

# Gigabit Ethernet Modules for Cisco Catalyst 6807-XL and 6500-E Switches

Gigabit Ethernet line cards serve both campus and data center networking requirements in a variety of enterprise, commercial, and service provider environments.

## Product Overview

The Cisco® Catalyst® 6807-XL switch offers two new Gigabit Ethernet modules that work with the Catalyst Supervisor Engine 2T/2TXL. The modules also work in Catalyst 6500 Series Switches.

The Gigabit Ethernet modules serve campus and data center networking requirements in enterprise, commercial, and service provider environments. They include a 48-port Gigabit Ethernet Copper Module and 48-port Gigabit Ethernet Fiber Module.

The Gigabit Ethernet Copper Module supports RJ-45 connectors. It supports operational distances of up to 100 meters over Category 5, 5E, and 6 Unshielded Twisted Pair (UTP) copper cabling. The Gigabit Ethernet Fiber Module supports pluggable optics and supports operational distances of up to 80 km over single-mode and multimode fiber.

There are four different 1-Gbps modules supported by Supervisor 2T and 2TXL:

- C6800-48P-SFP and C6800-48P-SFP-XL: 48-port SFP fiber Gigabit Ethernet Module with DFC4 and DFC4XL (Figure 1)
- C6800-48P-TX and C6800-48P-TX-XL: 48-port Copper Gigabit Ethernet Module with DFC4 and DFC4XL (Figure 2)

**Figure 1.** 48-Port Fiber Gigabit Ethernet Module



**Figure 2.** 48-Port 10/100/1000 Copper Module



Below are a few key details about the fiber and copper line cards:

- **Backplane connection:** Connects to the switch fabric using dual full-duplex 20-Gbps switch fabric channels (40 Gbps total).
- **Chassis/slot support:** Can occupy slots 1-2 and 5-7 in C6807-XL chassis. Can occupy any slots in Cisco Catalyst 6503E, 6504E, 6506E, 6509E, and 6509-V-E. Can occupy slots 1-6 and 9-13 in a Cisco Catalyst 6513-E.
- **Supervisor engine:** Compatible with Supervisor Engine 2T and Supervisor Engine 2TXL.
- **Distributed forwarding and performance:** Comes equipped with DFC4 or DFC4XL daughter cards, delivering optimal performance up to a sustained 60 Mpps for L2, IPv4 and MPLS forwarding and 30 Mpps for IPv6 forwarding.

## Features Summary

Table 1 summarizes the primary features of the 6800 Series Gigabit Ethernet fiber and copper modules.

**Table 1.** C6800 Series Gigabit Ethernet Fiber and Copper Modules Primary Features

Product	Transceiver Type	Ports/Interface/Connectors	Port Density/Chassis Model	Maximum Frame Size	Queues per Port (Tx = Transmit, Rx = Receive)	Scheduler	Buffer Size per Port	Onboard Memory
<b>C6800-48P-TX and C6800-48P-TX-XL</b>	RJ-45	48-port, RJ-45, 100m, Category 5 cable	<ul style="list-style-type: none"> <li>• 240 ports/ C6807-XL</li> <li>• 528 ports/ 6513E</li> <li>• 384 ports/ 6509E</li> </ul>	Up to 9216 bytes/frame	<ul style="list-style-type: none"> <li>• Tx-1p3q8t;</li> <li>Rx-2q8t</li> </ul>	DWRR	<ul style="list-style-type: none"> <li>• Rx-166KB</li> <li>• Tx-1.17MB</li> </ul>	1GB Default
<b>C6800-48P-SFP and C6800-48P-SFP-XL</b>	Small Form-factor Pluggable (SFP)	48 port; 1000BASE-SX, LX/LH, -ZX, -T; 1000BASE-CWDM; LC connector	<ul style="list-style-type: none"> <li>• 240 ports/ C6807-XL</li> <li>• 528 ports/ 6513E</li> <li>• 384 ports/ 6509E</li> </ul>	Up to 9216 bytes/frame	<ul style="list-style-type: none"> <li>• Tx-1p3q8T</li> <li>• Rx-2q8T</li> </ul>	Deficit Weighted Round Robin (DWRR)	<ul style="list-style-type: none"> <li>• Rx-166KB</li> <li>• Tx-1.17MB</li> </ul>	1GB Default

**Queues Legend:** 1p3q1t = 1 priority queue, 3 round robin queues, 1 threshold

Table 2 summarizes the interfaces and distances supported by the 6800 Series Gigabit Ethernet Fiber modules.

**Table 2.** C6800 Gigabit Ethernet Fiber Modules Supported Interfaces and Distances

Module	SFP	Wavelength (nm)	Fiber/Cable Type	Core Size (micron)	Model Bandwidth (MHz/km)	Cable Distance
<b>C6800-48P-SFP and C6800-48P-SFP-XL</b>	1000BASE-SX	850	MMF	<ul style="list-style-type: none"> <li>• 62.5</li> <li>• 62.5</li> <li>• 50.0</li> <li>• 50.0</li> </ul>	<ul style="list-style-type: none"> <li>• 160</li> <li>• 200</li> <li>• 400</li> <li>• 500</li> </ul>	<ul style="list-style-type: none"> <li>• 220m (722 ft)</li> <li>• 275m (902 ft)</li> <li>• 500m (1640 ft)</li> <li>• 550m (1804 ft)</li> </ul>
<b>C6800-48P-SFP and C6800-48P-SFP-XL</b>	1000BASE-LX/LH	1300	MMF* SMF	<ul style="list-style-type: none"> <li>• 62.5</li> <li>• 50.0</li> <li>• 50.0</li> <li>• 9/10</li> </ul>	<ul style="list-style-type: none"> <li>• 500</li> <li>• 400</li> <li>• 500</li> </ul>	<ul style="list-style-type: none"> <li>• 550 m (1804 ft)</li> <li>• 550 m (1804 ft)</li> <li>• 550 m (1804 ft)</li> <li>• 10 km (32,810 ft)</li> </ul>

Module	SFP	Wavelength (nm)	Fiber/Cable Type	Core Size (micron)	Model Bandwidth (MHz/km)	Cable Distance
<b>C6800-48P-SFP and C6800-48P-SFP-XL</b>	1000BASE-ZX	1550	SMF	9/10	-	43.4 to 62 miles (70 to 100 km)**
<b>C6800-48P-SFP and C6800-48P-SFP-XL</b>	1000BASE-T	-	Category 5	-	-	100 m (328 ft)

\* Mode-conditioning patch is required. Using an ordinary patch cord with MMF, 1000BASE-LX/LH SFP/GBICs, and a short link distance (10s of meters) can cause transceiver saturation resulting in an elevated bit error rate (BER). In addition, when using the LX/LH SFP/GBIC with 62.5 micron diameter MMF, you must install a mode-conditioning patch cord between the SFP and the MMF cable on both the transmit and receive ends of the link. The mode-conditioning patch cord is required for link distances greater than 300 m (984 ft).

\*\* 1000BASE-ZX-SFP can reach up to 100 km by using dispersion-shifted SMF or low attenuation SMF; the distance depends on fiber quality, number of splices and connectors.

For complete list of transceivers supported by the C6800 1 Gigabit Fiber modules please refer to “Cisco Gigabit Ethernet Transceiver Modules Compatibility Matrix” at [http://www.cisco.com/c/en/us/td/docs/interfaces\\_modules/transceiver\\_modules/compatibility/matrix/GE\\_Tx\\_Matrix.html](http://www.cisco.com/c/en/us/td/docs/interfaces_modules/transceiver_modules/compatibility/matrix/GE_Tx_Matrix.html)

## Platform Support/Compatibility

Table 3 describes platform support and compatibility for the 48-port 6800 Gigabit Ethernet modules.

**Table 3.** Platform Support/Compatibility

Feature	48-Port 6800 Series Gigabit Ethernet Fiber Modules	48-Port 6800 Series Gigabit Ethernet Copper Modules
<b>Supervisor engines supported</b>	Cisco Catalyst 6500 Supervisor Engine 2T and 2TXL	Cisco Catalyst 6500 Supervisor Engine 2T and 2TXL
<b>Chassis supported</b>	<ul style="list-style-type: none"> <li>Any Cisco Catalyst 6807-XL, 6500 E-Series chassis, including 6503-E, 6504-E, 6506-E, 6509-E, 6509-V-E (NEBS compliant) and 6513-E chassis</li> <li>Not supported in non-E Series chassis</li> </ul>	<ul style="list-style-type: none"> <li>Any Cisco Catalyst 6807-XL, 6500 E-Series chassis, including 6503-E, 6504-E, 6506-E, 6509-E, 6509-V-E (NEBS compliant) and 6513-E chassis</li> <li>Not supported in non-E Series chassis</li> </ul>
<b>Slot requirements</b>	<ul style="list-style-type: none"> <li>Can occupy slots 1-3 and 6-7 in a Cisco Catalyst 6807-XL chassis</li> <li>Can occupy slots 1-6 and 9-13 in a Cisco Catalyst 6513-E chassis</li> <li>Can occupy any slot in any Cisco Catalyst 6503-E, 6504-E, 6506-E, 6509-E or 6509-V-E or chassis</li> </ul>	<ul style="list-style-type: none"> <li>Can occupy slots 1-3 and 6-7 in a Cisco Catalyst 6807-XL chassis</li> <li>Can occupy slots 1-6 and 9-13 in a Cisco Catalyst 6513-E chassis</li> <li>Can occupy any slot in any Cisco Catalyst 6503-E, 6504-E, 6506-E, 6509-E or 6509-V-E or chassis</li> </ul>

## Product Specifications

Table 4 lists product specifications of the C6800 Series Gigabit Ethernet Fiber and Copper Modules

**Table 4.** Product Specifications

Item	Specification(s)
<b>Standard protocols</b>	<ul style="list-style-type: none"> <li>IEEE 802.1d, IEEE 802.1p, IEEE 802.1q, IEEE 802.1s, IEEE 802.1w, IEEE 802.3x, IEEE 802.3z, IEEE 802.3ab, and IEEE 802.3ad</li> <li>1000BASE-T, 1000BASE-X (GBIC), 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-ZX, CWDM</li> </ul>
<b>Physical specifications</b>	<ul style="list-style-type: none"> <li>Occupies one slot in the Cisco Catalyst 6807-XL or one slot in the 6500 E-Series chassis</li> <li>Dimensions (H x W x D): 1.2 x 14.4 x 16 in. (3.0 x 35.6 x 40.6 cm)</li> </ul>
<b>Environmental conditions</b>	Temperature: <ul style="list-style-type: none"> <li>Operating temperature: 32 to 104°F (0 to 40°C)</li> <li>Storage temperature: -40 to 167°F (-40 to 75°C)</li> <li>Relative humidity 10 to 90% noncondensing</li> </ul> Operating altitude: <ul style="list-style-type: none"> <li>Agency-certified for operation: -500 to 6500 ft (-150 to 2000m)</li> <li>Designed and tested for operation -500 to 10000 ft (-150 to 3000m)</li> </ul>
<b>NEBS criteria levels</b>	SR-3580 Issue 3, June 2007 (GR-63-CORE, issue 3, and GR-1089-CORE, issue 4)

Item	Specification(s)
<b>ETSI</b>	<ul style="list-style-type: none"> <li>• ETS 300 019-2-1, Class 1.1 Storage</li> <li>• ETS 300 019-2-2, Class 2.1 and 2.2 Transportation</li> <li>• ETS 300 019-2-3, Class 3.1E Stationary Use</li> </ul>
<b>Network management</b>	<ul style="list-style-type: none"> <li>• ETHERLIKE-MIB (RFC 1643)</li> <li>• IF-MIB (RFC 1573)</li> <li>• Bridge MIB (RFC 1493)</li> <li>• CISCO-STACK-MIB</li> <li>• CISCO-VTP-MIB</li> <li>• CISCO-CDP-MIB</li> <li>• RMON MIB (RFC 1757)</li> <li>• CISCO-PAGP-MIB</li> <li>• CISCO-STP-EXTENSIONS-MIB</li> <li>• CISCO-VLAN-BRIDGE-MIB</li> <li>• CISCO-VLAN-MEMBERSHIP-MIB</li> <li>• ENTITY-MIB (RFC 2037)</li> <li>• HC-RMON</li> <li>• RFC1213-MIB (MIB-II)</li> <li>• SMON-MIB</li> </ul>
<b>Power Requirements</b>	<ul style="list-style-type: none"> <li>• C6800-48P-SFP and C6800-48P-SFP-XL: 334.44 and 339.44 Watts respectively</li> <li>• C6800-48P-TX and C6800-48P-TX-XL: 405 and 410 Watts respectively</li> <li>• Go to <a href="http://www.cisco.com/go/powercalculator">http://www.cisco.com/go/powercalculator</a> for easy power consumption calculation</li> </ul>
<b>Indicators</b>	<ul style="list-style-type: none"> <li>• Status: green (operational), red (faulty), and orange (module booting)</li> <li>• Link: green (port enabled and connected), orange (port disabled), and off (port enabled and not connected)</li> </ul>

## Ordering Information

Table 5 provides part numbers needed for ordering.

**Table 5.** Part Numbers for Ordering

Part Numbers	Description
<b>6800 Series 1 Gigabit Modules</b>	
<b>C6800-48P-SFP</b>	Cisco Catalyst 6800 48-port 1GE fiber module with integrated DFC4
<b>C6800-48P-SFP-XL</b>	Cisco Catalyst 6800 48-port 1GE fiber module with integrated DFC4XL
<b>C6800-48P-SFP=</b>	Cisco Catalyst 6800 48-port 1GE fiber module with integrated DFC4 spare
<b>C6800-48P-SFP-XL=</b>	Cisco Catalyst 6800 48-port 1GE fiber module with integrated DFC4XL spare
<b>C6800-48P-TX</b>	Cisco Catalyst 6800 48-port 1GE copper module with integrated DFC4
<b>C6800-48P-TX-XL</b>	Cisco Catalyst 6800 48-port 1GE copper module with integrated DFC4XL
<b>C6800-48P-TX=</b>	Cisco Catalyst 6800 48-port 1GE copper module with integrated DFC4 spare
<b>C6800-48P-SFP-TX-XL=</b>	Cisco Catalyst 6800 48-port 1GE copper module with integrated DFC4XL spare

## Cisco and Partner Services

Enable the innovative, secure, intelligent edge using personalized services from Cisco and our partners. Through a discovery process that begins with understanding your business objectives, we help you integrate the new Cisco Catalyst 6807-XL and the 6500 E-Series into your architecture and incorporate network services onto that platform. Sharing knowledge and leading practices, we support your success every step of the way as you deploy, absorb, manage, and scale new technology. Choose from a flexible suite of support services designed to meet your business needs and help you maintain high-quality network performance while controlling operational costs. For additional information about Cisco services, visit <http://www.cisco.com/go/services>.

## Warranty and Technical Service Options

The Cisco Catalyst 6807-XL and the 6500 E-Series come with a Cisco 90-day hardware warranty. Adding a contract for a technical service offering such as Cisco SMARTnet<sup>®</sup> Service to your device coverage provides access to the Cisco Technical Assistance Center (TAC) and can provide a variety of hardware replacement options to meet critical business needs, updates for licensed OS software, and registered access to the extensive Cisco.com knowledge base and support tools.

For more information about Cisco warranties, go to <http://www.cisco.com/go/warranty>.

Table 6 shows the Cisco technical services available for the Cisco Catalyst 6807-XL and 6500 E-Series systems. For more information about Cisco Technical Services, go to <http://www.cisco.com/go/ts>.

**Table 6.** Cisco Technical Services for Cisco Catalyst 6807-XL and 6500 E-Series Systems

Technical Services
<b>Cisco SMARTnet Service</b> <ul style="list-style-type: none"><li>• Around-the-clock, global access to the Cisco Technical Assistance Center (TAC)</li><li>• Unrestricted access to the extensive Cisco.com resources, communities, and tools</li><li>• Next-business-day, 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement<sup>2</sup> and onsite parts replacement and installation available</li><li>• Ongoing operating system software updates within the licensed feature set<sup>1</sup></li><li>• Proactive diagnostics and real-time alerts on Smart Call Home enabled devices</li></ul>
<b>Cisco Focused Technical Support Services</b> <p>3 levels of premium, high-touch services are available:</p> <ul style="list-style-type: none"><li>• Cisco High-Touch Operations Management Service</li><li>• Cisco High-Touch Technical Support Service</li><li>• Cisco High-Touch Engineering Service</li></ul> <p>Valid Cisco SMARTnet or SP Base contracts on all network equipment are required.</p>

<sup>1</sup> Cisco operating system updates include the following: maintenance releases, minor updates, and major updates within the licensed feature set.

<sup>2</sup> Advance hardware replacement is available in various service-level combinations. For example, 8x5xNBD indicates that shipment will be initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within the relevant region), with next business day (NBD) delivery. Where NBD is not available, same day ship is provided. Restrictions apply; please review the appropriate service descriptions for details.

## Learn More

For more information about Cisco C6800 Gigabit Ethernet modules and Cisco Catalyst 6800 and 6500 Series Switches, visit <http://www.cisco.com/en/US/products/hw/switches/ps708/index.html> or contact your local account representative.



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