

# 排除Catalyst 9600管理引擎和线卡上的硬件故障

## 目录

---

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[术语](#)

[机箱 概述](#)

[故障排除](#)

[模块硬件问题的症状](#)

[验证模块状态](#)

[模块状态故障排除](#)

[金牌测试](#)

[软件和固件不匹配](#)

[其他故障排除](#)

[为TAC收集的命令](#)

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## 简介

本文档介绍如何识别、隔离和排除Catalyst 9600管理引擎和线卡上的硬件故障症状。

## 先决条件

### 要求

本文档没有任何特定的要求。

### 使用的组件

本文档中的信息基于Catalyst 9600系列交换机。


本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

## 术语

期限	定义	情景
监控程序	Cisco Catalyst 9600系列管理引擎1由三个UADP 3.0	本文档包含用于隔离

	ASIC和一个x86 CPU处理器供电。三个ASIC通过每个ASIC上的3.2-Tbps ASIC互联互通。Sup-1提供9.6 Tbps ( 4.8 Tbps全双工 )。对于Cisco Catalyst 9606R机箱，每个插槽具有2.4 Tbps(Sup-1)。	Supervisor引擎上硬件故障的命令。
加电自检 (P.O.S.T.)	在打开电源后初始化管理引擎和线卡后，执行加电自检(POST)以确保模块的硬件完整性。在线插拔(OIR)线路卡时也会执行POST。	Show post命令显示这些测试的结果。
通用在线诊断子系统(GOLD)	GOLD测试在系统联机后运行。某些测试会作为运行状况监控测试定期运行。用户可按需运行所有测试。	用于检测模块硬件故障。
在线插拔(O.I.R.)	此功能可以通过命令行界面(CLI)对指定插槽中的模块重新通电。当没有可以实际重新拔插模块的现场资源时，此功能非常有用。	O.I.R.是在模块上执行隔离硬件故障的强大功能。

## 机箱 概述

Catalyst C9606-R
<ul style="list-style-type: none"> <li>• 6插槽 — 8RU模块化机箱</li> <li>• 2个管理引擎插槽+ 4个线卡插槽</li> </ul>


## 故障排除

## 模块硬件问题的症状

症状	可能的根本原因
<ul style="list-style-type: none"> <li>给定线卡上的一个或多个接口处于 down/down (未连接) 状态。</li> <li>Supervisor或Linecard未列在C.L.I.的输出中，如show module或show inventory。</li> <li>Supervisor上没有控制台输出。</li> <li>Supervisor或线路卡上的红色或琥珀色LED (稳定或闪烁)。Supervisor或线路卡上没有LED。</li> </ul>	模块未正确安装、未初始化，或者因POTS失败而遇到硬件故障。

## 验证模块状态

- 首先检查机箱是否识别模块非常重要。
- 模块的理想状态是ok。

模块状态	可能的根本原因	操作
确定	不适用。	无
故障后	潜在的硬件故障。	请参阅排除模块状态故障。
other (其他)	模块初始化失败。	请参阅排除模块状态故障。
输出中未列出	安装不正确或电源不足。	检查可用的电源预算。 目视检查模块的LED指示灯状态。

<#root>

Cat9600#

show module

Chassis Type: C9606R

Mod Ports Card Type

Model

Serial No.



## 电源预算问题

<#root>

```
%CMRP_PFU-3-PWR_MGMT_LC_SHUTDOWN: R0/0: cmand: WARNING: Linecard in slot 6 with priority 0 and a power
%CMRP_PFU-3-PWR_MGMT_ALARM: Chassis 1 R0/0: cmand: WARNING:
```

```
System does not have sufficient input power for minimum
```

```
reliable operation requiring 1161 watts. The system needs 1101 watts of additional power.
```

## 诊断测试失败

<#root>

```
*May 29 02:10:19.523: %PM-4-ERR_DISABLE:
```

```
diagnostics error detected
```

```
on Fo2/0/1, putting Fo2/0/1 in err-disable state
```

## 检查模块正常运行时间

- 板载故障记录(OBFL)可让您深入了解重新加载原因，例如reload命令、软件异常、断电等。
- 检查可能与模块突然断电或导致模块停机的外部因素相关的时间戳。

<#root>

```
Cat9600#
```

```
show logging onboard rp (active|standby) uptime detail
```

```
-----
UPTIME SUMMARY INFORMATION
-----
```

```
First customer power on : 08/28/2021 13:08:41
```

```
Total uptime           : 0 years 41 weeks 2 days 15 hours 10 minutes <-- Total Uptime
```

```
Total downtime         : 0 years 7 weeks 6 days 7 hours 11 minutes
```

```
Number of resets        : 14 <-- Total number of resets
```

```
Number of slot changes  : 0
```

```
Current reset reason    : PowerOn <-- Last reload reason
```

```
Current reset timestamp : 11/06/2021 17:25:29
```

```
Current slot            : 3
```

```
Chassis type            : 55
```

```
Current uptime          : 0 years 39 weeks 1 days 18 hours 5 minutes <-- Current Uptime
```

-----  
-----  
UPTIME CONTINUOUS INFORMATION  
-----

Time Stamp |

Reset

MM/DD/YYYY HH:MM:SS | Uptime

Reason

| years weeks days hours minutes

08/28/2021 13:08:41	PowerOn	0	0	0	0	0
08/28/2021 13:16:29	Reload	0	0	0	0	0
08/28/2021 13:29:28	Reload	0	0	0	0	5
08/28/2021 13:42:30	Reload	0	0	0	0	5
08/28/2021 13:55:14	Image Install	0	0	0	0	5

<-- Reset history by reason

<#root>

Cat9600#

show logging onboard slot (1|2|4|5|6|7) uptime detail

-----  
-----  
UPTIME SUMMARY INFORMATION  
-----

First customer power on : 08/08/2018 09:30:33  
Total uptime : 0 years 11 weeks 1 days 10 hours 40 minutes  
Total downtime : 4 years 32 weeks 1 days 23 hours 25 minutes  
Number of resets : 81  
Number of slot changes : 5  
Current reset reason : CP\_RESET\_CPU\_GOT\_RESET  
Current reset timestamp : 05/24/2023 19:35:58  
Current slot : 1  
Chassis type : 30  
  
Current uptime : 0 years 2 weeks 0 days 0 hours 0 minutes

-----  
-----  
UPTIME CONTINUOUS INFORMATION  
-----

Time Stamp	Reset	Uptime				
MM/DD/YYYY HH:MM:SS	Reason	years	weeks	days	hours	minutes
04/26/2021 21:39:45	CP_RESET_CPU_GOT_RESET	0	0	0	0	0
04/27/2021 14:12:04	CP_RESET_POWER_ON	0	0	0	6	0
04/28/2021 14:39:30	CP_RESET_POWER_ON	0	0	0	14	0
04/30/2021 12:46:59	CP_RESET_POWER_ON	0	0	0	13	0

## 检验POST

### 失败的POST示例

<#root>

Cat9600#

show post

Stored system POST messages:

Switch C9606R

-----

Fri May 29 02:10:18 2020 POST: Module: 1 Mac Loopback Begin

Fri May 29 02:10:18 2020 POST: Module: 1 Mac Loopback: loopback Test: End, Status Passed

Fri May 29 02:10:18 2020 POST: Module: 2 Mac Loopback Begin

Fri May 29 02:10:18 2020 POST: Mac Loopback:

**Failed**

For Interface :

**TwentyFiveGigE2/2/0/38**

Fri May 29 02:10:18 2020 POST: Mac Loopback:

**Failed**

For Interface :

**TwentyFiveGigE2/2/0/39**

Fri May 29 02:10:18 2020 POST: Mac Loopback:

**Failed**

For Interface :

**TwentyFiveGigE2/2/0/40**

Fri May 29 02:10:18 2020 POST: Module: 2 Mac Loopback: loopback Test: End,

**Status Failed**

### POST通过的示例

<#root>

Cat9600#

show post

Stored system POST messages:

Switch C9606R

```
-----  
POST: MBIST Tests : Begin  
POST: MBIST Tests : End, Status Passed  
  
POST: Module: 3 PHY Loopback: loopback Test: Begin  
POST: Module: 3 PHY Loopback: loopback Test: End, Status Passed  
  
POST: Module: 2 PHY Loopback: loopback Test: Begin  
POST: Module: 2 PHY Loopback: loopback Test: End, Status Passed  
POST: Module: 1 PHY Loopback: loopback Test: Begin  
POST: Module: 1 PHY Loopback: loopback Test: End, Status Passed  
POST: Module: 5 PHY Loopback: loopback Test: Begin  
POST: Module: 5 PHY Loopback: loopback Test: End, Status Passed
```

<#root>

Cat9600#

show platform

Chassis type: C9606R

Slot	Type	State	Insert time (ago)
1	C9600-LC-24C	ok	02:45:09
1/0	C9600-LC-24C	ok	02:43:15
2	C9600-LC-48YL		

faulty

	02:45:09		
2/0	C9600-LC-48YL	ok	02:43:14
3	C9600-SUP-1	ok	02:45:09
3/0	C9600-SUP-1	ok	02:43:14
4	C9600-SUP-1	ok	02:45:09
4/0	C9600-SUP-1	ok	02:43:14
R0	C9600-SUP-1	ok, active	02:45:09
R1	C9600-SUP-1	init, standby	02:45:09
P1	C9600-PWR-2KWAC	ok	02:44:21
P2	C9600-PWR-2KWAC	ok	02:44:21
P3	C9600-PWR-2KWAC	ps, f0, f1, fail	02:44:21
P4	C9600-PWR-2KWAC	ps, f0, f1, fail	02:44:21
P5	C9606-FAN	ok	02:44:21

Slot	CPLD Version	Firmware Version
1	19070619	17.1.1[FC2]
2	19070619	17.1.1[FC2]
3	19041620	17.1.1[FC2]
4	19041620	17.1.1[FC2]

## 金牌测试

- 如果模块的POSS发生故障或列为故障，则必须收集诊断信息以获取故障原因。
- 运行硬件诊断程序，以快速确定线卡或管理引擎中潜在的硬件故障。

诊断测试的类型：

- 运行状况监控测试 — 默认情况下启用，并且每隔几分钟在后台运行。这些测试不会造成中断。
- 按需测试 — 由用户使用CLI运行。其中一些测试具有破坏性。

诊断测试	测试什么？情景？影响？
TestGoldPktLoopback	此测试与Macloopback测试非常相似。
TestOBFL	验证板载故障记录功能。此测试打印诊断消息并登录到OBFL。
TestThermal	验证传感器的温度值未超过阈值。它是无中断测试，可以作为运行状况监视器测试运行。
TestPorttxMonitoring	此测试监控所连接接口的TX计数器。此测试验证连接的端口是否能够发送数据包。它是无中断测试，可以作为运行状况监控测试运行。
TestFantray	此测试用于验证是否已插入风扇托架并在主板上正常工作。它是无中断测试，可以作为运行状况监控测试运行。
TestScratchRegister	暂存寄存器测试监控特定应用集成电路(ASIC)的运行状况，它将值写入寄存器，并从这些寄存器读回值。它是无中断测试，可以作为运行状况监控测试运行。
TestConsistencyCheckMcast	此测试监控以检查Mcast编程是否正确。此测试使用Forwarding object manger检查，以识别未完成的条目或长时间挂起硬件配置。

对模块运行按需诊断测试。

```
<#root>
```

```
Cat9600#
```

```
diagnostic start switch module 3 test ?
```

Diagnostics test suite attributes:

- M/C/\* - Minimal bootup level test / Complete bootup level test / NA
- B/\* - Basic ondemand test / NA
- P/V/\* - Per port test / Per device test / NA
- D/N/\* - Disruptive test / Non-disruptive test / NA
- S/\* - Only applicable to standby unit / NA
- X/\* - Not a health monitoring test / NA
- F/\* - Fixed monitoring interval test / NA
- E/\* - Always enabled monitoring test / NA
- A/I - Monitoring is active / Monitoring is inactive

Test Interval Thre-

ID Test Name Attributes day hh:mm:ss.ms shold

```

=====
1) TestOBFL -----> *B*N*X**I not configured n/a
2) TestFantray -----> *B*N****A 000 00:01:40.00 1
3) TestThermal -----> *B*N****A 000 00:01:30.00 1
4) TestScratchRegister -----> *B*N****A 000 00:01:30.00 5
5) TestConsistencyCheck -----> *B*N****A 000 00:01:30.00 1
    
```

WORD Test ID list (e.g. 1,3-6) or Test Name

Cat9600#

diagnostic start switch 1 module 3 test 2

//syslog prints upon start and finish of diagnostic test.

```

*Mar 24 21:48:47.968: %DIAG-6-TEST_RUNNING: switch 1 module 3: Running TestFantray{ID=2} ...
*Mar 24 21:48:47.969: %DIAG-6-TEST_OK: switch 1 module 3: TestFantray{ID=2} has completed successfully
    
```

<-- Passed

症状	操作
模块未通过诊断测试。	执行模块的OIR。

在模块上运行按需OIR

<#root>

Cat9600#

hw-module subslot 1/0 oir power-cycle

Proceed with power cycle of module? [confirm]

```

*Jun 9 20:39:14.686: %IOSXE_OIR-6-REMSPA: SPA removed from subslot 1/0, interfaces disabled
*Jun 9 20:39:14.721: %SPA_OIR-6-OFFLINECARD: SPA (C9600-LC-24C) offline in subslot 1/0
    
```

```

*Jun 9 20:39:16.686: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/1, changed state to down
*Jun 9 20:39:16.686: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/2, changed state to down
*Jun 9 20:39:16.687: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/3, changed state to down
*Jun 9 20:39:16.687: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/4, changed state to down
*Jun 9 20:39:16.689: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/5, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/6, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/7, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/8, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/9, changed state to down
*Jun 9 20:39:16.691: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/10, changed state to down
*Jun 9 20:39:16.691: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/11, changed state to down
*Jun 9 20:39:16.693: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/12, changed state to down
*Jun 9 20:39:16.693: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/13, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/14, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/15, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/16, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/17, changed state to down
*Jun 9 20:39:16.695: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/18, changed state to down
*Jun 9 20:39:16.695: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/19, changed state to down
*Jun 9 20:39:16.697: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/20, changed state to down
*Jun 9 20:39:16.697: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/21, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/22, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/23, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/24, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface HundredGigE1/0/25, changed state to down
*Jun 9 20:39:16.699: %LINK-3-UPDOWN: Interface HundredGigE1/0/26, changed state to down
*Jun 9 20:39:16.699: %LINK-3-UPDOWN: Interface HundredGigE1/0/27, changed state to down
*Jun 9 20:39:16.701: %LINK-3-UPDOWN: Interface HundredGigE1/0/28, changed state to down
*Jun 9 20:39:16.701: %LINK-3-UPDOWN: Interface HundredGigE1/0/29, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/30, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/31, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/32, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/33, changed state to down
*Jun 9 20:39:16.703: %LINK-3-UPDOWN: Interface HundredGigE1/0/34, changed state to down
*Jun 9 20:39:16.703: %LINK-3-UPDOWN: Interface HundredGigE1/0/35, changed state to down
*Jun 9 20:39:16.704: %LINK-3-UPDOWN: Interface HundredGigE1/0/36, changed state to down
*Jun 9 20:39:16.704: %LINK-3-UPDOWN: Interface HundredGigE1/0/37, changed state to down
*Jun 9 20:39:16.705: %LINK-3-UPDOWN: Interface HundredGigE1/0/38, changed state to down
*Jun 9 20:39:16.705: %LINK-3-UPDOWN: Interface HundredGigE1/0/39, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/40, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/41, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/42, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/43, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/44, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/45, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/46, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/47, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/48, changed state to down
*Jun 9 20:39:44.717: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 1/0
*Jun 9 20:40:15.052: %SPA_OIR-6-ONLINECARD: SPA (C9600-LC-24C) online in subslot 1/0
*interfaces come up again*

```

症状	操作
模块仍无法通过POTS或未在show module或show inventory命令输出中列出的模块。	<ul style="list-style-type: none"> <li>目视确认并记录模块的LED状态；闪烁或稳定的琥珀色或红灯可能进一步表明硬件问题。</li> </ul>

- 以物理方式重新安装模块。
- 从机箱中的另一个插槽安装备用模块或模块，以隔离模块或机箱插槽的故障。

重新拔插模块（当机箱识别模块且模块初始化时，会打印类似的系统日志）。

```
*May 24 19:32:53.084: %IOSXE_OIR-6-INSCARD: Card (fp) inserted in slot F0
*May 24 19:32:53.084: %IOSXE_OIR-6-INSCARD: Card (cc) inserted in slot 1
*May 24 19:32:53.084: %IOSXE_OIR-6-ONLINECARD: Card (cc) online in slot 1
*May 24 19:32:53.151: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 1/0
```

验证模块的Power State是否被接受。

```
<#root>
```

```
Cat9600#
```

```
show power module
```

```
Power Budget Mode           : Dual Sup
```

```
Power
```

```

                                Out of In
Mod  Model No
State
      Budget Instantaneous Peak  Reset  Reset
----  -
1    C9600-LC-48YL
accepted
      230      0              0      230      10
2    C9600-LC-24C      accepted 200      0      0      200      10
3    C9600-SUP-1      accepted 775      0      0      775      202
4    C9600-SUP-1      accepted 775      0      0      775      202
FM1  C9606-FAN      accepted 450      --      --      450      --
----  -
Total allocated power: 2430
Total required power: 2430
```

验证是否有任何故障电源。

```
<#root>
```

```
Cat9600#
```

show power detail

Power Supply	Model No	Type	Capacity	Status	Fan States	
					1	2
PS1	C9600-PWR-2KWAC	ac	1050 W	active	good	good
PS2	C9600-PWR-2KWAC	ac	2000 W	active	good	good
PS3	C9600-PWR-2KWAC	ac	n.a.			
fail	bad	bad				
PS4	C9600-PWR-2KWAC	ac	n.a.			
fail	bad	bad				

PS Current Configuration Mode : none  
PS Current Operating State : none

Power supplies currently active : 2  
Power supplies currently available : 4

Power Summary (in Watts)	Used	Maximum Available
System Power	2905	2990
Total	2905	2990

<-- total power budget consumed vs maximum available

Power Budget Mode : Dual Sup

Mod	Model No	Power State	Budget	Instantaneous	Peak	Out of Reset	In Reset
1	C9600-LC-48TX	accepted	315	0	0	315	10
2	C9600-LC-48S	accepted	160	0	0	160	10
3	C9600-SUP-1	accepted	775	0	0	775	202
4	C9600-SUP-1	---	775	--	--	775	0
5	C9600-LC-48YL	accepted	230	0	0	230	10
6	C9600-LC-24C	accepted	200	0	0	200	10
FM1	C9606-FAN	accepted	450	--	--	450	--

Total allocated power: 2905  
Total required power: 2905

## 软件和固件不匹配

- 不同软件或固件版本上的管理引擎无法在高可用性主用/备用角色中同步。
- 与主控引擎固件版本相比，更新固件版本上的线卡可能无法初始化。
- 每个主要软件系列（如16.12.X、17.3.X和17.6.X）的发行版本注释中的升级交换机软件部分中包括的说明
- 手动升级Supervisor的固件/引导程序。



注意：有关如何手动升级Supervisor的固件/引导加载程序的详细信息，请参阅[Catalyst 9600系列交换机Cisco IOS XE Amsterdam 17.3.X的发行版本注释](#)。

```
<#root>
```

```
Cat9600#
```

```
show firmware version all
```

```
Current
```

```
          Bundled  
Slot Device Name / Model
```

```
Firmware Version
```

```
          Firmware Version
```

```
Mismatch
```

```
-----  
3 Supervisor Rommon (Active)
```

```
17.3.1r[FC2]
```

```
          N/A
```

```
          N/A
```

```
<-- Firmware versions are the same
```

```
4 Supervisor Rommon (Standby)
```

```
17.3.1r[FC2]
```

```
          N/A
```

```
          N/A
```

```
<-- Firmware versions are the same
```

```
- Eth Lan Spi                0x800005d3          N/A                N/A  
PS5 Fantray                  18101008           N/A                N/A  
3 Supervisor CPLD  
  IO FPGA                    19041620           19041620           No  
  Flash FPGA                 190308b9           190308b9           No  
4 Supervisor CPLD  
  IO FPGA                    19041620           19041620           No  
  Flash FPGA                 190308b9           190308b9           No  
1 Line Card / C9600-LC-24C  
  IO FPGA                    19070619           19070619           No  
  PMFPGA                     122515             N/A                N/A  
  Phy Firmware               1.56.1772         1.56.2270
```

```
Yes
```

```
2 Line Card / C9600-LC-48YL  
  IO FPGA                    19070619           19070619           No  
  PMFPGA                     122515             N/A                N/A
```

	Phy Firmware	1.56.1772	1.56.2270	
Yes				
5	Line Card / C9600-LC-48YL			
	IO FPGA	19070619	19070619	No
	PMFPGA	122515	N/A	N/A
	Phy Firmware	1.56.1772	1.56.2270	
Yes				
6	Line Card / C9600-LC-24C			
	IO FPGA	19070619	19070619	No
	PMFPGA	122515	N/A	N/A
	Phy Firmware	1.56.1772	1.56.2270	
Yes				

Slot	Device Name / Model	Firmware Version
PS1	Power Supply (PS_PRI, PS_SEC, PS_I2C)	(N/A, N/A, N/A)
PS2	Power Supply (PS_PRI, PS_SEC, PS_I2C)	(N/A, N/A, N/A)
PS3	Power Supply (PS_PRI, PS_SEC, PS_I2C)	(N/A, N/A, N/A)
PS4	Power Supply (PS_PRI, PS_SEC, PS_I2C)	(61.08.03, 61.02.0, N/A)

## 其他故障排除



注意：硬件身份验证状态仅在交换机重新加载时运行。在相同或不同插槽上物理重新拔插线卡后，它不会运行，这未必表示有问题。

如果存在的线卡的身份验证状态为NOT PASS，则执行以下建议步骤：

1. 收集[trace archive](#)，查看IOSRP、CMCC、platform\_mgr和IOMD文件以获取有关此问题类型的相关信息。
2. 受影响组件的物理OIR或重新加载交换机可以尝试查看其是否恢复。
3. 如果问题仍然存在，请打开TAC案例。

```
<#root>
```

```
Cat9600#
```

```
show platform hardware authentication status
```

```
  Fan Tray Authentication:
```

```
pass
```

```
  Line Card:1 Authentication:
```

```
pass
```

Line Card:2 Authentication:

pass

SUP0 Authentication:

pass

SUP1 Authentication:

pass

Line Card:5 Authentication: Not Available

Line Card:6 Authentication: Not Available

<#root>

Cat9600#

show hw-module subslot 1/0 oir internal

IOMD for supervisor slot does not appear  
WARNING: This command is not intended for production use  
and should only be used under the supervision of  
Cisco Systems technical support personnel.

sm(spa\_oir\_tsm subslot 1/0 TSM), running yes, state ready  
Admin Status: admin enabled, Operational Status: ok(1)  
Last reset Reason: power up  
TSM Context:  
configured\_spa\_type 0xD9A

<-- IDPROM is accessible

soft remove fail code 0x0(none)  
last\_fail\_code 0x0(none)  
timed\_fail\_count 0, failed\_spa\_type 0x0  
flags 0x10)

Subslot:

spa type 0xD9A, active spa type 0xD9A  
subslot flags 0x0, plugin flags 0x0

TSM Parameters:

wait\_psm\_ready\_timeout 540000 ms, init\_timeout 300000 ms  
remove\_timeout 120000 ms, recovery\_delay 5000 ms  
fail\_time\_period 1200000 ms, max\_fail\_count 5  
does not support pre-configuration

<#root>

Cat9600#

show platform software iomd redundancy

Configured Redundancy Mode = sso  
Operating Redundancy Mode = sso  
Local RF state = ACTIVE  
Peer RF state = STANDBY HOT

```
slot  PSM STATE   SPA INTF   HA_STATE HA_ACTIVE
  1    ready      started    ready    00:05:54
  2    ready
```

idle

<-- potential issue

```
  3    ready      started    ready    00:05:37 ***active RP
  4    ready      started    ready    00:05:37
```

<#root>

Cat9600#

show idprom module 1 eeprom detail

Slot 1 EEPROM data:

```
EEPROM version           : 4
Compatible Type          : 0xFF
Controller Type          : 3482
Hardware Revision        : 1.0
PCB Part Number          : 73-19545-02
Board Revision           : A0
Deviation Number         : 0
Fab Version              : 02
PCB Serial Number        : CAT2313L2VP
RMA Test History         : 00
RMA Number               : 0-0-0-0
RMA History              : 00
Top Assy. Part Number    : 068-102161-01
Top Assy. Revision       : A0
CLEI Code                : COUIBGRCAA
Product Identifier (PID) : C9600-LC-24C
Version Identifier (VID) : V01
Base MAC Address         : DC 8C 37 A0 C8 80
MAC Address block size   : 128
Environment Monitor Data : 06 00 00 00 0C 80 C8 00
                          A6
Environment Monitor Data : 00 06 00 FA
Manufacturing Test Data  : 00 00 00 00 00 00 00 00
Field Diagnostics Data   : 00 00 00 00 00 00 00 00
Platform features        : 00 00 00 00 00 00 00 00
                          00 00 00 00 00 00 00 00
                          00 00 00 00 00 00 00 00

Environment Monitor Data :
Description               : InltFrnt
Shutdown threshold       : 060
Critical threshold       : 055
Major threshold          : 050
Minor threshold          : 045
Environment Monitor Data :
Description               : InltRear
Shutdown threshold       : 060
Critical threshold       : 055
Major threshold          : 050
Minor threshold          : 045
```

```

Environment Monitor Data :
Description                : 0t1tFrnt
Shutdown threshold        : 090
Critical threshold        : 085
Major threshold           : 080
Minor threshold           : 075
Environment Monitor Data :
Description                : 0t1tRear
Shutdown threshold        : 090
Critical threshold        : 085
Major threshold           : 080
Minor threshold           : 075

```

使用lc-portmap命令获取有关映射到Supervisor中的ASIC/核心的线路卡接口的信息。

```
<#root>
```

```
Cat9600#
```

```
show platform hardware iomd 1/0 lc-portmap detail
```

```
IOMD SUMMARY
```

```
=====
```

```

spa_type: 0xd9a
my_slot: 1
active-slot: 0
is_active: 1
bulk_sync_done: 1
bulk_sync_in_progress: 0
bulk_sync_received: 0
is_plugin_start_done: 1
Num_ports: 48 num_UDAP 3s: 3

```

```
PSM SUMMARY
```

```
=====
```

```

PSM state: ready
ha_state:
is_spa_ok: 0
is_power_ok: 0
psm_flags: 0x0
bay_flags: 0x0
plugin_flags: 0x0

```

Port	fp	asic	core	mac	cntx	asic port	speed	xcvr-pres	xcvr-type	run-speed	phy-num	i2c-ctrl	xcvr-sm	if-state	SerTune-Status	Fa Li
0	1	0	0	0	0	0	40G	no	0	unk	0	0	0	0	NOTS	no
1	2	0	0	2	1	8	40G	no	0	unk	0	0	0	0	NOTS	no
2	3	0	0	16	0	16	40G	no	0	unk	1	0	0	0	NOTS	no
3	4	0	0	18	1	24	40G	no	0	unk	1	0	0	0	NOTS	no
4	5	0	1	14	1	8	40G	no	0	unk	2	0	0	0	NOTS	no
5	6	0	1	12	0	0	40G	no	0	unk	2	0	0	0	NOTS	no
6	7	0	1	30	1	24	40G	no	0	unk	3	0	0	0	NOTS	no
7	8	0	1	28	0	16	40G	no	0	unk	3	0	0	0	NOTS	no
8	9	1	0	0	0	0	40G	no	0	unk	4	0	0	0	NOTS	no
9	10	1	0	2	1	8	40G	no	0	unk	4	0	0	0	NOTS	no
10	11	1	0	16	0	16	40G	no	0	unk	5	0	0	0	NOTS	no
11	12	1	0	18	1	24	40G	no	0	unk	5	0	0	0	NOTS	no
12	13	1	1	14	1	8	40G	no	0	unk	6	0	0	0	NOTS	no

13	14	1	1	12	0	0	40G	no	0	unk	6	0	0	0	NOTS	no
14	15	1	1	30	1	24	40G	no	0	unk	7	0	0	0	NOTS	no
15	16	1	1	28	0	16	40G	no	0	unk	7	0	0	0	NOTS	no
16	17	2	0	0	0	0	40G	no	0	unk	8	1	0	0	NOTS	no
17	18	2	0	2	1	8	40G	no	0	unk	8	1	0	0	NOTS	no
18	19	2	0	16	0	16	40G	no	0	unk	9	1	0	0	NOTS	no
19	20	2	0	18	1	24	40G	no	0	unk	9	1	0	0	NOTS	no
20	21	2	1	14	1	8	40G	no	0	unk	10	1	0	0	NOTS	no
21	22	2	1	12	0	0	40G	no	0	unk	10	1	0	0	NOTS	no
22	23	2	1	30	1	24	40G	no	0	unk	11	1	0	0	NOTS	no
23	24	2	1	28	0	16	40G	no	0	unk	11	1	0	0	NOTS	no
24	25	0	0	0	0	0	100G	no	0	unk	0	0	0	0	NOTS	no
25	26	0	0	0	0	0	100G	no	0	unk	0	0	0	0	NOTS	no
26	27	0	0	16	0	16	100G	no	0	unk	1	0	0	0	NOTS	no
27	28	0	0	16	0	16	100G	no	0	unk	1	0	0	0	NOTS	no
28	29	0	1	12	0	0	100G	no	0	unk	2	0	0	0	NOTS	no
29	30	0	1	12	0	0	100G	no	0	unk	2	0	0	0	NOTS	no
30	31	0	1	28	0	16	100G	no	0	unk	3	0	0	0	NOTS	no
31	32	0	1	28	0	16	100G	no	0	unk	3	0	0	0	NOTS	no
32	33	1	0	0	0	0	100G	no	0	unk	4	0	0	0	NOTS	no
33	34	1	0	0	0	0	100G	no	0	unk	4	0	0	0	NOTS	no
34	35	1	0	16	0	16	100G	no	0	unk	5	0	0	0	NOTS	no
35	36	1	0	16	0	16	100G	no	0	unk	5	0	0	0	NOTS	no
36	37	1	1	12	0	0	100G	no	0	unk	6	0	0	0	NOTS	no
37	38	1	1	12	0	0	100G	no	0	unk	6	0	0	0	NOTS	no
38	39	1	1	28	0	16	100G	no	0	unk	7	0	0	0	NOTS	no
39	40	1	1	28	0	16	100G	no	0	unk	7	0	0	0	NOTS	no
40	41	2	0	0	0	0	100G	no	0	unk	8	1	0	0	NOTS	no
41	42	2	0	0	0	0	100G	no	0	unk	8	1	0	0	NOTS	no
42	43	2	0	16	0	16	100G	no	0	unk	9	1	0	0	NOTS	no
43	44	2	0	16	0	16	100G	no	0	unk	9	1	0	0	NOTS	no
44	45	2	1	12	0	0	100G	no	0	unk	10	1	0	0	NOTS	no
45	46	2	1	12	0	0	100G	no	0	unk	10	1	0	0	NOTS	no
46	47	2	1	28	0	16	100G	no	0	unk	11	1	0	0	NOTS	no
47	48	2	1	28	0	16	100G	no	0	unk	11	1	0	0	NOTS	no

<#root>

Cat9600#

show platform software fed [active | standby] ifm mappings

Interface	IF_ID	Inst	Asic	Core	Port	SubPort	Mac	Cntx	LPN	GPN	Type	Active
TwentyFiveGigE1/0/1	0x9	0	0	0	0	0	0	0	1	101	NIF	Y
TwentyFiveGigE1/0/2	0xa	0	0	0	4	0	1	1	2	102	NIF	Y
TwentyFiveGigE1/0/3	0xb	0	0	0	8	0	2	2	3	103	NIF	Y
TwentyFiveGigE1/0/4	0xc	0	0	0	12	0	3	3	4	104	NIF	Y
TwentyFiveGigE1/0/5	0xd	0	0	0	16	0	16	0	5	105	NIF	Y
TwentyFiveGigE1/0/6	0xe	0	0	0	20	0	17	1	6	106	NIF	Y
TwentyFiveGigE1/0/7	0xf	0	0	0	24	0	18	2	7	107	NIF	Y
TwentyFiveGigE1/0/8	0x10	0	0	0	28	0	19	3	8	108	NIF	Y
TwentyFiveGigE1/0/9	0x11	1	0	1	12	0	15	3	9	109	NIF	Y
TwentyFiveGigE1/0/10	0x12	1	0	1	8	0	14	2	10	110	NIF	Y
TwentyFiveGigE1/0/11	0x13	1	0	1	4	0	13	1	11	111	NIF	Y
TwentyFiveGigE1/0/12	0x14	1	0	1	0	0	12	0	12	112	NIF	Y
TwentyFiveGigE1/0/13	0x15	1	0	1	28	0	31	3	13	113	NIF	Y
TwentyFiveGigE1/0/14	0x16	1	0	1	24	0	30	2	14	114	NIF	Y
TwentyFiveGigE1/0/15	0x17	1	0	1	20	0	29	1	15	115	NIF	Y
TwentyFiveGigE1/0/16	0x18	1	0	1	16	0	28	0	16	116	NIF	Y
TwentyFiveGigE1/0/17	0x19	2	1	0	0	0	0	0	17	117	NIF	Y

TwentyFiveGigE1/0/18	0x1a	2	1	0	4	0	1	1	18	118	NIF	Y
TwentyFiveGigE1/0/19	0x1b	2	1	0	8	0	2	2	19	119	NIF	Y
TwentyFiveGigE1/0/20	0x1c	2	1	0	12	0	3	3	20	120	NIF	Y
TwentyFiveGigE1/0/21	0x1d	2	1	0	16	0	16	0	21	121	NIF	Y
TwentyFiveGigE1/0/22	0x1e	2	1	0	20	0	17	1	22	122	NIF	Y
TwentyFiveGigE1/0/23	0x1f	2	1	0	24	0	18	2	23	123	NIF	Y
TwentyFiveGigE1/0/24	0x20	2	1	0	28	0	19	3	24	124	NIF	Y
TwentyFiveGigE1/0/25	0x21	3	1	1	12	0	15	3	25	125	NIF	Y
TwentyFiveGigE1/0/26	0x22	3	1	1	8	0	14	2	26	126	NIF	Y
TwentyFiveGigE1/0/27	0x23	3	1	1	4	0	13	1	27	127	NIF	Y
TwentyFiveGigE1/0/28	0x24	3	1	1	0	0	12	0	28	128	NIF	Y
TwentyFiveGigE1/0/29	0x25	3	1	1	28	0	31	3	29	129	NIF	Y
TwentyFiveGigE1/0/30	0x26	3	1	1	24	0	30	2	30	130	NIF	Y
TwentyFiveGigE1/0/31	0x27	3	1	1	20	0	29	1	31	131	NIF	Y
TwentyFiveGigE1/0/32	0x28	3	1	1	16	0	28	0	32	132	NIF	Y
TwentyFiveGigE1/0/33	0x29	4	2	0	0	0	0	0	33	133	NIF	Y
TwentyFiveGigE1/0/34	0x2a	4	2	0	4	0	1	1	34	134	NIF	Y
TwentyFiveGigE1/0/35	0x2b	4	2	0	8	0	2	2	35	135	NIF	Y
TwentyFiveGigE1/0/36	0x2c	4	2	0	12	0	3	3	36	136	NIF	Y
TwentyFiveGigE1/0/37	0x2d	4	2	0	16	0	16	0	37	137	NIF	Y
TwentyFiveGigE1/0/38	0x2e	4	2	0	20	0	17	1	38	138	NIF	Y
TwentyFiveGigE1/0/39	0x2f	4	2	0	24	0	18	2	39	139	NIF	Y
TwentyFiveGigE1/0/40	0x30	4	2	0	28	0	19	3	40	140	NIF	Y
TwentyFiveGigE1/0/41	0x31	5	2	1	12	0	15	3	41	141	NIF	Y
TwentyFiveGigE1/0/42	0x32	5	2	1	8	0	14	2	42	142	NIF	Y
TwentyFiveGigE1/0/43	0x33	5	2	1	4	0	13	1	43	143	NIF	Y
TwentyFiveGigE1/0/44	0x34	5	2	1	0	0	12	0	44	144	NIF	Y
TwentyFiveGigE1/0/45	0x35	5	2	1	28	0	31	3	45	145	NIF	Y
TwentyFiveGigE1/0/46	0x36	5	2	1	24	0	30	2	46	146	NIF	Y
TwentyFiveGigE1/0/47	0x37	5	2	1	20	0	29	1	47	147	NIF	Y
TwentyFiveGigE1/0/48	0x38	5	2	1	16	0	28	0	48	148	NIF	Y
TwentyFiveGigE2/0/2	0x3a	0	0	0	9	0	9	9	2	202	NIF	Y
TwentyFiveGigE2/0/3	0x3b	0	0	0	10	0	10	10	3	203	NIF	Y
TwentyFiveGigE2/0/4	0x3c	0	0	0	11	0	11	11	4	204	NIF	Y
TwentyFiveGigE2/0/5	0x3d	0	0	0	18	0	24	8	5	205	NIF	Y
TwentyFiveGigE2/0/6	0x3e	0	0	0	25	0	25	9	6	206	NIF	Y
TwentyFiveGigE2/0/7	0x3f	0	0	0	26	0	26	10	7	207	NIF	Y
TwentyFiveGigE2/0/8	0x40	0	0	0	27	0	27	11	8	208	NIF	Y
TwentyFiveGigE2/0/9	0x41	1	0	1	7	0	7	7	9	209	NIF	Y
TwentyFiveGigE2/0/10	0x42	1	0	1	6	0	6	6	10	210	NIF	Y
TwentyFiveGigE2/0/11	0x43	1	0	1	5	0	5	5	11	211	NIF	Y
TwentyFiveGigE2/0/12	0x44	1	0	1	1	0	4	4	12	212	NIF	Y
TwentyFiveGigE2/0/13	0x45	1	0	1	23	0	23	7	13	213	NIF	Y
TwentyFiveGigE2/0/14	0x46	1	0	1	22	0	22	6	14	214	NIF	Y
TwentyFiveGigE2/0/15	0x47	1	0	1	21	0	21	5	15	215	NIF	Y
TwentyFiveGigE2/0/16	0x48	1	0	1	17	0	20	4	16	216	NIF	Y
TwentyFiveGigE2/0/17	0x49	2	1	0	2	0	8	8	17	217	NIF	Y
TwentyFiveGigE2/0/18	0x4a	2	1	0	9	0	9	9	18	218	NIF	Y
TwentyFiveGigE2/0/19	0x4b	2	1	0	10	0	10	10	19	219	NIF	Y
TwentyFiveGigE2/0/20	0x4c	2	1	0	11	0	11	11	20	220	NIF	Y
TwentyFiveGigE2/0/21	0x4d	2	1	0	18	0	24	8	21	221	NIF	Y
TwentyFiveGigE2/0/22	0x4e	2	1	0	25	0	25	9	22	222	NIF	Y
TwentyFiveGigE2/0/23	0x4f	2	1	0	26	0	26	10	23	223	NIF	Y
TwentyFiveGigE2/0/24	0x50	2	1	0	27	0	27	11	24	224	NIF	Y
TwentyFiveGigE2/0/25	0x51	3	1	1	7	0	7	7	25	225	NIF	Y
TwentyFiveGigE2/0/26	0x52	3	1	1	6	0	6	6	26	226	NIF	Y
TwentyFiveGigE2/0/27	0x53	3	1	1	5	0	5	5	27	227	NIF	Y
TwentyFiveGigE2/0/28	0x54	3	1	1	1	0	4	4	28	228	NIF	Y
TwentyFiveGigE2/0/29	0x55	3	1	1	23	0	23	7	29	229	NIF	Y
TwentyFiveGigE2/0/30	0x56	3	1	1	22	0	22	6	30	230	NIF	Y
TwentyFiveGigE2/0/31	0x57	3	1	1	21	0	21	5	31	231	NIF	Y
TwentyFiveGigE2/0/32	0x58	3	1	1	17	0	20	4	32	232	NIF	Y

TwentyFiveGigE2/0/33	0x59	4	2	0	2	0	8	8	33	233	NIF	Y
TwentyFiveGigE2/0/34	0x5a	4	2	0	9	0	9	9	34	234	NIF	Y
TwentyFiveGigE2/0/35	0x5b	4	2	0	10	0	10	10	35	235	NIF	Y
TwentyFiveGigE2/0/36	0x5c	4	2	0	11	0	11	11	36	236	NIF	Y
TwentyFiveGigE2/0/37	0x5d	4	2	0	18	0	24	8	37	237	NIF	Y
TwentyFiveGigE2/0/38	0x5e	4	2	0	25	0	25	9	38	238	NIF	Y
TwentyFiveGigE2/0/39	0x5f	4	2	0	26	0	26	10	39	239	NIF	Y
TwentyFiveGigE2/0/40	0x60	4	2	0	27	0	27	11	40	240	NIF	Y
TwentyFiveGigE2/0/41	0x61	5	2	1	7	0	7	7	41	241	NIF	Y
TwentyFiveGigE2/0/42	0x62	5	2	1	6	0	6	6	42	242	NIF	Y
TwentyFiveGigE2/0/43	0x63	5	2	1	5	0	5	5	43	243	NIF	Y
TwentyFiveGigE2/0/44	0x64	5	2	1	1	0	4	4	44	244	NIF	Y
TwentyFiveGigE2/0/45	0x65	5	2	1	23	0	23	7	45	245	NIF	Y
TwentyFiveGigE2/0/46	0x66	5	2	1	22	0	22	6	46	246	NIF	Y
TwentyFiveGigE2/0/47	0x67	5	2	1	21	0	21	5	47	247	NIF	Y
TwentyFiveGigE2/0/48	0x68	5	2	1	17	0	20	4	48	248	NIF	Y

## 为TAC收集的命令

本指南介绍了最常见的硬件问题和验证命令，并提供了相应的补救步骤。但是，如果此指南未能解决您的问题，请收集显示的命令列表，并将其附加到TAC服务请求中。

```
<#root>
```

```
show tech-support
show post
show platform hardware authentication status
show platform hardware chassis fantray detail
show platform software iomd redundancy
```

```
request platform software trace archive
service internal
```

(for the standby command 'service internal' needs to be enabled first)

```
request platform software trace slot rp standby archive target stby-bootflash
```

## 关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

请注意：即使是最好的机器翻译，其准确度也不及专业翻译人员的水平。

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