



CHAPTER 1

Product Overview

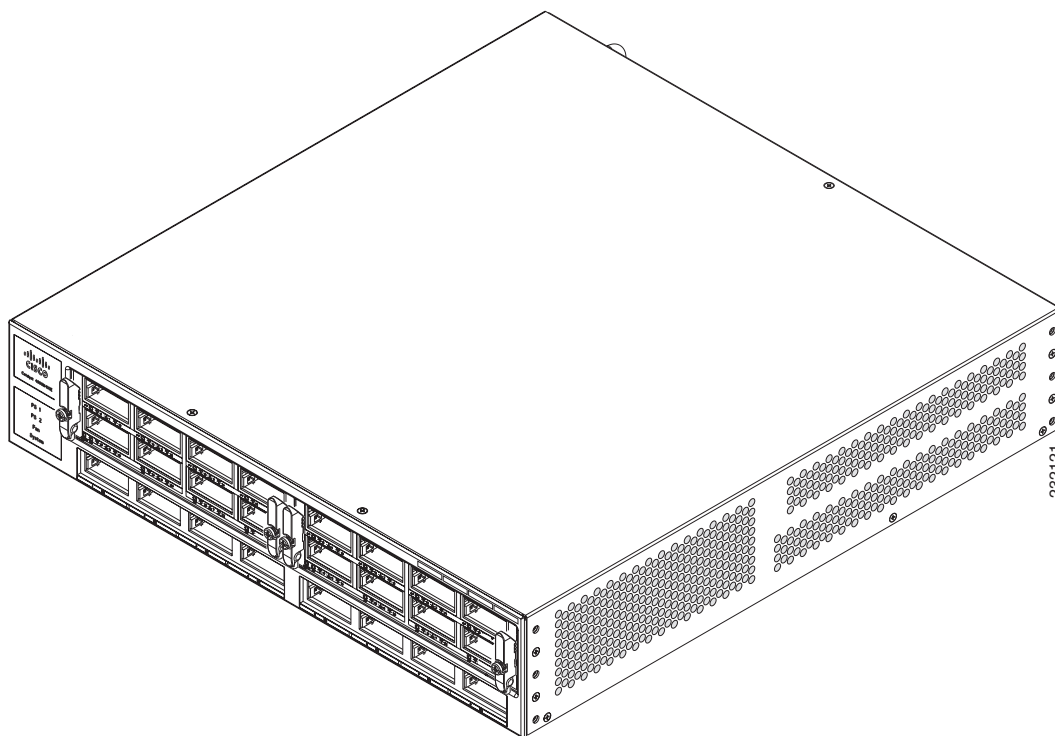
Revised: January 4, 2012

This chapter describes the Catalyst 4900M switch and the supported half-card Ethernet modules. The chapter contains these sections:

- [Catalyst 4900M Switch Chassis, page 1-1](#)
- [Catalyst 4900M Half-Card Modules, page 1-8](#)
- [Serial Number Location, page 1-14](#)

Catalyst 4900M Switch Chassis

The Catalyst 4900M switch is a 2 RU horizontal high-performance dedicated Ethernet switch. The chassis has 8 fixed 1-GB or 10-GB ports and two half-card Ethernet module slots that can accommodate a several different styles of half-card Ethernet modules. The switch has one removable variable-speed fan tray and supports redundant power supplies. [Figure 1-1](#) shows the front of the chassis.

Figure 1-1 Catalyst 4900M Switch Chassis

Catalyst 4900M Switch Chassis Features

Table 1-1 lists the features of the Catalyst 4900M switch chassis.

Table 1-1 Catalyst 4900M Switch Features

Feature	Description
Chassis	8-port fixed configuration plus 2 half-card module slots
Uplink ports	8 10-Gigabit ports that support X2 transceivers. By using the Cisco OneX converter, the 8-ports also support SFP+ transceivers.
Slots	2 half-card module slots are available allowing you to configure the chassis to your specific needs.
Memory	512-MB SDRAM, 128-MB Flash (onboard and fixed), 256 bytes serial EEROM
Console port	A console serial port (RJ-45) provides for switch management using standard console equipment. (See Figure 1-2.) Note A console cable is not provided in the accessory kit. It can be ordered as an option.
Ethernet management port	The management port on the rear panel offers the same TCP/IP based management services available via inband access (telnet SNMP etc.). IP address configuration via BOOTP is supported on the Management port; it also supports image download to the switch.

Table 1-1 Catalyst 4900M Switch Features (continued)

Feature	Description
Reset switch	The Reset button is used to restart the switch. Use a paper clip or other small, pointed object to press the Reset button.
Fan tray	Variable-speed. Field replaceable.
Power supplies	1000 W AC-input and 1000 W DC-input power supplies are supported.

**Note**

A console cable is not provided as part of the accessory kit. It is available as an option.

Catalyst 4900M Switch Chassis Physical and Environmental Specifications

Table 1-2 lists the Catalyst 4900M switch chassis environmental and physical specifications.

Table 1-2 Catalyst 4900M Switch Specifications

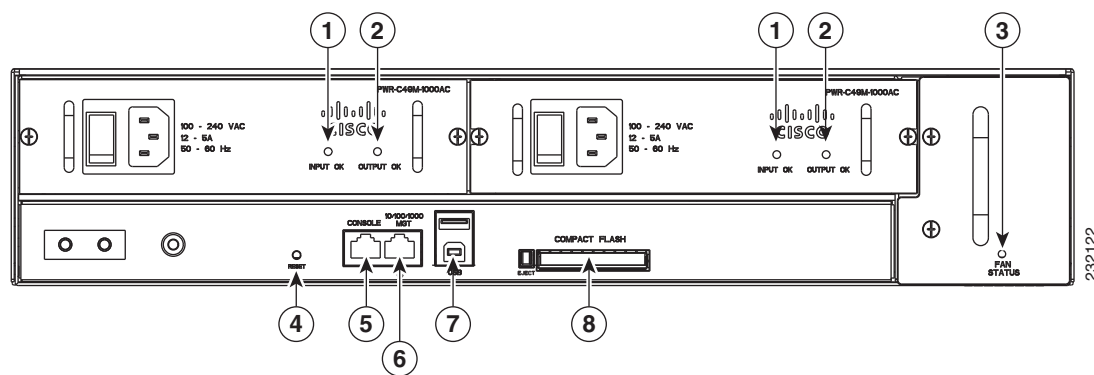
Item	Specification
Environmental	
Temperature, operating	Certified for operation: 32° to 104°F (0° to 40°C) Designed and tested for operation: 32° to 131°F (0° to 55°C) Note Each module on a Catalyst 4900M switch is equipped with internal inlet and outlet air temperature sensors. When a sensor detects that temperature reaches the first threshold, a minor alarm is generated; second threshold, a major alarm is generated; third threshold, the system shuts down. Use the show environment temperature command to check the threshold values.
Temperature, nonoperating and storage	–40° to 167°F (–40° to 75°C)
Humidity (RH), ambient (noncondensing) operating	10% to 90%
Altitude, operating	Certified for operation: –197 to 6562 ft (–60 to 2000 m)
Heat Dissipation	1364 BTU/hour (worst case)
Physical Characteristics	
Dimensions (H x W x D)	3.5 x 17.2 x 17.9 in. (8.9 x 43.7 x 45.5 cm). - Chassis requires 2 RU¹. - The Catalyst 4900M switch chassis is designed to install in standard 19-inch equipment racks that meet ANSI/EIA 310-D, IEC 60297, and ETS 300-119 standards.
Weight	34.0 lb (15.4 kg) (max)
Airflow	151.7 CFM (max)

1. RU = rack units

Catalyst 4900M Switch Chassis Rear Panel Connections and Features

Figure 1-2 shows the chassis rear panel with the major features identified.

Figure 1-2 View of the Rear Panel



1	Input OK LED (power supply)	5	Console port
2	Output OK LED (power supply)	6	Management port
3	Fan Status LED	7	USB connector
4	Reset button	8	Compact Flash slot

The chassis rear panel features include:

- **Reset button**—The Reset button is used to restart the switch. Use a paper clip or other small, pointed object to press the Reset button.
- **Console port**—A console serial port (RJ-45) provides for switch management using standard console equipment. (See [Figure 1-2](#).) A connector pinout table is provided in [Appendix 1, “Specifications,”](#) for the console and management ports.
- **Management port**—The Management port on the rear panel offers the same TCP/IP based management services available via inband access (telnet SNMP etc.). IP address configuration via BOOTP is supported on the Management port; it also supports image download to the switch.
- **USB connector**—A USB connector is provided for future expansion.
- **Compact Flash slot**—The Compact Flash slot accepts both 64-MB and 128-MB Type 1 compact Flash cards. You can use it for file transfer tasks such as loading a new software image. The Flash card is optional and can be obtained from third-party suppliers.

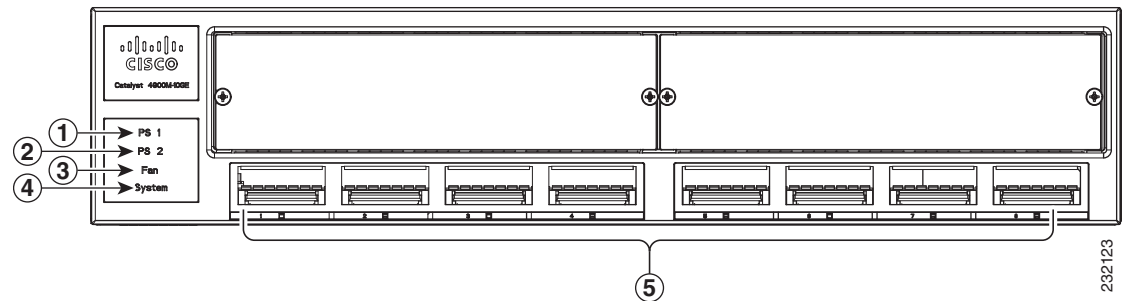
For more information, refer to *Using the Compact Flash on the Catalyst 4500 Series Supervisor Engines* at the following URL:

http://www.cisco.com/en/US/docs/switches/lan/catalyst4500/hardware/configuration/notes/OL_2788.html

Front Panel LEDs

A set of LEDs on the chassis front panel (see [Figure 1-3](#)) provide visual status for the switch. [Table 1-3](#) lists the front panel LEDs and their meanings.

Figure 1-3 Chassis Front Panel LEDs



1	PS1 LED	4	System LED
2	PS2 LED	5	10Gig port LEDs
3	Fan LED		

Table 1-3 Front Panel LED Descriptions

LED	Description
System (front)	The system LED indicates the operating state of the Catalyst 4900M switch. At startup, the Catalyst 4900M performs a series of diagnostic tests: - Green—All tests pass - Red—A test other than an individual port test fails - Off—System is in rommon mode or a power supply has failed Switch is disabled
CON Console port (rear)	- Green—10/100 BASE-T console port is in link-up state - Off—10/100 BASE-T console port is in link-down state or not connected Note There are no blinking, red, or yellow states for this port
MGT (rear)	- Green—10/100/1000BASE-T Management port is in link-up state. - Off—10/100/1000BASE-T Management port is in link-down state or not connected. Note There are no blinking, red, or yellow states for this port.
Port (front)	- Green—Port is operational. - Yellow—Port is disabled by user. - Flashing yellow—Power-on self-test indicates faulty port. - Off—No signal detected or link configuration failure.

Table 1-3 Front Panel LED Descriptions (continued)

LED	Description
Fan (front and rear)	FAN LED indicates the fan tray status. - Green—Fan tray operational. - Red—Fault detected. One or more fans not functional. - Off—No power to the fan tray.
PS1 and PS2 (front)	PS1 and the PS2 LEDs indicates the internal power supply status. - Off—No power to the power supply. - Green—Operational.¹ - Red—Fault detected or the on/off switch is set to off while the power supply is plugged in.
LINK	A link status LED is located below the 10-GB uplink ports.

1. If either LED is green and the other is OFF the power supply is probably not plugged in. If it is red, the supply is either plugged in and not switched on or it is faulty. It may be necessary to interrogate the system for further status using the CLI.

Chassis Cooling

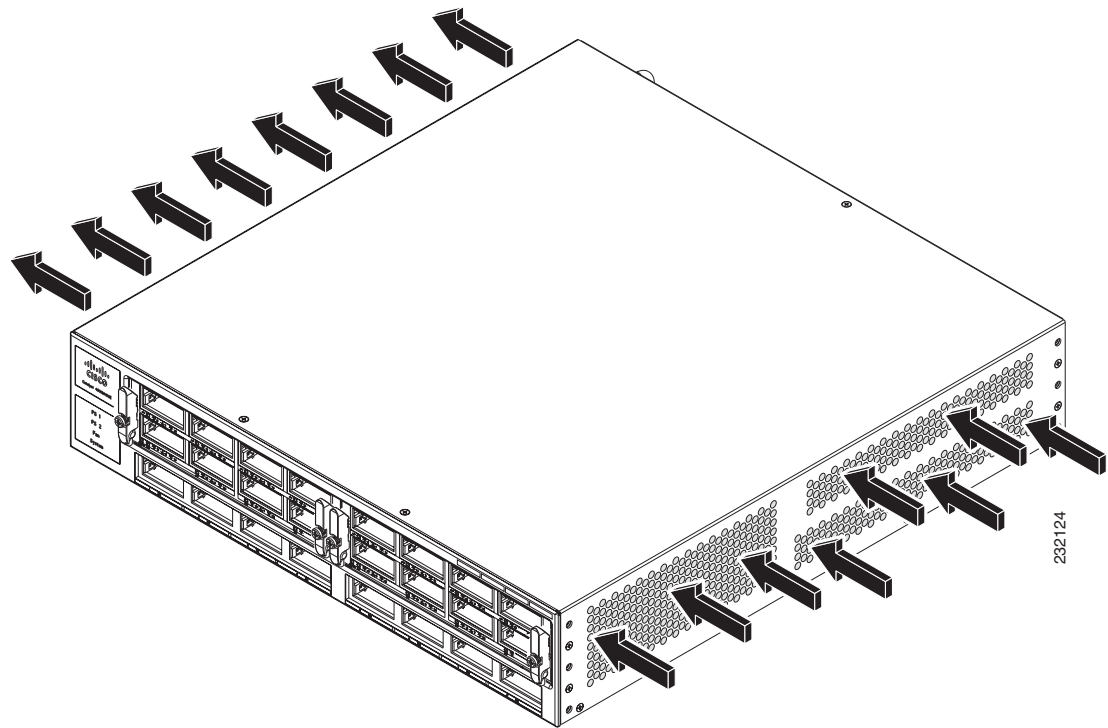
The hot-swappable chassis fan tray (WS-X4992) provides cooling air for the internal chassis components. The fans draw air in from the right side of the chassis and exhaust the heated air through perforations on the right side of the chassis.



Caution

When the fan tray is removed, internal circuitry is exposed that should not be touched by tools or fingers. The system should not operate without a fan tray for longer than is necessary to replace a faulty fan tray with a new fan tray.

Figure 1-4 shows the direction of airflow through the switch.

Figure 1-4 Catalyst 4900M Chassis Airflow

There are five fans in the fan tray. If an individual fan fails, the other fans continue to run. Sensors monitor the internal air temperatures. The number of fans in operation and their speed varies according to the internal temperature for the quietest operation possible. If the air temperature exceeds a desired threshold, the environmental monitor displays warning messages.

**Note**

Individual fans in the fan tray cannot be replaced; the entire fan tray must be replaced.

Power Supplies

**Note**

For complete power specifications for the Catalyst 4900M switch, see Appendix 1, “[Specifications](#).”

The Catalyst 4900M switch has two redundant internal 1000 W AC-input or 1000 W DC-input power supplies.

The internal power supplies have individual power cords and status LEDs (PS1 and PS2 on the front panel). There are also LEDs on the power supplies that show status for the input (Input OK) and output (Output OK) currents. A power cord is used to connect the power supplies to the site AC source. There is a power switch on the AC-input power supplies; AC power is present when a power cord is plugged into a power supply and the switch is set to the On position. DC-input power supplies attach to source DC using customer-supplied cables.

The switch starts with only one power supply plugged in, but redundant failover and load sharing is not available in this configuration. Cisco recommends that you always connect both power supplies to separate AC or DC circuits for optimal power reliability.

For safety reasons, the AC power supply must be switched off and unplugged before it is removed from a chassis or inserted into a chassis. DC supplies should have power shut off from the source before they are removed.

If only one power supply is used, you must use the supplied blank faceplate to cover the empty power bay. The blank power supply cover maintains EMI shielding and proper air flow through the chassis.

Environmental Monitoring of the Power Supplies

Using the environmental monitoring and reporting functions, you can maintain normal system operation by resolving adverse environmental conditions prior to loss of operation.

Each power supply monitors its own temperature and output voltages. The Catalyst 4900M switch senses the operating condition of the power supply and reports status through software.

Power Management for the Catalyst 4900M Switch

You can select either AC-input or DC-input power supplies for your switch. The Catalyst 4900M switch supports the following power supplies:

- 1000 W AC-input
- 1000 W DC-input

A redundant power supply can be identified and diagnosed by a running system regardless of its input status. The AC-input and DC-input supplies are interchangeable.

Power Management Modes

The Catalyst 4900M switch supports the redundant power management mode. In this mode, if both power supplies are operating normally, each provides from 20/80 to 45/55 percent of the total system power requirements at all times. If one power supply fails, the other unit increases power to 100 percent of the total power requirement.

Catalyst 4900M Half-Card Modules

The Catalyst 4900M switch chassis has two half-card slots available allowing two half-card modules to be installed. The following half-card modules are available:

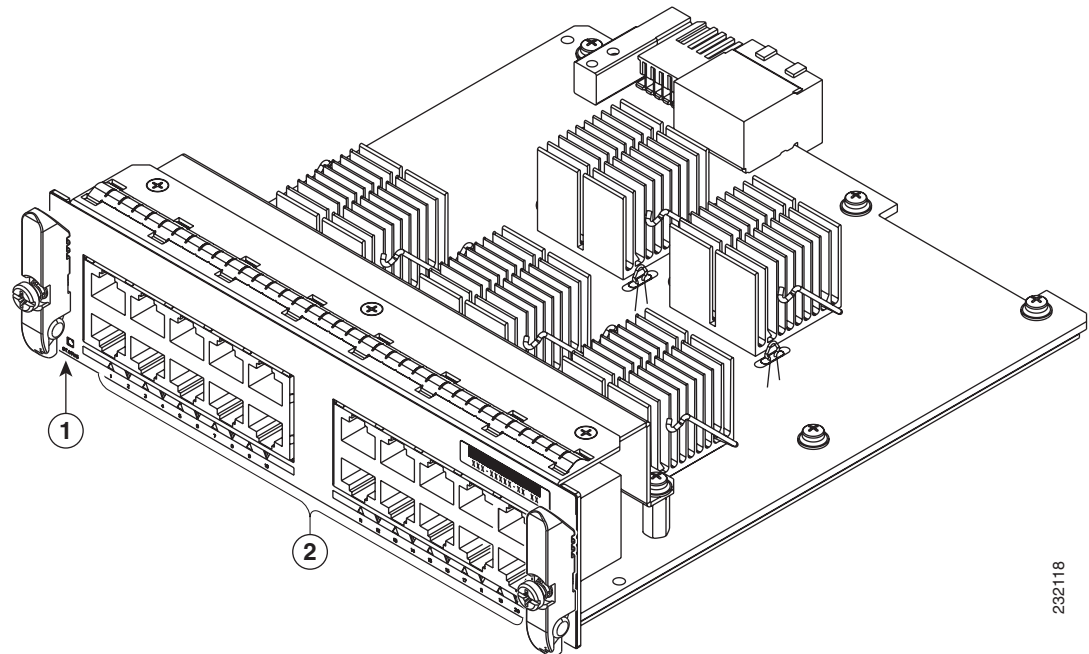
- [WS-X4920-GB-RJ45 Half-Card Ethernet Module, page 1-9](#)
- [WS-X4904-10GE Half-Card Ethernet Module, page 1-10](#)
- [WS-X4908-10GE Half-Card Ethernet Module, page 1-11](#)
- [WS-X4908-10G-RJ45 Half-Card Ethernet Module, page 1-13](#)

The half-card modules can be mixed in a chassis.

WS-X4920-GB-RJ45 Half-Card Ethernet Module

The WS-X4920-GB-RJ45 half-card Ethernet module provides 20 10/100/1000-Mbps full-or half-duplex ports. [Figure 1-5](#) shows the module with the major features identified.

Figure 1-5 WS-X4920-GB-RJ45 Half-Card Ethernet Module



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1	Module status LED	2	Port LEDs
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[Table 1-4](#) lists the specifications for the WS-X4920-GB-RJ45 half-card Ethernet Module.

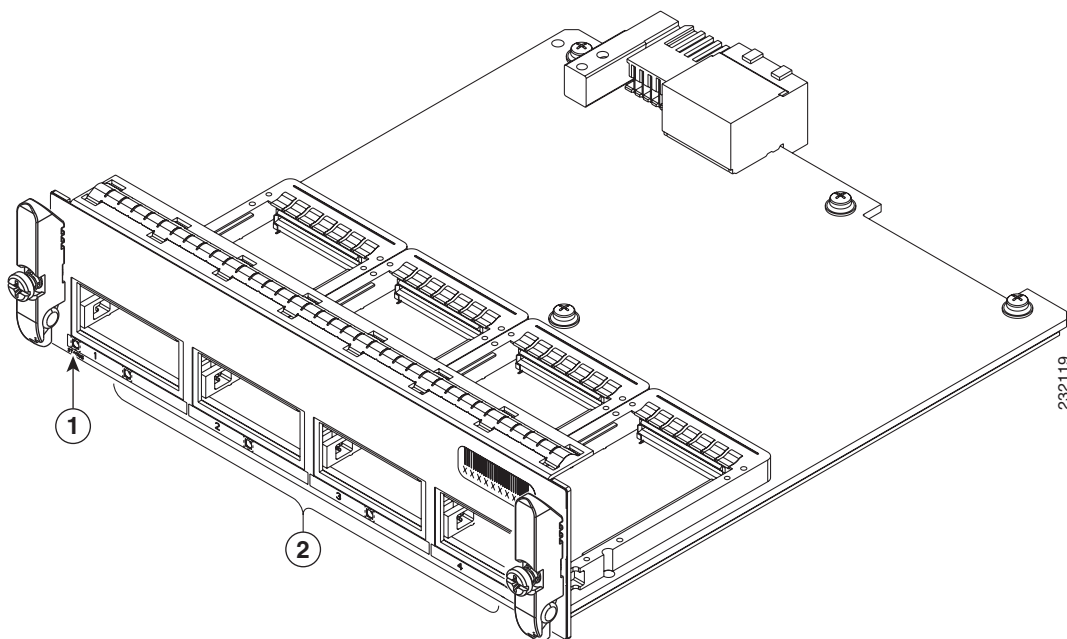
Table 1-4 WS-X4920-GB-RJ45 Half-Card Module Specifications

Specification	Description
Module type	10/100/1000BASE-T half-card Ethernet module
Port duplex mode	Half- or full-duplex mode
Port speed	10, 100, or 1000 Mbps
Number of ports	20
Connector type	RJ-45
Cable type	Category 5 and Category 6
Cabling distance	328 ft (100 m)
Pluggable transceivers support	Not supported
Module upgrades available	None
Power over Ethernet	Not supported

WS-X4904-10GE Half-Card Ethernet Module

The WS-X4904-10GE half-card Ethernet module provides 4 10-Gigabit Ethernet ports. [Figure 1-6](#) shows the module.

Figure 1-6 WS-X4904-10GE Half-Card Ethernet Module



1	Module Status LED	2	Port LEDs
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[Table 1-5](#) list the specifications for the WS-X4904-10GE half-card Ethernet module.

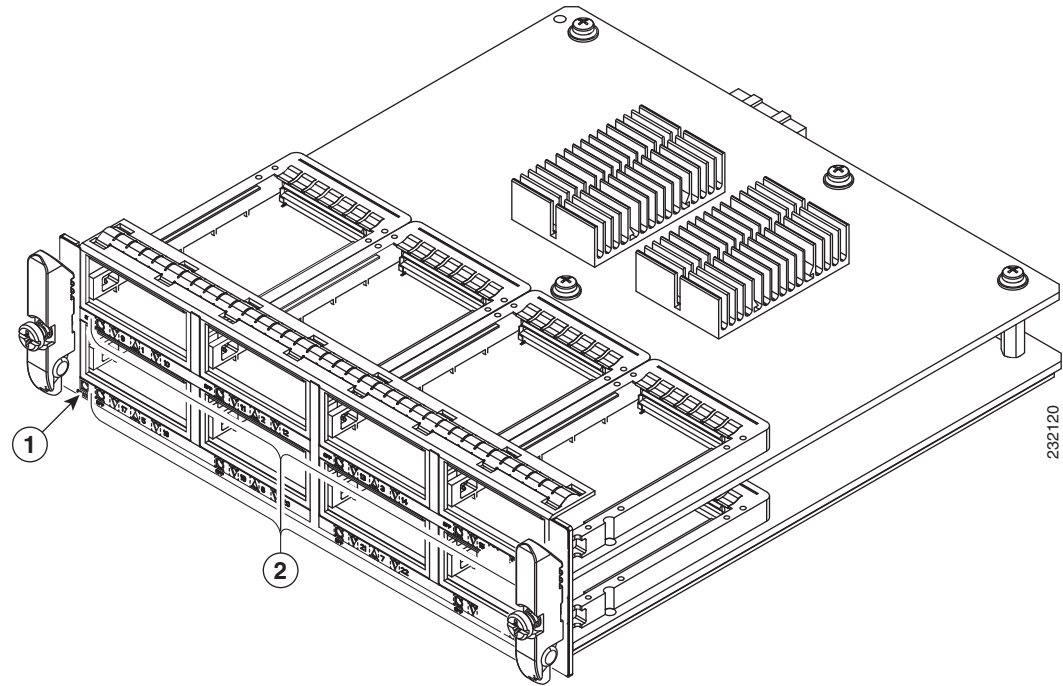
Table 1-5 WS-X4904-10GE Half-Card Ethernet Module Specifications

Specification	Description
Module type	10-Gigabit Ethernet module
Port duplex mode	Full-duplex mode
Port speed	10G Mbps
Number of ports	4
Connector type	SC (optical)
Cable type	MMF or SMF
Cabling distance	Dependent on the type of X2 transceiver installed
Pluggable transceivers support	X2 transceivers
Module upgrades available	None
Power over Ethernet	Not supported

WS-X4908-10GE Half-Card Ethernet Module

The WS-X4908-10GE module (Figure 1-7) is an 8-port 10-Gigabit Ethernet module that has the ability to operate as a 16 port 1-Gigabit module by installing a Cisco TwinGig converter module in the X2 transceiver socket and then installing two 1-Gigabit SFP transceivers in the TwinGig converter.

Figure 1-7 8-Port 10-Gigabit Ethernet Module (WS-X4908-10GE)



1	Module Status LED	2	Port LEDs
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Table 1-6 list the specifications for the WS-X4908-10GE half-card Ethernet module.

Table 1-6 WS-X4908-10GE Half-Card Ethernet Module Specifications

Specification	Description
Module type	10-Gigabit Ethernet module
Port duplex mode	Full-duplex mode
Port speed	10G Mbps
Number of ports	8 (10-Gigabit) or 16 (1-Gigabit). Each 10-Gigabit port on the module can be converted into two 1-Gigabit ports using a Cisco TwinGig converter module (CVR-X2-SFP) and SFP transceivers. Each 10-Gigabit X2 port can also be converted into one 10-Gigabit SFP+ transceiver port by installing a Cisco OneX converter module ((CVR-X2-SFP10G).
Connector type	SC (optical) or RJ-45 (copper)

Table 1-6 *WS-X4908-10GE Half-Card Ethernet Module Specifications (continued)*

Specification	Description
Cable type	MMF or SMF (optical) or Category 5 or Category 6 (copper)
Cabling distance	Dependent on the type of X2, SFP, or SFP+ transceiver installed
Pluggable transceivers support	• X2 transceivers • SFP+ transceiver (using a Cisco OneX converter module) • SFP transceiver (using a Cisco TwinGig converter module)
Module upgrades available	None
Power over Ethernet	Not supported

**Note**

TwinGig converter modules may be installed in place of X2 transceiver modules if you need 1-GB SFP transceiver connections. When you insert the TwinGig into one port, its neighbor port automatically converts to 1 GE interfaces whether it has a TwinGig installed or not, so you must position your TwinGig converters next to each other. The neighboring port to a TwinGig port cannot support an X2. Installation documentation for Cisco TwinGig converter modules can be found at: http://www.cisco.com/en/US/docs/switches/lan/catalyst3750e_3560e/hardware/install/notes/1757202.html

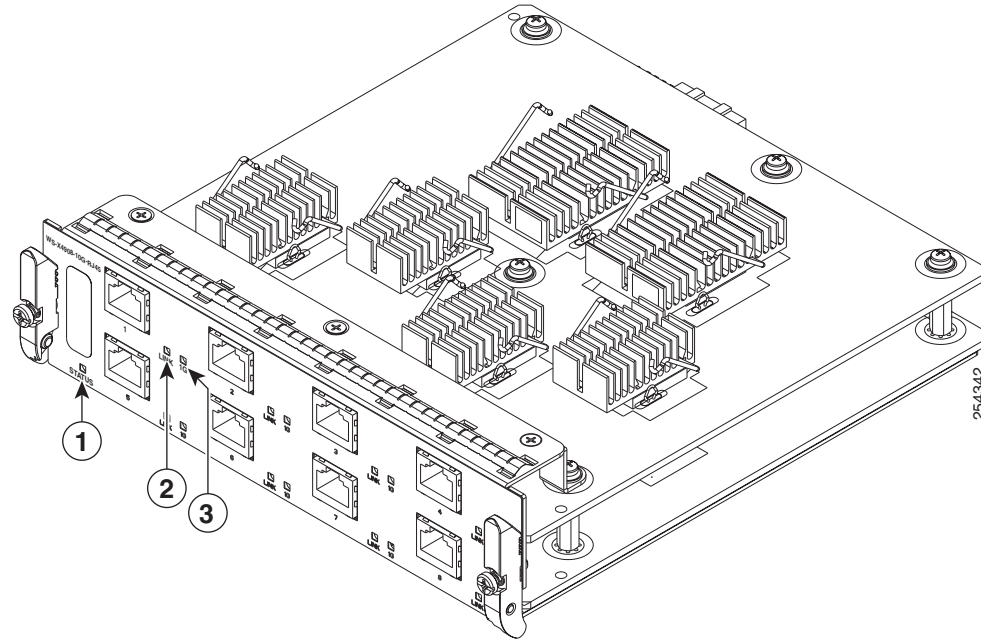
**Note**

When using TwinGig converters and X2 transceivers on this module, keep them grouped in pairs as follows: ports 1–2, ports 3–4, ports 5–6 and ports 7–8. Inserting a TwinGig converter or X2 transceiver in any port will affect the capability of its neighbor port, and both will be set to handle the same type automatically. Mixing within a port group does not work. As an example, you would not be able to have an X2 transceiver in port 1 and a TwinGig converter in port 2.

WS-X4908-10G-RJ45 Half-Card Ethernet Module

The WS-X4908-10G-RJ45 half-card Ethernet module provides 8 10Gbps full-or half-duplex ports. [Figure 1-8](#) shows the module with major features identified.

Figure 1-8 *WS-X4908-10G-RJ45 Half-Card Ethernet Module*



1	Module status LED	3	1G LED (port operating in 1-Gbps mode)
2	LINK LED		

[Table 1-7](#) lists the specifications for the WS-X4908-G-RJ45 half-card Ethernet module.

Table 1-7 *WS-X4908-10G-RJ45 Half-Card Module Specifications*

Specification	Description
Module type	1-GB or 10-G half-card Ethernet module
Port duplex mode	Half- or full-duplex mode
Port speed	1-Gbps or 10-Gbps
Number of ports	8
Connector type	RJ-45
Cable type	Category 6, Category 6a, and Category 7
Cabling distance	Category 6—Up to 180.5 ft (55 m) at 10-Gbps. Up to 328 ft (100 m) at 1-Gbps. Category 6a and Category 7—Up to 328 ft (100 m) at both 10-Gbps and 1-Gbps.

Table 1-7 **WS-X4908-10G-RJ45 Half-Card Module Specifications (continued)**

Specification	Description
Pluggable transceivers support	Not supported
Module upgrades available	None
Power over Ethernet	Not supported

Serial Number Location

Figure 1-9 shows the location of the serial number for your switch. You will need this information when contacting Cisco for support.

Figure 1-9 **Catalyst 4900M Chassis Serial Number**