.
2) Update linker flags (move to end of command line) for AcpiExec utility.
Guan Chao.

Split ACPICA initialization functions to new file, utxfinit.c. Split from utxface.c to improve modularity and reduce file size.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 93.5K Code, 25.3K Data, 118.8K Total
Debug Version: 173.7K Code, 74.0K Data, 247.7K Total
Current Release:

Non-Debug Version: 93.8K Code, 25.3K Data, 119.1K Total
Debug Version: 175.7K Code, 74.8K Data, 250.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with constant folding for fixed-length constant expressions. The constant-folding code was not being invoked for constant expressions that allow the use of type 3/4/5 opcodes to generate constants
for expressions such as ByteConstExpr, WordConstExpr, etc. This could result
in the generation of invalid AML bytecode. ACPICA BZ 970.

iASL: Fixed a generation issue on newer versions of Bison. Newer versions apparently automatically emit some of the necessary externals. This change
handles these versions in order to eliminate generation
warnings.

Disassembler: Added support to decode the DBG2 and CSRT ACPI tables.

Disassembler: Add support to decode _PLD buffers. The decoded buffer appears
within comments in the output file.

Debugger: Fixed a regression with the "Threads" command where AE_BAD_PARAMETER was always returned.

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11 July 2012. Summary of changes for version 20120711:

1) ACPICA Kernel-resident Subsystem:

Fixed a possible fault in the return package object repair code. Fixes a problem that can occur when a lone package object is wrapped with an outer
package object in order to force conformance to the ACPI specification. Can
affect these predefined names: _ALR, _MLS, _PSS, _TRT, _TSS, _PRT, _HPX, _DLM,
_CSD, _PSD, _TSD.

Removed code to disable/enable bus master arbitration (ARB_DIS bit in the PM2_CNT register) in the ACPICA sleep/wake interfaces. Management of the ARB_DIS bit must be implemented in the host-dependent C3 processor power state
support.

Note, ARB_DIS is obsolete and only applies to older chipsets, both
Intel and other vendors. (for Intel: ICH4-M and earlier)

This change removes the code to disable/enable bus master arbitration during
suspend/resume. Use of the ARB_DIS bit in the optional PM2_CNT register causes
resume problems on some machines. The change has been in use for over seven
years within Linux.

Implemented two new external interfaces to support host-directed dynamic ACPI
table load and unload. They are intended to simplify the host implementation
of hot-plug support:
AcpiLoadTable: Load an SSDT from a buffer into the namespace.
AcpiUnloadParentTable: Unload an SSDT via a named object owned by the table.
See the ACPICA reference for additional details. Adds one new file,
components/tables/tbxfload.c

Implemented and deployed two new interfaces for errors and warnings that are
known to be caused by BIOS/firmware issues:
AcpiBiosError: Prints "ACPI Firmware Error" message.
AcpiBiosWarning:
Prints "ACPI Firmware Warning" message.
Deployed these new interfaces in the ACPICA Table Manager code for ACPI table
and FADT errors. Additional deployment to be completed as appropriate in the
future. The associated conditional macros are ACPI_BIOS_ERROR and
ACPI_BIOS_WARNING. See the ACPICA reference for additional details.
ACPICA
BZ
843.

Implicit notify support: ensure that no memory allocation occurs within a
critical region. This fix moves a memory allocation outside of the time that a
spinlock is held. Fixes issues on systems that do not allow this behavior.
Jung-uk Kim.

Split exception code utilities and tables into a new file,
utilities/utexcep.c

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug
version of the code includes the debug output trace mechanism and has a
much
larger code and data size.

Previous Release:
Non-Debug Version: 93.1K Code,
25.1K Data, 118.2K Total
Debug Version: 172.9K Code, 73.6K Data, 246.5K Total
Current Release:
Non-Debug Version: 93.5K Code, 25.3K Data, 118.8K Total
Debug Version: 173.7K Code, 74.0K Data, 247.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a parser problem for hosts where EOF is defined as -1 instead
of
0. Jung-uk Kim.

Debugger: Enhanced the "tables" command to emit additional information
about
the current set of ACPI tables, including the owner ID and flags decode.

Debugger: Reimplemented the "unload" command to use the new
AcpiUnloadParentTable external interface. This command was disable
previously
due to need for an unload interface.

AcpiHelp: Added a new option to decode ACPICA exception codes. The -e
option
will decode 16-bit hex status codes (ACPI_STATUS) to name strings.

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20 June 2012. Summary of changes for version 20120620:

1) ACPICA Kernel-resident Subsystem:

Implemented support
to expand the "implicit notify" feature to allow
multiple
devices to be notified by a single GPE. This feature automatically
generates a
runtime device notification in the absence of a BIOS-provided GPE control

method (_Lxx/_Exx) or a host-installed handler for the GPE. Implicit notify is
provided by ACPICA for Windows compatibility, and is a workaround for BIOS
AML
code errors. See the description of the AcpiSetupGpeForWake interface in the
APCICA reference. Bob Moore, Rafael Wysocki. ACPICA BZ 918.

Changed some comments and internal function names to simplify and ensure correctness of the Linux code translation. No functional changes.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug
version of the code includes the debug output trace mechanism and has a much
larger code and data size.

Previous Release:
Non-Debug Version: 93.0K Code, 25.1K Data, 118.1K Total
Debug Version: 172.7K Code, 73.6K Data, 246.3K Total
Current Release:
Non-Debug Version: 93.1K Code, 25.1K Data, 118.2K Total
Debug Version: 172.9K Code, 73.6K Data, 246.5K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Added support to emit short, commented descriptions for the ACPI
predefined names in order to improve the readability of the disassembled output. ACPICA BZ 959. Changes include:
1) Emit descriptions for all standard predefined names (_INI, _STA, _PRW,
etc.)
2) Emit generic descriptions for the special names (_Exx, _Qxx, etc.)
3) Emit descriptions for the resource descriptor names (_MIN, _LEN, etc.)

AcpiSrc: Fixed several long-standing Linux code translation issues. Argument
descriptions in function headers are now translated properly to lower case
and
underscores. ACPICA BZ 961. Also fixes translation problems such as these:

(old -> new)
 i_aSL -> iASL
 00-7_f -> 00-7F
 16_k -> 16K
 local_fADT -> local_FADT
  execute_oSI -> execute_OSI

iASL: Fixed a problem where null bytes were inadvertently emitted into some
listing files.

iASL: Added the existing debug options to the standard help screen. There are
no longer two different help screens. ACPICA BZ 957.

AcpiHelp: Fixed some typos in the various predefined name descriptions. Also
expand some of the descriptions where appropriate.

iASL: Fixed the -ot option (display compile times/statistics). Was not working
properly for standard output; only worked for the debug file case.

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18 May 2012. Summary of changes for version 20120518:

1) ACPICA Core Subsystem:

Added a new OSL interface, AcpiOsWaitEventsComplete. This interface is defined
to block until asynchronous events such as notifies and GPEs have completed.
Within ACPICA, it is only called before a notify or GPE handler is
removed/uninstalled. It also may be useful for the host OS within related
drivers such as the Embedded
 Controller driver. See the ACPICA reference
for
additional information. ACPICA BZ 868.

ACPI Tables: Added a new error message for a possible overflow failure during
the conversion of FADT 32-bit legacy register addresses to internal common
64-
bit GAS structure representation. The GAS has a one-byte "bit length" field,
thus limiting the register length to 255 bits. ACPICA BZ 953.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug
version of the code includes the debug output trace mechanism and has a
much
larger code and data size.

Previous Release:
Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total
Debug Version: 172.6K Code, 73.4K Data, 246.0K Total
Current Release:
Non-Debug Version: 93.0K Code, 25.1K Data, 118.1K Total
Debug Version: 172.7K Code, 73.6K Data, 246.3K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added the ACPI
5.0 "PCC" keyword for use in the Register() ASL
macro.
This keyword was added late in the ACPI 5.0 release cycle and was not
implemented until now.

Disassembler: Added support for Operation Region externals. Adds missing
support for operation regions that are defined in another table, and
referenced locally via a Field or BankField ASL operator. Now generates
the
correct External statement.

Disassembler: Several additional fixes for the External() statement
generation
related to some ASL operators. Also, order the External() statements
alphabetically in the disassembler output. Fixes the External()
generation
for
the Create* field, Alias, and Scope operators:
1) Create* buffer field operators - fix type mismatch warning on
disassembly
2) Alias - implement missing External support
3) Scope - fix to make sure all necessary externals are emitted.

iASL: Improved pathname support. For include files, merge the prefix
pathname
with the file pathname and eliminate unnecessary
components. Convert
backslashes in all pathnames to forward slashes, for readability. Include
file

pathname changes affect both #include and Include() type operators.

iASL/DTC/Preprocessor: Gracefully handle early EOF. Handle an EOF at the end
of a valid line by inserting a newline and then returning the EOF during the
next call to GetNextLine. Prevents the line from being ignored due to EOF
condition.

iASL: Implemented some changes to enhance the IDE support (-vi option.) Error
and Warning messages are now correctly recognized for both the source code
browser and the global error and warning counts.

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20 April 2012. Summary of changes for version 20120420:

1) ACPICA Core Subsystem:

Implemented support for multiple notify handlers. This change adds support
to
allow multiple system and device notify handlers on Device, Thermal Zone, and
Processor objects. This can simplify the host OS notification implementation.
Also
re-worked and restructured the entire notify support code to simplify
handler installation, handler removal, notify event queuing, and notify
dispatch to handler(s). Note: there can still only be two global notify
handlers - one for system notifies and one for device notifies. There are no
changes to the existing handler install/remove interfaces. Lin Ming, Bob
Moore, Rafael Wysocki.

Fixed a regression in the package repair code where the object reference
count was calculated incorrectly. Regression was introduced in the commit
"Support to add Package wrappers".

Fixed a couple possible memory leaks in the AML parser, in the error recovery
path. Jesper Juhl, Lin Ming.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The

debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 92.9K
Code, 25.0K Data, 117.9K Total
Debug Version: 172.5K Code, 73.2K Data, 245.7K Total
Current Release:
Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total
Debug Version: 172.6K Code, 73.4K Data, 246.0K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with the resource descriptor support where the length
of the StartDependentFn and StartDependentFnNoPrio descriptors were not
included in cumulative descriptor offset, resulting in incorrect values for
resource tags within resource descriptors appearing after a StartDependent*
descriptor. Reported by Petr Vandrovec. ACPICA BZ 949.

iASL and Preprocessor: Implemented full support for the #line directive to
correctly track original source file line numbers through the .i preprocessor
output file - for error and warning messages.

iASL: Expand the allowable byte constants for address space IDs. Previously,
the allowable range was 0x80-0xFF (user-defined spaces), now the range is

0x0A-0xFF to allow for custom and new IDs without changing the compiler.

iASL: Add option to treat all warnings as errors (-we). ACPICA BZ 948.

iASL: Add option to completely disable the preprocessor (-Pn).

iASL: Now emit all error/warning messages to standard error (stderr) by
default (instead of the previous stdout).

ASL Test Suite (ASLTS): Reduce iASL warnings due to use of Switch(). Update
for resource descriptor offset fix above. Update/cleanup error output
routines. Enable and send iASL errors/warnings to an error logfile
(error.txt). Send all other iASL output to a logfile (compiler.txt).

Fixed
several extraneous "unrecognized operator" messages.

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20 March 2012. Summary of changes for version 20120320:

1) ACPICA Core Subsystem:

Enhanced the sleep/wake interfaces to optionally execute the _GTS method
(Going To Sleep) and the _BFS method (Back From Sleep). Windows
apparently
does not execute these methods, and therefore these
methods are often
untested. It has been seen on some systems where the execution of these
methods causes errors and also prevents the machine from entering S5. It
is
therefore suggested that host operating systems do not execute these
methods
by default. In the future, perhaps these methods can be optionally
executed
based on the age of the system and/or what is the newest version of
Windows
that the BIOS asks for via _OSI. Changed interfaces: AcpiEnterSleepState
and
AcpileaveSleepStatePrep. See the ACPICA reference and Linux BZ 13041. Lin
Ming.

Fixed a problem where the length of the local/common FADT was set too
early.
The local FADT table length cannot be set to the common length until the
original length has been examined. There is code that checks the table
length
and sets various fields appropriately. This can affect older machines
with
early FADT versions. For example, this can cause inadvertent writes to
the
CST_CNT register. Julian Anastasov.

Fixed
a mapping issue related to a physical table override. Use the
deferred
mapping mechanism for tables loaded via the physical override OSL
interface.
This allows for early mapping before the virtual memory manager is
available.
Thomas Renninger, Bob Moore.

Enhanced the automatic return-object repair code: Repair a common problem with predefined methods that are defined to return a variable-length Package of sub-objects. If there is only one sub-object, some BIOS ASL code mistakenly simply returns the single object instead of a Package with one sub-object. This new support will repair this error by wrapping a Package object around the original object, creating the correct and expected Package with one sub-object. Names that can be repaired in this manner include: _ALR, _CSD, _HPX, _MLS, _PLD, _PRT, _PSS, _TRT, _TSS, _BCL, _DOD, _FIX, and _Sx. ACPICA BZ 939.

Changed the exception code returned for invalid ACPI paths passed as parameters to external interfaces such as AcpiEvaluateObject. Was AE_BAD_PARAMETER, now is the more sensible AE_BAD_PATHNAME.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 93.0K Code, 25.0K Data, 118.0K Total
Debug Version: 172.5K Code, 73.2K Data, 245.7K Total
Current Release:
Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total
Debug Version: 172.5K Code, 73.2K Data, 245.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added the infrastructure and initial implementation of a integrated C-like preprocessor. This will simplify BIOS development process by eliminating the need for a separate preprocessing step during builds. On Windows, it also eliminates the need to install a separate C compiler. ACPICA BZ 761. Some features including

full #define() macro support are still under
development.
These preprocessor directives are supported:
#define
#elif
#else
#endif
#error
#if
#ifdef
#ifndef
#include
#pragma message
#undef
#warning
In addition, these new command line options are supported:
-D <symbol> Define symbol for preprocessor use
-li Create preprocessed output file (*.i)
-P Preprocess only and create preprocessor output file (*.i)

Table Compiler: Fixed a problem where the equals operator within an
expression
did not work properly.

Updated iASL to use the current versions of Bison/Flex. Updated the
Windows
project file to invoke these tools from the standard location. ACPICA BZ
904.
Versions supported:
Flex for Windows: V2.5.4
Bison for Windows: V2.4.1

---
15 February 2012. Summary of changes for version 20120215:

1) ACPICA Core Subsystem:

There have been some major changes
to the sleep/wake support code, as
described below (a - e).

a) The AcpiLeaveSleepState has been split into two interfaces, similar to
AcpiEnterSleepStatePrep and AcpiEnterSleepState. The new interface is
AcpiLeaveSleepStatePrep. This allows the host to perform actions between
the
time the _BFS method is called and the _WAK method is called. NOTE: all
hosts

must update their wake/resume code or else sleep/wake will not work
properly.
Rafael Wysocki.

b) In AcpiLeaveSleepState, now enable all runtime GPEs before calling the
_WAK
method. Some machines require that the GPEs are enabled before the _WAK
method
is executed. Thomas Renninger.

c) In AcpiLeaveSleepState, now always clear the WAK_STS (wake status)
bit.
Some BIOS code assumes that WAK_STS will be cleared on resume and use it
to
determine whether the system is rebooting or resuming. Matthew Garrett.

d) Move the invocations of _GTS (Going To Sleep) and _BFS (Back From
Sleep) to
match the ACPI specification requirement.
Rafael Wysocki.

e) Implemented full support for the ACPI 5.0 SleepStatus and SleepControl
registers within the V5 FADT. This support adds two new files:
hardware/hwesleep.c implements the support for the new registers. Moved
all
sleep/wake external interfaces to hardware/hwxfsleep.c.

Added a new OSL interface for ACPI table overrides,
AcpiOsPhysicalTableOverride. This interface allows the host to override a
table via a physical address, instead of the logical address required by
AcpiOsTableOverride. This simplifies the host implementation. Initial
implementation by Thomas Renninger. The ACPICA implementation creates a
single
shared function for table overrides that attempts both a logical and a
physical override.

Expanded the OSL memory read/write interfaces to 64-bit data
(AcpiOsReadMemory, AcpiOsWriteMemory.) This enables full 64-bit memory
transfer support for GAS register structures passed to AcpiRead and
AcpiWrite.

Implemented the ACPI_REDUCED_HARDWARE
option to allow the creation of a
custom
build of ACPICA that supports only the ACPI 5.0 reduced hardware (SoC)
model.
See the ACPICA reference for details. ACPICA BZ 942. This option removes

about
10% of the code and 5% of the static data, and the following hardware
ACPI
features become unavailable:
  PM Event and Control registers
  SCI interrupt (and handler)
  Fixed Events
  General Purpose Events (GPEs)
  Global Lock
  ACPI PM timer
  FACS table (Waking vectors and Global Lock)

Updated the unix tarball directory structure to match the ACPICA git
source
tree. This ensures that the generic unix makefiles work properly (in
generate/unix). Also updated the Linux makefiles to match. ACPICA BZ
867.

Updated the return value of the _REV predefined method to integer value 5
to
reflect ACPI 5.0 support.

Moved the external ACPI PM timer interface prototypes to the public
acpixf.h
file where they belong.

Example Code and Data Size: These are the sizes for the
 OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug
version of the code includes the debug output trace mechanism and has a
much
larger code and data size.

 Previous Release:
  Non-Debug Version: 92.8K Code, 24.9K Data, 117.7K Total
  Debug Version: 171.7K Code, 72.9K Data, 244.5K Total
 Current Release:
  Non-Debug Version: 93.0K Code, 25.0K Data, 118.0K Total
  Debug Version: 172.5K Code, 73.2K Data, 245.7K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with the new ACPI 5.0 serial resource
descriptors (I2C, SPI, UART) where the resource produce/consumer bit was
incorrectly displayed.

AcpiHelp: Add display of ACPI/PNP device IDs that are defined in the ACPI specification.

---
11 January 2012. Summary of changes for version 20120111:

1) ACPICA Core Subsystem:

Implemented a new mechanism to allow host device drivers to check for address
range
conflicts with ACPI Operation Regions. Both SystemMemory and SystemIO
address spaces are supported. A new external interface, AcpiCheckAddressRange,
allows drivers to check an address range against the ACPI namespace. See the
ACPICA reference for additional details. Adds one new file, utilities/utaddress.c. Lin Ming, Bob Moore.

Fixed several issues with the ACPI 5.0 FADT support: Add the sleep Control
and
Status registers, update the ACPI 5.0 flags, and update internal data structures to handle an FADT larger than 256 bytes. The size of the ACPI 5.0
FADT is 268 bytes.

Updated all ACPICA copyrights and signons to 2012. Added the 2012 copyright to
all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, and
all ACPICA utilities.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The

debug
version of the code includes the debug output trace mechanism and has a much
larger code and data size.

Previous Release:
Non-Debug Version: 92.3K Code, 24.9K Data, 117.2K Total
Debug Version: 170.8K Code, 72.6K Data, 243.4K Total
Current Release:

Non-Debug Version: 92.8K Code, 24.9K Data, 117.7K Total
Debug Version: 171.7K Code, 72.9K Data, 244.5K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: fixed a problem with the automatic resource tag generation support. Fixes a problem where the resource tags are inadvertently not constructed if the table being disassembled contains external references to control methods. Moved the actual construction of the tags to after the final namespace is constructed (after 2nd parse is invoked due to external control method references.) ACPICA BZ 941.

Table Compiler: Make all "generic" operators caseless. These are the operators like UINT8, String, etc. Making these caseless improves ease-of-use.

ACPICA BZ 934.

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23 November 2011. Summary of changes for version 20111123:

0) ACPI 5.0 Support:

This release contains full support for the ACPI 5.0 specification, as summarized below.

Reduced Hardware Support:

This support allows for ACPI systems without the usual ACPI hardware. This support is enabled by a flag in the revision 5 FADT. If it is set, ACPICA will not attempt to initialize or use any of the usual ACPI hardware. Note, when this flag is set, all of the following ACPI hardware is assumed to be not present and is not initialized or accessed:

General Purpose Events (GPEs)
Fixed Events (PM1a/PM1b and PM Control)
Power Management Timer and Console Buttons (power/sleep)
Real-time Clock Alarm
Global Lock

System Control Interrupt (SCI)
The FACS is assumed to be non-existent

ACPI Tables:

All new tables and updates to existing tables are fully supported in the
ACPICA headers (for use by device drivers), the disassembler, and the iASL
Data Table Compiler. ACPI 5.0 defines these new tables:

```
BGRT        /* Boot Graphics Resource Table */
DRTM        /* Dynamic Root of Trust for Measurement table */
FPDT        /* Firmware Performance Data Table */
GTDT        /* Generic Timer Description Table */
MPST        /* Memory Power State Table */
PCCT        /* Platform Communications Channel Table */
PMTT        /* Platform Memory Topology Table */
RASF        /* RAS Feature table */
```

Operation Regions/SpaceIDs:

All new operation regions are fully supported by the iASL compiler, the disassembler, and the ACPICA runtime code (for dispatch to region handlers.)
The new operation region Space IDs are:

```
GeneralPurposeIo
GenericSerialBus
```

Resource Descriptors:

All new ASL resource descriptors are fully supported by the iASL compiler, the
ASL/AML disassembler, and the ACPICA runtime Resource Manager code (including
all new predefined resource tags). New descriptors are:

```
FixedDma
GpioIo
GpioInt
I2cSerialBus
SpiSerialBus
```

UartSerialBus

ASL/AML Operators, New and Modified:

One new operator is added, the Connection operator, which is used to associate
a GeneralPurposeIo or GenericSerialBus resource descriptor with individual
field objects within an operation region. Several new protocols are associated
with the AccessAs operator. All are fully supported by the iASL compiler,
disassembler, and runtime ACPICA AML interpreter:

```
  Connection                  // Declare Field Connection
attributes
  AccessAs: AttribBytes (n)         // Read/Write N-Bytes Protocol
  AccessAs: AttribRawBytes (n)      // Raw Read/Write N-Bytes
Protocol
  AccessAs: AttribRawProcessBytes (n) // Raw Process Call Protocol
  RawDataBuffer                     // Data type
 for Vendor Data
fields
```

Predefined ASL/AML Objects:

All new predefined objects/control-methods are supported by the iASL compiler
and the ACPICA runtime validation/repair (arguments and return values.) New
predefined names include the following:

Standard Predefined Names (Objects or Control Methods):

```
  _AEI, _CLS, _CPC, _CWS, _DEP,
  _DLM, _EVT, _GCP, _CRT, _GWS,
  _HRV, _PRE, _PSE, _SRT, _SUB.
```

Resource Tags (Names used to access individual fields within resource
descriptors):

```
  _DBT, _DPL, _DRS, _END, _FLC,
  _IOR, _LIN, _MOD, _PAR, _PHA,
  _PIN, _PPI, _POL, _RXL, _SLV,
  _SPE, _STB, _TXL, _VEN.
```

ACPICA External Interfaces:

Several new interfaces have been defined for use by ACPI-related device drivers and other host OS services:

AcpiAcquireMutex and AcpiReleaseMutex: These interfaces allow the host OS to acquire and release AML mutexes that are defined in the DSDT/SSDT tables provided by the BIOS. They are intended to be used in conjunction with the ACPI 5.0 _DLM (Device Lock Method) in order to provide transaction-level mutual exclusion with the AML code/interpreter.

AcpiGetEventResources: Returns the (formatted) resource descriptors as defined by the ACPI 5.0 _AEI object (ACPI Event Information). This object provides resource descriptors associated with hardware-reduced platform events, similar to the AcpiGetCurrentResources interface.

Operation Region Handlers: For General Purpose IO and Generic Serial Bus operation regions, information about the Connection() object and any optional length information is passed to the region handler within the Context parameter.

AcpiBufferToResource: This interface converts a raw AML buffer containing a resource template or resource descriptor to the ACPI_RESOURCE internal format suitable for use by device drivers. Can be used by an operation region handler to convert the Connection() buffer object into a ACPI_RESOURCE.

Miscellaneous/Tools/TestSuites:

Support for extended _HID names (Four alpha characters instead of three).
Support for ACPI 5.0 features in the AcpiExec and AcpiHelp utilities.
Support for ACPI 5.0 features in the ASLTS test suite.
Fully updated documentation (ACPICA and iASL reference documents.)

ACPI Table Definition Language:

Support for this language was implemented and released as a subsystem of the

iASL compiler in 2010. (See the iASL compiler User Guide.)

Non-ACPI 5.0 changes for this release:
---

1) ACPICA Core Subsystem:

Fix a problem with operation region declarations where a failure can occur
if
the region name and an argument that evaluates to an object (such as the region address) are in different namespace scopes. Lin Ming, ACPICA BZ 937.

Do not abort an ACPI table load if an invalid space ID is found within. This
will be caught later if the offending method
is executed. ACPICA BZ 925.

Fixed an issue with the FFixedHW space ID where the ID was not always recognized properly (Both ACPICA and iASL). ACPICA BZ 926.

Fixed a problem with the 32-bit generation of the unix-specific OSL (osunixxf.c). Lin Ming, ACPICA BZ 936.

Several changes made to enable generation with the GCC 4.6 compiler. ACPICA BZ
935.

New error messages: Unsupported I/O requests (not 8/16/32 bit), and Index/Bank
field registers out-of-range.

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented the __PATH__ operator, which returns the full pathname of
the current source file.

AcpiHelp: Automatically display expanded keyword information for all ASL operators.

Debugger: Add "Template" command to disassemble/dump resource template buffers.

Added a new master script to generate and execute the ASLTS test suite. Automatically handles 32- and 64-bit generation. See tests/aslts.sh

iASL: Fix problem with listing generation during processing of the
Switch()

operator where AML listing was disabled until the entire Switch block was
completed.

iASL: Improve support for semicolon statement terminators. Fix "invalid
character" message for some cases when the semicolon is used. Semicolons
are
now allowed after every <Term> grammar element. ACPICA BZ 927.

iASL: Fixed some possible aliasing warnings during generation. ACPICA BZ
923.

Disassembler: Fix problem with disassembly of the DataTableRegion
operator
where an inadvertent "Unhandled deferred opcode" message could be
generated.

3) Example Code and Data Size

These are the sizes for the OS-independent acpica.lib produced by the
Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code
includes the debug output trace mechanism and has a much larger code and
data
size.

Previous Release:
Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total
Debug Version: 165.6K Code, 68.4K Data, 234.0K Total
Current Release:
Non-Debug Version: 92.3K Code,
24.9K Data, 117.2K Total
Debug Version: 170.8K Code, 72.6K Data, 243.4K Total

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22 September 2011. Summary of changes for version 20110922:

0) ACPI 5.0 News:

Support for ACPI 5.0 in ACPICA has been underway for several months and
will
be released at the same time that ACPI 5.0 is officially released.

The ACPI 5.0 specification is on track for release in the next few
months.

1) ACPICA Core Subsystem:

Fixed a problem where the maximum sleep time for the Sleep() operator was intended to be limited to two seconds, but was inadvertently limited to 20
seconds instead.

Linux and Unix makefiles: Added header file dependencies to ensure correct
generation of ACPICA core code and utilities. Also simplified the makefiles
considerably through the use of the vpath variable to specify search paths.
ACPICA BZ 924.

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented support to check the access length for all fields created
to
access named Resource Descriptor fields. For example, if a resource field is
defined to be two bits, a warning is issued if a CreateXxxxField() is used
with an incorrect bit length. This is implemented for all current resource
descriptor names. ACPICA BZ 930.

Disassembler: Fixed a byte ordering problem with the output of 24-bit and 56-
bit integers.

iASL: Fixed a couple of issues associated with variable-length package objects. 1) properly handle constants like One, Ones, Zero -- do not make a
VAR_PACKAGE when these are used as a package length. 2) Allow the VAR_PACKAGE
opcode (in addition to PACKAGE) when validating object types for predefined
names.

iASL: Emit statistics for all output files (instead of just the ASL input and
AML output). Includes listings, hex files, etc.

iASL: Added -G option to the table compiler to allow the compilation of custom
ACPI tables. The only part of a table that is required is the standard

36-
byte
ACPI header.

AcpiXtract:
Ported to the standard ACPICA environment (with ACPICA
headers),
which also adds correct 64-bit support. Also, now all output filenames
are
completely lower case.

AcpiExec: Ignore any non-AML tables (tables other than DSDT or SSDT) when
loading table files. A warning is issued for any such tables. The only
exception is an FADT. This also fixes a possible fault when attempting to
load
non-AML tables. ACPICA BZ 932.

AcpiHelp: Added the AccessAs and Offset operators. Fixed a problem where
a
missing table terminator could cause a fault when using the -p option.

AcpiSrc: Fixed a possible divide-by-zero fault when generating file
statistics.

3) Example Code and Data Size

These are the sizes for the OS-independent acpica.lib produced by the
Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code
includes the debug output trace mechanism and has a much larger code and
data
size.

Previous Release (VC 9.0):
Non-Debug Version: 90.2K Code, 23.9K Data,
114.1K Total
Debug Version: 165.6K Code, 68.4K Data, 234.0K Total
Current Release (VC 9.0):
Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total
Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

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23 June 2011. Summary of changes for version 20110623:

1) ACPI CA Core Subsystem:

Updated the predefined name repair mechanism to not attempt repair of a
_TSS

return object if a _PSS object is present. We can only sort the _TSS
return
package if there is no _PSS within the same scope. This is because if
_PSS
is
present, the ACPI specification dictates that the _TSS Power Dissipation
field
is to be ignored, and therefore some BIOSs leave garbage values in the
_TSS
Power field(s). In this case, it is best to just return the _TSS package
as-
is. Reported by, and fixed with assistance from Fenghua Yu.

Added an option to globally disable the control method return value
validation
and repair. This runtime option
 can be used to disable return value
repair
if
this is causing a problem on a particular machine. Also added an option
to
AcpiExec (-dr) to set this disable flag.

All makefiles and project files: Major changes to improve generation of
ACPICA
tools. ACPICA BZ 912:
  Reduce default optimization levels to improve compatibility
  For Linux, add strict-aliasing=0 for gcc 4
  Cleanup and simplify use of command line defines
  Cleanup multithread library support
  Improve usage messages

Linux-specific header: update handling of THREAD_ID and pthread. For the
32-
bit case, improve casting to eliminate possible warnings, especially with
the
acpica tools.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug
version of the code includes the debug output trace mechanism and has a
much
larger code and data size.

 Previous Release (VC 9.0):
  Non-Debug Version: 90.1K Code,

23.9K Data, 114.0K Total
Debug Version: 165.6K Code, 68.4K Data, 234.0K Total
Current Release (VC 9.0):
Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total
Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

2) iASL Compiler/Disassembler and Tools:

With this release, a new utility named "acpihelp" has been added to the ACPICA
package. This utility summarizes the ACPI specification chapters for the ASL
and AML languages. It generates under Linux/Unix as well as Windows, and
provides the following functionality:
Find/display ASL operator(s) -- with description and syntax.
Find/display ASL keyword(s) -- with exact spelling and descriptions.
Find/display ACPI predefined name(s) -- with description, number
of arguments, and the return value data type.
Find/display AML opcode name(s) -- with opcode, arguments, and grammar.
Decode/display AML opcode -- with opcode name, arguments, and grammar.

Service Layers: Make multi-thread
support configurable. Conditionally
compile
the multi-thread support so that threading libraries will not be linked
if
not
necessary. The only tool that requires multi-thread support is AcpiExec.

iASL: Update yyerrror/AslCompilerError for "const" errors. Newer versions of
Bison appear to want the interface to yyerror to be a const char * (or at
least this is a problem when generating iASL on some systems.) ACPICA BZ 923
Pierre Lejeune.

Tools: Fix for systems where O_BINARY is not defined. Only used for Windows
versions of the tools.

---
27 May 2011. Summary of changes for version 20110527:

1) ACPI CA Core Subsystem:

ASL Load() operator: Reinstate most restrictions on the incoming ACPI

table
signature. Now, only allow SSDT, OEMx, and a null signature. History:
1) Originally, we checked the table signature for "SSDT" or "PSDT".
(PSDT is now obsolete.)
2) We added support for OEMx tables, signature "OEM" plus a fourth
"don't care" character.
3) Valid tables were encountered with a null signature, so we just
gave up on validating the signature, (05/2008).
4) We encountered non-AML tables such as the MADT, which caused
interpreter errors and kernel faults. So now, we once again allow
only SSDT, OEMx, and now, also a null signature. (05/2011).

Added the missing _TDL predefined name to the global name list in order
to
enable validation. Affects both the core ACPICA code and the iASL
compiler.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug
version of the code includes the debug output trace mechanism and has a
much
larger code and data size.

Previous Release (VC 9.0):
Non-Debug Version: 90.0K Code, 23.8K Data, 113.8K Total
Debug Version: 164.5K Code, 68.0K Data, 232.5K Total
Current Release (VC 9.0):
Non-Debug Version: 90.1K Code, 23.9K
Data, 114.0K Total
Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

2) iASL Compiler/Disassembler and Tools:

Debugger/AcpiExec: Implemented support for "complex" method arguments on
the
debugger command line. This adds support beyond simple integers --
including
Strings, Buffers, and Packages. Includes support for nested packages.
Increased the default command line buffer size to accommodate these
arguments.
See the ACPICA reference for details and syntax. ACPICA BZ 917.

Debugger/AcpiExec: Implemented support for "default" method arguments for
the
Execute/Debug command. Now, the debugger will always invoke a control
method
with the required number of arguments -- even if the command line

specifies
none or insufficient arguments. It uses default integer values for any
missing
arguments. Also fixes a bug where only six method arguments maximum were
supported instead of the required seven.

Debugger/AcpiExec: Add a maximum buffer length parameter to AcpiOsGetLine

and
also return status in order to prevent buffer overruns. See the ACPICA
reference for details and syntax. ACPICA BZ 921

iASL: Cleaned up support for Berkeley yacc. A general cleanup of code and
makefiles to simplify support for the two different but similar parser
generators, bison and yacc.

Updated the generic unix makefile for gcc 4. The default gcc version is
now
expected to be 4 or greater, since options specific to gcc 4 are used.

---
13 April 2011. Summary of changes for version 20110413:

1) ACPI CA Core Subsystem:

Implemented support to execute a so-called "orphan" _REG method under the
EC
device. This change will force the execution of a _REG method underneath
the
EC
device even if there is no corresponding operation region of type
EmbeddedControl. Fixes a problem seen on some machines and apparently is
compatible with Windows behavior. ACPICA BZ 875.

Added more predefined methods that are eligible for automatic
NULL
package
element removal. This change adds another group of predefined names to
the
list
of names that can be repaired by having NULL package elements dynamically
removed. This group are those methods that return a single variable-
length
package containing simple data types such as integers, buffers, strings.
This
includes: _ALx, _BCL, _CID,_ DOD, _EDL, _FIX, _PCL, _PLD, _PMD, _PRx,
_PSL,
_Sx,

and _TZD. ACPICA BZ 914.

Split and segregated all internal global lock functions to a new file,
evglock.c.

Updated internal address SpaceID for DataTable regions. Moved this
internal
space
id in preparation for ACPI 5.0 changes that will include some new space
IDs.
This
change should not affect user/host code.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib
produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug
version of
the code includes the debug output trace mechanism and has a much larger
code
and
data size.

Previous Release (VC 9.0):
Non-Debug Version: 89.8K Code, 23.8K Data, 113.6K Total
Debug Version: 164.2K Code, 67.9K Data, 232.1K Total
Current Release (VC 9.0):
Non-Debug Version: 90.0K Code, 23.8K Data, 113.8K Total
Debug Version: 164.5K Code, 68.0K Data, 232.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL/DTC: Major update for new grammar features. Allow generic data types
in
custom ACPI tables. Field names are now optional. Any line can be split
to
multiple lines using the continuation char (\). Large buffers now use
line-
continuation character(s) and no colon on the continuation lines. See the
grammar
update in the iASL compiler reference. ACPI BZ 910,911. Lin Ming, Bob
Moore.

iASL: Mark ASL "Return()" and the simple "Return" as "Null" return
statements.
Since the parser stuffs a "zero" as the return value for these statements
(due
to
the underlying AML grammar), they were seen as "return with value" by the

iASL
semantic checking.
They are now seen correctly as "null" return
statements.

iASL: Check if a_REG declaration has a corresponding Operation Region.
Adds a
check for each _REG to ensure that there is in fact a corresponding
operation
region declaration in the same scope. If not, the _REG method is not very
useful
since it probably won't be executed. ACPICA BZ 915.

iASL/DTC: Finish support for expression evaluation. Added a new
expression
parser
that implements c-style operator precedence and parenthesization. ACPICA
bugzilla
908.

Disassembler/DTC: Remove support for () and <> style comments in data
tables.
Now
that DTC has full expression support, we don't want to have comment
strings
that
start with a parentheses or a less-than symbol. Now, only the standard /*
and
//
comments are supported, as well as the bracket [] comments.

AcpiXtract: Fix for RSDP and dynamic SSDT extraction. These tables have
"unusual"
headers in the acpidump file. Update the header validation to support

these
tables. Problem introduced in previous AcpiXtract version in the change
to
support "wrong checksum" error messages emitted by acpidump utility.

iASL: Add a * option to generate all template files (as a synonym for
ALL)
as
in
"iasl -T *" or "iasl -T ALL".

iASL/DTC: Do not abort compiler on fatal errors. We do not want to
completely

abort the compiler on "fatal" errors, simply should abort the current
compile.
This allows multiple compiles with a single (possibly wildcard) compiler
invocation.

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16 March 2011. Summary of changes for version 20110316:

1) ACPI CA Core Subsystem:

Fixed a problem caused by a _PRW method appearing at the namespace root
scope
during the setup of wake GPEs. A fault could occur if a _PRW directly
under
the
root object was passed to the AcpiSetupGpeForWake interface. Lin Ming.

Implemented support for "spurious" Global Lock interrupts. On some
systems, a
global lock interrupt can occur without
 the pending flag being set. Upon
a
GL
interrupt, we now ensure that a thread is actually waiting for the lock
before
signaling GL availability. Rafael Wysocki, Bob Moore.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib
produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug
version of
the code includes the debug output trace mechanism and has a much larger
code
and
data size.

 Previous Release (VC 9.0):
   Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total
   Debug Version: 163.9K Code, 67.5K Data, 231.4K Total
 Current Release (VC 9.0):
   Non-Debug Version: 89.8K Code, 23.8K Data, 113.6K Total
   Debug Version: 164.2K Code, 67.9K Data, 232.1K Total

2) iASL Compiler/Disassembler and Tools:

Implemented full support for the "SLIC" ACPI table. Includes support in
the
header files, disassembler, table compiler, and template generator. Bob

Moore,
Lin Ming.

AcpiXtract: Correctly handle embedded comments
and messages from
AcpiDump.
Apparently some or all versions of acpidump will occasionally emit a
comment
like
"Wrong checksum", etc., into the dump file. This was causing problems for
AcpiXtract. ACPICA BZ 905.

iASL: Fix the Linux makefile by removing an inadvertent double file
inclusion.
ACPICA BZ 913.

AcpiExec: Update installation of operation region handlers. Install one
handler
for a user-defined address space. This is used by the ASL test suite
(ASLTS).

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11 February 2011. Summary of changes for version 20110211:

1) ACPI CA Core Subsystem:

Added a mechanism to defer _REG methods for some early-installed
handlers.
Most user handlers should be installed before call to
AcpiEnableSubsystem.
However, Event handlers and region handlers should be installed after
AcpiInitializeObjects. Override handlers for the "default" regions should
be
installed early, however. This change executes all _REG methods for the
default regions
(Memory/IO/PCI/DataTable) simultaneously to prevent any
chicken/egg issues between them. ACPICA BZ 848.

Implemented an optimization for GPE detection. This optimization will
simply
ignore GPE registers that contain no enabled GPEs -- there is no need to
read the register since this information is available internally. This
becomes more important on machines with a large GPE space. ACPICA
bugzilla
884. Lin Ming. Suggestion from Joe Liu.

Removed all use of the highly unreliable FADT revision field. The
revision

number in the FADT has been found to be completely unreliable and cannot be
trusted. Only the actual table length can be used to infer the version. This
change updates the ACPICA core and the disassembler so that both no longer
even look at the FADT version and instead depend solely upon the FADT length.

Fix an unresolved name issue for the no-debug and no-error-message source generation cases. The _AcpiModuleName was left undefined in these cases, but
it
 is actually needed as a parameter to some interfaces. Define
_AcpiModuleName as a null string in these cases. ACPICA Bugzilla 888.

Split several large files (makefiles and project files updated)
 utglobal.c   -> utdecode.c
 dbcomds.c   -> dbmethod.c dbnames.c
 dsopcode.c   -> dsargs.c dscontrol.c
 dsload.c   -> dsload2.c
 aslanalyze.c -> aslbtypes.c aslwalks.c

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

 Previous Release (VC 9.0):
   Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total
   Debug Version: 163.9K Code, 67.5K Data, 231.4K Total
 Current Release (VC 9.0):
   Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total
   Debug Version: 163.9K Code, 67.5K Data, 231.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented the
 predefined macros __LINE__, __FILE__, and __DATE__.
These are useful C-style macros with the standard definitions. ACPICA bugzilla 898.

iASL/DTC: Added support for integer expressions and labels. Support for full
expressions for all integer fields in all ACPI tables. Support for labels in
"generic" portions of tables such as UEFI. See the iASL reference manual.

Debugger: Added a command to display the status of global handlers. The "handlers" command will display op region, fixed event, and miscellaneous global handlers. installation status -- and for op regions, whether default
or user-installed handler will be used.

iASL: Warn if reserved method incorrectly returns a value. Many predefined
names are defined such that they do not return a value. If implemented as a
method, issue a warning if such a name explicitly returns a value. ACPICA Bugzilla 855.

iASL: Added detection of GPE method name conflicts. Detects a conflict where
there are two GPE methods of the form
 _Lxy and _Exy in the same scope. (For
example, _L1D and _E1D in the same scope.) ACPICA bugzilla 848.

iASL/DTC: Fixed a couple input scanner issues with comments and line numbers. Comment remover could get confused and miss a comment ending. Fixed
a problem with line counter maintenance.

iASL/DTC: Reduced the severity of some errors from fatal to error. There is
no need to abort on simple errors within a field definition.

Debugger: Simplified the output of the help command. All help output now in
a single screen, instead of help subcommands. ACPICA Bugzilla 897.

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12 January 2011. Summary of changes for version 20110112:

1) ACPI CA Core Subsystem:

Fixed a race condition between method execution and namespace walks that can
possibly cause a fault. The problem was apparently introduced in version 20100528 as a result of a performance optimization that reduces the number
of
namespace walks upon method exit by using the delete_namespace_subtree

function instead of the delete_namespace_by_owner function used

previously.
Bug is a missing namespace lock in the delete_namespace_subtree function.
dana.myers@oracle.com

Fixed several issues and a possible fault with the automatic "serialized"
method support. History: This support changes a method to "serialized" on
the
fly if the method generates an AE_ALREADY_EXISTS error, indicating the
possibility that it cannot handle reentrancy. This fix repairs a couple
of
issues seen in the field, especially on machines with many cores:

1) Delete method children only upon the exit of the last thread,
so as to not delete objects out from under other running threads
(and possibly causing a fault.)
2) Set the "serialized" bit for the method only upon the exit of the
Last thread, so as to not cause deadlock when running threads
attempt to exit.
3) Cleanup the use of the AML "MethodFlags" and internal method flags
so that
there is no longer any confusion between the two.

Lin Ming, Bob Moore. Reported by dana.myers@oracle.com.

Debugger: Now lock the namespace for duration of a namespace dump.
Prevents
issues if the namespace is changing dynamically underneath the debugger.
Especially affects temporary namespace nodes, since the debugger displays
these also.

Updated the ordering of include files. The ACPICA headers should appear
before any compiler-specific headers (stdio.h, etc.) so that acenv.h can
set
any necessary compiler-specific defines, etc. Affects the ACPI-related
tools
and utilities.

Updated all ACPICA copyrights and signons to 2011. Added the 2011
copyright
to all module headers and signons, including the Linux header. This
affects
virtually every file in the ACPICA core subsystem, iASL compiler, and all
utilities.

Added project files for MS Visual Studio 2008 (VC++ 9.0). The original
project files for VC++ 6.0 are now obsolete. New project files can be
found
under acpica/generate/msvc9.

See acpica/generate/msvc9/readme.txt for
details.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release (VC 6.0):
Non-Debug Version: 89.8K Code, 18.9K Data, 108.7K Total
Debug Version: 166.6K Code, 52.1K Data, 218.7K Total
Current Release (VC 9.0):
Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total
Debug Version: 163.9K Code, 67.5K Data, 231.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added generic data types to the Data Table compiler. Add "generic"
data
types such as UINT32, String, Unicode, etc., to simplify the generation
of
platform-defined tables such as UEFI. Lin Ming.

iASL: Added listing support for the Data Table Compiler. Adds listing
support
(-l) to display actual binary output for
each line of input code.

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09 December 2010. Summary of changes for version 20101209:

1) ACPI CA Core Subsystem:

Completed the major overhaul of the GPE support code that was begun in
July
2010. Major features include: removal of _PRW execution in ACPICA (host
executes _PRWs anyway), cleanup of "wake" GPE interfaces and processing,
changes to existing interfaces, simplification of GPE handler operation,
and
a handful of new interfaces:

AcpiUpdateAllGpes
AcpiFinishGpe
AcpiSetupGpeForWake
AcpiSetGpeWakeMask
One new file, evxfgpe.c to consolidate all external GPE interfaces.

See the ACPICA Programmer Reference for full details and programming information. See the new section 4.4 "General Purpose Event (GPE) Support"
for a full overview, and section 8.7 "ACPI General Purpose Event Management"
for programming details. ACPICA BZ 858,870,877. Matthew Garrett, Lin Ming,
Bob Moore, Rafael Wysocki.

Implemented a new
GPE feature for Windows compatibility, the "Implicit Wake
GPE Notify". This feature will automatically issue a Notify(2) on a device
when a Wake GPE is received if there is no corresponding GPE method or handler. ACPICA BZ 870.

Fixed a problem with the Scope() operator during table parse and load phase.
During load phase (table load or method execution), the scope operator should
not enter the target into the namespace. Instead, it should open a new scope
at the target location. Linux BZ 19462, ACPICA BZ 882.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 89.8K Code, 18.9K Data, 108.7K Total
Debug Version: 166.6K Code, 52.1K Data, 218.7K Total
Current Release:
Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total
Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Relax the alphanumeric restriction on _CID strings. These strings are
"bus-specific" per the ACPI specification, and therefore any characters are
acceptable. The only checks that can be performed are for a null string and
perhaps for a leading asterisk. ACPICA BZ 886.

iASL: Fixed a problem where a syntax error that caused a premature EOF condition on the source file emitted a very confusing error message. The premature EOF is now detected correctly. ACPICA BZ 891.

Disassembler: Decode the AccessSize within a Generic Address Structure (byte
access, word access, etc.) Note, this field does not allow arbitrary bit access, the size is encoded as 1=byte, 2=word, 3=dword, and 4=qword.

New: AcpiNames utility - Example namespace dump utility. Shows an example of
ACPICA configuration for a minimal namespace dump utility. Uses table and namespace managers, but
no AML interpreter. Does not add any
functionality
over AcpiExec, it is a subset of AcpiExec. The purpose is to show how to partition and configure ACPICA. ACPICA BZ 883.

AML Debugger: Increased the debugger buffer size for method return objects.
Was 4K, increased to 16K. Also enhanced error messages for debugger method
execution, including the buffer overflow case.

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13 October 2010. Summary of changes for version 20101013:

1) ACPI CA Core Subsystem:

Added support to clear the PCIEXP_WAKE event. When clearing ACPI events, now
clear the PCIEXP_WAKE_STS bit in the ACPI PM1 Status Register, via HwClearAcpiStatus. Original change from Colin King. ACPICA BZ 880.

Changed the type of the predefined namespace object _TZ from ThermalZone to
Device. This was found to be confusing to the host software that processes
the various thermal zones, since _TZ is not really a ThermalZone. However,
a
Notify() can still be performed on it. ACPICA
BZ 876. Suggestion from Rui
Zhang.

Added Windows Vista SP2 to the list of supported _OSI strings. The actual string is "Windows 2006 SP2".

Eliminated duplicate code in AcpiUtExecute* functions. Now that the nsrepair
code automatically repairs _HID-related strings, this type of code is no longer needed in Execute_HID, Execute_CID, and Execute_UID. ACPICA BZ 878.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total
Debug Version: 166.3K Code, 52.1K Data, 218.4K Total
Current Release:
Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total
Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented additional compile-time
validation for _HID strings.
The
non-hex prefix (such as "PNP" or "ACPI") must be uppercase, and the length
of
the string must be exactly seven or eight characters. For both _HID and _CID
strings, all characters must be alphanumeric. ACPICA BZ 874.

iASL: Allow certain "null" resource descriptors. Some BIOS code creates descriptors that are mostly or all zeros, with the expectation that they will
be filled in at runtime. iASL now allows this as long as there is a "resource
tag" (name) associated with the descriptor, which gives the ASL a handle needed to modify the descriptor. ACPICA BZ 873.

Added single-thread support to the generic Unix application OSL. Primarily
for iASL support, this change removes the use of semaphores in the single-
threaded ACPICA tools/applications - increasing performance. The _MULTI_THREADED option was replaced by the (reverse) ACPI_SINGLE_THREADED option. ACPICA BZ 879.

AcpiExec: several fixes for the 64-bit version. Adds XSDT support and

support
for 64-bit DSDT/FACS addresses in the FADT. Lin Ming.

iASL: Moved all compiler messages to a new file, aslmessages.h.

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15 September 2010. Summary of changes for version 20100915:

1) ACPI CA Core Subsystem:

Removed the AcpiOsDerivePciId OSL interface. The various host
implementations
of this function were not OS-dependent and are now obsolete and can be
removed from all host OSLs. This function has been replaced by
AcpiHwDerivePciId, which is now part of the ACPICA core code.
AcpiHwDerivePciId has been implemented without recursion. Adds one new
module, hwpci.c. ACPICA BZ 857.

Implemented a dynamic repair for _HID and _CID strings. The following
problems are now repaired at runtime: 1) Remove a leading asterisk in the
string, and 2) the entire string is uppercased. Both repairs are in
accordance with the ACPI specification and will simplify host driver
code.
ACPICA BZ 871.

The ACPI_THREAD_ID type is no longer configurable,
 internally it is now
always UINT64. This simplifies the ACPICA code, especially any printf
output.
UINT64 is the only common data type for all thread_id types across all
operating systems. It is now up to the host OSL to cast the native
thread_id
type to UINT64 before returning the value to ACPICA (via
AcpiOsGetThreadId).
Lin Ming, Bob Moore.

Added the ACPI_INLINE type to enhance the ACPICA configuration. The
"inline"
keyword is not standard across compilers, and this type allows inline to
be
configured on a per-compiler basis. Lin Ming.

Made the system global AcpiGbl_SystemAwakeAndRunning publicly
available.
Added an extern for this boolean in acpixf.h. Some hosts utilize this
value

during suspend/restore operations. ACPICA BZ 869.

All code that implements error/warning messages with the "ACPI:" prefix
has
been moved to a new module, utxferror.c.

The UINT64_OVERLAY was moved to utmath.c, which is the only module where
it
is used. ACPICA BZ 829. Lin Ming, Bob
Moore.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version: 89.1K Code, 19.0K Data, 108.1K Total
Debug Version: 165.1K Code, 51.9K Data, 217.0K Total
Current Release:
Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total
Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Write ACPI errors to stderr instead of the output
file.
This keeps the output files free of random error messages that may
originate
from within the namespace/interpreter code. Used this opportunity to
merge
all ACPI:-style messages into a single new module, utxferror.c. ACPICA BZ
866. Lin Ming, Bob Moore.

Tools: update some printfs for ansi warnings on size_t. Handle width

change
of size_t on 32-bit versus 64-bit generations. Lin Ming.

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06 August 2010. Summary of changes for version 20100806:

1) ACPI CA Core Subsystem:

Designed and implemented a new host interface to the _OSI support code.
This
will allow the host to dynamically add or remove multiple _OSI strings,

as
well as install an optional handler that is called for each _OSI
invocation.
Also added a new AML debugger command, 'osi' to display and modify the
global
_OSI string table, and test support in the AcpiExec utility. See the
ACPICA
reference manual for full details. Lin Ming, Bob Moore. ACPICA BZ 836.
New Functions:
  AcpiInstallInterface - Add an _OSI string.
  AcpiRemoveInterface - Delete an _OSI string.
  AcpiInstallInterfaceHandler - Install optional _OSI handler.
Obsolete Functions:
  AcpiOsValidateInterface - no longer used.
New Files:
  source/components/utilities/utosi.c

Re-introduced the support to enable multi-byte transfers
 for Embedded
Controller (EC) operation regions. A reported problem was found to be a
bug
in the host OS, not in the multi-byte support. Previously, the maximum
data
size passed to the EC operation region handler was a single byte. There
are
often EC Fields larger than one byte that need to be transferred, and it
is
useful for the EC driver to lock these as a single transaction. This
change
enables single transfers larger than 8 bits. This effectively changes the
access to the EC space from ByteAcc to AnyAcc, and will probably require
changes to the host OS Embedded Controller driver to enable 16/32/64/256-
bit
transfers in addition to 8-bit transfers. Alexey Starikovskiy, Lin Ming.

Fixed a problem with the prototype for AcpiOsReadPciConfiguration. The
prototype in acpiosxf.h had the output value pointer as a (void *).
It should be a (UINT64 *). This may affect some host OSL code.

Fixed a couple problems with the recently modified Linux makefiles for
iASL
and
 AcpiExec. These new makefiles place the generated object files in the
local directory so that there can be no collisions between the files that
are
shared between them that are compiled with different options.

Example Code and Data Size: These are the sizes for the OS-independent

acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total
Debug Version: 164.0K Code, 51.5K Data, 215.5K Total
Current Release:
Non-Debug Version: 89.1K Code, 19.0K Data, 108.1K Total
Debug Version: 165.1K Code, 51.9K Data, 217.0K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Added a new option (-da, "disassemble all") to load the
namespace from and disassemble an entire group of AML files. Useful for loading all of the AML tables for a given machine
(DSDT, SSDT1...SSDTn)
and
disassembling with one simple command. ACPICA BZ 865. Lin Ming.

iASL: Allow multiple invocations of -e option. This change allows multiple
uses of -e on the command line: "-e ssdt1.dat -e ssdt2.dat". ACPICA BZ 834.
Lin Ming.

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02 July 2010. Summary of changes for version 20100702:

1) ACPI CA Core Subsystem:

Implemented several updates to the recently added GPE reference count support. The model for "wake" GPEs is changing to give the host OS complete
control of these GPEs. Eventually, the ACPICA core will not execute any _PRW
methods, since the host already must execute them. Also, additional changes
were made to help ensure that the reference counts are kept in proper synchronization with reality. Rafael J. Wysocki.

1) Ensure that GPEs are not enabled twice during initialization.
2) Ensure that GPE enable masks stay in sync with the reference count.
3) Do not inadvertently enable GPEs when writing GPE
registers.
4) Remove the internal wake reference counter and add new AcpiGpeWakeup

interface. This interface will set or clear individual GPEs for wakeup.
5) Remove GpeType argument from AcpiEnable and AcpiDisable. These interfaces
are now used for "runtime" GPEs only.

Changed the behavior of the GPE install/remove handler interfaces. The GPE
is
no longer disabled during this process, as it was found to cause problems on
some machines. Rafael J. Wysocki.

Reverted a change introduced in version 20100528 to enable Embedded Controller multi-byte transfers. This change was found to cause problems with
Index Fields and possibly Bank Fields. It will be reintroduced when these problems have been resolved.

Fixed a problem with references to Alias objects within Package Objects. A
reference to an Alias within the definition of a Package was not always resolved properly. Aliases to objects like Processors, Thermal zones, etc.
were resolved to the actual object instead of a reference
to the object
as
it
should be. Package objects are only allowed to contain integer, string, buffer, package, and reference objects. Redhat bugzilla 608648.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total
Debug Version: 164.1K Code, 51.5K Data, 215.6K Total
Current Release:
Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total
Debug Version: 164.0K Code, 51.5K Data, 215.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented a new compiler subsystem to allow definition and compilation of the non-AML ACPI tables such as FADT, MADT, SRAT, etc. These

are called "ACPI Data Tables", and the new compiler is the "Data Table Compiler". This compiler is
intended to simplify the existing error-prone
process of creating these tables for the BIOS, as well as allowing the disassembly, modification, recompilation, and override of existing ACPI data
tables. See the iASL User Guide for detailed information.

iASL: Implemented a new Template Generator option in support of the new Data
Table Compiler. This option will create examples of all known ACPI tables that can be used as the basis for table development. See the iASL documentation and the -T option.

Disassembler and headers: Added support for the WDDT ACPI table (Watchdog Descriptor Table).

Updated the Linux makefiles for iASL and AcpiExec to place the generated object files in the local directory so that there can be no collisions between the shared files between them that are generated with different options.

Added support for Mac OS X in the Unix OSL used for iASL and AcpiExec. Use
the #define __APPLE__ to enable this support.

28
May 2010. Summary of changes for version 20100528:

Note: The ACPI 4.0a specification was released on April 5, 2010 and is available at www.acpi.info. This is primarily an errata release.

1) ACPI CA Core Subsystem:

Undefined ACPI tables: We are looking for the definitions for the following
ACPI tables that have been seen in the field: ATKG, IEIT, GSCI.

Implemented support to enable multi-byte transfers for Embedded Controller
(EC) operation regions. Previously, the maximum data size passed to the EC
operation region handler was a single byte. There are often EC Fields larger
than one byte that need to be transferred, and it is useful for the EC driver
to lock these as a single transaction. This change enables single

transfers
larger than 8 bits. This effectively changes the access to the EC space
from
ByteAcc to AnyAcc, and will probably require changes to the host OS
Embedded
Controller driver to enable 16/32/64/256-bit transfers in addition to 8-
bit
transfers.
Alexey Starikovskiy, Lin Ming

Implemented a performance enhancement for namespace search and access.
This
change enhances the performance of namespace searches and walks by adding
a
backpointer to the parent in each namespace node. On large namespaces,
this
change can improve overall ACPI performance by up to 9X. Adding a pointer
to
each namespace node increases the overall size of the internal namespace
by
about 5%, since each namespace entry usually consists of both a namespace
node and an ACPI operand object. However, this is the first growth of the
namespace in ten years. ACPICA bugzilla 817. Alexey Starikovskiy.

Implemented a performance optimization that reduces the number of
namespace
walks. On control method exit, only walk the namespace if the method is
known
to have created namespace objects outside of its local scope. Previously,
the
entire namespace was traversed on each control method exit. This change
can
improve overall ACPI performance by up to
3X. Alexey Starikovskiy, Bob
Moore.

Added support to truncate I/O addresses to 16 bits for Windows
compatibility.
Some ASL code has been seen in the field that inadvertently has bits set
above bit 15. This feature is optional and is enabled if the BIOS
requests
any Windows OSI strings. It can also be enabled by the host OS. Matthew
Garrett, Bob Moore.

Added support to limit the maximum time for the ASL Sleep() operator. To
prevent accidental deep sleeps, limit the maximum time that Sleep() will
actually sleep. Configurable, the default maximum is two seconds. ACPICA
bugzilla 854.

Added run-time validation support for the _WDG and_WED Microsoft predefined
methods. These objects are defined by "Windows Instrumentation", and are not
part of the ACPI spec. ACPICA BZ 860.

Expanded all statistic counters used during namespace and device
initialization from 16 to 32 bits in order to support very large
namespaces.

Replaced all instances of %d in printf format specifiers with %u since
nearly
all integers in ACPICA are unsigned.

Fixed the exception namestring for AE_WAKE_ONLY_GPE. Was incorrectly returned
as AE_NO_HANDLER.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 88.4K Code, 18.8K Data, 107.2K Total
Debug Version: 164.2K Code, 51.5K Data, 215.7K Total
Current Release:
Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total
Debug Version: 164.1K Code, 51.5K Data, 215.6K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added compiler support for the _WDG and_WED Microsoft predefined
methods. These objects are defined by "Windows Instrumentation", and are not
part of the ACPI spec. ACPICA BZ 860.

AcpiExec: added option to disable the memory tracking mechanism. The -dt
option will disable the tracking mechanism, which improves performance
considerably.

AcpiExec: Restructured the command line options into -d (disable) and -e
(enable) options.

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28 April 2010. Summary of changes for version 20100428:

1) ACPI CA Core Subsystem:

Implemented GPE support for dynamically loaded ACPI tables. For all GPEs, including FADT-based and GPE Block Devices, execute any _PRW methods in the
new table, and process any _Lxx/_Exx GPE methods in the new table. Any runtime GPE that is referenced by an _Lxx/_Exx method in the new table is immediately enabled. Handles the FADT-defined GPEs as well as GPE Block Devices. Provides compatibility with other ACPI implementations. Two new files added, evgpeinit.c and evgpeutil.c. ACPICA BZ 833. Lin Ming, Bob Moore.

Fixed a regression introduced in version 20100331 within the table manager
where initial table loading could fail. This was introduced in the fix for
AcpiReallocateRootTable.
Also, renamed some of fields in the table manager
data structures to clarify their meaning and use.

Fixed a possible allocation overrun during internal object copy in AcpiUtCopySimpleObject. The original code did not correctly handle the case
where the object to be copied was a namespace node. Lin Ming. ACPICA BZ 847.

Updated the allocation dump routine, AcpiUtDumpAllocation and fixed a possible access beyond end-of-allocation. Also, now fully validate descriptor
(size and type) before output. Lin Ming, Bob Moore. ACPICA BZ 847

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 87.9K Code, 18.6K Data, 106.5K Total
Debug Version: 163.5K Code, 51.3K Data, 214.8K Total
Current Release:
Non-Debug Version:
88.4K Code, 18.8K Data, 107.2K Total
Debug Version: 164.2K Code, 51.5K Data, 215.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented Min/Max/Len/Gran validation for address resource descriptors. This change implements validation for the address fields that
are common to all address-type resource descriptors. These checks are implemented: Checks for valid Min/Max, length within the Min/Max window, valid granularity, Min/Max a multiple of granularity, and _MIF/_MAF as per
table 6-40 in the ACPI 4.0a specification. Also split the large aslrestype1.c
and aslrestype2.c files into five new files. ACPICA BZ 840.

iASL: Added support for the _Wxx predefined names. This support was missing
and these names were not recognized by the compiler as valid predefined names. ACPICA BZ 851.

iASL: Added an error for all predefined names that are defined to return no
value and thus must be implemented as Control Methods. These include all of
the _Lxx, _Exx,
_Wxx, and _Qxx names, as well as some other miscellaneous
names such as _DIS, _INI, _IRC, _OFF, _ON, and _PSx. ACPICA BZ 850, 856.

iASL: Implemented the -ts option to emit hex AML data in ASL format, as an
ASL Buffer. Allows ACPI tables to be easily included within ASL files, to be
dynamically loaded via the Load() operator. Also cleaned up output for the
-
ta and -tc options. ACPICA BZ 853.

Tests: Added a new file with examples of extended iASL error checking. Demonstrates the advanced error checking ability of the iASL compiler. Available at tests/misc/badcode.asl.

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31 March 2010. Summary of changes for version 20100331:

1) ACPI CA Core Subsystem:

Completed a major update for the GPE support in order to improve support for
shared GPEs and to simplify both host OS and ACPICA code. Added a

reference
count mechanism to support shared GPEs that require multiple device
drivers.
Several external interfaces have changed. One external
interface has been
removed. One new external interface was added. Most of the GPE external
interfaces now use the GPE spinlock instead of the events mutex (and the
Flags parameter for many GPE interfaces has been removed.) See the
updated
ACPICA Programmer Reference for details. Matthew Garrett, Bob Moore,
Rafael
Wysocki. ACPICA BZ 831.

Changed:
AcpiEnableGpe, AcpiDisableGpe, AcpiClearGpe, AcpiGetGpeStatus
Removed:
AcpiSetGpeType
New:
AcpiSetGpe

Implemented write support for DataTable operation regions. These regions
are
defined via the DataTableRegion() operator. Previously, only read support
was
implemented. The ACPI specification allows DataTableRegions to be
read/write,
however.

Implemented a new subsystem option to force a copy of the DSDT to local
memory. Optionally copy the entire DSDT to local memory (instead of
simply
mapping it.) There are some (albeit very rare) BIOSs that corrupt or
replace
the original DSDT, creating the need for this
option. Default is FALSE,
do
not copy the DSDT.

Implemented detection of a corrupted or replaced DSDT. This change adds
support to detect a DSDT that has been corrupted and/or replaced from
outside
the OS (by firmware). This is typically catastrophic for the system, but
has
been seen on some machines. Once this problem has been detected, the DSDT
copy option can be enabled via system configuration. Lin Ming, Bob Moore.

Fixed two problems with AcpiReallocateRootTable during the root table
copy.

When copying the root table to the new allocation, the length used was incorrect. The new size was used instead of the current table size, meaning
too much data was copied. Also, the count of available slots for ACPI tables
was not set correctly. Alexey Starikovskiy, Bob Moore.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version: 87.5K Code, 18.4K Data, 105.9K Total
Debug Version: 163.4K Code, 51.1K Data, 214.5K Total
Current Release:
Non-Debug Version: 87.9K Code, 18.6K Data, 106.5K Total
Debug Version: 163.5K Code, 51.3K Data, 214.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implement limited typechecking for values returned from predefined control methods. The type of any returned static (unnamed) object is now validated. For example, Return(1). ACPICA BZ 786.

iASL: Fixed a predefined name object verification regression. Fixes a problem
introduced in version 20100304. An error is incorrectly generated if a predefined name is declared as a static named object with a value defined using the keywords "Zero", "One", or "Ones". Lin Ming.

iASL: Added Windows 7 support for the -g option (get local ACPI tables) by
reducing the requested registry access rights. ACPICA BZ 842.

Disassembler:
fixed a possible fault when generating External() statements.
Introduced in commit ae7d6fd: Properly handle externals with parent-prefix
(carat). Fixes a string length allocation calculation. Lin Ming.

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04 March 2010. Summary of changes for version 20100304:

1) ACPI CA Core Subsystem:

Fixed a possible problem with the AML Mutex handling function AcpiExReleaseMutex where the function could fault under the very rare condition when the interpreter has blocked, the interpreter lock is released, the interpreter is then reentered via the same thread, and attempts to acquire an AML mutex that was previously acquired. FreeBSD report 140979. Lin Ming.

Implemented additional configuration support for the AML "Debug Object". Output from the debug object can now be enabled via a global variable, AcpiGbl_EnableAmlDebugObject. This will assist with remote machine debugging. This debug output is now available in the release version of ACPICA instead of just the debug version. Also, the entire debug output module can now be configured out of the ACPICA build if desired. One new file added, executer/exdebug.c. Lin Ming, Bob Moore.

Added header support for the ACPI MCHI table (Management Controller Host Interface Table). This table was added in ACPI 4.0, but the defining document has only recently become available.

Standardized output of integer values for ACPICA warnings/errors. Always use 0x prefix for hex output, always use %u for unsigned integer decimal output. Affects ACPI_INFO, ACPI_ERROR, ACPI_EXCEPTION, and ACPI_WARNING (about 400 invocations.) These invocations were converted from the original ACPI_DEBUG_PRINT invocations and were not consistent. ACPICA BZ 835.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 87.1K Code, 18.0K Data, 105.1K Total
Debug Version: 163.5K Code, 50.9K Data, 214.4K Total
Current Release:
Non-Debug Version: 87.5K Code, 18.4K Data, 105.9K Total

Debug Version: 163.4K Code, 51.1K Data, 214.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented typechecking support for static (non-control method) predefined named objects that are declared with the Name() operator. For example, the type of this object is now validated to be of type Integer: Name(_BBN, 1). This change migrates the compiler to using the core predefined name table instead of maintaining a local version. Added a new file, aslpredef.c. ACPICA BZ 832.

Disassembler: Added support for the ACPI 4.0 MCHI table.

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21 January 2010. Summary of changes for version 20100121:

1) ACPI CA Core Subsystem:

Added the 2010 copyright to all module headers and signons. This affects virtually every file in the ACPICA core subsystem, the iASL compiler, the tools/utilities, and the test suites.

Implemented a change to the AcpiGetDevices interface to eliminate unnecessary invocations of the _STA method. In the case where a specific _HID is requested, do not run _STA until a _HID match is found. This eliminates potentially dozens of _STA calls during a search for a particular device/HID, which in turn can improve boot times. ACPICA BZ 828. Lin Ming.

Implemented an additional repair for predefined method return values. Attempt to repair unexpected NULL elements within returned Package objects. Create an Integer of value zero, a NULL String, or a zero-length Buffer as appropriate. ACPICA BZ 818. Lin Ming, Bob Moore.

Removed the obsolete ACPI_INTEGER data type. This type was introduced as the code was migrated from ACPI 1.0 (with 32-bit AML integers) to ACPI 2.0 (with 64-bit AML integers). It is now obsolete and this change removes it from the

ACPICA code base, replaced by UINT64. The original typedef has been retained
for now for compatibility with existing device driver code. ACPICA BZ 824.

Removed the unused UINT32_STRUCT type, and the obsolete Integer64 field in
the parse tree object.

Added additional warning options for the gcc-4 generation. Updated the source
accordingly. This includes some code restructuring to eliminate unreachable
code, elimination of some gotos, elimination of unused return values, some
additional casting, and removal of redundant declarations.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 87.0K Code, 18.0K Data, 105.0K Total
Debug Version: 163.4K Code, 50.8K Data, 214.2K Total
Current Release:
Non-Debug
Version: 87.1K Code, 18.0K Data, 105.1K Total
Debug Version: 163.5K Code, 50.9K Data, 214.4K Total

2) iASL Compiler/Disassembler and Tools:

No functional changes for this release.

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14 December 2009. Summary of changes for version 20091214:

1) ACPI CA Core Subsystem:

Enhanced automatic data type conversions for predefined name repairs. This
change expands the automatic repairs/conversions for predefined name return
values to make Integers, Strings, and Buffers fully interchangeable. Also, a
Buffer can be converted to a Package of Integers if necessary. The

nsrepair.c
module was completely restructured. Lin Ming, Bob Moore.

Implemented automatic removal of null package elements during predefined
name
repairs. This change will automatically remove embedded and trailing NULL
package elements from returned package objects that are defined to
contain
a
variable number of sub-packages. The driver is then presented with
a
package
with no null elements to deal with. ACPICA BZ 819.

Implemented a repair for the predefined _FDE and _GTM names. The expected
return value for both names is a Buffer of 5 DWORDs. This repair fixes
two
possible problems (both seen in the field), where a package of integers
is
returned, or a buffer of BYTEs is returned. With assistance from Jung-uk
Kim.

Implemented additional module-level code support. This change will
properly
execute module-level code that is not at the root of the namespace (under
a
Device object, etc.). Now executes the code within the current scope
instead
of the root. ACPICA BZ 762. Lin Ming.

Fixed possible mutex acquisition errors when running _REG methods. Fixes
a
problem where mutex errors can occur when running a _REG method that is
in
the same scope as a method-defined operation region or an operation
region
under a module-level IF block. This type of code is rare, so the problem
has
not been seen before. ACPICA BZ 826. Lin Ming,
Bob Moore.

Fixed a possible memory leak during module-level code execution. An
object
could be leaked for each block of executed module-level code if the
interpreter slack mode is enabled This change deletes any implicitly
returned
object from the module-level code block. Lin Ming.

Removed messages for successful predefined repair(s). The repair
mechanism
was considered too wordy. Now, messages are only unconditionally emitted
if
the return object cannot be repaired. Existing messages for successful
repairs were converted to ACPI_DEBUG_PRINT messages for now. ACPICA BZ
827.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version: 86.6K Code, 18.2K Data, 104.8K Total
Debug Version: 162.7K Code, 50.8K Data, 213.5K Total
Current Release:
Non-Debug Version: 87.0K Code, 18.0K Data, 105.0K Total
Debug Version: 163.4K Code, 50.8K Data, 214.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a regression introduced in 20091112 where intermediate .SRC
files
were no longer automatically removed at the termination of the compile.

acpiexec: Implemented the -f option to specify default region fill value.
This option specifies the value used to initialize buffers that simulate
operation regions. Default value is zero. Useful for debugging problems
that
depend on a specific initial value for a region or field.

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12 November 2009. Summary of changes for version 20091112:

1) ACPI CA Core Subsystem:

Implemented a post-order callback to AcpiWalkNamespace. The existing
interface only has a pre-order callback. This change adds an additional
parameter for a post-order callback which will be more useful for bus
scans.
ACPICA BZ 779. Lin Ming.
Updated the ACPICA Programmer Reference.

Modified the behavior of the operation region memory mapping cache for
SystemMemory. Ensure that the memory mappings created for operation
regions

do not cross 4K page boundaries. Crossing a page boundary while mapping regions can cause kernel warnings on some hosts if the pages have different attributes. Such regions are probably BIOS bugs, and this is the workaround.
Linux BZ 14445. Lin Ming.

Implemented an automatic repair for predefined methods that must return sorted lists. This change will repair (by sorting) packages returned by _ALR, _PSS, and _TSS. Drivers can now assume that the packages are correctly sorted and do not contain NULL package elements. Adds one new file, namespace/nsrepair2.c. ACPICA BZ 784. Lin Ming, Bob Moore.

Fixed a possible fault during predefined name validation if a return Package object contains NULL elements. Also adds a warning if a NULL element is followed by any non-null elements. ACPICA BZ 813, 814. Future enhancement may include repair or removal of all such NULL elements where possible.

Implemented additional module-level executable AML code support. This change will execute module-level code that is not at the root of the namespace (under a Device object, etc.) at table load time. Module-level executable AML code has been illegal since ACPI 2.0. ACPICA BZ 762. Lin Ming.

Implemented a new internal function to create Integer objects. This function simplifies miscellaneous object creation code. ACPICA BZ 823.

Reduced the severity of predefined repair messages, Warning to Info. Since the object was successfully repaired, a warning is too severe. Reduced to an info message for now. These messages may eventually be changed to debug-only.
ACPICA BZ 812.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 85.8K Code, 18.0K Data, 103.8K Total
Debug Version: 161.8K Code, 50.6K Data, 212.4K Total
Current Release:
Non-Debug Version: 86.6K Code, 18.2K Data, 104.8K Total
Debug Version: 162.7K Code, 50.8K Data, 213.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented Switch() with While(1) so that Break works correctly. This
change correctly implements the Switch operator with a surrounding While(1)
so that the Break operator works as expected. ACPICA BZ 461. Lin Ming.

iASL: Added a message if a package initializer list is shorter than package
length. Adds a new remark for a Package() declaration if an initializer list
exists, but is shorter than the declared length of the package. Although
technically legal, this is probably a coding error and it is seen in the
field. ACPICA BZ 815. Lin Ming, Bob Moore.

iASL: Fixed a problem where the compiler could
fault after the maximum
number
of errors was reached (200).

acpixtract: Fixed a possible warning for pointer cast if the compiler warning
level set very high.

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13 October 2009. Summary of changes for version 20091013:

1) ACPI CA Core Subsystem:

Fixed a problem where an Operation Region _REG method could be executed more
than once. If a custom address space handler is installed by the host before
the "initialize operation regions" phase of the ACPICA initialization, any
_REG methods for that address space could be executed twice. This change
fixes the problem. ACPICA BZ 427. Lin Ming.

Fixed a possible memory leak for the Scope() ASL operator. When the exact

invocation of "Scope(\)" is executed (change scope to root), one internal operand object was leaked. Lin Ming.

Implemented a run-time repair for the _MAT predefined method. If the _MAT return value is defined as a Field object in the AML, and the field size is less than
or equal to the default width of an integer (32 or 64),_MAT
can incorrectly return an Integer instead of a Buffer. ACPICA now automatically repairs this problem. ACPICA BZ 810.

Implemented a run-time repair for the _BIF and _BIX predefined methods. The
"OEM Information" field is often incorrectly returned as an Integer with value zero if the field is not supported by the platform. This is due to an
ambiguity in the ACPI specification. The field should always be a string. ACPICA now automatically repairs this problem by returning a NULL string within the returned Package. ACPICA BZ 807.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 85.6K Code, 18.0K Data, 103.6K Total
Debug Version: 161.7K Code, 50.9K Data, 212.6K Total
Current Release:
Non-Debug Version: 85.8K Code, 18.0K Data, 103.8K Total
Debug Version: 161.8K Code, 50.6K Data, 212.4K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem where references to external symbols that contained one or more parent-prefixes (carats) were not handled correctly,
possibly causing a fault. ACPICA BZ 806. Lin Ming.

Disassembler: Restructured the code so that all functions that handle external symbols are in a single module. One new file is added, common/dmextern.c.

AML Debugger: Added a max count argument for the Batch command (which executes multiple predefined methods within the namespace.)

iASL: Updated the compiler documentation (User Reference.) Available at http://www.acpica.org/documentation/. ACPICA BZ 750.

AcpiXtract: Updated for Lint and other formatting changes. Close all open files.

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03 September 2009. Summary of changes for version 20090903:

1) ACPI
CA Core Subsystem:

For Windows Vista compatibility, added the automatic execution of an _INI method located at the namespace root (_INI). This method is executed at table load time. This support is in addition to the automatic execution of _SB._INI. Lin Ming.

Fixed a possible memory leak in the interpreter for AML package objects if the package initializer list is longer than the defined size of the package. This apparently can only happen if the BIOS changes the package size on the fly (seen in a _PSS object), as ASL compilers do not allow this. The interpreter will truncate the package to the defined size (and issue an error message), but previously could leave the extra objects undeleted if they were pre-created during the argument processing (such is the case if the package consists of a number of sub-packages as in the _PSS.) ACPICA BZ 805.

Fixed a problem seen when a Buffer or String is stored to itself via ASL. This has been reported in the field. Previously, ACPICA would zero out the buffer/string. Now, the operation is treated as a noop. Provides Windows compatibility. ACPICA BZ 803. Lin Ming.

Removed an extraneous error message for ASL constructs of the form Store(LocalX,LocalX) when LocalX is uninitialized. These curious statements are seen in many BIOSs and are once again treated as NOOPs and no error is emitted when they are encountered. ACPICA BZ 785.

Fixed an extraneous warning message if a _DSM reserved method returns a

Package object. _DSM can return any type of object, so validation on the return type cannot be performed. ACPICA BZ 802.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 85.5K Code, 18.0K Data, 103.5K Total
Debug Version: 161.6K Code, 50.9K
Data, 212.5K Total
Current Release:
Non-Debug Version: 85.6K Code, 18.0K Data, 103.6K Total
Debug Version: 161.7K Code, 50.9K Data, 212.6K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with the use of the Alias operator and Resource Templates. The correct alias is now constructed and no error is emitted. ACPICA BZ 738.

iASL: Implemented the -I option to specify additional search directories for
include files. Allows multiple additional search paths for include files. Directories are searched in the order specified on the command line (after
the local directory is searched.) ACPICA BZ 800.

iASL: Fixed a problem where the full pathname for include files was not emitted for warnings/errors. This caused the IDE support to not work properly. ACPICA BZ 765.

iASL: Implemented the -@ option to specify a Windows-style response file containing additional command line options. ACPICA BZ 801.

AcpiExec: Added support to load multiple AML files simultaneously (such
as
a
DSDT and multiple SSDTs). Also added support for wildcards within the AML pathname. These features allow all machine tables to be easily loaded and debugged together. ACPICA BZ 804.

Disassembler: Added missing support for disassembly of HEST table Error Bank
subtables.

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30 July 2009. Summary of changes for version 20090730:

The ACPI 4.0 implementation for ACPICA is complete with this release.

1) ACPI CA Core Subsystem:

ACPI 4.0: Added header file support for all new and changed ACPI tables.
Completely new tables are: IBFT, IVRS, MSCT, and WAET. Tables that are
new
for ACPI 4.0, but have previously been supported in ACPICA are: CPEP,
BERT,
EINJ, ERST, and HEST. Other newly supported tables are: UEFI and WDAT.
There
have been some ACPI 4.0 changes to other existing tables. Split the large
actbl1.h header into the existing actbl2.h header. ACPICA BZ 774.

ACPI 4.0: Implemented predefined name validation
for all new names. There
are
31 new names in ACPI 4.0. The predefined validation module was split into
two
files. The new file is namespace/nsrepair.c. ACPICA BZ 770.

Implemented support for so-called "module-level executable code". This is
executable AML code that exists outside of any control method and is
intended
to be executed at table load time. Although illegal since ACPI 2.0, this
type
of code still exists and is apparently still being created. Blocks of
this
code are now detected and executed as intended. Currently, the code
blocks
must exist under either an If, Else, or While construct; these are the
typical cases seen in the field. ACPICA BZ 762. Lin Ming.

Implemented an automatic dynamic repair for predefined names that return
nested Package objects. This applies to predefined names that are defined
to
return a variable-length Package of sub-packages. If the number of sub-
packages is one, BIOS code is occasionally seen that creates a simple
single
package
with no sub-packages. This code attempts to fix the problem by
wrapping a new package object around the existing package. These methods
can
be repaired: _ALR, _CSD, _HPX, _MLS, _PRT, _PSS, _TRT, and _TSS. ACPICA

BZ
790.

Fixed a regression introduced in 20090625 for the AcpiGetDevices
interface.
The _HID/_CID matching was broken and no longer matched IDs correctly.
ACPICA
BZ 793.

Fixed a problem with AcpiReset where the reset would silently fail if the
register was one of the protected I/O ports. AcpiReset now bypasses the
port
validation mechanism. This may eventually be driven into the
AcpiRead/Write
interfaces.

Fixed a regression related to the recent update of the AcpiRead/Write
interfaces. A sleep/suspend could fail if the optional PM2 Control
register
does not exist during an attempt to write the Bus Master Arbitration bit.
(However, some hosts already delete the code that writes this bit, and
the
code may in fact be obsolete at this date.) ACPICA BZ 799.

Fixed
a problem where AcpiTerminate could fault if inadvertently called
twice
in succession. ACPICA BZ 795.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version: 84.7K Code, 17.8K Data, 102.5K Total
Debug Version: 160.5K Code, 50.6K Data, 211.1K Total
Current Release:
Non-Debug Version: 85.5K Code, 18.0K Data, 103.5K Total
Debug Version: 161.6K Code, 50.9K Data, 212.5K Total

2) iASL Compiler/Disassembler and Tools:

ACPI 4.0: Implemented disassembler support for all new ACPI tables and
changes to existing tables. ACPICA BZ 775.

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25 June 2009. Summary of changes for version 20090625:

The ACPI 4.0 Specification was released on June 16 and is available at www.acpi.info. ACPICA implementation of ACPI 4.0 is underway and will continue for the next few releases.

1) ACPI CA Core Subsystem:

ACPI 4.0: Implemented interpreter support for the IPMI operation region address space. Includes support for bi-directional data buffers and an IPMI address space handler (to be installed by an IPMI device driver.) ACPICA BZ 773. Lin Ming.

ACPI 4.0: Added changes for existing ACPI tables - FACS and SRAT. Includes support in both the header files and the disassembler.

Completed a major update for the AcpiGetObjectInfo external interface. Changes include:
- Support for variable, unlimited length HID, UID, and CID strings.
- Support Processor objects the same as Devices (HID,UID,CID,ADR,STA, etc.)
- Call the _SxW power methods on behalf of a device object.
- Determine if a device is a PCI root bridge.
- Change the ACPI_BUFFER parameter to ACPI_DEVICE_INFO.
These changes will require an update to all callers of this interface. See the updated ACPICA Programmer Reference for details. One new source file has been added - utilities/utids.c. ACPICA BZ 368, 780.

Updated the AcpiRead and AcpiWrite external interfaces to support 64-bit transfers. The Value parameter has been extended from 32 bits to 64 bits in order to support new ACPI 4.0 tables. These changes will require an update to all callers of these interfaces. See the ACPICA Programmer Reference for details. ACPICA BZ 768.

Fixed several problems with AcpiAttachData. The handler was not invoked when the host node was deleted. The data sub-object was not automatically deleted

when the host node was deleted. The interface to the handler had an unused
parameter, this was removed. ACPICA BZ 778.

Enhanced the function that dumps ACPI table headers. All non-printable characters in the string fields are now replaced with '?' (Signature, OemId,
OemTableId, and CompilerId.) ACPI tables with non-printable characters in these fields are occasionally seen in the field. ACPICA
BZ 788.

Fixed a problem with predefined method repair code where the code that attempts to repair/convert an object of incorrect type is only executed on
the first time the predefined method is called. The mechanism that disables
warnings on subsequent calls was interfering with the repair mechanism. ACPICA BZ 781.

Fixed a possible memory leak in the predefined validation/repair code when
a
buffer is automatically converted to an expected string object.

Removed obsolete 16-bit files from the distribution and from the current git
tree head. ACPICA BZ 776.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 83.4K Code, 17.5K Data, 100.9K Total
Debug Version: 158.9K Code, 50.0K Data, 208.9K Total
Current Release:

Non-Debug Version: 84.7K Code, 17.8K Data, 102.5K Total
Debug Version: 160.5K Code, 50.6K Data, 211.1K Total

2) iASL Compiler/Disassembler and Tools:

ACPI 4.0: iASL and Disassembler - implemented support for the new IPMI operation region keyword. ACPICA BZ 771, 772. Lin Ming.

ACPI 4.0: iASL - implemented compile-time validation support for all new

predefined names and control methods (31 total). ACPICA BZ 769.

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21 May 2009. Summary of changes for version 20090521:

1) ACPI CA Core Subsystem:

Disabled the preservation of the SCI enable bit in the PM1 control register.
The SCI enable bit (bit 0, SCI_EN) is defined by the ACPI specification to
be
a "preserved" bit - "OSPM always preserves this bit position", section 4.7.3.2.1. However, some machines fail if this bit is in fact preserved because the bit needs to be explicitly set by the OS as a workaround. No machines fail if the bit is not preserved. Therefore, ACPICA no longer

attempts to preserve this bit.

Fixed a problem in AcpiRsGetPciRoutingTableLength where an invalid or incorrectly formed _PRT package could cause a fault. Added validation to ensure that each package element is actually a sub-package.

Implemented a new interface to install or override a single control method,
AcpiInstallMethod. This interface is useful when debugging in order to repair
an existing method or to install a missing method without having to override
the entire ACPI table. See the ACPICA Programmer Reference for use and examples. Lin Ming, Bob Moore.

Fixed several reference count issues with the DdbHandle object that is created from a Load or LoadTable operator. Prevent premature deletion of the
object. Also, mark the object as invalid once the table has been unloaded.
This is needed because the handle itself may not be deleted after the table
unload, depending on whether it has been stored in a named object by the caller. Lin Ming.

Fixed a problem
with Mutex Sync Levels. Fixed a problem where if multiple
mutexes of the same sync level are acquired but then not released in strict
opposite order, the internally maintained Current Sync Level becomes confused

and can cause subsequent execution errors. ACPICA BZ 471.

Changed the allowable release order for ASL mutex objects. The ACPI 4.0 specification has been changed to make the SyncLevel for mutex objects more useful. When releasing a mutex, the SyncLevel of the mutex must now be the same as the current sync level. This makes more sense than the previous rule (SyncLevel less than or equal). This change updates the code to match the specification.

Fixed a problem with the local version of the AcpiOsPurgeCache function. The (local) cache must be locked during all cache object deletions. Andrew Baumann.

Updated the Load operator to use operation region interfaces. This replaces direct memory mapping with region access calls. Now, all region accesses go through the installed region handler as they should.

Simplified and optimized the NsGetNextNode function. Reduced parameter count and reduced code for this frequently used function.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 82.8K Code, 17.5K Data, 100.3K Total
Debug Version: 158.0K Code, 49.9K Data, 207.9K Total
Current Release:
Non-Debug Version: 83.4K Code, 17.5K Data, 100.9K Total
Debug Version: 158.9K Code, 50.0K Data, 208.9K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed some issues with DMAR, HEST, MADT tables. Some problems with sub-table disassembly and handling invalid sub-tables. Attempt recovery after an invalid sub-table ID.

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22 April
2009. Summary of changes for version 20090422:

1) ACPI CA Core Subsystem:

Fixed a compatibility issue with the recently released I/O port
protection
mechanism. For windows compatibility, 1) On a port protection violation,
simply ignore the request and do not return an exception (allow the
control
method to continue execution.) 2) If only part of the request overlaps a
protected port, read/write the individual ports that are not protected.
Linux
BZ 13036. Lin Ming

Enhanced the execution of the ASL/AML BreakPoint operator so that it
actually
breaks into the AML debugger if the debugger is present. This matches the
ACPI-defined behavior.

Fixed several possible warnings related to the use of the configurable
ACPI_THREAD_ID. This type can now be configured as either an integer or a
pointer with no warnings. Also fixes several warnings in printf-like
statements for the 64-bit build when the type is configured as a pointer.
ACPICA BZ 766, 767.

Fixed a number of possible warnings
when compiling with gcc 4+ (depending
on
warning options.) Examples include printf formats, aliasing, unused
globals,
missing prototypes, missing switch default statements, use of non-ANSI
library functions, use of non-ANSI constructs. See generate/unix/Makefile
for
a list of warning options used with gcc 3 and 4. ACPICA BZ 735.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version: 82.6K Code, 17.6K Data, 100.2K Total
Debug Version: 157.7K Code, 49.9K Data, 207.6K Total
Current Release:

Non-Debug Version: 82.8K Code, 17.5K Data, 100.3K Total
Debug Version: 158.0K Code, 49.9K Data, 207.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a generation warning from Bison 2.3 and fixed several warnings

on
the 64-bit build.

iASL: Fixed a problem where the Unix/Linux versions of the compiler could not
correctly digest Windows/DOS formatted files (with CR/LF).

iASL: Added a new option for "quiet mode" (-va) that produces only the compilation summary, not individual errors and warnings. Useful for large batch compilations.

AcpiExec: Implemented a new option (-z) to enable a forced semaphore/mutex
timeout that can be used to detect hang conditions during execution of AML
code (includes both internal semaphores and AML-defined mutexes and events.)

Added new makefiles for the generation of acpica in a generic unix-like environment. These makefiles are intended to generate the acpica tools and
utilities from the original acpica git source tree structure.

Test Suites: Updated and cleaned up the documentation files. Updated the copyrights to 2009, affecting all source files. Use the new version of iASL
with quiet mode. Increased the number of available semaphores in the
Windows
OSL, allowing the aslts to execute fully on Windows. For the Unix OSL, added
an alternate implementation of the semaphore timeout to allow aslts to execute fully on Cygwin.

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20 March 2009. Summary of changes for version 20090320:

1) ACPI CA Core Subsystem:

Fixed a possible race condition between AcpiWalkNamespace and dynamic

table
unloads. Added a reader/writer locking mechanism to allow multiple
concurrent
namespace walks (readers), but block a dynamic table unload until it can
gain
exclusive write access to the namespace. This fixes a problem where a
table
unload could (possibly catastrophically) delete the portion of the
namespace
that is currently being examined by a walk. Adds a new file, utlock.c,
that
implements the reader/writer lock mechanism. ACPICA BZ 749.

Fixed a regression introduced in version 20090220 where a change to the
FADT
handling could cause the ACPICA subsystem to access non-existent I/O

ports.

Modified the handling of FADT register and table (FACS/DSDT) addresses.
The
FADT can contain both 32-bit and 64-bit versions of these addresses.
Previously, the 64-bit versions were favored, meaning that if both 32 and
64
versions were valid, but not equal, the 64-bit version was used. This was
found to cause some machines to fail. Now, in this case, the 32-bit
version
is used instead. This now matches the Windows behavior.

Implemented a new mechanism to protect certain I/O ports. Provides
Microsoft
compatibility and protects the standard PC I/O ports from access via AML
code. Adds a new file, hwvalid.c

Fixed a possible extraneous warning message from the FADT support. The
message warns of a 32/64 length mismatch between the legacy and GAS
definitions for a register.

Removed the obsolete AcpiOsValidateAddress OSL interface. This interface
is
made obsolete by the port protection mechanism above. It was previously
used
to validate the entire address range of
an operation region, which could
be
incorrect if the range included illegal ports, but fields within the
operation region did not actually access those ports. Validation is now
performed on a per-field basis instead of the entire region.

Modified the handling of the PM1 Status Register ignored bit (bit 11.)
Ignored bits must be "preserved" according to the ACPI spec. Usually,
this
means a read/modify/write when writing to the register. However, for
status
registers, writing a one means clear the event. Writing a zero means
preserve
the event (do not clear.) This behavior is clarified in the ACPI 4.0
spec,
and the ACPICA code now simply always writes a zero to the ignored bit.

Modified the handling of ignored bits for the PM1 A/B Control Registers.
As
per the ACPI specification, for the control registers, preserve
(read/modify/write) all bits that are defined as either reserved or
ignored.

Updated the handling of write-only bits in the PM1 A/B Control Registers.
When
reading the register, zero the write-only bits as per the ACPI spec.
ACPICA BZ 443. Lin Ming.

Removed "Linux" from the list of supported _OSI strings. Linux no longer
wants to reply true to this request. The Windows strings are the only
paths
through the AML that are tested and known to work properly.

Previous Release:
Non-Debug Version: 82.0K Code, 17.5K Data, 99.5K Total
Debug Version: 156.9K Code, 49.8K Data, 206.7K Total
Current Release:
Non-Debug Version: 82.6K Code, 17.6K Data, 100.2K Total
Debug Version: 157.7K Code, 49.9K Data, 207.6K Total

2) iASL Compiler/Disassembler and Tools:

Acpiexec: Split the large aeexec.c file into two new files, aehandlers.c
and
aetables.c

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20 February 2009. Summary of changes for version 20090220:

1) ACPI CA Core Subsystem:

Optimized the ACPI register locking. Removed locking for reads from the
ACPI

bit registers in PM1 Status, Enable, Control, and PM2 Control. The lock is not required when reading the single-bit registers. The AcpiGetRegisterUnlocked function is no longer needed and has been removed. This will improve performance for reads on these registers. ACPICA BZ 760.

Fixed the parameter validation for AcpiRead/Write. Now return AE_BAD_PARAMETER if the input register pointer is null, and AE_BAD_ADDRESS if the register has an address of zero. Previously, these cases simply returned AE_OK. For optional registers such as PM1B status/enable/control, the caller should check for a valid register address before calling. ACPICA BZ 748.

Renamed the external ACPI bit register access functions. Renamed AcpiGetRegister and AcpiSetRegister to clarify the purpose of these functions. The new names are AcpiReadBitRegister and AcpiWriteBitRegister. Also, restructured the code for these functions by simplifying the code path and condensing duplicate code to reduce code size.

Added new functions to transparently handle the possibly split PM1 A/B registers. AcpiHwReadMultiple and AcpiHwWriteMultiple. These two functions now handle the split registers for PM1 Status, Enable, and Control. ACPICA BZ 746.

Added a function to handle the PM1 control registers, AcpiHwWritePm1Control. This function writes both of the PM1 control registers (A/B). These registers are different than the PM1 A/B status and enable registers in that different values can be written to the A/B registers. Most notably, the SLP_TYP bits can be different, as per the values returned from the _Sx predefined methods.

Removed an extra register write within AcpiHwClearAcpiStatus. This

function
was writing an optional PM1B status register twice. The existing call to
the
low-level AcpiHwRegisterWrite automatically handles a possibly split PM1
A/B
register. ACPICA BZ 751.

Split out the PM1 Status registers from the FADT. Added new globals for
these
registers (A/B), similar to the way the PM1 Enable registers are handled.
Instead
of overloading the FADT Event Register blocks. This makes the
code
clearer and less prone to error.

Fixed the warning message for when the platform contains too many ACPI
tables
for the default size of the global root table data structure. The
calculation
for the truncation value was incorrect.

Removed the ACPI_GET_OBJECT_TYPE macro. Removed all instances of this
obsolete macro, since it is now a simple reference to ->common.type.
There
were about 150 invocations of the macro across 41 files. ACPICA BZ 755.

Removed the redundant ACPI_BITREG_SLEEP_TYPE_B. This type is the same as
TYPE_A. Removed this and all related instances. Renamed SLEEP_TYPE_A to
simply SLEEP_TYPE. ACPICA BZ 754.

Conditionally compile the AcpiSetFirmwareWakingVector64 function. This
function is only needed on 64-bit host operating systems and is thus not
included for 32-bit hosts.

Debug output: print the input and result for invocations of the _OSI
reserved
control method via the ACPI_LV_INFO debug
level. Also, reduced some of
the
verbosity of this debug level. Len Brown.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:

Non-Debug Version: 82.3K Code, 17.5K Data, 99.8K Total
Debug Version: 157.3K Code, 49.8K Data, 207.1K Total
Current Release:
Non-Debug Version: 82.0K Code, 17.5K Data, 99.5K Total
Debug Version: 156.9K Code, 49.8K Data, 206.7K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Decode the FADT PM_Profile field. Emit ascii names for the various legal performance profiles.

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23 January 2009. Summary of changes for version 20090123:

1) ACPI CA Core Subsystem:

Added the 2009 copyright to all module headers and signons. This affects virtually every file
in the ACPICA core subsystem, the iASL compiler, and
the tools/utilities.

Implemented a change to allow the host to override any ACPI table, including
dynamically loaded tables. Previously, only the DSDT could be replaced by the
host. With this change, the AcpiOsTableOverride interface is called for each
table found in the RSDT/XSDT during ACPICA initialization, and also whenever
a table is dynamically loaded via the AML Load operator.

Updated FADT flag definitions, especially the Boot Architecture flags.

Debugger: For the Find command, automatically pad the input ACPI name with
underscores if the name is shorter than 4 characters. This enables a match
with the actual namespace entry which is itself padded with underscores.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data
size.

Previous Release:
Non-Debug Version: 82.3K Code, 17.4K Data, 99.7K Total

Debug Version: 157.1K Code, 49.7K Data, 206.8K Total
Current Release:
Non-Debug Version: 82.3K Code, 17.5K Data, 99.8K Total
Debug Version: 157.3K Code, 49.8K Data, 207.1K Total

2) iASL Compiler/Disassembler and Tools:

Fix build error under Bison-2.4.

Disassembler: Enhanced FADT support. Added decoding of the Boot Architecture
flags. Now decode all flags, regardless of the FADT version. Flag output
includes the FADT version which first defined each flag.

The iASL -g option now dumps the RSDT to a file (in addition to the FADT and
DSDT). Windows only.

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04 December 2008. Summary of changes for version 20081204:

1) ACPI CA Core Subsystem:

The ACPICA Programmer Reference has been completely updated and revamped for
this release. This includes updates to the external interfaces, OSL
interfaces, the overview sections, and the
debugger reference.

Several new ACPICA interfaces have been implemented and documented in the
programmer reference:
AcpiReset - Writes the reset value to the FADT-defined reset register.
AcpiDisableAllGpes - Disable all available GPEs.
AcpiEnableAllRuntimeGpes - Enable all available runtime GPEs.
AcpiGetGpeDevice - Get the GPE block device associated with a GPE.
AcpiGbl_CurrentGpeCount - Tracks the current number of available GPEs.
AcpiRead - Low-level read ACPI register (was HwLowLevelRead.)
AcpiWrite - Low-level write ACPI register (was HwLowLevelWrite.)

Most of the public ACPI hardware-related interfaces have been moved to a new
file, components/hardware/hwxface.c

Enhanced the FADT parsing and low-level ACPI register access: The ACPI
register lengths within the FADT are now used, and the low level ACPI
register access no longer hardcodes the ACPI register lengths. Given that
there may be some risk in actually trusting the FADT register lengths, a
run-

time option was added
to fall back to the default hardcoded lengths if
the
FADT proves to contain incorrect values - UseDefaultRegisterWidths. This
option is set to true for now, and a warning is issued if a suspicious
FADT
register length is overridden with the default value.

Fixed a reference count issue in NsRepairObject. This problem was
introduced
in version 20081031 as part of a fix to repair Buffer objects within
Packages. Lin Ming.

Added semaphore support to the Linux/Unix application OS-services layer
(OSL). ACPICA BZ 448. Lin Ming.

Added the ACPI_MUTEX_TYPE configuration option to select whether mutexes
will
be implemented in the OSL, or will binary semaphores be used instead.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version: 81.7K
Code, 17.3K Data, 99.0K Total
Debug Version: 156.4K Code, 49.4K Data, 205.8K Total
Current Release:
Non-Debug Version: 82.3K Code, 17.4K Data, 99.7K Total
Debug Version: 157.1K Code, 49.7K Data, 206.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Completed the '-e' option to include additional ACPI tables in
order
to
aid with disassembly and External statement generation. ACPICA BZ 742.
Lin
Ming.

iASL: Removed the "named object in while loop" error. The compiler cannot
determine how many times a loop will execute. ACPICA BZ 730.

Disassembler: Implemented support for FADT revision 2 (MS extension).
ACPICA

BZ 743.

Disassembler: Updates for several ACPI data tables (HEST, EINJ, and MCFG).

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31 October 2008. Summary of changes for version 20081031:

1) ACPI CA Core Subsystem:

Restructured the ACPICA header files into public/private. acpi.h now includes
only the "public" acpica headers. All other acpica
 headers are "private"
and
should not be included by acpica users. One new file, accommon.h is used to
include the commonly used private headers for acpica code generation. Future
plans include moving all private headers to a new subdirectory.

Implemented an automatic Buffer->String return value conversion for
predefined ACPI methods. For these methods (such as _BIF), added automatic
conversion for return objects that are required to be a String, but a Buffer
was found instead. This can happen when reading string battery data from an
operation region, because it used to be difficult to convert the data from
buffer to string from within the ASL. Ensures that the host OS is provided
with a valid null-terminated string. Linux BZ 11822.

Updated the FACS waking vector interfaces. Split AcpiSetFirmwareWakingVector
into two: one for the 32-bit vector, another for the 64-bit vector. This is
required because the host OS must setup the wake much differently for each
vector
 (real vs. protected mode, etc.) and the interface itself should not
be
deciding which vector to use. Also, eliminated the GetFirmwareWakingVector
interface, as it served no purpose (only the firmware reads the vector, OS

only writes the vector.) ACPICA BZ 731.

Implemented a mechanism to escape infinite AML While() loops. Added a loop
counter to force exit from AML While loops if the count becomes too large.
This can occur in poorly written AML when the hardware does not respond
within a while loop and the loop does not implement a timeout. The maximum
loop count is configurable. A new exception code is returned when a loop is
broken, AE_AML_INFINITE_LOOP. Alexey Starikovskiy, Bob Moore.

Optimized the execution of AML While loops. Previously, a control state
object was allocated and freed for each execution of the loop. The
optimization is to simply reuse the control state for each iteration. This
speeds up the raw loop execution time by about 5%.

Enhanced the
implicit return mechanism. For Windows compatibility, return an
implicit integer of value zero for methods that contain no executable code.
Such methods are seen in the field as stubs (presumably), and can cause
drivers to fail if they expect a return value. Lin Ming.

Allow multiple backslashes as root prefixes in namepaths. In a fully
qualified namepath, allow multiple backslash prefixes. This can happen (and
is seen in the field) because of the use of a double-backslash in strings
(since backslash is the escape character) causing confusion. ACPICA BZ 739
Lin Ming.

Emit a warning if two different FACS or DSDT tables are discovered in the
FADT. Checks if there are two valid but different addresses for the FACS and
DSDT within the FADT (mismatch between the 32-bit and 64-bit fields.)

Consolidated the method argument count validation code. Merged the code that
validates control method argument counts into the predefined validation
module. Eliminates possible multiple
warnings for incorrect argument
counts.

Implemented ACPICA example code. Includes code for ACPICA initialization,

handler installation, and calling a control method. Available at source/tools/examples.

Added a global pointer for FACS table to simplify internal FACS access. Use
the global pointer instead of using AcpiGetTableByIndex for each FACS access.
This simplifies the code for the Global Lock and the Firmware Waking Vector(s).

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 81.2K Code, 17.0K Data, 98.2K Total
Debug Version: 155.8K Code, 49.1K Data, 204.9K Total
Current Release:
Non-Debug Version: 81.7K Code, 17.3K Data, 99.0K Total
Debug Version: 156.4K Code, 49.4K Data, 205.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Improved disassembly of external method calls. Added the -e option to
allow the inclusion of additional ACPI tables to help with the disassembly
of
method invocations and the generation of external declarations during the disassembly. Certain external method invocations cannot be disassembled properly without the actual declaration of the method. Use the -e option to
include the table where the external method(s) are actually declared. Most
useful for disassembling SSDTs that make method calls back to the master DSDT. Lin Ming. Example: To disassemble an SSDT with calls to DSDT: iasl -d
-e dsdt.aml ssdt1.aml

iASL: Fix to allow references to aliases within ASL namepaths. Fixes a problem where the use of an alias within a namepath would result in a not found error or cause the compiler to fault. Also now allows forward references from the Alias operator itself. ACPICA BZ 738.

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26 September
2008. Summary of changes for version 20080926:

1) ACPI CA Core Subsystem:

Designed and implemented a mechanism to validate predefined ACPI methods and
objects. This code validates the predefined ACPI objects (objects whose names
start with underscore) that appear in the namespace, at the time they are
evaluated. The argument count and the type of the returned object are
validated against the ACPI specification. The purpose of this validation is
to detect problems with the BIOS-implemented predefined ACPI objects before
the results are returned to the ACPI-related drivers. Future enhancements may
include actual repair of incorrect return objects where possible. Two new
files are nspredef.c and acpredef.h.

Fixed a fault in the AML parser if a memory allocation fails during the Op
completion routine AcpiPsCompleteThisOp. Lin Ming. ACPICA BZ 492.

Fixed an issue with implicit return compatibility. This change improves the
implicit return mechanism to be more compatible
with the MS interpreter.
Lin
Ming, ACPICA BZ 349.

Implemented support for zero-length buffer-to-string conversions. Allow zero
length strings during interpreter buffer-to-string conversions. For example,
during the ToDecimalString and ToHexString operators, as well as implicit
conversions. Fiodor Suietov, ACPICA BZ 585.

Fixed two possible memory leaks in the error exit paths of
AcpiUtUpdateObjectReference and AcpiUtWalkPackageTree. These functions are
similar in that they use a stack of state objects in order to eliminate
recursion. The stack must be fully unwound and deallocated if an error
occurs. Lin Ming. ACPICA BZ 383.

Removed the unused ACPI_BITREG_WAKE_ENABLE definition and entry in the global
ACPI register table. This bit does not exist and is unused. Lin Ming, Bob

Moore ACPICA BZ 442.

Removed the obsolete version number in module headers. Removed the "$Revision" number that appeared in each module header. This version number was useful under SourceSafe and CVS, but has no meaning under git. It is not only incorrect, it could also be misleading.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total
Debug Version: 153.7K Code, 48.2K Data, 201.9K Total
Current Release:
Non-Debug Version: 81.2K Code, 17.0K Data, 98.2K Total
Debug Version: 155.8K Code, 49.1K Data, 204.9K Total

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29 August 2008. Summary of changes for version 20080829:

1) ACPI CA Core Subsystem:

Completed a major cleanup of the internal ACPI_OPERAND_OBJECT of type Reference. Changes include the elimination of cheating on the Object field for the DdbHandle subtype, addition of a reference class field to differentiate the various reference types (instead of an AML opcode), and the cleanup of debug output for this object. Lin Ming, Bob Moore. BZ 723

Reduce an error to a warning for an incorrect method argument count. Previously aborted with an error if too few arguments were passed to a control method via the external ACPICA interface. Now issue a warning instead and continue. Handles the case where the method inadvertently declares too many arguments, but does not actually use the extra ones. Applies mainly to the predefined methods. Lin Ming. Linux BZ 11032.

Disallow the evaluation of named object types with no intrinsic value.

Return
AE_TYPE for objects that have no value and therefore evaluation is
undefined:
Device, Event, Mutex, Region, Thermal, and Scope. Previously, evaluation
of
these types were allowed, but an exception would be generated at some
point
during the evaluation. Now, the error is generated up front.

Fixed a possible memory leak in the AcpiNsGetExternalPathname function

(nsnames.c). Fixes a leak in the error exit path.

Removed the obsolete debug levels ACPI_DB_WARN and ACPI_DB_ERROR. These
debug
levels were made obsolete by the ACPI_WARNING, ACPI_ERROR, and
ACPI_EXCEPTION
interfaces. Also added ACPI_DB_EVENTS to correspond with the existing
ACPI_LV_EVENTS.

Removed obsolete and/or unused exception codes from the acexcep.h header.
There is the possibility that certain device drivers may be affected if
they
use any of these exceptions.

The ACPICA documentation has been added to the public git source tree,
under
acpica/documents. Included are the ACPICA programmer reference, the iASL
compiler reference, and the changes.txt release logfile.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has a
much larger code and data size.

Previous Release:
Non-Debug Version:
79.7K Code, 16.4K Data, 96.1K Total
Debug Version: 153.9K Code, 48.4K Data, 202.3K Total
Current Release:
Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total
Debug Version: 153.7K Code, 48.2K Data, 201.9K Total

2) iASL Compiler/Disassembler and Tools:

Allow multiple argument counts for the predefined _SCP method. ACPI 3.0
defines _SCP with 3 arguments. Previous versions defined it with only 1

argument. iASL now allows both definitions.

iASL/disassembler: avoid infinite loop on bad ACPI tables. Check for zero-
length subtables when disassembling ACPI tables. Also fixed a couple of
errors where a full 16-bit table type field was not extracted from the input
properly.

acpisrc: Improve comment counting mechanism for generating source code
statistics. Count first and last lines of multi-line comments as whitespace,
not comment lines. Handle Linux legal header in addition to standard acpica
header.

29
July 2008. Summary of changes for version 20080729:

1) ACPI CA Core Subsystem:

Fix a possible deadlock in the GPE dispatch. Remove call to
AcpiHwDisableAllGpes during wake in AcpiEvGpeDispatch. This call will attempt
to acquire the GPE lock but can deadlock since the GPE lock is already held
at dispatch time. This code was introduced in version 20060831 as a response
to Linux BZ 6881 and has since been removed from Linux.

Add a function to dereference returned reference objects. Examines the return
object from a call to AcpiEvaluateObject. Any Index or RefOf references are
automatically dereferenced in an attempt to return something useful (these
reference types cannot be converted into an external ACPI_OBJECT.) Provides
MS compatibility. Lin Ming, Bob Moore. Linux BZ 11105

x2APIC support: changes for MADT and SRAT ACPI tables. There are 2 new
subtables for the MADT and one new subtable for the SRAT. Includes
disassembler and AcpiSrc support. Data from the Intel 64 Architecture
x2APIC
Specification, June 2008.

Additional error checking for pathname utilities. Add error check after all
calls to AcpiNsGetPathnameLength. Add status return from AcpiNsBuildExternalPath and check after all calls. Add parameter validation
to AcpiUtInitializeBuffer. Reported by and initial patch by Ingo Molnar.

Return status from the global init function AcpiUtGlobalInitialize. This is
used by both the kernel subsystem and the utilities such as iASL compiler.
The function could possibly fail when the caches are initialized. Yang Yi.

Add a function to decode reference object types to strings. Created for improved error messages.

Improve object conversion error messages. Better error messages during object
conversion from internal to the external ACPI_OBJECT. Used for external calls
to AcpiEvaluateObject.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug
version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 79.6K Code, 16.2K Data, 95.8K Total
Debug Version: 153.5K Code, 48.2K Data, 201.7K Total
Current Release:
Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total
Debug Version: 153.9K Code, 48.4K Data, 202.3K Total

2) iASL Compiler/Disassembler and Tools:

Debugger: fix a possible hang when evaluating non-methods. Fixes a problem
introduced in version 20080701. If the object being evaluated (via execute
command) is not a method, the debugger can hang while trying to obtain non-
existent parameters.

iASL: relax error for using reserved "_T_x" identifiers. These names can
appear in a disassembled ASL file if they were emitted by the original
compiler. Instead of issuing an error or warning and forcing the user to
manually change these names, issue a remark instead.

iASL: error if named object created
in while loop. Emit an error if any
named
object is created within a While loop. If allowed, this code will
generate
a
run-time error on the second iteration of the loop when an attempt is
made
to
create the same named object twice. ACPICA bugzilla 730.

iASL: Support absolute pathnames for include files. Add support for
absolute
pathnames within the Include operator. previously, only relative
pathnames
were supported.

iASL: Enforce minimum 1 interrupt in interrupt macro and Resource
Descriptor.
The ACPI spec requires one interrupt minimum. BZ 423

iASL: Handle a missing ResourceSource arg, with a present SourceIndex.
Handles the case for the Interrupt Resource Descriptor where
the ResourceSource argument is omitted but ResourceSourceIndex
is present. Now leave room for the Index. BZ 426

iASL: Prevent error message if CondRefOf target does not exist. Fixes
cases
where an error message is emitted if the target does not exist. BZ 516

iASL: Fix broken -g option (get
Windows ACPI tables). Fixes the -g option
(get ACPI tables on Windows). This was apparently broken in version
20070919.

AcpiXtract: Handle EOF while extracting data. Correctly handle the case
where
the EOF happens immediately after the last table in the input file. Print
completion message. Previously, no message was displayed in this case.

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01 July 2008. Summary of changes for version 20080701:

0) Git source tree / acpica.org

Fixed a problem where a git-clone from http would not transfer the entire source tree.

1) ACPI CA Core Subsystem:

Implemented a "careful" GPE disable in AcpiEvDisableGpe, only modify one enable bit. Now performs a read-change-write of the enable register instead
of simply writing out the cached enable mask. This will prevent inadvertent
enabling of GPEs if a rogue GPE is received during initialization (before GPE
handlers are installed.)

Implemented a copy for dynamically loaded tables. Previously, dynamically

loaded tables were simply mapped - but on some machines this memory is corrupted after suspend. Now copy the table to a local buffer. For the OpRegion case, added checksum verify. Use the table length from the table header, not the region length. For the Buffer case, use the table length also. Dennis Noordsij, Bob Moore. BZ 10734

Fixed a problem where the same ACPI table could not be dynamically loaded and
unloaded more than once. Without this change, a table cannot be loaded again
once it has been loaded/unloaded one time. The current mechanism does not unregister a table upon an unload. During a load, if the same table is found,
this no longer returns an exception. BZ 722

Fixed a problem where the wrong descriptor length was calculated for the EndTag descriptor in 64-bit mode. The "minimal" descriptors such as EndTag
are calculated as 12 bytes long, but the actual length in the internal descriptor is 16 because of the round-up to 8 on the 64-bit build. Reported

by Linn Crosetto. BZ 728

Fixed a possible memory leak in the Unload operator. The DdbHandle returned
by Load() did not have its reference count decremented during unload, leading
to a memory leak. Lin Ming. BZ 727

Fixed a possible memory leak when deleting thermal/processor objects. Any associated notify handlers (and objects) were not being deleted. Fiodor Suietov. BZ 506

Fixed the ordering of the ASCII names in the global mutex table to match the
actual mutex IDs. Used by AcpiUtGetMutexName, a function used for debug only.
Vegard Nossum. BZ 726

Enhanced the AcpiGetObjectInfo interface to return the number of required arguments if the object is a control method. Added this call to the debugger
so the proper number of default arguments are passed to a method. This prevents a warning when executing methods from AcpiExec.

Added a check for an invalid handle in AcpiGetObjectInfo. Return AE_BAD_PARAMETER if input handle is invalid. BZ 474

Fixed an extraneous warning
from exconfig.c on the 64-bit build.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a
much larger code and data size.

Previous Release:
Non-Debug Version: 79.3K Code, 16.2K Data, 95.5K Total
Debug Version: 153.0K Code, 48.2K Data, 201.2K Total
Current Release:
Non-Debug Version: 79.6K Code, 16.2K Data, 95.8K Total
Debug Version: 153.5K Code, 48.2K Data, 201.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added two missing ACPI reserved names. Added _MTP and _ASZ, both resource descriptor names.

iASL: Detect invalid ASCII characters in input (windows version). Removed the
"-CF" flag from the flex compile, enables correct detection of non-ASCII characters in the input. BZ 441

iASL: Eliminate warning when result of LoadTable is not used. Eliminate the
"result of

operation not used" warning when the DDB handle returned from
LoadTable is not used. The warning is not needed. BZ 590

AcpiExec: Add support for dynamic table load/unload. Now calls _CFG
method
to
pass address of table to the AML. Added option to disable OpRegion
simulation
to allow creation of an OpRegion with a real address that was passed to
_CFG.
All of this allows testing of the Load and Unload operators from
AcpiExec.

Debugger: update tables command for unloaded tables. Handle unloaded
tables
and use the standard table header output routine.

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09 June 2008. Summary of changes for version 20080609:

1) ACPI CA Core Subsystem:

Implemented a workaround for reversed _PRT entries. A significant number
of
BIOSs erroneously reverse the _PRT SourceName and the SourceIndex. This
change dynamically detects and repairs this problem. Provides
compatibility
with MS ACPI. BZ 6859

Simplified the internal ACPI hardware interfaces to eliminate
the locking
flag parameter from Register Read/Write. Added a new external interface,
AcpiGetRegisterUnlocked.

Fixed a problem where the invocation of a GPE control method could hang.
This
was a regression introduced in 20080514. The new method argument count
validation mechanism can enter an infinite loop when a GPE method is
dispatched. Problem fixed by removing the obsolete code that passed GPE
block
information to the notify handler via the control method parameter
pointer.

Fixed a problem where the _SST execution status was incorrectly returned
to
the caller of AcpiEnterSleepStatePrep. This was a regression introduced
in
20080514. _SST is optional and a NOT_FOUND exception should never be

returned. BZ 716

Fixed a problem where a deleted object could be accessed from within the AML
parser. This was a regression introduced in version 20080123 as a fix for the
Unload operator. Lin Ming. BZ 10669

Cleaned up the debug operand dump mechanism. Eliminated unnecessary

operands
and eliminated the use of a negative index in a loop. Operands are now
displayed in the correct order, not backwards. This also fixes a regression
introduced in 20080514 on 64-bit systems where the elimination of
ACPI_NATIVE_UINT caused the negative index to go large and positive. BZ 715

Fixed a possible memory leak in EvPciConfigRegionSetup where the error exit
path did not delete a locally allocated structure.

Updated definitions for the DMAR and SRAT tables to synchronize with the
current specifications. Includes disassembler support.

Fixed a problem in the mutex debug code (in utmutex.c) where an incorrect
loop termination value was used. Loop terminated on iteration early, missing
one mutex. Linn Crosetto

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and has a
much larger code and
 data size.

 Previous Release:
   Non-Debug Version: 79.5K Code, 16.2K Data, 95.7K Total
   Debug Version: 153.3K Code, 48.3K Data, 201.6K Total
 Current Release:
   Non-Debug Version: 79.3K Code, 16.2K Data, 95.5K Total
   Debug Version: 153.0K Code, 48.2K Data, 201.2K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Implemented support for EisaId() within _CID objects. Now
disassemble integer _CID objects back to EisaId invocations, including

multiple integers within _CID packages. Includes single-step support for debugger also.

Disassembler: Added support for DMAR and SRAT table definition changes.

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14 May 2008. Summary of changes for version 20080514:

1) ACPI CA Core Subsystem:

Fixed a problem where GPEs were enabled too early during the ACPICA initialization. This could lead to "handler not installed" errors on some machines. Moved GPE enable until after _REG/_STA/_INI methods are run. This ensures that all operation regions and devices throughout the namespace have been initialized before GPEs are enabled. Alexey Starikovskiy, BZ 9916.

Implemented a change to the enter sleep code. Moved execution of the _GTS method to just before setting sleep enable bit. The execution was moved from AcpiEnterSleepStatePrep to AcpiEnterSleepState. _GTS is now executed immediately before the SLP_EN bit is set, as per the ACPI specification. Luming Yu, BZ 1653.

Implemented a fix to disable unknown GPEs (2nd version). Now always disable the GPE, even if ACPICA thinks that that it is already disabled. It is possible that the AML or some other code has enabled the GPE unbeknownst to the ACPICA code.

Fixed a problem with the Field operator where zero-length fields would return an AE_AML_NO_OPERAND exception during table load. Fix enables zero-length ASL field declarations in Field(), BankField(), and IndexField(). BZ 10606.

Implemented a fix for the Load operator, now load the table at the namespace root. This reverts a change introduced in version 20071019. The table is now loaded at the namespace root even though this goes against the ACPI specification. This provides compatibility with other ACPI implementations. The ACPI specification will be updated to reflect this in ACPI 4.0. Lin

Ming.

Fixed a problem where ACPICA would not Load() tables with unusual signatures.
Now ignore ACPI table signature for Load() operator. Only "SSDT" is acceptable to the ACPI spec, but tables are seen with OEMx and null sigs. Therefore, signature validation is worthless. Apparently MS ACPI accepts such signatures, ACPICA must be compatible. BZ 10454.

Fixed a possible negative array index in AcpiUtValidateException. Added NULL fields to the exception string arrays to eliminate a -1 subtraction on the SubStatus field.

Updated the debug tracking macros to reduce overall code and data size.
Changed ACPI_MODULE_NAME and ACPI_FUNCTION_NAME to use arrays of strings

instead of pointers to static strings. Jan Beulich and Bob Moore.

Implemented argument count checking in control method invocation via AcpiEvaluateObject. Now emit an error if too few arguments, warning if too many. This applies only to extern programmatic control method execution, not method-to-method calls within the AML. Lin Ming.

Eliminated the ACPI_NATIVE_UINT type across all ACPICA code. This type is no longer needed, especially with the removal of 16-bit support. It was replaced mostly with UINT32, but also ACPI_SIZE where a type that changes 32/64 bit on 32/64-bit platforms is required.

Added the C const qualifier for appropriate string constants -- mostly MODULE_NAME and printf format strings. Jan Beulich.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 80.0K Code, 17.4K Data, 97.4K Total

Debug Version: 159.4K Code, 64.4K Data, 223.8K Total
Current Release:
Non-Debug Version: 79.5K Code, 16.2K Data, 95.7K Total
Debug Version: 153.3K Code, 48.3K Data, 201.6K Total

2) iASL Compiler/Disassembler and Tools:

Implemented ACPI table revision ID validation in the disassembler. Zero is
always invalid. For DSDTs, the ID controls the interpreter integer width. 1
means 32-bit and this is unusual. 2 or greater is 64-bit.

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21 March 2008. Summary of changes for version 20080321:

1) ACPI CA Core Subsystem:

Implemented an additional change to the GPE support in order to suppress spurious or stray GPEs. The AcpiEvDisableGpe function will now permanently
disable incoming GPEs that are neither enabled nor disabled -- meaning that
the GPE is unknown to the system. This should prevent future interrupt floods
from that GPE. BZ 6217
(Zhang Rui)

Fixed a problem where NULL package elements were not returned to the AcpiEvaluateObject interface correctly. The element was simply ignored instead of returning a NULL ACPI_OBJECT package element, potentially causing
a buffer overflow and/or confusing the caller who expected a fixed number of
elements. BZ 10132 (Lin Ming, Bob Moore)

Fixed a problem with the CreateField, CreateXXXField (Bit, Byte, Word, Dword,
Qword), Field, BankField, and IndexField operators when invoked from inside
an executing control method. In this case, these operators created namespace
nodes that were incorrectly left marked as permanent nodes instead of temporary nodes. This could cause a problem if there is race condition between an exiting control method and a running namespace walk. (Reported by
Linn Crosetto)

Fixed a problem where the CreateField and CreateXXXField operators would incorrectly allow duplicate names (the name of the field) with no exception
generated.

Implemented
several changes for Notify handling. Added support for new Notify
values (ACPI 2.0+) and improved the Notify debug output. Notify on PowerResource objects is no longer allowed, as per the ACPI specification.
(Bob Moore, Zhang Rui)

All Reference Objects returned via the AcpiEvaluateObject interface are now
marked as type "REFERENCE" instead of "ANY". The type ANY is now reserved for
NULL objects - either NULL package elements or unresolved named references.

Fixed a problem where an extraneous debug message was produced for package
objects (when debugging enabled). The message "Package List length larger than NumElements count" is now produced in the correct case, and is now an
error message rather than a debug message. Added a debug message for the opposite case, where NumElements is larger than the Package List (the package
will be padded out with NULL elements as per the ACPI spec.)

Implemented several improvements for the output of the ASL "Debug" object

to
clarify and keep all data for a given object on one output line.

Fixed two size calculation issues with the variable-length Start Dependent
resource descriptor.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 79.7K Code, 17.3K Data, 97.0K Total
Debug Version: 158.9K Code, 64.0K Data, 222.9K Total

Current Release:
Non-Debug Version: 80.0K Code, 17.4K Data, 97.4K Total
Debug Version: 159.4K Code, 64.4K Data, 223.8K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a problem with the use of the Switch operator where execution of the containing method by multiple concurrent threads could cause an AE_ALREADY_EXISTS exception. This is caused by the fact that there is no actual Switch opcode, it must be simulated with local named temporary variables and if/else pairs. The solution chosen was to mark any method that uses Switch as Serialized, thus preventing multiple thread entries. BZ 469.

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13 February 2008. Summary of changes for version 20080213:

1) ACPI CA Core Subsystem:

Implemented another MS compatibility design change for GPE/Notify handling.
GPEs are now cleared/enabled asynchronously to allow all pending notifies to complete first. It is expected that the OSL will queue the enable request behind all pending notify requests (may require changes to the local host OSL in AcpiOsExecute). Alexey Starikovskiy.

Fixed a problem where buffer and package objects passed as arguments to a control method via the external AcpiEvaluateObject interface could cause an AE_AML_INTERNAL exception depending on the order and type of operators executed by the target control method.

Fixed a problem where resource descriptor size optimization could cause a problem when a _CRS resource template is passed to a _SRS method. The _SRS resource template must use the same descriptors (with the same size) as returned from _CRS. This change affects the following resource descriptors:
IRQ / IRQNoFlags and StartDependendentFn / StartDependentFnNoPri. (BZ 9487)

Fixed a problem where a CopyObject to RegionField, BankField, and

IndexField
objects did not perform an implicit conversion as it should. These types
must
retain their initial type permanently as per the ACPI specification.
However,
a CopyObject to all other object types should not perform an implicit
conversion, as per the ACPI specification. (Lin Ming, Bob Moore) BZ 388

Fixed a problem with the AcpiGetDevices interface where the mechanism to
match device CIDs did not examine the entire list of available CIDs, but
instead aborted on the first non-matching CID. Andrew Patterson.

Fixed a regression introduced in version 20071114. The ACPI_HIDWORD macro
was

inadvertently changed to return a 16-bit value instead of a 32-bit value,
truncating the upper dword of a 64-bit value. This macro is only used to
display debug output, so no incorrect calculations were made. Also,
reimplemented the macro so that a 64-bit shift is not performed by
inefficient compilers.

Added missing va_end statements that should correspond with each va_start
statement.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has
a much larger code and data size.

Previous Release:
Non-Debug Version: 79.5K Code, 17.2K Data, 96.7K Total
Debug Version: 159.0K Code, 63.8K Data, 222.8K Total
Current Release:
Non-Debug Version: 79.7K Code, 17.3K Data, 97.0K Total
Debug Version: 158.9K Code, 64.0K Data, 222.9K Total

2) iASL Compiler/Disassembler and Tools:

Implemented full
disassembler support for the following new ACPI tables:
BERT, EINJ, and ERST. Implemented partial disassembler support for the
complicated HEST table. These tables support the Windows Hardware Error
Architecture (WHEA).

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23 January 2008. Summary of changes for version 20080123:

1) ACPI CA Core Subsystem:

Added the 2008 copyright to all module headers and signons. This affects
virtually every file in the ACPICA core subsystem, the iASL compiler, and
the tools/utilities.

Fixed a problem with the SizeOf operator when used with Package and
Buffer
objects. These objects have deferred execution for some arguments, and
the
execution is now completed before the SizeOf is executed. This problem
caused
unexpected AE_PACKAGE_LIMIT errors on some systems (Lin Ming, Bob Moore)
BZ
9558

Implemented an enhancement to the interpreter "slack mode". In the
absence
of
an explicit return or an implicitly returned object from the last
executed

opcode, a control method will now implicitly return an integer of value 0
for
Microsoft compatibility. (Lin Ming) BZ 392

Fixed a problem with the Load operator where an exception was not
returned
in
the case where the table is already loaded. (Lin Ming) BZ 463

Implemented support for the use of DDBHandles as an Indexed Reference, as
per
the ACPI spec. (Lin Ming) BZ 486

Implemented support for UserTerm (Method invocation) for the Unload
operator
as per the ACPI spec. (Lin Ming) BZ 580

Fixed a problem with the LoadTable operator where the OemId and
OemTableId
input strings could cause unexpected failures if they were shorter than
the
maximum lengths allowed. (Lin Ming, Bob Moore) BZ 576

Implemented support for UserTerm (Method invocation) for the Unload
operator
as per the ACPI spec. (Lin Ming) BZ 580

Implemented header file support for new ACPI tables - BERT, ERST, EINJ, HEST,
IBFT, UEFI, WDAT. Disassembler support is forthcoming.

Example Code and Data Size: These
are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 79.3K Code, 17.2K Data, 96.5K Total
Debug Version: 158.6K Code, 63.8K Data, 222.4K Total
Current Release:
Non-Debug Version: 79.5K Code, 17.2K Data, 96.7K Total
Debug Version: 159.0K Code, 63.8K Data, 222.8K Total

2) iASL Compiler/Disassembler and Tools:

Implemented support in the disassembler for checksum validation on incoming
binary DSDTs and SSDTs. If incorrect, a message is displayed within the table
header dump at the start of the disassembly.

Implemented additional debugging information in the namespace listing file
created during compilation. In addition to the namespace hierarchy, the full
pathname to each namespace object is displayed.

Fixed a problem with the disassembler
where invalid ACPI tables could
cause
faults or infinite loops.

Fixed an unexpected parse error when using the optional "parameter types" list in a control method declaration. (Lin Ming) BZ 397

Fixed a problem where two External declarations with the same name did not
cause an error (Lin Ming) BZ 509

Implemented support for full TermArgs (adding Argx, Localx and method invocation) for the ParameterData parameter to the LoadTable operator. (Lin

Ming) BZ 583,587

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19 December 2007. Summary of changes for version 20071219:

1) ACPI CA Core Subsystem:

Implemented full support for deferred execution for the TermArg string arguments for DataTableRegion. This enables forward references and full operand resolution for the three string arguments. Similar to OperationRegion deferred argument execution.) Lin Ming. BZ 430

Implemented full argument resolution support for the BankValue argument to BankField. Previously, only constants were supported, now any TermArg may be used. Lin Ming BZ 387, 393

Fixed a problem with AcpiGetDevices where the search of a branch of the device tree could be terminated prematurely. In accordance with the ACPI specification, the search down the current branch is terminated if a device is both not present and not functional (instead of just not present.) Yakui Zhao.

Fixed a problem where "unknown" GPEs could be allowed to fire repeatedly if the underlying AML code changed the GPE enable registers. Now, any unknown incoming GPE (no _Lxx/_Exx method and not the EC GPE) is immediately disabled instead of simply ignored. Rui Zhang.

Fixed a problem with Index Fields where the Index register was incorrectly limited to a maximum of 32 bits. Now any size may be used.

Fixed a couple memory leaks associated with "implicit return" objects when the AML Interpreter slack mode is enabled. Lin Ming BZ 349

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and

has
a much larger code and data size.

Previous Release:
Non-Debug Version: 79.0K Code, 17.2K Data, 96.2K Total
Debug Version: 157.9K Code, 63.6K Data, 221.5K Total
Current Release:
Non-Debug Version: 79.3K Code, 17.2K Data, 96.5K Total
Debug Version: 158.6K Code, 63.8K Data, 222.4K Total

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14 November 2007. Summary of changes for version 20071114:

1) ACPI CA Core Subsystem:

Implemented event counters for each of the Fixed Events, the ACPI SCI (interrupt) itself, and control methods executed. Named AcpiFixedEventCount[], AcpiSciCount, and AcpiMethodCount respectively. These
should be useful for debugging and statistics.

Implemented a new external interface, AcpiGetStatistics, to retrieve the contents of the various event counters. Returns the current values for AcpiSciCount,
AcpiGpeCount, the AcpiFixedEventCount array, and AcpiMethodCount. The interface can be expanded in the future if new counters
are added. Device drivers should use this interface rather than access the
counters directly.

Fixed a problem with the FromBCD and ToBCD operators. With some compilers,
the ShortDivide function worked incorrectly, causing problems with the BCD
functions with large input values. A truncation from 64-bit to 32-bit inadvertently occurred. Internal BZ 435. Lin Ming

Fixed a problem with Index references passed as method arguments. References
passed as arguments to control methods were dereferenced immediately (before
control was passed to the called method). The references are now correctly
passed directly to the called method. BZ 5389. Lin Ming

Fixed a problem with CopyObject used in conjunction with the Index operator.

The reference was incorrectly dereferenced before the copy. The reference is
now correctly copied. BZ 5391. Lin Ming

Fixed
a problem with Control Method references within Package objects. These
references are now correctly generated. This completes the package
construction overhaul that began in version 20071019.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 78.8K Code, 17.2K Data, 96.0K Total
Debug Version: 157.2K Code, 63.4K Data, 220.6K Total
Current Release:
Non-Debug Version: 79.0K Code, 17.2K Data, 96.2K Total
Debug Version: 157.9K Code, 63.6K Data, 221.5K Total

2) iASL Compiler/Disassembler and Tools:

The AcpiExec utility now installs handlers for all of the predefined
Operation Region types. New types supported are: PCI_Config, CMOS, and
PCIBARTarget.

Fixed a problem with the 64-bit version of AcpiExec where the extended
(64-
bit) address fields for the DSDT and FACS within the FADT were not being
used, causing truncation of the upper 32-bits of these addresses. Lin Ming
and Bob Moore

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19 October 2007. Summary of changes for version 20071019:

1) ACPI CA Core Subsystem:

Fixed a problem with the Alias operator when the target of the alias is a
named ASL operator that opens a new scope -- Scope, Device, PowerResource,
Processor, and ThermalZone. In these cases, any children of the original
operator could not be accessed via the alias, potentially causing

unexpected
AE_NOT_FOUND exceptions. (BZ 9067)

Fixed a problem with the Package operator where all named references were created as object references and left otherwise unresolved. According to the
ACPI specification, a Package can only contain Data Objects or references to
control methods. The implication is that named references to Data Objects (Integer, Buffer, String, Package,
BufferField, Field) should be resolved
immediately upon package creation. This is the approach taken with this change. References to all other named objects (Methods, Devices, Scopes, etc.) are all now properly created as reference objects. (BZ 5328)

Reverted a change to Notify handling that was introduced in version 20070508. This version changed the Notify handling from asynchronous to fully synchronous (Device driver Notify handling with respect to the Notify
ASL operator). It was found that this change caused more problems than it solved and was removed by most users.

Fixed a problem with the Increment and Decrement operators where the type of
the target object could be unexpectedly and incorrectly changed. (BZ 353) Lin Ming.

Fixed a problem with the Load and LoadTable operators where the table location within the namespace was ignored. Instead, the table was always loaded into the root or current scope. Lin Ming.

Fixed a problem with the Load operator when loading
a table from a buffer
object. The input buffer was prematurely zeroed and/or deleted. (BZ 577)

Fixed a problem with the Debug object where a store of a DdbHandle reference
object to the Debug object could cause a fault.

Added a table checksum verification for the Load operator, in the case where
the load is from a buffer. (BZ 578).

Implemented additional parameter validation for the LoadTable operator. The
length of the input strings SignatureString, OemIdString, and OemTableId are
now checked for maximum lengths. (BZ 582) Lin Ming.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 78.5K Code, 17.1K Data, 95.6K Total
Debug Version: 156.7K Code, 63.2K Data, 219.9K Total
Current Release:
Non-Debug Version:
78.8K Code, 17.2K Data, 96.0K Total
Debug Version: 157.2K Code, 63.4K Data, 220.6K Total

2) iASL Compiler/Disassembler:

Fixed a problem where if a single file was specified and the file did not exist, no error message was emitted. (Introduced with wildcard support in version 20070917.)

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19 September 2007. Summary of changes for version 20070919:

1) ACPI CA Core Subsystem:

Designed and implemented new external interfaces to install and remove handlers for ACPI table-related events. Current events that are defined
are
LOAD and UNLOAD. These interfaces allow the host to track ACPI tables as they are dynamically loaded and unloaded. See AcpiInstallTableHandler and AcpiRemoveTableHandler. (Lin Ming and Bob Moore)

Fixed a problem where the use of the AcpiGbl_AllMethodsSerialized flag (acpi_serialized option on Linux) could cause some systems to hang during initialization. (Bob Moore) BZ 8171

Fixed a problem where objects of certain
types (Device, ThermalZone,
Processor, PowerResource) can be not found if they are declared and referenced from within the same control method (Lin Ming) BZ 341

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 78.3K Code, 17.0K Data, 95.3K Total
Debug Version: 156.3K Code, 63.1K Data, 219.4K Total
Current Release:
Non-Debug Version: 78.5K Code, 17.1K Data, 95.6K Total
Debug Version: 156.7K Code, 63.2K Data, 219.9K Total

2) iASL Compiler/Disassembler:

Implemented support to allow multiple files to be compiled/disassembled in a single invocation. This includes command line wildcard support for both the Windows and Unix versions of the compiler. This feature simplifies the disassembly and compilation of multiple ACPI tables in a single directory.

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08 May 2007. Summary of changes for version 20070508:

1) ACPI CA Core Subsystem:

Implemented a Microsoft compatibility design change for the handling of the Notify AML operator. Previously, notify handlers were dispatched and executed completely asynchronously in a deferred thread. The new design still executes the notify handlers in a different thread, but the original thread that executed the Notify() now waits at a synchronization point for the notify handler to complete. Some machines depend on a synchronous Notify operator in order to operate correctly.

Implemented support to allow Package objects to be passed as method arguments to the external AcpiEvaluateObject interface. Previously, this would return the AE_NOT_IMPLEMENTED exception. This feature had not been implemented since there were no reserved control methods that required it until recently.

Fixed a problem with the internal FADT conversion where ACPI 1.0 FADTs that contained invalid non-zero values in reserved fields could cause later

failures because these fields have meaning in later revisions of the
FADT.
For incoming ACPI 1.0 FADTs, these fields are now always zeroed. (The
fields
are: Preferred_PM_Profile, PSTATE_CNT, CST_CNT, and IAPC_BOOT_FLAGS.)

Fixed a problem where the Global Lock handle was not properly updated if
a
thread that acquired the Global Lock via executing AML code then
attempted
to acquire the lock via the AcpiAcquireGlobalLock interface. Reported by
Joe
Liu.

Fixed a problem in AcpiEvDeleteGpeXrupt where the global interrupt list
could be corrupted if the interrupt being removed was at the head of the
list. Reported by Linn Crosetto.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has

a much larger code and data size.

Previous Release:
Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total
Debug Version: 155.9K Code, 63.1K Data, 219.0K Total
Current Release:
Non-Debug Version: 78.3K Code, 17.0K Data, 95.3K Total
Debug Version: 156.3K Code, 63.1K Data, 219.4K Total

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20 March 2007. Summary of changes for version 20070320:

1) ACPI CA Core Subsystem:

Implemented a change to the order of interpretation and evaluation of AML
operand objects within the AML interpreter. The interpreter now evaluates
operands in the order that they appear in the AML stream (and the
corresponding ASL code), instead of in the reverse order (after the
entire
operand list has been parsed). The previous behavior caused several
subtle
incompatibilities with the Microsoft AML interpreter as well as being
somewhat non-intuitive. BZ 7871, local BZ 263. Valery Podrezov.

Implemented a change to the ACPI Global Lock

support. All interfaces to
the
global lock now allow the same thread to acquire the lock multiple times.
This affects the AcpiAcquireGlobalLock external interface to the global
lock
as well as the internal use of the global lock to support AML fields -- a
control method that is holding the global lock can now simultaneously
access
AML fields that require global lock protection. Previously, in both
cases,
this would have resulted in an AE_ALREADY_ACQUIRED exception. The change
to
AcpiAcquireGlobalLock is of special interest to drivers for the Embedded
Controller. There is no change to the behavior of the AML Acquire
operator,
as this can already be used to acquire a mutex multiple times by the same
thread. BZ 8066. With assistance from Alexey Starikovskiy.

Fixed a problem where invalid objects could be referenced in the AML
Interpreter after error conditions. During operand evaluation, ensure
that
the internal "Return Object" field is cleared on error and only valid

pointers are stored there. Caused occasional access to deleted objects
that
resulted in "large reference count" warning messages. Valery Podrezov.

Fixed a problem where an AE_STACK_OVERFLOW internal exception could occur
on
deeply nested control method invocations. BZ 7873, local BZ 487. Valery
Podrezov.

Fixed an internal problem with the handling of result objects on the
interpreter result stack. BZ 7872. Valery Podrezov.

Removed obsolete code that handled the case where AML_NAME_OP is the
target
of a reference (Reference.Opcode). This code was no longer necessary. BZ
7874. Valery Podrezov.

Removed obsolete ACPI_NO_INTEGER64_SUPPORT from two header files. This
was
a
remnant from the previously discontinued 16-bit support.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and

has
a much larger code and data
size.

Previous Release:
Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total
Debug Version: 155.8K Code, 63.3K Data, 219.1K Total
Current Release:
Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total
Debug Version: 155.9K Code, 63.1K Data, 219.0K Total

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26 January 2007. Summary of changes for version 20070126:

1) ACPI CA Core Subsystem:

Added the 2007 copyright to all module headers and signons. This affects virtually every file in the ACPICA core subsystem, the iASL compiler, and the utilities.

Implemented a fix for an incorrect parameter passed to AcpiTbDeleteTable during a table load. A bad pointer was passed in the case where the DSDT is
overridden, causing a fault in this case.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and

has
a much larger code and data size.

Previous Release:
Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total
Debug Version: 155.8K Code, 63.3K Data, 219.1K Total
Current Release:
Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total
Debug Version: 155.8K Code, 63.3K Data, 219.1K Total

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15 December 2006. Summary of changes for version 20061215:

1) ACPI CA Core Subsystem:

Support for 16-bit ACPICA has been completely removed since it is no longer
necessary and it clutters the code. All 16-bit macros, types, and
conditional compiles have been removed, cleaning up and simplifying the

code
across the entire subsystem. DOS support is no longer needed since the
bootable Linux firmware kit is now available.

The handler for the Global Lock is now removed during AcpiTerminate to
enable a clean subsystem restart, via the implementation of the
AcpiEvRemoveGlobalLockHandler function. (With assistance from Joel
Bretz,
HP)

Implemented enhancements to the multithreading support within the
debugger
to enable improved multithreading debugging and evaluation of the
subsystem.
(Valery Podrezov)

Debugger: Enhanced the Statistics/Memory command to emit the total
(maximum)
memory used during the execution, as well as the maximum memory consumed
by
each of the various object types. (Valery Podrezov)

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has
a much larger code and data size.

Previous Release:
Non-Debug Version: 77.9K Code, 17.0K Data, 94.9K Total
Debug Version: 155.2K Code, 63.1K Data, 218.3K Total
Current Release:
Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total
Debug Version: 155.8K Code, 63.3K Data, 219.1K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Implemented
a new option (-m) to display full memory use
statistics upon subsystem/program termination. (Valery Podrezov)

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09 November 2006. Summary of changes for version 20061109:

1) ACPI CA Core Subsystem:

Optimized the Load ASL operator in the case where the source operand is

an
operation region. Simply map the operation region memory, instead of performing a bytewise read. (Region must be of type SystemMemory, see below.)

Fixed the Load ASL operator for the case where the source operand is a region field. A buffer object is also allowed as the source operand. BZ 480

Fixed a problem where the Load ASL operator allowed the source operand to be
an operation region of any type. It is now restricted to regions of type SystemMemory, as per the ACPI specification. BZ 481

Additional cleanup and optimizations for the new Table Manager code.

AcpiEnable will now fail if all of the required ACPI tables are not loaded
(FADT, FACS, DSDT). BZ
477

Added #pragma pack(8/4) to acobject.h to ensure that the structures in this
header are always compiled as aligned. The ACPI_OPERAND_OBJECT has been manually optimized to be aligned and will not work if it is byte-packed.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 78.1K Code, 17.1K Data, 95.2K Total
Debug Version: 155.4K Code, 63.1K Data, 218.5K Total
Current Release:
Non-Debug Version: 77.9K Code, 17.0K Data, 94.9K Total
Debug Version: 155.2K Code, 63.1K Data, 218.3K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a problem where the presence of the _OSI predefined control method within complex expressions could cause an internal compiler error.

AcpiExec: Implemented full region support
for multiple address spaces.
SpaceId is now part of the REGION object. BZ 429

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11 October 2006. Summary of changes for version 20061011:

1) ACPI CA Core Subsystem:

Completed an AML interpreter performance enhancement for control method execution. Previously a 2-pass parse/execution, control methods are now completely parsed and executed in a single pass. This improves overall interpreter performance by ~25%, reduces code size, and reduces CPU stack use. (Valery Podrezov + interpreter changes in version 20051202 that eliminated namespace loading during the pass one parse.)

Implemented _CID support for PCI Root Bridge detection. If the _HID does not
match the predefined PCI Root Bridge IDs, the _CID list (if present) is now
obtained and also checked for an ID match.

Implemented additional support for the PCI _ADR execution: upsearch until a
device scope is found before executing _ADR. This allows PCI_Config operation regions to
be declared locally within control methods underneath
PCI device objects.

Fixed a problem with a possible race condition between threads executing AcpiWalkNamespace and the AML interpreter. This condition was removed by modifying AcpiWalkNamespace to (by default) ignore all temporary namespace
entries created during any concurrent control method execution. An additional namespace race condition is known to exist between AcpiWalkNamespace and the Load/Unload ASL operators and is still under investigation.

Restructured the AML ParseLoop function, breaking it into several subfunctions in order to reduce CPU stack use and improve maintainability.
(Mikhail Kouzmich)

AcpiGetHandle: Fix for parameter validation to detect invalid combinations
of prefix handle and pathname. BZ 478

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace

mechanism and
has
a much larger code and data size.

Previous Release:
Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total
Debug Version: 154.6K Code, 63.0K Data, 217.6K Total
Current Release:
Non-Debug Version: 78.1K Code, 17.1K Data, 95.2K Total
Debug Version: 155.4K Code, 63.1K Data, 218.5K Total

2) iASL Compiler/Disassembler and Tools:

Ported the -g option (get local ACPI tables) to the new ACPICA Table Manager
to restore original behavior.

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27 September 2006. Summary of changes for version 20060927:

1) ACPI CA Core Subsystem:

Removed the "Flags" parameter from AcpiGetRegister and AcpiSetRegister. These functions now use a spinlock for mutual exclusion and the interrupt level indication flag is not needed.

Fixed a problem with the Global Lock where the lock could appear to be obtained before it is actually obtained. The global lock semaphore was inadvertently created with one unit instead
of zero units. (BZ 464)
Fiodor
Suietov.

Fixed a possible memory leak and fault in AcpiExResolveObjectToValue during
a read from a buffer or region field. (BZ 458) Fiodor Suietov.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and
has
a much larger code and data size.

Previous Release:
Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total
Debug Version: 154.7K Code, 63.0K Data, 217.7K Total
Current Release:
Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total

Debug Version: 154.6K Code, 63.0K Data, 217.6K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a compilation problem with the pre-defined Resource Descriptor field
names where an "object does not exist" error could be incorrectly generated
if the parent ResourceTemplate pathname places the template within a different
namespace scope than the current scope. (BZ 7212)

Fixed a problem where the compiler could hang after syntax errors detected
in an ElseIf construct. (BZ 453)

Fixed a problem with the AmlFilename parameter to the DefinitionBlock()
operator. An incorrect output filename was produced when this parameter was
a null string (""). Now, the original input filename is used as the AML
output filename, with an ".aml" extension.

Implemented a generic batch command mode for the AcpiExec utility (execute
any AML debugger command) (Valery Podrezov).

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12 September 2006. Summary of changes for version 20060912:

1) ACPI CA Core Subsystem:

Enhanced the implementation of the "serialized mode" of the interpreter
(enabled via the AcpiGbl_AllMethodsSerialized flag.) When this mode is
specified, instead of creating a serialization semaphore per control method,
the interpreter lock is simply no longer released before a blocking
operation during control
method execution. This effectively makes the AML
Interpreter single-threaded. The overhead of a semaphore per-method is
eliminated.

Fixed a regression where an error was no longer emitted if a control method
attempts to create 2 objects of the same name. This once again returns
AE_ALREADY_EXISTS. When this exception occurs, it invokes the mechanism that
will dynamically serialize the control method to possible prevent future

errors. (BZ 440)

Integrated a fix for a problem with PCI Express HID detection in the PCI Config Space setup procedure. (BZ 7145)

Moved all FADT-related functions to a new file, tbfadt.c. Eliminated the AcpiHwInitialize function - the FADT registers are now validated when the table is loaded.

Added two new warnings during FADT verification - 1) if the FADT is larger
than the largest known FADT version, and 2) if there is a mismatch between
a
32-bit block address and the 64-bit X counterpart (when both are non-zero.)

Example Code and Data
Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 77.9K Code, 16.7K Data, 94.6K Total
Debug Version: 154.9K Code, 62.6K Data, 217.5K Total
Current Release:
Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total
Debug Version: 154.7K Code, 63.0K Data, 217.7K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a problem with the implementation of the Switch() operator where the
temporary variable was declared too close to the actual Switch, instead of
at method level. This could cause a problem if the Switch() operator is within a while loop, causing an error on the second iteration. (BZ 460)

Disassembler - fix for error emitted for unknown type for target of scope operator. Now, ignore it and continue.

Disassembly of an FADT
now verifies the input FADT and reports any errors
found. Fix for proper disassembly of full-sized (ACPI 2.0) FADTs.

Disassembly of raw data buffers with byte initialization data now
prefixes
each output line with the current buffer offset.

Disassembly of ASF! table now includes all variable-length data fields at
the end of some of the subtables.

The disassembler now emits a comment if a buffer appears to be a
ResourceTemplate, but cannot be disassembled as such because the EndTag
does
not appear at the very end of the buffer.

AcpiExec - Added the "-t" command line option to enable the serialized
mode
of the AML interpreter.

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31 August 2006. Summary of changes for version 20060831:

1) ACPI CA Core Subsystem:

Miscellaneous fixes for the Table Manager:
- Correctly initialize internal common FADT for all 64-bit "X" fields
- Fixed a couple table mapping issues during table load
- Fixed a couple alignment issues for IA64
- Initialize
input array to zero in AcpiInitializeTables
- Additional parameter validation for AcpiGetTable, AcpiGetTableHeader,
AcpiGetTableByIndex

Change for GPE support: when a "wake" GPE is received, all wake GPEs are
now
immediately disabled to prevent the waking GPE from firing again and to
prevent other wake GPEs from interrupting the wake process.

Added the AcpiGpeCount global that tracks the number of processed GPEs,
to
be used for debugging systems with a large number of ACPI interrupts.

Implemented support for the "DMAR" ACPI table (DMA Redirection Table) in
both the ACPICA headers and the disassembler.

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has
a much larger code and data size.

Previous Release:
Non-Debug Version: 77.8K Code, 16.5K Data, 94.3K Total
Debug Version: 154.6K Code, 62.3K
Data, 216.9K Total
Current Release:
Non-Debug Version: 77.9K Code, 16.7K Data, 94.6K Total
Debug Version: 154.9K Code, 62.6K Data, 217.5K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler support for the DMAR ACPI table.

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23 August 2006. Summary of changes for version 20060823:

1) ACPI CA Core Subsystem:

The Table Manager component has been completely redesigned and reimplemented. The new design is much simpler, and reduces the overall code
and data size of the kernel-resident ACPICA by approximately 5%. Also, it is
now possible to obtain the ACPI tables very early during kernel initialization, even before dynamic memory management is initialized. (Alexey Starikovskiy, Fiodor Suietov, Bob Moore)

Obsolete ACPICA interfaces:

- AcpiGetFirmwareTable: Use AcpiGetTable instead (works at early kernel init
time).
- AcpiLoadTable: Not needed.
- AcpiUnloadTable: Not needed.

New ACPICA interfaces:

- AcpiInitializeTables:
Must be called before the table manager can be
used.
- AcpiReallocateRootTable: Used to transfer the root table to dynamically allocated memory after it becomes available.
- AcpiGetTableByIndex: Allows the host to easily enumerate all ACPI tables
in the RSDT/XSDT.

Other ACPICA changes:

- AcpiGetTableHeader returns the actual mapped table header, not a copy. Use
AcpiOsUnmapMemory to free this mapping.
- AcpiGetTable returns the actual mapped table. The mapping is managed internally and must not be deleted by the caller. Use of this interface causes no additional dynamic memory allocation.
- AcpiFindRootPointer: Support for physical addressing has been eliminated,
it appeared to be unused.
- The interface to AcpiOsMapMemory has changed to be consistent with the other allocation interfaces.
- The interface to AcpiOsGetRootPointer has changed to eliminate unnecessary
parameters.
- ACPI_PHYSICAL_ADDRESS is now 32 bits on 32-bit platforms, 64 bits on 64-
bit platforms.
Was previously 64 bits on all platforms.
- The interface to the ACPI Global Lock acquire/release macros have changed
slightly since ACPICA no longer keeps a local copy of the FACS with a constructed pointer to the actual global lock.

Porting to the new table manager:

- AcpiInitializeTables: Must be called once, and can be called anytime during the OS initialization process. It allows the host to specify an area
of memory to be used to store the internal version of the RSDT/XSDT (root table). This allows the host to access ACPI tables before memory management
is initialized and running.
- AcpiReallocateRootTable: Can be called after memory management is running
to copy the root table to a dynamically allocated array, freeing up the scratch memory specified in the call to AcpiInitializeTables.
- AcpiSubsystemInitialize: This existing interface is independent of the Table Manager, and does not have to be called before the Table Manager can
be used, it only must be
called before the rest of ACPICA can be used.
- ACPI Tables: Some changes have been made to the names and structure of the
actbl.h and actbl1.h header files and may require changes to existing code.
For example, bitfields have been completely removed because of their lack of
portability across C compilers.

- Update interfaces to the Global Lock acquire/release macros if local versions are used. (see acwin.h)

Obsolete files: tbconvrt.c, tbget.c, tbgetall.c, tbrsdt.c

New files: tbfind.c

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 80.7K Code, 17.9K Data, 98.6K Total
Debug Version: 161.0K Code, 65.1K Data, 226.1K Total
Current Release:
Non-Debug Version: 77.8K Code, 16.5K Data, 94.3K Total
Debug Version:
154.6K Code, 62.3K Data, 216.9K Total

2) iASL Compiler/Disassembler and Tools:

No changes for this release.

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21 July 2006. Summary of changes for version 20060721:

1) ACPI CA Core Subsystem:

The full source code for the ASL test suite used to validate the iASL compiler and the ACPICA core subsystem is being released with the ACPICA source for the first time. The source is contained in a separate package and
consists of over 1100 files that exercise all ASL/AML operators. The package
should appear on the Intel/ACPI web site shortly. (Valery Podrezov, Fiodor
Suietov)

Completed a new design and implementation for support of the ACPI Global Lock. On the OS side, the global lock is now treated as a standard AML mutex. Previously, multiple OS threads could "acquire" the global lock simultaneously. However, this could cause the BIOS to be starved out of the
lock - especially in cases such as the Embedded Controller driver where

there is a tight coupling between the OS and the BIOS.

Implemented an optimization for the ACPI Global Lock interrupt mechanism. The Global Lock interrupt handler no longer queues the execution of a separate thread to signal the global lock semaphore. Instead, the semaphore
is signaled directly from the interrupt handler.

Implemented support within the AML interpreter for package objects that contain a larger AML length (package list length) than the package element
count. In this case, the length of the package is truncated to match the package element count. Some BIOS code apparently modifies the package length
on the fly, and this change supports this behavior. Provides compatibility
with the MS AML interpreter. (With assistance from Fiodor Suietov)

Implemented a temporary fix for the BankValue parameter of a Bank Field to
support all constant values, now including the Zero and One opcodes. Evaluation of this parameter must eventually be converted to a full TermArg

evaluation. A not-implemented error is now returned (temporarily) for non-
constant values for this parameter.

Fixed problem reports (Fiodor Suietov) integrated:
- Fix for premature object deletion after CopyObject on Operation Region (BZ
350)

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 80.7K Code, 18.0K Data, 98.7K Total
Debug Version: 160.9K Code, 65.1K Data, 226.0K Total
Current Release:
Non-Debug Version: 80.7K Code, 17.9K Data, 98.6K Total
Debug Version: 161.0K Code, 65.1K Data, 226.1K Total

2) iASL Compiler/Disassembler and Tools:

No changes for this release.

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07 July 2006. Summary of changes for version 20060707:

1) ACPI CA Core Subsystem:

Added
the ACPI_PACKED_POINTERS_NOT_SUPPORTED macro to support C compilers
that do not allow the initialization of address pointers within packed
structures - even though the hardware itself may support misaligned
transfers. Some of the debug data structures are packed by default to
minimize size.

Added an error message for the case where AcpiOsGetThreadId() returns
zero.
A non-zero value is required by the core ACPICA code to ensure the proper
operation of AML mutexes and recursive control methods.

The DSDT is now the only ACPI table that determines whether the AML
interpreter is in 32-bit or 64-bit mode. Not really a functional change,
but
the hooks for per-table 32/64 switching have been removed from the code.
A
clarification to the ACPI specification is forthcoming in ACPI 3.0B.

Fixed a possible leak of an OwnerID in the error path of
AcpiTbInitTableDescriptor (tbinstal.c), and migrated all table OwnerID
deletion to a single place in AcpiTbUninstallTable to correct possible

leaks
when using the AcpiTbDeleteTablesByType interface (with assistance from
Lance Ortiz.)

Fixed a problem with Serialized control methods where the semaphore
associated with the method could be over-signaled after multiple method
invocations.

Fixed two issues with the locking of the internal namespace data
structure.
Both the Unload() operator and AcpiUnloadTable interface now lock the
namespace during the namespace deletion associated with the table unload
(with assistance from Linn Crosetto.)

Fixed problem reports (Valery Podrezov) integrated:
- Eliminate unnecessary memory allocation for CreateXxxxField (BZ 5426)

Fixed problem reports (Fiodor Suietov) integrated:
- Incomplete cleanup branches in AcpiTbGetTableRsdt (BZ 369)
- On Address Space handler deletion, needless deactivation call (BZ 374)
- AcpiRemoveAddressSpaceHandler: validate Device handle parameter (BZ 375)
- Possible memory leak, Notify sub-objects of Processor, Power, ThermalZone
(BZ 376)
- AcpiRemoveAddressSpaceHandler:
validate Handler parameter (BZ 378)
- Minimum Length of RSDT should be validated (BZ 379)
- AcpiRemoveNotifyHandler: return AE_NOT_EXIST if Processor Obj has no Handler (BZ (380)
- AcpiUnloadTable: return AE_NOT_EXIST if no table of specified type loaded
(BZ 381)

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 80.5K Code, 17.8K Data, 98.3K Total
Debug Version: 160.8K Code, 64.8K Data, 225.6K Total
Current Release:
Non-Debug Version: 80.7K Code, 17.9K Data, 98.6K Total
Debug Version: 161.0K Code, 65.1K Data, 226.1K Total

2) iASL Compiler/Disassembler and Tools:

Fixed problem reports:
Compiler segfault when ASL contains a long (>1024) String declaration (BZ 436)

23
June 2006. Summary of changes for version 20060623:

1) ACPI CA Core Subsystem:

Implemented a new ACPI_SPINLOCK type for the OSL lock interfaces. This allows the type to be customized to the host OS for improved efficiency (since a spinlock is usually a very small object.)

Implemented support for "ignored" bits in the ACPI registers. According
to
the ACPI specification, these bits should be preserved when writing the
registers via a read/modify/write cycle. There are 3 bits preserved in
this
manner: PM1_CONTROL[0] (SCI_EN), PM1_CONTROL[9], and PM1_STATUS[11].

Implemented the initial deployment of new OSL mutex interfaces. Since
some
host operating systems have separate mutex and semaphore objects, this
feature was requested. The base code now uses mutexes (and the new mutex
interfaces) wherever a binary semaphore was used previously. However, for
the current release, the mutex interfaces are defined as macros to map
them
to the existing semaphore
interfaces. Therefore, no OSL changes are
required
at this time. (See acpiosxf.h)

Fixed several problems with the support for the control method SyncLevel
parameter. The SyncLevel now works according to the ACPI specification
and
in concert with the Mutex SyncLevel parameter, since the current
SyncLevel
is a property of the executing thread. Mutual exclusion for control
methods
is now implemented with a mutex instead of a semaphore.

Fixed three instances of the use of the C shift operator in the bitfield
support code (exfldio.c) to avoid the use of a shift value larger than
the
target data width. The behavior of C compilers is undefined in this case
and
can cause unpredictable results, and therefore the case must be detected
and
avoided. (Fiodor Suietov)

Added an info message whenever an SSDT or OEM table is loaded dynamically
via the Load() or LoadTable() ASL operators. This should improve
debugging
capability since it will show exactly what tables have been loaded

(beyond
the tables present in the RSDT/XSDT.)

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and

has
a much larger code and data size.

Previous Release:
Non-Debug Version: 80.0K Code, 17.6K Data, 97.6K Total
Debug Version: 160.2K Code, 64.7K Data, 224.9K Total
Current Release:
Non-Debug Version: 80.5K Code, 17.8K Data, 98.3K Total
Debug Version: 160.8K Code, 64.8K Data, 225.6K Total

2) iASL Compiler/Disassembler and Tools:

No changes for this release.

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08 June 2006. Summary of changes for version 20060608:

1) ACPI CA Core Subsystem:

Converted the locking mutex used for the ACPI hardware to a spinlock. This
change should eliminate all problems caused by attempting to acquire a
semaphore at interrupt level, and it means that all ACPICA external
interfaces that directly access the ACPI hardware can be safely called from
interrupt level. OSL code that implements the semaphore interfaces should be
able to eliminate any workarounds for being called at interrupt level.

Fixed a regression introduced in 20060526 where the ACPI device
initialization could be prematurely aborted with an AE_NOT_FOUND if a device
did not have an optional _INI method.

Fixed an IndexField issue where a write to the Data Register should be
limited in size to the AccessSize (width) of the IndexField itself. (BZ 433,
Fiodor Suietov)

Fixed problem reports (Valery Podrezov) integrated:
- Allow store of ThermalZone objects to Debug object (BZ 5369/5370)

Fixed problem reports (Fiodor Suietov) integrated:
- AcpiGetTableHeader doesn't handle multiple instances correctly (BZ 364)

Removed four global mutexes that were obsolete and were no longer being

used.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib
produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:
Non-Debug Version: 80.0K Code, 17.7K Data, 97.7K Total
Debug Version: 160.3K Code, 64.9K Data, 225.2K Total
Current Release:
Non-Debug Version: 80.0K Code, 17.6K Data, 97.6K Total
Debug Version: 160.2K Code, 64.7K Data, 224.9K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a fault when using -g option (get tables from registry) on Windows machines.

Fixed problem reports integrated:
- Generate error if CreateField NumBits parameter is zero. (BZ 405)
- Fault if Offset/Length in Field unit is very large (BZ 432, Fiodor Suietov)
- Global table revision override (-r) is ignored (BZ 413)

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26 May 2006. Summary of changes for version 20060526:

1) ACPI CA Core Subsystem:

Restructured, flattened, and simplified the internal interfaces for
namespace object evaluation - resulting in smaller code, less CPU stack use,
and fewer interfaces. (With assistance from Mikhail Kouzmich)

Fixed a problem with the CopyObject operator where the first parameter was
not typed correctly for the parser, interpreter, compiler, and disassembler.
Caused various errors and unexpected behavior.

Fixed a problem where a ShiftLeft or ShiftRight of more than 64 bits produced incorrect results with some C compilers. Since the behavior of C compilers when the shift value is larger than the datatype width is

apparently not well defined, the interpreter now detects this condition
and
simply returns zero as expected in all such cases. (BZ 395)

Fixed problem reports (Valery Podrezov) integrated:
- Update String-to-Integer conversion to match ACPI 3.0A spec (BZ 5329)
- Allow interpreter to handle nested method declarations (BZ 5361)

Fixed problem reports (Fiodor Suietov) integrated:
- AcpiTerminate doesn't free debug
memory allocation list objects (BZ
355)
- After Core Subsystem shutdown, AcpiSubsystemStatus returns AE_OK (BZ
356)
- AcpiOsUnmapMemory for RSDP can be invoked inconsistently (BZ 357)
- Resource Manager should return AE_TYPE for non-device objects (BZ 358)
- Incomplete cleanup branch in AcpiNsEvaluateRelative (BZ 359)
- Use AcpiOsFree instead of ACPI_FREE in AcpiRsSetSrsMethodData (BZ 360)
- Incomplete cleanup branch in AcpiPsParseAml (BZ 361)
- Incomplete cleanup branch in AcpiDsDeleteWalkState (BZ 362)
- AcpiGetTableHeader returns AE_NO_ACPI_TABLES until DSDT is loaded (BZ
365)
- Status of the Global Initialization Handler call not used (BZ 366)
- Incorrect object parameter to Global Initialization Handler (BZ 367)

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has
a much larger code and data size.

Previous
Release:
Non-Debug Version: 79.8K Code, 17.7K Data, 97.5K Total
Debug Version: 160.5K Code, 65.1K Data, 225.6K Total
Current Release:
Non-Debug Version: 80.0K Code, 17.7K Data, 97.7K Total
Debug Version: 160.3K Code, 64.9K Data, 225.2K Total

2) iASL Compiler/Disassembler and Tools:

Modified the parser to allow the names IO, DMA, and IRQ to be used as
namespace identifiers with no collision with existing resource descriptor
macro names. This provides compatibility with other ASL compilers and is
most useful for disassembly/recompilation of existing tables without
parse
errors. (With assistance from Thomas Renninger)

Disassembler: fixed an incorrect disassembly problem with the DataTableRegion and CopyObject operators. Fixed a possible fault during disassembly of some Alias operators.

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12 May 2006. Summary of changes for version 20060512:

1) ACPI CA Core Subsystem:

Replaced the AcpiOsQueueForExecution interface with a new interface named AcpiOsExecute. The major difference is that the new interface does not have a Priority parameter, this appeared to be useless and has been replaced by a Type parameter. The Type tells the host what type of execution is being requested, such as global lock handler, notify handler, GPE handler, etc. This allows the host to queue and execute the request as appropriate for the request type, possibly using different work queues and different priorities for the various request types. This enables fixes for multithreading deadlock problems such as BZ #5534, and will require changes to all existing OS interface layers. (Alexey Starikovskiy and Bob Moore)

Fixed a possible memory leak associated with the support for the so-called "implicit return" ACPI extension. Reported by FreeBSD, BZ #6514. (Fiodor Suietov)

Fixed a problem with the Load() operator where a table load from an operation region could overwrite an internal table buffer by up to 7 bytes and cause alignment faults on IPF systems. (With assistance from Luming Yu)

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:
Non-Debug Version: 79.7K Code, 17.7K Data, 97.4K Total

Debug Version: 160.1K Code, 65.2K Data, 225.3K Total
Current Release:
Non-Debug Version: 79.8K Code, 17.7K Data, 97.5K Total
Debug Version: 160.5K Code, 65.1K Data, 225.6K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Implemented support to cross reference the internal namespace
and automatically generate ASL External() statements for symbols not defined
within the current table being disassembled. This will simplify the
disassembly and recompilation of interdependent tables such as SSDTs since
these statements
will no longer have to be added manually.

Disassembler: Implemented experimental support to automatically detect
invocations of external control methods and generate appropriate External()
statements. This is problematic because the AML cannot be correctly parsed
until the number of arguments for each control method is known. Currently,
standalone method invocations and invocations as the source operand of a
Store() statement are supported.

Disassembler: Implemented support for the ASL pseudo-operators LNotEqual,
LLessEqual, and LGreaterEqual. Previously disassembled as LNot(LEqual()),
LNot(LGreater()), and LNot(LLess()), this makes the disassembled ASL code
more readable and likely closer to the original ASL source.

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21 April 2006. Summary of changes for version 20060421:

1) ACPI CA Core Subsystem:

Removed a device initialization optimization introduced in 20051216 where
the _STA method was not run unless an _INI was also present
for the same
device. This optimization could cause problems because it could allow
_INI
methods to be run within a not-present device subtree. (If a not-present
device had no _INI, _STA would not be run, the not-present status would
not
be discovered, and the children of the device would be incorrectly

traversed.)

Implemented a new _STA optimization where namespace subtrees that do not
contain _INI are identified and ignored during device initialization.
Selectively running _STA can significantly improve boot time on large
machines (with assistance from Len Brown.)

Implemented support for the device initialization case where the returned
_STA flags indicate a device not-present but functioning. In this case,
_INI
is not run, but the device children are examined for presence, as per the
ACPI specification.

Implemented an additional change to the IndexField support in order to
conform to MS behavior. The value written to the Index Register is not
simply a byte offset,
it is a byte offset in units of the access width of
the parent Index Field. (Fiodor Suietov)

Defined and deployed a new OSL interface, AcpiOsValidateAddress. This
interface is called during the creation of all AML operation regions, and
allows the host OS to exert control over what addresses it will allow the
AML code to access. Operation Regions whose addresses are disallowed will
cause a runtime exception when they are actually accessed (will not
affect
or abort table loading.) See oswinxf or osunixxf for an example
implementation.

Defined and deployed a new OSL interface, AcpiOsValidateInterface. This
interface allows the host OS to match the various "optional"
interface/behavior strings for the _OSI predefined control method as
appropriate (with assistance from Bjorn Helgaas.) See oswinxf or osunixxf
for an example implementation.

Restructured and corrected various problems in the exception handling
code
paths within DsCallControlMethod and DsTerminateControlMethod
in dsmethod
(with assistance from Takayoshi Kochi.)

Modified the Linux source converter to ignore quoted string literals
while
converting identifiers from mixed to lower case. This will correct
problems
with the disassembler and other areas where such strings must not be
modified.

The ACPI_FUNCTION_* macros no longer require quotes around the function

name. This allows the Linux source converter to convert the names, now that
the converter ignores quoted strings.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has
a much larger code and data size.

Previous Release:

Non-Debug Version: 81.1K Code, 17.7K Data, 98.8K Total
Debug Version: 158.9K Code, 64.9K Data, 223.8K Total
Current Release:
Non-Debug Version: 79.7K Code, 17.7K Data, 97.4K Total
Debug Version: 160.1K Code,
65.2K Data, 225.3K Total

2) iASL Compiler/Disassembler and Tools:

Implemented 3 new warnings for iASL, and implemented multiple warning levels
(w2 flag).

1) Ignored timeouts: If the TimeoutValue parameter to Wait or Acquire is not
WAIT_FOREVER (0xFFFF) and the code does not examine the return value to check for the possible timeout, a warning is issued.

2) Useless operators: If an ASL operator does not specify an optional target
operand and it also does not use the function return value from the operator, a warning is issued since the operator effectively does nothing.

3) Unreferenced objects: If a namespace object is created, but never referenced, a warning is issued. This is a warning level 2 since there are
cases where this is ok, such as when a secondary table is loaded that uses
the unreferenced objects. Even so, care is taken to only flag objects that
don't look like they will ever be used. For example, the reserved methods (starting with an underscore) are
usually not referenced because it is
expected that the OS will invoke them.

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31 March 2006. Summary of changes for version 20060331:

1) ACPI CA Core Subsystem:

Implemented header file support for the following additional ACPI tables:
ASF!, BOOT, CPEP, DBGP, MCFG, SPCR, SPMI, TCPA, and WDRT. With this support,
all current and known ACPI tables are now defined in the ACPICA headers and
are available for use by device drivers and other software.

Implemented support to allow tables that contain ACPI names with invalid
characters to be loaded. Previously, this would cause the table load to
fail, but since there are several known cases of such tables on existing
machines, this change was made to enable ACPI support for them. Also, this
matches the behavior of the Microsoft ACPI implementation.

Fixed a couple regressions introduced during the memory optimization in the
20060317 release. The namespace node definition required additional

reorganization and an internal datatype that had been changed to 8-bit was
restored to 32-bit. (Valery Podrezov)

Fixed a problem where a null pointer passed to AcpiUtDeleteGenericState
could be passed through to AcpiOsReleaseObject which is unexpected. Such
null pointers are now trapped and ignored, matching the behavior of the
previous implementation before the deployment of AcpiOsReleaseObject.
(Valery Podrezov, Fiodor Suietov)

Fixed a memory mapping leak during the deletion of a SystemMemory operation
region where a cached memory mapping was not deleted. This became a
noticeable problem for operation regions that are defined within frequently
used control methods. (Dana Meyers)

Reorganized the ACPI table header files into two main files: one for the
ACPI tables consumed by the ACPICA core, and another for the miscellaneous
ACPI tables that are consumed by the drivers and other software. The various
FADT definitions were merged into one common section and three

different
tables (ACPI 1.0, 1.0+, and 2.0)

Example Code and Data Size: These are the sizes for the OS-independent
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The
debug version of the code includes the debug output trace mechanism and
has
a much larger code and data size.

Previous Release:
Non-Debug Version: 80.9K Code, 17.7K Data, 98.6K Total
Debug Version: 158.7K Code, 64.8K Data, 223.5K Total
Current Release:
Non-Debug Version: 81.1K Code, 17.7K Data, 98.8K Total
Debug Version: 158.9K Code, 64.9K Data, 223.8K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Implemented support to decode and format all non-AML ACPI
tables (tables other than DSDTs and SSDTs.) This includes the new tables
added to the ACPICA headers, therefore all current and known ACPI tables
are
supported.

Disassembler: The change to allow ACPI names with invalid characters also
enables the disassembly of such tables. Invalid characters
within names
are
changed to '*' to make the name printable; the iASL compiler will still
generate an error for such names, however, since this is an invalid ACPI
character.

Implemented an option for AcpiXtract (-a) to extract all tables found in
the
input file. The default invocation extracts only the DSDTs and SSDTs.

Fixed a couple of gcc generation issues for iASL and AcpiExec and added a
makefile for the AcpiXtract utility.

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17 March 2006. Summary of changes for version 20060317:

1) ACPI CA Core Subsystem:

Implemented the use of a cache object for all internal namespace nodes.
Since there are about 1000 static nodes in a typical system, this will
decrease memory use for cache implementations that minimize per-

allocation
overhead (such as a slab allocator.)

Removed the reference count mechanism for internal namespace nodes, since
it
was deemed unnecessary. This reduces the size of each namespace node by
about 5%-10% on all
platforms. Nodes are now 20 bytes for the 32-bit
case,
and 32 bytes for the 64-bit case.

Optimized several internal data structures to reduce object size on 64-
bit
platforms by packing data within the 64-bit alignment. This includes the
frequently used ACPI_OPERAND_OBJECT, of which there can be ~1000 static
instances corresponding to the namespace objects.

Added two new strings for the predefined _OSI method: "Windows 2001.1
SP1"
and "Windows 2006".

Split the allocation tracking mechanism out to a separate file, from
utalloc.c to uttrack.c. This mechanism appears to be only useful for
application-level code. Kernels may wish to not include uttrack.c in
distributions.

Removed all remnants of the obsolete ACPI_REPORT_* macros and the
associated
code. (These macros have been replaced by the ACPI_ERROR and ACPI_WARNING
macros.)

Code and Data Size: These are the sizes for the acpica.lib produced by
the
Microsoft Visual C++ 6.0 32-bit compiler. The values do not include
any
ACPI
driver or OSPM code. The debug version of the code includes the debug
output
trace mechanism and has a much larger code and data size. Note that these
values will vary depending on the efficiency of the compiler and the
compiler options used during generation.

Previous Release:
Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total
Debug Version: 161.6K Code, 65.7K Data, 227.3K Total
Current Release:
Non-Debug Version: 80.9K Code, 17.7K Data, 98.6K Total
Debug Version: 158.7K Code, 64.8K Data, 223.5K Total

2) iASL Compiler/Disassembler and Tools:

Implemented an ANSI C version of the acpixtract utility. This version
will
automatically extract the DSDT and all SSDTs from the input acpidump text
file and dump the binary output to separate files. It can also display a
summary of the input file including the headers for each table found and
will extract any single ACPI table, with any signature. (See
source/tools/acpixtract)

10
March 2006. Summary of changes for version 20060310:

1) ACPI CA Core Subsystem:

Tagged all external interfaces to the subsystem with the new
ACPI_EXPORT_SYMBOL macro. This macro can be defined as necessary to
assist
kernel integration. For Linux, the macro resolves to the EXPORT_SYMBOL
macro. The default definition is NULL.

Added the ACPI_THREAD_ID type for the return value from
AcpiOsGetThreadId.
This allows the host to define this as necessary to simplify kernel
integration. The default definition is ACPI_NATIVE_UINT.

Fixed two interpreter problems related to error processing, the deletion
of
objects, and placing invalid pointers onto the internal operator result
stack. BZ 6028, 6151 (Valery Podrezov)

Increased the reference count threshold where a warning is emitted for
large
reference counts in order to eliminate unnecessary warnings on systems
with
large namespaces (especially 64-bit.) Increased the value from 0x400 to
0x800.

Due
to universal disagreement as to the meaning of the 'c' in the
calloc()
function, the ACPI_MEM_CALLOCATE macro has been renamed to
ACPI_ALLOCATE_ZEROED so that the purpose of the interface is 'clear'.
ACPI_MEM_ALLOCATE and ACPI_MEM_FREE are renamed to ACPI_ALLOCATE and
ACPI_FREE.

Code and Data Size: These are the sizes for the acpica.lib produced by the
Microsoft Visual C++ 6.0 32-bit compiler. The values do not include any ACPI
driver or OSPM code. The debug version of the code includes the debug output
trace mechanism and has a much larger code and data size. Note that these
values will vary depending on the efficiency of the compiler and the
compiler options used during generation.

Previous Release:
Non-Debug Version: 81.0K Code, 17.8K Data, 98.8K Total
Debug Version: 161.4K Code, 65.7K Data, 227.1K Total
Current Release:
Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total
Debug Version: 161.6K Code, 65.7K Data, 227.3K Total

2)
iASL Compiler/Disassembler:

Disassembler: implemented support for symbolic resource descriptor
references. If a CreateXxxxField operator references a fixed offset within
a
resource descriptor, a name is assigned to the descriptor and the offset is
translated to the appropriate resource tag and pathname. The addition of
this support brings the disassembled code very close to the original ASL
source code and helps eliminate run-time errors when the disassembled code
is modified (and recompiled) in such a way as to invalidate the original
fixed offsets.

Implemented support for a Descriptor Name as the last parameter to the ASL
Register() macro. This parameter was inadvertently left out of the ACPI
specification, and will be added for ACPI 3.0b.

Fixed a problem where the use of the "_OSI" string (versus the full path
"_OSI") caused an internal compiler error. ("No back ptr to op")

Fixed a problem with the error message that occurs when an invalid string is
used for
a _HID object (such as one with an embedded asterisk:
"*PNP010A".)

The correct message is now displayed.

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17 February 2006. Summary of changes for version 20060217:

1) ACPI CA Core Subsystem:

Implemented a change to the IndexField support to match the behavior of the
Microsoft AML interpreter. The value written to the Index register is now a
byte offset, no longer an index based upon the width of the Data register.
This should fix IndexField problems seen on some machines where the Data
register is not exactly one byte wide. The ACPI specification will be
clarified on this point.

Fixed a problem where several resource descriptor types could overrun the
internal descriptor buffer due to size miscalculation: VendorShort,
VendorLong, and Interrupt. This was noticed on IA64 machines, but could
affect all platforms.

Fixed a problem where individual resource descriptors were misaligned within
the internal buffer, causing alignment
faults on IA64 platforms.

Code and Data Size: These are the sizes for the acpica.lib produced by the
Microsoft Visual C++ 6.0 32-bit compiler. The values do not include any ACPI
driver or OSPM code. The debug version of the code includes the debug output
trace mechanism and has a much larger code and data size. Note that these
values will vary depending on the efficiency of the compiler and the
compiler options used during generation.

Previous Release:
Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total
Debug Version: 161.3K Code, 65.6K Data, 226.9K Total
Current Release:
Non-Debug Version: 81.0K Code, 17.8K Data, 98.8K Total
Debug Version: 161.4K Code, 65.7K Data, 227.1K Total

2) iASL Compiler/Disassembler:

Implemented support for new reserved names: _WDG and _WED are Microsoft

extensions for Windows Instrumentation Management, _TDL is a new ACPI-defined method (Throttling Depth Limit.)

Fixed a problem where a zero-length VendorShort or VendorLong resource descriptor was incorrectly emitted as a descriptor of length one.

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10 February 2006. Summary of changes for version 20060210:

1) ACPI CA Core Subsystem:

Removed a couple of extraneous ACPI_ERROR messages that appeared during normal execution. These became apparent after the conversion from ACPI_DEBUG_PRINT.

Fixed a problem where the CreateField operator could hang if the BitIndex or NumBits parameter referred to a named object. (Valery Podrezov, BZ 5359)

Fixed a problem where a DeRefOf operation on a buffer object incorrectly failed with an exception. This also fixes a couple of related RefOf and DeRefOf issues. (Valery Podrezov, BZ 5360/5392/5387)

Fixed a problem where the AE_BUFFER_LIMIT exception was returned instead of AE_STRING_LIMIT on an out-of-bounds Index() operation. (Valery Podrezov, BZ 5480)

Implemented a memory cleanup at the end of the execution of each iteration of an AML While() loop, preventing the accumulation of outstanding objects. (Valery Podrezov, BZ 5427)

Eliminated a chunk of duplicate code in the object resolution code. (Valery Podrezov, BZ 5336)

Fixed several warnings during the 64-bit code generation.

The AcpiSrc source code conversion tool now inserts one line of whitespace after an if() statement that is followed immediately by a comment, improving readability of the Linux code.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 81.0K Code, 17.9K Data, 98.9K Total
Debug Version: 161.3K Code, 65.7K Data, 227.0K Total
Current Release:
Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total
Debug Version: 161.3K Code, 65.6K Data, 226.9K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the disassembly of a BankField operator with a complex expression for the BankValue parameter.

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27 January 2006. Summary of changes for version 20060127:

1) ACPI CA Core Subsystem:

Implemented support in the Resource Manager to allow unresolved namestring references within resource package objects for the _PRT method. This support is in addition to the previously implemented unresolved reference support within the AML parser. If the interpreter slack mode is enabled, these unresolved references will be passed through to the caller as a NULL package entry.

Implemented and deployed new macros and functions for error and warning messages across the subsystem. These macros are simpler and generate less code than their predecessors. The new macros ACPI_ERROR, ACPI_EXCEPTION, ACPI_WARNING, and ACPI_INFO replace the ACPI_REPORT_* macros. The older macros remain defined to allow ACPI drivers time to migrate to the new

macros.

Implemented the ACPI_CPU_FLAGS type to simplify host OS integration of the
Acquire/Release Lock OSL interfaces.

Fixed a problem where Alias ASL operators are sometimes not correctly resolved, in both the interpreter and the iASL compiler.

Fixed several problems with the implementation of the ConcatenateResTemplate
ASL operator. As per the ACPI specification, zero length buffers are now treated as a single EndTag. One-length buffers always cause a fatal exception. Non-zero length buffers that do not end with a full 2-byte EndTag
cause a fatal exception.

Fixed a possible structure overwrite in the AcpiGetObjectInfo external interface. (With assistance from Thomas Renninger)

Code and Data Size: The current
and previous library sizes for the core
subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These
values do not include any ACPI driver or OSPM code. The debug version of the
code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 83.1K Code, 18.4K Data, 101.5K Total
Debug Version: 163.2K Code, 66.2K Data, 229.4K Total
Current Release:
Non-Debug Version: 81.0K Code, 17.9K Data, 98.9K Total
Debug Version: 161.3K Code, 65.7K Data, 227.0K Total

2) iASL Compiler/Disassembler:

Fixed an internal error that was generated for any forward references to ASL
Alias objects.

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13 January 2006. Summary of changes for version 20060113:

1)
ACPI CA Core Subsystem:

Added 2006 copyright to all module headers and signons. This affects
virtually every file in the ACPICA core subsystem, iASL compiler, and the
utilities.

Enhanced the ACPICA error reporting in order to simplify user migration
to
the non-debug version of ACPICA. Replaced all instances of the
ACPI_DEBUG_PRINT macro invoked at the ACPI_DB_ERROR and ACPI_DB_WARN
debug
levels with the ACPI_REPORT_ERROR and ACPI_REPORT_WARNING macros,
respectively. This preserves all error and warning messages in the non-
debug
version of the ACPICA code (this has been referred to as the "debug lite"
option.) Over 200 cases were converted to create a total of over 380
error/warning messages across the ACPICA code. This increases the code
and
data size of the default non-debug version of the code somewhat (about
13K),
but all error/warning reporting may be disabled if desired (and code
eliminated) by specifying the ACPI_NO_ERROR_MESSAGES compile-time
configuration
option. The size of the debug version of ACPICA remains
about
the same.

Fixed a memory leak within the AML Debugger "Set" command. One object was
not properly deleted for every successful invocation of the command.

Code and Data Size: The current and previous library sizes for the core
subsystem are shown below. These are the code and data sizes for the
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.
These
values do not include any ACPI driver or OSPM code. The debug version of
the
code includes the debug output trace mechanism and has a much larger code
and data size. Note that these values will vary depending on the
efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 76.6K Code, 12.3K Data, 88.9K Total
Debug Version: 163.7K Code, 67.5K Data, 231.2K Total
Current Release:
Non-Debug Version: 83.1K Code, 18.4K Data, 101.5K Total

Debug Version: 163.2K Code, 66.2K
Data, 229.4K Total

2) iASL Compiler/Disassembler:

The compiler now officially supports the ACPI 3.0a specification that was
released on December 30, 2005. (Specification is available at
www.acpi.info)

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16 December 2005. Summary of changes for version 20051216:

1) ACPI CA Core Subsystem:

Implemented optional support to allow unresolved names within ASL Package
objects. A null object is inserted in the package when a named reference
cannot be located in the current namespace. Enabled via the interpreter
slack flag, this should eliminate AE_NOT_FOUND exceptions seen on
machines
that contain such code.

Implemented an optimization to the initialization sequence that can
improve
boot time. During ACPI device initialization, the _STA method is now run
if
and only if the _INI method exists. The _STA method is used to determine
if
the device is present; An _INI can only be run if _STA returns present,
but
it is a waste of time to run
the _STA method if the _INI does not exist.
(Prototype and assistance from Dong Wei)

Implemented use of the C99 uintptr_t for the pointer casting macros if it
is
available in the current compiler. Otherwise, the default (void *) cast
is
used as before.

Fixed some possible memory leaks found within the execution path of the
Break, Continue, If, and CreateField operators. (Valery Podrezov)

Fixed a problem introduced in the 20051202 release where an exception is
generated during method execution if a control method attempts to declare
another method.

Moved resource descriptor string constants that are used by both the AML

disassembler and AML debugger to the common utilities directory so that these components are independent.

Implemented support in the AcpiExec utility (-e switch) to globally ignore
exceptions during control method execution (method is not aborted.)

Added the rsinfo.c source file to the AcpiExec makefile for Linux/Unix generation.

Code and Data Size:
The current and previous library sizes for the core
subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These
values do not include any ACPI driver or OSPM code. The debug version of the
code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total
Debug Version: 163.2K Code, 67.4K Data, 230.6K Total
Current Release:
Non-Debug Version: 76.6K Code, 12.3K Data, 88.9K Total
Debug Version: 163.7K Code, 67.5K Data, 231.2K Total

2) iASL Compiler/Disassembler:

Fixed a problem where a CPU stack overflow fault could occur if a recursive
method call was made from within a Return statement.

---
02 December
2005. Summary of changes for version 20051202:

1) ACPI CA Core Subsystem:

Modified the parsing of control methods to no longer create namespace objects during the first pass of the parse. Objects are now created only during the execute phase, at the moment the namespace creation operator is
encountered in the AML (Name, OperationRegion, CreateByteField, etc.) This

should eliminate ALREADY_EXISTS exceptions seen on some machines where reentrant control methods are protected by an AML mutex. The mutex will now correctly block multiple threads from attempting to create the same object more than once.

Increased the number of available Owner Ids for namespace object tracking from 32 to 255. This should eliminate the OWNER_ID_LIMIT exceptions seen on some machines with a large number of ACPI tables (either static or dynamic).

Fixed a problem with the AcpiExec utility where a fault could occur when the -b switch (batch mode) is used.

Enhanced the namespace dump routine to output the owner ID for each namespace object.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total
Debug Version: 163.0K Code, 67.4K Data, 230.4K Total
Current Release:
Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total
Debug Version: 163.2K Code, 67.4K Data, 230.6K Total

2) iASL Compiler/Disassembler:

Fixed a parse error during compilation of certain Switch/Case constructs. To simplify the parse, the grammar now allows for multiple Default statements and this error is now detected and flagged during the analysis phase.

Disassembler: The disassembly now includes the contents of the original table header within a comment at the start of the file. This includes the name and version of the original ASL compiler.

---
17 November 2005. Summary of changes for version 20051117:

1) ACPI CA Core Subsystem:

Fixed a problem in the AML parser where the method thread count could be decremented below zero if any errors occurred during the method parse phase.
This should eliminate AE_AML_METHOD_LIMIT exceptions seen on some machines.
This also fixed a related regression with the mechanism that detects and corrects methods that cannot properly handle reentrancy (related to the deployment of the new OwnerId mechanism.)

Eliminated the pre-parsing of control methods (to detect errors) during table load. Related to the problem above, this was causing unwind issues if any errors occurred during the parse, and it seemed to be overkill. A table load should not be aborted if there are problems with any single control method, thus rendering this feature rather pointless.

Fixed a problem with the new table-driven resource manager where an internal buffer overflow could occur for small resource templates.

Implemented a new external interface, AcpiGetVendorResource. This interface will find and return a vendor-defined resource descriptor within a _CRS or _PRS method via an ACPI 3.0 UUID match. With assistance from Bjorn Helgaas.

Removed the length limit (200) on string objects as per the upcoming ACPI 3.0A specification. This affects the following areas of the interpreter: 1) any implicit conversion of a Buffer to a String, 2) a String object result of the ASL Concatenate operator, 3) the String object result of the ASL ToString operator.

Fixed a problem in the Windows OS interface layer (OSL) where a

WAIT_FOREVER
on a semaphore
object would incorrectly timeout. This allows the
multithreading features of the AcpiExec utility to work properly under
Windows.

Updated the Linux makefiles for the iASL compiler and AcpiExec to include
the recently added file named "utresrc.c".

Code and Data Size: The current and previous library sizes for the core
subsystem are shown below. These are the code and data sizes for the
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.
These
values do not include any ACPI driver or OSPM code. The debug version of
the
code includes the debug output trace mechanism and has a much larger code
and data size. Note that these values will vary depending on the
efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 76.2K Code, 12.3K Data, 88.5K Total
Debug Version: 163.0K Code, 67.4K Data, 230.4K Total
Current Release:
Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total

Debug Version: 163.0K Code, 67.4K Data, 230.4K Total

2) iASL Compiler/Disassembler:

Removed the limit (200) on string objects as per the upcoming ACPI 3.0A
specification. For the iASL compiler, this means that string literals
within
the source ASL can be of any length.

Enhanced the listing output to dump the AML code for resource descriptors
immediately after the ASL code for each descriptor, instead of in a block
at
the end of the entire resource template.

Enhanced the compiler debug output to dump the entire original parse tree
constructed during the parse phase, before any transforms are applied to
the
tree. The transformed tree is dumped also.

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02 November 2005. Summary of changes for version 20051102:

1) ACPI CA Core Subsystem:

Modified the subsystem initialization sequence to improve GPE support. The GPE initialization has been split into two parts in order to defer execution of the _PRW methods (Power Resources for Wake) until after the hardware is fully initialized and the SCI handler is installed. This allows the _PRW methods to access fields protected by the Global Lock. This will fix systems where a NO_GLOBAL_LOCK exception has been seen during initialization.

Converted the ACPI internal object disassemble and display code within the AML debugger to fully table-driven operation, reducing code size and increasing maintainability.

Fixed a regression with the ConcatenateResTemplate() ASL operator introduced in the 20051021 release.

Implemented support for "local" internal ACPI object types within the debugger "Object" command and the AcpiWalkNamespace external interfaces. These local types include RegionFields, BankFields, IndexFields, Alias, and reference objects.

Moved common AML resource handling code into a new file, "utresrc.c". This code is shared by both the Resource Manager and the AML Debugger.

Code and Data Size: The current and previous library sizes for the core

subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 76.1K Code, 12.2K Data, 88.3K Total

Debug Version: 163.5K Code, 67.0K Data, 230.5K Total
Current Release:
Non-Debug Version: 76.2K Code, 12.3K Data, 88.5K Total
Debug Version: 163.0K Code, 67.4K Data, 230.4K Total

2) iASL Compiler/Disassembler:

Fixed a problem with very large initializer lists (more than 4000 elements)
for both Buffer and Package objects where the parse stack could overflow.

Enhanced the pre-compile source code scan for non-ASCII characters to ignore
characters
within comment fields. The scan is now always performed and is no
longer optional, detecting invalid characters within a source file
immediately rather than during the parse phase or later.

Enhanced the ASL grammar definition to force early reductions on all list-
style grammar elements so that the overall parse stack usage is greatly
reduced. This should improve performance and reduce the possibility of parse
stack overflow.

Eliminated all reduce/reduce conflicts in the iASL parser generation. Also,
with the addition of a %expected statement, the compiler generates from
source with no warnings.

Fixed a possible segment fault in the disassembler if the input filename
does not contain a "dot" extension (Thomas Renninger).

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21 October 2005. Summary of changes for version 20051021:

1) ACPI CA Core Subsystem:

Implemented support for the EM64T and other x86-64 processors. This
essentially entails recognizing that these processors
support non-aligned
memory transfers. Previously, all 64-bit processors were assumed to lack
hardware support for non-aligned transfers.

Completed conversion of the Resource Manager to nearly full table-driven
operation. Specifically, the resource conversion code (convert AML to

internal format and the reverse) and the debug code to dump internal resource descriptors are fully table-driven, reducing code and data size and
improving maintainability.

The OSL interfaces for Acquire and Release Lock now use a 64-bit flag word
on 64-bit processors instead of a fixed 32-bit word. (With assistance from
Alexey Starikovskiy)

Implemented support within the resource conversion code for the Type-Specific byte within the various ACPI 3.0 *WordSpace macros.

Fixed some issues within the resource conversion code for the type-specific
flags for both Memory and I/O address resource descriptors. For Memory, implemented support for the MTP and TTP flags. For I/O, split the TRS and

TTP flags into two separate fields.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These
values do not include any ACPI driver or OSPM code. The debug version of the
code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.1K Code, 12.1K Data, 89.2K Total
Debug Version: 168.0K Code, 68.3K Data, 236.3K Total
Current Release:
Non-Debug Version: 76.1K Code, 12.2K Data, 88.3K Total
Debug Version: 163.5K Code, 67.0K Data, 230.5K Total

2) iASL Compiler/Disassembler:

Relaxed a compiler restriction that disallowed a ResourceIndex byte if the
corresponding ResourceSource string was not also present in a resource
descriptor declaration. This restriction caused problems with existing

AML/ASL code that includes the Index byte without the string. When such AML
was disassembled, it could not be compiled without modification. Further, the modified code created a resource template with a different size than the
original, breaking code that used fixed offsets into the resource template
buffer.

Removed a recent feature of the disassembler to ignore a lone ResourceIndex
byte. This byte is now emitted if present so that the exact AML can be reproduced when the disassembled code is recompiled.

Improved comments and text alignment for the resource descriptor code emitted by the disassembler.

Implemented disassembler support for the ACPI 3.0 AccessSize field within a
Register() resource descriptor.

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30 September 2005. Summary of changes for version 20050930:

1) ACPI CA Core Subsystem:

Completed a major overhaul of the Resource
 Manager code - specifically,
optimizations in the area of the AML/internal resource conversion code. The
code has been optimized to simplify and eliminate duplicated code, CPU stack
use has been decreased by optimizing function parameters and local variables, and naming conventions across the manager have been standardized
for clarity and ease of maintenance (this includes function, parameter, variable, and struct/typedef names.) The update may force changes in some driver code, depending on how resources are handled by the host OS.

All Resource Manager dispatch and information tables have been moved to a single location for clarity and ease of maintenance. One new file was created, named "rsinfo.c".

The ACPI return macros (return_ACPI_STATUS, etc.) have been modified to guarantee that the argument is not evaluated twice, making them less prone
to macro side-effects. However, since there exists the possibility of additional stack use if a particular compiler cannot

optimize them (such
as
in the debug generation case), the original macros are optionally
available.
Note that some invocations of the return_VALUE macro may now cause size
mismatch warnings; the return_UINT8 and return_UINT32 macros are provided
to
eliminate these. (From Randy Dunlap)

Implemented a new mechanism to enable debug tracing for individual
control
methods. A new external interface, AcpiDebugTrace, is provided to enable
this mechanism. The intent is to allow the host OS to easily enable and
disable tracing for problematic control methods. This interface can be
easily exposed to a user or debugger interface if desired. See the file
psxface.c for details.

AcpiUtCallocate will now return a valid pointer if a length of zero is
specified - a length of one is used and a warning is issued. This matches
the behavior of AcpiUtAllocate.

Code and Data Size: The current and previous library sizes for the core
subsystem are shown below. These are the code and data sizes
for the
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.
These
values do not include any ACPI driver or OSPM code. The debug version of
the
code includes the debug output trace mechanism and has a much larger code
and data size. Note that these values will vary depending on the
efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.5K Code, 12.0K Data, 89.5K Total
Debug Version: 168.1K Code, 68.4K Data, 236.5K Total
Current Release:
Non-Debug Version: 77.1K Code, 12.1K Data, 89.2K Total
Debug Version: 168.0K Code, 68.3K Data, 236.3K Total

2) iASL Compiler/Disassembler:

A remark is issued if the effective compile-time length of a package or
buffer is zero. Previously, this was a warning.

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16 September 2005. Summary of changes for version 20050916:

1) ACPI CA Core Subsystem:

Fixed a problem within the Resource Manager
where support for the Generic
Register descriptor was not fully implemented. This descriptor is now
fully
recognized, parsed, disassembled, and displayed.

Completely restructured the Resource Manager code to utilize table-driven
dispatch and lookup, eliminating many of the large switch() statements.
This
reduces overall subsystem code size and code complexity. Affects the
resource parsing and construction, disassembly, and debug dump output.

Cleaned up and restructured the debug dump output for all resource
descriptors. Improved readability of the output and reduced code size.

Fixed a problem where changes to internal data structures caused the
optional ACPI_MUTEX_DEBUG code to fail compilation if specified.

Code and Data Size: The current and previous library sizes for the core
subsystem are shown below. These are the code and data sizes for the
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.
These
values do not include any ACPI driver or OSPM code.
The debug version of
the
code includes the debug output trace mechanism and has a much larger code
and data size. Note that these values will vary depending on the
efficiency
of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.4K Code, 11.8K Data, 90.2K Total
Debug Version: 169.6K Code, 69.9K Data, 239.5K Total
Current Release:
Non-Debug Version: 77.5K Code, 12.0K Data, 89.5K Total
Debug Version: 168.1K Code, 68.4K Data, 236.5K Total

2) iASL Compiler/Disassembler:

Updated the disassembler to automatically insert an EndDependentFn()
macro
into the ASL stream if this macro is missing in the original AML code,
simplifying compilation of the resulting ASL module.

Fixed a problem in the disassembler where a disassembled ResourceSource string (within a large resource descriptor) was not surrounded by quotes and
not followed by a comma, causing errors when the resulting ASL module was compiled.
Also, escape sequences within a ResourceSource string are now handled correctly (especially "\\")

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02 September 2005. Summary of changes for version 20050902:

1) ACPI CA Core Subsystem:

Fixed a problem with the internal Owner ID allocation and deallocation mechanisms for control method execution and recursive method invocation. This should eliminate the OWNER_ID_LIMIT exceptions and "Invalid OwnerId" messages seen on some systems. Recursive method invocation depth is currently limited to 255. (Alexey Starikovskiy)

Completely eliminated all vestiges of support for the "module-level executable code" until this support is fully implemented and debugged. This
should eliminate the NO_RETURN_VALUE exceptions seen during table load on some systems that invoke this support.

Fixed a problem within the resource manager code where the transaction flags
for a 64-bit address descriptor were handled incorrectly in the type-specific flag
byte.

Consolidated duplicate code within the address descriptor resource manager
code, reducing overall subsystem code size.

Fixed a fault when using the AML debugger "disassemble" command to disassemble individual control methods.

Removed references to the "release_current" directory within the Unix release package.

Code and Data Size: The current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes
the debug output trace mechanism and has a much larger code and data size.

Note that these values will vary depending on the efficiency of the compiler
and the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total
Debug Version: 170.0K Code, 69.9K Data, 239.9K Total
Current Release:
Non-Debug
Version: 78.4K Code, 11.8K Data, 90.2K Total
Debug Version: 169.6K Code, 69.9K Data, 239.5K Total

2) iASL Compiler/Disassembler:

Implemented an error check for illegal duplicate values in the interrupt and
dma lists for the following ASL macros: Dma(), Irq(), IrqNoFlags(), and Interrupt().

Implemented error checking for the Irq() and IrqNoFlags() macros to detect
too many values in the interrupt list (16 max) and invalid values in the list (range 0 - 15)

The maximum length string literal within an ASL file is now restricted to 200 characters as per the ACPI specification.

Fixed a fault when using the -ln option (generate namespace listing).

Implemented an error check to determine if a DescriptorName within a resource descriptor has already been used within the current scope.

---
15 August 2005. Summary of changes for version 20050815:

1) ACPI CA Core Subsystem:

Implemented a full bytewise compare to determine if a
table load request
is
attempting to load a duplicate table. The compare is performed if the table
signatures and table lengths match. This will allow different tables with the same OEM Table ID and revision to be loaded - probably against the ACPI
specification, but discovered in the field nonetheless.

Added the changes.txt logfile to each of the zipped release packages.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total
Debug Version: 167.0K
Code, 69.9K Data, 236.9K Total
Current Release:
Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total
Debug Version: 170.0K Code, 69.9K Data, 239.9K Total

2) iASL Compiler/Disassembler:

Fixed a problem where incorrect AML code could be generated for Package objects if optimization is disabled (via the -oa switch).

Fixed a problem with where incorrect AML code is generated for variable-length packages when the package length is not specified and the number of
initializer values is greater than 255.

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29 July 2005. Summary of changes for version 20050729:

1) ACPI CA Core Subsystem:

Implemented support to ignore an attempt to install/load a particular ACPI
table more than once. Apparently there exists BIOS code that repeatedly attempts to load the same SSDT upon certain events. With assistance from Venkatesh Pallipadi.

Restructured the main interface to the AML parser in order to correctly handle all exceptional
conditions. This will prevent leakage of the
OwnerId

resource and should eliminate the AE_OWNER_ID_LIMIT exceptions seen on some
machines. With assistance from Alexey Starikovskiy.

Support for "module level code" has been disabled in this version due to a
number of issues that have appeared on various machines. The support can be
enabled by defining ACPI_ENABLE_MODULE_LEVEL_CODE during subsystem
compilation. When the issues are fully resolved, the code will be enabled by
default again.

Modified the internal functions for debug print support to define the
FunctionName parameter as a (const char *) for compatibility with compiler
built-in macros such as __FUNCTION__, etc.

Linted the entire ACPICA source tree for both 32-bit and 64-bit.

Implemented support to display an object count summary for the AML Debugger
commands Object and Methods.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
  Non-Debug Version: 78.6K Code, 11.6K Data, 90.2K Total
  Debug Version: 170.0K Code, 69.7K Data, 239.7K Total
Current Release:
  Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total
  Debug Version: 167.0K Code, 69.9K Data, 236.9K Total

2) iASL Compiler/Disassembler:

Fixed a regression that appeared in the 20050708 version of the compiler
where an error message was inadvertently emitted for invocations of the

_OSI
reserved control method.

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08 July 2005. Summary of changes for version 20050708:

1) ACPI CA Core Subsystem:

The
use of the CPU stack in the debug version of the subsystem has been
considerably reduced. Previously, a debug structure was declared in every
function that used the debug macros. This structure has been removed in
favor of declaring the individual elements as parameters to the debug
functions. This reduces the cumulative stack use during nested execution
of
ACPI function calls at the cost of a small increase in the code size of
the
debug version of the subsystem. With assistance from Alexey Starikovskiy
and
Len Brown.

Added the ACPI_GET_FUNCTION_NAME macro to enable the compiler-dependent
headers to define a macro that will return the current function name at
runtime (such as __FUNCTION__ or _func_, etc.) The function name is used
by
the debug trace output. If ACPI_GET_FUNCTION_NAME is not defined in the
compiler-dependent header, the function name is saved on the CPU stack
(one
pointer per function.) This mechanism is used because apparently there
exists no standard
ANSI-C defined macro that that returns the function
name.

Redesigned and reimplemented the "Owner ID" mechanism used to track
namespace objects created/deleted by ACPI tables and control method
execution. A bitmap is now used to allocate and free the IDs, thus
solving
the wraparound problem present in the previous implementation. The size
of
the namespace node descriptor was reduced by 2 bytes as a result (Alexey
Starikovskiy).

Removed the UINT32_BIT and UINT16_BIT types that were used for the
bitfield
flag definitions within the headers for the predefined ACPI tables. These
have been replaced by UINT8_BIT in order to increase the code portability
of
the subsystem. If the use of UINT8 remains a problem, we may be forced to

eliminate bitfields entirely because of a lack of portability.

Enhanced the performance of the AcpiUtUpdateObjectReference procedure. This
is a frequently used function and this improvement increases the performance
of the entire subsystem (Alexey
Starikovskiy).

Fixed several possible memory leaks and the inverse - premature object
deletion (Alexey Starikovskiy).

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.6K Code, 11.5K Data, 90.1K Total
Debug Version: 165.2K Code, 69.6K Data, 234.8K Total
Current Release:
Non-Debug Version: 78.6K Code, 11.6K Data, 90.2K Total
Debug Version: 170.0K Code, 69.7K Data, 239.7K Total

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24 June 2005. Summary of changes for version 20050624:

1) ACPI CA Core Subsystem:

Modified the new OSL cache interfaces to use ACPI_CACHE_T as the type for
the host-defined cache object. This allows the OSL implementation to define
and type this object in any manner desired, simplifying the OSL
implementation. For example, ACPI_CACHE_T is defined as kmem_cache_t for
Linux, and should be defined in the OS-specific header file for other
operating systems as required.

Changed the interface to AcpiOsAcquireObject to directly return the
requested object as the function return (instead of ACPI_STATUS.) This
change was made for performance reasons, since this is the purpose of the
interface in the first place. AcpiOsAcquireObject is now similar to the

AcpiOsAllocate interface.

Implemented a new AML debugger command named Businfo. This command displays
information about all devices that have an associate _PRT object. The _ADR,
_HID, _UID, and _CID are displayed for these devices.

Modified the initialization sequence in
AcpiInitializeSubsystem to call
the
OSL interface AcpiOslInitialize first, before any local initialization. This
change was required because the global initialization now calls OSL
interfaces.

Enhanced the Dump command to display the entire contents of Package objects
(including all sub-objects and their values.)

Restructured the code base to split some files because of size and/or
because the code logically belonged in a separate file. New files are listed
below. All makefiles and project files included in the ACPI CA release have
been updated.

```
  utilities/utcache.c          /* Local cache interfaces */
  utilities/utmutex.c          /* Local mutex support */
  utilities/utstate.c          /* State object support */
  interpreter/parser/psloop.c  /* Main AML parse loop */
```

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler,
and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

```
 Previous Release:
   Non-Debug Version:  78.3K Code, 11.6K Data,  89.9K Total
   Debug Version:     164.0K Code, 69.1K Data, 233.1K Total
 Current Release:
   Non-Debug Version:  78.6K Code, 11.5K Data,  90.1K Total
```

Debug Version: 165.2K Code, 69.6K Data, 234.8K Total

2) iASL Compiler/Disassembler:

Fixed a regression introduced in version 20050513 where the use of a Package
object within a Case() statement caused a compile time exception. The
original behavior has been restored (a Match() operator is emitted.)

---

17 June 2005. Summary of changes for version 20050617:

1) ACPI CA Core Subsystem:

Moved the object cache
operations into the OS interface layer (OSL) to allow
the host OS to handle these operations if desired (for example, the Linux
OSL will invoke the slab allocator). This support is optional; the compile
time define ACPI_USE_LOCAL_CACHE may be used to utilize the original cache
code in the ACPI CA core. The new OSL interfaces are shown below. See
utalloc.c for an example implementation, and acpiosxf.h for the exact
interface definitions. With assistance from Alexey Starikovskiy.

AcpiOsCreateCache
AcpiOsDeleteCache
AcpiOsPurgeCache
AcpiOsAcquireObject
AcpiOsReleaseObject

Modified the interfaces to AcpiOsAcquireLock and AcpiOsReleaseLock to return
and restore a flags parameter. This fits better with many OS lock models.
Note: the current execution state (interrupt handler or not) is no longer
passed to these interfaces. If necessary, the OSL must determine this state
by itself, a simple and fast operation. With assistance from Alexey
Starikovskiy.

Fixed
a problem in the ACPI table handling where a valid XSDT was assumed
present if the revision of the RSDP was 2 or greater. According to the ACPI
specification, the XSDT is optional in all cases, and the table manager
therefore now checks for both an RSDP >=2 and a valid XSDT pointer.
Otherwise, the RSDT pointer is used. Some ACPI 2.0 compliant BIOSs

contain
only the RSDT.

Fixed an interpreter problem with the Mid() operator in the case of an input
string where the resulting output string is of zero length. It now correctly
returns a valid, null terminated string object instead of a string object
with a null pointer.

Fixed a problem with the control method argument handling to allow a store
to an Arg object that already contains an object of type Device. The Device
object is now correctly overwritten. Previously, an error was returned.

Enhanced the debugger Find command to emit object values in addition to the
found object pathnames. The output format is the same
as the dump
namespace
command.

Enhanced the debugger Set command. It now has the ability to set the value
of any Named integer object in the namespace (Previously, only method locals
and args could be set.)

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.1K Code, 11.6K Data, 89.7K Total
Debug Version: 164.0K Code, 69.3K Data, 233.3K Total
Current Release:
Non-Debug Version: 78.3K Code, 11.6K Data, 89.9K Total
Debug Version: 164.0K Code, 69.1K Data, 233.1K Total

2)
iASL Compiler/Disassembler:

Fixed a regression in the disassembler where if/else/while constructs
were
output incorrectly. This problem was introduced in the previous release
(20050526). This problem also affected the single-step disassembly in the
debugger.

Fixed a problem where compiling the reserved _OSI method would randomly
(but
rarely) produce compile errors.

Enhanced the disassembler to emit compilable code in the face of
incorrect
AML resource descriptors. If the optional ResourceSourceIndex is present,
but the ResourceSource is not, do not emit the ResourceSourceIndex in the
disassembly. Otherwise, the resulting code cannot be compiled without
errors.

---
26 May 2005. Summary of changes for version 20050526:

1) ACPI CA Core Subsystem:

Implemented support to execute Type 1 and Type 2 AML opcodes appearing at
the module level (not within a control method.) These opcodes are
executed
exactly once at the time the
table is loaded. This type of code was legal
up
until the release of ACPI 2.0B (2002) and is now supported within ACPI CA
in
order to provide backwards compatibility with earlier BIOS
implementations.
This eliminates the "Encountered executable code at module level" warning
that was previously generated upon detection of such code.

Fixed a problem in the interpreter where an AE_NOT_FOUND exception could
inadvertently be generated during the lookup of namespace objects in the
second pass parse of ACPI tables and control methods. It appears that
this
problem could occur during the resolution of forward references to
namespace
objects.

Added the ACPI_MUTEX_DEBUG #ifdef to the AcpiUtReleaseMutex function,

corresponding to the same #ifdef in the AcpiUtAcquireMutex function. This allows the deadlock detection debug code to be compiled out in the normal case, improving mutex performance (and overall subsystem performance) considerably.

Implemented a handful of miscellaneous
fixes for possible memory leaks on
error conditions and error handling control paths. These fixes were suggested by FreeBSD and the Coverity Prevent source code analysis tool.

Added a check for a null RSDT pointer in AcpiGetFirmwareTable
(tbxfroot.c)
to prevent a fault in this error case.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total
Debug Version: 163.7K Code, 69.3K Data, 233.0K Total
Current Release:
Non-Debug Version: 78.1K Code, 11.6K
Data, 89.7K Total
Debug Version: 164.0K Code, 69.3K Data, 233.3K Total

2) iASL Compiler/Disassembler:

Implemented support to allow Type 1 and Type 2 ASL operators to appear at the module level (not within a control method.) These operators will be executed once at the time the table is loaded. This type of code was
legal
up until the release of ACPI 2.0B (2002) and is now supported by the iASL compiler in order to provide backwards compatibility with earlier BIOS
ASL
code.

The ACPI integer width (specified via the table revision ID or the -r override, 32 or 64 bits) is now used internally during compile-time
constant

folding to ensure that constants are truncated to 32 bits if necessary. Previously, the revision ID value was only emitted in the AML table header.

An error message is now generated for the Mutex and Method operators if the
SyncLevel parameter is outside the legal range of 0 through 15.

Fixed a problem with the Method operator ParameterTypes
list handling
(ACPI
3.0). Previously, more than 2 types or 2 arguments generated a syntax error.
The actual underlying implementation of method argument typechecking is still under development, however.

---
13 May 2005. Summary of changes for version 20050513:

1) ACPI CA Core Subsystem:

Implemented support for PCI Express root bridges -- added support for device
PNP0A08 in the root bridge search within AcpiEvPciConfigRegionSetup.

The interpreter now automatically truncates incoming 64-bit constants to 32
bits if currently executing out of a 32-bit ACPI table (Revision < 2). This
also affects the iASL compiler constant folding. (Note: as per below, the iASL compiler no longer allows 64-bit constants within 32-bit tables.)

Fixed a problem where string and buffer objects with "static" pointers (pointers to initialization data within an ACPI table) were not handled consistently. The internal object copy operation now always copies
the
data
to a newly allocated buffer, regardless of whether the source object is static or not.

Fixed a problem with the FromBCD operator where an implicit result conversion was improperly performed while storing the result to the target
operand. Since this is an "explicit conversion" operator, the implicit conversion should never be performed on the output.

Fixed a problem with the CopyObject operator where a copy to an existing named object did not always completely overwrite the existing object

stored
at name. Specifically, a buffer-to-buffer copy did not delete the
existing
buffer.

Replaced "InterruptLevel" with "InterruptNumber" in all GPE interfaces
and
structs for consistency.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes
the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total
Debug Version: 163.7K Code, 69.3K Data, 233.0K Total
Current Release: (Same sizes)
Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total
Debug Version: 163.7K Code, 69.3K Data, 233.0K Total

2) iASL Compiler/Disassembler:

The compiler now emits a warning if an attempt is made to generate a 64-
bit
integer constant from within a 32-bit ACPI table (Revision < 2). The
integer
is truncated to 32 bits.

Fixed a problem with large package objects: if the static length of the
package is greater than 255, the "variable length package" opcode is
emitted. Previously, this caused an error. This requires an update to the
ACPI spec, since it currently (incorrectly) states that
packages larger
than
255 elements are not allowed.

The disassembler now correctly handles variable length packages and
packages
larger than 255 elements.

---
08 April 2005. Summary of changes for version 20050408:

1) ACPI CA Core Subsystem:

Fixed three cases in the interpreter where an "index" argument to an ASL function was still (internally) 32 bits instead of the required 64 bits. This was the Index argument to the Index, Mid, and Match operators.

The "strupr" function is now permanently local (AcpiUtStrupr), since this is not a POSIX-defined function and not present in most kernel-level C libraries. All references to the C library strupr function have been removed from the headers.

Completed the deployment of static functions/prototypes. All prototypes with the static attribute have been moved from the headers to the owning C file.

Implemented an extract option (-e) for the AcpiBin utility (AML binary utility). This option allows the utility to extract individual ACPI tables from the output of AcpiDmp. It provides the same functionality of the acpixtract.pl perl script without the worry of setting the correct perl options. AcpiBin runs on Windows and has not yet been generated/validated in the Linux/Unix environment (but should be soon).

Updated and fixed the table dump option for AcpiBin (-d). This option converts a single ACPI table to a hex/ascii file, similar to the output of AcpiDmp.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous
Release:
Non-Debug Version: 78.0K Code, 11.6K Data, 89.6K Total
Debug Version: 163.5K Code, 69.3K Data, 232.8K Total
Current Release:
Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total
Debug Version: 163.7K Code, 69.3K Data, 233.0K Total

2) iASL Compiler/Disassembler:

Disassembler fix: Added a check to ensure that the table length found in the
ACPI table header within the input file is not longer than the actual input
file size. This indicates some kind of file or table corruption.

---
29 March 2005. Summary of changes for version 20050329:

1) ACPI CA Core Subsystem:

An error is now generated if an attempt is made to create a Buffer Field of
length zero (A CreateField with a length operand of zero.)

The interpreter now issues a warning whenever executable code at the module
level is detected during ACPI table load. This will give some idea of the
prevalence of this type of code.

Implemented support
for references to named objects (other than control
methods) within package objects.

Enhanced package object output for the debug object. Package objects are now
completely dumped, showing all elements.

Enhanced miscellaneous object output for the debug object. Any object can
now be written to the debug object (for example, a device object can be
written, and the type of the object will be displayed.)

The "static" qualifier has been added to all local functions across both the
core subsystem and the iASL compiler.

The number of "long" lines (> 80 chars) within the source has been

significantly reduced, by about 1/3.

Cleaned up all header files to ensure that all CA/iASL functions are
prototyped (even static functions) and the formatting is consistent.

Two new header files have been added, acopcode.h and acnames.h.

Removed several obsolete functions that were no longer used.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These
are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 165.4K Code, 69.7K Data, 236.1K Total
Current Release:
Non-Debug Version: 78.0K Code, 11.6K Data, 89.6K Total
Debug Version: 163.5K Code, 69.3K Data, 232.8K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the resource descriptor generation/support. For the
ResourceSourceIndex and the ResourceSource fields, both must be present,
or
both must be not present - can't have one without the other.

The compiler now returns non-zero from the main procedure
if any errors
have
occurred during the compilation.

---

09 March 2005. Summary of changes for version 20050309:

1) ACPI CA Core Subsystem:

The string-to-buffer implicit conversion code has been modified again after
a change to the ACPI specification. In order to match the behavior of the
other major ACPI implementation, the target buffer is no longer truncated if
the source string is smaller than an existing target buffer. This change
requires an update to the ACPI spec, and should eliminate the recent
AE_AML_BUFFER_LIMIT issues.

The "implicit return" support was rewritten to a new algorithm that solves
the general case. Rather than attempt to determine when a method is about to
exit, the result of every ASL operator is saved momentarily until the very
next ASL operator is executed. Therefore, no matter how the method exits,
there will always be a saved implicit return value. This feature is only
enabled with the AcpiGbl_EnableInterpreterSlack
 flag, and should
eliminate
AE_AML_NO_RETURN_VALUE errors when enabled.

Implemented implicit conversion support for the predicate (operand) of the
If, Else, and While operators. String and Buffer arguments are automatically
converted to Integers.

Changed the string-to-integer conversion behavior to match the new ACPI
errata: "If no integer object exists, a new integer is created. The ASCII
string is interpreted as a hexadecimal constant. Each string character is
interpreted as a hexadecimal value ('0'-'9', 'A'-'F', 'a', 'f'), starting
with the first character as the most significant digit, and ending with the
first non-hexadecimal character or end-of-string." This means that the first
non-hex character terminates the conversion and this is the code that was
changed.

Fixed a problem where the ObjectType operator would fail (fault) when used
on an Index of a Package which pointed to a null package element. The
operator now properly returns zero (Uninitialized)
 in this case.

Fixed a problem where the While operator used excessive memory by not
properly popping the result stack during execution. There was no memory

leak
after execution, however. (Code provided by Valery Podrezov.)

Fixed a problem where references to control methods within Package objects
caused the method to be invoked, instead of producing a reference object pointing to the method.

Restructured and simplified the pswalk.c module (AcpiPsDeleteParseTree) to
improve performance and reduce code size. (Code provided by Alexey Starikovskiy.)

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on
the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 165.4K Code, 69.6K Data, 236.0K Total
Current Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 165.4K Code, 69.7K Data, 236.1K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the Return operator with no arguments. Since the AML grammar for the byte encoding requires an operand for the Return opcode, the
compiler now emits a Return(Zero) for this case. An ACPI specification update has been written for this case.

For tables other than the DSDT, namepath optimization is automatically disabled. This is because SSDTs can be loaded anywhere in the namespace, the
compiler has no knowledge of where, and thus cannot optimize namepaths.

Added "ProcessorObj" to the ObjectTypeKeyword list. This object type was inadvertently omitted from the ACPI

specification, and will require an
update to the spec.

The source file scan for ASCII characters is now optional (-a). This
change
was made because some vendors place non-ascii characters within comments.
However, the scan is simply a brute-force byte compare to ensure all
characters in the file are in the range 0x00 to 0x7F.

Fixed a problem with the CondRefOf operator where the compiler was
inappropriately checking for the existence of the target. Since the point
of
the operator is to check for the existence of the target at run-time, the
compiler no longer checks for the target existence.

Fixed a problem where errors generated from the internal AML interpreter
during constant folding were not handled properly, causing a fault.

Fixed a problem with overly aggressive range checking for the Stall
operator. The valid range (max 255) is now only checked if the operand is
of
type Integer. All other operand types cannot be statically checked.

Fixed a problem where control
method references within the RefOf,
DeRefOf,
and ObjectType operators were not treated properly. They are now treated
as
actual references, not method invocations.

Fixed and enhanced the "list namespace" option (-ln). This option was
broken
a number of releases ago.

Improved error handling for the Field, IndexField, and BankField
operators.
The compiler now cleanly reports and recovers from errors in the field
component (FieldUnit) list.

Fixed a disassembler problem where the optional ResourceDescriptor fields
TRS and TTP were not always handled correctly.

Disassembler - Comments in output now use "//" instead of "/*"

---
28 February 2005. Summary of changes for version 20050228:

1) ACPI CA Core Subsystem:

Fixed a problem where the result of an Index() operator (an object reference) must increment the reference count on the target object for the life of the object reference.

Implemented AML Interpreter and Debugger support for the new ACPI 3.0 Extended Address (IO, Memory, Space), QwordSpace, DwordSpace, and WordSpace resource descriptors.

Implemented support in the _OSI method for the ACPI 3.0 "Extended Address Space Descriptor" string, indicating interpreter support for the descriptors above.

Implemented header support for the new ACPI 3.0 FADT flag bits.

Implemented header support for the new ACPI 3.0 PCI Express bits for the PM1 status/enable registers.

Updated header support for the MADT processor local Apic struct and MADT platform interrupt source struct for new ACPI 3.0 fields.

Implemented header support for the SRAT and SLIT ACPI tables.

Implemented the -s switch in AcpiExec to enable the "InterpreterSlack" flag at runtime.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.2K Code, 11.5K Data, 89.7K Total
Debug Version: 164.9K Code, 69.2K Data, 234.1K Total
Current Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 165.4K Code, 69.6K Data, 236.0K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the internal 64-bit String-to-integer conversion with
strings less than two characters long.

Fixed a problem with constant folding where the result of the Index()
operator can not be considered a constant. This means that Index() cannot be
a type3 opcode and this will require an update to the ACPI specification.

Disassembler: Implemented support for the TTP, MTP, and TRS resource
descriptor fields. These fields
were inadvertently ignored and not output
in
the disassembly of the resource descriptor.

---

11 February 2005. Summary of changes for version 20050211:

1) ACPI CA Core Subsystem:

Implemented ACPI 3.0 support for implicit conversion within the Match()
operator. MatchObjects can now be of type integer, buffer, or string
instead
of just type integer. Package elements are implicitly converted to the
type
of the MatchObject. This change aligns the behavior of Match() with the
behavior of the other logical operators (LLess(), etc.) It also requires
an
errata change to the ACPI specification as this support was intended for
ACPI 3.0, but was inadvertently omitted.

Fixed a problem with the internal implicit "to buffer" conversion.
Strings
that are converted to buffers will cause buffer truncation if the string
is
smaller than the target buffer. Integers that are converted to buffers
will
not cause buffer truncation, only zero extension
(both as per the ACPI
spec.) The problem was introduced when code was added to truncate the
buffer, but this should not be performed in all cases, only the string

case.

Fixed a problem with the Buffer and Package operators where the
interpreter
would get confused if two such operators were used as operands to an ASL
operator (such as LLess(Buffer(1){0},Buffer(1){1}). The internal result
stack was not being popped after the execution of these operators,
resulting
in an AE_NO_RETURN_VALUE exception.

Fixed a problem with constructs of the form Store(Index(...),...). The
reference object returned from Index was inadvertently resolved to an
actual
value. This problem was introduced in version 20050114 when the behavior
of
Store() was modified to restrict the object types that can be used as the
source operand (to match the ACPI specification.)

Reduced excessive stack use within the AcpiGetObjectInfo procedure.

Added a fix to aclinux.h to allow generation of AcpiExec
on Linux.

Updated the AcpiSrc utility to add the FADT_DESCRIPTOR_REV2_MINUS struct.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.1K Code, 11.5K Data, 89.6K Total
Debug Version: 164.8K Code, 69.2K Data, 234.0K Total
Current Release:
Non-Debug Version: 78.2K Code, 11.5K Data, 89.7K Total
Debug Version: 164.9K Code, 69.2K Data, 234.1K Total

2) iASL Compiler/Disassembler:

Fixed a code generation problem in the constant folding optimization code
where incorrect code

was generated if a constant was reduced to a buffer
object (i.e., a reduced type 5 opcode.)

Fixed a typechecking problem for the ToBuffer operator. Caused by an
incorrect return type in the internal opcode information table.

---
25 January 2005. Summary of changes for version 20050125:

1) ACPI CA Core Subsystem:

Fixed a recently introduced problem with the Global Lock where the
underlying semaphore was not created. This problem was introduced in
version 20050114, and caused an AE_AML_NO_OPERAND exception during an
Acquire() operation on _GL.

The local object cache is now optional, and is disabled by default. Both
AcpiExec and the iASL compiler enable the cache because they run in user
mode and this enhances their performance. #define
ACPI_ENABLE_OBJECT_CACHE
to enable the local cache.

Fixed an issue in the internal function AcpiUtEvaluateObject concerning
the
optional "implicit return" support where an error was returned if no

return
object was expected, but one was implicitly returned. AE_OK is now
returned
in this case and the implicitly returned object is deleted.
AcpiUtEvaluateObject is only occasionally used, and only to execute
reserved
methods such as _STA and _INI where the return type is known up front.

Fixed a few issues with the internal convert-to-integer code. It now
returns
an error if an attempt is made to convert a null string, a string of only
blanks/tabs, or a zero-length buffer. This affects both implicit
conversion
and explicit conversion via the ToInteger() operator.

The internal debug code in AcpiUtAcquireMutex has been commented out. It
is
not needed for normal operation and should increase the performance of
the
entire subsystem. The code remains in case it is needed for debug
purposes
again.

The AcpiExec source and makefile are included in the Unix/Linux package for
the first time.

Code and Data Size: Current and previous core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.4K Code, 11.5K Data, 89.9K Total
Debug Version: 165.4K Code, 69.4K Data, 234.8K Total
Current Release:
Non-Debug Version: 78.1K Code, 11.5K Data, 89.6K Total
Debug Version: 164.8K Code, 69.2K Data, 234.0K Total

2) iASL Compiler/Disassembler:

Switch/Case support: A warning is now issued if the type of the Switch value
cannot be determined at compile time. For example, Switch(Arg0) will
generate the warning, and the type is assumed to be an integer. As per the
ACPI spec, use a construct
such as Switch(ToInteger(Arg0)) to eliminate the
warning.

Switch/Case support: Implemented support for buffer and string objects as
the switch value. This is an ACPI 3.0 feature, now that LEqual supports
buffers and strings.

Switch/Case support: The emitted code for the LEqual() comparisons now uses
the switch value as the first operand, not the second. The case value is now
the second operand, and this allows the case value to be implicitly
converted to the type of the switch value, not the other way around.

Switch/Case support: Temporary variables are now emitted immediately

within
the control method, not at the global level. This means that there are
now
36 temps available per-method, not 36 temps per-module as was the case
with
the earlier implementation (_T_0 through _T_9 and _T_A through _T_Z.)

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14 January 2005. Summary of changes for version 20050114:

Added 2005 copyright to all module headers. This affects every module
in
the core subsystem, iASL compiler, and the utilities.

1) ACPI CA Core Subsystem:

Fixed an issue with the String-to-Buffer conversion code where the string
null terminator was not included in the buffer after conversion, but
there
is existing ASL that assumes the string null terminator is included. This
is
the root of the ACPI_AML_BUFFER_LIMIT regression. This problem was
introduced in the previous version when the code was updated to correctly
set the converted buffer size as per the ACPI specification. The ACPI
spec
is ambiguous and will be updated to specify that the null terminator must
be
included in the converted buffer. This also affects the ToBuffer() ASL
operator.

Fixed a problem with the Mid() ASL/AML operator where it did not work
correctly on Buffer objects. Newly created sub-buffers were not being
marked
as initialized.

Fixed a problem in AcpiTbFindTable where incorrect string compares were
performed on the OemId and OemTableId table header fields.
These fields
are
not null terminated, so strncmp is now used instead of strcmp.

Implemented a restriction on the Store() ASL/AML operator to align the
behavior with the ACPI specification. Previously, any object could be
used
as the source operand. Now, the only objects that may be used are
Integers,
Buffers, Strings, Packages, Object References, and DDB Handles. If

necessary, the original behavior can be restored by enabling the EnableInterpreterSlack flag.

Enhanced the optional "implicit return" support to allow an implicit return value from methods that are invoked externally via the AcpiEvaluateObject interface. This enables implicit returns from the _STA and _INI methods, for example.

Changed the Revision() ASL/AML operator to return the current version of the AML interpreter, in the YYYYMMDD format. Previously, it incorrectly returned the supported ACPI version (This is the function of the _REV method).

Updated the _REV predefined method to return the currently supported version of ACPI, now 3.

Implemented batch mode option for the AcpiExec utility (-b).

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 165.3K Code, 69.4K Data, 234.7K Total
Current Release:
Non-Debug Version: 78.4K Code, 11.5K Data, 89.9K Total
Debug Version: 165.4K Code, 69.4K Data, 234.8K Total

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10 December 2004. Summary of changes for version 20041210:

ACPI 3.0 support is nearing completion in both the iASL compiler and the ACPI CA core subsystem.

1) ACPI CA Core Subsystem:

Fixed a problem in the ToDecimalString operator where the resulting
string
length was incorrectly calculated. The length is now calculated exactly,
eliminating incorrect AE_STRING_LIMIT exceptions.

Fixed a problem in the ToHexString operator to allow a maximum 200
character
string to be produced.

Fixed a problem in the internal string-to-buffer and buffer-to-buffer
copy
routine where the length of the resulting buffer was not truncated to the
new size (if the target buffer already existed).

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code
and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 164.7K Code, 68.5K Data, 233.2K Total
Current Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 165.3K Code, 69.4K Data, 234.7K Total

2) iASL Compiler/Disassembler:

Implemented the new ACPI 3.0 resource template macros - DWordSpace,
ExtendedIO, ExtendedMemory, ExtendedSpace, QWordSpace, and WordSpace.
Includes support in the disassembler.

Implemented support for the new (ACPI 3.0) parameter to the Register
macro,
AccessSize.

Fixed a problem where the _HE resource name for the Interrupt macro was
referencing bit 0 instead of bit 1.

Implemented check for maximum 255 interrupts in the Interrupt macro.

Fixed a problem with the predefined resource descriptor names where incorrect
AML code was generated if the offset within the resource buffer was 0 or 1. The optimizer shortened the AML code to a single byte opcode but did not update the surrounding package lengths.

Changes to the Dma macro: All channels within the channel list must be in
the range 0-7. Maximum 8 channels can be specified. BusMaster operand is optional (default is BusMaster).

Implemented check for maximum 7 data bytes for the VendorShort macro.

The ReadWrite parameter is now optional for the Memory32 and similar macros.

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03 December 2004. Summary of changes for version 20041203:

1) ACPI CA Core Subsystem:

The low-level field insertion/extraction code (exfldio) has been completely
rewritten to eliminate unnecessary complexity, bugs, and boundary conditions.

Fixed a problem in the ToInteger, ToBuffer, ToHexString, and ToDecimalString
operators where the input operand could be inadvertently deleted if no conversion was necessary (e.g.,
if the input to ToInteger was an Integer
object.)

Fixed a problem with the ToDecimalString and ToHexString where an incorrect
exception code was returned if the resulting string would be > 200 chars. AE_STRING_LIMIT is now returned.

Fixed a problem with the Concatenate operator where AE_OK was always returned, even if the operation failed.

Fixed a problem in oswinxf (used by AcpiExec and iASL) to allow > 128 semaphores to be allocated.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib

produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.5K
Code, 11.5K Data, 90.0K Total
Debug Version: 165.2K Code, 68.6K Data, 233.8K Total
Current Release:
Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total
Debug Version: 164.7K Code, 68.5K Data, 233.2K Total

2) iASL Compiler/Disassembler:

Fixed typechecking for the ObjectType and SizeOf operators. Problem was
recently introduced in 20041119.

Fixed a problem with the ToUUID macro where the upper nybble of each
buffer
byte was inadvertently set to zero.

---
19 November 2004. Summary of changes for version 20041119:

1) ACPI CA Core Subsystem:

Fixed a problem in the internal ConvertToInteger routine where new
integers
were not truncated to 32 bits for 32-bit ACPI tables. This routine
converts
buffers and strings to integers.

Implemented support to store a value to an Index() on a String object.
This
is an ACPI 2.0 feature that had not yet been implemented.

Implemented new behavior for storing objects
to individual package
elements
(via the Index() operator). The previous behavior was to invoke the
implicit
conversion rules if an object was already present at the index. The new

behavior is to simply delete any existing object and directly store the new
object. Although the ACPI specification seems unclear on this subject, other
ACPI implementations behave in this manner. (This is the root of the
AE_BAD_HEX_CONSTANT issue.)

Modified the RSDP memory scan mechanism to support the extended checksum for
ACPI 2.0 (and above) RSDPs. Note that the search continues until a valid
RSDP signature is found with a valid checksum.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger
code and data size.
Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total
Debug Version: 165.2K Code, 68.6K Data, 233.8K Total
Current Release:
Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total
Debug Version: 165.2K Code, 68.6K Data, 233.8K Total

2) iASL Compiler/Disassembler:

Fixed a missing semicolon in the aslcompiler.y file.

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05 November 2004. Summary of changes for version 20041105:

1) ACPI CA Core Subsystem:

Implemented support for FADT revision 2. This was an interim table (between
ACPI 1.0 and ACPI 2.0) that adds support for the FADT reset register.

Implemented optional support to allow uninitialized LocalX and ArgX
variables in a control method. The variables are initialized to an
Integer

object with a value of zero. This support
is enabled by setting the
AcpiGbl_EnableInterpreterSlack flag to TRUE.

Implemented support for Integer objects for the SizeOf operator. Either
4
or 8 is returned, depending on the current integer size (32-bit or 64-
bit,
depending on the parent table revision).

Fixed a problem in the implementation of the SizeOf and ObjectType
operators
where the operand was resolved to a value too early, causing incorrect
return values for some objects.

Fixed some possible memory leaks during exceptional conditions.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used
during generation.

Previous Release:
Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total
Debug Version: 164.8K Code, 68.6K Data, 233.4K Total
Current Release:
Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total
Debug Version: 165.2K Code, 68.6K Data, 233.8K Total

2) iASL Compiler/Disassembler:

Implemented support for all ACPI 3.0 reserved names and methods.

Implemented all ACPI 3.0 grammar elements in the front-end, including
support for semicolons.

Implemented the ACPI 3.0 Function() and ToUUID() macros

Fixed a problem in the disassembler where a Scope() operator would not be
emitted properly if the target of the scope was in another table.

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15 October 2004. Summary of changes for version 20041015:

Note: ACPI CA is currently undergoing an in-depth and complete formal evaluation to test/verify the following areas. Other suggestions are welcome. This will result in an increase in the frequency of releases and the number of bug fixes in the next few months.

- Functional tests for all ASL/AML operators
- All implicit/explicit type conversions
- Bit fields and operation regions
- 64-bit math support and 32-bit-only "truncated" math support
- Exceptional conditions, both compiler and interpreter
- Dynamic object deletion and memory leaks
- ACPI 3.0 support when implemented
- External interfaces to the ACPI subsystem

1) ACPI CA Core Subsystem:

Fixed two alignment issues on 64-bit platforms - within debug statements in AcpiEvGpeDetect and AcpiEvCreateGpeBlock. Removed references to the Address field within the non-aligned ACPI generic address structure.

Fixed a problem in the Increment and Decrement operators where incorrect operand resolution could result in the inadvertent modification of the original integer when the integer is passed into another method as an argument and the arg is then incremented/decremented.

Fixed a problem in the FromBCD operator where the upper 32-bits of a 64-bit BCD number were truncated during conversion.

Fixed a problem in the ToDecimal operator where the length of the resulting string could be set incorrectly too long if the input operand was a Buffer object.

Fixed a problem in the Logical operators (LLess, etc.) where a NULL byte (0) within a buffer would prematurely terminate a compare between buffer objects.

Added a check for string overflow (>200 characters as per the ACPI specification) during the Concatenate operator with two string operands.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of
the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total
Debug Version: 164.6K Code, 68.5K Data, 233.1K Total
Current Release:
Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total
Debug Version: 164.8K Code, 68.6K Data, 233.4K Total

2) iASL Compiler/Disassembler:

Allow the use of the ObjectType operator on uninitialized Locals and Args (returns 0 as per the ACPI specification).

Fixed a problem where the compiler would fault if there was a syntax error
in the FieldName of all of the various CreateXXXField operators.

Disallow the use of lower case letters within the EISAID macro, as per the
ACPI specification. All EISAID strings must be of the form "UUUNNNN" Where
U is an uppercase letter and N is a hex digit.

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06 October 2004. Summary of changes for version 20041006:

1) ACPI CA Core Subsystem:

Implemented support
for the ACPI 3.0 Timer operator. This ASL function
implements a 64-bit timer with 100 nanosecond granularity.

Defined a new OSL interface, AcpiOsGetTimer. This interface is used to implement the ACPI 3.0 Timer operator. This allows the host OS to implement the timer with the best clock available. Also, it keeps the core subsystem out of the clock handling business, since the host OS (usually) performs this function.

Fixed an alignment issue on 64-bit platforms. The HwLowLevelRead(Write) functions use a 64-bit address which is part of the packed ACPI Generic Address Structure. Since the structure is non-aligned, the alignment macros are now used to extract the address to a local variable before use.

Fixed a problem where the ToInteger operator assumed all input strings were hexadecimal. The operator now handles both decimal strings and hex strings (prefixed with "0x").

Fixed a problem where the string length in the string object created as a result of the internal ConvertToString procedure could be incorrect. This potentially affected all implicit conversions and also the ToDecimalString and ToHexString operators.

Fixed two problems in the ToString operator. If the length parameter was zero, an incorrect string object was created and the value of the input length parameter was inadvertently changed from zero to Ones.

Fixed a problem where the optional ResourceSource string in the ExtendedIRQ resource macro was ignored.

Simplified the interfaces to the internal division functions, reducing code size and complexity.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the

efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.9K Code, 11.4K Data, 89.3K Total
Debug Version: 164.5K Code, 68.3K Data, 232.8K Total
Current Release:
Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total
Debug Version: 164.6K Code, 68.5K Data, 233.1K Total

2) iASL Compiler/Disassembler:

Implemented support for the ACPI 3.0 Timer operator.

Fixed a problem where the Default() operator was inadvertently ignored in
a
Switch/Case block. This was a problem in the translation of the Switch
statement to If...Else pairs.

Added support to allow a standalone Return operator, with no parentheses
(or
operands).

Fixed a problem with code generation for the ElseIf operator where the
translated Else...If parse tree was improperly constructed leading to the
loss of some code.

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22 September 2004. Summary of changes for version 20040922:

1)
ACPI CA Core Subsystem:

Fixed a problem with the implementation of the LNot() operator where
"Ones"
was not returned for the TRUE case. Changed the code to return Ones
instead
of (!Arg) which was usually 1. This change affects iASL constant folding
for
this operator also.

Fixed a problem in AcpiUtInitializeBuffer where an existing buffer was
not
initialized properly -- Now zero the entire buffer in this case where the
buffer already exists.

Changed the interface to AcpiOsSleep from (UINT32 Seconds, UINT32 Milliseconds) to simply (ACPI_INTEGER Milliseconds). This simplifies all related code considerably. This will require changes/updates to all OS interface layers (OSLs.)

Implemented a new external interface, AcpiInstallExceptionHandler, to allow
a system exception handler to be installed. This handler is invoked upon any
run-time exception that occurs during control method execution.

Added support for the DSDT in AcpiTbFindTable. This allows the DataTableRegion()
operator to access the local copy of the DSDT.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.8K Code, 11.4K Data, 89.2K Total
Debug Version: 164.2K Code, 68.2K Data, 232.4K Total
Current Release:
Non-Debug Version: 77.9K Code, 11.4K Data, 89.3K Total
Debug Version: 164.5K Code, 68.3K Data, 232.8K Total

2) iASL Compiler/Disassembler:

Fixed a problem with constant folding and the LNot operator. LNot was returning 1 in the TRUE case, not Ones as per
the ACPI specification.
This
could result in the generation of an incorrect folded/reduced constant.

End-Of-File is now allowed within a "//"-style comment. A parse error no longer occurs if such a comment is at the very end of the input ASL source
file.

Implemented the "-r" option to override the Revision in the table header.

The initial use of this option will be to simplify the evaluation of the AML
interpreter by allowing a single ASL source module to be compiled for either
32-bit or 64-bit integers.

---
27 August 2004. Summary of changes for version 20040827:

1) ACPI CA Core Subsystem:

- Implemented support for implicit object conversion in the non-numeric
logical operators (LEqual, LGreater, LGreaterEqual, LLess, LLessEqual, and
LNotEqual.) Any combination of Integers/Strings/Buffers may now be used;
the second operand is implicitly converted on the fly to match the type of
the first operand. For example:

  LEqual
 (Source1, Source2)

Source1 and Source2 must each evaluate to an integer, a string, or a buffer.
The data type of Source1 dictates the required type of Source2. Source2 is
implicitly converted if necessary to match the type of Source1.

- Updated and corrected the behavior of the string conversion support. The
rules concerning conversion of buffers to strings (according to the ACPI
specification) are as follows:

ToDecimalString - explicit byte-wise conversion of buffer to string of
decimal values (0-255) separated by commas. ToHexString - explicit byte-wise
conversion of buffer to string of hex values (0-FF) separated by commas.
ToString - explicit byte-wise conversion of buffer to string. Byte-by-byte
copy with no transform except NULL terminated. Any other implicit buffer-to-
string conversion - byte-wise conversion of buffer to string of hex values
(0-FF) separated by spaces.

- Fixed typo in definition of AcpiGbl_EnableInterpreterSlack.

- Fixed a problem in AcpiNsGetPathnameLength
where the returned length
was
one byte too short in the case of a node in the root scope. This could
cause a fault during debug output.

- Code and Data Size: Current and previous core subsystem library sizes
are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.9K Code, 11.5K Data, 89.4K Total
Debug Version: 164.1K Code, 68.3K Data, 232.4K Total
Current Release:
Non-Debug Version: 77.8K Code, 11.4K Data, 89.2K Total
Debug Version: 164.2K Code, 68.2K Data, 232.4K Total

2) iASL Compiler/Disassembler:

- Fixed
a Linux generation error.

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16 August 2004. Summary of changes for version 20040816:

1) ACPI CA Core Subsystem:

Designed and implemented support within the AML interpreter for the so-
called "implicit return". This support returns the result of the last
ASL
operation within a control method, in the absence of an explicit Return()
operator. A few machines depend on this behavior, even though it is not
explicitly supported by the ASL language. It is optional support that
can
be enabled at runtime via the AcpiGbl_EnableInterpreterSlack flag.

Removed support for the PCI_Config address space from the internal low
level

hardware interfaces (AcpiHwLowLevelRead and AcpiHwLowLevelWrite). This
support was not used internally, and would not work correctly anyway
because
the PCI bus number and segment number were not supported. There are
separate interfaces for PCI configuration space access because of the
unique
interface.

Code and
Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total
Debug Version: 164.1K Code, 68.2K Data, 232.3K Total
Current Release:
Non-Debug Version: 77.9K Code, 11.5K Data, 89.4K Total
Debug Version: 164.1K Code, 68.3K Data, 232.4K Total

2) iASL Compiler/Disassembler:

Fixed a problem where constants in ASL expressions at the root level (not
within a control method) could be inadvertently truncated during code
generation. This problem was
introduced in the 20040715 release.

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15 July 2004. Summary of changes for version 20040715:

1) ACPI CA Core Subsystem:

Restructured the internal HW GPE interfaces to pass/track the current
state
of interrupts (enabled/disabled) in order to avoid possible deadlock and
increase flexibility of the interfaces.

Implemented a "lexicographical compare" for String and Buffer objects
within

the logical operators -- LGreater, LLess, LGreaterEqual, and LLessEqual -
-
as per further clarification to the ACPI specification. Behavior is
similar
to C library "strcmp".

Completed a major reduction in CPU stack use for the AcpiGetFirmwareTable
external function. In the 32-bit non-debug case, the stack use has been
reduced from 168 bytes to 32 bytes.

Deployed a new run-time configuration flag,
AcpiGbl_EnableInterpreterSlack,
whose purpose is to allow the AML interpreter to forgive certain bad AML
constructs. Default setting is FALSE.

Implemented
the first use of AcpiGbl_EnableInterpreterSlack in the Field
IO
support code. If enabled, it allows field access to go beyond the end of
a
region definition if the field is within the region length rounded up to
the
next access width boundary (a common coding error.)

Renamed OSD_HANDLER to ACPI_OSD_HANDLER, and OSD_EXECUTION_CALLBACK to
ACPI_OSD_EXEC_CALLBACK for consistency with other ACPI symbols. Also,
these
symbols are lowercase by the latest version of the AcpiSrc tool.

The prototypes for the PCI interfaces in acpiosxf.h have been updated to
rename "Register" to simply "Reg" to prevent certain compilers from
complaining.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much
larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total
Debug Version: 163.8K Code, 68.2K Data, 232.0K Total

Current Release:
Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total
Debug Version: 164.1K Code, 68.2K Data, 232.3K Total

2) iASL Compiler/Disassembler:

Implemented full support for Package objects within the Case() operator. Note: The Break() operator is currently not supported within Case blocks (TermLists) as there is some question about backward compatibility with ACPI
1.0 interpreters.

Fixed a problem where complex terms were not supported properly within the
Switch() operator.

Eliminated extraneous warning for compiler-emitted reserved names of the form "_T_x". (Used in Switch/Case operators.)

Eliminated optimization messages for "_T_x" objects
and small constants
within the DefinitionBlock operator.

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15 June 2004. Summary of changes for version 20040615:

1) ACPI CA Core Subsystem:

Implemented support for Buffer and String objects (as per ACPI 2.0) for the
following ASL operators: LEqual, LGreater, LLess, LGreaterEqual, and LLessEqual.

All directory names in the entire source package are lower case, as they were in earlier releases.

Implemented "Disassemble" command in the AML debugger that will disassemble
a single control method.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the

debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of
the compiler
and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.7K Code, 11.5K Data, 89.2K Total
Debug Version: 163.3K Code, 67.2K Data, 230.5K Total

Current Release:
Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total
Debug Version: 163.8K Code, 68.2K Data, 232.0K Total

2) iASL Compiler/Disassembler:

Implemented support for Buffer and String objects (as per ACPI 2.0) for
the
following ASL operators: LEqual, LGreater, LLess, LGreaterEqual, and
LLessEqual.

All directory names in the entire source package are lower case, as they
were in earlier releases.

Fixed a fault when using the -g or -d<nofilename> options if the FADT was
not found.

Fixed an issue with the Windows version of the compiler where later
versions
of Windows place the FADT in the registry under the name "FADT" and not
"FACP" as earlier versions did. This applies when using the -g or -
d<nofilename> options. The compiler
now looks for both strings as
necessary.

Fixed a problem with compiler namepath optimization where a namepath
within
the Scope() operator could not be optimized if the namepath was a subpath
of
the current scope path.

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27 May 2004. Summary of changes for version 20040527:

1) ACPI CA Core Subsystem:

Completed a new design and implementation for EBDA (Extended BIOS Data Area)
support in the RSDP scan code. The original code improperly scanned for the
EBDA by simply scanning from memory location 0 to 0x400. The correct method
is to first obtain the EBDA pointer from within the BIOS data area, then
scan 1K of memory starting at the EBDA pointer. There appear to be few if
any machines that place the RSDP in the EBDA, however.

Integrated a fix for a possible fault during evaluation of BufferField
arguments. Obsolete code that was causing the problem was removed.

Found and fixed a problem in the Field Support Code where data could be
corrupted on a bit field read that starts on an aligned boundary but does
not end on an aligned boundary. Merged the read/write "datum length"
calculation code into a common procedure.

Rolled in a couple of changes to the FreeBSD-specific header.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 77.6K Code, 11.5K Data, 89.1K Total
Debug Version: 163.2K Code, 67.2K Data, 230.4K Total
Current Release:
Non-Debug Version: 77.7K Code, 11.5K Data, 89.2K Total
Debug
Version: 163.3K Code, 67.2K Data, 230.5K Total

2) iASL Compiler/Disassembler:

Fixed a generation warning produced by some overly-verbose compilers for a
64-bit constant.

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14 May 2004. Summary of changes for version 20040514:

1) ACPI CA Core Subsystem:

Fixed a problem where hardware GPE enable bits sometimes not set properly
during and after GPE method execution. Result of 04/27 changes.

Removed extra "clear all GPEs" when sleeping/waking.

Removed AcpiHwEnableGpe and AcpiHwDisableGpe, replaced by the single
AcpiHwWriteGpeEnableReg. Changed a couple of calls to the functions above
to
the new AcpiEv* calls as appropriate.

ACPI_OS_NAME was removed from the OS-specific headers. The default name
is
now "Microsoft Windows NT" for maximum compatibility. However this can
be
changed by modifying the acconfig.h file.

Allow a single invocation of AcpiInstallNotifyHandler for a handler that
traps both types of notifies (System,
 Device). Use ACPI_ALL_NOTIFY flag.

Run _INI methods on ThermalZone objects. This is against the ACPI
specification, but there is apparently ASL code in the field that has
these
_INI methods, and apparently "other" AML interpreters execute them.

Performed a full 16/32/64 bit lint that resulted in some small changes.

Added a sleep simulation command to the AML debugger to test sleep code.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

 Previous Release:
   Non-Debug Version: 77.6K Code, 11.5K Data,   89.1K Total

Debug
Version: 162.9K Code, 67.0K Data, 229.9K Total
Current Release:
Non-Debug Version: 77.6K Code, 11.5K Data, 89.1K Total
Debug Version: 163.2K Code, 67.2K Data, 230.4K Total

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27 April 2004. Summary of changes for version 20040427:

1) ACPI CA Core Subsystem:

Completed a major overhaul of the GPE handling within ACPI CA. There are now three types of GPEs: wake-only, runtime-only, and combination wake/run.
The only GPEs allowed to be combination wake/run are for button-style devices such as a control-method power button, control-method sleep button,
or a notebook lid switch. GPEs that have an _Lxx or _Exx method and are not
referenced by any _PRW methods are marked for "runtime" and hardware enabled. Any GPE that is referenced by a _PRW method is marked for "wake"
(and disabled at runtime). However, at sleep time, only those GPEs that have been specifically enabled for wake via the AcpiEnableGpe interface

will
actually be hardware enabled.

A new external interface has been added, AcpiSetGpeType(), that is meant to
be used by device drivers to force a GPE to a particular type. It will be
especially useful for the drivers for the button devices mentioned above.

Completed restructuring of the ACPI CA initialization sequence so that default operation region handlers are installed before GPEs are initialized
and the _PRW methods are executed. This will prevent errors when the _PRW
methods attempt to access system memory or I/O space.

GPE enable/disable no longer reads the GPE enable register. We now keep the
enable info for runtime and wake separate and in the GPE_EVENT_INFO. We thus no longer depend on the hardware to maintain these bits.

Always clear the wake status and fixed/GPE status bits before sleep, even for state S5.

Improved the AML debugger output for displaying the GPE blocks and their current status.

Added new strings for the _OSI method, of the
form "Windows 2001 SPx"
where
x = 0,1,2,3,4.

Fixed a problem where the physical address was incorrectly calculated when
the Load() operator was used to directly load from an Operation Region (vs.
loading from a Field object.) Also added check for minimum table length for
this case.

Fix for multiple mutex acquisition. Restore original thread SyncLevel on mutex release.

Added ACPI_VALID_SXDS flag to the AcpiGetObjectInfo interface for consistency with the other fields returned.

Shrunk the ACPI_GPE_EVENT_INFO structure by 40%. There is one such structure for each GPE in the system, so the size of this structure is important.

CPU stack requirement reduction: Cleaned up the method execution and object
evaluation paths so that now a parameter structure is passed, instead of copying the various method parameters over and over again.

In evregion.c: Correctly exit and reenter the interpreter region if and only if dispatching an operation region request to a user-installed

handler.
Do not exit/reenter when dispatching to a default handler (e.g., default system memory or I/O handlers)

Notes for updating drivers for the new GPE support. The following changes
must be made to ACPI-related device drivers that are attached to one or more
GPEs: (This information will be added to the ACPI CA Programmer Reference.)

1) AcpiInstallGpeHandler no longer automatically enables the GPE, you

must
explicitly call AcpiEnableGpe.
2) There is a new interface called AcpiSetGpeType. This should be called
before enabling the GPE. Also, this interface will automatically disable
the GPE if it is currently enabled.
3) AcpiEnableGpe no longer supports a GPE type flag.

Specific drivers that must be changed:
1) EC driver:
  AcpiInstallGpeHandler (NULL, GpeNum, ACPI_GPE_EDGE_TRIGGERED,
AeGpeHandler, NULL);
  AcpiSetGpeType (NULL, GpeNum, ACPI_GPE_TYPE_RUNTIME);
  AcpiEnableGpe (NULL, GpeNum, ACPI_NOT_ISR);

2) Button Drivers (Power, Lid, Sleep):
Run _PRW
 method under parent device
If _PRW exists: /* This is a control-method button */
  Extract GPE number and possibly GpeDevice
  AcpiSetGpeType (GpeDevice, GpeNum, ACPI_GPE_TYPE_WAKE_RUN);
  AcpiEnableGpe (GpeDevice, GpeNum, ACPI_NOT_ISR);

For all other devices that have _PRWs, we automatically set the GPE type
to
ACPI_GPE_TYPE_WAKE, but the GPE is NOT automatically (wake) enabled.
This
must be done on a selective basis, usually requiring some kind of user
app
to allow the user to pick the wake devices.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options
 used during generation.

 Previous Release:
  Non-Debug Version: 77.0K Code, 11.4K Data,   88.4K Total
  Debug Version: 161.0K Code, 66.3K Data, 227.3K Total
 Current Release:

Non-Debug Version: 77.6K Code, 11.5K Data, 89.1K Total
Debug Version: 162.9K Code, 67.0K Data, 229.9K Total

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02 April 2004. Summary of changes for version 20040402:

1) ACPI CA Core Subsystem:

Fixed an interpreter problem where an indirect store through an ArgX parameter was incorrectly applying the "implicit conversion rules" during the store. From the ACPI specification: "If the target is a method local or argument (LocalX or ArgX), no conversion is performed and the result is stored directly to the target". The new behavior is to disable implicit conversion during ALL stores to an ArgX.

Changed the behavior of the _PRW method scan to ignore any and all errors returned by a given _PRW. This prevents the scan from aborting from the failure of any single _PRW.

Moved the runtime configuration parameters from the global init procedure to static variables in acglobal.h. This will allow the host to override the default values easily.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:
Non-Debug Version: 76.9K Code, 11.4K Data, 88.3K Total
Debug Version: 160.8K Code, 66.1K Data, 226.9K Total
Current Release:
Non-Debug Version: 77.0K Code, 11.4K Data, 88.4K Total
Debug Version: 161.0K Code, 66.3K Data,
227.3K Total

2) iASL Compiler/Disassembler:

iASL now fully disassembles SSDTs. However, External() statements are not
generated automatically for unresolved symbols at this time. This is a
planned feature for future implementation.

Fixed a scoping problem in the disassembler that occurs when the type of the
target of a Scope() operator is overridden. This problem caused an
incorrectly nested internal namespace to be constructed.

Any warnings or errors that are emitted during disassembly are now commented
out automatically so that the resulting file can be recompiled without any
hand editing.

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26 March 2004. Summary of changes for version 20040326:

1) ACPI CA Core Subsystem:

Implemented support for "wake" GPEs via interaction between GPEs and the
_PRW methods. Every GPE that is pointed to by one or more _PRWs is
identified as a WAKE GPE and by default will no longer be enabled at
runtime. Previously, we were blindly enabling all GPEs with a corresponding
_Lxx or _Exx method - but most of these turn out to be WAKE GPEs anyway. We
believe this has been the cause of thousands of "spurious" GPEs on some
systems.

This new GPE behavior is can be reverted to the original behavior (enable
ALL GPEs at runtime) via a runtime flag.

Fixed a problem where aliased control methods could not access objects
properly. The proper scope within the namespace was not initialized
(transferred to the target of the aliased method) before executing the
target method.

Fixed a potential race condition on internal object deletion on the return
object in AcpiEvaluateObject.

Integrated a fix for resource descriptors where both _MEM and _MTP were
being extracted instead of just _MEM. (i.e. bitmask was incorrectly too

wide, 0x0F instead of 0x03.)

Added a special case for ACPI_ROOT_OBJECT in AcpiUtGetNodeName,
preventing
a
fault in some cases.

Updated Notify() values for debug statements in evmisc.c

Return
proper status from AcpiUtMutexInitialize, not just simply AE_OK.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib
produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size.
Note
that these values will vary depending on the efficiency of the compiler
and
the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.5K Code, 11.3K Data, 87.8K Total
Debug Version: 160.3K Code, 66.0K Data, 226.3K Total
Current Release:
Non-Debug Version: 76.9K Code, 11.4K Data, 88.3K Total
Debug Version: 160.8K Code, 66.1K Data, 226.9K Total

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11 March 2004. Summary of changes for version 20040311:

1) ACPI CA Core Subsystem:

Fixed
a problem where errors occurring during the parse phase of control
method execution did not abort cleanly. For example, objects created and
installed in the namespace were not deleted. This caused all subsequent
invocations of the method to return the AE_ALREADY_EXISTS exception.

Implemented a mechanism to force a control method to "Serialized"
execution
if the method attempts to create namespace objects. (The root of the
AE_ALREADY_EXISTS problem.)

Implemented support for the predefined _OSI "internal" control method.

Initial supported strings are "Linux", "Windows 2000", "Windows 2001", and
"Windows 2001.1", and can be easily upgraded for new strings as necessary.
This feature will allow "other" operating systems to execute the fully
tested, "Windows" code path through the ASL code

Global Lock Support: Now allows multiple acquires and releases with any
internal thread. Removed concept of "owning thread" for this special mutex.

Fixed two functions that were inappropriately declaring large objects on the
CPU stack: PsParseLoop, NsEvaluateRelative. Reduces the stack usage during
method execution considerably.

Fixed a problem in the ACPI 2.0 FACS descriptor (actbl2.h) where the
S4Bios_f field was incorrectly defined as UINT32 instead of UINT32_BIT.

Fixed a problem where AcpiEvGpeDetect would fault if there were no GPEs
defined on the machine.

Implemented two runtime options: One to force all control method execution
to "Serialized" to mimic Windows behavior, another to disable _OSI support
if it causes problems on a given machine.

Code and Data Size: Current and previous core subsystem library sizes are
shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code includes the
debug output trace mechanism and has a much larger code and data size. Note
that these values will vary depending on the efficiency of the compiler and
the compiler options used during generation.

Previous Release:
Non-Debug Version: 74.8K Code, 10.1K Data, 84.9K Total
Debug Version: 158.7K Code, 65.1K Data, 223.8K Total
Current Release:
Non-Debug Version: 76.5K Code, 11.3K Data, 87.8K Total
Debug Version: 160.3K Code, 66.0K Data, 226.3K Total

2) iASL Compiler/Disassembler:

Fixed an array size problem for FreeBSD that would cause the compiler to fault.

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20 February 2004. Summary of changes for version 20040220:

1) ACPI CA Core Subsystem:

Implemented execution of _SxD methods for Device objects in the GetObjectInfo interface.

Fixed calls to _SST method to pass the correct arguments.

Added a call to _SST on wake to restore to "working" state.

Check for End-Of-Buffer failure case in the WalkResources interface.

Integrated fix for 64-bit alignment issue in acglobal.h by moving two structures
to the beginning of the file.

After wake, clear GPE status register(s) before enabling GPEs.

After wake, clear/enable power button. (Perhaps we should clear/enable all
fixed events upon wake.)

Fixed a couple of possible memory leaks in the Namespace manager.

Integrated latest acnetbsd.h file.

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11 February 2004. Summary of changes for version 20040211:

1) ACPI CA Core Subsystem:

Completed investigation and implementation of the call-by-reference mechanism for control method arguments.

Fixed a problem where a store of an object into an indexed package could fail if the store occurs within a different method than the method that created the package.

Fixed a problem where the ToDecimal operator could return incorrect results.

Fixed a problem where the CopyObject operator could fail on some of the more
obscure objects (e.g., Reference objects.)

Improved the output of the Debug object to display buffer, package, and index objects.

Fixed
a problem where constructs of the form "RefOf (ArgX)" did not return
the expected result.

Added permanent ACPI_REPORT_ERROR macros for all instances of the ACPI_AML_INTERNAL exception.

Integrated latest version of acfreebsd.h

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16 January 2004. Summary of changes for version 20040116:

The purpose of this release is primarily to update the copyright years in each module, thus causing a huge number of diffs. There are a few small functional changes, however.

1) ACPI CA Core Subsystem:

Improved error messages when there is a problem finding one or more of the
required base ACPI tables

Reintroduced the definition of APIC_HEADER in actbl.h

Changed definition of MADT_ADDRESS_OVERRIDE to 64 bits (actbl.h)

Removed extraneous reference to NewObj in dsmthdat.c

2) iASL compiler

Fixed a problem introduced in December that disabled the correct disassembly
of Resource Templates

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03 December

2003. Summary of changes for version 20031203:

1) ACPI CA Core Subsystem:

Changed the initialization of Operation Regions during subsystem init to perform two entire walks of the ACPI namespace; The first to initialize the regions themselves, the second to execute the _REG methods. This fixed some interdependencies across _REG methods found on some machines.

Fixed a problem where a Store(Local0, Local1) could simply update the object reference count, and not create a new copy of the object if the Local1 is uninitialized.

Implemented support for the _SST reserved method during sleep transitions.

Implemented support to clear the SLP_TYP and SLP_EN bits when waking up, this is apparently required by some machines.

When sleeping, clear the wake status only if SleepState is not S5.

Fixed a problem in AcpiRsExtendedIrqResource() where an incorrect pointer arithmetic advanced a string pointer too far.

Fixed a problem in AcpiTbGetTablePtr() where a garbage pointer could be returned
if the requested table has not been loaded.

Within the support for IRQ resources, restructured the handling of the active and edge/level bits.

Fixed a few problems in AcpiPsxExecute() where memory could be leaked under certain error conditions.

Improved error messages for the cases where the ACPI mode could not be entered.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (20031029):

Non-Debug Version: 74.4K Code, 10.1K Data, 84.5K Total
Debug Version: 158.3K Code, 65.0K Data, 223.3K Total
Current Release:
Non-Debug Version: 74.8K Code, 10.1K Data, 84.9K Total
Debug Version: 158.7K Code, 65.1K Data, 223.8K Total

2) iASL Compiler/Disassembler:

Implemented a fix for the iASL disassembler where a bad index was generated. This was most noticeable on 64-bit platforms

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29 October 2003. Summary of changes for version 20031029:

1) ACPI CA Core Subsystem:

Fixed a problem where a level-triggered GPE with an associated _Lxx control method was incorrectly cleared twice.

Fixed a problem with the Field support code where an access can occur beyond the end-of-region if the field is non-aligned but extends to the very end of the parent region (resulted in an AE_AML_REGION_LIMIT exception.)

Fixed a problem with ACPI Fixed Events where an RT Clock handler would not get invoked on an RTC event. The RTC event bitmasks for the PM1 registers were not being initialized properly.

Implemented support for executing _STA and _INI methods for Processor objects. Although this is currently not part of the ACPI specification, there is existing ASL code that depends on the init-time execution of these methods.

Implemented and deployed a GetDescriptorName function to decode the various types of internal descriptors. Guards against null descriptors during debug output also.

Implemented and deployed a GetNodeName function to extract the 4-character namespace node name. This function simplifies the debug and error output, as well as guarding against null pointers during output.

Implemented and deployed the ACPI_FORMAT_UINT64 helper macro to simplify the debug and error output of 64-bit integers. This macro replaces the HIDWORD and LODWORD macros for dumping these

integers.

Updated the implementation of the Stall() operator to only call AcpiOsStall(), and also return an error if the operand is larger than 255. This preserves the required behavior of not relinquishing the processor, as would happen if AcpiOsSleep() was called
for "long stalls".

Constructs of the form "Store(LocalX,LocalX)" where LocalX is not initialized are now treated as NOOPs.

Cleaned up a handful of warnings during 64-bit generation.

Fixed a reported error where and incorrect GPE number was passed to the GPE dispatch handler. This value is only used for error output, however. Used this opportunity to clean up and streamline the GPE dispatch code.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The

debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (20031002):
Non-Debug Version: 74.1K Code, 9.7K Data, 83.8K Total
Debug Version: 157.9K Code, 64.8K Data, 222.7K Total
Current Release:
Non-Debug Version: 74.4K Code, 10.1K Data, 84.5K Total
Debug Version: 158.3K Code, 65.0K Data, 223.3K Total

2) iASL Compiler/Disassembler:

Updated the iASL compiler to return an error if the operand to the Stall() operator is larger than 255.

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02 October 2003. Summary of changes for version 20031002:

1) ACPI CA Core Subsystem:

Fixed a problem with Index Fields where the index was not
incremented for fields that require multiple writes to the
index/data registers (Fields that are wider than the data
register.)

Fixed a problem with all Field objects where a write could go
beyond the end-of-field if the field was larger than the access
granularity and therefore required multiple writes to complete the
request. An extra write beyond the end of the field could happen
inadvertently.

Fixed a problem with Index Fields where a BUFFER_OVERFLOW
 error
would incorrectly be returned if the width of the Data Register
was larger than the specified field access width.

Completed fixes for LoadTable() and Unload() and verified their
operation. Implemented full support for the "DdbHandle" object
throughout the ACPI CA subsystem.

Implemented full support for the MADT and ECDT tables in the ACPI
CA header files. Even though these tables are not directly
consumed by ACPI CA, the header definitions are useful for ACPI
device drivers.

Integrated resource descriptor fixes posted to the Linux ACPI
list. This included checks for minimum descriptor length, and
support for trailing NULL strings within descriptors that have
optional string elements.

Code and Data Size: Current and previous core subsystem library
sizes are shown below. These are the code and data sizes for the
acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and
these values do not include any ACPI driver or OSPM code. The
debug version of the code includes
 the debug output trace
mechanism and has a much larger code and data size. Note that
these values will vary depending on the efficiency of the compiler
and the compiler options used during generation.

 Previous Release (20030918):
   Non-Debug Version: 73.9K Code,   9.7K Data,   83.6K Total
   Debug Version: 157.3K Code, 64.5K Data, 221.8K Total
 Current Release:
   Non-Debug Version: 74.1K Code,   9.7K Data,   83.8K Total
   Debug Version: 157.9K Code, 64.8K Data, 222.7K Total

2) iASL Compiler:

Implemented detection of non-ASCII characters within the input source ASL file. This catches attempts to compile binary (AML) files early in the compile, with an informative error message.

Fixed a problem where the disassembler would fault if the output filename could not be generated or if the output file could not be opened.

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18 September 2003. Summary of changes for version 20030918:

1) ACPI CA Core Subsystem:

Found and
fixed a longstanding problem with the late execution of the various deferred AML opcodes (such as Operation Regions, Buffer Fields, Buffers, and Packages). If the name string specified for the name of the new object placed the object in a scope other than the current scope, the initialization/execution of the opcode failed. The solution to this problem was to implement a mechanism where the late execution of such opcodes does not attempt to lookup/create the name a second time in an incorrect scope. This fixes the "region size computed incorrectly" problem.

Fixed a call to AcpiHwRegisterWrite in hwregs.c that was causing a Global Lock AE_BAD_PARAMETER error.

Fixed several 64-bit issues with prototypes, casting and data types.

Removed duplicate prototype from acdisasm.h

Fixed an issue involving EC Operation Region Detach (Shaohua Li)

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced
by the Microsoft Visual C++ 6.0 compiler, and
these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 73.7K Code, 9.7K Data, 83.4K Total
Debug Version: 156.9K Code, 64.2K Data, 221.1K Total
Current Release:
Non-Debug Version: 73.9K Code, 9.7K Data, 83.6K Total
Debug Version: 157.3K Code, 64.5K Data, 221.8K Total

2) Linux:

Fixed the AcpiOsSleep implementation in osunixxf.c to pass the correct sleep time in seconds.

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14 July 2003. Summary of changes for version 20030619:

1) ACPI CA Core Subsystem:

Parse SSDTs in order discovered, as opposed to reverse order (Hrvoje Habjanic)

Fixes from FreeBSD and NetBSD. (Frank van der Linden, Thomas Klausner, Nate Lawson)

2) Linux:

Dynamically allocate SDT list (suggested by Andi Kleen)

proc function return value cleanups (Andi Kleen)

Correctly handle NMI watchdog during long stalls (Andrew Morton)

Make it so acpismp=force works (reported by Andrew Morton)

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19 June 2003. Summary of changes for version 20030619:

1) ACPI CA Core Subsystem:

Fix To/FromBCD, eliminating the need for an arch-specific #define.

Do not acquire a semaphore in the S5 shutdown path.

Fix ex_digits_needed for 0. (Takayoshi Kochi)

Fix sleep/stall code reversal. (Andi Kleen)

Revert a change having to do with control method calling
semantics.

2) Linux:

acpiphp update (Takayoshi Kochi)

Export acpi_disabled for sonypi (Stelian Pop)

Mention acpismp=force in config help

Re-add acpitable.c and acpismp=force. This improves backwards

compatibility and also cleans up the code to a significant degree.

Add ASUS Value-add driver (Karol Kozimor
and Julien Lerouge)

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22 May 2003. Summary of changes for version 20030522:

1) ACPI CA Core Subsystem:

Found and fixed a reported problem where an AE_NOT_FOUND error
occurred occasionally during _BST evaluation. This turned out to
be an Owner ID allocation issue where a called method did not get
a new ID assigned to it. Eventually, (after 64k calls), the Owner
ID UINT16 would wraparound so that the ID would be the same as the
caller's and the called method would delete the caller's
namespace.

Implemented extended error reporting for control methods that are
aborted due to a run-time exception. Output includes the exact
AML instruction that caused the method abort, a dump of the method
locals and arguments at the time of the abort, and a trace of all
nested control method calls.

Modified the interpreter to allow the creation of buffers of zero
length from the AML code. Implemented new code to ensure that no
attempt is made to actually allocate
a memory buffer (of length
zero) - instead, a simple buffer object with a NULL buffer pointer
and length zero is created. A warning is no longer issued when

the AML attempts to create a zero-length buffer.

Implemented a workaround for the "leading asterisk issue" in
_HIDs, _UIDs, and _CIDs in the AML interpreter. One leading
asterisk is automatically removed if present in any HID, UID, or
CID strings. The iASL compiler will still flag this asterisk as
an error, however.

Implemented full support for _CID methods that return a package of
multiple CIDs (Compatible IDs). The AcpiGetObjectInfo() interface
now additionally returns a device _CID list if present. This
required a change to the external interface in order to pass an
ACPI_BUFFER object as a parameter since the _CID list is of
variable length.

Fixed a problem with the new AE_SAME_HANDLER exception where
handler initialization code did not know about this exception.

Code and Data Size: Current and previous core subsystem
library
sizes are shown below. These are the code and data sizes for the
acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and
these values do not include any ACPI driver or OSPM code. The
debug version of the code includes the debug output trace
mechanism and has a much larger code and data size. Note that
these values will vary depending on the efficiency of the compiler
and the compiler options used during generation.

Previous Release (20030509):
Non-Debug Version: 73.4K Code, 9.7K Data, 83.1K Total
Debug Version: 156.1K Code, 63.9K Data, 220.0K Total
Current Release:
Non-Debug Version: 73.7K Code, 9.7K Data, 83.4K Total
Debug Version: 156.9K Code, 64.2K Data, 221.1K Total

2) Linux:

Fixed a bug in which we would reinitialize the ACPI interrupt
after it was already working, thus disabling all ACPI and the IRQs
for any other device sharing the interrupt. (Thanks to Stian
Jordet)

Toshiba driver update (John Belmonte)

Return
only 0 or 1 for our interrupt handler status (Andrew
Morton)

3) iASL Compiler:

Fixed a reported problem where multiple (nested) ElseIf()
statements were not handled correctly by the compiler, resulting
in incorrect warnings and incorrect AML code. This was a problem
in both the ASL parser and the code generator.

4) Documentation:

Added changes to existing interfaces, new exception codes, and new
text concerning reference count object management versus garbage
collection.

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09 May 2003. Summary of changes for version 20030509.

1) ACPI CA Core Subsystem:

Changed the subsystem initialization sequence to hold off
installation of address space handlers until the hardware has been
initialized and the system has entered ACPI mode. This is because
the installation of space handlers can cause _REG methods to be
run. Previously, the _REG methods could potentially be run before
ACPI mode was enabled.

Fixed some memory leak issues related
 to address space handler and
notify handler installation. There were some problems with the
reference count mechanism caused by the fact that the handler
objects are shared across several namespace objects.

Fixed a reported problem where reference counts within the
namespace were not properly updated when named objects created by
method execution were deleted.

Fixed a reported problem where multiple SSDTs caused a deletion
issue during subsystem termination. Restructured the table data
structures to simplify the linked lists and the related code.

Fixed a problem where the table ID associated with secondary
tables (SSDTs) was not being propagated into the namespace objects
created by those tables. This would only present a problem for
tables that are unloaded at run-time, however.

Updated AcpiOsReadable and AcpiOsWritable to use the ACPI_SIZE type as the length parameter (instead of UINT32).

Solved a long-standing problem where an ALREADY_EXISTS error appears on various systems.
This problem could happen when there are multiple PCI_Config operation regions under a single PCI root bus. This doesn't happen very frequently, but there are some systems that do this in the ASL.

Fixed a reported problem where the internal DeleteNode function was incorrectly handling the case where a namespace node was the first in the parent's child list, and had additional peers (not the only child, but first in the list of children.)

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 73.7K Code, 9.5K Data, 83.2K Total
Debug Version: 156.1K Code, 63.6K Data, 219.7K Total
Current Release:
Non-Debug Version: 73.4K Code, 9.7K Data, 83.1K Total
Debug Version: 156.1K Code, 63.9K Data, 220.0K Total

2) Linux:

Allow ":" in OS override string (Ducrot Bruno)

Kobject fix (Greg KH)

3 iASL Compiler/Disassembler:

Fixed a problem in the generation of the C source code files (AML is emitted in C source statements for BIOS inclusion) where the Ascii dump that appears within a C comment at the end of each line could cause a compile time error if the AML sequence happens to have an open comment or close comment sequence embedded.

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24 April 2003. Summary of changes for version 20030424.

1) ACPI CA Core Subsystem:

Support for big-endian systems has been implemented. Most of the support has been invisibly added behind big-endian versions of the ACPI_MOVE_* macros.

Fixed a problem in AcpiHwDisableGpeBlock() and AcpiHwClearGpeBlock()
where an incorrect offset was passed to the low level hardware write routine. The offset parameter was actually eliminated from the low level read/write routines because they had become obsolete.

Fixed a problem where a handler object was deleted twice during the removal of a fixed event handler.

2) Linux:

A fix for SMP systems with link devices was contributed by

Compaq's Dan Zink.

(2.5) Return whether we handled the interrupt in our IRQ handler. (Linux ISRs no longer return void, so we can propagate the handler return value from the ACPI CA core back to the OS.)

3) Documentation:

The ACPI CA Programmer Reference has been updated to reflect new interfaces and changes to existing interfaces.

---
28 March 2003. Summary of changes for version 20030328.

1) ACPI CA Core Subsystem:

The GPE Block Device support has been completed. New interfaces are AcpiInstallGpeBlock and AcpiRemoveGpeBlock. The Event interfaces (enable, disable,

clear, getstatus) have been split
into separate interfaces for Fixed Events and General Purpose
Events (GPEs) in order to support GPE Block Devices properly.

Fixed a problem where the error message "Failed to acquire
semaphore" would appear during operations on the embedded
controller (EC).

Code and Data Size: Current core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib
produced by the Microsoft Visual C++ 6.0 compiler, and these
values do not include any ACPI driver or OSPM code. The debug
version of the code includes the debug output trace mechanism and
has a much larger code and data size. Note that these values will
vary depending on the efficiency of the compiler and the compiler
options used during generation.

Previous Release
Non-Debug Version: 72.3K Code, 9.5K Data, 81.8K Total
Debug Version: 154.0K Code, 63.4K Data, 217.4K Total
Current Release:
Non-Debug Version: 73.7K Code, 9.5K Data, 83.2K
Total
Debug Version: 156.1K Code, 63.6K Data, 219.7K Total

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28 February 2003. Summary of changes for version 20030228.

1) ACPI CA Core Subsystem:

The GPE handling and dispatch code has been completely overhauled
in preparation for support of GPE Block Devices (ID ACPI0006).
This affects internal data structures and code only; there should
be no differences visible externally. One new file has been
added, evgpeblk.c

The FADT fields GPE0_BLK_LEN and GPE1_BLK_LEN are now the only
fields that are used to determine the GPE block lengths. The
REGISTER_BIT_WIDTH field of the X_GPEx_BLK extended address
structures are ignored. This is per the ACPI specification but it
isn't very clear. The full 256 Block 0/1 GPEs are now supported
(the use of REGISTER_BIT_WIDTH limited the number of GPEs to 128).

In the SCI interrupt handler, removed the read of the PM1_CONTROL
register to look at the SCI_EN bit. On some machines, this read
causes

an SMI event and greatly slows down SCI events. (This may in fact be the cause of slow battery status response on some systems.)

Fixed a problem where a store of a NULL string to a package object could cause the premature deletion of the object. This was seen during execution of the battery _BIF method on some systems, resulting in no battery data being returned.

Added AcpiWalkResources interface to simplify parsing of resource lists.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total
Debug Version: 153.0K Code, 62.9K Data, 215.9K Total
Current Release:
Non-Debug Version: 72.3K Code, 9.5K Data, 81.8K Total
Debug Version: 154.0K Code, 63.4K Data, 217.4K Total

2) Linux

S3 fixes (Ole Rohne)

Update ACPI PHP driver with to use new acpi_walk_resource API (Bjorn Helgaas)

Add S4BIOS support (Pavel Machek)

Map in entire table before performing checksum (John Stultz)

Expand the mem= cmdline to allow the specification of reserved and ACPI DATA blocks (Pavel Machek)

Never use ACPI on VISWS

Fix derive_pci_id (Ducrot Bruno, Alvaro Lopez)

Revert a change that allowed P_BLK lengths to be 4 or 5. This is causing us to think that some systems support C2 when they really don't.

Do not count processor objects for non-present CPUs (Thanks to Dominik Brodowski)

3) iASL Compiler:

Fixed a problem where ASL include files could not be found and opened.

Added support for the _PDC reserved name.

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22 January 2003. Summary of changes for version 20030122.

1) ACPI CA Core Subsystem:

Added a check for constructs of the form: Store (Local0, Local0) where Local0 is not initialized. Apparently, some BIOS programmers believe that this is a NOOP. Since this store doesn't do anything anyway, the new prototype behavior will ignore this error. This is a case where we can relax the strict checking in the interpreter in the name of compatibility.

2) Linux

The AcpiSrc Source Conversion Utility has been released with the Linux package for the first time. This is the utility that is used to convert the ACPI CA base source code to the Linux version.

(Both) Handle P_BLK lengths shorter than 6 more gracefully

(Both) Move more headers to include/acpi, and delete an unused header.

(Both) Move drivers/acpi/include directory to include/acpi

(Both) Boot functions don't use cmdline, so don't pass it around

(Both) Remove include of unused header (Adrian Bunk)

(Both) acpiphp.h includes
both linux/acpi.h and acpi_bus.h. Since
the
former now also includes the latter, acpiphp.h only needs the one,
now.

(2.5) Make it possible to select method of bios restoring after S3
resume. [=> no more ugly ifdefs] (Pavel Machek)

(2.5) Make proc write interfaces work (Pavel Machek)

(2.5) Properly init/clean up in cpufreq/acpi (Dominik Brodowski)

(2.5) Break out ACPI Perf code into its own module, under cpufreq
(Dominik Brodowski)

(2.4) S4BIOS support (Ducrot Bruno)

(2.4) Fix acpiphp_glue.c for latest ACPI struct changes (Sergio
Visinoni)

3) iASL Compiler:

Added support to disassemble SSDT and PSDTs.

Implemented support to obtain SSDTs from the Windows registry if
available.

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09 January 2003. Summary of changes for version 20030109.

1) ACPI CA Core Subsystem:

Changed the behavior of the internal Buffer-to-String conversion
function. The current ACPI specification states that the contents
of the buffer are "converted to a string
of two-character
hexadecimal numbers, each separated by a space". Unfortunately,
this definition is not backwards compatible with existing ACPI 1.0
implementations (although the behavior was not defined in the ACPI
1.0 specification). The new behavior simply copies data from the
buffer to the string until a null character is found or the end of
the buffer is reached. The new String object is always null
terminated. This problem was seen during the generation of _BIF
battery data where incorrect strings were returned for battery
type, etc. This will also require an errata to the ACPI

specification.

Renamed all instances of NATIVE_UINT and NATIVE_INT to ACPI_NATIVE_UINT and ACPI_NATIVE_INT, respectively.

Copyright in all module headers (both Linux and non-Linux) has be updated to 2003.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do
not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total
Debug Version: 153.0K Code, 62.9K Data, 215.9K Total
Current Release:
Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total
Debug Version: 153.0K Code, 62.9K Data, 215.9K Total

2) Linux

Fixed an oops on module insertion/removal (Matthew Tippett)

(2.4) Fix to handle dynamic size of mp_irqs (Joerg Prante)

(2.5) Replace pr_debug (Randy Dunlap)

(2.5) Remove usage of CPUFREQ_ALL_CPUS (Dominik Brodowski)

(Both) Eliminate spawning of thread from timer callback, in favor of schedule_work()

(Both) Show Lid status in /proc (Zdenek OGAR Skalak)

(Both) Added define for Fixed Function HW region (Matthew Wilcox)

(Both) Add missing statics to button.c (Pavel Machek)

Several changes have been made to the source code translation utility that generates the Linux Code in order to make the code

more "Linux-like":

All typedefs on structs and unions have been removed in keeping
with the Linux coding style.

Removed the non-Linux SourceSafe module revision number from each
module header.

Completed major overhaul of symbols to be lowercase for linux.
Doubled the number of symbols that are lowercase.

Fixed a problem where identifiers within procedure headers and
within quotes were not fully lower cased (they were left with a
starting capital.)

Some C macros whose only purpose is to allow the generation of 16-
bit code are now completely removed in the Linux code, increasing
readability and maintainability.

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12 December 2002. Summary of changes for version 20021212.

1) ACPI CA Core Subsystem:

Fixed a problem where the creation of a zero-length
 AML Buffer
would cause a fault.

Fixed a problem where a Buffer object that pointed to a static AML
buffer (in an ACPI table) could inadvertently be deleted, causing
memory corruption.

Fixed a problem where a user buffer (passed in to the external
ACPI CA interfaces) could be overwritten if the buffer was too
small to complete the operation, causing memory corruption.

Fixed a problem in the Buffer-to-String conversion code where a
string of length one was always returned, regardless of the size
of the input Buffer object.

Removed the NATIVE_CHAR data type across the entire source due to
lack of need and lack of consistent use.

Code and Data Size: Current core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib
produced by the Microsoft Visual C++ 6.0 compiler, and these

values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.
Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 72.1K Code, 9.5K Data, 81.6K Total
Debug Version: 152.7K Code, 62.7K Data, 215.4K Total
Current Release:
Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total
Debug Version: 153.0K Code, 62.9K Data, 215.9K Total

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05 December 2002. Summary of changes for version 20021205.

1) ACPI CA Core Subsystem:

Fixed a problem where a store to a String or Buffer object could cause corruption of the DSDT if the object type being stored was the same as the target object type and the length of the object being stored was equal to or smaller than the original (existing) target object. This was seen to cause corruption of battery _BIF buffers if the _BIF method modified the buffer on the fly.

Fixed a problem where an internal error was generated if a control method invocation was used in an OperationRegion, Buffer, or Package declaration. This was caused by the deferred parsing of the control method and thus the deferred creation of the internal method object. The solution to this problem was to create the internal method object at the moment the method is encountered in the first pass - so that subsequent references to the method will able to obtain the required parameter count and thus properly parse the method invocation. This problem presented itself as an AE_AML_INTERNAL during the pass 1 parse phase during table load.

Fixed a problem where the internal String object copy routine did not always allocate sufficient memory for the target String object and caused memory corruption. This problem was seen to cause "Allocation already present in list!" errors as memory allocation became corrupted.

Implemented a new function for the evaluation of namespace objects that allows the specification of the allowable return object types.

This simplifies a lot of code that checks for a return object of one or more specific objects returned from the evaluation (such as _STA, etc.) This may become and external function if it would be useful to ACPI-related drivers.

Completed another round of prefixing #defines with "ACPI_" for clarity.

Completed additional code restructuring to allow more modular linking for iASL compiler and AcpiExec. Several files were split creating new files. New files: nsparse.c dsinit.c evgpe.c

Implemented an abort mechanism to terminate an executing control method via the AML debugger. This feature is useful for debugging control methods that depend (wait) for specific hardware responses.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and
has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total
Debug Version: 152.9K Code, 63.3K Data, 216.2K Total
Current Release:
Non-Debug Version: 72.1K Code, 9.5K Data, 81.6K Total
Debug Version: 152.7K Code, 62.7K Data, 215.4K Total

2) iASL Compiler/Disassembler

Fixed a compiler code generation problem for "Interrupt" Resource Descriptors. If specified in the ASL, the optional "Resource Source Index" and "Resource Source" fields were not inserted into the correct location within the AML resource descriptor, creating an invalid descriptor.

Fixed a disassembler problem for "Interrupt" resource descriptors. The optional "Resource Source Index" and "Resource Source" fields were ignored.

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22 November 2002. Summary
of changes for version 20021122.

1) ACPI CA Core Subsystem:

Fixed a reported problem where an object stored to a Method Local or Arg was not copied to a new object during the store - the object pointer was simply copied to the Local/Arg. This caused all subsequent operations on the Local/Arg to also affect the original source of the store operation.

Fixed a problem where a store operation to a Method Local or Arg was not completed properly if the Local/Arg contained a reference (from RefOf) to a named field. The general-purpose store-to-namespace-node code is now used so that this case is handled automatically.

Fixed a problem where the internal object copy routine would cause a protection fault if the object being copied was a Package and contained either 1) a NULL package element or 2) a nested sub-package.

Fixed a problem with the GPE initialization that resulted from an ambiguity in the ACPI specification. One section of the specification states that both the address and
length of the GPE
block must be zero if the block is not supported. Another section implies that only the address need be zero if the block is not supported. The code has been changed so that both the address and the length must be non-zero to indicate a valid GPE block (i.e., if either the address or the length is zero, the GPE block is invalid.)

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 71.3K Code, 9.0K Data, 80.3K Total
Debug Version: 152.7K Code, 63.2K Data, 215.5K Total
Current Release:

Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total
Debug Version: 152.9K Code, 63.3K Data, 216.2K Total

2) Linux

Cleaned up EC driver. Exported an external EC read/write interface. By going through this, other drivers (most notably sonypi) will be able to serialize access to the EC.

3) iASL Compiler/Disassembler

Implemented support to optionally generate include files for both ASM and C (the -i switch). This simplifies BIOS development by automatically creating include files that contain external declarations for the symbols that are created within the

(optionally generated) ASM and C AML source files.

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15 November 2002. Summary of changes for version 20021115.

1) ACPI CA Core Subsystem:

Fixed a memory leak problem where an error during resolution of

method arguments during a method invocation from another method failed to cleanup properly by deleting all successfully resolved argument objects.

Fixed a problem
where the target of the Index() operator was not correctly constructed if the source object was a package. This problem has not been detected because the use of a target operand with Index() is very rare.

Fixed a problem with the Index() operator where an attempt was made to delete the operand objects twice.

Fixed a problem where an attempt was made to delete an operand twice during execution of the CondRefOf() operator if the target did not exist.

Implemented the first of perhaps several internal create object functions that create and initialize a specific object type. This consolidates duplicated code wherever the object is created, thus

shrinking the size of the subsystem.

Implemented improved debug/error messages for errors that occur during nested method invocations. All executing method pathnames are displayed (with the error) as the call stack is unwound - thus simplifying debug.

Fixed a problem introduced in the 10/02 release that caused premature deletion of a buffer
object if a buffer was used as an
ASL operand where an integer operand is required (Thus causing an implicit object conversion from Buffer to Integer.) The change in the 10/02 release was attempting to fix a memory leak (albeit incorrectly.)

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 71.9K Code, 9.1K Data, 81.0K Total
Debug Version: 153.1K Code, 63.3K Data, 216.4K Total
Current Release:
Non-Debug Version: 71.3K Code, 9.0K Data, 80.3K Total
Debug Version: 152.7K Code, 63.2K
Data, 215.5K Total

2) Linux

Changed the implementation of the ACPI semaphores to use down() instead of down_interruptable(). It is important that the execution of ACPI control methods not be interrupted by signals. Methods must run to completion, or the system may be left in an unknown/unstable state.

Fixed a compilation error when CONFIG_SOFTWARE_SUSPEND is not set. (Shawn Starr)

3) iASL Compiler/Disassembler

Changed the default location of output files. All output files
are now placed in the current directory by default instead of in
the directory of the source file. This change may affect some
existing makefiles, but it brings the behavior of the compiler in
line with other similar tools. The location of the output files
can be overridden with the -p command line switch.

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11 November 2002. Summary of changes for version 20021111.

0) ACPI Specification 2.0B is released and is now available at:
http://www.acpi.info/index.html

1)
ACPI CA Core Subsystem:

Implemented support for the ACPI 2.0 SMBus Operation Regions.
This includes the early detection and handoff of the request to
the SMBus region handler (avoiding all of the complex field
support code), and support for the bidirectional return packet
from an SMBus write operation. This paves the way for the
development of SMBus drivers in each host operating system.

Fixed a problem where the semaphore WAIT_FOREVER constant was
defined as 32 bits, but must be 16 bits according to the ACPI
specification. This had the side effect of causing ASL
Mutex/Event timeouts even though the ASL code requested a wait
forever. Changed all internal references to the ACPI timeout
parameter to 16 bits to prevent future problems. Changed the name
of WAIT_FOREVER to ACPI_WAIT_FOREVER.

Code and Data Size: Current core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib
produced by the Microsoft Visual C++ 6.0 compiler, and these
values
do not include any ACPI driver or OSPM code. The debug
version of the code includes the debug output trace mechanism and
has a much larger code and data size. Note that these values will
vary depending on the efficiency of the compiler and the compiler
options used during generation.

Previous Release
Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total
Debug Version: 152.3K Code, 63.0K Data, 215.3K Total
Current Release:

Non-Debug Version: 71.9K Code, 9.1K Data, 81.0K Total
Debug Version: 153.1K Code, 63.3K Data, 216.4K Total

2) Linux

Module loading/unloading fixes (John Cagle)

3) iASL Compiler/Disassembler

Added support for the SMBBlockProcessCall keyword (ACPI 2.0)

Implemented support for the disassembly of all SMBus protocol
keywords (SMBQuick, SMBWord, etc.)

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01 November 2002. Summary of changes for version 20021101.

1) ACPI CA Core Subsystem:

Fixed a problem where platforms that
have a GPE1 block but no GPE0
block were not handled correctly. This resulted in a "GPE
overlap" error message. GPE0 is no longer required.

Removed code added in the previous release that inserted nodes
into the namespace in alphabetical order. This caused some side-
effects on various machines. The root cause of the problem is
still under investigation since in theory, the internal ordering
of the namespace nodes should not matter.

Enhanced error reporting for the case where a named object is not
found during control method execution. The full ACPI namepath
(name reference) of the object that was not found is displayed in
this case.

Note: as a result of the overhaul of the namespace object types in
the previous release, the namespace nodes for the predefined
scopes (_TZ, _PR, etc.) are now of the type ACPI_TYPE_LOCAL_SCOPE
instead of ACPI_TYPE_ANY. This simplifies the namespace
management code but may affect code that walks the namespace tree
looking for specific object types.

Code

and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 70.7K Code, 8.6K Data, 79.3K Total
Debug Version: 151.7K Code, 62.4K Data, 214.1K Total
Current Release:
Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total
Debug Version: 152.3K Code, 63.0K Data, 215.3K Total

2) Linux

Fixed a problem introduced in the previous release where the Processor and Thermal objects were not recognized and installed in /proc. This was related to the scope type change described above.

3) iASL Compiler/Disassembler

Implemented
the -g option to get all of the required ACPI tables from the registry and save them to files (Windows version of the compiler only.) The required tables are the FADT, FACS, and DSDT.

Added ACPI table checksum validation during table disassembly in order to catch corrupted tables.

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22 October 2002. Summary of changes for version 20021022.

1) ACPI CA Core Subsystem:

Implemented a restriction on the Scope operator that the target must already exist in the namespace at the time the operator is encountered (during table load or method execution). In other words, forward references are not allowed and Scope() cannot create a new object. This changes the previous behavior where the interpreter would create the name if not found. This new behavior correctly enables the search-to-root algorithm during namespace lookup of the target name. Because of this upsearch, this fixes

the known Compaq _SB_.OKEC problem and
makes both the AML
interpreter and iASL compiler compatible with other ACPI
implementations.

Completed a major overhaul of the internal ACPI object types for the ACPI Namespace and the associated operand objects. Many of these types had become obsolete with the introduction of the two-pass namespace load. This cleanup simplifies the code and makes the entire namespace load mechanism much clearer and easier to understand.

Improved debug output for tracking scope opening/closing to help diagnose scoping issues. The old scope name as well as the new scope name are displayed. Also improved error messages for problems with ASL Mutex objects and error messages for GPE problems.

Cleaned up the namespace dump code, removed obsolete code.

All string output (for all namespace/object dumps) now uses the common ACPI string output procedure which handles escapes properly and does not emit non-printable characters.

Fixed some issues with constants in the 64-bit version of the
local C library
(utclib.c)

2) Linux

EC Driver: No longer attempts to acquire the Global Lock at interrupt level.

3) iASL Compiler/Disassembler

Implemented ACPI 2.0B grammar change that disallows all Type 1 and 2 opcodes outside of a control method. This means that the "executable" operators (versus the "namespace" operators) cannot be used at the table level; they can only be used within a control method.

Implemented the restriction on the Scope() operator where the target must already exist in the namespace at the time the operator is encountered (during ASL compilation). In other words, forward references are not allowed and Scope() cannot create a new object. This makes the iASL compiler compatible with other ACPI

implementations and makes the Scope() implementation adhere to the ACPI specification.

Fixed a problem where namepath optimization for the Alias operator was optimizing the wrong path (of the two namepaths.) This caused a "Missing alias link" error message.

Fixed a problem
where an "unknown reserved name" warning could be incorrectly generated for names like "_SB" when the trailing underscore is not used in the original ASL.

Fixed a problem where the reserved name check did not handle NamePaths with multiple NameSegs correctly. The first nameseg of the NamePath was examined instead of the last NameSeg.

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02 October 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem version 20021002:

Fixed a problem where a store/copy of a string to an existing string did not always set the string length properly in the String object.

Fixed a reported problem with the ToString operator where the behavior was identical to the ToHexString operator instead of just simply converting a raw buffer to a string data type.

Fixed a problem where CopyObject and the other "explicit" conversion operators were not updating the internal namespace node type as part of the store operation.

Fixed a memory leak during implicit
source operand conversion
where the original object was not deleted if it was converted to a new object of a different type.

Enhanced error messages for all problems associated with namespace lookups. Common procedure generates and prints the lookup name as well as the formatted status.

Completed implementation of a new design for the Alias support within the namespace. The existing design did not handle the case where a new object was assigned to one of the two names due to the

use of an explicit conversion operator, resulting in the two names pointing to two different objects. The new design simply points the Alias name to the original name node - not to the object. This results in a level of indirection that must be handled in the name resolution mechanism.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI
driver or OSPM code. The debug
version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 69.6K Code, 8.3K Data, 77.9K Total
Debug Version: 150.0K Code, 61.7K Data, 211.7K Total
Current Release:
Non-Debug Version: 70.7K Code, 8.6K Data, 79.3K Total
Debug Version: 151.7K Code, 62.4K Data, 214.1K Total

2) Linux

Initialize thermal driver's timer before it is used. (Knut Neumann)

Allow handling negative celsius values. (Kochi Takayoshi)

Fix thermal management and make trip points. R/W (Pavel Machek)

Fix /proc/acpi/sleep. (P. Christeas)

IA64 fixes. (David Mosberger)

Fix reversed logic in blacklist code. (Sergio Monteiro Basto)

Replace ACPI_DEBUG define with ACPI_DEBUG_OUTPUT. (Dominik Brodowski)

3) iASL Compiler/Disassembler

Clarified
some warning/error messages.

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18 September 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem version 20020918:

Fixed a reported problem with reference chaining (via the Index()
and RefOf() operators) in the ObjectType() and SizeOf() operators.
The definition of these operators includes the dereferencing of
all chained references to return information on the base object.

Fixed a problem with stores to indexed package elements - the
existing code would not complete the store if an "implicit
conversion" was not performed. In other words, if the existing
object (package element) was to be replaced completely, the code
didn't handle this case.

Relaxed typechecking on the ASL "Scope" operator to allow the
target name to refer to an object of type Integer, String, or
Buffer, in addition to the scoping object types (Device,
predefined Scopes, Processor, PowerResource, and ThermalZone.)
This allows existing AML code that has
 workarounds for a bug in
Windows to function properly. A warning is issued, however. This
affects both the AML interpreter and the iASL compiler. Below is
an example of this type of ASL code:

```
Name(DEB,0x00)
Scope(DEB)
{
```

Fixed some reported problems with 64-bit integer support in the
local implementation of C library functions (clib.c)

2) Linux

Use ACPI fix map region instead of IOAPIC region, since it is
undefined in non-SMP.

Ensure that the SCI has the proper polarity and trigger, even on
systems that do not have an interrupt override entry in the MADT.

2.5 big driver reorganization (Pat Mochel)

Use early table mapping code from acpitable.c (Andi Kleen)

New blacklist entries (Andi Kleen)

Blacklist improvements. Split blacklist code out into a separate
file. Move checking the blacklist to very early. Previously, we
would use ACPI tables, and then halfway through init, check the
blacklist -- too late. Now, it's early enough to completely fall-
back to non-ACPI.

3)
iASL Compiler/Disassembler version 20020918:

Fixed a problem where the typechecking code didn't know that an
alias could point to a method. In other words, aliases were not
being dereferenced during typechecking.

---
29 August 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020829:

If the target of a Scope() operator already exists, it must be an
object type that actually opens a scope -- such as a Device,
Method, Scope, etc. This is a fatal runtime error. Similar error
check has been added to the iASL compiler also.

Tightened up the namespace load to disallow multiple names in the
same scope. This previously was allowed if both objects were of
the same type. (i.e., a lookup was the same as entering a new
name).

2) Linux

Ensure that the ACPI interrupt has the proper trigger and
polarity.

local_irq_disable is extraneous. (Matthew Wilcox)

Make "acpi=off" actually do what it says, and not use the
ACPI
interpreter *or* the tables.

Added arch-neutral support for parsing SLIT and SRAT tables (Kochi
Takayoshi)

3) iASL Compiler/Disassembler Version 20020829:

Implemented namepath optimization for name declarations. For
example, a declaration like "Method (_SB_.ABCD)" would get
optimized to "Method (ABCD)" if the declaration is within the
_SB_ scope. This optimization is in addition to the named
reference path optimization first released in the previous
version. This would seem to complete all possible optimizations
for namepaths within the ASL/AML.

If the target of a Scope() operator already exists, it must be an
object type that actually opens a scope -- such as a Device,
Method, Scope, etc.

Implemented a check and warning for unreachable code in the same
block below a Return() statement.

Fixed a problem where the listing file was not generated if the
compiler aborted if the maximum error count was exceeded (200).

Fixed a problem where the typechecking of method return
 values was
broken. This includes the check for a return value when the
method is invoked as a TermArg (a return value is expected.)

Fixed a reported problem where EOF conditions during a quoted
string or comment caused a fault.

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15 August 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020815:

Fixed a reported problem where a Store to a method argument that
contains a reference did not perform the indirect store correctly.
This problem was created during the conversion to the new
reference object model - the indirect store to a method argument
code was not updated to reflect the new model.

Reworked the ACPI mode change code to better conform to ACPI 2.0,
handle corner cases, and improve code legibility (Kochi Takayoshi)

Fixed a problem with the pathname parsing for the carat (^)
prefix. The heavy use of the carat operator by the new namepath
optimization in the iASL compiler uncovered a problem with the
 AML
interpreter handling of this prefix. In the case where one or

more carats precede a single nameseg, the nameseg was treated as standalone and the search rule (to root) was inadvertently applied. This could cause both the iASL compiler and the interpreter to find the wrong object or to miss the error that should occur if the object does not exist at that exact pathname.

Found and fixed the problem where the HP Pavilion DSDT would not load. This was a relatively minor tweak to the table loading code (a problem caused by the unexpected encounter with a method invocation not within a control method), but it does not solve the overall issue of the execution of AML code at the table level. This investigation is still ongoing.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version
of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 69.1K Code, 8.2K Data, 77.3K Total
Debug Version: 149.4K Code, 61.6K Data, 211.0K Total
Current Release:
Non-Debug Version: 69.6K Code, 8.3K Data, 77.9K Total
Debug Version: 150.0K Code, 61.7K Data, 211.7K Total

2) Linux

Remove redundant slab.h include (Brad Hards)

Fix several bugs in thermal.c (Herbert Nachtnebel)

Make CONFIG_ACPI_BOOT work properly (Pavel Machek)

Change acpi_system_suspend to use updated irq functions (Pavel Machek)

Export acpi_get_firmware_table (Matthew Wilcox)

Use proper root proc entry for ACPI (Kochi Takayoshi)

Fix early-boot table parsing (Bjorn Helgaas)

3) iASL Compiler/Disassembler

Reworked the compiler options to make them more consistent and to use two-letter
options where appropriate. We were running out of
sensible letters. This may break some makefiles, so check the
current options list by invoking the compiler with no parameters.

Completed the design and implementation of the ASL namepath optimization option for the compiler. This option optimizes all references to named objects to the shortest possible path. The first attempt tries to utilize a single nameseg (4 characters) and the "search-to-root" algorithm used by the interpreter. If that cannot be used (because either the name is not in the search path or there is a conflict with another object with the same name), the pathname is optimized using the carat prefix (usually a shorter string than specifying the entire path from the root.)

Implemented support to obtain the DSDT from the Windows registry (when the disassembly option is specified with no input file). Added this code as the implementation for AcpiOsTableOverride in the Windows OSL. Migrated the 16-bit code (used
in the AcpiDump
utility) to scan memory for the DSDT to the AcpiOsTableOverride function in the DOS OSL to make the disassembler truly OS independent.

Implemented a new option to disassemble and compile in one step. When used without an input filename, this option will grab the DSDT from the local machine, disassemble it, and compile it in one step.

Added a warning message for invalid escapes (a backslash followed by any character other than the allowable escapes). This catches the quoted string error "_SB_" (which should be "_SB_").

Also, there are numerous instances in the ACPI specification where this error occurs.

Added a compiler option to disable all optimizations. This is basically the "compatibility mode" because by using this option, the AML code will come out exactly the same as other ASL compilers.

Added error messages for incorrectly ordered dependent resource functions. This includes: missing EndDependentFn macro at end of dependent resource list, nested dependent

function macros (both
start and end), and missing StartDependentFn macro. These are
common errors that should be caught at compile time.

Implemented _OSI support for the disassembler and compiler. _OSI
must be included in the namespace for proper disassembly (because
the disassembler must know the number of arguments.)

Added an "optimization" message type that is optional (off by
default). This message is used for all optimizations - including
constant folding, integer optimization, and namepath optimization.

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25 July 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020725:

The AML Disassembler has been enhanced to produce compilable ASL
code and has been integrated into the iASL compiler (see below) as
well as the single-step disassembly for the AML debugger and the
disassembler for the AcpiDump utility. All ACPI 2.0A opcodes,
resource templates and macros are fully supported. The
disassembler has
been tested on over 30 different AML files,
producing identical AML when the resulting disassembled ASL file
is recompiled with the same ASL compiler.

Modified the Resource Manager to allow zero interrupts and zero
dma channels during the GetCurrentResources call. This was
causing problems on some platforms.

Added the AcpiOsRedirectOutput interface to the OSL to simplify
output redirection for the AcpiOsPrintf and AcpiOsVprintf
interfaces.

Code and Data Size: Current core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib
produced by the Microsoft Visual C++ 6.0 compiler, and these
values do not include any ACPI driver or OSPM code. The debug
version of the code includes the debug output trace mechanism and
has a larger code and data size. Note that these values will vary
depending on the efficiency of the compiler and the compiler
options used during generation.

Previous Release
Non-Debug Version: 68.7K Code, 7.4K Data,

76.1K Total
Debug Version: 142.9K Code, 58.7K Data, 201.6K Total
Current Release:
Non-Debug Version: 69.1K Code, 8.2K Data, 77.3K Total
Debug Version: 149.4K Code, 61.6K Data, 211.0K Total

2) Linux

Fixed a panic in the EC driver (Dominik Brodowski)

Implemented checksum of the R/XSDT itself during Linux table scan
(Richard Schaal)

3) iASL compiler

The AML disassembler is integrated into the compiler. The "-d"
option invokes the disassembler to completely disassemble an
input AML file, producing as output a text ASL file with the
extension ".dsl" (to avoid name collisions with existing .asl
source files.) A future enhancement will allow the disassembler
to obtain the BIOS DSDT from the registry under Windows.

Fixed a problem with the VendorShort and VendorLong resource
descriptors where an invalid AML sequence was created.

Implemented a fix for BufferData term in the ASL parser. It was
inadvertently defined twice, allowing invalid syntax to pass
and
causing reduction conflicts.

Fixed a problem where the Ones opcode could get converted to a
value of zero if "Ones" was used where a byte, word or dword value
was expected. The 64-bit value is now truncated to the correct
size with the correct value.

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02 July 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020702:

The Table Manager code has been restructured to add several new
features. Tables that are not required by the core subsystem
(other than the FADT, DSDT, FACS, PSDTs, etc.) are no longer

validated in any way and are returned from AcpiGetFirmwareTable if requested. The AcpiOsTableOverride interface is now called for each table that is loaded by the subsystem in order to allow the host to override any table it chooses. Previously, only the DSDT could be overridden. Added one new files, tbrsdt.c and tbgetall.c.

Fixed a problem with the conversion of internal package objects to external objects
(when a package is returned from a control method.) The return buffer length was set to zero instead of the proper length of the package object.

Fixed a reported problem with the use of the RefOf and DeRefOf operators when passing reference arguments to control methods. A new type of Reference object is used internally for references produced by the RefOf operator.

Added additional error messages in the Resource Manager to explain AE_BAD_DATA errors when they occur during resource parsing.

Split the AcpiEnableSubsystem into two primitives to enable a finer granularity initialization sequence. These two calls should be called in this order: AcpiEnableSubsystem (flags), AcpiInitializeObjects (flags). The flags parameter remains the same.

2) Linux

Updated the ACPI utilities module to understand the new style of fully resolved package objects that are now returned from the core subsystem. This eliminates errors of the form:

```
ACPI: PCI Interrupt Routing Table [\_SB_.PCI0.PPB_._PRT]
 acpi_utils-0430 [145] acpi_evaluate_reference:
   Invalid element in package (not a device reference)
```

The method evaluation utility uses the new buffer allocation scheme instead of calling AcpiEvaluate Object twice.

Added support for ECDT. This allows the use of the Embedded

Controller before the namespace has been fully initialized, which is necessary for ACPI 2.0 support, and for some laptops to initialize properly. (Laptops using ECDT are still rare, so only limited testing was performed of the added functionality.)

Fixed memory leaks in the EC driver.

Eliminated a brittle code structure in acpi_bus_init().

Eliminated the acpi_evaluate() helper function in utils.c. It is
no longer needed since acpi_evaluate_object can optionally
allocate memory for the return object.

Implemented fix for keyboard hang when getting battery readings on
some systems (Stephen White)

PCI IRQ routing update (Dominik Brodowski)

Fix an ifdef to allow compilation on UP with LAPIC
but no IOAPIC
support

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11 June 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020611:

Fixed a reported problem where constants such as Zero and One
appearing within _PRT packages were not handled correctly within
the resource manager code. Originally reported against the ASL
compiler because the code generator now optimizes integers to
their minimal AML representation (i.e. AML constants if possible.)
The _PRT code now handles all AML constant opcodes correctly
(Zero, One, Ones, Revision).

Fixed a problem with the Concatenate operator in the AML
interpreter where a buffer result object was incorrectly marked as
not fully evaluated, causing a run-time error of AE_AML_INTERNAL.

All package sub-objects are now fully resolved before they are
returned from the external ACPI interfaces. This means that name
strings are resolved to object handles, and constant operators
(Zero, One, Ones, Revision) are resolved to
Integers.

Implemented immediate resolution of the AML Constant opcodes
(Zero, One, Ones, Revision) to Integer objects upon detection
within the AML stream. This has simplified and reduced the
generated code size of the subsystem by eliminating about 10
switch statements for these constants (which previously were
contained in Reference objects.) The complicating issues are that
the Zero opcode is used as a "placeholder" for unspecified

optional target operands and stores to constants are defined to be
no-ops.

Code and Data Size: Current core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib
produced by the Microsoft Visual C++ 6.0 compiler, and these
values do not include any ACPI driver or OSPM code. The debug
version of the code includes the debug output trace mechanism and
has a larger code and data size. Note that these values will vary
depending on the efficiency of the compiler and the compiler
options used during generation.

Previous
Release
Non-Debug Version: 69.3K Code, 7.4K Data, 76.7K Total
Debug Version: 143.8K Code, 58.8K Data, 202.6K Total
Current Release:
Non-Debug Version: 68.7K Code, 7.4K Data, 76.1K Total
Debug Version: 142.9K Code, 58.7K Data, 201.6K Total

2) Linux

Added preliminary support for obtaining _TRA data for PCI root
bridges (Bjorn Helgaas).

3) iASL Compiler Version X2046:

Fixed a problem where the "_DDN" reserved name was defined to be a
control method with one argument. There are no arguments, and
_DDN does not have to be a control method.

Fixed a problem with the Linux version of the compiler where the
source lines printed with error messages were the wrong lines.
This turned out to be the "LF versus CR/LF" difference between
Windows and Unix. This appears to be the longstanding issue
concerning listing output and error messages.

Fixed a problem with the Linux version of compiler where opcode
names within error messages were wrong.
This was caused by a
slight difference in the output of the Flex tool on Linux versus
Windows.

Fixed a problem with the Linux compiler where the hex output files
contained some garbage data caused by an internal buffer overrun.

---

17 May 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020517:

Implemented a workaround to an BIOS bug discovered on the HP OmniBook where the FADT revision number and the table size are inconsistent (ACPI 2.0 revision vs. ACPI 1.0 table size). The new behavior is to fallback to using only the ACPI 1.0 fields of the FADT if the table is too small to be a ACPI 2.0 table as claimed by the revision number. Although this is a BIOS bug, this is a case where the workaround is simple enough and with no side effects, so it seemed prudent to add it. A warning message is issued, however.

Implemented minimum size checks for the fixed-length ACPI tables -- the FADT and FACS, as well as consistency checks between the revision number and the table size.

Fixed a reported problem in the table override support where the new table pointer was incorrectly treated as a physical address instead of a logical address.

Eliminated the use of the AE_AML_ERROR exception and replaced it with more descriptive codes.

Fixed a problem where an exception would occur if an ASL Field was defined with no named Field Units underneath it (used by some index fields).

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 68.8K Code, 7.1K Data, 75.9K Total
Debug Version: 142.9K Code, 58.4K Data, 201.3K Total
Current Release:

Non-Debug Version: 69.3K Code, 7.4K Data, 76.7K Total
Debug Version: 143.8K Code, 58.8K Data, 202.6K Total

2) Linux

Much work done on ACPI init (MADT and PCI IRQ routing support).
(Paul D. and Dominik Brodowski)

Fix PCI IRQ-related panic on boot (Sam Revitch)

Set BM_ARB_DIS when entering a sleep state (Ducrot Bruno)

Fix "MHz" typo (Dominik Brodowski)

Fix RTC year 2000 issue (Dominik Brodowski)

Preclude multiple button proc entries (Eric Brunet)

Moved arch-specific code out of include/platform/aclinux.h

3) iASL Compiler Version X2044:

Implemented error checking for the string used in the EISAID macro
(Usually used in the definition of the _HID object.) The code now
strictly enforces the PnP format - exactly 7 characters, 3
uppercase letters and 4 hex digits.

If a raw string is used in the definition of the _HID object
(instead of the EISAID macro), the
string must contain all
alphanumeric characters (e.g., "*PNP0011" is not allowed because
of the asterisk.)

Implemented checking for invalid use of ACPI reserved names for
most of the name creation operators (Name, Device, Event, Mutex,
OperationRegion, PowerResource, Processor, and ThermalZone.)
Previously, this check was only performed for control methods.

Implemented an additional check on the Name operator to emit an
error if a reserved name that must be implemented in ASL as a
control method is used. We know that a reserved name must be a
method if it is defined with input arguments.

The warning emitted when a namespace object reference is not found
during the cross reference phase has been changed into an error.
The "External" directive should be used for names defined in other

modules.

4) Tools and Utilities

The 16-bit tools (adump16 and aexec16) have been regenerated and tested.

Fixed a problem with the output of both acpidump and adump16 where the indentation of closing
parentheses and brackets was not

aligned properly with the parent block.

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03 May 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020503:

Added support a new OSL interface that allows the host operating

system software to override the DSDT found in the firmware - AcpiOsTableOverride. With this interface, the OSL can examine the version of the firmware DSDT and replace it with a different one if desired.

Added new external interfaces for accessing ACPI registers from device drivers and other system software - AcpiGetRegister and AcpiSetRegister. This was simply an externalization of the existing AcpiHwBitRegister interfaces.

Fixed a regression introduced in the previous build where the ASL/AML CreateField operator always returned an error, "destination must be a NS Node".

Extended the maximum time (before failure) to successfully enable ACPI mode to 3 seconds.

Code and Data Size: Current core subsystem
library sizes are shown
below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler

options used during generation.

Previous Release
Non-Debug Version: 68.5K Code, 7.0K Data, 75.5K Total
Debug Version: 142.4K Code, 58.3K Data, 200.7K Total
Current Release:
Non-Debug Version: 68.8K Code, 7.1K Data, 75.9K Total
Debug Version: 142.9K Code, 58.4K Data, 201.3K Total

2) Linux

Enhanced ACPI init code for SMP. We are now fully MPS and $PIR-free. While 3 out of 4 of our in-house systems work fine, the last one still hangs when testing the LAPIC timer.

Renamed many files in 2.5 kernel release to omit "acpi_" from the name.

Added warning
on boot for Presario 711FR.

Sleep improvements (Pavel Machek)

ACPI can now be built without CONFIG_PCI enabled.

IA64: Fixed memory map functions (JI Lee)

3) iASL Compiler Version X2043:

Added support to allow the compiler to be integrated into the MS VC++ development environment for one-button compilation of single files or entire projects -- with error-to-source-line mapping.

Implemented support for compile-time constant folding for the Type3, Type4, and Type5 opcodes first defined in the ACPI 2.0 specification. This allows the ASL writer to use expressions instead of Integer/Buffer/String constants in terms that must evaluate to constants at compile time and will also simplify the emitted AML in any such sub-expressions that can be folded (evaluated at compile-time.) This increases the size of the compiler significantly because a portion of the ACPI CA AML interpreter is included within the compiler in order to pre-evaluate constant expressions.

Fixed a problem with

the "Unicode" ASL macro that caused the
compiler to fault. (This macro is used in conjunction with the
_STR reserved name.)

Implemented an AML opcode optimization to use the Zero, One, and
Ones opcodes where possible to further reduce the size of integer
constants and thus reduce the overall size of the generated AML
code.

Implemented error checking for new reserved terms for ACPI version
2.0A.

Implemented the -qr option to display the current list of ACPI
reserved names known to the compiler.

Implemented the -qc option to display the current list of ASL
operators that are allowed within constant expressions and can
therefore be folded at compile time if the operands are constants.

4) Documentation

Updated the Programmer's Reference for new interfaces, data types,
and memory allocation model options.

Updated the iASL Compiler User Reference to apply new format and
add information about new features and options.

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19 April 2002. Summary
of changes for this release.

1) ACPI CA Core Subsystem Version 20020419:

The source code base for the Core Subsystem has been completely
cleaned with PC-lint (FlexLint) for both 32-bit and 64-bit
versions. The Lint option files used are included in the
/acpi/generate/lint directory.

Implemented enhanced status/error checking across the entire
Hardware manager subsystem. Any hardware errors (reported from
the OSL) are now bubbled up and will abort a running control
method.

Fixed a problem where the per-ACPI-table integer width (32 or 64)
was stored only with control method nodes, causing a fault when
non-control method code was executed during table loading. The

solution implemented uses a global variable to indicate table width across the entire ACPI subsystem. Therefore, ACPI CA does not support mixed integer widths across different ACPI tables (DSDT, SSDT).

Fixed a problem where NULL extended fields (X fields) in an ACPI 2.0 ACPI FADT caused the table load to fail. Although the existing ACPI specification is a bit fuzzy on this topic, the new behavior is to fall back on a ACPI 1.0 field if the corresponding ACPI 2.0 X field is zero (even though the table revision indicates a full ACPI 2.0 table.) The ACPI specification will be updated to clarify this issue.

Fixed a problem with the SystemMemory operation region handler where memory was always accessed byte-wise even if the AML-specified access width was larger than a byte. This caused problems on systems with memory-mapped I/O. Memory is now accessed with the width specified. On systems that do not support non-aligned transfers, a check is made to guarantee proper address alignment before proceeding in order to avoid an AML-caused alignment fault within the kernel.

Fixed a problem with the ExtendedIrq resource where only one byte of the 4-byte Irq field was extracted.

Fixed the AcpiExDigitsNeeded() procedure to support _UID. This function was out of date and required a rewrite.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 66.6K Code, 6.5K Data, 73.1K Total
Debug Version: 139.8K Code, 57.4K Data, 197.2K Total
Current Release:
Non-Debug Version: 68.5K Code, 7.0K Data, 75.5K Total
Debug Version: 142.4K Code, 58.3K Data, 200.7K Total

2) Linux

PCI IRQ routing fixes (Dominik Brodowski)

3) iASL Compiler Version X2042:

Implemented an additional compile-time error check for a field
unit whose size + minimum access width would cause a run-time
access beyond the end-of-region.
Previously, only the field size
itself was checked.

The Core subsystem and iASL compiler now share a common parse
object in preparation for compile-time evaluation of the type
3/4/5 ASL operators.

Summary of changes for this release: 03_29_02

1) ACPI CA Core Subsystem Version 20020329:

Implemented support for late evaluation of TermArg operands to
Buffer and Package objects. This allows complex expressions to be
used in the declarations of these object types.

Fixed an ACPI 1.0 compatibility issue when reading Fields. In ACPI
1.0, if the field was larger than 32 bits, it was returned as a
buffer - otherwise it was returned as an integer. In ACPI 2.0,
the field is returned as a buffer only if the field is larger than
64 bits. The TableRevision is now considered when making this
conversion to avoid incompatibility with existing ASL code.

Implemented logical addressing for AcpiOsGetRootPointer. This
allows an RSDP with either a logical
or physical address. With
this support, the host OS can now override all ACPI tables with
one logical RSDP. Includes implementation of "typed" pointer
support to allow a common data type for both physical and logical
pointers internally. This required a change to the
AcpiOsGetRootPointer interface.

Implemented the use of ACPI 2.0 Generic Address Structures for all
GPE, Fixed Event, and PM Timer I/O. This allows the use of memory
mapped I/O for these ACPI features.

Initialization now ignores not only non-required tables (All

tables other than the FADT, FACS, DSDT, and SSDTs), but also does not validate the table headers of unrecognized tables.

Fixed a problem where a notify handler could only be installed/removed on an object of type Device. All "notify"

objects are now supported -- Devices, Processor, Power, and Thermal.

Removed most verbosity from the ACPI_DB_INFO debug level. Only critical information is returned when this debug level is enabled.

Code and Data Size: Current
core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release
Non-Debug Version: 65.4K Code, 6.2K Data, 71.6K Total
Debug Version: 138.0K Code, 56.6K Data, 194.6K Total
Current Release:
Non-Debug Version: 66.6K Code, 6.5K Data, 73.1K Total
Debug Version: 139.8K Code, 57.4K Data, 197.2K Total

2) Linux:

The processor driver (acpi_processor.c) now fully supports ACPI 2.0-based processor performance control (e.g. Intel(R) SpeedStep(TM) technology) Note that older laptops that only have the Intel "applet" interface are not supported through this.
The
'limit' and 'performance' interface (/proc) are fully functional. [Note that basic policy for controlling performance state transitions will be included in the next version of ospmd.] The idle handler was modified to more aggressively use C2, and PIIX4 errata handling underwent a complete overhaul (big thanks to Dominik Brodowski).

Added support for ACPI-PCI device binding (acpi_pci_root.c). _ADR-based devices in the ACPI namespace are now dynamically bound (associated) with their PCI counterparts (e.g. PCI1->01:00.0). This allows, among other things, ACPI to resolve bus numbers for

subordinate PCI bridges.

Enhanced PCI IRQ routing to get the proper bus number for _PRT
entries defined underneath PCI bridges.

Added IBM 600E to bad bios list due to invalid _ADR value for
PIIX4 PCI-ISA bridge, resulting in improper PCI IRQ routing.

In the process of adding full MADT support (e.g. IOAPIC) for IA32
(acpi.c, mpparse.c) -- stay tuned.

Added back visual differentiation between
 fixed-feature and
control-method buttons in dmesg. Buttons are also subtyped (e.g.
button/power/PWRF) to simplify button identification.

We no longer use -Wno-unused when compiling debug. Please ignore
any "_THIS_MODULE defined but not used" messages.

Can now shut down the system using "magic sysrq" key.

3) iASL Compiler version 2041:

Fixed a problem where conversion errors for hex/octal/decimal
constants were not reported.

Implemented a fix for the General Register template Address field.
This field was 8 bits when it should be 64.

Fixed a problem where errors/warnings were no longer being emitted
within the listing output file.

Implemented the ACPI 2.0A restriction on ACPI Table Signatures to
exactly 4 characters, alphanumeric only.

Summary of changes for this release: 03_08_02

1) ACPI CA Core Subsystem Version 20020308:

Fixed a problem with AML Fields where the use of the "AccessAny"
keyword could cause an interpreter error due

to attempting to read
or write beyond the end of the parent Operation Region.

Fixed a problem in the SystemMemory Operation Region handler where
an attempt was made to map memory beyond the end of the region.
This was the root cause of the "AE_ERROR" and "AE_NO_MEMORY"
errors on some Linux systems.

Fixed a problem where the interpreter/namespace "search to root"
algorithm was not functioning for some object types. Relaxed the
internal restriction on the search to allow upsearches for all
external object types as well as most internal types.

2) Linux:

We now use safe_halt() macro versus individual calls to sti | hlt.

Writing to the processor limit interface should now work. "echo 1"
will increase the limit, 2 will decrease, and 0 will reset to the

default.

3) ASL compiler:

Fixed segfault on Linux version.

Summary of changes for this release: 02_25_02

1) ACPI CA Core Subsystem:

Fixed a problem where the GPE bit masks were not initialized
properly,
causing erratic GPE behavior.

Implemented limited support for multiple calling conventions. The
code can be generated with either the VPL (variable parameter
list, or "C") convention, or the FPL (fixed parameter list, or
"Pascal") convention. The core subsystem is about 3.4% smaller
when generated with FPL.

2) Linux

Re-add some /proc/acpi/event functionality that was lost during
the rewrite

Resolved issue with /proc events for fixed-feature buttons showing
up as the system device.

Fixed checks on C2/C3 latencies to be inclusive of maximum values.

Replaced AE_ERRORs in acpi_osl.c with more specific error codes.

Changed ACPI PRT option from "pci=noacpi-routing" to "pci=noacpi"

Fixed limit interface & usage to fix bugs with passive cooling
hysterisis.

Restructured PRT support.

Summary of changes for this label: 02_14_02

1) ACPI CA Core Subsystem:

Implemented support in AcpiLoadTable to allow loading of FACS and
FADT
tables.

Support for the now-obsolete interim 0.71 64-bit ACPI tables has
been removed. All 64-bit platforms should be migrated to the ACPI
2.0 tables. The actbl71.h header has been removed from the source
tree.

All C macros defined within the subsystem have been prefixed with
"ACPI_" to avoid collision with other system include files.

Removed the return value for the two AcpiOsPrint interfaces, since
it is never used and causes lint warnings for ignoring the return
value.

Added error checking to all internal mutex acquire and release
calls. Although a failure from one of these interfaces is
probably a fatal system error, these checks will cause the
immediate abort of the currently executing method or interface.

Fixed a problem where the AcpiSetCurrentResources interface could
fault. This was a side effect of the deployment of the new memory
allocation model.

Fixed a couple of problems with the Global Lock support introduced
in the last major build. The "common" (1.0/2.0)
internal FACS was
being overwritten with the FACS signature and clobbering the
Global Lock pointer. Also, the actual firmware FACS was being
unmapped after construction of the "common" FACS, preventing
access to the actual Global Lock field within it. The "common"
internal FACS is no longer installed as an actual ACPI table; it
is used simply as a global.

Code and Data Size: Current core subsystem library sizes are shown
below. These are the code and data sizes for the acpica.lib
produced by the Microsoft Visual C++ 6.0 compiler, and these
values do not include any ACPI driver or OSPM code. The debug
version of the code includes the debug output trace mechanism and
has a larger code and data size. Note that these values will vary
depending on the efficiency of the compiler and the compiler
options used during generation.

Previous Release (02_07_01)
Non-Debug Version: 65.2K Code, 6.2K Data, 71.4K Total
Debug Version: 136.9K Code, 56.4K Data, 193.3K Total

Current Release:
Non-Debug Version: 65.4K Code, 6.2K Data, 71.6K Total
Debug Version: 138.0K Code, 56.6K Data, 194.6K Total

2) Linux

Updated Linux-specific code for core macro and OSL interface
changes described above.

Improved /proc/acpi/event. It now can be opened only once and has
proper poll functionality.

Fixed and restructured power management (acpi_bus).

Only create /proc "view by type" when devices of that class exist.

Fixed "charging/discharging" bug (and others) in acpi_battery.

Improved thermal zone code.

3) ASL Compiler, version X2039:

Implemented the new compiler restriction on ASL String hex/octal
escapes to non-null, ASCII values. An error results if an invalid
value is used. (This will require an ACPI 2.0 specification
change.)

AML object labels that are output to the optional C and ASM source
are now prefixed with both the ACPI table signature and table ID
to help guarantee uniqueness within a large BIOS project.

Summary
 of changes for this label: 02_01_02

1) ACPI CA Core Subsystem:

ACPI 2.0 support is complete in the entire Core Subsystem and the
ASL compiler. All new ACPI 2.0 operators are implemented and all
other changes for ACPI 2.0 support are complete. With
simultaneous code and data optimizations throughout the subsystem,
ACPI 2.0 support has been implemented with almost no additional
cost in terms of code and data size.

Implemented a new mechanism for allocation of return buffers. If
the buffer length is set to ACPI_ALLOCATE_BUFFER, the buffer will
be allocated on behalf of the caller. Consolidated all return
buffer validation and allocation to a common procedure. Return
buffers will be allocated via the primary OSL allocation interface
since it appears that a separate pool is not needed by most users.
If a separate pool is required for these buffers, the caller can
still use the original mechanism and pre-allocate the buffer(s).

Implemented support for string
 operands within the DerefOf
operator.

Restructured the Hardware and Event managers to be table driven,
simplifying the source code and reducing the amount of generated
code.

Split the common read/write low-level ACPI register bitfield
procedure into a separate read and write, simplifying the code
considerably.

Obsoleted the AcpiOsCallocate OSL interface. This interface was
used only a handful of times and didn't have enough critical mass
for a separate interface. Replaced with a common calloc procedure

in the core.

Fixed a reported problem with the GPE number mapping mechanism that allows GPE1 numbers to be non-contiguous with GPE0. Reorganized the GPE information and shrunk a large array that was originally large enough to hold info for all possible GPEs (256) to simply large enough to hold all GPEs up to the largest GPE number on the machine.

Fixed a reported problem with resource structure alignment on 64-bit platforms.

Changed the AcpiEnableEvent and AcpiDisableEvent external interfaces
to not require any flags for the common case of enabling/disabling a GPE.

Implemented support to allow a "Notify" on a Processor object.

Most TBDs in comments within the source code have been resolved and eliminated.

Fixed a problem in the interpreter where a standalone parent prefix (^) was not handled correctly in the interpreter and debugger.

Removed obsolete and unnecessary GPE save/restore code.

Implemented Field support in the ASL Load operator. This allows a table to be loaded from a named field, in addition to loading a table directly from an Operation Region.

Implemented timeout and handle support in the external Global Lock interfaces.

Fixed a problem in the AcpiDump utility where pathnames were no longer being generated correctly during the dump of named objects.

Modified the AML debugger to give a full display of if/while predicates instead of just one AML opcode at a time. (The predicate can have several nested ASL statements.) The old method was
confusing during single stepping.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these

values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (12_18_01)
Non-Debug Version: 66.1K Code, 5.5K Data, 71.6K Total
Debug Version: 138.3K Code, 55.9K Data, 194.2K Total
Current Release:
Non-Debug Version: 65.2K Code, 6.2K Data, 71.4K Total
Debug Version: 136.9K Code, 56.4K Data, 193.3K Total

2) Linux

Implemented fix for PIIX reverse throttling errata (Processor driver)

Added new Limit interface (Processor and Thermal drivers)

New thermal policy (Thermal driver)

Many
updates to /proc

Battery "low" event support (Battery driver)

Supports ACPI PCI IRQ routing (PCI Link and PCI root drivers)

IA32 - IA64 initialization unification, no longer experimental

Menuconfig options redesigned

3) ASL Compiler, version X2037:

Implemented several new output features to simplify integration of AML code into firmware: 1) Output the AML in C source code with labels for each named ASL object. The original ASL source code is interleaved as C comments. 2) Output the AML in ASM source code with labels and interleaved ASL source. 3) Output the AML in raw hex table form, in either C or ASM.

Implemented support for optional string parameters to the LoadTable operator.

Completed support for embedded escape sequences within string literals. The compiler now supports all single character escapes as well as the Octal and Hex escapes. Note: the insertion of a

null byte into a string literal (via the hex/octal escape) causes
the string to be immediately
 terminated. A warning is issued.

Fixed a problem where incorrect AML was generated for the case
where an ASL namepath consists of a single parent prefix (

) with no trailing name segments.

The compiler has been successfully generated with a 64-bit C
compiler.

Summary of changes for this label: 12_18_01

1) Linux

Enhanced blacklist with reason and severity fields. Any table's
signature may now be used to identify a blacklisted system.

Call _PIC control method to inform the firmware which interrupt
model the OS is using. Turn on any disabled link devices.

Cleaned up busmgr /proc error handling (Andreas Dilger)

2) ACPI CA Core Subsystem:

Implemented ACPI 2.0 semantics for the "Break" operator (Exit from
while loop)

Completed implementation of the ACPI 2.0 "Continue",
"ConcatenateResTemplate", "DataTableRegion", and "LoadTable"
operators. All new ACPI 2.0 operators are now implemented in both
the ASL compiler and the AML interpreter.
  The only remaining ACPI
2.0 task is support for the String data type in the DerefOf
operator. Fixed a problem with AcquireMutex where the status code
was lost if the caller had to actually wait for the mutex.

Increased the maximum ASL Field size from 64K bits to 4G bits.

Completed implementation of the external Global Lock interfaces --
AcpiAcquireGlobalLock and AcpiReleaseGlobalLock. The Timeout and
Handler parameters were added.

Completed another pass at removing warnings and issues when compiling with 64-bit compilers. The code now compiles cleanly with the Intel 64-bit C/C++ compiler. Most notably, the pointer add and subtract (diff) macros have changed considerably.

Created and deployed a new ACPI_SIZE type that is 64-bits wide on 64-bit platforms, 32-bits on all others. This type is used wherever memory allocation and/or the C sizeof() operator is used, and affects the OSL memory allocation interfaces AcpiOsAllocate and AcpiOsCallocate.

Implemented sticky user breakpoints
in the AML debugger.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (12_05_01)
Non-Debug Version: 64.7K Code, 5.3K Data, 70.0K Total
Debug Version: 136.2K Code, 55.6K Data, 191.8K Total
Current Release:
Non-Debug Version: 66.1K Code, 5.5K Data, 71.6K Total
Debug Version: 138.3K Code, 55.9K Data, 194.2K Total

3) ASL Compiler, version X2034:

Now checks for (and generates an error if detected) the use of a Break or Continue statement without an enclosing While statement.

Successfully generated
the compiler with the Intel 64-bit C
compiler.

Summary of changes for this label: 12_05_01

1) ACPI CA Core Subsystem:

The ACPI 2.0 CopyObject operator is fully implemented. This operator creates a new copy of an object (and is also used to

bypass the "implicit conversion" mechanism of the Store operator.)

The ACPI 2.0 semantics for the SizeOf operator are fully implemented. The change is that performing a SizeOf on a reference object causes an automatic dereference of the object to the actual value before the size is evaluated. This behavior was undefined in ACPI 1.0.

The ACPI 2.0 semantics for the Extended IRQ resource descriptor have been implemented. The interrupt polarity and mode are now independently set.

Fixed a problem where ASL Constants (Zero, One, Ones, Revision) appearing in Package objects were not properly converted to integers when the internal Package was converted to an external object (via the AcpiEvaluateObject interface.)

Fixed
a problem with the namespace object deletion mechanism for objects created by control methods. There were two parts to this problem: 1) Objects created during the initialization phase method parse were not being deleted, and 2) The object owner ID mechanism to track objects was broken.

Fixed a problem where the use of the ASL Scope operator within a control method would result in an invalid opcode exception.

Fixed a problem introduced in the previous label where the buffer length required for the _PRT structure was not being returned correctly.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler
and the compiler
options used during generation.

Previous Release (11_20_01)
Non-Debug Version: 64.1K Code, 5.3K Data, 69.4K Total
Debug Version: 135.1K Code, 55.4K Data, 190.5K Total

Current Release:
Non-Debug Version: 64.7K Code, 5.3K Data, 70.0K Total
Debug Version: 136.2K Code, 55.6K Data, 191.8K Total

2) Linux:

Updated all files to apply cleanly against 2.4.16.

Added basic PCI Interrupt Routing Table (PRT) support for IA32 (acpi_pci.c), and unified the PRT code for IA32 and IA64. This version supports both static and dynamic PRT entries, but dynamic entries are treated as if they were static (not yet reconfigurable). Architecture- specific code to use this data is absent on IA32 but should be available shortly.

Changed the initialization sequence to start the ACPI interpreter (acpi_init) prior to initialization of the PCI driver (pci_init) in init/main.c. This ordering is required to support PRT and facilitate other (future)
enhancement. A side effect is that the
ACPI bus driver and certain device drivers can no longer be loaded as modules.

Modified the 'make menuconfig' options to allow PCI Interrupt Routing support to be included without the ACPI Bus and other device drivers.

3) ASL Compiler, version X2033:

Fixed some issues with the use of the new CopyObject and DataTableRegion operators. Both are fully functional.

Summary of changes for this label: 11_20_01

20 November 2001. Summary of changes for this release.

1) ACPI CA Core Subsystem:

Updated Index support to match ACPI 2.0 semantics. Storing a Integer, String, or Buffer to an Index of a Buffer will store only the least-significant byte of the source to the Indexed buffer byte. Multiple writes are not performed.

Fixed a problem where the access type used in an AccessAs ASL operator was not recorded correctly into the field object.

Fixed a problem where ASL Event objects were created in a signalled
state. Events are now created in an unsignalled state.

The internal object cache is now purged after table loading and
initialization to reduce the use of dynamic kernel memory -- on
the assumption that object use is greatest during the parse phase
of the entire table (versus the run-time use of individual control
methods.)

ACPI 2.0 variable-length packages are now fully operational.

Code and Data Size: Code and Data optimizations have permitted new
feature development with an actual reduction in the library size.
Current core subsystem library sizes are shown below. These are
the code and data sizes for the acpica.lib produced by the
Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code
includes the debug output trace mechanism and has a larger code
and data size. Note that these values will vary depending on the
efficiency of the compiler and the compiler options used during
generation.

Previous
Release (11_09_01):
Non-Debug Version: 63.7K Code, 5.2K Data, 68.9K Total
Debug Version: 134.5K Code, 55.4K Data, 189.9K Total

Current Release:
Non-Debug Version: 64.1K Code, 5.3K Data, 69.4K Total
Debug Version: 135.1K Code, 55.4K Data, 190.5K Total

2) Linux:

Enhanced the ACPI boot-time initialization code to allow the use
of Local APIC tables for processor enumeration on IA-32, and to
pave the way for a fully MPS-free boot (on SMP systems) in the
near future. This functionality replaces
arch/i386/kernel/acpitables.c, which was introduced in an earlier
2.4.15-preX release. To enable this feature you must add
"acpi_boot=on" to the kernel command line -- see the help entry
for CONFIG_ACPI_BOOT for more information. An IA-64 release is in
the works...

Restructured the configuration options to allow boot-time table
parsing support without inclusion of the ACPI Interpreter (and
other) code.

NOTE: This release does not include fixes for the
reported events,
power-down, and thermal passive cooling issues (coming soon).

3) ASL Compiler:

Added additional typechecking for Fields within restricted access Operation Regions. All fields within EC and CMOS regions must be declared with ByteAcc. All fields within SMBus regions must be declared with the BufferAcc access type.

Fixed a problem where the listing file output of control methods no longer interleaved the actual AML code with the ASL source code.

Summary of changes for this label: 11_09_01

1) ACPI CA Core Subsystem:

Implemented ACPI 2.0-defined support for writes to fields with a Buffer, String, or Integer source operand that is smaller than the target field. In these cases, the source operand is zero-extended to fill the target field.

Fixed a problem where a Field starting bit offset (within the parent operation region) was calculated incorrectly if the

alignment of the field differed from the access width. This affected
CreateWordField, CreateDwordField, CreateQwordField, and possibly other fields that use the "AccessAny" keyword.

Fixed a problem introduced in the 11_02_01 release where indirect stores through method arguments did not operate correctly.

2) Linux:

Implemented boot-time ACPI table parsing support (CONFIG_ACPI_BOOT) for IA32 and IA64 UP/SMP systems. This code facilitates the use of ACPI tables (e.g. MADT, SRAT) rather than legacy BIOS interfaces (e.g. MPS) for the configuration of system processors, memory, and interrupts during setup_arch(). Note that this patch does not include the required architecture-specific changes required to apply this information -- subsequent patches will be posted for both IA32 and IA64 to achieve this.

Added low-level sleep support for IA32 platforms, courtesy of Pat Mochel. This allows IA32 systems to transition to/from various

sleeping states (e.g. S1, S3), although the lack of a centralized driver model and power-manageable drivers will prevent its
(successful) use on most systems.

Revamped the ACPI 'menuconfig' layout: created new "ACPI Support" submenu, unified IA32 and IA64 options, added new "Boot using ACPI tables" option, etc.

Increased the default timeout for the EC driver from 1ms to 10ms (1000 cycles of 10us) to try to address AE_TIME errors during EC transactions.

Summary of changes for this label: 11_02_01

1) ACPI CA Core Subsystem:

ACPI 2.0 Support: Implemented ACPI 2.0 64-bit Field access (QWordAcc keyword). All ACPI 2.0 64-bit support is now implemented.

OSL Interfaces: Several of the OSL (AcpiOs*) interfaces required changes to support ACPI 2.0 Qword field access. Read/Write PciConfiguration(), Read/Write Memory(), and Read/Write Port() now accept an ACPI_INTEGER (64 bits) as the value parameter. Also, the value parameter for the address space handler interface is now an ACPI_INTEGER. OSL implementations of these interfaces must now handle the case where the
Width parameter is 64.

Index Fields: Fixed a problem where unaligned bit assembly and disassembly for IndexFields was not supported correctly.

Index and Bank Fields: Nested Index and Bank Fields are now supported. During field access, a check is performed to ensure that the value written to an Index or Bank register is not out of the range of the register. The Index (or Bank) register is written before each access to the field data. Future support will include allowing individual IndexFields to be wider than the DataRegister width.

Fields: Fixed a problem where the AML interpreter was incorrectly attempting to write beyond the end of a Field/OpRegion. This was a boundary case that occurred when a DWORD field was written to a BYTE access OpRegion, forcing multiple writes and causing the interpreter to write one datum too many.

Fields: Fixed a problem with Field/OpRegion access where the
starting bit address of a field was incorrectly calculated if the
current access type was wider
than a byte (WordAcc, DwordAcc, or
QwordAcc).

Fields: Fixed a problem where forward references to individual
FieldUnits (individual Field names within a Field definition) were
not resolved during the AML table load.

Fields: Fixed a problem where forward references from a Field
definition to the parent Operation Region definition were not
resolved during the AML table load.

Fields: Duplicate FieldUnit names within a scope are now detected
during AML table load.

Acpi Interfaces: Fixed a problem where the AcpiGetName() interface
returned an incorrect name for the root node.

Code and Data Size: Code and Data optimizations have permitted new
feature development with an actual reduction in the library size.
Current core subsystem library sizes are shown below. These are
the code and data sizes for the acpica.lib produced by the
Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code
includes the debug output trace
mechanism and has a larger code
and data size. Note that these values will vary depending on the
efficiency of the compiler and the compiler options used during
generation.

Previous Release (10_18_01):
Non-Debug Version: 63.9K Code, 5.1K Data, 69.0K Total
Debug Version: 136.7K Code, 57.4K Data, 194.2K Total

Current Release:
Non-Debug Version: 63.7K Code, 5.2K Data, 68.9K Total
Debug Version: 134.5K Code, 55.4K Data, 189.9K Total

2) Linux:

Improved /proc processor output (Pavel Machek) Re-added
MODULE_LICENSE("GPL") to all modules.

3) ASL Compiler version X2030:

Duplicate FieldUnit names within a scope are now detected and

flagged as errors.

4) Documentation:

Programmer Reference updated to reflect OSL and address space handler interface changes described above.

Summary of changes for this label: 10_18_01

ACPI CA Core Subsystem:

Fixed a problem with the internal object reference count mechanism
that occasionally caused premature object deletion. This resolves all of the outstanding problem reports where an object is deleted in the middle of an interpreter evaluation. Although this problem only showed up in rather obscure cases, the solution to the problem involved an adjustment of all reference counts involving objects attached to namespace nodes.

Fixed a problem with Field support in the interpreter where writing to an aligned field whose length is an exact multiple (2 or greater) of the field access granularity would cause an attempt to write beyond the end of the field.

The top level AML opcode execution functions within the interpreter have been renamed with a more meaningful and consistent naming convention. The modules exmonad.c and exdyadic.c were eliminated. New modules are exoparg1.c, exoparg2.c, exoparg3.c, and exoparg6.c.

Support for the ACPI 2.0 "Mid" ASL operator has been implemented.

Fixed a problem where the AML debugger was causing some internal objects
to not be deleted during subsystem termination.

Fixed a problem with the external AcpiEvaluateObject interface where the subsystem would fault if the named object to be evaluated referred to a constant such as Zero, Ones, etc.

Fixed a problem with IndexFields and BankFields where the subsystem would fault if the index, data, or bank registers were not defined in the same scope as the field itself.

Added printf format string checking for compilers that support this feature. Corrected more than 50 instances of issues with

format specifiers within invocations of ACPI_DEBUG_PRINT
throughout the core subsystem code.

The ASL "Revision" operator now returns the ACPI support level
implemented in the core - the value "2" since the ACPI 2.0 support
is more than 50% implemented.

Enhanced the output of the AML debugger "dump namespace" command
to output in a more human-readable form.

Current core subsystem library code sizes are shown below. These

are the code and data sizes
for the acpica.lib produced by the
Microsoft Visual C++ 6.0 compiler, and these values do not include
any ACPI driver or OSPM code. The debug version of the code
includes the full debug trace mechanism -- leading to a much

larger code and data size. Note that these values will vary
depending on the efficiency of the compiler and the compiler
options used during generation.

Previous Label (09_20_01):
Non-Debug Version: 65K Code, 5K Data, 70K Total
Debug Version: 138K Code, 58K Data, 196K Total

This Label:

Non-Debug Version: 63.9K Code, 5.1K Data, 69.0K Total
Debug Version: 136.7K Code, 57.4K Data, 194.2K Total

Linux:

Implemented a "Bad BIOS Blacklist" to track machines that have
known ASL/AML problems.

Enhanced the /proc interface for the thermal zone driver and added
support for _HOT (the critical suspend trip point). The 'info'
file now includes threshold/policy information, and allows setting
of _SCP (cooling preference)
and _TZP (polling frequency) values
to the 'info' file. Examples: "echo tzp=5 > info" sets the polling
frequency to 5 seconds, and "echo scp=1 > info" sets the cooling
preference to the passive/quiet mode (if supported by the ASL).

Implemented a workaround for a gcc bug that resuted in an OOPs
when loading the control method battery driver.

Summary of changes for this label: 09_20_01

ACPI CA Core Subsystem:

The AcpiEnableEvent and AcpiDisableEvent interfaces have been modified to allow individual GPE levels to be flagged as wake-enabled (i.e., these GPEs are to remain enabled when the platform sleeps.)

The AcpiEnterSleepState and AcpiLeaveSleepState interfaces now support wake-enabled GPEs. This means that upon entering the sleep state, all GPEs that are not wake-enabled are disabled. When leaving the sleep state, these GPEs are re-enabled.

A local double-precision divide/modulo module has been added to enhance portability to
OS kernels where a 64-bit math library is
not available. The new module is "utmath.c".

Several optimizations have been made to reduce the use of CPU stack. Originally over 2K, the maximum stack usage is now below 2K at 1860 bytes (1.82k)

Fixed a problem with the AcpiGetFirmwareTable interface where the root table pointer was not mapped into a logical address properly.

Fixed a problem where a NULL pointer was being dereferenced in the interpreter code for the ASL Notify operator.

Fixed a problem where the use of the ASL Revision operator returned an error. This operator now returns the current version of the ACPI CA core subsystem.

Fixed a problem where objects passed as control method parameters to AcpiEvaluateObject were always deleted at method termination. However, these objects may end up being stored into the namespace by the called method. The object reference count mechanism was applied to these objects instead of a force delete.

Fixed a problem where static strings
or buffers (contained in the
AML code) that are declared as package elements within the ASL code could cause a fault because the interpreter would attempt to delete them. These objects are now marked with the "static object" flag to prevent any attempt to delete them.

Implemented an interpreter optimization to use operands directly

from the state object instead of extracting the operands to local variables. This reduces stack use and code size, and improves performance.

The module exxface.c was eliminated as it was an unnecessary extra layer of code.

Current core subsystem library code sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the full debug trace mechanism -- leading to a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options
used during generation.

Non-Debug Version: 65K Code, 5K Data, 70K Total (Previously 69K) Debug Version: 138K Code, 58K Data, 196K Total (Previously 195K)

Linux:

Support for ACPI 2.0 64-bit integers has been added. All ACPI Integer objects are now 64 bits wide

All Acpi data types and structures are now in lower case. Only Acpi macros are upper case for differentiation.

Documentation:

Changes to the external interfaces as described above.

Summary of changes for this label: 08_31_01

ACPI CA Core Subsystem:

A bug with interpreter implementation of the ASL Divide operator was found and fixed. The implicit function return value (not the explicit store operands) was returning the remainder instead of the quotient. This was a longstanding bug and it fixes several known outstanding issues on various platforms.

The ACPI_DEBUG_PRINT and function trace entry/exit macros have been further optimized for size. There
are 700 invocations of the
DEBUG_PRINT macro alone, so each optimization reduces the size of

the debug version of the subsystem significantly.

A stack trace mechanism has been implemented. The maximum stack usage is about 2K on 32-bit platforms. The debugger command "stat stack" will display the current maximum stack usage.

All public symbols and global variables within the subsystem are now prefixed with the string "Acpi". This keeps all of the symbols grouped together in a kernel map, and avoids conflicts with other kernel subsystems.

Most of the internal fixed lookup tables have been moved into the code segment via the const operator.

Several enhancements have been made to the interpreter to both reduce the code size and improve performance.

Current core subsystem library code sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug
version of the code
includes the full debug trace mechanism which contains over 700 invocations of the DEBUG_PRINT macro, 500 function entry macro invocations, and over 900 function exit macro invocations -- leading to a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Non-Debug Version: 64K Code, 5K Data, 69K Total
Debug Version: 137K Code, 58K Data, 195K Total

Linux:

Implemented wbinvd() macro, pending a kernel-wide definition.

Fixed /proc/acpi/event to handle poll() and short reads.

ASL Compiler, version X2026:

Fixed a problem introduced in the previous label where the AML

code emitted for package objects produced packages with zero length.

Summary of changes for this label: 08_16_01

ACPI CA Core Subsystem:

The following ACPI 2.0 ASL operators have been implemented in the AML interpreter (These are already supported by the Intel ASL compiler): ToDecimalString, ToHexString, ToString, ToInteger, and ToBuffer. Support for 64-bit AML constants is implemented in the AML parser, debugger, and disassembler.

The internal memory tracking mechanism (leak detection code) has been upgraded to reduce the memory overhead (a separate tracking block is no longer allocated for each memory allocation), and now supports all of the internal object caches.

The data structures and code for the internal object caches have been coelesced and optimized so that there is a single cache and memory list data structure and a single group of functions that implement generic cache management. This has reduced the code size in both the debug and release versions of the subsystem.

The DEBUG_PRINT macro(s) have been optimized for size and replaced by ACPI_DEBUG_PRINT. The syntax for this macro is slightly different, because it generates a single call to an internal function. This results in a savings of about 90 bytes per invocation, resulting in an overall code and data savings of about 16% in the debug version of the subsystem.

Linux:

Fixed C3 disk corruption problems and re-enabled C3 on supporting machines.

Integrated low-level sleep code by Patrick Mochel.

Further tweaked source code Linuxization.

Other minor fixes.

ASL Compiler:

Support for ACPI 2.0 variable length packages is fixed/completed.

Fixed a problem where the optional length parameter for the ACPI 2.0 ToString operator.

Fixed multiple extraneous error messages when a syntax error is detected within the declaration line of a control method.

Summary of changes for this label: 07_17_01

ACPI CA Core Subsystem:

Added a new interface named AcpiGetFirmwareTable to obtain any ACPI table via the ACPI signature. The interface can be called at any time during kernel initialization, even before the kernel virtual memory manager is initialized and paging is enabled. This allows kernel
subsystems to obtain ACPI tables very early, even
before the ACPI CA subsystem is initialized.

Fixed a problem where Fields defined with the AnyAcc attribute could be resolved to the incorrect address under the following conditions: 1) the field width is larger than 8 bits and 2) the parent operation region is not defined on a DWORD boundary.

Fixed a problem where the interpreter is not being locked during namespace initialization (during execution of the _INI control methods), causing an error when an attempt is made to release it later.

ACPI 2.0 support in the AML Interpreter has begun and will be ongoing throughout the rest of this year. In this label, The Mod operator is implemented.

Added a new data type to contain full PCI addresses named ACPI_PCI_ID. This structure contains the PCI Segment, Bus, Device, and Function values.

Linux:

Enhanced the Linux version of the source code to change most capitalized ACPI type names to lowercase. For example, all instances of ACPI_STATUS
are changed to acpi_status. This will
result in a large diff, but the change is strictly cosmetic and aligns the CA code closer to the Linux coding standard.

OSL Interfaces:

The interfaces to the PCI configuration space have been changed to add the PCI Segment number and to split the single 32-bit combined DeviceFunction field into two 16-bit fields. This was accomplished by moving the four values that define an address in PCI configuration space (segment, bus, device, and function) to

the new ACPI_PCI_ID structure.

The changes to the PCI configuration space interfaces led to a reexamination of the complete set of address space access interfaces for PCI, I/O, and Memory. The previously existing 18 interfaces have proven difficult to maintain (any small change must be propagated across at least 6 interfaces) and do not easily allow for future expansion to 64 bits if necessary. Also, on some systems, it would not be appropriate to demultiplex the access width (8, 16, 32,or
64) before calling the OSL if the
corresponding native OS interfaces contain a similar access width parameter. For these reasons, the 18 address space interfaces have been replaced by these 6 new ones:

AcpiOsReadPciConfiguration
AcpiOsWritePciConfiguration
AcpiOsReadMemory
AcpiOsWriteMemory
AcpiOsReadPort
AcpiOsWritePort

Added a new interface named AcpiOsGetRootPointer to allow the OSL to perform the platform and/or OS-specific actions necessary to obtain the ACPI RSDP table pointer. On IA-32 platforms, this interface will simply call down to the CA core to perform the low-memory search for the table. On IA-64, the RSDP is obtained from EFI. Migrating this interface to the OSL allows the CA core to

remain OS and platform independent.

Added a new interface named AcpiOsSignal to provide a generic "function code and pointer" interface for various miscellaneous signals and notifications that must be made to the host OS. The first such signals are intended to support the ASL Fatal
and
Breakpoint operators. In the latter case, the AcpiOsBreakpoint interface has been obsoleted.

The definition of the AcpiFormatException interface has been changed to simplify its use. The caller no longer must supply a buffer to the call; A pointer to a const string is now returned directly. This allows the call to be easily used in printf statements, etc. since the caller does not have to manage a local buffer.

ASL Compiler, Version X2025:

The ACPI 2.0 Switch/Case/Default operators have been implemented and are fully functional. They will work with all ACPI 1.0 interpreters, since the operators are simply translated to If/Else pairs.

The ACPI 2.0 ElseIf operator is implemented and will also work with 1.0 interpreters, for the same reason.

Implemented support for ACPI 2.0 variable-length packages. These packages have a separate opcode, and their size is determined by the interpreter at run-time.

Documentation The ACPI CA Programmer Reference has been updated to reflect
the new interfaces and changes to existing interfaces.

Summary of changes for this label: 06_15_01

ACPI CA Core Subsystem:

Fixed a problem where a DWORD-accessed field within a Buffer object would get its byte address inadvertently rounded down to the nearest DWORD. Buffers are always Byte-accessible.

ASL Compiler, version X2024:

Fixed a problem where the Switch() operator would either fault or hang the compiler. Note however, that the AML code for this ACPI 2.0 operator is not yet implemented.

Compiler uses the new AcpiOsGetTimer interface to obtain compile timings.

Implementation of the CreateField operator automatically converts a reference to a named field within a resource descriptor from a byte offset to a bit offset if required.

Added some missing named fields from the resource descriptor support. These are the names that are automatically created by the compiler to reference fields within a descriptor. They are only valid
at compile time and are not passed through to the AML interpreter.

Resource descriptor named fields are now typed as Integers and subject to compile-time typechecking when used in expressions.

Summary of changes for this label: 05_18_01

ACPI CA Core Subsystem:

Fixed a couple of problems in the Field support code where bits
from adjacent fields could be returned along with the proper field
bits. Restructured the field support code to improve performance,
readability and maintainability.

New DEBUG_PRINTP macro automatically inserts the procedure name
into the output, saving hundreds of copies of procedure name
strings within the source, shrinking the memory footprint of the
debug version of the core subsystem.

Source Code Structure:

The source code directory tree was restructured to reflect the
current organization of the component architecture. Some files
and directories have been moved and/or renamed.

Linux:

Fixed leaking kacpidpc
processes.

Fixed queueing event data even when /proc/acpi/event is not
opened.

ASL Compiler, version X2020:

Memory allocation performance enhancement - over 24X compile time
improvement on large ASL files. Parse nodes and namestring
buffers are now allocated from a large internal compiler buffer.

The temporary .SRC file is deleted unless the "-s" option is
specified

The "-d" debug output option now sends all output to the .DBG file
instead of the console.

"External" second parameter is now optional

"ElseIf" syntax now properly allows the predicate

Last operand to "Load" now recognized as a Target operand

Debug object can now be used anywhere as a normal object.

ResourceTemplate now returns an object of type BUFFER

EISAID now returns an object of type INTEGER

"Index" now works with a STRING operand

"LoadTable" now accepts optional parameters

"ToString" length parameter is now optional

"Interrupt (ResourceType," parse error fixed.

"Register" with a user-defined region
space parse error fixed

Escaped backslash at the end of a string ("\\") scan/parse error
fixed

"Revision" is now an object of type INTEGER.

Summary of changes for this label: 05_02_01

Linux:

/proc/acpi/event now blocks properly.

Removed /proc/sys/acpi. You can still dump your DSDT from
/proc/acpi/dsdt.

ACPI CA Core Subsystem:

Fixed a problem introduced in the previous label where some of the
"small" resource descriptor types were not recognized.

Improved error messages for the case where an ASL Field is outside
the range of the parent operation region.

ASL Compiler, version X2018:

Added error detection for ASL Fields that extend beyond the length
of the parent operation region (only if the length of the region
is known at compile time.) This includes fields that have a

minimum access width that is smaller than the parent region, and
individual field units that are partially or entirely beyond the
extent of the parent.

Summary
of changes for this label: 04_27_01

ACPI CA Core Subsystem:

Fixed a problem where the namespace mutex could be released at the
wrong time during execution of AcpiRemoveAddressSpaceHandler.

Added optional thread ID output for debug traces, to simplify
debugging of multiple threads. Added context switch notification
when the debug code realizes that a different thread is now
executing ACPI code.

Some additional external data types have been prefixed with the
string "ACPI_" for consistency. This may effect existing code.
The data types affected are the external callback typedefs - e.g.,

WALK_CALLBACK becomes ACPI_WALK_CALLBACK.

Linux:

Fixed an issue with the OSL semaphore implementation where a
thread was waking up with an error from receiving a SIGCHLD
signal.

Linux version of ACPI CA now uses the system C library for string
manipulation routines instead of a local implementation.

Cleaned up comments and removed TBDs.

ASL
Compiler, version X2017:

Enhanced error detection and reporting for all file I/O
operations.

Documentation:

Programmer Reference updated to version 1.06.

Summary of changes for this label: 04_13_01

ACPI CA Core Subsystem:

Restructured support for BufferFields and RegionFields.
BankFields support is now fully operational. All known 32-bit
limitations on field sizes have been removed. Both BufferFields
and (Operation) RegionFields are now supported by the same field
management code.

Resource support now supports QWORD address and IO resources. The
16/32/64 bit address structures and the Extended IRQ structure
have been changed to properly handle Source Resource strings.

A ThreadId of -1 is now used to indicate a "mutex not acquired"
condition internally and must never be returned by AcpiOsThreadId.
This reserved value was changed from 0 since Unix systems allow a
thread ID of 0.

Linux:

Driver code reorganized to enhance portability

Added
a kernel configuration option to control ACPI_DEBUG

Fixed the EC driver to honor _GLK.

ASL Compiler, version X2016:

Fixed support for the "FixedHw" keyword. Previously, the FixedHw
address space was set to 0, not 0x7f as it should be.

Summary of changes for this label: 03_13_01

ACPI CA Core Subsystem:

During ACPI initialization, the _SB_._INI method is now run if
present.

Notify handler fix - notifies are deferred until the parent method
completes execution. This fixes the "mutex already acquired"
issue seen occasionally.

Part of the "implicit conversion" rules in ACPI 2.0 have been

found to cause compatibility problems with existing ASL/AML. The convert "result-to-target-type" implementation has been removed for stores to method Args and Locals. Source operand conversion is still fully implemented. Possible changes to ACPI 2.0 specification pending.

Fix to AcpiRsCalculatePciRoutingTableLength to return correct length.

Fix
for compiler warnings for 64-bit compiles.

Linux:

/proc output aligned for easier parsing.

Release-version compile problem fixed.

New kernel configuration options documented in Configure.help.

IBM 600E - Fixed Sleep button may generate "Invalid <NULL> context" message.

OSPM:

Power resource driver integrated with bus manager.

Fixed kernel fault during active cooling for thermal zones.

Source Code:

The source code tree has been restructured.

Summary of changes for this label: 03_02_01

Linux OS Services Layer (OSL):

Major revision of all Linux-specific code.

Modularized all ACPI-specific drivers.

Added new thermal zone and power resource drivers.

Revamped /proc interface (new functionality is under /proc/acpi).

New kernel configuration options.

Linux known issues:

New kernel configuration options not documented in Configure.help yet.

Module dependencies not currently implemented. If used, they should be loaded in
this order: busmgr, power, ec, system,
processor, battery, ac_adapter, button, thermal.

Modules will not load if CONFIG_MODVERSION is set.

IBM 600E - entering S5 may reboot instead of shutting down.

IBM 600E - Sleep button may generate "Invalid <NULL> context" message.

Some systems may fail with "execution mutex already acquired" message.

ACPI CA Core Subsystem:

Added a new OSL Interface, AcpiOsGetThreadId. This was required for the deadlock detection code. Defined to return a non-zero, 32-bit thread ID for the currently executing thread. May be a non-zero constant integer on single-thread systems.

Implemented deadlock detection for internal subsystem mutexes. We may add conditional compilation for this code (debug only) later.

ASL/AML Mutex object semantics are now fully supported. This includes multiple acquires/releases by owner and support for the

Mutex SyncLevel parameter.

A new "Force Release" mechanism automatically frees all ASL Mutexes that have been acquired
but not released when a thread
exits the interpreter. This forces conformance to the ACPI spec ("All mutexes must be released when an invocation exits") and prevents deadlocked ASL threads. This mechanism can be expanded (later) to monitor other resource acquisitions if OEM ASL code continues to misbehave (which it will).

Several new ACPI exception codes have been added for the Mutex

support.

Recursive method calls are now allowed and supported (the ACPI spec does in fact allow recursive method calls.) The number of recursive calls is subject to the restrictions imposed by the SERIALIZED method keyword and SyncLevel (ACPI 2.0) method parameter.

Implemented support for the SyncLevel parameter for control methods (ACPI 2.0 feature)

Fixed a deadlock problem when multiple threads attempted to use the interpreter.

Fixed a problem where the string length of a String package element was not always set in a package returned from AcpiEvaluateObject.

Fixed a problem where the length
of a String package element was
not always included in the length of the overall package returned from AcpiEvaluateObject.

Added external interfaces (Acpi*) to the ACPI debug memory manager. This manager keeps a list of all outstanding allocations, and can therefore detect memory leaks and attempts to free memory blocks more than once. Useful for code such as the power manager, etc. May not be appropriate for device drivers. Performance with the debug code enabled is slow.

The ACPI Global Lock is now an optional hardware element.

ASL Compiler Version X2015:

Integrated changes to allow the compiler to be generated on multiple platforms.

Linux makefile added to generate the compiler on Linux

Source Code:

All platform-specific headers have been moved to their own subdirectory, Include/Platform.

New source file added, Interpreter/ammutex.c

New header file, Include/acstruct.h

Documentation:

The programmer reference has been updated for the following new interfaces: AcpiOsGetThreadId
AcpiAllocate AcpiCallocate AcpiFree

Summary of changes for this label: 02_08_01

Core ACPI CA Subsystem: Fixed a problem where an error was incorrectly returned if the return resource buffer was larger than the actual data (in the resource interfaces).

References to named objects within packages are resolved to the

full pathname string before packages are returned directly (via the AcpiEvaluateObject interface) or indirectly via the resource interfaces.

Linux OS Services Layer (OSL):

Improved /proc battery interface.

Added C-state debugging output and other miscellaneous fixes.

ASL Compiler Version X2014:

All defined method arguments can now be used as local variables, including the ones that are not actually passed in as parameters. The compiler tracks initialization of the arguments and issues an exception if they are used without prior assignment (just like locals).

The -o option now specifies a filename prefix that is used
for all
output files, including the AML output file. Otherwise, the default behavior is as follows: 1) the AML goes to the file specified in the DSDT. 2) all other output files use the input source filename as the base.

Summary of changes for this label: 01_25_01

Core ACPI CA Subsystem: Restructured the implementation of object store support within the interpreter. This includes support for the Store operator as well as any ASL operators that include a target operand.

Partially implemented support for Implicit Result-to-Target conversion. This is when a result object is converted on the fly to the type of an existing target object. Completion of this support is pending further analysis of the ACPI specification concerning this matter.

CPU-specific code has been removed from the subsystem (hardware directory).

New Power Management Timer functions added

Linux OS Services Layer (OSL): Moved system state transition code to the
core, fixed it, and modified Linux OSL accordingly.

Fixed C2 and C3 latency calculations.

We no longer use the compilation date for the version message on initialization, but retrieve the version from AcpiGetSystemInfo().

Incorporated for fix Sony VAIO machines.

Documentation: The Programmer Reference has been updated and reformatted.

ASL Compiler: Version X2013: Fixed a problem where the line numbering and error reporting could get out of sync in the presence of multiple include files.

Summary of changes for this label: 01_15_01

Core ACPI CA Subsystem:

Implemented support for type conversions in the execution of the ASL Concatenate operator (The second operand is converted to match the type of the first operand before concatenation.)

Support for implicit source operand conversion is partially implemented. The ASL source operand types Integer, Buffer, and String are freely interchangeable for most ASL operators and are converted
by the interpreter on the fly as required. Implicit Target operand conversion (where the result is converted to the target type before storing) is not yet implemented.

Support for 32-bit and 64-bit BCD integers is implemented.

Problem fixed where a field read on an aligned field could cause a
read past the end of the field.

New exception, AE_AML_NO_RETURN_VALUE, is returned when a method
does not return a value, but the caller expects one. (The ASL
compiler flags this as a warning.)

ASL Compiler:

Version X2011:
1. Static typechecking of all operands is implemented. This
prevents the use of invalid objects (such as using a Package where
an Integer is required) at compile time instead of at interpreter
run-time.
2. The ASL source line is printed with ALL errors and warnings.
3. Bug fix for source EOF without final linefeed.
4. Debug option is split into a parse trace and a namespace trace.
5. Namespace output option (-n) includes initial values for
integers and strings.
6.
 Parse-only option added for quick syntax checking.
7. Compiler checks for duplicate ACPI name declarations

Version X2012:
1. Relaxed typechecking to allow interchangeability between
strings, integers, and buffers. These types are now converted by
the interpreter at runtime.
2. Compiler reports time taken by each internal subsystem in the
debug output file.

Summary of changes for this label: 12_14_00

ASL Compiler:

This is the first official release of the compiler. Since the
compiler requires elements of the Core Subsystem, this label
synchronizes everything.

Summary of changes for this label: 12_08_00

Fixed a problem where named references within the ASL definition

of both OperationRegions and CreateXXXFields did not work
properly. The symptom was an AE_AML_OPERAND_TYPE during
initialization of the region/field. This is similar (but not
related internally) to the problem that was
 fixed in the last
label.

Implemented both 32-bit and 64-bit support for the BCD ASL
functions ToBCD and FromBCD.

Updated all legal headers to include "2000" in the copyright
years.

Summary of changes for this label: 12_01_00

Fixed a problem where method invocations within the ASL definition
of both OperationRegions and CreateXXXFields did not work
properly. The symptom was an AE_AML_OPERAND_TYPE during
initialization of the region/field:

 nsinit-0209: AE_AML_OPERAND_TYPE while getting region arguments
[DEBG]   ammonad-0284: Exec_monadic2_r/Not: bad operand(s)
(0x3005)

Fixed a problem where operators with more than one nested
subexpression would fail. The symptoms were varied, by mostly
AE_AML_OPERAND_TYPE errors. This was actually a rather serious
problem that has gone unnoticed until now.

 Subtract (Add (1,2), Multiply (3,4))

Fixed a problem where AcpiGetHandle didn't quite get fixed in the
previous build (The prefix part of a
 relative path was handled
incorrectly).

Fixed a problem where Operation Region initialization failed if
the operation region name was a "namepath" instead of a simple
"nameseg". Symptom was an AE_NO_OPERAND error.

Fixed a problem where an assignment to a local variable via the
indirect RefOf mechanism only worked for the first such
assignment. Subsequent assignments were ignored.

Summary of changes for this label: 11_15_00

ACPI 2.0 table support with backwards support for ACPI 1.0 and the 0.71 extensions. Note: although we can read ACPI 2.0 BIOS tables, the AML interpreter does NOT have support for the new 2.0 ASL grammar terms at this time.

All ACPI hardware access is via the GAS structures in the ACPI 2.0 FADT.

All physical memory addresses across all platforms are now 64 bits wide. Logical address width remains dependent on the platform (i.e., "void *").

AcpiOsMapMemory interface changed to a 64-bit physical address.

The AML interpreter
integer size is now 64 bits, as per the ACPI
2.0 specification.

For backwards compatibility with ACPI 1.0, ACPI tables with a revision number less than 2 use 32-bit integers only.

Fixed a problem where the evaluation of OpRegion operands did not always resolve them to numbers properly.

Summary of changes for this label: 10_20_00

Fix for CBN_._STA issue. This fix will allow correct access to CBN_ OpRegions when the _STA returns 0x8.

Support to convert ACPI constants (Ones, Zeros, One) to actual values before a package object is returned

Fix for method call as predicate to if/while construct causing incorrect if/while behavior

Fix for Else block package lengths sometimes calculated wrong (if block > 63 bytes)

Fix for Processor object length field, was always zero

Table load abort if FACP sanity check fails

Fix for problem with Scope(name) if name already exists

Warning emitted if a named object referenced cannot be found (resolved)

during method execution.

Summary of changes for this label: 9_29_00

New table initialization interfaces: AcpiInitializeSubsystem no longer has any parameters AcpiFindRootPointer - Find the RSDP (if necessary) AcpiLoadTables (RSDP) - load all tables found at RSDP->RSDT Obsolete Interfaces AcpiLoadFirmwareTables - replaced by AcpiLoadTables

Note: These interface changes require changes to all existing OSDs

The PCI_Config default address space handler is always installed at the root namespace object.

Summary of changes for this label: 09_15_00

The new initialization architecture is implemented. New interfaces are: AcpiInitializeSubsystem (replaces AcpiInitialize) AcpiEnableSubsystem Obsolete Interfaces: AcpiLoadNamespace

(Namespace is automatically loaded when a table is loaded)

The ACPI_OPERAND_OBJECT has been optimized to shrink its size from 52 bytes to 32 bytes. There is usually one of these for every namespace object, so the memory savings is significant.

Implemented just-in-time evaluation of the CreateField operators.

Bug fixes for IA-64 support have been integrated.

Additional code review comments have been implemented

The so-called "third pass parse" has been replaced by a final walk through the namespace to initialize all operation regions (address spaces) and fields that have not yet been initialized during the execution of the various _INI and REG methods.

New file - namespace/nsinit.c

Summary of changes for this label: 09_01_00

Namespace manager data structures have been reworked to change the primary object from a table to a single object. This has resulted in dynamic memory savings of 3X within the namespace and 2X overall in the ACPI CA subsystem.

Fixed problem where the call to AcpiEvFindPciRootBuses was inadvertently left commented out.

Reduced the warning count when generating the source with the GCC compiler.

Revision numbers added to each module header showing the SourceSafe version of the file. Please refer to this version number when giving us feedback or comments on individual modules.

The main object types within the subsystem have been renamed to clarify their purpose:

ACPI_INTERNAL_OBJECT -> ACPI_OPERAND_OBJECT
ACPI_GENERIC_OP -> ACPI_PARSE_OBJECT
ACPI_NAME_TABLE_ENTRY -> ACPI_NAMESPACE_NODE

NOTE: no changes to the initialization sequence are included in this label.

Summary of changes for this label: 08_23_00

Fixed problem where TerminateControlMethod was being called multiple times per method

Fixed debugger problem where single stepping caused a semaphore to be oversignalled

Improved performance through additional parse object caching - added ACPI_EXTENDED_OP type

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Summary of changes for this label: 08_10_00

Parser/Interpreter integration: Eliminated the creation of complete parse trees for ACPI tables and control methods. Instead, parse subtrees are created and then deleted as soon as they are processed (Either entered into the namespace or executed

by the interpreter). This reduces the use of dynamic kernel memory significantly. (about 10X)

Exception codes broken into classes and renumbered. Be sure to recompile all code that includes acexcep.h. Hopefully we won't have to renumber the codes again now that they are split into classes (environment, programmer, AML code, ACPI table, and internal).

Fixed some additional alignment issues in the Resource Manager subcomponent

Implemented semaphore tracking in the AcpiExec utility, and fixed several places where mutexes/semaphores were being unlocked without a corresponding lock operation. There are no known semaphore or mutex "leaks" at this time.

Fixed the case where an ASL Return operator is used to return an unnamed package.

Summary
of changes for this label: 07_28_00

Fixed a problem with the way addresses were calculated in AcpiAmlReadFieldData() and AcpiAmlWriteFieldData(). This problem manifested itself when a Field was created with WordAccess or DwordAccess, but the field unit defined within the Field was less

than a Word or Dword.

Fixed a problem in AmlDumpOperands() module's loop to pull operands off of the operand stack to display information. The problem manifested itself as a TLB error on 64-bit systems when accessing an operand stack with two or more operands.

Fixed a problem with the PCI configuration space handlers where context was getting confused between accesses. This required a change to the generic address space handler and address space setup definitions. Handlers now get both a global handler context (this is the one passed in by the user when executing AcpiInstallAddressSpaceHandler() and a specific region context that is unique to each region (For example, the _ADR, _SEG and _BBN
values associated with a specific region). The generic function definitions have changed to the following:

typedef ACPI_STATUS (*ADDRESS_SPACE_HANDLER) (UINT32 Function,

UINT32 Address, UINT32 BitWidth, UINT32 *Value, void
*HandlerContext, // This used to be void *Context void
*RegionContext); // This is an additional parameter

typedef ACPI_STATUS (*ADDRESS_SPACE_SETUP) (ACPI_HANDLE
RegionHandle, UINT32 Function, void *HandlerContext, void
**RegionContext); // This used to be **ReturnContext

Summary of changes for this label: 07_21_00

Major file consolidation and rename. All files within the
interpreter have been renamed as well as most header files. This
was done to prevent collisions with existing files in the host
OSs -- filenames such as "config.h" and "global.h" seem to be
quite common. The VC project files have been updated. All
makefiles will require modification.

The parser/interpreter integration continues in
Phase 5 with the
implementation of a complete 2-pass parse (the AML is parsed
twice) for each table; This avoids the construction of a huge
parse tree and therefore reduces the amount of dynamic memory
required by the subsystem. Greater use of the parse object cache
means that performance is unaffected.

Many comments from the two code reviews have been rolled in.

The 64-bit alignment support is complete.

Summary of changes for this label: 06_30_00

With a nod and a tip of the hat to the technology of yesteryear,
we've added support in the source code for 80 column output
devices. The code is now mostly constrained to 80 columns or
less to support environments and editors that 1) cannot display
or print more than 80 characters on a single line, and 2) cannot
disable line wrapping.

A major restructuring of the namespace data structure has been
completed. The result is 1) cleaner and more
understandable/maintainable code, and 2)
a significant reduction
in the dynamic memory requirement for each named ACPI object
(almost half).

Summary of changes for this label: 06_23_00

Linux support has been added. In order to obtain approval to get the ACPI CA subsystem into the Linux kernel, we've had to make quite a few changes to the base subsystem that will affect all users (all the changes are generic and OS- independent). The effects of these global changes have been somewhat far reaching. Files have been merged and/or renamed and interfaces have been renamed. The major changes are described below.

Osd* interfaces renamed to AcpiOs* to eliminate namespace pollution/confusion within our target kernels. All OSD interfaces must be modified to match the new naming convention.

Files merged across the subsystem. A number of the smaller source and header files have been merged to reduce the file count and increase the density of the existing files. There are too
many
to list here. In general, makefiles that call out individual files will require rebuilding.

Interpreter files renamed. All interpreter files now have the prefix am* instead of ie* and is*.

Header files renamed: The acapi.h file is now acpixf.h. The acpiosd.h file is now acpiosxf.h. We are removing references to the acronym "API" since it is somewhat windowsy. The new name is "external interface" or xface or xf in the filenames.j

All manifest constants have been forced to upper case (some were mixed case.) Also, the string "ACPI_" has been prepended to many (not all) of the constants, typedefs, and structs.

The globals "DebugLevel" and "DebugLayer" have been renamed "AcpiDbgLevel" and "AcpiDbgLayer" respectively.

All other globals within the subsystem are now prefixed with "AcpiGbl_" Internal procedures within the subsystem are now prefixed with "Acpi" (with only a few exceptions). The original two-letter abbreviation for the subcomponent remains after "Acpi"
-
for example, CmCallocate became AcpiCmCallocate.

Added a source code translation/conversion utility. Used to generate the Linux source code, it can be modified to generate other types of source as well. Can also be used to cleanup existing source by removing extraneous spaces and blank lines.

Found in tools/acpisrc/*

OsdUnMapMemory was renamed to OsdUnmapMemory and then AcpiOsUnmapMemory. (UnMap became Unmap).

A "MaxUnits" parameter has been added to AcpiOsCreateSemaphore. When set to one, this indicates that the caller wants to use the

semaphore as a mutex, not a counting semaphore. ACPI CA uses both types. However, implementers of this call may want to use different OS primitives depending on the type of semaphore requested. For example, some operating systems provide separate

"mutex" and "semaphore" interfaces - where the mutex interface is much faster because it doesn't have all the overhead of a full semaphore implementation.

Fixed a deadlock problem where
a method that accesses the PCI
address space can block forever if it is the first access to the space.

Summary of changes for this label: 06_02_00

Support for environments that cannot handle unaligned data accesses (e.g. firmware and OS environments devoid of alignment handler technology namely SAL/EFI and the IA-64 Linux kernel) has been added (via configurable macros) in these three areas: - Transfer of data from the raw AML byte stream is done via byte moves instead of word/dword/qword moves. - External objects are aligned within the user buffer, including package elements (sub-objects). - Conversion of name strings to UINT32 Acpi Names is now done byte-wise.

The Store operator was modified to mimic Microsoft's implementation when storing to a Buffer Field.

Added a check of the BM_STS bit before entering C3.

The methods subdirectory has been obsoleted and removed. A new file, cmeval.c subsumes the functionality.

A 16-bit
(DOS) version of AcpiExec has been developed. The makefile is under the acpiexec directory.

Found in path(s):

* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/changes.txt
No license file was found, but licenses were detected in source scan.

```
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*
* Module Name: dtparser.y - Bison input file for table compiler parser
*
*****************************************************************************/

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*
*****************************************************************************/

#include "aslcompiler.h"

#define _COMPONENT          DT_COMPILER
      ACPI_MODULE_NAME    ("dtparser")

void *                  AslLocalAllocate (unsigned int Size);

/* Bison/yacc configuration */

#undef alloca
#define alloca              AslLocalAllocate

int                     DtParserlex (void);
int                     DtParserparse (void);
void                    DtParsererror (char const *msg);
extern char             *DtParsertext;
extern DT_FIELD         *AslGbl_CurrentField;

UINT64                  DtParserResult; /*
 Expression return value */

/* Bison/yacc configuration */

#define yytname             DtParsername
#define YYDEBUG             1           /* Enable debug output */
#define YYERROR_VERBOSE     1           /* Verbose error messages */
#define YYFLAG              -32768

/* Define YYMALLOC/YYFREE to prevent redefinition errors  */
```

```
#define YYMALLOC        malloc
#define YYFREE          free
%}

%union
{
   UINT64           value;
   UINT32           op;
}

/*! [Begin] no source code translation */

%type  <value>  Expression

%token <op>    OP_EXP_EOF
%token <op>    OP_EXP_NEW_LINE
%token <op>    OP_EXP_NUMBER
%token <op>    OP_EXP_HEX_NUMBER
%token <op>    OP_EXP_DECIMAL_NUMBER
%token <op>    OP_EXP_LABEL
%token <op>    OP_EXP_PAREN_OPEN
%token <op>    OP_EXP_PAREN_CLOSE

%left <op>     OP_EXP_LOGICAL_OR
%left <op>     OP_EXP_LOGICAL_AND
%left <op>     OP_EXP_OR
%left <op>     OP_EXP_XOR
%left <op>     OP_EXP_AND
%left <op>     OP_EXP_EQUAL
 OP_EXP_NOT_EQUAL
%left <op>     OP_EXP_GREATER OP_EXP_LESS OP_EXP_GREATER_EQUAL OP_EXP_LESS_EQUAL
%left <op>     OP_EXP_SHIFT_RIGHT OP_EXP_SHIFT_LEFT
%left <op>     OP_EXP_ADD OP_EXP_SUBTRACT
%left <op>     OP_EXP_MULTIPLY OP_EXP_DIVIDE OP_EXP_MODULO
%right <op>    OP_EXP_ONES_COMPLIMENT OP_EXP_LOGICAL_NOT

%%

/*
*  Operator precedence rules (from K&R)
*
*  1)     ( )
*  2)     ! ~ (unary operators that are supported here)
*  3)     *   /   %
*  4)     +   -
*  5)     >>  <<
*  6)     <   >   <=  >=
```

```
* 7)     == !=
* 8)     &
* 9)     ^
* 10)    |
* 11)    &&
* 12)    ||
*/
Value
  : Expression OP_EXP_NEW_LINE                { DtParserResult=$1; return 0; } /* End of line (newline) */
  | Expression OP_EXP_EOF                     { DtParserResult=$1; return 0; } /* End of string (0) */
  ;

Expression

    /* Unary operators */

  : OP_EXP_LOGICAL_NOT        Expression        { $$ = DtDoOperator ($2, OP_EXP_LOGICAL_NOT,
   $2);}
  | OP_EXP_ONES_COMPLIMENT    Expression        { $$ = DtDoOperator ($2,
OP_EXP_ONES_COMPLIMENT, $2);}

    /* Binary operators */

  | Expression OP_EXP_MULTIPLY        Expression  { $$ = DtDoOperator ($1, OP_EXP_MULTIPLY,       $3);}
  | Expression OP_EXP_DIVIDE          Expression  { $$ = DtDoOperator ($1, OP_EXP_DIVIDE,         $3);}
  | Expression OP_EXP_MODULO          Expression  { $$ = DtDoOperator ($1, OP_EXP_MODULO,         $3);}
  | Expression OP_EXP_ADD             Expression  { $$ = DtDoOperator ($1, OP_EXP_ADD,            $3);}
  | Expression OP_EXP_SUBTRACT        Expression  { $$ = DtDoOperator ($1, OP_EXP_SUBTRACT,
$3);}
  | Expression OP_EXP_SHIFT_RIGHT     Expression  { $$ = DtDoOperator ($1, OP_EXP_SHIFT_RIGHT,
$3);}
  | Expression OP_EXP_SHIFT_LEFT      Expression  { $$ = DtDoOperator ($1, OP_EXP_SHIFT_LEFT,     $3);}
  | Expression OP_EXP_GREATER         Expression  { $$ = DtDoOperator ($1, OP_EXP_GREATER,
     $3);}
  | Expression OP_EXP_LESS            Expression  { $$ = DtDoOperator ($1, OP_EXP_LESS,           $3);}
  | Expression OP_EXP_GREATER_EQUAL   Expression  { $$ = DtDoOperator ($1,
OP_EXP_GREATER_EQUAL,   $3);}
  | Expression OP_EXP_LESS_EQUAL      Expression  { $$ = DtDoOperator ($1, OP_EXP_LESS_EQUAL,
$3);}
  | Expression OP_EXP_EQUAL           Expression  { $$ = DtDoOperator ($1, OP_EXP_EQUAL,          $3);}
  | Expression OP_EXP_NOT_EQUAL       Expression  { $$ = DtDoOperator ($1, OP_EXP_NOT_EQUAL,
$3);}
  | Expression OP_EXP_AND             Expression  { $$ = DtDoOperator ($1, OP_EXP_AND,            $3);}
  | Expression OP_EXP_XOR             Expression  { $$ = DtDoOperator ($1, OP_EXP_XOR,            $3);}
  | Expression OP_EXP_OR              Expression  { $$ = DtDoOperator ($1, OP_EXP_OR,             $3);}
  | Expression OP_EXP_LOGICAL_AND     Expression  { $$ = DtDoOperator ($1, OP_EXP_LOGICAL_AND,
$3);}
  | Expression
```

```
 OP_EXP_LOGICAL_OR       Expression  { $$ = DtDoOperator ($1, OP_EXP_LOGICAL_OR,      $3);}

    /* Parentheses: '(' Expression ')' */

  | OP_EXP_PAREN_OPEN         Expression
     OP_EXP_PAREN_CLOSE                      { $$ = $2;}

    /* Label references (prefixed with $) */

  | OP_EXP_LABEL                          { $$ = DtResolveLabel (DtParsertext);}

    /*
     * All constants for the data table compiler are in hex, whether a (optional) 0x
     * prefix is present or not. For example, these two input strings are equivalent:
     *    1234
     *    0x1234
     */

    /* Non-prefixed hex number */

  | OP_EXP_NUMBER                         { $$ = DtDoConstant (DtParsertext);}

    /* Standard hex number (0x1234) */

  | OP_EXP_HEX_NUMBER                     { $$ = DtDoConstant (DtParsertext);}

    /* Possible TBD: Decimal number with prefix (0d1234) - Not supported this time */

  | OP_EXP_DECIMAL_NUMBER
                  { $$ = DtDoConstant (DtParsertext);}
  ;
%%

/*! [End] no source code translation !*/

/*
* Local support functions, including parser entry point
*/
#define PR_FIRST_PARSE_OPCODE   OP_EXP_EOF
#define PR_YYTNAME_START        3


/******************************************************************************
*
* FUNCTION:    DtParsererror
*
* PARAMETERS:  Message             - Parser-generated error message
*
```

```
* RETURN:      None
*
* DESCRIPTION: Handler for parser errors
*
*****************************************************************************/

void
DtParsererror (
  char const             *Message)
{
  DtError (ASL_ERROR, ASL_MSG_SYNTAX,
     AslGbl_CurrentField, (char *) Message);
}


/*******************************************************************************
*
* FUNCTION:    DtGetOpName
*
* PARAMETERS:  ParseOpcode         - Parser token (OP_EXP_*)
*
* RETURN:      Pointer to the opcode name
*
* DESCRIPTION: Get the ascii
 name of the parse opcode for debug output
*
*****************************************************************************/

char *
DtGetOpName (
  UINT32                 ParseOpcode)
{
#ifdef ASL_YYTNAME_START
  /*
   * First entries (PR_YYTNAME_START) in yytname are special reserved names.
   * Ignore first 6 characters of name (OP_EXP_)
   */
  return ((char *) yytname
     [(ParseOpcode - PR_FIRST_PARSE_OPCODE) + PR_YYTNAME_START] + 6);
#else
  return ("[Unknown parser generator]");
#endif
}


/*******************************************************************************
*
* FUNCTION:    DtEvaluateExpression
```

```
*
* PARAMETERS:  ExprString          - Expression to be evaluated. Must be
*                                    terminated by either a newline or a NUL
*                                    string terminator
*
* RETURN:      64-bit value for the expression
*
* DESCRIPTION: Main entry point for the DT expression parser
*
*****************************************************************************/

UINT64
DtEvaluateExpression
(
  char                *ExprString)
{

  DbgPrint (ASL_DEBUG_OUTPUT,
     "**** Input expression: %s  (Base 16)\n", ExprString);

  /* Point lexer to the input string */

  if (DtInitLexer (ExprString))
  {
     DtError (ASL_ERROR, ASL_MSG_COMPILER_INTERNAL,
        AslGbl_CurrentField, "Could not initialize lexer");
     return (0);
  }

  /* Parse/Evaluate the input string (value returned in DtParserResult) */

  DtParserparse ();
  DtTerminateLexer ();

  DbgPrint (ASL_DEBUG_OUTPUT,
     "**** Parser returned value: %u (%8.8X%8.8X)\n",
     (UINT32) DtParserResult, ACPI_FORMAT_UINT64 (DtParserResult));

  return (DtParserResult);
}
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtparser.y
No license file was found, but licenses were detected in source scan.

```
NoEcho('
/*****************************************************************************
```

*
* Module Name: asltypes.y - Bison/Yacc production types/names
*
***/

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```
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*
*****************************************************************************/

')

/*****************************************************************************
*
* Production names
*
*****************************************************************************/

%type <n> ArgList
%type <n> AslCode
%type <n> BufferData
%type <n> BufferTermData
%type <n> CompilerDirective
%type <n> DataObject
%type <n> DefinitionBlockTerm
%type <n> DefinitionBlockList
%type <n> IntegerData
%type <n> NamedObject
%type <n> NameSpaceModifier
%type <n> Object
%type <n> PackageData
%type <n> ParameterTypePackage
%type <n> ParameterTypePackageList
%type <n>
 ParameterTypesPackage
%type <n> ParameterTypesPackageList
%type <n> RequiredTarget
%type <n> SimpleName
%type <n> StringData
%type <n> StringLiteral
%type <n> Target
%type <n> Term
%type <n> TermArg
%type <n> TermList
%type <n> MethodInvocationTerm
```

```
/* Type4Opcode is obsolete */

%type <n> Type1Opcode
%type <n> Type2BufferOpcode
%type <n> Type2BufferOrStringOpcode
%type <n> Type2IntegerOpcode
%type <n> Type2Opcode
%type <n> Type2StringOpcode
%type <n> Type3Opcode
%type <n> Type5Opcode
%type <n> Type6Opcode

%type <n> AccessAsTerm
%type <n> ExternalTerm
%type <n> FieldUnit
%type <n> FieldUnitEntry
%type <n> FieldUnitList
%type <n> IncludeTerm
%type <n> OffsetTerm
%type <n> OptionalAccessAttribTerm

/* Named Objects */

%type <n> BankFieldTerm
%type <n> CreateBitFieldTerm
%type <n> CreateByteFieldTerm
%type <n> CreateDWordFieldTerm
%type <n> CreateFieldTerm
%type <n> CreateQWordFieldTerm
%type <n> CreateWordFieldTerm
%type <n> DataRegionTerm
%type <n> DeviceTerm
%type <n> EventTerm
%type
 <n> FieldTerm
%type <n> FunctionTerm
%type <n> IndexFieldTerm
%type <n> MethodTerm
%type <n> MutexTerm
%type <n> OpRegionTerm
%type <n> OpRegionSpaceIdTerm
%type <n> PowerResTerm
%type <n> ProcessorTerm
%type <n> ThermalZoneTerm

/* Namespace modifiers */
```

```
%type <n> AliasTerm
%type <n> NameTerm
%type <n> ScopeTerm

/* Type 1 opcodes */

%type <n> BreakPointTerm
%type <n> BreakTerm
%type <n> CaseDefaultTermList
%type <n> CaseTerm
%type <n> ContinueTerm
%type <n> DefaultTerm
%type <n> ElseTerm
%type <n> FatalTerm
%type <n> ElseIfTerm
%type <n> IfTerm
%type <n> LoadTerm
%type <n> NoOpTerm
%type <n> NotifyTerm
%type <n> ReleaseTerm
%type <n> ResetTerm
%type <n> ReturnTerm
%type <n> SignalTerm
%type <n> SleepTerm
%type <n> StallTerm
%type <n> SwitchTerm
%type <n> UnloadTerm
%type <n> WhileTerm
/* %type <n> CaseTermList */

/* Type 2 opcodes */

%type <n> AcquireTerm
%type <n> AddTerm
%type <n> AndTerm
%type <n> ConcatResTerm
%type <n> ConcatTerm
%type <n> CondRefOfTerm
%type <n> CopyObjectTerm
%type
 <n> DecTerm
%type <n> DerefOfTerm
%type <n> DivideTerm
%type <n> FindSetLeftBitTerm
%type <n> FindSetRightBitTerm
%type <n> FromBCDTerm
%type <n> IncTerm
%type <n> IndexTerm
```

%type <n> LAndTerm
%type <n> LEqualTerm
%type <n> LGreaterEqualTerm
%type <n> LGreaterTerm
%type <n> LLessEqualTerm
%type <n> LLessTerm
%type <n> LNotEqualTerm
%type <n> LNotTerm
%type <n> LoadTableTerm
%type <n> LOrTerm
%type <n> MatchTerm
%type <n> MidTerm
%type <n> ModTerm
%type <n> MultiplyTerm
%type <n> NAndTerm
%type <n> NOrTerm
%type <n> NotTerm
%type <n> ObjectTypeTerm
%type <n> OrTerm
%type <n> RawDataBufferTerm
%type <n> RefOfTerm
%type <n> ShiftLeftTerm
%type <n> ShiftRightTerm
%type <n> SizeOfTerm
%type <n> StoreTerm
%type <n> SubtractTerm
%type <n> TimerTerm
%type <n> ToBCDTerm
%type <n> ToBufferTerm
%type <n> ToDecimalStringTerm
%type <n> ToHexStringTerm
%type <n> ToIntegerTerm
%type <n> ToStringTerm
%type <n> WaitTerm
%type <n> XOrTerm

/* Keywords */

%type <n> AccessAttribKeyword
%type <n>
AccessTypeKeyword
%type <n> AddressingModeKeyword
%type <n> AddressKeyword
%type <n> AddressSpaceKeyword
%type <n> BitsPerByteKeyword
%type <n> ClockPhaseKeyword
%type <n> ClockPolarityKeyword
%type <n> DecodeKeyword

```
%type <n> DevicePolarityKeyword
%type <n> DMATypeKeyword
%type <n> EndianKeyword
%type <n> FlowControlKeyword
%type <n> InterruptLevel
%type <n> InterruptTypeKeyword
%type <n> IODecodeKeyword
%type <n> IoRestrictionKeyword
%type <n> LockRuleKeyword
%type <n> MatchOpKeyword
%type <n> MaxKeyword
%type <n> MemTypeKeyword
%type <n> MinKeyword
%type <n> ObjectTypeKeyword
%type <n> OptionalBusMasterKeyword
%type <n> OptionalReadWriteKeyword
%type <n> ParityTypeKeyword
%type <n> PinConfigByte
%type <n> PinConfigKeyword
%type <n> RangeTypeKeyword
%type <n> RegionSpaceKeyword
%type <n> ResourceTypeKeyword
%type <n> SerializeRuleKeyword
%type <n> ShareTypeKeyword
%type <n> SlaveModeKeyword
%type <n> StopBitsKeyword
%type <n> TranslationKeyword
%type <n> TypeKeyword
%type <n> UpdateRuleKeyword
%type
 <n> WireModeKeyword
%type <n> XferSizeKeyword
%type <n> XferTypeKeyword

/* Types */

%type <n> SuperName
%type <n> ObjectTypeSource
%type <n> DerefOfSource
%type <n> RefOfSource
%type <n> CondRefOfSource
%type <n> ArgTerm
%type <n> LocalTerm
%type <n> DebugTerm

%type <n> Integer
%type <n> ByteConst
%type <n> WordConst
```

```
%type <n> DWordConst
%type <n> QWordConst
%type <n> String

%type <n> ConstTerm
%type <n> ConstExprTerm
%type <n> ByteConstExpr
%type <n> WordConstExpr
%type <n> DWordConstExpr
%type <n> QWordConstExpr

%type <n> DWordList
%type <n> BufferTerm
%type <n> ByteList

%type <n> PackageElement
%type <n> PackageList
%type <n> PackageTerm

/* Macros */

%type <n> EISAIDTerm
%type <n> ResourceMacroList
%type <n> ResourceMacroTerm
%type <n> ResourceTemplateTerm
%type <n> PldKeyword
%type <n> PldKeywordList
%type <n> ToPLDTerm
%type <n> ToUUIDTerm
%type <n> UnicodeTerm
%type <n> PrintfArgList
%type <n> PrintfTerm
%type <n> FprintfTerm
%type <n> ForTerm

/* Resource
 Descriptors */

%type <n> ConnectionTerm
%type <n> DMATerm
%type <n> DWordIOTerm
%type <n> DWordMemoryTerm
%type <n> DWordSpaceTerm
%type <n> EndDependentFnTerm
%type <n> ExtendedIOTerm
%type <n> ExtendedMemoryTerm
%type <n> ExtendedSpaceTerm
%type <n> FixedDmaTerm
```

%type <n> FixedIOTerm
%type <n> GpioIntTerm
%type <n> GpioIoTerm
%type <n> I2cSerialBusTerm
%type <n> I2cSerialBusTermV2
%type <n> InterruptTerm
%type <n> IOTerm
%type <n> IRQNoFlagsTerm
%type <n> IRQTerm
%type <n> Memory24Term
%type <n> Memory32FixedTerm
%type <n> Memory32Term
%type <n> NameSeg
%type <n> NameString
%type <n> PinConfigTerm
%type <n> PinFunctionTerm
%type <n> PinGroupTerm
%type <n> PinGroupConfigTerm
%type <n> PinGroupFunctionTerm
%type <n> QWordIOTerm
%type <n> QWordMemoryTerm
%type <n> QWordSpaceTerm
%type <n> RegisterTerm
%type <n> SpiSerialBusTerm
%type <n> SpiSerialBusTermV2
%type <n> StartDependentFnNoPriTerm
%type <n> StartDependentFnTerm
%type <n> UartSerialBusTerm
%type <n> UartSerialBusTermV2
%type
 <n> VendorLongTerm
%type <n> VendorShortTerm
%type <n> WordBusNumberTerm
%type <n> WordIOTerm
%type <n> WordSpaceTerm

/* Local types that help construct the AML, not in ACPI spec */

%type <n> AmlPackageLengthTerm
%type <n> IncludeEndTerm
%type <n> NameStringItem
%type <n> TermArgItem

%type <n> OptionalAccessSize
%type <n> OptionalAccessTypeKeyword
%type <n> OptionalAddressingMode
%type <n> OptionalAddressRange
%type <n> OptionalBitsPerByte

%type <n> OptionalBuffer_Last
%type <n> OptionalByteConstExpr
%type <n> OptionalCount
%type <n> OptionalDataCount
%type <n> OptionalDecodeType
%type <n> OptionalDevicePolarity
%type <n> OptionalDWordConstExpr
%type <n> OptionalEndian
%type <n> OptionalFlowControl
%type <n> OptionalIoRestriction
%type <n> OptionalListString
%type <n> OptionalLockRuleKeyword
%type <n> OptionalMaxType
%type <n> OptionalMemType
%type <n> OptionalMinType
%type <n> OptionalNameString
%type <n> OptionalNameString_First
%type <n> OptionalNameString_Last
%type <n> OptionalObjectTypeKeyword
%type
<n> OptionalParameterTypePackage
%type <n> OptionalParameterTypesPackage
%type <n> OptionalParentheses
%type <n> OptionalParityType
%type <n> OptionalPredicate
%type <n> OptionalQWordConstExpr
%type <n> OptionalRangeType
%type <n> OptionalReference
%type <n> OptionalResourceType
%type <n> OptionalResourceType_First
%type <n> OptionalProducerResourceType
%type <n> OptionalReturnArg
%type <n> OptionalSerializeRuleKeyword
%type <n> OptionalShareType
%type <n> OptionalShareType_First
%type <n> OptionalSlaveMode
%type <n> OptionalStopBits
%type <n> OptionalStringData
%type <n> OptionalSyncLevel
%type <n> OptionalTermArg
%type <n> OptionalTranslationType_Last
%type <n> OptionalType
%type <n> OptionalType_Last
%type <n> OptionalUpdateRuleKeyword
%type <n> OptionalWireMode
%type <n> OptionalWordConst
%type <n> OptionalWordConstExpr
%type <n> OptionalXferSize

```
/*
* ASL+ (C-style) parser
*/

/* Expressions and symbolic operators */

%type <n> Expression
%type <n> EqualsTerm
%type
 <n> IndexExpTerm

/* ASL+ Named object declaration support */
/*
%type <n> NameTermAslPlus

%type <n> BufferBegin
%type <n> BufferEnd
%type <n> PackageBegin
%type <n> PackageEnd
%type <n> OptionalLength
*/
/* ASL+ Structure declarations */
/*
%type <n> StructureTerm
%type <n> StructureTermBegin
%type <n> StructureType
%type <n> StructureTag
%type <n> StructureElementList
%type <n> StructureElement
%type <n> StructureElementType
%type <n> OptionalStructureElementType
%type <n> StructureId
*/
/* Structure instantiantion */
/*
%type <n> StructureInstanceTerm
%type <n> StructureTagReference
%type <n> StructureInstanceEnd
*/
/* Pseudo-instantiantion for method Args/Locals */
/*
%type <n> MethodStructureTerm
%type <n> LocalStructureName
*/
/* Direct structure references via the Index operator */
/*
%type <n> StructureReference
```

%type <n> StructureIndexTerm
%type <n> StructurePointerTerm
%type <n> StructurePointerReference
%type <n> OptionalDefinePointer
*/

Found in path(s):
*
/opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asltypes.y
No license file was found, but licenses were detected in source scan.

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*/

//
//
// Grammar.asl - Minimally exercises most ASL constructs
//
// NOTE -- use: iasl -f -of grammar.asl to compile

```
//
//      This 1) Ignores errors (checks compiler error handling)
//           2) Disables constant folding
//
//

/*****************************************************************************
Compilation should look like
 this:

C:\acpica\tests\misc>iasl -f -of grammar.asl

Intel ACPI Component Architecture
ASL Optimizing Compiler version 20090422 [Apr 22 2009]
Copyright (C) 2000 - 2009 Intel Corporation
Supports ACPI Specification Revision 3.0a

grammar.asl   187:    Name (_NPK, Package (8)
Warning  1098 -             ^ Unknown reserved name (_NPK)

grammar.asl   510:    NAME (ESC1, "abcdefg\x00hijklmn")
Warning  1042 -                       ^ Invalid Hex/Octal Escape - Non-ASCII or NULL

grammar.asl   511:    NAME (ESC2, "abcdefg\000hijklmn")
Warning  1042 -                       ^ Invalid Hex/Octal Escape - Non-ASCII or NULL

grammar.asl   601:    Method (RCIV, 1)
Warning  1087 -             ^ Not all control paths return a value (RCIV)

grammar.asl   608:        RCIV (Subtract (Arg0, 1))
Remark   5073 -           ^ Recursive method call (RCIV)

grammar.asl   937:    Method (_ERR, 2)
Warning  1077 -             ^ Reserved method has too few arguments (_ERR
 requires 3)

grammar.asl  1377:        Store (0x1234567887654321, QWD2)
Warning  1032 -                       ^ 64-bit integer in 32-bit table, truncating

grammar.asl  1379:        if (LNotEqual (Local0, 0x1234567887654321))
Warning  1032 -        64-bit integer in 32-bit table, truncating ^

grammar.asl  1459:        SizeOf (BUFO)
Warning  1105 -                 ^ Result is not used, operator has no effect

grammar.asl  1485:        Acquire (MTX2, 1)
Warning  1104 -                   ^ Possible operator timeout is ignored
```

```
grammar.asl  1633:        Add (Local0, Local1)
Warning  1105 -                  ^ Result is not used, operator has no effect

grammar.asl  1804:    Method (COND)
Warning  1087 -               ^ Not all control paths return a value (COND)

grammar.asl  6010:           Name (_HID, "*PNP0A06")
Error    4001 -                        ^ String must be entirely alphanumeric (*PNP0A06)

grammar.asl  6461:
  Name (_CRS, Buffer(26)  {"\_SB_.PCI2._CRS....."})
Warning  1038 -       Invalid or unknown escape sequence ^

grammar.asl  6800:              And (Local0, 1, Local0) //  Local0 &= 1
Error    4050 -                    ^ Method local variable is not initialized (Local0)

grammar.asl  6886:           Name (_HID, "*PNP0C0A")     //  Control Method Battey ID
Error    4001 -                        ^ String must be entirely alphanumeric (*PNP0C0A)

ASL Input:  grammar.asl - 10254 lines, 322162 bytes, 4810 keywords
AML Output: grammar.aml - 43392 bytes, 669 named objects, 4141 executable opcodes

Compilation complete. 3 Errors, 12 Warnings, 1 Remarks, 1101 Optimizations

*******************************************************************************************************
******/

DefinitionBlock (
   "grammar.aml",      //Output filename
   "DSDT",             //Signature
   0x01,               //DSDT Revision ---> 32-bit table
   "Intel",            //OEMID

 "GRMTEST",          //TABLE ID
   0x20090511          //OEM Revision
   )
{

   External (\ABCD, UnknownObj)


   /* Device with _STA and _INI */

   Device (A1)
   {
      Method (_STA)
      {
         Return (0x0F)
```

```
    }

    Method (_INI)
    {
        Return
    }
}

/* Device with no _STA, has _INI */

Device (A2)
{
    Method (_INI)
    {
        Return
    }
}

/* Device with _STA, no _INI */

Device (A3)
{
    Method (_STA)
    {
        Return (0x0F)
    }
}

/* Device with _STA and _INI, but not present */

Device (A4)
{
    Method (_STA)
    {
        Return (Zero)
    }

    Method (_INI)
    {
        Return
    }
}


/* Resource descriptors */

Device (IRES)
{
```

```
    Name (PRT0, ResourceTemplate ()
    {
      IRQ (Edge, ActiveHigh, Exclusive) {3,4,5,6,7,9,10,11,14,15}

      StartDependentFn (1,1)
       {
         IRQNoFlags () {0,1,2}
      }
      EndDependentFn ()
    })

    Method (_CRS, 0, NotSerialized)
    {
      Store ("_CRS:", Debug)
      Store (PRT0, Debug)
      Return (PRT0)
    }

    Method (_SRS, 1, Serialized)
    {
      Store ("_SRS:", Debug)
      Store (Arg0, Debug)
      Return (Zero)
    }
}

Name (_NPK, Package ()
{
   0x1111,
   0x2222,
   0x3333,
   0x4444
})


Device (RES)
{
   Name (_PRT, Package (0x04)
   {
      Package (0x04)
      {
         0x0002FFFF,
         Zero,
         Zero,
         Zero
      },

      Package (0x04)
```

```
        {
          0x0002FFFF,
          One,
          Zero,
          Zero
        },

        Package (0x04)
        {
          0x000AFFFF,
          Zero,

Zero,
          Zero
        },

        Package (0x04)
        {
          0x000BFFFF,
          Zero,
          Zero,
          Zero
        }
    })

    Method (_CRS, 0, Serialized)
    {
      Name (PRT0, ResourceTemplate ()
      {
        WordBusNumber (ResourceConsumer, MinFixed, MaxFixed, SubDecode,
          0x0000, // Address Space Granularity
          0xFFF2, // Address Range Minimum
          0xFFF3, // Address Range Maximum
          0x0032, // Address Translation Offset
          0x0002,,,)
        WordBusNumber (ResourceProducer, MinFixed, MaxFixed, PosDecode,
          0x0000, // Address Space Granularity
          0x0000, // Address Range Minimum
          0x00FF, // Address Range Maximum
          0x0000, // Address Translation Offset
          0x0100,,,)
        WordSpace (0xC3,
ResourceConsumer, PosDecode, MinFixed, MaxFixed, 0xA5,
          0x0000, // Address Space Granularity
          0xA000, // Address Range Minimum
          0xBFFF, // Address Range Maximum
          0x0000, // Address Translation Offset
          0x2000,,,)
```

```
            IO (Decode16, 0x0CF8, 0x0CFF, 0x01, 0x08)
            WordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
              0x0000, // Address Space Granularity
              0x0000, // Address Range Minimum
              0x0CF7, // Address Range Maximum
              0x0000, // Address Translation Offset
              0x0CF8,,,
              , TypeStatic)
            WordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
              0x0000, // Address Space Granularity
              0x0D00, // Address Range Minimum
              0xFFFF, // Address Range Maximum

          0x0000, // Address Translation Offset
              0xF300,,,
              , TypeStatic)
            DWordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
              0x00000000, // Address Space Granularity
              0x00000000, // Address Range Minimum
              0x00000CF7, // Address Range Maximum
              0x00000000, // Address Translation Offset
              0x00000CF8,,,
              , TypeStatic)
            DWordMemory (ResourceProducer, PosDecode, MinFixed, MaxFixed, Cacheable, ReadWrite,
              0x00000000, // Address Space Granularity
              0x000C8000, // Address Range Minimum
              0x000EFFFF, // Address Range Maximum
              0x00000000, // Address Translation Offset
              0x00028000,,,
              , AddressRangeMemory, TypeStatic)
            DWordSpace (0xC3, ResourceConsumer, PosDecode, MinFixed,
MaxFixed, 0xA5,
              0x00000000, // Address Space Granularity
              0x000C8000, // Address Range Minimum
              0x000EFFFF, // Address Range Maximum
              0x00000000, // Address Translation Offset
              0x00028000,,,)
            QWordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
              0x0000000000000000, // Address Space Granularity
              0x0000000000000000, // Address Range Minimum
              0x0000000000000CF7, // Address Range Maximum
              0x0000000000000000, // Address Translation Offset
              0x0000000000000CF8, 0x44, "This is a ResouceSource string",
              , TypeStatic)
            QWordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
              0x0000000000000000, // Address Space Granularity
              0x0000000000000000, // Address Range Minimum
```

```
0x0000000000000CF7, // Address Range Maximum
            0x0000000000000000, // Address Translation Offset
            0x0000000000000CF8,,,
            , TypeStatic)
          QWordMemory (ResourceProducer, PosDecode, MinFixed, MaxFixed, Cacheable, ReadWrite,
            0x0000000000000000, // Address Space Granularity
            0x0000000000100000, // Address Range Minimum
            0x00000000FFDFFFFF, // Address Range Maximum
            0x0000000000000000, // Address Translation Offset
            0x00000000FFD00000,,,
            , AddressRangeMemory, TypeStatic)
          QWordSpace (0xC3, ResourceConsumer, PosDecode, MinFixed, MaxFixed, 0xA5,
            0x0000000000000000, // Address Space Granularity
            0x0000000000000000, // Address Range Minimum
            0x0000000000000CF7, // Address Range Maximum
            0x0000000000000000, // Address Translation
Offset
            0x0000000000000CF8,,,)
          ExtendedIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
            0x0000000000000000, // Address Space Granularity
            0x0000000000000000, // Address Range Minimum
            0x0000000000000CF7, // Address Range Maximum
            0x0000000000000000, // Address Translation Offset
            0x0000000000000CF8, // Address Length
            0x0000000000000000, // Type Specific Attributes
            , TypeStatic)
          ExtendedMemory (ResourceProducer, PosDecode, MinFixed, MaxFixed, Cacheable, ReadWrite,
            0x0000000000000000, // Address Space Granularity
            0x0000000000100000, // Address Range Minimum
            0x00000000FFDFFFFF, // Address Range Maximum
            0x0000000000000000, // Address Translation Offset
            0x00000000FFD00000, // Address
Length
            0x0000000000000000, // Type Specific Attributes
            , AddressRangeMemory, TypeStatic)
          ExtendedSpace (0xC3, ResourceProducer, PosDecode, MinFixed, MaxFixed, 0xA3,
            0x0000000000000000, // Address Space Granularity
            0x0000000000100000, // Address Range Minimum
            0x00000000FFDFFFFF, // Address Range Maximum
            0x0000000000000000, // Address Translation Offset
            0x00000000FFD00000, // Address Length
            0x0000000000000000) // Type Specific Attributes
          IO (Decode16, 0x0010, 0x0020, 0x01, 0x10)
          IO (Decode16, 0x0090, 0x00A0, 0x01, 0x10)
          FixedIO (0x0061, 0x01)
          IRQNoFlags () {2}
          DMA (Compatibility, BusMaster, Transfer8_16) {4}
          DMA (Compatibility, BusMaster, Transfer8) {2,5,7}
```

```
            Memory32Fixed (ReadWrite, 0x00100000, 0x00000000)
             Memory32Fixed (ReadOnly, 0xFFFE0000, 0x00020000)
            Memory32 (ReadOnly, 0x00020000, 0xFFFE0000, 0x00000004, 0x00000200)
            Memory24 (ReadOnly, 0x1111, 0x2222, 0x0004, 0x0200)
            Interrupt (ResourceConsumer, Level, ActiveLow, Exclusive, 0xE, "\\_SB_.TEST")
            {
               0x00000E01,
            }
            Interrupt (ResourceConsumer, Edge, ActiveHigh, Exclusive, 0x6, "xxxx")
            {
               0x00000601,
               0x00000003,
               0x00000002,
               0x00000001,
            }
            Interrupt (ResourceProducer, Edge, ActiveHigh, Exclusive)
            {
               0xFFFF0000,
               0x00000003,
               0x00000002,
               0x00000001,
               0x00000005,
               0x00000007,
               0x00000009,
            }
            VendorShort () {0x01,
0x02, 0x03}
            VendorLong ()
            {
               0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08,
               0x09
            }
            Register (SystemIO, 0x08, 0x00, 0x00000000000000B2, , R000)
            Register (SystemMemory, 0x08, 0x00, 0x00000000000000B2)
            StartDependentFnNoPri ()
            {
               IRQNoFlags () {0,1,2}
               IRQ (Level, ActiveLow, Shared) {3,4,5,6,7,9,10,11,14,15}
            }
            EndDependentFn ()
         })
         CreateWordField (PRT0, 0x08, BMIN)
         CreateByteField (PRT0, R000._ASZ, RSIZ)
         Store (0x03, BMIN)
         Return (PRT0)
      }

      Method (_PRS, 0, Serialized)
```

```
    {
      Name (BUF0, ResourceTemplate ()
      {
        StartDependentFn (0x01, 0x02)
        {
          IO (Decode16, 0x03D8, 0x03F8, 0x01, 0x08)
          IRQNoFlags ()
{4}
        }
        StartDependentFn (0x02, 0x01)
        {
          IO (Decode16, 0x03D8, 0x03E8, 0x01, 0x08)
          IRQNoFlags () {4}
        }
        StartDependentFn (0x00, 0x02)
        {
          IO (Decode16, 0x02E8, 0x02F8, 0x01, 0x08)
          IRQNoFlags () {3}
        }
        StartDependentFn (0x00, 0x02)
        {
          IO (Decode16, 0x02D8, 0x02E8, 0x01, 0x08)
          IRQNoFlags () {3}
        }
        StartDependentFn (0x02, 0x00)
        {
          IO (Decode16, 0x0100, 0x03F8, 0x08, 0x08)
          IRQNoFlags () {1,3,4,5,6,7,8,10,11,12,13,14,15}
        }
        EndDependentFn ()
      })
      Return (BUF0)
    }

    Method (_SRS, 1, Serialized)
    {
      Return (Zero)
    }
  }


  Name(\_S0,Package(0x04){
    0x00,
     0x00,
    0x00,
    0x00
  })
  Name(\_S3,Package(0x04){
```

```
    0x05,
    0x05,
    0x00,
    0x00
  })
  Name(\_S4,Package(0x04){
    0x06,
    0x06,
    0x00,
    0x00
  })
  Name(\_S5,Package(0x04){
    0x07,
    0x07,
    0x00,
    0x00
  })

/* Examine this table header (DSDT) */

/*
  DataTableRegion (HDR, "DSDT", "", "")
  Field (HDR, AnyAcc, NoLock, Preserve)
  {
    SIG,  32,
    LENG, 32,
    REV,  8,
    SUM,  8,
    OID,  48,
    OTID, 64,
    OREV, 32,
    CID,  32,
    CREV, 32
  }

  Method (SIZE)
  {
    If (LLess (REV, 2))
    {
      Store ("32-bit table", Debug)
    }
    else
    {
      Store ("64-bit table", Debug)
    }
    Return (0)
  }
```

```
*/
  Name (SIZE, 0)

  /* Custom operation region */

  OperationRegion(MYOP,0x80,0xFD60,0x6)
  Field(MYOP,ByteAcc,NoLock,Preserve)
  {
     MFLD,8

  }

  Method (TCOP,, Serialized)
  {
     Name (_STR, Unicode ("test"))
     Store (4, MFLD)
     Store (MFLD, Local0)
  }

  Name (ERRS, 0x0)

  /* Warning should be issued for premature string termination */

  NAME (ESC1, "abcdefg\x00hijklmn")
  NAME (ESC2, "abcdefg\000hijklmn")
  Name (ESC3, "abc\a\bdef\f\n\r\t\v\x03ffff\432")


  Name(CRSA,ResourceTemplate()
  {
WORDBusNumber(ResourceProducer,MinFixed,MaxFixed,PosDecode,0x0000,0x0019,0x001D,0x0000,0x0005)
WORDIO(ResourceProducer,MinFixed,MaxFixed,PosDecode,NonISAOnlyRanges,0x0000,0xC000,0xCFFF,0x000
0,0x1000)
DWORDMemory(ResourceProducer,PosDecode,MinFixed,MaxFixed,NonCacheable,ReadWrite,0x00000000,0xD8
000000,0xDBFFFFFF,0x00000000,0x04000000)

  })
  Name(CRSB,ResourceTemplate()
  {
DWORDMemory(ResourceProducer,PosDecode,MinFixed,MaxFixed,NonCacheable,ReadWrite,0x00000000,0xD8
000000,0xDBFFFFFF,0x00000000,0x04000000)

  })

  Name(CRSC,ResourceTemplate()
  {
      VendorShort () {0x1, 0x2, 0x3}
  })
```

```
Name(CRSD,ResourceTemplate()
{
   VendorLong (VNDL) {0x1, 0x2, 0x3, 0x4, 0x5, 0x6, 0x7, 0x8, 0x9}
})

Name(CRSE,ResourceTemplate()
{
   IRQNoFlags(){3,4,10,11}
   IRQNoFlags(xxxt){3,4,10,11}
})
Name(CRSR, Buffer (Add (SizeOf(CRSA),SizeOf(CRSB))){})
Method(_CRS,0,NotSerialized)
{
   Return(CRSR)
}



//
// Unnamed scope
//
Scope (\)
{
   Name(Bxxx,0xFFFFFFFF)
}

Name (LANS, 0x0)

PowerResource(LANP,1,0)
{
   Method(_STA){
      If(LEqual(And(LANS,0x30),0x30)){
         Return(One)
      } Else {
         Return(Zero)
      }
   }
   Method(_ON){
      If(LNot(_STA())){
         Store (0x30, LANS)
      }
   }
   Method(_OFF){
      If(_STA()){
         Store (0, LANS)
      }
   }
}
```

```
/* Can a method define another method? */

/**********************************
 Method (TASK, 2, SERIALIZED)
{
   Sleep (100)

   Method (TAS2)
   {
      Sleep (100)
   }

   TAS2()
   Return

}
***********************************/

/* A recursive method */

Method (RCIV, 1)
{
   Store (Arg0, Debug)
   If (Lequal (Arg0, 0))
   {
      Return ()
   }
   RCIV (Subtract (Arg0, 1))
}

Method (RTOP)
{
   RCIV (100)
}


Scope(\_PR)
{
   Processor(CPU0,0x0,0xFFFFFFFF,0x0) {}
}

Name(B1TP,0xFFFFFFFF)

Name(B2TP,0xFFFFFFFF)
Name(ADPS,0xFFFFFFFF)
Name(B1PS,0xFFFFFFFF)
Name(B1RS,0xFFFFFFFF)
```

```
  Name(B1CS,0xFFFFFFFF)
  Name(B2PS,0xFFFFFFFF)
  Name(B2RS,0xFFFFFFFF)
  Name(B2CS,0xFFFFFFFF)
  Name(B1DC,3000)
  Name(B2DC,2600)
  Name(B1LF,3000)
  Name(B2LF,2600)
  Name(BPIF,0)
  Name(PBLL,0)

  Name(RBIF,Package()
  {
     0x1,
     2200,
     2200,
     0x1,

  10800,
     0,
     0,
     1,
     1,
     "CA54200-5003/5",
     "1",
     "LION",
     "Fujitsu"
  })

  Method(SMWE, 4)
  {
    return(ONES)
  }

  Method(SMRE, 4)
  {
    return(ONES)
  }

/*
  Method(RDBT,0,Serialized){
     If(LNot(SMWE(0x09,0x15,1,1))){
              Store(0x18,Local2)
        }
  }
*/
  Scope(_SB)
  {
```

```
Name (SBUF, Buffer (128) {})

CreateBitField (SBUF, 3, BITY)
CreateByteField (SBUF, 1, BYTY)
CreateWordField (SBUF, 2, WRDZ)
CreateDwordField (SBUF, 4, DWDZ)
CreateQwordField (SBUF, 8, QWDZ)
CreateField (SBUF, 128, 12, FLDZ)
CreateField (SBUF, 148, 96, FLDY)
CreateField (SBUF, 148, 96, \_SB_.FLDW)

Method (_INI)
{
   CreateField (\_SB_.SBUF, 148, 96, FLDV)
}


Device(PCI0)
{
   Name(_HID,EISAID("PNP0A03"))
   Name(_ADR,0x0)

   Method(_CRS,, Serialized)
    {
      Name(PRT0, ResourceTemplate() {
         WORDBusNumber(                    // Bus number resource(0)
               ResourceConsumer,           // bit 0 of general flags is 1
               MinFixed,                   // Range is notfixed
               MaxFixed,                   // Range is not fixed
               SubDecode,                  // SubDecode
               0x0000,                     // Granularity
               0xfff1,                     // Min
               0xfff2,                     // Max
               0x0032,                     // Translation
               0x0002,,,                   // Range Length
               BUS0
         ) } )// PRT0

         CreateWordField(PRT0, BUS0._MIN, BMIN)         //Minimum bus number
supported under this bridge.

         Store(3, BMIN)
         Return(PRT0)

      } // _CRS

      Method(_SRS)
```

```
{
   Return ()
}

Device(EIO)
{
   OperationRegion(FJIO,SystemIO,0xFD60,0x6)
      Field(FJIO,ByteAcc,NoLock,Preserve)
      {
         GIDX,8,

         GDTA,8,

         PIDX,8,

         PDTA,8,

         SIDX,8,

         SDTA,8
      }
      IndexField(GIDX,GDTA,ByteAcc,NoLock,Preserve)
      {
         Offset(0x2),
          ,5,
         VGAS,2,
         Offset(0x4),
          ,4,
         DCKE,1,
         Offset(0x5),
          ,6,
         ACPW,1,

         Offset(0xA),
          B1P,1,

         B2P,1,

         B1C,1,

         B2C,1,

         B1ER,1,

         B2ER,1,

         Offset(0xB),
         B1CP,8,
```

```
            B2CP,8,

            BCP,8,

            B1VH,8,

            B1VL,8,

            B2VH,8,

            B2VL,8,

            B1TM,8,

            B2TM,8,

            B1CH,8,

            B1CL,8,

            B2CH,8,

            B2CL,8
          }
        }
    }
}

Method(RDBT,3,Serialized){
    Store(0x1FFF,Local1)
    If( Arg0 ){
        Store(0x2FFF,Local1)
    }
    Store(0x18,Local2)
    If( Arg1 ){
        Store(0x10,Local2)
    }
    If(LNot(SMRE(0x09,0x15,1,RefOf(Local0)))){
         If(LNot(SMWE(0x08,0x14,1,Local1))){
           If(LNot(SMRE(0x09,0x17,Local2,RefOf(Local3)))){
              Store(Local1,Arg2)
           }
        }
        Or(Local0,0xFFF,Local0)
        SMWE(0x08,0x14,1,Local0)
    }
}
```

```
Method(MKWD,2)
{
   If(And(Arg1,0x80)) {
      Or(0xFFFF0000,Arg0,Local0)
      Or(Local0,ShiftLeft(Arg1,8),Local0)
      Subtract(Zero,Local0,Local0)
   } else {
      Store(Arg0,Local0)
      Or(Local0,ShiftLeft(Arg1,8),Local0)
   }
   Return(Local0)
}

Device(CMB1)
{
   Name(_HID,EISAID("PNP0C0A"))
   Name(_UID,0x1)
   Alias(\_SB.PCI0.EIO.B1P,\_SB_.PCI0.XXXX)
   Alias(\_SB.PCI0.EIO.B1P,B1P)
   Alias(\_SB.PCI0.EIO.B1C,B1C)
   Alias(\_SB.PCI0.EIO.B1CH,B1CH)
   Alias(\_SB.PCI0.EIO.B1CL,B1CL)
    Alias(\_SB.PCI0.EIO.B1VH,B1VH)
   Alias(\_SB.PCI0.EIO.B1VL,B1VL)
   Alias(\_SB.PCI0.EIO.B1CP,B1CP)

   Method(_INI)
            {
      Store(B1P, B1PS)
      Store(B1CP,B1RS)
      Store(B1C, B1CS)
   }

   Method(_BIF){
      RDBT(Zero,Zero,RefOf(B1DC))
      RDBT(Zero,One,RefOf(B1LF))
      Store(B1DC,Index(RBIF,1))
      Store(B1LF,Index(RBIF,2))
      Store("CA54200-5003/5",Index(RBIF,9))
      Store("1",Index(RBIF,10))
      Return(RBIF)
   }

   Method(_BST,, Serialized) {

      _INI()

      Store(Zero,Local0)
```

```
            if (LAnd(B1P,LNot(B1C))){
               Or(Local0,1,Local0)
            }

            if (LAnd(B1P,B1C)) {
               Or(Local0,2,Local0)
            }

            if (LLessEqual(B1CP,1)) {

             Or(Local0,4,Local0)
            }

            Store(MKWD(B1CL,B1CH),Local1)

            Store(Divide(Add(Multiply(B1CP,B1LF),99),100),Local2)

            Store(MKWD(B1VL,B1VH),Local3)

            Name(STAT,Package(4){})
            Store(Local0,Index(STAT,0))
            Store(Local1,Index(STAT,1))
            Store(Local2,Index(STAT,2))
            Store(Local3,Index(STAT,3))

            If(LNot(BPIF)){
//              \_SB.PCI0.EIO.EC0.IECT()
//              \_SB.PCI0.EIO.EC0.SECT()
               Store(One,BPIF)
            }
            return(STAT)
         }

      }

   Device (DEV1)
   {
   }

   Scope(\_TZ)
   {
      ThermalZone(TZ1)
      {
         Name(_PSL,Package()
         {
            \_PR.CPU0
         })
```

```
    }
  }

  Method (TZ2, 0, SERIALIZED)
  {
    Name(_PSL,Package()
    {
      \_PR.CPU0
    })

    Return (_PSL)

 }

  ThermalZone (THM1)
  {
  }

  Method (NOTI)
  {
    Notify (\DEV1, 0)
    Notify (\THM1, 0)
    Notify (\_PR.CPU0, 0)
  }

  Method (_ERR, 3)
  {
    Increment (ERRS)
    Store ("Run-time exception:", Debug)
    Store (Arg0, Debug)
    Store (Arg1, Debug)

    Return (0)          // Map error to AE_OK
  }

  Method (DIV0)
  {
    Store (1, Local0)
    Store (0, Local1)
    Divide (Local0, Local1, Local3)

    Store ("DIV0 - noabort", Debug)
  }

  Method (ERR_, 2)
  {
    Local0 = ToDecimalString (Arg1)
    if (LEqual (Arg0, 0))
```

```
    {
        Printf ("+*+*+*+* MTHD_ERROR at line %o: Results not equal!", Local0)
    }
    if (LEqual (Arg0, 1))
    {
        Printf ("+*+*+*+* MTHD_ERROR at line %o: Numeric result is incorrect!", Local0)
    }
    if (LEqual (Arg0, 2))
    {
        Printf ("+*+*+*+* MTHD_ERROR at line %o: Operand was clobbered!", Local0)

}

    Notify (DEV1, Arg0)
    Increment (ERRS)
}

Method (R226, 2)
{
}
Method (R225, 2)
{
    R226 (Arg0, Arg1)
}
Method (R224, 2)
{
    R225 (Arg1, Arg0)
}
Method (R223, 2)
{
    R224 (Arg0, Arg1)
}
Method (R222, 2)
{
    R223 (Arg1, Arg0)
}
Method (R111)
{
    Store (0x01010101, Local0)
    R222 (0xABAB, Local0)
    Store (Local0, Local1)
}

Method (MAIN)
{

//    SIZE()
    Store (NUM1(), Local0)
```

```
  \CMB1._BST()
  RDBT(1,2,3)
  OBJ1(1)
  OBJ2(2)
  CHEK()
  RETZ()
  BITZ()
  LOGS()
  REFS()
  COND()
  TZ2()

  //
  // iPCO tests added
  //
  Store (\IFEL.TEST(), Local0)
  if (LGreater (Local0, 0))
  {
     ERR_ (1, __LINE__)
     Return(Local0)
  }

  Store (\NOSV.TEST(), Local0)
  if (LGreater (Local0, 0))
  {

ERR_ (1, __LINE__)
     Return(Local0)
  }

  Store (\IDXF.TEST(), Local0)
  if (LGreater (Local0, 0))
  {
     ERR_ (1, __LINE__)
     Return(Local0)
  }

  Store (\_SB_.NSTL.TEST(), Local0)
  if (LGreater (Local0, 0))
  {
     ERR_ (1, __LINE__)
     Return(Local0)
  }

  Store (\RTBF.TEST(), Local0)
  if (LGreater (Local0, 0))
  {
     ERR_ (1, __LINE__)
```

```
        Return(Local0)
    }

    Store (\_SB_.RTLV.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\_SB_.RETP.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\WHLR.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\ANDO.TEST(),
Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\BRKP.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\ADSU.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\INDC.TEST(), Local0)
    if (LGreater (Local0, 0))
```

```
{
   ERR_ (1, __LINE__)
   Return(Local0)
}

Store (\LOPS.TEST(), Local0)
if (LGreater (Local0, 0))
{
   ERR_ (1, __LINE__)
   Return(Local0)
}

Store (\FDSO.TEST(), Local0)
if (LGreater (Local0, 0))
{
   ERR_ (1, __LINE__)
   Return(Local0)
}

Store (\MLDV.TEST(), Local0)
if (LGreater (Local0, 0))
{
   ERR_ (1, __LINE__)
   Return(Local0)
 }

Store (\NBIT.TEST(), Local0)
if (LGreater (Local0, 0))
{
   ERR_ (1, __LINE__)
   Return(Local0)
}

Store (\SHFT.TEST(), Local0)
if (LGreater (Local0, 0))
{
   ERR_ (1, __LINE__)
   Return(Local0)
}

Store (\XORD.TEST(), Local0)
if (LGreater (Local0, 0))
{
   ERR_ (1, __LINE__)
   Return(Local0)
}

Store (\CRBF.TEST(), Local0)
```

```
 if (LGreater (Local0, 0))
 {
    ERR_ (1, __LINE__)
    Return(Local0)
 }

 Store (\IDX4.TEST(), Local0)
 if (LGreater (Local0, 0))
 {
    ERR_ (1, __LINE__)
    Return(Local0)
 }

 Store (\EVNT.TEST(), Local0)
 if (LGreater (Local0, 0))
 {
    ERR_ (1, __LINE__)
    Return(Local0)
 }

 Store (\SZLV.TEST(), Local0)
 if (LGreater (Local0, 0))

{
    ERR_ (1, __LINE__)
    Return(Local0)
 }

 Store (\_SB_.BYTF.TEST(), Local0)
 if (LGreater (Local0, 0))
 {
    ERR_ (1, __LINE__)
    Return(Local0)
 }

 Store (\DWDF.TEST(), Local0)
 if (LGreater (Local0, 0))
 {
    ERR_ (1, __LINE__)
    Return(Local0)
 }

 Store (\DVAX.TEST(), Local0)
 if (LGreater (Local0, 0))
 {
    ERR_ (1, __LINE__)
    Return(Local0)
 }
```

```
    Store (\IDX6.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
       Return(Local0)
    }

    Store (\IDX5.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
       Return(Local0)
    }

    Store (\_SB_.IDX0.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
       Return(Local0)
    }

    Store (\_SB_.IDX3.TEST(),
Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
       Return(Local0)
    }

    Store (\IDX7.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
       Return(Local0)
    }

    Store (\MTCH.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
       Return(Local0)
    }

    Store (\WHLB.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
       ERR_ (1, __LINE__)
```

```
        Return(Local0)
    }

    Store (\_SB_.IDX2.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\SIZO.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1, __LINE__)
        Return(Local0)
    }

    Store (\_SB_.SMIS.TEST(), Local0)
    if (LGreater (Local0, 0))
    {
        ERR_ (1,
__LINE__)
        Return(Local0)
    }

    if (LGreater (ERRS, 0))
    {
        Store ("****** There were errors during the execution of the test ******", Debug)
    }

    // Flush all notifies

    Sleep (250)

    //
    // Last Test
    //

    Return(0) // Success
  }


  Method (OBJ1, 1, SERIALIZED)
  {

    Store (3, Local0)
    Name(BUFR, Buffer (Local0) {})
    Name(BUF1, Buffer (4) {1,2,3,4})
```

```
    Name(BUF2, Buffer (4) {})

    Store (BUF1, BUF2)
    Mutex (MTX1, 4)

    Alias (MTX1, MTX2)
  }


  Mutex (MTXT, 0)
  Mutex (MTXX, 0)

  /*
   * Field Creation
   */

  Method (FLDS,, Serialized)
  {
    Store ("++++++++ Creating BufferFields", Debug)
    Name (BUF2, Buffer (128) {})

    CreateBitField (BUF2, 3, BIT2)
    CreateByteField (BUF2, 1, BYT2)
    CreateWordField (BUF2, 2, WRD2)
    CreateDwordField (BUF2, 4, DWD2)
    CreateQwordField (BUF2,
8, QWD2)
    CreateField (BUF2, 128, 12, FLD2)
    CreateField (BUF2, 148, 96, FLD3)

    Store (0x1, BIT2)
    Store (BIT2, Local0)
    if (LNotEqual (Local0, 0x1))
    {
      ERR_ (1, __LINE__)
    }
    else
    {
      Store (DerefOf (Index (BUF2, 0)), Local0)
      if (LNotEqual (Local0, 0x08))
      {
        ERR_ (1, __LINE__)
      }
      else
      {
        Store ("++++++++ Bit BufferField I/O PASS", Debug)
      }
    }
```

```
    Store (0x1A, BYT2)
    Store (BYT2, Local0)
    if (LNotEqual (Local0, 0x1A))
    {
        ERR_ (1, __LINE__)
    }
    else
    {
        Store ("++++++++ Byte BufferField I/O PASS", Debug)
    }

    Store (0x1234, WRD2)
    Store (WRD2, Local0)
    if (LNotEqual (Local0, 0x1234))
    {
        ERR_ (1, __LINE__)
    }
    else
    {
        Store ("++++++++ Word BufferField
I/O PASS", Debug)
    }

    Store (0x123, FLD2)
    Store (FLD2, Local0)
    if (LNotEqual (Local0, 0x123))
    {
        ERR_ (1, __LINE__)
    }
    else
    {
        Store ("++++++++ 12-bit BufferField I/O PASS", Debug)
    }

    Store (0x12345678, DWD2)
    Store (DWD2, Local0)
    if (LNotEqual (Local0, 0x12345678))
    {
        ERR_ (1, __LINE__)
    }
    else
    {
        Store ("++++++++ Dword BufferField I/O PASS", Debug)
    }

    Store (0x1234567887654321, QWD2)
    Store (QWD2, Local0)
```

```
    if (LNotEqual (Local0, 0x1234567887654321))
    {
        ERR_ (1, __LINE__)
    }
    else
    {
        Store ("++++++++ Qword BufferField I/O PASS", Debug)
    }
}


/* Field execution */

Method (FLDX,, Serialized)
{
    Field (\_SB_.MEM.SMEM, AnyAcc, NoLock, Preserve)
    {   //  Field:  SMEM overlay using 32-bit field elements
        SMD0,   32, //  32-bits
        SMD1,   32,     //  32-bits
        SMD2,   32,     //  32-bits
        SMD3,   32  //  32-bits
    }   //  Field:  SMEM overlay using 32-bit field elements
    Field (\_SB_.MEM.SMEM, AnyAcc, NoLock, Preserve)
    {   //  Field:  SMEM overlay using greater than 32-bit field elements
        SME0,   69, //  larger than an integer (32 or 64)
        SME1,   97  //  larger than an integer
    }   //  Field:  SMEM overlay using greater than 32-bit field elements
}


Method (MTX_, )
{
    /* Test "Force release" of mutex on method exit */

    Acquire (MTXT, 0xFFFF)
    Acquire (MTXX, 0xFFFF)

    Store ("++++++++ Acquiring Mutex MTX2", Debug)
    Acquire (_GL_, 0xFFFF)


    Store ("++++++++ Releasing Mutex MTX2", Debug)
    Release (_GL_)
}


Method (OBJ2, 1, Serialized)
{
```

```
    Store ("++++++++ Creating Buffer BUFO", Debug)
    Name (BUFO, Buffer (32)
{})

    Store ("++++++++ Creating OpRegion OPR2", Debug)
    OperationRegion (OPR2, SystemMemory, Arg0, 256)

    Store ("++++++++ Creating Field(s) in OpRegion OPR2", Debug)
    Field (OPR2, ByteAcc, NoLock, Preserve)
    {
       IDX2, 8,
       DAT2, 8,
       BNK2, 4
    }

    Store ("++++++++ Creating BankField BNK2 in OpRegion OPR2", Debug)
    //
    // mcw 3/20/00 - changed FET0, 4, FET1, 3 to FET0, 1, FET1, 1
    //
    BankField (OPR2, BNK2, 0, ByteAcc, NoLock, Preserve)
    {
       FET0, 4,
       FET1, 3
    }

    Store ("++++++++ Creating IndexField", Debug)
    IndexField (IDX2, DAT2, ByteAcc, NoLock, Preserve)
    {
       FET2, 4,
       FET3, 3
    }

    Store ("++++++++ SizeOf (BUFO)", Debug)
    SizeOf (BUFO)

    Store ("++++++++ Store (SizeOf (BUFO), Local0)", Debug)
    Store (SizeOf (BUFO), Local0)

    Store ("++++++++ Concatenate (\"abd\",
\"def\", Local0)", Debug)
    Concatenate ("abd", "def", Local0)
    Store (Local0, Debug)

    Store ("++++++++ Concatenate (\"abd\", 0x7B, Local0)", Debug)
    Concatenate ("abd", 0x7B, Local0)
    Store (Local0, Debug)

    Store ("++++++++ Creating Event EVT2", Debug)
```

```
    Event (EVT2)

    Store ("++++++++ Creating Mutex MTX2", Debug)
    Mutex (MTX2, 0)

    Store ("++++++++ Creating Alias MTXA to MTX2", Debug)
    Alias (MTX2, MTXA)

    Store ("++++++++ Acquiring Mutex MTX2", Debug)
    Acquire (MTX2, 0xFFFF)

    Store ("++++++++ Acquiring Mutex MTX2 (2nd acquire)", Debug)
    Acquire (MTX2, 1)

    Store ("++++++++ Releasing Mutex MTX2", Debug)
    Release (MTX2)

    // Type 1 opcodes

    Store ("++++++++ Signalling Event EVT2", Debug)
    Signal (EVT2)

    Store ("++++++++ Resetting Event EVT2", Debug)
    Reset (EVT2)

    Store ("++++++++ Signalling Event EVT2", Debug)

  Signal (EVT2)

    Store ("++++++++ Waiting Event EVT2", Debug)
    Wait (EVT2, 0xFFFF)

    Store ("++++++++ Sleep", Debug)
    Sleep (100)

    Store ("++++++++ Stall", Debug)
    Stall (254)

    Store ("++++++++ NoOperation", Debug)
    Noop

    // Type 2 Opcodes

    Store ("++++++++ Return from Method OBJ2", Debug)
    return (4)
  }
```

```
  Method (NUM1, 0)
  {
     /* ADD */

     Store ("++++++++ Add (0x12345678, 0x11111111, Local0)", Debug)
     Add (0x12345678, 0x11111111, Local0)

     Store ("++++++++ Store (Add (0x12345678, 0x11111111), Local1)", Debug)
     Store (Add (0x12345678, 0x11111111), Local1)

     Store ("++++++++ Checking result from ADD", Debug)
     if (LNotEqual (Local0, Local1))
     {
        ERR_ (0, __LINE__)
     }


     /* SUBTRACT */

     Store ("++++++++ Subtract (0x87654321, 0x11111111, Local4)", Debug)
     Subtract (0x87654321, 0x11111111, Local4)


  Store ("++++++++ Store (Subtract (0x87654321, 0x11111111), Local5)", Debug)
     Store (Subtract (0x87654321, 0x11111111), Local5)

     Store ("++++++++ Checking result from SUBTRACT", Debug)
     if (LNotEqual (Local4, Local5))
     {
        ERR_ (0, __LINE__)
     }


     /* MULTIPLY */

     Store ("++++++++ Multiply (33, 10, Local6)", Debug)
     Multiply (33, 10, Local6)

     Store ("++++++++ Store (Multiply (33, 10), Local7)", Debug)
     Store (Multiply (33, 10), Local7)


     Store ("++++++++ Checking result from MULTIPLY", Debug)
     if (LNotEqual (Local6, Local7))
     {
        ERR_ (0, __LINE__)
     }
```

```
    /* DIVIDE */

    Store ("++++++++ Divide (100, 9, Local1, Local2)", Debug)
    Divide (100, 9, Local1, Local2)

    Store ("++++++++ Store (Divide (100, 9), Local3)", Debug)
    Store (Divide (100, 9), Local3)

    Store ("++++++++ Checking (quotient) result from DIVIDE", Debug)
    if
(LNotEqual (Local2, Local3))
    {
       ERR_ (0, __LINE__)
    }


    /* INCREMENT */

    Store ("++++++++ Increment (Local0)", Debug)
    Store (1, Local0)
    Store (2, Local1)
    Increment (Local0)

    Store ("++++++++ Checking result from INCREMENT", Debug)
    if (LNotEqual (Local0, Local1))
    {
       ERR_ (0, __LINE__)
    }


    /* DECREMENT */

    Store ("++++++++ Decrement (Local0)", Debug)
    Store (2, Local0)
    Store (1, Local1)
    Decrement (Local0)

    Store ("++++++++ Checking result from DECREMENT", Debug)
    if (LNotEqual (Local0, Local1))
    {
       ERR_ (0, __LINE__)
    }


    /* TOBCD */
    /* FROMBCD */
```

```
    Store ("++++++++ ToBCD (0x1234, Local5)", Debug)
    ToBCD (0x1234, Local5)

    Store ("++++++++ FromBCD (Local5, Local6)", Debug)
    FromBCD (Local5, Local6)

    Store ("++++++++ Return (Local6)", Debug)
    Return
(Local6)
  }


  Method (CHEK)
  {

    Store (3, Local0)
    Store (3, Debug)
    Store (Local0, Debug)
    Store (7, Local1)

    Add (Local0, Local1)
    if (LNotEqual (Local0, 3))
    {
      ERR_ (2, __LINE__)
    }
    if (LNotEqual (Local1, 7))
    {
      ERR_ (2, __LINE__)
    }


    Add (Local0, Local1, Local2)
    if (LNotEqual (Local0, 3))
    {
      ERR_ (2, __LINE__)
    }
    if (LNotEqual (Local1, 7))
    {
      ERR_ (2, __LINE__)
    }
  }


  Method (RET1)
  {
    Store (3, Local0)
    Return (Local0)
  }
```

```
  Method (RET2)
  {
     Return (RET1())
  }

  Method (RETZ)
  {
     RET2 ()
  }


  Method (BITZ)
  {
     Store ("++++++++ FindSetLeftBit (0x00100100, Local0)", Debug)
     FindSetLeftBit (0x00100100, Local0)
     if (LNotEqual (Local0, 21))
     {
        ERR_ (1, __LINE__)
     }

     Store ("++++++++
FindSetRightBit (0x00100100, Local1)", Debug)
     FindSetRightBit (0x00100100, Local1)
     if (LNotEqual (Local1, 9))
     {
        ERR_ (1, __LINE__)
     }

     Store ("++++++++ And (0xF0F0F0F0, 0x11111111, Local2)", Debug)
     And (0xF0F0F0F0, 0x11111111, Local2)
     if (LNotEqual (Local2, 0x10101010))
     {
        ERR_ (1, __LINE__)
     }

     Store ("++++++++ NAnd (0xF0F0F0F0, 0x11111111, Local3)", Debug)
     NAnd (0xF0F0F0F0, 0x11111111, Local3)
     if (LNotEqual (Local3, 0xEFEFEFEF))
     {
        ERR_ (1, __LINE__)
     }

     Store ("++++++++ Or (0x11111111, 0x22222222, Local4)", Debug)
     Or (0x11111111, 0x22222222, Local4)
     if (LNotEqual (Local4, 0x33333333))
     {
        ERR_ (1, __LINE__)
```

```
    }

    Store ("++++++++ NOr (0x11111111, 0x22222222, Local5)", Debug)
    NOr (0x11111111, 0x22222222, Local5)
    if (LNotEqual (Local5, 0xCCCCCCCC))
    {

   ERR_ (1, __LINE__)
    }

    Store ("++++++++ XOr (0x11113333, 0x22222222, Local6)", Debug)
    XOr (0x11113333, 0x22222222, Local6)
    if (LNotEqual (Local6, 0x33331111))
    {
       ERR_ (1, __LINE__)
    }

    Store ("++++++++ ShiftLeft (0x11112222, 2, Local7)", Debug)
    ShiftLeft (0x11112222, 2, Local7)
    if (LNotEqual (Local7, 0x44448888))
    {
       ERR_ (1, __LINE__)
    }

    Store ("++++++++ ShiftRight (Local7, 2, Local7)", Debug)
    ShiftRight (Local7, 2, Local7)
    if (LNotEqual (Local7, 0x11112222))
    {
       ERR_ (1, __LINE__)
    }


    Store ("++++++++ Not (Local0, Local1)", Debug)
    Store (0x22224444, Local0)
    Not (Local0, Local1)
    if (LNotEqual (Local0, 0x22224444))
    {
       ERR_ (2, __LINE__)
    }

    if (LNotEqual (Local1, 0xDDDDBBBB))
    {
       ERR_ (1, __LINE__)
    }

    Return (Local7)
}
```

```
 Method (LOGS)
  {

     Store ("++++++++ Store (LAnd (0xFFFFFFFF, 0x11111111), Local0)", Debug)
     Store (LAnd (0xFFFFFFFF, 0x11111111), Local0)

     Store ("++++++++ Store (LEqual (0xFFFFFFFF, 0x11111111), Local)", Debug)
     Store (LEqual (0xFFFFFFFF, 0x11111111), Local1)

     Store ("++++++++ Store (LGreater (0xFFFFFFFF, 0x11111111), Local2)", Debug)
     Store (LGreater (0xFFFFFFFF, 0x11111111), Local2)

     Store ("++++++++ Store (LGreaterEqual (0xFFFFFFFF, 0x11111111), Local3)", Debug)
     Store (LGreaterEqual (0xFFFFFFFF, 0x11111111), Local3)

     Store ("++++++++ Store (LLess (0xFFFFFFFF, 0x11111111), Local4)", Debug)
     Store (LLess (0xFFFFFFFF, 0x11111111), Local4)

     Store ("++++++++ Store (LLessEqual (0xFFFFFFFF, 0x11111111), Local5)", Debug)
     Store (LLessEqual (0xFFFFFFFF, 0x11111111), Local5)

     Store ("++++++++ Store (LNot (0x31313131), Local6)", Debug)
     Store (0x00001111, Local6)
     Store (LNot (Local6),
Local7)
     if (LNotEqual (Local6, 0x00001111))
     {
        ERR_ (2, __LINE__)
     }

     if (LNotEqual (Local7, 0x0))
     {
        ERR_ (1, __LINE__)
     }


     Store ("++++++++ Store (LNotEqual (0xFFFFFFFF, 0x11111111), Local7)", Debug)
     Store (LNotEqual (0xFFFFFFFF, 0x11111111), Local7)

     Store ("++++++++ Lor (0x0, 0x1)", Debug)
     if (Lor (0x0, 0x1))
     {
        Store ("+_+_+_+_+_+ Lor (0x0, 0x1) returned TRUE", Debug)
     }

     return (Local7)
```

```
}


Method (COND)
{
    Store ("++++++++ Store (0x4, Local0)", Debug)
    Store (0x4, Local0)

    Store ("++++++++ While (Local0)", Debug)
    While (Local0)
    {
        Store ("++++++++ Decrement (Local0)", Debug)
        Decrement (Local0)
    }


    Store ("++++++++ Store (0x3, Local6)", Debug)
    Store (0x3, Local6)

    Store ("++++++++ While (Subtract (Local6, 1))", Debug)
    While (Subtract
(Local6, 1))
    {
        Store ("++++++++ Decrement (Local6)", Debug)
        Decrement (Local6)
    }


    Store ("++++++++ [LVL1] If (LGreater (0x2, 0x1))", Debug)
    If (LGreater (0x2, 0x1))
    {
        Store ("++++++++ [LVL2] If (LEqual (0x11111111, 0x22222222))", Debug)
        If (LEqual (0x11111111, 0x22222222))
        {
            Store ("++++++++ ERROR: If (LEqual (0x11111111, 0x22222222)) returned TRUE", Debug)
        }

        else
        {
            Store ("++++++++ [LVL3] If (LNot (0x0))", Debug)
            If (LNot (0x0))
            {
                Store ("++++++++ [LVL4] If (LAnd (0xEEEEEEEE, 0x2))", Debug)
                If (LAnd (0xEEEEEEEE, 0x2))
                {
                    Store ("++++++++ [LVL5] If (LLess (0x44444444, 0x3))", Debug)
                    If (LLess (0x44444444, 0x3))
                    {
```

```
                Store ("++++++++
ERROR: If (LLess (0x44444444, 0x3)) returned TRUE", Debug)
            }

            else
            {
                Store ("++++++++ Exiting from nested IF/ELSE statements", Debug)
            }
        }
    }
}


Store ("++++++++ [LVL1] If (LGreater (0x2, 0x1))", Debug)
If (LGreater (0x2, 0x1))
{
    Store ("++++++++ [LVL2] If (LEqual (0x11111111, 0x22222222))", Debug)
    If (LEqual (0x11111111, 0x22222222))
    {
        Store ("++++++++ ERROR: If (LEqual (0x11111111, 0x22222222)) returned TRUE", Debug)
    }

    else
    {
        Store ("++++++++ [LVL3] If (LNot (0x0))", Debug)
        If (LNot (0x0))
        {
            Store ("++++++++ [LVL4] If (LAnd (0xEEEEEEEE, 0x2))", Debug)
            If (LAnd (0xEEEEEEEE, 0x2))
            {

             Store ("++++++++ [LVL5] If (LLess (0x44444444, 0x3))", Debug)
                If (LLess (0x44444444, 0x3))
                {
                    Store ("++++++++ ERROR: If (LLess (0x44444444, 0x3)) returned TRUE", Debug)
                }

                else
                {
                    Store ("++++++++ Returning from nested IF/ELSE statements", Debug)
                    Return (Local6)
                }
            }
        }
    }
}
```

```
}


Method (REFS,, Serialized)
{
   Name (BBUF, Buffer() {0xB0, 0xB1, 0xB2, 0xB3, 0xB4, 0xB5, 0xB6, 0xB7})

   Name (NEST, Package ()
   {
      Package ()
      {
         0x01, 0x02, 0x03, 0x04, 0x05, 0x06
      },
      Package ()
      {
         0x11, 0x12, 0x12, 0x14, 0x15, 0x16
      }
   })

   Store (RefOf (MAIN), Local5)


  // For this to work, ABCD must NOT exist.

   Store (CondRefOf (ABCD, Local0), Local1)
   if (LNotEqual (Local1, 0))
   {
      ERR_ (2, __LINE__)
   }

   Store (CondRefOf (BBUF, Local0), Local1)
   if (LNotEqual (Local1, Ones))
   {
      ERR_ (2, __LINE__)
   }

   Store (DeRefOf (Index (BBUF, 3)), Local6)
   if (LNotEqual (Local6, 0xB3))
   {
      ERR_ (2, __LINE__)
   }

   Store (DeRefOf (Index (DeRefOf (Index (NEST, 1)), 3)), Local0)
   if (LNotEqual (Local0, 0x14))
   {
      ERR_ (2, __LINE__)
   }
```

```
    Store (0x11223344, Local0)
    Store (RefOf (Local0), Local1)

    Store (DerefOf (Local1), Local2)
    If (LNotEqual (Local2, 0x11223344))
    {
       ERR_ (2, __LINE__)
    }


  /* Parser thinks this is a method invocation!! */

  //  RefOf (MAIN)


  //  RefOf (R___)
  //  RefOf (BBUF)

  //  Store (RefOf (Local0), Local1)

   //  CondRefOf (BBUF, Local2)
  //  CondRefOf (R___, Local3)

  //  Store (DerefOf (Local1), Local4)

  //  Return (Local4)
  }


  Method (INDX, 0, Serialized)
  {
     Name(STAT,Package(4){})
     Store(0x44443333,Index(STAT,0))
  }

//=========================================================================
//=========================================================================
//====================== iPCO TESTS ================================
//=========================================================================
//=========================================================================
//
//
// test IfElseOp.asl
//
//  test for IfOp and ElseOp, including validation of object stack cleanup
//
  Device (IFEL)
```

```
{
    Name (DWRD, 1)
    Name (RSLT, 0)

    //  IFNR control method executes IfOp branch with NO nested Return
    //  and no Else branch
    Method (IFNR)
    {
        Store (DWRD, RSLT)
        If (LEqual (DWRD, 1))
        {

        Store (0, RSLT)
        }
    }   //  IFNR

    //  NINR control method does not execute If branch and has no Else branch
    Method (NINR)
    {
        Store (0, RSLT)
        If (LNotEqual (DWRD, 1))
        {
            Store (DWRD, RSLT)
        }
    }   //  NINR

    //  IENR control method executes IfOp branch with NO nested Return
    Method (IENR)
    {
        If (LEqual (DWRD, 1))
        {
            Store (0, RSLT)
        }
        Else
        {
            Store (DWRD, RSLT)
        }
    }   //  IENR

    //  ELNR control method executes ElseOp branch with NO nested Return
    Method (ELNR)
    {
        If (LNotEqual (DWRD, 1))
        {
            Store (DWRD, RSLT)
        }
        Else
        {
```

```
            Store (0, RSLT)
        }
    }  //  ELNR

    //  IFRT control method executes IfOp branch with nested
Return with
    //  no Else branch
    Method (IFRT)

    {
        If (LEqual (DWRD, 1))
        {
            Return (0)
        }
        Return (DWRD)
    }  //  IFRT

    //  IERT control method executes IfOp branch with nested Return with
    //  Else branch
    Method (IERT)
    {
        If (LEqual (DWRD, 1))
        {
            Return (0)
        }
        Else
        {
            Return (DWRD)
        }
    }  //  IERT

    //  ELRT control method executes ElseOp branch with nested Return
    Method (ELRT)
    {
        If (LNotEqual (DWRD, 1))
        {
            Return (DWRD)
        }
        Else
        {
            Return (0)
        }
    }  //  ELRT

    Method (TEST)
    {
        Store ("++++++++ IfElseOp Test", Debug)
```

```
        // IfOp with NO return value
        IFNR()
        If (LNotEqual (RSLT,
0))
        {
           Return (RSLT)
        }

        // IfOp with NO return value
        NINR()
        If (LNotEqual (RSLT, 0))
        {
           Return (RSLT)
        }

        // IfOp with NO return value
        IENR()
        If (LNotEqual (RSLT, 0))
        {
           Return (RSLT)
        }

        // ElseOp with NO return value
        ELNR()
        If (LNotEqual (RSLT, 0))
        {
           Return (RSLT)
        }

        // IfOp with return value
        Store (IFRT, RSLT)
        If (LNotEqual (RSLT, 0))
        {
           Return (RSLT)
        }

        // IfOp with return value
        Store (IERT, RSLT)
        If (LNotEqual (RSLT, 0))
        {
           Return (RSLT)
        }

        // ElseOp with return value
        Store (ELRT, RSLT)
        If (LNotEqual (RSLT, 0))
        {
```

```
            Return (RSLT)
        }

        Return (0)
    }  // TEST
  }  // IFEL

//
// test NoSave.asl
//
//
//  Internal test cases to validate IfOp (Operator (,,)) where Operator
//  target is ZeroOp to throw away the results.
//  Includes internal test cases for logical operators with no destination
//  operands.
//
  Device (NOSV)
  {
    Method (TEST,, Serialized)
    {
      Store ("++++++++ NoSave Test", Debug)

      Name (WRD, 0x1234)

      //
      //  Begin test of nested operators without saving results
      //

      //  Test If (And ()) with no save of And result
      If (And (3, 1, ))
      {
        Store (1, WRD)  //  pass -- just do something
      }
      else
      {
        Return (1)      //  fail
      }

      //  Test If (And ()) with no save of And result
      If (And (4, 1, ))
      {
        Return (2)      //
 fail
      }
      else
      {
        Store (2, WRD)  //  pass -- just do something
      }
```

```
        //  Test If (NAnd ()) with no save of NAnd result
        If (NAnd (3, 1, ))
        {
           Store (3, WRD)  //  pass -- just do something
        }
        else
        {
           Return (3)      //  fail
        }

        //  Test If (NAnd ()) with no save of NAnd result
        If (NAnd (0xFFFFFFFF, 0xFFFFFFFF, ))
        {
           Return (4)      // fail
        }
        else
        {
           Store (4, WRD)  //  pass -- just do something
        }


        //  Test If (NOr ()) with no save of NOr result
        If (NOr (0, 1, ))
        {
           Store (5, WRD)  //  pass -- just do something
        }
        else
        {
           Return (5)      //  fail
        }

        //  Test If (NOr ()) with no save
of NOr result
        If (NOr (0xFFFFFFFE, 1, ))
        {
           Return (6)      // fail
        }
        else
        {
           Store (6, WRD)  //  pass -- just do something
        }


        //  Test If (Not ()) with no save of Not result
        If (Not (1, ))
        {
```

```
        Store (7, WRD)  //  pass -- just do something
    }
    else
    {
        Return (7)      //  fail
    }

    //  Test If (Not ()) with no save of Not result
    If (Not (0xFFFFFFFF, ))
    {
        Return (8)      // fail
    }
    else
    {
        Store (8, WRD)  //  pass -- just do something
    }


    //  Test If (Or ()) with no save of Or result
    If (Or (3, 1, ))
    {
        Store (9, WRD)  //  pass -- just do something
    }
    else
    {
        Return (9)
//  fail
    }

    //  Test If (Or ()) with no save of Or result
    If (Or (0, 0, ))
    {
        Return (10)     //  fail
    }
    else
    {
        Store (10, WRD) //  pass -- just do something
    }


    //  Test If (XOr ()) with no save of XOr result
    If (XOr (3, 1, ))
    {
        Store (11, WRD) //  pass -- just do something
    }
    else
    {
        Return (11)     // fail
```

```
}

//  Test If (XOr ()) with no save of XOr result
If (XOr (3, 3, ))
{
   Return (12)     // fail
}
else
{
   Store (12, WRD) //  pass -- just do something
}


//
//  Begin test of logical operators with no destination operands
//

//  Test If (LAnd ()) with no save of LAnd result
 If (LAnd (3, 3))
{
   Store (21, WRD) //  pass -- just do something
}
else
{
   Return (21)     // fail
}

//  Test If (LAnd ()) with no save of LAnd result
If (LAnd (3, 0))
{
   Return (22)     // fail
}
else
{
   Store (22, WRD) //  pass -- just do something
}

//  Test If (LAnd ()) with no save of LAnd result
If (LAnd (0, 3))
{
   Return (23)     //  fail
}
else
{
   Store (23, WRD) //  pass -- just do something
}

//  Test If (LAnd ()) with no save of LAnd result
```

```
    If (LAnd (0, 0))
    {
        Return (24)     //  fail
    }
    else
    {
        Store (24, WRD) //  pass -- just do something

}


    //  Test If (LEqual ()) with no save of LEqual result
    If (LEqual (3, 3))
    {
        Store (31, WRD) //  pass -- just do something
    }
    else
    {
        Return (31)     //  fail
    }

    //  Test If (LEqual ()) with no save of LEqual result
    If (LEqual (1, 3))
    {
        Return (32)     //  fail
    }
    else
    {
        Store (32, WRD) //  pass -- just do something
    }


    //  Test If (LGreater ()) with no save of LGreater result
    If (LGreater (3, 1))
    {
        Store (41, WRD) //  pass -- just do something
    }
    else
    {
        Return (41)     //  fail
    }

    //  Test If (LGreater ()) with no save of LGreater result
    If (LGreater (4, 4))
    {
        Return (42)     //  fail
```

```
        }
        else
        {
            Store (42, WRD) //  pass -- just do something
        }

        //  Test If (LGreater ()) with no save of LGreater result
        If (LGreater (1, 4))
        {
            Return (43)     //  fail
        }
        else
        {
            Store (43, WRD) //  pass -- just do something
        }

        //  Test If (LGreaterEqual ()) with no save of LGreaterEqual result
        If (LGreaterEqual (3, 1))
        {
            Store (44, WRD) //  pass -- just do something
        }
        else
        {
            Return (44)     //  fail
        }

        //  Test If (LGreaterEqual ()) with no save of LGreaterEqual result
        If (LGreaterEqual (3, 3))
        {
            Store (45, WRD) //  pass -- just do something
        }
        else
        {
            Return (45)     //  fail
        }


    //  Test If (LGreaterEqual ()) with no save of LGreaterEqual result
        If (LGreaterEqual (3, 4))
        {
            Return (46)     //  fail
        }
        else
        {
            Store (46, WRD) //  pass -- just do something
        }
```

```
        //  Test If (LLess ()) with no save of LLess result
        If (LLess (1, 3))
        {
           Store (51, WRD) //  pass -- just do something
        }
        else
        {
           Return (51)     //  fail
        }

        //  Test If (LLess ()) with no save of LLess result
        If (LLess (2, 2))
        {
           Return (52)     //  fail
        }
        else
        {
           Store (52, WRD) //  pass -- just do something
        }

        //  Test If (LLess ()) with no save of LLess result
        If (LLess (4, 2))
        {
           Return (53)     //  fail
        }

else
        {
           Store (53, WRD) //  pass -- just do something
        }


        //  Test If (LLessEqual ()) with no save of LLessEqual result
        If (LLessEqual (1, 3))
        {
           Store (54, WRD) //  pass -- just do something
        }
        else
        {
           Return (54)     //  fail
        }

        //  Test If (LLessEqual ()) with no save of LLessEqual result
        If (LLessEqual (2, 2))
        {
           Store (55, WRD) //  pass -- just do something
        }
        else
```

```
        {
            Return (55)     //  fail
        }

        //  Test If (LLessEqual ()) with no save of LLessEqual result
        If (LLessEqual (4, 2))
        {
            Return (56)     //  fail
        }
        else
        {
            Store (56, WRD) //  pass -- just do something
        }


        //  Test If (LNot ()) with no save
of LNot result
        If (LNot (0))
        {
            Store (61, WRD) //  pass -- just do something
        }
        else
        {
            Return (61)     //  fail
        }

        //  Test If (LNot ()) with no save of LNot result
        If (LNot (1))
        {
            Return (62)     //  fail
        }
        else
        {
            Store (62, WRD) //  pass -- just do something
        }


        //  Test If (LNotEqual ()) with no save of LNotEqual result
        If (LNotEqual (3, 3))
        {
            Return (63)     //  fail
        }
        else
        {
            Store (63, WRD) //  pass -- just do something
        }

        //  Test If (LNotEqual ()) with no save of LNotEqual result
```

```
    If (LNotEqual (1, 3))
    {
       Store (64, WRD) //  pass -- just do something
    }
    else
    {

       Return (64)     //  fail
    }


    //  Test If (LOr ()) with no save of LOr result
    If (LOr (3, 1))
    {
       Store (71, WRD) //  pass -- just do something
    }
    else
    {
       Return (71)     //  fail
    }

    //  Test If (LOr ()) with no save of LOr result
    If (LOr (0, 1))
    {
       Store (72, WRD) //  pass -- just do something
    }
    else
    {
       Return (72)     //  fail
    }

    //  Test If (LOr ()) with no save of LOr result
    If (LOr (3, 0))
    {
       Store (73, WRD) //  pass -- just do something
    }
    else
    {
       Return (73)     //  fail
    }

    //  Test If (LOr ()) with no save of LOr result
    If (LOr (0, 0))
    {
       Return (74)     //  fail

}
    else
```

```
        {
            Store (74, WRD) //  pass -- just do something
        }

        Return (0)
    }   //  TEST
  }   //  NOSV


//
// test IndxFld.asl
//
//  IndexFld test
//      This is just a subset of the many RegionOp/Index Field test cases.
//      Tests index field element AccessAs macro.
//
  Device (IDXF)
  {   //  Test device name

    OperationRegion (SIO, SystemIO, 0x100, 2)
    Field (SIO, ByteAcc, NoLock, Preserve)
    {
      INDX,   8,
      DATA,   8
    }
    IndexField (INDX, DATA, AnyAcc, NoLock, WriteAsOnes)
    {
      AccessAs (ByteAcc, 0),
      IFE0,   8,
      IFE1,   8,
      IFE2,   8,
      IFE3,   8,
      IFE4,   8,
      IFE5,   8,
      IFE6,   8,
      IFE7,   8,
      IFE8,   8,
      IFE9,   8,
    }

    Method (TEST)
    {
      Store ("++++++++ IndxFld Test", Debug)


   Store (IFE0, Local0)
      Store (IFE1, Local1)
      Store (IFE2, Local2)
```

```
            Return (0)
        }   //  TEST
    }   //  IDXF

//
// test NestdLor.asl
//
    Scope (\_SB)    //  System Bus
    {   //  _SB system bus

        Name (ZER0, 0)
        Name (ZER1, 0)
        Name (ZER2, 0)
        Name (ONE0, 1)

        Device (NSTL)
        {
            Method (TEST)
            {
                Store ("++++++++ NestdLor Test", Debug)

                If (Lor (ZER0, Lor (ZER1, Lor (ZER2, ONE0))))
                {   //  Indicate Pass
                    Store (0x00, Local0)
                }

                Else
                {   //  Indicate Fail
                    Store (0x01, Local0)
                }

                Return (Local0)
            }   //  End Method TEST
        }   //  Device NSTL
    }   //  _SB system bus

//
// test RetBuf.asl
//
//  Test ReturnOp(Buffer)
//      This is required to support Control Method Batteries on
//          Dell
 Latitude Laptops (e.g., CP1-A)
//
    Device (RTBF)
    {
        Method (SUBR, 1)
```

```
  {
    Return (Arg0)
  }

  Method (RBUF,, Serialized)
  {   //  RBUF: Return Buffer from local variable
    Name (ABUF, Buffer() {"ARBITRARY_BUFFER"})

    //  store local buffer ABUF into Local0
    Store (ABUF, Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Buffer
    If (LNotEqual (Local1, 3))  //  Buffer type is 3
    {
      Return (1)      //  failure
    }

    //  store value returned by control method SUBR into Local0
    Store (SUBR (ABUF), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Buffer
    If (LNotEqual (Local1, 3))  //  Buffer type is 3
    {

Return (2)      //  failure
    }

    //  allocate buffer using Local1 as buffer size (run-time evaluation)
    Store (5, Local1)
    Name (BUFR, Buffer(Local1) {})

    //  store value returned by control method SUBR into Local0
    Store (SUBR (BUFR), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Buffer
    If (LNotEqual (Local1, 3))  //  Buffer type is 3
    {
      Return (3)      //  failure
    }
```

```
        //  store BUFR Buffer into Local0
        Store (BUFR, Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Buffer
        If (LNotEqual (Local1, 3))  //  Buffer type is 3
        {
           Return (4)      //  failure
        }


        //  return Local0 Buffer
         Return (Local0)
      }   //  RBUF

      Method (TEST)
      {
        Store ("++++++++ RetBuf Test", Debug)

        //  store RBUF Buffer return value into Local0
        Store (RBUF, Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Buffer
        If (LNotEqual (Local1, 3))  //  Buffer type is 3
        {
           Return (10)     //  failure
        }
        Else
        {
           Return (0)      //  success
        }
      }   //  TEST
    }   //  RTBF

//
// test RetLVal.asl
//
//  Test ReturnOp(Lvalue)
//      This is required to support _PSR on IBM ThinkPad 560D and
//      _DCK on Toshiba Tecra 8000.
//
```

```
  Device (GPE2)
  {
     Method (_L03)
     {
        Store ("Method GPE2._L03 invoked", Debug)
        Return ()
     }

     Method (_E05)
     {
        Store ("Method
GPE2._E05 invoked", Debug)
        Return ()
     }
  }

  Device (PRW2)
  {
     Name (_PRW, Package(2) {Package(2){\GPE2, 0x05}, 3})
  }


  Scope (\_GPE)
  {
     Name (ACST, 0xFF)

     Method (_L08)
     {
        Store ("Method _GPE._L08 invoked", Debug)
        Return ()
     }

     Method (_E09)
     {
        Store ("Method _GPE._E09 invoked", Debug)
        Return ()
     }

     Method (_E11)
     {
        Store ("Method _GPE._E11 invoked", Debug)
        Notify (\PRW1, 2)
     }

     Method (_L22)
     {
        Store ("Method _GPE._L22 invoked", Debug)
        Return ()
```

```
    }

    Method (_L33)
    {
      Store ("Method _GPE._L33 invoked", Debug)
      Return ()
    }

    Method (_E64)
    {
      Store ("Method _GPE._E64 invoked", Debug)
      Return ()
    }

  }  //  _GPE

  Device (PRW1)
  {
    Name (_PRW, Package(2)
{0x11, 3})
  }

  Device (PWRB)
  {
    Name (_HID, EISAID("PNP0C0C"))
    Name (_PRW, Package(2) {0x33, 3})
  }


  Scope (\_SB)    //  System Bus
  {   //  _SB system bus

    Device (ACAD)
    {   //  ACAD:   AC adapter device
      Name (_HID, "ACPI0003") //  AC adapter device

      Name (_PCL, Package () {\_SB})

      OperationRegion (AREG, SystemIO, 0x0372, 2)
      Field (AREG, ByteAcc, NoLock, Preserve)
      {
        AIDX,   8,
        ADAT,   8
      }
      IndexField (AIDX, ADAT, ByteAcc, NoLock, Preserve)
      {
          ,  1,  //  skips
        ACIN,   1,
```

```
                , 2,  //  skips
            CHAG,   1,
                , 3,  //  skips
                , 7,  //  skips
            ABAT,   1,
        }   //  IndexField

        Method (_PSR)
        {
            Store (\_GPE.ACST, Local0)
            Store
(ACIN, Local1)
            If (LNotEqual (\_GPE.ACST, Local1))
            {
                Store (Local1, \_GPE.ACST)
                // This Notify is commented because it causes a
                //  method error when running on a system without the
                //  specific device.
                // Notify (\_SB_.ACAD, 0)
            }
            Return (Local0)
        }   //  _PSR

        Method (_STA)
        {
            Return (0x0F)
        }

        Method (_INI)
        {
            Store (ACIN, \_GPE.ACST)
        }
    }   //  ACAD:   AC adapter device

    //  test implicit return from control method
    Method (DIS_, 1)
    {
        Store (Arg0, Local0)
    }

    Device (RTLV)
    {
        //  test implicit return inside nested if with explicit return of Lvalue
        Method (_DCK, 1)
        //  Arg0:   1 == dock, 0 == undock

{
            If (Arg0)
```

```
            {   //  dock
               Store (0x87, Local0)

               If (Local0)
               {
                  DIS_ (0x23)
                  Return (1)
               }

               Return (0)
            }   //  dock
            Else
            {   //  undock
               Store (Arg0, Local0)

               If (Local0)
               {
                  DIS_ (0x23)
                  Return (1)
               }

               Return (0)
            }   //  undock
         }   //  _DCK control method

         Method (TEST)
         {
            Store ("++++++++ RetLVal Test", Debug)

            //  store _PSR return value into Local0
            Store (\_SB_.ACAD._PSR, Local0)

            //  save Local0 object type value into Local1
            Store (ObjectType (Local0), Local1)

            //  validate Local0
is a Number
            If (LNotEqual (Local1, 1))  //  Number/Integer type is 1
            {
               Return (1)      //  failure
            }

            //  test implicit return inside nested if with explicit return of Lvalue
            Store (_DCK (1), Local2)

            //  save Local2 object type value into Local3
            Store (ObjectType (Local2), Local3)
```

```
            //  validate Local2 is a Number
            If (LNotEqual (Local3, 1))  //  Number/Integer type is 1
            {
               Return (2)      //  failure
            }

            If (LNotEqual (Local2, 1))
            {
               Return (3)      //  failure
            }

            Return (0)  //  success
         }   //  TEST
      }   //  RTLV
   }   //  _SB system bus

//
// test RetPkg.asl
//
//  Test ReturnOp(Package)
//      This is required to support _PRT on Dell Optiplex Workstations (e.g. GX1)
//

    Scope (\_SB)    //  System Bus
   {   //  _SB system bus
      Device(LNKA)
      {
         Name (_HID, EISAID("PNP0C0F"))  //  PCI interrupt link
         Name (_UID, 1)
      }
      Device(LNKB)
      {
         Name (_HID, EISAID("PNP0C0F"))  //  PCI interrupt link
         Name (_UID, 2)
      }
      Device(LNKC)
      {
         Name (_HID, EISAID("PNP0C0F"))  //  PCI interrupt link
         Name (_UID, 3)
      }
      Device(LNKD)
      {
         Name (_HID, EISAID("PNP0C0F"))  //  PCI interrupt link
         Name (_UID, 4)
      }

      Device (PCI1)
      {   //  PCI1:   Root PCI Bus
```

```
      Name (_HID, "PNP0A03")  //  Need _HID for root device (String format)
      Name (_ADR,0x00000000)
      Name (_CRS,0)

      Name (_PRT, Package ()
      {
         Package () {0x0004ffff, 0, LNKA, 0},          //  Slot 1, INTA
         Package () {0x0004ffff, 1, LNKB, 0},
   //  Slot 1, INTB
         Package () {0x0004ffff, 2, LNKC, 0},          //  Slot 1, INTC
         Package () {0x0004ffff, 3, LNKD, 0},          //  Slot 1, INTD
         Package () {0x0005ffff, 0, \_SB_.LNKB, 0},  //  Slot 2, INTA
         Package () {0x0005ffff, 1, \_SB_.LNKC, 0},  //  Slot 2, INTB
         Package () {0x0005ffff, 2, \_SB_.LNKD, 0},  //  Slot 2, INTC
         Package () {0x0006ffff, 3, \_SB_.LNKA, 0},  //  Slot 2, INTD
         Package () {0x0006ffff, 0, LNKC, 0},          //  Slot 3, INTA
         Package () {0x0006ffff, 1, LNKD, 0},          //  Slot 3, INTB
         Package () {0x0006ffff, 2, LNKA, 0},          //  Slot 3, INTC
         Package () {0x0006ffff, 3, LNKB, 0},          //  Slot 3, INTD
      })

      Device (PX40)
      {   // Map f0 space, Start PX40
         Name (_ADR,0x00070000)  //  Address+function.
      }
   }   //  PCI0:
Root PCI Bus

   Device (RETP)
   {
      Method (RPKG)
      {   //  RPKG: Return Package from local variable

         //  store _PRT package into Local0
         Store (\_SB_.PCI1._PRT, Local0)

         //  return Local0 Package
         Return (Local0)
      }   //  RPKG

      Method (TEST)
      {
         Store ("++++++++ RetPkg Test", Debug)

         //  store RPKG package return value into Local0
         Store (RPKG, Local0)

         //  save Local0 object type value into Local1
```

```
            Store (ObjectType (Local0), Local1)

            //  validate Local0 is a Package
            If (LNotEqual (Local1, 4))  //  Package type is 4
               {   Return (1)  }   //  failure
            Else
               {   Return (0)  }   //  success
         }   //  TEST
      }   //  RETP
   } // _SB_

//
// test WhileRet.asl
//
//  WhileRet.asl tests
 a ReturnOp nested in a IfOp nested in a WhileOp.
//
   Device (WHLR)
   {
      Name (LCNT, 0)
      Method (WIR)
      {   //  WIR:    control method that returns inside of IfOp inside of WhileOp
         While (LLess (LCNT, 4))
         {
               If (LEqual (LCNT, 2))
               {
                  Return (0)
               }

            Increment (LCNT)
         }

         Return (LCNT)
      }   //  WIR:    control method that returns inside of IfOp inside of WhileOp

      Method (TEST)
      {
         Store ("++++++++ WhileRet Test", Debug)

         Store (WIR, Local0)

         Return (Local0)
      }   //  TEST
   }   //  WHLR

//
// test AndOrOp.asl
//
```

```
//This code tests the bitwise AndOp and OrOp Operator terms
//
//Syntax of Andop term
//And - Bitwise And
//AndTerm   := And(
//  Source1,    //TermArg=>Integer
//  Source2,    //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source1
 and Source2 are evaluated as integer data types,
// a bit-wise AND is performed, and the result is optionally
//stored into Result.
//
//
//Syntax of OrOp
//Or - Bit-wise Or
//OrTerm    := Or(
//  Source1,    //TermArg=>Integer
//  Source2 //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source1 and Source2 are evaluated as integer data types,
// a bit-wide OR is performed, and the result is optionally
//stored in Result
//
  Device (ANDO)
  {
     OperationRegion (TMEM, SystemMemory, 0xC4, 0x02)
     Field (TMEM, ByteAcc, NoLock, Preserve)
     {
           ,   3,
        TOUD,   13
     }

     //Create System Memory Operation Region and field overlays
     OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
     Field (RAM, AnyAcc, NoLock, Preserve)
     {
        SMDW,   32, //  32-bit DWORD
        SMWD,   16, //  16-bit WORD
        SMBY,   8,  //  8-bit BYTE
     }// Field(RAM)


     //And with Byte
 Data
     Name (BYT1, 0xff)
```

```
Name (BYT2, 0xff)
Name (BRSL, 0x00)

//And with Word Data
Name (WRD1, 0xffff)
Name (WRD2, 0xffff)
Name (WRSL, 0x0000)

//And with DWord Data
Name (DWD1, 0xffffffff)
Name (DWD2, 0xffffffff)
Name (DRSL, 0x00000000)

Method (ANDP)
{
   //Check with 1 And 1 on byte data
   And(BYT1, BYT2, BRSL)
   if(LNotEqual(BRSL,0xff))
   {Return(1)}

   //Check with 1 And 1 on Word data
   And(WRD1, WRD2, WRSL)
   if(LNotEqual(WRSL,0xffff))
   {
      Return (1)      //  failure
   }

   //Check with 1 And 1 Dword
   And(DWD1, DWD2, DRSL)
   if(LNotEqual(DRSL,0xffffffff))
   {
      Return (1)      //  failure
   }

   //Check with 0 And 0 on byte data
   Store(0x00,BYT1)
   Store(0x00,BYT2)
   Store(0x00,BRSL)
    And(BYT1, BYT2, BRSL)
   if(LNotEqual(BRSL,0x00))
   {
      Return (1)      //  failure
   }

   //Check with 0 And 0 on Word data
   Store (0x0000,WRD1)
   Store (0x0000,WRD2)
   Store (0x0000,WRSL)
```

```
And(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0x0000))
{
   Return (1)      //  failure
}

//Check with 0 And 0 Dword
Store (0x00000000,DWD1)
Store (0x00000000,DWD2)
Store (0x00000000,DRSL)
And(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0x00000000))
{
   Return (1)      //  failure
}


//Check with 1 And 0 on byte data
Store(0x55,BYT1)
Store(0xAA,BYT2)
Store(0x00,BRSL)
And(BYT1, BYT2, BRSL)
if(LNotEqual(BRSL,0x00))
{
   Return (1)      //  failure
 }

//Check with 1 And 0 on Word data
Store (0x5555,WRD1)
Store (0xAAAA,WRD2)
Store (0x0000,WRSL)
And(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0x0000))
{
   Return (1)      //  failure
}

//Check with 1 And 0 on Dword
Store (0x55555555,DWD1)
Store (0xAAAAAAAA,DWD2)
Store (0x00000000,DRSL)
And(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0x00000000))
{
   Return (1)      //  failure
}

Store (0x1FFF, TOUD)
```

```
    Store (TOUD, Local0)
    if(LNotEqual(Local0,0x1FFF))
    {
       Return (1)      //  failure
    }

    //TBD- Do We need to check for system memory data also for each test case ??

    Return(0)

}//ANDP

Method (OROP)
{

    //Check with 1 Ored with 1 on byte data
     Store(0xff,BYT1)
    Store(0xff,BYT2)
    Store(0x00,BRSL)
    Or(BYT1, BYT2, BRSL)
    if(LNotEqual(BRSL,0xff))
    {
       Return (1)      //  failure
    }


    //Check with 1 Ored with 1 on Word data
    Store(0xffff,WRD1)
    Store(0xffff,WRD2)
    Store(0x0000,WRSL)
    Or(WRD1, WRD2, WRSL)
    if(LNotEqual(WRSL,0xffff))
    {
       Return (1)      //  failure
    }

    //Check with 1 Ored with 1 on Dword data
    Store(0xffffffff,DWD1)
    Store(0xffffffff,DWD2)
    Store(0x00000000,DRSL)
    Or(DWD1, DWD2, DRSL)
    if(LNotEqual(DRSL,0xffffffff))
    {
       Return (1)      //  failure
    }

    //Check with 0 Ored with 0 on byte data
    Store(0x00,BYT1)
```

```
Store(0x00,BYT2)
Store(0x00,BRSL)
Or(BYT1, BYT2, BRSL)
 if(LNotEqual(BRSL,0x00))
{
   Return (1)      //  failure
}

//Check with 0 Ored with 0 on Word data
Store (0x0000,WRD1)
Store (0x0000,WRD2)
Store (0x0000,WRSL)
Or(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0x0000))
{
   Return (1)      //  failure
}

//Check with 0 Ored with  0 Dword data
Store (0x00000000,DWD1)
Store (0x00000000,DWD2)
Store (0x00000000,DRSL)
Or(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0x00000000))
{
   Return (1)      //  failure
}


//Check with 1 Ored with 0 on byte data
Store(0x55,BYT1)
Store(0xAA,BYT2)
Store(0x00,BRSL)
Or(BYT1, BYT2, BRSL)
if(LNotEqual(BRSL,0xff))
{
   Return (1)      //  failure
}


//Check with 1 Ored with 0 on Word data
Store (0x5555,WRD1)
Store (0xAAAA,WRD2)
Store (0x0000,WRSL)
Or(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0xffff))
{
   Return (1)      //  failure
```

```
        }

        //Check with 1 Ored with 0 on Dword data
        Store (0x55555555,DWD1)
        Store (0xAAAAAAAA,DWD2)
        Store (0x00000000,DRSL)
        Or(DWD1, DWD2, DRSL)
        if(LNotEqual(DRSL,0xffffffff))
        {
           Return (1)      //  failure
        }

        //TBD - Do We need to check for system memory data also for each test case ??

        Return(0)

    }//OROP

    Method(TEST,, Serialized)
    {
       Store ("++++++++ AndOrOp Test", Debug)

       Name(RSLT,1)
       //Call Andop method
       Store(ANDP,RSLT)
       if(LEqual(RSLT,1))
       {
          Return (RSLT)

}

       //Call OrOp Method
       Store(OROP,RSLT)
       if(LEqual(RSLT,1))
       {
          Return(RSLT)
       }

       //
       // Return original conditions to allow iterative execution
       //
       Store(0xff,BYT1)
       Store(0xff,BYT2)
       Store(0x00,BRSL)
       Store (0xffff,WRD1)
       Store (0xffff,WRD2)
       Store (0x0000,WRSL)
       Store (0xffffffff,DWD1)
```

```
        Store (0xffffffff,DWD2)
        Store (0x00000000,DRSL)

        Return(0)
      }  //TEST
  }  //ANDO

//
// test BreakPnt.asl
//
// This code tests the BreakPoint opcode term. The syntax of BreakPoint Term is
// BreakPointTerm    := BreakPoint
// Used for debugging, the Breakpoint opcode stops the execution and enters the AML debugger.
// In the non-debug version of the interpreter, BreakPoint is equivalent to Noop.
//
  Device (BRKP)
  {
    Name(CNT0,0)

    Method (BK1)
    {
       BreakPoint
      Return(0)
    }

    Method (TEST)
    {
      Store ("++++++++ BreakPnt Test", Debug)

      Store(0,CNT0)

      //Check BreakPoint statement
      While(LLess(CNT0,10))
      {
        Increment(CNT0)
      }

      //Check the BreakPoint statement
      If(LEqual(CNT0,10))
      {
//          BreakPoint
        Return(0)
      }

      //failed
      Return(1)
    }
  }
```

```
//
// test AddSubOp.asl
//
  Device (ADSU)
  {
     //  create System Memory Operation Region and field overlays
     OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
     Field (RAM, AnyAcc, NoLock, Preserve)
     {
        SMDW,   32, //  32-bit DWORD
        SMWD,   16, //  16-bit WORD
        SMBY,   8,  //  8-bit BYTE
     }   //  Field(RAM)

     Method (TEST,, Serialized)
     {
        Store ("++++++++ AddSubOp Test",
 Debug)

        Name (DWRD, 0x12345678)
        Name (WRD, 0x1234)
        Name (BYT, 0x12)

        //  Test AddOp with DWORD data
        Store (0x12345678, DWRD)
        Add (DWRD, 7, DWRD)
        If (LNotEqual (DWRD, 0x1234567F))
           {   Return (DWRD)   }

        //  Test AddOp with WORD data
        Add (WRD, 5, WRD)
        If (LNotEqual (WRD, 0x1239))
           {   Return (WRD)    }

        //  Test AddOp with BYTE data
        Add (BYT, 3, BYT)
        If (LNotEqual (BYT, 0x15))
           {   Return (BYT)    }

        //  Test SubtractOp with DWORD data
        Subtract (DWRD, 7, DWRD)
        If (LNotEqual (DWRD, 0x12345678))
           {   Return (DWRD)   }

        //  Test SubtractOp with WORD data
        Subtract (WRD, 3, WRD)
        If (LNotEqual (WRD, 0x1236))
```

```
        {   Return (WRD)    }

        //  Test SubtractOp with BYTE data
        Subtract
(BYT, 3, BYT)
        If (LNotEqual (BYT, 0x12))
          {   Return (BYT)    }


        //  test AddOp with DWORD SystemMemory OpRegion
        Store (0x01234567, SMDW)
        Add (SMDW, 8, SMDW)
        If (LNotEqual (SMDW, 0x0123456F))
          {   Return (SMDW)   }

        //  test SubtractOp with DWORD SystemMemory OpRegion
        Subtract (SMDW, 7, SMDW)
        If (LNotEqual (SMDW, 0x01234568))
          {   Return (SMDW)   }


        //  test AddOp with WORD SystemMemory OpRegion
        Store (0x0123, SMWD)
        Add (SMWD, 6, SMWD)
        If (LNotEqual (SMWD, 0x0129))
          {   Return (SMWD)   }

        //  test SubtractOp with WORD SystemMemory OpRegion
        Subtract (SMWD, 5, SMWD)
        If (LNotEqual (SMWD, 0x0124))
          {   Return (SMWD)   }


        //  test AddOp with BYTE SystemMemory OpRegion
        Store (0x01, SMBY)
        Add (SMBY,
4, SMBY)
        If (LNotEqual (SMBY, 0x05))
          {   Return (SMBY)   }

        //  test SubtractOp with BYTE SystemMemory OpRegion
        Subtract (SMBY, 3, SMBY)
        If (LNotEqual (SMBY, 0x02))
          {   Return (SMBY)   }

        Return (0)
      }   //  TEST
  }   //  ADSU
```

```
//
// test IncDecOp.asl
//
  Device (INDC)
  {
    //  create System Memory Operation Region and field overlays
    OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
      SMDW,   32, //  32-bit DWORD
      SMWD,   16, //  16-bit WORD
      SMBY,   8,  //  8-bit BYTE
    }   //  Field(RAM)

    Method (TEST,, Serialized)
    {
      Store ("++++++++ IncDecOp Test", Debug)

      Name (DWRD, 0x12345678)
      Name (WRD, 0x1234)
      Name (BYT, 0x12)

      //  Test IncrementOp with DWORD data
      Store (0x12345678, DWRD)

     Increment (DWRD)
      If (LNotEqual (DWRD, 0x12345679))
        {   Return (DWRD)   }

      //  Test IncrementOp with WORD data
      Increment (WRD)
      If (LNotEqual (WRD, 0x1235))
        {   Return (WRD)    }

      //  Test IncrementOp with BYTE data
      Increment (BYT)
      If (LNotEqual (BYT, 0x13))
        {   Return (BYT)    }

      //  Test DecrementOp with DWORD data
      Decrement (DWRD)
      If (LNotEqual (DWRD, 0x12345678))
        {   Return (DWRD)   }

      //  Test DecrementOp with WORD data
      Decrement (WRD)
      If (LNotEqual (WRD, 0x1234))
```

```
        {   Return (WRD)    }

        //  Test DecrementOp with BYTE data
        Decrement (BYT)
        If (LNotEqual (BYT, 0x12))
            {   Return (BYT)    }


        //  test IncrementOp with DWORD SystemMemory OpRegion
        Store (0x01234567, SMDW)

        Increment (SMDW)
        If (LNotEqual (SMDW, 0x01234568))
            {   Return (SMDW)   }

        //  test DecrementOp with DWORD SystemMemory OpRegion
        Decrement (SMDW)
        If (LNotEqual (SMDW, 0x01234567))
            {   Return (SMDW)   }


        //  test IncrementOp with WORD SystemMemory OpRegion
        Store (0x0123, SMWD)
        Increment (SMWD)
        If (LNotEqual (SMWD, 0x0124))
            {   Return (SMWD)   }

        //  test DecrementOp with WORD SystemMemory OpRegion
        Decrement (SMWD)
        If (LNotEqual (SMWD, 0x0123))
            {   Return (SMWD)   }


        //  test IncrementOp with BYTE SystemMemory OpRegion
        Store (0x01, SMBY)
        Increment (SMBY)
        If (LNotEqual (SMBY, 0x02))
            {   Return (SMBY)   }

        //  test DecrementOp with BYTE SystemMemory OpRegion
        Decrement (SMBY)
        If (LNotEqual
(SMBY, 0x01))
            {   Return (SMBY)   }

        Return (0)
    }   //  TEST
  }   //  INDC
```

```
//
// test LOps.asl
//
//This source tests all the logical operators. Logical operators in ASL are as follows.
//LAnd, LEqual, LGreater, LLess, LNot, LNotEqual, LOr.
// Success will return 0 and failure will return a non zero number. Check the source code for
// non zero number to find where the test failed

  Device (LOPS)
  {
     //Create System Memory Operation Region and field overlays
     OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
     Field (RAM, AnyAcc, NoLock, Preserve)
     {
        SMDW,   32, //  32-bit DWORD
        SMWD,   16, //  16-bit WORD
        SMBY,   8,  //  8-bit BYTE
     }// Field(RAM)

     //And with Byte Data
     Name (BYT1, 0xff)
     Name (BYT2, 0xff)
     Name (BRSL, 0x00)

     //And with Word Data
     Name (WRD1, 0xffff)
     Name (WRD2, 0xffff)
     Name (WRSL, 0x0000)

      //And with DWord Data
     Name (DWD1, 0xffffffff)
     Name (DWD2, 0xffffffff)
     Name (DRSL, 0x00000000)

     Name(RSLT,1)

     Method (ANDL,2) // Test Logical And
     {
        //test with the arguments passed
        if(LEqual(Arg0,Arg1))
        { Store(LAnd(Arg0,Arg1),RSLT)
           if(LNotEqual(Ones,RSLT))
           {Return(11)}
        }

        //test with he locals
        Store(Arg0,Local0)
```

```
Store(Arg1,Local1)

if(LEqual(Local0,Local1))
{
   Store(LAnd(Local0,Local1),RSLT)
   if(LNotEqual(Ones,RSLT))
      {Return(12)}
}

//test with BYTE data
if(LEqual(BYT1,BYT2))
{ Store(LAnd(BYT1,BYT2),BRSL)
   if(LNotEqual(Ones,BRSL))
   {Return(13)}
}

//test with WORD data
if(LEqual(WRD1,WRD2))
{ Store(LAnd(WRD1,WRD2),WRSL)
    if(LNotEqual(Ones,WRSL))
   {Return(14)}
}

//test with DWORD data
if(LEqual(DWD1,DWD2))
{ Store(LAnd(DWD1,DWD2),DRSL)
   if(LNotEqual(Ones,DRSL))
   {Return(15)}
}

//Test for system memory data for each test case.

   Store(0xff,BYT1)
   Store(0xff,SMBY)
   Store(0x00,BRSL)

//test with BYTE system memory data
if(LEqual(BYT1,SMBY))
{ Store(LAnd(BYT1,SMBY),BRSL)
   if(LNotEqual(Ones,BRSL))
   {Return(16)}
}

Store (0xffff,WRD1)
Store(0xffff,SMWD)
Store(0x0000,WRSL)
//test with WORD system memory data
if(LEqual(WRD1,SMWD))
```

```
        { Store(LAnd(WRD1,SMWD),WRSL)
          if(LNotEqual(Ones,WRSL))
          {Return(17)}
        }

        Store(0x000000,DRSL)

    Store (0xffffff,DWD1)
        Store(0xffffff,SMDW)

        //test with DWORD system memory data
        if(LEqual(DWD1,SMDW))
        { Store(LAnd(DWD1,SMDW),DRSL)
          if(LNotEqual(Ones,DRSL))
          {Return(18)}
        }

        Return(0)

    }//ANDL

    //Test the LOr Operator

    Method (ORL_,2)
    {//ORL_

        //test with the arguments passed
        if(LEqual(Arg0,Arg1))
        {
          Store(LOr(Arg0,Arg1),RSLT)
          if(LNotEqual(Ones,RSLT))
          {
            Return(21)
          }
        }

        //test with he locals
        Store(Arg0,Local0)
        Store(Arg1,Local1)

        if(LEqual(Local0,Local1))
        {
          Store(LOr(Local0,Local1),RSLT)
          if(LNotEqual(Ones,RSLT))
            {Return(22)}
        }

        //Check with 1 LOred with 0 on byte data
```

```
Store(0xff,BYT1)
 Store(0x00,BYT2)
Store(0x00,BRSL)

if(LNotEqual(BYT1, BYT2))
{
   Store(LOr(BYT1, BYT2), BRSL)
   if(LNotEqual(Ones,BRSL))
   {Return(23)}
}

//Check with 1 LOred with 0 on WORD data
Store(0xffff,WRD1)
Store(0x0000,WRD2)
Store(0x0000,WRSL)

if(LNotEqual(WRD1, WRD2))
{
   Store(LOr(WRD1, WRD2), WRSL)
   if(LNotEqual(Ones,WRSL))
   {Return(24)}
}

//Check with 1 LOred with 0 on DWORD data
Store(0xffffffff,DWD1)
Store(0x00000000,DWD2)
Store(0x00000000,DRSL)

if(LNotEqual(DWD1, DWD2))
{
   Store(LOr(DWD1, DWD2), DRSL)
   if(LNotEqual(Ones,DRSL))
   {Return(25)}
}

Store(0x00,BYT1)
Store(0xff,SMBY)
Store(0x00,BRSL)

 //test with BYTE system memory data
if(LEqual(BYT1,SMBY))
{ Store(LOr(BYT1,SMBY),BRSL)
   if(LNotEqual(Ones,BRSL))
   {Return(26)}
}

Store (0x0000,WRD1)
Store(0xffff,SMWD)
```

```
        Store(0x0000,WRSL)

        //test with WORD system memory data
        if(LEqual(WRD1,SMWD))
        { Store(LOr(WRD1,SMWD),WRSL)
          if(LNotEqual(Ones,WRSL))
          {Return(27)}
        }


        Store(0x00000000,DWD1)
        Store(0xffffffff,SMDW)
        Store(0x00000000,DRSL)

        //test with DWORD system memory data
        if(LEqual(DWD1,SMDW))
        { Store(LAnd(DWD1,SMDW),DRSL)
          if(LNotEqual(Ones,DRSL))
          {Return(28)}
        }
        Return(0)

    }//ORL_

    //This method tests LGreater and LNot operator
    Method(LSGR,2)
    {//LSGR

        //Test on arguments
passed

        //in test data, Arg1 > Arg0
        if(LEqual(Ones,LNot(LGreater(Arg1,Arg0))))
        {Return(31)}

        //test LLessEqual
        if(LEqual(Ones,LNot(LGreaterEqual(Arg1,Arg0))))
        {Return(32)}

        if(LEqual(Ones,LLess(Arg1,Arg0)))
        {Return(33)}

        //test LLessEqual
        if(LEqual(Ones,LLessEqual(Arg1,Arg0)))
        {Return(34)}

        Store(Arg0,Local0)
        Store(Arg1,Local1)
```

```
  //test with the locals
  if(LNot(LGreater(Local1,Local0)))
     {Return(35)}

  //test on Byte data
  Store(0x12,BYT1)
  Store(0x21,BYT2)

  if(LNot(LGreater(BYT2,BYT1)))
     {Return(36)}

  if(LNot(LLess(BYT1,BYT2)))
     {Return(37)}

  //test LGreaterEqual with byte data
  if(LNot(LGreaterEqual(BYT2,BYT1)))
     {Return(38)}

  //test LLessEqual byte data

if(LNot(LLessEqual(BYT1,BYT2)))
     {Return(39)}


  //test on Word data
  Store(0x1212,WRD1)
  Store(0x2121,WRD2)

  if(LNot(LGreater(WRD2,WRD1)))
     {Return(310)}

  if(LNot(LLess(WRD1,WRD2)))
     {Return(311)}

  //Test LGreaterEqual with Word Data
  if(LNot(LGreaterEqual(WRD2,WRD1)))
     {Return(312)}


  //Test LLessEqual with Word Data
  if(LNot(LLessEqual(WRD1,WRD2)))
     {Return(313)}

  //test on DWord data
  Store(0x12121212,DWD1)
  Store(0x21212121,DWD2)
```

```
        if(LNot(LGreater(DWD2,DWD1)))
          {Return(314)}

        if(LNot(LLess(DWD1,DWD2)))
          {Return(315)}


        //Test LGreaterEqual with Dword
        if(LNot(LGreaterEqual(DWD2,DWD1)))
          {Return(316)}

        //Test LLessEqual DWord
        if(LNot(LLessEqual(DWD1,DWD2)))
           {Return(317)}

        Return(0)
      }//LSGR

      //The test method
      Method(TEST)
      {
        Store ("++++++++ LOps Test", Debug)

        Store(0,RSLT)
        //Call LAndOp method
        Store(ANDL(2,2),RSLT)
        if(LNotEqual(RSLT,0))
         {Return(RSLT)}

        //Call LOrOp Method
        Store(ORL_(5,5),RSLT)
        if(LNotEqual(RSLT,0))
        {Return(RSLT)}

        //Call LSGR Method
        Store(LSGR(5,7),RSLT)
        if(LNotEqual(RSLT,0))
        {Return(RSLT)}

        Return(0)
      }//TEST
    }//LOPS

//
// test FdSetOps.asl
//
//  FindSetLeftBit - Find Set Left Bit
//  FindSetLeftBitTerm  := FindSetLeftBit
```

```
// (   Source, //TermArg=>Integer
//     Result  //Nothing | SuperName
// ) => Integer
// Source is evaluated as integer data type, and the one-based bit location of
// the first MSb (most significant set bit) is optionally stored into Result.
//
  The result of 0 means no bit was set, 1 means the left-most bit set is the
// first bit, 2 means the left-most bit set is the second bit, and so on.
// FindSetRightBit - Find Set Right Bit

// FindSetRightBitTerm := FindSetRightBit
// (   Source, //TermArg=>Integer
//     Result  //Nothing | SuperName
// ) => Integer
// Source is evaluated as integer data type, and the one-based bit location of
// the most LSb (least significant set bit) is optionally stored in Result.
// The result of 0 means no bit was set, 32 means the first bit set is the
// 32nd bit, 31 means the first bit set is the 31st bit, and so on.

// If the Control method is success Zero is returned. Otherwise a non-zero
// number is returned.
//
  Device (FDSO)
  {   // FDSO

     // Create System Memory Operation Region and field overlays
     OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
     Field (RAM, AnyAcc, NoLock, Preserve)
     {
        SMDW,   32, // 32-bit DWORD
         SMWD,   16, // 16-bit WORD
        SMBY,   8,      // 8-bit BYTE
     }   // Field(RAM)

     // Byte Data
     Name (BYT1, 1)
     Name (BRSL, 0x00)

     // Word Data
     Name (WRD1, 0x100)
     Name (WRSL, 0x0000)

     // DWord Data
     Name (DWD1, 0x10000)
     Name (DRSL, 0x00000000)
     Name (RSLT, 1)
     Name (CNTR, 1)
```

```
    Method (SHFT,2)
    //  Arg0 is the actual data and Arg1 is the bit position
    {   //  SHFT
        Store (Arg0, Local0)
        Store (Arg1, Local1)

        FindSetLeftBit (Arg0, BRSL)
        If (LNotEqual (BRSL, Arg1))
            {   Return (0x11)   }
        If (LNotEqual (Arg0, Local0))
            {   Return (0x12)   }

        FindSetLeftBit (Local0, BRSL)
        If (LNotEqual (BRSL, Local1))
            {   Return (0x13)   }
        If (LNotEqual (Arg0, Local0))
            {   Return (0x14)   }

        //  test the byte
value for SetLeftBit
        Store (7, BYT1)
        FindSetLeftBit (BYT1, BRSL)
        If (LNotEqual (BRSL, 3))
            {   Return (0x15)   }
        If (LNotEqual (BYT1, 7))
            {   Return (0x16)   }

        Store (1, BYT1)
        Store (1, CNTR)
        While (LLessEqual (CNTR, 8))
        {   //  FindSetLeftBit check loop for byte data
            FindSetLeftBit (BYT1, BRSL)
            If (LNotEqual (BRSL, CNTR))
                {   Return (0x17)   }

            //  Shift the bits to check the same
            ShiftLeft (BYT1, 1, BYT1)
            Increment (CNTR)
        }   //  FindSetLeftBit check loop for byte data


        //  Check BYTE value for SetRightBit
        Store (7, BYT1)
        FindSetRightBit (BYT1, BRSL)
        If (LNotEqual (BRSL, 1))
            {   Return (0x21)   }
        If (LNotEqual (BYT1, 7))
            {   Return (0x22)   }
```

```
        Store
(1, CNTR)
        Store (0xFF, BYT1)
        While (LLessEqual (CNTR, 8))
        {   //  FindSetRightBit check loop for byte data
           FindSetRightBit (BYT1, BRSL)
           If (LNotEqual (BRSL, CNTR))
              {   Return (0x23)   }

           ShiftLeft (BYT1, 1, BYT1)
           Increment (CNTR)
        }   //  FindSetRightBit check loop for byte data


        //  Test Word value for SetLeftBit
        Store (9, CNTR)
        Store (0x100, WRD1)
        While (LLessEqual (CNTR, 16))
        {
           //  FindSetLeftBit check loop for Word data
           FindSetLeftBit (WRD1, WRSL)
           If (LNotEqual (WRSL, CNTR))
              {   Return (0x31)   }

           //  Shift the bits to check the same
           ShiftLeft (WRD1, 1, WRD1)
           Increment (CNTR)
        }   //  FindSetLeftBit check loop for Word data

        //  Check Word value for SetRightBit
         Store (9, CNTR)
        Store (0xFF00, WRD1)
        While (LLessEqual (CNTR, 16))
        {
           //  FindSetRightBit check loop for Word data
           FindSetRightBit (WRD1, WRSL)
           If (LNotEqual (WRSL, CNTR))
              {   Return (0x32)   }

           ShiftLeft (WRD1, 1, WRD1)
           Increment (CNTR)
        }   //  FindSetRightBit check loop for Word data

        //  Test the DWord value for SetLeftBit
        Store (17, CNTR)
        Store (0x10000, DWD1)
        While (LLessEqual (CNTR, 32))
```

```
        {
            // FindSetLeftBit check loop for Dword
            FindSetLeftBit (DWD1, DRSL)
            If (LNotEqual (DRSL, CNTR))
                {   Return (0x41)   }

            // Shift the bits to check the same
            ShiftLeft (DWD1, 1, DWD1)
            Increment (CNTR)
        }   // FindSetLeftBit check loop for Dword

        // Check DWord value for SetRightBit
        Store (17, CNTR)
        Store (0xFFFF0000, DWD1)
        While (LLessEqual (CNTR, 32))
        {   // FindSetRightBit Check loop for DWORD
            FindSetRightBit (DWD1, DRSL)
            If (LNotEqual (DRSL, CNTR))
                {   Return (0x42)   }

            ShiftLeft (DWD1, 1, DWD1)
            Increment (CNTR)
        }   // FindSetRightBit Check loop for DWORD

        Return (0)
    }   // SHFT

    // Test method called from amlexec
    Method (TEST)
    {   // TEST

        Store ("++++++++ FdSetOps Test", Debug)

        Store (SHFT (0x80, 8), RSLT)
        If (LNotEqual (RSLT, 0))
            {   Return (RSLT)   }

        Return (0)  // pass
    }   // TEST
  }   // Device FDSO

//
// test MulDivOp.asl
//
  Device (MLDV)
  {
    // create System Memory Operation Region and field overlays
    OperationRegion
```

```
(RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
       SMDW,   32, //  32-bit DWORD
       SMWD,   16, //  16-bit WORD
       SMBY,   8,  //  8-bit BYTE
    }   //  Field(RAM)

    Method (TEST,, Serialized)
    {
       Store ("++++++++ MulDivOp Test", Debug)

       Name (RMDR, 0)
       Name (DWRD, 0x12345678)
       Name (WRD, 0x1234)
       Name (BYT, 0x12)

       //  Test MultiplyOp with DWORD data
       Store (0x12345678, DWRD)
       Multiply (DWRD, 3, DWRD)
       If (LNotEqual (DWRD, 0x369D0368))
          {   Return (DWRD)   }

       //  Test MultiplyOp with WORD data
       Multiply (WRD, 4, WRD)
       If (LNotEqual (WRD, 0x48D0))
          {   Return (WRD)    }

       //  Test MultiplyOp with BYTE data
       Multiply (BYT, 5, BYT)
       If (LNotEqual (BYT, 0x5A))
          {   Return (BYT)    }


       //  Test DivideOp with DWORD data
       Divide (DWRD, 3, DWRD, RMDR)
       If (LNotEqual (DWRD, 0x12345678))
          {   Return (DWRD)   }
       If (LNotEqual (RMDR, 0))
          {   Return (RMDR)   }

       //  Test DivideOp with WORD data
       Divide (WRD, 4, WRD, RMDR)
       If (LNotEqual (WRD, 0x1234))
          {   Return (WRD)    }
       If (LNotEqual (RMDR, 0))
          {   Return (RMDR)   }
```

```
        //  Test DivideOp with BYTE data
        Divide (BYT, 5, BYT, RMDR)
        If (LNotEqual (BYT, 0x12))
           {   Return (BYT)    }
        If (LNotEqual (RMDR, 0))
           {   Return (RMDR)   }


        //  test MultiplyOp with DWORD SystemMemory OpRegion
        Store (0x01234567, SMDW)
        Multiply (SMDW, 2, SMDW)
        If (LNotEqual (SMDW, 0x02468ACE))
           {   Return (SMDW)   }

        //  test DivideOp with DWORD SystemMemory
OpRegion
        Divide (SMDW, 3, SMDW, RMDR)
        If (LNotEqual (SMDW, 0x00C22E44))
           {   Return (SMDW)   }
        If (LNotEqual (RMDR, 2))
           {   Return (RMDR)   }


        //  test MultiplyOp with WORD SystemMemory OpRegion
        Store (0x0123, SMWD)
        Multiply (SMWD, 3, SMWD)
        If (LNotEqual (SMWD, 0x369))
           {   Return (SMWD)   }

        //  test DivideOp with WORD SystemMemory OpRegion
        Divide (SMWD, 2, SMWD, RMDR)
        If (LNotEqual (SMWD, 0x01B4))
           {   Return (SMWD)   }
        If (LNotEqual (RMDR, 1))
           {   Return (RMDR)   }


        //  test MultiplyOp with BYTE SystemMemory OpRegion
        Store (0x01, SMBY)
        Multiply (SMBY, 7, SMBY)
        If (LNotEqual (SMBY, 0x07))
           {   Return (SMBY)   }

        //  test DivideOp with BYTE SystemMemory OpRegion
        Divide (SMBY, 4, SMBY, RMDR)
         If (LNotEqual (SMBY, 0x01))
           {   Return (SMBY)   }
        If (LNotEqual (RMDR, 3))
```

```
            {   Return (RMDR)   }

          Return (0)
      }   //  TEST
  }   //  MLDV

//
// test NBitOps.asl
//
//NAnd - Bit-wise NAnd
//NAndTerm  := NAnd(
//  Source1,    //TermArg=>Integer
//  Source2 //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source1 and Source2 are evaluated as integer data types, a bit-wise NAND is performed, and the result is
optionally
//stored in Result.

//NOr - Bitwise NOr
//NOrTerm   := NOr(
//  Source1,    //TermArg=>Integer
//  Source2 //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source1 and Source2 are evaluated as integer data types, a bit-wise NOR is performed, and the result is optionally
//stored in Result.
// Not - Not
//NotTerm   := Not(
//  Source, //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source1 is evaluated as an integer data type, a bit-wise
 NOT is performed, and the result is optionally stored in
//Result.

//If the Control method is success Zero is returned else a non-zero number is returned

  Device (NBIT)
  {//NBIT

     //Create System Memory Operation Region and field overlays
     OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
     Field (RAM, AnyAcc, NoLock, Preserve)
     {
        SMDW,   32, //  32-bit DWORD
        SMWD,   16, //  16-bit WORD
        SMBY,   8,  //  8-bit BYTE
```

```
}// Field(RAM)


//And with Byte Data
Name (BYT1, 0xff)
Name (BYT2, 0xff)
Name (BRSL, 0x00)

//And with Word Data
Name (WRD1, 0xffff)
Name (WRD2, 0xffff)
Name (WRSL, 0x0000)

//And with DWord Data
Name (DWD1, 0xffffffff)
Name (DWD2, 0xffffffff)
Name (DRSL, 0x00000000)
Name(RSLT,1)


Name(ARSL,0x00)
Name(LRSL,0x00)

Method(NNDB,2)
{//NNDB

   Store(0xffffffff,SMDW)
    Store(0xffff,SMWD)
   Store(0xff,SMBY)


   NAnd(Arg0,Arg1,ARSL)
   if(LNotEqual(ARSL,0xfffffffd))
    {Return(11)}

    Store(Arg0,local0)
    Store(Arg1,Local1)

    NAnd(Local0,Local1,LRSL)
      if(LNotEqual(LRSL,0xfffffffd))
    {Return(12)}


   //Byte data
   NAnd(BYT1,BYT2,BRSL)
   if(LNotEqual(BRSL,0xffffff00))
    {Return(13)}
```

```
    //Word Data
     NAnd(WRD1,WRD2,WRSL)
    if(LNotEqual(WRSL,0xffff0000))
     {Return(14)}

     //DWord Data
     NAnd(DWD1,DWD2,DRSL)
    if(LNotEqual(DRSL,0x00000000))
     {Return(15)}

     //Byte data
    NAnd(SMBY,0xff,BRSL)
    if(LNotEqual(BRSL,0xffffff00))
     {Return(16)}

    //Word Data
     NAnd(SMWD,0xffff,WRSL)
    if(LNotEqual(WRSL,0xffff0000))
     {Return(17)}

      //DWord Data
     NAnd(SMDW,0xffffffff,DRSL)
    if(LNotEqual(DRSL,0x00000000))
     {Return(18)}

    Return(0)

}//NNDB

Method(NNOR,2)
{//NNOR

    NOr(Arg0,Arg1,ARSL)
    if(LNotEqual(ARSL,0xfffffffd))
     {Return(21)}

    Store(Arg0,local0)
    Store(Arg1,Local1)

    NOr(Local0,Local1,LRSL)
    if(LNotEqual(LRSL,0xfffffffd))
     {Return(22)}


    //Byte data
    NOr(BYT1,BYT2,BRSL)
    if(LNotEqual(BRSL,0xffffff00))
     {Return(23)}
```

```
    //Word Data
    NOr(WRD1,WRD2,WRSL)
    if(LNotEqual(WRSL,0xffff0000))
     {Return(24)}

    //DWord Data
    NOr(DWD1,DWD2,DRSL)
    if(LNotEqual(DRSL,0x00000000))
     {Return(25)}

     //System Memory Byte data
    NOr(SMBY,0xff,BRSL)
    if(LNotEqual(BRSL,0xffffff00))
     {Return(26)}

     //System Memory Word Data
    NOr(SMWD,0xffff,WRSL)
    if(LNotEqual(WRSL,0xffff0000))
     {Return(27)}

    //System Memory DWord Data
    NOr(SMDW,0xffffffff,DRSL)
    if(LNotEqual(DRSL,0x00000000))
     {Return(28)}

    Return(0)

}//NNOR

Method(NNOT,2)
{//NNOT

    Or(Arg0,Arg1,ARSL)
    Not(ARSL,ARSL)
    if(LNotEqual(ARSL,0xfffffffd))
     {Return(31)}

    Store(Arg0,local0)
    Store(Arg1,Local1)

    Or(Local0,Local1,LRSL)
    Not(LRSL,LRSL)
    if(LNotEqual(LRSL,0xfffffffd))
     {Return(32)}


    //Byte data
```

```
    Or(BYT1,BYT2,BRSL)
    Not(BRSL,BRSL)
    if(LNotEqual(BRSL,0xffffff00))
     {Return(33)}

    //Word Data
    Or(WRD1,WRD2,WRSL)
    Not(WRSL,WRSL)
    if(LNotEqual(WRSL,0xffff0000))
     {Return(34)}

     //DWord Data
    Or(DWD1,DWD2,DRSL)
    Not(DRSL,DRSL)
    if(LNotEqual(DRSL,0x00000000))
     {Return(35)}

     //System Memory Byte data
    Or(SMBY,0xff,BRSL)
    Not(BRSL,BRSL)
    if(LNotEqual(BRSL,0xffffff00))
     {Return(36)}

    //System Memory Word Data
    Or(SMWD,0xffff,WRSL)
    Not(WRSL,WRSL)
    if(LNotEqual(WRSL,0xffff0000))
     {Return(37)}

    //System Memory DWord Data
    Or(SMDW,0xffffffff,DRSL)
    Not(DRSL,DRSL)
    if(LNotEqual(DRSL,0x00000000))
     {Return(38)}

    Return(0)
}//NNOT


Method(TEST)
{

    Store ("++++++++ NBitOps Test", Debug)

    Store(NNDB(2,2),RSLT)
    if(LNotEqual(RSLT,0))
       {Return(RSLT)}
```

```
        Store(NNOR(2,2),RSLT)
        if(LNotEqual(RSLT,0))
          {Return(RSLT)}


  Store(NNOT(2,2),RSLT)
        if(LNotEqual(RSLT,0))
          {Return(RSLT)}


       Return(0)
     }

  }//Device NBIT

//
// test ShftOp.asl
//
//ShiftRightTerm    := ShiftRight(
//  Source, //TermArg=>Integer
//  ShiftCount  //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source and ShiftCount are evaluated as integer data types. Source is shifted right with the most significant bit
//zeroed ShiftCount times. The result is optionally stored into Result.

//ShiftLeft(
//  Source, //TermArg=>Integer
//  ShiftCount  //TermArg=>Integer
//  Result  //Nothing | SuperName
//) => Integer
//Source and ShiftCount are evaluated as integer data types. Source is shifted left with the least significant
//bit zeroed ShiftCount times. The result is optionally stored into Result.

//If the Control method is success Zero is returned else a non-zero number is returned
  Device (SHFT)
  {//SHFT

     //Create System Memory Operation Region and field overlays
      OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
     Field (RAM, AnyAcc, NoLock, Preserve)
     {
        SMDW,   32, //  32-bit DWORD
        SMWD,   16, //  16-bit WORD
        SMBY,   8,  //  8-bit BYTE
     }// Field(RAM)
```

```
Name(SHFC,0x00)

//And with Byte Data
Name (BYT1, 0xff)
Name (BRSL, 0x00)

//And with Word Data
Name (WRD1, 0xffff)
Name (WRSL, 0x0000)

//And with DWord Data
Name (DWD1, 0xffffffff)
Name (DRSL, 0x00000000)

Name(RSLT,1)

Name(ARSL,0x00)
Name(LRSL,0x00)

Method(SLFT,2)
{//SLFT

   Store(0xffffffff,SMDW)
   Store(0xffff,SMWD)
   Store(0xff,SMBY)


   //Arg0-> 2 & Arg1->2
   ShiftLeft(Arg0,Arg1,ARSL)
   if(LNotEqual(ARSL,8))
   {Return(11)}

    Store(Arg0,local0)
    Store(Arg1,Local1)

    //Local0->8 and Local1->2
     ShiftLeft(Local0,Local1,LRSL)
       if(LNotEqual(LRSL,8))
    {Return(12)}

   Store(2,SHFC)
   //Byte data
   ShiftLeft(BYT1,SHFC,BRSL)
   if(LNotEqual(BRSL,0x3FC))
    {Return(13)}

   Store(4,SHFC)
   //Word Data
```

```
         ShiftLeft(WRD1,SHFC,WRSL)
        if(LNotEqual(WRSL,0xFFFF0))
         {Return(14)}

        Store(8,SHFC)
        //DWord Data
        ShiftLeft(DWD1,SHFC,DRSL)
        if(LNotEqual(DRSL,0xFFFFFF00))
         {Return(15)}


         //System Memory Byte data
        Store(4,SHFC)
        ShiftLeft(SMBY,SHFC,BRSL)
        if(LNotEqual(BRSL,0xFF0))
        {Return(16)}

        //Word Data
        Store(4,SHFC)
        ShiftLeft(SMWD,SHFC,WRSL)
        if(LNotEqual(WRSL,0xffff0))
         {Return(17)}

        //DWord Data
        Store(8,SHFC)
        ShiftLeft(SMDW,SHFC,DRSL)

if(LNotEqual(DRSL,0xFFFFFF00))
           {Return(18)}

        Return(0)

      }//SLFT

      Method(SRGT,2)
      {//SRGT
        //And with Byte Data
        Store (0xff,BYT1)
        Store (0x00,BRSL)

        //And with Word Data
        Store (0xffff,WRD1)
        Store (0x0000,WRSL)

        //And with DWord Data
        Store(0xffffffff,DWD1)
        Store (0x00000000,DRSL)
```

```
//Reinitialize the result objects
Store(0x00,ARSL)
Store(0x00,LRSL)

Store(0xffffffff,SMDW)
Store(0xffff,SMWD)
Store(0xff,SMBY)

//Arg0-> 2 & Arg1->2
ShiftRight(Arg0,Arg1,ARSL)
if(LNotEqual(ARSL,0))
{Return(21)}

 Store(Arg0,local0)
 Store(Arg1,Local1)

 //Local0->8 and Local1->2
 ShiftRight(Local0,Local1,LRSL)
   if(LNotEqual(LRSL,0))
 {Return(22)}

Store(2,SHFC)
 //Byte data
ShiftRight(BYT1,SHFC,BRSL)
if(LNotEqual(BRSL,0x3F))
 {Return(23)}

Store(4,SHFC)
//Word Data
 ShiftRight(WRD1,SHFC,WRSL)
if(LNotEqual(WRSL,0xFFF))
 {Return(24)}

Store(8,SHFC)
//DWord Data
ShiftRight(DWD1,SHFC,DRSL)
if(LNotEqual(DRSL,0xFFFFFF))
 {Return(25)}

//System Memory Byte data
Store(4,SHFC)
ShiftRight(SMBY,SHFC,BRSL)
if(LNotEqual(BRSL,0xF))
{Return(26)}

//Word Data
Store(4,SHFC)
ShiftRight(SMWD,SHFC,WRSL)
```

```
        if(LNotEqual(WRSL,0xFFF))
         {Return(27)}

        //DWord Data
        Store(8,SHFC)
        ShiftRight(SMDW,SHFC,DRSL)
        if(LNotEqual(DRSL,0xFFFFFF))
           {Return(28)}

        Return(0)
      }//SRGT

      //Test method called from
 amlexec
      Method(TEST)
      {
         Store ("++++++++ ShftOp Test", Debug)

         Store(SLFT(2,2),RSLT)
         if(LNotEqual(RSLT,0))
            {Return(RSLT)}
         Store(SRGT(2,2),RSLT)
         if(LNotEqual(RSLT,0))
            {Return(RSLT)}
        Return(0)
      }

   }//Device SHFT

//
// test Xor.asl and slightly modified
//
//This code tests the XOR opcode term
//Syntax of XOR term
//         XOr(
//                Source1  //TermArg=>BufferTerm
//                Source2  //TermArg=>Integer
//                Result //NameString
//            )
//"Source1" and "Source2" are evaluated as integers, a bit-wise XOR is performed, and the result is optionally stored
in
// Result
   Device (XORD)
   {
      //This Method tests XOr operator for all the data types i.e. BYTE, WORD and DWORD
      Method (TEST,, Serialized)
      {
         Store ("++++++++ Xor Test", Debug)
```

```
//Overlay in system memory

OperationRegion (RAM, SystemMemory, 0x800000, 256)
Field (RAM, ByteAcc, NoLock, Preserve)
{
   RES1,   1,  //Offset
   BYT1,   8,  //First BYTE
   BYT2,   8,  //Second BYTE
   RBYT,   8,  //Result Byte
   RES2,   1,  //Offset
   WRD1,   16, //First WORD field
   WRD2,   16, //Second WORD field
   RWRD,   16, //RSLT WORD field
   RES3,   1,  //Offset
   DWD1,   32, //First Dword
   DWD2,   32, //Second Dword
   RDWD,   32, //Result Dword
   RES4,   1,  //Offset
}

// Store bits in the single bit fields for checking
//  at the end
Store(1, RES1)
Store(1, RES2)
Store(1, RES3)
Store(1, RES4)

// Check the stored single bits
if(LNotEqual(RES1, 1))
{
   Return(1)
 }

if(LNotEqual(RES2, 1))
{
   Return(1)
}

if(LNotEqual(RES3, 1))
{
   Return(1)
}

if(LNotEqual(RES4, 1))
{
   Return(1)
}
```

```
//*************************************************
// (BYT1) Bit1 ->0 and (BYT2)Bit2 -> 0 condition
Store(0x00,BYT1)
Store(0x00,BYT2)
XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0))
{   Return(1)}

// (BYT1) Bit1 ->1 and (BYT2)Bit2 -> 1 condition
Store(0xff,BYT1)
Store(0xff,BYT2)
XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0))
{   Return(1)}

// (BYT1) Bit1 ->1 and (BYT)Bit2 -> 0 condition
Store(0x55,BYT1)
Store(0xAA,BYT2)
XOr(BYT1,BYT2,Local0)

Store (Local0, RBYT)
if(LNotEqual(RBYT,0xFF))
{   Return(1)}

//(BYT1) Bit1 ->0 and (BYT2)Bit2 -> 1 condition
Store(0xAA,BYT1)
Store(0x55,BYT2)
XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0xFF))
{   Return(1)}

Store(0x12,BYT1)
Store(0xED,BYT2)

XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0xFF))
{
   Return(1)
}

// Store known values for checking later
Store(0x12, BYT1)
if(LNotEqual(BYT1, 0x12))
```

```
{
   Return(1)
}

Store(0xFE, BYT2)
if(LNotEqual(BYT2, 0xFE))
{
   Return(1)
}

Store(0xAB, RBYT)
if(LNotEqual(RBYT, 0xAB))
{
   Return(1)
}

//************************************************
 // (WRD1) Bit1 ->0 and (WRD2)Bit2 -> 0 condition
Store(0x0000,WRD1)
Store(0x0000,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0))
{   Return(1)}

// (WRD1) Bit1 ->1 and (WRD2)Bit2 -> 1 condition
Store(0xffff,WRD1)
Store(0xffff,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0))
{   Return(1)}

// (WRD1) Bit1 ->1 and (WRD2)Bit2 -> 0 condition
Store(0x5555,WRD1)
Store(0xAAAA,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0xFFFF))
{   Return(1)}

//(WRD1) Bit1 ->0 and (WRD2)Bit2 -> 1 condition
Store(0xAAAA,WRD1)
Store(0x5555,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0xFFFF))
{   Return(1)}

Store(0x1234,WRD1)
Store(0xEDCB,WRD2)
XOr(WRD1,WRD2,RWRD)
```

```
 if(LNotEqual(RWRD,0xFFFF))
{   Return(1)}

// Store known values for checking later
Store(0x1234, WRD1)
if(LNotEqual(WRD1, 0x1234))
{
   Return(1)
}

Store(0xFEDC, WRD2)
if(LNotEqual(WRD2, 0xFEDC))
{
   Return(1)
}

Store(0x87AB, RWRD)
if(LNotEqual(RWRD, 0x87AB))
{
   Return(1)
}


//*************************************************
// (DWD1) Bit1 ->0 and (DWD2)Bit2 -> 0 condition
Store(0x00000000,DWD1)
Store(0x00000000,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0))
{   Return(1)}

// (DWD1) Bit1 ->1 and (DWD2)Bit2 -> 1 condition
Store(0xffffffff,DWD1)
Store(0xffffffff,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0))
 {   Return(1)}

// (DWD1) Bit1 ->1 and (DWD2)Bit2 -> 0 condition
Store(0x55555555,DWD1)
Store(0xAAAAAAAA,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0xFFFFFFFF))
{   Return(1)}

//(DWD1) Bit1 ->0 and (DWD2)Bit2 -> 1 condition
Store(0xAAAAAAAA,DWD1)
Store(0x55555555,DWD2)
```

```
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0xFFFFFFFF))
{   Return(1)}

// (DWD1) Bit1 ->1 and (DWD2)Bit2 -> 0 condition
Store(0x12345678,DWD1)
Store(0xEDCBA987,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0xFFFFFFFF))
{   Return(1)}

Store(0x12345678,DWD1)
if(LNotEqual(DWD1,0x12345678))
{
   Return(1)
}

Store(0xFEDCBA98,DWD2)
if(LNotEqual(DWD2,0xFEDCBA98))
{
   Return(1)
}

 Store(0x91827364,RDWD)
if(LNotEqual(RDWD,0x91827364))
{
   Return(1)
}

//*******************************************************
// Check the stored single bits
if(LNotEqual(RES1, 1))
{
   Return(1)
}

if(LNotEqual(RES2, 1))
{
   Return(1)
}

if(LNotEqual(RES3, 1))
{
   Return(1)
}

if(LNotEqual(RES4, 1))
{
```

```
            Return(1)
        }

        // Change all of the single bit fields to zero
        Store(0, RES1)
        Store(0, RES2)
        Store(0, RES3)
        Store(0, RES4)

        // Now, check all of the fields

        // Byte
        if(LNotEqual(BYT1, 0x12))
        {
            Return(1)
        }

        if(LNotEqual(BYT2, 0xFE))
        {

Return(1)
        }

        if(LNotEqual(RBYT, 0xAB))
        {
            Return(1)
        }

        // Word
        if(LNotEqual(WRD1, 0x1234))
        {
            Return(1)
        }

        if(LNotEqual(WRD2, 0xFEDC))
        {
            Return(1)
        }

        if(LNotEqual(RWRD, 0x87AB))
        {
            Return(1)
        }

        // Dword
        if(LNotEqual(DWD1, 0x12345678))
        {
            Return(1)
```

```
        }

        if(LNotEqual(DWD2, 0xFEDCBA98))
        {
           Return(1)
        }

        if(LNotEqual(RDWD, 0x91827364))
        {
           Return(1)
        }

        // Bits
        if(LNotEqual(RES1, 0))
        {
           Return(1)
        }

        if(LNotEqual(RES2, 0))
        {
           Return(1)
        }

        if(LNotEqual(RES3, 0))
        {

      Return(1)
        }

        if(LNotEqual(RES4, 0))
        {
           Return(1)
        }


        Return(0)
     }   //  TEST
  }   //  XORD

//
// test CrBytFld.asl
//
//  CrBytFld test
//      Test for CreateByteField.
//      Tests creating byte field overlay of buffer stored in Local0.
//      Tests need to be added for Arg0 and Name buffers.
//
   Device (CRBF)
```

```
{   //  Test device name
    Method (TEST)
    {
        Store ("++++++++ CrBytFld Test", Debug)

        //  Local0 is uninitialized buffer with 4 elements
        Store (Buffer (4) {}, Local0)

        //  create Byte Field named BF0 based on Local0 element 0
        CreateByteField (Local0, 0, BF0)

        //  validate CreateByteField did not alter Local0
        Store (ObjectType (Local0), Local1) //  Local1 = Local0 object type
        If (LNotEqual (Local1, 3))  //  Buffer object type value is 3
            {   Return (2)  }


        //  store something into BF0
        Store (1, BF0)

        //  validate Store did not alter Local0 object type
        Store (ObjectType (Local0), Local1) //  Local1 = Local0 object type
        If (LNotEqual (Local1, 3))  //  Buffer object type value is 3
            {   Return (3)  }

        //  verify that the Store into BF0 was successful
        If (LNotEqual (BF0, 1))
            {   Return (4)  }


        //  create Byte Field named BF1 based on Local0 element 1
        CreateByteField (Local0, 1, BF1)

        //  validate CreateByteField did not alter Local0
        Store (ObjectType (Local0), Local1) //  Local1 = Local0 object type
        If (LNotEqual (Local1, 3))  //  Buffer object type value is 3
            {   Return (10) }

        //  store something into BF1
        Store (5, BF1)

        //  validate Store did not alter Local0 object type
        Store (ObjectType (Local0), Local1)
//  Local1 = Local0 object type
        If (LNotEqual (Local1, 3))  //  Buffer object type value is 3
            {   Return (11) }

        //  verify that the Store into BF1 was successful
```

```
        If (LNotEqual (BF1, 5))
           {   Return (12) }

        //  verify that the Store into BF1 did not alter BF0
        If (LNotEqual (BF0, 1))
           {   Return (13) }


        //  store something into BF0
        Store (0xFFFF, BF0)

        //  verify that the Store into BF0 was successful
        If (LNotEqual (BF0, 0xFF))
           {   Return (20) }

        //  verify that the Store into BF0 did not alter BF1
        If (LNotEqual (BF1, 5))
           {   Return (21) }


        Return (0)
      }   //  TEST
   }   //  CRBF

//
// test IndexOp4.asl
//
//  IndexOp4 test
//      This is just a subset of the many RegionOp/Index Field test cases.
//      Tests access of index fields smaller than 8 bits.
//
    Device (IDX4)
   {   //  Test device name

      //  MADM:   Misaligned Dynamic RAM SystemMemory OperationRegion
      //          Tests OperationRegion memory access using misaligned BYTE,
      //          WORD, and DWORD field element accesses. Validation is performed
      //          using both misaligned field entries and aligned field entries.
      //
      //          MADM returns 0 if all test cases pass or non-zero identifying
      //          the failing test case for debug purposes. This non-zero numbers
      //          are not guaranteed to be in perfect sequence (i.e., test case
      //          index), but are guaranteed to be unique so the failing test
      //          case can be uniquely identified.
      //
      Method (MADM, 1, Serialized)    //  Misaligned Dynamic RAM SystemMemory OperationRegion
      //  Arg0    --  SystemMemory OperationRegion base address
      {   //  MADM:   Misaligned Dynamic RAM SystemMemory OperationRegion
```

```
 OperationRegion (RAM, SystemMemory, Arg0, 0x100)
Field (RAM, DwordAcc, NoLock, Preserve)
{   //  aligned field definition (for verification)
    DWD0,   32, //  aligned DWORD field
    DWD1,   32      //  aligned DWORD field
}
Field (RAM, ByteAcc, NoLock, Preserve)
{   //  bit access field definition
    BIT0,   1,      //  single bit field entry
    BIT1,   1,      //  single bit field entry
    BIT2,   1,      //  single bit field entry
    BIT3,   1,      //  single bit field entry
    BIT4,   1,      //  single bit field entry
    BIT5,   1,      //  single bit field entry
    BIT6,   1,      //  single bit field entry
    BIT7,   1,      //  single bit field entry
    BIT8,   1,      //  single bit field entry
    BIT9,   1,      //  single bit field entry

    BITA,   1,      //  single bit field entry
    BITB,   1,      //  single bit field entry
    BITC,   1,      //  single bit field entry
    BITD,   1,      //  single bit field entry
    BITE,   1,      //  single bit field entry
    BITF,   1,      //  single bit field entry
    BI10,   1,      //  single bit field entry
    BI11,   1,      //  single bit field entry
    BI12,   1,      //  single bit field entry
    BI13,   1,      //  single bit field entry
    BI14,   1,      //  single bit field entry
    BI15,   1,      //  single bit field entry
    BI16,   1,      //  single bit field entry
    BI17,   1,      //  single bit field entry
    BI18,   1,      //  single bit field entry
    BI19,   1,      //  single bit field entry
    BI1A,   1,      //  single bit field entry
     BI1B,   1,      //  single bit field entry
    BI1C,   1,      //  single bit field entry
    BI1D,   1,      //  single bit field entry
    BI1E,   1,      //  single bit field entry
    BI1F,   1       //  single bit field entry
}   //  bit access field definition

Field (RAM, ByteAcc, NoLock, Preserve)
{   //  two-bit access field definition
    B2_0,   2,      //  single bit field entry
    B2_1,   2,      //  single bit field entry
    B2_2,   2,      //  single bit field entry
```

```
            B2_3,   2,      //  single bit field entry
            B2_4,   2,      //  single bit field entry
            B2_5,   2,      //  single bit field entry
            B2_6,   2,      //  single bit field entry
            B2_7,   2,      //  single bit field entry
            B2_8,   2,      //  single bit field entry
            B2_9,
  2,      //  single bit field entry
            B2_A,   2,      //  single bit field entry
            B2_B,   2,      //  single bit field entry
            B2_C,   2,      //  single bit field entry
            B2_D,   2,      //  single bit field entry
            B2_E,   2,      //  single bit field entry
            B2_F,   2       //  single bit field entry
        }   //  bit access field definition

        //  initialize memory contents using aligned field entries
        Store (0x5AA55AA5, DWD0)
        Store (0x5AA55AA5, DWD1)

        //  set memory contents to known values using misaligned field entries
        Store (0, BIT0)
            //  verify memory contents using misaligned field entries
            If (LNotEqual (BIT0, 0))
                {   Return (1)  }
            //  verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55AA4))
                {   Return
(2)  }

        //  set memory contents to known values using misaligned field entries
        Store (1, BIT1)
            //  verify memory contents using misaligned field entries
            If (LNotEqual (BIT1, 1))
                {   Return (3)  }
            //  verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55AA6))
                {   Return (4)  }

        //  set memory contents to known values using misaligned field entries
        Store (0, BIT2)
            //  verify memory contents using misaligned field entries
            If (LNotEqual (BIT2, 0))
                {   Return (5)  }
            //  verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55AA2))
                {   Return (6)  }
```

```
        // set memory contents to known values using misaligned field entries
        Store (1, BIT3)
            // verify memory
contents using misaligned field entries
            If (LNotEqual (BIT3, 1))
                {   Return (7)  }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55AAA))
                {   Return (8)  }

        // set memory contents to known values using misaligned field entries
        Store (1, BIT4)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BIT4, 1))
                {   Return (9)  }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55ABA))
                {   Return (10) }

        // set memory contents to known values using misaligned field entries
        Store (0, BIT5)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BIT5, 0))
                {   Return (11) }
            // verify memory
contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55A9A))
                {   Return (12) }

        // set memory contents to known values using misaligned field entries
        Store (1, BIT6)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BIT6, 1))
                {   Return (13) }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55ADA))
                {   Return (14) }

        // set memory contents to known values using misaligned field entries
        Store (0, BIT7)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BIT7, 0))
                {   Return (15) }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA55A5A))
                {   Return (16) }

        // set memory
```

```
contents to known values using misaligned field entries
        Store (1, BIT8)
           //  verify memory contents using misaligned field entries
           If (LNotEqual (BIT8, 1))
              {   Return (17) }
           //  verify memory contents using aligned field entries
           If (LNotEqual (DWD0, 0x5AA55B5A))
              {   Return (18) }

        //  set memory contents to known values using misaligned field entries
        Store (0, BIT9)
           //  verify memory contents using misaligned field entries
           If (LNotEqual (BIT9, 0))
              {   Return (19) }
           //  verify memory contents using aligned field entries
           If (LNotEqual (DWD0, 0x5AA5595A))
              {   Return (20) }

        //  set memory contents to known values using misaligned field entries
        Store (1, BITA)
           //  verify memory contents using misaligned field
entries
           If (LNotEqual (BITA, 1))
              {   Return (21) }
           //  verify memory contents using aligned field entries
           If (LNotEqual (DWD0, 0x5AA55D5A))
              {   Return (22) }

        //  set memory contents to known values using misaligned field entries
        Store (0, BITB)
           //  verify memory contents using misaligned field entries
           If (LNotEqual (BITB, 0))
              {   Return (23) }
           //  verify memory contents using aligned field entries
           If (LNotEqual (DWD0, 0x5AA5555A))
              {   Return (24) }

        //  set memory contents to known values using misaligned field entries
        Store (0, BITC)
           //  verify memory contents using misaligned field entries
           If (LNotEqual (BITC, 0))
              {   Return (25) }
           //  verify memory contents using aligned field
entries
           If (LNotEqual (DWD0, 0x5AA5455A))
              {   Return (26) }

        //  set memory contents to known values using misaligned field entries
```

```
        Store (1, BITD)
          //  verify memory contents using misaligned field entries
          If (LNotEqual (BITD, 1))
            {   Return (27) }
          //  verify memory contents using aligned field entries
          If (LNotEqual (DWD0, 0x5AA5655A))
            {   Return (28) }

        //  set memory contents to known values using misaligned field entries
        Store (0, BITE)
          //  verify memory contents using misaligned field entries
          If (LNotEqual (BITE, 0))
            {   Return (29) }
          //  verify memory contents using aligned field entries
          If (LNotEqual (DWD0, 0x5AA5255A))
            {   Return (30) }

        //  set memory contents to known values using
misaligned field entries
        Store (1, BITF)
          //  verify memory contents using misaligned field entries
          If (LNotEqual (BITF, 1))
            {   Return (31) }
          //  verify memory contents using aligned field entries
          If (LNotEqual (DWD0, 0x5AA5A55A))
            {   Return (32) }

        //  set memory contents to known values using misaligned field entries
        Store (0, BI10)
          //  verify memory contents using misaligned field entries
          If (LNotEqual (BI10, 0))
            {   Return (33) }
          //  verify memory contents using aligned field entries
          If (LNotEqual (DWD0, 0x5AA4A55A))
            {   Return (34) }

        //  set memory contents to known values using misaligned field entries
        Store (1, BI11)
          //  verify memory contents using misaligned field entries
          If (LNotEqual
(BI11, 1))
            {   Return (35) }
          //  verify memory contents using aligned field entries
          If (LNotEqual (DWD0, 0x5AA6A55A))
            {   Return (36) }

        //  set memory contents to known values using misaligned field entries
        Store (0, BI12)
```

```
            // verify memory contents using misaligned field entries
            If (LNotEqual (BI12, 0))
                { Return (37) }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5AA2A55A))
                { Return (38) }

        // set memory contents to known values using misaligned field entries
        Store (1, BI13)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BI13, 1))
                { Return (39) }
            // verify memory contents using aligned field entries
            If (LNotEqual
(DWD0, 0x5AAAA55A))
                { Return (40) }

        // set memory contents to known values using misaligned field entries
        Store (1, BI14)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BI14, 1))
                { Return (41) }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5ABAA55A))
                { Return (42) }

        // set memory contents to known values using misaligned field entries
        Store (0, BI15)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BI15, 0))
                { Return (43) }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5A9AA55A))
                { Return (44) }

        // set memory contents to known values using misaligned field entries

        Store (1, BI16)
            // verify memory contents using misaligned field entries
            If (LNotEqual (BI16, 1))
                { Return (45) }
            // verify memory contents using aligned field entries
            If (LNotEqual (DWD0, 0x5ADAA55A))
                { Return (46) }

        // set memory contents to known values using misaligned field entries
        Store (0, BI17)
            // verify memory contents using misaligned field entries
```

```
    If (LNotEqual (BI17, 0))
        {   Return (47) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x5A5AA55A))
        {   Return (48) }

//  set memory contents to known values using misaligned field entries
Store (1, BI18)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI18, 1))

{   Return (49) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x5B5AA55A))
        {   Return (50) }

//  set memory contents to known values using misaligned field entries
Store (0, BI19)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI19, 0))
        {   Return (51) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x595AA55A))
        {   Return (52) }

//  set memory contents to known values using misaligned field entries
Store (1, BI1A)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI1A, 1))
        {   Return (53) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x5D5AA55A))

      {   Return (54) }

//  set memory contents to known values using misaligned field entries
Store (0, BI1B)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI1B, 0))
        {   Return (55) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x555AA55A))
        {   Return (56) }

//  set memory contents to known values using misaligned field entries
Store (0, BI1C)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI1C, 0))
```

```
        {   Return (57) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x455AA55A))
        {   Return (58) }

//  set memory contents to known values using misaligned field entries
Store (1, BI1D)

//  verify memory contents using misaligned field entries
    If (LNotEqual (BI1D, 1))
        {   Return (59) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x655AA55A))
        {   Return (60) }

//  set memory contents to known values using misaligned field entries
Store (0, BI1E)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI1E, 0))
        {   Return (61) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x255AA55A))
        {   Return (62) }

//  set memory contents to known values using misaligned field entries
Store (1, BI1F)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (BI1F, 1))
        {   Return (63) }

 //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0xA55AA55A))
        {   Return (64) }


//  set memory contents to known values using misaligned field entries
Store (3, B2_0)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (B2_0, 3))
        {   Return (65) }
    //  verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0xA55AA55B))
        {   Return (66) }

//  set memory contents to known values using misaligned field entries
Store (1, B2_1)
    //  verify memory contents using misaligned field entries
    If (LNotEqual (B2_1, 1))
```

```
            {   Return (67) }
        //  verify memory contents using aligned field entries
        If (LNotEqual (DWD0, 0xA55AA557))
            {   Return (68)
}

        //  set memory contents to known values using misaligned field entries
        Store (0, B2_2)
        //  verify memory contents using misaligned field entries
        If (LNotEqual (B2_2, 0))
            {   Return (69) }
        //  verify memory contents using aligned field entries
        If (LNotEqual (DWD0, 0xA55AA547))
            {   Return (70) }

        //  set memory contents to known values using misaligned field entries
        Store (3, B2_3)
        //  verify memory contents using misaligned field entries
        If (LNotEqual (B2_3, 3))
            {   Return (71) }
        //  verify memory contents using aligned field entries
        If (LNotEqual (DWD0, 0xA55AA5C7))
            {   Return (72) }

        //  set memory contents to known values using misaligned field entries
        Store (3, B2_4)
        //  verify memory contents
using misaligned field entries
        If (LNotEqual (B2_4, 3))
            {   Return (73) }
        //  verify memory contents using aligned field entries
        If (LNotEqual (DWD0, 0xA55AA7C7))
            {   Return (74) }

        //  set memory contents to known values using misaligned field entries
        Store (0, B2_5)
        //  verify memory contents using misaligned field entries
        If (LNotEqual (B2_5, 0))
            {   Return (75) }
        //  verify memory contents using aligned field entries
        If (LNotEqual (DWD0, 0xA55AA3C7))
            {   Return (76) }

        //  set memory contents to known values using misaligned field entries
        Store (1, B2_6)
        //  verify memory contents using misaligned field entries
        If (LNotEqual (B2_6, 1))
            {   Return (77) }
```

```
            // verify memory contents
using aligned field entries
            If (LNotEqual (DWD0, 0xA55A93C7))
               {   Return (78) }

            // set memory contents to known values using misaligned field entries
            Store (1, B2_7)
               // verify memory contents using misaligned field entries
               If (LNotEqual (B2_7, 1))
                  {   Return (79) }
               // verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0xA55A53C7))
                  {   Return (80) }

            // set memory contents to known values using misaligned field entries
            Store (0, B2_8)
               // verify memory contents using misaligned field entries
               If (LNotEqual (B2_8, 0))
                  {   Return (81) }
               // verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0xA55853C7))
                  {   Return (82) }

            // set memory contents
to known values using misaligned field entries
            Store (1, B2_9)
               // verify memory contents using misaligned field entries
               If (LNotEqual (B2_9, 1))
                  {   Return (83) }
               // verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0xA55453C7))
                  {   Return (84) }

            // set memory contents to known values using misaligned field entries
            Store (2, B2_A)
               // verify memory contents using misaligned field entries
               If (LNotEqual (B2_A, 2))
                  {   Return (85) }
               // verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0xA56453C7))
                  {   Return (86) }

            // set memory contents to known values using misaligned field entries
            Store (2, B2_B)
               // verify memory contents using misaligned field entries
                If (LNotEqual (B2_B, 2))
                  {   Return (87) }
               // verify memory contents using aligned field entries
```

```
            If (LNotEqual (DWD0, 0xA5A453C7))
                {   Return (88) }

            //  set memory contents to known values using misaligned field entries
            Store (3, B2_C)
               //  verify memory contents using misaligned field entries
               If (LNotEqual (B2_C, 3))
                  {   Return (89) }
               //  verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0xA7A453C7))
                  {   Return (90) }

            //  set memory contents to known values using misaligned field entries
            Store (3, B2_D)
               //  verify memory contents using misaligned field entries
               If (LNotEqual (B2_D, 3))
                  {   Return (91) }
               //  verify memory contents using aligned field entries
                If (LNotEqual (DWD0, 0xAFA453C7))
                  {   Return (92) }

            //  set memory contents to known values using misaligned field entries
            Store (1, B2_E)
               //  verify memory contents using misaligned field entries
               If (LNotEqual (B2_E, 1))
                  {   Return (93) }
               //  verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0x9FA453C7))
                  {   Return (94) }

            //  set memory contents to known values using misaligned field entries
            Store (0, B2_F)
               //  verify memory contents using misaligned field entries
               If (LNotEqual (B2_F, 0))
                  {   Return (95) }
               //  verify memory contents using aligned field entries
               If (LNotEqual (DWD0, 0x1FA453C7))
                  {   Return (96) }


            Return (0)  //  pass
        }   //  MADM:   Misaligned
    Dynamic RAM SystemMemory OperationRegion

        Method (TEST)
        {
            Store ("++++++++ IndexOp4 Test", Debug)
```

```
        //  MADM (Misaligned Dynamic RAM SystemMemory OperationRegion) arguments:
        //      Arg0    --  SystemMemory OperationRegion base address
        Store (MADM (0x800000), Local0)
        If (LNotEqual (Local0, 0))      //  MADM returns zero if successful
          {   Return (Local0) }       //  failure:    return MADM error code

        Return (Local0)
      }   //  TEST
    }   //  IDX4

//
// test Event.asl
//
//  EventOp, ResetOp, SignalOp, and WaitOp test cases.
//
  Device (EVNT)
  {
    Event (EVNT)    //  event synchronization object

    Method (TEVN, 1)
    //  Arg0:   time to Wait for event in milliseconds
    {   //  TEVN control method to test ResetOp, SignalOp, and WaitOp
        //  reset EVNT to initialization (zero) state
        Reset (EVNT)

        //  prime EVNT
 with two outstanding signals
        Signal (EVNT)
        Signal (EVNT)


        //  acquire existing signal
        Store (Wait (EVNT, Arg0), Local0)

        //  validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1))  //  Number is type 1
          {   Return (0x21)   }       //  Local1 indicates Local0 is not a Number

        If (LNotEqual (Local0, 0))  //  Number is type 1
          {   Return (0x22)   }       //  timeout occurred without acquiring signal

        Store ("Acquire 1st existing signal PASS", Debug)


        //  acquire existing signal
        Store (Wait (EVNT, Arg0), Local0)
```

```
        //  validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1))  //  Number is type 1
           {   Return (0x31)   }       //  Local1 indicates Local0 is not a Number

        If (LNotEqual (Local0, 0))
 //  Number is type 1
           {   Return (0x32)   }       //  timeout occurred without acquiring signal

        Store ("Acquire 2nd existing signal PASS", Debug)



        //  ensure WaitOp timeout test cases do not hang
        if (LEqual (Arg0, 0xFFFF))
           {   Store (0xFFFE, Arg0)    }

        //  acquire non-existing signal
        Store (Wait (EVNT, Arg0), Local0)

        //  validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1))  //  Number is type 1
           {   Return (0x41)   }       //  Local1 indicates Local0 is not a Number

        If (LEqual (Local0, 0))     //  Number is type 1
           {   Return (0x42)   }       //  non-existent signal was acquired

        Store ("Acquire signal timeout PASS", Debug)



        //  prime EVNT with two outstanding signals
        Signal (EVNT)
        Signal (EVNT)

        //  reset EVNT to initialization
(zero) state
        Reset (EVNT)

        //  acquire non-existing signal
        Store (Wait (EVNT, Arg0), Local0)

        //  validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1))  //  Number is type 1
           {   Return (0x51)   }       //  Local1 indicates Local0 is not a Number

        If (LEqual (Local0, 0))     //  Number is type 1
           {   Return (0x52)   }       //  non-existent signal was acquired
```

```
        Store ("Reset signal PASS", Debug)


        //  acquire non-existing signal using Lvalue timeout
        Store (Wait (EVNT, Zero), Local0)

        //  validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1))  //  Number is type 1
           {   Return (0x61)   }       //  Local1 indicates Local0 is not a Number

        If (LEqual (Local0, 0))     //  Number is type 1

       {   Return (0x62)   }       //  non-existent signal was acquired

        Store ("Zero Lvalue PASS", Debug)


        //  acquire non-existing signal using Lvalue timeout
        Store (Wait (EVNT, One), Local0)

        //  validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1))  //  Number is type 1
           {   Return (0x71)   }       //  Local1 indicates Local0 is not a Number

        If (LEqual (Local0, 0))     //  Number is type 1
           {   Return (0x72)   }       //  non-existent signal was acquired

        Store ("One Lvalue PASS", Debug)

        //  Lvalue Event test cases
    // ILLEGAL SOURCE OPERAND        Store (EVNT, Local2)

        //  validate Local2 is an Event
        Store (ObjectType (EVNT), Local1)
        If (LNotEqual (Local1, 7))  //  Event is type 7
           {   Return (0x81)   }       //  Local1 indicates Local0 is not a Number

         //  reset EVNT to initialization (zero) state
        Reset (EVNT)

        //  prime EVNT with two outstanding signals
        Signal (EVNT)

        //  acquire existing signal
        Store (Wait (EVNT, Arg0), Local0)
```

```
        // validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1)) // Number is type 1
          {  Return (0x82)  }      // Local1 indicates Local0 is not a Number

        If (LNotEqual (Local0, 0)) // Number is type 1
          {  Return (0x83)  }      // timeout occurred without acquiring signal

        Store ("Acquire Lvalue existing signal PASS", Debug)


        // acquire non-existing signal
        Store (Wait (EVNT, Arg0), Local0)

        // validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1)) // Number is type 1
          {  Return (0x84)  }
    // Local1 indicates Local0 is not a Number

        If (LEqual (Local0, 0))    // Number is type 1
          {  Return (0x85)  }      // non-existent signal was acquired

        Store ("Acquire Lvalue signal timeout PASS", Debug)


        Return (0) // success
    }  // TEVN control method to test ResetOp, SignalOp, and WaitOp

    Method (TEST)
    {
        Store ("++++++++ Event Test", Debug)

        Store (TEVN (100), Local0)

        Return (Local0)
    }  // TEST
  }  // EVNT

//
// test SizeOfLv.asl
//
// Test for SizeOf (Lvalue)
//
// This next section will contain the packages that the SizeOfOp will be
// exercised on. The first one, PKG0, is a regular package of 3 elements.
// The 2nd one, PKG1, is a nested package with 3 packages inside it, each
```

```
//  with 3 elements. It is expected that SizeOf operator will return the
//  same value for these two packages since they both have 3 elements. The
//  final
 package, PKG2, has 4 elements and the SizeOf operator is expected
//  to return different results for this package.

  Name (PKG0,
     Package (3)
     {0x0123, 0x4567, 0x89AB}
  )  //  PKG0

  Name (PKG1,
     Package (3)
     {
        Package (3) {0x0123, 0x4567, 0x89AB},
        Package (3) {0xCDEF, 0xFEDC, 0xBA98},
        Package (3) {0x7654, 0x3210, 0x1234}
     }
  )  //  PKG1

  Name (PKG2,
     Package (4)
     {0x0123, 0x4567, 0x89AB, 0x8888}
  )  //  PKG2

  Name (PKG3,
     Package (5)
     {0x0123, 0x4567, 0x89AB, 0x8888, 0x7777}
  )  //  PKG3

//  End Packages    ***********************************************************

//  The following section will declare the data strings that will be used to
//  exercise the SizeOf operator. STR0 and STR1 are expected to be equal,
//  STR2 is expected to have a different SizeOf value than STR0 and STR1.

  Name (STR0, "ACPI permits very flexible methods of expressing a system")

   Name (STR1, "MIKE permits very flexible methods of expressing a system")

  Name (STR2, "Needless to say, Mike and ACPI are frequently at odds")

//  This string is being made in case we want to do a SizeOf comparison
//  between strings and packages or buffers
  Name (STR3, "12345")

//  End Strings     *********************************************************
```

```
// The following section will declare the buffers that will be used to exercise
// the SizeOf operator.

  Name (BUF0, Buffer (10) {})
  Name (BUF1, Buffer (10) {})
  Name (BUF2, Buffer (8)  {})
  Name (BUF3, Buffer (5)  {})

// End Buffers     ************************************************************
  Device (SZLV)
  {

    Method (CMPR, 2)
    {
      // CMPR is passed two arguments. If unequal, return 1 to indicate
      // that, otherwise return 0 to indicate SizeOf each is equal.

      Store (0x01, Local0)

      if (LEqual (SizeOf(Arg0), SizeOf(Arg1)))
       {
        Store (0x00, Local0)
      }

      return (Local0)
    }  // CMPR


    Method (TEST)
    {

      Store ("++++++++ SizeOfLv Test", Debug)

      // TBD:    SizeOf ("string")
      //         SizeOf (Buffer)
      //         SizeOf (Package)
      //         SizeOf (String)
      //         SizeOf (STR0)   --  where Name (STR0,...) -- lot's of cases
      //            buffer, string, package,
      //         SizeOf (METH) -- where METH control method returns
      //            buffer, string, package,

      // TBD:    SLOC [SizeOf (Local0)] -- dup SARG

      // Compare the elements that we expect to be the same. Exit out with an error
      // code on the first failure.
      if (LNotEqual (0x00, CMPR (STR0, STR1)))
      {
```

```
            Return (0x01)
        }

        if (LNotEqual (0x00, CMPR (STR3, BUF3)))

    {
            Return (0x02)
        }

        if (LNotEqual (0x00, CMPR (STR3, PKG3)))
        {
            Return (0x03)
        }

        //  In the following section, this test will cover the SizeOf
        //  operator for Local values.
        //  In this case, both Local0 and Local1 should have the same Size
        Store (STR0, Local0)
        Store (STR1, Local1)

        if (LNotEqual (SizeOf (Local0), SizeOf (Local1)))
        {
            Return (0x04)
        }

        //  Now create a case where Local0 and Local1 are different
        Store (STR2, Local1)

        if (LEqual (SizeOf (Local0), SizeOf (Local1)))
        {
            Return (0x05)
        }

        //  Finally, check for the return of SizeOf for a known Buffer. Just
        //  in case we magically pass above cases due to all Buffers being Zero
        //  bytes in size, or Infinity, etc.
        if (LNotEqual
(0x05, SizeOf (BUF3)))
        {
            Return (0x06)
        }

        Return (0)
      }   //  TEST
    }   //  SZLV


//
```

```
// test BytField.asl
//
//  BytField test
//      This is just a subset of the many RegionOp/Index Field test cases.
//      Tests access of TBD.
//
   Scope (\_SB)    //  System Bus
   {   //  _SB system bus
      Device (BYTF)
      {   //  Test device name
         Method (TEST)
         {
            Store ("++++++++ BytField Test", Debug)

            Return (\_TZ.C19B.RSLT)
         }   //  TEST
      }   //  BYTF

      Device (C005)
      {   //  Device C005
         Device (C013)
         {   //  Device C013
         }   //  Device C013
      }   //  Device C005

      Method (C115)
      {   //  C115 control method
         Acquire (\_GL, 0xFFFF)
         Store (\_SB.C005.C013.C058.C07E, Local0)
         Release (\_GL)
         And (Local0, 16, Local0)
         Store
 (ShiftRight (Local0, 4, ), Local1)
         If (LEqual (Local1, 0))
            {   Return (1)  }
         Else
            {   Return (0)  }
      }   //  C115 control method
   }   //  _SB system bus

   OperationRegion (C018, SystemIO, 0x5028, 4)
   Field (C018, AnyAcc, NoLock, Preserve)
   {   //  Field overlaying C018
      C019,   32
   }   //  Field overlaying C018

   OperationRegion (C01A, SystemIO, 0x5030, 4)
   Field (C01A, ByteAcc, NoLock, Preserve)
```

```
{   //  Field overlaying C01A
    C01B,   8,
    C01C,   8,
    C01D,   8,
    C01E,   8
}   //  Field overlaying C01A

Mutex (\C01F, 0)
Name (\C020, 0)
Name (\C021, 0)

Method (\C022, 0)
{   //  \C022 control method
    Acquire (\C01F, 0xFFFF)
    If (LEqual (\C021, 0))
    {
        Store (C019, Local0)
        And (Local0, 0xFFFEFFFE, Local0)
        Store (Local0, C019)
        Increment (\C021)
    }
    Release (\C01F)
 }   //  \C022 control method

Scope (\_SB.C005.C013)
{   //  Scope \_SB.C005.C013
    Device (C058)
    {   //  Device C058
        Name (_HID, "*PNP0A06")

        OperationRegion (C059, SystemIO, 0xE0, 2)
        Field (C059, ByteAcc, NoLock, Preserve)
        {   //  Field overlaying C059
            C05A,   8,
            C05B,   8
        }   //  Field overlaying C059

        OperationRegion (C05C, SystemIO, 0xE2, 2)
        Field (C05C, ByteAcc, NoLock, Preserve)
        {   //  Field overlaying C05C
            C05D,   8,
            C05E,   8
        }   //  Field overlaying C05C
        IndexField (C05D, C05E, ByteAcc, NoLock, Preserve)
        {   //  IndexField overlaying C05D/C05E
            ,       0x410,  //  skip
            C05F,   8,
            C060,   8,
```

```
        C061,   8,
        C062,   8,
        C063,   8,
        C064,   8,

    C065,   8,
        C066,   8,
        C067,   8,
        C068,   8,
        C069,   8,
        C06A,   8,
        C06B,   8,
        C06C,   8,
        C06D,   8,
        C06E,   8,
        ,       0x70,       // skip
        C06F,   8,
        C070,   8,
        C071,   8,
        C072,   8,
        C073,   8,
        C074,   8,
        C075,   8,
        C076,   8,
        C077,   8,
        C078,   8,
        C079,   8,
        C07A,   8,
        C07B,   8,
        C07C,   8,
        C07D,   8,
        C07E,   8
    }   // IndexField overlaying C05D/C05E

    OperationRegion (C07F, SystemIO, 0xE4, 2)
    Field (C07F, ByteAcc, NoLock, Preserve)
    {   // Field overlaying C07F
        C080,   8,
        C081,   8

}   // Field overlaying C07F

    OperationRegion (C082, SystemIO, 0xE0, 1)
    Field (C082, ByteAcc, NoLock, Preserve)
    {   // Field overlaying C082
        C083,   8
    }   // Field overlaying C082
```

```
        OperationRegion (C084, SystemIO, 0xFF, 1)
        Field (C084, ByteAcc, NoLock, Preserve)
        {   //  Field overlaying C084
            C085,   8
        }   //  Field overlaying C084

        OperationRegion (C086, SystemIO, 0xFD, 1)
        Field (C086, ByteAcc, NoLock, Preserve)
        {   //  Field overlaying C086
            C087,   8
        }   //  Field overlaying C086

        Mutex (C088, 0)
        Mutex (C089, 0)
        Mutex (C08A, 0)
        Mutex (C08B, 0)
        Mutex (C08C, 0)
        Mutex (C08D, 0)

        Name (C08E, 0xFFFFFFFD)
        Name (C08F, 0)

        Method (C0AA, 4)
        {   //  C0AA control method

    Store (Buffer (4) {}, Local7)
            CreateByteField (Local7, 0, C0AB)
            CreateByteField (Local7, 1, C0AC)
            CreateByteField (Local7, 2, C0AD)
            CreateByteField (Local7, 3, C0AE)
            Acquire (^C08B, 0xFFFF)
            Acquire (\_GL, 0xFFFF)
            \C022 ()
            Store (1, \_SB.C005.C013.C058.C06B)
            While (LNot (LEqual (0, \_SB.C005.C013.C058.C06B)))
                {   Stall (100) }
            Store (Arg3, \_SB.C005.C013.C058.C06E)
            Store (Arg2, \_SB.C005.C013.C058.C06D)
            Store (Arg1, \_SB.C005.C013.C058.C06C)
            Store (Arg0, \_SB.C005.C013.C058.C06B)
            While (LNot (LEqual (0, \_SB.C005.C013.C058.C06B)))
                {   Stall (100) }
            Store (\_SB.C005.C013.C058.C06E, C0AB)
            Store (\_SB.C005.C013.C058.C06D, C0AC)
            Store (\_SB.C005.C013.C058.C06C, C0AD)

    Store (\_SB.C005.C013.C058.C06B, C0AE)
            If (LNot (LEqual (Arg0, 23)))
```

```
            {
               Store (2, \_SB.C005.C013.C058.C06B)
               Stall (100)
            }
            Release (\_GL)
            Release (^C08B)
            Return (Local7)
         }  //  C0AA control method
      }  //  Device C058
   }  //  Scope \_SB.C005.C013

   Scope (\_TZ)
   {  //  \_TZ thermal zone scope
      Name (C18B, Package (2)
      {
         Package (2)
         {
            Package (5) {0x05AC, 0x0CD2, 0x0D68, 0x0DE0, 0x0E4E},
            Package (5) {0x0D04, 0x0D9A, 0x0DFE, 0x0E80, 0x0FA2}
         },
         Package (2)
         {
            Package (5) {0x05AC, 0x0CD2, 0x0D68, 0x0DE0, 0x0E4E},
            Package (5) {0x0D04, 0x0D9A, 0x0DFE, 0x0E80, 0x0FA2}
         }
      })  //  C18B

      Name (C18C, Package (2)
      {
         Package (2)
         {

     Package (3) {0x64, 0x4B, 0x32},
            Package (3) {0x64, 0x4B, 0x32}
         }
      })  //  C81C

      Name (C18D, 0)
      Name (C18E, 0)
      Name (C18F, 0)
      Name (C190, 0)
      Name (C191, 3)
      Name (C192, 0)
      Name (C193, 1)
      Name (C194, 2)
      Mutex (C195, 0)
      Name (C196, 1)
      Name (C197, 0x0B9C)
```

```
Name (C198, 0x0B9C)
Name (C199, 0xFFFFFFFD)
Name (C19A, 0)

Device (C19B)
{   //  Device C19B
   Name (RSLT, 0)  //  default to zero

   Method (XINI)
   {   //  _INI control method (Uses Global Lock -- can't run under AcpiExec)
      Store (\_SB.C115, C19A)
      \_TZ.C19C._SCP (0)
      Subtract (0x0EB2, 0x0AAC, Local1)   //  Local1 = AACh - EB2h
      Divide (Local1, 10, Local0, Local2) //  Local0 = Local1 / 10
                                          //  Local2 = Local1 % 10

 \_SB.C005.C013.C058.C0AA (14, Local2, 0, 0)
      Store
         (DerefOf (Index (DerefOf (Index (\_TZ.C18C, C19A, )), 0, )), C18D)
      Store
         (DerefOf (Index (DerefOf (Index (\_TZ.C18C, C19A, )), 1, )), C18E)
      Store
         (DerefOf (Index (DerefOf (Index (\_TZ.C18C, C19A, )), 2, )), C18F)

      Store (1, RSLT) //  set RSLT to 1 if _INI control method completes
   }   //  _INI control method

   //  PowerResource (C19D) {...}
}   //  Device C19B

ThermalZone (C19C)
{
   Method (_SCP, 1)
   {   //  _SCP control method
      Store (Arg0, Local0)
      If (LEqual (Local0, 0))
      {
         Store (0, \_TZ.C192)
         Store (1, \_TZ.C193)
         Store (2, \_TZ.C194)
         Store (3, \_TZ.C191)
      }
      Else
      {

         Store (0, \_TZ.C191)
         Store (1, \_TZ.C192)
         Store (2, \_TZ.C193)
```

```
                Store (3, \_TZ.C194)
            }
        }   //  _SCP control method
    }   //  ThermalZone C19C
}   //  \_TZ thermal zone scope


//
// test DwrdFld.asl
//
  Name (BUFR, buffer(10) {0,0,0,0,0,0,0,0,0,0} )

  Device (DWDF)
  {
    Method (TEST)
    {
      Store ("++++++++ DwrdFld Test", Debug)

      CreateByteField (BUFR, 0, BYTE)
      Store (0xAA, BYTE)

      CreateWordField (BUFR, 1, WORD)
      Store (0xBBCC, WORD)

      CreateDWordField (BUFR, 3, DWRD)
      Store (0xDDEEFF00, DWRD)

      CreateByteField (BUFR, 7, BYT2)
      Store (0x11, BYT2)

      CreateWordField (BUFR, 8, WRD2)
      Store (0x2233, WRD2)

      Return (0)

    }   //  End Method TEST
  }   //  Device DWDF

  //
  // test DivAddx.asl
  //
  Name (B1LO,
0xAA)
  Name (B1HI, 0xBB)

  Method (MKW_, 2)
  {   //  This control method will take two bytes and make them into a WORD
```

```
    Multiply (B1HI, 256, Local0)    //  Make high byte.....high
    Or (Local0, B1LO, Local0)       //  OR in the low byte
    Return (Local0)                 //  Return the WORD

  }   //  MKW_

  Device (DVAX)
  {
    Method (TEST)
    {

      Store ("++++++++ DivAddx Test", Debug)

      Store (25, B1LO)
      Store (0, B1HI)

      //  We'll multiply 25 * 3 to get 75, add 99 to it then divide
      //  by 100. We expect to get 74 for the remainder and 1 for
      //  the quotient.
      Divide(
        Add (Multiply (3, MKW_ (B1LO, B1HI)), 0x63),
                //  Dividend,
        100,        //  Divisor
        Local4,     //  Remainder
        Local2)     //  Quotient

      If (LAnd (LEqual (74, Local4), LEqual (1, Local2)))

      {   //  Indicate Pass
        Store (0x00, Local0)
      }

      Else
      {   //  Indicate Fail
        Store (0x01, Local0)
      }

      Return (Local0)
    }   //  End Method TEST
  }   //  Device DVAX

//
// test IndexFld.asl (IndexOp6.asl)
//
//  IndexFld test
//      This is just a subset of the many RegionOp/Index Field test cases.
//      Tests index field element AccessAs macro.
//      Also tests name resolution of index field elements with same names
```

```
//      but different namespace scopes.
//
  Device (IDX6)
  {   //  Test device name

      OperationRegion (SIO, SystemIO, 0x100, 2)
      Field (SIO, ByteAcc, NoLock, Preserve)
      {
        INDX,   8,
        DATA,   8
      }
      IndexField (INDX, DATA, AnyAcc, NoLock, WriteAsOnes)
      {
        AccessAs (ByteAcc, 0),
        IFE0,   8,
        IFE1,   8,
        IFE2,   8,
        IFE3,   8,
        IFE4,
   8,
        IFE5,   8,
        IFE6,   8,
        IFE7,   8,
        IFE8,   8,
        IFE9,   8,
      }

      Device (TST_)
      {   //  TST_:   provides a different namespace scope for IFE0 and IFE1
        OperationRegion (SIO2, SystemIO, 0x100, 2)
        Field (SIO2, ByteAcc, NoLock, Preserve)
        {
          IND2,   8,
          DAT2,   8
        }
        IndexField (IND2, DAT2, AnyAcc, NoLock, WriteAsOnes)
        {
          IFE0,   8,  //  duplicate IndexField name with different scope
          IFE1,   8
        }
      }   //  TST_:   provides a different namespace scope for IFE0 and IFE1

      Method (TEST)
      {
        Store ("++++++++ IndexOp6 Test", Debug)

        Store (IFE0, Local0)
        Store (IFE1, Local1)
```

```
        Store (IFE2, Local2)

        //  validate name resolution of IndexFields with different scopes
        Store (\IDX6.IFE0, Local3)
         Store (\IDX6.IFE1, Local4)
        //  verioading of namespace can resolve following names
        Store (\IDX6.TST_.IFE0, Local5)
        Store (\IDX6.TST_.IFE1, Local6)

        Return (0)
      }   //  TEST
    }   //  IDX6

//
// test IndexOp5.asl
//
//  IndexOp5 test
//      This is just a subset of the many RegionOp/Index Field test cases.
//      Tests copying string into buffer then performing IndexOp on result.
//
    Device (IDX5)
    {   //  Test device name

      Name (OSFL, 0)  //  0 == Windows 98, 1 == Windows NT

      //  MCTH is a control method to compare two strings. It returns
      //  zero if the strings mismatch, or 1 if the strings match.
      //  This exercises the test case of copying a string into a buffer
      //  and performing an IndexOp on the resulting buffer.
      Method (MCTH, 2, Serialized)    //  Control Method to compare two strings
      {   //  MCTH:   Control Method to compare two strings

   //  Arg0:       first string to compare
        //  Arg1:       second string to compare
        //  Return: zero if strings mismatch, 1 if strings match

        //  check if first string's length is less than second string's length
        If (LLess (SizeOf (Arg0), SizeOf (Arg1)))
          {   Return (0)  }

        //  increment length to include NULL termination character
        Add (SizeOf (Arg0), 1, Local0)  //  Local0 = strlen(Arg0) + 1

        //  create two buffers of size Local0 [strlen(Arg0)+1]
        Name (BUF0, Buffer (Local0) {})
        Name (BUF1, Buffer (Local0) {})

        //  copy strings into buffers
```

```
        Store (Arg0, BUF0)
        Store (Arg1, BUF1)

        //  validate BUF0 and BUF1 are still buffers
        Store (ObjectType (BUF0), Local1)
        If (LNotEqual (Local1, 3))  //  Buffer is type 3
          {   Return (20) }
        Store (ObjectType (BUF1), Local1)
        If
(LNotEqual (Local1, 3))  //  Buffer is type 3
          {   Return (21) }

        // Decrement because the Index base below is zero based
        //  while Local0 length is one based.
        Decrement (Local0)

        While (Local0)
        {   //  loop through all BUF0 buffer elements
          Decrement (Local0)

          //  check if BUF0[n] == BUF1[n]
          If (LEqual (DerefOf (Index (BUF0, Local0, )),
                DerefOf (Index (BUF1, Local0, ))))
            {   }   //  this is how the code was really implemented
          Else
            {   Return (Zero)   }
        }   //  loop through all BUF0 buffer elements

        Return (One)    //  strings / buffers match
      }   //  MCTH:   Control Method to compare two strings


      Method (TEST)
      {
        Store ("++++++++ IndexOp5 Test", Debug)

        If (MCTH (\_OS, "Microsoft Windows NT"))
          {   Store
(1, OSFL) }

        If (LNotEqual (OSFL, 1))
          {   Return (11) }

        Return (0)
      }   //  TEST
    }   //  IDX5

//
```

```
// test IndexOp.asl
//
  Scope (\_SB)    //  System Bus
  {   //  _SB system bus

     Method (C097)
       {   Return (1)  }

     Device (PCI2)
     {   //  Root PCI Bus
       Name (_HID, EISAID("PNP0A03"))
       Name (_ADR, 0x00000000)
       Name (_CRS, Buffer(26)  {"\_SB_.PCI2._CRS....."})
       Method (_STA)   {Return (0x0F)}

       Device (ISA)
       {   //  ISA bridge
         Name (_ADR, 0x00030000)     //  ISA bus ID

         Device (EC0)
         {   //  Embedded Controller
           Name (_GPE, 0)              //  EC use GPE0
           Name (_ADR, 0x0030000)  //  PCI address

           Method (_STA,0)         //  EC Status
             {   Return(0xF) }       //  EC is functioning


Name (_CRS, ResourceTemplate()
               {
                 IO (Decode16, 0x62, 0x62, 1, 1)
                 IO (Decode16, 0x66, 0x66, 1, 1)
               }
             )

         //  create EC's region and field
           OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
           Field (RAM, AnyAcc, NoLock, Preserve)
           {
             //  AC information
             ADP,    1,      //  AC Adapter 1:On-line, 0:Off-line
             AFLT,   1,      //  AC Adapter Fault  1:Fault  0:Normal
             BAT0,   1,      //  BAT0  1:present, 0:not present
             ,       1,      //  reserved
             ,       28, //  filler to force DWORD alignment

             //  CMBatt information
             BPU0,   32, //  Power Unit
```

```
            BDC0,   32, //  Designed Capacity

        BFC0,   32, //  Last Full Charge Capacity
            BTC0,   32, //  Battery Technology
            BDV0,   32, //  Design Voltage
            BST0,   32, //  Battery State
            BPR0,   32, //  Battery Present Rate
                    //  (Designed Capacity)x(%)/{(h)x100}
            BRC0,   32, //  Battery Remaining Capacity
                    //  (Designed Capacity)(%)^100
            BPV0,   32, //  Battery Present Voltage
            BTP0,   32, //  Trip Point
            BCW0,   32, //  Design capacity of Warning
            BCL0,   32, //  Design capacity of Low
            BCG0,   32, //  capacity granularity 1
            BG20,   32, //  capacity granularity 2
            BMO0,   32, //  Battery model number field
            BIF0,   32, //  OEM Information(00h)

          BSN0,   32, //  Battery Serial Number
            BTY0,   32, //  Battery Type (e.g., "Li-Ion")
            BTY1,   32      //  Battery Type (e.g., "Li-Ion")
          }   //  Field
        }   //  EC0: Embedded Controller
      }   //  ISA bridge
    }   //  PCI2 Root PCI Bus

    Device (IDX0)
    {   //  Test device name
      Name (_HID, EISAID ("PNP0C0A"))     //  Control Method Battey ID
      Name (_PCL, Package() {\_SB})
      Method (_STA)
      {
        //  _STA bits 0-3 indicate existence of battery slot
        //  _STA bit 4 indicates battery (not) present
        If (\_SB.PCI2.ISA.EC0.BAT0)
          {   Return (0x1F)   }   //  Battery present
        else
          {   Return (0x0F)   }   //  Battery not present
      }   //  _STA

      Method (_BIF,, Serialized)
      {
        Name (BUFR,
Package(13) {})
        Store (\_SB.PCI2.ISA.EC0.BPU0, Index (BUFR,0))  //  Power Unit
        Store (\_SB.PCI2.ISA.EC0.BDC0, Index (BUFR,1))  //  Designed Capacity
        Store (\_SB.PCI2.ISA.EC0.BFC0, Index (BUFR,2))  //  Last Full Charge Capa.
```

```
            Store (\_SB.PCI2.ISA.EC0.BTC0, Index (BUFR,3))  //  Battery Technology
            Store (\_SB.PCI2.ISA.EC0.BDV0, Index (BUFR,4))  //  Designed Voltage
            Store (\_SB.PCI2.ISA.EC0.BCW0, Index (BUFR,5))  //  Designed warning level
            Store (\_SB.PCI2.ISA.EC0.BCL0, Index (BUFR,6))  //  Designed Low level
            Store (\_SB.PCI2.ISA.EC0.BCG0, Index (BUFR,7))  //  Capacity granularity 1
            Store (\_SB.PCI2.ISA.EC0.BG20, Index (BUFR,8))  //  Capacity granularity 2

            Store ("", Index (BUFR,9))                      //  Model Number

            Store ("", Index (BUFR,10))                     //  Serial Number

            Store
("LiOn", Index (BUFR,11))                   //  Battery Type

            Store ("Chicony", Index (BUFR,12))              //  OEM Information

            Return (BUFR)
        }  //  _BIF

        Method (_BST,, Serialized)
        {
            Name (BUFR, Package(4) {1, 0x100, 0x76543210, 0x180})
            Return (BUFR)
        }  //  _BST

        Method (_BTP,1)
        {
            Store (arg0, \_SB.PCI2.ISA.EC0.BTP0)    //  Set Battery Trip point
        }

        Method (TEST,, Serialized)
        {

            Store ("++++++++ IndexOp Test", Debug)

            //  test storing into uninitialized package elements
            Name (PBUF, Package(4) {})  //  leave uninitialized
            Store (0x01234567, Index (PBUF,0))
            Store (0x89ABCDEF, Index (PBUF,1))
            Store (0xFEDCBA98, Index (PBUF,2))
            Store (0x76543210, Index (PBUF,3))


//  verify values stored into uninitialized package elements
            If (LNotEqual (DerefOf (Index (PBUF,0)), 0x01234567))
               {   Return (0x10)   }

            If (LNotEqual (DerefOf (Index (PBUF,1)), 0x89ABCDEF))
```

```
    {   Return (0x11)   }

If (LNotEqual (DerefOf (Index (PBUF,2)), 0xFEDCBA98))
    {   Return (0x12)   }

If (LNotEqual (DerefOf (Index (PBUF,3)), 0x76543210))
    {   Return (0x13)   }


// store _BIF package return value into Local0
Store (_BIF, Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Package
If (LNotEqual (Local1, 4))  // Package type is 4
    {   Return (0x21)   }   // failure


// test storing into buffer field elements
Name (BUFR, Buffer(16)
     {   // initial values
       00, 00, 00, 00, 00, 00, 00, 00,
       00, 00, 00, 00, 00, 00, 00, 00,
     }
)  // BUFR
// test storing into buffer field elements
Store (0x01234567, Index (BUFR,0))  // should only store 0x67
Store (0x89ABCDEF, Index (BUFR,4))  // should only store 0xEF
Store (0xFEDCBA98, Index (BUFR,8))  // should only store 0x98
Store (0x76543210, Index (BUFR,12)) // should only store 0x10

// verify storing into buffer field elements
If (LNotEqual (DerefOf (Index (BUFR,0)), 0x67))
    {   Return (0x30)   }

If (LNotEqual (DerefOf (Index (BUFR,1)), 0))
    {   Return (0x31)   }

If (LNotEqual (DerefOf (Index (BUFR,4)), 0xEF))
    {   Return (0x34)   }

If (LNotEqual (DerefOf
(Index (BUFR,8)), 0x98))
    {   Return (0x38)   }

If (LNotEqual (DerefOf (Index (BUFR,12)), 0x10))
```

```
            {   Return (0x3C)   }


            Return (0)  //  pass
        }   //  TEST
    }   //  IDX0
}   //  _SB system bus

//
// test BitIndex.asl
//
//  BitIndex test
//  This is a test case for accessing fields defined as single bits in
//  memory. This is done by creating two index fields that overlay the
//  same DWORD in memory. One field accesses the DWORD as a DWORD, the
//  other accesses individual bits of the same DWORD field in memory.
//
  Scope (\_SB)    //  System Bus
  {   //  _SB system bus
    OperationRegion (RAM, SystemMemory, 0x800000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {   //  Any access
      TREE,   3,
      WRD0,   16,
      WRD1,   16,
      WRD2,   16,
      WRD3,   16,
      WRD4,   16,
      DWRD,   32, //  DWORD field
     }
    Field (RAM, AnyAcc, NoLock, Preserve)
    {   //  Any access
      THRE,   3,
      WD00,   16,
      WD01,   16,
      WD02,   16,
      WD03,   16,
      WD04,   16,
      BYT0,   8,  //  Start off with a BYTE
      BIT0,   1,  //  single-bit field
      BIT1,   1,  //  single-bit field
      BIT2,   1,  //  single-bit field
      BIT3,   1,  //  single-bit field
      BIT4,   1,  //  single-bit field
      BIT5,   1,  //  single-bit field
      BIT6,   1,  //  single-bit field
      BIT7,   1,  //  single-bit field
      BIT8,   1,  //  single-bit field
```

```
    BIT9,   1,  //  single-bit field
    BITA,   1,  //  single-bit field
    BITB,   1,  //  single-bit field
    BITC,   1,  //  single-bit field
    BITD,   1,  //  single-bit field
    BITE,   1,  //  single-bit field
    BITF,   1,  //  single-bit field
     BYTZ,   8,  //  End with a BYTE for a total of 32 bits
}

Device (BITI)
{   //  Test device name

    Method (MBIT)   //  Test single bit memory accesses
    {

        If (LNotEqual (DWRD, 0x00))
        {
            Store (0xFF00, Local0)
        }
        Else
        {
            //  Prime Local0 with 0...assume passing condition
            Store (0, Local0)

            //  set memory contents to known values using DWORD field
            Store (0x5A5A5A5A, DWRD)

            //  Given the value programmed into DWRD, only the odd bits
            //  of the lower nibble should be set. BIT1, BIT3 should be set.
            //  BIT0 and BIT2 should be clear

            If (BIT0)
            {
                Or (Local0, 0x01, Local0)
            }

            If (LNot (BIT1))

    {
                Or (Local0, 0x02, Local0)
            }

            If (BIT2)
            {
                Or (Local0, 0x04, Local0)
            }
```

```
            If (LNot (BIT3))
            {
               Or (Local0, 0x08, Local0)
            }

            //  Now check the upper nibble. Only the "even" bits should
            //  be set. BIT4, BIT6. BIT5 and BIT7 should be clear.
            If (LNot (BIT4))
            {
               Or (Local0, 0x10, Local0)
            }

            If (BIT5)
            {
               Or (Local0, 0x20, Local0)
            }

            If (LNot (BIT6))
            {
               Or (Local0, 0x40, Local0)
            }

            If (BIT7)
            {
               Or (Local0, 0x80, Local0)

      }
         }   //  End Else DWRD zeroed out

         Return (Local0)
      }   //  MBIT:   Test single bit memory accesses

      Method (TEST)
      {

         Store ("++++++++ BitIndex Test", Debug)

         //  Zero out DWRD
         Store (0x00000000, DWRD)

         //  MBIT returns zero if successful
         //  This may be causing problems -- Return (MBIT)
         Store (MBIT, Local0)

         Return (Local0)
      }   //  TEST
   }   //  BITI
}   //  _SB system bus
```

```
//
// test IndexOp3.asl
//
//  Additional IndexOp test cases to support ACPICMB (control method battery
//  test) on Compaq laptops. Test cases include storing a package into
//  an IndexOp target and validating that changing source and destination
//  package contents are independent of each other.
//
  Scope (\_SB)    //  System Bus
  {   //  _SB system bus

     Name (C174, 13)
     Name (C175,
8)

     Device (C158)
     {   //  C158:   AC Adapter device
        Name (_HID, "ACPI0003") //  AC Adapter device
        Name (_PCL, Package (1) {\_SB})

        Method (_PSR)
        {
           Acquire (\_GL, 0xFFFF)
           Release (\_GL)
           And (Local0, 1, Local0) //  Local0 &= 1
           Return (Local0)
        }   //  _PSR
     }   //  C158:   AC Adapter device

     Name (C176, Package (4) {"Primary", "MultiBay", "DockRight", "DockLeft"})

     Name (C177, Package (4) {0x99F5, 0x99F5, 0x995F, 0x995F})

     Name (C178, Package (4)
     {
        Package (4) {0, 0, 0x966B, 0x4190},
        Package (4) {0, 0, 0x966B, 0x4190},
        Package (4) {0, 0, 0x966B, 0x4190},
        Package (4) {0, 0, 0x966B, 0x4190}
     })  //  C178

     Name (C179, Package (4) {0, 0, 0x966B, 0x4190})

     Name (C17A, Package (4)
     {
        Package (3) {0, 0, 0},
        Package (3)
```

```
{0, 0, 0},
        Package (3) {0, 0, 0},
        Package (3) {0, 0, 0}
    }) // C17A

    Method (C17B, 1, Serialized)
    {   // C17B:  _BIF implementation
        Name (C17C, Package (13)
        {   // C17C:  _BIF control method return package
            0,              // Power Unit (0 ==> mWh and mW)
            0x99F5,         // Design Capacity
            0x99F5,         // Last Full Charge Capacity
            1,              // Battery Technology (1 ==> rechargeable)
            0x3840,         // Design Voltage
            0x1280,         // Design Capacity of Warning
            0x0AC7,         // Design Capacity of Low
            1,              // Battery Capacity Granularity 1 (Low -- Warning)
            1,              // Battery Capacity Granularity 2 (Warning -- Full)
            "2891",         // Model Number (ASCIIZ)
            "(-Unknown-)",  // Serial Number
(ASCIIZ)
            "LIon",         // Battery Type (ASCIIZ)
            0               // OEM Information (ASCIIZ)
        }) // C17C:  _BIF control method return package

        And (Arg0, 7, Local0)                   // Local0 = Arg0 & 7

        ShiftRight (Local0, 1, Local4)          // Local4 = Local0 >> 1

        Store (C179, Index (C178, Local4, ))    // C178->Local4 = C179

        // verify source and destination packages can be altered independent
        // of each other (i.e., changing one's contents does NOT change other's
        // contents)
        Store (0x1234, Index (C179, 2, ))               // C179[2] = 0x1234
        Store (DerefOf (Index (C179, 2, )), Local2) // Local2 = C179[2]
        if (LNotEqual (Local2, 0x1234))
            {   Return (0x1234) }
                                                    // Local2 = C178[0,2]
        Store (DerefOf (Index (DerefOf
(Index (C178, 0, )), 2, )), Local2)
        if (LNotEqual (Local2, 0x966B))
            {   Return (0x1234) }

        // Restore data to allow iterative execution
        Store (0x966B, Index (C179, 2, ))               // C179[2] = 0x966B

                                                    // C178[0,3] = 0x5678
```

```
        Store (0x5678, Index (DerefOf (Index (C178, 0, )), 3, ))
                                                //  Local2 = C178[0,3]
        Store (DerefOf (Index (DerefOf (Index (C178, 0, )), 3, )), Local2)
        if (LNotEqual (Local2, 0x5678))
          {   Return (0x5678) }

        Store (DerefOf (Index (C179, 3, )), Local2) //  Local2 = C179[3]
        if (LNotEqual (Local2, 0x4190))
          {   Return (0x5678) }

        // Restore data to allow iterative execution
        Store (0x4190, Index (DerefOf (Index (C178, 0, )), 3, ))    //  C179[2] = 0x4190


       Return (C17C)
    }   //  C17B:   _BIF implementation

    Device (C154)
    {   //  C154:   Battery 0
        Name (_HID, "*PNP0C0A")     //  Control Method Battey ID
        Name (_UID, 0)              //  first instance

        Method (_BIF)
        {   //  _BIF
            Return (C17B (48))
        }   //  _BIF
    }   //  C154:   Battery 0

    Device (IDX3)
    {
        Method (LCLB,, Serialized)
        {   //  LCLB control method: test Index(Local#) where Local# is buffer
            //  Local0 is index counter
            //  Local1 is buffer
            //  Local2 receives BUFR[Local0] via Deref(Index(Local1...))
            //  Local3 is Local1 or Local2 object type
            //  Local4 is return error code

            Name (BUFR, Buffer ()   {0, 1, 2, 3, 4, 5, 6, 7, 8, 9})

            //  save PKG into Local1
            Store (BUFR, Local1)

            //  save Local2
object type value into Local3
            Store (ObjectType (Local1), Local3)

            //  validate Local1 is a Buffer
```

```
            If (LNotEqual (Local3, 3))      //  Buffer type is 3
              {   Return (0x9F)   }


            Store (0, Local0)
            While (LLess (Local0, 5))
            {   //  While (Local0 < 5)
              //  Local2 = Local1[Local0]
              Store (DerefOf (Index (Local1, Local0, )), Local2)

              //  save Local2 object type value into Local3
              Store (ObjectType (Local2), Local3)

              //  validate Local2 is a Number
              If (LNotEqual (Local3, 1))      //  Number type is 1
                {   Return (0x9E)   }

              //  validate Local1[Local0] value == Local0
              If (LNotEqual (Local0, Local2))
              {   //  Local0 != Local2 == PKG[Local0]
                //  Local4 = 0x90
+ loop index (Local0)
                Add (0x90, Local0, Local4)

                //  return 0x90 + loop index
                Return (Local4)
              }

              Increment (Local0)
            }   //  While (Local0 < 5)

            Store ("DerefOf(Index(LocalBuffer,,)) PASS", Debug)

            Return (0)  //  Pass
          }   //  LCLB control method: test Index(Local#) where Local# is buffer

          Method (LCLP,, Serialized)
          {   //  LCLP control method: test Index(Local#) where Local# is package
            //  Local0 is index counter
            //  Local1 is package
            //  Local2 receives PKG[Local0] via Deref(Index(Local1...))
            //  Local3 is Local1 or Local2 object type
            //  Local4 is return error code

            Name (PKG, Package ()   {0, 1, 2, 3, 4, 5, 6, 7, 8, 9})

            //  save PKG into Local1
            Store (PKG, Local1)
```

```
    //  save Local2 object type value into Local3
    Store (ObjectType (Local1), Local3)

    //  validate Local1 is a Package
    If (LNotEqual (Local3, 4))      //  Package type is 4
        {   Return (0x8F)   }


    Store (0, Local0)
    While (LLess (Local0, 5))
    {   //  While (Local0 < 5)
        //  Local2 = Local1[Local0]
        Store (DerefOf (Index (Local1, Local0, )), Local2)

        //  save Local2 object type value into Local3
        Store (ObjectType (Local2), Local3)

        //  validate Local2 is a Number
        If (LNotEqual (Local3, 1))      //  Number type is 1
            {   Return (0x8E)   }

        //  validate Local1[Local0] value == Local0
        If (LNotEqual (Local0, Local2))
        {   //  Local0 != Local2 == PKG[Local0]

       //  Local4 = 0x80 + loop index (Local0)
            Add (0x80, Local0, Local4)

            //  return 0x80 + loop index
            Return (Local4)
        }

        Increment (Local0)
    }   //  While (Local0 < 5)

    Store ("DerefOf(Index(LocalPackage,,)) PASS", Debug)

    Return (0)  //  Pass
}   //  LCLP control method: test Index(Local#) where Local# is package

Method (TEST)
{

    Store ("++++++++ IndexOp3 Test", Debug)

    //  store _BIF package return value into Local0
    Store (\_SB.C154._BIF, Local0)
```

```
            //  save Local0 object type value into Local1
            Store (ObjectType (Local0), Local1)

            //  validate Local0 is a Package
            If (LNotEqual (Local1, 4))      //  Package type is 4
            {   //  failure: did not return a Package
(type 4)
               //  if Local0 is a Number, it contains an error code
               If (LEqual (Local1, 1))     //  Number type is 1
                  {   Return (Local0) }   //  return Local0 error code
               Else                        //  Local0 is not a Number
                  {   Return (1)  }          //  return default error code
            }   //  failure: did not return a Package (type 4)

            //  save LCLB control method return value into Local2
            Store (LCLB, Local2)
            If (LNotEqual (Local2, 0))
               {   Return (Local2) }   //  return failure code

            //  save LCLP control method return value into Local2
            Store (LCLP, Local2)
            If (LNotEqual (Local2, 0))
               {   Return (Local2) }   //  return failure code

            Return (0)  //  Pass
         }   //  TEST
      }   //  IDX3:   Test device name
   }   //  _SB system bus

//
// MTL developed test to exercise Indexes into buffers
//
  Device(IDX7)
  {

     Name (PKG4, Package() {
           0x2,
           "A short string",
           Buffer() {0xA, 0xB, 0xC, 0xD},
           0x1234,
           Package() {IDX7, 0x3}
           })

     //
     // Generic Test method
     //
     // This test returns 0xE (14) - ObjectType = Buffer Field
```

```
Method(TST1,, Serialized)
{
   Name (DEST, Buffer ()                    //  62 characters plus NULL
      {"Destination buffer that is longer than the short source buffer"})

   //  verify object type returned by Index(Buffer,Element,)
   Store (Index (DEST, 2, ), Local1)
   Store (ObjectType (Local1), Local2)
   If (LEqual(Local2, 14))
   {
      Return(0)
   }
   Else
   {
      Return(0x1)
   }


}

Method(TST2,, Serialized)
{
   Name (BUF0, Buffer() {0x1, 0x2, 0x3, 0x4, 0x5})
   Store(0x55, Index(BUF0, 2))
   Store(DerefOf(Index(BUF0, 2)), Local0)
   If (LEqual(Local0, 0x55))
   {
      Return(0)
   }
   Else
   {
      Return(0x2)
   }


}

Method(TST3,, Serialized)
{
   Name (BUF1, Buffer() {0x1, 0x2, 0x3, 0x4, 0x5})
   Store(Index(BUF1, 1), Local0)
   Store(DerefOf(Local0), Local1)
   If (LEqual(Local1, 0x2))
   {
      Return(0)
   }
   Else
   {
```

```
            Return(0x3)
        }

    }

    Method(TST4)
    {
        // Index (PKG4, 0) is a Number
        Store (Index (PKG4, 0), Local0)
        Store (ObjectType(Local0), Local1)
        If (LEqual(Local1, 0x1))
        {
            Return(0)

}
        Else
        {
            Return(0x4)
        }

    }

    Method(TST5)
    {
        // Index (PKG4, 1) is a String
        Store (Index (PKG4, 1), Local0)
        Store (ObjectType(Local0), Local1)
        If (LEqual(Local1, 0x2))
        {
            Return(0)
        }
        Else
        {
            Return(0x5)
        }

    }

    Method(TST6)
    {
        // Index (PKG4, 2) is a Buffer
        Store (Index (PKG4, 2), Local0)
        Store (ObjectType(Local0), Local1)
        If (LEqual(Local1, 0x3))
        {
            Return(0)
        }
        Else
```

```
        {
            Return(0x6)
        }

    }

    Method(TST7)
    {
        // Index (PKG4, 3) is a Number
        Store (Index (PKG4, 3), Local0)
        Store (ObjectType(Local0), Local1)
        If (LEqual(Local1, 0x1))
        {

Return(0)
        }
        Else
        {
            Return(0x7)
        }

    }

    Method(TST8)
    {
        // Index (PKG4, 4) is a Package
        Store (Index (PKG4, 4), Local0)
        Store (ObjectType(Local0), Local1)
        If (LEqual(Local1, 0x4))
        {
            Return(0)
        }
        Else
        {
            Return(0x8)
        }

    }

    Method(TST9)
    {
        // DerefOf (Index (PKG4, 0)) is a Number
        Store (DerefOf (Index (PKG4, 0)), Local0)
        If (LEqual(Local0, 0x2))
        {
            Return(0)
        }
        Else
```

```
    {
        Return(0x9)
    }

}

Method(TSTA)
{
    // DerefOf (Index (PKG4, 1)) is a String
    Store (DerefOf (Index (PKG4, 1)), Local0)
    Store (SizeOf(Local0), Local1)
    If (LEqual(Local1, 0xE))
    {

        Return(0)
    }
    Else
    {
        Return(0xA)
    }

}

Method(TSTB)
{
    // DerefOf (Index (PKG4, 2)) is a Buffer
    Store (DerefOf (Index (PKG4, 2)), Local0)
    Store (SizeOf(Local0), Local1)
    If (LEqual(Local1, 0x4))
    {
        Return(0)
    }
    Else
    {
        Return(0xB)
    }

}

Method(TSTC)
{
    // DerefOf (Index (PKG4, 3)) is a Number
    Store (DerefOf (Index (PKG4, 3)), Local0)
    If (LEqual(Local0, 0x1234))
    {
        Return(0)
    }
    Else
```

```
        {
            Return(0xC)
        }

    }

    Method(TSTD)
    {
        // DerefOf (Index (PKG4, 4)) is a Package
        Store (DerefOf (Index (PKG4, 4)), Local0)
        Store (SizeOf(Local0), Local1)
        If (LEqual(Local1,
0x2))
        {
            Return(0)
        }
        Else
        {
            Return(0xD)
        }

    }

    Method(TSTE)
    {
        // DerefOf (Index (PKG4, 2)) is a Buffer
        Store (DerefOf (Index (PKG4, 2)), Local0)
        // DerefOf (Index (Local0, 1)) is a Number
        Store (DerefOf (Index (Local0, 1)), Local1)
        If (LEqual(Local1, 0xB))
        {
            Return(0)
        }
        Else
        {
            Return(0xE)
        }

    }

    Method (TSTF,, Serialized)
    {
        Name (SRCB, Buffer (12) {}) //  12 characters
        Store ("Short Buffer", SRCB)

        Name (DEST, Buffer ()                   //  62 characters plus NULL
            {"Destination buffer that is longer than the short source buffer"})
```

```
        //  overwrite DEST contents, starting at buffer position 2
        Store (SRCB, Index (DEST,
2))

        //
        //  The DEST buffer element should be replaced with the last element of
        //      the SRCB element (i.e. 's'->'r')
        Store (DerefOf (Index (DEST, 2)), Local0)

        If (LNotEqual (Local0, 0x72))       //  'r'
        {
           //  DEST element does not match the value from SRCB
           Return(Or(Local0, 0x1000))
        }

        Return(0)
    }

    Method (TSTG,, Serialized)
    {

        Name (SRCB, Buffer (12) {}) //  12 characters
        Store ("Short Buffer", SRCB)

        Name (DEST, Buffer ()                   //  62 characters plus NULL
           {"Destination buffer that is longer than the short source buffer"})

        //  overwrite DEST contents, starting at buffer position 2
        Store (SRCB, Index (DEST, 2))

        //
        // The next element of DEST should be unchanged
        //
        Store (DerefOf (Index (DEST,
3)), Local0)

        If (LNotEqual (Local0, 0x74))       //  't'
        {
           //  DEST has been changed
           Return(Or(Local0, 0x2000))
        }

        //
        // The next element of DEST should be unchanged
        //
        Store (DerefOf (Index (DEST, 4)), Local0)

        If (LNotEqual (Local0, 0x69))       //  'i'
```

```
    {
        //  DEST has been changed
        Return(Or(Local0, 0x2100))
    }

    //
    // The next element of DEST should be unchanged
    //
    Store (DerefOf (Index (DEST, 5)), Local0)

    If (LNotEqual (Local0, 0x6E))       //  'n'
    {
        //  DEST has been changed
        Return(Or(Local0, 0x2200))
    }

    //
    // The next element of DEST should be unchanged
    //
    Store (DerefOf (Index (DEST, 6)), Local0)

    If (LNotEqual (Local0, 0x61))
//  'a'
    {
        //  DEST has been changed
        Return(Or(Local0, 0x2300))
    }

    //
    // The next element of DEST should be unchanged
    //
    Store (DerefOf (Index (DEST, 7)), Local0)

    If (LNotEqual (Local0, 0x74))       //  't'
    {
        //  DEST has been changed
        Return(Or(Local0, 0x2400))
    }

    //
    //  Verify DEST elements beyond end of SRCB buffer copy
    //  have not been changed
    Store (DerefOf (Index (DEST, 14)), Local0)

    If (LNotEqual (Local0, 0x66))       // 'f'
    {
        //  DEST has been changed
        Return(Or(Local0, 0x2400))
```

```
        }

        Return(0)
    }

    //
    // This test shows that MS ACPI.SYS stores only the lower 8-bits of a 32-bit
    //  number into the index'ed buffer
    //
    Method (TSTH,,
Serialized)
    {
        // Create a Destination Buffer
        Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

        // Store a number > UINT8 into an index of the buffer
        Store (0x12345678, Index(DBUF, 2))

        // Check the results
        Store (DerefOf (Index (DBUF, 2)), Local0)
        If (LNotEqual (Local0, 0x78))   // 0x78
        {
            Return(Or(Local0, 0x3000))
        }

        Store (DerefOf (Index (DBUF, 3)), Local0)
        If (LNotEqual (Local0, 0x64))   // 'd'
        {
            Return(Or(Local0, 0x3100))
        }

        Store (DerefOf (Index (DBUF, 4)), Local0)
        If (LNotEqual (Local0, 0x65))   // 'e'
        {
            Return(Or(Local0, 0x3200))
        }

        Store (DerefOf (Index (DBUF, 5)), Local0)
        If (LNotEqual (Local0, 0x66))   // 'f'
        {
            Return(Or(Local0, 0x3300))
        }


 Return(0)
    }

    Method (TSTI,, Serialized)
```

```
    {
        // Create a Destination Buffer
        Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

        // Store a String into an index of the buffer
        Store ("ABCDEFGH", Index(DBUF, 2))

        // Check the results
        Store (DerefOf (Index (DBUF, 2)), Local0)
        If (LNotEqual (Local0, 0x48))   // 'H'
        {
            Return(Or(Local0, 0x4000))
        }

        Store (DerefOf (Index (DBUF, 3)), Local0)
        If (LNotEqual (Local0, 0x64))   // 'd'
        {
            Return(Or(Local0, 0x4100))
        }

        Store (DerefOf (Index (DBUF, 4)), Local0)
        If (LNotEqual (Local0, 0x65))   // 'e'
        {
            Return(Or(Local0, 0x4200))
        }

        Store (DerefOf (Index (DBUF, 5)), Local0)
        If (LNotEqual (Local0, 0x66))   // 'f'
        {
            Return(Or(Local0,
0x4300))
        }

        Return(0)
    }

    Method(TSTJ,, Serialized)
    {
        // Create a Destination Buffer
        Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

        // Store a number > UINT8 into an index of the buffer
        Store (0x1234, Index(DBUF, 2))

        // Check the results
        Store (DerefOf (Index (DBUF, 2)), Local0)
        If (LNotEqual (Local0, 0x34))   // 0x34
        {
```

```
        Return(Or(Local0, 0x3000))
    }

    Store (DerefOf (Index (DBUF, 3)), Local0)
    If (LNotEqual (Local0, 0x64))   // 'd'
    {
        Return(Or(Local0, 0x3100))
    }

    Store (DerefOf (Index (DBUF, 4)), Local0)
    If (LNotEqual (Local0, 0x65))   // 'e'
    {
        Return(Or(Local0, 0x3200))
    }

    Store (DerefOf (Index (DBUF, 5)), Local0)
    If (LNotEqual (Local0, 0x66))   // 'f'

{
        Return(Or(Local0, 0x3300))
    }

    Return(0)
  }

  Method(TSTK,, Serialized)
  {
    // Create a Destination Buffer
    Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

    // Store a number > UINT8 into an index of the buffer
    Store (0x123456, Index(DBUF, 2))

    // Check the results
    Store (DerefOf (Index (DBUF, 2)), Local0)
    If (LNotEqual (Local0, 0x56))   // 0x56
    {
        Return(Or(Local0, 0x3000))
    }

    Store (DerefOf (Index (DBUF, 3)), Local0)
    If (LNotEqual (Local0, 0x64))   // 'd'
    {
        Return(Or(Local0, 0x3100))
    }

    Store (DerefOf (Index (DBUF, 4)), Local0)
    If (LNotEqual (Local0, 0x65))   // 'e'
```

```
        {
            Return(Or(Local0, 0x3200))
        }

        Store (DerefOf (Index (DBUF, 5)), Local0)
        If (LNotEqual
(Local0, 0x66))   // 'f'
        {
            Return(Or(Local0, 0x3300))
        }

        Return(0)
    }

    Method(TSTL,, Serialized)
    {
        // Create a Destination Buffer
        Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

        // Store a number > UINT8 into an index of the buffer
        Store (0x12, Index(DBUF, 2))

        // Check the results
        Store (DerefOf (Index (DBUF, 2)), Local0)
        If (LNotEqual (Local0, 0x12))   // 0x12
        {
            Return(Or(Local0, 0x3000))
        }

        Store (DerefOf (Index (DBUF, 3)), Local0)
        If (LNotEqual (Local0, 0x64))   // 'd'
        {
            Return(Or(Local0, 0x3100))
        }

        Store (DerefOf (Index (DBUF, 4)), Local0)
        If (LNotEqual (Local0, 0x65))   // 'e'
        {
            Return(Or(Local0, 0x3200))
        }

        Store (DerefOf (Index (DBUF,
5)), Local0)
        If (LNotEqual (Local0, 0x66))   // 'f'
        {
            Return(Or(Local0, 0x3300))
        }
```

```
    Return(0)
  }

  Method(TEST)
  {
    Store ("++++++++ IndexOp7 Test", Debug)

    Store(TST1(), Local0)
    if (LGreater (Local0, 0))
    {
      Return(Local0)
    }

    Store(TST2(), Local0)
    if (LGreater (Local0, 0))
    {
      Return(Local0)
    }

    Store(TST3(), Local0)
    if (LGreater (Local0, 0))
    {
      Return(Local0)
    }

    Store(TST4(), Local0)
    if (LGreater (Local0, 0))
    {
      Return(Local0)
    }

    Store(TST5(), Local0)
    if (LGreater (Local0, 0))
    {
      Return(Local0)
    }

    Store(TST6(), Local0)
    if (LGreater (Local0, 0))

{
      Return(Local0)
    }

    Store(TST7(), Local0)
    if (LGreater (Local0, 0))
    {
      Return(Local0)
```

```
        }

        Store(TST8(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TST9(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTA(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTB(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTC(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTD(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTE(),
Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

  /* No longer ACPI compliant */
  /*
        Store(TSTF(), Local0)
```

```
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }
*/

        Store(TSTG(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTH(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

/* No longer ACPI compliant */
/*
        Store(TSTI(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }
*/
        Store(TSTJ(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Store(TSTK(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }


      Store(TSTL(), Local0)
        if (LGreater (Local0, 0))
        {
           Return(Local0)
        }

        Return(Local0)

     }
```

```
  } // Device(IDX7)

//
// test MatchOp.asl
//
//  MatchOp test cases that utilize nested DerefOf(Index(...)) to validate
//  MatchOp, DerefOfOp, and IndexOp of nested packages.
//
  Device (MTCH)
  {

    Method (TEST,, Serialized)
    {
      Store ("++++++++ MatchOp Test", Debug)

      Name (TIM0, Package ()
        {
          Package ()  {0x78, 0xB4, 0xF0, 0x0384},
          Package ()  {0x23, 0x21, 0x10, 0},
          Package ()  {0x0B, 9, 4, 0},
          Package ()  {0x70, 0x49, 0x36, 0x27, 0x19},
          Package ()  {0, 1, 2, 1, 2},
          Package ()  {0, 0, 0, 1, 1},
          Package ()  {4, 3, 2, 0},
          Package ()  {2, 1, 0, 0}
        })  //  TIM0

      Name (TMD0, Buffer
(20) {0xFF, 0xFF, 0xFF, 0xFF })
      CreateDWordField (TMD0, 0, PIO0)    //  0xFFFFFFFF
      CreateDWordField (TMD0, 4, DMA0)
      CreateDWordField (TMD0, 8, PIO1)
      CreateDWordField (TMD0, 12, DMA1)
      CreateDWordField (TMD0, 16, CHNF)


      //  validate PIO0 value
      Store (PIO0, Local3)

      //  save Local3 object type value into Local2
      Store (ObjectType (Local3), Local2)

      //  validate Local3 is a Number
      If (LNotEqual (Local2, 1))  //  Number type is 1
        {   Return (2)  }   //  failure

      //  validate Local3 Number value
```

```
    If (LNotEqual (Local3, 0xFFFFFFFF)) //  Number value 0xFFFFFFFF
        {   Return (3)  }   //  failure

    Store ("DWordField PASS", Debug)


    Store (0, Local5)
    Store (Match (DerefOf (Index (TIM0, 1, )), MLE, Local5, MTR, 0, 0), Local6)

    //  save Local6 object type value into Local2
     Store (ObjectType (Local6), Local2)

    //  validate Local6 is a Number
    If (LNotEqual (Local2, 1))  //  Number type is 1
        {   Return (4)  }   //  failure

    Store ("Match(DerefOf(Index(TIM0,1)),... PASS", Debug)


    //  validate following produces a nested package to validate
    //  that MatchOp did not corrupt SearchPackage (TIM0)
    Store (DerefOf (Index (TIM0, 1, )), Local4)

    //  save Local4 object type value into Local2
    Store (ObjectType (Local4), Local2)

    //  validate Local4 is a Package
    If (LNotEqual (Local2, 4))  //  Package type is 4
        {   Return (5)  }   //  failure

    Store ("DerefOf(Index(TIM0,1)),... PASS", Debug)


    And (Match (DerefOf (Index (TIM0, 0, )), MGE, PIO0, MTR, 0, 0), 3, Local0)

    //  save Local0 object type value into Local2
    Store (ObjectType (Local0), Local2)


  //  validate Local0 is a Number
    If (LNotEqual (Local2, 1))  //  Number type is 1
        {   Return (6)  }   //  failure

    //  validate Local0 Number value
    If (LNotEqual (Local0, 3))  //  Number value 3
        {   Return (7)  }   //  failure

    Store ("And(Match(DerefOf(Index(TIM0,0)),... PASS", Debug)
```

```
        //  again, validate following produces a nested package
        Store (DerefOf (Index (TIM0, 1, )), Local4)

        //  save Local4 object type value into Local2
        Store (ObjectType (Local4), Local2)

        //  validate Local4 is a Package
        If (LNotEqual (Local2, 4))  //  Package type is 4
           {   Return (8)  }   //  failure

        Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)


        //  again, validate following produces a nested package
        Store (DerefOf (Index (TIM0, 1, )), Local4)

        //  save Local4 object type value
into Local2
        Store (ObjectType (Local4), Local2)

        //  validate Local4 is a Package
        If (LNotEqual (Local2, 4))  //  Package type is 4
           {   Return (9)  }   //  failure

        Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)


        //  test nested DerefOf(Index) operators
        Store (DerefOf (Index (DerefOf (Index (TIM0, 1, )), Local0, )), Local1)

        //  save Local1 object type value into Local2
        Store (ObjectType (Local1), Local2)

        //  validate Local1 is a Number
        If (LNotEqual (Local2, 1))  //  Number type is 1
           {   Return (10) }   //  failure

        //  zero indicates pass, non-zero is an error code
        If (LNotEqual (Local1, 0))
           {   Return (11) }   //  failure

        Store ("DerefOf(Index(DerefOf(Index(TIM0,1)),... PASS", Debug)


        //  again, validate following produces a nested package
        Store
```

```
(DerefOf (Index (TIM0, 1, )), Local4)

        //  save Local4 object type value into Local2
        Store (ObjectType (Local4), Local2)

        //  validate Local4 is a Package
        If (LNotEqual (Local2, 4))  //  Package type is 4
           {   Return (12) }   //  failure

        Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)


        //  retest nested DerefOf(Index) operators
        Store (DerefOf (Index (DerefOf (Index (TIM0, 1, )), Local0, )), Local1)

        //  save Local1 object type value into Local2
        Store (ObjectType (Local1), Local2)

        //  validate Local1 is a Number
        If (LNotEqual (Local2, 1))  //  Number type is 1
           {   Return (13) }   //  failure

        //  zero indicates pass, non-zero is an error code
        If (LNotEqual (Local1, 0))
           {   Return (14) }   //  failure

        Store ("DerefOf(Index(DerefOf(Index(TIM0,1)),... PASS again", Debug)


         //  again, validate following produces a nested package
        Store (DerefOf (Index (TIM0, 1, )), Local4)

        //  save Local4 object type value into Local2
        Store (ObjectType (Local4), Local2)

        //  validate Local4 is a Package
        If (LNotEqual (Local2, 4))  //  Package type is 4
           {   Return (15) }   //  failure

        Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)


        Return (0)  //  pass
     }   //  TEST
  }   // MTCH

//
// test WhileBrk.asl
```

```
//
//  This code tests the Break term and While term
//
//  Syntax of Break term
//     BreakTerm := Break
//  The break operation causes the current package execution to complete.
//
//  Syntax of While Term
//     WhileTerm   := While(
//        Predicate   //TermArg=>Integer
//     ) {TermList}
//  Predicate is evaluated as an integer.
//  If the integer is non-zero, the list of terms in TermList is executed.
//  The operation repeats
 until the Predicate evaluates to zero.
//
// MTL NOTE: This test has been modified to reflect ACPI 2.0 break
// NOTE: This test, when run under the MS ACPI.SYS grinds the system to
//  a halt.
//
  Device (WHLB)
  {
     Name (CNT0, 0)
     Name (CNT1, 0)

     Method (TEST)
     {
        //  Check Break statement nested in If nested in While nested in
        //  While only exits inner-most While loop
        Store (0, CNT0)

        While (LLess (CNT0, 4))
        {
           Store (0, CNT1)
           While (LLess (CNT1, 10))
           {
              if (LEqual (CNT1, 1))
              {
                 Break       //  exit encompassing loop
              }

              Increment (CNT1)
           }

           If (LNotEqual (CNT1, 1))
           {
              //  failure
              Return (7)
```

```
        }

        Increment (CNT0)

}

    // Verify Break only exited inner-most While loop

    If (LNotEqual (CNT0, 4))
    {
        // failure
        Return (8)
    }

    Store ("While/While/If/Break PASS", Debug)

    Store ("++++++++ WhileBrk Test", Debug)

    // Check Break statement nested in While
    Store (0, CNT0)

    While (LLess (CNT0, 10))
    {
        Break       // exit encompassing package
        Increment (CNT0)
    }

    If (LNotEqual (CNT0, 0))    // instruction after Break executed
    {
        Return (4)
    }


    Store (0, CNT0)

    // Test While Term
    While (LLess (CNT0, 10))
    {
        Increment (CNT0)
    }

    // Check if the while loop was executed until the condition is satisfied.
    If (LNotEqual (CNT0, 10))
    {
        Return (1)

    }
```

```
        //  While loop in a reverse order
        While (LGreater (CNT0, 0))
        {
           Decrement (CNT0)
        }

        //  Check if the while loop was executed until the condition is satisfied.
        If (LNotEqual (CNT0, 0))
        {
           Return (2)
        }


        Store ("While/Break PASS", Debug)


        //  Check Break statement nested in If nested in While
        Store (0, CNT0)

        While (LLess (CNT0, 10))
        {
           if (LEqual (CNT0, 5))
           {
              Break       //  exit encompassing Package (If)

              //  if we execute the next instruction,
              //  Break did not exit the loop
              Store (20, CNT0)    //  exit While loop with value larger
                                  //  than above
           }

           Increment (CNT0)    //  check if Break exited both If and
While
        }   //  While

        If (LGreater (CNT0, 19))
        {   //  instruction after Break inside IfOp executed
           Return (5)
        }

        //
        // Break will exit out of the while loop, therefore
        //  the CNT0 counter should still Increment until 5
        //
        If (LNotEqual (CNT0, 5))
        {   //  instruction after Break inside WhileOp executed
           Return (6)
```

```
        }
        Store ("While/If/Break PASS", Debug)


        //  All the conditions passed
        Return (0)
      }   //  TEST
  }   //  WHLB


//
// test IndexOp2.asl
//
//  Additional IndexOp test cases to support ACPICMB (control method battery
//  test) on Toshiba Portege 7020CT. Test cases include appropriate bit
//  shifting of Field elements and reading Field elements greater than 64 bits.
//
// MTL NOTE: This test has been modified slightly from the original test
//  to take into account ACPI
 specification limitations.
//
  Scope (\_SB)    //  System Bus
  {   //  _SB system bus

     Device (MEM)
     {   //  MEM
        Name (_HID, 0x010CD041)
        Name (_STA, 0x0F)

        OperationRegion (SMEM, SystemMemory, 0x800000, 0x100)
        Field (SMEM, AnyAcc, NoLock, Preserve)
        {   //  Field:  SMEM overlay using 32-bit field elements
           SMD0,   32, //  32-bits
           SMD1,   32,     //  32-bits
           SMD2,   32,     //  32-bits
           SMD3,   32  //  32-bits
        }   //  Field:  SMEM overlay using 32-bit field elements
        Field (SMEM, AnyAcc, NoLock, Preserve)
        {   //  Field:  SMEM overlay using greater than 32-bit field elements
           SME0,   69, //  larger than an integer (32 or 64)
           SME1,   97  //  larger than an integer
        }   //  Field:  SMEM overlay using greater than 32-bit field elements

        OperationRegion (SRAM, SystemMemory,
0x100B0000, 0xF000)
        Field (SRAM, AnyAcc, NoLock, Preserve)
        {   //  Field:  SRAM overlay
              ,   0x34000,    //  skip
```

```
  IEAX,   0x20,
  IEBX,   0x20,
  IECX,   0x20,
  IEDX,   0x20,
  IESI,   0x20,
  IEDI,   0x20,
  IEBP,   0x20,
     ,   0x20,
  OEAX,   0x20,
  OEBX,   0x20,
  OECX,   0x20,
  OEDX,   0x20,
  OESI,   0x20,
  OEDI,   0x20,
  OEBP,   0x20,
     ,   0x618,  //  skip
  ACST,   1,
  BES1,   1,
  BES2,   1,
     ,   5,          //  skip
  BMN1,   0x68,
  BSN1,   0x58,
  BTP1,   0x48,
  BPU1,   0x20,
  BDC1,   0x20,
  BLF1,   0x20,
  BTC1,   0x20,

BDV1,   0x20,
  BST1,   0x20,
  BPR1,   0x20,
  BRC1,   0x20,
  BPV1,   0x20,
     ,   0x20,
  BCW1,   0x20,
  BCL1,   0x20,
  BG11,   0x20,
  BG21,   0x20,
  BOI1,   0x20,
     ,   0x530,  //  skip
  BMN2,   0x68,
  BSN2,   0x58,
  BTP2,   0x48,
  BPU2,   0x20,
  BDC2,   0x20,
  BLF2,   0x20,
  BTC2,   0x20,
  BDV2,   0x20,
```

```
        BST2,   0x20,
        BPR2,   0x20,
        BRC2,   0x20,
        BPV2,   0x20,
          ,   0x20,
        BCW2,   0x20,
        BCL2,   0x20,
        BG12,   0x20,
        BG22,   0x20,
        BOI2,   0x20,
          ,   0x518,  //  skip
        AC01,   0x10,
        AC11,
0x10,
        PSV1,   0x10,
        CRT1,   0x10,
        TMP1,   0x10,
        AST1,   0x10,
        AC21,   0x10,
        AC31,   0x10,
        AC02,   0x10,
        AC12,   0x10,
        PSV2,   0x10,
        CRT2,   0x10,
        TMP2,   0x10,
        AST2,   0x10,
        AC22,   0x10,
        AC32,   0x10,
        AC03,   0x10,
        AC13,   0x10,
        PSV3,   0x10,
        CRT3,   0x10,
        TMP3,   0x10,
        AST3,   0x10,
        AC23,   0x10,
        AC33,   0x10,
          ,   0x80,       //  skip
        TMPF,   0x10,
          ,   0x570,  //  skip
        FANH,   1,
        FANL,   7,
        TF11,   1,
        TF21,   1,
        TF31,   1,
          ,   1,
        TF10,   1,
        TF20,   1,
```

```
 TF30,   1,
   ,   1,
 TP11,   1,
 TP21,   1,
 TP31,   1,
   ,   0x6D,   //  109
 GP50,   1,
 GP51,   1,
 GP52,   1,
 GP53,   1,
   ,   4,
 GP60,   1,
 GP61,   1,
 GP62,   1,
 GP63,   1,
 GP64,   1,
 GP65,   1,
 GP66,   1,
   ,   1,
 GP70,   1,
 GP71,   1,
 GP72,   1,
 GP73,   1,
 GP74,   1,
 GP75,   1,
 GP76,   1,
   ,   1,
 WED0,   1,
 WED1,   1,
 WED2,   1,
 WED3,   1,
 WED4,   1,
   ,   3,
 SBL0,   1,
 SBL1,   1,
 SBL2,   1,

SBL3,   1,
   ,   4,
 LIDS,   1,
 VALF,   1,
   ,   2,
 DCKI,   1,
 DCKF,   1,
 BT1F,   1,
 BT2F,   1,
   ,   0x7D0,  //  skip
 HKCD,   8,
```

```
            , 8,
          DLID, 0x20,
          DSRN, 0x20,
            , 0x20,
          BDID, 0x20,
          DSPW, 1,
          VGAF, 1,
          VWE0, 1,
          VWE1, 1,
          PPSC, 1,
          SPSC, 1,
          EWLD, 1,
          EWPS, 1,
            , 0x1768, // skip
          PRES, 0x8000
        } // Field: SRAM overlay
      } // MEM

      Device (BAT1)
      { // BAT1
        Name (_HID, EISAID ("PNP0C0A")) // Control Method Battey ID
        Name (_UID, 1)
        Name (_PCL, Package (1) {\_SB})

        Method
(_STA)
        { // _STA
          If (\_SB.MEM.BES1)
            { Return (0x1F) } // battery present
          Else
            { Return (0x0F) } // battery not present
        } // _STA

        Method (_BIF,, Serialized)
        { // _BIF
          Name (BUFR, Package (13) {})

          Store (\_SB.MEM.BPU1, Index (BUFR, 0))
          Store (\_SB.MEM.BDC1, Index (BUFR, 1))
          Store (\_SB.MEM.BLF1, Index (BUFR, 2))
          Store (\_SB.MEM.BTC1, Index (BUFR, 3))
          Store (\_SB.MEM.BDV1, Index (BUFR, 4))
          Store (\_SB.MEM.BCW1, Index (BUFR, 5))
          Store (\_SB.MEM.BCL1, Index (BUFR, 6))
          Store (\_SB.MEM.BG11, Index (BUFR, 7))
          Store (\_SB.MEM.BG21, Index (BUFR, 8))
          Store (\_SB.MEM.BMN1, Index (BUFR, 9))
          Store (\_SB.MEM.BSN1, Index (BUFR, 10))
```

```
            Store (\_SB.MEM.BTP1,
Index (BUFR, 11))
            Store (\_SB.MEM.BOI1, Index (BUFR, 12))

            Return (BUFR)
          }  //  _BIF
      }  //  BAT1

      Device (IDX2)
      {
        Method (B2IB,, Serialized)
        {  //  B2IB:   store from Buffer into Index'ed Buffer

          Name (SRCB, Buffer ()  {"Short Buffer"})  //  12 characters plus NULL

          Name (DEST, Buffer ()                    //  62 characters plus NULL
            {"Destination buffer that is longer than the short source buffer"})


          //  verify object type returned by Index(Buffer,Element,)

          Store (Index (DEST, 2, ), Local1)
          Store (ObjectType (Local1), Local2)

          If (LNotEqual (Local2, 14))    //  Buffer Field is type 14
          {
            //  Local2 indicates Local1 is not a Buffer Field

            Return (0x61)
          }

          //  verify object type
and value returned by DerefOf(Index(Buffer,Element,))
          //  should return Number containing element value

          Store (DerefOf (Local1), Local3)
          Store (ObjectType (Local3), Local4)

          If (LNotEqual (Local4, 1))        //  Number is type 1
          {
            //  Local2 indicates Local1 is not a Number
            Return (0x62)
          }
          Else
          {
            If (LNotEqual (Local3, 0x73))      //  expect 's' element from DEST
            {
              Return (0x63)
```

```
        }
    }

    Store ("DerefOf(Index(Buffer,,)) PASS", Debug)


    //
    // The following sections have been rewritten because storing into
    // an Indexed buffer only changes one byte - the FIRST byte of the
    // buffer is written to the source index. This is the ONLY byte

// written -- as per ACPI 2.0
    //
    // Overwrite DEST contents, at buffer position 2 [only]

    Store (SRCB, Index (DEST, 2, ))

    //
    // Check that the next byte is not changed
    //
    Store (DerefOf (Index (DEST, 3, )), Local0)
    If (LNotEqual (Local0, 0x74))       //  't'
    {
        //  DEST element is not matching original value
        If (LEqual (Local0, 0x68))
        {
            //  DEST element was altered to 'h'
            Return (0x68)
        }
        Else
        {
            // DEST element is an unknown value
            Return (0x69)
        }
    }

    //
    // Check that the elements beyond the SRCB buffer copy
    //  have not been altered.

//
    Store (DerefOf (Index (DEST, 14)), Local0)

    //
    // This should be an 'f'.
    //
    If (LNotEqual (Local0, 0x66))
    {
```

```
    //  DEST element was zero'd by buffer copy
    If (LEqual (Local0, 0))
    {
      //  DEST element is zero
      Return (0x6A)
    }
    Else
    {
      //  DEST element is unknown value
      Return (0x6B)
    }
  }

  Store ("Store(SRCB,Index(Buffer,,)) PASS", Debug)

  //
  //  verify altering SRCB does NOT alter DEST
  //
  Store (0x6A, Index (SRCB, 1))   //  SRCB = "Sjort Buffer"

  Store (DerefOf (Index (SRCB, 1)), Local0)

  If (LNotEqual (Local0, 0x6A))       //  'j'

{
    //  SRCB element is unaltered
    Return (0x71)
  }

  Store (DerefOf (Index (DEST, 3)), Local0) // DEST = "Destination buffer that...

  If (LNotEqual (Local0, 0x74))       //  't'
  {
    //  DEST element is altered
    If (LEqual (Local0, 0x6A))  //  'j'
    {
      //  SRCB change altered DEST element
      Return (0x72)
    }
    Else
    {
      //  DEST element is unknown value
      Return (0x73)
    }
  }

  //  verify altering DEST does NOT alter SRCB
```

```
        Store (0x6B, Index (DEST, 4, )) //  DEST = "DeSkination buffer..."

        Store (DerefOf (Index (DEST, 4, )), Local0)

        If (LNotEqual (Local0, 0x6B))       //  'k'

{
           //  DEST element is unaltered
           Return (0x74)
        }

        Store (DerefOf (Index (SRCB, 2, )), Local0)

        If (LNotEqual (Local0, 0x6F))       //  'o'
        {   //  SRC element is altered
           If (LEqual (Local0, 0x6B))  //  'k'
           {
              //  DEST change altered SRCB element
              Return (0x75)
           }
           Else
           {
              //  SRCB element is unknown value
              Return (0x76)
           }
        }

        Store ("SRCB and DEST independent PASS", Debug)


        // verify string can be written to Index target/destination
        // Only FIRST byte is written

        Store ("New Buff", Index (DEST, 2, ))   //  DEST = "DeNkination buffer..."

        Store (DerefOf (Index (DEST, 2, )), Local0)

         If (LNotEqual (Local0, 0x4E))       //  'N'
        {
           //  DEST element is unaltered
           Return (0x81)
        }

        Store (DerefOf (Index (DEST, 6, )), Local0)

        If (LNotEqual (Local0, 0x61))       //  'a'
        {
           //  DEST element is unaltered
```

```
        Return (0x82)
    }

    Store (DerefOf (Index (DEST, 10, )), Local0)

    If (LNotEqual (Local0, 0x6E))       //  'n'
    {
        //  DEST element is unaltered
        Return (0x83)
    }

    Store ("Store(String,Index) PASS", Debug)


    Return (0)  //  pass
}   //  B2IB:   store from Buffer into Index'ed Buffer

Method (FB2P,, Serialized)
{   //  FB2P:   store from Field Buffer into Index'ed Package
    Name (DEST, Package (2) {})


//  initialize memory using 32-bit field elements
    Store (0x01234567, \_SB.MEM.SMD0)
    Store (0x89ABCDEF, \_SB.MEM.SMD1)
    Store (0xFEDCBA98, \_SB.MEM.SMD2)
    Store (0x76543210, \_SB.MEM.SMD3)

    //  move greater than 64-bit buffers into DEST package
    Store (\_SB.MEM.SME0, Index (DEST, 0))
    Store (\_SB.MEM.SME1, Index (DEST, 1))

    //  validate DEST contents
    Store (DerefOf (Index (DEST, 0, )), Local0)
    Store (DerefOf (Index (DEST, 1, )), Local1)

    //  verify Local0 and Local1 are Buffers
    Store (ObjectType (Local0), Local2)
    if (LNotEqual (Local2, 3))  //  Buffer type is 3
    {
        Return (0x11)
    }

    Store (ObjectType (Local1), Local3)
    if (LNotEqual (Local3, 3))  //  Buffer type is 3
    {
```

```
    Return (0x12)
        }

        //  validate DEST buffer contents
        Store (DerefOf (Index (DerefOf (Index (DEST, 0)), 0)), Local4)
        If (LNotEqual (Local4, 0x67))
        {
           Return (0x13)
        }

        Store (DerefOf (Index (DerefOf (Index (DEST, 0)), 1)), Local4)
        If (LNotEqual (Local4, 0x45))
        {
           Return (0x14)
        }

        Store (DerefOf (Index (DerefOf (Index (DEST, 0)), 4)), Local4)
        If (LNotEqual (Local4, 0xEF))
        {
           Return (0x15)
        }

        Store (DerefOf (Index (DerefOf (Index (DEST, 0, )), 5, )), Local4)
        If (LNotEqual (Local4, 0xCD))
        {
           Return (0x16)
        }

        Store ("Store(Mem,PkgElement) PASS", Debug)


        //  validate changing source \_SB.MEM.SMD* does
not impact DEST
        Store (0x12345678, \_SB.MEM.SMD0)

        Store (DerefOf (Index (DerefOf (Index (DEST, 0, )), 0, )), Local5)
        If (LNotEqual (Local5, 0x67))
        {
           Return (0x21)
        }

        Store (DerefOf (Index (DerefOf (Index (DEST, 0, )), 1, )), Local5)
        If (LNotEqual (Local5, 0x45))
        {
           Return (0x22)
        }

        //  validate changing DEST does not impact source \_SB.MEM.SMD*
```

```
    Store (0x30, Index (DerefOf (Index (DEST, 0)), 0))

    Store (DerefOf(Index (DerefOf (Index (DEST, 0)), 0)), Local5)
    If (LNotEqual (Local5, 0x30))
    {
      Return (0x23)
    }

    //
    // This section was modified from the original iPCO code because
    //  it attempted to compare two buffers. This is not allowed until

  //  ACPI v2.0, so the test has been modified to just check the
    //  changed \_SB.MEM.SMD0
    //
    Store (\_SB.MEM.SMD0, Local5)

    If(LNotEqual(Local5, 0x12345678))
    {
      Return (0x24)
    }

    Store ("Mem and Pkg independent PASS", Debug)


    Return (0)
  }  //  FB2P:   store from Field Buffer into Index'ed Package

  Method (TEST)
  {
    Store ("++++++++ IndexOp2 Test", Debug)

    //  store _BIF package return value into Local0

    Store (\_SB.BAT1._BIF, Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Package
    If (LNotEqual (Local1, 4))  //  Package type is 4
    {
      //  failure
      Return (2)

}

    //  validate source and destination buffers are independent of each
```

```
    //  of each other (i.e., changing one's contents does not change
    //  other's contents) using B2IB (store from Buffer into Index'ed
    //  Buffer) and FB2P (store from Field Buffer into Index'ed Package)

    //  call B2IB (store from Buffer into Index'ed Buffer)
    Store (B2IB, Local2)    //  Local2 is B2IB return value

    //  save Local2 object type value into Local3
    Store (ObjectType (Local2), Local3)

    //  validate Local2 is a Number
    If (LNotEqual (Local3, 1))  //  Number type is 1
    {
       //  failure
       Return (4)
    }

    //  zero indicates pass, non-zero is an error code
    If (LNotEqual (Local2, 0))
    {
       //  return B2IB error code

Return (Local2)
    }

    //  call FB2P (store from Field Buffer into Index'ed Package)
    Store (FB2P, Local2)    //  Local2 is FB2P return value

    //  save Local2 object type value into Local3
    Store (ObjectType (Local2), Local3)

    //  validate Local2 is a Number
    If (LNotEqual (Local3, 1))  //  Number type is 1
    {
       //  failure
       Return (5)
    }

    //  zero indicates pass, non-zero is an error code
    If (LNotEqual (Local2, 0))
    {
       //  return FB2P error code
       Return (Local2)
    }


    Return (0)
}   //  TEST
```

```
      }  //  IDX2:   Test device name
   }  //  _SB system bus

//
// test SizeOf.asl
//
//  Test for SizeOf
//      test cases include following SizeOf arguments:
//          buffer, buffer
 field;
//          control method argument, control method local variable;
//          control method return values;
//          direct string, string;
//          package;
//          buffer, package, and string package elements
//
// MTL NOTE: This test has been modified to remove any SizeOf(Index(Buff,...
//  calls because it is not legal to perform a SizeOf operation on a Buffer Field.
//  This test has also been extended to test additional Package element sizes.
//
   Device (SIZO)
   {
      //  SAR0 control method validates SizeOf(Arg)
      //      SAR0 should only be called by SARG
      Method (SAR0, 2)
      //  Arg0    object to determine size of
      //  Arg1    expected Arg length
      {   //  SAR0:   SizeOf(Arg) test control method
         //  Local0  Arg0 length
         //  Local1  Local0 object type

         //  Store first string size (Arg0) into Local7
         Store (SizeOf (Arg0), Local0)

         //  save Local0 object type value
 into Local1
         Store (ObjectType (Local0), Local1)

         //  validate Local0 is a Number
         If (LNotEqual (Local1, 1))      //  Number type is 1
            {   Return (0x21)   }

         //  If strings are not of equal size, return error code
         If (LNotEqual (Local0, Arg1))
            {   Return (0x22)   }

         Return (0)
      }  //  SAR0:   SizeOf(Arg) test control method
```

```
    Method (SARG,, Serialized)
    {   //  SARG:   SizeOf(Arg) test control method
        Name (BUFR, Buffer (12) {}) //  uninitialized Buffer
        Name (BUF1, Buffer() {0x01, 0x02, 0x03, 0x04, 0x05})
        Name (PKG0, Package (4) {}) //  uninitialized Package
        Name (STR0, "String")
        Name (PKG1, Package (4)
        {
            BUFR,
            "String2",
            STR0,
            PKG0
        })  //  PKG1

        Name (PKG2, Package (4)
        {
            Buffer
(15) {},
            "String 1",
            Package (2) {}
        })  //  PKG2

        //  Namespace entry buffer reference
        Store (SAR0 (BUFR, 12), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {
            Return (0x23)
        }

        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
            Return (Local0)
        }

        Store ("SizeOf(Arg=BUFR) PASS", Debug)


        //  Namespace entry package reference
        Store (SAR0 (PKG0, 4), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)
```

```
        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {

 Return (0x24)
        }

        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
           Return (Local0)
        }

        Store ("SizeOf(Arg=PKG0) PASS", Debug)


        //  Namespace entry string reference
        Store (SAR0 (STR0, 6), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {
           Return (0x25)
        }

        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
           Return (Local0)
        }

        Store ("SizeOf(Arg=STR0) PASS", Debug)


        //  direct string reference
        Store (SAR0 ("String", 6), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate
Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {
           Return (0x26)
        }
```

```
        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
           Return (Local0)
        }

        Store ("SizeOf(Arg=String) PASS", Debug)

        Store (0x55, Index (BUF1, 2))

        /*****************************************************
        //
        // This section is commented because it is illegal to
        //  perform a SizeOf operation on a Buffer Field
        //
        //  Namespace BufferField reference
        Store (SAR0 (Index (BUFR, 2, ), 10), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
           {   Return (0x27)   }

        If (LNotEqual
(Local0, 0))      //  Local0 is SAR0 return error code
           {   Return (Local0) }

        Store ("SizeOf(Arg=BufferField) PASS", Debug)
        *****************************************************/

        //  Namespace BufferPackageElement reference
        //
        Store (SAR0 (Index(PKG1, 0), 12), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {
           Return (0x28)
        }

        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
           Return (Local0)
```

```
        }

        Store ("SizeOf(Arg=PackageBuffer NTE Reference Element) PASS", Debug)


        //  Namespace StringPackageElement reference
        Store (SAR0 (Index (PKG1, 1, ), 7), Local0)

        //  save Local0 object type
value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {
           Return (0x29)
        }

        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
           Return (Local0)
        }

        Store ("SizeOf(Arg=Package String Element) PASS", Debug)


        //  Namespace StringPackageElement reference
        Store (SAR0 (Index (PKG1, 2, ), 6), Local0)

        //  save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        //  validate Local0 is a Number
        If (LNotEqual (Local1, 1))      //  Number type is 1
        {
           Return (0x2A)
        }

        If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
        {
           Return (Local0)
        }

        Store ("SizeOf(Arg=Package
String NTE Reference Element) PASS", Debug)


        //  Namespace PackagePackageElement reference
```

```
    Store (SAR0 (Index (PKG1, 3, ), 4), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1
    {
       Return (0x2B)
    }

    If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
    {
       Return (Local0)
    }

    Store ("SizeOf(Arg=Package Package NTE Reference Element) PASS", Debug)

    // Package Buffer Element
    Store (SAR0 (Index (PKG2, 0), 15), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1

{
       Return (0x2B)
    }

    If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
    {
       Return (Local0)
    }

    Store ("SizeOf(Arg=Package Buffer Element) PASS", Debug)

    // Package String Element
    Store (SAR0 (Index (PKG2, 1), 8), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1
    {
       Return (0x2B)
```

```
    }

    If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
    {
       Return (Local0)
    }

    Store ("SizeOf(Arg=Package String Element) PASS", Debug)

    // Package Package Element
    Store (SAR0 (Index (PKG2, 2), 2), Local0)

    //  save Local0 object type value into Local1

  Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1
    {
       Return (0x2B)
    }

    If (LNotEqual (Local0, 0))      //  Local0 is SAR0 return error code
    {
       Return (Local0)
    }

    Store ("SizeOf(Arg=Package Package Element) PASS", Debug)

    Store ("SizeOf(Arg) PASS", Debug)

    Return (0)
}   //  SARG:   SizeOf(Arg) test control method

Method (SBUF,, Serialized)
{   //  SBUF:   SizeOf(Buffer) test control method
    Name (BUFR, Buffer (12) {})

    //  store size of BUFR buffer into Local0
    Store (SizeOf (BUFR), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1
     {
       Return (0x31)
```

```
    }

    If (LNotEqual (Local0, 12))     //  BUFR size is 12
    {
       Return (0x32)
    }

    Store ("SizeOf(BUFR) PASS", Debug)

    Return (0)
}   //  SBUF:   SizeOf(Buffer) test control method


/*****************************************************
//
// This section is commented because it is illegal to
//  perform a SizeOf operation on a Buffer Field
//
Method (SIND)
{   //  SIND:   SizeOf(Index(,,)) test control method
    Name (BUFR, Buffer (12) {})

    //  store size of Index(BUFR,2,) buffer into Local0
    Store (SizeOf (Index (BUFR, 2, )), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1
    {

  Return (0x41)
    }

    If (LNotEqual (Local0, 10))     //  12 - 2 = 10
    {
       Return (0x42)
    }

    Store ("SizeOf(Index(BUFR,,)) PASS", Debug)

    //  TBD:    strings and packages

    Return (0)
}   //  SIND:   SizeOf(Index(,,)) test control method
*****************************************************/
```

```
Method (SLOC,, Serialized)
{   //  SLOC:   SizeOf(Local) test control method
    Name (BUFR, Buffer (12) {}) //  uninitialized Buffer
    Name (STR0, "String")
    Name (PKG0, Package (4) {}) //  uninitialized Package


    //  store BUFR Buffer into Local2
    Store (BUFR, Local2)

    //  store size of BUFR buffer into Local0
    Store (SizeOf (Local2), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number

   If (LNotEqual (Local1, 1))      //  Number type is 1
    {
       Return (0x51)
    }

    If (LNotEqual (Local0, 12)) //  BUFR size is 12
    {
       Return (0x52)
    }

    Store ("SizeOf(Local2=Buffer) PASS", Debug)


    //  store STR0 string into Local2
    Store (STR0, Local2)

    //  store size of STR0 buffer into Local0
    Store (SizeOf (Local2), Local0)

    //  save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    //  validate Local0 is a Number
    If (LNotEqual (Local1, 1))      //  Number type is 1
    {
       Return (0x53)
    }

    If (LNotEqual (Local0, 6))      //  STR0 size is 6
    {
```

```
            Return (0x54)
        }

        Store ("SizeOf(Local2=String) PASS", Debug)


        // store PKG0 Package into Local2
        Store (PKG0,
Local2)

        // store size of PKG0 buffer into Local0
        Store (SizeOf (Local2), Local0)

        // save Local0 object type value into Local1
        Store (ObjectType (Local0), Local1)

        // validate Local0 is a Number
        If (LNotEqual (Local1, 1))      // Number type is 1
        {
            Return (0x55)
        }

        If (LNotEqual (Local0, 4))      // PKG0 size is 4
        {
            Return (0x56)
        }

        Store ("SizeOf(Local2=Package) PASS", Debug)


        Return (0)
    }   // SLOC:   SizeOf(Local) test control method

    Method (TEST)
    {
        Store ("++++++++ SizeOf Test", Debug)

        // Store current operating system string into Local0
        Store (_OS, Local0)

        Store (SizeOf (_OS), Local3)

        // save Local3 object type value into Local4
        Store (ObjectType (Local3), Local4)

        // validate
Local3 is a Number
        If (LNotEqual (Local4, 1))  // Number type is 1
```

```
        {
            // failure
            Return (0x61)
        }

        // Store current operating system string into Local0
        // This verifies above SizeOf(_OS) did not corrupt ACPI namespace
        Store (_OS, Local0)

        // Store SARG [Validate SizeOf(Arg)] return value into Local1
        Store (SARG, Local1)

        // save Local1 object type value into Local2
        Store (ObjectType (Local1), Local2)

        // validate Local1 is a Number
        If (LNotEqual (Local2, 1))  // Number type is 1
        {
            // failure
            Return (0x62)
        }

        // zero indicates pass, non-zero is an error code
        If (LNotEqual (Local1, 0))
        {
            // return SARG error code
            Return (Local1)
        }


        // Store SBUF [Validate
SizeOf(Buffer)] return value into Local1
        Store (SBUF, Local1)

        // save Local1 object type value into Local2
        Store (ObjectType (Local1), Local2)

        // validate Local1 is a Number
        If (LNotEqual (Local2, 1))  // Number type is 1
        {
            // failure
            Return (0x63)
        }

        // zero indicates pass, non-zero is an error code
        If (LNotEqual (Local1, 0))
        {
            // return SBUF error code
```

```
            Return (Local1)
        }

        /*****************************************************
        //
        // This section is commented because it is illegal to
        //  perform a SizeOf operation on a Buffer Field
        //
        //  Store SIND [verify SizeOf(Index(,,))] return value into Local1
        Store (SIND, Local1)

        //  save Local1 object type value into Local2
        Store (ObjectType
(Local1), Local2)

        //  validate Local1 is a Number
        If (LNotEqual (Local2, 1))  //  Number type is 1
        {
            //  failure
            Return (0x64)
        }

        //  zero indicates pass, non-zero is an error code
        If (LNotEqual (Local1, 0))
        {
            //  return SARG error code
            Return (Local1)
        }
        *****************************************************/

        //  Store SLOC [verify SizeOf(Local)] return value into Local1
        Store (SLOC, Local1)

        //  save Local1 object type value into Local2
        Store (ObjectType (Local1), Local2)

        //  validate Local1 is a Number
        If (LNotEqual (Local2, 1))  //  Number type is 1
        {
            //  failure
            Return (0x65)
        }

        //  zero indicates pass, non-zero is an error code
        If (LNotEqual (Local1, 0))
         {
            //  return SLOC error code
            Return (Local1)
```

```
        }


        // TBD:    SizeOf (METH) -- where METH control method returns
        //             buffer, BufferField, string, package, package element


        Return (0)
      }  // TEST
    }  // SIZO

//
// test SmiShare.asl
//
    Scope (\_SB)    // System Bus
    {   // _SB system bus
      // Declare an OpRegion in Memory starting at offset 0x400000 that is 10 bytes long
      OperationRegion(RAM1, SystemMemory, 0x400000, 0xA)

      Field (RAM1, AnyAcc, NoLock, Preserve)
      {
        BI1T, 1,       // Create some bits in memory to access
        BI2T, 2,
        BI3T, 3,
        LST2, 2
      }  // End Field RAM1

      Field (RAM1, WordAcc, NoLock, WriteAsZeros)
      {
        WRD, 16
      }  // End 2nd Field RAM1

      Field (RAM1, ByteAcc, NoLock, WriteAsOnes)
      {
        BYTE, 8
      }  //
    End 3rd Field RAM1

      Field (RAM1, ByteAcc, NoLock, Preserve)
      {
        SMIC, 8,
        SMID, 8
      }

      Device (MBIT)
      {
        Method (_INI)
        {
```

```
            Store (0, BI1T)
            Store (3, BI2T)
            Store (7, BI3T)
            Store (0, LST2)
        }   //  End _INI Method
    }   //  End Device MBIT

    Device (MWRD)
    {
        Method (_INI)
        {
            Store (0, WRD)
        }   //  End _INI Method
    }   //  End Device MWRD

    Device (MBYT)
    {
        Method (_INI)
        {
            Store (0, BYTE)
            Store (0xC, SMIC)
            Store (0xD, SMID)
        }   //  End _INI Method
    }   //  End Device MBYT

 /*
    //  Declare an OpRegion in Memory starting at offset 0x400000 that is 10 bytes long
    OperationRegion(\RAM1, SystemMemory, 0x400000, 0xA)

    Field (\RAM1, AnyAcc,
NoLock, Preserve)
    {
        BI1T, 1,        // Create some bits in memory to access
        BI2T, 2,
        BI3T, 3,
        LST2, 2
    }   //  End Field RAM1

    Field (\RAM1, WordAcc, NoLock, WriteAsZeros)
    {
        WRD, 16
    }   //  End 2nd Field RAM1

    Field (\RAM1, ByteAcc, NoLock, WriteAsOnes)
    {
        BYTE, 8
    }   //  End 3rd Field RAM1
```

```
    Field (\RAM1, ByteAcc, NoLock, Preserve)
    {
       SMIC, 8,
       SMID, 8
    }
*/
    Method (SMIX)
    {
       Return (BYTE)
    }  //  End SMIX

    Method (EVNT)
    {
       Store (SMIX, Local0)

       Notify (\_SB_, 0x29)
       If (And (Local0, 0x01))
       {   Notify (\_SB_.SMIS, 0x21)}

       If (And (Local0, 0x02))
       {   Notify (\_SB_.SMIS, 0x22)}

       If (And (Local0, 0x04))
       {   Notify (\_SB_.SMIS, 0x24)}

       If (And (Local0, 0x08))
        {   Notify (\_SB_.SMIS, 0x28)}

    }  //  End Method EVNT

    Method (NTFY)
    {
       Notify (\_SB_, 1)
       Notify (\_TZ_.TZ1, 2)
       Notify (\_PR_.CPU0, 3)

       Notify (\_SB_, 0x81)
       Notify (\_TZ_.TZ1, 0x82)
       Notify (\_PR_.CPU0, 0x83)
    }

    Device (SMIS)
    {
       Method (BINK)
       {
          Store (0, Local0)             //  Zero out Local0

          If (LNotEqual (SMID, 0xD))
```

```
            {   Or (0x80, Local0, Local0)}

            If (LNotEqual (SMIC, 0xC))
            {   Or (0x40, Local0, Local0)}

            If (LNotEqual (BYTE, 0))
            {   Or (0x20, Local0, Local0)}

            If (LNotEqual (WRD, 0))
            {   Or (0x10, Local0, Local0)}

            If (LNotEqual (LST2, 0))
            {   Or (0x8, Local0, Local0)}

            If (LNotEqual (BI3T, 0x7))
            {   Or (0x4, Local0,
Local0)}

            If (LNotEqual (BI2T, 0x3))
            {   Or (0x2, Local0, Local0)}

            If (LNotEqual (BI1T, 0))
            {   Or (0x1, Local0, Local0)}

            Return (Local0)
        }   //  End Method BINK

        Method (TEST)
        {
            Store ("++++++++ SmiShare Test", Debug)

            //  Expect EVNT to generate Notify value we just previously
            //  stored in BYTE

            Store (0x20, BYTE)
            EVNT ()
            Store (0x21, BYTE)
            EVNT ()
            Store (0x22, BYTE)
            EVNT ()
            Store (0x23, BYTE)
            EVNT ()

            NTFY ()
            Return (0)  //  pass
        }   //  End Method TEST
    }   //  Device SMIS
```

```
    Device(CNDT)
    {
      Method(TEST)
      {
        If (ECOK)
        {
          return("Broken")
        }
         Else
        {
          return("Works")
        }
      }

      Method(ECOK)
      {
        Return(0x0)
      }
    }

  }  //  _SB system bus


/* Test a very big buffer */

  Name(WQAB, Buffer(6756)
  {
    0x46,0x4F,0x4D,0x42,0x01,0x00,0x00,0x00,
    0x54,0x1A,0x00,0x00,0xBA,0xAD,0x00,0x00,
    0x44,0x53,0x00,0x01,0x1A,0x7D,0xDA,0x54,
    0x98,0xBD,0x92,0x00,0x01,0x06,0x18,0x42,
    0x10,0x47,0x10,0x92,0x46,0x62,0x02,0x89,
    0x80,0x90,0x18,0x18,0x14,0x81,0x85,0x00,
    0x49,0x02,0x88,0xC4,0x41,0xE1,0x20,0xD4,
    0x9F,0x40,0x7E,0x05,0x20,0x74,0x28,0x40,
    0xA6,0x00,0x83,0x02,0x9C,0x22,0x88,0xA0,
    0x57,0x01,0x36,0x05,0x98,0x14,0x60,0x51,
    0x80,0x76,0x01,0x96,0x05,0xE8,0x16,0x20,
    0x1D,0x96,0x88,0x04,0x47,0x89,0x01,0x47,
    0xE9,0xC4,0x16,0x6E,0xD8,0xE0,0x85,0xA2,
    0x68,0x06,0x51,0x12,0x94,0x8B,0x20,0x5D,
    0x10,0x52,0x2E,0xC0,0x37,0x82,0x06,0x10,
     0xA5,0x77,0x01,0xB6,0x05,0x98,0x86,0x27,
    0xD2,0x20,0xE4,0x60,0x08,0x54,0xCE,0x80,
    0x20,0x69,0x44,0x21,0x1E,0xA7,0x44,0x08,
    0x0A,0x84,0x90,0xD4,0xF1,0xA0,0xA0,0x71,
    0x88,0xAD,0xCE,0x46,0x93,0xA9,0x74,0x7E,
    0x48,0x82,0x70,0xC6,0x2A,0x7E,0x3A,0x9A,
```

0xD0,0xD9,0x9C,0x60,0xE7,0x18,0x72,0x3C,
0x48,0xF4,0x20,0xB8,0x00,0x0F,0x1C,0x2C,
0x34,0x84,0x22,0x6B,0x80,0xC1,0x8C,0xDD,
0x63,0xB1,0x0B,0x4E,0x0A,0xEC,0x61,0xB3,
0x01,0x19,0xA2,0x24,0x38,0xD4,0x11,0xC0,
0x12,0x05,0x98,0x1F,0x87,0x0C,0x0F,0x95,
0x8C,0x25,0x24,0x1B,0xAB,0x87,0xC2,0xA5,
0x40,0x68,0x6C,0x27,0xED,0x19,0x45,0x2C,
0x79,0x4A,0x82,0x49,0xE0,0x51,0x44,0x36,
0x1A,0x27,0x28,0x1B,0x1A,0x25,0x03,0x42,
0x9E,0x05,0x58,0x07,0x26,0x04,0x76,0x2F,
0xC0,0x9A,0x00,0x73,0xB3,0x90,0xB1,0xB9,
0xE8,0xFF,0x0F,0x71,0xB0,0x31,0xDA,0x9A,
0xAE,0x90,0xC2,0xC4,0x88,0x12,0x2C,0x5E,
0xC5,0xC3,0x10,0xCA,0x93,0x42,0xA8,0x48,
0x95,0xA1,0x68,0xB4,0x51,0x2A,0x14,0xE0,
0x4C,0x80,0x30,0x5C,0x1D,0x03,0x82,0x46,
0x88,0x15,0x29,0x56,0xFB,0x83,0x20,0xF1,
0x2D,0x40,0x54,0x01,0xA2,0x48,0xA3,0x41,
0x9D,0x03,0x3C,0x5C,0x0F,0xF5,0xF0,0x3D,
0xF6,0x93,0x0C,0x72,0x90,0x67,0xF1,0xA8,
0x70,0x9C,0x06,0x49,0xE0,0x0B,0x80,0x4F,
0x08,0x1E,0x38,0xDE,0x35,0xA0,0x66,0x7C,
0xBC,0x4C,0x10,0x1C,0x6A,0x88,0x1E,0x68,
0xB8,0x13,0x38,0x44,0x06,0xE8,0x49,0x3D,
0x52,0x60,0x07,0x77,0x32,0xEF,0x01,0xAF,
0x0A,0xCD,0x5E,0x12,0x08,0xC1,0xF1,0xF8,
0x7E,0xC0,0x26,0x9C,0xC0,0xF2,0x07,0x81,
0x1A,0x99,0xA1,0x3D,0xCA,0xD3,0x8A,0x19,
0xF2,0x31,0xC1,0x04,0x16,0x0B,0x21,0x05,
0x10,0x1A,0x0F,0xF8,0x6F,0x00,0x8F,0x17,
0xBE,0x12,0xC4,0xF6,0x80,0x12,0x0C,0x0B,
0x21,0x23,0xAB,0xF0,0x78,0xE8,0x28,0x7C,
0x95,0x38,0x9C,0xD3,0x8A,0x67,0x82,0xE1,
0x20,0xF4,0x05,0x90,0x00,0x51,0xE7,0x0C,
0xD4,0x61,0xC1,0xE7,0x04,0x76,0x33,0x38,
0x83,0x47,0x00,0x8F,0xE4,0x84,0xFC,0x2B,
0xF1,0xC0,0xE0,0x03,0xE2,0xEF,0x1F,0xA7,
0xEC,0x11,0x9C,0xA9,0x01,0x7D,0x1C,0xF0,
0xFF,0x7F,0x28,0x7C,0x88,0x1E,0xDF,0x29,
0x1F,0xAF,0x4F,0x17,0x96,0x35,0x4E,0xE8,
0x77,0x08,0x9F,0x38,0x7C,0x64,0x71,0x44,
0x08,0x39,0x39,0x05,0xA0,0x81,0x4F,0xF7,
0xEC,0x22,0x9C,0xAE,0x27,0xE5,0x40,0xC3,
0xA0,0xE3,0x04,0xC7,0x79,0x00,0x1C,0xE3,
0x84,0x7F,0x2E,0x80,0x3F,0x40,0x7E,0xCA,
0x78,0xC5,0x48,0xE0,0x98,0x23,0x44,0x9F,
0x6B,0x3C,0x42,0x2C,0xFC,0x53,0x45,0xE1,

0x03,0x21,0x63,0x04,0x17,0xA0,0xC7,0x08,
0x7C,0x03,0x8E,0x11,0x7D,0x94,0xE0,0xEA,
0x0F,0x1A,0x74,0x80,0xB8,0xFF,0xFF,0x00,
0xE1,0x83,0x7A,0x80,0xC0,0x37,0xFA,0xD1,
0x03,0x3D,0x2E,0x8B,0x3E,0x0F,0xC8,0xF8,
0x89,0x46,0xF3,0xE2,0xA7,0x03,0x7E,0xF8,
0x00,0x0F,0xA8,0x87,0x84,0x03,0xC5,0x4C,
0x9B,0x83,0x3E,0xBB,0x1C,0x3A,0x76,0xB8,
0xE0,0x3F,0x81,0x80,0x4B,0xDE,0x21,0x0C,
0x14,0x23,0xC6,0x9F,0x83,0x7C,0x0A,0x03,
0xFF,0xFF,0xFF,0x14,0x06,0xFE,0xE1,0xF0,
0x20,0x4F,0x07,0x9F,0xB6,0xA8,0x74,0x18,
0xD4,0x81,0x0B,0xB0,0x32,0x89,0x08,0xCF,
0x12,0xB5,0x41,0xE8,0xD4,0xF0,0x36,0xF1,
0xB6,0xE5,0x5B,0x40,0x9C,0xD3,0xEC,0xED,
0xC0,0x45,0x30,0x22,0xD4,0x0C,0x45,0x4E,
0x5A,0x11,0x63,0x44,0x79,0xDC,0x32,0xCA,
0xDB,0xD6,0x0B,0x40,0xBC,0x13,0x7B,0xDE,
0x32,0x46,0xF0,0xC8,0x0F,0x5C,0x2C,0xC6,
0xEA,0xF5,0x5F,0xF3,0x81,0x0B,0x70,0xF6,
0xFF,0x3F,0x70,0x01,0x1C,0x0A,0x7A,0x18,
0x42,0x0F,0xC3,0x53,0x39,0x97,0x87,0xC8,
0x53,0x89,0x18,0x35,0x4C,0xD4,0x67,0x28,
0xDF,0x2D,0x7C,0x20,0x02,0xDF,0x99,0x0B,
0xF8,0xFD,0xFF,0x0F,0x44,0x70,0x8E,0x29,
0xB8,0x33,0x0D,0x78,0x7C,0xCE,0x40,0x20,
0xA7,0xE2,0x43,0x0D,0x60,0x41,0xF4,0x13,

0xC2,0x27,0x1A,0x2A,0x13,0x06,0x75,0xA8,
0x01,0xAC,0x5C,0x61,0x9E,0x46,0xCF,0xF9,
0x59,0xC6,0xA7,0x1A,0x1F,0x4A,0x8D,0x63,
0x88,0x97,0x99,0x87,0x1A,0x1F,0x0B,0x5E,
0x49,0x7D,0xA8,0x31,0x54,0x9C,0x87,0x1A,
0x0F,0x37,0x50,0xD4,0x37,0x9B,0x67,0x1B,
0xA3,0xC7,0xF7,0x0D,0xD5,0x10,0x0F,0x35,
0x4C,0xF2,0x4A,0x35,0x16,0x1F,0x6A,0xC0,
0xF1,0xFF,0x3F,0xD4,0x00,0xFC,0xFF,0xFF,
0x1F,0x6A,0x00,0x47,0x47,0x03,0x38,0x47,
0x46,0xDC,0xD1,0x00,0x5C,0x87,0x52,0xE0,
0x70,0x34,0x00,0x1E,0x47,0x21,0x30,0x5F,
0x68,0x7C,0x14,0x02,0x16,0xFF,0xFF,0xA3,
0x10,0xF8,0x65,0x9F,0x83,0x50,0x42,0x8F,
0x42,0x80,0xA0,0xDB,0xCF,0x53,0xC4,0xB3,
0x8F,0x2F,0x3F,0x0F,0x04,0x11,0x5E,0xF3,
0x7D,0x0A,0xF2,0x21,0xDF,0x47,0x21,0x06,
0x63,0x28,0x5F,0x83,0x7C,0x14,0x62,0x50,
0xAF,0x41,0xBE,0xEF,0x1B,0xE4,0xF1,0x22,
0x48,0xEC,0x67,0x02,0x1F,0x85,0x98,0xE8,

0xA3,0x10,0xA0,0xF0,0xFF,0x7F,0x14,0x02,
0xF8,0xFF,0xFF,0x3F,0x0A,0x01,0xCE,0x02,
0x1C,0x0D,0x40,0x37,0xAD,0x47,0x21,0xF0,
0xDE,0x59,0x4E,0xFB,0x04,0x7C,0x16,0x02,
0xCC,0xFE,0xFF,0xCF,0x42,0xC0,0xEC,0x28,
0x74,0x14,0x67,0xF9,0x2A,0xF4,0x04,0xF0,
0x02,0x10,0x23,0xCC,0x3B,0xD0,0x4B,0x26,
0xBB,0x8B,0x1B,0xE7,0xC9,0xE5,0x2C,0x9E,
0xC4,0x7D,0x09,0xF2,0x81,0xE2,0x59,0xC8,
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0x05,0xA1,0xEA,0x41,0x04,0xE6,0xB4,0x40,
0x54,0x81,0x78,0x10,0xA6,0x08,0x44,0x60,
0x4E,0x02,0x44,0xD3,0x81,0xD0,0xEC,0x60,
0x54,0xE7,0xA3,0x4D,0x40,0xD6,0x0E,0x42,
0xB3,0x80,0x08,0xCC,0x59,0x1E,0x69,0x02,
0xB1,0x92,0x2F,0x9D,0x0E,0x24,0x04,0x84,
0x26,0xD3,0x7F,0x68,0xA1,0x05,0x80,0x99,
0x84,0x04,0x20,0x4C,0x16,0x88,0x0E,0x27,
0xD6,0x08,0x22,0x40,0xC7,0x01,0xA3,0xD1,
0x40,0x68,0x5C,0x40,0x9A,0x1D,0x90,0x2A,
0x6D,0x00,0xC6,0x54,0x83,0xD0,0x24,0x20,
0x02,0x74,0x2C,0x10,0x01,0x5A,0x74,0x04,
0x30,0x16,0x01,0x84,0x46,0x05,0xA1,0xC9,
0x2A,0x80,0xB2,0x9C,0x20,0x1A,0x20,0xC9,
0x30,0x60,0x0A,0x42,0x33,0x81,0xD0,0x8C,
0x20,0x54,0x7C,0x07,0x10,0x16,0x04,0x84,
0x86,0x03,0xD1,0x00,0xFE,0xFF,0x8F,0x0C,
0x02,0xD1,0x00,0x9C,0x23,0xC4,0x61,0x85,
0x82,0xD0,0xF4,0x20,0x34,0x6C,0x09,0x50,
0x16,0x1D,0x44,0xC7,0x23,0x92,0x02,0x8C,
0x05,0x02,0xA1,0x31,0x41,0x68,0x6C,0x10,
0x1A,0x29,0x06,0x28,0x13,0x54,0xE3,0x50,
0x44,0x7B,0x80,0x31,0x99,0x20,0x54,0x36,
0x88,0xC0,0x1C,0x14,0x88,0x86,0x07,0xA1,
0x62,0x82,0x00,0x52,0x10,0x01,0x12,0x20,
0x1A,0x1E,0x84,0x8A,0x29,0x32,0x74,0x0A,

```
      0x42,0x55,0x24,0x39,0x9A,0x50,0x10,0x1D,
      0x4D,0x08,0x08,0xCD,0x07,0x46,0x75,0x35,
      0x39,0x6E,0x50,0x10,0xAA,0x1D,0x84,0x06,
      0x05,0xA1,0x39,0xA2,0x80,0xB2,0xEC,0x20,
      0x02,0xB2,0x9E,0x2A,0x87,0x0A,0x0A,0x22,
      0x30,0xA7,0x02,0xA2,0x49,0x41,0xA8,0x8E,
      0x2C,0x47,0x0A,0x9A,0x06,0x84,0x25,0x06,
      0xA1,0xC9,0xDA,0x80,0xB0,0x0C,0x75,0x0E,
      0x24,0x14,0x84,0xE6,0x04,0xA1,0x4A,0xF2,
      0x0C,0x8F,0x82,0xE8,0x38,0x42,0x80,0x68,
      0x7A,0x10,0xAA,0xA6,0xCF,0x00,0x28,0x88,
      0x06,0x40,0x40,0x68,0x4E,0x30,0xAA,0xA8,
      0xD1,0xD1,0x84,0x82,0x50,0xDD,0x2F,0x4E,
      0x81,0xF8,0xFF,0x0F,
  })  // END MBUF

} //end DefinitionBlock
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/tests/misc/grammar.asl
No license file was found, but licenses were detected in source scan.

```
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/******************************************************************************
*
* Module Name: prparser.y - Bison input file for preprocessor parser
*
*****************************************************************************/

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*
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*
*****************************************************************************/

#include "aslcompiler.h"

#define _COMPONENT          ASL_PREPROCESSOR
      ACPI_MODULE_NAME    ("prparser")

void *                  AslLocalAllocate (unsigned int Size);

/* Bison/yacc configuration */
```

```
#undef alloca
#define alloca              AslLocalAllocate

int                     PrParserlex (void);
int                     PrParserparse (void);
void                     PrParsererror (char const *msg);
extern char               *PrParsertext;

UINT64                   PrParserResult; /* Expression return value */

/* Bison/yacc configuration
 */

#define yytname             PrParsername
#define YYDEBUG             1               /* Enable debug output */
#define YYERROR_VERBOSE     1               /* Verbose error messages */
#define YYFLAG              -32768

/* Define YYMALLOC/YYFREE to prevent redefinition errors  */

#define YYMALLOC            malloc
#define YYFREE              free
%}

%union
{
   UINT64               value;
   UINT32               op;
   char                 *str;
}

/*! [Begin] no source code translation */

%type  <value>  Expression

%token <op>     EXPOP_EOF
%token <op>     EXPOP_NEW_LINE
%token <op>     EXPOP_NUMBER
%token <op>     EXPOP_HEX_NUMBER
%token <op>     EXPOP_RESERVED1
%token <op>     EXPOP_RESERVED2
%token <op>     EXPOP_PAREN_OPEN
%token <op>     EXPOP_PAREN_CLOSE

%left <op>      EXPOP_LOGICAL_OR
%left <op>      EXPOP_LOGICAL_AND
%left <op>      EXPOP_OR
%left <op>      EXPOP_XOR
```

```
%left <op>      EXPOP_AND
%left <op>      EXPOP_EQUAL EXPOP_NOT_EQUAL
%left <op>
    EXPOP_GREATER EXPOP_LESS EXPOP_GREATER_EQUAL EXPOP_LESS_EQUAL
%left <op>      EXPOP_SHIFT_RIGHT EXPOP_SHIFT_LEFT
%left <op>      EXPOP_ADD EXPOP_SUBTRACT
%left <op>      EXPOP_MULTIPLY EXPOP_DIVIDE EXPOP_MODULO
%right <op>     EXPOP_ONES_COMPLIMENT EXPOP_LOGICAL_NOT

/* Tokens above must be kept in synch with dtparser.y */

%token <op>     EXPOP_DEFINE
%token <op>     EXPOP_IDENTIFIER

%%

/*
*  Operator precedence rules (from K&R)
*
*  1)     ( )
*  2)     ! ~ (unary operators that are supported here)
*  3)     *   /   %
*  4)     +   -
*  5)     >>  <<
*  6)     <   >   <=  >=
*  7)     ==  !=
*  8)     &
*  9)     ^
*  10)    |
*  11)    &&
*  12)    ||
*/

/*! [End] no source code translation !*/

Value
  : Expression EXPOP_NEW_LINE               { PrParserResult=$1; return 0; } /* End of line (newline) */
  | Expression EXPOP_EOF                    { PrParserResult=$1; return 0; } /* End of string (0) */
  ;

Expression

    /*
 Unary operators */

  : EXPOP_LOGICAL_NOT       Expression      { $$ = DtDoOperator ($2, EXPOP_LOGICAL_NOT,     $2);}
  | EXPOP_ONES_COMPLIMENT    Expression       { $$ = DtDoOperator ($2,
EXPOP_ONES_COMPLIMENT, $2);}
```

```
    /* Binary operators */

  | Expression EXPOP_MULTIPLY        Expression  { $$ = DtDoOperator ($1, EXPOP_MULTIPLY,       $3);}
  | Expression EXPOP_DIVIDE          Expression  { $$ = DtDoOperator ($1, EXPOP_DIVIDE,         $3);}
  | Expression EXPOP_MODULO          Expression  { $$ = DtDoOperator ($1, EXPOP_MODULO,         $3);}
  | Expression EXPOP_ADD             Expression  { $$ = DtDoOperator ($1, EXPOP_ADD,            $3);}
  | Expression EXPOP_SUBTRACT        Expression  { $$ = DtDoOperator ($1, EXPOP_SUBTRACT,       $3);}
  | Expression EXPOP_SHIFT_RIGHT     Expression  { $$ = DtDoOperator ($1, EXPOP_SHIFT_RIGHT,    $3);}
  | Expression EXPOP_SHIFT_LEFT      Expression  { $$ = DtDoOperator ($1, EXPOP_SHIFT_LEFT,
 $3);}
  | Expression EXPOP_GREATER         Expression  { $$ = DtDoOperator ($1, EXPOP_GREATER,        $3);}
  | Expression EXPOP_LESS            Expression  { $$ = DtDoOperator ($1, EXPOP_LESS,           $3);}
  | Expression EXPOP_GREATER_EQUAL   Expression  { $$ = DtDoOperator ($1,
EXPOP_GREATER_EQUAL,   $3);}
  | Expression EXPOP_LESS_EQUAL      Expression  { $$ = DtDoOperator ($1, EXPOP_LESS_EQUAL,
$3);}
  | Expression EXPOP_EQUAL           Expression  { $$ = DtDoOperator ($1, EXPOP_EQUAL,          $3);}
  | Expression EXPOP_NOT_EQUAL       Expression  { $$ = DtDoOperator ($1, EXPOP_NOT_EQUAL,
$3);}
  | Expression EXPOP_AND             Expression  { $$ = DtDoOperator ($1, EXPOP_AND,            $3);}
  | Expression EXPOP_XOR             Expression  { $$ = DtDoOperator ($1, EXPOP_XOR,            $3);}
  | Expression EXPOP_OR              Expression  { $$ = DtDoOperator ($1, EXPOP_OR,             $3);}
  | Expression EXPOP_LOGICAL_AND
 Expression  { $$ = DtDoOperator ($1, EXPOP_LOGICAL_AND,    $3);}
  | Expression EXPOP_LOGICAL_OR      Expression  { $$ = DtDoOperator ($1, EXPOP_LOGICAL_OR,
$3);}

    /* Parentheses: '(' Expression ')' */

  | EXPOP_PAREN_OPEN         Expression
      EXPOP_PAREN_CLOSE                    { $$ = $2;}

    /* #if defined (ID) or #if defined ID */

  | EXPOP_DEFINE EXPOP_PAREN_OPEN EXPOP_IDENTIFIER
      EXPOP_PAREN_CLOSE                    { $$ = PrIsDefined (PrParserlval.str);}

  | EXPOP_DEFINE EXPOP_IDENTIFIER              { $$ = PrIsDefined (PrParserlval.str);}

  | EXPOP_IDENTIFIER                       { $$ = PrResolveDefine (PrParserlval.str);}

    /* Default base for a non-prefixed integer is 10 */

  | EXPOP_NUMBER                           { AcpiUtStrtoul64 (PrParsertext, &$$);}

    /* Standard hex number (0x1234) */
```

```
  | EXPOP_HEX_NUMBER                    { AcpiUtStrtoul64 (PrParsertext, &$$);}

 ;
%%

/*
* Local support functions, including parser entry point
*/
#define PR_FIRST_PARSE_OPCODE   EXPOP_EOF
#define PR_YYTNAME_START        3


/*******************************************************************************
*
* FUNCTION:    PrParsererror
*
* PARAMETERS:  Message             - Parser-generated error message
*
* RETURN:      None
*
* DESCRIPTION: Handler for parser errors
*
******************************************************************************/

void
PrParsererror (
  char const             *Message)
{

  sprintf (AslGbl_StringBuffer, "Preprocessor Parser : %s (near line %u)",
     Message, AslGbl_CurrentLineNumber);
  DtError (ASL_ERROR, ASL_MSG_SYNTAX,
     NULL, (char *) AslGbl_StringBuffer);
}


/*******************************************************************************
*
* FUNCTION:    PrGetOpName
*
* PARAMETERS:  ParseOpcode         - Parser token (EXPOP_*)
*
* RETURN:      Pointer to the opcode name
*
* DESCRIPTION: Get
 the ascii name of the parse opcode for debug output
*
******************************************************************************/
```

```
char *
PrGetOpName (
  UINT32                ParseOpcode)
{
#ifdef ASL_YYTNAME_START
  /*
   * First entries (PR_YYTNAME_START) in yytname are special reserved names.
   * Ignore first 6 characters of name (EXPOP_)
   */
  return ((char *) yytname
     [(ParseOpcode - PR_FIRST_PARSE_OPCODE) + PR_YYTNAME_START] + 6);
#else
  return ("[Unknown parser generator]");
#endif
}


/*******************************************************************************
*
* FUNCTION:    PrEvaluateExpression
*
* PARAMETERS:  ExprString          - Expression to be evaluated. Must be
*                                    terminated by either a newline or a NUL
*                                    string terminator
*
* RETURN:      64-bit value for the expression
*
* DESCRIPTION: Main entry point for the DT expression parser
*
******************************************************************************/

UINT64
PrEvaluateExpression
(
  char                  *ExprString)
{

  DbgPrint (ASL_DEBUG_OUTPUT,
     "**** Input expression: %s\n", ExprString);

  /* Point lexer to the input string */

  if (PrInitLexer (ExprString))
  {
     DtError (ASL_ERROR, ASL_MSG_COMPILER_INTERNAL,
        NULL, "Could not initialize lexer");
     return (0);
```

```
  }

  /* Parse/Evaluate the input string (value returned in PrParserResult) */

  PrParserparse ();
  PrTerminateLexer ();

  DbgPrint (ASL_DEBUG_OUTPUT,
     "**** Parser returned value: %u (%8.8X%8.8X)\n",
     (UINT32) PrParserResult, ACPI_FORMAT_UINT64 (PrParserResult));

  return (PrParserResult);
}

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-
20210105/source/compiler/prparser.y
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NoEcho('
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*
* Module Name: aslcstyle.y - Production rules for symbolic operators
*
******************************************************************************/

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*
*****************************************************************************/

')

/******************************************************************************
*
* Production rules for the symbolic (c-style) operators
*
*****************************************************************************/

/*
* ASL Extensions: C-style math/logical operators and expressions.
* The implementation transforms these operators into the standard
* AML opcodes and syntax.
*
```

```
* Supported operators and precedence rules (high-to-low)
*
* NOTE: The operator precedence and associativity rules are
* implemented by the tokens in asltokens.y
 *
* (left-to-right):
*  1)     ( ) expr++ expr--
*
* (right-to-left):
*  2)     ! ~
*
* (left-to-right):
*  3)     *   /   %
*  4)     +   -
*  5)     >>  <<
*  6)     <   >   <=  >=
*  7)     ==  !=
*  8)     &
*  9)     ^
*  10)    |
*  11)    &&
*  12)    ||
*
* (right-to-left):
*  13)    = += -= *= /= %= <<= >>= &= ^= |=
*/


/******************************************************************************
*
* Basic operations for math and logical expressions.
*
******************************************************************************/

Expression

  /* Unary operators */

  : PARSEOP_EXP_LOGICAL_NOT          {$<n>$ = TrCreateLeafOp (PARSEOP_LNOT);}
    TermArg                  {$$ = TrLinkOpChildren ($<n>2,1,$3);}
  | PARSEOP_EXP_NOT                  {$<n>$ = TrCreateLeafOp (PARSEOP_NOT);}
    TermArg                  {$$ = TrLinkOpChildren ($<n>2,2,$3,TrCreateNullTargetOp ());}

  | SuperName PARSEOP_EXP_INCREMENT
  {$<n>$ = TrCreateLeafOp (PARSEOP_INCREMENT);}
                           {$$ = TrLinkOpChildren ($<n>3,1,$1);}
  | SuperName PARSEOP_EXP_DECREMENT   {$<n>$ = TrCreateLeafOp (PARSEOP_DECREMENT);}
                           {$$ = TrLinkOpChildren ($<n>3,1,$1);}
```

```
/* Binary operators: math and logical */

| TermArg PARSEOP_EXP_ADD          {$<n>$ = TrCreateLeafOp (PARSEOP_ADD);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_DIVIDE       {$<n>$ = TrCreateLeafOp (PARSEOP_DIVIDE);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,4,$1,$4,TrCreateNullTargetOp (),
                            TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_MODULO       {$<n>$ = TrCreateLeafOp (PARSEOP_MOD);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_MULTIPLY
  {$<n>$ = TrCreateLeafOp (PARSEOP_MULTIPLY);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_SHIFT_LEFT   {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTLEFT);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_SHIFT_RIGHT  {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTRIGHT);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_SUBTRACT     {$<n>$ = TrCreateLeafOp (PARSEOP_SUBTRACT);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}

| TermArg PARSEOP_EXP_AND          {$<n>$ = TrCreateLeafOp (PARSEOP_AND);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_OR           {$<n>$ = TrCreateLeafOp (PARSEOP_OR);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_XOR          {$<n>$ = TrCreateLeafOp (PARSEOP_XOR);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}

| TermArg PARSEOP_EXP_GREATER      {$<n>$ = TrCreateLeafOp (PARSEOP_LGREATER);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_GREATER_EQUAL {$<n>$ = TrCreateLeafOp
(PARSEOP_LGREATEREQUAL);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_LESS         {$<n>$ = TrCreateLeafOp (PARSEOP_LLESS);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_LESS_EQUAL   {$<n>$ = TrCreateLeafOp (PARSEOP_LLESSEQUAL);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}

| TermArg PARSEOP_EXP_EQUAL
 {$<n>$ = TrCreateLeafOp (PARSEOP_LEQUAL);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_NOT_EQUAL    {$<n>$ = TrCreateLeafOp (PARSEOP_LNOTEQUAL);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}

| TermArg PARSEOP_EXP_LOGICAL_AND  {$<n>$ = TrCreateLeafOp (PARSEOP_LAND);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_LOGICAL_OR   {$<n>$ = TrCreateLeafOp (PARSEOP_LOR);}
   TermArg                  {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
```

```
  /* Parentheses */

  | PARSEOP_OPEN_PAREN
    Expression
    PARSEOP_CLOSE_PAREN         {$$ = $2;}

  /* Index term -- "= BUF1[5]" on right-hand side of an equals (source) */

  | IndexExpTerm
  ;

  /*
   * Index term -- "BUF1[5] = " or " = BUF1[5] on either the left side
   * of an equals (target) or the right side (source)
   * Currently used in
 these terms:
   *     Expression
   *     ObjectTypeSource
   *     DerefOfSource
   *     Type6Opcode
   */
IndexExpTerm

  : SuperName
    PARSEOP_EXP_INDEX_LEFT
    TermArg
    PARSEOP_EXP_INDEX_RIGHT     {$$ = TrCreateLeafOp (PARSEOP_INDEX);
                        TrLinkOpChildren ($$,3,$1,$3,TrCreateNullTargetOp ());}
  ;


/******************************************************************************
*
* All assignment-type operations -- math and logical. Includes simple
* assignment and compound assignments.
*
******************************************************************************/

EqualsTerm

  /* Allow parens anywhere */

  : PARSEOP_OPEN_PAREN
    EqualsTerm
    PARSEOP_CLOSE_PAREN         {$$ = $2;}

  /* Simple Store() operation */
```

```
  | SuperName
    PARSEOP_EXP_EQUALS
    TermArg                 {$$ = TrCreateAssignmentOp ($1, $3);}

  /* Chained equals: (a=RefOf)=b, a=b=c=d
etc. */

  | PARSEOP_OPEN_PAREN
    EqualsTerm
    PARSEOP_CLOSE_PAREN
    PARSEOP_EXP_EQUALS
    TermArg                 {$$ = TrCreateAssignmentOp ($2, $5);}

  /* Compound assignments -- Add (operand, operand, target) */

  | TermArg PARSEOP_EXP_ADD_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_ADD);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_DIV_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_DIVIDE);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,4,$1,$4,TrCreateNullTargetOp (),
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_MOD_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_MOD);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,

            TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_MUL_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_MULTIPLY);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_SHL_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTLEFT);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_SHR_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTRIGHT);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_SUB_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_SUBTRACT);}
    TermArg
        {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_AND_EQ      {$<n>$ = TrCreateLeafOp (PARSEOP_AND);}
    TermArg                 {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                          TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}
```

```
  | TermArg PARSEOP_EXP_OR_EQ        {$<n>$ = TrCreateLeafOp (PARSEOP_OR);}
    TermArg                          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                                     TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

  | TermArg PARSEOP_EXP_XOR_EQ       {$<n>$ = TrCreateLeafOp (PARSEOP_XOR);}
    TermArg                          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,
                                     TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}
  ;
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslcstyle.y
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20210105/source/components/namespace/nseval.c
No license file was found, but licenses were detected in source scan.

%{
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* Module Name: aslparser.y - Master Bison/Yacc input file for iASL
*
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*****************************************************************************/

#include "aslcompiler.h"
#include "acpi.h"
```

```
#include "accommon.h"

#define _COMPONENT          ACPI_COMPILER
      ACPI_MODULE_NAME    ("aslparse")

/*
* Global Notes:
*
* October 2005: The following list terms have been optimized (from the
* original ASL grammar in the ACPI specification) to force the immediate
* reduction of each list item so that the parse stack use doesn't increase on
* each list element and possibly overflow on very large lists (>4000 items).
* This dramatically reduces use of the parse stack overall.
*
*      ArgList, TermList, ByteList,
 DWordList, PackageList,
*      ResourceMacroList, and FieldUnitList
*/

void *
AslLocalAllocate (
  unsigned int            Size);


/* Bison/yacc configuration */

#define static
#undef malloc
#define malloc              AslLocalAllocate
#undef alloca
#define alloca              AslLocalAllocate
#define yytname             AslCompilername

#define YYINITDEPTH         600             /* State stack depth */
#define YYDEBUG             1               /* Enable debug output */
#define YYERROR_VERBOSE     1               /* Verbose error messages */
#define YYFLAG              -32768

/* Define YYMALLOC/YYFREE to prevent redefinition errors  */

#define YYMALLOC            AslLocalAllocate
#define YYFREE              ACPI_FREE
%}

/*
* Declare the type of values in the grammar
*/
%union {
```

```
  UINT64              i;
  char                *s;
  ACPI_PARSE_OBJECT   *n;
}

/*
* These shift/reduce conflicts are expected. There should be zero
* reduce/reduce conflicts.
*/
%expect
 124

/*! [Begin] no source code translation */

/*
* The M4 macro processor is used to bring in the parser items,
* in order to keep this master file smaller, and to break up
* the various parser items.
*/
m4_define(NoEcho)

/* Token types */

m4_include(asltokens.y)

/* Production types/names */

m4_include(asltypes.y)
%%

/* Production rules */

m4_include(aslrules.y)
m4_include(aslprimaries.y)
m4_include(aslcstyle.y)
m4_include(aslkeywords.y)
m4_include(aslresources.y)
m4_include(aslhelpers.y)
%%

/*! [End] no source code translation !*/

/* Local support functions in C */

m4_include(aslsupport.y)

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-
```

20210105/source/compiler/aslparser.y
No license file was found, but licenses were detected in source scan.

```
NoEcho('
/******************************************************************************
*
* Module Name: aslprimaries.y - Rules for primary ASL operators
*                       - Keep this file synched with the
*                         CvParseOpBlockType function in cvcompiler.c
*
*****************************************************************************/

/******************************************************************************
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*
*****************************************************************************/

')


/*****************************************************************************
*
* ASL Primary Terms
*
*****************************************************************************/

AccessAsTerm
  : PARSEOP_ACCESSAS
      PARSEOP_OPEN_PAREN
      AccessTypeKeyword
      OptionalAccessAttribTerm
      PARSEOP_CLOSE_PAREN         {$$ = TrCreateOp (PARSEOP_ACCESSAS,2,$3,$4);}
  | PARSEOP_ACCESSAS

     PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

AcquireTerm
  : PARSEOP_ACQUIRE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp(PARSEOP_ACQUIRE);}
      SuperName
      ',' WordConstExpr
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$6);}
  | PARSEOP_ACQUIRE
```

```
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

AddTerm
  : PARSEOP_ADD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_ADD);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_ADD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

AliasTerm
  : PARSEOP_ALIAS
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_ALIAS);}
    NameString
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$
 = TrLinkOpChildren ($<n>3,2,$4,
                            TrSetOpFlags ($5, OP_IS_NAME_DECLARATION));}
  | PARSEOP_ALIAS
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

AndTerm
  : PARSEOP_AND
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_AND);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_AND
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ArgTerm
  : PARSEOP_ARG0                {$$ = TrCreateLeafOp (PARSEOP_ARG0);}
  | PARSEOP_ARG1                {$$ = TrCreateLeafOp (PARSEOP_ARG1);}
  | PARSEOP_ARG2                {$$ = TrCreateLeafOp (PARSEOP_ARG2);}
  | PARSEOP_ARG3                {$$ = TrCreateLeafOp (PARSEOP_ARG3);}
  | PARSEOP_ARG4                {$$ = TrCreateLeafOp (PARSEOP_ARG4);}
  | PARSEOP_ARG5
```

```
    {$$ = TrCreateLeafOp (PARSEOP_ARG5);}
  | PARSEOP_ARG6              {$$ = TrCreateLeafOp (PARSEOP_ARG6);}
  ;

BankFieldTerm
  : PARSEOP_BANKFIELD
    PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_BANKFIELD);}
    NameString
    NameStringItem
    TermArgItem
    OptionalAccessTypeKeyword
    OptionalLockRuleKeyword
    OptionalUpdateRuleKeyword
    PARSEOP_CLOSE_PAREN '{'
      FieldUnitList '}'       {$$ = TrLinkOpChildren ($<n>3,7,
                              $4,$5,$6,$7,$8,$9,$12);}
  | PARSEOP_BANKFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN
    '{' error '}'             {$$ = AslDoError(); yyclearin;}
  ;

BreakTerm
  : PARSEOP_BREAK             {$$ = TrCreateOp (PARSEOP_BREAK, 0);}
  ;

BreakPointTerm
  : PARSEOP_BREAKPOINT        {$$ = TrCreateOp (PARSEOP_BREAKPOINT, 0);}
  ;

BufferTerm
  : PARSEOP_BUFFER            {$<n>$ = TrCreateLeafOp (PARSEOP_BUFFER);
 COMMENT_CAPTURE_OFF; }
    OptionalDataCount
    '{' BufferTermData '}'    {$$ = TrLinkOpChildren ($<n>2,2,$3,$5); COMMENT_CAPTURE_ON;}
  ;

BufferTermData
  : ByteList                  {}
  | StringData                {}
  ;

CaseTerm
  : PARSEOP_CASE
    PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_CASE);}
    DataObject
    PARSEOP_CLOSE_PAREN '{'
      TermList '}'            {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
```

```
  | PARSEOP_CASE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ConcatTerm
  : PARSEOP_CONCATENATE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CONCATENATE);}
      TermArg
      TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_CONCATENATE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ConcatResTerm
   : PARSEOP_CONCATENATERESTEMPLATE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (
                                  PARSEOP_CONCATENATERESTEMPLATE);}
      TermArg
      TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_CONCATENATERESTEMPLATE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

CondRefOfTerm
  : PARSEOP_CONDREFOF
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CONDREFOF);}
      CondRefOfSource
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_CONDREFOF
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ConnectionTerm
  : PARSEOP_CONNECTION
      PARSEOP_OPEN_PAREN
      NameString
      PARSEOP_CLOSE_PAREN         {$$ = TrCreateOp (PARSEOP_CONNECTION,1,$3);}
  | PARSEOP_CONNECTION
```

```
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CONNECTION);}
    ResourceMacroTerm
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3, 1,
                            TrLinkOpChildren (
                              TrCreateLeafOp (PARSEOP_RESOURCETEMPLATE), 3,
                              TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                              TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                              $4));}
  | PARSEOP_CONNECTION
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ContinueTerm
  : PARSEOP_CONTINUE            {$$ = TrCreateOp (PARSEOP_CONTINUE, 0);}
  ;

CopyObjectTerm
  : PARSEOP_COPYOBJECT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_COPYOBJECT);}
    TermArg
    ',' SimpleName
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren
($<n>3,2,$4,
                            TrSetOpFlags ($6, OP_IS_TARGET));}
  | PARSEOP_COPYOBJECT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

CreateBitFieldTerm
  : PARSEOP_CREATEBITFIELD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEBITFIELD);}
    TermArg
    TermArgItem
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                            TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
  | PARSEOP_CREATEBITFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

CreateByteFieldTerm
  : PARSEOP_CREATEBYTEFIELD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEBYTEFIELD);}
    TermArg
    TermArgItem
```

```
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,

        TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
  | PARSEOP_CREATEBYTEFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

CreateDWordFieldTerm
  : PARSEOP_CREATEDWORDFIELD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEDWORDFIELD);}
    TermArg
    TermArgItem
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                        TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
  | PARSEOP_CREATEDWORDFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

CreateFieldTerm
  : PARSEOP_CREATEFIELD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEFIELD);}
    TermArg
    TermArgItem
    TermArgItem
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,4,$4,$5,$6,

    TrSetOpFlags ($7, OP_IS_NAME_DECLARATION));}
  | PARSEOP_CREATEFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

CreateQWordFieldTerm
  : PARSEOP_CREATEQWORDFIELD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEQWORDFIELD);}
    TermArg
    TermArgItem
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                        TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
  | PARSEOP_CREATEQWORDFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
```

```
  ;

CreateWordFieldTerm
  : PARSEOP_CREATEWORDFIELD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEWORDFIELD);}
    TermArg
    TermArgItem
    NameStringItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                                TrSetOpFlags ($6,
 OP_IS_NAME_DECLARATION));}
  | PARSEOP_CREATEWORDFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

DataRegionTerm
  : PARSEOP_DATATABLEREGION
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_DATATABLEREGION);}
    NameString
    TermArgItem
    TermArgItem
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,4,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$5,$6,$7);}
  | PARSEOP_DATATABLEREGION
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

DebugTerm
  : PARSEOP_DEBUG               {$$ = TrCreateLeafOp (PARSEOP_DEBUG);}
  ;

DecTerm
  : PARSEOP_DECREMENT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_DECREMENT);}
    SuperName
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_DECREMENT
    PARSEOP_OPEN_PAREN
     error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
  ;

DefaultTerm
  : PARSEOP_DEFAULT '{'         {$<n>$ = TrCreateLeafOp (PARSEOP_DEFAULT);}
    TermList '}'                {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_DEFAULT '{'
```

```
    error '}'               {$$ = AslDoError(); yyclearin;}
  ;

DerefOfTerm
  : PARSEOP_DEREFOF
    PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_DEREFOF);}
    DerefOfSource
    PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_DEREFOF
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

DeviceTerm
  : PARSEOP_DEVICE
    PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_DEVICE);}
    NameString
    PARSEOP_CLOSE_PAREN '{'
      TermList '}'          {$$ = TrLinkOpChildren ($<n>3,2,
                            TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$7);}
   | PARSEOP_DEVICE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

DivideTerm
  : PARSEOP_DIVIDE
    PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_DIVIDE);}
    TermArg
    TermArgItem
    Target
    Target
    PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,4,$4,$5,$6,$7);}
  | PARSEOP_DIVIDE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

EISAIDTerm
  : PARSEOP_EISAID
    PARSEOP_OPEN_PAREN
    StringLiteral
    PARSEOP_CLOSE_PAREN     {$$ = TrSetOpIntegerValue (PARSEOP_EISAID, $3);}
  | PARSEOP_EISAID
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;
```

```
ElseIfTerm
  : IfTerm ElseTerm              {$$ = TrLinkPeerOp ($1,$2);}
  ;

ElseTerm
  :                          {$$ = NULL;}
  | PARSEOP_ELSE '{'
     TermList          {$<n>$
 = TrCreateLeafOp (PARSEOP_ELSE);}
     '}'               {$$ = TrLinkOpChildren ($<n>4,1,$3);}

  | PARSEOP_ELSE '{'
     error '}'                 {$$ = AslDoError(); yyclearin;}

  | PARSEOP_ELSE
     error                     {$$ = AslDoError(); yyclearin;}

  | PARSEOP_ELSEIF
     PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_ELSE);}
     TermArg                    {$<n>$ = TrCreateLeafOp (PARSEOP_IF);}
     PARSEOP_CLOSE_PAREN '{'
        TermList '}'           {TrLinkOpChildren ($<n>5,2,$4,$8);}
     ElseTerm                   {TrLinkPeerOp ($<n>5,$11);}
                           {$$ = TrLinkOpChildren ($<n>3,1,$<n>5);}

  | PARSEOP_ELSEIF
     PARSEOP_OPEN_PAREN
     error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}

  | PARSEOP_ELSEIF
     error                     {$$ = AslDoError(); yyclearin;}
  ;

EventTerm
  : PARSEOP_EVENT
     PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp
 (PARSEOP_EVENT);}
     NameString
     PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,1,
                           TrSetOpFlags ($4, OP_IS_NAME_DECLARATION));}
  | PARSEOP_EVENT
     PARSEOP_OPEN_PAREN
     error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ExternalTerm
  : PARSEOP_EXTERNAL
     PARSEOP_OPEN_PAREN
```

```
    NameString
    OptionalObjectTypeKeyword
    OptionalParameterTypePackage
    OptionalParameterTypesPackage
    PARSEOP_CLOSE_PAREN        {$$ = TrCreateOp (PARSEOP_EXTERNAL,4,$3,$4,$5,$6);}
  | PARSEOP_EXTERNAL
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

FatalTerm
  : PARSEOP_FATAL
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_FATAL);}
    ByteConstExpr
    ',' DWordConstExpr
    TermArgItem
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,3,$4,$6,$7);}
  | PARSEOP_FATAL
     PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

FieldTerm
  : PARSEOP_FIELD
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_FIELD);}
    NameString
    OptionalAccessTypeKeyword
    OptionalLockRuleKeyword
    OptionalUpdateRuleKeyword
    PARSEOP_CLOSE_PAREN '{'
       FieldUnitList '}'       {$$ = TrLinkOpChildren ($<n>3,5,$4,$5,$6,$7,$10);}
  | PARSEOP_FIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN
    '{' error '}'              {$$ = AslDoError(); yyclearin;}
  ;

FindSetLeftBitTerm
  : PARSEOP_FINDSETLEFTBIT
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_FINDSETLEFTBIT);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_FINDSETLEFTBIT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;
```

```
FindSetRightBitTerm

  : PARSEOP_FINDSETRIGHTBIT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_FINDSETRIGHTBIT);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_FINDSETRIGHTBIT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

  /* Convert a For() loop to a While() loop */
ForTerm
  : PARSEOP_FOR
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_WHILE);}
    OptionalTermArg ','         {}
    OptionalPredicate ','
    OptionalTermArg             {$<n>$ = TrLinkPeerOp ($4,$<n>3);
                                 TrSetOpParent ($9,$<n>3);}             /* New parent is WHILE */
    PARSEOP_CLOSE_PAREN
    '{' TermList '}'            {$<n>$ = TrLinkOpChildren ($<n>3,2,$7,$13);}
                              {$<n>$ = TrLinkPeerOp ($13,$9);
                                 $$ = $<n>10;}
  ;

OptionalPredicate
   :                            {$$ = TrCreateValuedLeafOp (PARSEOP_INTEGER, 1);}
  | TermArg                     {$$ = $1;}
  ;

FprintfTerm
  : PARSEOP_FPRINTF
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_FPRINTF);}
    TermArg ','
    StringLiteral
    PrintfArgList
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$6,$7);}
  | PARSEOP_FPRINTF
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

FromBCDTerm
  : PARSEOP_FROMBCD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_FROMBCD);}
    TermArg
    Target
```

```
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_FROMBCD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

FunctionTerm
  : PARSEOP_FUNCTION
    PARSEOP_OPEN_PAREN          {COMMENT_CAPTURE_OFF; $<n>$ = TrCreateLeafOp
(PARSEOP_METHOD); }
    NameString
    OptionalParameterTypePackage
    OptionalParameterTypesPackage
    PARSEOP_CLOSE_PAREN '{'     {COMMENT_CAPTURE_ON; }
      TermList '}'              {$$ = TrLinkOpChildren ($<n>3,7,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                                TrCreateLeafOp (PARSEOP_SERIALIZERULE_NOTSERIAL),
                                TrCreateValuedLeafOp (PARSEOP_BYTECONST, 0),$5,$6,$10);}
  | PARSEOP_FUNCTION
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

IfTerm
  : PARSEOP_IF
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_IF);}
    TermArg
    PARSEOP_CLOSE_PAREN '{'
      TermList '}'              {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}

  | PARSEOP_IF
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN
  {$$ = AslDoError(); yyclearin;}
  ;

IncludeTerm
  : PARSEOP_INCLUDE
    PARSEOP_OPEN_PAREN
    String
    PARSEOP_CLOSE_PAREN         {$$ = TrSetOpIntegerValue (PARSEOP_INCLUDE, $3);
                                FlOpenIncludeFile ($3);}
  ;

IncludeEndTerm
  : PARSEOP_INCLUDE_END         {$<n>$ = TrCreateLeafOp (PARSEOP_INCLUDE_END);
                                TrSetOpCurrentFilename ($$);}
```

```
  ;

IncTerm
  : PARSEOP_INCREMENT
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_INCREMENT);}
      SuperName
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_INCREMENT
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

IndexFieldTerm
  : PARSEOP_INDEXFIELD
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_INDEXFIELD);}
      NameString
      NameStringItem
      OptionalAccessTypeKeyword
       OptionalLockRuleKeyword
      OptionalUpdateRuleKeyword
      PARSEOP_CLOSE_PAREN '{'
         FieldUnitList '}'        {$$ = TrLinkOpChildren ($<n>3,6,$4,$5,$6,$7,$8,$11);}
  | PARSEOP_INDEXFIELD
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN
      '{' error '}'               {$$ = AslDoError(); yyclearin;}
  ;

IndexTerm
  : PARSEOP_INDEX
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_INDEX);}
      TermArg
      TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_INDEX
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LAndTerm
  : PARSEOP_LAND
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LAND);}
      TermArg
      TermArgItem
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_LAND
      PARSEOP_OPEN_PAREN
```

```
    error PARSEOP_CLOSE_PAREN
  {$$ = AslDoError(); yyclearin;}
  ;

LEqualTerm
  : PARSEOP_LEQUAL
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LEQUAL);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_LEQUAL
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LGreaterEqualTerm
  : PARSEOP_LGREATEREQUAL
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LLESS);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrCreateOp (PARSEOP_LNOT, 1,
                                TrLinkOpChildren ($<n>3,2,$4,$5));}
  | PARSEOP_LGREATEREQUAL
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LGreaterTerm
  : PARSEOP_LGREATER
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LGREATER);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN
      {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_LGREATER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LLessEqualTerm
  : PARSEOP_LLESSEQUAL
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LGREATER);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrCreateOp (PARSEOP_LNOT, 1,
                                TrLinkOpChildren ($<n>3,2,$4,$5));}
  | PARSEOP_LLESSEQUAL
    PARSEOP_OPEN_PAREN
```

```
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LLessTerm
  : PARSEOP_LLESS
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LLESS);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_LLESS
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LNotEqualTerm
  : PARSEOP_LNOTEQUAL
     PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_LEQUAL);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrCreateOp (PARSEOP_LNOT, 1,
                          TrLinkOpChildren ($<n>3,2,$4,$5));}
  | PARSEOP_LNOTEQUAL
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LNotTerm
  : PARSEOP_LNOT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LNOT);}
    TermArg
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_LNOT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LoadTableTerm
  : PARSEOP_LOADTABLE
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LOADTABLE);}
    TermArg
    TermArgItem
    TermArgItem
    OptionalListString
    OptionalListString
    OptionalReference
    PARSEOP_CLOSE_PAREN         {$$ =
 TrLinkOpChildren ($<n>3,6,$4,$5,$6,$7,$8,$9);}
  | PARSEOP_LOADTABLE
```

```
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LoadTerm
  : PARSEOP_LOAD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LOAD);}
    NameString
    RequiredTarget
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_LOAD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

LocalTerm
  : PARSEOP_LOCAL0              {$$ = TrCreateLeafOp (PARSEOP_LOCAL0);}
  | PARSEOP_LOCAL1              {$$ = TrCreateLeafOp (PARSEOP_LOCAL1);}
  | PARSEOP_LOCAL2              {$$ = TrCreateLeafOp (PARSEOP_LOCAL2);}
  | PARSEOP_LOCAL3              {$$ = TrCreateLeafOp (PARSEOP_LOCAL3);}
  | PARSEOP_LOCAL4              {$$ = TrCreateLeafOp (PARSEOP_LOCAL4);}
  | PARSEOP_LOCAL5              {$$ = TrCreateLeafOp (PARSEOP_LOCAL5);}
  | PARSEOP_LOCAL6
          {$$ = TrCreateLeafOp (PARSEOP_LOCAL6);}
  | PARSEOP_LOCAL7              {$$ = TrCreateLeafOp (PARSEOP_LOCAL7);}
  ;

LOrTerm
  : PARSEOP_LOR
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_LOR);}
    TermArg
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_LOR
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

MatchTerm
  : PARSEOP_MATCH
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MATCH);}
    TermArg
    ',' MatchOpKeyword
    TermArgItem
    ',' MatchOpKeyword
    TermArgItem
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$7,$9,$10,$11);}
```

```
  | PARSEOP_MATCH
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

MethodTerm
  : PARSEOP_METHOD
      PARSEOP_OPEN_PAREN          {$<n>$
 = TrCreateLeafOp (PARSEOP_METHOD); COMMENT_CAPTURE_OFF;}
      NameString
      OptionalByteConstExpr       {UtCheckIntegerRange ($5, 0, 7);}
      OptionalSerializeRuleKeyword
      OptionalByteConstExpr
      OptionalParameterTypePackage
      OptionalParameterTypesPackage
      PARSEOP_CLOSE_PAREN '{'     {COMMENT_CAPTURE_ON;}
        TermList '}'              {$$ = TrLinkOpChildren ($<n>3,7,
                                  TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                  $5,$7,$8,$9,$10,$14);}
  | PARSEOP_METHOD
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

MidTerm
  : PARSEOP_MID
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MID);}
      TermArg
      TermArgItem
      TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,4,$4,$5,$6,$7);}
  | PARSEOP_MID
      PARSEOP_OPEN_PAREN
      error
 PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ModTerm
  : PARSEOP_MOD
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MOD);}
      TermArg
      TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_MOD
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
```

```
  ;

MultiplyTerm
  : PARSEOP_MULTIPLY
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MULTIPLY);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_MULTIPLY
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

MutexTerm
  : PARSEOP_MUTEX
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MUTEX);}
    NameString
    OptionalSyncLevel
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren
($<n>3,2,
                            TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$5);}
  | PARSEOP_MUTEX
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

NameTerm
  : PARSEOP_NAME
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_NAME);}
    NameString
    ',' DataObject
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,
                            TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$6);}
  | PARSEOP_NAME
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

NAndTerm
  : PARSEOP_NAND
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_NAND);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_NAND
    PARSEOP_OPEN_PAREN
```

```
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}

  ;

NoOpTerm
  : PARSEOP_NOOP                {$$ = TrCreateOp (PARSEOP_NOOP, 0);}
  ;

NOrTerm
  : PARSEOP_NOR
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_NOR);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_NOR
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

NotifyTerm
  : PARSEOP_NOTIFY
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_NOTIFY);}
    SuperName
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_NOTIFY
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

NotTerm
  : PARSEOP_NOT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_NOT);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
   | PARSEOP_NOT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ObjectTypeTerm
  : PARSEOP_OBJECTTYPE
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE);}
    ObjectTypeSource
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_OBJECTTYPE
```

```
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

OffsetTerm
  : PARSEOP_OFFSET
    PARSEOP_OPEN_PAREN
    AmlPackageLengthTerm
    PARSEOP_CLOSE_PAREN         {$$ = TrCreateOp (PARSEOP_OFFSET,1,$3);}
  | PARSEOP_OFFSET
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

OpRegionTerm
  : PARSEOP_OPERATIONREGION
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_OPERATIONREGION);}
    NameString
    ',' OpRegionSpaceIdTerm
    TermArgItem
    TermArgItem
    PARSEOP_CLOSE_PAREN
      {$$ = TrLinkOpChildren ($<n>3,4,
                        TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                        $6,$7,$8);}
  | PARSEOP_OPERATIONREGION
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

OpRegionSpaceIdTerm
  : RegionSpaceKeyword          {}
  | ByteConst                   {$$ = UtCheckIntegerRange ($1, 0x80, 0xFF);}
  ;

OrTerm
  : PARSEOP_OR
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_OR);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_OR
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

PackageTerm
```

```
  : PARSEOP_PACKAGE             {$<n>$ = TrCreateLeafOp (PARSEOP_VAR_PACKAGE);}
    OptionalDataCount
    '{' PackageList '}'         {$$ = TrLinkOpChildren ($<n>2,2,$3,$5);}

PowerResTerm
   : PARSEOP_POWERRESOURCE
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_POWERRESOURCE);}
    NameString
    ',' ByteConstExpr
    ',' WordConstExpr
    PARSEOP_CLOSE_PAREN '{'
      TermList '}'              {$$ = TrLinkOpChildren ($<n>3,4,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                $6,$8,$11);}
  | PARSEOP_POWERRESOURCE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

PrintfTerm
  : PARSEOP_PRINTF
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PRINTF);}
    StringLiteral
    PrintfArgList
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_PRINTF
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

PrintfArgList
  :                             {$$ = NULL;}
   | TermArg                    {$$ = $1;}
  | PrintfArgList ','
    TermArg                     {$$ = TrLinkPeerOp ($1, $3);}
  ;

ProcessorTerm
  : PARSEOP_PROCESSOR
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PROCESSOR);}
    NameString
    ',' ByteConstExpr
    OptionalDWordConstExpr
    OptionalByteConstExpr
    PARSEOP_CLOSE_PAREN '{'
      TermList '}'              {$$ = TrLinkOpChildren ($<n>3,5,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                $6,$7,$8,$11);}
```

```
  | PARSEOP_PROCESSOR
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

RawDataBufferTerm
  : PARSEOP_DATABUFFER
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_DATABUFFER);}
      OptionalWordConst
      PARSEOP_CLOSE_PAREN '{'
        ByteList '}'              {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}

  | PARSEOP_DATABUFFER
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

/*
* In RefOf, the node isn't really a target, but we can't keep track of it after
* we've taken a pointer to it. (hard to tell if a local becomes initialized this way.)
*/
RefOfTerm
  : PARSEOP_REFOF
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_REFOF);}
      RefOfSource
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,
                                  TrSetOpFlags ($4, OP_IS_TARGET));}
  | PARSEOP_REFOF
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ReleaseTerm
  : PARSEOP_RELEASE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_RELEASE);}
      SuperName
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_RELEASE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError();
 yyclearin;}
  ;

ResetTerm
  : PARSEOP_RESET
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_RESET);}
      SuperName
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
```

```
  | PARSEOP_RESET
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ReturnTerm
  : PARSEOP_RETURN
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_RETURN);}
    OptionalReturnArg
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_RETURN              {$$ = TrLinkOpChildren (
                                TrCreateLeafOp (PARSEOP_RETURN),1,
                                TrSetOpFlags (TrCreateLeafOp (PARSEOP_ZERO),
                                  OP_IS_NULL_RETURN));}
  | PARSEOP_RETURN
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ScopeTerm
  : PARSEOP_SCOPE

    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SCOPE);}
    NameString
    PARSEOP_CLOSE_PAREN '{'
      TermList '}'              {$$ = TrLinkOpChildren ($<n>3,2,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$7);}
  | PARSEOP_SCOPE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ShiftLeftTerm
  : PARSEOP_SHIFTLEFT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTLEFT);}
    TermArg
    TermArgItem
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_SHIFTLEFT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ShiftRightTerm
  : PARSEOP_SHIFTRIGHT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTRIGHT);}
    TermArg
```

```
      TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren
($<n>3,3,$4,$5,$6);}
    | PARSEOP_SHIFTRIGHT
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

SignalTerm
    : PARSEOP_SIGNAL
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SIGNAL);}
      SuperName
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
    | PARSEOP_SIGNAL
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

SizeOfTerm
    : PARSEOP_SIZEOF
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SIZEOF);}
      SuperName
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
    | PARSEOP_SIZEOF
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

SleepTerm
    : PARSEOP_SLEEP
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SLEEP);}
      TermArg
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
     | PARSEOP_SLEEP
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

StallTerm
    : PARSEOP_STALL
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_STALL);}
      TermArg
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
    | PARSEOP_STALL
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;
```

```
StoreTerm
  : PARSEOP_STORE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_STORE);}
      TermArg
      ',' SuperName
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,
                                    TrSetOpFlags ($6, OP_IS_TARGET));}
  | PARSEOP_STORE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

SubtractTerm
  : PARSEOP_SUBTRACT
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SUBTRACT);}
      TermArg
       TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_SUBTRACT
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

SwitchTerm
  : PARSEOP_SWITCH
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SWITCH);}
      TermArg
      PARSEOP_CLOSE_PAREN '{'
        CaseDefaultTermList '}' {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
  | PARSEOP_SWITCH
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ThermalZoneTerm
  : PARSEOP_THERMALZONE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_THERMALZONE);}
      NameString
      PARSEOP_CLOSE_PAREN '{'
        TermList '}'              {$$ = TrLinkOpChildren ($<n>3,2,
                                    TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$7);}
  | PARSEOP_THERMALZONE
      PARSEOP_OPEN_PAREN

  error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;
```

```
TimerTerm
  : PARSEOP_TIMER
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TIMER);}
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,0);}
  | PARSEOP_TIMER               {$$ = TrLinkOpChildren (
                                TrCreateLeafOp (PARSEOP_TIMER),0);}
  | PARSEOP_TIMER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ToBCDTerm
  : PARSEOP_TOBCD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TOBCD);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_TOBCD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ToBufferTerm
  : PARSEOP_TOBUFFER
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TOBUFFER);}
    TermArg
    Target

 PARSEOP_CLOSE_PAREN          {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_TOBUFFER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ToDecimalStringTerm
  : PARSEOP_TODECIMALSTRING
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TODECIMALSTRING);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_TODECIMALSTRING
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ToHexStringTerm
  : PARSEOP_TOHEXSTRING
```

```
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TOHEXSTRING);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_TOHEXSTRING
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PARENT  {$$ = AslDoError(); yyclearin;}
  ;

ToIntegerTerm
  : PARSEOP_TOINTEGER
    PARSEOP_OPEN_PAREN
     {$<n>$ = TrCreateLeafOp (PARSEOP_TOINTEGER);}
    TermArg
    Target
    PARSEOP_CLOSE_PARENT        {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
  | PARSEOP_TOINTEGER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PARENT  {$$ = AslDoError(); yyclearin;}
  ;

ToPLDTerm
  : PARSEOP_TOPLD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TOPLD);}
    PldKeywordList
    PARSEOP_CLOSE_PARENT        {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_TOPLD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PARENT  {$$ = AslDoError(); yyclearin;}
  ;

PldKeywordList
  :                             {$$ = NULL;}
  | PldKeyword
    PARSEOP_EXP_EQUALS Integer  {$$ = TrLinkOpChildren ($1,1,$3);}
  | PldKeyword
    PARSEOP_EXP_EQUALS String   {$$ = TrLinkOpChildren ($1,1,$3);}
  | PldKeywordList ','          /* Allows a trailing comma at list end */
  | PldKeywordList ','
    PldKeyword
    PARSEOP_EXP_EQUALS
 Integer  {$$ = TrLinkPeerOp ($1,TrLinkOpChildren ($3,1,$5));}
  | PldKeywordList ','
    PldKeyword
    PARSEOP_EXP_EQUALS String   {$$ = TrLinkPeerOp ($1,TrLinkOpChildren ($3,1,$5));}
  ;
```

```
ToStringTerm
  : PARSEOP_TOSTRING
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_TOSTRING);}
    TermArg
    OptionalCount
    Target
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_TOSTRING
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ToUUIDTerm
  : PARSEOP_TOUUID
    PARSEOP_OPEN_PAREN
    StringLiteral
    PARSEOP_CLOSE_PAREN         {$$ = TrSetOpIntegerValue (PARSEOP_TOUUID, $3);}
  | PARSEOP_TOUUID
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

UnicodeTerm
  : PARSEOP_UNICODE
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_UNICODE);}
    StringLiteral
     PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,2,0,$4);}
  | PARSEOP_UNICODE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

UnloadTerm
  : PARSEOP_UNLOAD
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_UNLOAD);}
    SuperName
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_UNLOAD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

WaitTerm
  : PARSEOP_WAIT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_WAIT);}
    SuperName
    TermArgItem
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
```

```
  | PARSEOP_WAIT
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

XOrTerm
  : PARSEOP_XOR
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_XOR);}
      TermArg

 TermArgItem
      Target
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
  | PARSEOP_XOR
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

WhileTerm
  : PARSEOP_WHILE
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_WHILE);}
      TermArg
      PARSEOP_CLOSE_PAREN
        '{' TermList '}'          {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
  | PARSEOP_WHILE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-
20210105/source/compiler/aslprimaries.y
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/os_specific/service_layers/osgendbg.c
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%{

```
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*
* Module Name: dtcompilerparser.y - Bison input file for table compiler parser
*
*****************************************************************************/

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*****************************************************************************/

#include "aslcompiler.h"


#define _COMPONENT          DT_COMPILER
     ACPI_MODULE_NAME    ("dtcompilerparser")

void *                  AslLocalAllocate (unsigned int Size);

/* Bison/yacc configuration */

#undef alloca
#define alloca              AslLocalAllocate

int                     DtCompilerParserlex (void);
int                     DtCompilerParserparse (void);
void                    DtCompilerParsererror (char const *msg);
extern char             *DtCompilerParsertext;
extern DT_FIELD         *AslGbl_CurrentField;

extern
 int                DtLabelByteOffset;
extern UINT64           DtCompilerParserlineno; /* Current line number */

extern UINT32           DtTokenFirstLine;
extern UINT32           DtTokenFirstColumn;

/* Bison/yacc configuration */

#define yytname             DtCompilerParsername
#define YYDEBUG             1           /* Enable debug output */
#define YYERROR_VERBOSE     1           /* Verbose error messages */
#define YYFLAG              -32768

/* Define YYMALLOC/YYFREE to prevent redefinition errors  */
```

```
#define YYMALLOC            malloc
#define YYFREE              free

%}


%union {
  char              *s;
  DT_FIELD          *f;
  DT_TABLE_UNIT     *u;
}


%type  <f> Table
%token <u> DT_PARSEOP_DATA
%token <u> DT_PARSEOP_LABEL
%token <u> DT_PARSEOP_STRING_DATA
%token <u> DT_PARSEOP_LINE_CONTINUATION
%type  <u> Data
%type  <u> Datum
%type  <u> MultiLineData
%type  <u> MultiLineDataList


%%

Table
  :
  FieldList { }
  ;

FieldList
   : Field FieldList
  | Field
  ;

Field
  : DT_PARSEOP_LABEL ':' Data { DtCreateField ($1, $3, DtLabelByteOffset); }
  ;

Data
  : MultiLineDataList       { $$ = $1; }
  | Datum                   { $$ = $1; }
  | Datum MultiLineDataList  { $$ = $1; } /* combine the string with strcat */
  ;

MultiLineDataList
  : MultiLineDataList MultiLineData { $$ = DtCreateTableUnit (AcpiUtStrcat(AcpiUtStrcat($1->Value, " "), $2-
```

```
>Value), $1->Line, $1->Column); } /* combine the strings with strcat */
  | MultiLineData                 { $$ = $1; }
  ;

MultiLineData
  : DT_PARSEOP_LINE_CONTINUATION Datum { DbgPrint (ASL_PARSE_OUTPUT, "line continuation
detected\n"); $$ = $2; }
  ;

Datum
  : DT_PARSEOP_DATA       {
                          DbgPrint (ASL_PARSE_OUTPUT, "parser       data: [%s]\n", DtCompilerParserlval.s);
                          $$ = DtCreateTableUnit (AcpiUtStrdup(DtCompilerParserlval.s), DtTokenFirstLine,
DtTokenFirstColumn);

                        }
  | DT_PARSEOP_STRING_DATA {
                          DbgPrint (ASL_PARSE_OUTPUT, "parser string data: [%s]\n", DtCompilerParserlval.s);
                          $$ = DtCreateTableUnit (AcpiUtStrdup(DtCompilerParserlval.s), DtTokenFirstLine,
DtTokenFirstColumn);
                        }
  ;


%%


/*
* Local support functions, including parser entry point
*/
/******************************************************************************
*
* FUNCTION:    DtCompilerParsererror
*
* PARAMETERS:  Message             - Parser-generated error message
*
* RETURN:      None
*
* DESCRIPTION: Handler for parser errors
*
******************************************************************************/

void
DtCompilerParsererror (
  char const              *Message)
{
  DtError (ASL_ERROR, ASL_MSG_SYNTAX,
     AslGbl_CurrentField, (char *) Message);
```

```
}

int
DtCompilerParserwrap(void)
{
 return (1);
}
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtcompilerparser.y
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```
NoEcho('
/******************************************************************************
*
* Module Name: aslhelpers.y - helper and option terms
*
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*****************************************************************************/

')


/*****************************************************************************
*
* ASL Helper Terms
*
*****************************************************************************/

OptionalBusMasterKeyword
  : ','                         {$$ = TrCreateLeafOp (
                                    PARSEOP_BUSMASTERTYPE_MASTER);}
  | ',' PARSEOP_BUSMASTERTYPE_MASTER      {$$ = TrCreateLeafOp (
                                    PARSEOP_BUSMASTERTYPE_MASTER);}
  | ',' PARSEOP_BUSMASTERTYPE_NOTMASTER   {$$ = TrCreateLeafOp
(
                                    PARSEOP_BUSMASTERTYPE_NOTMASTER);}
  ;

OptionalAccessAttribTerm
```

```
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' ByteConstExpr           {$$ = $2;}
  | ',' AccessAttribKeyword     {$$ = $2;}
  ;

OptionalAccessSize
  :                         {$$ = TrCreateValuedLeafOp (
                              PARSEOP_BYTECONST, 0);}
  | ','                     {$$ = TrCreateValuedLeafOp (
                              PARSEOP_BYTECONST, 0);}
  | ',' ByteConstExpr           {$$ = $2;}
  ;

OptionalAccessTypeKeyword   /* Default: AnyAcc */
  :                         {$$ = TrCreateLeafOp (
                              PARSEOP_ACCESSTYPE_ANY);}
  | ','                     {$$ = TrCreateLeafOp (
                              PARSEOP_ACCESSTYPE_ANY);}
  | ',' AccessTypeKeyword       {$$ = $2;}
  ;

OptionalAddressingMode
   : ','                    {$$ = NULL;}
  | ',' AddressingModeKeyword   {$$ = $2;}
  ;

OptionalAddressRange
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' AddressKeyword          {$$ = $2;}
  ;

OptionalBitsPerByte
  : ','                     {$$ = NULL;}
  | ',' BitsPerByteKeyword      {$$ = $2;}
  ;

OptionalBuffer_Last
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' RawDataBufferTerm       {$$ = $2;}
  ;

OptionalByteConstExpr
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' ByteConstExpr           {$$ = $2;}
```

```
  ;

OptionalDecodeType
  : ','                     {$$ = NULL;}
  | ',' DecodeKeyword       {$$ = $2;}
  ;

OptionalDevicePolarity
  : ','                     {$$ = NULL;}
  | ',' DevicePolarityKeyword
 {$$ = $2;}
  ;

OptionalDWordConstExpr
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' DWordConstExpr      {$$ = $2;}
  ;

OptionalEndian
  : ','                     {$$ = NULL;}
  | ',' EndianKeyword       {$$ = $2;}
  ;

OptionalFlowControl
  : ','                     {$$ = NULL;}
  | ',' FlowControlKeyword    {$$ = $2;}
  ;

OptionalIoRestriction
  : ','                     {$$ = NULL;}
  | ',' IoRestrictionKeyword  {$$ = $2;}
  ;

OptionalListString
  :                         {$$ = TrCreateValuedLeafOp (
                              PARSEOP_STRING_LITERAL,
                              ACPI_TO_INTEGER (""));}   /* Placeholder is a NULL string */
  | ','                     {$$ = TrCreateValuedLeafOp (
                              PARSEOP_STRING_LITERAL,
                              ACPI_TO_INTEGER (""));}
  /* Placeholder is a NULL string */
  | ',' TermArg             {$$ = $2;}
  ;

OptionalLockRuleKeyword     /* Default: NoLock */
  :                         {$$ = TrCreateLeafOp (
                              PARSEOP_LOCKRULE_NOLOCK);}
```

```
  | ','                     {$$ = TrCreateLeafOp (
                                PARSEOP_LOCKRULE_NOLOCK);}
  | ',' LockRuleKeyword          {$$ = $2;}
  ;

OptionalMaxType
  : ','                     {$$ = NULL;}
  | ',' MaxKeyword              {$$ = $2;}
  ;

OptionalMemType
  : ','                     {$$ = NULL;}
  | ',' MemTypeKeyword          {$$ = $2;}
  ;

OptionalMinType
  : ','                     {$$ = NULL;}
  | ',' MinKeyword              {$$ = $2;}
  ;

OptionalNameString
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' NameString              {$$ = $2;}
  ;

OptionalNameString_Last
   :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' NameString              {$$ = $2;}
  ;

OptionalNameString_First
  :                         {$$ = TrCreateLeafOp (
                                PARSEOP_ZERO);}
  | NameString                  {$$ = $1;}
  ;

OptionalObjectTypeKeyword
  :                         {$$ = TrCreateLeafOp (
                                PARSEOP_OBJECTTYPE_UNK);}
  | ',' ObjectTypeKeyword       {$$ = $2;}
  ;

OptionalParityType
  : ','                     {$$ = NULL;}
  | ',' ParityTypeKeyword       {$$ = $2;}
  ;
```

```
OptionalQWordConstExpr
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' QWordConstExpr          {$$ = $2;}
  ;

OptionalRangeType
  : ','                     {$$ = NULL;}
  | ',' RangeTypeKeyword        {$$ = $2;}
  ;

OptionalReadWriteKeyword
  :
                            {$$ = TrCreateLeafOp (
                                PARSEOP_READWRITETYPE_BOTH);}
  | PARSEOP_READWRITETYPE_BOTH      {$$ = TrCreateLeafOp (
                                PARSEOP_READWRITETYPE_BOTH);}
  | PARSEOP_READWRITETYPE_READONLY    {$$ = TrCreateLeafOp (
                                PARSEOP_READWRITETYPE_READONLY);}
  ;

OptionalResourceType_First
  :                         {$$ = TrCreateLeafOp (
                              PARSEOP_RESOURCETYPE_CONSUMER);}
  | ResourceTypeKeyword         {$$ = $1;}
  ;

OptionalResourceType
  :                         {$$ = TrCreateLeafOp (
                              PARSEOP_RESOURCETYPE_CONSUMER);}
  | ','                     {$$ = TrCreateLeafOp (
                              PARSEOP_RESOURCETYPE_CONSUMER);}
  | ',' ResourceTypeKeyword     {$$ = $2;}
  ;

/* Same as above except default
 is producer */
OptionalProducerResourceType
  :                         {$$ = TrCreateLeafOp (
                              PARSEOP_RESOURCETYPE_PRODUCER);}
  | ','                     {$$ = TrCreateLeafOp (
                              PARSEOP_RESOURCETYPE_PRODUCER);}
  | ',' ResourceTypeKeyword     {$$ = $2;}
  ;

OptionalSlaveMode
  : ','                     {$$ = NULL;}
```

```
  | ',' SlaveModeKeyword          {$$ = $2;}
  ;

OptionalShareType
  :                             {$$ = NULL;}
  | ','                         {$$ = NULL;}
  | ',' ShareTypeKeyword          {$$ = $2;}
  ;

OptionalShareType_First
  :                             {$$ = NULL;}
  | ShareTypeKeyword              {$$ = $1;}
  ;

OptionalStopBits
  : ','                         {$$ = NULL;}
  | ',' StopBitsKeyword           {$$ = $2;}
  ;

OptionalStringData
  :                             {$$ = NULL;}
  | ','
    {$$ = NULL;}
  | ',' StringData                {$$ = $2;}
  ;

OptionalSyncLevel           /* Default: 0 */
  :                             {$$ = TrCreateValuedLeafOp (
                                  PARSEOP_BYTECONST, 0);}
  | ','                         {$$ = TrCreateValuedLeafOp (
                                  PARSEOP_BYTECONST, 0);}
  | ',' ByteConstExpr             {$$ = $2;}
  ;

OptionalTranslationType_Last
  :                             {$$ = NULL;}
  | ','                         {$$ = NULL;}
  | ',' TranslationKeyword        {$$ = $2;}
  ;

OptionalType
  :                             {$$ = NULL;}
  | ','                         {$$ = NULL;}
  | ',' TypeKeyword               {$$ = $2;}
  ;

OptionalType_Last
  :                             {$$ = NULL;}
```

```
  | ','                     {$$ = NULL;}
  | ',' TypeKeyword             {$$ = $2;}
  ;

OptionalUpdateRuleKeyword   /* Default: Preserve */

 :                          {$$ = TrCreateLeafOp (
                                PARSEOP_UPDATERULE_PRESERVE);}
  | ','                     {$$ = TrCreateLeafOp (
                                PARSEOP_UPDATERULE_PRESERVE);}
  | ',' UpdateRuleKeyword       {$$ = $2;}
  ;

OptionalWireMode
  : ','                     {$$ = NULL;}
  | ',' WireModeKeyword         {$$ = $2;}
  ;

OptionalWordConstExpr
  : ','                     {$$ = NULL;}
  | ',' WordConstExpr           {$$ = $2;}
  ;

OptionalXferSize
  :                          {$$ = TrCreateValuedLeafOp (
                                PARSEOP_XFERSIZE_32, 2);}
  | ','                     {$$ = TrCreateValuedLeafOp (
                                PARSEOP_XFERSIZE_32, 2);}
  | ',' XferSizeKeyword         {$$ = $2;}
  ;
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslhelpers.y
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/executer/exconcat.c
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*
*****************************************************************************/

#include "aslcompiler.h"
#include "aslcompiler.y.h"
#include "acconvert.h"

#include <stdlib.h>
#include <string.h>

/*
* Generation:  Use the following command line:
*
* flex.exe -PAslCompiler -i -o$(InputPath).c $(InputPath)
*
* -i: Scanner must be case-insensitive
*/

#define _COMPONENT          ACPI_COMPILER
      ACPI_MODULE_NAME    ("aslscanner")


/* Local prototypes */
```

```
static void
AslDoLineDirective (void);

static BOOLEAN
AslDoComment (void);

static BOOLEAN
AslDoCommentType2 (void);

static char
AslDoStringLiteral (void);

static void
count (int type);


/*! [Begin]
 no source code translation */

%}
  /* Definitions */

LeadNameChar            [A-Za-z_]
DigitChar               [0-9]
ErrorCode               [(][ ]*[1-9][0-9][0-9][0-9][ ]*[)]
OctalChar               [0-7]
HexDigitChar            [A-Fa-f0-9]
RootChar                [\\]
Nothing                 []

NameChar                [A-Za-z_0-9]
NameSeg1                {LeadNameChar}{NameChar}
NameSeg2                {LeadNameChar}{NameChar}{NameChar}
NameSeg3                {LeadNameChar}{NameChar}{NameChar}{NameChar}
NameSeg                 {LeadNameChar}|{NameSeg1}|{NameSeg2}|{NameSeg3}

NameString              {RootChar}|{RootChar}{NamePath}|[\^]+{NamePath}|{NonEmptyNamePath}
NamePath                {NonEmptyNamePath}?
NonEmptyNamePath        {NameSeg}{NamePathTail}*
NamePathTail            [.]{NameSeg}

%%
  /* Rules */

[ ]                 { count (0); }
[\n]                { count (0); } /* Handle files
```

```
 with both LF and CR/LF */
[\r]                { count (0); } /* termination on both Unix and Windows */
[ \t]               { count (0); }


"/*"                 { if (!AslDoComment ()) {yyterminate ();} }
"//"                 { if (!AslDoCommentType2 ()) {yyterminate ();} }

"\""                 { if (AslDoStringLiteral ()) {return (PARSEOP_STRING_LITERAL);}
                    else {yyterminate ();} }
";"                  { count (0); return(';'); }

  /* ASL Extension: Standard C operators */

"~"                  { count (3); return (PARSEOP_EXP_NOT); }
"!"                  { count (3); return (PARSEOP_EXP_LOGICAL_NOT); }
"*"                  { count (3); return (PARSEOP_EXP_MULTIPLY); }
"/"                  { count (3); return (PARSEOP_EXP_DIVIDE); }
"%"                   { count (3); return (PARSEOP_EXP_MODULO); }
"+"                  { count (3); return (PARSEOP_EXP_ADD); }
"-"
                { count (3); return (PARSEOP_EXP_SUBTRACT); }
">>"                  { count (3); return (PARSEOP_EXP_SHIFT_RIGHT); }
"<<"                  { count (3); return (PARSEOP_EXP_SHIFT_LEFT); }
"<"                  { count (3); return (PARSEOP_EXP_LESS); }
">"                  { count (3); return (PARSEOP_EXP_GREATER); }
"&"                  { count (3); return (PARSEOP_EXP_AND); }
"<="                  { count (3); return (PARSEOP_EXP_LESS_EQUAL); }
">="                  { count (3); return (PARSEOP_EXP_GREATER_EQUAL); }
"=="                  { count (3); return (PARSEOP_EXP_EQUAL); }
"!="                  { count (3); return (PARSEOP_EXP_NOT_EQUAL); }
"|"                 { count (3); return (PARSEOP_EXP_OR); }
"&&"                    { count (3); return (PARSEOP_EXP_LOGICAL_AND); }
"||"                { count (3); return (PARSEOP_EXP_LOGICAL_OR); }
"++"                   { count (3); return
 (PARSEOP_EXP_INCREMENT); }
"--"                { count (3); return (PARSEOP_EXP_DECREMENT); }
"^ "                 { count (3); return (PARSEOP_EXP_XOR); }

  /* ASL Extension: Standard C assignment operators */

"="                  { count (3); return (PARSEOP_EXP_EQUALS); }
"+="                  { count (3); return (PARSEOP_EXP_ADD_EQ); }
"-="                 { count (3); return (PARSEOP_EXP_SUB_EQ); }
"*="                  { count (3); return (PARSEOP_EXP_MUL_EQ); }
"/="                 { count (3); return (PARSEOP_EXP_DIV_EQ); }
"%="                   { count (3); return (PARSEOP_EXP_MOD_EQ); }
"<<="                   { count (3); return (PARSEOP_EXP_SHL_EQ); }
```

```
">>="                    { count (3); return (PARSEOP_EXP_SHR_EQ); }
"&="                     { count (3); return (PARSEOP_EXP_AND_EQ); }
"^="                     { count (3); return (PARSEOP_EXP_XOR_EQ); }
"|="                     { count (3); return
 (PARSEOP_EXP_OR_EQ); }

"["                      { count (3); return (PARSEOP_EXP_INDEX_LEFT); }
"]"                      { count (0); return (PARSEOP_EXP_INDEX_RIGHT); }
"("                      { count (0); return (PARSEOP_OPEN_PAREN); }
")"                      { count (0); return (PARSEOP_CLOSE_PAREN); }

"{"                      { count (0); return ('{'); }
"}"                      { count (0); return ('}'); }
","                      { count (0); return (','); }


  /*
   * Begin standard ASL grammar
   */
[0-9][a-zA-Z0-9]*           { count (1); AslCompilerlval.i = UtDoConstant ((char *) AslCompilertext);
                          return (PARSEOP_INTEGER); }

"Include"                { count (1); return (PARSEOP_INCLUDE); }
"External"               { count (1); return (PARSEOP_EXTERNAL); }

/*
 * The #line directive is emitted by the preprocessor and handled
 * here in the main iASL lexer - simply set the line number and
 * optionally
 the current filename.
 */
"#line"                  { AslDoLineDirective ();}


/******************************************************************************
 *
 * Main ASL operators
 *
 *****************************************************************************/

"AccessAs"               { count (1); return (PARSEOP_ACCESSAS); }
"Acquire"                { count (3); return (PARSEOP_ACQUIRE); }
"Add"                    { count (3); return (PARSEOP_ADD); }
"Alias"                  { count (2); return (PARSEOP_ALIAS); }
"And"                    { count (3); return (PARSEOP_AND); }
"BankField"              { count (2); return (PARSEOP_BANKFIELD); }
"Break"                  { count (3); return (PARSEOP_BREAK); }
"BreakPoint"             { count (3); return (PARSEOP_BREAKPOINT); }
```

```
"Buffer"                { count (1); return (PARSEOP_BUFFER); }
"Case"                  { count (3); return (PARSEOP_CASE); }
"Concatenate"           { count (3); return
 (PARSEOP_CONCATENATE); }
"ConcatenateResTemplate"    { count (3); return (PARSEOP_CONCATENATERESTEMPLATE); }
"CondRefOf"             { count (3); return (PARSEOP_CONDREFOF); }
"Connection"            { count (2); return (PARSEOP_CONNECTION); }
"Continue"              { count (3); return (PARSEOP_CONTINUE); }
"CopyObject"            { count (3); return (PARSEOP_COPYOBJECT); }
"CreateBitField"        { count (2); return (PARSEOP_CREATEBITFIELD); }
"CreateByteField"       { count (2); return (PARSEOP_CREATEBYTEFIELD); }
"CreateDWordField"      { count (2); return (PARSEOP_CREATEDWORDFIELD); }
"CreateField"           { count (2); return (PARSEOP_CREATEFIELD); }
"CreateQWordField"      { count (2); return (PARSEOP_CREATEQWORDFIELD); }
"CreateWordField"       { count (2); return (PARSEOP_CREATEWORDFIELD); }
"DataTableRegion"       { count (2); return (PARSEOP_DATATABLEREGION); }
"Debug"                 { count (1); return (PARSEOP_DEBUG);
 }
"Decrement"             { count (3); return (PARSEOP_DECREMENT); }
"Default"               { count (3); return (PARSEOP_DEFAULT); }
"DefinitionBlock"       { count (1); return (PARSEOP_DEFINITION_BLOCK); }
"DeRefOf"               { count (3); return (PARSEOP_DEREFOF); }
"Device"                { count (2); return (PARSEOP_DEVICE); }
"Divide"                { count (3); return (PARSEOP_DIVIDE); }
"Eisaid"                { count (1); return (PARSEOP_EISAID); }
"Else"                  { count (3); return (PARSEOP_ELSE); }
"ElseIf"                { count (3); return (PARSEOP_ELSEIF); }
"Event"                 { count (2); return (PARSEOP_EVENT); }
"Fatal"                 { count (3); return (PARSEOP_FATAL); }
"Field"                 { count (2); return (PARSEOP_FIELD); }
"FindSetLeftBit"        { count (3); return (PARSEOP_FINDSETLEFTBIT); }
"FindSetRightBit"       { count (3); return (PARSEOP_FINDSETRIGHTBIT); }
"FromBcd"
        { count (3); return (PARSEOP_FROMBCD); }
"Function"              { count (2); return (PARSEOP_FUNCTION); }
"If"                    { count (3); return (PARSEOP_IF); }
"Increment"             { count (3); return (PARSEOP_INCREMENT); }
"Index"                 { count (3); return (PARSEOP_INDEX); }
"IndexField"            { count (2); return (PARSEOP_INDEXFIELD); }
"LAnd"                  { count (3); return (PARSEOP_LAND); }
"LEqual"                { count (3); return (PARSEOP_LEQUAL); }
"LGreater"              { count (3); return (PARSEOP_LGREATER); }
"LGreaterEqual"         { count (3); return (PARSEOP_LGREATEREQUAL); }
"LLess"                 { count (3); return (PARSEOP_LLESS); }
"LLessEqual"            { count (3); return (PARSEOP_LLESSEQUAL); }
"LNot"                  { count (3); return (PARSEOP_LNOT); }
"LNotEqual"             { count (3); return (PARSEOP_LNOTEQUAL); }
"Load"                  { count (3); return (PARSEOP_LOAD);
```

```
 }
"LoadTable"             { count (3); return (PARSEOP_LOADTABLE); }
"LOr"                   { count (3); return (PARSEOP_LOR); }
"Match"                 { count (3); return (PARSEOP_MATCH); }
"Method"                { count (2); return (PARSEOP_METHOD); }
"Mid"                   { count (3); return (PARSEOP_MID); }
"Mod"                   { count (3); return (PARSEOP_MOD); }
"Multiply"              { count (3); return (PARSEOP_MULTIPLY); }
"Mutex"                 { count (2); return (PARSEOP_MUTEX); }
"Name"                  { count (2); return (PARSEOP_NAME); }
"NAnd"                  { count (3); return (PARSEOP_NAND); }
"Noop"                  { if (!AcpiGbl_IgnoreNoopOperator) {count (3); return (PARSEOP_NOOP);} }
"NOr"                   { count (3); return (PARSEOP_NOR); }
"Not"                   { count (3); return (PARSEOP_NOT); }
"Notify"                { count (3); return (PARSEOP_NOTIFY); }
"ObjectType"
        { count (3); return (PARSEOP_OBJECTTYPE); }
"Offset"                { count (1); return (PARSEOP_OFFSET); }
"One"                   { count (1); return (PARSEOP_ONE); }
"Ones"                  { count (1); return (PARSEOP_ONES); }
"OperationRegion"       { count (2); return (PARSEOP_OPERATIONREGION); }
"Or"                    { count (3); return (PARSEOP_OR); }
"Package"               { count (1); return (PARSEOP_PACKAGE); }
"PowerResource"         { count (2); return (PARSEOP_POWERRESOURCE); }
"Processor"             { count (2); return (PARSEOP_PROCESSOR); }
"RefOf"                 { count (3); return (PARSEOP_REFOF); }
"Release"               { count (3); return (PARSEOP_RELEASE); }
"Reset"                 { count (3); return (PARSEOP_RESET); }
"Return"                { count (3); return (PARSEOP_RETURN); }
"Revision"              { count (1); return (PARSEOP_REVISION); }
"Scope"                 { count (2); return
(PARSEOP_SCOPE); }
"ShiftLeft"             { count (3); return (PARSEOP_SHIFTLEFT); }
"ShiftRight"            { count (3); return (PARSEOP_SHIFTRIGHT); }
"Signal"                { count (3); return (PARSEOP_SIGNAL); }
"SizeOf"                { count (3); return (PARSEOP_SIZEOF); }
"Sleep"                 { count (3); return (PARSEOP_SLEEP); }
"Stall"                 { count (3); return (PARSEOP_STALL); }
"Store"                 { count (3); return (PARSEOP_STORE); }
"Subtract"              { count (3); return (PARSEOP_SUBTRACT); }
"Switch"                { count (3); return (PARSEOP_SWITCH); }
"ThermalZone"           { count (2); return (PARSEOP_THERMALZONE); }
"Timer"                 { count (3); return (PARSEOP_TIMER); }
"ToBcd"                 { count (3); return (PARSEOP_TOBCD); }
"ToBuffer"              { count (3); return (PARSEOP_TOBUFFER); }
"ToDecimalString"       { count (3); return (PARSEOP_TODECIMALSTRING); }
"ToHexString"
```

```
        { count (3); return (PARSEOP_TOHEXSTRING); }
"ToInteger"             { count (3); return (PARSEOP_TOINTEGER); }
"ToString"              { count (3); return (PARSEOP_TOSTRING); }
"ToUuid"                { count (1); return (PARSEOP_TOUUID); }
"Unicode"               { count (1); return (PARSEOP_UNICODE); }
"Unload"                { count (3); return (PARSEOP_UNLOAD); }
"Wait"                  { count (3); return (PARSEOP_WAIT); }
"While"                 { count (3); return (PARSEOP_WHILE); }
"XOr"                   { count (3); return (PARSEOP_XOR); }
"Zero"                  { count (1); return (PARSEOP_ZERO); }

  /* Control method arguments and locals */

"Arg0"                  { count (1); return (PARSEOP_ARG0); }
"Arg1"                  { count (1); return (PARSEOP_ARG1); }
"Arg2"                  { count (1); return (PARSEOP_ARG2); }
"Arg3"                  { count (1); return (PARSEOP_ARG3); }
"Arg4"
        { count (1); return (PARSEOP_ARG4); }
"Arg5"                  { count (1); return (PARSEOP_ARG5); }
"Arg6"                  { count (1); return (PARSEOP_ARG6); }
"Local0"                { count (1); return (PARSEOP_LOCAL0); }
"Local1"                { count (1); return (PARSEOP_LOCAL1); }
"Local2"                { count (1); return (PARSEOP_LOCAL2); }
"Local3"                { count (1); return (PARSEOP_LOCAL3); }
"Local4"                { count (1); return (PARSEOP_LOCAL4); }
"Local5"                { count (1); return (PARSEOP_LOCAL5); }
"Local6"                { count (1); return (PARSEOP_LOCAL6); }
"Local7"                { count (1); return (PARSEOP_LOCAL7); }


/*******************************************************************************
 *
 * Resource Descriptor macros
 *
 ******************************************************************************/

"ResourceTemplate"      { count (1); return (PARSEOP_RESOURCETEMPLATE);
 }
"RawDataBuffer"         { count (1); return (PARSEOP_DATABUFFER); }

"DMA"                   { count (1); return (PARSEOP_DMA); }
"DWordIO"               { count (1); return (PARSEOP_DWORDIO); }
"DWordMemory"           { count (1); return (PARSEOP_DWORDMEMORY); }
"DWordSpace"            { count (1); return (PARSEOP_DWORDSPACE); }
"EndDependentFn"        { count (1); return (PARSEOP_ENDDEPENDENTFN); }
"ExtendedIO"            { count (1); return (PARSEOP_EXTENDEDIO); }
"ExtendedMemory"        { count (1); return (PARSEOP_EXTENDEDMEMORY); }
```

```
"ExtendedSpace"           { count (1); return (PARSEOP_EXTENDEDSPACE); }
"FixedDma"                { count (1); return (PARSEOP_FIXEDDMA); }
"FixedIO"                 { count (1); return (PARSEOP_FIXEDIO); }
"GpioInt"                 { count (1); return (PARSEOP_GPIO_INT); }
"GpioIo"                  { count (1); return (PARSEOP_GPIO_IO); }
"I2cSerialBus"            { count (1); return (PARSEOP_I2C_SERIALBUS);
 }
"I2cSerialBusV2"          { count (1); return (PARSEOP_I2C_SERIALBUS_V2); }
"Interrupt"               { count (1); return (PARSEOP_INTERRUPT); }
"IO"                      { count (1); return (PARSEOP_IO); }
"IRQ"                     { count (1); return (PARSEOP_IRQ); }
"IRQNoFlags"              { count (1); return (PARSEOP_IRQNOFLAGS); }
"Memory24"                { count (1); return (PARSEOP_MEMORY24); }
"Memory32"                { count (1); return (PARSEOP_MEMORY32); }
"Memory32Fixed"           { count (1); return (PARSEOP_MEMORY32FIXED); }
"PinConfig"               { count (1); return (PARSEOP_PINCONFIG); }
"PinFunction"             { count (1); return (PARSEOP_PINFUNCTION); }
"PinGroup"                { count (1); return (PARSEOP_PINGROUP); }
"PinGroupConfig"          { count (1); return (PARSEOP_PINGROUPCONFIG); }
"PinGroupFunction"        { count (1); return (PARSEOP_PINGROUPFUNCTION); }
"QWordIO"                 { count (1); return (PARSEOP_QWORDIO);
 }
"QWordMemory"             { count (1); return (PARSEOP_QWORDMEMORY); }
"QWordSpace"              { count (1); return (PARSEOP_QWORDSPACE); }
"Register"                { count (1); return (PARSEOP_REGISTER); }
"SpiSerialBus"            { count (1); return (PARSEOP_SPI_SERIALBUS); }
"SpiSerialBusV2"          { count (1); return (PARSEOP_SPI_SERIALBUS_V2); }
"StartDependentFn"        { count (1); return (PARSEOP_STARTDEPENDENTFN); }
"StartDependentFnNoPri"   { count (1); return (PARSEOP_STARTDEPENDENTFN_NOPRI); }
"UartSerialBus"           { count (1); return (PARSEOP_UART_SERIALBUS); }
"UartSerialBusV2"         { count (1); return (PARSEOP_UART_SERIALBUS_V2); }
"VendorLong"              { count (1); return (PARSEOP_VENDORLONG); }
"VendorShort"             { count (1); return (PARSEOP_VENDORSHORT); }
"WordBusNumber"           { count (1); return (PARSEOP_WORDBUSNUMBER); }
"WordIO"                  { count (1); return (PARSEOP_WORDIO); }
"WordSpace"
          { count (1); return (PARSEOP_WORDSPACE); }


/*******************************************************************************
 *
 * Keywords used as arguments to ASL operators and macros
 *
 ******************************************************************************/

  /*  AccessAttribKeyword: Serial Bus Attributes (ACPI 5.0) */

"AttribQuick"             { count (0); return (PARSEOP_ACCESSATTRIB_QUICK); }
```

```
"AttribSendReceive"        { count (0); return (PARSEOP_ACCESSATTRIB_SND_RCV); }
"AttribByte"               { count (0); return (PARSEOP_ACCESSATTRIB_BYTE); }
"AttribWord"               { count (0); return (PARSEOP_ACCESSATTRIB_WORD); }
"AttribBlock"              { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK); }
"AttribProcessCall"        { count (0); return (PARSEOP_ACCESSATTRIB_WORD_CALL); }
"AttribBlockProcessCall"   { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK_CALL); }

  /* AccessAttribKeyword: Legacy synonyms for above (pre-ACPI 5.0) */

"SMBQuick"
            { count (0); return (PARSEOP_ACCESSATTRIB_QUICK); }
"SMBSendReceive"           { count (0); return (PARSEOP_ACCESSATTRIB_SND_RCV); }
"SMBByte"                  { count (0); return (PARSEOP_ACCESSATTRIB_BYTE); }
"SMBWord"                  { count (0); return (PARSEOP_ACCESSATTRIB_WORD); }
"SMBBlock"                 { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK); }
"SMBProcessCall"           { count (0); return (PARSEOP_ACCESSATTRIB_WORD_CALL); }
"SMBBlockProcessCall"      { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK_CALL); }

  /* AccessTypeKeyword: Field Access Types */

"AnyAcc"                   { count (0); return (PARSEOP_ACCESSTYPE_ANY); }
"ByteAcc"                  { count (0); return (PARSEOP_ACCESSTYPE_BYTE); }
"WordAcc"                  { count (0); return (PARSEOP_ACCESSTYPE_WORD); }
"DWordAcc"                 { count (0); return (PARSEOP_ACCESSTYPE_DWORD); }
"QWordAcc"                 { count (0); return (PARSEOP_ACCESSTYPE_QWORD); }
"BufferAcc"
           { count (0); return (PARSEOP_ACCESSTYPE_BUF); }

  /* AddressingModeKeyword: Mode - Resource Descriptors (ACPI 5.0) */

"AddressingMode7Bit"       { count (0); return (PARSEOP_ADDRESSINGMODE_7BIT); }
"AddressingMode10Bit"      { count (0); return (PARSEOP_ADDRESSINGMODE_10BIT); }

  /* AddressKeyword: ACPI memory range types */

"AddressRangeMemory"       { count (0); return (PARSEOP_ADDRESSTYPE_MEMORY); }
"AddressRangeReserved"     { count (0); return (PARSEOP_ADDRESSTYPE_RESERVED); }
"AddressRangeNVS"          { count (0); return (PARSEOP_ADDRESSTYPE_NVS); }
"AddressRangeACPI"         { count (0); return (PARSEOP_ADDRESSTYPE_ACPI); }

  /* BusMasterKeyword: DMA Bus Mastering */

"BusMaster"                { count (0); return (PARSEOP_BUSMASTERTYPE_MASTER); }
"NotBusMaster"             { count (0); return (PARSEOP_BUSMASTERTYPE_NOTMASTER); }

  /* ByteLengthKeyword: Bits per Byte - Resource Descriptors (ACPI 5.0) */

"DataBitsFive"
```

```
    { count (0); return (PARSEOP_BITSPERBYTE_FIVE); }
"DataBitsSix"           { count (0); return (PARSEOP_BITSPERBYTE_SIX); }
"DataBitsSeven"         { count (0); return (PARSEOP_BITSPERBYTE_SEVEN); }
"DataBitsEight"         { count (0); return (PARSEOP_BITSPERBYTE_EIGHT); }
"DataBitsNine"          { count (0); return (PARSEOP_BITSPERBYTE_NINE); }

  /* ClockPhaseKeyword: Resource Descriptors (ACPI 5.0) */

"ClockPhaseFirst"       { count (0); return (PARSEOP_CLOCKPHASE_FIRST); }
"ClockPhaseSecond"      { count (0); return (PARSEOP_CLOCKPHASE_SECOND); }

  /* ClockPolarityKeyword: Resource Descriptors (ACPI 5.0) */

"ClockPolarityLow"      { count (0); return (PARSEOP_CLOCKPOLARITY_LOW); }
"ClockPolarityHigh"     { count (0); return (PARSEOP_CLOCKPOLARITY_HIGH); }

  /* DecodeKeyword: Type of Memory Decoding - Resource Descriptors */

"PosDecode"             { count (0); return (PARSEOP_DECODETYPE_POS); }
"SubDecode"             { count (0);
 return (PARSEOP_DECODETYPE_SUB); }

  /* DmaTypeKeyword: DMA Types - DMA Resource Descriptor */

"Compatibility"         { count (0); return (PARSEOP_DMATYPE_COMPATIBILITY); }
"TypeA"                 { count (0); return (PARSEOP_DMATYPE_A); }
"TypeB"                 { count (0); return (PARSEOP_DMATYPE_B); }
"TypeF"                 { count (0); return (PARSEOP_DMATYPE_F); }

  /* EndianKeyword: Endian type - Resource Descriptor (ACPI 5.0) */

"LittleEndian"          { count (0); return (PARSEOP_ENDIAN_LITTLE); }
"BigEndian"             { count (0); return (PARSEOP_ENDIAN_BIG); }

  /* ExtendedAttribKeyword: Bus attributes, AccessAs operator (ACPI 5.0) */

"AttribBytes"           { count (0); return (PARSEOP_ACCESSATTRIB_BYTES); }
"AttribRawBytes"        { count (0); return (PARSEOP_ACCESSATTRIB_RAW_BYTES); }
"AttribRawProcessBytes" { count (0); return (PARSEOP_ACCESSATTRIB_RAW_PROCESS); }

  /* FlowControlKeyword: Resource Descriptors (ACPI
 5.0) */

"FlowControlHardware"   { count (0); return (PARSEOP_FLOWCONTROL_HW); }
"FlowControlNone"       { count (0); return (PARSEOP_FLOWCONTROL_NONE); }
"FlowControlXon"        { count (0); return (PARSEOP_FLOWCONTROL_SW); }

  /* InterruptLevelKeyword: Interrupt Active Types */
```

```
"ActiveBoth"            { count (0); return (PARSEOP_INTLEVEL_ACTIVEBOTH); }
"ActiveHigh"            { count (0); return (PARSEOP_INTLEVEL_ACTIVEHIGH); }
"ActiveLow"             { count (0); return (PARSEOP_INTLEVEL_ACTIVELOW); }

  /* InterruptTypeKeyword: Interrupt Types */

"Edge"                  { count (0); return (PARSEOP_INTTYPE_EDGE); }
"Level"                 { count (0); return (PARSEOP_INTTYPE_LEVEL); }

  /* IoDecodeKeyword: Type of Memory Decoding - Resource Descriptors */

"Decode10"              { count (0); return (PARSEOP_IODECODETYPE_10); }
"Decode16"              { count (0); return (PARSEOP_IODECODETYPE_16); }

  /* IoRestrictionKeyword:
 I/O Restriction - GPIO Resource Descriptors (ACPI 5.0) */

"IoRestrictionNone"       { count (0); return (PARSEOP_IORESTRICT_NONE); }
"IoRestrictionInputOnly"  { count (0); return (PARSEOP_IORESTRICT_IN); }
"IoRestrictionOutputOnly" { count (0); return (PARSEOP_IORESTRICT_OUT); }
"IoRestrictionNoneAndPreserve"  { count (0); return (PARSEOP_IORESTRICT_PRESERVE); }

  /* LockRuleKeyword: Global Lock use for Field Operator */

"Lock"                  { count (0); return (PARSEOP_LOCKRULE_LOCK); }
"NoLock"                { count (0); return (PARSEOP_LOCKRULE_NOLOCK); }

  /* MatchOpKeyword: Types for Match Operator */

"MTR"                   { count (0); return (PARSEOP_MATCHTYPE_MTR); }
"MEQ"                   { count (0); return (PARSEOP_MATCHTYPE_MEQ); }
"MLE"                   { count (0); return (PARSEOP_MATCHTYPE_MLE); }
"MLT"                   { count (0); return (PARSEOP_MATCHTYPE_MLT); }
"MGE"                   { count (0); return (PARSEOP_MATCHTYPE_MGE);
 }
"MGT"                   { count (0); return (PARSEOP_MATCHTYPE_MGT); }

  /* MaxKeyword: Max Range Type - Resource Descriptors */

"MaxFixed"              { count (0); return (PARSEOP_MAXTYPE_FIXED); }
"MaxNotFixed"           { count (0); return (PARSEOP_MAXTYPE_NOTFIXED); }

  /* MemTypeKeyword: Memory Types - Resource Descriptors */

"Cacheable"             { count (0); return (PARSEOP_MEMTYPE_CACHEABLE); }
"WriteCombining"        { count (0); return (PARSEOP_MEMTYPE_WRITECOMBINING); }
"Prefetchable"          { count (0); return (PARSEOP_MEMTYPE_PREFETCHABLE); }
```

```
"NonCacheable"          { count (0); return (PARSEOP_MEMTYPE_NONCACHEABLE); }

  /* MinKeyword: Min Range Type - Resource Descriptors */

"MinFixed"              { count (0); return (PARSEOP_MINTYPE_FIXED); }
"MinNotFixed"           { count (0); return (PARSEOP_MINTYPE_NOTFIXED); }

  /* ObjectTypeKeyword: ACPI Object Types */

"UnknownObj"            { count (0);
 return (PARSEOP_OBJECTTYPE_UNK); }
"IntObj"                { count (0); return (PARSEOP_OBJECTTYPE_INT); }
"StrObj"                { count (0); return (PARSEOP_OBJECTTYPE_STR); }
"BuffObj"               { count (0); return (PARSEOP_OBJECTTYPE_BUF); }
"PkgObj"                { count (0); return (PARSEOP_OBJECTTYPE_PKG); }
"FieldUnitObj"          { count (0); return (PARSEOP_OBJECTTYPE_FLD); }
"DeviceObj"             { count (0); return (PARSEOP_OBJECTTYPE_DEV); }
"EventObj"              { count (0); return (PARSEOP_OBJECTTYPE_EVT); }
"MethodObj"             { count (0); return (PARSEOP_OBJECTTYPE_MTH); }
"MutexObj"              { count (0); return (PARSEOP_OBJECTTYPE_MTX); }
"OpRegionObj"           { count (0); return (PARSEOP_OBJECTTYPE_OPR); }
"PowerResObj"           { count (0); return (PARSEOP_OBJECTTYPE_POW); }
"ProcessorObj"          { count (0); return (PARSEOP_OBJECTTYPE_PRO); }
"ThermalZoneObj"        { count (0); return (PARSEOP_OBJECTTYPE_THZ);
 }
"BuffFieldObj"          { count (0); return (PARSEOP_OBJECTTYPE_BFF); }
"DDBHandleObj"          { count (0); return (PARSEOP_OBJECTTYPE_DDB); }

  /* ParityKeyword: Resource Descriptors (ACPI 5.0) */

"ParityTypeSpace"       { count (0); return (PARSEOP_PARITYTYPE_SPACE); }
"ParityTypeMark"        { count (0); return (PARSEOP_PARITYTYPE_MARK); }
"ParityTypeOdd"         { count (0); return (PARSEOP_PARITYTYPE_ODD); }
"ParityTypeEven"        { count (0); return (PARSEOP_PARITYTYPE_EVEN); }
"ParityTypeNone"        { count (0); return (PARSEOP_PARITYTYPE_NONE); }

  /* PinConfigKeyword: Pin Configuration - GPIO Resource Descriptors (ACPI 5.0) */

"PullDefault"           { count (0); return (PARSEOP_PIN_PULLDEFAULT); }
"PullUp"                { count (0); return (PARSEOP_PIN_PULLUP); }
"PullDown"              { count (0); return (PARSEOP_PIN_PULLDOWN); }
"PullNone"              { count (0); return (PARSEOP_PIN_NOPULL);
 }

  /* PolarityKeyword: Resource Descriptors (ACPI 5.0) */

"PolarityLow"           { count (0); return (PARSEOP_DEVICEPOLARITY_LOW); }
"PolarityHigh"          { count (0); return (PARSEOP_DEVICEPOLARITY_HIGH); }
```

```
  /* RangeTypeKeyword: I/O Range Types - Resource Descriptors */

"ISAOnlyRanges"         { count (0); return (PARSEOP_RANGETYPE_ISAONLY); }
"NonISAOnlyRanges"      { count (0); return (PARSEOP_RANGETYPE_NONISAONLY); }
"EntireRange"           { count (0); return (PARSEOP_RANGETYPE_ENTIRE); }

  /* ReadWriteKeyword: Memory Access Types - Resource Descriptors */

"ReadWrite"             { count (0); return (PARSEOP_READWRITETYPE_BOTH); }
"ReadOnly"              { count (0); return (PARSEOP_READWRITETYPE_READONLY); }

  /* RegionSpaceKeyword: Operation Region Address Space Types */

"SystemIO"              { count (0); return (PARSEOP_REGIONSPACE_IO); }
"SystemMemory"          { count (0); return (PARSEOP_REGIONSPACE_MEM); }
"PCI_Config"
        { count (0); return (PARSEOP_REGIONSPACE_PCI); }
"EmbeddedControl"       { count (0); return (PARSEOP_REGIONSPACE_EC); }
"SMBus"                 { count (0); return (PARSEOP_REGIONSPACE_SMBUS); }
"SystemCMOS"            { count (0); return (PARSEOP_REGIONSPACE_CMOS); }
"PciBarTarget"          { count (0); return (PARSEOP_REGIONSPACE_PCIBAR); }
"IPMI"                  { count (0); return (PARSEOP_REGIONSPACE_IPMI); }
"GeneralPurposeIo"      { count (0); return (PARSEOP_REGIONSPACE_GPIO); }       /* ACPI 5.0 */
"GenericSerialBus"      { count (0); return (PARSEOP_REGIONSPACE_GSBUS); }      /* ACPI 5.0 */
"PCC"                   { count (0); return (PARSEOP_REGIONSPACE_PCC); }        /* ACPI 5.0 */
"PlatformRtMechanism"   { count (0); return (PARSEOP_REGIONSPACE_PRM); }
"FFixedHW"              { count (0); return (PARSEOP_REGIONSPACE_FFIXEDHW); }

  /* ResourceTypeKeyword: Resource Usage - Resource Descriptors */

"ResourceConsumer"
      { count (0); return (PARSEOP_RESOURCETYPE_CONSUMER); }
"ResourceProducer"      { count (0); return (PARSEOP_RESOURCETYPE_PRODUCER); }

  /* SerializeRuleKeyword: Control Method Serialization */

"Serialized"            { count (0); return (PARSEOP_SERIALIZERULE_SERIAL); }
"NotSerialized"         { count (0); return (PARSEOP_SERIALIZERULE_NOTSERIAL); }

  /* ShareTypeKeyword: Interrupt Sharing - Resource Descriptors */

"Shared"                { count (0); return (PARSEOP_SHARETYPE_SHARED); }
"Exclusive"             { count (0); return (PARSEOP_SHARETYPE_EXCLUSIVE); }
"SharedAndWake"         { count (0); return (PARSEOP_SHARETYPE_SHAREDWAKE); }       /* ACPI 5.0 */
"ExclusiveAndWake"      { count (0); return (PARSEOP_SHARETYPE_EXCLUSIVEWAKE); }    /* ACPI 5.0
*/
```

```
  /* SlaveModeKeyword: Resource Descriptors (ACPI 5.0) */

"ControllerInitiated"       { count (0); return (PARSEOP_SLAVEMODE_CONTROLLERINIT); }
"DeviceInitiated"           { count
 (0); return (PARSEOP_SLAVEMODE_DEVICEINIT); }

  /* StopBitsKeyword: Resource Descriptors (ACPI 5.0) */

"StopBitsOne"               { count (0); return (PARSEOP_STOPBITS_ONE); }
"StopBitsOnePlusHalf"       { count (0); return (PARSEOP_STOPBITS_ONEPLUSHALF); }
"StopBitsTwo"               { count (0); return (PARSEOP_STOPBITS_TWO); }
"StopBitsZero"              { count (0); return (PARSEOP_STOPBITS_ZERO); }

  /* TransferWidthKeyword: DMA Widths - Fixed DMA Resource Descriptor (ACPI 5.0) */

"Width8bit"                 { count (0); return (PARSEOP_XFERSIZE_8); }
"Width16bit"                { count (0); return (PARSEOP_XFERSIZE_16); }
"Width32bit"                { count (0); return (PARSEOP_XFERSIZE_32); }
"Width64bit"                { count (0); return (PARSEOP_XFERSIZE_64); }
"Width128bit"               { count (0); return (PARSEOP_XFERSIZE_128); }
"Width256bit"               { count (0); return (PARSEOP_XFERSIZE_256); }

  /* TranslationKeyword: Translation Density Types - Resource
 Descriptors */

"SparseTranslation"         { count (0); return (PARSEOP_TRANSLATIONTYPE_SPARSE); }
"DenseTranslation"          { count (0); return (PARSEOP_TRANSLATIONTYPE_DENSE); }

  /* TypeKeyword: Translation Types - Resource Descriptors */

"TypeTranslation"           { count (0); return (PARSEOP_TYPE_TRANSLATION); }
"TypeStatic"                { count (0); return (PARSEOP_TYPE_STATIC); }

  /* UpdateRuleKeyword: Field Update Rules */

"Preserve"                  { count (0); return (PARSEOP_UPDATERULE_PRESERVE); }
"WriteAsOnes"               { count (0); return (PARSEOP_UPDATERULE_ONES); }
"WriteAsZeros"              { count (0); return (PARSEOP_UPDATERULE_ZEROS); }

  /* WireModeKeyword: SPI Wire Mode - Resource Descriptors (ACPI 5.0) */

"FourWireMode"              { count (0); return (PARSEOP_WIREMODE_FOUR); }
"ThreeWireMode"             { count (0); return (PARSEOP_WIREMODE_THREE); }

  /* XferTypeKeyword: DMA Transfer Types */

"Transfer8"                 {
```

```
 count (0); return (PARSEOP_XFERTYPE_8); }
"Transfer8_16"          { count (0); return (PARSEOP_XFERTYPE_8_16); }
"Transfer16"            { count (0); return (PARSEOP_XFERTYPE_16); }

  /* ToPld macro */

"ToPLD"                 { count (0); return (PARSEOP_TOPLD); }

"PLD_Revision"          { count (0); return (PARSEOP_PLD_REVISION); }
"PLD_IgnoreColor"       { count (0); return (PARSEOP_PLD_IGNORECOLOR); }
"PLD_Red"               { count (0); return (PARSEOP_PLD_RED); }
"PLD_Green"             { count (0); return (PARSEOP_PLD_GREEN); }
"PLD_Blue"              { count (0); return (PARSEOP_PLD_BLUE); }
"PLD_Width"             { count (0); return (PARSEOP_PLD_WIDTH); }
"PLD_Height"            { count (0); return (PARSEOP_PLD_HEIGHT); }
"PLD_UserVisible"       { count (0); return (PARSEOP_PLD_USERVISIBLE); }
"PLD_Dock"              { count (0); return (PARSEOP_PLD_DOCK); }
"PLD_Lid"               { count (0); return (PARSEOP_PLD_LID);
 }
"PLD_Panel"             { count (0); return (PARSEOP_PLD_PANEL); }
"PLD_VerticalPosition"  { count (0); return (PARSEOP_PLD_VERTICALPOSITION); }
"PLD_HorizontalPosition"  { count (0); return (PARSEOP_PLD_HORIZONTALPOSITION); }
"PLD_Shape"             { count (0); return (PARSEOP_PLD_SHAPE); }
"PLD_GroupOrientation"  { count (0); return (PARSEOP_PLD_GROUPORIENTATION); }
"PLD_GroupToken"        { count (0); return (PARSEOP_PLD_GROUPTOKEN); }
"PLD_GroupPosition"     { count (0); return (PARSEOP_PLD_GROUPPOSITION); }
"PLD_Bay"               { count (0); return (PARSEOP_PLD_BAY); }
"PLD_Ejectable"         { count (0); return (PARSEOP_PLD_EJECTABLE); }
"PLD_EjectRequired"     { count (0); return (PARSEOP_PLD_EJECTREQUIRED); }
"PLD_CabinetNumber"     { count (0); return (PARSEOP_PLD_CABINETNUMBER); }
"PLD_CardCageNumber"    { count (0); return (PARSEOP_PLD_CARDCAGENUMBER); }
"PLD_Reference"         { count (0); return (PARSEOP_PLD_REFERENCE);
 }
"PLD_Rotation"          { count (0); return (PARSEOP_PLD_ROTATION); }
"PLD_Order"             { count (0); return (PARSEOP_PLD_ORDER); }
"PLD_Reserved"          { count (0); return (PARSEOP_PLD_RESERVED); }
"PLD_VerticalOffset"    { count (0); return (PARSEOP_PLD_VERTICALOFFSET); }
"PLD_HorizontalOffset"  { count (0); return (PARSEOP_PLD_HORIZONTALOFFSET); }


  /* printf debug macros */

"printf"                { count (0); return (PARSEOP_PRINTF); }
"fprintf"               { count (0); return (PARSEOP_FPRINTF); }

  /* Other macros */

"For"                   { count (0); return (PARSEOP_FOR); }
```

```
  /* Predefined compiler names */

"__DATE__"              { count (0); return (PARSEOP___DATE__); }
"__FILE__"              { count (0); return (PARSEOP___FILE__); }
"__LINE__"              { count (0); return (PARSEOP___LINE__); }
"__PATH__"              { count (0); return (PARSEOP___PATH__); }
"__METHOD__"            { count (0);
 return (PARSEOP___METHOD__); }
"__EXPECT__"{ErrorCode}     { char *s;
                      unsigned int index = 0;
                      count (0);
                      while (!isdigit ((int) AslCompilertext[index]))
                      {
                         index++;
                      }

                      /*
                       * The error code is contained inside the
                       * {ErrorCode} pattern. Extract it and log it
                       * as the expected error code.
                       */
                      s = UtLocalCacheCalloc (ASL_ERROR_CODE_LENGTH + 1);
                      memcpy (s, AslCompilertext + index, ASL_ERROR_CODE_LENGTH);
                      AslLogExpectedExceptionByLine (s); }

{NameSeg}               { char *s;
                      count (0);

          s=UtLocalCacheCalloc (ACPI_NAMESEG_SIZE + 1);
                      if (strcmp (AslCompilertext, "\\"))
                      {
                         /*
                          * According to the ACPI specification,
                          * NameSegments must have length of 4. If
                          * the NameSegment has length less than 4,
                          * they are padded with underscores to meet
                          * the required length.
                          */
                         strcpy (s, "____");
                      }
                      memcpy (s, AslCompilertext, strlen (AslCompilertext));
                      AslCompilerlval.s = s;
                      DbgPrint (ASL_PARSE_OUTPUT, "NameSeg: %s\n", s);
                      return (PARSEOP_NAMESEG); }

{NameString}
```

```
            { char *s;
                        count (0);
                        s=UtLocalCacheCalloc (strlen (AslCompilertext)+1);
                        strcpy (s, AslCompilertext);
                        AslCompilerlval.s = s;
                        DbgPrint (ASL_PARSE_OUTPUT, "NameString: %s\n", s);
                        return (PARSEOP_NAMESTRING); }

.                       { count (1);
                        if (isprint ((int) *AslCompilertext))
                        {
                           sprintf (AslGbl_MsgBuffer,
                              "Invalid character (%c), expecting ASL keyword or name",
                              *AslCompilertext);
                        }
                        else
                        {
                           sprintf (AslGbl_MsgBuffer,
                              "Invalid character
 (0x%2.2X), expecting ASL keyword or name",
                              *AslCompilertext);
                        }
                        AslCompilererror (AslGbl_MsgBuffer);}

<<EOF>>                     { if (AslPopInputFileStack ())
                        {yyterminate();}
                       else
                        {return (PARSEOP_INCLUDE_END);} };

%%

/*! [End] no source code translation !*/

/*
* Bring in the scanner support routines
*/
#include "aslsupport.l"
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslcompiler.l
No license file was found, but licenses were detected in source scan.

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```
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*
*****************************************************************************/
/* Single subtable, a proprietary format, so treat it as a buffer */
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/dmtbinfo3.c
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```
%{
/*****************************************************************************
*
* Module Name: dtcompilerparser.l - Flex input file for table compiler lexer
*
*****************************************************************************/

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*****************************************************************************/

#include "aslcompiler.h"
#include "dtcompilerparser.y.h"


#define _COMPONENT          ACPI_COMPILER
      ACPI_MODULE_NAME    ("dtcompilerscanner")

/* handle locations */

int DtCompilerParsercolumn = 1;
int DtLabelByteOffset = 0;
int DtCompilerParserByteOffset = 0;

UINT32 DtTokenFirstLine = 0;
UINT32 DtTokenFirstColumn = 0;

#define YY_USER_ACTION \
        DtTokenFirstLine = DtCompilerParserlineno; \
        DtTokenFirstColumn = DtCompilerParsercolumn; \
```

```
        DtCompilerParsercolumn += DtCompilerParserleng; \
        DtCompilerParserByteOffset
 += DtCompilerParserleng; \
        DbgPrint (ASL_PARSE_OUTPUT,\
           "user action occurred. DtCompilerParserlloc.first_line: %u\n",\
           DtTokenFirstLine);
%}

%option nounput noinput yylineno

  /* Indicates a state used for parsing multiline C comments */
%x ML_COMMENT
%x DATA_STATE

WhiteSpace      [ \t\v\r]+
NewLines        [\n]+

  /* Avoid ", \n, and [] as a part of label name. These are not valid characters of a label name */
LabelName       [^ ":\n\[\]]([^":\n\[\]]*[^" :\n\[\]])?

  /* Avoid ", \n, \\, and [] as a part of data. These are not valid characters of data */
Data            [^ \\":\n\[\]]([^":\n\[\]\\]*[^" :\n\[\]\\])?

Text            [^ ":\n][^":\n]*
Comment         \[[^\n\[\]]*\]
CommentField    {LabelName}{WhiteSpace}*:{WhiteSpace}{Comment}?$


%%

<DATA_STATE>{WhiteSpace}"\\\n" {
      DbgPrint(ASL_PARSE_OUTPUT,"Continuation matched\n");
      return (DT_PARSEOP_LINE_CONTINUATION);
  }

":" {
      DbgPrint(ASL_PARSE_OUTPUT,
 ": Matched\n");
      BEGIN (DATA_STATE);
      return (':');
  }

<INITIAL,DATA_STATE>{WhiteSpace} { DbgPrint(ASL_PARSE_OUTPUT,"Whitespace matched\n"); }

<INITIAL,DATA_STATE>{Comment}    { DbgPrint(ASL_PARSE_OUTPUT,"Comment matched\n"); }

"/*"                    { BEGIN (ML_COMMENT); }
<ML_COMMENT>"*/"        { BEGIN (INITIAL); }
```

```
<ML_COMMENT>"*/\n"      { BEGIN (INITIAL); }
<ML_COMMENT>([^*]|\n)+|. /* Ignore */
"//".*                  /* Ignore */


<DATA_STATE>{Data} {
    char *s;
    int size = strlen (DtCompilerParsertext);
    s=UtLocalCacheCalloc (size + 1);
    AcpiUtSafeStrncpy (s, DtCompilerParsertext, size + 1);
    DtCompilerParserlval.s = s;
    DbgPrint (ASL_PARSE_OUTPUT, "Data: %s\n", s);
    return (DT_PARSEOP_DATA);
}

{CommentField}  /* ignore */

{LabelName} {
  char *s;
  int size = strlen (DtCompilerParsertext);
  s=UtLocalCacheCalloc (size + 1);
  AcpiUtSafeStrncpy (s, DtCompilerParsertext, size + 1);
  DtCompilerParserlval.u
 = (DT_TABLE_UNIT *) UtLocalCacheCalloc (sizeof (DT_TABLE_UNIT));
  DtCompilerParserlval.u->Value = s;
  DtCompilerParserlval.u->Line = DtCompilerParserlineno;
  DtCompilerParserlval.u->Column = DtCompilerParsercolumn;
  DtLabelByteOffset = DtCompilerParserByteOffset;
  DbgPrint (ASL_PARSE_OUTPUT, "Label: %s\n", s);
  return (DT_PARSEOP_LABEL);
}


<DATA_STATE>\"{Text}?\" { // remove outer quotes from the string, they are unnecessary
  char *s;
  int size = strlen (DtCompilerParsertext);
  s=UtLocalCacheCalloc (size - 1);
  AcpiUtSafeStrncpy (s, DtCompilerParsertext + 1, size - 1);
  DtCompilerParserlval.s = s;
  DbgPrint (ASL_PARSE_OUTPUT, "String Data: %s\n", s);
  BEGIN (INITIAL);
  return (DT_PARSEOP_STRING_DATA);
}


<INITIAL,DATA_STATE>{NewLines} {
  DbgPrint(ASL_PARSE_OUTPUT,
     "Newline matched (data state). Current line number: %u\n",DtCompilerParserlineno);
```

```
  BEGIN (INITIAL); DtCompilerParsercolumn = 1;
}


%%


/*
* Local
 support functions
*/

void
DtCompilerInitLexer (
  FILE              *inFile)
{
  yyin = inFile;
}

void
DtCompilerTerminateLexer (
  void)
{
  /*
   * Flex/Bison increments the lineno for the EOF so decrement by 1 to get
   * the correct number of lines.
   */
  AslGbl_CurrentLineNumber = DtCompilerParserlineno - 1;
  AslGbl_InputByteCount = DtCompilerParserByteOffset;
}
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtcompilerparser.l
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsdump.c
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*
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*****************************************************************************/

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#include "dtparser.y.h"

#define YY_NO_INPUT     /* No file input, we use strings only */

#define _COMPONENT          ACPI_COMPILER
     ACPI_MODULE_NAME    ("dtscanner")
%}

%option noyywrap
%option nounput

Number          [0-9a-fA-F]+
HexNumber       0[xX][0-9a-fA-F]+
DecimalNumber   0[dD][0-9]+
LabelRef        $[a-zA-Z][0-9a-zA-Z]*
WhiteSpace      [ \t\v\r]+
NewLine         [\n]

%%

\(              return (OP_EXP_PAREN_OPEN);
\)              return (OP_EXP_PAREN_CLOSE);
\~              return (OP_EXP_ONES_COMPLIMENT);
\!
     return (OP_EXP_LOGICAL_NOT);
\*              return (OP_EXP_MULTIPLY);
```

```
\/              return (OP_EXP_DIVIDE);
\%              return (OP_EXP_MODULO);
\+              return (OP_EXP_ADD);
\-              return (OP_EXP_SUBTRACT);
">>"            return (OP_EXP_SHIFT_RIGHT);
"<<"            return (OP_EXP_SHIFT_LEFT);
\<              return (OP_EXP_LESS);
\>              return (OP_EXP_GREATER);
"<="            return (OP_EXP_LESS_EQUAL);
">="            return (OP_EXP_GREATER_EQUAL);
"=="            return (OP_EXP_EQUAL);
"!="            return (OP_EXP_NOT_EQUAL);
\&              return (OP_EXP_AND);
\^              return (OP_EXP_XOR);
\|              return (OP_EXP_OR);
"&&"            return (OP_EXP_LOGICAL_AND);
"||"            return (OP_EXP_LOGICAL_OR);
<<EOF>>         return (OP_EXP_EOF); /* null end-of-string */

{LabelRef}      return (OP_EXP_LABEL);
{Number}        return (OP_EXP_NUMBER);
{HexNumber}     return (OP_EXP_HEX_NUMBER);
{NewLine}       return (OP_EXP_NEW_LINE);
{WhiteSpace}
   /* Ignore */

.               return (OP_EXP_EOF);

%%

/*
* Local support functions
*/
static YY_BUFFER_STATE        LexBuffer;

/*******************************************************************************
*
* FUNCTION:    DtInitLexer, DtTerminateLexer
*
* PARAMETERS:  String             - Input string to be parsed
*
* RETURN:      None
*
* DESCRIPTION: Initialization and termination routines for lexer. Lexer needs
*              a buffer to handle strings instead of a file.
*
******************************************************************************/
```

```
int
DtInitLexer (
  char                *String)
{
  LexBuffer = yy_scan_string (String);
  return (LexBuffer == NULL);
}

void
DtTerminateLexer (
  void)
{
  yy_delete_buffer (LexBuffer);
}
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtparser.l
No license file was found, but licenses were detected in source scan.

```
/******************************************************************************
*
* Module Name: aslsupport.l - Flex/lex scanner C support routines.
*             NOTE: Included into aslcompile.l, not compiled by itself.
*
*****************************************************************************/

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*****************************************************************************/

/* Configuration */

#define ASL_SPACES_PER_TAB      4

#define ASL_NORMAL_CHAR         0
#define ASL_ESCAPE_SEQUENCE     1
#define ASL_OCTAL_CONSTANT      2
#define ASL_HEX_CONSTANT        3


void
yyerror (char const *s)
{

 AcpiOsPrintf ("YYERROR: %s\n", s);
```

```
}


/*******************************************************************************
*
* FUNCTION:    AslParserCleanup
*
* Used to delete the current buffer
*
*******************************************************************************/

void
AslParserCleanup
 (
  void)
{

  yy_delete_buffer (YY_CURRENT_BUFFER);
}


/*******************************************************************************
*
* FUNCTION:    AslDoLineDirective
*
* PARAMETERS:  None. Uses input() to access current source code line
*
* RETURN:      Updates global line number and filename
*
* DESCRIPTION: Handle #line directives emitted by the preprocessor.
*
* The #line directive is emitted by the preprocesser, and is used to
* pass through line numbers from the original source code file to the
* preprocessor output file (.i). This allows any compiler-generated
* error messages to be displayed with the correct line number.
*
*******************************************************************************/

static void
AslDoLineDirective (
  void)
{
  int                 c;
  char                *Token;
  UINT32              LineNumber;
  char                *Filename;
  UINT32              i;
```

```
  AslGbl_HasIncludeFiles = TRUE;

  /* Eat the entire line that contains the #line directive */

  AslGbl_LineBufPtr = AslGbl_CurrentLineBuffer;

  while ((c = input()) != '\n' && c != EOF)
  {
     *AslGbl_LineBufPtr = (char) c;
     AslGbl_LineBufPtr++;
  }
  *AslGbl_LineBufPtr = 0;

  /* First argument is the actual line number */

  Token = strtok (AslGbl_CurrentLineBuffer, " ");
  if (!Token)
  {
     goto ResetAndExit;
  }

  /* First argument is the line number */

  LineNumber = (UINT32) UtDoConstant (Token);

  /* Emit the appropriate number of newlines */

  AslGbl_CurrentColumn = 0;
  if (LineNumber > AslGbl_CurrentLineNumber)
  {
     for (i = 0; i < (LineNumber - AslGbl_CurrentLineNumber); i++)
     {
        FlWriteFile (ASL_FILE_SOURCE_OUTPUT, "\n", 1);
        AslGbl_CurrentColumn++;
     }
  }

  FlSetLineNumber (LineNumber);

  /* Second argument is the optional filename (in double quotes) */

  Token
 = strtok (NULL, " \"");
  if (Token)
  {
     Filename = UtLocalCacheCalloc (strlen (Token) + 1);
     strcpy (Filename, Token);
     FlSetFilename (Filename);
```

```
  }

  /* Third argument is not supported at this time */

ResetAndExit:

  /* Reset globals for a new line */

  AslGbl_CurrentLineOffset += AslGbl_CurrentColumn;
  AslGbl_CurrentColumn = 0;
  AslGbl_LineBufPtr = AslGbl_CurrentLineBuffer;
}


/*******************************************************************************
*
* FUNCTION:    AslPopInputFileStack
*
* PARAMETERS:  None
*
* RETURN:      0 if a node was popped, -1 otherwise
*
* DESCRIPTION: Pop the top of the input file stack and point the parser to
*              the saved parse buffer contained in the fnode. Also, set the
*              global line counters to the saved values. This function is
*              called when an include file reaches EOF.
*
*******************************************************************************/

int
AslPopInputFileStack
(
  void)
{
  ASL_FILE_NODE           *Fnode;


  AslGbl_PreviousIncludeFilename = AslGbl_Files[ASL_FILE_INPUT].Filename;
  Fnode = AslGbl_IncludeFileStack;
  DbgPrint (ASL_PARSE_OUTPUT,
     "\nPop InputFile Stack, Fnode %p\n", Fnode);

  DbgPrint (ASL_PARSE_OUTPUT,
     "Include: Closing \"%s\"\n\n", AslGbl_Files[ASL_FILE_INPUT].Filename);

  if (!Fnode)
  {
     return (-1);
```

```
  }

  /* Close the current include file */

  fclose (yyin);

  /* Update the top-of-stack */

  AslGbl_IncludeFileStack = Fnode->Next;

  /* Reset global line counter and filename */

  AslGbl_Files[ASL_FILE_INPUT].Filename = Fnode->Filename;
  AslGbl_CurrentLineNumber = Fnode->CurrentLineNumber;

  /* Point the parser to the popped file */

  yy_delete_buffer (YY_CURRENT_BUFFER);
  yy_switch_to_buffer (Fnode->State);

  /* All done with this node */

  ACPI_FREE (Fnode);
  return (0);
}


/*******************************************************************************
 *
* FUNCTION:    AslPushInputFileStack
*
* PARAMETERS:  InputFile          - Open file pointer
*              Filename           - Name of the file
*
* RETURN:      None
*
* DESCRIPTION: Push the InputFile onto the file stack, and point the parser
*              to this file. Called when an include file is successfully
*              opened.
*
******************************************************************************/

void
AslPushInputFileStack (
  FILE                *InputFile,
  char                *Filename)
{
  ASL_FILE_NODE       *Fnode;
```

```
    YY_BUFFER_STATE         State;


    /* Save the current state in an Fnode */

    Fnode = UtLocalCalloc (sizeof (ASL_FILE_NODE));

    Fnode->File = yyin;
    Fnode->Next = AslGbl_IncludeFileStack;
    Fnode->State = YY_CURRENT_BUFFER;
    Fnode->Filename = AslGbl_Files[ASL_FILE_INPUT].Filename;
    Fnode->CurrentLineNumber = AslGbl_CurrentLineNumber;

    /* Push
  it on the stack */

    AslGbl_IncludeFileStack = Fnode;

    /* Point the parser to this file */

    State = yy_create_buffer (InputFile, YY_BUF_SIZE);
    yy_switch_to_buffer (State);

    DbgPrint (ASL_PARSE_OUTPUT,
        "\nPush InputFile Stack, returning %p\n\n", InputFile);

    /* Reset the global line count and filename */

    AslGbl_Files[ASL_FILE_INPUT].Filename =
        UtLocalCacheCalloc (strlen (Filename) + 1);

    strcpy (AslGbl_Files[ASL_FILE_INPUT].Filename, Filename);

    AslGbl_CurrentLineNumber = 1;
    yyin = InputFile;

    /* converter: reset the comment state to STANDARD_COMMENT */

    AslGbl_CommentState.CommentType = STANDARD_COMMENT;
  }


  /*******************************************************************************
  *
  * FUNCTION:    AslResetCurrentLineBuffer
  *
  * PARAMETERS:  None
  *
```

```
* RETURN:      None
*
* DESCRIPTION: Reset the Line Buffer to zero, increment global line numbers.
*
*****************************************************************************/

void
AslResetCurrentLineBuffer
(
  void)
{

  if (AslGbl_Files[ASL_FILE_SOURCE_OUTPUT].Handle)
  {
     FlWriteFile (ASL_FILE_SOURCE_OUTPUT, AslGbl_CurrentLineBuffer,
        AslGbl_LineBufPtr - AslGbl_CurrentLineBuffer);
  }

  AslGbl_CurrentLineOffset += AslGbl_CurrentColumn;
  AslGbl_CurrentColumn = 0;

  AslGbl_CurrentLineNumber++;
  AslGbl_LogicalLineNumber++;
  AslGbl_LineBufPtr = AslGbl_CurrentLineBuffer;
}


/*******************************************************************************
*
* FUNCTION:    AslInsertLineBuffer
*
* PARAMETERS:  SourceChar          - One char from the input ASL source file
*
* RETURN:      None
*
* DESCRIPTION: Put one character of the source file into the temp line buffer
*
*****************************************************************************/

void
AslInsertLineBuffer (
  int                 SourceChar)
{
  UINT32              i;
  UINT32              Count = 1;
```

```
    if (SourceChar == EOF)
    {
        return;
    }

    AslGbl_InputByteCount++;

    /* Handle tabs. Convert to spaces */

    if (SourceChar == '\t')
    {
        SourceChar = ' ';
        Count = ASL_SPACES_PER_TAB -
                (AslGbl_CurrentColumn & (ASL_SPACES_PER_TAB-1));
    }

    for (i = 0; i < Count; i++)
    {
        AslGbl_CurrentColumn++;

        /* Insert the character into the line buffer */

        *AslGbl_LineBufPtr = (UINT8) SourceChar;
        AslGbl_LineBufPtr++;

        if (AslGbl_LineBufPtr >
            (AslGbl_CurrentLineBuffer + (AslGbl_LineBufferSize - 1)))
        {
#if 0
            /*
             * Warning if we have split a long source line.
             * <Probably overkill>
             */
            sprintf (MsgBuffer, "Max %u", AslGbl_LineBufferSize);
            AslCommonError (ASL_WARNING, ASL_MSG_LONG_LINE,
                AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
                AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
                 AslGbl_Files[ASL_FILE_INPUT].Filename, MsgBuffer);
#endif

            AslResetCurrentLineBuffer ();
        }
        else if (SourceChar == '\n')
        {
            /* End of line */

            AslResetCurrentLineBuffer ();
        }
```

```
    if (AcpiGbl_CaptureComments)
    {
        CvProcessCommentState ((char) SourceChar);
    }
  }
}


/******************************************************************************
*
* FUNCTION:    count
*
* PARAMETERS:  yytext          - Contains the matched keyword.
*              Type            - Keyword/Character type:
*                                0 = anything except a keyword
*                                1 = pseudo-keywords
*                                2 = non-executable ASL keywords
*                                3 = executable ASL keywords
*
* RETURN:      None
*
* DESCRIPTION: Count keywords and put them into the line buffer
*
*****************************************************************************/

static
 void
count (
  int               Type)
{
  char              *p;


  switch (Type)
  {
  case 2:

    ++AslGbl_TotalKeywords;
    ++AslGbl_TotalNamedObjects;
    ++AslGbl_FilesList->TotalKeywords;
    ++AslGbl_FilesList->TotalNamedObjects;
    break;

  case 3:

    ++AslGbl_TotalKeywords;
    ++AslGbl_TotalExecutableOpcodes;
```

```
      ++AslGbl_FilesList->TotalKeywords;
      ++AslGbl_FilesList->TotalExecutableOpcodes;
      break;

    default:

      break;
    }

    for (p = yytext; *p != '\0'; p++)
    {
      AslInsertLineBuffer (*p);
      *AslGbl_LineBufPtr = 0;
    }
}


/*******************************************************************************
*
* FUNCTION:    AslDoComment
*
* PARAMETERS:  none
*
* RETURN:      none
*
* DESCRIPTION: Process a standard comment.
*
*******************************************************************************/

static
 BOOLEAN
AslDoComment (
    void)
{
    int                 c;
    int                 c1 = 0;
    char                *StringBuffer = AslGbl_MsgBuffer;
    char                *EndBuffer = AslGbl_MsgBuffer + ASL_MSG_BUFFER_SIZE;
    ASL_COMMENT_STATE       CurrentState = AslGbl_CommentState; /* to reference later on */


    AslInsertLineBuffer ('/');
    AslInsertLineBuffer ('*');
    if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
    {
      *StringBuffer = '/';
      ++StringBuffer;
      *StringBuffer = '*';
```

```
        ++StringBuffer;
    }

loop:

    /* Eat chars until end-of-comment */

    while (((c = input ()) != '*') && (c != EOF))
    {
        AslInsertLineBuffer (c);
        if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
        {
            *StringBuffer = (char) c;
            ++StringBuffer;
        }
        c1 = c;
    }

    if (c == EOF)
    {
        goto EarlyEOF;
    }

    /*
     * Check for
 nested comment -- can help catch cases where a previous
     * comment was accidentally left unterminated
     */
    if ((c1 == '/') && (c == '*'))
    {
        AslCommonError (ASL_WARNING, ASL_MSG_NESTED_COMMENT,
            AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
            AslGbl_InputByteCount, AslGbl_CurrentColumn,
            AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
    }

    /* Comment is closed only if the NEXT character is a slash */

    AslInsertLineBuffer (c);
    if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
    {
        *StringBuffer = (char) c;
        ++StringBuffer;
    }

    if (((c1 = input ()) != '/') && (c1 != EOF))
    {
        unput (c1);
```

```
        goto loop;
    }

    if (c1 == EOF)
    {
        goto EarlyEOF;
    }
    if (StringBuffer > EndBuffer)
    {
        goto BufferOverflow;
    }

    AslInsertLineBuffer (c1);
    CvProcessComment (CurrentState, StringBuffer, c1);
    return (TRUE);


EarlyEOF:
    /*
     * Premature
 End-Of-File
     */
    AslCommonError (ASL_ERROR, ASL_MSG_EARLY_EOF,
        AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
        AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
        AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
    return (FALSE);


BufferOverflow:

    /* Comment was too long */

    AslCommonError (ASL_ERROR, ASL_MSG_STRING_LENGTH,
        AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
        AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
        AslGbl_Files[ASL_FILE_INPUT].Filename, "Max length 4096");
    return (FALSE);

}


/*******************************************************************************
*
* FUNCTION:    AslDoCommentType2
*
* PARAMETERS:  none
*
```

```
* RETURN:      none
*
* DESCRIPTION: Process a new "//" comment. Inline comments will be converted
*              to "/ *" standard comments.
*
*****************************************************************************/

static BOOLEAN
AslDoCommentType2 (
  void)
{
   int                 c;
  char                 *StringBuffer = AslGbl_MsgBuffer;
  char                 *EndBuffer = AslGbl_MsgBuffer + ASL_MSG_BUFFER_SIZE;
  ASL_COMMENT_STATE       CurrentState = AslGbl_CommentState;


  AslInsertLineBuffer ('/');

  if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
  {
     AslInsertLineBuffer ('*');
     *StringBuffer = '/';
     ++StringBuffer;
     *StringBuffer = '*';
     ++StringBuffer;
  }
  else
  {
     AslInsertLineBuffer ('/');
  }

  while (((c = input ()) != '\n') && (c != EOF))
  {
     AslInsertLineBuffer (c);
     if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
     {
        *StringBuffer = (char) c;
        ++StringBuffer;
     }
  }

  if (c == EOF)
  {
     /* End of file is OK, change to newline. Let parser detect EOF later */

     c = '\n';
  }
```

```
  if (StringBuffer > EndBuffer)
  {
     goto BufferOverflow;
   }
  AslInsertLineBuffer (c);

  CvProcessCommentType2 (CurrentState, StringBuffer);
  return (TRUE);


BufferOverflow:

  /* Comment was too long */

  AslCommonError (ASL_ERROR, ASL_MSG_STRING_LENGTH,
     AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
     AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
     AslGbl_Files[ASL_FILE_INPUT].Filename, "Max length 4096");
  return (FALSE);

}


/*******************************************************************************
*
* FUNCTION:    AslDoStringLiteral
*
* PARAMETERS:  none
*
* RETURN:      none
*
* DESCRIPTION: Process a string literal (surrounded by quotes)
*
*******************************************************************************/

static char
AslDoStringLiteral (
  void)
{
  char              *StringBuffer = AslGbl_MsgBuffer;
  char              *EndBuffer = AslGbl_MsgBuffer + ASL_MSG_BUFFER_SIZE;
  char              *CleanString;
  int               StringChar;

  UINT32            State = ASL_NORMAL_CHAR;
  UINT32            i = 0;
  UINT8             Digit;
```

```
  char              ConvertBuffer[4];


  /*
   * Eat chars until end-of-literal.
   * NOTE:  Put back the original surrounding quotes into the
   * source line buffer.
   */
  AslInsertLineBuffer ('\"');
  while ((StringChar = input()) != EOF)
  {
     AslInsertLineBuffer (StringChar);

DoCharacter:
     switch (State)
     {
     case ASL_NORMAL_CHAR:

        switch (StringChar)
        {
        case '\\':
           /*
            * Special handling for backslash-escape sequence. We will
            * toss the backslash and translate the escape char(s).
            */
           State = ASL_ESCAPE_SEQUENCE;
           continue;

        case '\"':

           /* String terminator */

           goto CompletedString;

        default:

           break;
        }

 break;


     case ASL_ESCAPE_SEQUENCE:

        State = ASL_NORMAL_CHAR;
        switch (StringChar)
        {
        case 'a':
```

```
    StringChar = 0x07;      /* BELL */
    break;

  case 'b':

    StringChar = 0x08;      /* BACKSPACE */
    break;

  case 'f':

    StringChar = 0x0C;      /* FORMFEED */
    break;

  case 'n':

    StringChar = 0x0A;      /* LINEFEED */
    break;

  case 'r':

    StringChar = 0x0D;      /* CARRIAGE RETURN*/
    break;

  case 't':

    StringChar = 0x09;      /* HORIZONTAL TAB */
    break;

  case 'v':

    StringChar = 0x0B;      /* VERTICAL TAB */
    break;

  case 'x':

    State = ASL_HEX_CONSTANT;
    i = 0;
    continue;

  case '\'':
 /* Single Quote */
  case '\"':                /* Double Quote */
  case '\\':                /* Backslash */

    break;

  default:
```

```
        /* Check for an octal digit (0-7) */

        if (ACPI_IS_OCTAL_DIGIT (StringChar))
        {
            State = ASL_OCTAL_CONSTANT;
            ConvertBuffer[0] = (char) StringChar;
            i = 1;
            continue;
        }

        /* Unknown escape sequence issue warning, but use the character */

        AslCommonError (ASL_WARNING, ASL_MSG_INVALID_ESCAPE,
            AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
            AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
            AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
        break;
    }
    break;


case ASL_OCTAL_CONSTANT:

    /* Up to three octal digits allowed */

     if (!ACPI_IS_OCTAL_DIGIT (StringChar) ||
        (i > 2))
    {
        /*
         * Reached end of the constant. Convert the assembled ASCII
         * string and resume processing of the next character
         */
        ConvertBuffer[i] = 0;
        Digit = (UINT8) strtoul (ConvertBuffer, NULL, 8);

        /* Check for NULL or non-ascii character (ignore if so) */

        if ((Digit == 0) || (Digit > ACPI_ASCII_MAX))
        {
            AslCommonError (ASL_WARNING, ASL_MSG_INVALID_STRING,
                AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
                AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
                AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
        }
        else
        {
            *StringBuffer = (char) Digit;
```

```
            StringBuffer++;
            if (StringBuffer
>= EndBuffer)
            {
               goto BufferOverflow;
            }
         }

         State = ASL_NORMAL_CHAR;
         goto DoCharacter;
         break;
      }

      /* Append another digit of the constant */

      ConvertBuffer[i] = (char) StringChar;
      i++;
      continue;

   case ASL_HEX_CONSTANT:

      /* Up to two hex digits allowed */

      if (!isxdigit (StringChar) ||
         (i > 1))
      {
         /*
          * Reached end of the constant. Convert the assembled ASCII
          * string and resume processing of the next character
          */
         ConvertBuffer[i] = 0;
         Digit = (UINT8) strtoul (ConvertBuffer, NULL, 16);

         /* Check for NULL or non-ascii character (ignore if so) */

         if ((Digit == 0) || (Digit > ACPI_ASCII_MAX))
         {
             AslCommonError (ASL_WARNING, ASL_MSG_INVALID_STRING,
               AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
               AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
               AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
         }
         else
         {
            *StringBuffer = (char) Digit;
            StringBuffer++;
            if (StringBuffer >= EndBuffer)
            {
```

```
                goto BufferOverflow;
              }
            }

            State = ASL_NORMAL_CHAR;
            goto DoCharacter;
            break;
          }

          /* Append another digit of the constant */

          ConvertBuffer[i] = (char) StringChar;
          i++;
          continue;

        default:

          break;
        }

        /* Save the finished character */

        *StringBuffer = (char) StringChar;
        StringBuffer++;
         if (StringBuffer >= EndBuffer)
        {
          goto BufferOverflow;
        }
      }

      /*
       * Premature End-Of-File
       */
      AslCommonError (ASL_ERROR, ASL_MSG_EARLY_EOF,
        AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
        AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
        AslGbl_Files[ASL_FILE_INPUT].Filename, NULL);
      return (FALSE);


    CompletedString:
      /*
       * Null terminate the input string and copy string to a new buffer
       */
      *StringBuffer = 0;

      CleanString = UtLocalCacheCalloc (strlen (AslGbl_MsgBuffer) + 1);
      strcpy (CleanString, AslGbl_MsgBuffer);
```

```
  AslCompilerlval.s = CleanString;
  return (TRUE);


BufferOverflow:

  /* Literal was too long */

  AslCommonError (ASL_ERROR, ASL_MSG_STRING_LENGTH,
      AslGbl_CurrentLineNumber, AslGbl_LogicalLineNumber,
      AslGbl_CurrentLineOffset, AslGbl_CurrentColumn,
      AslGbl_Files[ASL_FILE_INPUT].Filename, "Max length 4096");
  return (FALSE);
}

Found
 in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-
20210105/source/compiler/aslsupport.l
No license file was found, but licenses were detected in source scan.

NoEcho('
/******************************************************************************
*
* Module Name: aslkeywords.y - Rules for resource descriptor keywords
*
*****************************************************************************/

/******************************************************************************
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*****************************************************************************/

')

/*****************************************************************************
*
* ASL Parameter Keyword Terms
*
*****************************************************************************/

AccessAttribKeyword
  : PARSEOP_ACCESSATTRIB_BLOCK          {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_BLOCK);}
  | PARSEOP_ACCESSATTRIB_BLOCK_CALL     {$$ = TrCreateLeafOp
```

```
(PARSEOP_ACCESSATTRIB_BLOCK_CALL);}
  | PARSEOP_ACCESSATTRIB_BYTE          {$$ = TrCreateLeafOp (PARSEOP_ACCESSATTRIB_BYTE);}
  | PARSEOP_ACCESSATTRIB_QUICK         {$$
 = TrCreateLeafOp (PARSEOP_ACCESSATTRIB_QUICK );}
  | PARSEOP_ACCESSATTRIB_SND_RCV       {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_SND_RCV);}
  | PARSEOP_ACCESSATTRIB_WORD          {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_WORD);}
  | PARSEOP_ACCESSATTRIB_WORD_CALL     {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_WORD_CALL);}
  | PARSEOP_ACCESSATTRIB_BYTES
      PARSEOP_OPEN_PAREN           {$<n>$ = TrCreateLeafOp (PARSEOP_ACCESSATTRIB_BYTES);}
      ByteConst
      PARSEOP_CLOSE_PAREN          {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_ACCESSATTRIB_RAW_BYTES
      PARSEOP_OPEN_PAREN           {$<n>$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_RAW_BYTES);}
      ByteConst
      PARSEOP_CLOSE_PAREN          {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_ACCESSATTRIB_RAW_PROCESS
      PARSEOP_OPEN_PAREN           {$<n>$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_RAW_PROCESS);}
      ByteConst
      PARSEOP_CLOSE_PAREN
            {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  ;

AccessTypeKeyword
  : PARSEOP_ACCESSTYPE_ANY          {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_ANY);}
  | PARSEOP_ACCESSTYPE_BYTE         {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_BYTE);}
  | PARSEOP_ACCESSTYPE_WORD         {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_WORD);}
  | PARSEOP_ACCESSTYPE_DWORD        {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_DWORD);}
  | PARSEOP_ACCESSTYPE_QWORD        {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_QWORD);}
  | PARSEOP_ACCESSTYPE_BUF          {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_BUF);}
  ;

AddressingModeKeyword
  : PARSEOP_ADDRESSINGMODE_7BIT       {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSINGMODE_7BIT);}
  | PARSEOP_ADDRESSINGMODE_10BIT      {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSINGMODE_10BIT);}
  ;

AddressKeyword
  : PARSEOP_ADDRESSTYPE_MEMORY        {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSTYPE_MEMORY);}
  | PARSEOP_ADDRESSTYPE_RESERVED
```

```
        {$$ = TrCreateLeafOp (PARSEOP_ADDRESSTYPE_RESERVED);}
  | PARSEOP_ADDRESSTYPE_NVS           {$$ = TrCreateLeafOp (PARSEOP_ADDRESSTYPE_NVS);}
  | PARSEOP_ADDRESSTYPE_ACPI          {$$ = TrCreateLeafOp (PARSEOP_ADDRESSTYPE_ACPI);}
  ;

AddressSpaceKeyword
  : ByteConst                 {$$ = UtCheckIntegerRange ($1, ACPI_NUM_PREDEFINED_REGIONS, 0xFF);}
  | RegionSpaceKeyword            {}
  ;

BitsPerByteKeyword
  : PARSEOP_BITSPERBYTE_FIVE          {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_FIVE);}
  | PARSEOP_BITSPERBYTE_SIX           {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_SIX);}
  | PARSEOP_BITSPERBYTE_SEVEN         {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_SEVEN);}
  | PARSEOP_BITSPERBYTE_EIGHT         {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_EIGHT);}
  | PARSEOP_BITSPERBYTE_NINE          {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_NINE);}
  ;

ClockPhaseKeyword
  : PARSEOP_CLOCKPHASE_FIRST
        {$$ = TrCreateLeafOp (PARSEOP_CLOCKPHASE_FIRST);}
  | PARSEOP_CLOCKPHASE_SECOND         {$$ = TrCreateLeafOp
(PARSEOP_CLOCKPHASE_SECOND);}
  ;

ClockPolarityKeyword
  : PARSEOP_CLOCKPOLARITY_LOW         {$$ = TrCreateLeafOp
(PARSEOP_CLOCKPOLARITY_LOW);}
  | PARSEOP_CLOCKPOLARITY_HIGH        {$$ = TrCreateLeafOp
(PARSEOP_CLOCKPOLARITY_HIGH);}
  ;

DecodeKeyword
  : PARSEOP_DECODETYPE_POS            {$$ = TrCreateLeafOp (PARSEOP_DECODETYPE_POS);}
  | PARSEOP_DECODETYPE_SUB            {$$ = TrCreateLeafOp (PARSEOP_DECODETYPE_SUB);}
  ;

DevicePolarityKeyword
  : PARSEOP_DEVICEPOLARITY_LOW        {$$ = TrCreateLeafOp
(PARSEOP_DEVICEPOLARITY_LOW);}
  | PARSEOP_DEVICEPOLARITY_HIGH       {$$ = TrCreateLeafOp
(PARSEOP_DEVICEPOLARITY_HIGH);}
  ;

DMATypeKeyword
  : PARSEOP_DMATYPE_A             {$$ = TrCreateLeafOp (PARSEOP_DMATYPE_A);}
  | PARSEOP_DMATYPE_COMPATIBILITY     {$$ = TrCreateLeafOp
(PARSEOP_DMATYPE_COMPATIBILITY);}
```

```
   | PARSEOP_DMATYPE_B                {$$ = TrCreateLeafOp (PARSEOP_DMATYPE_B);}
   | PARSEOP_DMATYPE_F                {$$ = TrCreateLeafOp (PARSEOP_DMATYPE_F);}
   ;

EndianKeyword
   : PARSEOP_ENDIAN_LITTLE            {$$ = TrCreateLeafOp (PARSEOP_ENDIAN_LITTLE);}
   | PARSEOP_ENDIAN_BIG               {$$ = TrCreateLeafOp (PARSEOP_ENDIAN_BIG);}
   ;

FlowControlKeyword
   : PARSEOP_FLOWCONTROL_HW           {$$ = TrCreateLeafOp (PARSEOP_FLOWCONTROL_HW);}
   | PARSEOP_FLOWCONTROL_NONE         {$$ = TrCreateLeafOp
(PARSEOP_FLOWCONTROL_NONE);}
   | PARSEOP_FLOWCONTROL_SW           {$$ = TrCreateLeafOp (PARSEOP_FLOWCONTROL_SW);}
   ;

InterruptLevel
   : PARSEOP_INTLEVEL_ACTIVEBOTH      {$$ = TrCreateLeafOp
(PARSEOP_INTLEVEL_ACTIVEBOTH);}
   | PARSEOP_INTLEVEL_ACTIVEHIGH      {$$ = TrCreateLeafOp
(PARSEOP_INTLEVEL_ACTIVEHIGH);}
   | PARSEOP_INTLEVEL_ACTIVELOW       {$$ = TrCreateLeafOp
(PARSEOP_INTLEVEL_ACTIVELOW);}
    ;

InterruptTypeKeyword
   : PARSEOP_INTTYPE_EDGE             {$$ = TrCreateLeafOp (PARSEOP_INTTYPE_EDGE);}
   | PARSEOP_INTTYPE_LEVEL            {$$ = TrCreateLeafOp (PARSEOP_INTTYPE_LEVEL);}
   ;

IODecodeKeyword
   : PARSEOP_IODECODETYPE_16          {$$ = TrCreateLeafOp (PARSEOP_IODECODETYPE_16);}
   | PARSEOP_IODECODETYPE_10          {$$ = TrCreateLeafOp (PARSEOP_IODECODETYPE_10);}
   ;

IoRestrictionKeyword
   : PARSEOP_IORESTRICT_IN            {$$ = TrCreateLeafOp (PARSEOP_IORESTRICT_IN);}
   | PARSEOP_IORESTRICT_OUT           {$$ = TrCreateLeafOp (PARSEOP_IORESTRICT_OUT);}
   | PARSEOP_IORESTRICT_NONE          {$$ = TrCreateLeafOp (PARSEOP_IORESTRICT_NONE);}
   | PARSEOP_IORESTRICT_PRESERVE      {$$ = TrCreateLeafOp
(PARSEOP_IORESTRICT_PRESERVE);}
   ;

LockRuleKeyword
   : PARSEOP_LOCKRULE_LOCK            {$$ = TrCreateLeafOp (PARSEOP_LOCKRULE_LOCK);}
   | PARSEOP_LOCKRULE_NOLOCK          {$$ = TrCreateLeafOp
 (PARSEOP_LOCKRULE_NOLOCK);}
   ;
```

```
MatchOpKeyword
  : PARSEOP_MATCHTYPE_MTR             {$$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MTR);}
  | PARSEOP_MATCHTYPE_MEQ             {$$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MEQ);}
  | PARSEOP_MATCHTYPE_MLE             {$$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MLE);}
  | PARSEOP_MATCHTYPE_MLT             {$$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MLT);}
  | PARSEOP_MATCHTYPE_MGE             {$$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MGE);}
  | PARSEOP_MATCHTYPE_MGT             {$$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MGT);}
  ;

MaxKeyword
  : PARSEOP_MAXTYPE_FIXED             {$$ = TrCreateLeafOp (PARSEOP_MAXTYPE_FIXED);}
  | PARSEOP_MAXTYPE_NOTFIXED          {$$ = TrCreateLeafOp (PARSEOP_MAXTYPE_NOTFIXED);}
  ;

MemTypeKeyword
  : PARSEOP_MEMTYPE_CACHEABLE          {$$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_CACHEABLE);}
  | PARSEOP_MEMTYPE_WRITECOMBINING      {$$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_WRITECOMBINING);}
   | PARSEOP_MEMTYPE_PREFETCHABLE       {$$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_PREFETCHABLE);}
  | PARSEOP_MEMTYPE_NONCACHEABLE       {$$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_NONCACHEABLE);}
  ;

MinKeyword
  : PARSEOP_MINTYPE_FIXED             {$$ = TrCreateLeafOp (PARSEOP_MINTYPE_FIXED);}
  | PARSEOP_MINTYPE_NOTFIXED          {$$ = TrCreateLeafOp (PARSEOP_MINTYPE_NOTFIXED);}
  ;

ObjectTypeKeyword
  : PARSEOP_OBJECTTYPE_UNK            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_UNK);}
  | PARSEOP_OBJECTTYPE_INT            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_INT);}
  | PARSEOP_OBJECTTYPE_STR            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_STR);}
  | PARSEOP_OBJECTTYPE_BUF            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_BUF);}
  | PARSEOP_OBJECTTYPE_PKG            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_PKG);}
  | PARSEOP_OBJECTTYPE_FLD            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_FLD);}
   | PARSEOP_OBJECTTYPE_DEV           {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_DEV);}
  | PARSEOP_OBJECTTYPE_EVT            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_EVT);}
  | PARSEOP_OBJECTTYPE_MTH            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_MTH);}
  | PARSEOP_OBJECTTYPE_MTX            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_MTX);}
  | PARSEOP_OBJECTTYPE_OPR            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_OPR);}
  | PARSEOP_OBJECTTYPE_POW            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_POW);}
  | PARSEOP_OBJECTTYPE_PRO            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_PRO);}
  | PARSEOP_OBJECTTYPE_THZ            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_THZ);}
  | PARSEOP_OBJECTTYPE_BFF            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_BFF);}
  | PARSEOP_OBJECTTYPE_DDB            {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_DDB);}
```

```
  ;

ParityTypeKeyword
  : PARSEOP_PARITYTYPE_SPACE          {$$ = TrCreateLeafOp
(PARSEOP_PARITYTYPE_SPACE);}
  | PARSEOP_PARITYTYPE_MARK           {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_MARK);}
  | PARSEOP_PARITYTYPE_ODD            {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_ODD);}
  | PARSEOP_PARITYTYPE_EVEN           {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_EVEN);}
  | PARSEOP_PARITYTYPE_NONE           {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_NONE);}
  ;

PinConfigByte
  : PinConfigKeyword                  {$$ = $1;}
  | ByteConstExpr                     {$$ = UtCheckIntegerRange ($1, 0x80, 0xFF);}
  ;

PinConfigKeyword
  : PARSEOP_PIN_NOPULL                {$$ = TrCreateLeafOp (PARSEOP_PIN_NOPULL);}
  | PARSEOP_PIN_PULLDOWN              {$$ = TrCreateLeafOp (PARSEOP_PIN_PULLDOWN);}
  | PARSEOP_PIN_PULLUP                {$$ = TrCreateLeafOp (PARSEOP_PIN_PULLUP);}
  | PARSEOP_PIN_PULLDEFAULT           {$$ = TrCreateLeafOp (PARSEOP_PIN_PULLDEFAULT);}
  ;

PldKeyword
  : PARSEOP_PLD_REVISION
            {$$ = TrCreateLeafOp (PARSEOP_PLD_REVISION);}
  | PARSEOP_PLD_IGNORECOLOR           {$$ = TrCreateLeafOp (PARSEOP_PLD_IGNORECOLOR);}
  | PARSEOP_PLD_RED                   {$$ = TrCreateLeafOp (PARSEOP_PLD_RED);}
  | PARSEOP_PLD_GREEN                 {$$ = TrCreateLeafOp (PARSEOP_PLD_GREEN);}
  | PARSEOP_PLD_BLUE                  {$$ = TrCreateLeafOp (PARSEOP_PLD_BLUE);}
  | PARSEOP_PLD_WIDTH                 {$$ = TrCreateLeafOp (PARSEOP_PLD_WIDTH);}
  | PARSEOP_PLD_HEIGHT                {$$ = TrCreateLeafOp (PARSEOP_PLD_HEIGHT);}
  | PARSEOP_PLD_USERVISIBLE           {$$ = TrCreateLeafOp (PARSEOP_PLD_USERVISIBLE);}
  | PARSEOP_PLD_DOCK                  {$$ = TrCreateLeafOp (PARSEOP_PLD_DOCK);}
  | PARSEOP_PLD_LID                   {$$ = TrCreateLeafOp (PARSEOP_PLD_LID);}
  | PARSEOP_PLD_PANEL                 {$$ = TrCreateLeafOp (PARSEOP_PLD_PANEL);}
  | PARSEOP_PLD_VERTICALPOSITION      {$$ = TrCreateLeafOp
(PARSEOP_PLD_VERTICALPOSITION);}
  | PARSEOP_PLD_HORIZONTALPOSITION    {$$ = TrCreateLeafOp
(PARSEOP_PLD_HORIZONTALPOSITION);}
  | PARSEOP_PLD_SHAPE                 {$$ = TrCreateLeafOp (PARSEOP_PLD_SHAPE);}
  | PARSEOP_PLD_GROUPORIENTATION      {$$ = TrCreateLeafOp
(PARSEOP_PLD_GROUPORIENTATION);}
  | PARSEOP_PLD_GROUPTOKEN            {$$ = TrCreateLeafOp (PARSEOP_PLD_GROUPTOKEN);}
  | PARSEOP_PLD_GROUPPOSITION         {$$ = TrCreateLeafOp (PARSEOP_PLD_GROUPPOSITION);}
  | PARSEOP_PLD_BAY                   {$$ = TrCreateLeafOp (PARSEOP_PLD_BAY);}
  | PARSEOP_PLD_EJECTABLE             {$$ = TrCreateLeafOp (PARSEOP_PLD_EJECTABLE);}
  | PARSEOP_PLD_EJECTREQUIRED         {$$ = TrCreateLeafOp (PARSEOP_PLD_EJECTREQUIRED);}
```

```
  | PARSEOP_PLD_CABINETNUMBER           {$$ = TrCreateLeafOp
(PARSEOP_PLD_CABINETNUMBER);}
  | PARSEOP_PLD_CARDCAGENUMBER          {$$ = TrCreateLeafOp
(PARSEOP_PLD_CARDCAGENUMBER);}
  | PARSEOP_PLD_REFERENCE
            {$$ = TrCreateLeafOp (PARSEOP_PLD_REFERENCE);}
  | PARSEOP_PLD_ROTATION              {$$ = TrCreateLeafOp (PARSEOP_PLD_ROTATION);}
  | PARSEOP_PLD_ORDER                 {$$ = TrCreateLeafOp (PARSEOP_PLD_ORDER);}
  | PARSEOP_PLD_RESERVED              {$$ = TrCreateLeafOp (PARSEOP_PLD_RESERVED);}
  | PARSEOP_PLD_VERTICALOFFSET        {$$ = TrCreateLeafOp (PARSEOP_PLD_VERTICALOFFSET);}
  | PARSEOP_PLD_HORIZONTALOFFSET      {$$ = TrCreateLeafOp
(PARSEOP_PLD_HORIZONTALOFFSET);}
  ;

RangeTypeKeyword
  : PARSEOP_RANGETYPE_ISAONLY         {$$ = TrCreateLeafOp (PARSEOP_RANGETYPE_ISAONLY);}
  | PARSEOP_RANGETYPE_NONISAONLY      {$$ = TrCreateLeafOp
(PARSEOP_RANGETYPE_NONISAONLY);}
  | PARSEOP_RANGETYPE_ENTIRE          {$$ = TrCreateLeafOp (PARSEOP_RANGETYPE_ENTIRE);}
  ;

RegionSpaceKeyword
  : PARSEOP_REGIONSPACE_IO            {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_IO);}
  | PARSEOP_REGIONSPACE_MEM
  {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_MEM);}
  | PARSEOP_REGIONSPACE_PCI           {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_PCI);}
  | PARSEOP_REGIONSPACE_EC            {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_EC);}
  | PARSEOP_REGIONSPACE_SMBUS         {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_SMBUS);}
  | PARSEOP_REGIONSPACE_CMOS          {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_CMOS);}
  | PARSEOP_REGIONSPACE_PCIBAR        {$$ = TrCreateLeafOp
(PARSEOP_REGIONSPACE_PCIBAR);}
  | PARSEOP_REGIONSPACE_IPMI          {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_IPMI);}
  | PARSEOP_REGIONSPACE_GPIO          {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_GPIO);}
  | PARSEOP_REGIONSPACE_GSBUS         {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_GSBUS);}
  | PARSEOP_REGIONSPACE_PCC           {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_PCC);}
  | PARSEOP_REGIONSPACE_PRM           {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_PRM);}
  | PARSEOP_REGIONSPACE_FFIXEDHW
      {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_FFIXEDHW);}
  ;

ResourceTypeKeyword
  : PARSEOP_RESOURCETYPE_CONSUMER     {$$ = TrCreateLeafOp
(PARSEOP_RESOURCETYPE_CONSUMER);}
  | PARSEOP_RESOURCETYPE_PRODUCER     {$$ = TrCreateLeafOp
(PARSEOP_RESOURCETYPE_PRODUCER);}
  ;

SerializeRuleKeyword
```

```
  : PARSEOP_SERIALIZERULE_SERIAL         {$$ = TrCreateLeafOp
(PARSEOP_SERIALIZERULE_SERIAL);}
  | PARSEOP_SERIALIZERULE_NOTSERIAL      {$$ = TrCreateLeafOp
(PARSEOP_SERIALIZERULE_NOTSERIAL);}
  ;

ShareTypeKeyword
  : PARSEOP_SHARETYPE_SHARED             {$$ = TrCreateLeafOp (PARSEOP_SHARETYPE_SHARED);}
  | PARSEOP_SHARETYPE_EXCLUSIVE          {$$ = TrCreateLeafOp
(PARSEOP_SHARETYPE_EXCLUSIVE);}
  | PARSEOP_SHARETYPE_SHAREDWAKE         {$$ = TrCreateLeafOp
(PARSEOP_SHARETYPE_SHAREDWAKE);}
  | PARSEOP_SHARETYPE_EXCLUSIVEWAKE      {$$ = TrCreateLeafOp
(PARSEOP_SHARETYPE_EXCLUSIVEWAKE);}
  ;

SlaveModeKeyword
  : PARSEOP_SLAVEMODE_CONTROLLERINIT
    {$$ = TrCreateLeafOp (PARSEOP_SLAVEMODE_CONTROLLERINIT);}
  | PARSEOP_SLAVEMODE_DEVICEINIT         {$$ = TrCreateLeafOp
(PARSEOP_SLAVEMODE_DEVICEINIT);}
  ;

StopBitsKeyword
  : PARSEOP_STOPBITS_TWO                 {$$ = TrCreateLeafOp (PARSEOP_STOPBITS_TWO);}
  | PARSEOP_STOPBITS_ONEPLUSHALF         {$$ = TrCreateLeafOp
(PARSEOP_STOPBITS_ONEPLUSHALF);}
  | PARSEOP_STOPBITS_ONE                 {$$ = TrCreateLeafOp (PARSEOP_STOPBITS_ONE);}
  | PARSEOP_STOPBITS_ZERO                {$$ = TrCreateLeafOp (PARSEOP_STOPBITS_ZERO);}
  ;

TranslationKeyword
  : PARSEOP_TRANSLATIONTYPE_SPARSE       {$$ = TrCreateLeafOp
(PARSEOP_TRANSLATIONTYPE_SPARSE);}
  | PARSEOP_TRANSLATIONTYPE_DENSE        {$$ = TrCreateLeafOp
(PARSEOP_TRANSLATIONTYPE_DENSE);}
  ;

TypeKeyword
  : PARSEOP_TYPE_TRANSLATION             {$$ = TrCreateLeafOp (PARSEOP_TYPE_TRANSLATION);}
  | PARSEOP_TYPE_STATIC                  {$$ = TrCreateLeafOp (PARSEOP_TYPE_STATIC);}

 ;

UpdateRuleKeyword
  : PARSEOP_UPDATERULE_PRESERVE          {$$ = TrCreateLeafOp
(PARSEOP_UPDATERULE_PRESERVE);}
  | PARSEOP_UPDATERULE_ONES              {$$ = TrCreateLeafOp (PARSEOP_UPDATERULE_ONES);}
```

```
  | PARSEOP_UPDATERULE_ZEROS          {$$ = TrCreateLeafOp (PARSEOP_UPDATERULE_ZEROS);}
  ;

WireModeKeyword
  : PARSEOP_WIREMODE_FOUR             {$$ = TrCreateLeafOp (PARSEOP_WIREMODE_FOUR);}
  | PARSEOP_WIREMODE_THREE            {$$ = TrCreateLeafOp (PARSEOP_WIREMODE_THREE);}
  ;

XferSizeKeyword
  : PARSEOP_XFERSIZE_8              {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_8,   0);}
  | PARSEOP_XFERSIZE_16             {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_16,  1);}
  | PARSEOP_XFERSIZE_32             {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_32,  2);}
  | PARSEOP_XFERSIZE_64             {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_64,  3);}
  | PARSEOP_XFERSIZE_128            {$$ = TrCreateValuedLeafOp
 (PARSEOP_XFERSIZE_128, 4);}
  | PARSEOP_XFERSIZE_256            {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_256, 5);}
  ;

XferTypeKeyword
  : PARSEOP_XFERTYPE_8              {$$ = TrCreateLeafOp (PARSEOP_XFERTYPE_8);}
  | PARSEOP_XFERTYPE_8_16             {$$ = TrCreateLeafOp (PARSEOP_XFERTYPE_8_16);}
  | PARSEOP_XFERTYPE_16             {$$ = TrCreateLeafOp (PARSEOP_XFERTYPE_16);}
  ;
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslkeywords.y
No license file was found, but licenses were detected in source scan.

```
NoEcho('
/******************************************************************************
*
* Module Name: aslrules.y - Main Bison/Yacc production rules
*                    - Keep this file synched with the
*                      CvParseOpBlockType function in cvcompiler.c
*
*****************************************************************************/

/******************************************************************************
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*
*****************************************************************************/
```

```
')

/******************************************************************************
*
* ASL Root and Secondary Terms
*
******************************************************************************/

/*
* Root term. Allow multiple #line directives before the definition block
* to handle output from preprocessors
*/
AslCode
  : DefinitionBlockList         {$<n>$ = TrLinkOpChildren (

 TrCreateLeafOp (PARSEOP_ASL_CODE),1, $1);}
  | error                       {YYABORT; $$ = NULL;}
  ;


/*
* Note concerning support for "module-level code".
*
* ACPI 1.0 allowed Type1 and Type2 executable opcodes outside of control
* methods (the so-called module-level code.) This support was explicitly
* removed in ACPI 2.0, but this type of code continues to be created by
* BIOS vendors. In order to support the disassembly and recompilation of
* such code (and the porting of ASL code to iASL), iASL supports this
* code in violation of the current ACPI specification.
*
* The grammar change to support module-level code is to revert the
* {ObjectList} portion of the DefinitionBlockTerm in ACPI 2.0 to the
* original use of {TermList} instead (see below.) This allows the use
* of Type1 and Type2 opcodes at module level.
*
* 04/2016: The module-level code is now allowed in the following terms:
* DeviceTerm, PowerResTerm, ProcessorTerm, ScopeTerm, ThermalZoneTerm.
*
 The ObjectList term is obsolete and has been removed.
*/
DefinitionBlockTerm
  : PARSEOP_DEFINITION_BLOCK
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_DEFINITION_BLOCK);
COMMENT_CAPTURE_OFF;}
    String ','
    String ','
    ByteConst ','
    String ','
```

```
    String ','
    DWordConst
    PARSEOP_CLOSE_PAREN         {TrSetOpIntegerWidth ($6,$8);
                                TrSetOpEndLineNumber ($<n>3); COMMENT_CAPTURE_ON;}
      '{' TermList '}'          {$$ = TrLinkOpChildren ($<n>3,7,
                                $4,$6,$8,$10,$12,$14,$18);}
  ;

DefinitionBlockList
  : DefinitionBlockTerm
  | DefinitionBlockTerm
    DefinitionBlockList         {$$ = TrLinkPeerOps (2, $1,$2);}
  ;


/******* Basic ASCII identifiers ****************************************************/

/* Allow IO, DMA, IRQ Resource macro and FOR macro names to also be used as identifiers */

NameString
  : NameSeg
        {}
  | PARSEOP_NAMESTRING          {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING,
(ACPI_NATIVE_INT) $1);}
  | PARSEOP_IO                  {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT)
"IO");}
  | PARSEOP_DMA                 {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING,
(ACPI_NATIVE_INT) "DMA");}
  | PARSEOP_IRQ                 {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT)
"IRQ");}
  | PARSEOP_FOR                 {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT)
"FOR");}
  ;
/*
NameSeg
  : PARSEOP_NAMESEG             {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESEG,
(ACPI_NATIVE_INT)
                                TrNormalizeNameSeg ($1));}
  ;
*/

NameSeg
  : PARSEOP_NAMESEG             {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESEG,
                                (ACPI_NATIVE_INT) AslCompilerlval.s);}
  ;


/******* Fundamental argument/statement types ***********************************/
```

```
Term
   : Object                    {}
  | Type1Opcode                {}
  | Type2Opcode                {}
  | Type2IntegerOpcode         {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | Type2StringOpcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | Type2BufferOpcode          {}
  | Type2BufferOrStringOpcode  {}
  | error                      {$$ = AslDoError(); yyclearin;}
  ;

SuperName
  : SimpleName                 {}
  | DebugTerm                  {}
  | Type6Opcode                {}
  ;

Target
  :                            {$$ = TrCreateNullTargetOp ();} /* Placeholder is a ZeroOp object */
  | ','                        {$$ = TrCreateNullTargetOp ();} /* Placeholder is a ZeroOp object */
  | ',' SuperName              {$$ = TrSetOpFlags ($2, OP_IS_TARGET);}
  ;

RequiredTarget
  : ',' SuperName              {$$ = TrSetOpFlags ($2, OP_IS_TARGET);}
  ;

TermArg
   : SimpleName                {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
  | Type2Opcode                {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
  | DataObject                 {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
  | PARSEOP_OPEN_PAREN
     TermArg
     PARSEOP_CLOSE_PAREN       {$$ = TrSetOpFlags ($2, OP_IS_TERM_ARG);}
  ;

/*
NOTE: Removed from TermArg due to reduce/reduce conflicts:
  | Type2IntegerOpcode          {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
  | Type2StringOpcode          {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
  | Type2BufferOpcode          {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
  | Type2BufferOrStringOpcode  {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}

*/

MethodInvocationTerm
  : NameString
```

```
    PARSEOP_OPEN_PAREN          {TrSetOpIntegerValue (PARSEOP_METHODCALL, $1);
COMMENT_CAPTURE_OFF;}
    ArgList
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkChildOp ($1,$4); COMMENT_CAPTURE_ON;}
  ;

/* OptionalCount
 must appear before ByteList or an incorrect reduction will result */

OptionalCount
  :                         {$$ = TrCreateLeafOp (PARSEOP_ONES);}       /* Placeholder is a OnesOp object */
  | ','                     {$$ = TrCreateLeafOp (PARSEOP_ONES);}       /* Placeholder is a OnesOp object */
  | ',' TermArg                 {$$ = $2;}
  ;

/*
* Data count for buffers and packages (byte count for buffers,
* element count for packages).
*/
OptionalDataCount

    /* Legacy ASL */
  :                         {$$ = NULL;}
  | PARSEOP_OPEN_PAREN
    TermArg
    PARSEOP_CLOSE_PAREN         {$$ = $2;}
  | PARSEOP_OPEN_PAREN
    PARSEOP_CLOSE_PAREN         {$$ = NULL;}

    /* C-style (ASL+) -- adds equals term */

  |  PARSEOP_EXP_EQUALS          {$$ = NULL;}

  | PARSEOP_OPEN_PAREN
    TermArg
    PARSEOP_CLOSE_PAREN
    PARSEOP_EXP_EQUALS          {$$ = $2;}

  | PARSEOP_OPEN_PAREN
    PARSEOP_CLOSE_PAREN
     String
    PARSEOP_EXP_EQUALS          {$$ = NULL;}
  ;


/******* List Terms *************************************************/

  /* ACPI 3.0 -- allow semicolons between terms */
```

```
TermList
  :                         {$$ = NULL;}
  | TermList Term               {$$ = TrLinkPeerOp (
                              TrSetOpFlags ($1, OP_RESULT_NOT_USED),$2);}
  | TermList Term ';'           {$$ = TrLinkPeerOp (
                              TrSetOpFlags ($1, OP_RESULT_NOT_USED),$2);}
  | TermList ';' Term           {$$ = TrLinkPeerOp (
                              TrSetOpFlags ($1, OP_RESULT_NOT_USED),$3);}
  | TermList ';' Term ';'       {$$ = TrLinkPeerOp (
                              TrSetOpFlags ($1, OP_RESULT_NOT_USED),$3);}
  ;

ArgList
  :                         {$$ = NULL;}
  | TermArg
  | ArgList ','               /* Allows a trailing comma at list end */
  | ArgList
','
    TermArg                   {$$ = TrLinkPeerOp ($1,$3);}
  ;

ByteList
  :                         {$$ = NULL;}
  | ByteConstExpr
  | ByteList ','              /* Allows a trailing comma at list end */
  | ByteList ','
    ByteConstExpr             {$$ = TrLinkPeerOp ($1,$3);}
  ;

DWordList
  :                         {$$ = NULL;}
  | DWordConstExpr
  | DWordList ','             /* Allows a trailing comma at list end */
  | DWordList ','
    DWordConstExpr            {$$ = TrLinkPeerOp ($1,$3);}
  ;

FieldUnitList
  :                         {$$ = NULL;}
  | FieldUnit
  | FieldUnitList ','         /* Allows a trailing comma at list end */
  | FieldUnitList ','
    FieldUnit                 {$$ = TrLinkPeerOp ($1,$3);}
  ;

FieldUnit
  : FieldUnitEntry            {}
```

```
  | OffsetTerm                {}
  | AccessAsTerm              {}
  | ConnectionTerm            {}

  ;

FieldUnitEntry
  : ',' AmlPackageLengthTerm      {$$ = TrCreateOp (PARSEOP_RESERVED_BYTES,1,$2);}
  | NameSeg ','
     AmlPackageLengthTerm         {$$ = TrLinkChildOp ($1,$3);}
  ;

Object
  : CompilerDirective         {}
  | NamedObject               {}
  | NameSpaceModifier         {}
/*  | StructureTerm             {} */
  ;

PackageList
  :                       {$$ = NULL;}
  | PackageElement
  | PackageList ','           /* Allows a trailing comma at list end */
  | PackageList ','
     PackageElement           {$$ = TrLinkPeerOp ($1,$3);}
  ;

PackageElement
  : DataObject              {}
  | NameString              {}
  ;

  /* Rules for specifying the type of one method argument or return value */

ParameterTypePackage
  :                       {$$ = NULL;}
  | ObjectTypeKeyword         {$$ = $1;}
  | ParameterTypePackage ','
     ObjectTypeKeyword        {$$ = TrLinkPeerOps
(2,$1,$3);}
  ;

ParameterTypePackageList
  :                       {$$ = NULL;}
  | ObjectTypeKeyword         {$$ = TrLinkOpChildren (
                            TrCreateLeafOp (PARSEOP_DEFAULT_ARG),1,$1);}
  | '{' ParameterTypePackage '}'  {$$ = TrLinkOpChildren (
                            TrCreateLeafOp (PARSEOP_DEFAULT_ARG),1,$2);}
```

```
  ;


OptionalParameterTypePackage
  :                         {$$ = NULL;}
  | ',' ParameterTypePackageList  {$$ = $2;}
  ;

  /* Rules for specifying the types for method arguments */

ParameterTypesPackage
  : ParameterTypePackageList      {$$ = $1;}
  | ParameterTypesPackage ','
     ParameterTypePackageList     {$$ = TrLinkPeerOps (2,$1,$3);}
  ;

ParameterTypesPackageList
  :                         {$$ = NULL;}
  | ObjectTypeKeyword             {$$ = TrLinkOpChildren (
                              TrCreateLeafOp (PARSEOP_DEFAULT_ARG),1,$1);}
  | '{'
 ParameterTypesPackage '}' {$$ = TrLinkOpChildren (
                              TrCreateLeafOp (PARSEOP_DEFAULT_ARG),1,$2);}
  ;

OptionalParameterTypesPackage
  :                         {$$ = NULL;}
  | ',' ParameterTypesPackageList {$$ = $2;}
  ;

/*
* Case-Default list; allow only one Default term and unlimited Case terms
*/
CaseDefaultTermList
  :                         {$$ = NULL;}
  | CaseTerm                    {}
  | DefaultTerm                  {}
  | CaseDefaultTermList
     CaseTerm                   {$$ = TrLinkPeerOp ($1,$2);}
  | CaseDefaultTermList
     DefaultTerm                {$$ = TrLinkPeerOp ($1,$2);}

/* Original - attempts to force zero or one default term within the switch */

/*
CaseDefaultTermList
  :                         {$$ = NULL;}
  | CaseTermList
```

```
    DefaultTerm
    CaseTermList            {$$ = TrLinkPeerOp ($1,TrLinkPeerOp ($2, $3));}
  | CaseTermList
    CaseTerm
            {$$ = TrLinkPeerOp ($1,$2);}
  ;

CaseTermList
  :                     {$$ = NULL;}
  | CaseTerm                {}
  | CaseTermList
    CaseTerm                {$$ = TrLinkPeerOp ($1,$2);}
  ;
*/


/*******************************************************************************
*
* ASL Data and Constant Terms
*
*******************************************************************************/

DataObject
  : BufferData              {}
  | PackageData              {}
  | IntegerData             {}
  | StringData              {}
  ;

BufferData
  : Type5Opcode             {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | Type2BufferOrStringOpcode   {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | Type2BufferOpcode           {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | BufferTerm              {}
  ;

PackageData
  : PackageTerm             {}
  ;

IntegerData
   : Type2IntegerOpcode         {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | Type3Opcode             {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | Integer                 {}
  | ConstTerm               {}
  ;

StringData
```

```
  : Type2StringOpcode           {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | String                    {}
  ;

StringLiteral
  : String                    {}
  ;

ByteConst
  : Integer                   {$$ = TrSetOpIntegerValue (PARSEOP_BYTECONST, $1);}
  ;

WordConst
  : Integer                   {$$ = TrSetOpIntegerValue (PARSEOP_WORDCONST, $1);}
  ;

DWordConst
  : Integer                   {$$ = TrSetOpIntegerValue (PARSEOP_DWORDCONST, $1);}
  ;

QWordConst
  : Integer                   {$$ = TrSetOpIntegerValue (PARSEOP_QWORDCONST, $1);}
  ;

/*
* The OP_COMPILE_TIME_CONST flag in the following constant expressions
* enables compile-time constant folding
 to reduce the Type3Opcodes/Type2IntegerOpcodes
* to simple integers. It is an error if these types of expressions cannot be
* reduced, since the AML grammar for ****ConstExpr requires a simple constant.
* Note: The required byte length of the constant is passed through to the
* constant folding code in the node AmlLength field.
*/
ByteConstExpr
  : Type3Opcode               {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 1);}
  | Type2IntegerOpcode        {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 1);}
  | ConstExprTerm             {$$ = TrSetOpIntegerValue (PARSEOP_BYTECONST, $1);}
  | ByteConst                 {}
  ;

WordConstExpr
  : Type3Opcode               {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 2);}
  | Type2IntegerOpcode        {$$ = TrSetOpFlags
 ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 2);}
```

```
  | ConstExprTerm               {$$ = TrSetOpIntegerValue (PARSEOP_WORDCONST, $1);}
  | WordConst                 {}
  ;

DWordConstExpr
  : Type3Opcode               {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 4);}
  | Type2IntegerOpcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 4);}
  | ConstExprTerm             {$$ = TrSetOpIntegerValue (PARSEOP_DWORDCONST, $1);}
  | DWordConst                {}
  ;

QWordConstExpr
  : Type3Opcode               {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength ($1, 8);}
  | Type2IntegerOpcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                              TrSetOpAmlLength
 ($1, 8);}
  | ConstExprTerm             {$$ = TrSetOpIntegerValue (PARSEOP_QWORDCONST, $1);}
  | QWordConst                {}
  ;

ConstTerm
  : ConstExprTerm             {}
  | PARSEOP_REVISION            {$$ = TrCreateLeafOp (PARSEOP_REVISION);}
  ;

ConstExprTerm
  : PARSEOP_ZERO              {$$ = TrCreateValuedLeafOp (PARSEOP_ZERO, 0);}
  | PARSEOP_ONE               {$$ = TrCreateValuedLeafOp (PARSEOP_ONE, 1);}
  | PARSEOP_ONES              {$$ = TrCreateValuedLeafOp (PARSEOP_ONES, ACPI_UINT64_MAX);}
  | PARSEOP___DATE__            {$$ = TrCreateConstantLeafOp (PARSEOP___DATE__);}
  | PARSEOP___FILE__            {$$ = TrCreateConstantLeafOp (PARSEOP___FILE__);}
  | PARSEOP___LINE__            {$$ = TrCreateConstantLeafOp (PARSEOP___LINE__);}
  | PARSEOP___PATH__            {$$ = TrCreateConstantLeafOp (PARSEOP___PATH__);}
  | PARSEOP___METHOD__          {$$ = TrCreateConstantLeafOp (PARSEOP___METHOD__);}
  ;

Integer
   : PARSEOP_INTEGER            {$$ = TrCreateValuedLeafOp (PARSEOP_INTEGER,
                              AslCompilerlval.i);}
  ;

String
  : PARSEOP_STRING_LITERAL      {$$ = TrCreateValuedLeafOp (PARSEOP_STRING_LITERAL,
                              (ACPI_NATIVE_INT) AslCompilerlval.s);}
  ;
```

```
/******************************************************************************
*
* ASL Opcode Terms
*
******************************************************************************/

CompilerDirective
  : IncludeTerm               {}
  | IncludeEndTerm            {}
  | ExternalTerm              {}
  ;

NamedObject
  : BankFieldTerm             {}
  | CreateBitFieldTerm        {}
  | CreateByteFieldTerm       {}
  | CreateDWordFieldTerm      {}
  | CreateFieldTerm           {}
  | CreateQWordFieldTerm      {}
  | CreateWordFieldTerm       {}
  | DataRegionTerm            {}
  | DeviceTerm
              {}
  | EventTerm                 {}
  | FieldTerm                 {}
  | FunctionTerm              {}
  | IndexFieldTerm            {}
  | MethodTerm                {}
  | MutexTerm                 {}
  | OpRegionTerm              {}
  | PowerResTerm              {}
  | ProcessorTerm             {}
  | ThermalZoneTerm           {}
  ;

NameSpaceModifier
  : AliasTerm                 {}
  | NameTerm                  {}
/*  | NameTermAslPlus           {} */
  | ScopeTerm                 {}
  ;

SimpleName
  : NameString                {}
  | LocalTerm                 {}
  | ArgTerm                   {}
```

```
  ;

/* For ObjectType(), SuperName except for MethodInvocationTerm */

ObjectTypeSource
  : SimpleName                {}
  | DebugTerm                 {}
  | RefOfTerm                 {}
  | DerefOfTerm               {}
  | IndexTerm
                {}
  | IndexExpTerm              {}
  ;

/* For DeRefOf(), SuperName except for DerefOf and Debug */

DerefOfSource
  : SimpleName                {}
  | RefOfTerm                 {}
  | DerefOfTerm               {}
  | IndexTerm                 {}
  | IndexExpTerm              {}
  | StoreTerm                 {}
  | EqualsTerm                {}
  | MethodInvocationTerm      {}
  ;

/* For RefOf(), SuperName except for RefOf and MethodInvocationTerm */

RefOfSource
  : SimpleName                {}
  | DebugTerm                 {}
  | DerefOfTerm               {}
  | IndexTerm                 {}
  | IndexExpTerm              {}
  ;

/* For CondRefOf(), SuperName except for RefOf and MethodInvocationTerm */

CondRefOfSource
  : SimpleName                {}
  | DebugTerm                 {}
  | DerefOfTerm               {}
  | IndexTerm                 {}
   | IndexExpTerm             {}
  ;

/*
```

```
* Opcode types, as defined in the ACPI specification
*/
Type1Opcode
  : BreakTerm                {}
  | BreakPointTerm             {}
  | ContinueTerm               {}
  | FatalTerm                {}
  | ForTerm                  {}
  | ElseIfTerm               {}
  | LoadTerm                 {}
  | NoOpTerm                   {}
  | NotifyTerm               {}
  | ReleaseTerm                {}
  | ResetTerm                {}
  | ReturnTerm               {}
  | SignalTerm               {}
  | SleepTerm                {}
  | StallTerm                {}
  | SwitchTerm                 {}
  | UnloadTerm                 {}
  | WhileTerm                {}
  ;

Type2Opcode
  : AcquireTerm                {}
  | CondRefOfTerm                {}
  | CopyObjectTerm               {}
  | DerefOfTerm                {}
  |
 ObjectTypeTerm              {}
  | RefOfTerm                {}
  | SizeOfTerm               {}
  | StoreTerm                {}
  | EqualsTerm               {}
  | TimerTerm                {}
  | WaitTerm                 {}
  | MethodInvocationTerm         {}
  ;

/*
* Type 3/4/5 opcodes
*/
Type2IntegerOpcode               /* "Type3" opcodes */
  : Expression               {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | AddTerm                  {}
  | AndTerm                  {}
  | DecTerm                  {}
  | DivideTerm                 {}
```

```
  | FindSetLeftBitTerm          {}
  | FindSetRightBitTerm         {}
  | FromBCDTerm                 {}
  | IncTerm                   {}
  | IndexTerm                   {}
/*  | StructureIndexTerm         {} */
/*  | StructurePointerTerm       {} */
  | LAndTerm                    {}
  | LEqualTerm
 {}
  | LGreaterTerm                {}
  | LGreaterEqualTerm           {}
  | LLessTerm                   {}
  | LLessEqualTerm              {}
  | LNotTerm                    {}
  | LNotEqualTerm               {}
  | LoadTableTerm               {}
  | LOrTerm                   {}
  | MatchTerm                   {}
  | ModTerm                     {}
  | MultiplyTerm                {}
  | NAndTerm                    {}
  | NOrTerm                   {}
  | NotTerm                   {}
  | OrTerm                    {}
  | ShiftLeftTerm               {}
  | ShiftRightTerm              {}
  | SubtractTerm                {}
  | ToBCDTerm                   {}
  | ToIntegerTerm               {}
  | XOrTerm                   {}
  ;

Type2StringOpcode               /* "Type4" Opcodes */
  : ToDecimalStringTerm         {}
  | ToHexStringTerm             {}
  | ToStringTerm
 {}
  ;

Type2BufferOpcode               /* "Type5" Opcodes */
  : ToBufferTerm                {}
  | ConcatResTerm               {}
  ;

Type2BufferOrStringOpcode
  : ConcatTerm                  {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
  | PrintfTerm                  {}
```

```
  | FprintfTerm                {}
  | MidTerm                    {}
  ;

/*
* A type 3 opcode evaluates to an Integer and cannot have a destination operand
*/
Type3Opcode
  : EISAIDTerm                 {}
  ;

/* Obsolete
Type4Opcode
  : ConcatTerm                 {}
  | ToDecimalStringTerm        {}
  | ToHexStringTerm            {}
  | MidTerm                    {}
  | ToStringTerm               {}
  ;
*/

/* Type 5 opcodes are a subset of Type2 opcodes, and return a constant */

Type5Opcode
  : ResourceTemplateTerm       {}
  | UnicodeTerm                {}
  | ToPLDTerm                  {}
  | ToUUIDTerm
    {}
  ;

Type6Opcode
  : RefOfTerm                  {}
  | DerefOfTerm                {}
  | IndexTerm                  {}
  | IndexExpTerm               {}
/*    | StructureIndexTerm       {} */
/*    | StructurePointerTerm     {} */
  | MethodInvocationTerm       {}
  ;


/******************************************************************************
*
* ASL Helper Terms
*
*****************************************************************************/
```

```
AmlPackageLengthTerm
  : Integer                 {$$ = TrSetOpIntegerValue (PARSEOP_PACKAGE_LENGTH,
                             (ACPI_PARSE_OBJECT *) $1);}
  ;

NameStringItem
  : ',' NameString          {$$ = $2;}
  | ',' error               {$$ = AslDoError (); yyclearin;}
  ;

TermArgItem
  : ',' TermArg             {$$ = $2;}
  | ',' error               {$$ = AslDoError (); yyclearin;}
  ;

OptionalReference
  :
          {$$ = TrCreateLeafOp (PARSEOP_ZERO);}     /* Placeholder is a ZeroOp object */
  | ','                     {$$ = TrCreateLeafOp (PARSEOP_ZERO);}     /* Placeholder is a ZeroOp object */
  | ',' TermArg             {$$ = $2;}
  ;

OptionalReturnArg
  :                         {$$ = TrSetOpFlags (TrCreateLeafOp (PARSEOP_ZERO),
                                 OP_IS_NULL_RETURN);}     /* Placeholder is a ZeroOp object */
  | TermArg                 {$$ = $1;}
  ;

OptionalSerializeRuleKeyword
  :                         {$$ = NULL;}
  | ','                     {$$ = NULL;}
  | ',' SerializeRuleKeyword    {$$ = $2;}
  ;

OptionalTermArg
  :                         {$$ = TrCreateLeafOp (PARSEOP_DEFAULT_ARG);}
  | TermArg                 {$$ = $1;}
  ;

OptionalWordConst
  :                         {$$ = NULL;}
  | WordConst               {$$ = $1;}
  ;
```

Found in path(s):

*

/opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslrules.y

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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/os_specific/service_layers/osunixdir.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslxrefout.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/debugger/dbstats.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/disassembler/dmresrcl2.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/hardware/hwgpe.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/executer/exoparg2.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpidump/apfiles.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utxface.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utresrc.c

* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/parser/psxface.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/executer/extrace.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/events/evevent.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslrestype2s.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dttable1.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslallocate.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslcompiler.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtexpress.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rsio.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nspredef.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/dmtables.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtcompiler.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/disassembler/dmnames.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rscalc.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acevents.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsrepair2.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/dispatcher/dswstate.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/parser/pswalk.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/aclinux.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-

20210105/source/include/acparser.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/dmtbdump1.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/debugger/dbnames.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslfiles.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/adwalk.c
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/opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/cmfsize.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/debugger/dbdisply.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acstruct.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslmapoutput.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/acintel.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpihelp/ahasl.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpiexec/aeexec.c
*
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsconvert.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/efihello/efihello.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/disassembler/dmdeferred.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/uterror.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/hardware/hwacpi.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asllength.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utxfinit.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/os_specific/service_layers/oswintbl.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/executer/exresop.c

* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/parser/psargs.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asllookup.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/parser/psscope.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/dispatcher/dsargs.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/executer/exprep.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpisrc/asfile.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utpredef.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslexternal.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpihelp/ahgrammar.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/os_specific/service_layers/osunixmap.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/parser/psobject.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/debugger/dbutils.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/hardware/hwsleep.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acconvert.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslnamesp.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asluuid.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/disassembler/dmutils.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utascii.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslopt.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslpld.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acinterp.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/dmswitch.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/examples/extables.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/dispatcher/dsmethod.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslfold.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acnamesp.h
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslascii.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utuuid.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/cvparser.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/hardware/hwxface.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslrestype1.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/uttrack.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/cvcompiler.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utdelete.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rsserial.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsinit.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/dispatcher/dsfield.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acbuffer.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-

20210105/source/common/dmtbinfo.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/dmtbinfo2.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asltypes.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslanalyze.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpiexec/aetables.h
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/opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslcache.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslpredef.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslstubs.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/events/evxfgpe.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpiexec/aeinstall.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/events/evregion.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/actbl.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asloperands.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslload.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/acenvex.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslmain.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/parser/psopcode.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/dispatcher/dswexec.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/acmacosx.h

* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utownerid.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslwalks.c
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/opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslrestype2.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/adfile.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/hardware/hwtimer.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utstate.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/hardware/hwregs.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslmaputils.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslmessages.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsxfname.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/acgcc.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-

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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asltransform.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acobject.h
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/events/evgpe.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/events/evgpeblk.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/events/evgpeinit.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/amlcode.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/accygwin.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslresource.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/os_specific/service_layers/osunixxf.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslopcodes.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpihelp/ahamlops.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/dmtable.c

* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpisrc/ascase.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rslist.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nswalk.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslxref.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acoutput.h
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpixtract/acpixtract.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/tables/tbinstal.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpihelp/ahaml.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsnames.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslmethod.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/examples/exstubs.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utaddress.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpidump/apdump.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslmessages.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dttemplate.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/debugger/dbobject.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rsxface.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/acgetline.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslrestype2d.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/namespace/nsobject.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/dispatcher/dswscope.c

* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rsinfo.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/asllistsup.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rsirq.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/acdispat.h
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/debugger/dbconvert.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/disassembler/dmbuffer.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/common/getopt.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/executer/exstoren.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtutils.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpisrc/asmain.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/dtcompile.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/platform/acgccex.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslhelp.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslglobal.h
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslfileio.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslprepkg.c

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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/examples/examples.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/utilities/utmath.c
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* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/components/resources/rsutils.c
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*
/opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpisrc/asconvrt.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpiexec/aehandlers.c
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/include/actbl1.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/tools/acpidump/acpidump.h
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/os_specific/service_layers/oswindir.c
No license file was found, but licenses were detected in source scan.

NoEcho('
/**
*
* Module Name: aslresources.y - Bison/Yacc production rules for resources
*   - Keep this file synched with the
*   CvParseOpBlockType function in cvcompiler.c
*
***/

```
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*****************************************************************************/

')


/*****************************************************************************
*
* ASL Resource Template Terms
*
*****************************************************************************/

/*
* Note: Create two default nodes to allow conversion to a Buffer AML opcode
* Also, insert the EndTag at the end of the template.
*/
ResourceTemplateTerm
  : PARSEOP_RESOURCETEMPLATE      {COMMENT_CAPTURE_OFF;}
     OptionalParentheses
     '{'
     ResourceMacroList '}'       {$$ = TrCreateOp (PARSEOP_RESOURCETEMPLATE,4,
                                    TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                                    TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                                    $5,
                                    TrCreateLeafOp (PARSEOP_ENDTAG));
                                 COMMENT_CAPTURE_ON;}
  ;

OptionalParentheses
  :                          {$$ = NULL;}
  | PARSEOP_OPEN_PAREN
     PARSEOP_CLOSE_PAREN         {$$ = NULL;}
  ;

ResourceMacroList
  :                          {$$ = NULL;}
  | ResourceMacroList
     ResourceMacroTerm           {$$ = TrLinkPeerOp ($1,$2);}
  ;

ResourceMacroTerm
  : DMATerm                   {}
  | DWordIOTerm                 {}
  | DWordMemoryTerm               {}
```

```
  | DWordSpaceTerm              {}
  | EndDependentFnTerm
 {}
  | ExtendedIOTerm            {}
  | ExtendedMemoryTerm          {}
  | ExtendedSpaceTerm           {}
  | FixedDmaTerm              {}
  | FixedIOTerm               {}
  | GpioIntTerm               {}
  | GpioIoTerm                {}
  | I2cSerialBusTerm            {}
  | I2cSerialBusTermV2          {}
  | InterruptTerm             {}
  | IOTerm                    {}
  | IRQNoFlagsTerm              {}
  | IRQTerm                   {}
  | Memory24Term              {}
  | Memory32FixedTerm           {}
  | Memory32Term              {}
  | PinConfigTerm             {}
  | PinFunctionTerm           {}
  | PinGroupTerm              {}
  | PinGroupConfigTerm          {}
  | PinGroupFunctionTerm        {}
  | QWordIOTerm               {}
  | QWordMemoryTerm             {}
  | QWordSpaceTerm            {}
  | RegisterTerm              {}
  | SpiSerialBusTerm
        {}
  | SpiSerialBusTermV2          {}
  | StartDependentFnNoPriTerm    {}
  | StartDependentFnTerm        {}
  | UartSerialBusTerm           {}
  | UartSerialBusTermV2         {}
  | VendorLongTerm            {}
  | VendorShortTerm           {}
  | WordBusNumberTerm           {}
  | WordIOTerm                {}
  | WordSpaceTerm             {}
  ;

DMATerm
  : PARSEOP_DMA
    PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_DMA);}
    DMATypeKeyword
    OptionalBusMasterKeyword
    ',' XferTypeKeyword
```

```
      OptionalNameString_Last
      PARSEOP_CLOSE_PAREN '{'
        ByteList '}'          {$$ = TrLinkOpChildren ($<n>3,5,$4,$5,$7,$8,$11);}
    | PARSEOP_DMA
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

DWordIOTerm
    : PARSEOP_DWORDIO
      PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_DWORDIO);}
      OptionalResourceType_First
       OptionalMinType
      OptionalMaxType
      OptionalDecodeType
      OptionalRangeType
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      OptionalByteConstExpr
      OptionalStringData
      OptionalNameString
      OptionalType
      OptionalTranslationType_Last
      PARSEOP_CLOSE_PAREN       {$$ = TrLinkOpChildren ($<n>3,15,
                          $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22,$23);}
    | PARSEOP_DWORDIO
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

DWordMemoryTerm
    : PARSEOP_DWORDMEMORY
      PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_DWORDMEMORY);}
      OptionalResourceType_First
      OptionalDecodeType
      OptionalMinType
      OptionalMaxType
      OptionalMemType
      ',' OptionalReadWriteKeyword
      ','
   DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
```

```
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString
    OptionalAddressRange
    OptionalType_Last
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,16,
                                $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$20,$21,$22,$23,$24,$25);}
  | PARSEOP_DWORDMEMORY
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

DWordSpaceTerm
  : PARSEOP_DWORDSPACE
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_DWORDSPACE);}
    ByteConstExpr               {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
    OptionalResourceType
    OptionalDecodeType
    OptionalMinType
    OptionalMaxType
    ',' ByteConstExpr
    ',' DWordConstExpr
    ',' DWordConstExpr
    ',' DWordConstExpr
    ',' DWordConstExpr
     ',' DWordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,14,
                                $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23,$24);}
  | PARSEOP_DWORDSPACE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

EndDependentFnTerm
  : PARSEOP_ENDDEPENDENTFN
    PARSEOP_OPEN_PAREN
    PARSEOP_CLOSE_PAREN         {$$ = TrCreateLeafOp (PARSEOP_ENDDEPENDENTFN);}
  | PARSEOP_ENDDEPENDENTFN
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ExtendedIOTerm
  : PARSEOP_EXTENDEDIO
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_EXTENDEDIO);}
```

```
    OptionalResourceType_First
    OptionalMinType
    OptionalMaxType
    OptionalDecodeType
    OptionalRangeType
    ',' QWordConstExpr
    ',' QWordConstExpr
     ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    OptionalQWordConstExpr
    OptionalNameString
    OptionalType
    OptionalTranslationType_Last
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,14,
                          $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22);}
  | PARSEOP_EXTENDEDIO
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ExtendedMemoryTerm
  : PARSEOP_EXTENDEDMEMORY
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_EXTENDEDMEMORY);}
    OptionalResourceType_First
    OptionalDecodeType
    OptionalMinType
    OptionalMaxType
    OptionalMemType
    ',' OptionalReadWriteKeyword
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    OptionalQWordConstExpr
    OptionalNameString

   OptionalAddressRange
    OptionalType_Last
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,15,
                          $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$20,$21,$22,$23,$24);}
  | PARSEOP_EXTENDEDMEMORY
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

ExtendedSpaceTerm
```

```
  : PARSEOP_EXTENDEDSPACE PARSEOP_OPEN_PAREN     {$<n>$ = TrCreateLeafOp
(PARSEOP_EXTENDEDSPACE);}
      ByteConstExpr             {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
      OptionalResourceType
      OptionalDecodeType
      OptionalMinType
      OptionalMaxType
      ',' ByteConstExpr
      ',' QWordConstExpr
      ',' QWordConstExpr
      ',' QWordConstExpr
      ',' QWordConstExpr
      ',' QWordConstExpr
      OptionalQWordConstExpr
      OptionalNameString_Last
      PARSEOP_CLOSE_PAREN                   {$$ = TrLinkOpChildren ($<n>3,13,
                              $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23);}
   | PARSEOP_EXTENDEDSPACE
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN                {$$ = AslDoError(); yyclearin;}
  ;

FixedDmaTerm
  : PARSEOP_FIXEDDMA
      PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_FIXEDDMA);}
      WordConstExpr             /* 04: DMA RequestLines */
      ',' WordConstExpr         /* 06: DMA Channels */
      OptionalXferSize          /* 07: DMA TransferSize */
      OptionalNameString        /* 08: DescriptorName */
      PARSEOP_CLOSE_PAREN                   {$$ = TrLinkOpChildren ($<n>3,4,$4,$6,$7,$8);}
  | PARSEOP_FIXEDDMA
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN                {$$ = AslDoError(); yyclearin;}
  ;

FixedIOTerm
  : PARSEOP_FIXEDIO
      PARSEOP_OPEN_PAREN        {$<n>$ = TrCreateLeafOp (PARSEOP_FIXEDIO);}
      WordConstExpr
      ',' ByteConstExpr
      OptionalNameString_Last

  PARSEOP_CLOSE_PAREN                   {$$ = TrLinkOpChildren ($<n>3,3,$4,$6,$7);}
  | PARSEOP_FIXEDIO
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN                {$$ = AslDoError(); yyclearin;}
  ;
```

```
GpioIntTerm
  : PARSEOP_GPIO_INT
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_GPIO_INT);}
      InterruptTypeKeyword        /* 04: InterruptType */
      ',' InterruptLevel          /* 06: InterruptLevel */
      OptionalShareType           /* 07: SharedType */
      ',' PinConfigByte           /* 09: PinConfig */
      OptionalWordConstExpr       /* 10: DebounceTimeout */
      ',' StringData              /* 12: ResourceSource */
      OptionalByteConstExpr       /* 13: ResourceSourceIndex */
      OptionalResourceType        /* 14: ResourceType */
      OptionalNameString          /* 15: DescriptorName */
      OptionalBuffer_Last         /* 16: VendorData */
      PARSEOP_CLOSE_PAREN '{'
        DWordConstExpr
  '}'     {$$ = TrLinkOpChildren ($<n>3,11,
                              $4,$6,$7,$9,$10,$12,$13,$14,$15,$16,$19);}
    | PARSEOP_GPIO_INT
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
    ;

GpioIoTerm
  : PARSEOP_GPIO_IO
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_GPIO_IO);}
      OptionalShareType_First     /* 04: SharedType */
      ',' PinConfigByte           /* 06: PinConfig */
      OptionalWordConstExpr       /* 07: DebounceTimeout */
      OptionalWordConstExpr       /* 08: DriveStrength */
      OptionalIoRestriction       /* 09: IoRestriction */
      ',' StringData              /* 11: ResourceSource */
      OptionalByteConstExpr       /* 12: ResourceSourceIndex */
      OptionalResourceType        /* 13: ResourceType */
      OptionalNameString          /* 14: DescriptorName */
      OptionalBuffer_Last         /* 15: VendorData */
      PARSEOP_CLOSE_PAREN '{'
          DWordList '}'           {$$ = TrLinkOpChildren ($<n>3,11,
                              $4,$6,$7,$8,$9,$11,$12,$13,$14,$15,$18);}
    | PARSEOP_GPIO_IO
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN                 {$$ = AslDoError(); yyclearin;}
    ;

I2cSerialBusTerm
  : PARSEOP_I2C_SERIALBUS
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_I2C_SERIALBUS);}
      WordConstExpr               /* 04: SlaveAddress */
      OptionalSlaveMode           /* 05: SlaveMode */
```

```
    ',' DWordConstExpr          /* 07: ConnectionSpeed */
    OptionalAddressingMode      /* 08: AddressingMode */
    ',' StringData              /* 10: ResourceSource */
    OptionalByteConstExpr       /* 11: ResourceSourceIndex */
    OptionalResourceType        /* 12: ResourceType */
    OptionalNameString          /* 13: DescriptorName */
    OptionalBuffer_Last         /* 14: VendorData */
    PARSEOP_CLOSE_PAREN
 {$$ = TrLinkOpChildren ($<n>3,10,
                         $4,$5,$7,$8,$10,$11,$12,$13,
                         TrCreateLeafOp (PARSEOP_DEFAULT_ARG),$14);}
  | PARSEOP_I2C_SERIALBUS
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

I2cSerialBusTermV2
  : PARSEOP_I2C_SERIALBUS_V2
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_I2C_SERIALBUS_V2);}
    WordConstExpr               /* 04: SlaveAddress */
    OptionalSlaveMode           /* 05: SlaveMode */
    ',' DWordConstExpr          /* 07: ConnectionSpeed */
    OptionalAddressingMode      /* 08: AddressingMode */
    ',' StringData              /* 10: ResourceSource */
    OptionalByteConstExpr       /* 11: ResourceSourceIndex */
    OptionalResourceType        /* 12: ResourceType */
    OptionalNameString          /* 13: DescriptorName */
    OptionalShareType           /* 14: Share */

  OptionalBuffer_Last         /* 15: VendorData */
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,10,
                         $4,$5,$7,$8,$10,$11,$12,$13,$14,$15);}
  | PARSEOP_I2C_SERIALBUS_V2
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

InterruptTerm
  : PARSEOP_INTERRUPT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_INTERRUPT);}
    OptionalResourceType_First
    ',' InterruptTypeKeyword
    ',' InterruptLevel
    OptionalShareType
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN '{'
```

```
        DWordList '}'           {$$ = TrLinkOpChildren ($<n>3,8,
                                $4,$6,$8,$9,$10,$11,$12,$15);}
  | PARSEOP_INTERRUPT
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

IOTerm
  : PARSEOP_IO
      PARSEOP_OPEN_PAREN
        {$<n>$ = TrCreateLeafOp (PARSEOP_IO);}
      IODecodeKeyword
      ',' WordConstExpr
      ',' WordConstExpr
      ',' ByteConstExpr
      ',' ByteConstExpr
      OptionalNameString_Last
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$12,$13);}
  | PARSEOP_IO
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

IRQNoFlagsTerm
  : PARSEOP_IRQNOFLAGS
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_IRQNOFLAGS);}
      OptionalNameString_First
      PARSEOP_CLOSE_PAREN '{'
        ByteList '}'            {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
  | PARSEOP_IRQNOFLAGS
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

IRQTerm
  : PARSEOP_IRQ
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_IRQ);}
      InterruptTypeKeyword
      ',' InterruptLevel
      OptionalShareType
       OptionalNameString_Last
      PARSEOP_CLOSE_PAREN '{'
        ByteList '}'            {$$ = TrLinkOpChildren ($<n>3,5,$4,$6,$7,$8,$11);}
  | PARSEOP_IRQ
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;
```

```
Memory24Term
  : PARSEOP_MEMORY24
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MEMORY24);}
      OptionalReadWriteKeyword
      ',' WordConstExpr
      ',' WordConstExpr
      ',' WordConstExpr
      ',' WordConstExpr
      OptionalNameString_Last
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$12,$13);}
  | PARSEOP_MEMORY24
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

Memory32FixedTerm
  : PARSEOP_MEMORY32FIXED
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MEMORY32FIXED);}
      OptionalReadWriteKeyword
      ',' DWordConstExpr
      ',' DWordConstExpr
       OptionalNameString_Last
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,4,$4,$6,$8,$9);}
  | PARSEOP_MEMORY32FIXED
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

Memory32Term
  : PARSEOP_MEMORY32
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_MEMORY32);}
      OptionalReadWriteKeyword
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      ',' DWordConstExpr
      OptionalNameString_Last
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$12,$13);}
  | PARSEOP_MEMORY32
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

PinConfigTerm
  : PARSEOP_PINCONFIG
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PINCONFIG);}
      OptionalShareType_First     /* 04: SharedType */
      ',' ByteConstExpr           /* 06: PinConfigType */
```

```
        ','
    DWordConstExpr          /* 08: PinConfigValue */
        ',' StringData              /* 10: ResourceSource */
        OptionalByteConstExpr       /* 11: ResourceSourceIndex */
        OptionalResourceType        /* 12: ResourceType */
        OptionalNameString          /* 13: DescriptorName */
        OptionalBuffer_Last         /* 14: VendorData */
        PARSEOP_CLOSE_PAREN '{'
            DWordList '}'           {$$ = TrLinkOpChildren ($<n>3,9,
                                $4,$6,$8,$10,$11,$12,$13,$14,$17);}
      | PARSEOP_PINCONFIG
        PARSEOP_OPEN_PAREN
        error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
      ;

    PinFunctionTerm
      : PARSEOP_PINFUNCTION
        PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PINFUNCTION);}
        OptionalShareType_First     /* 04: SharedType */
        ',' PinConfigByte           /* 06: PinConfig */
        ',' WordConstExpr           /* 08: FunctionNumber */
        ',' StringData              /* 10: ResourceSource
    */
        OptionalByteConstExpr       /* 11: ResourceSourceIndex */
        OptionalResourceType        /* 12: ResourceType */
        OptionalNameString          /* 13: DescriptorName */
        OptionalBuffer_Last         /* 14: VendorData */
        PARSEOP_CLOSE_PAREN '{'
            DWordList '}'           {$$ = TrLinkOpChildren ($<n>3,9,
                                $4,$6,$8,$10,$11,$12,$13,$14,$17);}
      | PARSEOP_PINFUNCTION
        PARSEOP_OPEN_PAREN
        error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
      ;

    PinGroupTerm
      : PARSEOP_PINGROUP
        PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PINGROUP);}
        StringData                  /* 04: ResourceLabel */
        OptionalProducerResourceType /* 05: ResourceType */
        OptionalNameString          /* 06: DescriptorName */
        OptionalBuffer_Last         /* 07: VendorData */
        PARSEOP_CLOSE_PAREN '{'
            DWordList '}'           {$$ = TrLinkOpChildren
    ($<n>3,5,$4,$5,$6,$7,$10);}
      | PARSEOP_PINGROUP
        PARSEOP_OPEN_PAREN
        error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
```

```
  ;

PinGroupConfigTerm
  : PARSEOP_PINGROUPCONFIG
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PINGROUPCONFIG);}
      OptionalShareType_First     /* 04: SharedType */
      ',' ByteConstExpr           /* 06: PinConfigType */
      ',' DWordConstExpr          /* 08: PinConfigValue */
      ',' StringData              /* 10: ResourceSource */
      OptionalByteConstExpr       /* 11: ResourceSourceIndex */
      ',' StringData              /* 13: ResourceSourceLabel */
      OptionalResourceType        /* 14: ResourceType */
      OptionalNameString          /* 15: DescriptorName */
      OptionalBuffer_Last         /* 16: VendorData */
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,9,
                                  $4,$6,$8,$10,$11,$13,$14,$15,$16);}
  | PARSEOP_PINGROUPCONFIG
       PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

PinGroupFunctionTerm
  : PARSEOP_PINGROUPFUNCTION
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_PINGROUPFUNCTION);}
      OptionalShareType_First     /* 04: SharedType */
      ',' WordConstExpr           /* 06: FunctionNumber */
      ',' StringData              /* 08: ResourceSource */
      OptionalByteConstExpr       /* 09: ResourceSourceIndex */
      ',' StringData              /* 11: ResourceSourceLabel */
      OptionalResourceType        /* 12: ResourceType */
      OptionalNameString          /* 13: DescriptorName */
      OptionalBuffer_Last         /* 14: VendorData */
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,8,
                                  $4,$6,$8,$9,$11,$12,$13,$14);}
  | PARSEOP_PINGROUPFUNCTION
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError();
 yyclearin;}
  ;

QWordIOTerm
  : PARSEOP_QWORDIO
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_QWORDIO);}
      OptionalResourceType_First
      OptionalMinType
      OptionalMaxType
      OptionalDecodeType
      OptionalRangeType
```

```
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString
    OptionalType
    OptionalTranslationType_Last
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,15,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22,$23);}
  | PARSEOP_QWORDIO
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

QWordMemoryTerm
  : PARSEOP_QWORDMEMORY
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_QWORDMEMORY);}
    OptionalResourceType_First
     OptionalDecodeType
    OptionalMinType
    OptionalMaxType
    OptionalMemType
    ',' OptionalReadWriteKeyword
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString
    OptionalAddressRange
    OptionalType_Last
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,16,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$20,$21,$22,$23,$24,$25);}
  | PARSEOP_QWORDMEMORY
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

QWordSpaceTerm
  : PARSEOP_QWORDSPACE
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_QWORDSPACE);}
    ByteConstExpr              {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
    OptionalResourceType
```

```
    OptionalDecodeType
    OptionalMinType

  OptionalMaxType
    ',' ByteConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    ',' QWordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,14,
                          $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23,$24);}
  | PARSEOP_QWORDSPACE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

RegisterTerm
  : PARSEOP_REGISTER
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_REGISTER);}
    AddressSpaceKeyword
    ',' ByteConstExpr
    ',' ByteConstExpr
    ',' QWordConstExpr
    OptionalAccessSize
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN        {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$11,$12);}
  | PARSEOP_REGISTER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN
  {$$ = AslDoError(); yyclearin;}
  ;

SpiSerialBusTerm
  : PARSEOP_SPI_SERIALBUS
    PARSEOP_OPEN_PAREN         {$<n>$ = TrCreateLeafOp (PARSEOP_SPI_SERIALBUS);}
    WordConstExpr              /* 04: DeviceSelection */
    OptionalDevicePolarity     /* 05: DevicePolarity */
    OptionalWireMode           /* 06: WireMode */
    ',' ByteConstExpr          /* 08: DataBitLength */
    OptionalSlaveMode          /* 09: SlaveMode */
    ',' DWordConstExpr         /* 11: ConnectionSpeed */
    ',' ClockPolarityKeyword   /* 13: ClockPolarity */
    ',' ClockPhaseKeyword      /* 15: ClockPhase */
    ',' StringData             /* 17: ResourceSource */
```

```
      OptionalByteConstExpr       /* 18: ResourceSourceIndex */
      OptionalResourceType        /* 19: ResourceType */
      OptionalNameString          /* 20: DescriptorName */
      OptionalBuffer_Last         /* 21: VendorData */
      PARSEOP_CLOSE_PAREN
    {$$ = TrLinkOpChildren ($<n>3,14,
                            $4,$5,$6,$8,$9,$11,$13,$15,$17,$18,$19,$20,
                            TrCreateLeafOp (PARSEOP_DEFAULT_ARG),$21);}
  | PARSEOP_SPI_SERIALBUS
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

SpiSerialBusTermV2
  : PARSEOP_SPI_SERIALBUS_V2
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_SPI_SERIALBUS_V2);}
      WordConstExpr               /* 04: DeviceSelection */
      OptionalDevicePolarity      /* 05: DevicePolarity */
      OptionalWireMode            /* 06: WireMode */
      ',' ByteConstExpr           /* 08: DataBitLength */
      OptionalSlaveMode           /* 09: SlaveMode */
      ',' DWordConstExpr          /* 11: ConnectionSpeed */
      ',' ClockPolarityKeyword    /* 13: ClockPolarity */
      ',' ClockPhaseKeyword       /* 15: ClockPhase */
      ',' StringData              /* 17: ResourceSource
 */
      OptionalByteConstExpr       /* 18: ResourceSourceIndex */
      OptionalResourceType        /* 19: ResourceType */
      OptionalNameString          /* 20: DescriptorName */
      OptionalShareType           /* 21: Share */
      OptionalBuffer_Last         /* 22: VendorData */
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,14,
                            $4,$5,$6,$8,$9,$11,$13,$15,$17,$18,$19,$20,$21,$22);}
  | PARSEOP_SPI_SERIALBUS_V2
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

StartDependentFnNoPriTerm
  : PARSEOP_STARTDEPENDENTFN_NOPRI
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_STARTDEPENDENTFN_NOPRI);}
      PARSEOP_CLOSE_PAREN '{'
      ResourceMacroList '}'       {$$ = TrLinkOpChildren ($<n>3,1,$6);}
  | PARSEOP_STARTDEPENDENTFN_NOPRI
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
```

```
;

StartDependentFnTerm
  : PARSEOP_STARTDEPENDENTFN
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_STARTDEPENDENTFN);}
      ByteConstExpr
      ',' ByteConstExpr
      PARSEOP_CLOSE_PAREN '{'
      ResourceMacroList '}'       {$$ = TrLinkOpChildren ($<n>3,3,$4,$6,$9);}
  | PARSEOP_STARTDEPENDENTFN
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

UartSerialBusTerm
  : PARSEOP_UART_SERIALBUS
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_UART_SERIALBUS);}
      DWordConstExpr              /* 04: ConnectionSpeed */
      OptionalBitsPerByte         /* 05: BitsPerByte */
      OptionalStopBits            /* 06: StopBits */
      ',' ByteConstExpr           /* 08: LinesInUse */
      OptionalEndian              /* 09: Endianness */
      OptionalParityType          /* 10: Parity */
      OptionalFlowControl         /* 11: FlowControl */
      ',' WordConstExpr
       /* 13: Rx BufferSize */
      ',' WordConstExpr           /* 15: Tx BufferSize */
      ',' StringData              /* 17: ResourceSource */
      OptionalByteConstExpr       /* 18: ResourceSourceIndex */
      OptionalResourceType        /* 19: ResourceType */
      OptionalNameString          /* 20: DescriptorName */
      OptionalBuffer_Last         /* 21: VendorData */
      PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,15,
                                  $4,$5,$6,$8,$9,$10,$11,$13,$15,$17,$18,$19,$20,
                                  TrCreateLeafOp (PARSEOP_DEFAULT_ARG),$21);}
  | PARSEOP_UART_SERIALBUS
      PARSEOP_OPEN_PAREN
      error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

UartSerialBusTermV2
  : PARSEOP_UART_SERIALBUS_V2
      PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_UART_SERIALBUS_V2);}
      DWordConstExpr              /* 04: ConnectionSpeed */
      OptionalBitsPerByte
        /* 05: BitsPerByte */
      OptionalStopBits            /* 06: StopBits */
      ',' ByteConstExpr           /* 08: LinesInUse */
```

```
    OptionalEndian              /* 09: Endianness */
    OptionalParityType          /* 10: Parity */
    OptionalFlowControl         /* 11: FlowControl */
    ',' WordConstExpr           /* 13: Rx BufferSize */
    ',' WordConstExpr           /* 15: Tx BufferSize */
    ',' StringData              /* 17: ResourceSource */
    OptionalByteConstExpr       /* 18: ResourceSourceIndex */
    OptionalResourceType        /* 19: ResourceType */
    OptionalNameString          /* 20: DescriptorName */
    OptionalShareType           /* 21: Share */
    OptionalBuffer_Last         /* 22: VendorData */
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,15,
                            $4,$5,$6,$8,$9,$10,$11,$13,$15,$17,$18,$19,$20,$21,$22);}
  | PARSEOP_UART_SERIALBUS_V2
    PARSEOP_OPEN_PAREN
     error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

VendorLongTerm
  : PARSEOP_VENDORLONG
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_VENDORLONG);}
    OptionalNameString_First
    PARSEOP_CLOSE_PAREN '{'
       ByteList '}'             {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
  | PARSEOP_VENDORLONG
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

VendorShortTerm
  : PARSEOP_VENDORSHORT
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_VENDORSHORT);}
    OptionalNameString_First
    PARSEOP_CLOSE_PAREN '{'
       ByteList '}'             {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
  | PARSEOP_VENDORSHORT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

WordBusNumberTerm
  : PARSEOP_WORDBUSNUMBER
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_WORDBUSNUMBER);}
     OptionalResourceType_First
    OptionalMinType
    OptionalMaxType
    OptionalDecodeType
    ',' WordConstExpr
```

```
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,12,
                                $4,$5,$6,$7,$9,$11,$13,$15,$17,$18,$19,$20);}
  | PARSEOP_WORDBUSNUMBER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

WordIOTerm
  : PARSEOP_WORDIO
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_WORDIO);}
    OptionalResourceType_First
    OptionalMinType
    OptionalMaxType
    OptionalDecodeType
    OptionalRangeType
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
     OptionalByteConstExpr
    OptionalStringData
    OptionalNameString
    OptionalType
    OptionalTranslationType_Last
    PARSEOP_CLOSE_PAREN         {$$ = TrLinkOpChildren ($<n>3,15,
                                $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22,$23);}
  | PARSEOP_WORDIO
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;

WordSpaceTerm
  : PARSEOP_WORDSPACE
    PARSEOP_OPEN_PAREN          {$<n>$ = TrCreateLeafOp (PARSEOP_WORDSPACE);}
    ByteConstExpr               {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
    OptionalResourceType
    OptionalDecodeType
    OptionalMinType
    OptionalMaxType
    ',' ByteConstExpr
```

```
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    ',' WordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN
      {$$ = TrLinkOpChildren ($<n>3,14,
                              $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23,$24);}
  | PARSEOP_WORDSPACE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN   {$$ = AslDoError(); yyclearin;}
  ;
```

Found in path(s):
* /opt/cola/permits/1913384632_1708537760.020994/0/acpica-unix-20210105-tar-gz/acpica-unix-20210105/source/compiler/aslresources.y
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1.339 expat 2.6.2

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1.340 perf 0.1

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1.341 goprotobuf 1.4.3

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1.342 urfave-cli 1.22.1

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1.343 pyparsing 2.4.7

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/* nicstar.c v0.22 Jawaid Bazyar (bazyar@hypermall.com)
* nicstar.c, M. Welsh (matt.welsh@cl.cam.ac.uk)
*

```
* Hacked October, 1997 by Jawaid Bazyar, Interlink Advertising Services Inc.
*  http://www.hypermall.com/
* 10/1/97 - commented out CFG_PHYIE bit - we don't care when the PHY
* interrupts us (except possibly for removal/insertion of the cable?)
* 10/4/97 - began heavy inline documentation of the code. Corrected typos
* and spelling mistakes.
* 10/5/97 - added code to handle PHY interrupts, disable PHY on
* loss of link, and correctly re-enable PHY when link is
* re-established. (put back CFG_PHYIE)
*
*   Modified to work with the IDT7721 nicstar -- AAL5 (tested) only.
*
* R. D. Rechenmacher <ron@fnal.gov>, Aug. 6, 1997
*
* Linux driver for the IDT77201 NICStAR PCI ATM controller.
* PHY component is expected to be 155 Mbps S/UNI-Lite or IDT 77155;
* see init_nicstar() for PHY initialization to change this. This driver
* expects the Linux ATM stack to support scatter-gather
 lists
* (skb->atm.iovcnt != 0) for Rx skb's passed to vcc->push.
*
* Implementing minimal-copy of received data:
*   IDT always receives data into a small buffer, then large buffers
*    as needed. This means that data must always be copied to create
*    the linear buffer needed by most non-ATM protocol stacks (e.g. IP)
*    Fix is simple: make large buffers large enough to hold entire
*    SDU, and leave <small_buffer_data> bytes empty at the start. Then
*    copy small buffer contents to head of large buffer.
*   Trick is to avoid fragmenting Linux, due to need for a lot of large
*    buffers. This is done by 2 things:
*      1) skb->destructor / skb->atm.recycle_buffer
*          combined, allow nicstar_free_rx_skb to be called to
*          recycle large data buffers
*      2) skb_clone of received buffers
*   See nicstar_free_rx_skb and linearize_buffer for implementation
*    details.
*
*
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*
* M. Welsh, 6 July 1996
*
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1.345 multipart-parser-c NA

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*/

Found in path(s):
* /opt/cola/permits/2042810738_1717658686.063576/0/multipart-parser-c-master-3-zip/multipart-parser-c-

master/multipart_parser.h
* /opt/cola/permits/2042810738_1717658686.063576/0/multipart-parser-c-master-3-zip/multipart-parser-c-master/multipart_parser.c

1.346 amzn-drivers-ena 2.5.0

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1.347 libunwind 1.8.1

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1.348 vim 9.0.2068

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The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

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* @version 3.0 (December 2000)
*
* Optimised ANSI C code for the Rijndael cipher (now AES)
*
* @author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
* @author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
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*

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1.354 gcc-run-time 10.3.0

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bzip2/libbzip2 version 1.0.6 of 6 September 2010

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Version 3.1, 31 March 2009

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DRuntime: Runtime Library for the D Programming Language
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1.355 util-linux-libuuid 2.38

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NR START END SECTORS SIZE NAME UUID
1 32 7679 7648 3.7M 8f8378c0-01
2 7680 16383 8704 4.3M 8f8378c0-02
5 7936 12799 4864 2.4M
6 12544 16127 3584 1.8M

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DRuntime: Runtime Library for the D Programming Language
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1.357 inetutils 2.0

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1.362 mongoose-web-server 3.5

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1.363 shadow 4.8.1

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1.364 icu 68.2

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## Commands to generate dependency files
GEN_DEPS.c= $(CC) -E -MM $(DEFS) $(CPPFLAGS)
GEN_DEPS.cc= $(CXX) -E -MM $(DEFS) $(CPPFLAGS)

## Flags for position independent code
SHAREDLIBCFLAGS = -fPIC
SHAREDLIBCXXFLAGS = -fPIC
SHAREDLIBCPPFLAGS = -DPIC

## Additional flags when building libraries and with threads
```

```
THREADSCPPFLAGS = -D_REENTRANT
LIBCPPFLAGS =

## Compiler switch to embed a runtime search path
LD_RPATH=
LD_RPATH_PRE= -Wl,-rpath,

## Compiler switch to embed a library name
LD_SONAME = -Wl,-soname -Wl,$(notdir $(MIDDLE_SO_TARGET))

## Shared library options
LD_SOOPTIONS= -Wl,-Bsymbolic

## Shared object suffix
SO = so
## Non-shared intermediate object suffix
STATIC_O = ao

## Compilation
 rules
%.$(STATIC_O): $(srcdir)/%.c
 $(COMPILE.c) $(STATICCPPFLAGS) $(STATICCFLAGS) -o $@ $<
%.o: $(srcdir)/%.c
 $(COMPILE.c) $(DYNAMICCPPFLAGS) $(DYNAMICCFLAGS) -o $@ $<

%.$(STATIC_O): $(srcdir)/%.cpp
 $(COMPILE.cc) $(STATICCPPFLAGS) $(STATICCXXFLAGS) -o $@ $<
%.o: $(srcdir)/%.cpp
 $(COMPILE.cc) $(DYNAMICCPPFLAGS) $(DYNAMICCXXFLAGS) -o $@ $<



## Dependency rules
%.d: $(srcdir)/%.c
 @echo "generating dependency information for $<"
 @$(SHELL) -ec '$(GEN_DEPS.c) $< \
  | sed '\"s/\($*\)\.o[ :]*/\1.o $@ : /g'\" > $@; \
  [ -s $@ ] || rm -f $@'

%.d: $(srcdir)/%.cpp
 @echo "generating dependency information for $<"
 @$(SHELL) -ec '$(GEN_DEPS.cc) $< \
  | sed '\"s/\($*\)\.o[ :]*/\1.o $@ : /g'\" > $@; \
  [ -s $@ ] || rm -f $@'

## Versioned libraries rules

%.$(SO).$(SO_TARGET_VERSION_MAJOR): %.$(SO).$(SO_TARGET_VERSION)
 $(RM) $@ && ln -s ${<F} $@
```

```
%.$(SO): %.$(SO).$(SO_TARGET_VERSION_MAJOR)
 $(RM) $@ && ln -s ${*F}.$(SO).$(SO_TARGET_VERSION) $@

##  Bind internal references

# LDflags that pkgdata will use
BIR_LDFLAGS= -Wl,-Bsymbolic

# Dependencies [i.e. map files] for the final library
BIR_DEPS=

## Remove shared library 's'
STATIC_PREFIX_WHEN_USED =
STATIC_PREFIX =

## End BSD-specific setup
```

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lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
lib/gssapi/mechglue/g_compare_name.c
lib/gssapi/mechglue/g_context_time.c
lib/gssapi/mechglue/g_delete_sec_context.c
lib/gssapi/mechglue/g_dsp_name.c
lib/gssapi/mechglue/g_dsp_status.c
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lib/gssapi/mechglue/g_exp_sec_context.c
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lib/gssapi/mechglue/g_init_sec_context.c
lib/gssapi/mechglue/g_initialize.c
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lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c

lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
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lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation,
including
the following new or changed files:

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
kprop/kpropd_rpc.c
kprop/kproplog.c

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1.366 glibc-locale 2.33

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1.371 protobuf 3.15.2

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1.372 packaging 20.4

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1.373 netlink 1.1.0

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1.374 go-units 0.4.0

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1.375 go-capability 0.0.0-20200815063812-42c35b437635

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1.376 go-md2man 2.0.0-20190314233015-f79a8a8ca69d

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1.377 mnuralp-fileutils 0.5.0

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1.378 init-ifupdown 1.0

1.378.1 Available under license :

This package was created by Peter Tobias tobias@et-inf.fho-emden.de on
Wed, 24 Aug 1994 21:33:28 +0200 and maintained by Anthony Towns
<ajt@debian.org> until 2001.

It is currently maintained by Marco d'Itri <md@linux.it>.

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1.379 tipc-utils 2.2.0+gitAUTOINC+7ab2211b87

1.379.1 Available under license :

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```
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*
* server_tipc.c
*
* Short description: TIPC stream demo (server side)
*
* ----------------------------------------------------------------------
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*
* client_tipc.c
*
* Short description: TIPC hello world demo (client side)
* --
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*
* server_tipc.c
*
* Short description: TIPC benchmark demo (server side)
*
* --
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```
/* ----------------------------------------------------------------------
*
* tipc_ts_adapt.h
*
* Short description: Portable TIPC Test Suite -- wrapper declarations for Linux
*
* ----------------------------------------------------------------------
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* ----------------------------------------------------------------------
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```
/* ----------------------------------------------------------------------
*
* server_tipc.c
*
* Short description: TIPC stream demo (server side)
*
* ----------------------------------------------------------------------
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/* ----------------------------------------------------------------------
*
* tipc_ts_common.c
```

```
*
* Short description: Portable TIPC Test Suite -- common client+server routines
*
* --------------------------------------------------------------------
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```
/* --------------------------------------------------------------------
*
* client_tipc.c
*
* Short description: TIPC multicast demo (client side)
*
* --------------------------------------------------------------------
*
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/* --
*
* client_tipc.c
*
* Short description: TIPC subscription demo (client side)
*
* --
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*
* tipc_ts_server_linux.c
*
* Short description: Portable TIPC Test Suite -- server wrapper for Linux
*
* --
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*
* client_tipc.c
*
* Short description: TIPC benchmark demo (client side)
*
* --
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/* --
*
* tipcc.h
*
* Short description: TIPC C binding API. The complete TIPC socket API with all
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*
* --
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*
* Version 0.9.5: Jon Maloy, 2016
*
* --
 */

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*
* tipc_ts_server.c
*
* Short description: Portable TIPC Test Suite -- common server routines
*
* --
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/*
* include/uapi/linux/tipc.h: Header for TIPC socket interface
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/* --

Name: inventory_sim.c

Short description: TIPC distributed inventory simulation (Linux version)

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DESCRIPTION

This file is a demo program that illustrates how TIPC can be used to support distributed applications. It takes advantage of TIPC's socket-based messaging, as well as its port naming and port name subscription capabilities.

The demo is a simulation
of a store that stocks a variety of numbered items
which are sold to customers upon request. By default, items and customers are created randomly (although there are limits on the number of each that can be present in the store at any given time). From time to time new items are delivered to the store; independently of this, customers enter the store, each looking for a specific item. If a desired item can be obtained before a customer gets tired of waiting for it, a sale is recorded; otherwise, a walk-out is recorded. If multiple customers attempt to obtain the same item, only one succeeds; the others are notified of their failure and try again.

Each item and customer is implemented as a separate task. An item makes itself available by creating a socket whose port name identifies the item number. A customer determines the availability of an item by creating a subscription for the item name and waiting for notification that the item exists; the customer then obtains the item
by sending a message to the socket for the item
and receiving a successful reply. A logging task is used to record all significant events encountered by the item and customer tasks during the simulation, as well as to display the simulation status and statistics on a periodic basis.

This simulation is most effective when it is run on multiple CPUs at the same time, which has the effect of creating a network of stores sharing a global inventory. Since the port name published by an item is visible throughout the TIPC cluster, customers are able to obtain items from other CPUs if they are not available locally. The more CPUs involved in the simulation, the more items are available and the less likely a customer will be to walk out of a store because the item they desire is unavailable.

When a simulation is terminated the logging task waits for all customers to leave, then creates a janitor task to dispose of the unsold items that remain. TIPC's name subscription capability allows
the janitor to distinguish the items
belonging to its own store from those in other stores.

The simulation can be temporarily halted to permit inspection of the various tasks used, or to assist in debugging problems. This is achieved by publishing the name of a virtual item (item 0), which instructs the logging task on each CPU to temporarily suspend processing; this causes all customer and item tasks on the CPU to become blocked when they next attempt to log an event. (Note: Pausing the simulation may result in warning messages from customers about non-responsive items; this is normal behavior resulting from the way the pause capability is implemented, and is no cause for concern.)

The demo gives the user control over the number of item and customer tasks
used in the simulation, as well as the ability to increase the speed of
processing and to control the amount of output generated. By default, a
simulation running at normal speed displays all transaction info, while a
simulation
 running at an accelerated rate displays only the periodic summary.
The simulation can also be run in a deterministic manner by creating a store
having no items or customers, and then generating individual item and customer
tasks manually.

Building the demo

The demo is built as a normal TIPC application. The accompanying Makefile
builds a "inventory_sim" executable and creates softlinks to a set of aliases
(eg. newSim, killSim, ...) that are used to invoke the main executable to do
specific operations.

Running the demo

The simulation is run by issuing the following shell commands:

newSim [#items [#customers [speed [verbosity]]]]
                - open store
killSim   - close store and clean up
stopSim   - pause simulation of all stores
startSim   - unpause simulation of all stores
newItem [item [count]] - create item (repeat as specified)
newCust [item [count]] - create customer for item (repeat as specified)
helpSim
            - display this menu

A missing (or 0) argument value causes the simulation to choose an appropriate
default. In certain cases, an argument value that is < 0 can also be used
to disable a specific feature of a command.

The output messages generated by the simulation should be self-explanatory.

Examples
----
1) Run default simulation: ./newSim

2) Run simulation at 10x normal speed: ./newSim 0 0 10

3) Run simulation manually: ./newSim -1 -1   [create empty store]
    ./newItem 3   [create item]
    ./newCust 3   [create customer]
*/

Found in path(s):
* /opt/cola/permits/2175989091_1725911719.6418335/0/repacked-gitshallow-git-code-sf-net-p-tipc-tipcutils-7ab2211-1-master-tar-gz/demos/inventory_sim/inventory_sim.c
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```
/* ----------------------------------------------------------------------
*
* tipc_c_api_client.c
*
* Short description:
* ----------------------------------------------------------------------
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* ----------------------------------------------------------------------
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```

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```
/* ----------------------------------------------------------------------
*
* common_tipc.h
*
* Short description: TIPC benchmark demo (common definitions and functions)
*
* ----------------------------------------------------------------------
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*
* ----------------------------------------------------------------------
*/
```

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```
/* ----------------------------------------------------------------------
*
* tipcc.c
*
* Short description: TIPC C binding API
```

```
*
* ----------------------------------------------------------------------
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*
* Version 0.9: Jon Maloy, 2015
*
* ----------------------------------------------------------------------
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*
 /opt/cola/permits/2175989091_1725911719.6418335/0/repacked-gitshallow-git-code-sf-net-p-tipc-tipcutils-7ab2211-1-master-tar-gz/multicast_blast/tipcc.c
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/* ----------------------------------------------------------------------
*
* server_tipc.c
*
* Short description: TIPC multicast demo (server side)
```

```
*
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/* ----------------------------------------------------------------------
*
* tipc_ts.h
*
* Short description: Portable TIPC Test Suite -- common declarations
*
* ----------------------------------------------------------------------
*
```

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/* --
*
* client_tipc.c
*
* Short description: TIPC connection demo (client side)
*
* --
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No license file was found, but licenses were detected in source scan.

/* --
*
* tipc-pipe.c
*
* Short description: TIPC CLI utility, similar to netcat.
*
* --
*
* Written by Constantine Shulyupin const@makelinux.com for Compass EOS
*
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/* --
*
* tipc_ts_client.c
*
* Short description: Portable TIPC Test Suite -- common client routines
*
* --
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/* --
*
* server_tipc.c
*
* Short description: TIPC connection demo (server side)
*
* --
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*
* server_tipc.c
*
* Short description: TIPC subscription demo (server side)
*
* --
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/* --
*
* mcast_tipc.c
*
* Short description: TIPC multicast demo (client side)
*
* --
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*
 /opt/cola/permits/2175989091_1725911719.6418335/0/repacked-gitshallow-git-code-sf-net-p-tipc-tipcutils-7ab2211-1-master-tar-gz/multicast_blast/mcast_tipc.c
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/* --
*
* server_tipc.c
*
* Short description: TIPC hello world demo (server side)
* --
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*
* tipc_c_api_top_subscr.c
*
* Short description:
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/* --
*
* tipcc.h
*
* Short description: TIPC C binding API. The complete TIPC socket API with all
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*
* --
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* Version 0.9.3: Jon Maloy, 2015
*
* --
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```
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*
* tipc_c_api_server.c
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* Short description:
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*
* ----------------------------------------------------------------------
*/
```

Found in path(s):
* /opt/cola/permits/2175989091_1725911719.6418335/0/repacked-gitshallow-git-code-sf-net-p-tipc-tipcutils-7ab2211-1-master-tar-gz/demos/c_api_demo/tipc_c_api_server.c
No license file was found, but licenses were detected in source scan.

```
/* ----------------------------------------------------------------------
```

*
* tipc_ts_client_linux.c
*
* Short description: Portable TIPC Test Suite -- client wrapper for Linux
*
* --
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* /opt/cola/permits/2175989091_1725911719.6418335/0/repacked-gitshallow-git-code-sf-net-p-tipc-tipcutils-7ab2211-1-master-tar-gz/ptts/tipc_ts_client_linux.c

1.380 base-passwd 3.5.29

1.380.1 Available under license :

Format-Specification: http://svn.debian.org/wsvn/dep/web/deps/dep5.mdwn?op=file&rev=135
Name: base-passwd
Maintainer: Colin Watson <cjwatson@debian.org>

Files: update-passwd.c, man/*
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X-Notes: Originally written by Ian Murdock <imurdock@debian.org> and
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* /opt/cola/permits/2175989136_1725911673.6987453/0/keymaps-1-0-r31-tar-bz2/keymaps-1.0-r31/GPLv2.patch

1.386 thread-pool 0.2.5

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1.387 mingetty 1.08

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1.388 update-rc-d 0.8

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1.389 python-six 1.15.0

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1.390 tunctl 1.5

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* /opt/cola/permits/2175989059_1725911717.9993913/0/tunctl-1-5-1-tar-gz/tunctl-1.5/tunctl.c
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Name: tunctl
Version: 1.5
Release: 1
Summary: Create and remove virtual network interfaces

Group: Applications/System
License: GPL+
URL: http://tunctl.sourceforge.net/
Source0: http://downloads.sourceforge.net/tunctl/tunctl-%{version}.tar.gz
BuildRoot: %{_tmppath}/%{name}-%{version}-%{release}-root-%(%{__id_u} -n)

BuildRequires: docbook-utils

%description
Virtual network interface manipulation tool from User Mode Linux project.

%prep
%setup

%build
make

%install
rm -rf $RPM_BUILD_ROOT
make DESTDIR=$RPM_BUILD_ROOT install

%clean
rm -rf $RPM_BUILD_ROOT

%files
%defattr(-,root,root,-)

%{_mandir}/man8/tunctl.8*
%{_sbindir}/tunctl
%doc ChangeLog

%changelog
* Wed Jul 9 2008 Henrik Nordstrom <henrik@henriknordstrom.net> 1.5-1
- Update to version 1.5

* Tue Jul 8 2008 Henrik Nordstrom <henrik@henriknordstrom.net> 1.4-3
- Packaged tunctl as a upstream
 package of it's own

* Tue Mar 25 2008 Lubomir Kundrak <lkundrak@redhat.com> 1.4-2
- Move to sbin (Marek Mahut, #434583)

* Fri Feb 22 2008 Lubomir Kundrak <lkundrak@redhat.com> 1.4-1
- Initial packaging

Found in path(s):
* /opt/cola/permits/2175989059_1725911717.9993913/0/tunctl-1-5-1-tar-gz/tunctl-1.5/tunctl.spec

1.391 dpdk-kmods 1.0

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* /opt/cola/permits/2187759353_1733347649.803354/0/dpdk-kmods-1-0-zip/dpdk-kmods-main/windows/netuio/netuio.inf
No license file was found, but licenses were detected in source scan.

/*-
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*/

Found in path(s):
* /opt/cola/permits/2187759353_1733347649.803354/0/dpdk-kmods-1-0-zip/dpdk-kmods-main/linux/igb_uio/igb_uio.c

1.392 dpdk 22.11.0

1.392.1 Available under license :

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1.393 libdbi-perl 1.643

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1.394 lvm2 2.03.11

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1.401 errors 0.9.1

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1.405 qemu 5.2.0

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```
project('bar', 'c', license: 'Apache')

executable('bar', 'bar.c')

license = meson.project_license()[0]
if license != 'Apache'
  error('The license should be Apache, but it is: ' + license)
endif
bsd_user_ss.add(files(
 'bsdload.c',
 'elfload.c',
 'main.c',
 'mmap.c',
 'signal.c',
 'strace.c',
 'syscall.c',
 'uaccess.c',
))
```

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```
TARGET_ARCH=x86_64
TARGET_BASE_ARCH=i386
TARGET_XML_FILES= gdb-xml/i386-64bit.xml
Index: debug.c
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/debug.c,v
retrieving revision 1.1
retrieving revision 1.3
diff -u -u -r1.1 -r1.3
--- debug.c 7 Sep 2007 10:01:21 -0000 1.1
+++ debug.c 15 Jan 2008 13:49:25 -0000 1.3
@@ -52,7 +52,11 @@
void X86EMU_trace_regs (void)
{
   if (DEBUG_TRACE()) {
-       x86emu_dump_regs();
+ if (M.x86.mode & (SYSMODE_PREFIX_DATA | SYSMODE_PREFIX_ADDR)) {
+        x86emu_dump_xregs();
+ } else {
+        x86emu_dump_regs();
+ }
   }
   if (DEBUG_DECODE() && ! DEBUG_DECODE_NOPRINT()) {
      printk("%04x:%04x ",M.x86.saved_cs, M.x86.saved_ip);
@@ -185,7 +189,7 @@
   for (i=0; i< M.x86.enc_pos; i++) {
      sprintf(buf1+2*i,"%02x", fetch_data_byte_abs(s,o+i));
   }
-   printk("%-20s",buf1);
+    printk("%-20s ",buf1);
}

static void print_decoded_instruction (void)
Index: ops2.c
===================================================================
RCS file:
 /cvs/osdf/cvs/host/other-licence/x86emu/ops2.c,v
retrieving revision 1.1
retrieving revision 1.3
diff -u -u -r1.1 -r1.3
--- ops2.c 7 Sep 2007 10:01:21 -0000 1.1
+++ ops2.c 20 Mar 2008 15:48:34 -0000 1.3
@@ -149,8 +149,69 @@
   target += (s16) M.x86.R_IP;
```

```
   DECODE_PRINTF2("%04x\n", target);
   TRACE_AND_STEP();
-   if (cond)
+   if (cond) {
      M.x86.R_IP = (u16)target;
+ JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, " LONG COND ");
+   }
+   DECODE_CLEAR_SEGOVR();
+   END_OF_INSTR();
+}
+
+/****************************************************************************
+REMARKS:
+Handles opcode 0x0f,0xC8-0xCF
+****************************************************************************/
+s32 x86emu_bswap(s32 reg)
+{
+  // perform the byte swap
+  s32 temp = reg;
+  reg = (temp & 0xFF000000) >> 24;
+  reg |= (temp & 0xFF0000) >> 8;
+  reg |= (temp & 0xFF00) << 8;
+  reg |= (temp & 0xFF) << 24;
+  return reg;
+}
+
+void x86emuOp2_bswap(u8 op2)
+{
+
   /* byte swap 32 bit register */
+   START_OF_INSTR();
+   DECODE_PRINTF("BSWAP\t");
+   switch (op2) {
+     case 0xc8:
+       DECODE_PRINTF("EAX\n");
+       M.x86.R_EAX = x86emu_bswap(M.x86.R_EAX);
+       break;
+     case 0xc9:
+       DECODE_PRINTF("ECX\n");
+       M.x86.R_ECX = x86emu_bswap(M.x86.R_ECX);
+       break;
+     case 0xca:
+       DECODE_PRINTF("EDX\n");
+       M.x86.R_EDX = x86emu_bswap(M.x86.R_EDX);
+       break;
+     case 0xcb:
+       DECODE_PRINTF("EBX\n");
+       M.x86.R_EBX = x86emu_bswap(M.x86.R_EBX);
```

```
+       break;
+     case 0xcc:
+       DECODE_PRINTF("ESP\n");
+       M.x86.R_ESP = x86emu_bswap(M.x86.R_ESP);
+       break;
+     case 0xcd:
+       DECODE_PRINTF("EBP\n");
+       M.x86.R_EBP = x86emu_bswap(M.x86.R_EBP);
+       break;
+     case 0xce:
+       DECODE_PRINTF("ESI\n");
+       M.x86.R_ESI = x86emu_bswap(M.x86.R_ESI);
+       break;
+     case 0xcf:
+       DECODE_PRINTF("EDI\n");
+       M.x86.R_EDI
 = x86emu_bswap(M.x86.R_EDI);
+       break;
+    }
+    TRACE_AND_STEP();
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
}
@@ -1702,14 +1763,14 @@
/*  0xc5 */ x86emuOp2_illegal_op,
/*  0xc6 */ x86emuOp2_illegal_op,
/*  0xc7 */ x86emuOp2_illegal_op,
-/*  0xc8 */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xc9 */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xca */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xcb */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xcc */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xcd */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xce */ x86emuOp2_illegal_op,  /* TODO: bswap */
-/*  0xcf */ x86emuOp2_illegal_op,  /* TODO: bswap */
+/*  0xc8 */ x86emuOp2_bswap,
+/*  0xc9 */ x86emuOp2_bswap,
+/*  0xca */ x86emuOp2_bswap,
+/*  0xcb */ x86emuOp2_bswap,
+/*  0xcc */ x86emuOp2_bswap,
+/*  0xcd */ x86emuOp2_bswap,
+/*  0xce */ x86emuOp2_bswap,
+/*  0xcf */ x86emuOp2_bswap,

/*  0xd0 */ x86emuOp2_illegal_op,
/*  0xd1 */ x86emuOp2_illegal_op,
Index:
```

```
 ops.c
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/ops.c,v
retrieving revision 1.1
diff -u -u -r1.1 ops.c
--- ops.c 7 Sep 2007 10:01:21 -0000 1.1
+++ ops.c 20 Mar 2008 16:52:00 -0000
@@ -1061,7 +1061,11 @@
    imm = (s8)fetch_byte_imm();
    DECODE_PRINTF2("PUSH\t%d\n", imm);
    TRACE_AND_STEP();
-    push_word(imm);
+    if (M.x86.mode & SYSMODE_PREFIX_DATA) {
+        push_long(imm);
+    } else {
+        push_word(imm);
+    }
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
 }
@@ -1256,8 +1260,10 @@
    target = (u16)(M.x86.R_IP + (s16)offset);
    DECODE_PRINTF2("%x\n", target);
    TRACE_AND_STEP();
-    if (cond)
+    if (cond) {
        M.x86.R_IP = target;
+ JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, " NEAR COND ");
+    }
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
 }
@@ -2516,9 +2522,11 @@
    count = 1;
    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE))
  {
        /* dont care whether REPE or REPNE */
-        /* move them until CX is ZERO. */
-        count = M.x86.R_CX;
+        /* move them until (E)CX is ZERO. */
+        count = (M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX;
        M.x86.R_CX = 0;
+ if (M.x86.mode & SYSMODE_32BIT_REP)
+            M.x86.R_ECX = 0;
        M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
    }
    while (count--) {
@@ -2526,6 +2534,8 @@
```

```
        store_data_byte_abs(M.x86.R_ES, M.x86.R_DI, val);
        M.x86.R_SI += inc;
        M.x86.R_DI += inc;
+       if (M.x86.intr & INTR_HALTED)
+           break;
    }
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
@@ -2559,9 +2569,11 @@
    count = 1;
    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
        /* dont care whether REPE or REPNE */
-       /* move them until CX is ZERO. */
-       count = M.x86.R_CX;
+       /* move them until (E)CX is ZERO. */
+       count = (M.x86.mode
 & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX;
        M.x86.R_CX = 0;
+ if (M.x86.mode & SYSMODE_32BIT_REP)
+           M.x86.R_ECX = 0;
        M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
    }
    while (count--) {
@@ -2574,6 +2586,8 @@
        }
        M.x86.R_SI += inc;
        M.x86.R_DI += inc;
+       if (M.x86.intr & INTR_HALTED)
+           break;
    }
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
@@ -2598,16 +2612,21 @@

    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
        /* REPE  */
-       /* move them until CX is ZERO. */
-       while (M.x86.R_CX != 0) {
+       /* move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
            val1 = fetch_data_byte(M.x86.R_SI);
            val2 = fetch_data_byte_abs(M.x86.R_ES, M.x86.R_DI);
                cmp_byte(val1, val2);
-           M.x86.R_CX -= 1;
+           if (M.x86.mode & SYSMODE_32BIT_REP)
+
+               M.x86.R_ECX -= 1;
+           else
```

```
+               M.x86.R_CX -= 1;
          M.x86.R_SI += inc;
          M.x86.R_DI += inc;
          if ( (M.x86.mode & SYSMODE_PREFIX_REPE) && (ACCESS_FLAG(F_ZF) == 0) ) break;
          if ( (M.x86.mode & SYSMODE_PREFIX_REPNE) && ACCESS_FLAG(F_ZF) ) break;
+           if (M.x86.intr & INTR_HALTED)
+               break;
       }
       M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
    } else {
@@ -2644,8 +2663,8 @@
    TRACE_AND_STEP();
    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
       /* REPE  */
-       /* move them until CX is ZERO. */
-       while (M.x86.R_CX != 0) {
+       /* move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
          if (M.x86.mode & SYSMODE_PREFIX_DATA) {
             val1 = fetch_data_long(M.x86.R_SI);
             val2 = fetch_data_long_abs(M.x86.R_ES,
 M.x86.R_DI);
@@ -2655,11 +2674,16 @@
             val2 = fetch_data_word_abs(M.x86.R_ES, M.x86.R_DI);
             cmp_word((u16)val1, (u16)val2);
          }
-          M.x86.R_CX -= 1;
+          if (M.x86.mode & SYSMODE_32BIT_REP)
+             M.x86.R_ECX -= 1;
+          else
+             M.x86.R_CX -= 1;
          M.x86.R_SI += inc;
          M.x86.R_DI += inc;
          if ( (M.x86.mode & SYSMODE_PREFIX_REPE) && ACCESS_FLAG(F_ZF) == 0 ) break;
          if ( (M.x86.mode & SYSMODE_PREFIX_REPNE) && ACCESS_FLAG(F_ZF) ) break;
+           if (M.x86.intr & INTR_HALTED)
+               break;
       }
       M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
    } else {
@@ -2741,11 +2765,16 @@
    TRACE_AND_STEP();
    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
       /* dont care whether REPE or REPNE */
-       /* move them until CX is ZERO. */
-       while (M.x86.R_CX != 0) {
+       /*
```

```
 move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
          store_data_byte_abs(M.x86.R_ES, M.x86.R_DI, M.x86.R_AL);
-          M.x86.R_CX -= 1;
+          if (M.x86.mode & SYSMODE_32BIT_REP)
+             M.x86.R_ECX -= 1;
+          else
+             M.x86.R_CX -= 1;
          M.x86.R_DI += inc;
+          if (M.x86.intr & INTR_HALTED)
+             break;
       }
       M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
   } else {
@@ -2783,9 +2812,11 @@
   count = 1;
   if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
      /* dont care whether REPE or REPNE */
-      /* move them until CX is ZERO. */
-      count = M.x86.R_CX;
+       /* move them until (E)CX is ZERO. */
+       count = (M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX;
      M.x86.R_CX = 0;
+ if (M.x86.mode & SYSMODE_32BIT_REP)
+          M.x86.R_ECX = 0;

     M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
   }
   while (count--) {
@@ -2795,6 +2826,8 @@
         store_data_word_abs(M.x86.R_ES, M.x86.R_DI, M.x86.R_AX);
      }
      M.x86.R_DI += inc;
+      if (M.x86.intr & INTR_HALTED)
+         break;
   }
   DECODE_CLEAR_SEGOVR();
   END_OF_INSTR();
@@ -2817,11 +2850,16 @@
      inc = 1;
   if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
      /* dont care whether REPE or REPNE */
-      /* move them until CX is ZERO. */
-      while (M.x86.R_CX != 0) {
+       /* move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
         M.x86.R_AL = fetch_data_byte(M.x86.R_SI);
-          M.x86.R_CX -= 1;
```

```
+           if (M.x86.mode & SYSMODE_32BIT_REP)
+              M.x86.R_ECX -= 1;
+           else
+              M.x86.R_CX -= 1;
          M.x86.R_SI += inc;
+           if (M.x86.intr & INTR_HALTED)
+
             break;
       }
       M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
   } else {
@@ -2859,9 +2897,11 @@
   count = 1;
   if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
      /* dont care whether REPE or REPNE */
-      /* move them until CX is ZERO. */
-      count = M.x86.R_CX;
+      /* move them until (E)CX is ZERO. */
+      count = (M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX;
      M.x86.R_CX = 0;
+ if (M.x86.mode & SYSMODE_32BIT_REP)
+           M.x86.R_ECX = 0;
      M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
   }
   while (count--) {
@@ -2871,6 +2911,8 @@
         M.x86.R_AX = fetch_data_word(M.x86.R_SI);
      }
      M.x86.R_SI += inc;
+      if (M.x86.intr & INTR_HALTED)
+         break;
   }
   DECODE_CLEAR_SEGOVR();
   END_OF_INSTR();
@@ -2894,26 +2936,36 @@
      inc = 1;
   if (M.x86.mode & SYSMODE_PREFIX_REPE) {
      /*
 REPE  */
-      /* move them until CX is ZERO. */
-      while (M.x86.R_CX != 0) {
+      /* move them until (E)CX is ZERO. */
+      while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
        val2 = fetch_data_byte_abs(M.x86.R_ES, M.x86.R_DI);
        cmp_byte(M.x86.R_AL, val2);
-        M.x86.R_CX -= 1;
+        if (M.x86.mode & SYSMODE_32BIT_REP)
+           M.x86.R_ECX -= 1;
```

```
+           else
+             M.x86.R_CX -= 1;
            M.x86.R_DI += inc;
            if (ACCESS_FLAG(F_ZF) == 0)
              break;
+           if (M.x86.intr & INTR_HALTED)
+             break;
        }
        M.x86.mode &= ~SYSMODE_PREFIX_REPE;
    } else if (M.x86.mode & SYSMODE_PREFIX_REPNE) {
        /* REPNE  */
-       /* move them until CX is ZERO. */
-       while (M.x86.R_CX != 0) {
+       /* move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {

            val2 = fetch_data_byte_abs(M.x86.R_ES, M.x86.R_DI);
            cmp_byte(M.x86.R_AL, val2);
-           M.x86.R_CX -= 1;
+           if (M.x86.mode & SYSMODE_32BIT_REP)
+             M.x86.R_ECX -= 1;
+           else
+             M.x86.R_CX -= 1;
            M.x86.R_DI += inc;
            if (ACCESS_FLAG(F_ZF))
              break;          /* zero flag set means equal */
+           if (M.x86.intr & INTR_HALTED)
+             break;
        }
        M.x86.mode &= ~SYSMODE_PREFIX_REPNE;
    } else {
@@ -2951,8 +3003,8 @@
    TRACE_AND_STEP();
    if (M.x86.mode & SYSMODE_PREFIX_REPE) {
        /* REPE  */
-       /* move them until CX is ZERO. */
-       while (M.x86.R_CX != 0) {
+       /* move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
            if (M.x86.mode & SYSMODE_PREFIX_DATA) {
              val = fetch_data_long_abs(M.x86.R_ES, M.x86.R_DI);
              cmp_long(M.x86.R_EAX,
 val);
@@ -2960,16 +3012,21 @@
              val = fetch_data_word_abs(M.x86.R_ES, M.x86.R_DI);
              cmp_word(M.x86.R_AX, (u16)val);
            }
-           M.x86.R_CX -= 1;
```

```
+           if (M.x86.mode & SYSMODE_32BIT_REP)
+             M.x86.R_ECX -= 1;
+           else
+             M.x86.R_CX -= 1;
            M.x86.R_DI += inc;
            if (ACCESS_FLAG(F_ZF) == 0)
              break;
+           if (M.x86.intr & INTR_HALTED)
+             break;
         }
         M.x86.mode &= ~SYSMODE_PREFIX_REPE;
     } else if (M.x86.mode & SYSMODE_PREFIX_REPNE) {
        /* REPNE  */
-       /* move them until CX is ZERO. */
-       while (M.x86.R_CX != 0) {
+       /* move them until (E)CX is ZERO. */
+       while (((M.x86.mode & SYSMODE_32BIT_REP) ? M.x86.R_ECX : M.x86.R_CX) != 0) {
          if (M.x86.mode & SYSMODE_PREFIX_DATA) {
             val = fetch_data_long_abs(M.x86.R_ES, M.x86.R_DI);
             cmp_long(M.x86.R_EAX,
 val);
@@ -2977,10 +3034,15 @@
             val = fetch_data_word_abs(M.x86.R_ES, M.x86.R_DI);
             cmp_word(M.x86.R_AX, (u16)val);
          }
-          M.x86.R_CX -= 1;
+          if (M.x86.mode & SYSMODE_32BIT_REP)
+             M.x86.R_ECX -= 1;
+          else
+             M.x86.R_CX -= 1;
          M.x86.R_DI += inc;
          if (ACCESS_FLAG(F_ZF))
            break;         /* zero flag set means equal */
+          if (M.x86.intr & INTR_HALTED)
+             break;
        }
        M.x86.mode &= ~SYSMODE_PREFIX_REPNE;
     } else {
@@ -3238,9 +3300,9 @@
    DECODE_PRINTF("RET\t");
    imm = fetch_word_imm();
    DECODE_PRINTF2("%x\n", imm);
- RETURN_TRACE("RET",M.x86.saved_cs,M.x86.saved_ip);
  TRACE_AND_STEP();
    M.x86.R_IP = pop_word();
+ RETURN_TRACE(M.x86.saved_cs,M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, "NEAR");
    M.x86.R_SP += imm;
    DECODE_CLEAR_SEGOVR();
```

```
   END_OF_INSTR();
@@ -3254,9 +3316,9
 @@
 {
    START_OF_INSTR();
    DECODE_PRINTF("RET\n");
- RETURN_TRACE("RET",M.x86.saved_cs,M.x86.saved_ip);
 TRACE_AND_STEP();
    M.x86.R_IP = pop_word();
+ RETURN_TRACE(M.x86.saved_cs,M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, "NEAR");
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
 }
@@ -3471,10 +3533,10 @@
    DECODE_PRINTF("RETF\t");
    imm = fetch_word_imm();
    DECODE_PRINTF2("%x\n", imm);
- RETURN_TRACE("RETF",M.x86.saved_cs,M.x86.saved_ip);
 TRACE_AND_STEP();
    M.x86.R_IP = pop_word();
    M.x86.R_CS = pop_word();
+ RETURN_TRACE(M.x86.saved_cs,M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, "FAR");
    M.x86.R_SP += imm;
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
@@ -3488,10 +3550,10 @@
 {
    START_OF_INSTR();
    DECODE_PRINTF("RETF\n");
- RETURN_TRACE("RETF",M.x86.saved_cs,M.x86.saved_ip);
 TRACE_AND_STEP();
    M.x86.R_IP = pop_word();
    M.x86.R_CS = pop_word();
+ RETURN_TRACE(M.x86.saved_cs,M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, "FAR");
    DECODE_CLEAR_SEGOVR();
     END_OF_INSTR();
 }
@@ -4020,8 +4082,11 @@
    ip += (s16) M.x86.R_IP;
    DECODE_PRINTF2("%04x\n", ip);
    TRACE_AND_STEP();
-    M.x86.R_CX -= 1;
-    if (M.x86.R_CX != 0 && !ACCESS_FLAG(F_ZF))      /* CX != 0 and !ZF */
+    if (M.x86.mode & SYSMODE_PREFIX_ADDR)
+        M.x86.R_ECX -= 1;
+    else
+        M.x86.R_CX -= 1;
+    if (((M.x86.mode & SYSMODE_PREFIX_ADDR) ? M.x86.R_ECX : M.x86.R_CX) != 0 &&
```

```
!ACCESS_FLAG(F_ZF))      /* (E)CX != 0 and !ZF */
        M.x86.R_IP = ip;
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
@@ -4041,8 +4106,11 @@
    ip += (s16) M.x86.R_IP;
    DECODE_PRINTF2("%04x\n", ip);
    TRACE_AND_STEP();
-    M.x86.R_CX -= 1;
-    if (M.x86.R_CX != 0 && ACCESS_FLAG(F_ZF))       /* CX != 0 and ZF */
+    if (M.x86.mode & SYSMODE_PREFIX_ADDR)
+        M.x86.R_ECX -= 1;
+    else
+        M.x86.R_CX -= 1;
+    if (((M.x86.mode & SYSMODE_PREFIX_ADDR) ? M.x86.R_ECX : M.x86.R_CX) != 0 &&
ACCESS_FLAG(F_ZF))      /* (E)CX != 0 and ZF */
        M.x86.R_IP = ip;
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
@@ -4062,8 +4130,11 @@
    ip += (s16) M.x86.R_IP;
    DECODE_PRINTF2("%04x\n", ip);
    TRACE_AND_STEP();
-    M.x86.R_CX -= 1;
-    if (M.x86.R_CX != 0)
+    if (M.x86.mode & SYSMODE_PREFIX_ADDR)
+        M.x86.R_ECX -= 1;
+    else
+        M.x86.R_CX -= 1;
+    if (((M.x86.mode & SYSMODE_PREFIX_ADDR) ? M.x86.R_ECX : M.x86.R_CX) != 0)      /* (E)CX != 0 */
        M.x86.R_IP = ip;
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
@@ -4085,8 +4156,10 @@
    target = (u16)(M.x86.R_IP + offset);
    DECODE_PRINTF2("%x\n", target);
    TRACE_AND_STEP();
-    if (M.x86.R_CX == 0)
+    if (M.x86.R_CX == 0) {
        M.x86.R_IP = target;
+ JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, M.x86.R_CS, M.x86.R_IP, " CXZ ");
+    }
    DECODE_CLEAR_SEGOVR();
    END_OF_INSTR();
}
@@ -4213,6 +4286,7 @@
    ip = (s16)fetch_word_imm();
    ip += (s16)M.x86.R_IP;
```

```
   DECODE_PRINTF2("%04x\n", ip);
+    JMP_TRACE(M.x86.saved_cs,
 M.x86.saved_ip, M.x86.R_CS, ip, " NEAR ");
   TRACE_AND_STEP();
   M.x86.R_IP = (u16)ip;
   DECODE_CLEAR_SEGOVR();
@@ -4233,6 +4307,7 @@
   cs = fetch_word_imm();
   DECODE_PRINTF2("%04x:", cs);
   DECODE_PRINTF2("%04x\n", ip);
+    JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, cs, ip, " FAR ");
   TRACE_AND_STEP();
   M.x86.R_IP = ip;
   M.x86.R_CS = cs;
@@ -4254,6 +4329,7 @@
   offset = (s8)fetch_byte_imm();
   target = (u16)(M.x86.R_IP + offset);
   DECODE_PRINTF2("%x\n", target);
+    JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, M.x86.R_CS, target, " BYTE ");
   TRACE_AND_STEP();
   M.x86.R_IP = target;
   DECODE_CLEAR_SEGOVR();
@@ -4357,6 +4433,8 @@
   DECODE_PRINTF("REPNE\n");
   TRACE_AND_STEP();
   M.x86.mode |= SYSMODE_PREFIX_REPNE;
+    if (M.x86.mode & SYSMODE_PREFIX_ADDR)
+        M.x86.mode |= SYSMODE_32BIT_REP;
   DECODE_CLEAR_SEGOVR();
   END_OF_INSTR();
 }
@@ -4371,6 +4449,8 @@
   DECODE_PRINTF("REPE\n");
   TRACE_AND_STEP();
    M.x86.mode |= SYSMODE_PREFIX_REPE;
+    if (M.x86.mode & SYSMODE_PREFIX_ADDR)
+        M.x86.mode |= SYSMODE_32BIT_REP;
   DECODE_CLEAR_SEGOVR();
   END_OF_INSTR();
 }
@@ -5013,12 +5093,14 @@
           break;
       case 4:         /* jmp word ptr ... */
           destval = fetch_data_word(destoffset);
+            JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, M.x86.R_CS, destval, " WORD ");
           TRACE_AND_STEP();
           M.x86.R_IP = destval;
           break;
```

```
        case 5:         /* jmp far ptr ... */
           destval = fetch_data_word(destoffset);
           destval2 = fetch_data_word(destoffset + 2);
+            JMP_TRACE(M.x86.saved_cs, M.x86.saved_ip, destval2, destval, " FAR ");
           TRACE_AND_STEP();
           M.x86.R_IP = destval;
           M.x86.R_CS = destval2;
Index: prim_ops.c
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/prim_ops.c,v
retrieving revision
 1.1
retrieving revision 1.3
diff -u -u -r1.1 -r1.3
--- prim_ops.c 7 Sep 2007 10:01:21 -0000 1.1
+++ prim_ops.c 16 Jan 2008 14:18:15 -0000 1.3
@@ -1921,7 +1921,7 @@
void imul_long_direct(u32 *res_lo, u32* res_hi,u32 d, u32 s)
{
#ifdef  __HAS_LONG_LONG__
-    s64 res = (s64)d * (s64)s;
+    s64 res = (s64)(s32)d * (s64)(s32)s;

    *res_lo = (u32)res;
    *res_hi = (u32)(res >> 32);
@@ -2013,7 +2013,7 @@
void mul_long(u32 s)
{
#ifdef  __HAS_LONG_LONG__
-    u64 res = (u32)M.x86.R_EAX * (u32)s;
+    u64 res = (u64)M.x86.R_EAX * s;

    M.x86.R_EAX = (u32)res;
    M.x86.R_EDX = (u32)(res >> 32);
@@ -2312,16 +2312,15 @@
    }
    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
        /* dont care whether REPE or REPNE */
-        /* in until CX is ZERO. */
-        u32 count = ((M.x86.mode & SYSMODE_PREFIX_DATA) ?
+        /* in until (E)CX is ZERO. */
+        u32 count = ((M.x86.mode & SYSMODE_32BIT_REP) ?
                     M.x86.R_ECX : M.x86.R_CX);
-
         while (count--) {
          single_in(size);
          M.x86.R_DI += inc;
          }
```

```
       M.x86.R_CX = 0;
-       if (M.x86.mode & SYSMODE_PREFIX_DATA) {
+       if (M.x86.mode & SYSMODE_32BIT_REP) {
          M.x86.R_ECX = 0;
        }
       M.x86.mode &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
@@ -2355,15 +2354,15 @@
    }
    if (M.x86.mode & (SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE)) {
       /* dont care whether REPE or REPNE */
-       /* out until CX is ZERO. */
-       u32 count = ((M.x86.mode & SYSMODE_PREFIX_DATA) ?
+       /* out until (E)CX is ZERO. */
+       u32 count = ((M.x86.mode & SYSMODE_32BIT_REP) ?
                M.x86.R_ECX : M.x86.R_CX);
       while (count--) {
         single_out(size);
         M.x86.R_SI += inc;
         }
       M.x86.R_CX = 0;
-       if (M.x86.mode & SYSMODE_PREFIX_DATA) {
+       if (M.x86.mode & SYSMODE_32BIT_REP) {
          M.x86.R_ECX = 0;
        }
       M.x86.mode
 &= ~(SYSMODE_PREFIX_REPE | SYSMODE_PREFIX_REPNE);
Index: sys.c
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/sys.c,v
retrieving revision 1.1
retrieving revision 1.2
diff -u -u -r1.1 -r1.2
--- sys.c 7 Sep 2007 10:01:21 -0000 1.1
+++ sys.c 7 Sep 2007 10:03:13 -0000 1.2
@@ -45,11 +45,6 @@
#include <x86emu/regs.h>
#include "debug.h"
#include "prim_ops.h"
-#ifdef LINUXBIOS_VERSION
-#include "io.h"
-#else
-#include <sys/io.h>
-#endif

#ifdef IN_MODULE
#include "xf86_ansic.h"
@@ -220,7 +215,7 @@
{
```

```
 DB(if (DEBUG_IO_TRACE())
  printk("inb %#04x \n", addr);)
- return inb(addr);
+ return 0;
}

/*****************************************************************************
@@ -235,7 +230,7 @@
{
 DB(if (DEBUG_IO_TRACE())
  printk("inw %#04x \n", addr);)
- return inw(addr);
+ return 0;
}

/*****************************************************************************
@@ -250,7 +245,7 @@
{
 DB(if (DEBUG_IO_TRACE())
   printk("inl %#04x \n", addr);)
- return inl(addr);
+ return 0;
}

/*****************************************************************************
@@ -264,7 +259,6 @@
{
 DB(if (DEBUG_IO_TRACE())
  printk("outb %#02x -> %#04x \n", val, addr);)
- outb(val, addr);
 return;
}

@@ -279,7 +273,6 @@
{
 DB(if (DEBUG_IO_TRACE())
  printk("outw %#04x -> %#04x \n", val, addr);)
- outw(val, addr);
 return;
}

@@ -295,7 +288,6 @@
 DB(if (DEBUG_IO_TRACE())
       printk("outl %#08x -> %#04x \n", val, addr);)

- outl(val, addr);
 return;
}
```

```
@@ -405,6 +397,6 @@

void X86EMU_setMemBase(void *base, size_t size)
{
- M.mem_base = (int) base;
+ M.mem_base = (unsigned long) base;
 M.mem_size = size;
}
Index: include/x86emu/debug.h
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/include/x86emu/debug.h,v
retrieving revision 1.1
retrieving revision 1.4
diff -u -u -r1.1 -r1.4
--- include/x86emu/debug.h 7
 Sep 2007 10:01:21 -0000 1.1
+++ include/x86emu/debug.h 20 Mar 2008 15:25:27 -0000 1.4
@@ -40,8 +40,6 @@
#ifndef __X86EMU_DEBUG_H
#define __X86EMU_DEBUG_H

-//#define DEBUG 0
-#undef DEBUG
/*---------------------- Macros and type definitions ----------------------*/

/* checks to be enabled for "runtime" */
@@ -78,6 +76,8 @@
# define DEBUG_SYSINT()        (M.x86.debug & DEBUG_SYSINT_F)
# define DEBUG_TRACECALL()     (M.x86.debug & DEBUG_TRACECALL_F)
# define DEBUG_TRACECALLREGS()  (M.x86.debug & DEBUG_TRACECALL_REGS_F)
+# define DEBUG_TRACEJMP()      (M.x86.debug & DEBUG_TRACEJMP_F)
+# define DEBUG_TRACEJMPREGS()   (M.x86.debug & DEBUG_TRACEJMP_REGS_F)
# define DEBUG_SYS()           (M.x86.debug & DEBUG_SYS_F)
# define DEBUG_MEM_TRACE()     (M.x86.debug & DEBUG_MEM_TRACE_F)
# define DEBUG_IO_TRACE()      (M.x86.debug & DEBUG_IO_TRACE_F)
@@ -96,6 +96,8 @@
# define DEBUG_SYSINT()        0
# define DEBUG_TRACECALL()     0
# define DEBUG_TRACECALLREGS()  0
+# define DEBUG_TRACEJMP()
      0
+# define DEBUG_TRACEJMPREGS()   0
# define DEBUG_SYS()           0
# define DEBUG_MEM_TRACE()     0
# define DEBUG_IO_TRACE()      0
@@ -169,14 +171,20 @@
  x86emu_dump_regs();                             \
```

```
 if (DEBUG_TRACECALL())                                  \
  printk("%04x:%04x: CALL %s%04x:%04x\n", u , v, s, w, x);
-# define RETURN_TRACE(n,u,v)                             \
+# define RETURN_TRACE(u,v,w,x,s)                         \
 if (DEBUG_TRACECALLREGS())        \
  x86emu_dump_regs();                                    \
 if (DEBUG_TRACECALL())                                  \
-  printk("%04x:%04x: %s\n",u,v,n);
+  printk("%04x:%04x: RET %s %04x:%04x\n",u,v,s,w,x);
+# define  JMP_TRACE(u,v,w,x,s)                          \
+   if (DEBUG_TRACEJMPREGS()) \
+      x86emu_dump_regs(); \
+   if (DEBUG_TRACEJMP()) \
+      printk("%04x:%04x: JMP %s%04x:%04x\n", u , v, s, w, x);
#else
# define CALL_TRACE(u,v,w,x,s)
-#
 define RETURN_TRACE(n,u,v)
+# define RETURN_TRACE(u,v,w,x,s)
+# define  JMP_TRACE(u,v,w,x,s)
#endif

#ifdef DEBUG
Index: include/x86emu/regs.h
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/include/x86emu/regs.h,v
retrieving revision 1.1
retrieving revision 1.4
diff -u -u -r1.1 -r1.4
--- include/x86emu/regs.h 7 Sep 2007 10:01:21 -0000 1.1
+++ include/x86emu/regs.h 15 Jan 2008 13:46:40 -0000 1.4
@@ -231,6 +231,9 @@
#define SYSMODE_PREFIX_REPNE    0x00000100
#define SYSMODE_PREFIX_DATA     0x00000200
#define SYSMODE_PREFIX_ADDR     0x00000400
+//phueper: for REP(E|NE) Instructions, we need to decide wether it should be using
+//the 32bit ECX register as or the 16bit CX register as count register
+#define SYSMODE_32BIT_REP       0x00000800
#define SYSMODE_INTR_PENDING    0x10000000
#define SYSMODE_EXTRN_INTR      0x20000000
#define SYSMODE_HALTED          0x40000000
@@ -250,7 +253,8 @@
       SYSMODE_SEGOVR_GS     | \
      SYSMODE_SEGOVR_SS     | \
      SYSMODE_PREFIX_DATA    | \
-      SYSMODE_PREFIX_ADDR)
+       SYSMODE_PREFIX_ADDR    | \
+       SYSMODE_32BIT_REP)
```

```
#define  INTR_SYNCH          0x1
#define  INTR_ASYNCH         0x2
@@ -274,9 +278,9 @@
     */
    u32                     mode;
    volatile int              intr;   /* mask of pending interrupts */
- int                    debug;
+    volatile int                    debug;
#ifdef DEBUG
- int                    check;
+    int                     check;
    u16                     saved_ip;
    u16                     saved_cs;
    int                     enc_pos;
Index: include/x86emu/x86emu.h
===================================================================
RCS file: /cvs/osdf/cvs/host/other-licence/x86emu/include/x86emu/x86emu.h,v
retrieving revision 1.1
retrieving revision 1.3
diff -u -u -r1.1 -r1.3
--- include/x86emu/x86emu.h 7 Sep 2007 10:01:21
 -0000 1.1
+++ include/x86emu/x86emu.h 19 Oct 2007 08:42:15 -0000 1.3
@@ -47,6 +47,7 @@
#include <console.h>
#define printk(x...) printk(BIOS_DEBUG, x)
#else
+#include <stdio.h>
#define printk printf
#endif

@@ -189,6 +181,8 @@
#define DEBUG_TRACECALL_REGS_F  0x004000
#define DEBUG_DECODE_NOPRINT_F  0x008000
#define DEBUG_SAVE_IP_CS_F      0x010000
+#define DEBUG_TRACEJMP_F        0x020000
+#define DEBUG_TRACEJMP_REGS_F   0x040000
#define DEBUG_SYS_F             (DEBUG_SVC_F|DEBUG_FS_F|DEBUG_PROC_F)

void  X86EMU_trace_regs(void);
@@ -200,5 +194,4 @@
#ifdef  __cplusplus
}                       /* End of "C" linkage for C++    */
#endif
-
#endif /* __X86EMU_X86EMU_H */
```

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believe the goal of allowing libfdt to be widely used is more
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libfdt by keeping the license terms simple and familiar to be the more
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David Gibson <david@gibson.dropbear.id.au>
(principal original author of dtc and libfdt)

2 November 2007
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John R. Hauser
2018 January 20

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Key Dates
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* August 3, 2017

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Version 1.0 covers source code files. Version 1.1 is a
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To make a contribution to a TianoCore project, follow these steps.

1. Create a change description in the format specified below to
use in the source control commit log.
2. Your commit message must include your "Signed-off-by" signature,
and "Contributed-under" message.
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===
= Change Description / Commit Message / Patch Email =
===

Your change description should use the standard format for a
commit message, and must include
your "Signed-off-by" signature
and the "Contributed-under" message.

== Sample Change Description / Commit Message =

=== Start of sample patch email message ===

From: Contributor Name <contributor@example.com>
Subject: [Repository/Branch PATCH] Module: Brief-single-line-summary

Full-commit-message

Contributed-under: TianoCore Contribution Agreement 1.1
Signed-off-by: Contributor Name <contributor@example.com>

An extra message for the patch email which will not be considered part
of the commit message can be added here.

Patch content inline or attached

=== End of sample patch email message ===

=== Notes for sample patch email ===

* The first line of commit message is taken from the email's subject
  line following [Repository/Branch PATCH]. The remaining portion of the
  commit message is the email's content until the '---' line.
* git format-patch is one way to create this format

=== Definitions
for sample patch email ===

* "Repository" is the identifier of the repository the patch applies.
  This identifier should only be provided for repositories other than
  'edk2'. For example 'edk2-BuildSpecification' or 'staging'.
* "Branch" is the identifier of the branch the patch applies. This
  identifier should only be provided for branches other than 'edk2/master'.
  For example 'edk2/UDK2015', 'edk2-BuildSpecification/release/1.27', or

'staging/edk2-test'.
* "Module" is a short identifier for the affected code or documentation. For
example 'MdePkg', 'MdeModulePkg/UsbBusDxe', 'Introduction', or
'EDK II INF File Format'.
* "Brief-single-line-summary" is a short summary of the change.
* The entire first line should be less than ~70 characters.
* "Full-commit-message" a verbose multiple line comment describing
the change. Each line should be less than ~70 characters.
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of which You are personally aware, and conspicuously marking the
work as "Submitted on behalf of a third-party: [named here]".

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support to be provided, unless otherwise noted, shall be in the
English language.

Contributions.txt: TianoCore Contribution Agreement 1.0

==========
= Code Contributions =
==========

To make a contribution to a TianoCore project, follow these steps.
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use in the source control commit log.
2. Your commit message must include your "Signed-off-by" signature,
and "Contributed-under"
message.
3. Your "Contributed-under" message explicitly states that the
contribution is made under the terms of the specified
contribution agreement. Your "Contributed-under" message
must include the name of contribution agreement and version.
For example: Contributed-under: TianoCore Contribution Agreement 1.0
The "TianoCore Contribution Agreement" is included below in
this document.
4. Submit your code to the TianoCore project using the process
that the project documents on its web page. If the process is
not documented, then submit the code on development email list
for the project.
5. It is preferred that contributions are submitted using the same
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Contributions using other licenses might be accepted, but further
review will be required.

```
=====================================================
= Change Description / Commit Message / Patch Email =
=====================================================
```

Your change description should use the standard format for a
commit message, and must include your "Signed-off-by" signature
and the "Contributed-under" message.

== Sample Change Description / Commit Message =

=== Start of sample patch email message ===

From: Contributor Name <contributor@example.com>
Subject: [PATCH] CodeModule: Brief-single-line-summary

Full-commit-message

Contributed-under:
TianoCore Contribution Agreement 1.0
Signed-off-by: Contributor Name <contributor@example.com>

An extra message for the patch email which will not be considered part
of the commit message can be added here.

Patch content inline or attached

=== End of sample patch email message ===

=== Notes for sample patch email ===

* The first line of commit message is taken from the email's subject
  line following [PATCH]. The remaining portion of the commit message
  is the email's content until the '---' line.
* git format-patch is one way to create this format

=== Definitions for sample patch email ===

* "CodeModule" is a short idenfier for the affected code. For
example MdePkg, or MdeModulePkg UsbBusDxe.
* "Brief-single-line-summary" is a short summary of the change.
* The entire first line should be less than ~70 characters.
* "Full-commit-message" a verbose multiple line comment describing
the change.
Each line should be less than ~70 characters.
* "Contributed-under" explicitely states that the contribution is
made under the terms of the contribtion agreement. This
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* "Signed-off-by" is the contributor's signature identifying them
by their real/legal name and their email address.

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of which You are personally aware, and conspicuously marking the
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==> edk2/License-History.txt <==

License-History.txt

==========

This file contains the history of license change and contributor's agreement changes.

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the terms listed in the License.txt file. Terms under which Contributions made prior to the move to the License.txt formulation are shown below. Those terms require notice of the terms themselves be preserved and presented with the contributions. This file serves that preservation purpose as a matter of documenting the history of the project.

Key Dates

---

* August 3, 2017

Update the TianoCore Contribution Agreement from Version 1.0
to Version 1.1 to cover open source documentation associated
with the TianoCore project.

Version 1.0 covers source code files. Version 1.1 is a
backwards compatible extension that adds support for document
files in both source form and compiled form.

References:

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Complete text of TianoCore Contribution Agreement 1.1 included below

Proposals (RFCs):
https://lists.01.org/pipermail/edk2-devel/2017-March/008654.html

TianoCore Bugzilla:
https://bugzilla.tianocore.org/show_bug.cgi?id=629

* April 9, 2019

Replace BSD 2-Clause License with BSD + Patent License removing the need for
the TianoCore Contribution Agreement.

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Proposals (RFCs):
https://lists.01.org/pipermail/edk2-devel/2019-February/036260.html
https://lists.01.org/pipermail/edk2-devel/2019-March/037500.html

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ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
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==========

= Code Contributions =

==========

To make a contribution to a TianoCore project, follow these steps.

1. Create a change description in the format specified below to
use in the source control commit log.

2. Your commit message must include your "Signed-off-by" signature,
and "Contributed-under" message.

3. Your "Contributed-under" message
explicitly states that the
contribution is made under the terms of the specified
contribution agreement. Your "Contributed-under" message
must include the name of contribution agreement and version.
For example: Contributed-under: TianoCore Contribution Agreement 1.1
The "TianoCore Contribution Agreement" is included below in
this document.

4. Submit your code to the TianoCore project using the process
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accepted.

Contributions using other licenses might be accepted, but further

review will be required.

```
=====================================================
= Change Description / Commit Message / Patch Email =
=====================================================

Your change description should use the standard format for a
commit message, and must include your "Signed-off-by" signature
and the "Contributed-under" message.

== Sample Change Description / Commit Message =

=== Start of sample patch email message ===

From: Contributor Name <contributor@example.com>
Subject: [Repository/Branch
PATCH] Module: Brief-single-line-summary

Full-commit-message

Contributed-under: TianoCore Contribution Agreement 1.1
Signed-off-by: Contributor Name <contributor@example.com>
---

An extra message for the patch email which will not be considered part
of the commit message can be added here.

Patch content inline or attached

=== End of sample patch email message ===

=== Notes for sample patch email ===

* The first line of commit message is taken from the email's subject
  line following [Repository/Branch PATCH]. The remaining portion of the
  commit message is the email's content until the '---' line.
* git format-patch is one way to create this format

=== Definitions for sample patch email ===

* "Repository" is the identifier of the repository the patch applies.
  This identifier should only be provided for repositories other than
  'edk2'. For example 'edk2-BuildSpecification' or 'staging'.
* "Branch" is
the identifier of the branch the patch applies. This
  identifier should only be provided for branches other than 'edk2/master'.
  For example 'edk2/UDK2015', 'edk2-BuildSpecification/release/1.27', or
  'staging/edk2-test'.
```

* "Module" is a short identifier for the affected code or documentation. For
  example 'MdePkg', 'MdeModulePkg/UsbBusDxe', 'Introduction', or
  'EDK II INF File Format'.
* "Brief-single-line-summary" is a short summary of the change.
* The entire first line should be less than ~70 characters.
* "Full-commit-message" a verbose multiple line comment describing
  the change. Each line should be less than ~70 characters.
* "Contributed-under" explicitly states that the contribution is
  made under the terms of the contribution agreement. This
  agreement is included below in this document.
* "Signed-off-by" is the contributor's signature identifying them
  by their real/legal name and their email address.

==========
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==========

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of which You are personally aware, and conspicuously marking the
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For example: Contributed-under: TianoCore Contribution Agreement 1.0
The "TianoCore Contribution Agreement" is included below in
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== Sample Change Description / Commit Message =

=== Start of sample patch email message ===

From: Contributor Name <contributor@example.com>
Subject: [PATCH] CodeModule: Brief-single-line-summary

Full-commit-message

Contributed-under: TianoCore Contribution Agreement 1.0
Signed-off-by: Contributor Name <contributor@example.com>
---

An extra message for the patch email which will not be considered part
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Patch content inline or
attached

=== End of sample patch email message ===

=== Notes for sample patch email ===

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* git format-patch is one way to create this format

=== Definitions for sample patch email ===
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* "CodeModule" is a short idenfier for the affected code. For
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John R. Hauser
2018 January 20

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{ TARGET_FREEBSD_NR___acl_aclcheck_fd, "__acl_aclcheck_fd", "%s(%d, %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_aclcheck_file, "__acl_aclcheck_file", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_aclcheck_link, "__acl_aclcheck_link", "%s(\"%s\", %d, %#x)", NULL, NULL
},
{ TARGET_FREEBSD_NR___acl_delete_fd,
 "__acl_delete_fd", "%s(%d, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_delete_file, "__acl_delete_file", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_delete_link, "__acl_delete_link", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_get_fd, "__acl_get_fd", "%s(%d, %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_get_file, "__acl_get_file", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_get_link, "__acl_get_link", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_set_fd, "__acl_set_fd", "%s(%d, %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_set_file, "__acl_set_file", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___acl_set_link, "__acl_set_link", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR___semctl, "__semctl", NULL, NULL, NULL },
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{ TARGET_FREEBSD_NR___syscall, "__syscall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR___sysctl, "__sysctl", NULL, print_sysctl, NULL },
{ TARGET_FREEBSD_NR__umtx_op,
 "_umtx_op", "%s(%#x, %d, %d, %#x, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_accept, "accept", "%s(%d,%#x,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_access, "access", "%s(\"%s\",%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_acct, "acct", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_adjtime, "adjtime", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_bind, "bind", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_break, "break", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_chdir, "chdir", "%s(\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_chflags, "chflags", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_chmod, "chmod", "%s(\"%s\",%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_chown, "chown", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_chroot, "chroot", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_clock_getres, "clock_getres", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_clock_gettime, "clock_gettime", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_clock_settime, "clock_settime", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_close, "close", "%s(%d)", NULL,
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{ TARGET_FREEBSD_NR_connect, "connect", "%s(%d,%#x,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_dup, "dup", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_dup2, "dup2", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_eaccess, "eaccess", "%s(\"%s\",%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_execve, "execve", NULL, print_execve, NULL },
{ TARGET_FREEBSD_NR_exit, "exit", "%s(%d)\n", NULL, NULL },
{ TARGET_FREEBSD_NR_extattrctl, "extattrctl", "%s(\"%s\", %d, \"%s\", %d, \"%s\"", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_delete_fd, "extattr_delete_fd", "%s(%d, %d, \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_delete_file, "extattr_delete_file", "%s(\"%s\", %d, \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_delete_link, "extattr_delete_link", "%s(\"%s\", %d, \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_get_fd, "extattr_get_fd", "%s(%d, %d, \"%s\", %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_get_file, "extattr_get_file", "%s(\"%s\", %d, \"%s\", %#x, %d)", NULL, NULL
},
{ TARGET_FREEBSD_NR_extattr_get_file,
 "extattr_get_link", "%s(\"%s\", %d, \"%s\", %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_list_fd, "extattr_list_fd", "%s(%d, %d, %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_list_file, "extattr_list_file", "%s(\"%s\", %d, %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_list_link, "extattr_list_link", "%s(\"%s\", %d, %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_set_fd, "extattr_set_fd", "%s(%d, %d, \"%s\", %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_extattr_set_file, "extattr_set_file", "%s(\"%s\", %d, \"%s\", %#x, %d)", NULL, NULL
},
{ TARGET_FREEBSD_NR_extattr_set_link, "extattr_set_link", "%s(\"%s\", %d, \"%s\", %#x, %d)", NULL,
NULL },
{ TARGET_FREEBSD_NR_fchdir, "fchdir", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_fchflags, "fchflags", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_fchmod, "fchmod", "%s(%d,%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_fchown, "fchown", "%s(%d,%d,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_fcntl, "fcntl", NULL,
```

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 NULL, NULL },
{ TARGET_FREEBSD_NR_fexecve, "fexecve", NULL, print_execve, NULL },
{ TARGET_FREEBSD_NR_fhopen, "fhopen", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_fhstat, "fhstat", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_fhstatfs, "fhstatfs", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_flock, "flock", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_fork, "fork", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_fpathconf, "fpathconf", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_fstat, "fstat", "%s(%d,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_fstatat, "fstatat", "%s(%d,\"%s\", %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_fstatfs, "fstatfs", "%s(%d,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_fsync, "fsync", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_ftruncate, "ftruncate", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_futimes, "futimes", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getcontext, "getcontext", "%s(%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_getdirentries, "getdirentries", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_freebsd6_mmap,
 "freebsd6_mmap", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getegid, "getegid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_geteuid, "geteuid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getfh, "getfh", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getfsstat, "getfsstat", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getgid, "getgid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getgroups, "getgroups", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getitimer, "getitimer", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getlogin, "getlogin", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getpeername, "getpeername", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getpgid, "getpgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getpgrp, "getpgrp", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getpid, "getpid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getppid, "getppid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getpriority, "getpriority", "%s(%#x,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_getresgid, "getresgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getresuid,
 "getresuid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getrlimit, "getrlimit", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getrusage, "getrusage", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getsid, "getsid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getsockname, "getsockname", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getsockopt, "getsockopt", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_gettimeofday, "gettimeofday", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getuid, "getuid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_ioctl, "ioctl", NULL, print_ioctl, NULL },
{ TARGET_FREEBSD_NR_issetugid, "issetugid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_kevent, "kevent", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_kill, "kill", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_kqueue, "kqueue", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_ktrace, "ktrace", NULL, NULL, NULL },
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{ TARGET_FREEBSD_NR_lchown, "lchown", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_link, "link", "%s(\"%s\",\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_listen,
 "listen", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_lpathconf, "lpathconf", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_lseek, "lseek", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_lstat, "lstat", "%s(\"%s\",%p)", NULL, NULL },
{ TARGET_FREEBSD_NR_madvise, "madvise", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mincore, "mincore", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_minherit, "minherit", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mkdir, "mkdir", "%s(\"%s\",%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_mkfifo, "mkfifo", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mknod, "mknod", "%s(\"%s\",%#o,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_mlock, "mlock", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mlockall, "mlockall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mmap, "mmap", NULL, NULL, print_syscall_ret_addr },
{ TARGET_FREEBSD_NR_mount, "mount", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mprotect, "mprotect", "%s(%#x,%#x,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_msgctl, "msgctl", NULL, NULL, NULL
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{ TARGET_FREEBSD_NR_msgget, "msgget", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_msgrcv, "msgrcv", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_msgsnd, "msgsnd", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_msync, "msync", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_munlock, "munlock", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_munlockall, "munlockall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_munmap, "munmap", "%s(%p,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_nanosleep, "nanosleep", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_nfssvc, "nfssvc", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_open, "open", "%s(\"%s\",%#x,%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_openat, "openat", "%s(%d, \"%s\",%#x,%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_pathconf, "pathconf", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_pipe, "pipe", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_poll, "poll", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_pread, "pread", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_preadv, "preadv", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_profil,
 "profil", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_ptrace, "ptrace", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_pwrite, "pwrite", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_pwritev, "pwritev", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_quotactl, "quotactl", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_read, "read", "%s(%d,%#x,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_readlink, "readlink", "%s(\"%s\",%p,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_readv, "readv", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_reboot, "reboot", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_recvfrom, "recvfrom", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_recvmsg, "recvmsg", NULL, NULL, NULL },
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```
{ TARGET_FREEBSD_NR_rename, "rename", "%s(\"%s\",\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_revoke, "revoke", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rfork, "rfork", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rmdir, "rmdir", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rtprio_thread, "rtprio_thread", "%s(%d, %d, %p)", NULL, NULL },
{ TARGET_FREEBSD_NR_sbrk,
 "sbrk", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sched_yield, "sched_yield", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_select, "select", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_semget, "semget", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_semop, "semop", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sendmsg, "sendmsg", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sendto, "sendto", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setcontext, "setcontext", "%s(%#x)", NULL, NULL },
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{ TARGET_FREEBSD_NR_setlogin, "setlogin", NULL, NULL, NULL },
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{ TARGET_FREEBSD_NR_setrlimit, "setrlimit", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setsid, "setsid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setsockopt, "setsockopt", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_settimeofday, "settimeofday", NULL, NULL, NULL },
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{ TARGET_FREEBSD_NR_shmat, "shmat", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmctl, "shmctl", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmdt, "shmdt", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmget, "shmget", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shutdown, "shutdown", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigaction, "sigaction", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigaltstack, "sigaltstack", "%s(%p,%p)", NULL, NULL },
{ TARGET_FREEBSD_NR_sigpending,
 "sigpending", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigprocmask, "sigprocmask", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigreturn, "sigreturn", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigsuspend, "sigsuspend", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_socket, "socket", "%s(%d,%d,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_socketpair, "socketpair", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sstk, "sstk", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_stat, "stat", "%s(\"%s\",%p)", NULL, NULL },
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{ TARGET_FREEBSD_NR_statfs, "statfs", "%s(\"%s\",%p)", NULL, NULL },
{ TARGET_FREEBSD_NR_symlink, "symlink", "%s(\"%s\",\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_sync, "sync", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sysarch, "sysarch", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_syscall, "syscall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_thr_create, "thr_create", "%s(%#x, %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_exit, "thr_exit", "%s(%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_kill, "thr_kill", "%s(%d,
%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_kill2, "thr_kill2", "%s(%d, %d, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_new, "thr_new", "%s(%#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_self, "thr_self", "%s(%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_set_name, "thr_set_name", "%s(%d, \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_suspend, "thr_suspend", "%s(%d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_wake, "thr_wake", "%s(%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_truncate, "truncate", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_umask, "umask", "%s(%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_unlink, "unlink", "%s(\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_unmount, "unmount", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_utimes, "utimes", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_vfork, "vfork", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_wait4, "wait4", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_write, "write", "%s(%d,%#x,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_writev, "writev", "%s(%d,%p,%#x)",
NULL, NULL },
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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires
that any
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John R. Hauser
2018 January 20

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1.406 rasdaemon 0.6.6

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