

CISCO 10GBASE X2 MODULES

Figure 1. Cisco 10GBASE X2 and Xenpak Module



PRODUCT OVERVIEW

The Cisco® 10GBASE X2 modules (Figure 1) offers customers a wide variety of 10 Gigabit Ethernet connectivity options for data center, enterprise wiring closet, and service provider transport applications.

Main features of Cisco 10GBASE X2 module include:

- Supports 10GBASE Ethernet
- Hot-swappable input/output device plugs into an Ethernet X2 port of a Cisco switch or router to link the port with the network
- Provides flexibility of interface choice
- Supports “pay-as-you-populate” model
- Supports the Cisco quality identification (ID) feature that enables a Cisco switch or router to identify whether the module is a Cisco certified and tested X2
- Optical interoperability with respective 10GBASE Xenpak modules on the same link

CISCO X2-10GB-CX4

The Cisco 10GBASE-CX4 Module supports link lengths of up to 15 m on CX4 cable.

CISCO X2-10GB-LX4

The Cisco 10GBASE-LX4 Module supports link lengths of 300 m on standard Fiber Distributed Data Interface (FDDI) grade multimode fiber (MMF).

CISCO X2-10GB-SR

The Cisco 10GBASE-SR Module supports a link length of 26 m on standard FDDI grade MMF. Using 2000 MHz*km MMF (OM3), up to 300 m link lengths are possible.

Cisco X2-10GB-LR

The Cisco 10GBASE-LR module supports a link length of 10 kilometers on standard single-mode fiber (SMF, G.652).

TECHNICAL SPECIFICATIONS

Platform Support

Cisco X2 modules are supported on Cisco switches and routers. For more details, refer to the document Cisco 10-Gigabit Ethernet Transceiver Modules Compatibility Matrix.

Connectors and Cabling

Connectors: Dual SC/PC connector (-SR, -LR, -LX4); Infiniband 4x connector (-CX4)

Note: Only connections with patch cords with PC or UPC connectors are supported. Patch cords with APC connectors are not supported.

Table 1 provides cabling specifications for the Cisco X2 module.

Table 1. Table 1 X2 Port Cabling Specifications

| Cisco X2 | Wavelength (nm) | Cable Type | Core Size (micron) | Modal Bandwidth (MHz/km) | Cable Distance* |
|-------------------|-----------------|--------------|--------------------|--------------------------|-----------------|
| Cisco X2-10GB-CX4 | n.a | CX4 (copper) | n.a | n.a. | 15 m |
| Cisco X2-10GB-SR | 850 | MMF | 62.5 | 160 | 26 m |
| | | | 62.5 | 200 | 33 m |
| | | | 50.0 | 400 | 66 m |
| | | | 50.0 | 500 | 82 m |
| | | | 50.0 | 2000 | 300 m |
| Cisco X2-10GB-LX4 | 1310 | MMF | 62.5 | 500 | 300 m |
| | | | 50.0 | 400 | 240 m |
| | | | 50.0 | 500 | 300 m |
| Cisco X2-10GB-LR | 1310 | SMF | G.652 fiber | – | 10 km |

* Minimum cabling distance for optical X2 module (-LR, -SR, -LX4) is two meters, according to the IEEE 802.3ae standard.

Standards

- IEEE 802.3ae (-LR, -SR, -LX4)
- IEEE 802.3ak (-CX4)

Table 2 shows the main optical characteristics for the Cisco X2 module. The Cisco X2-10GB-CX4 is not an optical module and therefore not listed in the table below.

Table 2. Table 2 Optical Transmit and Receive Specifications

| Product | Type | Transmit Power (dBm) | | Receive Power (dBm) | | Transmit and Receive Wavelength (nm) |
|-------------------|------------------------------|----------------------|---------|---------------------|----------------|---|
| | | Maximum | Minimum | Maximum | Minimum | |
| Cisco X2-10GB-SR | 10GBASE-SR 850nm MMF | -1.0* | -7.3 | -1.0 | -9.9 | 840 to 860 |
| Cisco X2-10GB-LX4 | 10GBASE-LX4 WWDMM 1300nm MMF | -0.5 per lane | | -0.5 per lane | -14.4 per lane | Four lanes; overall range: 1269 to 1356 |
| Cisco X2-10GB-LR | 10GBASE-LR 1310 nm SMF | 0.5 | -8.2 | 0.5 | -14.4 | 1260 to 1355 |

* The launch power shall be the lesser of the class 1 safety limit or the maximum receive power. Class 1 laser requirements are defined by IEC 60825-1: 2001

Dimensions

Dimensions (D x W x H): 91mm x 36mm x 13.46mm

Environmental Conditions and Power Requirements

The operating temperature range is between 0 and 40°C (32 to 104°F); storage temperature range is -40 to 75°C (-40 to 167°F).

The maximum power consumption per Cisco X2 module is 4W.

Warranty

- Standard warranty: 90 days
- Extended warranty (optional): Cisco X2 modules can be covered in a Cisco SMARTnet® support contract for the Cisco switch or router chassis

Ordering Information

Table 3 provides the Ordering Information for Cisco X2 module and related cables.

Table 3. Ordering Cisco X2 and Respective Cables

| Description | Product Number |
|---|----------------|
| X2 Modules | |
| Cisco 10GBASE-LR X2 Module for SMF | X2-10GB-LR |
| Cisco 10GBASE-CX4 X2 Module for CX4 (copper) cable | X2-10GB-CX4 |
| Cisco 10GBASE-SR X2 Module for MMF | X2-10GB-SR |
| Cisco 10GBASE-LX4 X2 Module for MMF | X2-10GB-LX4 |
| Cables | |
| Mode conditioning patch cable 62.5u, dual SC connectors | CAB-GELX-625= |
| 1 m cable for 10GBase-CX4 module | CAB-INF-28G-1= |
| 5 m cable for 10GBase-CX4 module | CAB-INF-28G-5= |

| Description | Product Number |
|-----------------------------------|-----------------|
| 10 m cable for 10GBase-CX4 module | CAB-INF-28G-10= |
| 15 m cable for 10GBase-CX4 module | CAB-INF-26G-15= |

Regulatory and Standards Compliance

Safety

- Laser Class 1 21CFR-1040 LN#50 7/2001
- Laser Class 1 IEC60825-1

Additional Information

For more information about Cisco 10GBASE-X2 modules, contact:

- United States and Canada: 800 553-6387
- Europe: 32 2 778 4242
- Australia: 61 2 9935 4107
- Other: 408 526-7209
- <http://www.cisco.com>

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