

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>

**Corporate Headquarters**

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

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