

# Cisco Nexus 2000 Fabric Extenders Datasheet



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## CONTENT

Content .....	1
Overview .....	2
features .....	2
Models .....	3
Ordering information.....	10
Sources.....	10

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## OVERVIEW

The Cisco Nexus 2000 Series Fabric Extenders provide customers with the means to gradually migrate from Gigabit Ethernet to 10 Gigabit Ethernet and eventually deploy a unified array. The Cisco Nexus 2000 Series is located at the top of the server rack and serves as the remote line card for the upstream switch, as well as the switch's expansion device, so it inherits the software, configuration, and policies of the upstream switch (Nexus 5000 or Nexus 7000 switch); it even inherits such as Advanced features such as FCoE and Cisco VN-Link support.

## FEATURES

The Cisco Nexus 2000 Series Fabric Extenders provide these features:

- ▶ **FEX technology to achieve the expansion of the switch**
- ▶ **Separate components:**
  - Control Plane
  - Forwarding ASIC
  - Port ASIC
- ▶ **The component's upgrade path mimics the classic modular switch structure**
  - Component upgrades can be implemented individually
  - Replace parent switches similar to upgrade engines and Fabric ASICs
- ▶ **Single system image file and single point configuration and management**

## MODELS

The Cisco Nexus 2000 Series Fabric Extenders provides three types, including 1GE Fabric Extenders, 10GBASE-T Fabric Extenders and 10G SFP+ Fabric Extenders.

### 1. 1GE Fabric Extenders include 2224TP, 2248TP and 2248TP-E.

Figure 1. Nexus 2224TP



Figure 2. Nexus 2248TP and 2248TP-E



Table 1. 1GE Fabric Extenders

Models	Cisco Nexus 2224TP	Cisco Nexus 2248TP	Cisco Nexus 2248TP-E
Fabric extender host interfaces	24	48	48
Fabric extender host interface types	100BASE-T/1000BASE-T ports: RJ-45 connectors	100BASE-T/1000BASE-T ports: RJ-45 connectors	100BASE-T/1000BASE-T ports: RJ-45 connectors
Fabric extender fabric interfaces	2	4	4

<b>Models</b>	<b>Cisco Nexus 2224TP</b>	<b>Cisco Nexus 2248TP</b>	<b>Cisco Nexus 2248TP-E</b>
Fabric speed	20 Gbps in each direction (40 Gbps full duplex)	40 Gbps in each direction (80 Gbps full duplex)	40 Gbps in each direction (80 Gbps full duplex)
Oversubscription	1.2:1	1.2:1	1.2:1
Performance	Hardware forwarding at 88 Gbps or 65 mpps	Hardware forwarding at 176 Gbps or 131 mpps	Hardware forwarding at 176 Gbps or 131 mpps
Cisco parent switch	Cisco Nexus 5000, 6000, 7000, or 9000 Series*	Cisco Nexus 5000, 6000, 7000, or 9000 Series*	Cisco Nexus 5000, 6000, 7000, or 9000 Series*
FCoE support	No	No	No
Airflow	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake
Buffers	8 MB	8 MB	32 MB

\*Software support for all parent switches may not yet be available. Check Cisco NX-OS Software release notes for the specific parent switch models and minimum required software version.

2. 10GBASE-T Fabric Extenders include 2332TQ, 2348TQ, 2348TQ-E, 2232TM-E and 2232TM.

Figure 3. Nexus 2232TQ

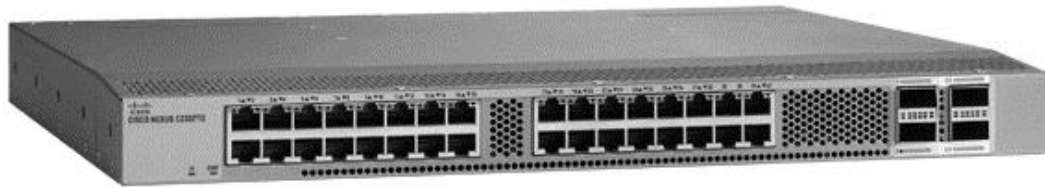


Figure 4. Nexus 2348TQ and 2348TQ-E



Figure 5. Nexus 2232TM-E and 2232TM



**Table 2. 10GBASE-T Fabric Extenders**

<b>Models</b>	<b>Cisco Nexus 2332TQ</b>	<b>Cisco Nexus 2348TQ</b>	<b>Cisco Nexus 2348TQ-E</b>	<b>Cisco Nexus 2232TM-E</b>	<b>Cisco Nexus 2232TM</b>
Fabric extender host interfaces	32	48	48	32	32
Fabric extender host interface types	100BASE-T, 1/10GBASE-T ports: RJ-45 connectors	100BASE-T, 1/10GBASE-T ports: RJ-45 connectors	100BASE-T, 1/10GBASE-T ports: RJ-45 connectors	1/10GBASE-T ports: RJ-45 connectors	1/10GBASE-T ports: RJ-45 connectors
Fabric extender fabric interfaces	4 40 GE QSFP (16 x 10 GE)	6 40 GE QSFP (24 x 10 GE)	6 40 GE QSFP (24 x 10 GE)	8 SFP+	Uplink module: 8 SFP+
Fabric speed	Up to 160 Gbps of switching capacity in each direction (320 Gbps full duplex)	Up to 240 Gbps in each direction (480 Gbps full duplex)	Up to 240 Gbps in each direction (480 Gbps full duplex)	80 Gbps in each direction (160 Gbps full duplex)	80 Gbps in each direction (160 Gbps full duplex)
Oversubscription	2:1	2:1	2:1	4:1	4:1
Performance	Hardware forwarding at 960 Gbps or 1440 mpps	Hardware forwarding at 1440 Gbps or 2160 mpps	Hardware forwarding at 1440 Gbps or 2160 mpps	Hardware forwarding at 800 Gbps or 595 mpps	Hardware forwarding at 800 Gbps or 595 mpps
Cisco parent switch	Cisco Nexus 5000, 6000, 7000, and 9000 Series*	Cisco Nexus 5000, 6000, 7000, and 9000 Series*	Cisco Nexus 5000, 6000, 7000, and 9000 Series*	Cisco Nexus 5000, 6000, 7000, or 9000 Series*	Cisco Nexus 5000, 6000, 7000, or 9000 Series*

<b>Models</b>	<b>Cisco Nexus 2332TQ</b>	<b>Cisco Nexus 2348TQ</b>	<b>Cisco Nexus 2348TQ-E</b>	<b>Cisco Nexus 2232TM-E</b>	<b>Cisco Nexus 2232TM</b>
FCoE support	Yes (supports up to 30 meters)	Yes (supports up to 30 meters)	Yes (supports up to 30 meters)	Yes (Supports up to 30 meters)	No
Airflow	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake
Buffers	32 MB shared	32 MB Shared	32 MB Shared	8 MB	8 MB

\*Software support for all parent switches may not yet be available. Check Cisco NX-OS Software release notes for the specific parent switch models and minimum required software version.



**3. 10G SFP+ Fabric Extenders include 2348UPQ, 2248PQ and 2232PP.**

**Figure 6. Nexus 2348UPQ**



**Figure 7. Nexus 2248PQ**



**Figure 8. Nexus 2232PP**



**Table 3. 10G SFP+ Fabric Extenders**

<b>Models</b>	<b>Cisco Nexus 2348UPQ</b>	<b>Cisco Nexus 2248PQ</b>	<b>Cisco Nexus 2232PP</b>
Fabric extender host interfaces	48	48	32
Fabric extender host interface types	1/10 GE ports SFP/SFP+	1/10 GE ports SFP/SFP+	1/10 GE ports SFP/SFP+

<b>Models</b>	<b>Cisco Nexus 2348UPQ</b>	<b>Cisco Nexus 2248PQ</b>	<b>Cisco Nexus 2232PP</b>
Fabric extender fabric interfaces	2 to 6 40 GE QSFP (24 x 10 GE)	4 QSFP+ (16 x 10 GE)	8
Fabric speed	Up to 240 Gbps in each direction (480 Gbps full duplex)	160 Gbps in each direction (320 Gbps full duplex)	80 Gbps in each direction (160 Gbps full duplex)
Oversubscription	2:1	3:1	4:1
Performance	Hardware forwarding at 1440 Gbps or 2160 mpps	Hardware forwarding at 1280 Gbps or 952 mpps	Hardware forwarding at 800 Gbps or 595 mpps
Cisco parent switch	Cisco Nexus 5000, 6000, 7000, or 9000 Series*	Cisco Nexus 5000, 6000, 7000, or n9000 Series*	Cisco Nexus 5000, 6000, 7000, or n9000 Series*
FCoE support	Yes	Yes	Yes
Unified port capable	Yes	No	No
Airflow	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake	Port-side exhaust and port-side intake
Buffers	32 MB shared	32 MB Network to host, 8 MB host to network	8 MB

\*Software support for all parent switches may not yet be available. Check Cisco NX-OS Software release notes for the specific parent switch models and minimum required software version.

## ROUTER-SWITCH.COM ORDERING INFORMATION

Part Number	Product Description
<a href="#">N2K-C2348TQ</a>	Nexus 2300 Platform Chassis, Nexus 2348TQ 10G BASE T Fabric Extender, 2PS, 3 Fan Module, 48x100M/1/10GT (RJ45) + 6x40G QSFP+(req QSFP+), choice of airflow and power supply
<a href="#">N2K-C2348UPQ</a>	Nexus 2300 Platform Chassis, Nexus 2348UPQ 10GE Fabric Extender, 2PS, 3 Fan Module, 48x1/10GE (req SFP/SFP+) + 6x40G QSFP+(req QSFP+), choice of airflow and power supply
<a href="#">N2K-C2232PP</a>	Nexus 2232PP Series 10GE Fabric Extender, 2PS, 1 Fan Module, 32x1/10GE (req SFP/SFP+) + 8x10GE (req SFP+), choice of airflow and power supply
<a href="#">N2K-C2232TF-E</a>	Nexus 2000 Series Chassis with Fabric Extender, Nexus 2232TM-E 10GBASE-T Fabric Extender, 2PS, 1 Fan Module, 32x1/10GBase-T + 8x10GE Module (includes 16 Fabric Extender Transceivers), choice of airflow and power supply
<a href="#">N2K-C2232TM-E</a>	Nexus 2000 Series Chassis, Nexus 2232TM-E 10GBASE-T Fabric Extender, 2PS, 1 Fan Module, 32x1/10GBase-T + 8x10GE Module (req SFP+), choice of airflow and power supply
<a href="#">N2K-C2248TF-E</a>	Nexus 2000 Series Chassis with Fabric Extender, Nexus 2248TP-E Series 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10GE (includes 8 Fabric Extender Transceivers), 32MB buffer, choice of airflow and power supply
<a href="#">N2K-C2248TP-E</a>	Nexus 2000 Series Chassis, Nexus 2248TP-E 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10GE (req SFP+), 32MB buffer, choice of airflow and power supply
<a href="#">N2K-C2348TQ-E</a>	Nexus 2000, 10GT FEX; 48x1/10T; 6x40G QSFP

## SOURCES

<https://www.cisco.com/c/en/us/products/switches/nexus-2000-series-fabric-extenders/models-comparison.html#~tab-1ge>