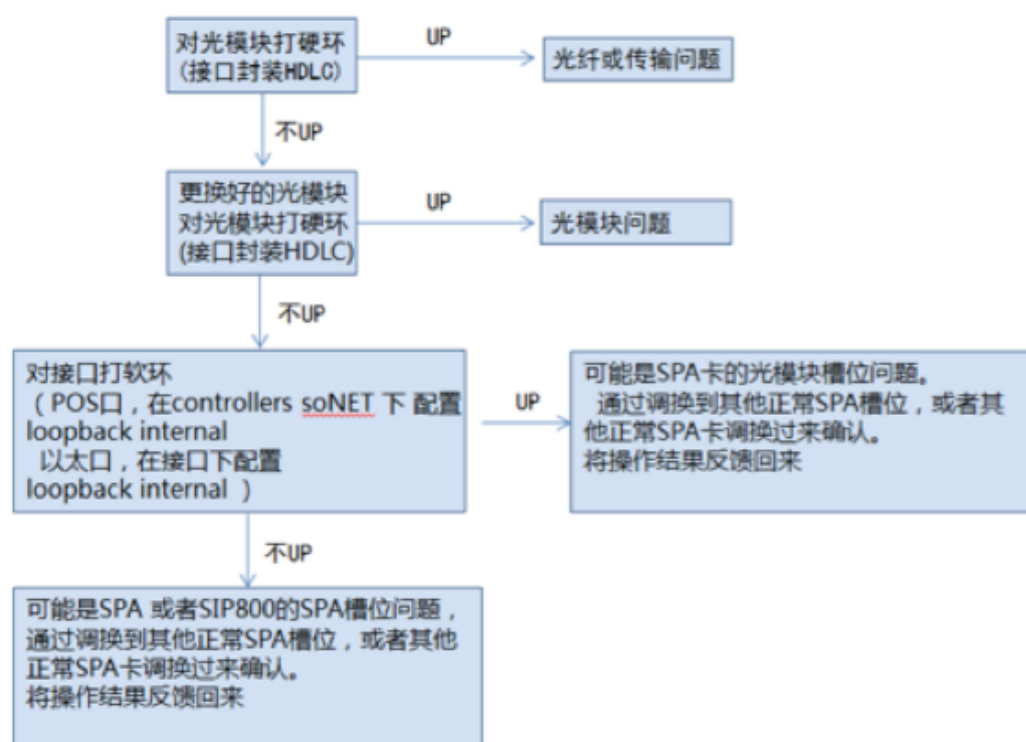




# 接口故障处理步骤

端口打环流程：



端口迁移流程:

- 1> shutdown 原有接口
- 2> 记录原有接口配置：show run interface 接口名
- 3> 删除原有接口 ip 地址：no ip address
- 4> 复制接口配置到新接口
- 5> 根据需要给新接口增加其他业务相关的配置：isis, 静态路由, TE 相关的配置

#### 查找接口相关静态路由

```
show run router static | in 2/1/0/0
```

```
118.84.117.128/32 HundredGigE2/1/0/0 202.103.236.58 tag 64640 description For-  
GXNN-MAN-AS64640-VNH
```

```
222.217.167.2/32 HundredGigE2/1/0/0 202.103.236.58 tag 64640 description For-  
GXNN-MAN-AS64640-LO
```

```
240e::d:92:1:1001/128 HundredGigE2/1/0/0 240e:9:1002:f023::3 tag 64640 description  
For-GXNN-MAN-AS64640-VNH-V6
```

```
240e:9:1000::2/128 HundredGigE2/1/0/0 240e:9:1002:f023::3 tag 64640 description  
For-GXNN-MAN-AS64640-LO-V6
```

#### 删除接口相关静态路由

```
router static
```

```
address-family ipv4 unicast
```

```
no 118.84.117.128/32 HundredGigE2/1/0/0 202.103.236.58 tag 64640 description For-  
GXNN-MAN-AS64640-VNH
```

```
no 222.217.167.2/32 HundredGigE2/1/0/0 202.103.236.58 tag 64640 description For-  
GXNN-MAN-AS64640-LO
```

```
address-family ipv6 unicast
```

```
no 240e::d:92:1:1001/128 HundredGigE2/1/0/0 240e:9:1002:f023::3 tag 64640  
description For-GXNN-MAN-AS64640-VNH-V6
```

```
no 240e:9:1000::2/128 HundredGigE2/1/0/0 240e:9:1002:f023::3 tag 64640 description  
For-GXNN-MAN-AS64640-LO-V6
```

#### 添加新接口相关静态路由

```
router static
```

```
address-family ipv4 unicast
```

```
no 118.84.117.128/32 HundredGigE2/2/0/0 202.103.236.58 tag 64640 description For-  
GXNN-MAN-AS64640-VNH
```

```
no 222.217.167.2/32 HundredGigE2/2/0/0 202.103.236.58 tag 64640 description For-  
GXNN-MAN-AS64640-LO
```

```
address-family ipv6 unicast
```

```
no 240e::d:92:1:1001/128 HundredGigE2/2/0/0 240e:9:1002:f023::3 tag 64640  
description For-GXNN-MAN-AS64640-VNH-V6
```

```
no 240e:9:1000::2/128 HundredGigE2/2/0/0 240e:9:1002:f023::3 tag 64640 description  
For-GXNN-MAN-AS64640-LO-V6
```

## 10/100GE LAN 接口物理 down，协议 down:

platform : CRS
hw part : 10GE LAN 接口
sw ver : XR

```
RP/0/RP0/CPU0:JS-WX-RM-D-1.163#sh int TenGigE2/5/0/2
```

```
Tue Oct 13 17:32:01.442 GMT
```

```
TenGigE2/5/0/2 is down, line protocol is down
```

```
Interface state transitions: 0
```

```
Hardware is TenGigE, address is c08c.605b.3eac (bia c08c.605b.3eac)
```

```
Description: To JS-NJ-GL-AS23650-IDC 10G():processing
```

```
Internet address is Unknown
```

### Executive and Analysis:

#### 1. 检查接口收光情况 （若收光异常，通常导致接口无法 UP ）

用 sh controller tenGigE x/x/x/x phy 检查收发光功率，根据光模块类型，对比收发光功率是否合理。当发光功率不在标准范围时，请更换光模块；当收光功率大于最大接收功率时，请加衰减；当收光功率小于最小收光功率时，请检查光纤或对端的放光功率；当收光没有能量时，请检查光纤收发是否接反。

```
RP/0/RP0/CPU0:JS-WX-RM-D-1.163#sh controller TenGigE2/5/0/2 phy
```

```
Tue Oct 13 17:32:44.728 GMT
```

```
... ..
```

```
XFP Detail Info:
```

```
=====
```

```
Temp: 30.247
```

```
Tx bias: 41.612 mA
```

```
Tx power: 0.5242 mW ( -2.8 dBm)
```

```
<=====检查
```

收发光功率，确认是否在光模块的范围内。

```
Rx power: 0.0000 mW (-40.0 dBm)
```

```
<=====检查
```

收发光功率，确认是否在光模块的范围内。

```
AUX 1: +3.3V Supply Voltage: 0x70
```

```
AUX 2: Auxiliary monitoring not implemented: 0x0
```

确认光模块类型：show invent 检查对应模块的类型,然后根据类型检查光功率参数表

#### 2. 若收发光正常，则进行打硬环确认端口是否正常

做端口硬环，用测试正常的光纤在端口本地连接端口的收发；检查 show interface ten x/x/x/x, 如果接口协议都 up, 说明端口正常。如果不能看到硬环，且端口无法 UP, 说明端口或光模块存在硬件问题，则需依次更换光模块再次硬环，确认其状态，以排

除光模块问题。

做硬环测试时，检查接口是否 UP/UP，ping 本地 IP 地址是否有丢包，并 show interface TenGigE x/x/x/x 检查接口下 input error 和 CRC 是否有增长。如果有增长说明光模块或硬环尾纤有问题，先更换打硬环的尾纤，再做 ping 测试和接口 input error 和 CRC 是否增长的检查。如果仍然有增长，可以确认是光模块故障。

```
interface TenGigE x/x/x/x
```

loopback external >>>以太接口打硬环时，请配置此命令，不然数据包不走光模块。

请保留测试的 session log 信息，发给思科工程师或上传 case 工单系统

3. 软环测试，在硬件环依旧无法 UP 情况下做此操作：

```
interface TenGigE x/x/x/x
```

```
loopback internal
```

4. 若接口成功 UP，说明板卡应该正常，可能为光模块插槽问题；若上述软环后，接口不能 UP，则说明为板卡芯片问题，此时需进行 SPA 卡互换，确认问题是否依旧，请保留测试的 session log 信息，上传 case 工单系统。

**CLI list:**

```
show interface pos x/y/z/n
```

```
show controller sonet x/y/z/n
```

```
controllers sonnet x/x/x/x
```

```
loopback internal
```

## 10GE WAN 以太接口物理 down，协议 down:

platform : CRS

hw part : 10GE WAN

**Executive and Analysis:**

1. 确认板卡类型，确认其物理连接类型及板卡注册情况：

RP/0/RP0/CPU0:JS-NJ-YFXJ-C-4.163#SH DIAG 2/14/0

SPA 2/14/0 : Cisco 1-Port 10GE LAN/WAN-PHY Shared Port Adapter

MAIN: board type 053c

68-2704-01 rev G0

dev N/A

S/N JAE15370DSV

PCA: 73-10691-01 rev E0

PID: SPA-1X10GE-WL-V2

VID: V01

CLEI: CNUATFAAA

**Node State : OK**

RP/0/RP0/CPU0:JS-NJ-YFXJ-C-4.163#SH INVENT 2/14/0

Tue Jun 19 23:49:05.532 PRC

NAME: "2/14/0", DESCR: "Cisco 1-Port 10GE LAN/WAN-PHY Shared Port Adapter"

PID: SPA-1X10GE-WL-V2 , VID: V01, SN: JAE15370DSV

NAME: "2/14/0/0", DESCR: "OC192 + 10GBASE-L"

PID: XFP-10GLR-OC192SR , VID: V02 , SN: ECL111500GG

## 2. 检查接口收光情况（若收光异常，通常导致接口无法 UP）

RP/0/RP0/CPU0:JS-NJ-YFXJ-C-4.163#sh controller tenGigE 2/14/0/0 phy | be  
Environmental

Tue Jun 19 23:51:49.351 PRC

Environmental Information - raw values

Temperature: 8602

Tx voltage: 0 in units of 100uVolt

Tx bias: 0 uA

Tx power: -40 dBm (0 in units of 0.1 uW)

Rx power: -25 dBm (25 in units of 0.1 uW)

(AUX1) +3.3V Supply Voltage: 32519

## 3. 若如上排查均正常，请检查 controller 下 SDH 告警是否消除，是否存在传输误码

#sho controller wanphy 2/14/0/0 alarms

Tue Jun 19 23:57:33.038 PRC

Interface: wanphy2\_14\_0\_0

Configuration Mode: WAN Mode

SECTION

LOF = 1, LOS = 1, **BIP(B1) = 0**

LINE

AIS = 1, RDI = 0, **FEBE = 0, BIP(B2) = 0**

PATH

AIS = 1, RDI = 0, **FEBE = 0, BIP(B3) = 0**

LOP = 0, NEWPTR = 0, PSE = 0, NSE = 0

WIS ALARMS

SER = 1, FELCDP = 0, FEAISP = 0

WLOS = 1, PLCD = 0

LFEBIP = 0, PBEC = 0

**Active Alarms[All defects]: lof,** < ----- 此处显示产生告警原因**Active Alarms[Highest Alarms]: lof** < ----- 此处显示产生告警原因

Rx(K1/K2): N/A, Tx(K1/K2): N/A

S1S0 = N/A, C2 = N/A

PATH TRACE BUFFER

Remote IP addr:

BER thresholds: N/A

TCA thresholds: N/A

4. 若经过如上排查依旧无法定位，则进行打硬环确认端口是否正常

做硬环测试时，检查接口是否 UP/UP，ping 本地 IP 地址是否有丢包，并 show interface TenGigE x/x/x/x 检查接口下 input error 和 CRC 是否有增长。如果有增长说明光模块或硬环尾纤有问题，先更换打硬环的尾纤，再做 ping 测试和接口 input error 和 CRC 是否增长的检查。如果仍然有增长，可以确认是光模块故障。

```
interface TenGigE x/x/x/x
```

```
    loopback external >>>以太接口打硬环时，请配置此命令，不然数据包不走光模块。
```

请保留测试的 session log 信息，发给思科工程师或上传 case 工单系统

5. 软环测试，在硬件环依旧无法 UP 情况下做此操作：

```
interface TenGigE x/x/x/x
```

```
    loopback internal
```

6. 若接口成功 UP，ping 测试无丢包。说明板卡应该正常，可能为光模块插槽问题；若接口不能成功 UP，此时需进行 SPA 卡互换，确认问题是否依旧，请保留测试的 session log 信息，上传 case 工单系统。

**CLI list:**

```
Show diag x/x/x
```

```
Sh controller tenGigE 2/14/0/0 phy | be Environmental
```

```
sh controller wanphy 2/14/0/0 alarms
```

```
loopback internal
```

## 10GE 的 OC192 POS 接口物理 down，协议 down

platform : CRS

hw part : POS

sw ver : XR

**Executive and Analysis:**

1. 首先检查接口收发光是否正常，端口光功率是否处于正常范围

```
RP/0/RP0/CPU0:GD-GZ-TT-X-4.163#sh controllers soNET 0/0/0/0
```

```
Port SONET0/0/0/0:
```

```
Status: Up
```

```
Loopback: None
```

```
SECTION
```

```
LOF = 0      LOS   = 0      BIP(B1) = 0
LINE
AIS = 0      RDI    = 0      FEBE = 0      BIP(B2) = 0
PATH
AIS = 0      RDI    = 0      FEBE = 0      BIP(B3) = 0
LOP = 0      NEWPTR = 0      PSE  = 0      NSE   = 0
PLM = 0      TIM    = 0      UNEQ = 0
```

Line delays trigger: 49 ms clear: 10000 ms

Path delays trigger: 49 ms, 49 ms (configured), clear: 10000 ms

Last clearing of "show controllers SONET" counters 04:01:50

**Detected Alarms:** None <===检查 detected alarm 的类型，正常是 none，如果是其他类型，请关注

Asserted Alarms: None

Mask for Detected->Asserted: None

Detected Alerts: None

Reported Alerts: None

Mask for Detected->Reported: None

Alarm reporting enabled for: SLOS SLOF SF\_BER PLOP

Alert reporting enabled for: B1-TCA B2-TCA B3-TCA

<skip>

.....

Optical Power Monitoring (accuracy: +/- 1dB)

Rx power = 0.1850 mW, -7.3 dBm 《===检查收发的功率，注意在在光模块的范围里

Tx power = 1.1540 mW, 0.6 dBm

Tx laser current bias = 70.9 mA 《===检查收发的功率，注意在在光模块的范围里

确认光模块类型：show invent 检查对应模块的类型,然后根据类型检查光功率参数表

2. 若发现收光不正常，则对该接口进行硬环测试，并反馈

对光模块打硬环（接口封装 HDLC，接口时钟为 internal），如果 UP/UP，则为光纤或传输问题。

如果不 UP/UP，更换光模块，并再次对光模块打硬环（接口封装 HDLC），

如果 UP/UP，则确认为原光模块问题，若不 UP 转到下一步，

通过 show interface pos x/x/x/x 来检查是否 UP UP

**时钟调整方式：**

controllers sonnet x/x/x/x

clock source internal

3. 若经如上操作，若接口依然 down，进行软环测试，并反馈

controllers sonnet x/x/x/x

loopback internal

4. 若接口成功 UP，说明板卡应该正常，可能为光模块插槽问题；此时需进行 SPA 卡互换，确认问题是否依旧，并反馈
5. 若上述软环后，接口不能 UP，则说明为板卡芯片问题，依旧先调换 SPA 卡，并反馈结果。
6. 做硬环测试时，请保留测试的 session log 信息，上传 case 工单系统。

## 40GE 的 OC768 POS 接口物理 down，协议 down

platform : CRS

hw part : POS

sw ver : XR

### Executive and Analysis:

1. 首先检查接口收发光是否正常，端口光功率是否处于正常范围

RP/0/RP0/CPU0:GD-GZ-TT-X-4.163#sh controllers soNET 0/0/0/0

Port SONET0/0/0/0:

Status: Up

Loopback: None

SECTION

LOF = 0      LOS = 0      BIP(B1) = 0

LINE

AIS = 0      RDI = 0      FEBE = 0      BIP(B2) = 0

PATH

AIS = 0      RDI = 0      FEBE = 0      BIP(B3) = 0

LOP = 0      NEWPTR = 0      PSE = 0      NSE = 0



PLM = 0      TIM    = 0      UNEQ = 0

Line delays trigger:    49 ms clear: 10000 ms

Path delays trigger:    49 ms,    49 ms (configured), clear: 10000 ms

Last clearing of "show controllers SONET" counters 04:01:50

**Detected Alarms:** None      <===检查 detected alarm 的类型，正常是 none，如果是其他类型，请关注

Asserted Alarms: None

Mask for Detected->Asserted: None

Detected Alerts: None

Reported Alerts: None

Mask for Detected->Reported: None

Alarm reporting enabled for: SLOS SLOF SF\_BER PLOP

Alert reporting enabled for: B1-TCA B2-TCA B3-TCA

<skip>

.....

Optical Power Monitoring (accuracy: +/- 1dB)

Rx power = 0.1850 mW, -7.3 dBm      《===检查收发的功率，注意在在光模块的范围里

Tx power = 1.1540 mW, 0.6 dBm

Tx laser current bias = 70.9 mA      《===检查收发的功率，注意在在光模块的范围里

确认光模块类型：show invent 检查对应模块的类型,然后根据类型检查光功率参数表

7. 若发现收光不正常，则对该接口进行硬环测试，并反馈

对光模块打硬环（接口封装 HDLC，接口时钟为 internal），如果 UP/UP，则为光纤或传输问题。

如果不 UP/UP，更换光模块，并再次对光模块打硬环（接口封装 HDLC），

如果 UP/UP，则确认为原光模块问题，若不 UP 转到下一步，

通过 show interface pos x/x/x/x 来检查是否 UP UP

**时钟调整方式：**

controllers sonnet x/x/x/x

clock source internal

8. 若经如上操作，若接口依然 down，进行软环测试，并反馈

controllers sonnet x/x/x/x

loopback internal

9. 若接口成功 UP，说明板卡应该正常，可能为光模块插槽问题；此时需进行 SPA 卡互换，确认问题是否依旧，并反馈
10. 若上述软环后，接口不能 UP，则说明为板卡芯片问题，依旧先调换 SPA 卡，并反馈结果。
11. 做硬环测试时，请保留测试的 session log 信息，上传 case 工单系统。

**CLI list:**

show interface pos x/y/z/n

show controller sonet x/y/z/n

controllers sonnet x/x/x/x

## 没有配置时钟源导致 40GE 的 **OC768** 接口打硬环 接口 **down**，协议 **down**

Symptom:

platform : CRS

hw part :

sw ver : **XR 4.2.4**

Oc768 接口打硬环时，接口 down，协议 down

RP/0/RP0/CPU0:JS-NJ-YFXJ-C-3.163#show int pos 4/0/0/0

Mon Sep 14 23:42:18.787 PRC

POS4/0/0/0 is **down, line protocol is down** (APS not Configured )

Interface state transitions: 6

Hardware is Packet over SONET/SDH

Description: To JS-NJ-GL-AS64660-MAN 40G(): processing

Internet address is Unknown

MTU 4474 bytes, **BW 39813120** Kbit (Max: 39813120 Kbit)

reliability 214/255, txload 0/255, rxload 0/255

Encapsulation **HDLC**, crc 32, controller loopback not set, keepalive set (10 sec)

Last input never, output 00:00:24

Last clearing of "show interface" counters 01:17:53

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 2 total input drops

0 drops for unrecognized upper-level protocol

Received 0 runts, 0 giants, 0 throttles, 0 parity

2 input errors, 2 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

3 packets output, 54 bytes, 0 total output drops

0 output errors, 0 underruns, 0 applique, 0 resets

0 output buffer failures, 0 output buffers swapped out

### Executive and Analysis:

1. 检查 controller sonet 的信息，关注黄色字体部分：

RP/0/RP0/CPU0:JS-NJ-YFXJ-C-3.163#show controllers sonET 4/0/0/0

Port SONET4/0/0/0:

Status: Down

Loopback: None

SECTION

LOF = 0	LOS = 0	BIP(B1) = 4303	
LINE			
AIS = 0	RDI = 1	FEBE = 814380	BIP(B2) = 3064597
PATH			
AIS = 2	RDI = 0	FEBE = 0	BIP(B3) = 0
LOP = 2	NEWPTR = 0	PSE = 0	NSE = 0
PLM = 0	TIM = 0	UNEQ = 0	

Line delays trigger: 0 ms clear: 10000 ms  
Path delays trigger: 0 ms, 0 ms (configured), clear: 10000 ms  
Last clearing of "show controllers SONET" counters 01:17:38

Detected Alarms: SD\_BER PAIS 《===信号质量不好，产生 SD-BER 告警

Asserted Alarms: SD\_BER PAIS

Mask for Detected->Asserted: PRDI PUNEQ PTIM PPLM

Detected Alerts: B2-TCA

Reported Alerts: B2-TCA

Mask for Detected->Reported: B3-TCA

Alarm reporting enabled for: SLOS SLOF SF\_BER PLOP

Alert reporting enabled for: B1-TCA B2-TCA B3-TCA

Framing: SONET

SPE Scrambling: Enabled

C2 State: Unstable C2\_rx = 0x16 (22) C2\_tx = 0x16 (22) / Scrambling Derived

S1S0(tx): 0x0 S1S0(rx): 0x0 / Framing Derived

PATH TRACE BUFFER : UNSTABLE

Remote hostname : JS-NJ-YFXJ-C-3.163

Remote interface: POS4/0/0/0

Remote IP addr : 0.0.0.0

APS

No APS Group Configured

Rx(K1/K2) : 0x00/0x00

Tx(K1/K2) : 0x00/0x00

Remote Rx(K1/K2): 01/0 Remote Tx(K1/K2): 01/0

BER thresholds: SF = 10e-3 SD = 10e-6

TCA thresholds: B1 = 10e-6 B2 = 10e-6 B3 = 10e-6

Optics type: VSR2000-3R2 (2km)

Clock source: line (actual) line (configured) 《===时钟源为 line

Rx S1: 0x0 Tx S1: 0x0

Optical Power Monitoring (accuracy: +/- 1dB)

Rx power = 1.5194 mW, 1.8 dBm 《===收发光功率在合理范围

Tx power = 1.5020 mW, 1.8 dBm

Tx laser current bias = 91.7 mA

2. OC768 板卡不能更换光模块，可以先把板卡拔插或重启一下

3. 检查 controller sonet 下的配置，建议打环前完成时钟配置，一般配置 internal 时钟

controller SONET4/0/0/0

ais-shut

line

delay trigger 49

!

path

ais-shut

delay trigger 49

!

clock source internal

#### CLI list:

Show interface pos 4/0/0/0 关注 interface 状态，protocol 状态，encapsulation 类型

Show controller sonet 4/0/0/0 关注 status, Detected Alarms, Clock source, Rx power, Tx power

## 100GE 接口 flapping, 由于光模块问题

platform : CRS

hw part : CFP-100G-LR4=

sw ver : XR

5/5 接口 flapping, 和 6/3 调换光模块后恢复, 原 5/5 光模块放在 6/3 槽位

### Executive and Analysis:

#### 1. 检查 log

LC/5/5/CPU0:Nov 4 00:00:08.920 : plim\_1p\_cge[280]: %L2-PLIM\_ETHER-2-RX\_LF : Interface HundredGigE5/5/0/0, Detected Local Fault

LC/5/5/CPU0:Nov 4 00:00:14.982 : plim\_1p\_cge[280]: %L2-PLIM\_ETHER-2-RX\_LF : Interface HundredGigE5/5/0/0, Detected Local Fault

LC/5/5/CPU0:Nov 4 00:48:29.107 : ifmgr[189]: %PKT\_INFRA-LINK-3-UPDOWN : Interface HundredGigE5/5/0/0, changed state to Up

LC/5/5/CPU0:Nov 4 00:48:29.107 : ifmgr[189]: %PKT\_INFRA-LINEPROTO-5-UPDOWN : Line protocol on Interface HundredGigE5/5/0/0, changed state to Up

LC/5/5/CPU0:Nov 4 00:54:31.128 : plim\_1p\_cge[280]: %L2-PLIM\_ETHER-2-RX\_LF : Interface HundredGigE5/5/0/0, Detected Local Fault

LC/5/5/CPU0:Nov 4 00:54:31.128 : ifmgr[189]: %PKT\_INFRA-LINK-3-UPDOWN : Interface HundredGigE5/5/0/0, changed state to Down

LC/5/5/CPU0:Nov 4 00:54:31.128 : ifmgr[189]: %PKT\_INFRA-LINEPROTO-5-UPDOWN : Line protocol on Interface HundredGigE5/5/0/0, changed state to Down

LC/5/5/CPU0:Nov 4 01:24:55.052 : ifmgr[189]: %PKT\_INFRA-LINK-3-UPDOWN : Interface HundredGigE5/5/0/0, changed state to Up

LC/5/5/CPU0:Nov 4 01:24:55.052 : ifmgr[189]: %PKT\_INFRA-LINEPROTO-5-UPDOWN : Line protocol on Interface HundredGigE5/5/0/0, changed state to Up

LC/5/5/CPU0:Nov 4 01:41:19.385 : plim\_1p\_cge[280]: %L2-PLIM\_ETHER-2-RX\_LF : Interface HundredGigE5/5/0/0, Detected Local Fault

LC/5/5/CPU0:Nov 4 01:41:19.385 : ifmgr[189]: %PKT\_INFRA-LINK-3-UPDOWN : Interface HundredGigE5/5/0/0, changed state to Down

LC/5/5/CPU0:Nov 4 01:41:19.385 : ifmgr[189]: %PKT\_INFRA-LINEPROTO-5-UPDOWN : Line protocol on Interface HundredGigE5/5/0/0, changed state to Down

LC/5/5/CPU0:Nov 4 02:31:35.296 : ifmgr[189]: %PKT\_INFRA-LINK-3-UPDOWN : Interface HundredGigE5/5/0/0, changed state to Up

LC/5/5/CPU0:Nov 4 02:31:35.296 : ifmgr[189]: %PKT\_INFRA-LINEPROTO-5-UPDOWN : Line protocol on Interface HundredGigE5/5/0/0, changed state to Up

LC/5/5/CPU0:Nov 4 02:33:33.464 : plim\_1p\_cge[280]: %L2-PLIM\_ETHER-2-RX\_LF : Interface HundredGigE5/5/0/0, Detected Local Fault

LC/5/5/CPU0:Nov 4 02:33:33.464 : ifmgr[189]: %PKT\_INFRA-LINK-3-UPDOWN : Interface

```
HundredGigE5/5/0/0, changed state to Down
LC/5/5/CPU0:Nov  4 02:33:33.464 : ifmgr[189]: %PKT_INFRA-LINEPROTO-5-UPDOWN :
Line protocol on Interface HundredGigE5/5/0/0, changed state to Down
LC/5/5/CPU0:Nov  4 02:34:18.039 : plim_1p_cge[280]: %L2-PLIM_ETHER-2-RX_LF :
Interface HundredGigE5/5/0/0, Detected Local Fault
LC/5/5/CPU0:Nov  4 02:35:23.897 : ifmgr[189]: %PKT_INFRA-LINK-3-UPDOWN : Interface
HundredGigE5/5/0/0, changed state to Up
LC/5/5/CPU0:Nov  4 02:35:23.897 : ifmgr[189]: %PKT_INFRA-LINEPROTO-5-UPDOWN :
Line protocol on Interface HundredGigE5/5/0/0, changed state to Up
```

2.根据测试结果，需要 RMA 光模块

**CLI list:**

```
show interface hun 5/5/0/0
show controller hun 5/5/0/0 phy
```

## 10GE 光模块不能加电

```
platform : CRS
hw part :  XFP10GER-192IR-L  14X10GBE-WL-XFP
sw ver :  XR
```

10GE 光模块 XFP10GER-192IR-L 在 14X10GBE-WL-XFP 板卡上不能加电，报出下面 log

```
LC/2/10/CPU0:Nov 10 00:49:26.549 : plim_xge[284]: %L2-PLIM-6-NO_POWER_XFP : Port
10, Not
enough power available to power XFP, powering off.
LC/2/10/CPU0:Nov 10 00:49:29.542 : plim_xge[284]: %L2-PLIM-6-XFP_OIR : Optic Interface
Module inserted for port 11
LC/2/10/CPU0:Nov 10 00:49:30.086 : plim_xge[284]: %L2-PLIM-6-NO_POWER_XFP : Port
11, Not enough power available to power XFP, powering off.
LC/2/10/CPU0:Nov 10 00:49:35.239 : plim_xge[284]: %L2-PLIM-6-XFP_OIR : Optic Interface
Module inserted for port 13
LC/2/10/CPU0:Nov 10 00:49:35.783 : plim_xge[284]: %L2-PLIM-6-NO_POWER_XFP : Port
13, Not enough power available to power XFP, powering off.
LC/2/10/CPU0:Nov 10 00:49:57.763 : plim_xge[284]: %L2-PLIM-6-XFP_OIR : Optic Interface
Module inserted for port 12
LC/2/10/CPU0:Nov 10 00:49:58.307 : plim_xge[284]: %L2-PLIM-6-NO_POWER_XFP : Port
12, Not enough power available to power XFP, powering off.
```

**Executive and Analysis:**

1.首先 14\*10G 的板子接口支持光模块的功率限制，一共是 35000mw，如果都用完了，后插上的光模块就不能被 power up 了

2.用下面命令加成光模块消耗的功率

```
RP/0/RP0/CPU0:HN-HY-JFL-D-1.163#show controller tenGigE 2/10/0/0 internal
```

Total Power Available on PLIM for XFP's: 35000 mW

Power used by Inserted XFP's: 35000 mW

Power Available: 0 mW

Port	Power Used	State
00	3500 mW	XFP Inserted and Powered On
01	3500 mW	XFP Inserted and Powered On
02	3500 mW	XFP Inserted and Powered On
03	3500 mW	XFP Inserted and Powered On
04	3500 mW	XFP Inserted and Powered On
05	3500 mW	XFP Inserted and Powered On
06	3500 mW	XFP Inserted and Powered On
07	3500 mW	XFP Inserted and Powered On
08	3500 mW	XFP Inserted and Powered On
09	3500 mW	XFP Inserted and Powered On
10	0000 mW	XFP Inserted and Powered Off (Check Status)
11	0000 mW	XFP Inserted and Powered Off (Check Status)
12	0000 mW	XFP Inserted and Powered Off (Check Status)
13	0000 mW	XFP Inserted and Powered Off (Check Status)

可见，前 10 个槽位已经消耗了 35000mw 的功率，所以后面的接口的光模块没有足够的功率，无法加电

3.解决办法，不要在一个槽位都装功耗大的模块。检查其他槽位，看是否有功耗小的光模块，把功耗大的模块与功耗小的光模块分布在同一个槽位上，就可以解决这个问题。

**CLI list:**

```
Show log
```

```
Show controller ten 2/10/0/0 internal
```

## POS 接口 UP 协议 DOWN

platform : ASR9K

hw part : PID: SFP-OC3-IR1 , VID: V02 , SN: SPC1807022T



sw ver : XR

RP/0/RSP0/CPU0:VN-HN-NCT-F-3.CN2#show inter pos 0/1/1/0

Wed Mar 29 14:28:39.616 GMT

POS0/1/1/0 is up, line protocol is down (APS not Configured )

Interface state transitions: 633

Dampening enabled: penalty 0, not suppressed

half-life: 1 reuse: 750

suppress: 2000 max-suppress-time: 4

restart-penalty: 0

Hardware is Packet over SONET/SDH

Description: To GD-GZ-TH-X-1.CN2 155M(GZU/CT-HNI/VTI VC4S003)

Internet address is 59.43.248.54/30

MTU 9182 bytes, BW 155520 Kbit (Max: 155520 Kbit)

reliability 255/255, txload 0/255, rxload 0/255

Encapsulation PPP, crc 32, controller loopback not set, keepalive set (10 sec)

LCP Stopped

Starting: IPCP, IPv6CP, MPLSCP, OSICP

Last input 6d15h, output 00:00:00

Last clearing of "show interface" counters 07:49:23

30 second input rate 0 bits/sec, 0 packets/sec

30 second output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 total input drops

0 drops for unrecognized upper-level protocol

Received 0 runts, 0 giants, 0 throttles, 0 parity

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

6254 packets output, 112572 bytes, 0 total output drops

0 output errors, 0 underruns, 0 applique, 0 resets

0 output buffer failures, 0 output buffers swapped out

1. 检查端口两端时钟模式是否一致，若为 Line 模式，确认中间传输是否提供时钟，若为 internal，两边是否一致

2. 检查端口 SONET 下是否存在大量误码，尤其注意 B1 B2 B3, FEBE 等参数,

并多次执行如下命令，确认计数是否增加；

Asserted Alarms 是否为 none, PATH TRACE BUFFER 状态是否为 STABLE,  
并反馈结果；

**show controllers sonet x/x/x/x**

SECTION

LOF = 0 LOS = 1

BIP(B1) = 5

LINE

AIS = 0 RDI = 1

FEBE = 0

BIP(B2) = 5

## PATH

AIS = 0                      RDI        = 0                      FEBE = 0                      BIP(B3) = 0  
LOP = 1                      NEWPTR = 0                      PSE    = 0                      NSE        = 0  
PLM = 0                      TIM        = 0                      UNEQ = 0

Detected Alarms: None

Asserted Alarms: None

Mask for Detected-&gt;Asserted: PTIM PPLM

Detected Alerts: None

Reported Alerts: None

Mask for Detected-&gt;Reported: None

Alarm reporting enabled for: SLOS SLOF SF\_BER PLOP

Alert reporting enabled for: B1-TCA B2-TCA B3-TCA

Framing: SONET

SPE Scrambling: Enabled

C2 State: Stable    C2\_rx = 0x13 (19)    C2\_tx = 0x13 (19) / Scrambling Derived

S1S0(tx): 0x0    S1S0(rx): 0x0 / Framing Derived

**PATH TRACE BUFFER : STABLE**    ----确认物理 PATH 层是否处于 STABLE 状态

Remote hostname : R2

Remote interface: ATM0/6/0/0

Remote IP addr    : 0.0.0.0

## APS

No APS Group Configured

Rx(K1/K2) : 0x00/0x00

Tx(K1/K2) : 0x00/0x00

Remote Rx(K1/K2): 01/0    Remote Tx(K1/K2): 01/0

BER thresholds:    SF = 10e-3    SD = 10e-6

TCA thresholds:    B1 = 10e-6    B2 = 10e-6    B3 = 10e-6

## 3.    确认接口下是否有 error 和 crc 的计数累加, 并反馈结果 :

sh int POS x/x/x/x | in error

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 output errors, 0 underruns, 0 applique, 0 resets

## 4.    检查接口光功率, 看是否异常:

RP/0/RP0/CPU0:GD-GZ-TT-X-4.163#sh controllers soNET 0/0/0/0

&lt;skip&gt;

.....

Optical Power Monitoring (accuracy: +/- 1dB)

Rx power = 0.1850 mW, -7.3 dBm

Tx power = 1.1540 mW, 0.6 dBm

Tx laser current bias = 70.9 mA

5. 若发现收光不正常，则对该接口进行硬环测试，并反馈  
对光模块打硬环（接口封装 HDLC，时装为 internal），如果 UP，则为光纤或传输问题。  
如果不 UP，更换光模块，并再次对光模块打硬环（接口封装 HDLC），  
如果 UP，则确认为原光模块问题，若不 UP 转到下步。

时钟调整方式：

**controllers sonnet x/x/x/x**

**clock source internal**

6. 若经如上操作，若接口依然 down，进行软环测试，并反馈

**controllers sonnet x/x/x/x**

**loopback internal**

7. 若接口成功 UP，说明板卡应该正常，可能为光模块插槽问题；此时需进行 SPA 卡互换，确认问题是否依旧，并反馈  
8. 若上述软环后，接口不能 UP，则说明为板卡芯片问题，依旧先调换 SPA 卡，并反馈结果。

**CLI list:**

Show log

Show controller ten 2/10/0/0 internal

## 光模块功率参考范围：

10G 以太网光模块参数表：

类型	TX 最大 dBm	TX 最小 dBm	RX 最大 dBm	RX 最小 dBm	
短距 10GLR SR	0.5	-8.2	0.5	-12.6	
中距 10GER IR	4	-4.7	-1.0	-14.1	
长距 10GZR LR	4	0	-7.0	-24	

光端口名称	光模块类型	单模/多模	传输距离 (m)	最低	最高 (过载)
思科 GE LX(20)	LAN	单模	550	-20	-3
思科 GE-LX/LH	LAN	单模	10000	-19	-3
思科 GE SX (19)	LAN	单模	550	-17	0
思科 OC192+10GBASE-E(66)	POS	单模	40000	-15.8	-1
思科 OC192 LR-2	POS	单模	80000	-24	-7
思科 OC192+10GBASE-L(65)	POS	单模	10000	-14.4	0.5
思科 OC192 SR-1	POS	单模	2000	-11	-1
思科 OC3-MM	POS	多模	500	-30	-5
思科 OC3 IR-1/STM1 S-1.1(3)	POS	单模	15000	-28	-8
思科 OC48 IR-1/STM16 S-16.1(36)	POS	单模	15000	-18	0
思科 OC12 IR-1/STM4 S-4.1(10)	POS	单模	15000	-28	-8
思科 OC48 LR-2/STM16/L-16.2(39)	POS	单模	80000	-28	-9
思科 OC48 SR/STM16 I-16(35)	POS	单模	2000	-18	-3
思科 GE ZX(23)	LAN	单模	70000	-23	-3
思科 GE ZX	LAN	单模	80000	-23	0