



## Cisco Introduces the Cisco Nexus 2248PQ 10GE Fabric Extender

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Cisco is introducing the Cisco Nexus<sup>®</sup> 2248PQ 10GE Fabric Extender platform as part of the Cisco Nexus 2000 Series Fabric Extenders. The Cisco Nexus 2248PQ builds on the success of the Cisco Nexus 2200 fabric extender platform, with greater port density and a lower oversubscription rate than the Cisco Nexus 2232PP 10GE Fabric Extender. It supports massively scalable 1 and 10 Gigabit Ethernet environments with fewer management points using the fabric extender architecture and enables transparent migration to 10 Gigabit Ethernet, virtual machine-aware unified fabric technologies. The new Cisco Nexus 2248PQ comes with forty-eight 1 and 10 Gigabit Ethernet Enhanced Small Form-Factor Pluggable (SFP+) host interfaces and four 40 Gigabit Ethernet Quad SFP+ (QSFP+) fabric interfaces to the parent Cisco Nexus switch (Figure 1).

**Figure 1.** Cisco Nexus 2248PQ 10GE Fabric Extender



Table 1 summarizes the Cisco Nexus 2000 Series product line. Fabric extenders work in conjunction with a parent Cisco Nexus 5000, 6000, or 7000 Series Switch. Cisco Nexus 2000 Series Fabric Extenders can be mixed and matched with a parent switch to provide a variety of connectivity options.

**Table 1.** Cisco Nexus 2000 Series Specifications

Model	Specifications
Cisco Nexus 2224TP GE Fabric Extender	24 x 100/1000BASE-T host interfaces and 2 x 10 Gigabit Ethernet fabric interfaces (SFP+)
Cisco Nexus 2248TP GE Fabric Extender	48 x 100/1000BASE-T host interfaces and 4 x 10 Gigabit Ethernet fabric interfaces (SFP+)
Cisco Nexus 2248TP-E Fabric Extender	48 x 100/1000BASE-T host interfaces and 4 x 10 Gigabit Ethernet fabric interfaces (SFP+)
Cisco Nexus 2232PP 10GE Fabric Extender	32 x 1/10 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE) host interfaces (SFP+) and 8 x 10 Gigabit Ethernet and FCoE fabric interfaces (SFP+)
Cisco Nexus 2232TM 10GE Fabric Extender	32 x 1/10GBASE-T host interfaces and modular uplinks (8 x 10 Gigabit Ethernet fabric interfaces [SFP+])

Model	Specifications
<b>Cisco Nexus 2232TM-E 10GE Fabric Extender</b>	32 x 1/10GBASE-T host interfaces and uplink module (8 x 10 Gigabit Ethernet fabric interfaces [SFP+])
<b>Cisco Nexus 2248PQ 10GE Fabric Extender</b>	48 x 1/10 Gigabit Ethernet and FCoE host interfaces (SFP+) and 4 x QSFP+ Gigabit Ethernet and FCoE fabric interfaces (QSFP+)

## Cisco Nexus 2000 Series Distributed Modular System

The Cisco Nexus 2000 Series Fabric Extenders behave like remote I/O modules for a parent Cisco Nexus 5000, 6000, or 7000 Series Switch. The fabric extender is essentially an extension of the parent Cisco Nexus switch fabric, with the fabric extender and the parent Cisco Nexus switch together forming a distributed modular system.

The Cisco Nexus 2000 Series Fabric Extenders forward all traffic to the parent switch over 10 and 40 Gigabit Ethernet uplinks. Passing all traffic to the parent switch allows traffic to be shaped according to homogeneous policies established on the parent switch with a single point of management across more than 2000 1 Gigabit Ethernet ports and more than 1500 10 Gigabit Ethernet ports.

The distributed modular system architecture includes the following benefits:

- Architectural flexibility
- Feature/policy consistency across 2000+ ports
- Cost effective solution at scale with simplified cabling
- Single point of management resulting in simplified operations
- Optimized utilization of bandwidth
- Investment protection with feature inheritance from the parent switch

## Cisco Nexus 2248PQ Features

The Cisco Nexus 2248PQ offers the following features:

- Forty-eight 10 Gigabit Ethernet fabric extender host interfaces in a compact one-rack-unit (1RU) form factor
- Four QSFP+ uplink network interfaces (16 x 10 Gigabit Ethernet)
- Connection to the Cisco Nexus 6000 Series and 5500 platform parent switches at first customer shipment
- Highly scalable distributed modular system with up to 1152 x 1 and 10 Gigabit Ethernet ports (24 fabric extenders per Cisco Nexus 6000 Series and 5500 platform switch)
- Operates as a remote I/O module, extending the switch fabric for Cisco Nexus 6000 Series and 5500 platform switches
- 160-Gbps fabric in each direction (320 Gbps full duplex)
- FCoE and IEEE Data Center Bridging (DCB) support
- 3:1 oversubscription rate
- Two additional 16-MB buffers
- Predictable low-latency cut-through switching
- In-Service Software Upgrade (ISSU)
- Support for host PortChannel and virtual PortChannel (vPC), with up to eight PortChannel members per PortChannel and no restriction on the number of PortChannels
- Excellent for 10 Gigabit Ethernet server and pass-through blade server connectivity

- Choice of port-side exhaust (front-to-back) cooling or port-side intake (reversed-airflow) cooling, compatible with data center hot-aisle and cold-aisle designs:
  - With standard port-side exhaust (front-to-back cooling), all switch ports are at the rear of the unit in close proximity to server ports, aligned with the hot aisle
  - With port-side intake (reversed airflow), ports are aligned with the cold aisle
- Choice of AC or DC power supply (the default configuration includes redundant dual power supplies)
- New coloring scheme on power supplies and fan trays to denote power supply and fan side in cold aisle (blue) and power supply and fan side in hot aisle (red)
- Individual independent hot-swappable fan trays (N+1 redundancy)
- Capability to be mixed with different types of Cisco Nexus 2000 Series Fabric Extenders for the same parent switch to support various types of connectivity
- Homogeneous policies across a large number of ports
- Zero-touch provisioning, including configuration and software upgrade operations

## Availability

The Cisco Nexus 2248PQ is available for ordering today and is already shipping.

The minimum software recommended for the platform is Cisco® NX-OS Software Release 6.0(2)N1(1) for the Cisco Nexus 5000 and 6000 Series Switches.

## Ordering Information

Table 2 provides ordering information for the Cisco Nexus 2248PQ 10GE Fabric Extender. The Cisco Nexus 2248PQ comes with two power supplies, four fan trays, and an accessory kit.

**Table 2.** Ordering Information

Part Number	Description
<b>Cisco Nexus 2000 Series Chassis</b>	
<b>N2K-C2248PQ</b>	Cisco Nexus 2248PQ 10GE Fabric Extender, 2PS, 4 Fan Module, 48x1/10GE (req SFP/SFP+) + 4x40G QSFP+(req QSFP+), choice of airflow and power supply
<b>Cisco Nexus 2000 Series plus Power Supply and Fan Pack</b>	
<b>N2248PQ-FA-BUN</b>	Cisco Nexus 2248PQ FEX, 2AC Power Supply, 4 Fan module (Std airflow, port side exhaust), spare
<b>N2248PQ-FD-BUN</b>	Cisco Nexus 2248PQ FEX, 2DC Power Supply, 4 Fan module (Std airflow, port side exhaust), spare
<b>N2248PQ-BA-BUN</b>	Cisco Nexus 2248PQ FEX, 2AC Power Supply, 4 Fan module (Reversed airflow, port side intake), spare
<b>N2248PQ-BD-BUN</b>	Cisco Nexus 2248PQ FEX, 2DC Power Supply, 4 Fan module (Reversed airflow, port side intake), spare
<b>Fan Modules</b>	
<b>NXA-FAN-30CFM-B(=)</b>	Cisco Nexus 2248PQ FEX Fan module (Reversed airflow, port side intake; Color coding: Red), spare
<b>NXA-FAN-30CFM-F(=)</b>	Cisco Nexus 2248PQ FEX Fan module (Std airflow, port side exhaust; Color coding: Blue), spare
<b>Power Supplies</b>	
<b>N2200-PAC-400W(=)</b>	Cisco Nexus 2200 AC Power supply (Std airflow, port side exhaust), spare
<b>N2200-PAC-400W-B(=)</b>	Cisco Nexus 2200 AC Power supply, Back-to-front airflow (Reversed airflow, port side intake), spare
<b>N2200-PDC-400W(=)</b>	Cisco Nexus 2200 DC Power supply (Std airflow, port side exhaust), spare
<b>N2200-PDC-350W-B(=)</b>	Cisco Nexus 2200 DC Power supply, Back-to-front airflow (Reversed airflow, port side intake), spare

Part Number	Description
<b>1 Gigabit Ethernet Transceivers and Cables</b>	
GLC-T(=)	1000BASE-T SFP
GLC-SX-MM(=)	GE SFP, LC connector SX transceiver
GLC-LH-SM(=)	GE SFP, LC connector LX/LH transceiver
SFP-GE-T(=)	1000BASE-T SFP, Extended Temperature Range
SFP-GE-S(=)	GE SFP, LC connector SX transceiver, with Digital Optical Monitoring (DOM) and Extended Temperature Range
SFP-GE-L(=)	GE SFP, LC connector LX/LH transceiver, with Digital Optical Monitoring (DOM) and Extended Temperature Range
<b>10 Gigabit Ethernet Transceivers and Cables</b>	
SFP-10G-SR(=)	10GBASE-SR SFP+ Module
SFP-10G-LR(=)	10GBASE-LR SFP+ Module
SFP-H10GB-CU1M(=)	10GBASE-CU SFP+ Passive Cable 1 Meter
SFP-H10GB-CU3M(=)	10GBASE-CU SFP+ Passive Cable 3 Meter
SFP-H10GB-CU5M(=)	10GBASE-CU SFP+ Passive Cable 5 Meter
SFP-H10GB-ACU7M(=)	10GBASE-CU SFP+ Active Cable 7 Meter
SFP-H10GB-ACU10M(=)	10GBASE-CU SFP+ Active Cable 10 Meter
<b>40 Gigabit Ethernet Transceivers and Cables</b>	
QSFP-40G-SR4	40GBASE-SR4 QSFP+ module, (multi-mode fiber, MMF at 100m)
QSFP-H40G-CU1M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 1-meter, passive
QSFP-H40G-CU3M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 3-meter, passive
QSFP-H40G-CU5M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 5-meter, passive
QSFP-H40G-ACU7M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 7-meter, active
QSFP-H40G-ACU10M	Cisco 40GBASE-CR4 QSFP+ direct-attach copper cable, 10-meter, active
QSFP-4SFP10G-CU1M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 1-meter, passive
QSFP-4SFP10G-CU3M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 3-meter, passive
QSFP-4SFP10G-CU5M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 5-meter, passive
QSFP-4x10G-AC7M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 7-meter, active
QSFP-4x10G-AC10M	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ direct-attach breakout cable, 10-meter, active
<b>Accessory Kit</b>	
NXA-AIRFLOW-SLV(=)	Nexus 2K/3K airflow extension sleeve
NXA-ACC-KIT-BAV(=)	Nexus 2K/3K airflow vent accessory kit
<b>Power Cords</b>	
CAB-N5K6A-NA(=)	Power Cord, 200/240V 6A North America
CAB-AC-L620-C13(=)	AC Power Cord, NEMA L6-20 - C13, 2M/6.5ft
CAB-C13-C14-2M(=)	Power Cord Jumper, C13-C14 Connectors, 2 Meter Length
CAB-C13-CBN(=)	Cabinet Jumper Power Cord, 250 VAC 16A, C14-C13 Connectors
CAB-9K12A-NA(=)	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America
CAB-250V-10A-AR(=)	AC Power Cord - 250V, 10A - Argentina
CAB-250V-10A-BR(=)	Power Cord - 250V, 10A - Brazil
CAB-9K10A-AU(=)	Power Cord, 250VAC 10A 3112 Plug, Australia
CAB-250V-10A-CN(=)	AC Power Cord - 250V, 10A - PRC
CAB-9K10A-EU(=)	Power Cord, 250VAC 10A CEE 7/7 Plug, EU
CAB-250V-10A-ID(=)	AC Power Cord - 250V, 10A - India
CAB-IND-10A(=)	10A Power cable for India
CAB-250V-10A-IS(=)	AC Power Cord - 250V, 10A - Israel

Part Number	Description
CAB-9K10A-IT(=)	Power Cord, 250VAC 10A CEI 23-16/II Plug, Italy
CAB-9K10A-SW(=)	Power Cord, 250VAC 10A MP232 Plug, Switzerland
CAB-9K10A-UK(=)	Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK
<b>Accessories</b>	
N2200-P-BLNK(=)	Cisco Nexus 2200 Power supply Blank, spare

To place an order, visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center. Figure 2 summarizes the part number naming conventions.

**Figure 2.** Part Number Naming Conventions

1 2 3 4 5 6 7 8 9 10 11  
**N2K-C2248PQ**

- 1–3: Cisco Nexus 2000 Series Identifier
- 4: Dash
- 5: Chassis
- 6: Series Number
- 7: Series Generation
- 8–9: Number of Ports
- 10: Host Physical Interface Type (P = SFP+, T = Copper)
- 11: Uplink Physical Interface Type (Q = QSFP+, P = SFP+, F = Fabric Extender Transceiver)

## Warranty

The Cisco Nexus 2248PQ 10GE Fabric Extender has a 1-year limited hardware warranty. The warranty includes hardware replacement with a 10-day turnaround from receipt of a return materials authorization (RMA).

## Cisco Services

Cisco offers a wide range of services to help accelerate your success in deploying and optimizing the Cisco Nexus 6000 Series and 5500 platform switches and Cisco Nexus 2200 Series Fabric Extenders in your data center. The innovative Cisco Services offerings are delivered through a unique combination of people, processes, tools, and partners and are focused on helping you increase operation efficiency and improve your data center network. Cisco Advanced Services uses an architecture-led approach to help you align your data center infrastructure with your business goals and achieve long-term value. Cisco SMARTnet<sup>®</sup> Service helps you resolve mission-critical problems with direct access at any time to Cisco network experts and award-winning resources. With this service, you can take advantage of the Cisco Smart Call Home service capability, which offers proactive diagnostics and real-time alerts on your Cisco Nexus 6000 Series and 5500 platform switches. Spanning the entire network lifecycle, Cisco Services offerings help increase investment protection, optimize network operations, support migration operations, and strengthen your IT expertise. For more information about Cisco Nexus Services, visit <http://www.cisco.com/go/nexuservices>.

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## For More Information

- Cisco Nexus 2000 Series Fabric Extenders: <http://www.cisco.com/go/nexus2000>
- Cisco Nexus 5000 Series Switches: <http://www.cisco.com/go/nexus5000>
- Cisco Nexus 6000 Series Switches: <http://www.cisco.com/go/nexus6000>
- Cisco NX-OS Software: <http://www.cisco.com/go/nxos>




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