

Cisco 12000 系列互联网路由器线卡故障硬件故障排除

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更换实际上运行良好的硬件浪费了宝贵的时间和资源。本文帮助用Cisco 12000 Series Internet Router排除常见硬件问题故障，并且为识别提供指示器故障是否在硬件里。

Note: 本文不包括任何与软件相关的故障除了经常弄错作为硬件问题的那些。

[Prerequisites](#)

[Requirements](#)

本文档的读者应掌握以下这些主题的相关知识：

- [硬件故障检修Cisco 12000 Series Internet Router的](#)
- [Cisco 12000 系列互联网路由器线卡崩溃故障排除](#)

如果认为问题与硬件故障有关，本文可帮助您识别故障的原因。

[Components Used](#)

本文档中的信息基于以下软件和硬件版本：

- 所有 Cisco 12000 系列 Internet 路由器，包括 12008、12012、12016、12404、12406、12410 和 12416。
- 支持Cisco 12000 Series Internet Router的所有Cisco IOS软件版本。

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

[硬件软件兼容性与内存要求](#)

每当您配置一个新的线卡、模块或者Cisco IOS软件镜像，验证是重要的路由器是否有足够的内存，并且硬件与软件是与功能兼容您要使用。

完成这些推荐的步骤检查硬件软件兼容性与内存要求：

1. 请使用[软件顾问\(仅限注册用户\)](#)工具选择您的网络设备的软件。**提示：**[功能\(仅限注册用户\)](#)部分的[软件支持](#)帮助您确定选择需要的Cisco IOS软件镜像您希望实现功能的种类。
2. 请使用[下载软件地区\(仅限注册用户\)](#)检查Cisco IOS软件(RAM和闪存)需要的最低的内存数量，并且/或者下载Cisco IOS软件镜像。要确定在您的路由器上(RAM和闪存)安装的内存数量，请参阅[如何选择Cisco IOS Software Release -内存需求](#)。**提示：**如果要保持功能和在您的路由器当前运行的版本一样，但是不知道哪个功能集您使用，请输入**show version**命令在您的Cisco设备，并且粘贴其在Output Interpreter工具的输出。您能使用[Output Interpreter \(仅限注册用户\)](#)显示潜在问题和修正。要使用[Output Interpreter \(仅限注册用户\)](#)，您必须是一个注册的用户，登陆，并且安排Javascript被启用。特别是如果计划使用最新软件功能，检查功能支持是重要的。如果需要升级Cisco IOS软件镜像到一个新版本或功能集，请参见[如何选择Cisco IOS Software Release](#)欲知更多信息。
3. 如果确定需要Cisco IOS软件升级，请跟随Cisco 12000 Series Router的[软件安装和升级流程](#)。**提示：**关于如何恢复在ROMmon滞留的Cisco 12000系列路由器的信息(rommon -> prompt)，请参阅[ROMmon恢复程序关于Cisco 12000](#)。

[Conventions](#)

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

[识别问题](#)

在此部分的信息帮助下，您能确定您面对与您的线卡的问题是否硬件相关的。

您需要做的第一件事是识别您遇到卡失败或控制台错误的原因。要看到哪个卡可能是应负责任的，重要的是您从这些命令收集输出：

- **show context summary**
- **show logging**
- **show logging summary**
- **show diag <slot>**
- **show context slot <slot>**

与这些一起特定**显示**命令，您必须也收集此信息：

- 控制台日志和系统日志信息：如果多种症状发生，这些可以是关键确定始发问题。如果路由器设置发送日志到系统日志服务器，您可能会看到关于发生什么的一些信息。对于控制台日志，直接地被连接到在控制台端口的路由器通过[系统消息日志记录](#)是最佳的。
- **show technical-support**：show technical-support命令是许多不同的命令的编译，并且包括**show version**，**show running-config**，并且**显示堆栈**。当路由器遇到问题时，Cisco技术支持中心(TAC)工程师通常请求此信息。收集**show technical-support**命令输出是重要的，在您重新载入或关机并重新开机您的设备前，因为这些动作能造成关于问题的所有信息丢失。

这是您能盼望发现的一些输出示例您的千兆路由处理器(GRP)或线卡是否失败了：

```
Router#show context summary
```

```
CRASH INFO SUMMARY
```

```
Slot 0 : 0 crashes
```

```
Slot 1 : 1 crashes
```

```
1 - crash at 10:36:20 UTC Wed Dec 19 2001
```

```
Slot 2 : 0 crashes
```

```
Slot 3 : 0 crashes
```

```
Slot 4 : 0 crashes
```

```
Slot 5 : 0 crashes
```

```
Slot 6 : 0 crashes
```

```
Slot 7 : 0 crashes
```

```
Slot 8 : 0 crashes
```

```
Slot 9 : 0 crashes
```

```
Slot 10: 0 crashes
```

```
Slot 11: 0 crashes
```

```
Slot 12: 0 crashes
```

```
Slot 13: 0 crashes
```

```
Slot 14: 0 crashes
```

```
Slot 15: 0 crashes
```

```
Router#show logging
```

```
Syslog logging: enabled (2 messages dropped, 0 messages rate-limited, 0 flushes,  
0 overruns)
```

```
Console logging: level debugging, 24112 messages logged
```

```
Monitor logging: level debugging, 0 messages logged
```

```
Buffer logging: level debugging, 24411 messages logged
```

```
Logging Exception size (4096 bytes)
```

Trap logging: level informational, 24452 message lines logged

5d16h: %LCINFO-3-CRASH: Line card in slot 1 crashed

5d16h: %GRP-4-RSTSLOT: Resetting the card in the slot: 1,Event: 38

5d16h: %IPCGRP-3-CMDOP: IPC command 3

5d16h: %CLNS-5-ADJCHANGE: ISIS: Adjacency to malachim2 (GigabitEthernet1/0) Up,

n8 (slot1/0): linecard is disabled

-Traceback=602ABCA8 602AD8B8 602B350C 602B3998 6034312C 60342290 601A2BC4 601A2BB0

5d16h: %LINK-5-CHANGED: Interface GigabitEthernet1/0, changed state to

administratively down

5d16h: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0,

changed state to down

5d16h: %GRP-3-CARVE_INFO: Setting mtu above 8192 may reduce available buffers

on Slot: 1.

SLOT 1:00:00:09: %SYS-5-RESTART: System restarted --

Cisco Internetwork Operating System Software

IOS (tmew adjacency) GS Software (GLC1-LC-M), Version 12.0(17)ST3,

EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

TAC Support: <http://www.cisco.com/tac>

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Compiled Thu 08-Nov-01 20:21 by dchih

5d16h: %GRPGE-6-AUTONEG_STATE: Interface GigabitEthernet1/0: Link OK -

autonegotiation complete

5d16h: %LINK-3-UPDOWN: Interface GigabitEthernet1/0, changed state to up

5d16h: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0,

changed state to up

Router#**show diag 1**

SLOT 1 (RP/LC 1): 3 Port Gigabit Ethernet

MAIN: type 68, 800-6376-01 rev E0 dev 0

HW config: 0x00 SW key: 00-00-00

PCA: 73-4775-02 rev E0 ver 2

HW version 2.0 S/N CAB0450G8FX

MBUS: Embedded Agent

Test hist: 0x00 RMA#: 00-00-00 RMA hist: 0x00

DIAG: Test count: 0x00000001 Test results: 0x00000000

FRU: Linecard/Module: 3GE-GBIC-SC=

Route Memory: MEM-GRP/LC-64=

Packet Memory: MEM-LC1-PKT-256=

L3 Engine: 2 - Backbone OC48 (2.5 Gbps)

MBUS Agent Software version 01.46 (RAM) (ROM version is 02.10)

Using CAN Bus A

ROM Monitor version 10.06

Fabric Downloader version used 05.01 (ROM version is 05.01)

Primary clock is CSC 0 Board is analyzed

Board State is Line Card Enabled (IOS RUN)

Insertion time: 00:00:10 (5d16h ago)

DRAM size: 67108864 bytes

FrFab SDRAM size: 134217728 bytes, SDRAM pagesize: 8192 bytes

ToFab SDRAM size: 134217728 bytes, SDRAM pagesize: 8192 bytes

1 crash since restart

Router#**show context slot 1**

CRASH INFO: Slot 1, Index 1, Crash at 10:36:20 UTC Wed DEC 19 2001
VERSION:

GS Software (GLC1-LC-M), Version 12.0(17)ST3,

EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

TAC Support: <http://www.cisco.com/tac>

Compiled Thu 08-Nov-01 20:21 by dchih

Card Type: 3 Port Gigabit Ethernet, S/N

System exception: sig=10, code=0x10, context=0x41036514

System restarted by a Bus Error exception

STACK TRACE:

-Traceback= 406914C8 4004EEAC 4005BCE4 400A33F4 400A33E0

CONTEXT:

\$0 : 00000000, AT : 41030000, v0 : 00000000, v1 : 41036290

a0 : 00000030, a1 : 412C6CA0, a2 : 00000000, a3 : 00000000

t0 : 00008100, t1 : 34008101, t2 : 400C5590, t3 : FFFF00FF

```
t4 : 400C5560, t5 : 00040000, t6 : 00000000, t7 : 413D1D78
s0 : FF012345, s1 : 00000031, s2 : 41032B10, s3 : 41BB8F00
s4 : 00000000, s5 : 00000001, s6 : 4101D620, s7 : 00000000
t8 : 418EA1C8, t9 : 00000000, k0 : 4142C7A0, k1 : 400C7538
gp : 40F57DC0, sp : 41BB8EE8, s8 : 41023740, ra : 406914C8
EPC : 0x406914C8, SREG : 0x34008103, Cause : 0x00000010
ErrorEPC : 0x400B3A5C
-Process Traceback= No Extra Traceback
SLOT 1:00:00:09: %SYS-5-RESTART: System restarted --

Cisco Internetwork Operating System Software
IOS (tm) GS Software (GLC1-LC-M), Version 12.0(17)ST3,
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Thu 08-Nov-01 20:21 by dchih

SLOT 1:20:18:09: %LCGE-6-GBIC_OIR: 3 Port Gigabit Ethernet GBIC
removed from port 2
SLOT 1:20:18:29: %LCGE-6-GBIC_OIR: 3 Port Gigabit Ethernet GBIC
inserted in port 2
SLOT 1:3d20h: %LCGE-6-GBIC_OIR: 3 Port Gigabit Ethernet GBIC
removed from port 2
SLOT 1:3d20h: %LCGE-6-GBIC_OIR: 3 Port Gigabit Ethernet GBIC
inserted in port 2
SLOT 1:00:00:09: %SYS-5-RESTART: System restarted --

Cisco Internetwork Operating System Software
IOS (TM) GS Software (GLC1-LC-M), Version 12.0(17)ST3,
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Thu 08-Nov-01 20:21 by dchi
```

[卡失败](#)

如果线卡失败了，并且识别失败的线卡，您当前需要确定事故的原因。show context <slot>命令 enable (event)的输出要执行此的您。示例如下：

```
Router#show context slot 2
```

```
CRASH INFO: Slot 2, Index 1, Crash at 12:24:22 MET Wed Nov 28 2001  
VERSION:
```

```
GS Software (GLC1-LC-M), Version 12.0(18)S1,
```

```
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
```

```
TAC Support: http://www.cisco.com/tac
```

```
Compiled Fri 07-Sep-01 20:13 by nmasa
```

```
Card Type: 3 Port Gigabit Ethernet, S/N
```

```
System exception: SIG=23, code=0x24, context=0x4103FE84
```

```
System restarted by a Software forced crash
```

```
STACK TRACE:
```

```
-Traceback= 400BEB08 40599554 4004FB64 4005B814 400A1694 400A1680
```

```
CONTEXT:
```

```
$0 : 00000000, AT : 41040000, v0 : 00000032, v1 : 4103FC00
```

```
a0 : 4005B0A4, a1 : 41400A20, a2 : 00000000, a3 : 00000000
```

```
t0 : 41D75220, t1 : 8000D510, t2 : 00000001, t3 : FFFF00FF
```

```
t4 : 400C2670, t5 : 00040000, t6 : 00000000, t7 : 4150A398
```

```
s0 : 0000003C, s1 : 00000036, s2 : 4103C4D0, s3 : 41D7EC60
```

```
s4 : 00000000, s5 : 00000001, s6 : 41027040, s7 : 00000000
```

```
t8 : 41A767B8, t9 : 00000000, k0 : 415ACE20, k1 : 400C4260
```

```
GP : 40F0DD00, SP : 41D7EC48, s8 : 4102D120, ra : 40599554
```

```
EPC : 0x400BEB08, SREG : 0x3400BF03, Cause : 0x00000024
```

```
ErrorEPC : 0x400C6698, BadVaddr : 0xFFBFFFFB
```

```
-Process Traceback= No Extra Traceback
```

```
SLOT 2:00:00:09: %SYS-5-RESTART: System restarted --
```

```
Cisco Internetwork Operating System Software
```

```
IOS (TM) GS Software (GLC1-LC-M), Version 12.0(18)S1,
```

```
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
```

```
TAC Support: http://www.cisco.com/tac
```

```
Copyright (c) 1986-2001 by cisco Systems, Inc.
```

```
Compiled Fri 07-Sep-01 20:13 by nmae
```

您能识别从“SIG=”值在show context slot <slot>命令输出中发生了的故障类型。参见[SIG代码表](#)关于详细资料。

这是在卡失败的三种常用类型提供更多信息的一些链路，并且解释如何排除他们故障：

- [软件强制的崩溃\(SIG=23\)](#)
- [总线错误\(SIG=10\)](#)
- [缓存奇偶校验异常\(SIG=20\)](#)

在的上面的例子中，线卡失败了由于“软件强制的崩溃”，并且，当名字建议，软件例外引起了重新加载。一旦确定了原因并且收集了必要的输出，使用[Bug Toolkit \(仅限注册用户\)](#)，您能检查在您的Cisco IOS软件版本的一个Bug。

[检查线卡的当前状态](#)

当您确定时间问题是否是在日志或实际失败的系统错误，您必须检查线卡的当前状态发现是否从发生的故障恢复。为了识别各自的线卡的状态，您能或者检查位于卡的前面的发光二极管(LED)，或者请发出show led命令。以下为示例输出：

```
Router#show led  
  
SLOT 1 : RUN IOS  
  
SLOT 6 : DNLD FABL  
  
SLOT 7 : RP ACTV  
  
SLOT 10 : RUN IOS  
  
SLOT 11 : RUN IOS  
  
SLOT 13 : RUN IOS  
  
SLOT 14 : RUN IOS
```

[表1](#)和[表2](#)描述您从此命令和他们的含义看到输出的常用类型。

Note: 被倒转LED的值是可能的。例如，IOS RUN可以显示作为RAN IOS。

表1 – RP LED状态和含义

RP LED状态	LED状态的含义
RP	RP运行Cisco IOS软件并且正确地作用
MSTR RP	RP作为主要的GRP
SLAV RP	RP作为从GRP
RP ACTV	RP作为主要的GRP
RP SEC	RP作为从GRP
MEM INIT	RP设法估量内存

表2 – LC LED状态和含义

LC LED状态	LED状态的含义
DIAG DNLD	线卡下载域诊断软件
DIAG FAIL	线卡失败域诊断测试

DIAG PASS	线卡通过了域诊断测试
DIAG TEST	线卡执行域诊断软件
FABL DNLD	线卡启动“矩阵下载程序”
FABL等待	线卡等待装载“矩阵下载程序”
IN R装置	线卡重置
IOS DNLD	线卡通过交换矩阵下载Cisco IOS软件
IOS RUN	线卡当前被启用
IOS	线卡完成装载和当前运行Cisco IOS软件
MBUS DNLD	线卡下载维护总线(MBUS)代理程序
MEM INIT	线卡设法估量内存
PWR OFF	线卡被断电

如果卡状态是任何除“IOS RUN之外”，或者GRP不活动主设备/主要的和从属/第二，这意味着有问题，并且卡正确地不充分地装载了。在您替换卡前，Cisco建议您设法这些步骤调整问题：

1. 通过**微码重载**入<slot>全局配置命令重新载入微码。
2. 通过**reload**命令hw-module slot的<slot>重新载入卡。这造成线卡重置和重新下载维护总线(MBUS)和矩阵下载程序软件模块，在尝试重新下载线卡Cisco IOS软件前。
3. 手工重置线卡。这能排除由对MBUS或交换结构的连接不好引起的所有问题。

Note: 关于如何排除在所有状态滞留的线卡故障的更多信息除RAN IOS之外，请参阅[了解在Cisco 12000 Series Internet Router的启动流程](#)。

结构ping失败

当线卡或第二GRP不能回答自主要的GRP的一个矩阵PING请求在交换矩阵时，结构ping失败发生。这样故障是您必须调查的问题症状。他们是由这些错误信息表示的：

```
Router#show led

SLOT 1 : RUN IOS

SLOT 6 : DNLD FABL

SLOT 7 : RP ACTV

SLOT 10 : RUN IOS

SLOT 11 : RUN IOS

SLOT 13 : RUN IOS

SLOT 14 : RUN IOS
```

您能找到关于此问题的更多信息在[排除结构ping超时和故障故障在Cisco 12000 Series Internet Router](#)。

奇偶错误信息

[Cisco 12000系列互联网路由器奇偶校验错误故障树](#)文件解释步骤排除和查出发生故障Cisco 12000 Series Internet Router的部分或组件故障，在您遇到各种各样的奇偶错误信息后。

错误信息

如果体验任何错误信息与其中一线卡有关，您能使用[Cisco错误信息解码器\(仅限注册用户\)](#)找到关于错误信息的含义的信息。有些指向线卡的硬件问题，而其他指示Cisco IOS软件Bug，或者在路由器的另一个零件的硬件问题。本文不包括所有这些消息。

一些思科快速转发(CEF)和Inter Process Communication (IPC)有关的消息在[排除解释CEF相关的错误信息故障](#)。

为硬件故障测试线卡

卡片字段诊断软件设计识别在Cisco 12000 (所有12xxx系列)路由器内的所有有故障的线卡。在Cisco IOS软件版本12.0(22)S之前，域诊断软件在Cisco IOS软件内是嵌入式的。从Cisco IOS软件版本12.0(22)S向前，此软件解开，并且您能从CCO下载它通过[下载软件地区\(仅限注册用户\)](#) (在120XX平台下的Select字段DIAG)。它从被起动的命令仍然运行，当运行Cisco IOS软件时，但是您在line命令必须指定来源(简单文件传输协议(TFTP)引导程序服务器或者PCMCIA闪存)。所有域诊断命令运行在Cisco IOS软件的enable (event)级别。

晚于12.0

从Cisco IOS软件版本12.0(22)S向前，Cisco系统解开了从Cisco IOS软件镜像的Cisco 12000域诊断卡片镜像。在更早版本中，诊断可能从line命令被启动，并且嵌入诊断的镜像将被启动。为了供应有20Mb闪存卡的用户，域诊断软件当前存储并且被维护作为独立的镜像：c12k-fdiagsbflc-mz.xxx-xx.S.bin (其中x是版本号)。这意味着那为了用户能启动域诊断，此镜像一定取得到一个分开的闪存卡或TFTP引导程序服务器。新版本总是可用的在Cisco.com。对于性能路由处理器(PRP)卡，千兆位交换路由处理器(GRP)卡，并且结构测试，这些测试保持嵌入与Cisco IOS软件镜像。更改line命令功能反射此。

当诊断测试进展中时，线卡通常不作用并且不能通过任何数据流处于测试(5-20分钟的，根据线卡的复杂性)。没有冗长的关键字，命令产生显示一通行证或失效卡的一个截短的输出。当您与TAC时沟通，冗长模式是最有用识别特定问题。诊断测试的输出没有verbose命令如下所示的

```
Router# diag 7 verbose tftp://223.255.254.254/muckier/award/c12k-fdiagsbflc-mz
Running DIAG config check
Fabric Download for Field Diags chosen: If timeout occurs, try 'mbus' option.
Running Diags will halt ALL activity on the requested slot. [confirm]
Router#
Launching a Field Diagnostic for slot 7
Downloading diagnostic tests to slot 7 via fabric (timeout set to 300 sec.)
5d20h: %GRP-4-RSTSL0T: Resetting the card in the slot: 7,Event:
    EV_ADMIN_FDIAGLoading muckier/award/c12k-fdiagsbflc-mz from 223.255.254.254
    (via Ethernet0):      !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
5d20h: Downloading diags from tftp file tftp://223.255.254.254/muckier/award/
    c12k-fdiagsbflc-mz
    !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 13976524 bytes]
FD 7> *****
FD 7> GSR Field Diagnostics V6.05
```

```

FD 7> Compiled by award on Tue Jul 30 13:00:41 PDT 2002

FD 7> view: award-conn_isp.FieldDiagRelease

FD 7> *****

Executing all diagnostic tests in slot 7

(total/indiv. timeout set to 2000/600 sec.)

FD 7> BFR_CARD_TYPE_OC12_4P_POS testing...

FD 7> Available test types 2

FD 7> 1

FD 7> Completed f_diags_board_discovery() (0x1)

FD 7> Test list selection received: Test ID 1, Device 0

FD 7> running in slot 7 (30 tests from test list ID 1)

FD 7> Skipping MBUS_FDIAG command from slot 2

FD 7> Just into idle state
Field Diagnostic ****PASSED**** for slot 7

Shutting down diags in slot 7

Board will reload

5d20h: %GRP-4-RSTSLOT: Resetting the card in the slot: 7,Event:
      EV_ADMIN_FDIAG

5d20h: %GRP-4-RSTSLOT: Resetting the card in the slot: 7,Event:
      EV_FAB_DOWNLOADER_DOWNLOAD_FAILURE

SLOT 7:00:00:09: %SYS-5-RESTART: System restarted --

Cisco Internetwork Operating System Software
IOS (tm) GS Software (GLC1-LC-M), Experimental Version 12.0(20020509:045149)
 [award-conn_isp.f_diag_new 337]
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Tue 25-Jun-02 15:51 by award

```

自动线卡重新加载，在它通过测试之后。

这是Cisco IOS软件版本更早的than12.0(22)S，线卡失败测试和没有自动地因而重新载入的示例。您能手工重新载入与reload命令hw-module slot的<slot>的线卡。

当您使用冗长的关键字时，输出包括被执行的每个单个测试。如果测试通过，下个测试开始。输出示例:如下所示:

```

Router# diag 7 verbose tftp tftp://223.255.254.254/ muckier/award/c12k-fdiagsbflc-mz
Running DIAG config check
Fabric Download for Field Diags chosen: If timeout occurs, try 'mbus' option.
Verbose mode: Test progress and errors will be displayed

```

Running Diags will halt ALL activity on the requested slot. [confirm]
Router#
Launching a Field Diagnostic for slot 7
Downloading diagnostic tests to slot 7 via fabric (timeout set to 300 sec.)
00:07:41: %GRP-4-RSTSL0T: Resetting the card in the slot: 7,Event: EV_ADMIN_FDIAG

Loading muckier/award/c12k-fdiagsbflc-mz from 223.255.254.254 (via Ethernet0):
!!!!!! (...)

00:08:24: Downloading diags from tftp file tftp://223.255.254.254/muckier/
award/c12k-fdiagsbflc-mz

!!
!!!!!!!!!!!!!!!!!!!!

[OK - 13976524 bytes]

FD 7> *****

FD 7> GSR Field Diagnostics V6.05

FD 7> Compiled by award on Tue Jul 30 13:00:41 PDT 2002

FD 7> view: award-conn_isp.FieldDiagRelease

FD 7> *****

Executing all diagnostic tests in slot 7

(total/indiv. timeout set to 2000/600 sec.)

FD 7> BFR_CARD_TYPE_OC12_4P_POS testing...

FD 7> Available test types 2

FD 7> 1

FD 7> Completed f_diags_board_discovery() (0x1)

FD 7> Verbosity now (0x00000011) TESTSDISP FATL
FD 7> Test list selection received: Test ID 1, Device 0
FD 7> running in slot 7 (30 tests from test list ID 1)
FD 7> Just into idle state

- FDIAG_STAT_IN_PROGRESS(7): test #1 Dram Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #2 Dram Datapins
- FDIAG_STAT_IN_PROGRESS(7): test #3 Dram Busfloat
- FDIAG_STAT_IN_PROGRESS(7): test #4 RBM SDRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #5 RBM SDRAM Datapins
- FDIAG_STAT_IN_PROGRESS(7): test #6 RBM SSRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #7 RBM SSRAM Datapins Memory
- FDIAG_STAT_IN_PROGRESS(7): test #8 TBM SDRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #9 TBM SDRAM Datapins
- FDIAG_STAT_IN_PROGRESS(7): test #10 TBM SSRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #11 TBM SSRAM Datapins Memory
- FDIAG_STAT_IN_PROGRESS(7): test #12 PSA TLU SDRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #13 PSA TLU SDRAM Datapins
- FDIAG_STAT_IN_PROGRESS(7): test #14 PSA PLU SDRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #15 PSA PLU SDRAM Datapins
- FDIAG_STAT_IN_PROGRESS(7): test #16 PSA SRAM Marching Pattern
- FDIAG_STAT_IN_PROGRESS(7): test #17 PSA SRAM Datapins
- FDIAG_STAT_IN_PROGRESS(7): test #18 To Fabric SOP FIFO SRAM Memory
- FDIAG_STAT_IN_PROGRESS(7): test #19 From Fabric SOP FIFO SRAM Memory
- FDIAG_STAT_IN_PROGRESS(7): test #20 RBM to SALSA Packet
- FDIAG_STAT_IN_PROGRESS(7): test #21 TBM to SALSA Packet

```
FDIAG_STAT_IN_PROGRESS(7): test #22 RBM to TBM SLI Packet Loopback
FDIAG_STAT_IN_PROGRESS(7): test #23 TBM to PSA Packet -Framer Loopback
FDIAG_STAT_IN_PROGRESS(7): test #24 TBM to TX SOP Packet
FDIAG_STAT_IN_PROGRESS(7): test #25 TBM to RX SOP Packet -4302 Terminal Loopback
FDIAG_STAT_IN_PROGRESS(7): test #26 TBM to RX SOP Packet -Framer System Bus Loop
FDIAG_STAT_IN_PROGRESS(7): test #27 RBM to TBM Fabric Packet Loopback
FDIAG_STAT_IN_PROGRESS(7): test #28 TBM to RBM Packet, RBM page crossing
FDIAG_STAT_IN_PROGRESS(7): test #29 TBM to TX SOP Packet Simultaneous
FDIAG_STAT_IN_PROGRESS(7): test #30 TBM to PSA Multicast Packets -Framer Loopback
FDIAG_STAT_DONE(7)
FD 7> Changed current_status to FDIAG_STAT_IDLE
```

Field Diagnostic **PASSED**** for slot 7**

Field Diag eeprom values: run 62 fail mode 0 (PASS) slot 7

last test failed was 0, error code 0

Shutting down diags in slot 7

Board will reload

这些结果在Electrically Erasable Programmable Read-Only Memory (EEPROM)然后存储在线卡。您能查看在线卡执行的最终诊断的结果用diag <slot>前面的命令。以下为示例输出：

```
Router#diag 3 previous
```

Field Diag eeprom values: run 0 fail mode 0 (PASS) slot 3

last test failed was 0, error code 0

如果早先域诊断在卡未被执行，输出如下所示：

```
Router#diag 3 previous
```

Field Diags have not been run on this board previously -

EE prom results uninitialized.

```
Field Diag eeprom values: run 16777215 fail mode 0 (PASS) slot 9
```

last test failed was 65535, error code 65535

有造成诊断测试发生故障的一些Bug以前，即使卡不是有故障的，如此，作为预防措施，如果线卡发生故障，并且以前已经被替换了，它是有用用技术支持中心(TAC)检查此输出。

[Cisco IOS Software Releases更早的than12.0\(22\)S](#)

卡片字段诊断软件与对enable (event)的主Cisco IOS软件捆绑在一起您测试可疑的线卡是否是有故障的。要使用此功能，您必须是在特许特权模式，并且发出diag <slot> <verbose>命令。

当诊断测试进展中时，线卡通常不作用并且不能通过任何数据流处于测试(5-15分钟的，根据线卡的复杂性)。没有冗长的关键字，命令产生显示一通行证或失效卡的一个截短的输出。诊断测试的输出没有verbose命令如下所示的：

```
Router#diag 3
```

Running DIAG config check

Running Diags will halt ALL activity on the requested slot

[confirm]

Router#

Launching a Field Diagnostic for slot 3
Downloading diagnostic tests to slot 3 (timeout set to 600 sec.)

*Nov 18 22:20:40.237: %LINK-5-CHANGED: Interface GigabitEthernet3/0,
changed state to administratively down

Field Diag download COMPLETE for slot 3

FD 3> *****

FD 3> GSR Field Diagnostics V4.0

FD 3> Compiled by award on Thu May 18 13:43:04 PDT 2000

FD 3> view: award-conn_isp.FieldDiagRelease

FD 3> *****

FD 3> BFR_CARD_TYPE_1P_GE testing...

FD 3> running in slot 3 (83 tests)

Executing all diagnostic tests in slot 3

(total/individ. timeout set to 600/200 sec.)

Field Diagnostic: ****TEST FAILURE**** slot 3: last test run 51,

Fabric Packet Loopback, error 3

Shutting down diags in slot 3

slot 3 done, will not reload automatically

自动线卡重新加载，在它通过测试之后。在上面的例子中，线卡失败测试和没有自动地因而重新载入。您能手工重新载入与**reload命令hw-module slot的<slot>的线卡**。

当您使用冗长的关键字时，输出包括执行的每个单个测试，并且每考试是否通过或失败。以下为示例输出：

Router#**diag 3 verbose**

Running DIAG config check

Running Diags will halt ALL activity on the requested slot.

[confirm]

Router#

Launching a Field Diagnostic for slot 3
Downloading diagnostic tests to slot 3 (timeout set to 600 sec.)
Field Diag download COMPLETE for slot 3

FD 3> *****

FD 3> GSR Field Diagnostics V4.0

FD 3> Compiled by award on Thu May 18 13:43:04 PDT 2000

FD 3> view: award-conn_isp.FieldDiagRelease

FD 3> *****

FD 3> BFR_CARD_TYPE_1P_GE testing...

FD 3> running in slot 3 (83 tests)

Executing all diagnostic tests in slot 3

(total/individ. timeout set to 600/200 sec.)

FD 3> Verbosity now (0x00000001) TESTSDISP

FDIAG_STAT_IN_PROGRESS(3): test #1 R5K Internal Cache

FDIAG_STAT_IN_PROGRESS(3): test #2 Burst Operations

FDIAG_STAT_IN_PROGRESS(3): test #3 Subblock Ordering

FDIAG_STAT_IN_PROGRESS(3): test #4 P4/EEPROM Clock Speed Matching

FDIAG_STAT_IN_PROGRESS(3): test #5 Dram Marching Pattern

FDIAG_STAT_IN_PROGRESS(3): test #6 Dram Datapins

FDIAG_STAT_IN_PROGRESS(3): test #7 Dram Busfloat

FDIAG_STAT_IN_PROGRESS(3): test #8 To Fabric (RX) BMA SDRAM Marching Pattern

FDIAG_STAT_IN_PROGRESS(3): test #9 To Fabric (RX) BMA SDRAM Datapins

FDIAG_STAT_IN_PROGRESS(3): test #10 To Fabric (RX) BMA Q Manager SRAM Busfloat

FDIAG_STAT_IN_PROGRESS(3): test #11 To Fabric (RX) BMA Q Manager SRAM Datapins

FDIAG_STAT_IN_PROGRESS(3): test #12 To Fabric (RX) BMA Q Manager SRAM Marching Pa

FDIAG_STAT_IN_PROGRESS(3): test #13 From Fabric (TX) BMA SDRAM Marching Pattern

FDIAG_STAT_IN_PROGRESS(3): test #14 From Fabric (TX) BMA SDRAM Datapins

FDIAG_STAT_IN_PROGRESS(3): test #15 From Fabric (TX) BMA Q Manager SRAM Busfloat

FDIAG_STAT_IN_PROGRESS(3): test #16 From Fabric (TX) BMA Q Manager SRAM Datapins

FDIAG_STAT_IN_PROGRESS(3): test #17 From Fabric (TX) BMA Q Manager SRAM Marching

FDIAG_STAT_IN_PROGRESS(3): test #18 To Fabric SOP FIFO SRAM Memory

FDIAG_STAT_IN_PROGRESS(3): test #19 From Fabric SOP FIFO SRAM Memory

FDIAG_STAT_IN_PROGRESS(3): test #20 SALSA Asic Registers

FDIAG_STAT_IN_PROGRESS(3): test #21 Salsa Dram Access

FDIAG_STAT_IN_PROGRESS(3): test #22 Salsa P4 Timeout

FDIAG_STAT_IN_PROGRESS(3): test #23 Salsa Asic General Purpose Counter

FDIAG_STAT_IN_PROGRESS(3): test #24 Salsa Asic Real Time Interrupt

FDIAG_STAT_IN_PROGRESS(3): test #25 Salsa Errors

FDIAG_STAT_IN_PROGRESS(3): test #26 Salsa DRAM Burst Operations Error
FDIAG_STAT_IN_PROGRESS(3): test #27 Salsa Dram Read Around Write
FDIAG_STAT_IN_PROGRESS(3): test #28 Salsa Dram Write Parity Error test
FDIAG_STAT_IN_PROGRESS(3): test #29 Salsa Prefetch/Write Buffers
FDIAG_STAT_IN_PROGRESS(3): test #30 Salsa FrFab BMA SDram Read Around Write
FDIAG_STAT_IN_PROGRESS(3): test #31 Salsa ToFab BMA SDram Read Around Write
FDIAG_STAT_IN_PROGRESS(3): test #32 Salsa FrFab Network Interrupt Disable Timer
FDIAG_STAT_IN_PROGRESS(3): test #33 Salsa ToFab Network Interrupt Disable Timer
FDIAG_STAT_IN_PROGRESS(3): test #34 Salsa ToFab Network Interrupt Mask
FDIAG_STAT_IN_PROGRESS(3): test #35 Salsa FrFab Network Interrupt Mask
FDIAG_STAT_IN_PROGRESS(3): test #36 Salsa ToFab BMA Interrupt Mask
FDIAG_STAT_IN_PROGRESS(3): test #37 Salsa FrFab BMA Interrupt Mask
FDIAG_STAT_IN_PROGRESS(3): test #38 Salsa - To Fabric BMA Packet - Early Clear
FDIAG_STAT_IN_PROGRESS(3): test #39 Salsa - From Fabric BMA Packet - Early Clear
FDIAG_STAT_IN_PROGRESS(3): test #40 Salsa To Fabric SOP Interrupt Mask
FDIAG_STAT_IN_PROGRESS(3): test #41 Salsa From Fabric SOP Interrupt Mask
FDIAG_STAT_IN_PROGRESS(3): test #42 SALSA ECC Generation
FDIAG_STAT_IN_PROGRESS(3): test #43 SALSA ECC Correction
FDIAG_STAT_IN_PROGRESS(3): test #44 To Fabric FIA48 ASIC Registers
FDIAG_STAT_IN_PROGRESS(3): test #45 To Fabric FIA48 Packet
FDIAG_STAT_IN_PROGRESS(3): test #46 To Fabric FIA48 Asic BMA Bus Parity Error
FDIAG_STAT_IN_PROGRESS(3): test #47 To Fabric FIA48 Asic CiscoCell Fifo Parity Er
FDIAG_STAT_IN_PROGRESS(3): test #48 From Fabric FIA48 ASIC Registers
FDIAG_STAT_IN_PROGRESS(3): test #50 SLI Packet Loopback
FDIAG_STAT_IN_PROGRESS(3): test #51 Fabric Packet Loopback

FD 3> INT_CAUSE_REG = 0x00000620
FD 3> Unexpected L3FE Interrupt occurred.
FD 3> ERROR: TX FIA48 Asic Interrupt Occurred
FD 3> *** 0-INT: External Interrupt ***
FD 3> Dumping out TX FIA Status Registers, Disabling
FD 3> TX FIA Interrupt, resetting Asics, continuing...
FDIAG_STAT_DONE_FAIL(3) test_num 51, error_code 3

Field Diagnostic: ****TEST FAILURE**** slot 3: last test run 51,

Fabric Packet Loopback, error 3

**Field Diag eeprom values: run 3 fail mode 1 (TEST FAILURE) slot 3
last test failed was 51, error code 3**


```
Shutting down diags in slot 3
slot 3 done, will not reload automatically
Router#
```

这些结果在Electrically Erasable Programmable Read-Only Memory (EEPROM)然后存储在线卡。您能查看在线卡执行的最终诊断的结果用diag <slot>前面的命令。以下为示例输出：

```
Router#diag 3 previous
```

```
Field Diag eeprom values: run 0 fail mode 0 (PASS) slot 3
  last test failed was 0, error code 0
```

如果早先域诊断在卡未被执行，输出如下所示：

```
Router#diag 3 previous
```

```
Field Diags have not been run on this board previously -
```

```
EE prom results uninitialized.
```

```
Field Diag eeprom values: run 16777215 fail mode 0 (PASS) slot 9
  last test failed was 65535, error code 65535
```

有造成诊断测试发生故障的一些Bug以前，即使卡不是有故障的，如此，作为预防措施，如果线卡发生故障，并且以前已经被替换了，它是有用用技术支持中心(TAC)检查此输出。

[应收集的信息，如果打开TAC服务请求](#)

如果识别需要被替换的一个组件，请联系您的Cisco合作伙伴或代理商为导致问题的硬件组件请求更换。如果有支持合同同直接Cisco，请使用[TAC服务请求工具\(仅限注册用户\)](#)打开一个TAC服务要求硬件替换。确定您附上以下信息：

- 表示错误信息的控制台获取
- 显示故障排除步骤采取和启动顺序的控制台获取在每个步骤期间
- 发生故障的硬件组件和机箱的序列号
- 故障排除日志
- `show technical-support`命令的输出

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- [路由器崩溃故障排除](#)
- [排除结构ping超时和故障故障在Cisco 12000 Series Internet Router](#)
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