Cisco 8600 Series Routers Overview

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Cisco 8608

The Cisco 8608 is a Q200-based, 7-RU router that provides 12.8Tbps of network bandwidth and supports centralized architecture. The centralized architecture combines the best aspects of distributed and fixed systems. Cisco 8608 has combined the redundancy and I/O diversity of distributed systems with the economics and simple elegance of fixed platforms. As a result, Cisco 8608 delivers redundancy at an optimized cost while enabling flexibility and expandability through generational continuity.

The front of the chassis has the following:

- Route Processors (RP) Cards- Two RP cards that contain the CPU complex for managing the system.

- Modular Port Adapters (MPAs) - Eight pluggable MPAs.

Figure 1: Cisco 8608 - Front View
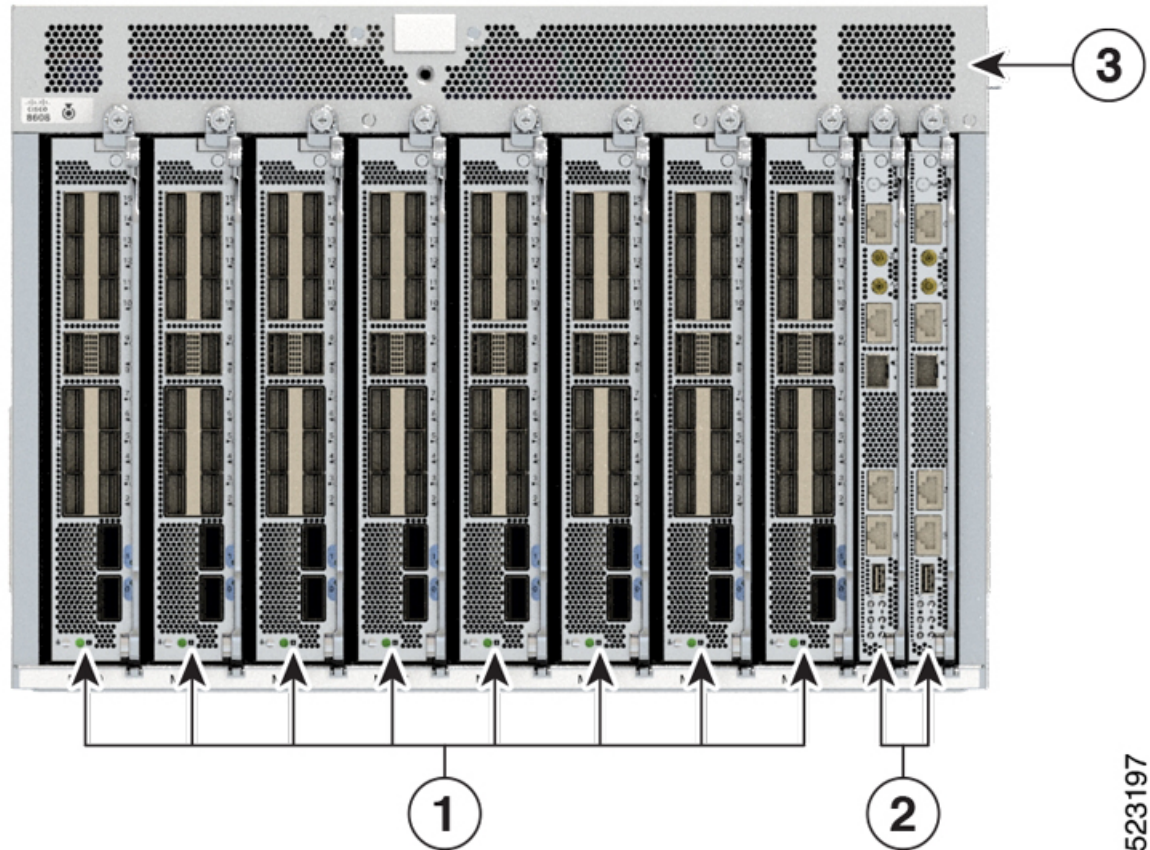
1	Modular Port Adaptors (MPAs)
2	Route Processors (RPs)
3	Chassis

The rear of the chassis has the following:

- Switch Cards (SCs) - The two Switch Cards (SC0 and SC1) are horizontally mounted cards that include the forwarding engine using Q200 silicon.

- Power Modules - Four 3.2KW power modules operate at 220V capacity, providing N+N power redundancy. They also support operation at 110V with half of the capacity. The DC power modules are dual feed with 3.0 KW capacity. The power modules support port-side-intake (PSI) airflow direction and different AC/DC inputs capabilities.

- Fan Trays - Eight 80mm counter-rotating double-fan trays providing 7+1 redundancy. The 8 fan modules are installed in the SC and provide system cooling via a front to back cooling mechanism. The fan modules can be removed individually or altogether (with the SC card).

Figure 2: Cisco 8608 - Rear View
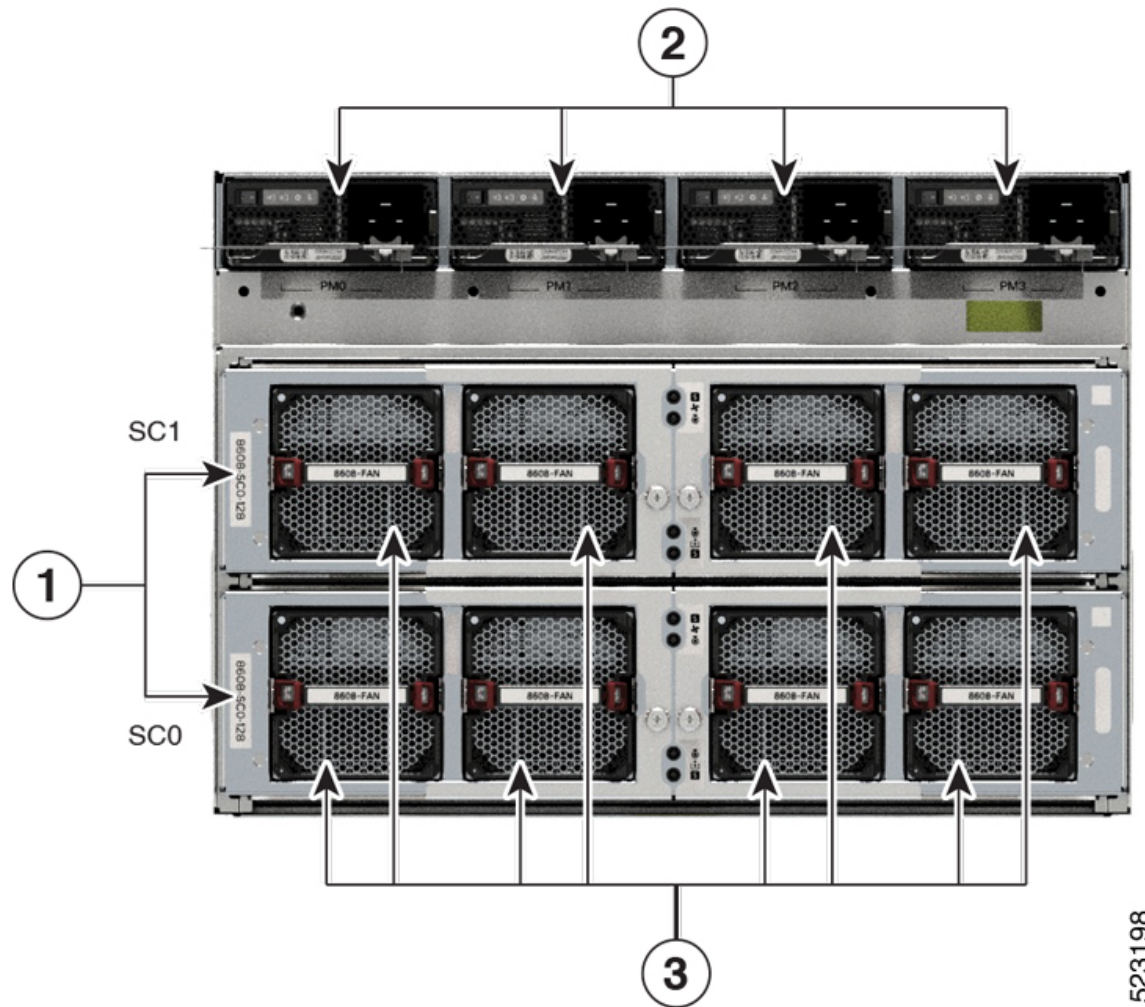
1	Switch cards
2	Power modules
3	Fan modules

The following table describes the Cisco 8608 router components, and the supported quantity.

Table 1: Cisco 8608 Router Components

Component	Quantity
Modular Port Adapter (MPA)	8
Route Processor (RP)	2
Switch Card	2

Component	Quantity
Fan module	8
Power module	4 AC or 4 DC
Fan spinner	1 **Note** If you have one SC installed in the chassis, then the other SC slot is replaced by a fan spinner. The fan spinner is always installed inside the SC1 slot.

Modular Port Adapters Overview

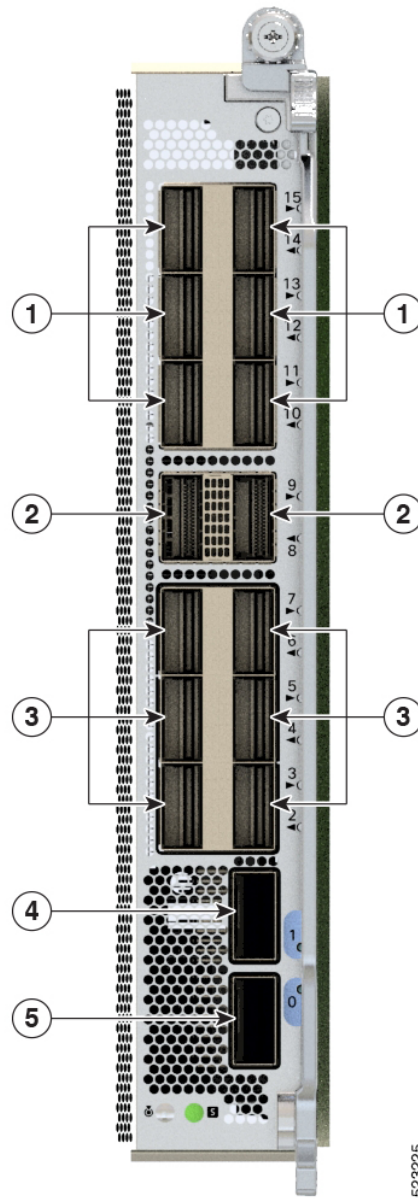Cisco 8600 Series Routers support the following Modular Port Adapters (MPAs):

Table 2: Supported MPAs on Cisco 8608 Router

MPA PIDs	Transceivers
86-MPA-14H2FH-M	QSFP-DD/QSFP
86-MPA-24Z-M	SFP
86-MPA-4FH-M	QSFP-DD

86-MPA-14H2FH-M

The following image explains the port details of the MPA:

Figure 3: 86-MPA-14H2FH-M Port Details

1	QSFP (Ports 10, 11, 12, 13, 14, and 15)
2	QSFP (Ports 8 and 9)
3	QSFP (Ports 2, 3, 4, 5, 6, and 7)
4	QSFP-DD (Port 1)
5	QSFP-DD (Port 0)

The 86-MPA-14H2FH-M is a pluggable card that provides 16 interface ports that can support up to:

- 2 ports of QSFP-DD 400GbE modules and 14 ports of QSFP

  or

- 16 ports of QSFP 100GbE modules

When port 0 has a 400G QSFP-DD, then the other three ports (2, 3, 4) cannot be used. Similarly, when port 1 has a 400G QSFP-DD, then the other three ports (5, 6, 7) cannot be used.

86-MPA-24Z-M

The following image displays the MPA PID and explains the port configuration details of the MPA:
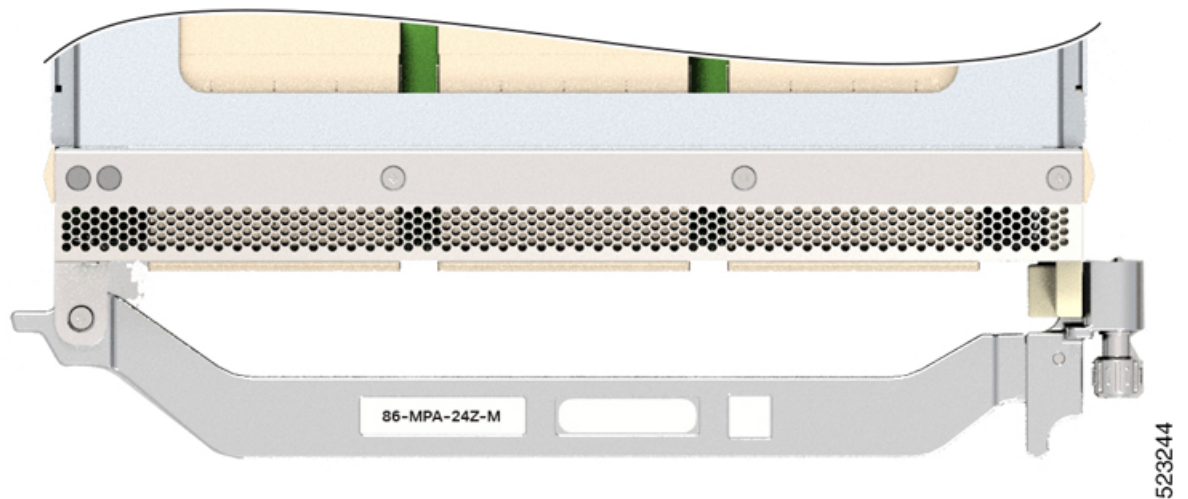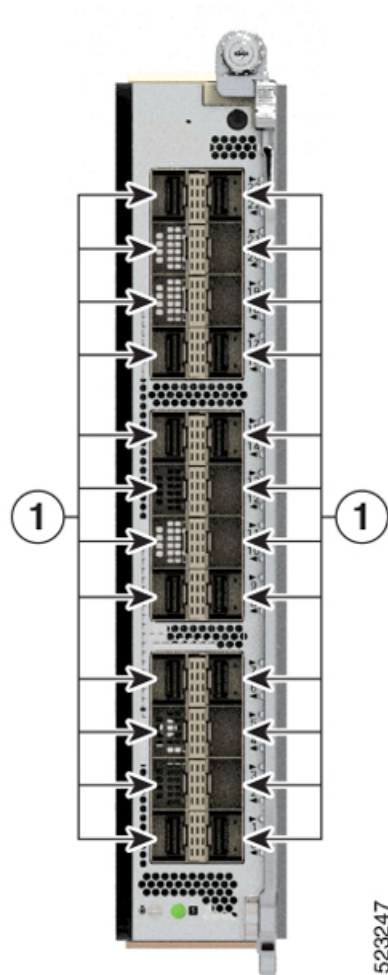
Figure 4: 86-MPA-24Z-M Handle

Figure 5: 86-MPA-24Z-M Port Details

1	SFP (Port 0 to 23)
Left row (even-numbered ports)	Ports 0, 2, 4, 6, 8, 10, 14, 16, 18, 20, 22
Right row (odd-numbered ports)	Ports 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23

Note You must set the N and N+1 ports on 86-MPA-24Z-M at a common speed, either at 10 GbE or 25 GbE. The router doesn't support mixed optics speed for paired N and N+1 ports. If you insert optics with different speeds in the N and N+1 ports, you must first set the ports at a common optics speed and then reload the MPA.

86-MPA-4FH-M

The following image displays the MPA PID and explains the port details of the MPA:
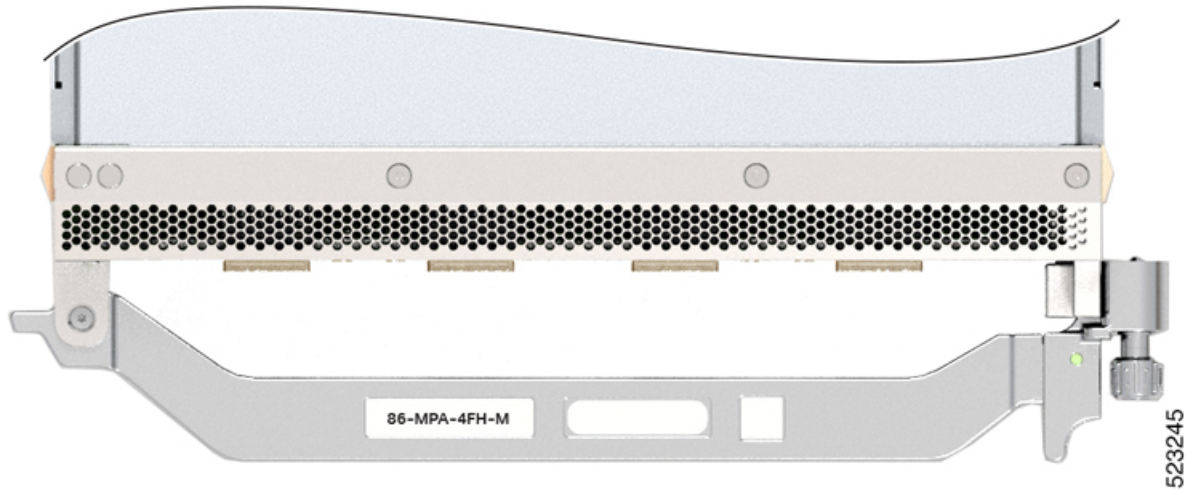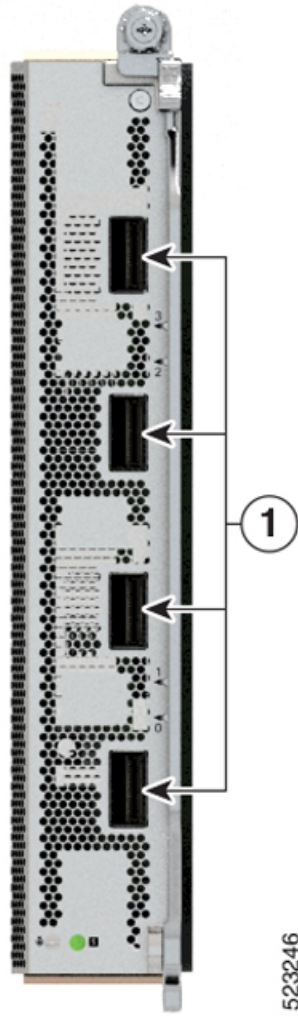
Figure 6: 86-MPA-4FH-M Handle

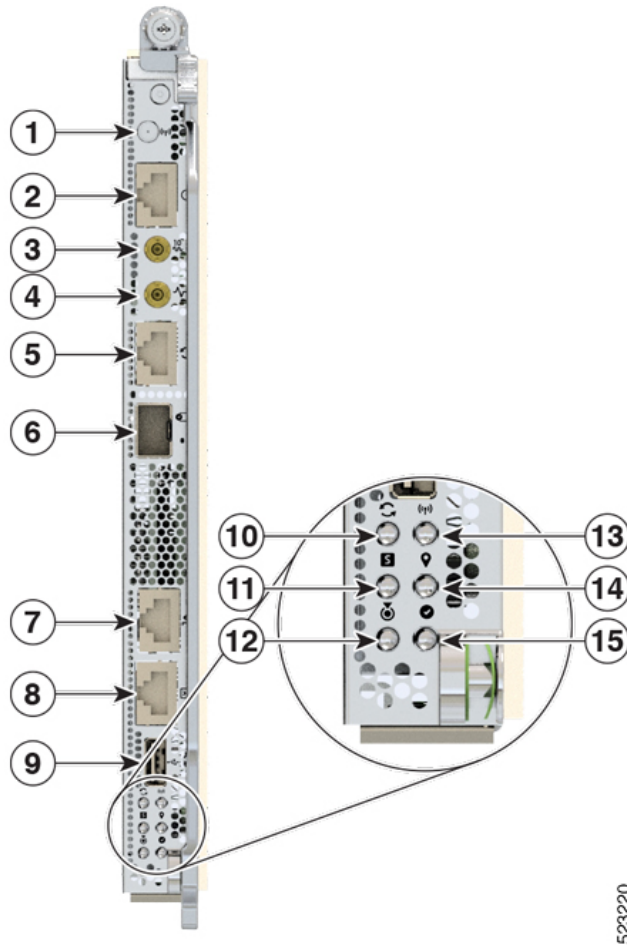*Figure 7: 86-MPA-4FH-M Port Details*

1 Right row (even and odd-numbered ports)	QSFP-DD (Ports 0 to 3)

Route Processor Overview

The Route Processors (RPs) (8608-RP) manages all routing operations on the Cisco 8600 Series Routers.

Figure 8: Route Processor - Front View

1	GNSS Antenna	9	USB 3.0
2	Shielded RJ-45 connector for Time-of-Day (TOD) interface, input and output	10	Sync
3	Mini coaxial connector for 10 MHz, input and output	11	Status
4	Mini coaxial connector for 1 PPS, input and output	12	Attention
5	RJ-48 connector for BITS interface, input and output	13	GNSS
6	SFP+ SyncE 1588	14	GPS
7	Management Ethernet	15	Active
8	Console		

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Caution   The mini coaxial connectors for 10 MHz and 1 PPS have a knurled portion that you must hold to plug or unplug the connector cable. Pulling the cables can damage the connectors.

Switch Card Overview

The Cisco 8600 series routers are powered by the Cisco Silicon One Q200 series processors.

Cisco 8608 Q200 Silicon-based router comes with two Switch Cards (SCs) that provide 12.8Tbps of switching capacity and the SCs provide a bandwidth of 1.6Tbps to each of the eight MPAs.

Figure 9: Switch Card

The SC is installed in the rear of the chassis. The eight fan trays are installed into the SC, each SC has four fan trays. If you need to remove or replace the SC, we recommend that you remove the fan trays.
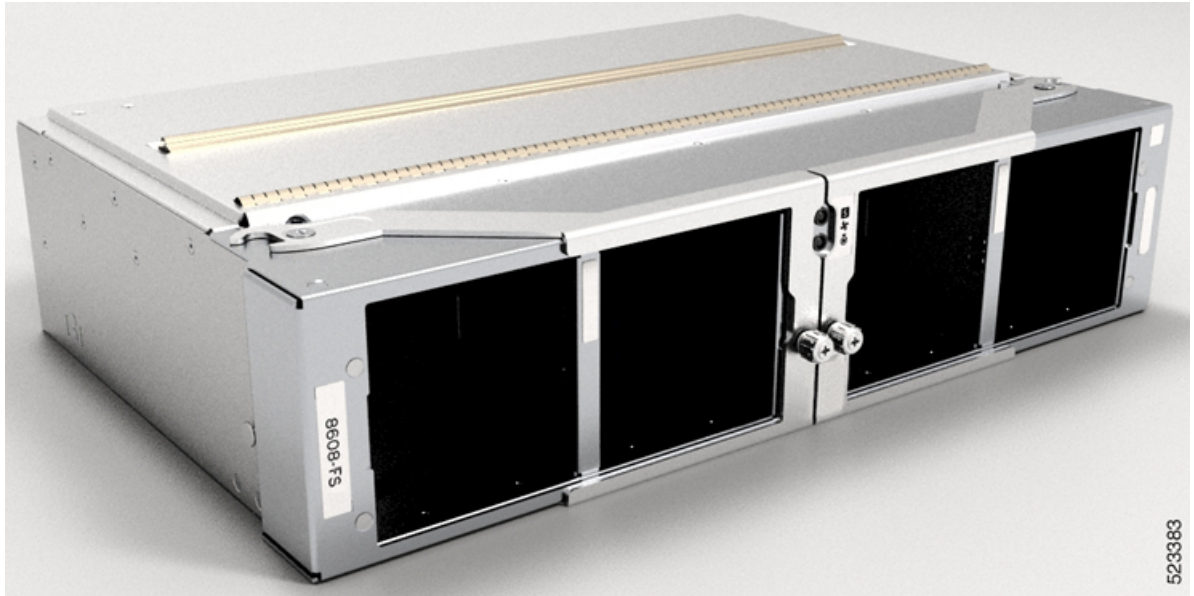
Fan Spinner Overview

The Fan Spinner is installed in the rear of the chassis. The four fan trays are installed into the Fan Spinner. If you need to remove or replace the Fan Spinner, we recommend that you remove the fan trays.

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Note   A Fan Spinner is always installed into the SC1 slot.

Figure 10: Fan Spinner

Temperature and Physical Specifications

For temperature and physical specifications, refer to the *Physical characteristics* table in the Cisco 8608 Router Data Sheet.

Weight and Power Consumption

For weight and power consumption, refer to the *Physical characteristics* table in the Cisco 8608 Router Data Sheet.

Airflow Direction

The airflow through the fan trays and power supplies on the Cisco 8600 series routers are from front to back (port side intake).

To ensure proper airflow for the router in your facility, position the router with its air intake on a cold aisle and the air exhaust on a hot aisle.

Maximum Power Available to Router

The maximum power available to the router depends on the following factors:

• the input power from your power source

• the number of Power Supply Units (PSUs)

- the output capabilities of the PSUs

- the power redundancy mode that you use

The following table lists the amount of power available for Cisco 8600 series routers from all available power trays.

Table 3: Maximum Power Available

Number of PSUs	Combined Mode in Watts (No redundancy)	N+1 Redundancy Mode in Watts (with Single Supply Loss)
1	3190	—
2	6380	3190
3	9570	6380
4	12760	9570

Supported Optics

Note   To determine which transceivers and cables are supported by this router, refer to the Transceiver Module Group (TMG) Compatibility Matrix Tool:

https://tmgmatrix.cisco.com/

- For QSFP-DD data sheets, refer to the Cisco 400G QSFP-DD Cable and Transceiver Modules Data Sheet.

- For QSFP28 data sheets, refer to the Cisco 100GBASE QSFP-100G Modules Data Sheet.

- For QSFP+ data sheets, refer to the Cisco 40GBASE QSFP Modules Data Sheet.

- For SFP data sheets, refer to the Cisco 50GBASE SFP56 Modules Data Sheet

- For SFP28 data sheets, refer to the Cisco 25GBASE SFP28 Modules Data Sheet