Cisco Systems
Cisco UCS C460 M4 (Intel Xeon E7-4890 v2 @ 2.80GHz)

SPECint\textsuperscript{\textregistered}\_rate\textsubscript{2006} = Not Run
SPECint\textsubscript{rate}\_base\textsubscript{2006} = 2320

CPU\textsubscript{2006} license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Feb-2014
Hardware Availability: Apr-2014
Software Availability: Sep-2013

400.perlbench 120 1870
401.bzip2 120 1210
403.gcc 120 1710
429.mcf 120 3110
445.gobmk 120 1870
456.hmmer 120 3390
458.sjeng 120 1830
462.libquantum 120 16500
464.h264ref 120 3200
471.omnetpp 120 1060
473.astar 120 1280
483.xalancbmk 120 2420

SPECint\textsubscript{rate}\_base\textsubscript{2006} = 2320

Hardware
CPU Name: Intel Xeon E7-4890 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz: 2800
FPU: Integrated
CPU(s) enabled: 60 cores, 4 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable: 1,2,3,4 Chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 MB I+D on chip per core
L3 Cache: 38400 KB I+D on chip per chip
Other Cache: None
Memory: 512 GB (64 x 8 GB 2Rx4 PC3-12800R-11, ECC, and CL11)
Disk Subsystem: 1 x 600 GB SAS SATA 15K RPM
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux Server release 6.4
(Santiago) 2.6.32-358.el6.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel: No
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0
SPEC CINT2006 Result

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Results Table

<table>
<thead>
<tr>
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</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

Power Technology set to Custom
CPU Power State C6 set to Enabled
CPU Power State C1 Enhanced set to Disabled
Package C State Limit set to C0/C1 State
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
LV DDR Mode set to Performance-mode
DRAM Refresh Rate Set to 1x
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Wed Feb 12 07:50:15 2014

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

Continued on next page
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**Platform Notes (Continued)**

From `/proc/cpuinfo`
- model name : Intel(R) Xeon(R) CPU E7-4890 v2 @ 2.80GHz
  - 4 "physical id"s (chips)
  - 120 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from `/proc/cpuinfo` might not be reliable. Use with caution.)
  - cpu cores : 15
  - siblings : 30
  - physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  - physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  - physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  - physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
- cache size : 38400 KB

From `/proc/meminfo`
- MemTotal: 529134384 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

From `/etc/*release* /etc/*version*`
- redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
- system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

```
uname -a:
Linux localhost.localdomain 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Feb 12 07:42
```

```
SPEC is set to: /opt/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 549G 13G 509G 3% /
```

**Additional information from dmidecode:**
- BIOS Cisco Systems, Inc. C460M4.1.5.5.14.020620141111 02/06/2014
- Memory:
  - 64x 8 GB
  - 64x 0xCE00 M393B1K70QB0-YK0 8 GB 1333 MHz 2 rank
  - 32x NO DIMM NO DIMM

(End of data from sysinfo program)
**Cisco Systems**

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### General Notes

Environment variables set by runspec before the start of the run:

- `LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"`

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:
- `echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled`

Filesystem page cache cleared with:
- `echo 1> /proc/sys/vm/drop_caches`

Runspec command invoked through numactl i.e.:
- `numactl --interleave=all runspec <etc>`

### Base Compiler Invocation

- C benchmarks: `icc -m32`
- C++ benchmarks: `icpc -m32`

### Base Portability Flags

- 400.perlbench: `-DSPEC_CPU_LINUX_IA32`
- 462.libquantum: `-DSPEC_CPU_LINUX`
- 483.xalancbmk: `-DSPEC_CPU_LINUX`

### Base Optimization Flags

- C benchmarks:
  - `-xsse4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3`
- C++ benchmarks:
  - `-xsse4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3`
  - `-Wl,-z,muldefs -L/sh -lsmartheap`

### Base Other Flags

- C benchmarks:
  - `403.gcc: -Dalloca=_alloca`
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.