



CHAPTER 2

Using a Fabric Extender with a Cisco Nexus 7000 Series Switch

This chapter describes the Cisco Nexus 2200 Platform Fabric Extender (FEX) chassis and the components that you can connect to a Cisco Nexus 7000 Series switch.

This chapter includes the following sections:

- [Information About Using a Fabric Extender with a Cisco Nexus 7000 Series Switch, page 2-1](#)
- [Cisco Nexus 2248TP-E FEX, page 2-2](#)
- [Cisco Nexus 2248TP FEX, page 2-11](#)
- [Cisco Nexus 2232TM FEX, page 2-15](#)
- [Cisco Nexus 2232PP FEX, page 2-20](#)
- [Cisco Nexus 2224TP FEX, page 2-25](#)

Information About Using a Fabric Extender with a Cisco Nexus 7000 Series Switch

You can extend the Cisco Nexus 7000 Series switch architecture by connecting up to 32 FEXs as remote I/O modules. Depending on which FEX model that you connect to the switch, the FEX provides top-of-the-rack connectivity for up to 48, 32, or 24 hosts, and it becomes an extension of the parent Cisco Nexus 7000 Series switch fabric, with the FEX and the switch becoming a virtual modular system. The FEX forwards all 100/1000 Ethernet or 1- and 10-Gigabit Ethernet traffic from the hosts to the switch over 10-Gbps uplinks. Traffic flows from the switch to the FEX over the 10-Gbps uplinks and to the individual hosts over 100/1000 Ethernet or 1- and 10-Gigabit Ethernet downlinks.

You connect a FEX uplink port to the Cisco Nexus 7000 Series switch through one of the following Ethernet I/O modules installed in the switch:

- F2 Series 48-port 1 or 10-Gigabit Ethernet I/O module (N7K-F248XP-25)
- M1 Series 32-port 10-Gigabit Ethernet I/O module (N7K-M132XP-12)
- M1 Series 32-port 10-Gigabit Ethernet I/O module with XL option (N7K-M132XP-12L)
- M2 Series 24-port 10-Gigabit Ethernet I/O module (N7K-M224XP-23L)

[Send documentation comments to nexus5kdocs@cisco.com](mailto:nexus5kdocs@cisco.com)

Cisco Nexus 2248TP-E FEX

The Cisco Nexus 2248TP-E FEX (N2K-C2248TP-E) is a stackable 1-RU FEX that has 48 100/1000 Ethernet host-facing (downlink) ports and four 10-Gigabit Ethernet network-facing (uplink) ports. It requires a 19-inch (48.26 cm) rack for its installation. [Table 2-1](#) lists its physical characteristics.

Table 2-1 Physical Characteristics for the Cisco Nexus 2248TP-E FEX

| | |
|---------------------|-----------------------|
| Dimensions | |
| Width | 17.3 inches (43.9 cm) |
| Depth | 20.0 inches (50.8 cm) |
| Height | 1.72 inches (4.4 cm) |
| Weight ¹ | 17.7 lb (8.0 kg) |

1. Measured with two power supplies and one fan module installed.

You can order the Cisco Nexus 2248TP-E with front-to-back (port-side exhaust) or back-to-front (port-side intake) airflow and with AC or DC power supplies. If you are going to install the port side in a hot aisle, then order front-to-back airflow for the fan trays and power supplies. If you are going to install the port side in the cold aisle, order back-to-front airflow for the fan trays and power supplies.

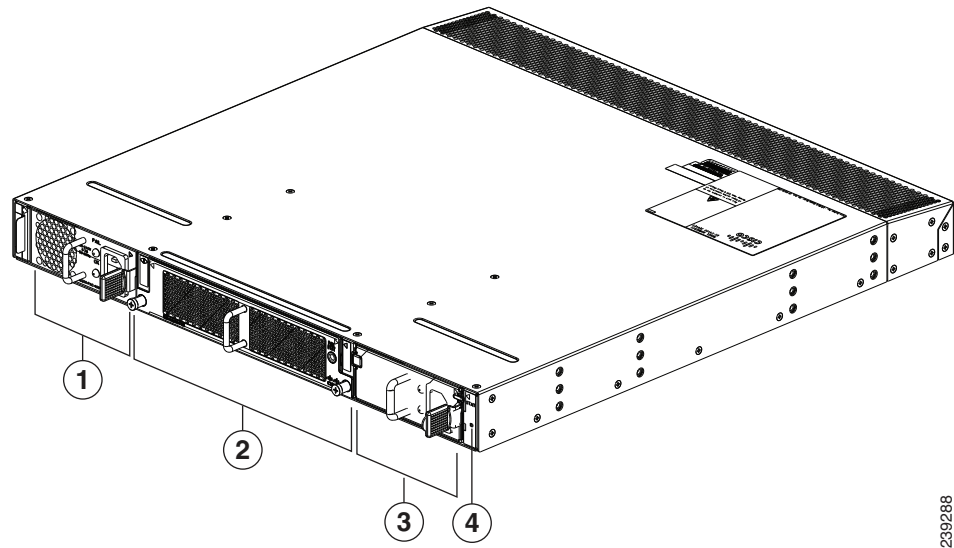


Note

For visual identification, back-to-front airflow power supplies and fan trays have a black stripe across their front, and front-to-back airflow modules do not have a black stripe across their front. All of the power supplies and fan trays must have the same direction of airflow for the components to properly function (all of these components must either have a black stripe or all of the components must not have a black stripe).

The front of the Cisco Nexus 2248TP-E FEX chassis has one or two power supplies, a fan tray, and two chassis LEDs as shown in [Figure 2-1](#). This FEX model requires one power supply, but if you want power redundancy, you must install a second power supply.

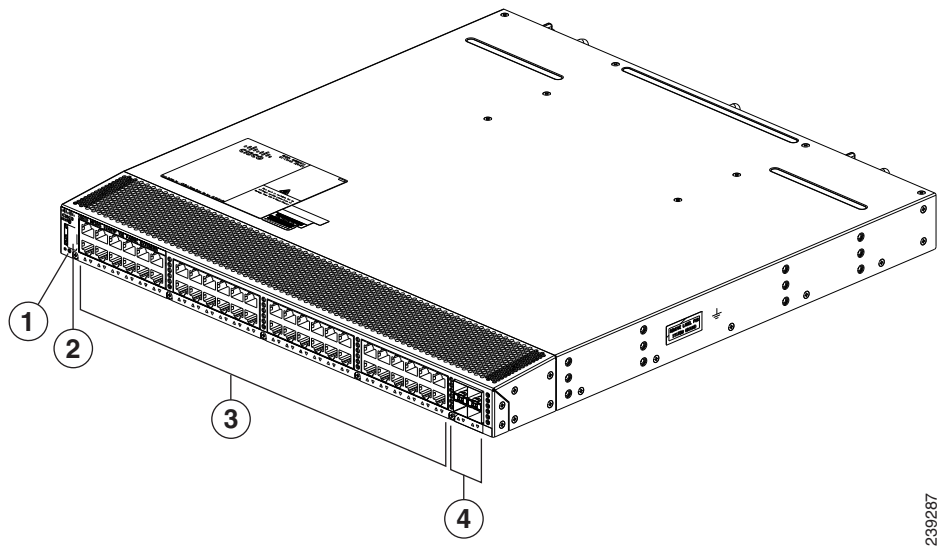
Figure 2-1 Front View of the Cisco Nexus 2248TP-E Chassis



| | | | |
|---|--------------|---|-----------------------------------|
| 1 | Power supply | 3 | Power supply (blank shown) |
| 2 | Fan tray | 4 | Status (top) and ID (bottom) LEDs |

The rear of the Cisco Nexus 2248TP-E FEX chassis has 48 100/1000 Ethernet downlink ports, four 10-Gigabit Ethernet uplink ports, an HDMI port, and LEDs, as shown in [Figure 2-2](#).

Figure 2-2 Rear View of the Cisco Nexus 2248TP-E Chassis



| | | | |
|---|-----------------------------------|---|-------------------------------------------------------|
| 1 | Status (top) and ID (bottom) LEDs | 3 | 100/1000 Ethernet host-facing (downlink) ports (48) |
| 2 | HDMI port | 4 | 10-Gigabit Ethernet network-facing (uplink) ports (4) |

Send documentation comments to nexus5kdocs@cisco.com

For LED descriptions, see [Table D-1 on page D-2](#).

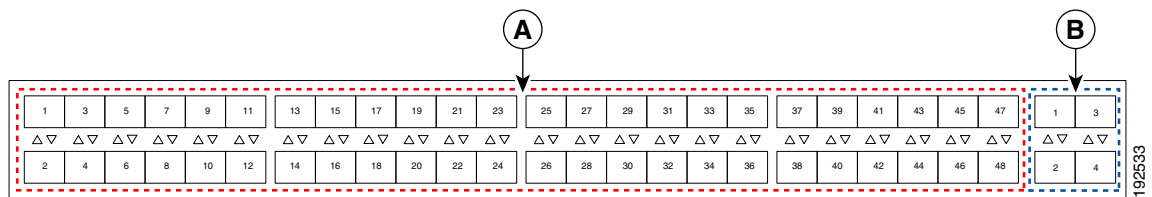
This section includes the following topics:

- [Ports for the Cisco Nexus 2248TP-E FEX, page 2-4](#)
- [Power Supplies for the Cisco Nexus 2248TP-E FEX, page 2-4](#)
- [Fan Tray for the Cisco Nexus 2248TP-E FEX, page 2-7](#)
- [Transceivers and Connectors Supported by the Cisco Nexus 2248TP-E FEX, page 2-9](#)

Ports for the Cisco Nexus 2248TP-E FEX

The downlink and uplink ports are numbered from top to bottom and then left to right as shown in [Figure 2-3](#).

Figure 2-3 Port Numbering on the Cisco Nexus 2248TP-E FEX



| | | | |
|----------|---------------------------------------------------------|----------|--------------------------------------------------------|
| A | 100/1000 Ethernet downlink ports, numbered 1 through 48 | B | 10-Gigabit Ethernet uplink ports, numbered 1 through 4 |
|----------|---------------------------------------------------------|----------|--------------------------------------------------------|



Note

For a fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module (either the N7K-M132XP-12 or N7K-M132XP-12L), connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX). If you are using the M2 Series 24-port, 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports for a fully dedicated bandwidth. If you are using the F2 Series 48-port, 10-Gigabit Ethernet I/O module (N7K-F248XP-25), use the connectivity rule order (connect the same port numbers for each port group (for example, if you connect ports 1 and 2 of a port-group, then connect the same ports of another port group)).

For information about the transceivers and connectors that you can use with these ports, see the [“Transceivers and Connectors Supported by the Cisco Nexus 2248TP-E FEX” section on page 2-9](#).

Power Supplies for the Cisco Nexus 2248TP-E FEX

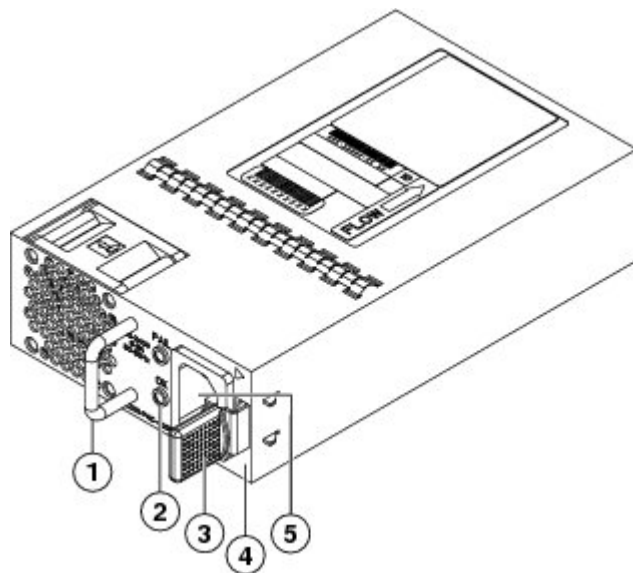
The Cisco Nexus 2200 Series FEX chassis have two slots for front-end AC or DC power supplies that have front-to-back or back-to-front airflow. These chassis are fully functional with one power supply, but you can install a second power supply for power redundancy. If you have only one power supply in the chassis, install a blank filler panel (N2200-P-BLKN) to maintain the designed airflow in the chassis. You can install any of the following power supplies in those two bays:

- AC power supply with front-to-back airflow (N2200-PAC-400W)

- AC power supply with back-to-front airflow (N2200-PAC-400W-B)
- DC power supply with front-to-back airflow (N2200-PDC-400W)
- DC power supply with back-to-front airflow (N2200-PDC-350W-B)

Figure 2-4 shows the exterior components on an AC power supply with front-to-back airflow (no black stripe on the front). Figure 2-5 shows the components on a DC power supply with front-to-back airflow. Figure 2-6 shows the black stripe used to indicate back-to-front airflow (in this case on an AC power supply). Figure 2-7 shows the blank filler panel that you should install in an open power supply slot if the chassis has only one power supply.

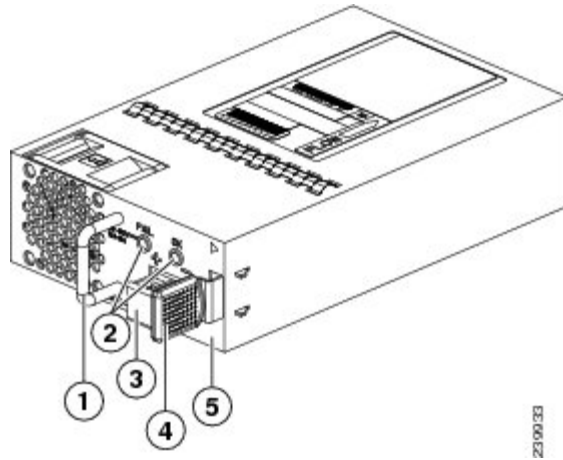
Figure 2-4 AC Power Supply with Front-to-Back Airflow for the Cisco Nexus 2200 Platform



| | | | |
|---|---------------------------------|---|-----------------------------------------|
| 1 | Handle | 4 | No black stripe (front-to-back airflow) |
| 2 | FAIL (top) and OK (bottom) LEDs | 5 | AC power receptacle |
| 3 | Ejector latch | | |

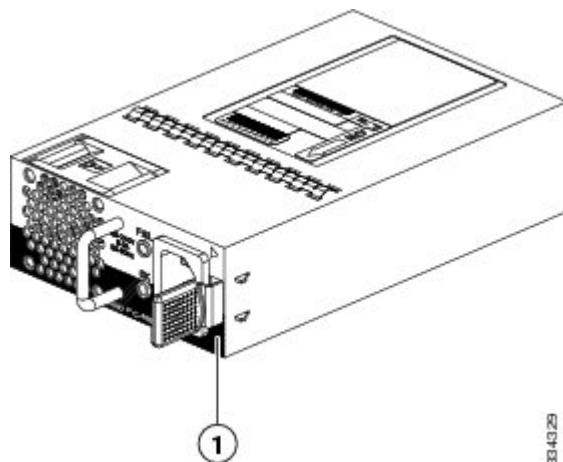
Send documentation comments to nexus5kdocs@cisco.com

Figure 2-5 DC Power Supply with Front-to-Back Airflow for the Cisco Nexus 2200 Platform

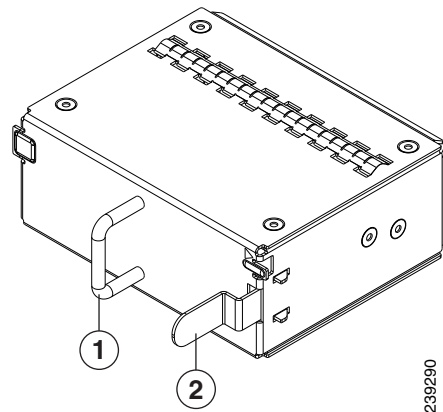


| | | | |
|----------|--------------------------------------|----------|-----------------------------------------|
| 1 | Handle | 4 | Ejector latch |
| 2 | FAIL (left) and OK (right) LEDs | 5 | No black stripe (front-to-back airflow) |
| 3 | DC power connector with safety cover | | |

Figure 2-6 Black Stripe Used to Indicate Back-to-Front Airflow



| | | | |
|----------|--------------------------------------|--|--|
| 1 | Black stripe (back-to-front airflow) | | |
|----------|--------------------------------------|--|--|

Figure 2-7 Blank Power Supply Filler Panel for a Cisco Nexus 2200 Platform Power Supply Bay

| | | | |
|---|--------|---|---------------|
| 1 | Handle | 2 | Ejector latch |
|---|--------|---|---------------|

For LED descriptions, see [Table D-1 on page D-2](#).

For power supply specifications, see the “[Power Specifications](#)” section on page B-1. For details on how to replace a power supply, see the “[Removing and Installing Power Supplies](#)” section on page 3-17.

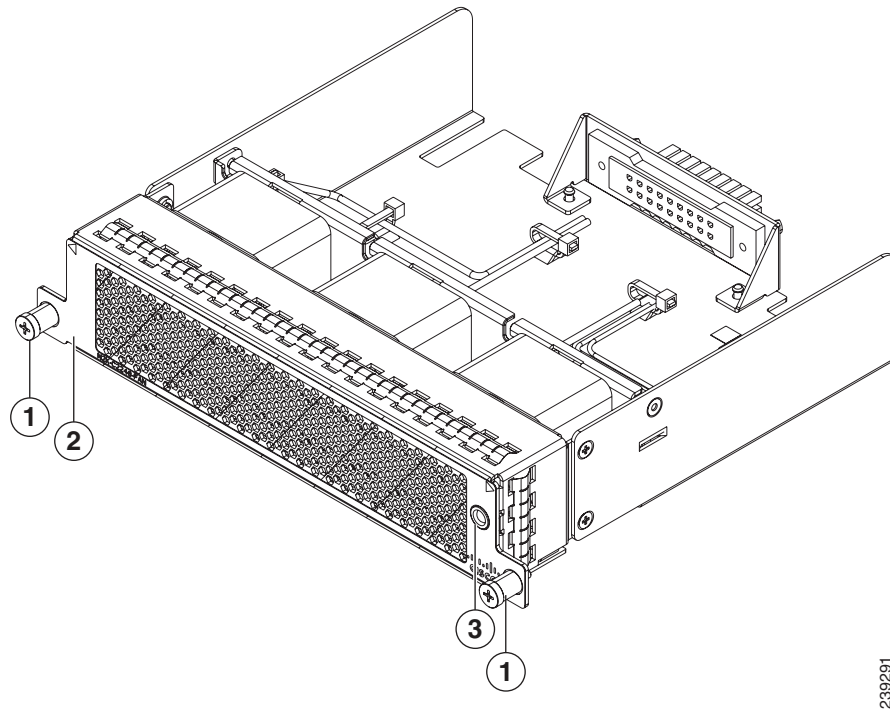
Fan Tray for the Cisco Nexus 2248TP-E FEX

The Cisco Nexus 2224TP, 2248TP, and 2248TP-E FEXs use the same fan tray that you can order with either front-to-back airflow (N2K-C2248-FAN) or back-to-front airflow (N2K-C2248-FAN-B). The fan tray includes a status LED that indicates whether the module is operational. You can hot swap the fan tray during operations as described in the “[Removing and Installing the Fan Tray](#)” section on page 3-20.

[Figure 2-8](#) shows the fan tray with front-to-back airflow (no black stripe on front) and identifies its components, and [Figure 2-9](#) shows the fan tray with back-to-front airflow (black stripe on front) and identifies its components.

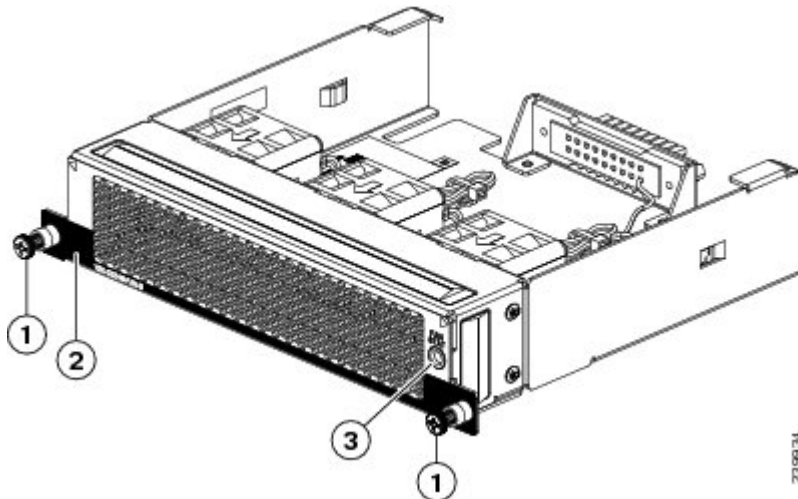
Send documentation comments to nexus5kdocs@cisco.com

Figure 2-8 Front-to-Back Airflow Fan Tray for the Cisco Nexus 2000 Series FEX



| | | | |
|---|--------------------------------------------------------------------------------------|---|------------|
| 1 | Captive screws (2) | 3 | Status LED |
| 2 | No black stripe on the front indicates that this fan tray has front-to-back airflow. | | |

Figure 2-9 Back-to-Front Airflow Fan Tray for the Cisco Nexus 2000 Series FEX



| | | | |
|----------|-----------------------------------------------------------------------------------|----------|------------|
| 1 | Captive screws (2) | 3 | Status LED |
| 2 | Black stripe on the front indicates that this fan tray has back-to-front airflow. | | |

For information on this fan tray, see the [“Fan Tray for the Cisco Nexus 2248TP FEX”](#) section on page 2-14 and the fan tray specifications in the [“Environmental Specifications”](#) section on page B-4 and the [“Physical Specifications”](#) section on page B-5. For LED descriptions, see Table D-1 on page D-2. To replace one of these fan trays, see the [“Removing and Installing the Fan Tray”](#) section on page 3-20.

Transceivers and Connectors Supported by the Cisco Nexus 2248TP-E FEX

The Cisco Nexus 2248TP-E FEX supports SFP+ Ethernet optical and copper transceivers and optical FEX Transceivers (FETs) for up to four fabric uplink connections to Cisco Nexus 7000 Series switches, and it supports RJ-45 connectors for up to 48 downlink connections to hosts. For each uplink cable, you must use the same transceiver on both ends. Table 2-2 lists the transceivers supported by this FEX for its uplink fabric .

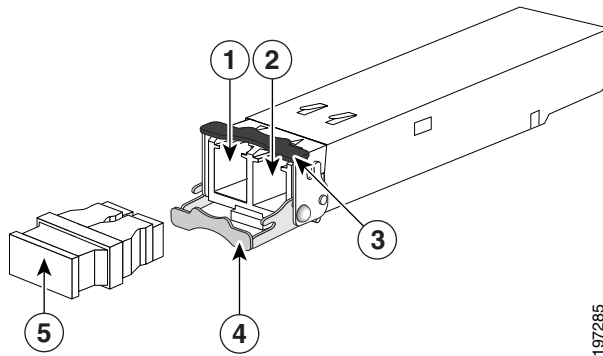
Table 2-2 Supported Transceivers and Connector for the Cisco Nexus 2248TP-E FEX Uplink Interfaces

| Transceiver or Connector | Cable Type | Fabric Interface (Uplink) | Host Interface (Downlink) | Comments |
|--------------------------|------------|---------------------------|---------------------------|------------------------------------------------------------|
| FET-10G | Optical | X | — | 10 Gbps FEX transceiver |
| SFP-10G-LR | Optical | X | — | 10 Gbps long range transceiver (up to 6.2 miles [10 km]) |
| SFP-10G-SR | Optical | X | — | 10 Gbps Short range transceiver (up to 984 feet [300 m]) |
| SFP -H10GB-CU1M | Copper | X | — | 10 Gbps Twinax, passive transceiver (3.3 feet [1 meter]) |
| SFP -H10GB-CU3M | Copper | X | — | 10 Gbps Twinax, passive transceiver (9.8 feet [3 meters]) |
| SFP -H10GB-CU5M | Copper | X | — | 10 Gbps Twinax, passive transceiver (16.4 feet [5 meters]) |
| SFP -H10GB-ACU7M | Copper | X | — | 10 Gbps Twinax, active transceiver (23.0 feet [7 meters]) |
| SFP -H10GB-ACU10M | Copper | X | — | 10 Gbps Twinax, active transceiver (32.8 feet [10 meters]) |
| RJ-45 | Copper | — | X | 100/1000 Mbps Connector |

Figure 2-10 shows the SFP+ optical transceiver used for uplink connections. For specifications that apply to these optical transceivers, see the [“SFP+ Optical Transceiver Specifications”](#) section on page B-6.

Send documentation comments to nexus5kdocs@cisco.com

Figure 2-10 SFP+ Optical Transceivers and FETs



| | | | |
|----------|--------------------------------|----------|-------------------------------------------------------------------------------------------------------|
| 1 | Receive optical bore | 4 | Clasp shown in open position |
| 2 | Transmit optical bore | 5 | Dust plug (use this to protect the bores from dust contamination when the optical cables are removed) |
| 3 | Clasp shown in closed position | | |

Figure 2-11 identifies the major features of the SFP+ copper transceiver and cable used for uplink connections. For the cable specifications that apply to these transceivers, see the “[SFP+ Copper Transceiver Specifications](#)” section on page B-7.

Figure 2-11 SFP+ Copper Transceiver Module

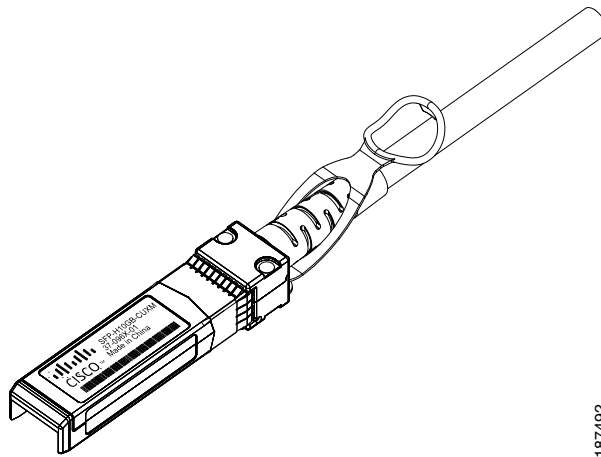
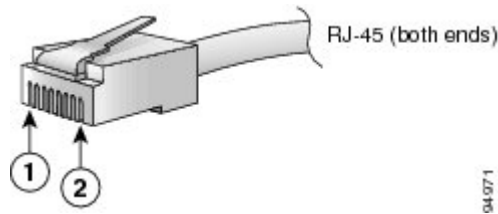


Figure 2-12 identifies the major features of RJ-45 connectors, which are used for the downlink connections.

Figure 2-12 RJ-45 Connector

| | | | |
|---|-------|---|-------|
| 1 | Pin 1 | 2 | Pin 8 |
|---|-------|---|-------|

Cisco Nexus 2248TP FEX

The Cisco Nexus 2248TP FEX is a stackable 1-RU FEX that has 48 100/1000 Ethernet host-facing (downlink) ports and four 10-Gigabit Ethernet network-facing (uplink) ports. It requires a 19-inch (48.26 cm) rack for its installation. [Table 2-3](#) lists its physical characteristics.

Table 2-3 Physical Characteristics for the Cisco Nexus 2248TP FEX

| | |
|---------------------|-----------------------|
| Dimensions | |
| Width | 17.3 inches (43.9 cm) |
| Depth | 20.0 inches (50.8 cm) |
| Height | 1.72 inches (4.4 cm) |
| Weight ¹ | 17.7 lb (8.0 kg) |

1. Measured with two power supplies and one fan module installed.

You can order the Cisco Nexus 2248TP with front-to-back (port-side exhaust) or back-to-front (port-side intake) airflow and with AC or DC power supplies. If you are going to install the port side in a hot aisle, then order front-to-back airflow for the fan trays and power supplies. If you are going to install the port side in the cold aisle, order back-to-front airflow for the fan trays and power supplies.

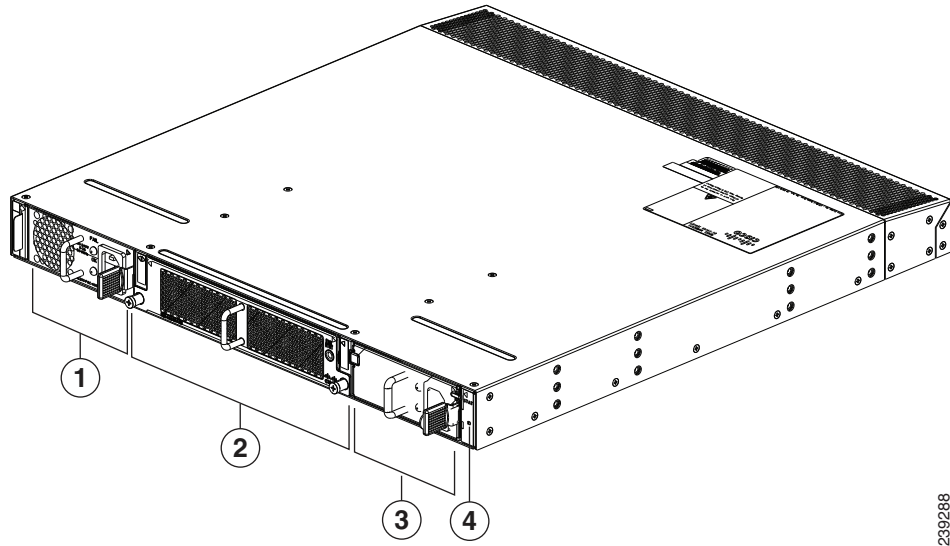
**Note**

For visual identification, back-to-front airflow fan trays and power supplies have a black stripe across their front, and front-to-back airflow modules do not have a black stripe across their front. All of the power supplies and fan trays must have the same direction of airflow for the components to properly function (all of these components must either have a black stripe or all of the components must not have a black stripe).

The front of the Cisco Nexus 2248TP FEX chassis has one or two power supplies, a fan tray, and two chassis LEDs as shown in [Figure 2-13](#). This FEX model requires one power supply, but if you want power redundancy, you must install a second power supply.

Send documentation comments to nexus5kdocs@cisco.com

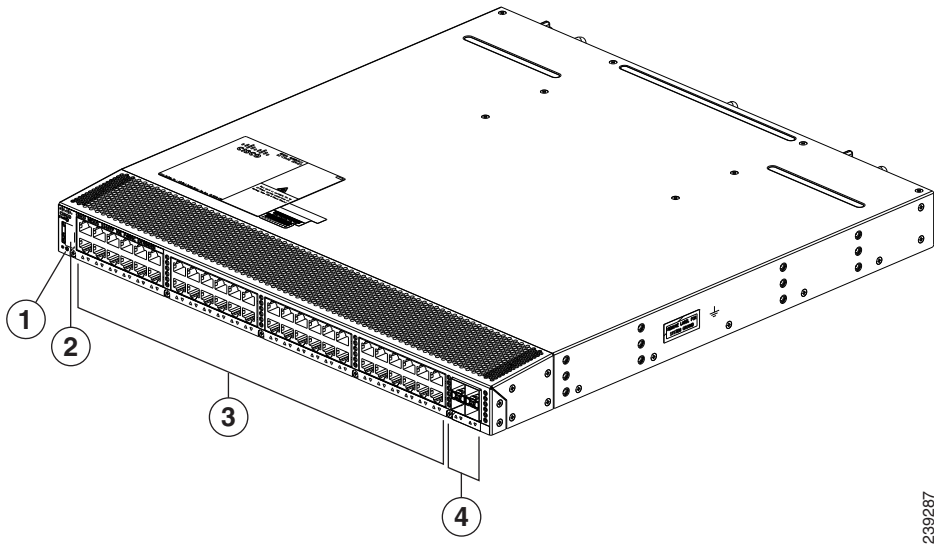
Figure 2-13 Front View of the Cisco Nexus 2248TP Chassis



| | | | |
|----------|--------------|----------|-----------------------------------|
| 1 | Power supply | 3 | Power supply (blank shown) |
| 2 | Fan tray | 4 | Status (top) and ID (bottom) LEDs |

The rear of the Cisco Nexus 2248TP-E FEX has 48 100/1000 Ethernet downlink ports, four 10-Gigabit Ethernet uplink ports, an HDMI port, and LEDs, as shown in [Figure 2-14](#).

Figure 2-14 Rear View of the Cisco Nexus 2248TP Chassis



| | | | |
|----------|-----------------------------------|----------|-------------------------------------------------------|
| 1 | Status (top) and ID (bottom) LEDs | 3 | 100/1000 Ethernet host-facing (downlink) ports (48) |
| 2 | HDMI port | 4 | 10-Gigabit Ethernet network-facing (uplink) ports (4) |

For LED descriptions, see [Table D-1 on page D-2](#).

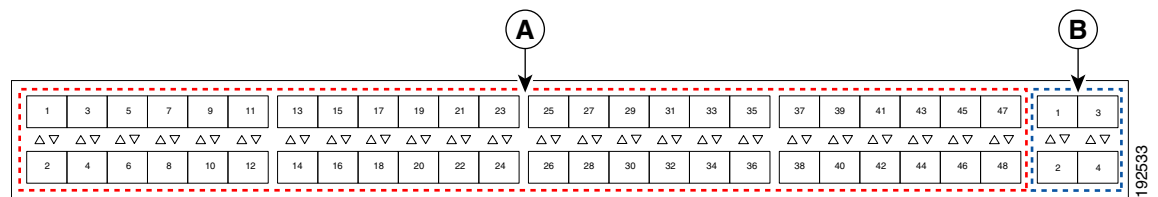
This section includes the following topics:

- [Ports for the Cisco Nexus 2248TP FEX, page 2-13](#)
- [Power Supplies for the Cisco Nexus 2248TP FEX, page 2-13](#)
- [Fan Tray for the Cisco Nexus 2248TP FEX, page 2-14](#)
- [Transceivers and Connectors Supported by the Cisco Nexus 2248TP FEX, page 2-14](#)

Ports for the Cisco Nexus 2248TP FEX

The downlink and uplink ports are numbered from top to bottom and then left to right as shown in [Figure 2-15](#).

Figure 2-15 Port Numbering on the Cisco Nexus 2248TP FEX



| | | | |
|----------|---------------------------------------------------------|----------|--------------------------------------------------------|
| A | 100/1000 Ethernet downlink ports, numbered 1 through 48 | B | 10-Gigabit Ethernet uplink ports, numbered 1 through 4 |
|----------|---------------------------------------------------------|----------|--------------------------------------------------------|



Note

For a fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module (either the N7K-M132XP-12 or N7K-M132XP-12L), connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX). If you are using the M2 Series 24-port, 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports for a fully dedicated bandwidth. If you are using the F2 Series 48-port, 10-Gigabit Ethernet I/O module (N7K-F248XP-25), use the connectivity rule order (connect the same port numbers for each port group (for example, if you connect ports 1 and 2 of a port-group, then connect the same ports of another port group)).

For information about the transceivers and connectors that you can use with these ports, see the [“Transceivers and Connectors Supported by the Cisco Nexus 2248TP FEX” section on page 2-14](#).

Power Supplies for the Cisco Nexus 2248TP FEX

The Cisco Nexus 2200 Platform FEX chassis have two slots for front-end AC or DC power supplies that have front-to-back or back-to-front airflow. These chassis are fully functional with one power supply, but you can install a second power supply for power redundancy. You can install any of the following power supplies in those two bays:

- AC power supply with front-to-back airflow (N2200-PAC-400W)
- AC power supply with back-to-front airflow (N2200-PAC-400W-B)

Send documentation comments to nexus5kdocs@cisco.com

- DC power supply with front-to-back airflow (N2200-PDC-400W)
- DC power supply with back-to-front airflow (N2200-PDC-350W-B)

For information on these power supplies, see the [“Power Supplies for the Cisco Nexus 2248TP FEX” section on page 2-13](#) and the power supply specifications in the [“Power Specifications” section on page B-1](#). To replace one of these power supplies, see the [“Removing and Installing Power Supplies” section on page 3-17](#).

Fan Tray for the Cisco Nexus 2248TP FEX

The Cisco Nexus 2244TP, 2248TP, and 2248TP-E FEXs use the same fan tray that you can order with either front-to-back airflow (N2K-C2248-FAN) or back-to-front airflow (N2K-C2248-FAN-B).

For information on this fan tray, see the [“Fan Tray for the Cisco Nexus 2248TP-E FEX” section on page 2-7](#) and the fan tray specifications in the [“Environmental Specifications” section on page B-4](#) and the [“Physical Specifications” section on page B-5](#). For LED descriptions, see [Table D-1 on page D-2](#). To replace one of these fan trays, see the [“Removing and Installing the Fan Tray” section on page 3-20](#).

Transceivers and Connectors Supported by the Cisco Nexus 2248TP FEX

The Cisco Nexus 2248TP FEX supports SFP+ Ethernet optical and copper transceivers and optical FEX Transceivers (FETs) for up to four fabric uplink connections to Cisco Nexus 7000 Series switches, and it supports RJ-45 connectors for up to 48 downlink connections to hosts. For each uplink cable, you must use the same transceiver on both ends. [Table 2-2](#) lists the transceivers supported by this FEX for its uplink fabric .

Table 2-4 Supported Transceivers and Connector for the Cisco Nexus 2248TP FEX Uplink Interfaces

| Transceiver or Connector | Cable Type | Fabric Interface (Uplink) | Host Interface (Downlink) | Comments |
|--------------------------|------------|---------------------------|---------------------------|------------------------------------------------------------|
| FET-10G | Optical | X | – | 10 Gbps FEX transceiver |
| SFP-10G-LR | Optical | X | – | 10 Gbps long range transceiver (up to 6.2 miles [10 km]) |
| SFP-10G-SR | Optical | X | – | 10 Gbps Short range transceiver (up to 984 feet [300 m]) |
| SFP -H10GB-CU1M | Copper | X | – | 10 Gbps Twinax, passive transceiver (3.3 feet [1 meter]) |
| SFP -H10GB-CU3M | Copper | X | – | 10 Gbps Twinax, passive transceiver (9.8 feet [3 meters]) |
| SFP -H10GB-CU5M | Copper | X | – | 10 Gbps Twinax, passive transceiver (16.4 feet [5 meters]) |
| SFP -H10GB-ACU7M | Copper | X | – | 10 Gbps Twinax, active transceiver (23.0 feet [7 meters]) |
| SFP -H10GB-ACU10M | Copper | X | – | 10 Gbps Twinax, active transceiver (32.8 feet [10 meters]) |
| RJ-45 | Copper | – | X | 100/1000 Mbps Connector |

[Figure 2-10 on page 2-10](#) shows the SFP+ optical transceiver used for uplink connections. For specifications that apply to these optical transceivers, see the [“SFP+ Optical Transceiver Specifications” section on page B-6](#).

Figure 2-11 on page 2-10 identifies the major features of the SFP+ copper transceiver and cable used for uplink connections. For the cable specifications that apply to these transceivers, see the “SFP+ Copper Transceiver Specifications” section on page B-7.

Figure 2-12 on page 2-11 identifies the major features of RJ-45 connectors, which are used for the downlink connections.

Cisco Nexus 2232TM FEX

The Cisco Nexus 2232TM FEX is a stackable, 1- and 10-Gigabit FEX that has 32 1- and 10-Gbps Ethernet host-facing (downlink) 1/10GBASE-T ports and eight 10-Gbps Ethernet network-facing (uplink) SFP+ ports. It requires a 19-inch (48.26 cm) rack for its installation. Table 2-7 lists its physical characteristics.

Table 2-5 **Physical Characteristics for the Cisco Nexus 2232TM FEX**

| | |
|---------------------|------------------------|
| Dimensions | |
| Width | 17.3 inches (43.94 cm) |
| Depth | 17.7 inches (44.96 cm) |
| Height | 1.72 inches (4.37 cm) |
| Weight ¹ | 18.3 lb (8.3 kg) |

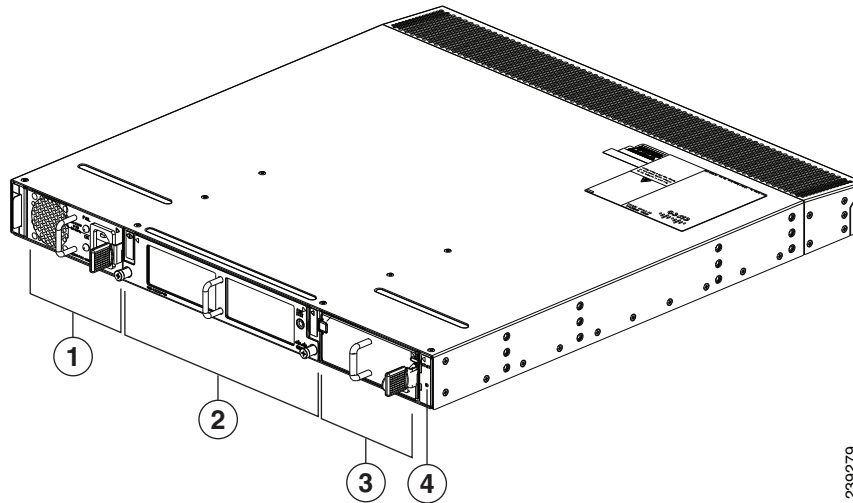
1. Measured with two power supplies and one fan module installed

You can order the Cisco Nexus 2232TM with front-to-back (port-side exhaust) or back-to-front (port-side intake) airflow and with AC or DC power supplies. If you are going to install the port side in a hot aisle, then order front-to-back airflow for the fan trays and power supplies. If you are going to install the port side in the cold aisle, order back-to-front airflow for the fan trays and power supplies.

The front of the Cisco Nexus 2232TM FEX chassis has one or two power supplies, a fan tray, and two LEDs as shown in Figure 2-16. This FEX model requires one power supply, but if you want power redundancy, you must install a second power supply.

Send documentation comments to nexus5kdocs@cisco.com

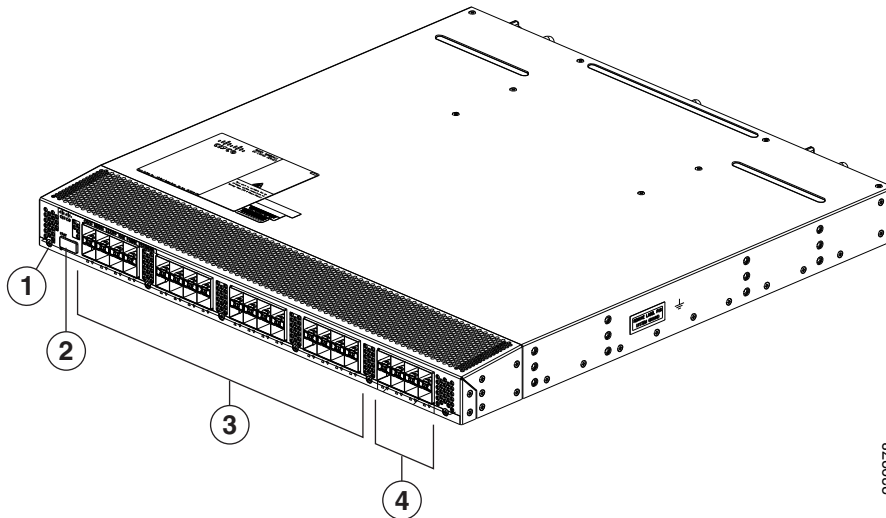
Figure 2-16 Front View of the Cisco Nexus 2232TM Chassis



| | | | |
|----------|--------------|----------|-----------------------------------|
| 1 | Power supply | 3 | Power supply (blank shown) |
| 2 | Fan tray | 4 | Status (top) and ID (bottom) LEDs |

The rear of the Cisco Nexus 2232TM FEX has 32 1- and 10-Gigabit Ethernet downlink ports, eight 10-Gigabit Ethernet uplink ports, an HDMI port, and two LEDs, as shown in [Figure 2-22](#).

Figure 2-17 Rear View of the Cisco Nexus 2232TM Chassis



| | | | |
|----------|-----------------------------------|----------|--------------------------------------------------------------|
| 1 | Status (top) and ID (bottom) LEDs | 3 | 1- and 10-Gigabit host-facing Ethernet (downlink) ports (48) |
| 2 | HDMI port | 4 | 10-Gigabit network-facing Ethernet (uplink) ports (8) |

For LED descriptions, see [Table D-1 on page D-2](#).

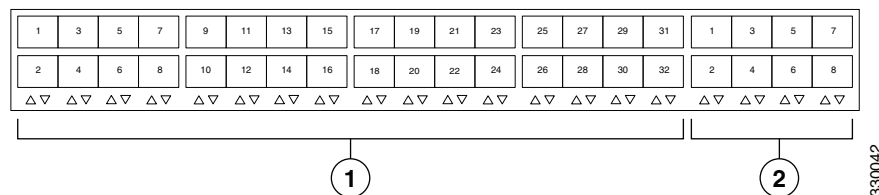
This section includes the following topics:

- [Ports for the Cisco Nexus 2232TM FEX, page 2-17](#)
- [Power Supplies for the Cisco Nexus 2232TM FEX, page 2-17](#)
- [Fan Tray for the Cisco Nexus 2232TM FEX, page 2-18](#)
- [Transceivers and Connectors Supported by the Cisco Nexus 2232TM FEX, page 2-19](#)

Ports for the Cisco Nexus 2232TM FEX

The downlink and uplink ports are numbered from top to bottom and then from left to right as shown in [Figure 2-23](#).

Figure 2-18 Port Numbering on the Cisco Nexus 2232TM FEX



| | | | |
|----------|------------------------------------------------------------------|----------|--------------------------------------------------------|
| 1 | 1- and 10-Gigabit Ethernet downlink ports, numbered 1 through 32 | 2 | 10-Gigabit Ethernet uplink ports, numbered 1 through 8 |
|----------|------------------------------------------------------------------|----------|--------------------------------------------------------|



Note

For a fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module (either the N7K-M132XP-12 or N7K-M132XP-12L), connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX). If you are using the M2 Series 24-port, 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports for a fully dedicated bandwidth. If you are using the F2 Series 48-port, 10-Gigabit Ethernet I/O module (N7K-F248XP-25), use the connectivity rule order (connect the same port numbers for each port group (for example, if you connect ports 1 and 2 of a port-group, then connect the same ports of another port group)).

For information about the transceivers and connectors that you can use with these ports, see the [“Transceivers and Connectors Supported by the Cisco Nexus 2232TM FEX” section on page 2-19](#).

Power Supplies for the Cisco Nexus 2232TM FEX

The Cisco Nexus 2200 Platform FEX chassis have two slots for front-end AC or DC power supplies that have front-to-back or back-to-front airflow. These chassis are fully functional with one power supply, but you can install a second power supply for power redundancy. You can install any of the following power supplies in those two bays:

- AC power supply with front-to-back airflow (N2200-PAC-400W)
- AC power supply with back-to-front airflow (N2200-PAC-400W-B)

Send documentation comments to nexus5kdocs@cisco.com

- DC power supply with front-to-back airflow (N2200-PDC-400W)
- DC power supply with back-to-front airflow (N2200-PDC-350W-B)

If you have only one power supply in a chassis, then you must install a blank filler plate (N2200-P-BLKN) in the open slot to maintain the designed airflow.

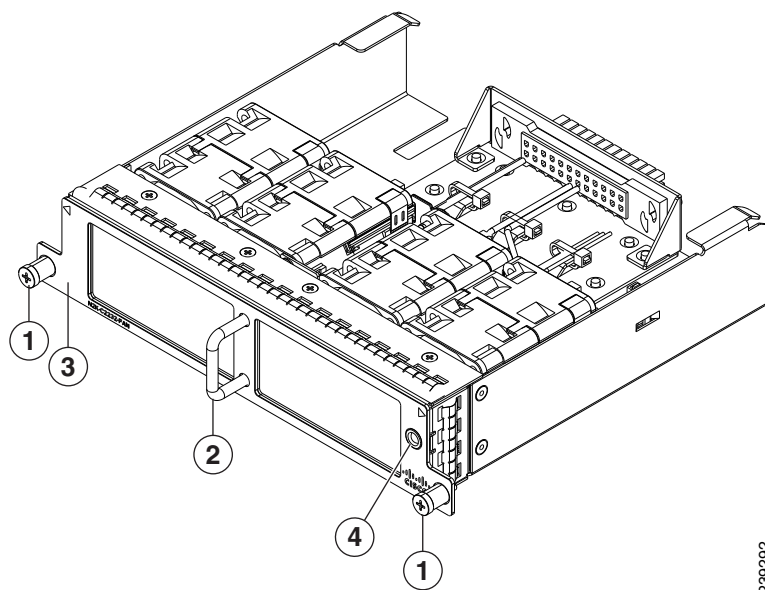
For more information on these power supplies, see the [“Power Supplies for the Cisco Nexus 2248TP-E FEX” section on page 2-4](#) and the power supply specifications in the [“Power Specifications” section on page B-1](#). To replace one of these power supplies, see the [“Removing and Installing Power Supplies” section on page 3-17](#).

Fan Tray for the Cisco Nexus 2232TM FEX

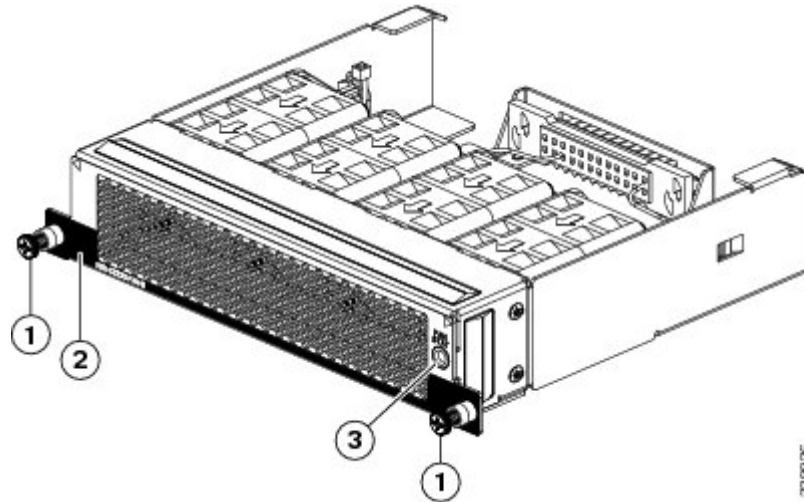
The Cisco Nexus 2232PP and 2232TM FEX use the same fan tray, which you can order with either front-to-back airflow (N2K-C2248-FAN) or back-to-front airflow (N2K-C2248-FAN-B). The fan tray includes a status LED that indicates whether the module is operational. You can hot swap the fan tray during operations as described in the [“Removing and Installing the Fan Tray” section on page 3-20](#).

[Figure 2-19](#) shows the fan tray with front-to-back airflow (no black stripe across the front), and [Figure 2-20](#) shows the fan tray with back-to-front airflow (black stripe across the front).

Figure 2-19 Front-to-Back Airflow Fan Tray for the Cisco Nexus 2232PP and 2232TM FEXs



| | | | |
|---|----------------------------------------------------|---|-------------------------------------------------------------------------|
| 1 | Captive screws (2) | 3 | Front-to-back airflow indicated by a lack of black stripe on the front. |
| 2 | Handle used for removing and installing the module | 4 | Status LED |

Figure 2-20 Back-to-Front Airflow Fan Tray for the Cisco Nexus 2232PP and 2232TM FEXs

| | | | |
|---|----------------------------------------------------|---|-----------------------------------------------------------------|
| 1 | Captive screws (2) | 3 | Back-to-front airflow indicated by a black stripe on the front. |
| 2 | Handle used for removing and installing the module | 4 | Status LED |

For more information on this fan tray, see the fan tray specifications in the [“Environmental Specifications”](#) section on page B-4 and the [“Physical Specifications”](#) section on page B-5. For LED descriptions, see [Table D-1](#) on page D-2. To replace one of these fan trays, see the [“Removing and Installing the Fan Tray”](#) section on page 3-20.

Transceivers and Connectors Supported by the Cisco Nexus 2232TM FEX

The Cisco Nexus 2232TM FEX supports SFP+ Ethernet optical and copper transceivers and optical FEX Transceivers (FETs) for up to eight fabric uplink connections to the following Cisco Nexus 7000 Series switch I/O modules:

- F2 Series 48-port 10-Gigabit I/O module (N7K-F248XP-25)
- M1 Series 32-port, 10-Gigabit Ethernet I/O module (N7K-M132XP-12)
- M1 Series 32-port, 10-Gigabit Ethernet I/O module with XL option (N7K-M132XP-12L)
- M2 Series 24-port 10-Gigabit I/O module (N7K-M224XP-23L)

You must use the same transceivers on both ends of the same uplink cable.



Note

To get the fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module, connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX) and use the shared mode on the I/O module. If you are using the F2 Series 48-port 10-Gigabit Ethernet I/O module (N7K-F248XP-25) or the M2 Series 24-port 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports.

The Cisco Nexus 2232TM FEX also supports RJ-45 connectors for up to 32 downlink connections to hosts. [Table 2-2](#) lists the transceivers supported by this FEX for its uplink and downlink connections.

Send documentation comments to nexus5kdocs@cisco.com

Table 2-6 Supported Transceivers and Connector for the Cisco Nexus 2232TM FEX Uplink Interfaces

| Transceiver or Connector | Cable Type | Fabric Interface (Uplink) | Host Interface (Downlink) | Comments |
|------------------------------|------------|---------------------------|---------------------------|------------------------------------------------------------|
| FET-10G | Optical | X | – | 10 Gbps FEX transceiver |
| SFP-10G-LR | Optical | X | – | 10 Gbps long range transceiver (up to 6.2 miles [10 km]) |
| SFP-10G-SR | Optical | X | – | 10 Gbps Short range transceiver (up to 984 feet [300 m]) |
| SFP -H10GB-CU1M ¹ | Copper | X | – | 10 Gbps Twinax, passive transceiver (3.3 feet [1 meter]) |
| SFP -H10GB-CU3M | Copper | X | – | 10 Gbps Twinax, passive transceiver (9.8 feet [3 meters]) |
| SFP -H10GB-CU5M | Copper | X | – | 10 Gbps Twinax, passive transceiver (16.4 feet [5 meters]) |
| SFP -H10GB-ACU7M | Copper | X | – | 10 Gbps Twinax, active transceiver (23.0 feet [7 meters]) |
| SFP -H10GB-ACU10M | Copper | X | – | 10 Gbps Twinax, active transceiver (32.8 feet [10 meters]) |
| RJ-45 | Copper | – | X | 100/1000 Mbps Connector |

1. The SFP-H10GB-CUxM transceivers are not supported by the M1 Series 32-port 10-Gigabit Ethernet I/O module (N7K-M132XP-12). These transceivers are supported by the other Cisco Nexus 7000 Series I/O modules.

Figure 2-10 on page 2-10 shows the major features of the SFP+ optical transceiver used for uplink connections. For specifications that apply to these optical transceivers, see the “[SFP+ Optical Transceiver Specifications](#)” section on page B-6.

Figure 2-11 on page 2-10 shows the major features of the SFP+ copper transceiver and cable used for uplink connections. For the cable specifications that apply to these transceivers, see the “[SFP+ Copper Transceiver Specifications](#)” section on page B-7.

Figure 2-12 on page 2-11 shows the major features of RJ-45 connectors, which are used for the downlink connections.

Cisco Nexus 2232PP FEX

The Cisco Nexus 2232PP FEX is a stackable 1- and 10-Gigabit FEX that has 32 1- and 10-Gbps Ethernet host-facing (downlink) SFP or SFP+ ports and eight 10-Gbps Ethernet and Fibre Channel over Ethernet (FCoE) network-facing (uplink) SFP+ or FET ports. It requires a 19-inch (48.26 cm) rack for its installation. [Table 2-7](#) lists its physical characteristics.

Table 2-7 Physical Characteristics for the Cisco Nexus 2232PP FEX

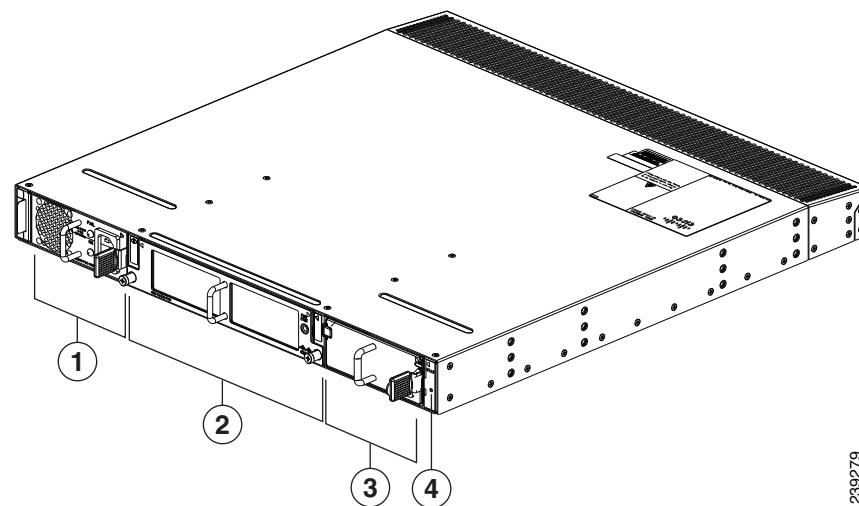
| | |
|---------------------|------------------------|
| Dimensions | |
| Width | 17.3 inches (43.94 cm) |
| Depth | 17.7 inches (44.96 cm) |
| Height | 1.72 inches (4.37 cm) |
| Weight ¹ | 18.3 lb (8.3 kg) |

1. Measured with two power supplies and one fan module installed

You can order the Cisco Nexus 2232PP with front-to-back (port-side exhaust) or back-to-front (port-side intake) airflow and with AC or DC power supplies. If you are going to install the port side in a hot aisle, then order front-to-back airflow for the fan trays and power supplies. If you are going to install the port side in the cold aisle, order back-to-front airflow for the fan trays and power supplies.

The front of the Cisco Nexus 2232PP FEX chassis has one or two power supplies, a fan tray, and two LEDs as shown in Figure 2-21. This FEX model requires one power supply, but if you want power redundancy, you must install a second power supply.

Figure 2-21 Front View of the Cisco Nexus 2232PP Chassis

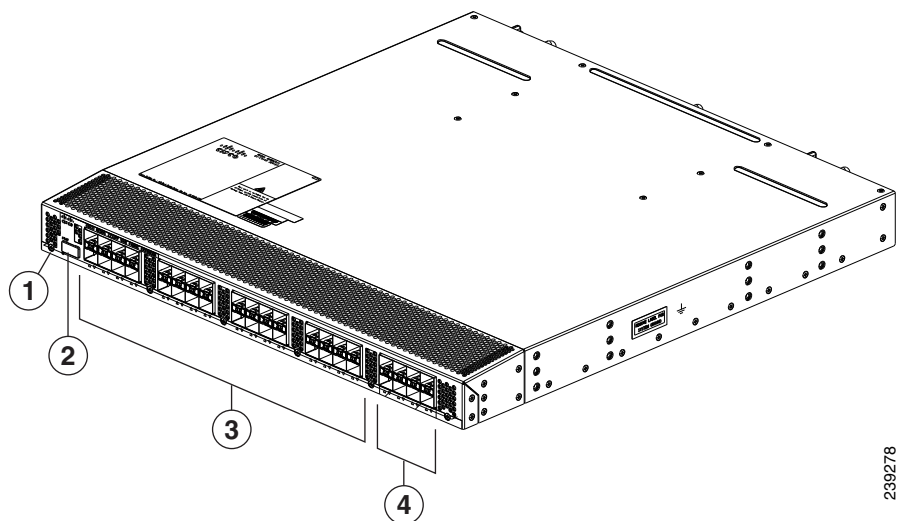


| | | | |
|----------|--------------|----------|-----------------------------------|
| 1 | Power supply | 3 | Power supply (blank shown) |
| 2 | Fan tray | 4 | Status (top) and ID (bottom) LEDs |

The rear of the Cisco Nexus 2232PP FEX has 32 1- and 10-Gigabit Ethernet downlink SFP or SFP+ ports, eight 10-Gigabit Ethernet uplink SFP+ or FET ports, an HDMI port, and two LEDs, as shown in Figure 2-22.

Send documentation comments to nexus5kdocs@cisco.com

Figure 2-22 Rear View of the Cisco Nexus 2232PP Chassis



239278

| | | | |
|----------|-----------------------------------|----------|--------------------------------------------------------------------------|
| 1 | Status (top) and ID (bottom) LEDs | 3 | 1- and 10-Gigabit host-facing Ethernet (downlink) SFP or SFP+ ports (48) |
| 2 | HDMI port | 4 | 10-Gigabit network-facing Ethernet (uplink) SFP+ ports (4) |

For LED descriptions, see [Table D-1 on page D-2](#).

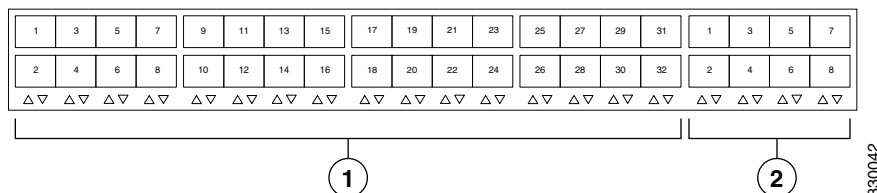
This section includes the following topics:

- [Ports for the Cisco Nexus 2232PP FEX, page 2-22](#)
- [Power Supplies for the Cisco Nexus 2232PP FEX, page 2-23](#)
- [Fan Tray for the Cisco Nexus 2232PP FEX, page 2-23](#)
- [Transceivers Supported by the Cisco Nexus 2232PP FEX, page 2-24](#)

Ports for the Cisco Nexus 2232PP FEX

The downlink and uplink ports are numbered from top to bottom and then from left to right as shown in [Figure 2-23](#).

Figure 2-23 Port Numbering on the Cisco Nexus 2232PP FEX



330042

| | | | |
|----------|------------------------------------------------------------------|----------|--------------------------------------------------------|
| 1 | 1- and 10-Gigabit Ethernet downlink ports, numbered 1 through 32 | 2 | 10-Gigabit Ethernet uplink ports, numbered 1 through 8 |
|----------|------------------------------------------------------------------|----------|--------------------------------------------------------|

**Note**

For a fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module (either the N7K-M132XP-12 or N7K-M132XP-12L), connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX). If you are using the M2 Series 24-port, 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports for a fully dedicated bandwidth. If you are using the F2 Series 48-port, 10-Gigabit Ethernet I/O module (N7K-F248XP-25), use the connectivity rule order (connect the same port numbers for each port group (for example, if you connect ports 1 and 2 of a port-group, then connect the same ports of another port group)).

For information about the transceivers and connectors that you can use with these ports, see the [“Transceivers Supported by the Cisco Nexus 2232PP FEX” section on page 2-24](#).

Power Supplies for the Cisco Nexus 2232PP FEX

The Cisco Nexus 2200 Platform FEX chassis have two slots for front-end AC or DC power supplies that have front-to-back or back-to-front airflow. These chassis are fully functional with one power supply, but you can install a second power supply for power redundancy. You can install any of the following power supplies in those two bays:

- AC power supply with front-to-back airflow (N2200-PAC-400W)
- AC power supply with back-to-front airflow (N2200-PAC-400W-B)
- DC power supply with front-to-back airflow (N2200-PDC-400W)
- DC power supply with back-to-front airflow (N2200-PDC-350W-B)

For information on these power supplies, see the [“Power Supplies for the Cisco Nexus 2248TP FEX” section on page 2-13](#) and the power supply specifications in the [“Power Specifications” section on page B-1](#). To replace one of these power supplies, see the [“Removing and Installing Power Supplies” section on page 3-17](#).

Fan Tray for the Cisco Nexus 2232PP FEX

The Cisco Nexus 2232PP and 2232TM FEX use the same fan tray, which you can order with either front-to-back airflow (N2K-C2232-FAN) or back-to-front airflow (N2K-C2232-FAN-B).

For more information on this fan tray, see the [“Fan Tray for the Cisco Nexus 2232TM FEX” section on page 2-18](#) and the fan tray specifications in the [“Environmental Specifications” section on page B-4](#) and the [“Physical Specifications” section on page B-5](#). For LED descriptions, see [Table D-1 on page D-2](#). To replace one of these fan trays, see the [“Removing and Installing the Fan Tray” section on page 3-20](#).

Send documentation comments to nexus5kdocs@cisco.com

Transceivers Supported by the Cisco Nexus 2232PP FEX

The Cisco Nexus 2232PP FEX supports SFP+ Ethernet optical and copper transceivers and optical FEX Transceivers (FETs) for up to eight fabric uplink connections to the following Cisco Nexus 7000 Series switch I/O modules:

- F2 Series 48-port 10-Gigabit I/O module (N7K-F248XP-25)
- M1 Series 32-port 10-Gigabit Ethernet I/O module (N7K-M132XP-12)
- M1 Series 32-port 10-Gigabit Ethernet I/O module with XL option (N7K-M132XP-12L)
- M2 Series 24-port 10-Gigabit I/O module (N7K-M224XP-23L)

You must use the same transceivers on both ends of the same uplink cable.



Note

To get the fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module, connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX) and use the shared mode on the I/O module. If you are using the F2 Series 48-port 10-Gigabit Ethernet I/O module (N7K-F248XP-25) or the M2 Series 24-port 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports.

The Cisco Nexus 2232TM FEX also supports RJ-45 connectors for up to 32 downlink connections to hosts. [Table 2-2](#) lists the transceivers supported by this FEX for its uplink and downlink connections.

Table 2-8 Supported Transceivers and Connector for the Cisco Nexus 2232TM FEX Uplink Interfaces

| Transceiver or Connector | Cable Type | Fabric Interface (Uplink) | Host Interface (Downlink) | Comments |
|------------------------------|------------|---------------------------|---------------------------|---------------------------------------------------------------|
| FET-10G | Optical | X | – | 10 Gigabit FEX transceiver |
| GLC-LH-SM | Optical | – | X | Gigabit SFP transceiver |
| GLC-SX-MM | Optical | – | X | Gigabit SFP transceiver |
| GLC-T | Copper | – | X | Gigabit SFP transceiver |
| SFP-10G-LR | Optical | X | X | 10 Gigabit long range transceiver (up to 6.2 miles [10 km]) |
| SFP-10G-SR | Optical | X | X | 10 Gigabit Short range transceiver (up to 984 feet [300 m]) |
| SFP-GE-L | Optical | – | X | Gigabit SFP transceiver |
| SFP-GE-S | Optical | – | X | Gigabit SFP transceiver |
| SFP-GE-T | Copper | – | X | Gigabit SFP transceiver |
| SFP -H10GB-CU1M ¹ | Copper | X | X | 10 Gigabit Twinax, passive transceiver (3.3 feet [1 meter]) |
| SFP -H10GB-CU3M ¹ | Copper | X | X | 10 Gigabit Twinax, passive transceiver (9.8 feet [3 meters]) |
| SFP -H10GB-CU5M ¹ | Copper | X | X | 10 Gigabit Twinax, passive transceiver (16.4 feet [5 meters]) |
| SFP -H10GB-ACU7M | Copper | X | X | 10 Gigabit Twinax, active transceiver (23.0 feet [7 meters]) |
| SFP -H10GB-ACU10M | Copper | X | X | 10 Gigabit Twinax, active transceiver (32.8 feet [10 meters]) |

1. The SFP-H10GB-CUxM transceivers are not supported by the M1 Series 32-port 10-Gigabit Ethernet I/O module (N7K-M132XP-12). These transceivers are supported by the other Cisco Nexus 7000 Series I/O modules.

Figure 2-10 on page 2-10 shows the major features of the SFP+ optical transceiver used for uplink connections. For specifications that apply to these optical transceivers, see the “SFP+ Optical Transceiver Specifications” section on page B-6.

Figure 2-11 on page 2-10 shows the major features of the SFP+ copper transceiver and cable used for uplink connections. For the cable specifications that apply to these transceivers, see the “SFP+ Copper Transceiver Specifications” section on page B-7.

Figure 2-12 on page 2-11 shows the major features of RJ-45 connectors, which are used for the downlink connections.

Cisco Nexus 2224TP FEX

The Cisco Nexus 2224TP FEX is a stackable Gigabit Ethernet FEX that has 24 100/1000BASE-T Ethernet host-facing (downlink) RJ-45 ports and two 10-Gigabit Ethernet network-facing (uplink) SFP+ ports. It requires a 19-inch (48.26 cm) rack for its installation. Table 2-9 lists its physical characteristics.

Table 2-9 Physical Characteristics for the Cisco Nexus 2224TP FEX

| | |
|---------------------|------------------------|
| Dimensions | |
| Width | 17.3 inches (43.94 cm) |
| Depth | 17.7 inches (44.96 cm) |
| Height | 1.72 inches (4.37 cm) |
| Weight ¹ | 16.6 lb (7.53 kg) |

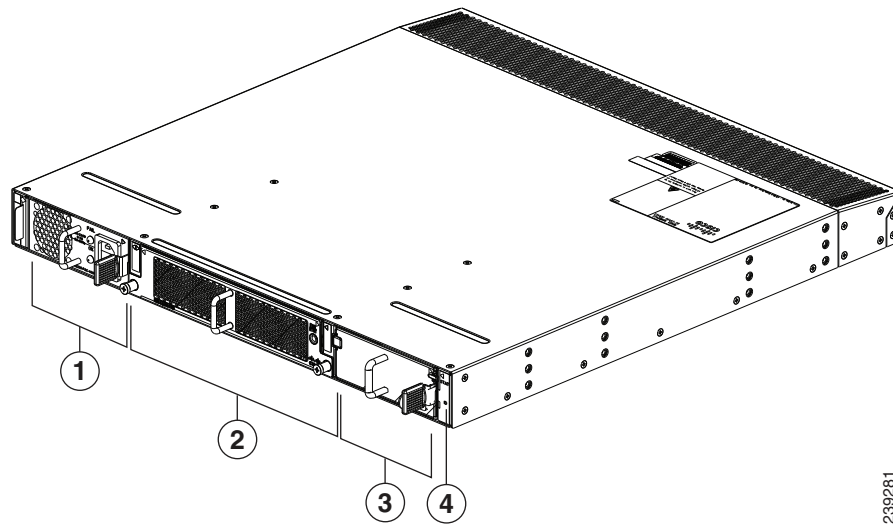
1. Measured with two power supplies and one fan module installed.

You can order the Cisco Nexus 2224TP FEX with front-to-back (port-side exhaust) or back-to-front (port-side intake) airflow and with AC or DC power supplies. If you are going to install the port side in a hot aisle, then order front-to-back airflow for the fan trays and power supplies. If you are going to install the port side in the cold aisle, order back-to-front airflow for the fan trays and power supplies.

The front of the Cisco Nexus 2224TP FEX chassis has one or two power supplies, a fan tray, and two LEDs as shown in Figure 2-24. This FEX model requires one power supply, but if you want power redundancy, you must install a second power supply.

Send documentation comments to nexus5kdocs@cisco.com

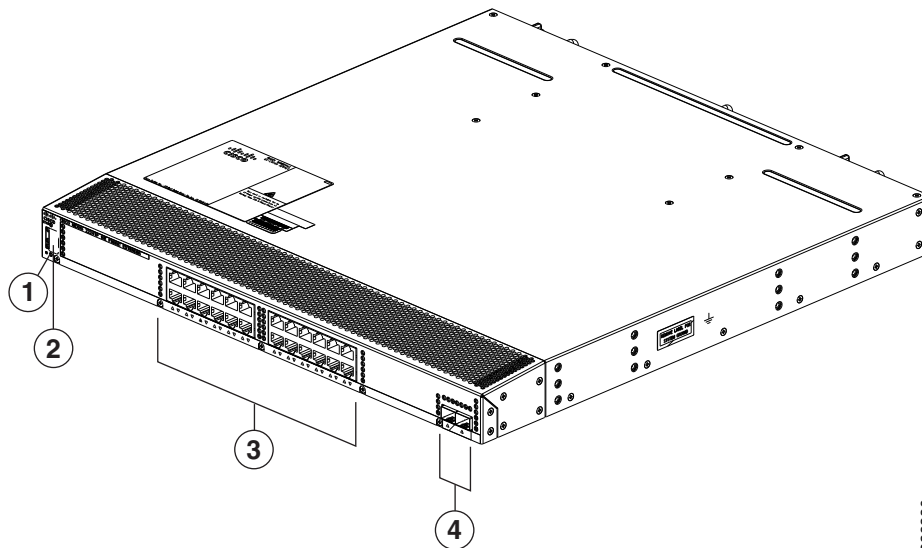
Figure 2-24 Front View of the Cisco Nexus 2224TP Chassis



| | | | |
|----------|--------------|----------|-----------------------------------|
| 1 | Power supply | 3 | Power supply (blank shown) |
| 2 | Fan tray | 4 | Status (top) and ID (bottom) LEDs |

The rear of the Cisco Nexus 2224TP FEX has 24 100/1000 BASE-T Ethernet downlink ports, two 10-Gigabit Ethernet uplink ports, an HDMI port, and LEDs, as shown in [Figure 2-25](#).

Figure 2-25 Rear View of the Cisco Nexus 2224TP Chassis



| | | | |
|----------|-----------------------------------|----------|---------------------------------------|
| 1 | Status (top) and ID (bottom) LEDs | 3 | 100/1000 Ethernet downlink ports (24) |
| 2 | HDMI port | 4 | 10-Gigabit Ethernet uplink ports (2) |

For LED descriptions, see [Table D-1 on page D-2](#).

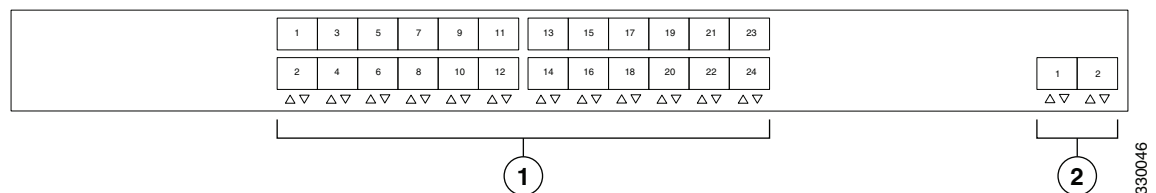
This section includes the following topics:

- [Ports for the Cisco Nexus 2224TP FEX, page 2-27](#)
- [Power Supplies for the Cisco Nexus 2224TP FEX, page 2-27](#)
- [Fan Tray for the Cisco Nexus 2224TP FEX, page 2-28](#)
- [Transceivers and Connectors Supported by the Cisco Nexus 2224TP FEX, page 2-28](#)

Ports for the Cisco Nexus 2224TP FEX

The downlink and uplink ports are numbered from top to bottom and then from left to right as shown in [Figure 2-26](#).

Figure 2-26 Port Numbering on the Cisco Nexus 2224TP FEX



| | | | |
|----------|------------------------------------------------------------------|----------|--------------------------------------------------------|
| 1 | 1- and 10-Gigabit Ethernet downlink ports, numbered 1 through 24 | 2 | 10-Gigabit Ethernet uplink ports, numbered 1 through 2 |
|----------|------------------------------------------------------------------|----------|--------------------------------------------------------|



Note

For a fully dedicated 10-Gbps bandwidth through a M1 Series 32-port 10-Gigabit Ethernet I/O module (either the N7K-M132XP-12 or N7K-M132XP-12L), connect each FEX to one port in a set of four shared ports on the module (you connect each set of shared ports to one FEX). If you are using the M2 Series 24-port, 10-Gigabit Ethernet I/O module (N7K-M224XP-23L), you can connect the FEX to any of its ports for a fully dedicated bandwidth. If you are using the F2 Series 48-port, 10-Gigabit Ethernet I/O module (N7K-F248XP-25), use the connectivity rule order (connect the same port numbers for each port group (for example, if you connect ports 1 and 2 of a port-group, then connect the same ports of another port group)).

For information about the transceivers and connectors that you can use with these ports, see the [“Transceivers and Connectors Supported by the Cisco Nexus 2224TP FEX” section on page 2-28](#).

Power Supplies for the Cisco Nexus 2224TP FEX

The Cisco Nexus 2200 Platform FEX chassis have two slots for front-end AC or DC power supplies that have front-to-back or back-to-front airflow. These chassis are fully functional with one power supply, but you can install a second power supply for power redundancy. You can install any of the following power supplies in those two bays:

- AC power supply with front-to-back airflow (N2200-PAC-400W)
- AC power supply with back-to-front airflow (N2200-PAC-400W-B)

Send documentation comments to nexus5kdocs@cisco.com

- DC power supply with front-to-back airflow (N2200-PDC-400W)
- DC power supply with back-to-front airflow (N2200-PDC-350W-B)

For information on these power supplies, see the [“Power Supplies for the Cisco Nexus 2248TP FEX” section on page 2-13](#) and the power supply specifications in the [“Power Specifications” section on page B-1](#). To replace one of these power supplies, see the [“Removing and Installing Power Supplies” section on page 3-17](#).

Fan Tray for the Cisco Nexus 2224TP FEX

The Cisco Nexus 2224TP, 2248TP, and 2248TP-E FEXs use the same fan tray that you can order with either front-to-back airflow (N2K-C2248-FAN) or back-to-front airflow (N2K-C2248-FAN-B).

For information on this fan tray, see the [“Fan Tray for the Cisco Nexus 2248TP FEX” section on page 2-14](#) and the fan tray specifications in the [“Environmental Specifications” section on page B-4](#) and the [“Physical Specifications” section on page B-5](#). For LED descriptions, see [Table D-1 on page D-2](#). To replace one of these fan trays, see the [“Removing and Installing the Fan Tray” section on page 3-20](#).

Transceivers and Connectors Supported by the Cisco Nexus 2224TP FEX

The Cisco Nexus 2224TP FEX supports SFP+ Ethernet optical and copper transceivers and optical FEX Transceivers (FETs) for up to four fabric uplink connections to Cisco Nexus 7000 Series switches, and it supports RJ-45 connectors for up to 48 downlink connections to hosts. For each uplink cable, you must use the same transceiver on both ends. [Table 2-2](#) lists the transceivers supported by this FEX for its uplink fabric .

Table 2-10 Supported Transceivers and Connector for the Cisco Nexus 2224TP FEX Uplink Interfaces

| Transceiver or Connector | Cable Type | Fabric Interface (Uplink) | Host Interface (Downlink) | Comments |
|--------------------------|------------|---------------------------|---------------------------|------------------------------------------------------------|
| FET-10G | Optical | X | – | 10 Gbps FEX transceiver |
| SFP-10G-LR | Optical | X | – | 10 Gbps long range transceiver (up to 6.2 miles [10 km]) |
| SFP-10G-SR | Optical | X | – | 10 Gbps Short range transceiver (up to 984 feet [300 m]) |
| SFP -H10GB-CU1M | Copper | X | – | 10 Gbps Twinax, passive transceiver (3.3 feet [1 meter]) |
| SFP -H10GB-CU3M | Copper | X | – | 10 Gbps Twinax, passive transceiver (9.8 feet [3 meters]) |
| SFP -H10GB-CU5M | Copper | X | – | 10 Gbps Twinax, passive transceiver (16.4 feet [5 meters]) |
| SFP -H10GB-ACU7M | Copper | X | – | 10 Gbps Twinax, active transceiver (23.0 feet [7 meters]) |
| SFP -H10GB-ACU10M | Copper | X | – | 10 Gbps Twinax, active transceiver (32.8 feet [10 meters]) |
| RJ-45 | Copper | – | X | 100/1000 Mbps Connector |

[Figure 2-10 on page 2-10](#) shows the SFP+ optical transceiver used for uplink connections. For specifications that apply to these optical transceivers, see the [“SFP+ Optical Transceiver Specifications” section on page B-6](#).

[Figure 2-11 on page 2-10](#) identifies the major features of the SFP+ copper transceiver and cable used for uplink connections. For the cable specifications that apply to these transceivers, see the “[SFP+ Copper Transceiver Specifications](#)” section on [page B-7](#).

[Figure 2-12 on page 2-11](#) identifies the major features of RJ-45 connectors, which are used for the downlink connections.

Send documentation comments to nexus5kdocs@cisco.com