Catalyst 6800 Ethernet Module Installation Guide

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Preface

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Document Conventions

This document uses the following conventions:

Convention	Description
^ or Ctrl	Both the ^ symbol and Ctrl represent the Control (Ctrl) key on a keyboard. For example, the key combination **^D** or **Ctrl-D** means that you hold down the Control key while you press the D key. (Keys are indicated in capital letters but are not case sensitive.)
bold font	Commands and keywords and user-entered text appear in **bold** font.
Italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font.
`Courier` font	Terminal sessions and information the system displays appear in `courier` font.
`Bold Courier` font	`Bold Courier` font indicates text that the user must enter.
[x]	Elements in square brackets are optional.
...	An ellipsis (three consecutive nonbolded periods without spaces) after a syntax element indicates that the element can be repeated.
|	A vertical line, called a pipe, indicates a choice within a set of keywords or arguments.
[x | y]	Optional alternative keywords are grouped in brackets and separated by vertical bars.

Convention	Description
{x | y}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x {y | z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Reader Alert Conventions

This document may use the following conventions for reader alerts:

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Tip Means *the following information will help you solve a problem.*

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Timesaver Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Warning IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Related Documentation

Note Before installing or upgrading, refer to the *Release Notes for Cisco IOS Release 15.1SY*.

- Regulatory Compliance and Safety Information for the Catalyst 6800 Series Ethernet Modules located at: Regulatory Compliance and Safety Information for the Catalyst 6800 Series Switches

- Cisco Catalyst 6807-XL Switch documentation located at: http://www.cisco.com/go/cat6800_docs

- Cisco Catalyst 6500 Series Switches documentation located at: http://www.cisco.com/go/cat6500_docs

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html

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Ethernet Switching Modules Overview

10/100/1000 Copper Ethernet Modules

C6800-48P-TX and C6800-48P-TX-XL Ethernet Modules

C6800-48P-TX and C6800-48P-TX-XL Ethernet modules provide 48 10/100/1000-Mbps full- or half-duplex ports.

Figure 1: C6800-48P-TX and C6800-48P-TX-XL Ethernet Module Front Panel
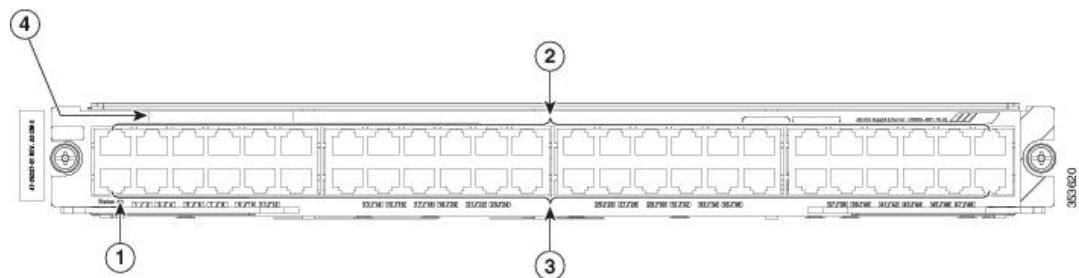
1	Status LED	3	Even numbered ports
2	Odd numbered ports	4	RFID

The sticker on the module faceplate identifies it as either a C6800-48P-TX or a C6800-48P-TX-XL depending on whether a WS-F6K-DFC4-A or WS-F6K-DFC4-AXL daughter card is installed on the module.

Table 1: C6800-48P-TX and C6800-48P-TX-XL Ethernet Module Features

Feature	Description

Ports per module	• 48 ports, numbered left to right and top to bottom
	• 4 port groups. Port ranges per port group:
	    • 1 to 12
	    • 13 to 24
	    • 25 to 36
	    • 37 to 48

Port connector type	RJ 45
Cabling distance	328 ft (100 m) over Category 5, 5e, and 6 UTP/STP cable
Buffer size	1.5 MB per port. 18 MB per port group.
QoS	• Number of egress queues: 4 • Number of ingress queues: 2 • Number of thresholds per egress queue: 1 or 2 • Number of thresholds per ingress queue: 8
Maximum frame size	Up to 9216 bytes per frame
Module oversubscription rate	1.2:1
Supervisor engine support	Supervisor Engine 2T-10GE Supervisor Engine 6T
Software support	With Supervisor Engine 2T-10GE —Cisco IOS Release 15.2(1)SY or later With Supervisor Engine 6T - Cisco IOS Release 15.3(1)SY or later

Queues per port	With a WS-F6K-DFC4-A / AXL daughter card:
	    • Tx—1p3q8t
	    • Rx—2q8t

Feature	Description

Chassis and slot restrictions	• Module operation—The C6800-48P-TX/TX-XL operates only in a Cisco Catalyst 6807-XL and a Cisco Catalyst 6500 E-series chassis equipped with a Supervisor Engine 2T-10GE or Supervisor Engine 6T.
	
	 • Module installation — Modules must be installed in adjacent slots. To maintain adequate air flow through the chassis, install a switching-module filler plate (Cisco part number WS-X6K-SLOT-CVR-E=) in unused slots, rather than a blank slot cover (Cisco part number WS-X6K-SLOT-CVR=).
	
	 • Slot restrictions—In the following switch chassis, you cannot install Ethernet modules in slots meant for supervisor engines:
	
	     • In a Cisco Catalyst 6807-XL, the supervisor engine slots are 3 and 4.
	
	     • In a Cisco Catalyst 6513 E-series chassis, the supervisor engine slots are 7 and 8. This restriction does not apply to any other 6500 E-series chassis.

Fabric connection	Dual switch-fabric connections: • Fabric channel 1—Ports 25 to 48. • Fabric channel 2—Ports 1 to 24.
Fabric channel speed	20 Gb/sec
Module upgrade availability	PoE— Not supported. Distributed forwarding support— C6800-48P-TX ships with a factory-installed DFC4-A and C6800-48P-TX-XL ships with a factory-installed DFC4-AXL daughter card installed. The modules are not field upgradable.
Pluggable transceivers	Not supported.
TDR support	Supported.

Related Topics

1-Gigabit Pluggable Ethernet Modules

C6800-48P-SFP and C6800-48P-SFP-XL Ethernet Modules

C6800-48P-SFP and C6800-48P-SFP-XL Ethernet modules provide 48 1-Gbps full- or half-duplex ports.

Figure 2: C6800-48P-SFP and C6800-48P-SFP-XL Ethernet Module Front Panel
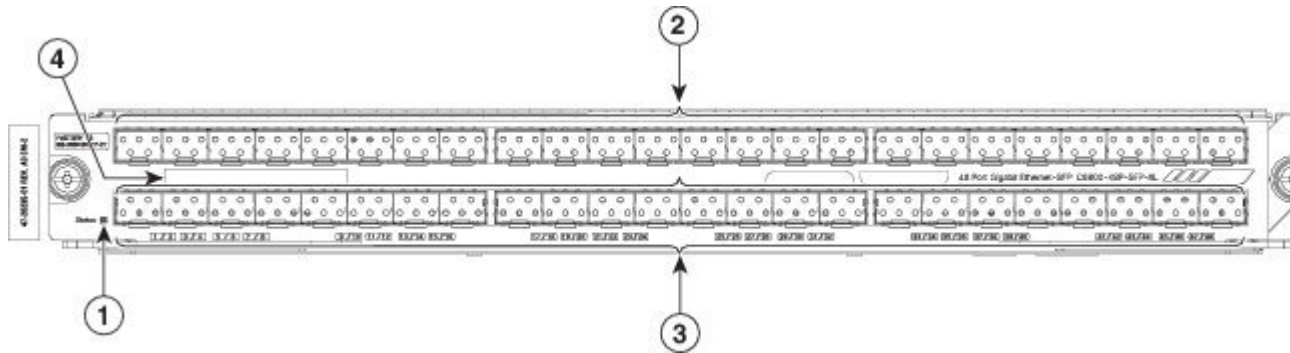
1	Status LED	3	Even numbered ports
2	Odd numbered ports	4	RFID

The sticker on the module faceplate identifies it as either a C6800-48P-SFP and C6800-48P-SFP-XL depending on whether a WS-F6K-DFC4-A or WS-F6K-DFC4-AXL daughter card is installed on the module.

Table 2: C6800-48P-SFP and C6800-48P-SFP-XL Ethernet Module Features

Feature	Description
Ports per module	48 ports. Ports are numbered left to right and top to bottom. 4 port groups. Port ranges per port group: • 1 to 12 • 13 to 24 • 25 to 36 • 37 to 48
Port connector type	LC (optical) or RJ-45 (copper) depending on the SFP transceiver installed.

Feature	Description
Cabling distance	Depends on the SFP transceiver installed in the module port. For cabling distance information, refer to the installation guides for Cisco Transceiver Modules at: Install and Upgrade Guides
Buffer size	1.5 MB per port 18 MB per port group
QoS	Number of egress queues—4 Number of ingress queues—2 Number of thresholds per egress queue—1 or 2 Number of thresholds per ingress queue—8
Maximum frame size	Up to 9216 bytes per frame
Module oversubscription rate	1.2:1
Supervisor engine support	Supervisor Engine 2T-10GE Supervisor Engine 6T
Software support	With Supervisor Engine 2T-10GE —Cisco IOS Release 15.2(1)SY or later With Supervisor Engine 6T - Cisco IOS Release 15.3(1)SY or later
Queues per port	With a WS-F6K-DFC4-A / AXL daughter card: • Tx—1p3q8t • Rx—2q8t

Feature	Description

Chassis and slot restrictions	• Module installation — Modules must be installed in adjacent slots. To maintain adequate air flow through the chassis, install a switching-module filler plate (Cisco part number WS-X6K-SLOT-CVR-E=) in unused slots, rather than a blank slot cover (Cisco part number WS-X6K-SLOT-CVR=).
	
	• Module operation — C6800-48P-SFP/ SFP-XL operates only in a Cisco Catalyst 6807-XL and a Cisco Catalyst 6500 E-series chassis equipped with a Supervisor Engine 2T-10GE or Supervisor Engine 6T.
	
	• Slot restrictions—In the following switch chassis, you cannot install Ethernet modules in slots meant for supervisor engines:
	
	    • In a Cisco Catalyst 6807-XL, the supervisor engine slots are 3 and 4.
	
	    • In a Cisco Catalyst 6513 E-series chassis, the supervisor engine slots are 7 and 8. This restriction does not apply to any other 6500 E-series chassis.

Fabric connection	Dual switch-fabric connections: • Fabric channel 1—Even ports 2 to 48. • Fabric channel 2—Odd ports 1 to 47.
Fabric channel speed	20 Gb/sec
Module upgrade availability	PoE support—Not supported. Distributed forwarding support— C6800-48P-SFP ships with a factory-installed DFC4-A and C6800-48P-SFP-XL ships with a factory-installed DFC4-AXL daughter card. The modules are not field upgradable.
Pluggable transceivers	For SFP transceivers currently supported, refer to the Cisco Transceiver Modules compatibility matrices at: Compatibility Information
Digital Optical Monitoring (DOM) support	DOM is hardware ready.

Related Topics

10-Gigabit Pluggable Ethernet Modules

C6800-8P10G and C6800-8P10G-XL Ethernet Modules

The C6800-8P10G and C6800-8P10G-XL Ethernet modules provide two 40G, eight 10G, eight 1G full-duplex transceiver ports.

Figure 3: C6800-8P10G-XL Ethernet Module Front Panel
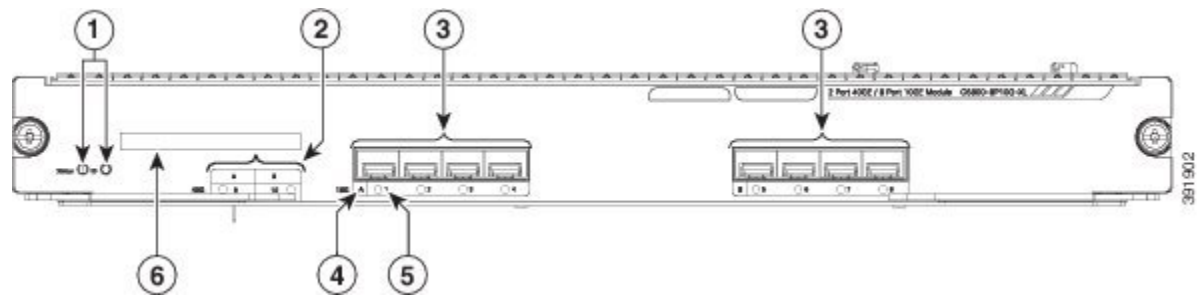
1	Status and ID LEDs	4	Port group ID
2	40G port IDs	5	Port number
3	10G ports (A total of two port groups)	6	RFID

The sticker on the module faceplate identifies it as either a C6800-8P10G or a C6800-8P10G-XL depending on whether a WS-F6K-DFC4-E or WS-F6K-DFC4-EXL daughter card is installed on the module.

Table 3: C6800-8P10G and C6800-8P10G-XL Ethernet Module Features

Feature	Description

Ports per module	• 8 ports—Eight 1G ports, or eight 10G ports, or two 40G ports. [1]
	
	• Ports are numbered left to right.
	
	• 2 port groups. Port ranges per port group:
	
	    • 1 to 4
	
	    • 5 to 8

Feature	Description
Port connector type	LC (optical) or RJ-45 (copper) depending on the SFP transceiver installed. Depending on the distance between the end ports, different QSFP+ transceivers can be used. For more information refer to the Cisco 4 x SFP10G to QSFP Reverse Adapter Data Sheet.
Cabling distance	Depends on the SFP transceiver installed in the module port. For cabling distance information, refer to the installation guides for Cisco Transceiver Modules at: Install and Upgrade Guides
Buffer size	Ingress buffer size: • 2.5 MB per port • 10 MB per port group • Total—40 MB Egress buffer size: • 500 MB per port • 2 GB per port group • Total—8 GB
QoS	• Number of egress queues—8 • Number of ingress queues—8 • Number of thresholds per egress queue—4 • Number of thresholds per ingress queue—4
Maximum frame size	Up to 9216 bytes per frame
Module oversubscription rate	1:1 (When all eight 10G ports are used.)
Supervisor engine support	• Supervisor Engine 2T-10GE • Supervisor Engine 6T
Software support	• With Supervisor Engine 2T-10GE —Cisco IOS Release 15.2(1)SY or later • With Supervisor Engine 6T – Cisco IOS Release 15.3(1)SY or later

Feature	Description
Queues per port	With a WS-F6K-DFC4-E/ EXL daughter card: • Tx—1p7q4t • Rx—1p7q4t

Chassis and slot restrictions	The following restrictions apply to module installation and operation:
	
	• Module installation—Modules must be installed in adjacent slots. To maintain adequate air flow through the chassis, install a switching-module filler plate (Cisco part number WS-X6K-SLOT-CVR-E=) in unused slots, rather than a blank slot cover (Cisco part number WS-X6K-SLOT-CVR=).
	
	• Module operation—The C6800-8P10G/ 10G-XL operates only in a Cisco Catalyst 6807-XL and a Cisco Catalyst 6500 E-series chassis equipped with a Supervisor Engine 2T-10GE or Supervisor Engine 6T.
	
	• Slot restrictions—In the following switch chassis, you cannot install Ethernet modules in slots meant for supervisor engines:
	
	  • In a Cisco Catalyst 6807-XL, the supervisor engine slots are 3 and 4.
	
	  • In a Cisco Catalyst 6513 E-series chassis, the supervisor engine slots are 7 and 8. This restriction does not apply to any other 6500 E-series chassis.

Fabric connection	For Cisco Catalyst 6807-XL switches: • Fabric channel 0 : Ports 1 to 4 • Fabric channel 1: Ports 5 to 8 For Cisco Catalyst 6500-E series switches: • Fabric channel 0 : Ports 1 to 4 • Fabric channel 1: Ports 5 to 8
Fabric channel speed	In a Cisco Catalyst 6807-XL chassis—80 GB per second In a Cisco Catalyst 6500-E series chassis—80 GB per second

Feature	Description
Module upgrade availability	PoE—Not supported Distributed forwarding support— The C6800-8P10G module ships with a factory-installed DFC4-E and the C6800-8P10G-XL module ships with a factory-installed DFC4-EXL daughter card. The modules are not field upgradable.
Pluggable transceivers support	These Ethernet modules support 10G SFP+ modules and 1G SFP modules. For SFP transceivers currently supported, refer to the Cisco Transceiver Modules compatibility matrices at: Compatibility Information. For QSFP+ Transceiver Modules supported, refer to the Cisco 4 x SFP10G to QSFP Reverse Adapter Data Sheet.
TDR support	Supported with GLC-T (1G Copper SFP) transceivers
Digital Optical Monitoring (DOM) support	Supported with select 1G and 10G Fiber SFP/SFP+ transceivers. • The DOM-supported 1G transceivers are—GLC-BX-U, GLC-BX-D, GLC-SX-MMD, GLC-EX-SMD, GLC-LH-SMD, GLC-ZX-SMD, SFP-DWDM. • The DOM-supported 10G Fiber SFP/SFP+ transceivers are listed at Cisco Digital Optical Monitoring Compatibility Matrix.

[1] Two 40G ports in C6800-8P10G models. To convert the port to 40G ports, refer to the "Interface Configuration" section of 15.3SY Supervisor Engine 6T Software Configuration Guide.

Related Topics

C6800-16P10G and C6800-16P10G-XL Ethernet Modules

The C6800-16P10G and C6800-16P10G-XL Ethernet modules provide four 40G, sixteen 10G or sixteen 1G transceiver ports.

Figure 4: C6800-16P10G-XL Ethernet Module Front Panel
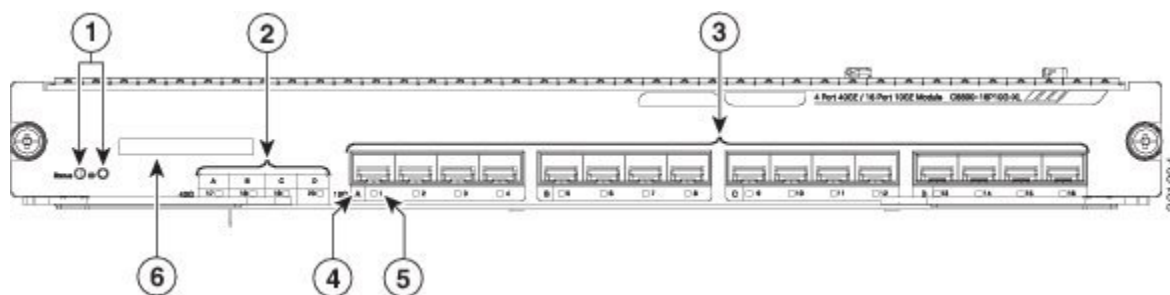
1	Status and ID LEDs	4	Port group ID
2	40G port IDs	5	Port number
3	10G ports (A total of four port groups)	6	RFID

The sticker on the module faceplate identifies it as either a C6800-16P10G or a C6800-16P10G-XL depending on whether a WS-F6K-DFC4-E or WS-F6K-DFC4-EXL daughter card is installed on the module.

Table 4: C6800-16P10G and C6800-16P10G-XL Ethernet Module Features

Feature	Description

Ports per module	• 16 ports—Sixteen 1G ports, or sixteen 10G ports, or four 40G ports [2].
	
	• Ports are numbered left to right.
	
	• 2 port groups. Port ranges per port group:
	    • 1 to 8
	    • 9 to 16

Port connector type	LC (optical) or RJ-45 (copper) depending on the SFP transceiver installed. Depending on the distance between the end ports, different QSFP+ transceivers can be used. For more information refer to the Cisco 4 x SFP10G to QSFP Reverse Adapter Data Sheet.

Feature	Description
Cabling distance	Depends on the SFP transceiver installed in the module port. For cabling distance information, refer to the installation guides for Cisco Transceiver Modules at: Install and Upgrade Guides
Buffer size	Ingress buffer size: • Per port (over subscription mode)—1.25 MB • Per port (transparent mode)—2.5 MB • 10 MB per port-group • Total—40 MB Egress buffer size: • Per port (over subscription mode)—250 MB • Per port (transparent mode)—500 MB • 2 GB per port-group • Total—8 GB
QoS	• Number of egress queues: 8 • Number of ingress queues: 8 • Number of thresholds per egress queue: 4 • Number of thresholds per ingress queue: 4
Maximum frame size	Up to 9216 bytes per frame
Module oversubscription rate	2:1 (When all sixteen 10G ports are used.)
Supervisor engine support	• Supervisor Engine 2T-10GE • Supervisor Engine 6T
Software support	• With Supervisor Engine 2T-10GE —Cisco IOS Release 15.2(1)SY or later • With Supervisor Engine 6T – Cisco IOS Release 15.3(1)SY or later
Queues per port	With a WS-F6K-DFC4-E/ EXL daughter card: • Tx—1p7q4t • Rx—2p6q4t

Feature	Description

Chassis and slot restrictions	The following restrictions apply to module installation and operation:
	
	• Module installation—Modules must be installed in adjacent slots. To maintain an adequate air flow through the chassis, install a switching-module filler plate (Cisco part number WS-X6K-SLOT-CVR-E=) in unused slots, rather than a blank slot cover (Cisco part number WS-X6K-SLOT-CVR=).
	
	• Module operation—C6800-16P10G/ 10G-XL operates only in a Cisco Catalyst 6807-XL and a Cisco Catalyst 6500 E-series chassis equipped with a Supervisor Engine 2T-10GE or Supervisor Engine 6T.
	
	• Slot restrictions—In the following switch chassis, you cannot install Ethernet modules in slots meant for supervisor engines:
	
	    • In a Cisco Catalyst 6807-XL, the supervisor engine slots are 3 and 4.
	
	    • In a Cisco Catalyst 6513 E-series chassis, the supervisor engine slots are 7 and 8. This restriction does not apply to any other 6500 E-series chassis.

Fabric connection	For Cisco Catalyst 6807-XL switches: • Fabric channel 0 : Ports 1 to 8 • Fabric channel 1: Ports 9 to 16 For Cisco Catalyst 6500-E series switches: • Fabric channel 0 : Ports 1 to 8 • Fabric channel 1: Ports 9 to 16
Fabric channel speed	In a Cisco Catalyst 6807-XL chassis—80 GB per second In a Cisco Catalyst 6500-E series chassis—80 GB per second
Module upgrade availability	PoE—Not supported Distributed forwarding— The C6800-16P10G module ships with a factory-installed DFC4-E and the C6800-16P10G-XL module ships with a factory-installed DFC4-EXL daughter card. The modules are not field upgradable.

Feature	Description
Pluggable transceivers support	These Ethernet modules support 10G SFP+ modules and 1G SFP modules. For SFP transceivers currently supported, refer to the Cisco Transceiver Modules compatibility matrices at: Compatibility Information. For QSFP+ Transceiver Modules supported, refer to the Cisco 4 x SFP10G to QSFP Reverse Adapter Data Sheet.
TDR support	Supported with GLC-T (1G Copper SFP) transceivers
Digital Optical Monitoring (DOM) support	• The DOM-supported 1G transceivers are—GLC-BX-U, GLC-BX-D, GLC-SX-MMD, GLC-EX-SMD, GLC-LH-SMD, GLC-ZX-SMD, SFP-DWDM. • The DOM-supported 10G Fiber SFP/SFP+ transceivers are listed at Cisco Digital Optical Monitoring Compatibility Matrix.

2 Four 40G ports in C6800-16P10G models. To convert the port to 40G ports, refer to the "Interface Configuration" section of 15.3SY Supervisor Engine 6T Software Configuration Guide.

Related Topics

C6800-32P10G and C6800-32P10G-XL Ethernet Modules

The C6800-32P10G and C6800-32P10G-XL Ethernet modules provide eight 40G, thirty two 1G or thirty two 10G transceiver ports.

Figure 5: C6800-32P10G-XL Ethernet Module Front Panel
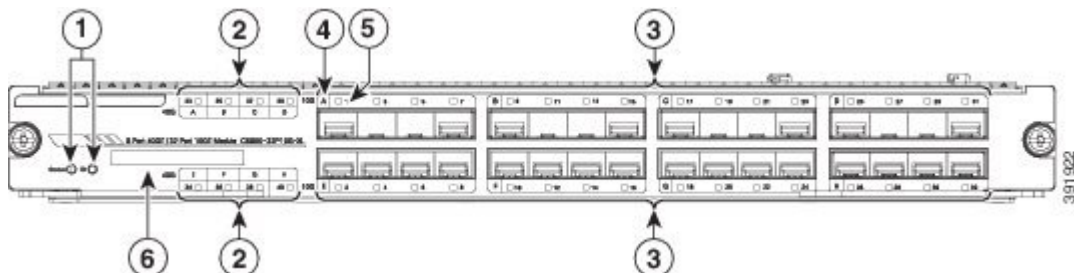
1	Status and ID LEDs	4	Port group ID
2	40G port IDs	5	Port number

3	10G ports (A total of eight port groups)	6	RFID

The sticker on the module faceplate identifies it as either a C6800-32P10G or a C6800-32P10G-XL depending on whether a WS-F6K-DFC4-E or WS-F6K-DFC4-EXL daughter card is installed on the module.

Table 5: C6800-32P10G and C6800-32P10G-XL Ethernet Module Features

Feature	Description
Ports per module	• 32 ports—Thirty-two 1G ports, or thirty-two 10G ports, or eight 40G ports[3]. • Ports are numbered left to right. • The top row has odd numbered ports 1 to 31. • The bottom row has even numbered ports 2 to 32. • 4 port groups. Port ranges per port group: • 1, 3, 5, 7, 9,11, 13, 15 • 2, 4, 6, 8, 10, 12, 14, 16 • 17, 19, 21, 23, 25, 27, 29, 31 • 18, 20, 22, 24, 26, 28, 30, 32
Port connector type	LC (optical) or RJ-45 (copper) depending on the SFP transceiver installed. Depending on the distance between the end ports, different QSFP+ transceivers can be used. For more information, refer to the Cisco 4 x SFP10G to QSFP Reverse Adapter Data Sheet.
Cabling distance	Depends on the SFP transceiver installed in the module port. For cabling distance information, refer to the installation guides for Cisco Transceiver Modules at: Install and Upgrade Guides

Feature	Description
Buffer size	Ingress buffer size: • Per port (over subscription mode)—1.25 MB • Per port (transparent mode)—2.5 MB • 10 MB per port-group • Total buffer—40 MB Egress buffer size: • Per port (over subscription mode)—250 MB • Per port (transparent mode)—500 MB • 2 GB per port-group • Total buffer—8 GB
QoS	• Number of egress queues: 8 • Number of ingress queues: 8 • Number of thresholds per egress queue: 4 • Number of thresholds per ingress queue: 4
Maximum frame size	Up to 9216 bytes per frame
Module oversubscription rate	2:1 oversubscription in a Cisco Catalyst 6807-XL chassis. (When all thirty-two 10G ports are used.) 4:1 oversubscription in a Cisco Catalyst 6500 E-series chassis.(When all thirty-two 10G ports are used.)
Supervisor engine support	• Supervisor Engine 2T-10GE • Supervisor Engine 6T
Software support	• With Supervisor Engine 2T-10GE —Cisco IOS Release 15.2(1)SY or later • With Supervisor Engine 6T – Cisco IOS Release 15.3(1)SY or later
Queues per port	With a WS-F6K-DFC4-E/ / EXL daughter card: • Tx—1p7q4t • Rx—2p6q4t

Feature	Description

Chassis and slot restrictions	The following restrictions apply to module installation and operation:
	
	• Module installation—Modules must be installed in adjacent slots. To maintain an adequate air flow through the chassis, install a switching-module filler plate (Cisco part number WS-X6K-SLOT-CVR-E=) in unused slots, rather than a blank slot cover (Cisco part number WS-X6K-SLOT-CVR=).
	
	• Module operation—C6800-32P10G/ 10G-XL operates only in a Cisco Catalyst 6807-XL and a Cisco Catalyst 6500 E-series chassis equipped with a Supervisor Engine 2T-10GE or Supervisor Engine 6T.
	
	• Slot restrictions—In the following switch chassis, you cannot install Ethernet modules in slots meant for supervisor engines:
	
	  • In a Cisco Catalyst 6807-XL, the supervisor engine slots are 3 and 4.
	
	  • In a Cisco Catalyst 6513 E-series chassis, the supervisor engine slots are 7 and 8. This restriction does not apply to any other 6500 E-series chassis.

Fabric connection	For Cisco Catalyst 6807-XL switches: • Fabric channel 0 : Ports 1 to 8 • Fabric channel 1: Ports 9 to 15 • Fabric channel 2 : Ports 17 to 24 • Fabric channel 3 : Ports 25 to 32 For Cisco Catalyst 6500-E series switches: • Fabric channel 0 : Ports 1 to 16 • Fabric channel 1: Ports 17 to 32
Fabric channel speed	In a Cisco Catalyst 6807-XL chassis—160 GB per second In a Cisco Catalyst 6500-E series chassis—80 GB per second
Module upgrade availability	PoE—Not supported Distributed forwarding— The C6800-32P10G module ships with a factory-installed DFC4-E and the C6800-32P10G-XL module ships with a factory-installed DFC4-EXL daughter card. The modules are not field upgradable.

Feature	Description
Pluggable transceivers support	These Ethernet modules support 10G SFP+ modules and 1G SFP modules. For SFP transceivers currently supported, refer to the Cisco Transceiver Modules compatibility matrices at: Compatibility Information. For QSFP+ Transceiver Modules supported, refer to the Cisco 4 x SFP10G to QSFP Reverse Adapter Data Sheet.
TDR support	Supported with GLC-T (1G Copper SFP) transceivers
Digital Optical Monitoring (DOM) support	• The DOM-supported 1G transceivers are—GLC-BX-U, GLC-BX-D, GLC-SX-MMD, GLC-EX-SMD, GLC-LH-SMD, GLC-ZX-SMD, SFP-DWDM. • The DOM-supported 10G Fiber SFP/SFP+ transceivers are listed at Cisco Digital Optical Monitoring Compatibility Matrix.

[3] Eight 40G ports in C6800-32P10G models. To convert the port to 40G ports, refer to the "Interface Configuration" section of 15.3SY Supervisor Engine 6T Software Configuration Guide.

Related Topics

40-Gigabit Pluggable Ethernet Modules

C6800-8P40G and C6800-8P40G-XL Ethernet Modules

The C6800-8P40G and C6800-8P40G-XL Ethernet modules provide eight 40 Gigabit Ethernet QSFP ports.

Figure 6: C6800-8P40G-XL Ethernet Module Front Panel

1	40G ports	3	RFID
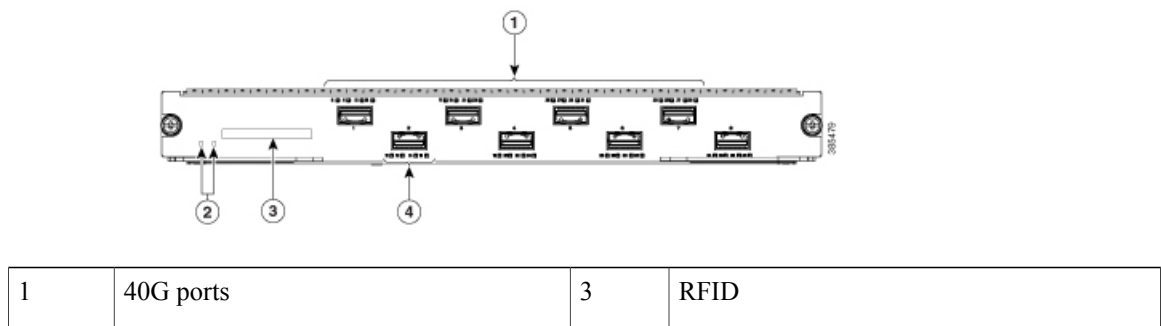
2	Status and ID LEDs	4	40G port IDs

The sticker on the module faceplate identifies it as either a C6800-8P40G or a C6800-8P40G-XL depending on whether a C6800-DFC or C6800-DFC-XL is installed on the module.

Table 6: C6800-8P40G and C6800-8P40G-XL Ethernet Module Features

Feature	Description
Ports per module	- Eight 40 Gigabit Ethernet ports. - Ports are numbered left to right. - The top row has odd numbered ports 1, 3, 5, and 7. - The bottom row has even numbered ports 2, 4, 6 and 8. 4 port-groups with 2 port-sets per port group Port ranges per port group in 40G mode: - Port-group 1 - 1 and 3 - Port-group 2 - 2 and 4 - Port-group 3 - 5 and 7 - Port-group 4 - 6 and 8
Port connector type	LC (optical) connectors. Depending on the distance between the end ports, different QSFP+ transceivers can be used. For more information, refer to the Cisco 40GBASE QSFP Modules Data Sheet.
Cabling distance	Depends on the QSFP+ transceiver installed in the module port. For cabling distance information, refer to the installation guides for Cisco Transceiver Modules at: Install and Upgrade Guides

Feature	Description
Buffer size	Ingress buffer size - 40G Mode: • Per-port (over subscription mode)—5 MB • Per-port (performance mode)—10 MB • 20 MB per port-group • Total buffer—80 MB Egress buffer size - 40G Mode: • Per-port (over subscription mode) - 1 GB • Per-port (performance mode) - 2 GB • 4 GB per port-group • Total buffer -16 GB
QoS	• Number of egress queues: 8 • Number of ingress queues: 8 • Number of thresholds per egress queue: 4 • Number of thresholds per ingress queue: 4
Maximum frame size	Up to 9216 bytes per frame
Module oversubscription rate	2:1 oversubscription in a Cisco Catalyst 6807-XL chassis. (When all eight ports are used.)
Supervisor engine support	• Supervisor Engine 2T-10GE/2T-10GE-XL • Supervisor Engine 6T/6T-XL
Software support	• With Supervisor Engine 2T-10GE/2T-10GE-XL - Cisco IOS Release 15.5(1)SY or later • With Supervisor Engine 6T/6T-XL – Cisco IOS Release 15.5(1)SY or later

Feature	Description

Queues per port	With a C6800-DFC or C6800-DFC-XL:
	
	• Receive:
	    • 1p7q4t (default)
	    • 2p6q4t (configurable)
	
	• Transmit:
	    • 1p7q4t (default)
	    • 2p6q4t (configurable)

Chassis and slot restrictions	The following restrictions apply to module installation and operation: • Module installation—Modules must be installed in adjacent slots. To maintain an adequate airflow through the chassis, install a blank slot cover (Cisco part number C6800-XL-CVR-E=) in unused slots. • Module operation—C6800-8P40G/ 40G-XL operates only in a Cisco Catalyst 6807-XL chassis equipped with a Supervisor Engine 2T-10GE/2T-10GE-XL or Supervisor Engine 6T/6T-XL. • Slot restrictions—In the following switch chassis, you cannot install Ethernet modules in slots meant for supervisor engines: In a Cisco Catalyst 6807-XL, the supervisor engine slots are 3 and 4.
Fabric connection	For Cisco Catalyst 6807-XL switches: • Fabric channel 0: Ports 1 and 2 • Fabric channel 1: Ports 3 and 4 • Fabric channel 2: Ports 5 and 6 • Fabric channel 3: Ports 7 and 8
Fabric channel speed	In a Cisco Catalyst 6807-XL chassis—160 GB per second
Module upgrade availability	PoE—Not supported Distributed forwarding— The C6800-8P40G module ships with an embedded 6800-DFC and the C6800 8P40G-XL module ships with an embedded 6800-DFC-XL. The modules are not field upgradable.

Feature	Description
Pluggable transceivers support	These Ethernet modules support 40G QSFP+ modules. For QSFP+ transceivers currently supported, refer to the Cisco Transceiver Modules compatibility matrices at: Compatibility Information.
Digital Optical Monitoring (DOM) support	The DOM-supported 40G Fiber QSFP+ transceivers are listed at Cisco Digital Optical Monitoring Compatibility Matrix.

Related Topics

Preparing for Installation

Safety Warnings

Safety warnings appear throughout this publication in procedures that may harm you if you perform them incorrectly. A warning symbol precedes each warning statement. The warnings below are general warnings that are applicable to the entire publication.

Warning   Class 1 laser product. **Statement 1008**

Warning   Read the installation instructions before connecting the system to the power source. **Statement 1004**

Warning   Only trained and qualified personnel should be allowed to install, replace, or service this equipment. **Statement 1030**

Warning   Before opening the unit, disconnect the telephone-network cables to avoid contact with telephone-network voltages. **Statement 1041**

⚠ **Warning**   During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself. **Statement 94**

⚠ **Warning**   Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. **Statement 1051**

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage may occur when modules or other FRUs are improperly handled, and result in intermittent or complete failure of the modules or FRUs. Modules consist of printed circuit boards that are fixed in metal carriers. EMI shielding and connectors are integral components of a carrier. Although the metal carrier helps to protect the board from ESD, always use an ESD-grounding strap when handling modules. To prevent ESD damage, follow these guidelines:

Related Topics

Establishing System Ground

To attach the grounding lug and cable to the grounding pad, perform these steps

Before You Begin

To connect the system ground, you require the following tools and materials:

- Grounding lug—A two-hole right-angled lug. Supports up to 6 AWG wire. Supplied as part of accessory kit.

- Grounding screws—Two M4 x 8 mm (metric) pan-head screws. Supplied as part of the accessory kit.

- Grounding wire—Not supplied as part of accessory kit. The grounding wire should be sized according to local and national installation requirements. Depending on the power supply and system, a 12 to 6 AWG copper conductor is required for U.S. installations. Commercially available 6-AWG wire is recommended. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.

- No. 1 Phillips screwdriver.

- Crimping tool to crimp the grounding wire to the grounding lug.

- Wire-stripping tool to remove the insulation from the grounding wire.

SUMMARY STEPS

1. Use a wire-stripping tool to remove approximately 0.75 inches (19 mm) of the covering from the end of the grounding wire.
2. Insert the stripped end of the grounding wire into the open end of the right-angled grounding lug.
3. Crimp the grounding wire in the barrel of the grounding lug. Verify that the ground wire is securely attached to the ground lug.
4. Secure the grounding lug to the system ground connector with two M4 screws. Ensure that the grounding lug and the grounding wire do not interfere with other switch hardware or rack equipment.
5. Prepare the other end of the grounding wire, and connect it to an appropriate grounding point in your site to ensure adequate earth ground for the switch.

DETAILED STEPS

Step 1   Use a wire-stripping tool to remove approximately 0.75 inches (19 mm) of the covering from the end of the grounding wire.

Step 2   Insert the stripped end of the grounding wire into the open end of the right-angled grounding lug.

Step 3   Crimp the grounding wire in the barrel of the grounding lug. Verify that the ground wire is securely attached to the ground lug.

Step 4   Secure the grounding lug to the system ground connector with two M4 screws. Ensure that the grounding lug and the grounding wire do not interfere with other switch hardware or rack equipment.

Figure 7: Locating and Connecting System Ground
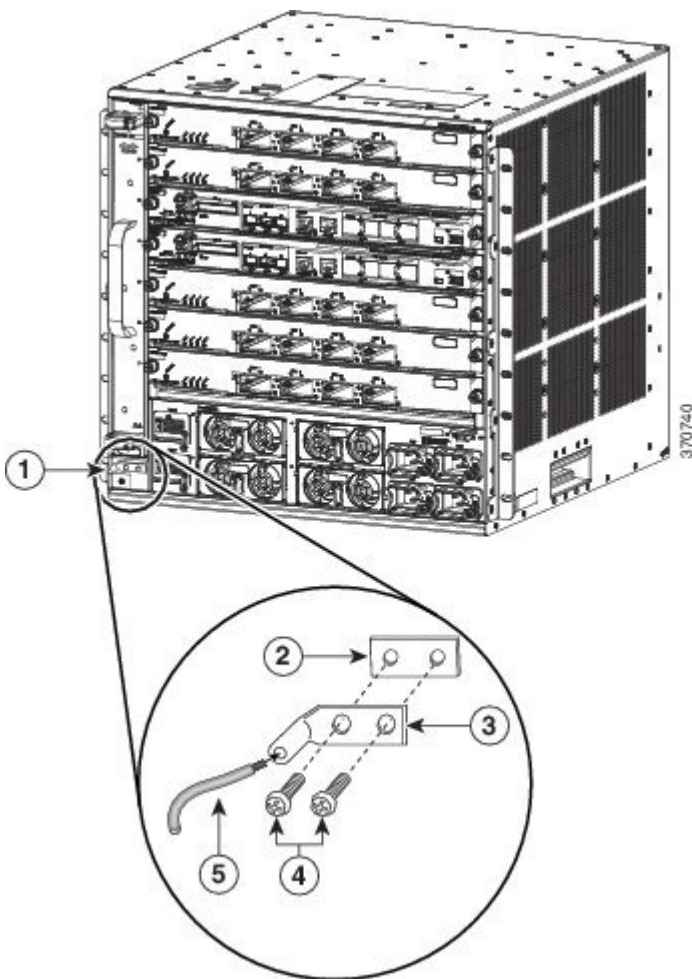
1	System ground location	4	M4 screws to secure the lug to the connector
2	System ground connector	5	Stripped end of the grounding wire inserted into the open end of the right-angled grounding lug

3	Right-angled grounding lug		

Step 5 Prepare the other end of the grounding wire, and connect it to an appropriate grounding point in your site to ensure adequate earth ground for the switch.

Related Topics

Attaching an ESD Strap

After you install the system ground lug, follow these steps to correctly attach the ESD wrist strap:

SUMMARY STEPS

1. Attach the ESD wrist strap to bare skin as follows:
2. Grasp the spring or alligator clip on the ESD wrist strap and momentarily touch the clip to a bare metal spot (unpainted surface) on the rack. We recommend that you touch the clip to an unpainted rack rail so that any built-up static charge is then safely dissipated to the entire rack.
3. Attach either the spring clip or the alligator clip to the ground lug screw as follows:

DETAILED STEPS

Step 1 Attach the ESD wrist strap to bare skin as follows:

a) If you are using the ESD wrist strap supplied with the FRUs, open the wrist strap package and unwrap the ESD wrist strap. Place the black conductive loop over your wrist and tighten the strap such that it touches your bare skin well.

b) If you are using an ESD wrist strap equipped with an alligator clip, open the package and remove the ESD wrist strap. Locate the end of the wrist strap that attaches to your body and secure it to your bare skin.

Step 2 Grasp the spring or alligator clip on the ESD wrist strap and momentarily touch the clip to a bare metal spot (unpainted surface) on the rack. We recommend that you touch the clip to an unpainted rack rail so that any built-up static charge is then safely dissipated to the entire rack.

Step 3 Attach either the spring clip or the alligator clip to the ground lug screw as follows:

a) If you are using the ESD wrist strap that is supplied with the FRUs, squeeze the spring clip jaws open, position the spring clip to one side of the system ground lug screw head, and slide the spring clip over the lug screw head so that the spring clip jaws close behind the lug screw head.

Note The spring clip jaws do not open wide enough to fit directly over the head of the lug screw or the lug barrel.

b) If you are using an ESD wrist strap that is equipped with an alligator clip, attach the alligator clip directly over the head of the system ground lug screw or to the system ground lug barrel.

Figure 8: Attaching the ESD Wrist Strap Clip to the System Ground Lug Screw
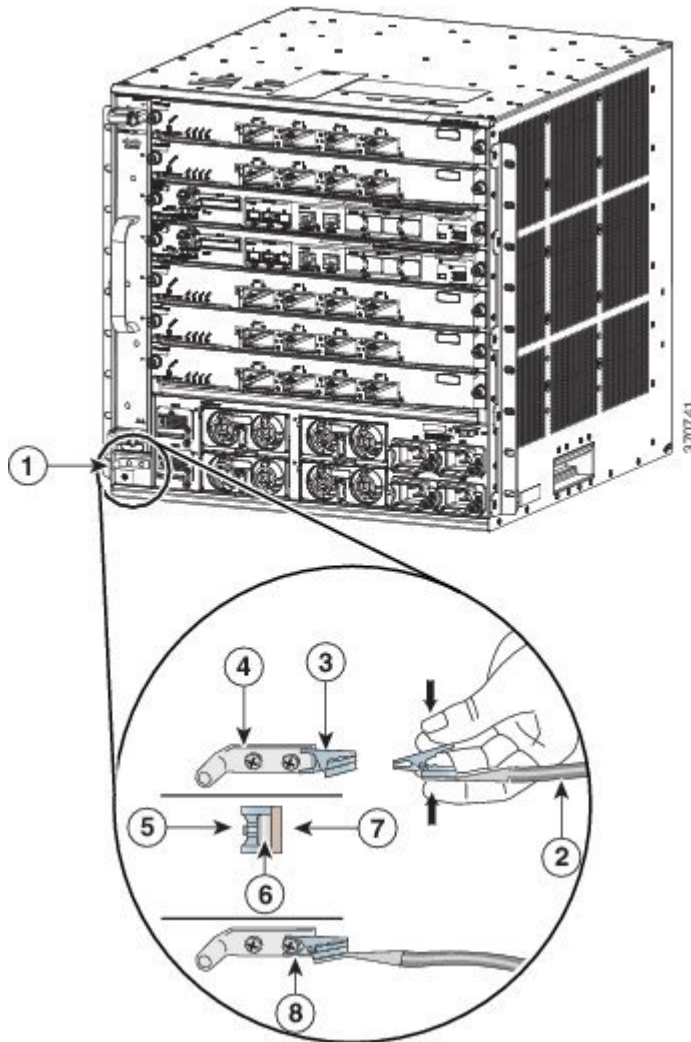
1	System ground connector	5	Side clip behind the screw
2	ESD ground strap	6	Screw
3	Clip	7	Side view of grounding lug
4	Right-angled grounding lug	8	Clip installed behind the screw

When handling modules, follow these guidelines:

• Handle carriers using the available handles or edges only; avoid touching the printed circuit boards or connectors.

• Place a removed component boardside up on an antistatic surface or in a static shielding container. If you plan to return the component to the factory, immediately place it in a static shielding container.

• Never attempt to remove the printed circuit board from the metal carrier.

Caution   For safety, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megohm (Mohm).

Tools Required for Module Installation or Removal

These tools are required to perform the installation or removal of Ethernet modules:

• Antistatic mat or foam pad to support an unpackaged module.

• Small flat-blade screwdriver.

• Number 2 Phillips screwdriver.

• Your own ESD-prevention equipment.

Related Topics

CHAPTER **3**

Installing and Removing Modules, Transceivers, and Attaching Cables

Installing and Removing Ethernet Switching Modules

Installing an Ethernet Switching Module

The C6800-32P10G-XL Ethernet module illustrations are shown here as examples; the same installation procedure applies to other modules.

Before You Begin

Verify the following:

- That the two slots adjacent to the slot where you are installing the module have either a module installed in them or a switching-module filler plate installed (Cisco part numbers SLOTBLANK-09 or WS-X6K-SLOT-CVR-E) if either slot is unused. If either slot has a blank slot cover (Cisco part number WS-X6K-SLOT-CVR), you need to remove the blank slot cover and replace it with a switching-module filler plate for NEBS compliance.

- That there is enough clearance to accommodate any interface equipment, such as pluggable transceivers, installed directly on the module ports. If possible, install modules between empty slots that contain only module filler plates.

- That you have adequate cable guides installed on the chassis to accept the additional network interface cables for the new module.

- That the captive installation screws are tightened on all modules installed in the chassis.

This is to ensure that the EMI gaskets on all of the modules are fully compressed in order to maximize the opening space for the new or replacement module. If the captive installation screws are loose, the EMI gaskets on the installed modules will push adjacent modules toward the open slot, reducing the opening size and making it difficult to install the module.

Step 1 Attach an ESD grounding strap to your wrist and to ground.

Step 2 Choose a slot for the module and remove the module filler plate covering the selected slot by removing the two Phillips pan-head screws from the filler plate.
Refer to your software release notes for any information on slot or chassis restrictions for the module that you are installing.

Step 3 Remove the new module from its shipping packaging and from the antistatic shipping bag.
Caution To prevent ESD damage, handle modules by the carrier edges only.

Step 4 Fully open both ejector levers on the new module.

Step 5 Position the new module in the slot. Make sure that you align the sides of the module carrier with the slot guides on each side of the chassis slot.

Figure 9: Locating the Slot Guide and EMI Gasket
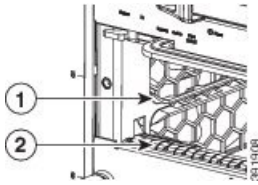
1	Slot guides. Modules to be inserted between these slot guides.	2	EMI gasket.

Step 6 Carefully slide the module into the slot until the EMI gasket along the top edge of the module makes contact with the module or cover plate in the slot above it and the module ejector levers have both closed to approximately 45 degrees with respect to the module faceplate.

Figure 10: Positioning the Module in the Chassis Slot
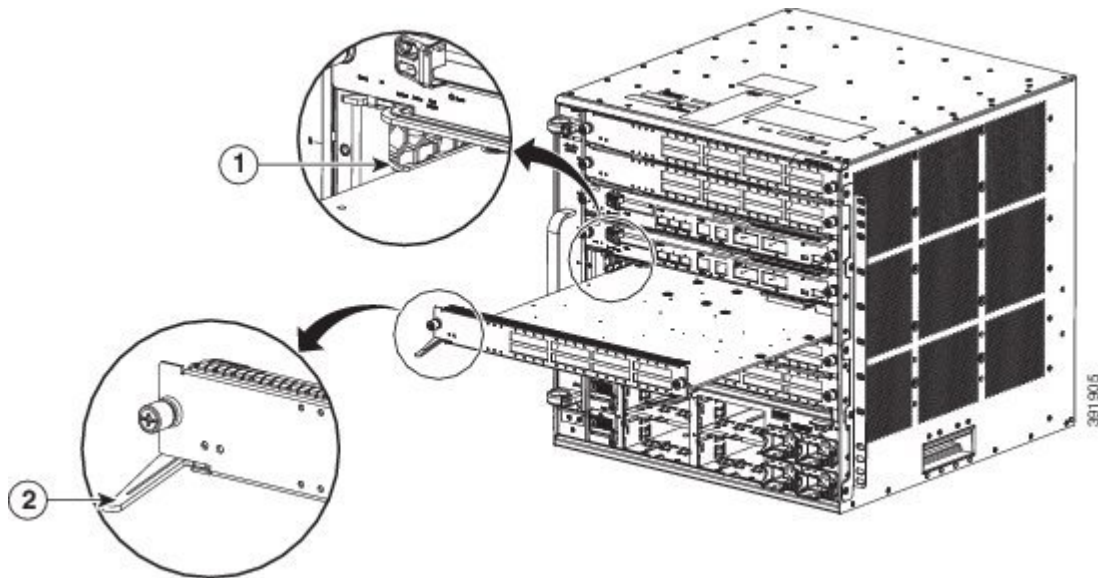
1	Module inserted between the slot guides	2	Ejector lever fully extended

Step 7 Using the thumb and forefinger of each hand, grasp the two ejector levers and gently press down to create a small 0.040 inch (1 mm) gap between the module's EMI gasket and the module or cover plate above it.

Note   Do not press down too forcefully on the levers because they will bend and get damaged.

Figure 11: Clearing the EMI Gasket in the Chassis Slot
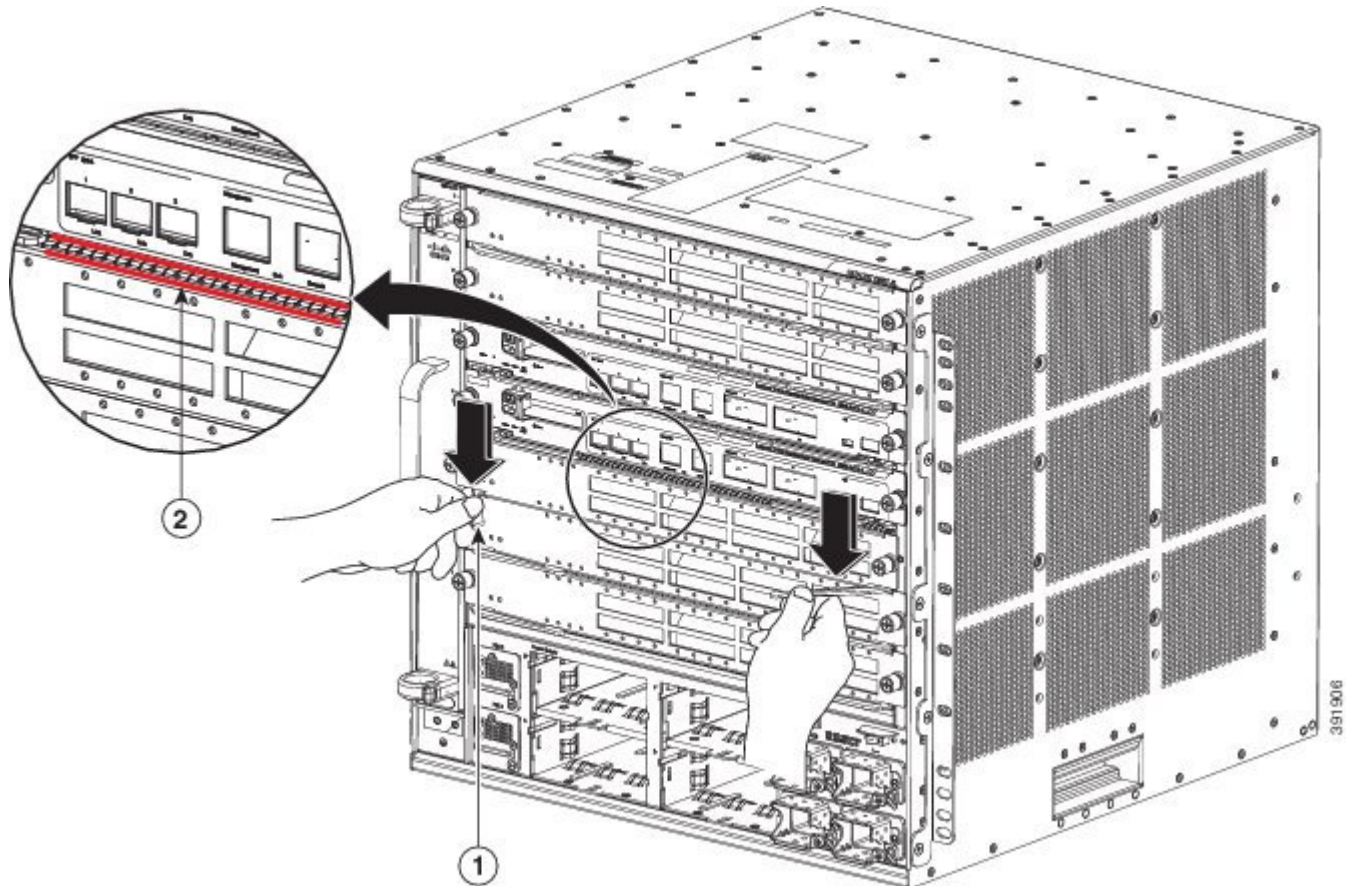
1	Gently press down and simultaneously close the left and right ejector levers to seat the module.	2	1 mm gap between the module EMI gasket and the module above it.

Step 8   While gently pressing down, simultaneously close the left and right ejector levers to fully seat the module in the backplane connector. The ejector levers are fully closed when they are flush with the module faceplate.
Failure to fully seat the module in the backplane connector can result in error messages.

Step 9   Make sure the ejector levers are fully closed and then tighten the two captive installation screws on the module.

Figure 12: Closing Ejector Levers in the Chassis Slot
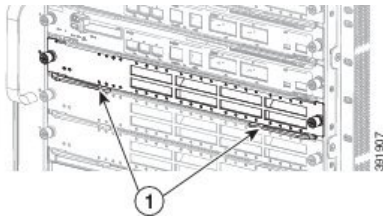
1	Ejector levers fully closed and flush with the module faceplate		-

Step 10   Verify that the module STATUS LED is lit.
Periodically check the STATUS LED color:

- If the STATUS LED changes from orange to green, the module has successfully completed the boot process and is now online.

- If the STATUS LED remains orange or turns red, the module has not successfully completed the boot process and may have encountered an error. For more information about the orange or red STATUS LED states, see Appendix B.

What to Do Next

1   Install switching-module filler plates (Cisco part numbers SLOTBLANK-09 or WS-X6K-SLOT-CVR-E) in any empty slots to maintain consistent airflow through the switch chassis.

2   Verify module installation.

Related Topics

Removing an Ethernet Module

Before You Begin

⚠

Caution During this procedure, wear grounding wrist straps to avoid ESD damage to the module.

⚡

Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. **Statement 1051**

Step 1 Attach an ESD grounding strap to your wrist and to ground.

Step 2 Disconnect any network interface cables attached to the module.

Step 3 Verify that the captive installation screws on all of the modules in the chassis are tight.
This step ensures that the space created by the removed module is maintained. If the captive installation screws are loose, the EMI gaskets on the installed modules will push the modules toward the open slot, reducing the opening size and making it difficult to remove the module.

Step 4 Loosen the two captive screws on the module. Make sure that the two captive screws are completely unscrewed from the chassis.

Step 5 Place your thumbs on the left and right ejector levers and simultaneously rotate the levers outward to unseat the module from the backplane connector.

Step 6 Grasp the front edge of the module and slide the module part of the way out of the slot. Place your other hand under the module to support the weight of the module. Do not touch the module circuitry.

Step 7 Place the removed module on an antistatic mat or in an antistatic bag, or immediately reinstall it in another slot.

Step 8 Perform one of the following steps:

- Install another module.

- Install a module filler plate.

If the slot is to remain empty and is adjacent to a module, you must install a module filler plate (Cisco part numbers SLOTBLANK-09 or WS-X6K-SLOT-CVR-E) to maintain proper air flow through the chassis. Do not install a blank slot cover (Cisco part number WS-X6K-SLOT-CVR) over the unused slot.

Warning   Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place. **Statement 1029**

Installing Transceivers and Module Connectors

Some Ethernet modules require that pluggable transceivers be installed in the module port sockets. These transceivers are normally shipped separately from the module and must be installed after the module is installed in the chassis slot.

For detailed instructions about installing the various kinds of pluggable transceivers and module connectors, see the following:

Transceiver or Module Connector Type	Installation Procedure Document and Link
SFP and SFP+	Cisco SFP and SFP+ Transceiver Module Installation Notes
QSFP+	Cisco CVR-4SFP10G-QSFP Reverse Adapter Installation Note

Related Topics

Pluggable Transceivers, on page 57

Module Connectors, on page 63

Attaching Network Interface Cables

Attaching Optical Network Interface Cables

Caution   Do not remove the plugs from the transceiver optical bores or the fiber-optic cable until you are ready to connect the cable. The plugs protect the transceiver optical bores and cable from contamination.

Step 1   Remove the dust plugs from the network interface cable optical connectors. Save the dust plugs for future use.

Step 2   Immediately inspect and clean the optical connector's fiber-optic end-faces.
Follow these guidelines:

- Always inspect and clean the SC or the LC connector end-faces just before making any connections. Contaminated connectors can damage the fiber and cause data errors.

- Always install protective covers on unused or disconnected components to prevent contamination.

Step 3   Remove the dust plugs from the transceiver optical bores.
If you are using the LX/LH GBIC with MMF, you need to install a patch cord between the GBIC and the MMF cable.

The Read-Only WDM GBIC (WDM-GBIC-REC=) has only one optical bore (receive).

Step 4   Immediately attach the network interface cable optical connector to the transceiver.
Follow these guidelines:

- Always grasp the SC or the LC connector housing rather than the fiber-optic cable to plug or unplug the fiber-optic cable.

- Use extreme care when removing or installing connectors so that you do not damage the connector housing or scratch the end-face surface of the fiber.

Mode-Conditioning Patch Cord

When using the long-wavelength and long-haul (LX and LH) GBIC with 62.5-micron diameter multimode fiber (MMF), you must install a mode-conditioning patch cord (Cisco product number CAB-GELX-625 or equivalent) between the GBIC and the MMF cable on both the transmit and receive ends of the link.

When an unconditioned laser source designed for operation on single-mode optical fiber (SMF) is directly coupled to an MMF cable, an effect known as differential mode delay (DMD) might result in a degradation of the modal bandwidth of the optical fiber cable. This degradation results in a decrease in the link span (the distance between a transmitter and a receiver) that can be supported reliably. The effect of DMD can be overcome by conditioning the launch characteristics of a laser source. A practical means of performing this conditioning is to use a device called a mode-conditioning patch cord.

A mode-conditioning patch cord is required for 1000BASE-LX and LH applications over FDDI-grade, OM1, and OM2 fiber-cable types. Mode-conditioning patch cords should not be used for applications over OM3 fiber cable (laser-optimized fiber cable). For more information about mode-conditioning patch cords, see the

Use of Mode Conditioning Patch Cables in Gigabit Ethernet and 10 Gigabit Ethernet Laser-Based Transmissions bulletin available on Cisco.com.

Figure 13: Mode Conditioning Patch Cord with SC (GBIC Transceiver) Connector
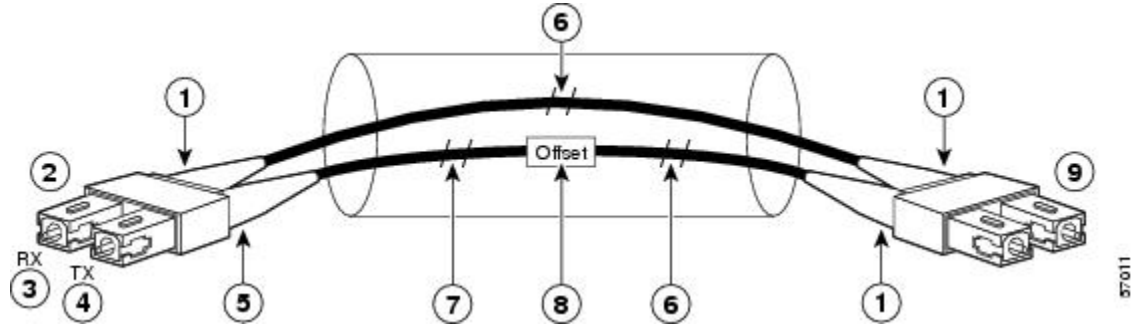
1	Beige color identifier	6	MMF
2	To Gigabit Ethernet interface	7	Single-mode fiber (SMF)
3	RX (receiver)	8	Offset junction
4	TX (transmitter)	9	To cable plant
5	Blue color identifier		

Note We recommend that you use the LX and LH GBIC and MMF with the patch cord for short link distances of 33 to 328 feet (10 to 100 meters) because not using the patch could result in an elevated bit error rate (BER).

The patch cord is required to comply with IEEE standards. IEEE found that link distances could not be met with certain types of fiber-optic cable due to a problem in the center of some fiber-optic cable cores. The solution is to launch light from the laser at a precise offset from the center by using the patch cord. At the output of the patch cord, the LX and LH GBIC complies with the IEEE 802.3z standard for 1000BASE-LX.

Installing the Patch Cord

Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

To install the patch cord, perform these steps:

SUMMARY STEPS

1. Plug the end of the patch cord labeled To Equipment into the GBIC. See Figure 14: Patch Cord Installation, on page 40.

2. Plug the end labeled To Cable Plant into the patch panel. See Figure 14: Patch Cord Installation, on page 40.

DETAILED STEPS

Step 1   Plug the end of the patch cord labeled To Equipment into the GBIC. See Figure 14: Patch Cord Installation, on page 40.

Step 2   Plug the end labeled To Cable Plant into the patch panel. See Figure 14: Patch Cord Installation, on page 40.
The patch cord is 9.8-feet (3-meters) long and has duplex SC male connectors at each end.

Figure 14: Patch Cord Installation
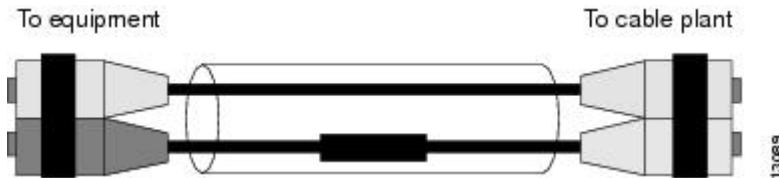
Connecting Transceivers to a Copper Network

Caution   To comply with GR-1089 intrabuilding lightning immunity requirements, you must use grounded, shielded, twisted-pair Category 5 cabling.

Step 1   Insert the network cable RJ-45 connector into the RJ-45 connector on the transceiver.
When connecting to a 1000BASE-T-compatible switch or repeater, use four-twisted-pair, crossover Category 5 cabling.

Step 2   Insert the other end of the network cable into an RJ-45 connector on a 1000BASE-T-compatible target device.

Verifying the Installation

Verifying Newly Installed Modules

Enter the **show module** or **show port** [*modnum/port_num*] privileged EXEC command.

This verifies that the system acknowledges the new modules and has brought them online.

What to Do Next

Enter the **ping** *host* user EXEC command to ping a host and check connectivity.

If the host is unresponsive, check the IP address of the switch and default IP route, if appropriate.

Example: show module Command Output for C6800-48P-TX-XL

These are examples of the show module command output for the C6800-48P-TX-XL Ethernet module:

```
Switch# show module sw 1
 Switch Number:     1   Role:  Virtual Switch Standby
 -------------------- ----------------------------
Mod Ports Card Type                                Model              Serial No.
--- ----- -------------------------------------- ------------------ -----------
  1   20  DCEF2T 4 port 40GE / 16 port 10GE       WS-X6904-40G       SAL1624E826
  2    4  WiSM 2 WLAN Service Module              WS-SVC-WISM2-K9    SAL1523FLRV
  3    5  Supervisor Engine 2T 10GE w/ CTS (CSSO VS-SUP2T-10G        SAL17152F6Q
  4    5  Supervisor Engine 2T 10GE w/ CTS (Hot) VS-SUP2T-10G        SAL17152F7C
  5    4  Network Analysis Module 3              WS-SVC-NAM-3-K9    SAL16127XFD
  6   48  DCEF-XL 48P 10/100/1000MB Ethernet     C6800-48P-TX-XL    SAL1736CC7W

Mod MAC addresses                       Hw    Fw          Sw          Status
--- ---------------------------------- ------ ----------- ----------- -------
  1 1cdf.0f9b.df26 to 1cdf.0f9b.df39   1.0   12.2(50r)SYL 15.1(2)SY2  Ok
  2 e05f.b994.2660 to e05f.b994.266f   1.0   12.2(18r)S1  15.1(2)SY2  Ok
  3 2c54.2dc4.a0a5 to 2c54.2dc4.a0ac   1.5   12.2(50r)SYS 15.1(2)SY2  Ok
  4 2c54.2dc3.7499 to 2c54.2dc3.74a0   1.5   12.2(50r)SYS 15.1(2)SY2  Ok
  5 1cdf.0f9b.a76e to 1cdf.0f9b.a77d   1.1   12.2(50r)SYL 15.1(2)SY2  Ok
  6 7c69.f69b.c8d8 to 7c69.f69b.c907   0.1   12.2(18r)S1  15.1(2)SY2  Ok

Mod  Sub-Module                   Model              Serial      Hw      Status
---- ---------------------------- ------------------ ----------- ------- -------
  1  Distributed Forwarding Card  WS-F6K-DFC4-EXL    SAL1532M1VE 1.0     Ok
  3  Policy Feature Card 4        VS-F6K-PFC4XL      SAD1422005E 0.509   Ok
  3  CPU Daughterboard            VS-F6K-MSFC5       SAL17142D69 2.0     Ok
  4  Policy Feature Card 4        VS-F6K-PFC4XL      SAD142502KP 0.509   Ok
  4  CPU Daughterboard            VS-F6K-MSFC5       SAL171424F1 2.0     Ok
 5/0 NAM Application Processor    SVC-APP-PROC-1     SAL161065NJ 1.0     Ok
  6  Distributed Forwarding Card  WS-F6K-DFC4-AXL    SAL1736CC7W 0.1     Ok

Base PID:
Mod  Model        Serial No.
---- ----------- ----------
  5 WS-SVC-APP-HW-1    SAL16127XFD

Mod  Online Diag Status
---- ------------------
  1 Pass
  2 Pass
  3 Pass
  4 Pass
  5 Not Applicable
 5/0 Not Applicable
```

```
      6  Pass


Switch#show module switch 1 slot 6

 Switch Number:    1   Role:  Virtual Switch Standby
--------------------  ----------------------------
Mod Ports Card Type                             Model              Serial No.
--- ----- ------------------------------------- ------------------ -----------
  6   48  DCEF-XL 48P 10/100/1000MB Ethernet    C6800-48P-TX-XL    SAL1736CC7W

Mod MAC addresses                       Hw    Fw           Sw           Status
--- --------------------------------- ------ ------------ ------------ -------
  6  7c69.f69b.c8d8 to 7c69.f69b.c907  0.1   12.2(18r)S1  15.1(2)SY2   Ok

Mod  Sub-Module                 Model              Serial      Hw      Status
---- -------------------------- ------------------ ----------- ------- -------
  6  Distributed Forwarding Card WS-F6K-DFC4-AXL    SAL1736CC7W  0.1    Ok

Mod  Online Diag Status
---- -------------------
  6  Pass
```

Related Topics

Example: show module Command Output for C6800-48P-SFP

These are examples of the show module command output for the C6800-48P-SFP Ethernet module:

```
Switch# show module sw 2
 Switch Number:    2   Role:   Virtual Switch Active
--------------------  ----------------------------
Mod Ports Card Type                             Model              Serial No.
--- ----- ------------------------------------- ------------------ -----------
  1   20  DCEF2T 4 port 40GE / 16 port 10GE     WS-X6904-40G       SAL1627FUGE
  3    5  Supervisor Engine 2T 10GE w/ CTS (Acti VS-SUP2T-10G      SAL17152N0N
  4    5  Supervisor Engine 2T 10GE w/ CTS (CSSO VS-SUP2T-10G      SAL17152F4G
  7   48  DCEF 48P 1GE SFP                       C6800-48P-SFP      SAL1810N5E2

Mod MAC addresses                       Hw    Fw           Sw           Status
--- --------------------------------- ------ ------------ ------------ -------
  1  1cdf.0f9b.e9fa to 1cdf.0f9b.ea0d  1.0   12.2(50r)SYL 15.1(2)SY2   Ok
  3  5057.a8e2.5e85 to 5057.a8e2.5e8c  1.5   12.2(50r)SYS 15.1(2)SY2   Ok
  4  5057.a8e2.5e4e to 5057.a8e2.5e55  1.5   12.2(50r)SYS 15.1(2)SY2   Ok
  7  b838.61d7.fca8 to b838.61d7.fcd7  0.1   12.2(18r)S1  15.1(2)SY2   Ok

Mod  Sub-Module                 Model              Serial      Hw      Status
---- -------------------------- ------------------ ----------- ------- -------
  1  Distributed Forwarding Card WS-F6K-DFC4-EXL    SAL1535P0LR  1.0    Ok
  3  Policy Feature Card 4      VS-F6K-PFC4XL      SAD1352022C  0.509  Ok
  3  CPU Daughterboard          VS-F6K-MSFC5       SAL17152L07  2.0    Ok
  4  Policy Feature Card 4      VS-F6K-PFC4XL      SAD140801W1  0.509  Ok
  4  CPU Daughterboard          VS-F6K-MSFC5       SAL17152KZK  2.0    Ok
  7  Distributed Forwarding Card WS-F6K-DFC4-A      SAL1810N5AL  2.0    Ok

Mod  Online Diag Status
---- -------------------
  1  Pass
  3  Pass
  4  Pass
  7  Pass


Switch# show module switch 2 slot 7
 Switch Number:    2   Role:   Virtual Switch Active
```

```
---------------------  ----------------------------
Mod Ports Card Type                             Model             Serial No.
--- ----- -------------------------------------- ------------------ -----------
  7    48  DCEF 48P 1GE SFP                       C6800-48P-SFP      SAL1810N5E2

Mod MAC addresses                   Hw    Fw          Sw          Status
--- -------------------------------- ------ ----------- ----------- -------
  7  b838.61d7.fca8 to b838.61d7.fcd7  0.1   12.2(18r)S1 15.1(2)SY2  Ok

Mod  Sub-Module                 Model             Serial      Hw     Status
---- -------------------------- ----------------- ----------- ------- -------
  7  Distributed Forwarding Card WS-F6K-DFC4-A     SAL1810N5AL 2.0    Ok

Mod  Online Diag Status
---- -------------------
  7  Pass
```

Related Topics

Installing an Ethernet Switching Module, on page 31

C6800-48P-SFP and C6800-48P-SFP-XL Ethernet Modules, on page 4

Module Specifications

10/100/1000 Ethernet Module Specifications

C6800-48P-TX and C6800-48P-TX-XL Specifications

The following table lists the physical specifications of the modules:

Table 7: C6800-48P-TX and C6800-48P-TX-XL Physical Specifications

Item	Specification
Dimensions (H x W x D)	1.2 x 14.4 x 16 in. (3.0 x 35.6 x 40.6 cm). Occupies one slot in the chassis.
Weight	C6800-48P-TX—8.24 lb (3.74 kg) C6800-48P-TX-XL—8.06 lb (3.66 kg)

The following table lists the environmental specifications of the modules:

Table 8: C6800-48P-TX and C6800-48P-TX-XL Environmental Specifications

Item	Specification
Operating temperature	Certified for operation: 32° to 104°F (0° to 40°C) Designed and tested for operation: 32° to 130°F (0° to 55°C)

Item	Specification
Humidity (RH) ambient (noncondensing)	10 to 90 percent
Operating altitude	Certified for operation: 0 to 6500 ft (0 to 2000 m) Designed and tested for operation: -200 to 10,000 ft (-60 to 3000 m)

Table 9: C6800-48P-TX and C6800-48P-TX-XL - Power and Heat Values

Switch Model + DFC Card	Module Current (Amps) [4].	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6807-XL Switch (C6800-48P-TX + WS-F6K-DFC4-A)	7.786	404.872	404.872	1381.480	-	-
Cisco Catalyst 6807-XL Switch (C6800-48P-TX-XL + WS-F6K-DFC4-AXL)	7.883	409.916	409.916	1398.691	-	-
Cisco Catalyst 6500-E Series Switch (C6800-48P-TX + WS-F6K-DFC4-A)	9.640	404.88	404.88	1381.507	404.88	1381.507
Cisco Catalyst 6500-E Series Switch (C6800-48P-TX-XL + WS-F6K-DFC4-AXL)	9.760	409.92	409.92	1398.705	409.92	1398.705

[4] On a Cisco Catalyst 6807-XL switch, module current is @ 52V and on a Cisco Catalyst 6500-E Series switch, module current is @ 42V

Related Topics

1-Gigabit Ethernet Module Specifications

C6800-48P-SFP and C6800-48P-SFP-XL Module Specifications

The following table lists the physical specifications of the modules:

Table 10: C6800-48P-SFP and C6800-48P-SFP-XL - Physical Specifications

Item	Specification
Dimensions (H x W x D)	1.2 x 14.4 x 16 in. (3.0 x 35.6 x 40.6 cm). Occupies one slot in the chassis.
Weight	C6800-48P-SFP—9.03 lb (4.1 kg) C6800-48P-SFP-XL—8.70 lb (3.95 kg)

The following table lists the environmental specifications of the modules:

Table 11: C6800-48P-SFP and C6800-48P-SFP-XL - Environmental Specifications

Item	Specification
Operating temperature	Certified for operation: 32° to 104°F (0° to 40°C) Designed and tested for operation: 32° to 130°F (0° to 55°C)
Humidity (RH) ambient (noncondensing)	10 to 90 percent
Operating altitude	Certified for operation: 0 to 6500 ft (0 to 2000 m) Designed and tested for operation: -200 to 10,000 ft (-60 to 3000 m)

Table 12: C6800-48P-SFP and C6800-48P-SFP-XL - Power and Heat Values

Switch Model + DFC Card	Module Current (Amps) [5]	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6807-XL Switch (C6800-48P-SFP + WS-F6K-DFC4-A)	6.429	334.308	334.308	1140.706	-	-
Cisco Catalyst 6807-XL Switch (C6800-48P-SFP-XL + WS-F6K-DFC4-AXL)	6.526	339.352	339.352	1157.917	-	-
Cisco Catalyst 6500-E Series Switch (C6800-48P-SFP + WS-F6K-DFC4-A)	7.960	334.32	334.32	1140.747	334.32	1140.747

Switch Model + DFC Card	Module Current (Amps) [5]	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6500-E Series Switch (C6800-48P-SFP-XL + WS-F6K-DFC4-AXL)	8.080	339.36	339.36	1157.944	339.36	1157.944

[5] On the Catalyst 6807-XL switch, module current is @ 52V and on a Catalyst 6500-E Series switch, module current is @ 42V.

Related Topics

10-Gigabit Ethernet Module Specifications

C6800-8P10G and C6800-8P10G-XL Module Specifications

The following table lists the physical specifications of the modules:

Table 13: Physical Specifications

Item	Specification
Dimensions (H x W x D)	1.73 x 15.4 x 16.4 inches (4.39 x 39.11 x 41.65 cm)
Weight	11.02 lb (5.0 kg)

The following table lists the environmental specifications of the modules:

Table 14: Environmental Specifications

Item	Specification
Operating temperature	Certified for operation: 32° to 104°F (0° to 40°C) Designed and tested for operation: 32° to 130°F (0° to 55°C)
Humidity (RH) ambient (noncondensing)	10 to 90 percent
Operating altitude	Certified for operation: 0 to 6500 ft (0 to 2000 m) Designed and tested for operation: -200 to 10,000 ft (-60 to 3000 m)

Table 15: Power and Heat Values

Switch Model + DFC Card	Module Current (Amps) [6]	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6807-XL Switch These values apply to the C6800-8P10G (comes installed with WS-F6K-DFC4-E) and the C6800-8P10G-XL (comes installed with WS-F6K-DFC4-EXL) modules	6.86	357	357	1218.13	—	—
Cisco Catalyst 6500-E Series Switch These values apply to the C6800-8P10G (comes installed with WS-F6K-DFC4-E) and the C6800-8P10G-XL (comes installed with WS-F6K-DFC4-EXL) modules	8.5	357	357	1218.13	357	1218.13

[6] On a Cisco Catalyst 6807-XL switch, module current is @ 52V.
On a Cisco Catalyst 6503-E and 6504-E module current is @50V; On all other Cisco Catalyst 6500-E Series switches, module current is @ 42V.

Related Topics

C6800-16P10G and C6800-16P10G-XL Module Specifications

The following table lists the physical specifications of the modules:

Table 16: Physical Specifications

Item	Specification
Dimensions (H x W x D)	1.73 x 15.4 x 16.4 inches (4.39 x 39.11 x 41.65 cm)
Weight	11.02 lb (5.0 kg)

The following table lists the environmental specifications of the modules:

Table 17: Environmental Specifications

Item	Specification
Operating temperature	Certified for operation: 32° to 104°F (0° to 40°C)
	Designed and tested for operation: 32° to 130°F (0° to 55°C)
Humidity (RH) ambient (noncondensing)	10 to 90 percent
Operating altitude	Certified for operation: 0 to 6500 ft (0 to 2000 m)
	Designed and tested for operation: -200 to 10,000 ft (-60 to 3000 m)

Table 18: Power and Heat Values

Switch Model + DFC Card	Module Current (Amps) [7]	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6807-XL Switch These values apply to the C6800-16P10G (comes installed with WS-F6K-DFC4-E) and the C6800-16P10G-XL (comes installed with WS-F6K-DFC4-EXL) modules	6.86	357	357	1218.13	—	—
Cisco Catalyst 6500-E Series Switch These values apply to the C6800-16P10G (comes installed with WS-F6K-DFC4-E) and the C6800-16P10G-XL (comes installed with WS-F6K-DFC4-EXL) modules	8.5	357	357	1218.13	357	1218.13

[7] On a Cisco Catalyst 6807-XL switch, module current is @ 52V.
On a Cisco Catalyst 6503-E and 6504-E module current is @50V; On all other Cisco Catalyst 6500-E Series switches, module current is @ 42V.

C6800-32P10G and C6800-32P10G-XL Module Specifications

The following table lists the physical specifications of the modules:

Table 19: Physical Specifications

Item	Specification
Dimensions (H x W x D)	1.73 x 15.4 x 16.4 inches (4.39 x 39.11 x 41.65 cm)
Weight	14.33 lb (6.5 kg)

The following table lists the environmental specifications of the modules:

Table 20: Environmental Specifications

Item	Specification
Operating temperature	Certified for operation: 32° to 104°F (0° to 40°C) Designed and tested for operation: 32° to 130°F (0° to 55°C)
Humidity (RH) ambient (noncondensing)	10 to 90 percent
Operating altitude	Certified for operation: 0 to 6500 ft (0 to 2000 m) Designed and tested for operation: -200 to 10,000 ft (-60 to 3000 m)

Table 21: Power and Heat Values

Switch Model + DFC Card	Module Current (A) [8]	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6807-XL Switch These values apply to the C6800-32P10G (comes installed with WS-F6K-DFC4-E) and the C6800-32P10G-XL (comes installed with WS-F6K-DFC4-EXL) modules	11.3	588	588	2006.33	—	—
Cisco Catalyst 6500-E Series Switch These values apply to the C6800-32P10G (comes installed with WS-F6K-DFC4-E) and the C6800-32P10G-XL (comes installed with WS-F6K-DFC4-EXL) modules	14	588	588	2006.33	588	2006.33

[8] On a Cisco Catalyst 6807-XL switch, module current is @ 52V.
On a Cisco Catalyst 6503-E and 6504-E module current is @50V; On all other Cisco Catalyst 6500-E Series switches, module current is @ 42V.

Related Topics

40-Gigabit Ethernet Module Specifications

C6800-8P40G and C6800-8P40G-XL Module Specifications

The following table lists the physical specifications of the modules:

Table 22: Physical Specifications

Item	Specification
Dimensions (H x W x D)	1.73 x 15.4 x 16.4 inches (4.39 x 39.11 x 41.65 cm)
Weight	• 12.52 lb (5.68kg) for C6800-8P40G • 12.79 lb (5.80kg) for C6800-8P40G-XL

Table 23: Power and Heat Values

Switch Model + DFC Card	Module Current (A) [9]	Module Power (Watts)	AC-Input Power (Watts)	AC Heat Diss. (BTU/HR)	DC-Input Power (Watts)	DC Heat Diss. (BTU/HR)
Cisco Catalyst 6807-XL Switch These values apply to the C6800-8P40G (comes installed with 6800-DFC) and the C6800-8P40G-XL (comes installed with 6800-DFC-XL) modules	11.3	588	588	2006.33	—	—

[9] On a Cisco Catalyst 6807-XL switch, module current is @ 52V.

Related Topics

Installing an Ethernet Switching Module, on page 31
C6800-8P40G and C6800-8P40G-XL Ethernet Modules, on page 18

LEDs

- Ethernet Module LEDs, page 55

Ethernet Module LEDs

The Cisco 6800 series Ethernet module front panels include a Status LED and an ID LED, LEDs for port links as shown in the following figure.

The following illustration shows the LEDs on a Cisco C6800-32P10G-XL module as an example, other 6800 series modules have similar LEDs.

Figure 15: Ethernet Module LEDs
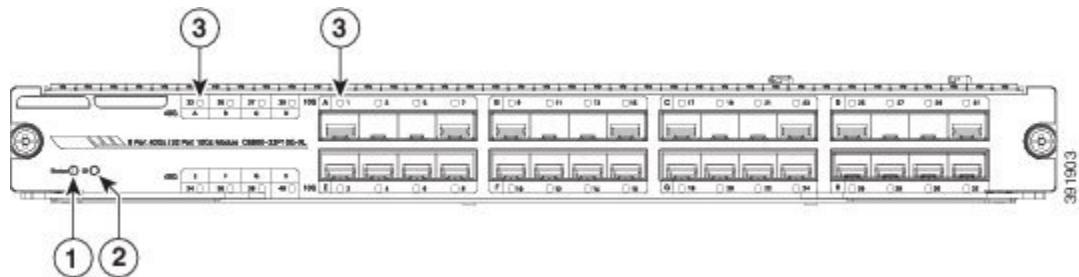
1	Status LED	3	Port Link LEDs. The illustration points to one of the 40G ports and one of the 10G ports.
2	ID LED		

The different states of the LEDs are described in the following tables:

Table 24: Module Front Panel - Status LED Colors and Meaning

LED Color	Meaning
Green	All diagnostics pass; the module is operational.
Orange	The module is booting or running diagnostics; an overtemperature condition has occurred.

Table 25: Module Front Panel - ID LED Color and Meaning

LED Color	Meaning
Blue	Identifies the Ethernet module in the chassis. You can turn this LED on and off using CLI commands. Turning the beacon on helps to identify the module to servicing personnel.

Table 26: Module Front Panel - Port Link LED Colors and Meaning

LED Color	Meaning
Green	The port is active (the link is connected and operational).
Flashing orange	The port failed diagnostics and is disabled.
Orange	The port is disabled.
Red	The module is resetting; an overtemperature condition has occurred.

Related Topics

Pluggable Transceivers, Module Connectors

Pluggable Transceivers

This section provides brief descriptions of the pluggable transceivers that can be installed in the switch modules and supervisor engines. The following safety warnings apply:

Warning   Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

Warning   Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040

Warning   Class I (CDRH) and Class 1M (IEC) laser products. Statement 1055

Warning   Use of controls, adjustments, or performing procedures other than those specified may result in hazardous radiation exposure. Statement 1057

Related Topics

Installing Transceivers and Module Connectors, on page 37

1-GB Transceivers

The switch supports the 1-GB SFP transceiver. The following table lists the modules that the SFP transceiver supports and the links that provide transceiver specifications:

Table 27: 1-GB Transceiver Types

1-GB Transceiver Type	Supported on These Modules	More Information
SFP	• C6800-48P-SFP • C6800-48P-SFP-XL • C6800-8P10G • C6800-8P10G-XL • C6800-16P10G • C6800-16P10G-XL • C6800-32P10G • C6800-32P10G-XL • WS-X6724-SFP • WS-X6748-SFP • WS-X6824-SFP-2T • WS-X6824-SFP- 2TXL • WS-X6848-SFP-2T • WS-X6848-SFP-2TXL • VS-S2T-10G • VS-S2T-10GXL • C6800-SUP6T • C6800-SUP6T-XL	Cisco Small Form-Factor Pluggable Modules for Gigabit Ethernet Applications Data Sheet

Note   To determine if a specific SFP transceiver is compatible with the supported modules, see the Cisco Gigabit Ethernet Transceiver Modules Compatibility Matrix document that is available on Cisco.com.

10-GB Transceivers

The switch supports 10-GB SFP+ transceivers. The following table lists the modules that the transceivers support and the links that provide transceiver specifications:

Table 28: 10-GB Transceiver Types

10-GB Transceiver Type	Supported on These Modules	More Information
SFP+ transceivers	You can use these 10-GB modules with the Cisco OneX Converter Module[10] • C6800-8P10G • C6800-8P10G-XL • C6800-16P10G • C6800-16P10G-XL • C6800-32P10G • C6800-32P10G-XL • WS-X6816-10G-2T • WS-X6816-10G-2TXL • WS-X6908-10G-2T • WS-X6908-10G-2TXL • VS-S2T-10G • VS-S2T-10G XL • C6800-SUP6T • C6800-SUP6T-XL You can also use these 40-GB modules with the Cisco FourX Converter Module[11]: • WS-X6904-40G-2T • WS-X6904-40G-2TXL	• Cisco 10GBASE SFP+ Modules Data Sheet • Cisco OneX Converter Module • Cisco 40GBASE CFP Modules Data Sheet

[10] CVR-X2-SFP10G - converter for X2 ports.
[11] CVR-CFP-4SFP10G.

To determine if a specific 10-GB transceiver is compatible with the supported modules, see the 10-Gigabit Ethernet Transceiver Modules Compatibility Matrix document that is available on Cisco.com.

40-GB Transceivers

The switch supports Quad Small Form-Factor Pluggable (QSFP) transceiver modules. The following table lists the modules that the transceivers support and the links that provide transceiver specifications:

Table 29: 40-GB Transceiver Types

40-GB Transceiver Type	Supported on These Modules	More Information
QSFP Transceivers	• C6800-SUP6T • C6800-SUP6T-XL • C6800-8P40G • C6800-8P40G-XL	Cisco 40 Gigabit Modules QSFP Data Sheet

Note To determine if a specific 40-GB transceiver is compatible with the supported modules, see the Cisco 40-Gigabit Ethernet Transceiver Modules Compatibility Matrix document that is available on Cisco.com.

WDM Transceivers

The following table lists the supported modules, applicable illustrations, and the specification tables for WDM transceivers.

Table 30: WDM Transceiver Types

WDM Transceiver Type	Description	Supported on These Modules	More Information
CWDM SFP	The Coarse Wavelength Division Multiplexing (CWDM) SFP is a hot-swappable device that you can plug into SFP-compatible modules and supervisor engines. The CWDM SFP transceiver uses an LC optical connector to connect to a single-mode fiber-optic (SMF) cable. You can connect the CWDM SFPs to the CWDM passive optical system optical add/drop multiplexer (OADM) modules or multiplexer/demultiplexer plug-in modules using single-mode fiber-optic cables.	• C6800-48P-SFP • C6800-48P-SFP-XL • C6800-8P10G • C6800-8P10G-XL • C6800-16P10G • C6800-16P10G-XL • C6800-32P10G • C6800-32P10G-XL • WS-X6724-SFP • WS-X6748-SFP • WS-X6848-SFP • VS-S2T-10G • VS-S2T-10G XL • C6800-SUP6T • C6800-SUP6T-XL	Cisco CWDM GBIC and SFP Solution

WDM Transceiver Type	Description	Supported on These Modules	More Information
DWDM SFP	The Cisco DWDM SFP is a hot-swappable I/O transceiver module that you can plug into Gigabit Ethernet SFP ports or slots. It supports the ITU 100-GHz wavelength grid and matches the wavelength plan for the Cisco 100-GHz ONS product family. It is a fixed-wavelength SFP, with 40 different SFP models. It uses standard SFP interface network: dual LC/PC connector. **Note** Only connections with patch cords having PC or UPC connectors are supported. Patch cords having APC connectors are not supported.	• C6800-48P-SFP • C6800-48P-SFP-XL • C6800-8P10G • C6800-8P10G-XL • C6800-16P10G • C6800-16P10G-XL • C6800-32P10G • C6800-32P10G-XL • WS-X6724-SFP • WS-X6748-SFP • WS-X6848-SFP • VS-S2T-10G • VS-S2T-10G XL • C6800-SUP6T • C6800-SUP6T-XL	Cisco Dense Wavelength-Division Multiplexing Small Form-Factor Pluggable Module

WDM Transceiver Type	Description	Supported on These Modules	More Information
DWDM SFP+	The Cisco DWDM SFP+ transceiver module is a hot-swappable I/O device that you can plug into an Ethernet SFP+ port of a Cisco switch or router to link the port with the network. It supports 40 nontunable ITU 100-GHz wavelengths. It also supports digital optical monitoring capability and the Cisco quality identification (ID) feature, which enables a Cisco switch or router to identify whether or not the module is an SFP+ module certified and tested by Cisco.	You an use these 10-GB modules with the Cisco OneX Converter Module[12] • C6800-8P10G • C6800-8P10G-XL • C6800-16P10G • C6800-16P10G-XL • C6800-32P10G • C6800-32P10G-XL • WS-X6816-10G • WS-X6816-10G XL • WS-X6908-10 • WS-X6908-10 XL • VS-S2T-10G • VS-S2T-10G XL • C6800-SUP6T • C6800-SUP6T-XL You can also use these 40-GB modules with the Cisco FourX Converter Module[13]: • WS-X6904-40G-2T • WS-X6904-40G-2TXL	• Cisco 10GBASE Dense Wavelength-Division Multiplexing SFP+ Modules Data Sheet • Cisco OneX Converter Module • Cisco 40GBASE CFP Modules Data Sheet

[12] CVR-X2-SFP10G —Converter for X2 ports.
[13] CVR-CFP-4SFP10G.

Note To determine if a specific WDM transceiver is compatible with the supported modules, see the Cisco Gigabit Ethernet Transceiver Modules Compatibility Matrix document that is available on Cisco.com.

Module Connectors

This section provides brief descriptions of the module connectors that the switch supports.
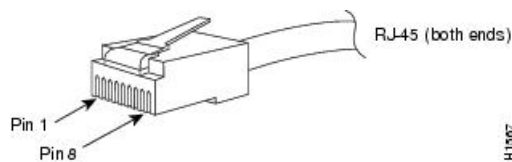
Related Topics

RJ-45 Connector

The RJ-45 connector is used to connect a Category 3, Category 5, Category 5e, or Category 6 foil twisted-pair or unshielded twisted-pair cable from the external network to the module interface connector.

Figure 16: RJ-45 Interface Cable Connector

⚠ **Caution** Category 5e, Category 6, and Category 6a cables can store large levels of static electricity because of the dielectric properties of the materials used in their construction. Always ground the cables (especially in new cable runs) to a suitable and safe earth ground before connecting them to the module.

⚠ **Caution** To comply with GR-1089 intrabuilding and lightning immunity requirements, you must use a foil twisted-pair (FTP) cable that is properly grounded at both ends.

SC Connector

The SC connector is used to connect fiber-optic module ports or transceivers with the external SMF or MMF network.
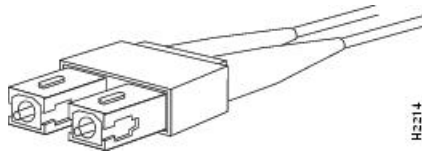
⚠ **Warning** Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

Note Make sure that the optical connectors are clean before making the connections. Contaminated connectors can damage the fiber and cause data errors.

Figure 17: SC Fiber-Optic Connector

Always insert the network connector completely into the socket. A secure connection is especially important when you are establishing a connection between a module and a long-distance (1.24 miles) (2 km) network, or a module and a suspected highly attenuated network. If the link LED does not light up, try removing the network cable plug and reinserting it firmly into the module socket. It is possible that dirt or skin oils have accumulated on the plug faceplate (around the optical-fiber openings), generating significant attenuation and reducing the optical power levels below threshold levels so that a link cannot be established.

Caution Use extreme care when removing or installing connectors so that you do not damage the connector housing or scratch the end-face surface of the fiber. Always install protective covers on unused or disconnected components to prevent contamination. Always clean fiber connectors before installing them.

LC Connector

The LC fiber optic connector is a small form-factor fiber-optic connector that provides high-density fiber connectivity. The LC connector can be used with either MMF cable or SMF cable. The LC connector uses a latching clip mechanism that is similar to the one used on the RJ-45 copper connector.

Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

Note Make sure that the optical connectors are clean before making the connections. Contaminated connectors can damage the fiber and cause data errors.

Figure 18: LC Fiber-Optic Connector