



Troubleshooting 4-Port 1-Gbps/2-Gbps FC Aggregation Card Problems

This chapter describes how to troubleshoot 4-port 1-Gbps/2-Gbps FC (Fibre Channel) aggregation card interface problems. This chapter includes the following sections:

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5.1 Overview

The 4-port 1-Gbps/2-Gbps FC aggregation card uses up to four SFP (small form-factor pluggable) optical transceivers to support client traffic. Each client interface can be configured using the CLI (command-line interface) for FC, FICON (fiber connection), or ISC (InterSystem Channel) traffic at a 1-Gbps or 2-Gbps rate.

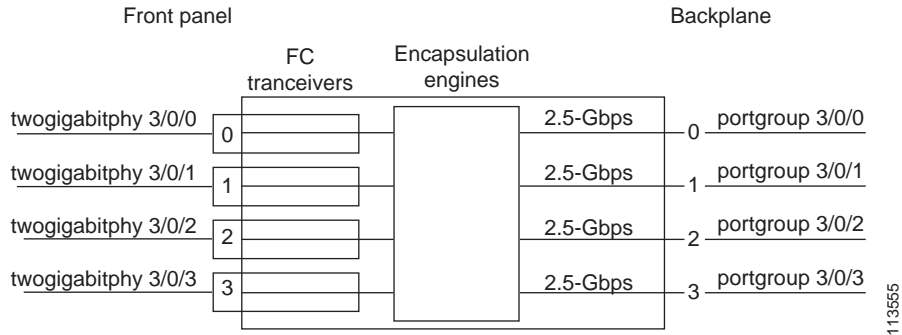
The 4-port 1-Gbps/2-Gbps FC aggregation card connects four 2.5-Gbps electric signals, or portgroup interfaces, to the switch fabric. The client port data streams must be mapped to one of these portgroup interfaces, using the CLI. Only two 1-Gbps client interfaces or one 2-Gbps client interface can be mapped into a single portgroup interface.

The signal on the portgroup interfaces connects through the backplane and the switch fabric on the active CPU switch module to a 2.5-Gbps ITU trunk card, a 10-Gbps ITU trunk card, 10-Gbps ITU tunable trunk card, or a 10-Gbps uplink card, where the signal is converted to, and from, an ITU channel. The cross connections between the two cards through the backplane and switch fabrics are configured using the CLI.

The 1-Gbps client traffic from a 4-port 1-Gbps/2-Gbps FC aggregation card is compatible with the 8-port FC/GE aggregation card at the other end of the network. Any 1-Gbps FC, FICON, or ISC client signal can be transmitted between a 4-port 1-Gbps/2-Gbps FC aggregation card and an 8-port FC/GE aggregation card.

[Figure 5-1](#) shows an example path of a client signal through the Cisco ONS 15530 and the associated interfaces.

Figure 5-1 Interfaces for a 4-port 1-Gbps/2-Gbps FC Aggregation Card



5.2 Initial Troubleshooting Checklist

Follow this initial checklist before proceeding with the troubleshooting procedures:

- Check that the client receive signal power level is between -18 dBm and -13.5 dBm for multimode SFP optics and between -20 dBm and -3 dBm for single-mode SFP optics. If the receive signal power is not within the range, adjust the attenuation.
- Issue **show interfaces** commands to ensure that the interfaces on the signal path are administratively up and that there are no errors on the interfaces.
- Issue a **show connect** command to verify the status of the cross connections between the 4-port 1-Gbps/2-Gbps FC aggregation card and the ITU trunk card or uplink card.
- Check that the LEDs on the card and SFP optics show the proper state.
- Issue a **show facility-alarm status** command to display the alarms on the interfaces.
- Check that the ITU cards are patched to the correct OADM ports. Issue a **show patch** command to verify that there are no frequency mismatches.
- Before you enable end-to-end speed negotiation, oversubscription, or superportgroup, ensure that the following conditions are met:
 - 4-port 1-Gbps/2-Gbps FC aggregation cards with Functional version 1.20 or later are installed at both ends.
 - The IOS version is 12.2(29)SV or later.
 - 10-Gbps cards with Functional version 2.31 or later are installed.
- Ensure that the configurations at both ends of the link are symmetrical. This is important especially for end-to-end speed negotiation, oversubscription, and superportgroup configurations. Issue the **show running-configuration** command to check the running configuration.
- Ensure that all optical connectors are clean. Refer to the [Cisco ONS 15530 Cleaning Procedures for Fiber Optic Connections](#) document.

5.3 Troubleshooting 4-Port 1-Gbps/2-Gbps FC Aggregation Card Interface Problems

This section contains troubleshooting procedures for 4-port 1-Gbps/2-Gbps FC aggregation card interface problems.

5.3.1 FC/FICON Encapsulated Twogigabitphy Interface Is Down

Symptom A twogigabitphy interface encapsulated for FC or FICON traffic is down because of Loss of Light.

[Table 5-1](#) describes the potential causes of the symptom and the solutions.

Table 5-1 *FC/FICON Encapsulated Twogigabitphy Interface Is Down*

Possible Problem	Solution
The SFP optics and the client side optical fiber are different types.	<ol style="list-style-type: none"> 1. Verify that the fiber type, either single-mode or multimode, matches the type of SFP optics installed on the card. 2. Switch to the correct type of fiber if there is a mismatch.
The cabling between the client equipment and the SFP optics are reversed.	Check that the Tx and Rx ports are correctly cabled to the client equipment. If not, then correct the cabling.
The optical fiber between the client equipment and the SFP optics is faulty.	Check the optical fibers connecting the client equipment to the SFP optics. If it they are faulty, replace them.
The connectors on the optical fiber between the client equipment and the SFP optics are dirty.	Refer to the Cisco ONS 15530 Cleaning Procedures for Fiber Optic Connections document.

5.3.2 Twogigabitphy Interface Is Administratively Down

Symptom A twogigabitphy interface is administratively down and cannot carry any type of traffic.

[Table 5-2](#) describes the potential causes of the symptom and the solutions.

Table 5-2 Twogigabitphy Interface Is Administratively Down

Possible Problem	Solution
The SFP optics is not Cisco certified.	<ol style="list-style-type: none"> 1. Issue a show interfaces command for the twogigabitphy interface to verify that the Optical Transceiver field shows “Unknown Vendor.” 2. Replace it with a Cisco certified SFP optics. 3. Issue a no shutdown command on the interface.
The flow identifier is not configured.	<ol style="list-style-type: none"> 1. Issue a show interfaces command for the twogigabitphy interface to verify that the Flow-identifier field contains a valid value. 2. Correct an invalid value with the cdl flow identifier command. 3. Issue a no shutdown command on the interface.
Port group is not configured.	<ol style="list-style-type: none"> 1. Issue a show interfaces command for the twogigabitphy interface to verify that the Portgroup field does not show NULL. 2. Issue the portgroup command to configure a port group. Valid entries range from 0 to 3. 3. Issue a no shutdown command on the interface.

5.3.3 Client Equipment Interface Connected to the 4-Port 1-Gbps/2-Gbps FC Aggregation Card Is Not Up

Symptom The client equipment connected to a twogigabitphy interface is not up.

[Table 5-3](#) describes the potential causes of the symptom and the solutions.

Table 5-3 Client Equipment Connected to a Twogigabitphy Interface Is Not Up

Possible Problem	Solution
The cross connection is not configured.	<ol style="list-style-type: none"> 1. Issue a show interfaces command for the twogigabitphy interface to verify that the Client Laser Status field shows “Down due to Local Condition.” 2. Issue a show connect command to verify the status of the cross connection. 3. Issue the connect command to establish the cross connection.
The client side laser on the 4-port 1-Gbps/2-Gbps FC aggregation card is turned off due to forward laser control activity.	<ol style="list-style-type: none"> 1. Issue a show interfaces command for the remote twogigabitphy interface to check for keepalive timeouts. 2. Issue a show interfaces command for the local twogigabitphy interface to verify that the Client Laser Status field shows “Down due to keep-alive timeout” and that forward laser control is configured. 3. Resolve the problem on the remote twogigabitphy interface.

5.3.4 Client Equipment Detects CVRD Errors

Symptom The client equipment detects CVRD (code violation and running disparity) errors and the twogigabitphy interface shows Loss of Sync.

[Table 5-4](#) describes the potential causes of the symptom and the solutions.

Table 5-4 Client Equipment Detects CVRD Errors

Possible Problem	Solution
The protocol encapsulation configuration is incorrect.	Issue a show interfaces command for the twogigabitphy interface. Issue an encapsulation command if the protocol is incorrect.
The end-to-end speed negotiation configuration is incorrect.	Ensure that the speed of the client devices is set to auto or the same speed is configured on the client devices at both ends. The twogigabitphy interfaces must be locked to the same speed.
Tx CRC errors are reported on the twogigabitphy interface that is connected to an oversubscribed portgroup or superportgroup.	Ensure that the twogigabitphy interface of the 4-port 1-Gbps/2-Gbps FC aggregation card does not generate Tx CRC errors. For more information, refer to the “5.3.13 Oversubscribed Portgroup and Superportgroup Related Problems Are Experienced” section on page 5-10.
The connectors on the optical fiber between the client equipment and the SFP optics are dirty.	Refer to the Cisco ONS 15530 Cleaning Procedures for Fiber Optic Connections document.

5.3.5 Transmit Frame Count Is Not Incrementing

Symptom The Transmit Frame Count field in the **show interfaces** command output for the twogigabitphy interface is not incrementing.

[Table 5-5](#) describes the potential causes of the symptom and the solutions.

Table 5-5 Transmit Frame Count Is Not Incrementing

Possible Problem	Solution
An interface in the path is administratively shut down.	<ol style="list-style-type: none"> 1. Issue show interface commands for all interfaces in the signal path, especially on the ITU trunk card or uplink card. 2. Make sure that the interfaces are up and the lasers are on.
The client receive signal power is not strong enough.	<ol style="list-style-type: none"> 1. Verify that the cross connection exists. <ol style="list-style-type: none"> a. Issue a show connect command to verify the status of the cross connection. b. Issue the connect command to establish the cross connection if it is not present. 2. Verify the status of the waveethernetphy interface and the laser on the ITU trunk card. <ol style="list-style-type: none"> a. Issue a show interfaces command for the waveethernetphy interface. b. Issue a no shutdown command if the interface is administratively down. If the interfaces remain down, see Chapter 8, “Troubleshooting 2.5-Gbps ITU Trunk Card Problems,” Chapter 9, “Troubleshooting 10-Gbps ITU Trunk Card Problems,” or Chapter 10, “Troubleshooting 10-Gbps ITU Tunable Trunk Card Problems.” c. Issue a no laser shutdown command if the laser is off.
The cross connection is not properly configured.	<ol style="list-style-type: none"> 1. Issue a show interfaces command to verify that the Client Laser Status field shows “Down due to Local Condition.” 2. Issue a show connect command to verify the status of the cross connection. 3. Issue the connect command to establish the cross connection.
The flow identifier is not configured.	<ol style="list-style-type: none"> 1. Issue a show interfaces command to verify that the Flow-identifier field contains a valid value. 2. Correct an invalid value with the cdl flow identifier command. 3. Issue a no shutdown command on the interface.

5.3.6 FC/FICON Encapsulated Twogigabitphy Interface Receives CRC Errors from Trunk Card

Symptom A twogigabitphy interface encapsulated with either FC or FICON shows CRC (cyclic redundancy check) errors received from the trunk cards. The **show interfaces** command for the interface shows NO TX CRC.

[Table 5-6](#) describes the potential cause of the symptom and the solution.

Table 5-6 *FC/FICON Encapsulated Twogigabitphy Interface Receives CRC Errors from Trunk Card*

Possible Problem	Solution
The transmit buffer is not correctly configured.	<ol style="list-style-type: none"> 1. Issue show controller command for the interface to determine if the BPTX Port Fail register “FIFO EMPTY” has a Current Status as “yes.” If it is, the transmit buffer is not large enough. 2. Issue the tx-buffer size command to increase the buffer size. For information on setting the transmit buffer size on 4-port 1-Gbps/2-Gbps FC aggregation cards, refer to the Cisco ONS 15530 Configuration Guide.
The power of the signal received from the trunk card is close to or below the low warning threshold.	<ol style="list-style-type: none"> 1. Verify that the receive signal power level is between –28 dBm and –8 dBm for a 2.5-Gbps ITU trunk card and between –22 dBm and –6 dBm for a 10-Gbps ITU trunk card and 10-Gbps ITU tunable trunk card. 2. Adjust the attenuation if the signal power is outside the power range for the trunk card.

5.3.7 Both the Local and Remote Twogigabitphy Interfaces Are Down

Symptom The local twogigabitphy interface is down due to a local condition while the remote twogigabitphy interface is down due to a keepalive timeout.

[Table 5-7](#) describes the potential cause of the symptom and the solution.

Table 5-7 *Both the Local and Remote Gigabit Interfaces Are Down*

Possible Problem	Solution
Forward laser control is configured on one interface but not on the other interface.	<ol style="list-style-type: none"> 1. Issue a show interfaces command for both twogigabitphy interfaces to verify the status of the forward laser control configuration. 2. Issue the laser control forward enable command to enable forward laser control on the interface, or the no laser control forward command to disable it.

5.3.8 Twogigabitphy Interface Not Created

Symptom A twogigabitphy interface does not appear in the configuration and is not recognized by the system.

[Table 5-8](#) describes the potential cause of the symptom and the solution.

Table 5-8 Twogigabitphy Interface Not Created

Possible Problem	Solution
Wrong SFP optics is installed.	Issue a show interfaces command for the twogigabitphy interface and verify that the Optical Transceiver field shows a valid value. If not, replace the SFP optics with the correct part.

5.3.9 Twogigabitphy Interface Reports Loss of Sync

Symptom The twogigabitphy interface reports Loss of Sync.

[Table 5-9](#) describes the potential cause of the symptom and the solution.

Table 5-9 Twogigabitphy Interface Reports Loss of Sync

Possible Problem	Solution
End-to-end speed negotiation is not enabled on both the twogigabitphy interfaces in the link.	Enable end-to-end speed negotiation at both the ends.
The twogigabitphy interfaces are not locked to the same speed.	Ensure that the twogigabitphy interfaces are locked to the same speed.
The SFPs do not support the configured speed.	Replace the SFP optics with the correct part.

For more information, refer to the [“5.3.13 Oversubscribed Portgroup and Superportgroup Related Problems Are Experienced”](#) section on page 5-10.

5.3.10 Throughput Is Low

Symptom Low throughput is experienced.

[Table 5-10](#) describes the potential cause of the symptom and the solution.

Table 5-10 *Throughput Is Low*

Possible Problem	Solution
After enabling end-to-end speed negotiation, the link has not negotiated to the 2 Gbps speed.	Ensure that the link has negotiated to the 2 Gbps speed.
For oversubscription or superportgroup configurations, flow control is not enabled at both ends.	Ensure that you enable flow control at both ends when oversubscription or superportgroup is configured.
For oversubscription or superportgroup configurations, flow control is not active at both ends.	Ensure that flow control is active at both ends when oversubscription or superportgroup is configured. For more information, refer to the “5.3.12 Flow Control Is Inactive” section on page 5-10.
The subrate and bandwidth lock configurations are not symmetrical at both ends.	Ensure that the subrate and bandwidth lock configurations are symmetrical at both ends.

If the problem persists, verify the throughput after locking the bandwidth at both ends, and then, if possible, after moving the oversubscribed link to a non-oversubscribed link. For more information, refer to the [“5.3.13 Oversubscribed Portgroup and Superportgroup Related Problems Are Experienced”](#) section on page 5-10.

5.3.11 Throughput Is Asymmetric

Symptom The throughput in one direction is greater than that in the other direction.

[Table 5-11](#) describes the potential cause of the symptom and the solution.

Table 5-11 *Throughput Is Asymmetric*

Possible Problem	Solution
For superportgroup or oversubscription configurations, the same subrate is not configured on the twogigabitphy interfaces at both ends.	Ensure that the same subrate is configured on the twogigabitphy interfaces at both ends.

5.3.12 Flow Control Is Inactive

Symptom Flow control is not in an active state.

[Table 5-12](#) describes the potential cause of the symptom and the solution.

Table 5-12 Flow Control Is Inactive

Possible Problem	Solution
The twogigabitphy interface is administratively down.	Bring up the twogigabitphy interface that is down.
The signal quality of the twogigabitphy interface is bad.	Issue the show interface command to verify the signal quality.
The twogigabitphy interfaces at both ends are not configured to the same speed.	Configure the same speed on the twogigabitphy interfaces at both ends.
Incorrect buffer-to-buffer credits on the client devices connected to the twogigabitphy interfaces.	Ensure that the buffer-to-buffer credit values on the client devices do not exceed 219 for 1 Gbps and 939 for 2 Gbps.

5.3.13 Oversubscribed Portgroup and Superportgroup Related Problems Are Experienced

Symptom Oversubscribed portgroup and superportgroup related problems are experienced.

[Table 5-13](#) describes the potential cause of the symptom and the solution.

Table 5-13 Oversubscribed Portgroup and Superportgroup Related Problem Are Experienced

Possible Problem	Solution
Guidelines to configure oversubscription and superportgroup have not been followed.	<ol style="list-style-type: none"> 1. Correct the oversubscription and superportgroup configurations based on the guidelines mentioned in the <i>Cisco ONS 15530 Configuration Guide</i>. 2. Perform a shut/no shut on the twogigabitphy interfaces. If required, perform a shut/no shut on the client interfaces as well.
The oversubscription, subrate, and bandwidth lock configurations at both ends are not the same.	Issue the show running-configuration command to verify the oversubscription configurations at both ends.

Table 5-13 Oversubscribed Portgroup and Superportgroup Related Problem Are Experienced

Possible Problem	Solution
All associated portgroups in a superportgroup are not cross connected.	Issue the show running-configuration command or the show connect command to verify that the associated portgroups are cross connected.
The trunk flow identifiers of the portgroups at both ends do not match.	Issue the show running-configuration command or the show interface superportgroup command to verify the trunk flow identifiers at both ends.
The client devices are not connected to the same twogigabitphy interface or port at both ends.	Ensure that the client devices are connected to the same twogigabitphy interface or port at both ends.
The twogigabitphy interfaces at both ends do not have the same configuration.	Ensure that the twogigabitphy interfaces at both ends have the same configuration. Issue the show running-configuration command or the show interface twogigabitphy command to view the configuration of the twogigabitphy interface.

If the problem persists, continue troubleshooting after locking the bandwidth at both ends, and then, if possible, after moving the oversubscribed link to a non-oversubscribed link.

5.4 Troubleshooting Problems Using show controller Command Output

You can use the **show controllers** command output to determine and resolve problems on your 4-port 1-Gbps/2-Gbps FC aggregation card.

The following example shows the command output for the twogigabitphy interface:

```
Switch# show controllers twogigabitphy 4/0/0
Controller info for interface TwoGigabitPhy4/0/0
Line card base addr: 0x400000
  Optical Transceiver: Single Mode
-----
  BPRX Channel Rx Frame count: 45478467
  BPTX Channel Tx Frame count: 45720664
  BPTX Channel Tx WORD count: 12871348901
-----
TX CRC erro count: 0
QDR CRC error count: 0
QDR PARITY error count: 0

Registers specific to client port 0:
CONEY FPGA base addr: 0x60000
Version.....: 0x6025A27
Reset Control:
  Transmit (no), Receive (no)
Loopback Control:
  Trunk (dis), CTC (dis)
Send Pattern: NOS
```

```

Control & Status:
  Auto Speed: (en), result (2g)
  Login State: (ELP_COMPLETE), Port State: (active)
  Port Encapsulation: (2xFC/FICON)
Port Fail Registers
      (Cause -- UnMasked -- Enable -- Cur Status):
SFP OIR:      (no) -- (yes) -- (yes) -- (no)
LINK FAIL:    (yes) -- (yes) -- (yes) -- (no)
TX FAULT:     (no) -- (yes) -- (yes) -- (no)
RX DEG:       (no) -- (yes) -- (yes) -- (no)
LOSS OF LIGHT: (no) -- (yes) -- (yes) -- (no)
LOSS OF SYNC: (no) -- (yes) -- (yes) -- (no)
Laser Control:
  Real Time KATO: (dis) Latched KATO: (en)
  OFC: (dis), BLC: (dis), FLC: (en)
PHY CSR:
  loopback (dis), pre-emphasis (dis)
SFP CSR:
  Present (yes), LOS (no), TXFAULT (no)
  Full Speed (yes), Laser Enabled (yes)
OFC CSR:
  OFC on (no), OFC lineup (no)
  OFC laser ctrl (dis), OFC master (dis), OFC reset (en)
Laser Enable Register:
  Shut reason: RT_KATO(no) LATCH_KATO(no) OFC(no) BLC(no) FLC(no)
  Laser WEN (no), Laser Software Enable (yes)
Backward Laser Control Register
  Real Time Trigger: (no)
  Source: TXFAULT(yes) RXDEG(no) LOL(yes) LOSync(no)
Forward Laser Control Register
  Real Time Trigger: (yes)
  Source: RXDEG(no) LOL(yes) LOSync(no)
Tx LED
  Controlled by hardware (yes), software color (off)
Rx LED
  Controlled by hardware (yes), software color (off)
TX CVRD Error Count: 9, TX CRC Error Count: 3
CVRD Rate Control:
  Threshold: 22149, Time 1000000 usec

BPTX FPGA base addr: 0x50000
Revision.....: 0x5025A30
Registers specific to client port 0:
Memory Sharable: yes, Memory Size(0,1,2): 1
Channel Reset: no
Credit Management:
  en Flow Active: yes
  BP_LOGIN: no, BP_LOGI_DONE: yes, PORT_LOGI_DONE: yes
  EXCESS_CREDIT: no, LOCAL_FLOW: yes, REMOTE_FLOW: yes
  ZERO_CREDIT: no, MEM_L_SIZE: 256, MEM_SIZE: 0x2000
Egress FIFO
  Almost Full Threshold: 6
  Almost Empty Threshold: 4
KeepAlive
  Control: en, Time: 12775(us)
Port Fail Registers
      (Cause -- UnMasked -- Enable -- Cur Status):
FLOW INACTIVE: (no) -- (yes) -- (yes) -- (no)
FIFO FULL:     (no) -- (yes) -- (yes) -- (no)
FIFO EMPTY:    (no) -- (yes) -- (yes) -- (no)
BDI-E:         (no) -- (yes) -- (yes) -- (no)
KeepAlive Timeout: (no) -- (yes) -- (yes) -- (no)
TxCRC Error:     (no) -- (yes) -- (yes) -- (no)
EXCESS FRAME:   (no) -- (yes) -- (yes) -- (no)

```

```

ECH TIMEOUT:          (yes) -- (yes) -- (yes) -- (no)
Tx CRC
  Threshold: 18846,   Time: 1000000(us)

BPRX FPGA base addr: 0x40000
  Revision.....: 0x11104
Registers specific to client port 0:
  Channel Reset: no
  Channel CSR:
    2G_Flag: dis,    Port Map: 2,    Port Enable: yes
    Subrate Percentage: 25 %, BW Share: no
  Y-CABLE Register:
    FLC: en,        BDIGEN: dis
  BDI Mask and Control Register:
    Trunk RXF BDI: en, Client RXF BDI: dis, Client TXF BDI: en
    STOP_KA: no,   BDIGENST: no,  BDIEBIT: en,  AS1: 85
  SII: 255
  Flow Control Active to Inactive Transition count: 0
  Flow Control Inactive to Active Transition count: 0
  Oversubscription Available Credits: 944
  Flow Control Available Credits: 944

```

Table 5-14 describes some of the fields in the **show controllers twogigabitphy** command output.

Table 5-14 *show controllers twogigabitphy Command Output Field Descriptions*

Field	Problem Description
FC FIFO egress underflow	Indicates transmit buffer underflow and invalid transmit buffer size.
Tx CRC errors	Indicates GE CRC errors.
Port control	Indicates protocol encapsulation and the status of the Tx and Rx for the port.
Loopback control	Indicates the status of the interface loopback.
FIFO Hi control	Indicates the value for the transmit buffer size in hexadecimal.
External Phy	Indicates if the interface is in sync.
Uplink0 SII register	Indicates the flow identifier value.
Auto speed	Indicates if end-to-end speed negotiation is enabled. The <code>result</code> field displays the negotiated speed.
Subrate percentage	Indicates the percentage of portgroup or superportgroup bandwidth.
BW share	Indicates if the bandwidth is locked.

The following example shows the **show controllers** command output for the superportgroup interface:

```

Switch# show controllers superPortgroup 4/0/0
Controller info for interface SuperPortgroup4/0/0

Line card base addr: 0x400000

-----
          BANDWIDTH                PORT      Trunk Striping
          MAX          -----          -----
Client  RATE  SII  SRATE  SHARE  PC  CRDT_SZ  EN  MAP  Tk0  Tk1  Tk2  Tk3
-----  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---

```

5.4 Troubleshooting Problems Using show controller Command Output

```

Port 2  212  255  187   yes   25   0x2000  yes  2   yes  yes  yes  no
Port 0  212  255  187   no    25   0x2000  yes  2   yes  yes  yes  no
Port 1  212  255  187   yes   25   0x2000  yes  2   yes  yes  yes  no
Port 3  212  255  187   yes   25   0x2000  yes  2   yes  yes  yes  no
-----

```

```

-----
Trunk   SII  CPU  OVS  TRUNK  FILLER  DROP  SCRAMBLE
        SHARE  FRAMES  CRC
-----
Port 2  92   0   yes  yes   yes   yes   yes
Port 1  91   0   yes  yes   yes   yes   yes
Port 0  90   0   yes  yes   yes   yes   yes
-----

```

Table 5-15 describes some of the fields in the **show controllers superportgroup** command output.

Table 5-15 *show controllers superportgroup Command Output Field Descriptions*

Field	Problem Description
SII	In the client table, this field indicates the client SII value (255 for superportgroup configurations). In the trunk table, this field indicates the trunk flow identifier (255 for non-superportgroup configurations).
SRATE	Indicates the subrate configured on the twogigabitphy interface (in MBps).
SHARE	Indicates if the bandwidth can be shared with other clients.
PC	Indicates the percentage of the superportgroup or oversubscribed portgroup bandwidth allocated to each twogigabitphy interface.
CRDT_SZ	Indicates the transmit buffer size in hexadecimal (0x2000 for 2-Gbps or auto, and 0x800 for 1-Gbps).
EN	Indicates if the port is hardware enabled.
MAP	Indicates the flow identifier value.
TK0 to TK3	Indicates if superportgroup or trunk sharing is enabled for portgroup0 to portgroup3.
OVS	Indicates if oversubscription is enabled.
Trunk Share	Indicates if trunk sharing is enabled. Trunk sharing must be enabled for superportgroup configurations.
Filler Frames	Indicates if the filler frames are enabled. Filler frames must be enabled for superportgroup configurations.
Drop CRC	Indicates if the CDL frames with CRC errors detected on the portgroup are dropped. Drop CRC must always be enabled.
Scramble	Indicates if scrambling is enabled. Scrambling must be always enabled.

The following example shows the **show controllers** command output for the portgroup interface:

```

Switch# show controllers Portgroup 9/0/1
Controller info for interface Portgroup9/0/1

```

```

Line card base addr: 0x700000
BPTX FPGA base addr: 0x50000
  Revision.....: 0x5025A30
Registers specific to fabric port 1:
  Trunk Reset: no
  QGMII CSR:
    2nd CPU: no, LRCSWEN: yes, Active CPU: 0
  Descrambler: en, CRC Drop: en
  QGMII CVRD
    Threshold: 256, Time: 1000(us)
  Port Fail Registers
    (Cause -- UnMasked -- Enable -- Cur Status):
    CPU0 CVRD: (no) -- (yes) -- (yes) -- (no)
    CPU1 CVRD: (no) -- (yes) -- (yes) -- (no)

BPRX FPGA base addr: 0x40000
  Revision.....: 0x11104

Registers specific to fabric port 1:
  Trunk Reset: no
  Trunk Loopback: dis
  QGMII CSR:
    Scrambler: en      Oversub: en
    Trunk Sharing: dis  Filler Frames: dis
  Trunk SII: 255 (Mib SII: 255)

CHANNEL: 1
-----
BPTX SII LUT 0x752400:
0091 00000200
0092 00000400

-----

```

Client	MAX RATE	SII	BANDWIDTH			CRDT_SZ	PORT	
			SRATE	SHARE	PC		EN	MAP
Port 1	106	91	100	no	40	0x800	yes	1
Port 2	212	92	150	no	60	0x2000	yes	1

Table 5-16 describes some of the fields in the **show controllers portgroup** command output.

Table 5-16 *show controllers portgroup Command Output Field Descriptions*

Field	Problem Description
Oversub	Indicates if oversubscription is enabled in the Cisco ONS 15530 hardware. This field must contain <code>en</code> for an oversubscribed portgroup and <code>dis</code> for a non-oversubscribed portgroup.
Trunk Sharing	Indicates if trunk sharing is enabled. Trunk sharing must be enabled for superportgroup configurations, and disabled for other oversubscribed portgroup configurations.
Filler Frames	Indicates if the filler frames are enabled. Filler frames must be enabled for superportgroup configurations, and disabled for other oversubscribed portgroup configurations.

Table 5-16 *show controllers portgroup Command Output Field Descriptions (continued)*

Field	Problem Description
Trunk SII	Indicates the trunk flow identifier. This field will contain the trunk flow identifier for superportgroup configurations, and 255 for other oversubscribed portgroup configurations.
BPTX SII LUT	Indicates the cdl flow identifier of the twogigabitphy interfaces connected to the portgroup. This field can contain the values, 100, 200, 400, and 800, which refer to port0, port1, port2, and port3 respectively.
MAP	Indicates that the twogigabitphy interfaces are mapped to the specified portgroup.

5.5 Troubleshooting 4-Port 1-Gbps/2-Gbps FC Aggregation Card Problems Using Loopbacks

This section describes how to use software loopbacks to perform fault isolation for signals on 4-port 1-Gbps/2-Gbps FC aggregation cards. The 4-port 1-Gbps/2-Gbps FC aggregation card supports two types of software loopbacks:

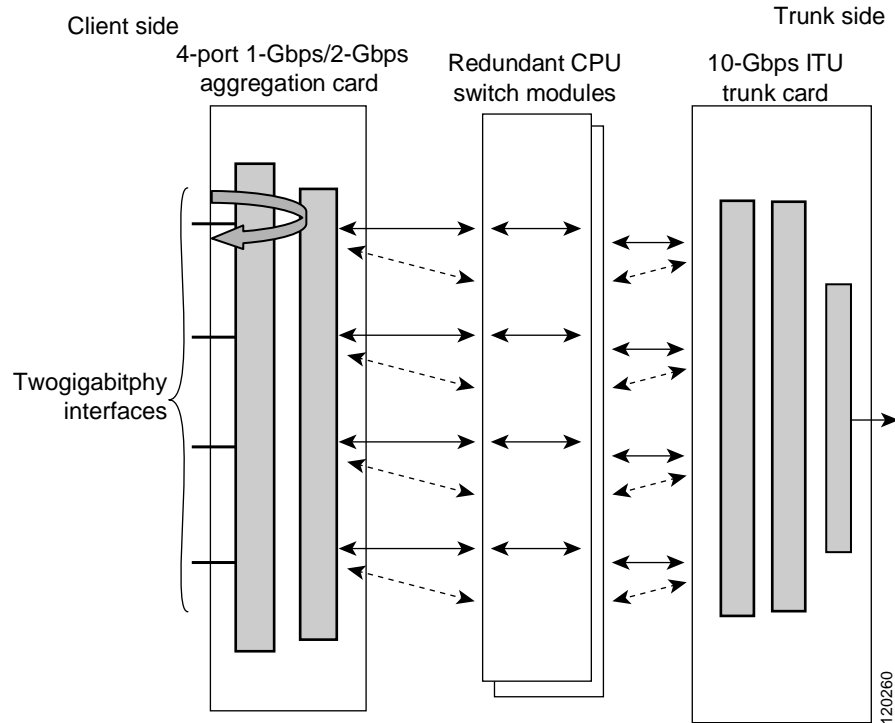
- Facility loopbacks
- Terminal loopbacks

To perform further loopback operations, see the [“8.4 Troubleshooting 2.5-Gbps ITU Trunk Card Problems Using Loopbacks”](#) section on page 8-5, the [“9.4 Troubleshooting 10-Gbps ITU Trunk Card Problems Using Loopbacks”](#) section on page 9-5, and the [“10.4 Troubleshooting 10-Gbps ITU Tunable Trunk Card Problems Using Loopbacks”](#) section on page 10-6.

5.5.1 Facility Loopbacks

Facility loopbacks on 4-port 1-Gbps/2-Gbps FC aggregation cards verify the functioning of the SFP optics from the client side (see [Figure 5-2](#)).

Figure 5-2 Facility Loopback Example



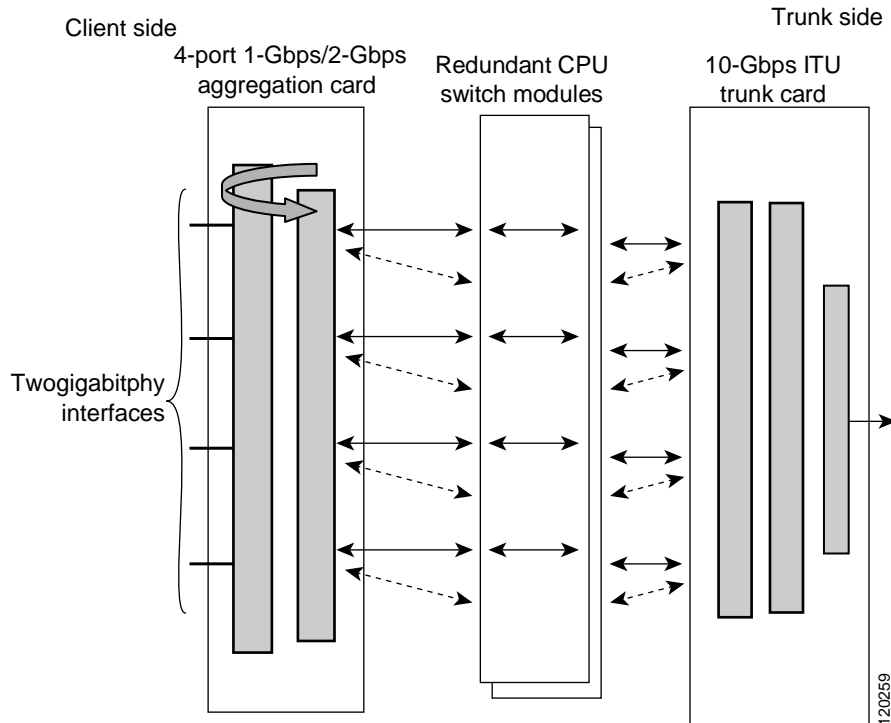
Procedure: Create a Facility Loopback

-
- Step 1 Issue a **loopback facility** command on the twogigabitphy interface.
 - Step 2 Check that the traffic is reaching the client equipment.
 - Step 3 If the signal does not reach the client equipment, replace the SFP optics.
-

5.5.2 Terminal Loopbacks

Terminal loopbacks verify the functioning of the 4-port 1-Gbps/2-Gbps FC aggregation cards from the trunk side (see [Figure 5-3](#)).

Figure 5-3 Terminal Loopback Example



Procedure: Create a Terminal Loopback

-
- Step 1 Issue a **loopback terminal** command on the twogigabitphy interface.
 - Step 2 Check that the traffic is reaching the client equipment.
 - Step 3 If the signal does not reach the far end, check the trunk fiber and the interfaces along the signal path. If the fiber is intact, replace the card.
-