Cisco 100GBASE CFP Modules

Product Overview

The Cisco® 100GBASE CFP modules offer customers 100 Gigabit Ethernet connectivity options for data center networking, enterprise core aggregation, and service provider transport applications.

Features and Benefits

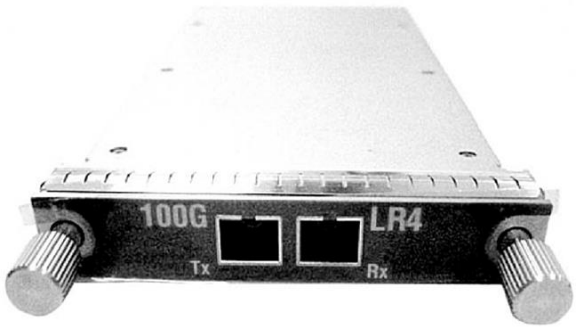
Main features of Cisco 100GBASE CFP modules include:

- Supports 100GBASE Ethernet
- Hot-swappable input-output device that plugs into an Ethernet CFP port of a Cisco switch or router
- Provides flexibility of interface choice
- Supports “pay-as-you-populate” model
- Supports digital optical monitoring (DOM)
- Supports the Cisco quality identification (ID) feature that enables a Cisco switch to identify whether the module is certified and tested by Cisco

Cisco CFP-100G-LR4

The Cisco 100GBASE-LR4 (Figure 1) CFP module supports a link length of 10 kilometers on standard single-mode fiber (SMF, G.652). 100 Gigabit Ethernet signal is carried over four wavelengths. Multiplexing and demultiplexing of the four wavelengths are managed within the device.

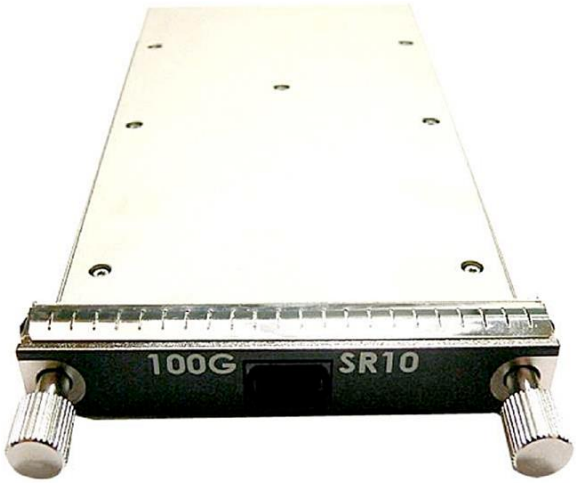
Figure 1. Cisco 100G-LR4 CFP Module



Cisco CFP-100G-SR10

The Cisco 100GBASE-SR10 (Figure 2) CFP module supports link lengths of 100 meters and 150 meters respectively on laser-optimized OM3 and OM4 multifiber cables. It primarily enables high-bandwidth 100-gigabit links over 24-fiber ribbon cables terminated with MPO/MTP-24 connectors. It can also be used in 10 x 10 Gigabit Ethernet mode along with ribbon to duplex fiber breakout cables for connectivity to ten 10GBASE-SR optical interfaces. Maximum channel insertion loss allowed is respectively 1.9 dB over 100m of OM3 cable or 1.5 dB over 150m of OM4 cable.

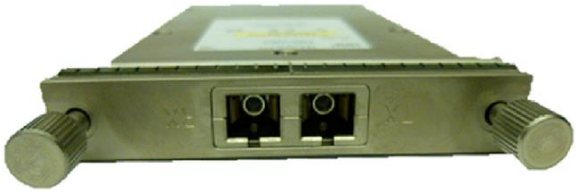
Figure 2. Cisco CFP-100G-SR10 Module



Cisco CFP-100G-ER4

The Cisco 100GBASE-ER4 (Figure 3) CFP module can support link lengths up to 40 kilometers on standard duplex single-mode fiber (SMF, G.652) terminated with SC/PC optical connectors. 100 Gigabit Ethernet signal is carried over four wavelengths. Multiplexing and demultiplexing of the four wavelengths are managed within the device. The Cisco 100GBASE-ER4 CFP module meets the IEEE 802.3ba requirements for 100GBASE-ER4 performance and also supports Digital Optical Monitoring (DOM) of the transmit-and-receive optical signal levels.

Figure 3. Cisco CFP-100G-ER4



Technical Specifications

Platform Support

Cisco CFP modules are supported on Cisco switches and routers. For more details, refer to the document Cisco 100-Gigabit Ethernet Transceiver Modules Compatibility Matrix.

Connectors and Cabling

Connectors: Dual SC/PC Connector (LR4 and ER4), 24-fiber MPO/MTP Connector (SR10).

Note: Only connections with patch cords with physical contact (PC) or ultra physical contact (UPC) connectors are supported. Patch cords with APC connectors are not supported. All cables and cable assemblies used must be compliant with the standards specified in the standards section.

Table 1 provides cabling specifications for the Cisco CFP modules.

Table 1. CFP Port Fiber Specifications

Cisco CFP	Wavelength (nm)	Fiber Type	Core Size (microns)	Modal Bandwidth (MHz-km)***	Max Distance*
Cisco CFP-100G-LR4	1310 band (LAN-WDM)	SMF	G.652	-	10 km
Cisco CFP-100G-SR10	850	MMF	50 50	2000 (OM3) 4700 (OM4)	100m 150m
Cisco CFP-100G-ER4	1310 band (LAN-WDM)	SMF	G.652	-	40 km****

* Minimum cabling distance required is 2 meters for Cisco CFP 100G-LR4 module and 0.5 meters for Cisco CFP 100G-SR10 module.

** Considered an engineered link with maximum 1dB allocated to connectors and splice loss.

*** Specified at transmission wavelength.

**** Links longer than 30 km for the same link power budget are considered engineered links. Attenuation for such links needs to be less than the worst case specified for single-mode fiber.

Table 2 shows the main optical characteristics.

Table 2. CFP Port Fiber Specifications

Product	Type	Average Transmit Power (dBm)		Average Receive Power (dBm)		Transmit and Receive Wavelength
		Max	Min	Max	Min	
Cisco CFP-100G-LR4	100GBASE-LR4 1310 nm SMF	4.5 per lane	-4.3 per lane	4.5 per lane	-10.6 per lane	Four lanes, 1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1 nm
Cisco CFP-100G-SR10	100GBASE-SR10 850 nm MMF	-1.0 per lane	-7.6 per lane	2.4 per lane	-9.5 per lane	Ten lanes, 840 to 850 nm
Cisco CFP-100G-ER4	100GBASE-ER4 1310 nm SMF	2.9 per lane	-2.9 per lane	4.5 per lane	-20.9 per lane	Four lanes, 1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1 nm

Dimensions

- Dimensions (D x W x H): 144.8 x 82 x 13.6 mm
- Cisco CFP modules typically weigh less than 300 grams.

Environmental Conditions and Power Requirements

- The operating temperature range is between 32 and 158°F (0 to 70°C)
- The storage temperature range is -40 to 185° F (-40 to 85° C)
- The maximum power consumption per Cisco CFP-100G-LR4 module is 24W
- The maximum power consumption per Cisco CFP-100G-SR10 module is 12W
- The maximum power consumption per Cisco CFP-100G-ER4 module is 24W

Warranty

- Standard warranty: 90 days
- Extended warranty (optional): Cisco CFP modules can be covered in a Cisco SMARTnet® Service support contract for the Cisco switch or router chassis

Table 3 provides the ordering information for Cisco CFP modules and related cables.

Table 3. Ordering Cisco CFP Modules and Respective Cables

Description	Part Number
Cisco 100GBASE-LR4 CFP Module for SMF (<10 km)	CFP-100G-LR4
Cisco 100GBASE-SR10 CFP Module for MMF (<100m OM3/< 150m OM4)	CFP-100G-SR10
Cisco 100GBASE-ER4 CFP Module for SMF (<40 km)	CFP-100G-ER4

Regulatory and Standards Compliance

- Standards:
  - GR-20-CORE: Generic Requirements for Optical Fiber and Optical Fiber Cable
  - GR-326-CORE: Generic Requirements for Single-Mode Optical Connectors and Jumper Assemblies
  - IEEE 802.3ba
  - CFP MSA: http://www.cfp-msa.org
- RoHS-Compliant Safety:
  - Laser Class 1 21CFR-1040 LN#50 7/2001
  - Laser Class 1 IEC60825-1

Additional Information

For more information about Cisco 100GBASE CFP modules, contact your sales representative or visit http://www.cisco.com/go/dcnm.

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Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

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