

QFX5250 Switch Hardware Guide

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QFX5250 Switch Hardware Guide

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About This Guide

Use this guide to install hardware and perform initial software configuration, routine maintenance, and troubleshooting for the QFX5250 Switch.

After completing the installation and basic configuration procedures covered in this guide, refer to the Junos OS Evolved documentation for information about further software configuration.

Documentation Conventions

For information about the notice icons and text and syntax conventions used in the documentation, see [Documentation Conventions](#).

1

CHAPTER

Fast Track: Initial Installation

IN THIS CHAPTER

- [Fast Track to Rack Installation and Power | 2](#)
 - [Claim, Onboard, and Configure QFX5250 | 10](#)
-

Fast Track to Rack Installation and Power

SUMMARY

This procedure guides you through the simplest steps to install your QFX5250 Switch in a rack and connect it to power. Have more complex installation needs? See ["Install the QFX5250 Switch" on page 66](#).

IN THIS SECTION

- [Install QFX5250 Liquid-Cooled Switch \(2OU\) in ORv3 Rack | 2](#)
- [Connect to Power | 8](#)



The QFX5250-64OE-L, a liquid-cooled model of the Juniper Networks® QFX5250 switch, is designed for installation on an ORv3 rack.

Follow these steps to install the QFX5250 switch.

Install QFX5250 Liquid-Cooled Switch (2OU) in ORv3 Rack

Before you install the switch in an ORv3 rack, make sure you complete the following steps:

- Check that your site meets all the requirements listed in the switch's site preparation checklist.
- Place the rack in its final spot and leave enough space around it for maintenance.
- Secure the rack to the building structure.
- For the liquid-cooling system, ensure that the following are in place before installing the switch:
 - The Cooling Distribution Unit (CDU) or centralized cooling system should be connected and working.
 - The inlet and outlet UQDB06 sockets on the ORv3 rack manifolds and the inlet and outlet UQDB06 plugs on QFX5250 must be uncapped.



NOTE: On successful installation, the UQDB06 inlet and outlet plugs on the QFX5250 switch blind-mates with the corresponding UQDB06 sockets on the ORv3 rack inlet and outlet manifolds.

- Maintain the recommended flow rate specifications. See [Table 23 on page 58](#).
- On first installation, verify that the nitrogen in the coolant lines is automatically bled when the system powers on.
- Read [General Safety Guidelines and Warnings](#), with particular attention to [Chassis and Component Lifting Guidelines](#).

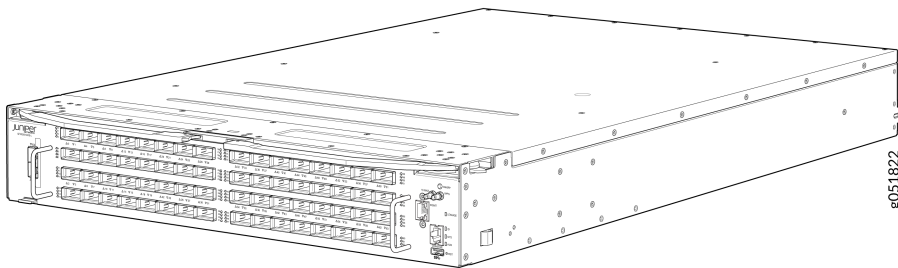


CAUTION: If the QFX5250 switch is installed on an ORv3 rack, do not touch or open the ejector levers. Doing so will cause the QFX5250 switch to enter a non-operational state. If this occurs, fully disengage the QFX5250 switch and reinstall it on the ORv3 rack. For a detailed overview on the usage of chassis levers, please see "[Ejector Lever Operation Guidelines](#)" on page 69.

To install the switch in an ORv3 rack:

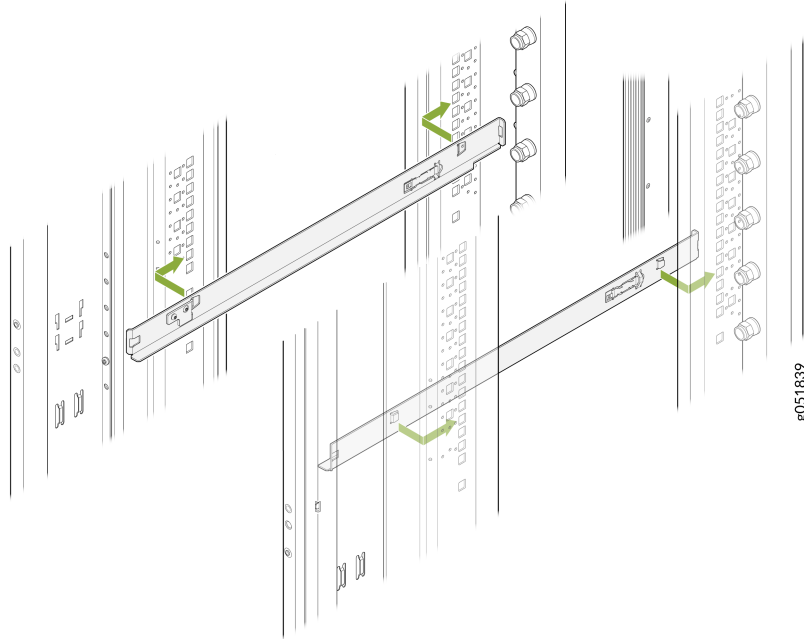
1. Remove the switch from shipping carton. See [Figure 17 on page 72](#).

Figure 1: QFX5250-64OE-L Switch



2. Place the switch on a flat, stable surface.
3. Align the rails and secure the rails in place on your ORv3 rack. See [Figure 2 on page 4](#)

Figure 2: Align the Rails in ORv3 Rack

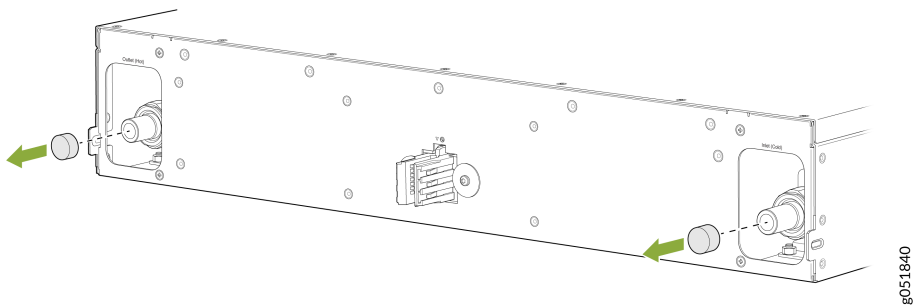


i **NOTE:** Rails are not provided with the switch.

i **NOTE:** You must use 1OU standard rails to install the 2OU QFX5250 liquid-cooled switches on ORv3 racks.

4. Remove the caps on the UQDB06 plugs on the switch for coolant inlet and outlet from the ORv3 rack manifolds.

Figure 3: Remove the Caps on the Liquid Inlet and Outlet UQDB06 Plugs

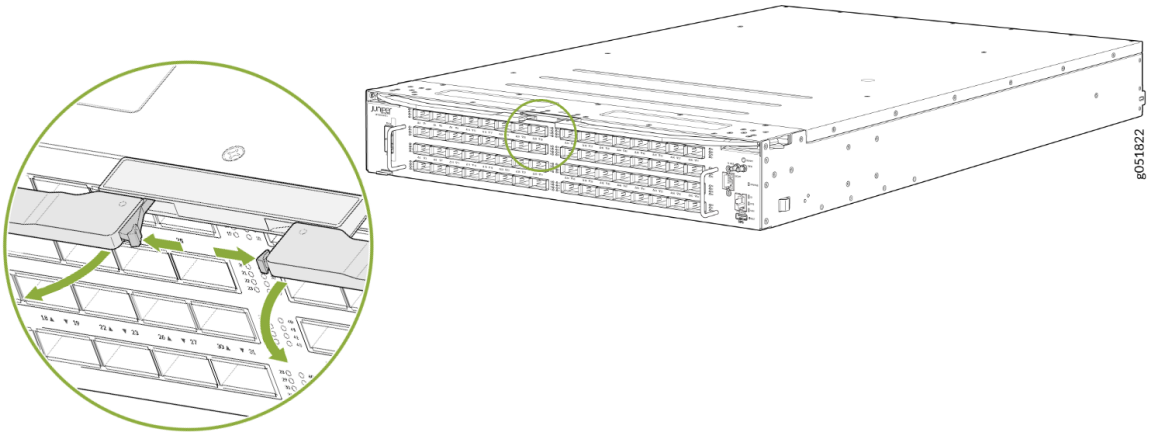


5. Press the push button on both ejector levers to release the ejector lock.



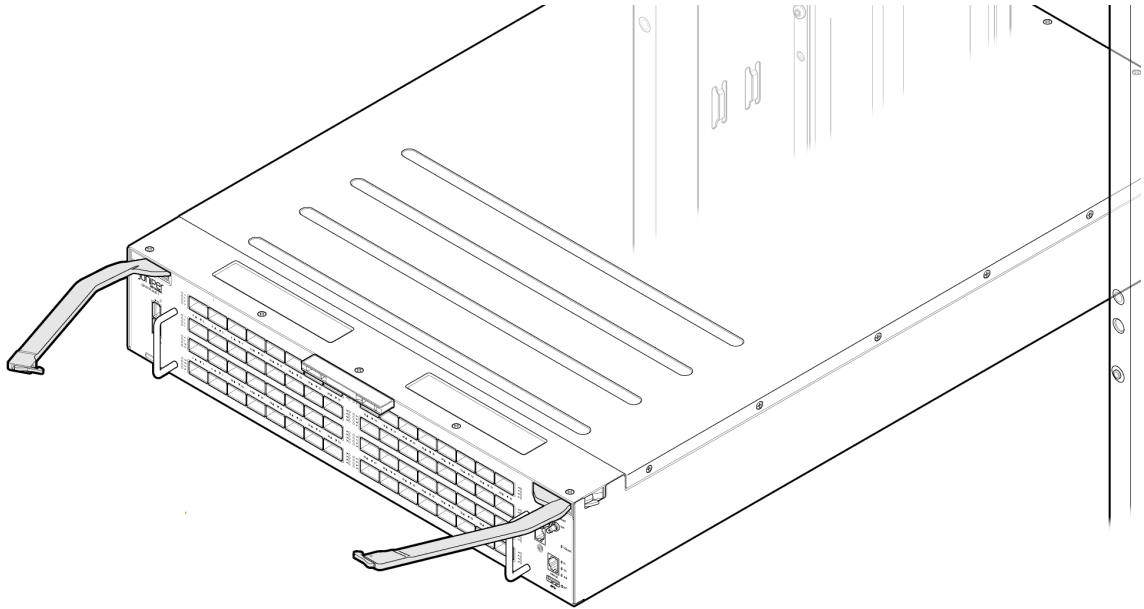
NOTE: Ensure that both ejector levers are opened together.

Figure 4: Press the Push Button



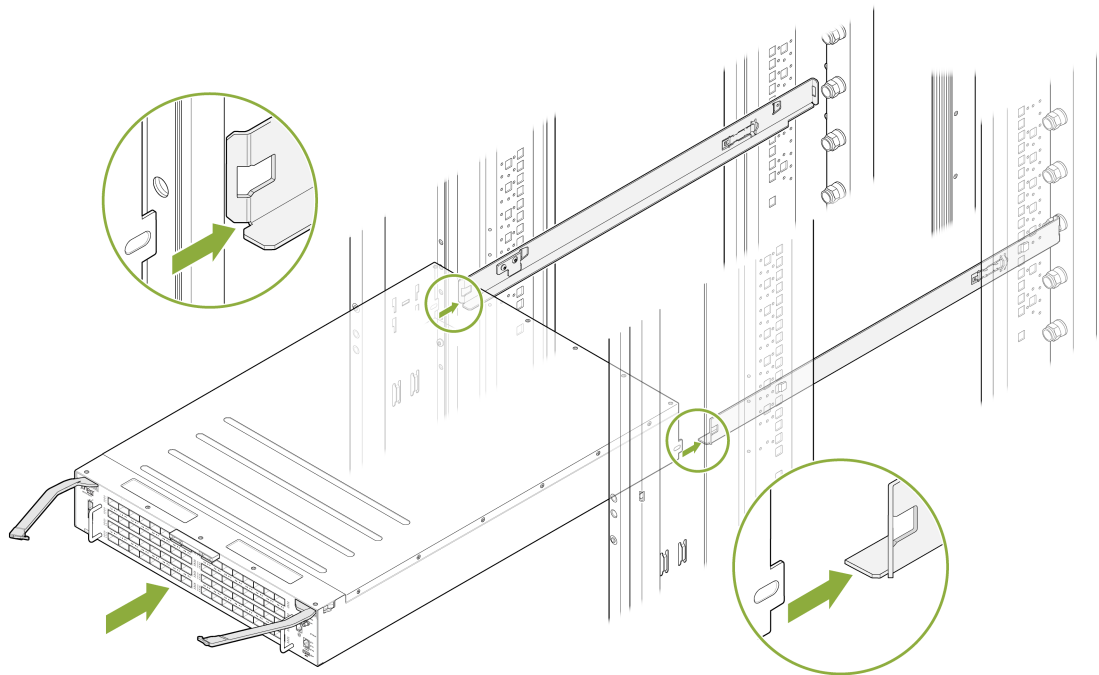
6. Pull the ejector levers outward to the open position.

Figure 5: Switch Ejector Levers in Open Position



7. Carefully align the switch with the rails in the rack and slide the switch into the rack. See [Figure 22 on page 75](#).

Figure 6: Slide the Switch into the Rack



8. Close the ejector levers inward and lock them on the front panel of the switch. The IT Gear Input Connector at the rear of the switch fully engages with the busbar.

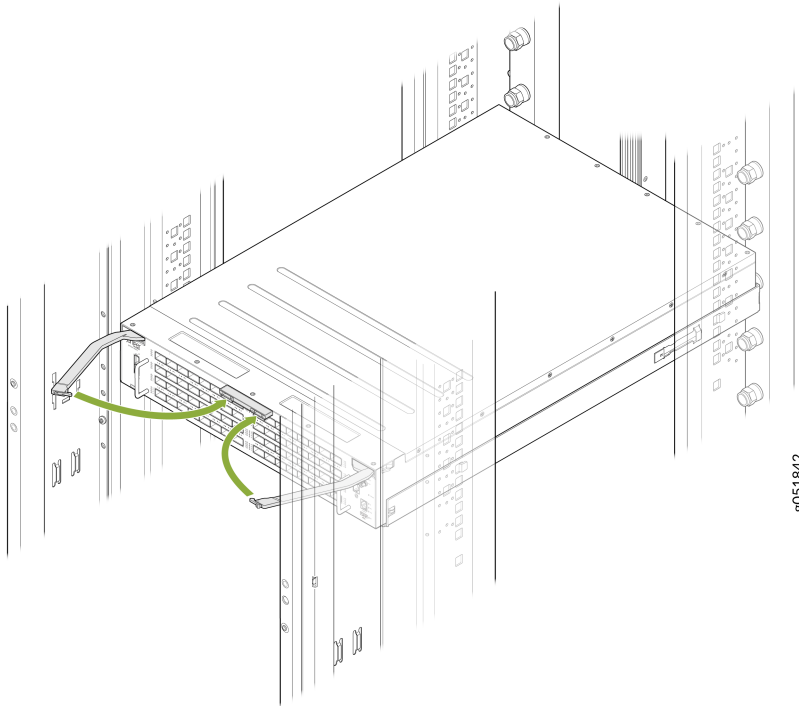


NOTE: Ensure that both ejector levers are closed together.



NOTE: The internal coolant lines or tubes of the QFX5250 switch are shipped pre-filled with nitrogen. The nitrogen bleeds during the first rack installation. When liquid coolant enters the switch through the inlet UQDB06 plug and socket, the nitrogen in the tubing is displaced by the coolant. The displaced nitrogen is removed through the outlet UQDB06 plug of the switch.

Figure 7: Close the Ejector Levers on the Fully Inserted Switch



NOTE: For the switch installed in an ORv3 rack, you do not require an additional grounding or power configuration. The ORv3 rack infrastructure provides integrated power delivery and grounding.

NOTE: The busbar on the ORv3 rack supplies power to the switch. The standard ORv3 rack used with the QFX5250 has an output voltage of 46 V DC to 56 V DC.

9. If an OSFP or SFP port is empty, cover it with a dust cover to prevent debris from entering.

Connect to Power

IN THIS SECTION

- [Ground the ORv3-Compliant QFX5250 Switches](#) | 9

● Connect the ORv3 Compliant QFX5250 Switch to Power | 9

For the QFX5250 Switch installed in an ORv3 rack, you do not require an additional grounding or power configuration. The ORv3 rack infrastructure provides integrated power delivery and grounding. Ensure you install and ground the rack properly according to site standards.

Ground the ORv3-Compliant QFX5250 Switches

The grounding information provided in this section is valid for the following model of QFX5250:

- QFX5250-64OE-L—Grounding is already provided to the switch that is installed on the ORv3 rack.



NOTE: The ORv3 connector provides integrated grounding and no additional grounding is required. The switch is connected to earth ground when you slide the switch into the ORv3 rack.

Connect the ORv3 Compliant QFX5250 Switch to Power

The powering-on information provided in this section is valid for the following model of QFX5250:

- QFX5250-64OE-L—Power is provided to the switch installed on the ORv3 rack through the busbar. For more information on grounding and powering on the liquid-cooled QFX5250 model installed on an ORv3 rack, see ["How to Install QFX5250 Liquid-cooled Switch \(2OU\) in ORv3 Rack" on page 66](#).

For the switch installed in an ORv3 rack, you do not require any additional power configuration. The ORv3 rack infrastructure provides integrated power delivery. The busbar on the ORv3 rack delivers power to the QFX5250 Switch.

When you slide the switch into the ORv3 rack unit, the IT Gear Input Connector at the rear of the switch engages with the busbar on the ORv3 rack to power on the switch.

Sliding the switch out of the ORv3 rack disconnects the power supply.

Claim, Onboard, and Configure QFX5250

SUMMARY

This topic describes how to configure the QFX5250 using Junos OS Evolved CLI.

You can configure the QFX5250 switch using the Junos OS Evolved CLI. See [Table 1 on page 10](#) for more information.

Table 1: Configure the QFX5250 Switch Using the CLI

If You Want To	Then
Customize the basic configuration	See "Configure Junos OS Evolved on the QFX5250 Switch" on page 87
Configure supported software features on the QFX5250 switch	See Software Documentation
Stay up to date about new and changed features, and known and resolved issues	See Junos OS Evolved Release Notes

2

CHAPTER

QFX5250 Device Overview

IN THIS CHAPTER

- [QFX5250 Overview | 12](#)
 - [QFX5250 Field-Replaceable Units | 16](#)
 - [QFX5250 Software Features | 16](#)
-

QFX5250 Overview

SUMMARY

Learn about the hardware features and benefits of the QFX5250 Switch.

IN THIS SECTION

- [Meet the QFX5250 Switch | 12](#)
- [Where can you use the QFX5250 Switch? | 15](#)
- [Benefits of the QFX5250 Switch | 15](#)

Meet the QFX5250 Switch

The Juniper Networks® QFX5250 switch is a 64-port, high-density switch designed to deliver scalable Ethernet connectivity up to 1600G. It can be deployed as either a leaf or spine component within modern IP fabric architectures, making it well suited for data center environments. This platform supports high-speed interfaces, including 100G, 400G, 800G, and 1600G, enabling flexible deployment in spine-leaf topologies. For example, QFX5250 switch can connect 200G leaf nodes directly to 200G servers. It supports native IP fabric routing in lean or collapsed spine designs.

The QFX5250 switch enhances performance and scalability through flexible port breakout capabilities, low-latency operation, and advanced routing support such as IPv4, IPv6, and GRE. As a core component in IP fabric data center networks, it incorporates intelligent routing features such as rapid link failover to optimize traffic distribution and network resilience.

Additionally, the QFX5250 switch provides robust Data Center Interconnect (DCI) capabilities, enabling seamless connectivity between geographically distributed data centers. This improves deployment flexibility while simplifying overall network management and operations.

Figure 8: Front View of the QFX5250 Liquid-Cooled Switch

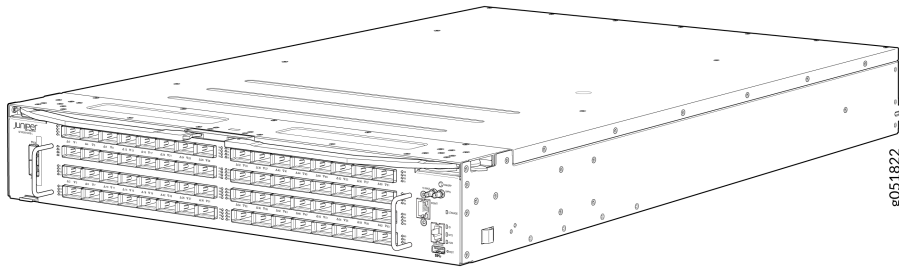


Figure 9: Rear View of the QFX5250 Liquid-Cooled Switch

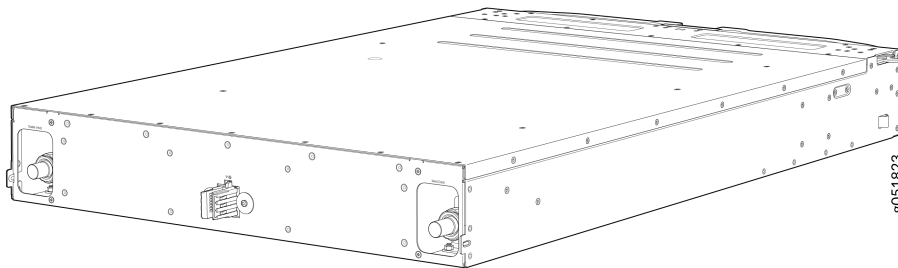


Table 2: 64-Port QFX5250 Switch: Key Specifications

Characteristics	QFX5250
Data transmission capability	1600 Gbps
Rack units (U)	2 OU—For liquid-cooled model.
Form factor	- Octal small form-factor pluggable (OSFP)—64 OSFP ports with speeds of up to 1600 Gbps for QFX5250-64OE-L liquid-cooled switch. - Small form-factor pluggable 28 (SFP28)—2 SFP28 ports with speeds of 10G/25G.

Table 2: 64-Port QFX5250 Switch: Key Specifications *(Continued)*

Characteristics	QFX5250
Ports	• 64 OSFP ports (1600 Gbps) • 2 SFP28 ports (10G/25G) • 1 Type-A USB 3.0 port • 1 RJ-45 console port • 1 management port • 2 DIN connectors: • 1 pulse per second (PPS) output, and • 1 10-MHz clock output
Throughput	102.4 terabits per second (Tbps)
Chipset	High-radix class TH6 BCM78914 chipsets
Processor	Intel 6-core 2.8-GHz Ice Lake D processor with 32 GB DRAM
Operating system (OS)	Junos OS Evolved software
Solid-state Drive (SSD)	Two internal 200-GB Non-Volatile Memory Express (NVMe) SSDs store the Junos OS Evolved software image.

The QFX5250 switch has the following regulatory models:

- Liquid cooled: QFX5250-64OE-L (for liquid-cooled QFX5250 switch model)

This QFX5250 switch has the following models:

- QFX5250-64OE-L—64-port switches with 1600-Gbps data transmission capability, OSFP form factor, liquid-cooling design, and installation of the switch on the ORv3 racks. The switch draws power from the ORv3 racks and is cooled using the liquid coolant from the ORv3 rack manifolds. The QFX5250 switch supports octal small form factor pluggable with riding heat sink (ORHS) transceivers. It is a variant of the OSFP transceiver that has a riding heat sink on top of the transceiver module. The riding heat sink provides better thermal management.

QFX5250 provides flexible power and cooling options that ensure operational efficiency. The QFX5250 switch utilizes the following cooling mechanism:

- QFX5250 liquid-cooled model (QFX5250-64OE-L) is 100 percentage liquid-cooled. The ORv3 racks on which the liquid-cooled QFX5250 switches are installed, consist of inlet and outlet manifolds. The inlet and outlet UQDB06 plugs on the switch mate with the corresponding inlet and outlet sockets on the ORv3 rack manifold. This ensures smooth inflow and outflow of the coolant through the QFX5250 switch.

The QFX5250 switch utilizes the following power configurations:

- ORv3 Racks—The ORv3-compliant models of the switch draw power from the busbar on ORv3 rack. The QFX5250 switch converts the 46 V to 56 V voltage on the ORv3 standard rack to produce a maximum power output of 4300 W.

Where can you use the QFX5250 Switch?

The primary use of the QFX5250 switch is in the data center as a high density 200G, 400G, 800G, or 1600G spine or leaf switch.

Few of the applications of the QFX5250 switches are:

- 200 Gbps, 400 Gbps, 800 Gbps TOR IP Fabric
- 400 Gbps, 800 Gbps, or 1600 Gbps spine
- Data Center Interconnects
- Universal spine switch
- 400 Gbps, 800 Gbps, 1600 Gbps AI/ML cluster switch

Benefits of the QFX5250 Switch

- Maximize throughput—Support up to 102.4 Tbps of switching capacity on a single-chip architecture with ultra-low latency. These switches accommodate 200G, 400G, 800G, and 1600G port configurations to meet evolving data center bandwidth requirements.
- Increase port density—Leverage up to 512 breakout ports for high-density, performance-focused designs. By channelizing 1.6T interfaces into lower-speed ports, you can easily configure interfaces for 200G, 400G, 800G, or 1600G operation.
- Enhance network performance—Optimize operations for AI, machine learning, and cloud computing workloads using low latency and advanced routing capabilities.

- Improve reliability—Facilitate efficient congestion management and path re-balancing through cognitive routing features. These advanced capabilities improve overall network uptime and ensure consistent service delivery.
- Reduce operational costs—Lower energy consumption and operational expenses using versatile power and cooling solutions. These energy-efficient designs contribute to a more sustainable and cost-effective data center environment.
- Simplify Data Center Interconnect (DCI)—Streamline the interconnection of multiple data center locations to reduce network complexity. Integrated DCI functionality provides greater deployment flexibility across distributed environments.
- Standardize management—Ensure consistent management and compute capabilities across product models with the integrated Ice Lake CPU.

QFX5250 Field-Replaceable Units

SUMMARY

Learn about the field-replaceable units in the QFX5250 switch.

IN THIS SECTION

QFX5250-64OE-L, the liquid-cooled QFX5250 switch, does not have any FRUs.

QFX5250 Software Features

SUMMARY

This topic describes the key software features available on the QFX5250.

IN THIS SECTION

- [System Software](#) | 17

Some of the key software features of QFX5250 switches are as follows:

- [Zero Touch Provisioning \(ZTP\)](#)

- [Class of Service \(CoS\)](#)

For the complete list of software features supported in QFX5250 switches, see [Feature Explorer](#).

Table 3: Key Software Guides

Authentication and access control	User Access and Authentication Administration Guide
Class of service	Traffic Management User Guide
AI-ML fabric features	AI-ML Data Center Feature Guide
Forwarding and sampling	Interfaces User Guide for Switches

System Software

The QFX5250 switch uses the Junos OS Evolved operating system. Junos OS Evolved provides several capabilities that include Layer 2 and Layer 3 switching, routing, and security services. The Junos OS Evolved software is installed on the solid-state drives (SSD) in the switch.

You can manage the switch using the Junos OS Evolved CLI, accessible through the console and out-of-band management ports on the device.

3

CHAPTER

Chassis

IN THIS CHAPTER

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 - [QFX5250 Models | 21](#)
 - [QFX5250 Configurations | 25](#)
 - [QFX5250 Chassis LEDs | 26](#)
-

QFX5250 Chassis

SUMMARY

Learn about the components in the QFX5250 chassis.

IN THIS SECTION

- [QFX5250 Specifications | 19](#)
- [QFX5250 Front Panel | 20](#)

The QFX5250 chassis is a rigid sheet-metal structure that houses all components of the device.

QFX5250 Specifications

Table 4: Physical Specifications of QFX5250 Chassis

Variant	Height	Width	Depth	Weight
QFX5250-64OE-L	3.649 in (9.27 cm)	21 in (53.34 cm)	31.71 in (80.5 cm)	105.82 lb (48.00 kg)

Table 5: Environmental Specifications

Specification	Value
Operating altitude	6000 ft (1830 m)
Operating temperature	Sea level—32 °F to 114.8 °F (0 °C to 46 °C) Up to 6000 ft altitude—32 °F to 104 °F (0 °C to 40 °C)
Storage temperature	-40 °F through 158 °F (-40 °C to 70 °C)
Relative humidity operating	10% through 90% (non-condensing)
Relative humidity non-operating	5% through 95% (non-condensing)
Storage altitude	15,000 ft (4500 m)

Table 5: Environmental Specifications (*Continued*)

Specification	Value
Seismic tolerance	Tested for Zone 4 earthquake requirements test in accordance with NEBS GR-63-CORE.
Acoustic noise level (maximum)	QFX5250-64OE-L—Not applicable

QFX5250 Front Panel

The network ports and management ports are located in the front panel of a QFX5250 switch.

The ports panel of the QFX5250 switch have 64 high-speed network ports each. These ports support data transmission speeds of up to 1600 Gbps. The 64 ports (numbered 0 to 63) in the QFX5250 switch support octal small form-factor pluggable (OSFP) transceivers.



NOTE: For information about the optical transceivers and cables that support 1600 Gbps transmission in the QFX5250 switch, see [Hardware Compatibility Tool \(HCT\)](#).



NOTE: For information about port configuration and channelization in the QFX5250 switch, see [Port Checker Tool](#).

You can find the management panel to the right of the port panel, with the SFP28 ports on the left side of the network ports panel. Apart from the 64 network ports in the ports panel, the QFX5250 switches offer the following ports in the management panel:

- Two SFP28 Ports—SFP28 are in-band management ports. It supports data transmission speeds of up to 25 Gbps using SFP28 transceivers. The SFP28 ports are numbered 64 and 65.
- One USB 3.0 port—Primarily used for storage and file transfers. For example, use this port to connect a USB drive to perform upgrades, export configuration files, or save log files.
- One RJ-45 console (CONSOLE) port—Provides direct serial communication with the switch to support tasks such as initial configuration, troubleshooting, and recovery.
- One RJ-45 management (MGMT) port—Supports out-of-band management of the switch. The typical use cases include secure management, remote management, monitoring, and logging.



NOTE: The CONSOLE and MGMT interfaces are physically shared between CPU and Leakage Detection Controller (LDC) board.

- 2 DIN connectors—Support 1 pulse per second (PPS) output, and 1 10-MHz clock output.

For variant-specific front and rear panel details of QFX5250, see ["QFX5250 Models" on page 21](#).

QFX5250 Models

SUMMARY

This topic provides details of the QFX5250 models and their specifications, information on the number and types of ports in each model, and the components in the shipment for each model.

IN THIS SECTION

- [QFX5250-64OE-L | 22](#)

The liquid-cooled QFX5250 switches are powered by the ORv3 rack. They are cooled using the coolant from the ORv3 rack manifolds. The manifolds are connected to the switch using the inlet and outlet UQDB06 plug and socket pair.

QFX5250 are available in the following models:

Table 6: QFX5250 Models

Model	AC PSU-Powered	DC PSU-Powered	ORv3-Powered	Air-Cooled	Liquid-Cooled	Four-Post Rack	ORv3 Rack
QFX5250-64OE-L			✓		✓		✓



NOTE:

- For QFX5250-64OE-L, the ORv3 standard rack delivers 46 V to 56 V voltage to the switch to generate a maximum power of 4300 W.

QFX5250-64OE-L

IN THIS SECTION

- [Components on the Front and Rear Panels | 22](#)
- [QFX5250-64OE-L Power System and Cooling System | 24](#)

Components on the Front and Rear Panels

Figure 10: Front Panel of the QFX5250-64OE-L

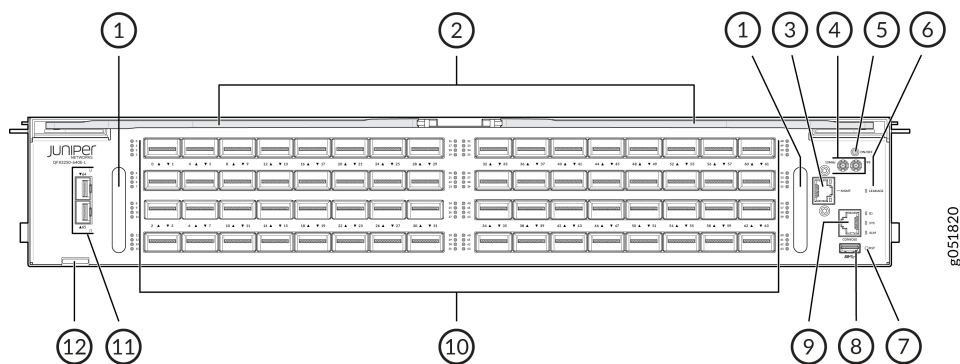


Table 7: Components on the QFX5250-64OE-L Front Panel

Callout	Item	Description
1	Switch handle	Two switch handles on the front panel
2	Ejector lever	Two ejector levers on the front panel
3	RJ-45 Management port (MGMT)	

Table 7: Components on the QFX5250-64OE-L Front Panel (*Continued*)

Callout	Item	Description
4	Clock input and output connectors (10 MHz and 1 PPS)	
5	ON/OFF button	Power-on and power-off the QFX5250 switch
6	LEAKAGE LED	LEAKAGE LED indicates coolant leakage in the QFX5250 switch.
7	Status LEDs (ID , SYS , ALM), and reset (RST) button	Status LEDs NOTE: Press the Reset button to reboot the device. There is no change to the existing configuration of the switch. The device does not return to the factory-default configuration.
8	Type A, USB 3.0 port (SS)	
9	RJ-45 console port (CON)	
10	Network ports panel	64 1600G OSFP ports
11	SFP28 ports	2 SFP28 ports with up to 25 Gbps transmission
12	Pull-tab with QR code	

Figure 11: Rear Panel of the QFX5250-64OE-L, Liquid-cooled, ORv3 Variant

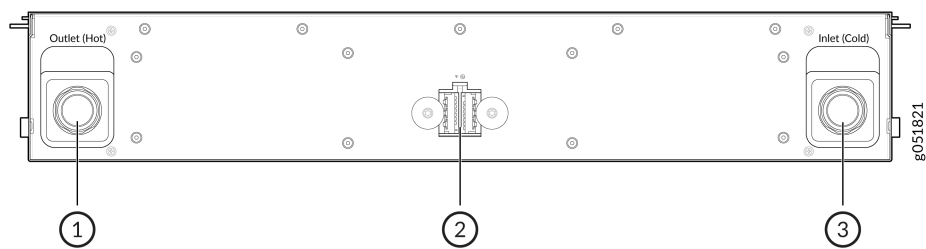


Table 8: Components on the QFX5250-64OE-L Rear Panel

Callout	Item	Description
1	UQDB06 plug (outlet)	Removes the heat carrying coolant out of the switch
2	IT Gear Input Connector	
3	UQDB06 plug (inlet)	Introduces the coolant into of the switch

QFX5250-64OE-L Power System and Cooling System

Table 9: QFX5250-64OE-L Power System and Cooling System Specifications

Component	Slots	Shipped	Notes
Power supply Units	0	No PSU is required or shipped for this model.	Powered by the ORv3 racks. Maximum power output of 4800 W.
Fan modules	0	No fan is required or shipped for this model.	100% liquid-cooled. Recommended coolant is OAT PG 25.

QFX5250 Configurations

SUMMARY

Learn about the various configurations of the QFX5250 switch.

IN THIS SECTION

- [QFX5250 MAC Address Allocation | 26](#)

QFX5250 is available in the following configurations:

Table 10: QFX5250 Hardware Configurations

Variant	Description	Cooling	Power System	Spare Chassis
QFX5250-64OE-L	• 64 OSFP ports (ports 0–63) with port speed of up to 1600 Gbps • 2 SFP28 ports (ports 64 and 65) with port speed of up to 25 Gbps • 1 Type A, USB 3.0 port • 1 RJ-45 console port (CONSOLE) • 1 management (MGMT) port • 2 DIN connectors— Supports 1 pulse per second (PPS) output, and 1 10-MHz clock output. 2OU chassis—Install the switch on the ORv3 rack.	Liquid cooled (See "QFX5250 Cooling System" on page 55) NOTE: No fans.	DC power delivered to the switch from the bus bar on ORv3 rack using IT Gear Input Connector NOTE: No PSUs.	

QFX5250 MAC Address Allocation

The QFX5250 switch has a pool of MAC addresses assigned sequentially to its components, starting from a base MAC address printed on the motherboard.

For the allocation order of MAC addresses in QFX5250 switch, see [Table 11 on page 26](#).

Table 11: MAC Address Allocation

Component	Number of MACs	Range
Motherboard	1280	Base MAC through base MAC +1279
CPU	5	Base MAC+1280 through base MAC+1284
BMC	2	Base MAC+1280 through base MAC+1281

The BMC MAC addresses are not unique or additional. The two MAC addresses of the BMC are the same as the first two MAC addresses of the CPU.



NOTE: To identify the BMC MAC address, add 1280 to the printed base MAC address on the QFX5250 switch.

QFX5250 Chassis LEDs

SUMMARY

This topic describes the status LEDs for the chassis and ports on the QFX5250.

IN THIS SECTION

- [Chassis Status LEDs | 27](#)
- [Management Port LEDs | 31](#)
- [Push Buttons on QFX5250 | 32](#)
- [Network Port Status LEDs | 32](#)

The LEDs on the QFX5250 switch indicate the status of the device and its components. You can also use the LEDs for troubleshooting.

Chassis Status LEDs

The QFX5250 switches have four LED types that indicate system status. You can find these LEDs to the right of the network ports.

Figure 12: Chassis Status LEDs for QFX5250-64OE-L (Liquid-cooled Model)

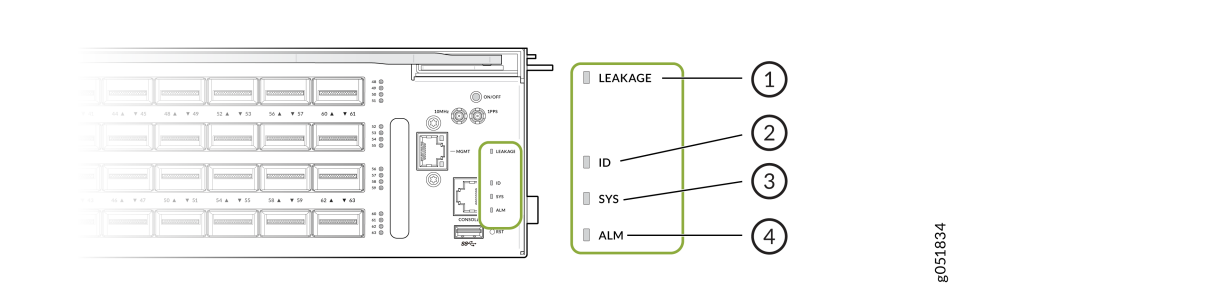


Table 12: Chassis LEDs on the QFX5250-64OE-L

Callout	LED	Description
1	LEAKAGE	See Table 24 on page 58
2	ID	See Table 13 on page 30
3	SYS	See Table 13 on page 30
4	ALM	See Table 13 on page 30

QFX5250-64OE-L (liquid-cooled model)—You can view the colors of the LEDs remotely through the CLI by issuing the operational mode command `show chassis led`:

```
user@host> show chassis led
-----
LEDs status:
  Alarm LED : Yellow
  Beacon LED: Off
  System LED: Green
```

Interface	STATUS LED	LINK/ACTIVITY LED

et-0/0/0	N/A	Off
et-0/0/1	N/A	Off
et-0/0/2	N/A	Off
et-0/0/3	N/A	Off
et-0/0/4	N/A	Off
et-0/0/5	N/A	Off
et-0/0/6	N/A	Off
et-0/0/7	N/A	Off
et-0/0/8	N/A	Green
et-0/0/9	N/A	Green
et-0/0/10	N/A	Off
et-0/0/11	N/A	Off
et-0/0/12	N/A	Off
et-0/0/13	N/A	Off
et-0/0/14	N/A	Off
et-0/0/15	N/A	Off
et-0/0/16	N/A	Off
et-0/0/17	N/A	Off
et-0/0/18	N/A	Off
et-0/0/19	N/A	Off
et-0/0/20	N/A	Off
et-0/0/21	N/A	Off
et-0/0/22	N/A	Off
et-0/0/23	N/A	Off
et-0/0/24	N/A	Off
et-0/0/25	N/A	Off
et-0/0/26	N/A	Off
et-0/0/27	N/A	Off
et-0/0/28	N/A	Amber
et-0/0/29	N/A	Off
et-0/0/30	N/A	Red
et-0/0/31	N/A	Amber
et-0/0/32	N/A	Off
et-0/0/33	N/A	Off
et-0/0/34	N/A	Off
et-0/0/35	N/A	Off
et-0/0/36	N/A	Off
et-0/0/37	N/A	Off
et-0/0/38	N/A	Off
et-0/0/39	N/A	Off

et-0/0/40	N/A	Off
et-0/0/41	N/A	Off
et-0/0/42	N/A	Off
et-0/0/43	N/A	Off
et-0/0/44	N/A	Off
et-0/0/45	N/A	Off
et-0/0/46	N/A	Off
et-0/0/47	N/A	Off
et-0/0/48	N/A	Off
et-0/0/49:0	N/A	Off
et-0/0/49:1	N/A	Off
et-0/0/49:2	N/A	Off
et-0/0/49:3	N/A	Off
et-0/0/49:4	N/A	Off
et-0/0/49:5	N/A	Off
et-0/0/49:6	N/A	Off
et-0/0/49:7	N/A	Off
et-0/0/50	N/A	Off
et-0/0/51	N/A	Off
et-0/0/52:0	N/A	Off
et-0/0/52:1	N/A	Off
et-0/0/52:2	N/A	Off
et-0/0/52:3	N/A	Off
et-0/0/52:4	N/A	Off
et-0/0/52:5	N/A	Off
et-0/0/52:6	N/A	Off
et-0/0/52:7	N/A	Off
et-0/0/53	N/A	Off
et-0/0/54	N/A	Off
et-0/0/55	N/A	Off
et-0/0/56	N/A	Off
et-0/0/57	N/A	Off
et-0/0/58	N/A	Off
et-0/0/59	N/A	Off
et-0/0/60	N/A	Off
et-0/0/61	N/A	Off
et-0/0/62	N/A	Off
et-0/0/63	N/A	Off
et-0/0/64	N/A	Amber
et-0/0/65	N/A	Off

Table 13: Chassis Status LEDs on QFX5250

Indication	Color	State	Description
ALM (Alarm) LED	Unlit	Off	The switch is halted, or there is no alarm.
	Red	On steadily	A major system level fault has occurred, such as a temperature alarm, power failure, or media failure. It may lead to a device shutdown. Use the CLI commands <code>show chassis alarms</code>, <code>show system alarms</code>, and <code>show system errors active detail</code> to gather information about the error that triggered the alarm. This information helps you to decide the recovery steps to perform.
	Yellow	On steadily	A minor system level fault has occurred, such as a software error or a missing rescue configuration. Use the CLI commands <code>show chassis alarms</code>, <code>show system alarms</code>, and <code>show system errors active detail</code> to gather information about the error that triggered the alarm. This information helps to decide the recovery steps to perform.
	Red and Yellow	Blinking	A major system level fault has occurred, along with a minor system level fault and the device has halted.
SYS (System)	Unlit	Off	The device is powered off or halted. NOTE: The SYS LED glows green during BIOS booting.
	Green	Blinking	The system is loading Junos OS Evolved or shutting down.
	Green	On steadily	Junos OS Evolved is loaded on the device.

ID (Identification)	Unlit	Off	The beacon feature is not enabled on the device. Enable this feature by using the request chassis beacon fpc 0 on operational mode command.
	Blue	Blinking	The beacon feature is enabled on the device. Disable this feature by using the request chassis beacon fpc 0 offoperational mode command.

NOTE: Port beacon is currently not supported on the QFX5250 switch.

TIP: To know the status of the beacon, use the show chassis beacon operational mode command:

```
user@host> show chassis beacon
OFF
```

Management Port LEDs

The RJ-45 management port on the QFX5250 switches have two LEDs that indicate link status and link activity. The management port is labeled MGMT.

Figure 13: Management Port Status LEDs for QFX5250-64OE-L (Liquid-cooled Models)

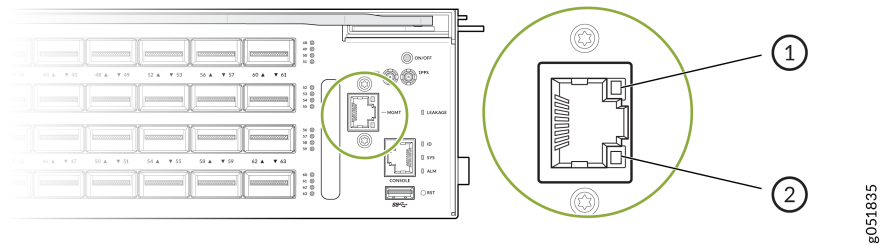


Table 14: Management Port LEDs on QFX5250 Switches

LED	Color	State	Description
Link activity	Green	Blinking	A link is established, and there is link activity.
Status	Solid Green	On steadily	The port speed is 1 Gbps.

	Unlit	Off	The link is down.
	Unlit	Off	The port speed is 10 Mbps.

Push Buttons on QFX5250

Table 15: Push Buttons on QFX5250

Button Name	Functional Description
Reset (RST)	Press the switch to reset the system.
	Press and hold the switch for more than 250 milliseconds and less than 10 seconds to reset the system. Press and hold the switch for more than 10 seconds to initiate BIOS recovery.
ON/OFF	When a leakage is detected, the QFX5250 liquid-cooled switch does not power-on until the power button is pressed. Turn on or turn off the system power: • Power-down—Press and hold the power button for more than 4 seconds to initiate a power-down sequence. • Power-up—Press and hold the power button for more than 250 milliseconds to initiate a power-up sequence.

Network Port Status LEDs

Each OSFP Port is provided with a single bi-color LED, red and green.

Figure 14: Network Port Status LEDs for QFX5250-64OE-L (Liquid-cooled Model)

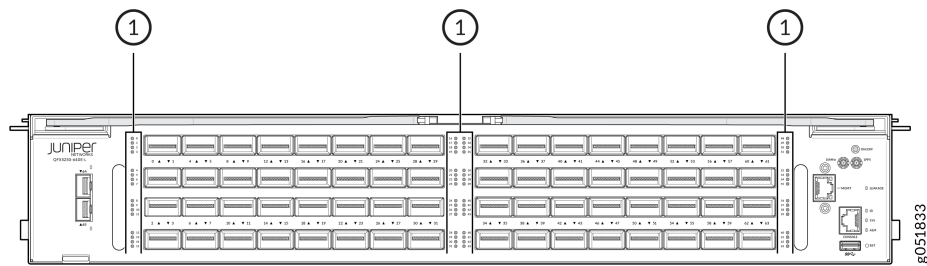


Table 16: Network Ports on QFX5250-64OE-L (Liquid-cooled Models)

Callout	Item	Description
1	Network Ports	

Table 17: Network Port Status LEDs (OSFP Ports)

Color	State	Description	Lane Display
No Breakout (Non-channelized)			
Unlit	Off	By default, the LED is unlit, so it is in the Off state. The LED can be unlit even when power is present and a transceiver is present in the port.	Not Applicable
Green	On Steadily	A link is established, and there is no link activity.	
Green	On Steadily	A link is established, and there is link activity.	
Red	On Steadily	The link is down because the port or transceiver has a hardware failure.	
Off	Off	The link is down with an LoS.	
Amber	On Steadily	The link is down or the port experiences a fault other than loss of signal or transceiver hardware failure.	

Table 17: Network Port Status LEDs (OSFP Ports) *(Continued)*

Color	State	Description	Lane Display
Amber	On Steadily	The link is down because the port was disabled through the CLI.	
Off	Off	Transceiver is not installed.	
Amber	On Steadily	An interface error is detected.	
Breakout (Channelized)			
Off	On Steadily	By default, the LED is unlit, so it is in the Off state. The LED can be unlit even when power is present and a transceiver is present in the port.	Per Lane LED is not provided
Green	On Steadily	A link is established, and there is no link activity.	
Green	On Steadily NOTE: Green LED indication is lit only if link is up for all channels.	A link is established, and there is link activity.	
Red	On Steadily	The link is down because the port or transceiver has a hardware failure with transceiver initialization error.	
Off	Off	The link is down with an LoS for all channels.	
Amber	On Steadily	The link is down because at least one of the breakout port was disabled through the CLI.	
Amber	On Steadily	The LED color is amber for all other scenarios.	

Table 18: Network Port Status LEDs (SFP+ Ports)

Color	State	Description	Lane Display
Unlit	Off	Default (power on, with or without transceiver)	Not Applicable
Green	On Steadily	Link is established with no activity	
Green	On Steadily	Link is established with activity	
Red	On Steadily	Link is down, with transceiver hardware failure	
Off	Off	Link is down with loss of signal (LoS) detected	
Amber	On Steadily	Link is down with any other fault except LoS and transceiver hardware failure	
Amber	On Steadily	Port is explicitly disabled in the Command line interface (CLI)	
Off	Off	Anything except disabled port but no transceiver is present	

4

CHAPTER

Ports and Channelization

IN THIS CHAPTER

- [QFX5250 Ports and Interfaces | 37](#)
 - [Channelization on the QFX5250 | 48](#)
-

QFX5250 Ports and Interfaces

SUMMARY

This topic describes the ports on the QFX5250 switch and their corresponding Junos OS Evolved interfaces.

IN THIS SECTION

- [Interface Naming on the QFX5250 | 37](#)
- [Network Ports on the QFX5250 | 38](#)
- [Management and Auxiliary Ports on the QFX5250 | 38](#)
- [Interfaces on the QFX5250 | 38](#)

Interface Naming on the QFX5250

The ports on the QFX5250 switch have interfaces associated with them in Junos OS Evolved. These interfaces follow the below naming convention:

type-fpc/pic/port:channel

- **type**—This refers to the media type of the interface. For some interfaces, the media type depends on the transceiver plugged into the physical port.
 - **et**—200/400/800/1600 GbE interface
- **fpc**—Flexible PIC Concentrator. On the QFX5250, FPC 0 contains all network interfaces.
- **pic**—Physical Interface Card. On the QFX5250:
 - **PIC 0** consists of sixty-four OSFP ports (1600G/800G/400G/200G)
 - **PIC 0** also consists of two SFP28 ports (supports 25G and 10G transmission)
- **port**—You can check the port number from the front panel of the QFX5250.
- **channel**—This is only applicable to channelized (breakout) interfaces. For example, OSFP ports can be broken out into 2x800G, 4x400G, 8x200G channels. For all other non-channelized interfaces, this option is absent.

Network Ports on the QFX5250

Table 19: QFX5250 Network Ports

Form Factor	Port Component	Port Count	Speeds Supported	FPC	PIC	Junos Interfaces
OSFP	OSFP-RHS (riding heat sink for liquid-cooled model)	64	1600G	0	0	et-0/0/0 to et-0/0/63
SFP28	SFP28	2	25G and 10G	0	0	10G: et-0/0/64 to et-0/0/65 25G: et-0/0/64 to et-0/0/65

Management and Auxiliary Ports on the QFX5250

Table 20: QFX5250 Management and Auxiliary Ports

Port Type	Form Factor	Port Count	Speeds/Standards Supported	Purpose
Management	RJ45	1	10M/100M/1G	Out-of-band management
Console	RJ45	1	Serial console	CLI access and configuration
USB	Type-A	1	USB 3.0	Storage/configuration transfer
Timing	DIN	1	10MHz/1PPS	Timing synchronization output

See the [Hardware Compatibility Tool](#) for a list of all supported optics for the QFX5250.

Interfaces on the QFX5250

Each network port on the QFX5250 has a unique interface on Junos OS Evolved associated with it.

The examples below show the actual hardware or transceivers plugged into a device and how Junos OS Evolved creates the corresponding interfaces. The output has been truncated to only show the relevant sections.

The following is an output of **show chassis hardware** for the QFX5250 liquid-cooled model:

```
host@device> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis			LA5125AN0010	QFX5250-640E-L
PSM 0		BUILTIN	252001312	DC-DC 1600W Brick
PSM 1		BUILTIN	252001311	DC-DC 1600W Brick
PSM 2		BUILTIN	252001326	DC-DC 1600W Brick
Routing Engine 0		BUILTIN	BUILTIN	RE-QFX5250-640E-L
CB 0	REV 03	650-191066	LA5125AN0010	QFX5250-640E-L
FPC 0		BUILTIN	BUILTIN	QFX5250-640E-L
PIC 0		BUILTIN	BUILTIN	64x1600G-OSFP
Xcvr 0	REV 01	740-189762	1W1CMMAB0100F	ORHS-1600G-DR8-2-P
Xcvr 1	REV 01	740-189762	1G1CMMAB0201T	ORHS-1600G-DR8-2-P
Xcvr 2	REV 01	740-189762	1G1CMAAA3702W	ORHS-1600G-DR8-2-P
Xcvr 3	REV 01	740-189762	1W1CMAAA49003	ORHS-1600G-DR8-2-P
Xcvr 4	REV 01	740-189762	1W1CMAAA4800S	ORHS-1600G-DR8-2-P
Xcvr 5	REV 01	740-189762	1W1CMAAA4800R	ORHS-1600G-DR8-2-P
Xcvr 6	REV 01	740-189762	1W1CMMAB01004	ORHS-1600G-DR8-2-P
Xcvr 7	REV 01	740-189762	1G1CMAAA37032	ORHS-1600G-DR8-2-P
Xcvr 8	REV 01	740-189762	1G1CMMAB0201G	ORHS-1600G-DR8-2-P
Xcvr 9	REV 01	740-189762	1W1CMAAA44013	ORHS-1600G-DR8-2-P
Xcvr 10	REV 01	740-189762	1W1CMAAA51005	ORHS-1600G-DR8-2-P
Xcvr 11	REV 01	740-189762	1G1CMAAA3701L	ORHS-1600G-DR8-2-P
Xcvr 12	REV 01	740-189762	1G1CMMAB0200W	ORHS-1600G-DR8-2-P
Xcvr 13	REV 01	740-189762	1W1CMMAB01003	ORHS-1600G-DR8-2-P
Xcvr 14	REV 01	740-189762	1W1CMMAB01005	ORHS-1600G-DR8-2-P
Xcvr 15	REV 01	740-189762	1G1CMMAB02005	ORHS-1600G-DR8-2-P
Xcvr 16	REV 01	740-189762	1G1CMAAA37021	ORHS-1600G-DR8-2-P
Xcvr 17	REV 01	740-189762	1G1CMAAA3703H	ORHS-1600G-DR8-2-P
Xcvr 18	REV 01	740-189762	1G1CMMAB0200H	ORHS-1600G-DR8-2-P
Xcvr 19	REV 01	740-189762	1G1CMMAB0201J	ORHS-1600G-DR8-2-P
Xcvr 20	REV 01	740-189762	1G1CMMAB0201Z	ORHS-1600G-DR8-2-P
Xcvr 21	REV 01	740-189762	1W1CMMAB01007	ORHS-1600G-DR8-2-P
Xcvr 22	REV 01	740-189762	1G1CMMAB02026	ORHS-1600G-DR8-2-P
Xcvr 23	REV 01	740-189762	1G1CMMAB0200L	ORHS-1600G-DR8-2-P
Xcvr 24	REV 01	740-189762	1W1CMMAB01009	ORHS-1600G-DR8-2-P

Xcvr 25	REV 01	740-189762	1W1CMMAA4800H	ORHS-1600G-DR8-2-P
Xcvr 26	REV 01	740-189762	1W1CMMA01001	ORHS-1600G-DR8-2-P
Xcvr 27	REV 01	740-189762	1W1CMMA01006	ORHS-1600G-DR8-2-P
Xcvr 28	REV 01	740-189762	1W1CMMA01008	ORHS-1600G-DR8-2-P
Xcvr 29	REV 01	740-189762	1G1CMMA02001	ORHS-1600G-DR8-2-P
Xcvr 30	REV 01	740-189762	1G1CMMA0201S	ORHS-1600G-DR8-2-P
Xcvr 31	REV 01	740-189762	1G1CMMA0200G	ORHS-1600G-DR8-2-P
Xcvr 32	REV 01	740-189762	1G1CMMA02007	ORHS-1600G-DR8-2-P
Xcvr 33	REV 01	740-189762	1G1CMMA02028	ORHS-1600G-DR8-2-P
Xcvr 34	REV 01	740-189762	1G1CMMA0201E	ORHS-1600G-DR8-2-P
Xcvr 35	REV 01	740-189762	1W1CMMA01002	ORHS-1600G-DR8-2-P
Xcvr 36	REV 01	740-189762	1G1CMMA02014	ORHS-1600G-DR8-2-P
Xcvr 37	REV 01	740-189762	1G1CMMA0201K	ORHS-1600G-DR8-2-P
Xcvr 38	REV 01	740-189762	1G1CMMAA47009	ORHS-1600G-DR8-2-P
Xcvr 39	REV 01	740-189762	1G1CMMA0200Z	ORHS-1600G-DR8-2-P
Xcvr 40	REV 01	740-189762	1G1CMMA02015	ORHS-1600G-DR8-2-P
Xcvr 41	REV 01	740-189762	1G1CMMA0202L	ORHS-1600G-DR8-2-P
Xcvr 42	REV 01	740-189762	1G1CMMA0201D	ORHS-1600G-DR8-2-P
Xcvr 43	REV 01	740-189762	1G1CMMAA3900B	OSFP-1600G-DR8-2-P
Xcvr 44	REV 01	740-189762	1G1CMMA0200P	ORHS-1600G-DR8-2-P
Xcvr 45	REV 01	740-189762	1W1CMMAA49002	ORHS-1600G-DR8-2-P
Xcvr 46	REV 01	740-189762	1G1CMMA02020	ORHS-1600G-DR8-2-P
Xcvr 47	REV 01	740-189762	1G1CMMA0201Q	ORHS-1600G-DR8-2-P
Xcvr 48	REV 01	740-189762	1G1CMMA02023	ORHS-1600G-DR8-2-P
Xcvr 49	REV 01	740-189762	1W1CMMAA49006	ORHS-1600G-DR8-2-P
Xcvr 50	REV 01	740-189762	1W1CMMA0100B	ORHS-1600G-DR8-2-P
Xcvr 51	REV 01	740-189762	1G1CMMA0201X	ORHS-1600G-DR8-2-P
Xcvr 52	REV 01	740-189762	1W1CMMAA4800J	ORHS-1600G-DR8-2-P
Xcvr 53	REV 01	740-189762	1W1CMMA0100A	ORHS-1600G-DR8-2-P
Xcvr 54	REV 01	740-189762	1W1CMMAA44011	ORHS-1600G-DR8-2-P
Xcvr 55	REV 01	740-189762	1G1CMMAA3900J	OSFP-1600G-DR8-2-P
Xcvr 56	REV 01	740-189762	1W1CMMAA44027	ORHS-1600G-DR8-2-P
Xcvr 57	REV 01	740-189762	1W1CMMAA49001	ORHS-1600G-DR8-2-P
Xcvr 58	REV 01	740-189762	1W1CMMAA4800T	ORHS-1600G-DR8-2-P
Xcvr 59	REV 01	740-189762	1W1CMMA0100D	ORHS-1600G-DR8-2-P
Xcvr 60	REV 01	740-189762	1W1CMMA0100E	ORHS-1600G-DR8-2-P
Xcvr 61	REV 01	740-189762	1G1CMMA0200Q	ORHS-1600G-DR8-2-P
Xcvr 62	REV 01	740-189762	1W1CMMAA51001	ORHS-1600G-DR8-2-P
Xcvr 63	REV 01	740-189762	1G1CMMA0202A	ORHS-1600G-DR8-2-P
Xcvr 64	REV 01	740-021308	AQQ0K0E	SFP+-10G-SR

The following is an output of **show interfaces terse** for the QFX5250 liquid-cooled model:

```

host@device> show interfaces terse
Interface           Admin Link Proto  Local                Remote
et-0/0/0            up   up
et-0/0/0.0          up   up   inet6   2001:0:0:1::1/64
                                   fe80::8213:beff:fe05:e08c/64
                                   multiservice
gr-0/0/0            up   up
et-0/0/1            up   up
et-0/0/1.0          up   up   inet6   2001:0:0:2::1/64
                                   fe80::8213:beff:fe05:e094/64
                                   multiservice
et-0/0/2            up   up
et-0/0/2.0          up   up   inet6   2001:0:0:2::2/64
                                   fe80::8213:beff:fe05:e09c/64
                                   multiservice
et-0/0/3            up   up
et-0/0/3.0          up   up   inet6   2001:0:0:14::1/64
                                   fe80::8213:beff:fe05:e0a4/64
                                   multiservice
et-0/0/4            up   up
et-0/0/4.0          up   up   inet6   2001:0:0:14::2/64
                                   fe80::8213:beff:fe05:e0ac/64
                                   multiservice
et-0/0/5            up   up
et-0/0/5.0          up   up   inet6   2001:0:0:25::1/64
                                   fe80::8213:beff:fe05:e0b4/64
                                   multiservice
et-0/0/6            up   up
et-0/0/6.0          up   up   inet6   2001:0:0:25::2/64
                                   fe80::8213:beff:fe05:e0bc/64
                                   multiservice
et-0/0/7            up   up
et-0/0/7.0          up   up   inet6   2001:0:0:32::1/64
                                   fe80::8213:beff:fe05:e0c4/64
                                   multiservice
et-0/0/8            up   up
et-0/0/8.0          up   up   inet6   2001:0:0:32::2/64
                                   fe80::8213:beff:fe05:e0cc/64
                                   multiservice
et-0/0/9            up   up

```

et-0/0/9.0	up	up	inet6	2001:0:0:3::2/64
				fe80::8213:beff:fe05:e0d4/64
				multiservice
et-0/0/10	up	up		
et-0/0/10.0	up	up	inet6	2001:0:0:3::1/64
				fe80::8213:beff:fe05:e0dc/64
				multiservice
et-0/0/11	up	up		
et-0/0/11.0	up	up	inet6	2001:0:0:4::1/64
				fe80::8213:beff:fe05:e0e4/64
				multiservice
et-0/0/12	up	up		
et-0/0/12.0	up	up	inet6	2001:0:0:4::2/64
				fe80::8213:beff:fe05:e0ec/64
				multiservice
et-0/0/13	up	up		
et-0/0/13.0	up	up	inet6	2001:0:0:5::1/64
				fe80::8213:beff:fe05:e0f4/64
				multiservice
et-0/0/14	up	up		
et-0/0/14.0	up	up	inet6	2001:0:0:5::2/64
				fe80::8213:beff:fe05:e0fc/64
				multiservice
et-0/0/15	up	up		
et-0/0/15.0	up	up	inet6	2001:0:0:6::1/64
				fe80::8213:beff:fe05:e104/64
				multiservice
et-0/0/16	up	up		
et-0/0/16.0	up	up	inet6	2001:0:0:6::2/64
				fe80::8213:beff:fe05:e10c/64
				multiservice
et-0/0/17	up	up		
et-0/0/17.0	up	up	inet6	2001:0:0:7::1/64
				fe80::8213:beff:fe05:e114/64
				multiservice
et-0/0/18	up	up		
et-0/0/18.0	up	up	inet6	2001:0:0:7::2/64
				fe80::8213:beff:fe05:e11c/64
				multiservice
et-0/0/19	up	up		
et-0/0/19.0	up	up	inet6	2001:0:0:8::1/64
				fe80::8213:beff:fe05:e124/64
				multiservice

et-0/0/20	up	up		
et-0/0/20.0	up	up	inet6	2001:0:0:8::2/64 fe80::8213:beff:fe05:e12c/64 multiservice
et-0/0/21	up	up		
et-0/0/21.0	up	up	inet6	2001:0:0:9::1/64 fe80::8213:beff:fe05:e134/64 multiservice
et-0/0/22	up	up		
et-0/0/22.0	up	up	inet6	2001:0:0:9::2/64 fe80::8213:beff:fe05:e13c/64 multiservice
et-0/0/23	up	up		
et-0/0/23.0	up	up	inet6	2001:0:0:10::1/64 fe80::8213:beff:fe05:e144/64 multiservice
et-0/0/24	up	up		
et-0/0/24.0	up	up	inet6	2001:0:0:10::2/64 fe80::8213:beff:fe05:e14c/64 multiservice
et-0/0/25	up	up		
et-0/0/25.0	up	up	inet6	2001:0:0:11::1/64 fe80::8213:beff:fe05:e154/64 multiservice
et-0/0/26	up	up		
et-0/0/26.0	up	up	inet6	2001:0:0:11::2/64 fe80::8213:beff:fe05:e15c/64 multiservice
et-0/0/27	up	up		
et-0/0/27.0	up	up	inet6	2001:0:0:12::1/64 fe80::8213:beff:fe05:e164/64 multiservice
et-0/0/28	up	up		
et-0/0/28.0	up	up	inet6	2001:0:0:12::2/64 fe80::8213:beff:fe05:e16c/64 multiservice
et-0/0/29	up	up		
et-0/0/29.0	up	up	inet6	2001:0:0:13::1/64 fe80::8213:beff:fe05:e174/64 multiservice
et-0/0/30	up	up		
et-0/0/30.0	up	up	inet6	2001:0:0:13::2/64 fe80::8213:beff:fe05:e17c/64

				multiservice
et-0/0/31	up	up		
et-0/0/31.0	up	up	inet6	2001:0:0:15::1/64 fe80::8213:beff:fe05:e184/64
				multiservice
et-0/0/32	up	up		
et-0/0/32.0	up	up	inet6	2001:0:0:15::2/64 fe80::8213:beff:fe05:e18c/64
				multiservice
et-0/0/33	up	up		
et-0/0/33.0	up	up	inet6	2001:0:0:16::1/64 fe80::8213:beff:fe05:e194/64
				multiservice
et-0/0/34	up	up		
et-0/0/34.0	up	up	inet6	2001:0:0:16::2/64 fe80::8213:beff:fe05:e19c/64
				multiservice
et-0/0/35	up	up		
et-0/0/35.0	up	up	inet6	2001:0:0:17::1/64 fe80::8213:beff:fe05:e1a4/64
				multiservice
et-0/0/36	up	up		
et-0/0/36.0	up	up	inet6	2001:0:0:17::2/64 fe80::8213:beff:fe05:e1ac/64
				multiservice
et-0/0/37	up	up		
et-0/0/37.0	up	up	inet6	2001:0:0:18::1/64 fe80::8213:beff:fe05:e1b4/64
				multiservice
et-0/0/38	up	up		
et-0/0/38.0	up	up	inet6	2001:0:0:18::2/64 fe80::8213:beff:fe05:e1bc/64
				multiservice
et-0/0/39	up	up		
et-0/0/39.0	up	up	inet6	2001:0:0:19::1/64 fe80::8213:beff:fe05:e1c4/64
				multiservice
et-0/0/40	up	up		
et-0/0/40.0	up	up	inet6	2001:0:0:19::2/64 fe80::8213:beff:fe05:e1cc/64
				multiservice
et-0/0/41	up	up		
et-0/0/41.0	up	up	inet6	2001:0:0:20::1/64

				fe80::8213:beff:fe05:e1d4/64
				multiservice
et-0/0/42	up	up		
et-0/0/42.0	up	up	inet6	2001:0:0:20::2/64
				fe80::8213:beff:fe05:e1dc/64
				multiservice
et-0/0/43	up	up		
et-0/0/43.0	up	up	inet6	2001:0:0:21::1/64
				fe80::8213:beff:fe05:e1e4/64
				multiservice
et-0/0/44	up	up		
et-0/0/44.0	up	up	inet6	2001:0:0:21::2/64
				fe80::8213:beff:fe05:e1ec/64
				multiservice
et-0/0/45	up	up		
et-0/0/45.0	up	up	inet6	2001:0:0:22::1/64
				fe80::8213:beff:fe05:e1f4/64
				multiservice
et-0/0/46	up	up		
et-0/0/46.0	up	up	inet6	2001:0:0:22::2/64
				fe80::8213:beff:fe05:e1fc/64
				multiservice
et-0/0/47	up	up		
et-0/0/47.0	up	up	inet6	2001:0:0:23::1/64
				fe80::8213:beff:fe05:e204/64
				multiservice
et-0/0/48	up	up		
et-0/0/48.0	up	up	inet6	2001:0:0:23::2/64
				fe80::8213:beff:fe05:e20c/64
				multiservice
et-0/0/49	up	up		
et-0/0/49.0	up	up	inet6	2001:0:0:24::1/64
				fe80::8213:beff:fe05:e214/64
				multiservice
et-0/0/50	up	up		
et-0/0/50.0	up	up	inet6	2001:0:0:24::2/64
				fe80::8213:beff:fe05:e21c/64
				multiservice
et-0/0/51	up	up		
et-0/0/51.0	up	up	inet6	2001:0:0:26::1/64
				fe80::8213:beff:fe05:e224/64
				multiservice
et-0/0/52	up	up		

et-0/0/52.0	up	up	inet6	2001:0:0:26::2/64
				fe80::8213:beff:fe05:e22c/64
				multiservice
et-0/0/53	up	up		
et-0/0/53.0	up	up	inet6	2001:0:0:27::1/64
				fe80::8213:beff:fe05:e234/64
				multiservice
et-0/0/54	up	up		
et-0/0/54.0	up	up	inet6	2001:0:0:27::2/64
				fe80::8213:beff:fe05:e23c/64
				multiservice
et-0/0/55	up	up		
et-0/0/55.0	up	up	inet6	2001:0:0:28::1/64
				fe80::8213:beff:fe05:e244/64
				multiservice
et-0/0/56	up	up		
et-0/0/56.0	up	up	inet6	2001:0:0:28::2/64
				fe80::8213:beff:fe05:e24c/64
				multiservice
et-0/0/57	up	up		
et-0/0/57.0	up	up	inet6	2001:0:0:29::1/64
				fe80::8213:beff:fe05:e254/64
				multiservice
et-0/0/58	up	up		
et-0/0/58.0	up	up	inet6	2001:0:0:29::2/64
				fe80::8213:beff:fe05:e25c/64
				multiservice
et-0/0/59	up	up		
et-0/0/59.0	up	up	inet6	2001:0:0:30::1/64
				fe80::8213:beff:fe05:e264/64
				multiservice
et-0/0/60	up	up		
et-0/0/60.0	up	up	inet6	2001:0:0:30::2/64
				fe80::8213:beff:fe05:e26c/64
				multiservice
et-0/0/61	up	up		
et-0/0/61.0	up	up	inet6	2001:0:0:31::1/64
				fe80::8213:beff:fe05:e274/64
				multiservice
et-0/0/62	up	up		
et-0/0/62.0	up	up	inet6	2001:0:0:31::2/64
				fe80::8213:beff:fe05:e27c/64
				multiservice

et-0/0/63	up	up			
et-0/0/63.0	up	up	inet6	2001:0:0:33::2/64	
				fe80::8213:beff:fe05:e284/64	
				multiservice	
et-0/0/64	up	down			
et-0/0/64.16386	up	down	multiservice		
et-0/0/65	up	down			
et-0/0/65.16386	up	down	multiservice		
re0:mgmt-0	up	up			
re0:mgmt-0.0	up	up	inet	10.221.86.70/23	
esi	up	up			
irb	up	up			
lo0	up	up			
lo0.1	up	up	inet	2.2.2.1	--> 0/0
lo0.2	up	up	inet	2.2.2.2	--> 0/0
lo0.3	up	up	inet	2.2.2.3	--> 0/0
lo0.4	up	up	inet	2.2.2.4	--> 0/0
lo0.5	up	up	inet	2.2.2.5	--> 0/0
lo0.6	up	up	inet	2.2.2.6	--> 0/0
lo0.7	up	up	inet	2.2.2.7	--> 0/0
lo0.8	up	up	inet	2.2.2.8	--> 0/0
lo0.9	up	up	inet	2.2.2.9	--> 0/0
lo0.10	up	up	inet	2.2.2.10	--> 0/0
lo0.11	up	up	inet	2.2.2.11	--> 0/0
lo0.12	up	up	inet	2.2.2.12	--> 0/0
lo0.13	up	up	inet	2.2.2.13	--> 0/0
lo0.14	up	up	inet	2.2.2.14	--> 0/0
lo0.15	up	up	inet	2.2.2.15	--> 0/0
lo0.16	up	up	inet	2.2.2.16	--> 0/0
lo0.17	up	up	inet	2.2.2.17	--> 0/0
lo0.18	up	up	inet	2.2.2.18	--> 0/0
lo0.19	up	up	inet	2.2.2.19	--> 0/0
lo0.20	up	up	inet	2.2.2.20	--> 0/0
lo0.21	up	up	inet	2.2.2.21	--> 0/0
lo0.22	up	up	inet	2.2.2.22	--> 0/0
lo0.23	up	up	inet	2.2.2.23	--> 0/0
lo0.24	up	up	inet	2.2.2.24	--> 0/0
lo0.25	up	up	inet	2.2.2.25	--> 0/0
lo0.26	up	up	inet	2.2.2.26	--> 0/0
lo0.27	up	up	inet	2.2.2.27	--> 0/0
lo0.28	up	up	inet	2.2.2.28	--> 0/0
lo0.29	up	up	inet	2.2.2.29	--> 0/0
lo0.30	up	up	inet	2.2.2.30	--> 0/0

```

lo0.31          up    up    inet    2.2.2.31      --> 0/0
lo0.32          up    up    inet    2.2.2.32      --> 0/0
lsi             up    up
pip0            up    up
vtep            up    up

```

In these examples:

- The interfaces for OSFP ports (PIC 0) are automatically created (et-0/0/0 to et-0/0/63). These 64 OSFP ports support speeds from 100G up to 1.6T depending on the transceiver plugged in.
- The two SFP28 transceivers are plugged into ports 64 and 65 (PIC 0). Junos OS creates corresponding interfaces (et-0/0/64 and et-0/0/65). These ports support 25G and 10G transmission speeds.
- Port et-0/0/8 shows Admin and Link up, indicating the port is enabled and has an active link.
- Each physical interface has a corresponding logical interface (indicated by .0 suffix) configured for ethernet-switching.
- The management interface (re0:mgmt-0) is operational with IP address 10.221.86.70/23.

Channelization on the QFX5250

SUMMARY

Breakout capability or port channelization is the ability to split a high-capacity optical link into multiple lower-capacity links. To achieve the split, use breakout cables with suitable connectors. You can split the high-speed ports on your device into multiple low-speed ports using channelization.

The QFX5250 switch supports the following breakout speed or mode options for its ports:

- 1x1600G
- 1x800G
- 2x800G

- 2x400G
- 4x400G
- 4x200G
- 8x200G
- 8x100G



NOTE: When booting a fully-loaded QFX5250 switch with optics, the expected interface bring-up times for the supported breakout modes are as follows:

- 1600G mode—3 minutes 25 seconds (64 interfaces)
- 2x800G mode—3 minutes 2 seconds (128 interfaces)
- 4x400G mode—3 minutes 18 seconds (256 interfaces)
- 8x200G mode—7 minutes 47 seconds (512 interfaces)

For information on the port channelization supported by QFX5250 switches, see [Port Checker](#).

For information on the optical transceivers, cables and connectors supported with QFX5250, see [Transceivers](#).

5

CHAPTER

Power System

IN THIS CHAPTER

- QFX5250 Power System | 51
 - Replace Power Supplies on the QFX5250 Switch | 53
-

QFX5250 Power System

SUMMARY

The liquid-cooled model is powered by the ORv3 rack and does not have a power supply unit.

IN THIS SECTION

- [Liquid-cooled Model Power Specifications | 51](#)
- [System Electrical Ratings for QFX5250 Switch | 53](#)

Liquid-cooled Model Power Specifications

The liquid-cooled QFX5250 model (QFX5250-64OE-L) is powered by the ORv3 racks. The IT Gear Input Connector on the switch draws power from the busbar on the ORv3 rack. The switch converts the 46 V through 56 V voltage input from the ORv3 standard rack to produce a maximum power output of 4300 W.

The typical power consumption of the QFX5250 liquid-cooled switch is 3375 W and the maximum power consumption is 3435 W.

Table 21: Power Specifications for QFX5250 Liquid-cooled Switch

Item	Specifications
DC input voltage	Minimum: 46 VDC Operating range: 46 VDC through 56 VDC
DC/HVDC input current rating	110 A
Maximum power output	4300 W
Maximum power consumption (loaded with DR optics)	3435 W
Typical power consumption (loaded with DR optics)	3375 W

DC-to-DC Power Bricks

The ORV3-compliant QFX5250 liquid-cooled switches are equipped with three DC-to-DC power bricks. Each brick receives 51 V DC from the busbar to produce an output voltage of 12 V DC. Each DC-to-DC power brick is rated at 1600 W. There is no redundancy available for DC-to-DC power bricks.

When a DC brick failure is detected by the QFX5250 switch, power to the optics is immediately disabled. If the failure occurs during the switch power-up, the optics are not enabled. This significantly reduces overall power consumption, allowing the CPU subsystem to continue operating. However, if the available power is insufficient, the system initiates a power-off after a maximum of three retries.

The CPU subsystem remains operational until the QFX5250 switch power-off. The CPU subsystem uses Junos EVO software to log the fault condition, report errors, and raise alarms.

[Table 22 on page 52](#) lists the alarm messages associated with DC power bricks.

Table 22: Alarm Messages for DC Power Bricks in QFX5250 Switch

DC Brick Failure	Alarm
The input unit is off.	Major PSM Unit Offline
The DC brick output fails due to under voltage.	Major PSM Not OK Major PSM Output Failed
The DC brick output fails due to over current.	Major PSM Not OK Major PSM Output Failed
The DC brick output fails due to over voltage.	Major PSM Not OK Major PSM Output Failed
The DC brick output fails due to over temperature.	Major PSM High Temp Major PSM Output Failed
The DC brick output fails due to power failure.	Major PSM Output Failed
The DC brick input fails due to under voltage.	Major PSM Input Under Voltage Failure

Table 22: Alarm Messages for DC Power Bricks in QFX5250 Switch *(Continued)*

DC Brick Failure	Alarm
The DC brick output fails due to fan failure.	Major PSM Output Failed

 **NOTE:** The **PSM** in alarm messages refer to DC bricks for the liquid-cooled QFX5250 device.

System Electrical Ratings for QFX5250 Switch

The QFX5250 switch models are validated for a specific set of electrical ratings.

QFX5250-64OE-L—The QFX5250 ORv3 rack powered liquid-cooled model is rated for an input current of 110 A within an input voltage range of 46 VDC through 56 VDC.

Replace Power Supplies on the QFX5250 Switch

SUMMARY

Maintaining the QFX5250 includes removing and installing power components.

IN THIS SECTION

- [Liquid-Cooled QFX5250 Switch | 53](#)

Liquid-Cooled QFX5250 Switch

There are no additional steps to install or remove power in a liquid-cooling system in QFX5250. When you install the QFX5250 switch on the ORv3 rack, the IT Gear Input Connector on the switch slots into the corresponding busbar on the ORv3 rack. When the switch is correctly installed, it powers on automatically.

 **NOTE:** Ensure that the ORv3 rack is powered on.

When you slide out the QFX5250 switch from the ORv3 rack, the switch automatically disconnects from the rack's power supply and shuts down.

6

CHAPTER

Cooling System

IN THIS CHAPTER

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 - [Replace Cooling System on the QFX5250 Switch | 63](#)
-

QFX5250 Cooling System

IN THIS SECTION

- [Liquid Cooling in the QFX5250 Switch | 55](#)
- [ORv3 Rack Architecture for Liquid-Cooled Systems | 57](#)
- [Flow Rate Specifications | 57](#)
- [Leakage Detection | 59](#)
- [Manifold Dimensions and Positions | 61](#)

The QFX5250 model that uses liquid-cooled system is:

- QFX5250-64OE-L

Liquid Cooling in the QFX5250 Switch

The QFX5250 switch offers active cooling using liquid coolants. Active cooling is available for the liquid-cooled model QFX5250-64OE-L.

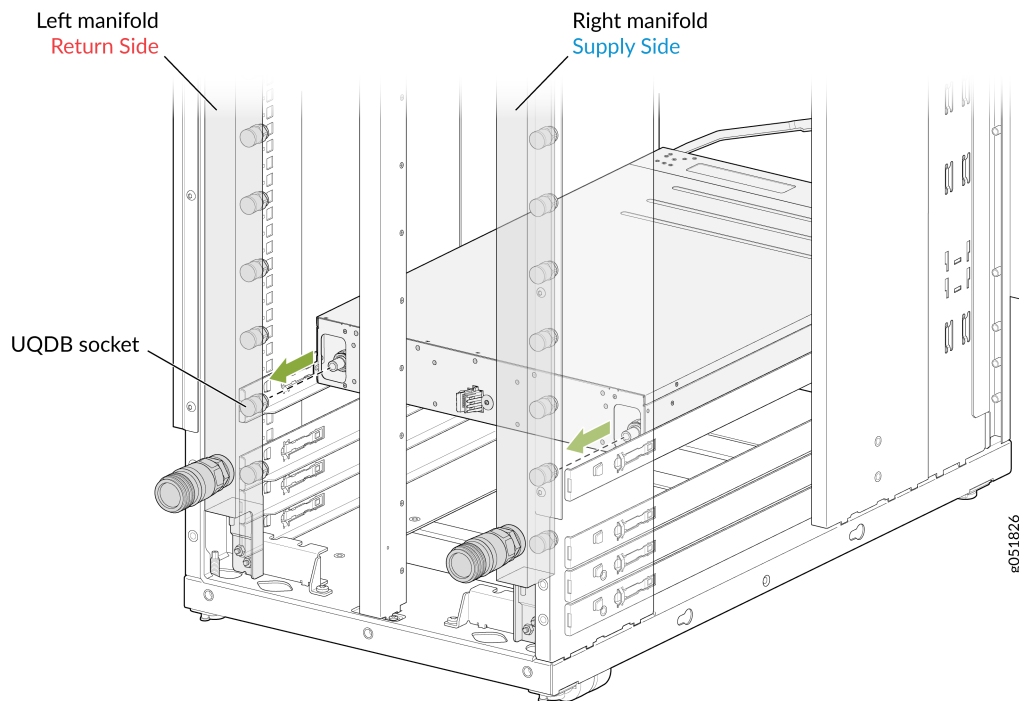
Liquid cooling is a thermal management system that uses a liquid coolant to absorb and remove heat from the switch and its components. The coolant is stored separately, outside the switch that is mounted on the ORv3 rack.

The storage and injection of coolant into the switch mounted on the ORv3 rack depends on the coolant storage and distribution system of the customer. However, in a typical rack-level cooling distribution system, the coolant is stored in a Coolant Distribution Unit (CDU) and circulated through the ORv3 racks using the inlet and outlet manifolds.

The inlet and outlet of liquid into the switch is governed by the Universal Quick Disconnect Blind-Mate (UQDB) standards. It is a global standard for quick disconnect blind-mate couplings developed within the OCP (Open Compute Project). UQDB functions as an open standard initiative for spill-free quick couplings for liquid cooling in data centers.

The UQDB06 inlet and outlet plugs on the switch blind-mate with the corresponding UQDB06 sockets on the inlet and outlet manifolds to form a UQDB06 plug and socket pair. During the installation of QFX5250 on an ORv3 rack, coupling occurs automatically.

Figure 15: Coolant Inlet and Outlet to the QFX5250 Chassis from ORv3 Rack Manifolds



The coolant is introduced from the rack manifold through UQDB06 sockets into the UQDB06 inlet plug in the QFX5250 switch. The coolant then circulates through the cold-plated components in the switch such as MAC, CPU, OSFP optics, and DC-to-DC power bricks. Using the tubing system in the switch, the coolant carries the heat out of the switch through the outlet UQDB06 plug and socket.

The cooling system consists of the following components:

- Coolant—OAT PG 25 is the recommended coolant for QFX5250 Switch.
- Tubing—Connects all the cold-plates in the switch through which the coolant is internally circulated.
- Cold plate—A metal block with internal channels or passages through which liquid coolant flows. It acts as a heat exchanger that helps to remove the heat from the switch components using the coolant.
- Inlet and outlet manifolds on ORv3 rack—The inlet manifold on the ORv3 rack pumps the coolant into the QFX5250 switch through the UQDB06 inlet plug. The outlet manifold removes the heat-carrying coolant from the switch through the UQDB06 outlet plug.
- UQDB06 inlet and outlet sockets (on the ORv3 rack manifolds)—The UQDB06 inlet and outlet sockets allow the inlet and outlet of the coolant from the ORv3 rack manifold into the QFX5250 switch.

- UQDB06 inlet and outlet plugs (on the QFX5250 switch chassis)—The UQDB06 plugs allow the inlet and outlet of the coolant into the switch from the UQDB06 sockets on the ORv3 rack manifold.



NOTE: The UQDB06 sockets on the rack manifold mates with the UQDB06 plugs on the liquid-cooled QFX5250 switch to ensure efficient coolant inlet and outlet. We recommend that you use the universal quick disconnect blind-mating parts from CEJN for QFX5250 switches.

ORv3 Rack Architecture for Liquid-Cooled Systems

ORv3 is a rack standard developed under the Open Compute Project (OCP). It has an open rack structure that supports high-density, liquid-cooled infrastructure. It integrates power distribution, liquid cooling, and compute into a single standardized rack architecture.



NOTE: Based on your specific infrastructure needs, configuration may vary and you may not need all the components. This section outlines a typical ORv3 deployment.

- ORv3 rack—The rack enclosure that houses all compute, power, and cooling components in a structured, high-density format.
- Manifold—Mounted at the rear of the rack, the manifold distributes liquid coolant to and from the cold-plated switches in the rack.
- Busbar—A power distribution rail running along the rear of the rack, delivering 56 V DC through 46 V DC input voltage directly to the installed switches and components through the IT Gear Input Connector.
- Cold plates—Liquid-cooled plates that sit directly on heat-generating components of the switch and transfer heat to the circulating coolant, thereby helping to cool the switch.
- CDU (optional)—A coolant distribution unit that regulates and circulates liquid coolant within the rack.
- Centralized cooling or piping system—If a CDU is not used, cooling can alternatively be managed through a centralized cooling system that connects multiple racks to a facility-level cooling infrastructure.

Flow Rate Specifications

The components of the liquid cooling system work together to keep the switch within the acceptable temperature range. For a liquid-cooled system with cold-plated components and UQDB06 plugs and sockets, we recommend the following flow rates:

Table 23: Flow Rate Specifications for QFX5250

Item	Specification	Notes
Flow rate or capacity	10 liters per minute	The cooling system must have 10 liters of coolant passing through it every minute.
Minimum liquid pressure rating	25 PSI (pounds per square inch)	The minimum operating pressure that the liquid-cooling system can safely handle.
Maximum liquid pressure rating	40 PSI (pounds per square inch)	The maximum operating pressure that the liquid-cooling system can safely handle.
Maximum coolant temperature	45 °C	The maximum temperature that the coolant maintains.
Minimum coolant temperature	7 °C	The minimum temperature that the coolant maintains.
Switch ambient temperature range	0 °C through 40 °C	The recommended operating temperature range for the liquid-cooled QFX5250 switch.

The Leakage LED indicates the status of the liquid-cooling system in QFX5250:

Table 24: Liquid-Cooling (Leakage) Status LEDs

Color	State	Description
Unlit	Off	Normal operation with no leakage detected.
Red Solid	On steadily	A leakage is detected and alarm has been triggered.

Leakage Detection

One of the key considerations while using an active cooling system using liquid-cooling is to detect any coolant leakage in the switch. The coolant OAT PG 25 is electrically conductive. Whenever there is a leakage, the coolant comes in contact with the conductive layer or the sensing line in the switch. This forms a loop that can then be detected by the detection circuit.

After you install the switch on the rack and it receives stand-by power from the ORv3 rack, leakage detect circuitry monitors leakages and ensures that the **LEAKAGE** LED is lit red to notify you about an active leakage event. The boot operation is halted if a leakage is detected. Only on pressing the **ON/OFF** button, the QFX5250 switch proceeds with boot operation.



NOTE: If no leakage is detected, the switch proceeds with normal boot operations.

After you inspect the QFX5250 switch and conclude that there is no leakage, you can continue to operate the switch. At this stage, the **LEAKAGE** LED could still be lit red. Use the CLI command `request system ldc leakage clear` to clear the leakage LED and leakage detect bit. This clears the leakage status until another leakage event occurs. To know the latest status on leakage detect bit and **LEAKAGE** LED, use the `request system ldc leakage status`.

After you press the **ON/OFF** button, the switch boots and Leakage Detection Controller (LDC) becomes available. LDC monitors, detects, and reports coolant leakage for the switch for all successive stages of operation. LDC uses Redfish to trigger alarms.

Once the switch successfully boots up, Junos EVO also triggers alarms for leak detection. Junos EVO uses the gNMI network management protocol for leakage monitoring and alarms. Hence, both Junos EVO and LDC monitors and reports coolant leakage during the normal operation of QFX5250 switch.

The following are the different stages of the QFX5250 switch power-up sequence, and the corresponding leakage detection processes for each phase:



NOTE: We do not recommend that you continue to operate a QFX5250 switch with leakage. If leakage is identified, you should return the switch to Juniper using the prescribed Return Materials Authorization (RMA) process. See ["Return a Hardware Component to Juniper Networks"](#) on page 119.

QFX5250 Pre-Power-On

Before powering on the QFX5250 switch, ensure the following:

- ORv3 rack power is turned on.
- The coolant supply from the centralized cooling distribution system (CDU) is turned on.

- The QFX5250 chassis is installed in the ORv3 rack.
- The inlet and outlet UQDB06 plugs on the switch are correctly mated with the corresponding inlet and outlet ports on the ORv3 rack manifold.
- The coolant is flowing through the chassis.



NOTE: If coolant is not flowing through the chassis, temperature of the switch rises. It will be handled by Junos as per the Environment Monitoring (EM) policy.

Once you turn on the ORv3 rack power, 46 V to 56 V DC stand-by power is available to the switch. The QFX5250 switch uses this power to turn on the leakage detection circuitry in the switch. As soon as any leakage is detected, the **LEAKAGE** LED is lit red. Further, the power sequencing is halted. It allows you to remove the chassis from the ORv3 rack. If you wish to ignore the leakage detection and proceed with the power-on sequence, press the **ON/OFF** button for four seconds.



NOTE: The QFX5250 chassis are hot-swappable. You can remove the chassis without turning off the ORv3 rack power.

QFX5250 Initialization

At the stage when the QFX5250 switch is initializing or booting up, the LDC of the switch is powered to be operational. If any leakage gets detected at this stage, then LDC notifies the user by generating an alarm over Redfish. Also, the leakage LED is lit red. To detect if any leakage occurs, the LDC continues to monitor the switch at fixed intervals of time.

QFX5250 Normal Operation

The LDC continues to monitor the device for leakage during normal operation. If a leakage is detected during this phase, you receive an alarm notification from LDC over Redfish. The leakage LED is lit red. The Junos EVO is operational in this phase. It monitors and detects leakage using gNMI protocol. Use the command `show chassis alarms` to display information about the leakage conditions that Junos EVO detects and triggers alarms. If there is a leakage, you are expected to shutdown the device. If the device is not shutdown, you continue to receive the alarm notification about the leakage.

To clear the leakage LED or know the leakage LED status, see information on `request system ldc leakage clear` and `request system ldc leakage status`.

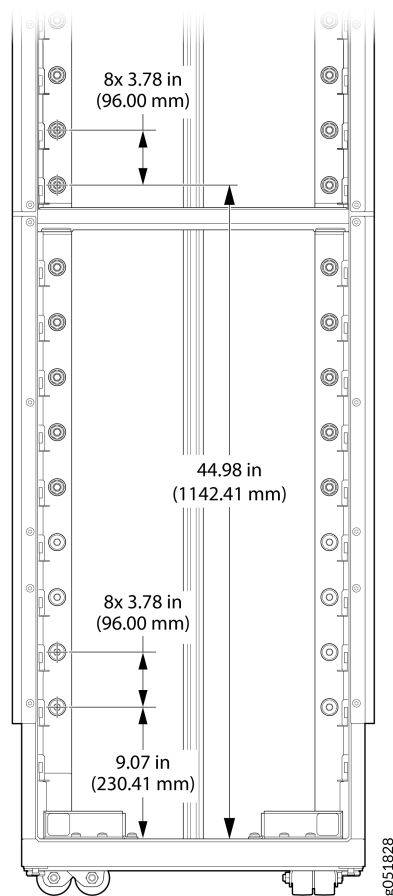
QFX5250 Switch Shutdown

When the QFX5250 switch is shut down, standby power is available from the ORv3 rack. Leakage detection is similar to the pre-power-on stage. At this stage, the leak detection circuit continuously monitors any leakage. As soon as any leakage is detected, the **LEAKAGE** LED is lit red.

Manifold Dimensions and Positions

The inlet and outlet manifolds run vertically along the rear of the ORv3 rack. They receive the coolant from the CDU or the centralized cooling system through coolant lines or hoses. The regularly spaced quick-connect ports along the manifold body are individual coolant tap-off points. Each corresponds to a rack unit position. This allows the liquid-cooled QFX5250 switch to connect its own inlet and outlet cooling UQDB06 plugs to the corresponding inlet and outlet quick-connect ports on the manifold. The following are the key dimensions of the manifold ports or UQDB06 sockets that align with the UQDB06 plugs:

Figure 16: Manifold Dimensions in QFX5250



NOTE: The rack base inner surface is treated as the datum.

- Pitch between inlet manifold ports—96 mm
- Pitch between outlet manifold ports—96 mm
- Location of lowest UQDB06 mounting position—230.41 mm
- Location of UQDB06 mounting position at the midpoint of the manifold—1142.41 mm

Replace Cooling System on the QFX5250 Switch

SUMMARY

Maintaining the QFX5250 switch includes removing and installing cooling components.

IN THIS SECTION

- [Liquid-Cooled System | 63](#)

Liquid-Cooled System

There are no additional steps to install or remove the liquid-cooling system in QFX5250. When you install the QFX5250 switch on the ORv3 rack, the UQDB06 plugs on the switch slot into the corresponding inlet and outlet manifolds on the ORv3 rack. When the switch is correctly installed, the liquid-cooling system is functional.

When you slide out the QFX5250 switch from the ORv3 rack, the switch automatically disconnects from the liquid-cooling system.

7

CHAPTER

Installation and Setup

IN THIS CHAPTER

- [QFX5250 Installation Overview | 65](#)
 - [Unpack the QFX5250 Switch | 66](#)
 - [Install the QFX5250 Switch | 66](#)
 - [How to Install QFX5250 Liquid-cooled Switch \(2OU\) in ORv3 Rack | 66](#)
 - [Connect the QFX5250 Switch to the Network | 78](#)
 - [Connect the QFX5250 Switch to External Devices | 83](#)
 - [Connect the QFX5250 Switch to Power | 86](#)
 - [Configure Junos OS Evolved on the QFX5250 Switch | 87](#)
-

QFX5250 Installation Overview

SUMMARY

This topic lists the steps that you need to follow to get your QFX5250 up and running.



To install and configure your QFX5250:

1. Unpack your device as described in ["Unpack the QFX5250 Switch" on page 66](#).
2. Install the QFX5250 as follows: device as described in ["Install the QFX5250 Switch" on page 66](#).
 - a. To install QFX5250-64OE-L switch on an ORv3 rack, see ["How to Install QFX5250 Liquid-cooled Switch \(2OU\) in ORv3 Rack" on page 66](#).
3. Connect cables to network devices as described in ["Connect the QFX5250 Switch to the Network" on page 78](#).
4. Connect cables to external devices as described in ["Connect the QFX5250 Switch to External Devices" on page 83](#).
5. Connect the liquid-cooled switch to power as described in ["Connect the QFX5250 Switch to Power" on page 86](#).
6. Perform initial configuration by following the instructions in ["Configure Junos OS Evolved on the QFX5250 Switch" on page 87](#).

RELATED DOCUMENTATION

Site Guidelines and Requirements
Rack and Cabinet Requirements

Unpack the QFX5250 Switch

SUMMARY

Unpack the QFX5250 switch by following the recommended procedure and check that you have received all the components.

IN THIS SECTION

- [Unpack the QFX5250 Switch | 66](#)

Unpack the QFX5250 Switch



NOTE: For unpacking and parts lists of the liquid-cooled QFX5250-64OE-L model, see ["How to Install QFX5250 Liquid-cooled Switch \(2OU\) in ORv3 Rack" on page 66](#)

Install the QFX5250 Switch



NOTE: For installation of the liquid-cooled QFX5250-64OE-L model on an ORv3 rack, see ["How to Install QFX5250 Liquid-cooled Switch \(2OU\) in ORv3 Rack" on page 66](#)

How to Install QFX5250 Liquid-cooled Switch (2OU) in ORv3 Rack

SUMMARY

Use the information to install the ORv3-compliant QFX5250 liquid-cooled switches in an ORv3 rack.

IN THIS SECTION

- [Unpack the ORv3-Compliant Switch | 67](#)

- [Parts Inventory \(Packing List\) | 68](#)
- [Ejector Lever Operation Guidelines | 69](#)
- [Install the Switch in an ORv3 Rack | 71](#)
- [Uninstall the Switch from the ORv3 Rack | 76](#)
- [Ground the Switch | 78](#)

The liquid-cooled QFX5250 switches are ORv3-compliant. They can be directly installed on an ORv3 rack. The QFX5250 liquid-cooled model draws power from the rack.



WARNING: English—Install this ORV3-compliant switch only on an Open Rack V3 compliant rack. Failure to comply may result in damage.

AVERTISSEMENT

French—Installez ce commutateur conforme à la norme ORV3 uniquement dans un bâti conforme à la norme Open Rack V3. Le non-respect de cette consigne peut entraîner des dommages matériels.



WARNING: English—Installation and removal of this unit must be performed by qualified personnel (skilled persons) only. This equipment is intended for installation in a RESTRICTED ACCESS LOCATION only.

AVERTISSEMENT:

French—L'installation et le retrait de cette unité ne doivent être effectués que par du personnel qualifié (personnes compétentes). Cet équipement est conçu pour être installé uniquement dans un EMPLACEMENT À ACCÈS RESTREINT.

Unpack the ORv3-Compliant Switch

The chassis of QFX5250 switch is a rigid sheet-metal structure that houses the hardware components. We ship the switch in a cardboard carton, secured with foam packing material.



CAUTION: English—The switch has maximum protection inside the shipping carton. Do not unpack the switch until you are ready to begin installation.

AVERTISSEMENT

French—Le commutateur bénéficie d'une protection maximale à l'intérieur de son carton d'expédition. Ne déballez pas le commutateur avant d'être prêt à commencer l'installation.

To unpack the switch:

1. Move the shipping carton to a staging area as close to the installation site as possible. Make sure that you have enough room to remove the system components.
2. Position the carton so that the arrows are pointing up.
3. Open the top flaps on the shipping carton.
4. Remove the accessory box and verify the contents in it against the parts inventory on the label attached to the carton.
5. Pull out the packing material holding the switch in place.
6. Verify the chassis components received against the packing list included with the switch.
7. Save the shipping carton and packing materials in case you need to move or ship the switch.

Parts Inventory (Packing List)

The shipment includes a packing list. Check the parts you receive in the shipping carton against the items on the packing list. We ship the parts as per the configuration that you order.

If any part on the packing list is missing, contact your customer service representative or contact Juniper customer care from within the U.S. or Canada by telephone at 1-888-314-5822. For international-dial or direct-dial options in countries without toll-free numbers, see <https://www.juniper.net/support/requesting-support.html>.

- [Table 25 on page 68](#)
- [Table 26 on page 69](#)

Table 25: Parts List for an ORv3 Compliant Switch

Component	Model Number	Quantity
Chassis	QFX5250-64OE-L	1



NOTE: Juniper provides only the liquid-cooled switch. You are responsible for procuring and installing all other liquid-cooling components:

- ORv3 rack
- Liquid inlet and outlet manifolds
- Hoses or tubing for the cooling system
- Coolant distribution system (CDU) or centralized cooling system
- Any other components for the cooling system

Table 26: Parts List for the Accessory Kit

Component	Quantity
Documentation roadmap card	1
OSFP dust cover	64
SFP28 dust cover	2

Ejector Lever Operation Guidelines

IN THIS SECTION

- [Ejector Lever Unlock Procedure | 70](#)
- [Ejector Lever Lock Procedure | 70](#)
- [Key Considerations | 70](#)

The QFX5250 liquid-cooled switch (QFX5250-64OE-L) is equipped with ejector levers on both the left and right side of the front panel. These levers must be operated in accordance with the recommended guidelines to ensure proper mechanical seating of the switch chassis and stable operation within the

ORv3 rack. Incorrect or incomplete use of the ejector levers may result in the system becoming non-operational.

Ejector Lever Unlock Procedure

The recommended procedure for unlocking the ejector levers is as follows:

1. Press the release button on both ejector levers to disengage the locking mechanism.



NOTE: Ensure that both levers are fully opened.

2. Once the levers are completely open, immediately slide the chassis fully out of the rack using the QFX5250 switch handles.



NOTE: Do not leave the chassis partially inserted with the ejector levers in a disengaged state.

Ejector Lever Lock Procedure

The recommended procedure for locking the ejector levers is as follows:

1. Insert the chassis fully into the rack using the QFX5250 switch handles.



NOTE: Ensure proper alignment and complete seating within the ORv3 rack while inserting the chassis.

2. Engage both ejector levers uniformly to secure the chassis in place.



NOTE: Pauses or misalignment during switch insertion may result in transient power-related issues.

Key Considerations

- Avoid partial insertion or uneven engagement of the ejector levers during the locking process.
- Do not operate the system with ejector levers in a disengaged state.

For information on the steps to install the liquid-cooled QFX5250 switch in an ORv3 rack, see ["Install the Switch in an ORv3 Rack" on page 71](#).

Install the Switch in an ORv3 Rack

Before installing the switch in an ORv3 rack, ensure the following prerequisites are met:

- Verify that the site meets the requirements described in the site preparation checklist of the switch.
- Place the rack in its permanent location, allowing adequate clearance for maintenance, and secure it to the building structure.
- For the liquid-cooling system, ensure that the following are in place before installing the switch:
 - The Cooling Distribution Unit (CDU) or centralized cooling system is connected and functional.
 - The inlet and outlet UQDB06 sockets on the ORv3 rack manifolds and the inlet and outlet UQDB06 plugs on QFX5250 have been uncapped.



NOTE: On successful installation, the UQDB06 inlet and outlet plugs on the QFX5250 switch blind-mates with the corresponding UQDB06 sockets on the ORv3 rack inlet and outlet manifolds.

- The recommended flow rate specifications are maintained. See [Table 23 on page 58](#).
- On first installation, the nitrogen in the coolant lines is automatically bled when the system powers on.
- Read [General Safety Guidelines and Warnings](#), with particular attention to [Chassis and Component Lifting Guidelines](#).

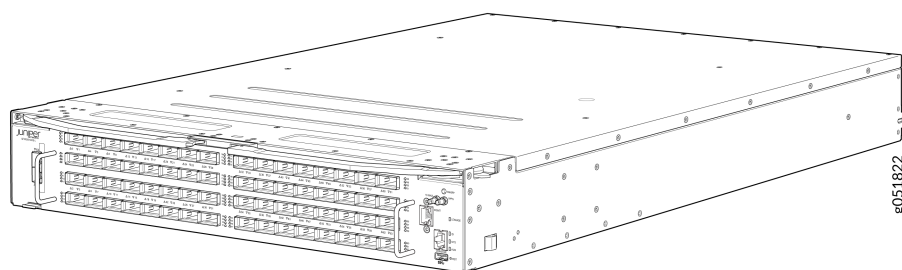


CAUTION: If the QFX5250 switch is installed on an ORv3 rack, do not touch or open the ejector levers. Doing so will cause the QFX5250 switch to enter a non-operational state. If this occurs, fully disengage the QFX5250 switch and reinstall it on the ORv3 rack. For a detailed overview on the usage of chassis levers, please see "[Ejector Lever Operation Guidelines](#)" on page 69.

To install the switch in an ORv3 rack:

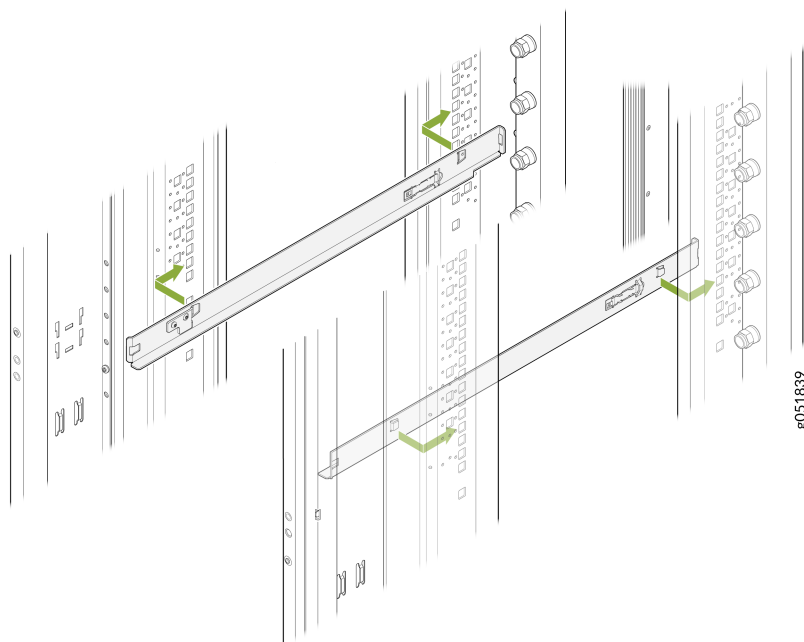
1. Remove the switch from shipping carton. See [Figure 17 on page 72](#).

Figure 17: QFX5250-64OE-L Switch



2. Place the switch on a flat, stable surface.
3. Align the rails and secure the rails in place on your ORv3 rack. See [Figure 18 on page 72](#)

Figure 18: Align the Rails in ORv3 Rack

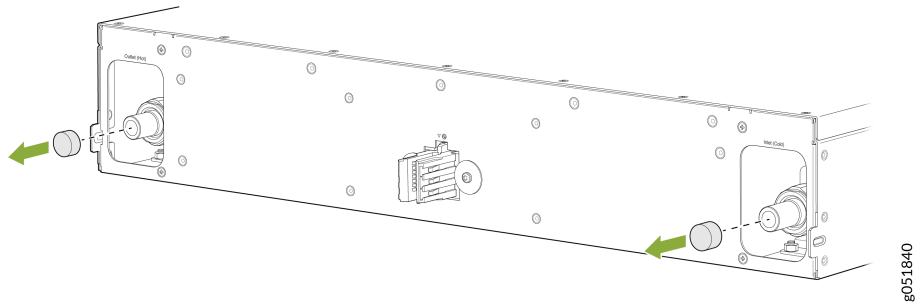


i **NOTE:** Rails are not provided with the switch.

i **NOTE:** You must use 10U standard rails to install the 20U QFX5250 liquid-cooled switches on ORv3 racks.

4. Remove the caps on the UQDB06 plugs on the switch for coolant inlet and outlet from the ORv3 rack manifolds.

Figure 19: Remove the Caps on the Liquid Inlet and Outlet UQDB06 Plugs

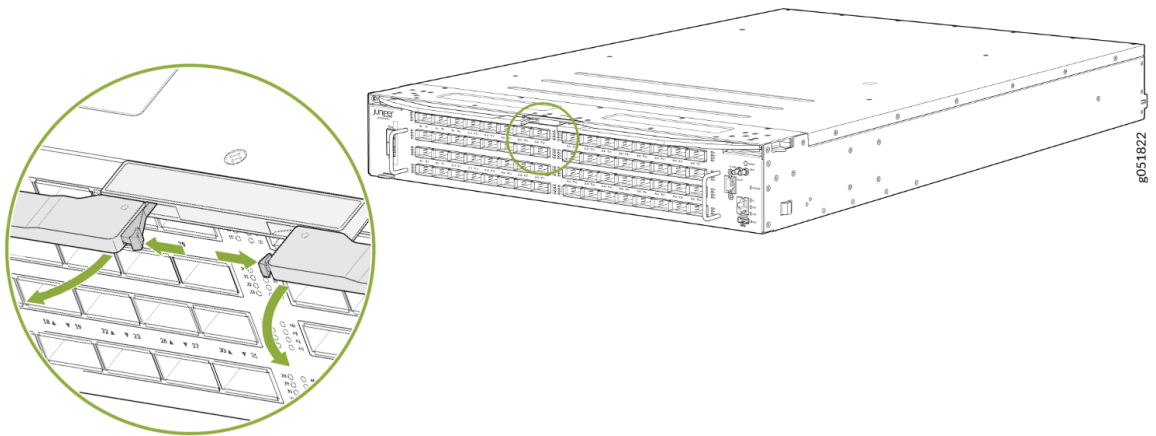


5. Press the push button on both ejector levers to release the ejector lock.



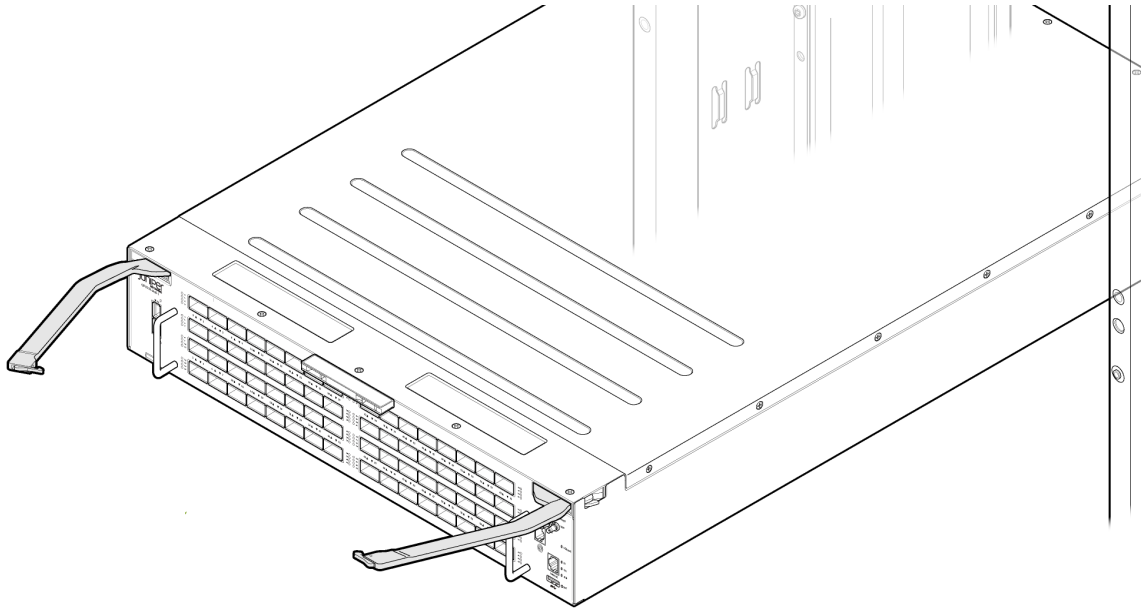
NOTE: Ensure that both ejector levers are opened together.

Figure 20: Press the Push Button



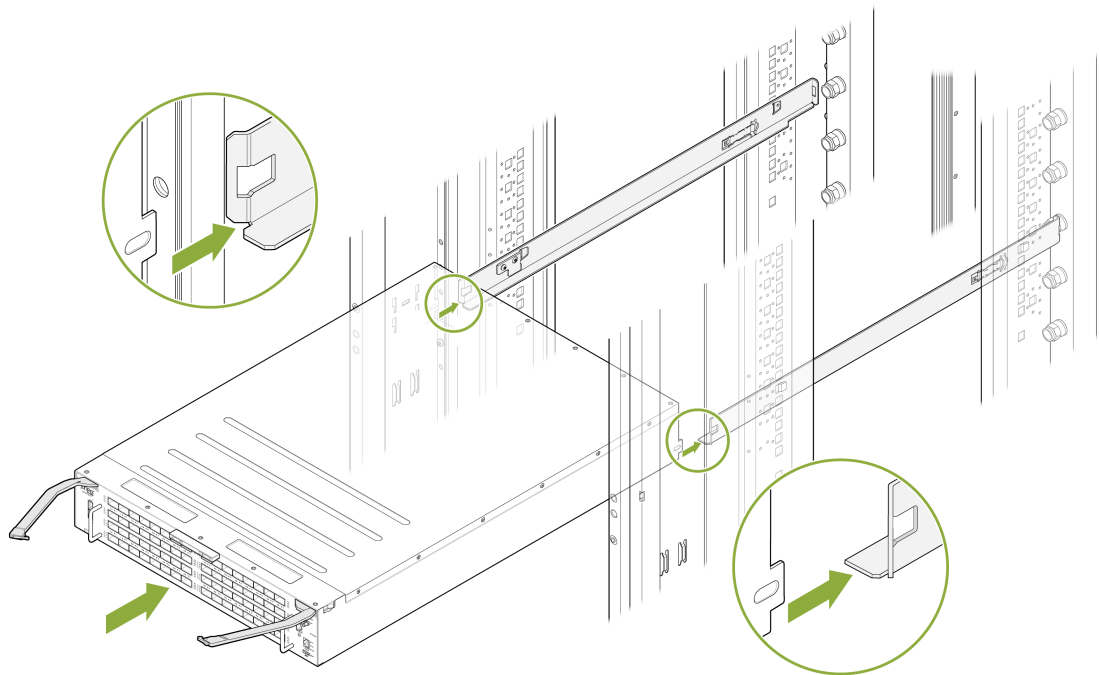
6. Pull the ejector levers outward to the open position.

Figure 21: Switch Ejector Levers in Open Position



7. Carefully align the switch with the rails in the rack and slide the switch into the rack. See [Figure 22 on page 75](#).

Figure 22: Slide the Switch into the Rack



g051841

8. Close the ejector levers inward and lock them on the front panel of the switch. The IT Gear Input Connector at the rear of the switch fully engages with the busbar.

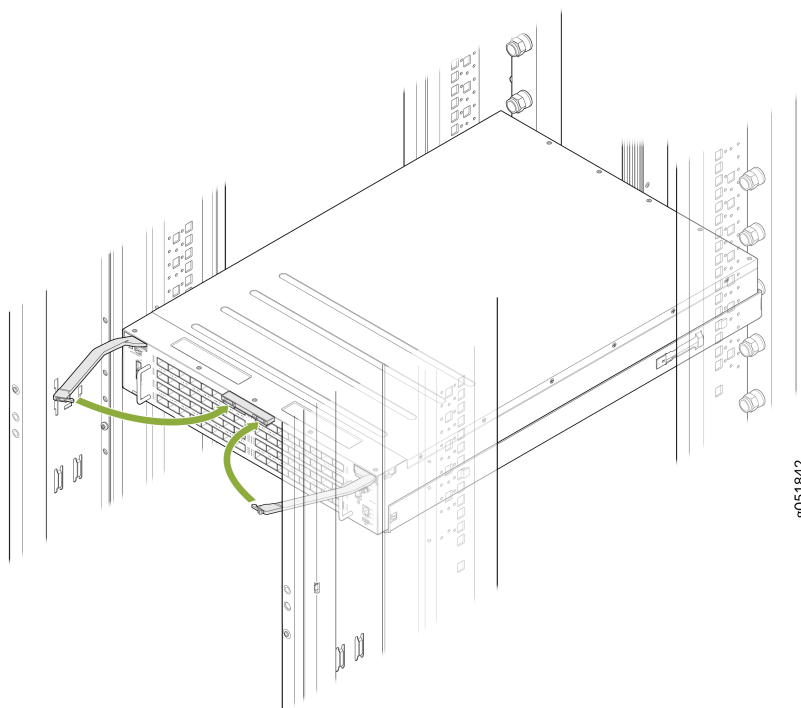


NOTE: Ensure that both ejector levers are closed together.



NOTE: The internal coolant lines or tubes of the QFX5250 switch are shipped pre-filled with nitrogen. The nitrogen bleeds during the first rack installation. When liquid coolant enters the switch through the inlet UQDB06 plug and socket, the nitrogen in the tubing is displaced by the coolant. The displaced nitrogen is removed through the outlet UQDB06 plug of the switch.

Figure 23: Close the Ejector Levers on the Fully Inserted Switch



NOTE: The busbar on the ORv3 rack delivers power to the switch. The standard ORv3 rack used with the QFX5250 switch deliver an output voltage of 46 V DC to 56 V DC.

9. If an OSFP or SFP port is empty, cover it with a dust cover to prevent debris from entering.

NOTE: For the switch installed in an ORv3 rack, you do not require an additional grounding or power configuration. The ORv3 rack infrastructure provides integrated power delivery and grounding. Ensure you install and ground the rack properly according to site standards.

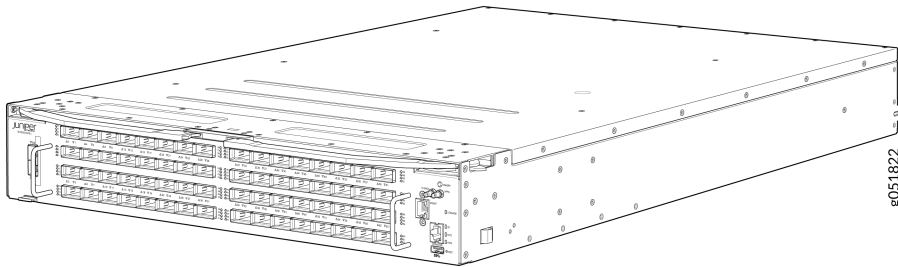
Uninstall the Switch from the ORv3 Rack

Before you uninstall the switch from ORv3 rack, you must gracefully shutdown the QFX5250 switch. See ["Power Off an ORv3-Compliant QFX5250 Switch" on page 105](#).

To uninstall the ORv3 compliant switch from the ORv3 rack:

1. Locate the ejector levers in their closed position at the center of the switch.

Figure 24: Locate the Ejector Levers



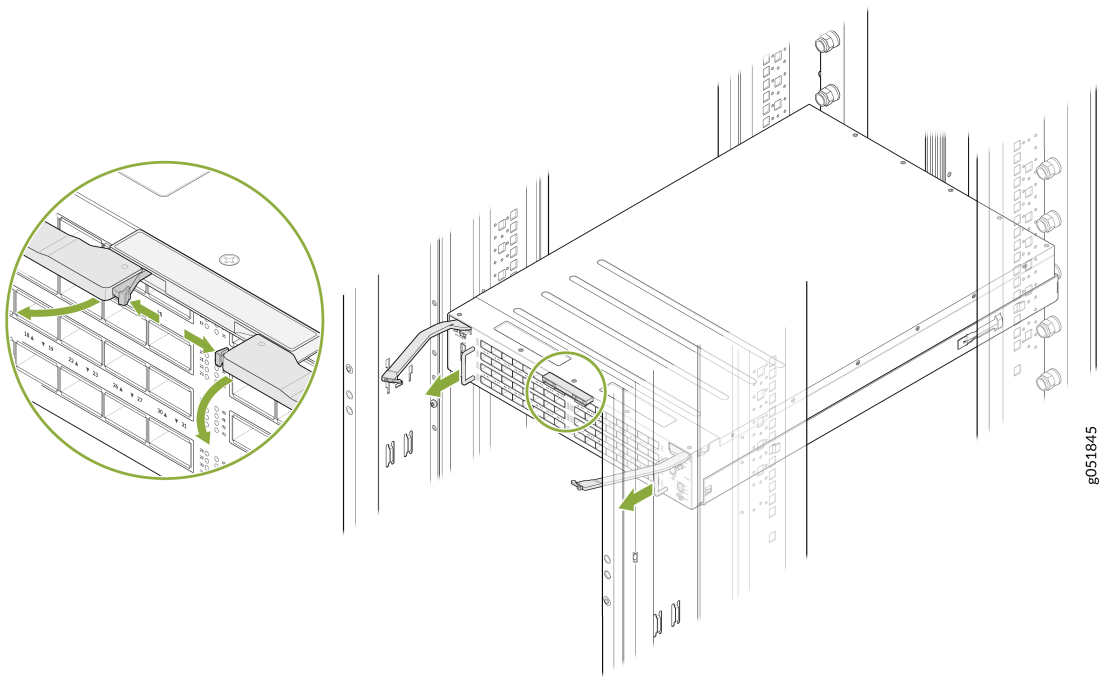
2. Press the push button on both ejector levers to release the ejector lock.



NOTE: Ensure that both ejector levers are opened together.

3. Pull the ejector levers outward to the open position.
4. Grasp the handles on both sides of the switch and carefully slide the switch out of the ORv3 rack. Sliding the switch out disconnects the power supply to the switch.

Figure 25: Release the Ejector Lock and Slide the Switch Out



Ground the Switch



NOTE: The ORv3 connector provides integrated grounding and no additional grounding is required.

You do not need separate grounding for your switch. The ORv3 rack infrastructure includes built-in grounding. Ensure the rack grounding is implemented according to site requirements. You do not need to take additional action for the switch.

Connect the QFX5250 Switch to the Network

SUMMARY

Connecting network cables to the Device-Name involves the following steps and safety precautions to prevent equipment damage and personal injury.

IN THIS SECTION

- [Install an ORHS Transceiver | 79](#)
- [Connect a Fiber-Optic Cable | 81](#)

The transceivers for Juniper Networks devices are hot-removable and hot-insertable field-replaceable units (FRUs). You can remove and replace the transceivers without powering off the device or disrupting the device functions.



NOTE: We recommend that you use only optical transceivers and optical connectors purchased from Juniper Networks with your Juniper Networks device.



CAUTION: The Juniper Networks Technical Assistance Center (JTAC) provides complete support for Juniper-supplied optical modules and cables. However, JTAC does not provide support for third-party optical modules and cables that are not qualified or supplied by Juniper Networks. If you face a problem running a Juniper device that uses third-party optical modules or cables, JTAC may help you diagnose host-related issues if the observed issue is not, in the opinion of JTAC, related to the use of the third-party optical modules or cables. Your JTAC engineer will likely request that you check the third-party optical module or cable and, if required, replace it with an equivalent Juniper-qualified component.

Use of third-party optical modules with high-power consumption (for example, coherent ZR or ZR+) can potentially cause thermal damage to or reduce the lifespan of the host equipment. Any damage to the host equipment due to the use of third-party optical modules or cables is the users' responsibility. Juniper Networks will accept no liability for any damage caused due to such use.



NOTE: After you insert a transceiver or after you change the media-type configuration, wait for 6 seconds for the interface to display operational commands.

Install an ORHS Transceiver

Use the information in this topic to install octal small form factor pluggable with riding heat sink (OSFP-RHS or ORHS) optical transceivers and fiber-optic cables.



CAUTION: The Juniper Networks Technical Assistance Center (JTAC) provides complete support for Juniper-supplied optical modules and cables. However, JTAC does not provide support for third-party optical modules and cables that are not qualified or supplied by Juniper Networks. If you face a problem running a Juniper device that uses third-party optical modules or cables, JTAC may help you diagnose host-related issues if the observed issue is not, in the opinion of JTAC, related to the use of the third-party optical modules or cables. Your JTAC engineer will likely request that you check the third-party optical module or cable and, if required, replace it with an equivalent Juniper-qualified component.

Use of third-party optical modules with high-power consumption (for example, coherent ZR or ZR+) can potentially cause thermal damage to or reduce the lifespan of the host equipment. Any damage to the host equipment due to the use of third-party optical modules or cables is the users' responsibility. Juniper Networks will accept no liability for any damage caused due to such use.

Ensure that you have a rubber safety cap available to cover the transceiver.

Before you install a transceiver in a device, ensure that you have taken the necessary precautions for safe handling of lasers (see [Laser and LED Safety Guidelines and Warnings](#)).

Ensure that you have a rubber safety cap available to cover the transceiver.



CAUTION: To prevent electrostatic discharge (ESD) damage to the transceiver, do not touch the connector pins at the end of the transceiver.

To install an ORHS transceiver:

1. Wrap and fasten one end of the ESD wrist strap around your bare wrist, and connect the other end of the strap to a site ESD point or to the ESD point on the device.
2. Remove the transceiver from its bag.



CAUTION: To prevent electrostatic discharge (ESD) damage to the transceiver, do not touch the connector pins at the end of the transceiver.

3. Check to see whether the transceiver is covered with a rubber safety cap. If it is not, cover the transceiver with a rubber safety cap.



LASER WARNING: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and protects your eyes from accidental exposure to laser light.

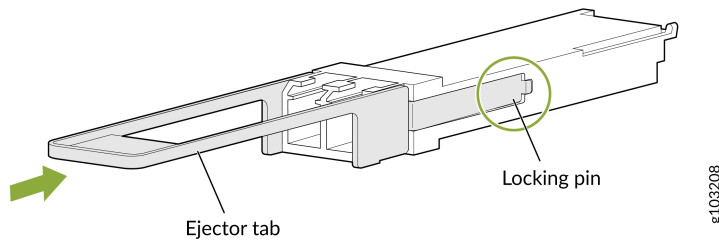
4. If the port in which you want to install the transceiver is covered with a dust cover, remove the dust cover and save it in case you need to cover the port later. If you are hot-swapping a transceiver, wait for at least 10 seconds after removing the transceiver from the port before installing a new transceiver.



NOTE: Make sure to use a dust cap to cover ports that are unused.

5. Orient the transceiver over the port so that the transceiver connector faces the appropriate direction.
6. Slide the transceiver into the slot until the locking pins lock in place. If there is resistance, remove the transceiver and flip it so that the connector faces the other direction.

Figure 26: Install an ORHS Transceiver



7. Remove the rubber safety cap from the transceiver when you are ready to connect the cable to the transceiver.



LASER WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

8. If there is a cable management system, arrange the cable in the cable management system to prevent the cable from dislodging or developing stress points. Secure the cable so that it does not support its own weight as it hangs toward the floor. Place excess cable out of the way in a neatly coiled loop in the cable management system. Placing fasteners on the loop helps to maintain its shape.



CAUTION: Do not let fiber-optic cable hang free from the connector. Do not allow fastened loops of cable to dangle, which stresses the cable at the fastening point.



CAUTION: Avoid bending the fiber-optic cable beyond its minimum bend radius. An arc smaller than a few inches in diameter can damage the cable and cause problems that are difficult to diagnose.

Connect a Fiber-Optic Cable

Before you connect a fiber-optic cable to an optical transceiver installed in a device, ensure that you have taken the necessary precautions for the safe handling of lasers (see [Laser and LED Safety Guidelines and Warnings](#)).



LASER WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

To connect a fiber-optic cable to an optical transceiver installed in a device:

1. If the fiber-optic cable connector is covered with a rubber safety cap, remove the cap. Save the cap for subsequent use.
2. Remove the rubber safety cap from the optical transceiver. Save the cap for subsequent use.



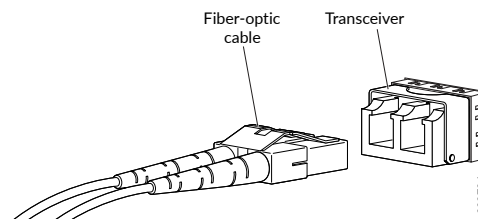
CAUTION: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The safety cap keeps the port clean and protects your eyes from accidental exposure to laser light.



LASER WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. The fiber-optic transceivers and the fiber-optic cables connected to a transceiver emit laser light that can damage your eyes.

3. Insert the cable connector into the optical transceiver.

Figure 27: Connect a Fiber-Optic Cable to an Optical Transceiver Installed in a Device



4. Secure the cable so that it does not support its own weight. Place excess cable out of the way in a neatly coiled loop. Placing fasteners on a loop helps cables maintain their shape.

If there is a cable management system, arrange the cable in the cable management system to prevent the cable from dislodging or developing stress points.



CAUTION: Do not bend fiber-optic cables beyond their minimum bend radius. An arc smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.

Do not let fiber-optic cables hang free from the connector. Do not allow fastened loops of cables to dangle, which stresses the cables at the fastening point.

Connect the QFX5250 Switch to External Devices

SUMMARY

This topic guides you on how to connect your QFX5250 switch to external management or timing devices.

IN THIS SECTION

- [Connect the QFX5250 Switch to a Network for Out-of-Band Management | 83](#)
- [Connect the QFX5250 Switch to a Management Console Using an RJ-45 Connector | 84](#)
- [Connect the QFX5250 Switch to External Clocking and Timing Devices | 85](#)

You can monitor and manage the QFX5250 switch by using a dedicated management channel. Use the management port to connect your device to the management device.

You can also connect the QFX5250 switch to external clocking and timing devices.

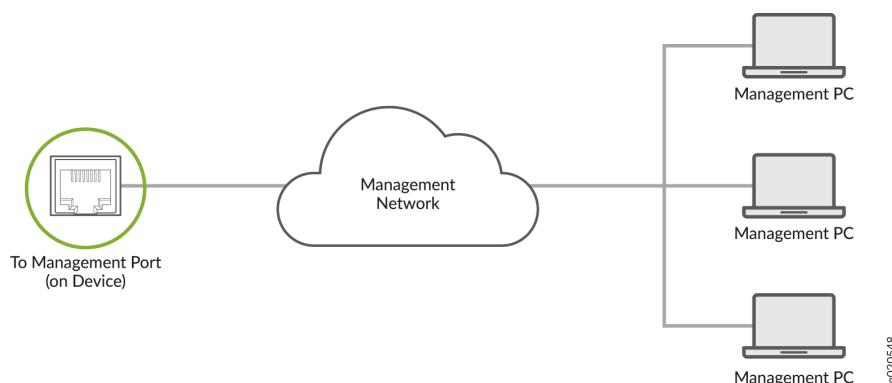
Connect the QFX5250 Switch to a Network for Out-of-Band Management

Ensure that you have an Ethernet cable that has an RJ-45 connector at each end.

To connect a device to a network for out-of-band management (OOBM):

1. Wrap and fasten one end of an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the other end of the strap to one of the ESD points on the chassis.
2. Connect one end of the Ethernet cable to the management port on the device.
3. Connect the other end of the cable to the management device.

Figure 28: Connect Your Device to a Network for Out-of-Band Management



Connect the QFX5250 Switch to a Management Console Using an RJ-45 Connector

Ensure that you have an Ethernet cable that has an RJ-45 connector at either end. You will also need the appropriate adapter (not provided) depending upon your console server or management console.

You can separately order the following adapters from Juniper Networks:

- RJ-45 to DB-9 adapter (JNP-CBL-RJ45-DB9)
- RJ-45 to USB-A adapter (JNP-CBL-RJ45-USBA)
- RJ-45 to USB-C adapter (JNP-CBL-RJ45-USBC)



NOTE: If you want to use the RJ-45 to USB-A or RJ-45 to USB-C adapter, you must have X64 (64-Bit) Virtual COM port (VCP) driver installed on your PC. See <https://ftdichip.com/drivers/vcp-drivers/> to download the driver.

To connect the device to a management console:

1. Wrap and fasten one end of an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the other end of the strap to one of the ESD points on the chassis.
2. Connect one end of the Ethernet cable to the console port on the device.
3. Connect the other end of the cable to the console server or PC.

Figure 29: Connect Your Device to a Management Console Through a Console Server

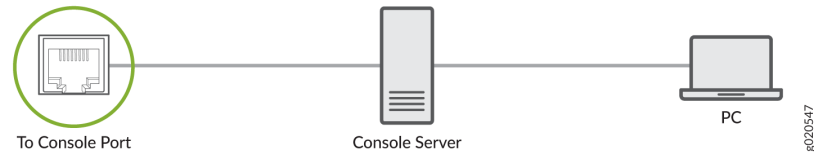


Figure 30: Connect Your Device Directly to a Management Console



Connect the QFX5250 Switch to External Clocking and Timing Devices

IN THIS SECTION

- [Connect 1-PPS and 10-MHz Timing Devices | 85](#)

Connect 1-PPS and 10-MHz Timing Devices



NOTE: The QFX5250 switch does not currently support timing features. The 1PPS and 10MHz ports may not work as expected.

Your device has GPS clock ports that you can use to connect it to a 1-pulses per second (PPS) and 10-megahertz (MHz) timing device. These ports require 2x1 DIN 1.0/2.3 latching plug connectors.

You can configure your device as a timing primary device or a client device. As a timing primary device, the device receives inputs from the timing device through the input ports and sends outputs to a client device through the output ports. As a timing client device, the device receives inputs from the timing device through the input ports.

To connect your device to a 1-PPS and 10-MHz timing device:

1. If your device is a timing client device, connect one end of each 2x1 DIN 1.0/2.3 cable to each input port on your device.

If your device is a timing primary device, connect it to a client device by using the output ports.



NOTE: Ensure that you use a cable of 3 meters or less.

Ensure that the timing device supports an input or output impedance of 50 ohms and input and output voltage levels that comply with ITU G.703. The timing device inputs must be 5-volt (V) tolerant.

2. Connect the other end of each cable to each 1-PPS and 10-MHz connector on the timing device.

Connect the QFX5250 Switch to Power

SUMMARY

Connecting power to the QFX5250 switch involves the following steps and safety precautions to prevent equipment damage and personal injury.

IN THIS SECTION

- [Connect the ORv3 Compliant QFX5250 Switch to Power | 86](#)

Connect the ORv3 Compliant QFX5250 Switch to Power

The powering-on information provided in this section is valid for the following models of QFX5250:

- QFX5250-64OE-L—There are no additional steps to connect a liquid-cooled QFX5250 switch to power. When you install the QFX5250 switch on the ORv3 rack, the IT Gear Input Connector on the switch slots into the corresponding busbar on the ORv3 rack. The switch installed on the ORv3 rack draws power from the busbar. When the switch is correctly installed, it powers on automatically. For more information on installing the liquid-cooled QFX5250 model installed on an ORv3 rack, see ["How to Install QFX5250 Liquid-cooled Switch \(2OU\) in ORv3 Rack" on page 66.](#)

Sliding the switch out of the ORv3 rack disconnects the power supply.

Configure Junos OS Evolved on the QFX5250 Switch

SUMMARY

This topic guides you through the initial configuration of your QFX5250 by using Juniper Apstra, and the CLI.

IN THIS SECTION

- [Access the CLI on the QFX5250 Switch | 88](#)
- [Configure Root Authentication and Management Interface from the CLI | 88](#)

We ship the QFX5250 switch with preinstalled Junos OS Evolved, which is ready to be configured when you power on the device.

You must perform the initial configuration of the QFX5250 switch through the console port using the CLI or through zero-touch provisioning (ZTP). ZTP is supported on the following ports:

- Management Port
- Two SFP28 Ports (et-0/0/64 and et-0/0/65)
- Four WAN Ports (et-0/0/0, et-0/0/1, et-0/0/62, et-0/0/63)

In order to use ZTP to provision the device, you must have access to the following:

- Dynamic Host Control Protocol (DHCP) server—Provides the location of the software image and configuration files on the network.
- File Transfer Protocol (anonymous FTP), Hypertext Transfer Protocol (HTTP), Hypertext Transfer Protocol Secure (HTTPS), or Trivial File Transfer Protocol (TFTP) server—Stores the software image and configuration files.

For more information about using ZTP for provisioning the device, see [Understanding Zero Touch Provisioning](#) in the *Installation and Upgrade Guide*.

Connect the console port to a laptop or PC using an RJ-45 cable and an RJ-45-to-DB-9 adapter. The console (**CON**) port is located on the right side of the port panel.

Access the CLI on the QFX5250 Switch

To access the CLI on your device:

1. Verify that the device is powered on.
2. Connect the management device to the serial console port as described in ["Connect the QFX5250 Switch to External Devices" on page 83](#).
3. Start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal) and select the appropriate COM port to use (for example, COM1).
4. Configure the serial port settings with the following values:
 - Baud rate—9600
 - Parity—N
 - Data bits—8
 - Stop bits—1
 - Flow control—none
5. Power on the device. You can start performing initial software configuration on the device after the device is up.



NOTE: After you complete the initial configuration, you can connect your device to a network for out-of-band management as described in ["Connect the QFX5250 Switch to External Devices" on page 83](#).

Configure Root Authentication and Management Interface from the CLI

You must perform the initial configuration of the device through the console port.

Gather the following information before configuring the device:

- Root authentication
- IP address of the management interface
- IP address of the default gateway
- IP address of a DNS server

To configure root authentication and the management interface:

1. Connect the console port to a laptop or PC using an RJ-45 cable and an RJ-45-to-DB-9 adapter. The console (**CON**) port is located on the right side of the port panel, below the **MGMT** port.



NOTE: We no longer include the RJ-45 console cable with the DB-9 adapter as part of the device package. Check if any of the console cables and adapters are included in your device package. If you need a console cable or a different type of adapter, you can order the following separately:

- RJ-45 to DB-9 adapter (JNP-CBL-RJ45-DB9)
- RJ-45 to USB-A adapter (JNP-CBL-RJ45-USBA)
- RJ-45 to USB-C adapter (JNP-CBL-RJ45-USBC)

If you want to use RJ-45 to USB-A or RJ-45 to USB-C adapter, you must have X64 (64-Bit) Virtual COM port (VCP) driver installed on your PC. See, <https://ftdichip.com/drivers/vcp-drivers/> to download the driver.

2. Log in as **root**. You don't need to enter a password. If the software booted before you connected to the console port, you might need to press the **Enter** key for the prompt to appear.

```
login: root
```

3. Start the CLI and enter configuration mode.

```
root@% cli
root@>configure
root@#
```

4. Set the root authentication password. You can enter a cleartext password, an encrypted password, or an SSH public key string (DSA or RSA).

```
[edit]
root@# set system root-authentication plain-text-password
New password: password
Retype new password: password
```

5. (Optional) Configure the host name of the device.

```
[edit]
root@# set system host-name host-name
```

6. Configure the IP address and prefix length for the switch management interface.

```
[edit]
root@# set interfaces re0:mgmt-0 unit 0 family inet address address/prefix-length
```



CAUTION: Use this CLI command to configure the single management Ethernet interface available in QFX5250switch.



NOTE: On the QFX5250 switch, the management port `re0:mgmt-0` is the RJ-45 port on the top right of the port panel and is labeled **MGMT**.

7. Create the `mgmt_junos` routing instance, and configure the static routes to remote prefixes with access to the management port.

```
[edit]
root@# set routing-instances mgmt_junos routing-options static route 0/0 next-hop
destination-ip
```

8. Enable the management instance.

```
[edit]
root@# set system management-instance
```

9. Enable the Telnet service.

```
[edit]
root@# set system services telnet
```



NOTE: When you enable Telnet, you cannot log in to QFX5250 switch through Telnet using root credentials. Root login is allowed only for SSH access.

10. Enable SSH service for root login.

```
[edit]
root@# set system services ssh root-login allow
```

11. Commit the configuration to activate it on the switch.

```
[edit]  
root@# commit
```

8

CHAPTER

Maintenance

IN THIS CHAPTER

- Routine Maintenance Guidelines for the QFX5250 Switch | **93**
 - Maintain the Solid-State Drive in a QFX5250 Switch | **93**
 - Maintain Transceivers and Fiber Optic Cables on a QFX5250 Switch | **100**
 - Power Off a QFX5250 Switch | **104**
 - Leakage Maintenance for the QFX5250 Switch | **104**
 - Power Off an ORv3-Compliant QFX5250 Switch | **105**
-

Routine Maintenance Guidelines for the QFX5250 Switch

To maintain optimum device performance, follow these preventive maintenance guidelines:

- Inspect the installation site for moisture, loose wires or cables, and excessive dust.
- Check status LEDs on the front panel of the device.

Maintain the Solid-State Drive in a QFX5250 Switch

IN THIS SECTION

- [Remove the Solid-State Drive from a QFX5250 Switch | 93](#)
- [Install the Solid-State Drive in a QFX5250 Switch | 96](#)

The QFX5250 switch supports two 200-GB SSDs. You cannot install or remove the SSDs when the switch is powered-on. You must shut down the switch before replacing the SSD. The SSDs are preinstalled in the switch.

Remove the Solid-State Drive from a QFX5250 Switch

Before you remove a solid-state drive (SSD) from the device, ensure that you have taken the necessary precautions to prevent ESD damage.

Ensure that you have the following parts and tools available to remove an SSD from a QFX5250 switch:

- ESD grounding strap
- Antistatic bag or an antistatic mat
- Phillips (+) screwdriver, number 1



NOTE: An SSD heatsink covers the two SSDs in the liquid-cooled QFX5250 model, QFX5250-64OE-L. After removing the SSD cover, remove the heatsink. You cannot remove the SSD without removing the heatsink.

1. Place the antistatic bag or the antistatic mat on a flat, stable surface.
2. Wrap and fasten one end of the ESD grounding strap around your bare wrist, and connect the other end of the strap to the ESD point on the rack.
3. Turn the switch chassis upside down and locate the SSD cover plate.
4. Remove the three screws securing the SSD cover plate by using the Phillips (+) screwdriver.

Figure 31: Remove the SSD Cover Plate for QFX5250-64OE-L (Liquid-cooled Model)

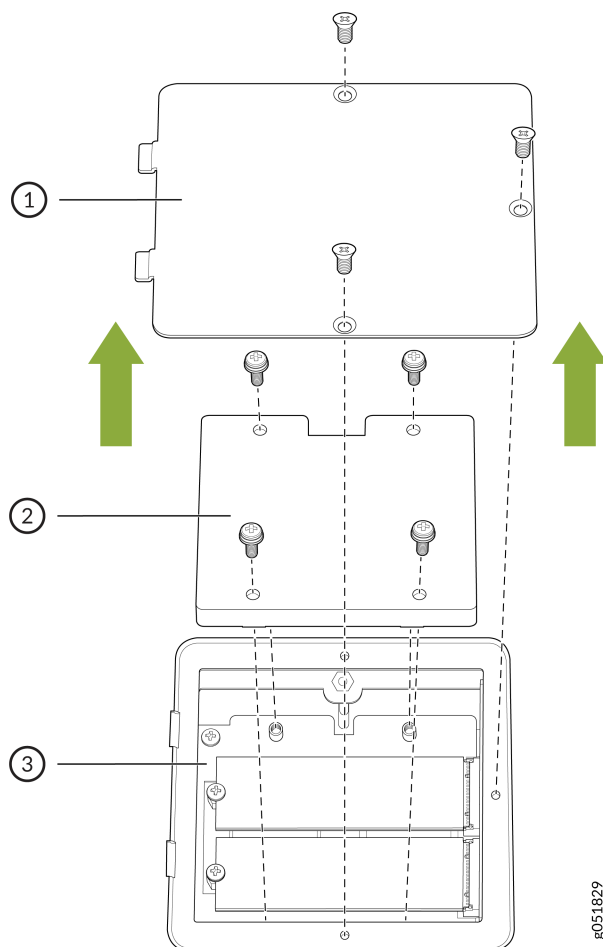


Table 27: Components on the QFX5250 SSD

Callout	Item
1	SSD cover plate
2	SSD heatsink
3	SSD

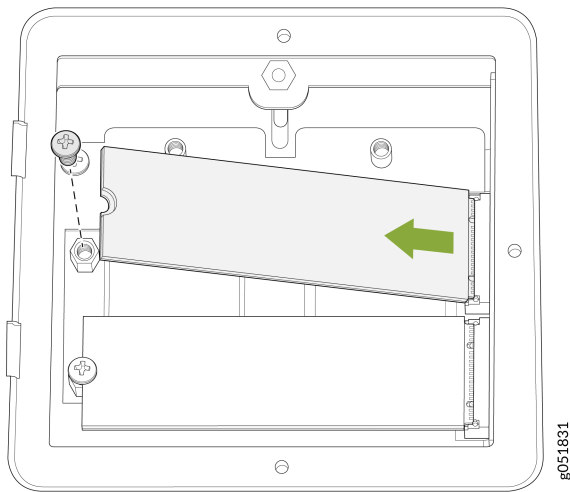
5. Remove the four screws holding the SSD heatsink in place.



NOTE: Only the liquid-cooled model of QFX5250 switch has a heatsink.

6. Remove the single screw holding the SSD in place and slide the drive out of its slot.

Figure 32: Remove the SSD



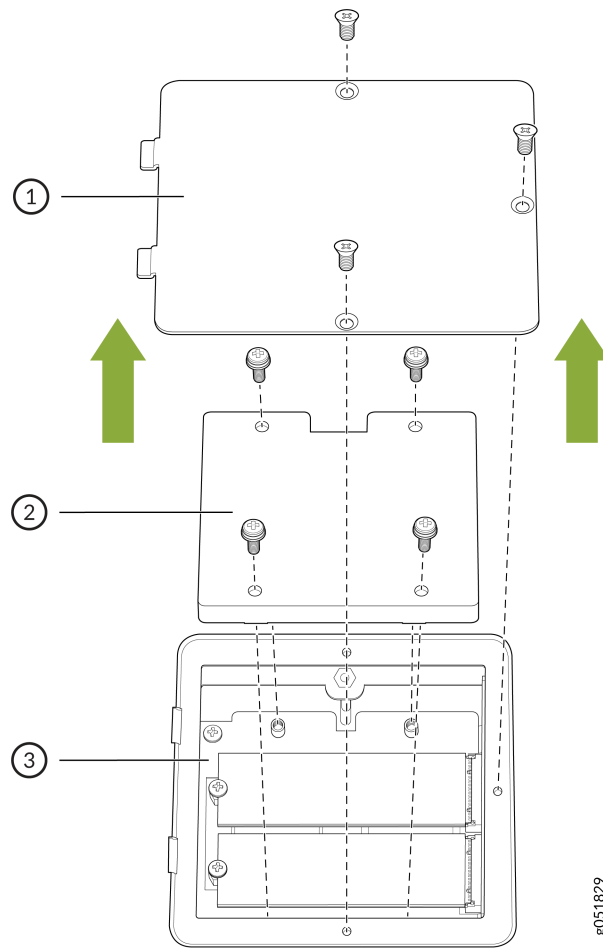
7. Place the SSD in an electrostatic bag or on an antistatic mat.
8. Place the SSD cover plate back on the chassis and tighten the three screws securing the SSD cover plate.

Install the Solid-State Drive in a QFX5250 Switch

Before you install an SSD in the device, ensure that you have taken the necessary precautions to prevent ESD damage.

Ensure that you have the following parts and tools available to install an SSD in the QFX5250 switch:

- ESD grounding strap
 - Antistatic bag containing the SSD or an antistatic mat
 - Phillips (+) screwdriver, number 1
1. Place the antistatic bag or the antistatic mat on a flat, stable surface.
 2. Wrap and fasten one end of the ESD grounding strap around your bare wrist, and connect the other end of the strap to the ESD point on the rack.
 3. Turn the switch upside down and locate the SSD cover plate.
 4. If the screws are not already removed, remove the three screws securing the SSD cover plate by using the Phillips (+) screwdriver.

Figure 33: Remove the SSD Cover Plate for QFX5250-64OE-L (Liquid-Cooled Model)**Table 28: Components on the QFX5250 SSD**

Callout	Item
1	SSD cover plate
2	SSD heatsink
3	SSD

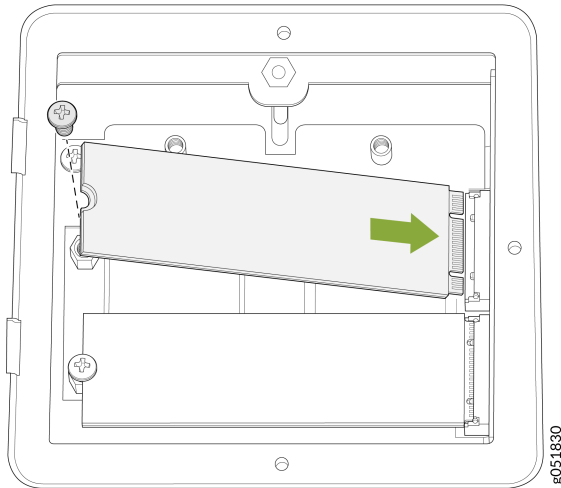
5. If the screws are not already removed, remove the four screws securing the SSD heatsink by using the Phillips (+) screwdriver.



NOTE: Only the liquid-cooled model of QFX5250 switch has a heatsink.

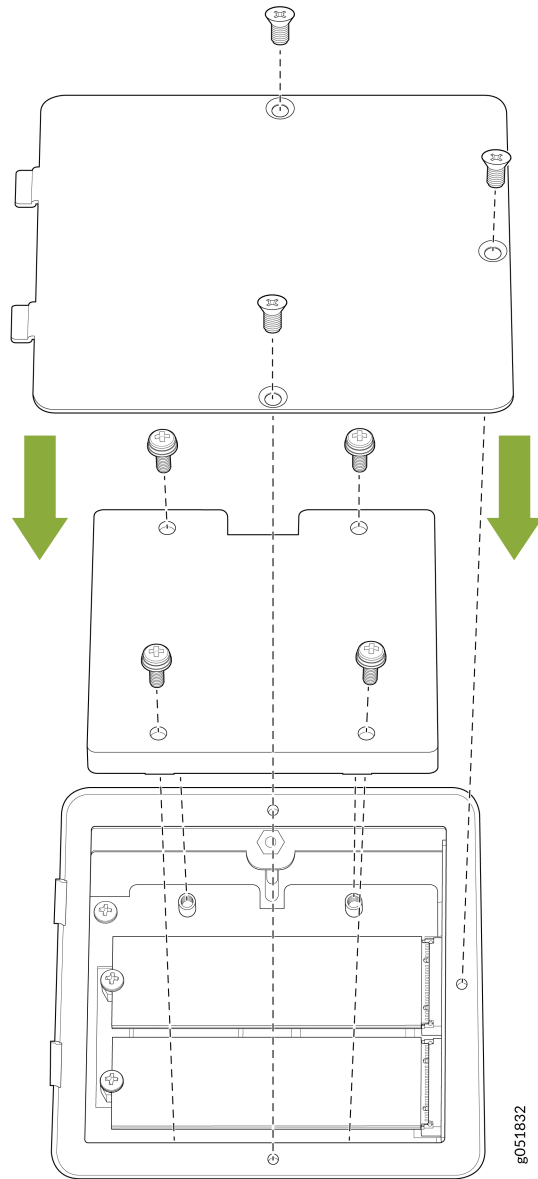
6. Slide the drive into the SSD slot and tighten the single screw holding the SSD.

Figure 34: Install the SSDs



7. Place the SSD heatsink back on the chassis and tighten the single screw securing each of the SSD heatsink in place.
8. Place the SSD cover plate back on the chassis and tighten the three screws securing the SSD cover plate.

Figure 35: Replace the SSD Cover Plate for QFX5250-64OE-L (Liquid-Cooled Model)



Maintain Transceivers and Fiber Optic Cables on a QFX5250 Switch

IN THIS SECTION

- [Remove an ORHS Transceiver | 100](#)
- [Disconnect a Fiber-Optic Cable | 102](#)
- [How to Handle Fiber-Optic Patch Cables | 103](#)

Remove an ORHS Transceiver

Use the information in this topic to remove octal small form factor pluggable riding heat sink (OSFP-RHS or ORHS) optical transceivers and fiber-optic cables.



CAUTION: The Juniper Networks Technical Assistance Center (JTAC) provides complete support for Juniper-supplied optical modules and cables. However, JTAC does not provide support for third-party optical modules and cables that are not qualified or supplied by Juniper Networks. If you face a problem running a Juniper device that uses third-party optical modules or cables, JTAC may help you diagnose host-related issues if the observed issue is not, in the opinion of JTAC, related to the use of the third-party optical modules or cables. Your JTAC engineer will likely request that you check the third-party optical module or cable and, if required, replace it with an equivalent Juniper-qualified component.

Use of third-party optical modules with high-power consumption (for example, coherent ZR or ZR+) can potentially cause thermal damage to or reduce the lifespan of the host equipment. Any damage to the host equipment due to the use of third-party optical modules or cables is the users' responsibility. Juniper Networks will accept no liability for any damage caused due to such use.

Before you remove a transceiver from a device, ensure that you have taken the necessary precautions for the safe handling of lasers (see [Laser and LED Safety Guidelines and Warnings](#)).

Ensure that you have the following parts and tools available:

- An antistatic bag or an antistatic mat

- An electrostatic discharge (ESD) strap
- Rubber safety caps to cover the transceiver and fiber-optic cable connector
- A dust cover to cover the port or a replacement transceiver

The transceivers for Juniper Networks devices are hot-removable and hot-insertable field-replaceable units (FRUs). You can remove and replace the transceivers without powering off the device or disrupting device functions.



NOTE: After you remove a transceiver, or when you change the media-type configuration, wait for 6 seconds for the interface to display the operational commands.

To remove an ORHS transceiver:

1. Place the antistatic bag or antistatic mat on a flat, stable surface.
2. Wrap and fasten one end of the ESD wrist strap around your bare wrist, and connect the other end of the strap to the ESD point on the rack.
3. Label the cable connected to the transceiver so that you can reconnect it correctly.



LASER WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.



LASER WARNING: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and protects your eyes from accidental exposure to laser light.

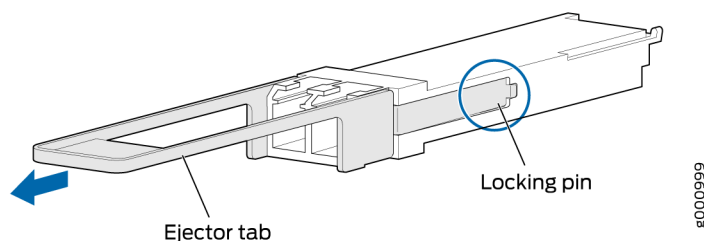


CAUTION: Do not bend fiber-optic cables beyond their minimum bend radius. An arc smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.

4. Remove the cable connected to the transceiver (see [Figure 36 on page 102](#)). Cover the transceiver and the end of each fiber-optic cable connector with a rubber safety cap immediately after disconnecting the fiber-optic cables.
5. If there is a cable management system, arrange the cable in the cable management system to prevent it from dislodging or developing stress points. Secure the cable so that it does not support its own weight as it hangs to the floor. Place excess cable out of the way in a neatly coiled loop in the cable management system. Placing fasteners on the loop helps to maintain its shape.

6. Pull the transceiver's ejector tab straight back. The locking pins on the transceiver release automatically.
7. Gently slide the transceiver straight out of the port and place the transceiver on the antistatic mat or in the electrostatic bag.

Figure 36: Remove an ORHS Transceiver



CAUTION: To avoid ESD damage to the transceiver, do not touch the connector pins at the end of the transceiver.



NOTE: After you remove a transceiver or after you change the media-type configuration, wait for 6 seconds for the interface to display operational commands.

8. Insert a dust cover in the empty port.

Disconnect a Fiber-Optic Cable

Before you disconnect a fiber-optic cable from an optical transceiver, ensure that you have taken the necessary precautions for safe handling of lasers. See [Laser and LED Safety Guidelines and Warnings](#).

Ensure that you have the following parts and tools available:

- Electrostatic discharge (ESD) strap
- A rubber safety cap to cover the transceiver
- A rubber safety cap to cover the fiber-optic cable connector

Juniper Networks devices have optical transceivers to which you can connect fiber-optic cables.

To disconnect a fiber-optic cable from an optical transceiver installed in the device:

1. Disable the port in which the transceiver is installed by issuing the following command:

```
[edit interfaces]  
user@device# set interface-name disable
```



LASER WARNING: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

2. Carefully unplug the fiber-optic cable connector from the transceiver.
3. Cover the transceiver with a rubber safety cap.



LASER WARNING: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and protects your eyes from accidental exposure to laser light.

4. Cover the fiber-optic cable connector with the rubber safety cap.

How to Handle Fiber-Optic Patch Cables

Fiber-optic patch cables connect to optical transceivers that are installed in Juniper Networks devices.

Follow these guidelines when handling fiber-optic patch cables:

- When you unplug a fiber-optic patch cable from a transceiver, place rubber safety caps over the transceiver and on the end of the cable.
- Anchor fiber-optic patch cables to prevent stress on the connectors. When attaching a fiber-optic patch cable to a transceiver, secure the fiber-optic patch cable so that it does not support its own weight as it hangs to the floor. Never let a fiber-optic patch cable hang free from the connector.
- Avoid bending the fiber-optic patch cables beyond their minimum bend radius. Bending fiber-optic patch cables into arcs smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.
- Frequent plugging and unplugging of fiber-optic patch cables in and out of optical instruments can damage the instruments, which are expensive to repair. To prevent damage from overuse, attach a short fiber extension to the optical equipment. The short fiber extension absorbs wear and tear due to frequent plugging and unplugging. It is easier and more cost-efficient to replace the short fiber extension than to replace the instruments.

- Keep fiber-optic patch cable connections clean. Microdeposits of oil and dust in the canal of the transceiver or cable connector can cause loss of light, reduction in signal power, and possibly intermittent problems with the optical connection.
- To clean the transceiver canal, use an appropriate fiber-cleaning device such as RIFOCS Fiber Optic Adaptor Cleaning Wands (part number 946). Follow the instructions in the cleaning kit you use.
- After cleaning the transceiver, make sure that the connector tip of the fiber-optic patch cable is clean. Use only an approved alcohol-free fiber-optic cable cleaning kit such as the Opptex Cletop-S® Fiber Cleaner. Follow the instructions in the cleaning kit you use.

Power Off a QFX5250 Switch



NOTE: For QFX5250 switches mounted on an ORv3 rack, sliding the switch or the switch-tray assembly out of the rack automatically disconnects power. For information on the graceful shutdown of the ORv3-compliant switch, see ["Power Off an ORv3-Compliant QFX5250 Switch" on page 105](#).

Leakage Maintenance for the QFX5250 Switch

SUMMARY

Perform the following steps if there is a leakage in your liquid-cooled QFX5250 switch.

- Ensure that the switch is powered off.
- Have dry air or nitrogen supply ready.
- Follow all the applicable safety guidelines when handling coolant and pressurized gases.

This procedure describes the steps to drain, purge, and refill the liquid-cooled QFX5250 switch with nitrogen prior to RMA procedure.

1. Flush the switch thoroughly to remove any residual coolant.
2. Purge the switch using dry air or nitrogen to remove any remaining moisture or coolant residue. Ensure that the switch is completely dry before proceeding.
3. Refill the switch with nitrogen (N₂).

Power Off an ORv3-Compliant QFX5250 Switch

SUMMARY

Follow these steps to power off an ORv3-compliant QFX5250 switch.

Before you power off an ORv3-compliant QFX5250 switch:

- Ensure that you have taken the necessary precautions to prevent electrostatic discharge (ESD) damage. See [Prevention of Electrostatic Discharge Damage](#).
- Ensure that you do not need to forward traffic through the switch.

Ensure that you have the following parts and tools available to power off the switch:

- An ESD grounding strap
- An external management device such as a PC
- An RJ-45-to-DB-9 rollover cable to connect the external management device to the console port

To power off a QFX5250 switch:

1. Connect to the switch using one of the following methods:
 - Connect a management device to the console (**CON**) port on the QFX5250 switch. For instructions about connecting a management device to the console (**CON**) port, see ["Connect the QFX5250 to a Management Console Using an RJ-45 Connector" on page 84](#).
 - Shut down the QFX5250 switch from a management device on your out-of-band management network. For instructions about connecting a management device to the management (**MGMT**) port, see ["Connect Your Device to a Network for Out-of-Band Management" on page 83](#).
2. Shut down Junos OS Evolved from the external management device.

For a QFX5250 switch, issue the `request system power-off` operational mode CLI command. This command shuts down the switch gracefully and preserves system state information. A message appears on the console, confirming that the operating system has halted. You can see the following output:

```
user@host>request system power-off
Power off the system ? [yes,no] (n) yes
*** System shutdown message from user@host

poweroff the system at Thu Jul 10 11:29:25 2025

user@host>
System going down IMMEDIATELY
```



CAUTION: Wait at least 60 seconds after first seeing the final message before proceeding with the following instructions to power off the switch.

3. Wrap and fasten one end of the ESD wrist strap around your bare wrist, and connect the other end of the strap to a site ESD point or to the ESD point on the device.
4. Disconnect DC power to the switch by gently pulling out the switch from the ORv3 rack. This disconnects the busbar on ORv3 rack from the IT Gear Input Connector on the ORv3-compliant QFX5250 switch.
5. Remove the switch from the rack.

9

CHAPTER

Troubleshooting and Support

IN THIS CHAPTER

- QFX5250 Hardware and CLI Terminology Mapping | **108**
 - Troubleshoot the QFX5250 | **108**
 - Contact Customer Support and Return the Chassis or Components | **118**
-

QFX5250 Hardware and CLI Terminology Mapping

Table 29: Junos OS Evolved CLI Equivalents of Terms Used in QFX5250 Documentation

Hardware Item (as displayed in the CLI)	Description	Value (as displayed in the CLI)	Item in Documentation	Additional Information
Chassis	QFX5250-64OE-L		Device chassis	"QFX5250 Chassis" on page 19
FPC	Abbreviated name of Flexible PIC Concentrator	QFX5250 switch supports only one FPC—FPC0. The value corresponds to the FPC slot number.		Understanding Interface Naming Conventions
Xcvr n	Abbreviated name of transceiver	<i>n</i> is a value equivalent to the number of the port in which the transceiver is installed.	Optical transceiver	Hardware Compatibility Tool

Troubleshoot the QFX5250

SUMMARY

This topic contains some common troubleshooting resources for the QFX5250 and a list of alarms and how to fix them.

IN THIS SECTION

- [Troubleshooting Resources for QFX5250 | 109](#)
- [Alarm Types and Alarm Severity | 109](#)
- [QFX5250 Alarm Messages | 112](#)

- [Troubleshoot Chassis and Interface Alarms on the QFX5250 Switch | 115](#)

Troubleshooting Resources for QFX5250

Use the front panel LEDs to identify alarm conditions and the Junos OS Evolved CLI to troubleshoot the device. You can also contact the Juniper Networks® Technical Assistance Center (JTAC) for support.

- LEDs—When the device detects an alarm condition, the alarm LED on an interface glows red or yellow.
- CLI—The CLI is the primary tool for controlling and troubleshooting hardware, Junos OS Evolved, and network connectivity. CLI command outputs display information about network connectivity, which Junos OS Evolved derives from the ping and traceroute utilities. You can use the CLI to see more information about alarm conditions.

For information about using the CLI to troubleshoot Junos OS Evolved, see the appropriate Junos OS Evolved configuration guide.

- JTAC—If you need assistance during troubleshooting, you can contact the Juniper Networks Technical Assistance Center (JTAC) by using the Web or by telephone. If you encounter software problems, or problems with hardware components not discussed in this guide, contact JTAC.

Alarm Types and Alarm Severity

IN THIS SECTION

- [Alarm Types | 110](#)
- [Alarm Severity | 111](#)

Table 30: Alarm Terms

Term	Definition
Alarm	A signal alerting you to conditions that might prevent normal operation. On a device, the alarm signal is the red system LED that is lit on the front of the chassis.
Alarm condition	A failure event that triggers an alarm.
Alarm severity	The seriousness of the alarm. The level of severity can be either major or minor.

Alarm Types

Table 31: Alarm Types

Term	Definition
Chassis alarms	A predefined alarm triggered by a physical condition in the device such as a power supply failure or excessive component temperature.
Interface alarms	An alarm that you configure to alert you when an interface link is down. The alarm applies to Ethernet, Fibre Channel, and management Ethernet interfaces. You can set the alarm as major or minor for a specific link-down condition or have the condition ignored.
System alarms	A predefined alarm that might be triggered by a missing rescue configuration, failure to install a license for a licensed software feature, or high disk usage. You can configure system alarms to appear automatically in the J-Web interface display or CLI display.
Leakage alarms	An alarm that is triggered when there is a coolant leakage in the QFX5250 switch. The LEAKAGE LED will be lit red (on steadily) once the leakage is detected.
Pressure alarms	An alarm that is triggered when the coolant pressure is outside the recommended range for the inlet and outlet UQDB06 ports in QFX5250 switch. For information on the minor and major pressure alarm conditions, see Table 32 on page 111 .

Table 32: Pressure Alarm and Fire Shutdown Specifications

Port Type	Minor Alarm		Major Alarm		Fire Shutdown
	High	Low	High	Low	
Pressure at inlet port (PSI)	42	20	45	15	47
Pressure at outlet port (PSI)	37	15	40	10	42

Alarm Severity

Table 33: Alarm Severity

Term	Definition
Major (red)	Indicates a critical situation on the router that has resulted from one of the following conditions and that requires immediate action: • One or more hardware components have failed. • One or more hardware components have exceeded temperature thresholds. • An alarm condition configured on an interface has triggered a critical warning.
Minor (stable yellow)	Indicates a noncritical condition in the router that, if left unchecked, might cause an interruption in service or degradation in performance. A minor alarm condition requires monitoring or maintenance. For example, a missing rescue configuration generates a minor system alarm.

QFX5250 Alarm Messages

When the QFX5250 switch detects an alarm condition, it lights the red or yellow alarm LED on the management panel as appropriate. To view a more detailed description of the alarm cause, run the `show system alarms operational` CLI command.

```
user@host> show system alarms
0 alarms currently active
```

For thermal problems, the `show chassis temperature-thresholds` CLI command shows the cutoff temperatures for each level of alarm:

```
user@host> show chassis environment
```

Class	Item	Status	Measurement
Power	PSM 0	OK	36 degrees C / 96 degrees F
	PSM 1	OK	36 degrees C / 96 degrees F
	PSM 2	OK	36 degrees C / 96 degrees F
Temp	FPC 0 TH6 Max Temperature	OK	52 degrees C / 125 degrees F
	FPC 0 MB Top Left Exhaust	OK	52 degrees C / 125 degrees F
	FPC 0 MB Top Left Intake	OK	52 degrees C / 125 degrees F
	FPC 0 MB Top Right Exhaust	OK	48 degrees C / 118 degrees F
	FPC 0 MB Bottom Middle Exhaust	OK	53 degrees C / 127 degrees F
	FPC 0 MB Top Right Intake	OK	45 degrees C / 113 degrees F
	FPC 0 MB_TMP464_Local Temp	OK	52 degrees C / 125 degrees F
	FPC 0 Routing Engine 0 Board 01	OK	38 degrees C / 100 degrees F
	FPC 0 Routing Engine 0 Board 02	OK	49 degrees C / 120 degrees F
	FPC 0 Routing Engine 0 Board 03	OK	39 degrees C / 102 degrees F
	FPC 0 SFP System Inlet	OK	32 degrees C / 89 degrees F
	FPC 0 D2D Board Temp	OK	36 degrees C / 96 degrees F
	FPC 0 Inlet Fluid Temp	OK	32 degrees C / 89 degrees F
	FPC 0 Outlet Fluid Temp	OK	34 degrees C / 93 degrees F
	FPC 0 System IO Inlet	OK	31 degrees C / 87 degrees F
	FPC 0 SFP MPM54322	OK	48 degrees C / 118 degrees F
	FPC 0 BMC Board Temp	OK	38 degrees C / 100 degrees F
	FPC 0 MB_PHYTILE_0_Ext	OK	54 degrees C / 129 degrees F
	FPC 0 MB_PHYTILE_0_Int	OK	54 degrees C / 129 degrees F
	FPC 0 MB_PHYTILE_1_Ext	OK	51 degrees C / 123 degrees F
	FPC 0 MB_PHYTILE_1_Int	OK	51 degrees C / 123 degrees F
	FPC 0 MB_PHYTILE_2_Ext	OK	53 degrees C / 127 degrees F
	FPC 0 MB_PHYTILE_2_Int	OK	54 degrees C / 129 degrees F
	FPC 0 MB_PHYTILE_3_Ext	OK	49 degrees C / 120 degrees F

```

FPC 0 MB_PHYTILE_3_Int      OK      49 degrees C / 120 degrees F
FPC 0 MB_PHYTILE_4_Ext      OK      52 degrees C / 125 degrees F
FPC 0 MB_PHYTILE_4_Int      OK      52 degrees C / 125 degrees F
FPC 0 MB_PHYTILE_5_Ext      OK      46 degrees C / 114 degrees F
FPC 0 MB_PHYTILE_5_Int      OK      46 degrees C / 114 degrees F
FPC 0 MB_PHYTILE_6_Ext      OK      51 degrees C / 123 degrees F
FPC 0 MB_PHYTILE_6_Int      OK      52 degrees C / 125 degrees F
FPC 0 MB_PHYTILE_7_Ext      OK      46 degrees C / 114 degrees F
FPC 0 MB_PHYTILE_7_Int      OK      46 degrees C / 114 degrees F
FPC 0 MB_VDD0P8_Ext         OK      59 degrees C / 138 degrees F
FPC 0 MB_VDD0P8_Int         OK      59 degrees C / 138 degrees F
FPC 0 MB_TRVDD0V75_0_Ext    OK      49 degrees C / 120 degrees F
FPC 0 MB_TRVDD0V75_0_Int    OK      49 degrees C / 120 degrees F
FPC 0 MB_TRVDD0V9_0_Ext     OK      56 degrees C / 132 degrees F
FPC 0 MB_TRVDD0V9_0_Int     OK      55 degrees C / 131 degrees F
FPC 0 MB_TRVDD0V75_1_Ext    OK      47 degrees C / 116 degrees F
FPC 0 MB_TRVDD0V75_1_Int    OK      47 degrees C / 116 degrees F
FPC 0 MB_TRVDD0V9_1_Ext     OK      53 degrees C / 127 degrees F
FPC 0 MB_TRVDD0V9_1_Int     OK      53 degrees C / 127 degrees F
FPC 0 MB_TRVDD0V72_0_Ext    OK      54 degrees C / 129 degrees F
FPC 0 MB_TRVDD0V72_0_Int    OK      56 degrees C / 132 degrees F
FPC 0 MB_TRVDD0V72_1_Ext    OK      48 degrees C / 118 degrees F
FPC 0 MB_TRVDD0V72_1_Int    OK      48 degrees C / 118 degrees F
FPC 0 MB_TRVDD0V72_2_Ext    OK      54 degrees C / 129 degrees F
FPC 0 MB_TRVDD0V72_2_Int    OK      55 degrees C / 131 degrees F
FPC 0 MB_TRVDD0V72_3_Ext    OK      45 degrees C / 113 degrees F
FPC 0 MB_TRVDD0V72_3_Int    OK      45 degrees C / 113 degrees F
FPC 0 MB_RVDD1P5_0_Int      OK      56 degrees C / 132 degrees F
FPC 0 MB_RVDD1P5_1_Int      OK      56 degrees C / 132 degrees F
Routing Engine 0 CPU Temperature OK 39 degrees C / 102 degrees F
Routing Engine 0 Ch-0 DIMM-0 Temp OK 40 degrees C / 104 degrees F
Routing Engine 0 Ch-1 DIMM-0 Temp OK 40 degrees C / 104 degrees F
Routing Engine 0 SSD-0 Temp   OK 51 degrees C / 123 degrees F
Routing Engine 0 SSD-1 Temp   OK 50 degrees C / 122 degrees F
Humidity FPC 0 Humidity sensor OK 33 %
Pressure FPC 0 Pressure Sensor Inlet OK 2957 mBar / 42 psi
      FPC 0 Pressure Sensor Outlet OK 2261 mBar / 32 psi
Leakage FPC 0 Leakage Sensor Loop1 OK No Leakage (Leakage Score: 0/100)
      FPC 0 Leakage Sensor Loop2 OK No Leakage (Leakage Score: 0/100)
      FPC 0 Leakage Sensor Loop3 OK No Leakage (Leakage Score: 0/100)
      FPC 0 Leakage Sensor Loop4 OK No Leakage (Leakage Score: 0/100)
user@host>

```

To display environmental information about the QFX5250 switch chassis, run the CLI command

show chassis environment:

```
user@host> show chassis temperature-thresholds
```

```
show chassis temperature-thresholds
```

	Fan speed		Yellow alarm		Red alarm		Fire
Shutdown							
(degrees C)	(degrees C)		(degrees C)		(degrees C)		
Item	Normal	High	Normal	Bad fan	Normal	Bad fan	Normal
Routing Engine 0 CPU Temperature	0	0	92	0	96	0	98
Routing Engine 0 Ch-0 DIMM-0 Temp	0	0	82	0	85	0	88
Routing Engine 0 Ch-1 DIMM-0 Temp	0	0	82	0	85	0	88
Routing Engine 0 SSD-0 Temp	0	0	82	0	85	0	88
Routing Engine 0 SSD-1 Temp	0	0	82	0	85	0	88
FPC 0 TH6 Max Temperature	0	0	95	0	100	0	103
FPC 0 MB Top Left Exhaust	0	0	100	0	103	0	105
FPC 0 MB Top Left Intake	0	0	100	0	103	0	105
FPC 0 MB Top Right Exhaust	0	0	100	0	103	0	105
FPC 0 MB Bottom Middle Exhaust	0	0	100	0	103	0	105
FPC 0 MB Top Right Intake	0	0	100	0	103	0	105
FPC 0 MB_TMP464_Local Temp	0	0	100	0	103	0	105
FPC 0 Routing Engine 0 Board 01	0	0	80	0	85	0	90
FPC 0 Routing Engine 0 Board 02	0	0	80	0	85	0	90
FPC 0 Routing Engine 0 Board 03	0	0	80	0	85	0	90
FPC 0 SFP System Inlet	0	0	65	0	68	0	70
FPC 0 D2D Board Temp	0	0	85	0	95	0	100
FPC 0 Inlet Fluid Temp	0	0	50	0	53	0	55
FPC 0 Outlet Fluid Temp	0	0	60	0	65	0	70
FPC 0 System IO Inlet	0	0	60	0	65	0	70
FPC 0 SFP MPM54322	0	0	100	0	115	0	120
FPC 0 BMC Board Temp	0	0	65	0	68	0	70
FPC 0 MB_PHYTILE_0_Ext	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_0_Int	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_1_Ext	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_1_Int	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_2_Ext	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_2_Int	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_3_Ext	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_3_Int	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_4_Ext	0	0	100	0	115	0	120
FPC 0 MB_PHYTILE_4_Int	0	0	100	0	115	0	120

```

FPC 0 MB_PHYTILE_5_Ext      0    0    100    0    115    0    120
FPC 0 MB_PHYTILE_5_Int      0    0    100    0    115    0    120
FPC 0 MB_PHYTILE_6_Ext      0    0    100    0    115    0    120
FPC 0 MB_PHYTILE_6_Int      0    0    100    0    115    0    120
FPC 0 MB_PHYTILE_7_Ext      0    0    100    0    115    0    120
FPC 0 MB_PHYTILE_7_Int      0    0    100    0    115    0    120
FPC 0 MB_VDD0P8_Ext         0    0    100    0    115    0    120
FPC 0 MB_VDD0P8_Int         0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V75_0_Ext    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V75_0_Int    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V9_0_Ext     0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V9_0_Int     0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V75_1_Ext    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V75_1_Int    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V9_1_Ext     0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V9_1_Int     0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_0_Ext    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_0_Int    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_1_Ext    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_1_Int    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_2_Ext    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_2_Int    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_3_Ext    0    0    100    0    115    0    120
FPC 0 MB_TRVDD0V72_3_Int    0    0    100    0    115    0    120
FPC 0 MB_RVDD1P5_0_Int      0    0    100    0    115    0    120
FPC 0 MB_RVDD1P5_1_Int      0    0    100    0    115    0    120
user@host>

```

Troubleshoot Chassis and Interface Alarms on the QFX5250 Switch

[Table 34 on page 116](#) lists the chassis alarm messages on the QFX5250, their severity levels, and the actions you can take to respond to them.

Table 34: Chassis Alarm Messages for QFX5250 Switch

Component	Alarm Type	CLI Message	Recommended Action
Temperature sensors	Major (red)	FPC 0 Temperature Hot	Check environmental conditions and alarms on other devices. Ensure that environmental factors (such as hot air blowing around the equipment) do not affect the temperature sensor. If the condition persists, the device might shut down.
	Minor (yellow)	FPC 0 Temperature Warm	Check environmental conditions and alarms on other devices. Ensure that environmental factors (such as hot air blowing around the equipment) do not affect the temperature sensor.
		FPC 0 Temp Sensor Fail	Check the system log for an error message. Report the message to customer support.
Routing Engine	Major (red)	RE <i>RE number</i> /var partition is full	File storage is at capacity. Reduce unnecessary files to free space.
	Minor (yellow)	RE <i>RE number</i> /var partition is high	File storage is reaching capacity. Reduce unnecessary files to free space.
Management Ethernet interface	Major (red)	Management interface <i>management-interface-name</i> down on <i>node</i>	Check whether a cable is connected to the management Ethernet interface, or whether the cable is defective. Replace the cable, if required.

Table 34: Chassis Alarm Messages for QFX5250 Switch (Continued)

Component	Alarm Type	CLI Message	Recommended Action
Coolant leakage detection and reporting (Management Ethernet interface over Redfish)	Red Solid, On Steadily or no indication (applicable only for liquid-cooled model)	<pre>curl -sk -u root:openBmc \ "https://<BMC_IP>/redfish/v1/ Chassis/Chassis_0/ ThermalSubsystem/LeakDetection/ LeakDetectors/LeakDetector_0" Check `Status.State` in the response: - `"Enabled"` – leak detection is active - `"Disabled"` or `"UnavailableOffline"` – leak detection is suppressed</pre>	Check the current state of leak detection alarm
	Red Solid, On Steadily or no indication (applicable only for liquid-cooled model)	<pre>curl -sk -X PATCH \ -u root:openBmc \ -H "Content-Type: application/ json" \ -d '{"Enabled": true}' \ "https://<BMC_IP>/redfish/v1/ Chassis/Chassis_0/ ThermalSubsystem/LeakDetection/ LeakDetectors/LeakDetector_0"</pre>	Re-enable leak detection alarm
	Red Solid, On Steadily or no indication (applicable only for liquid-cooled model)	<pre>curl -sk -X PATCH \ -u root:openBmc \ -H "Content-Type: application/ json" \ -d '{"Enabled": false}' \ "https://<BMC_IP>/redfish/v1/ Chassis/Chassis_0/ ThermalSubsystem/LeakDetection/ LeakDetectors/LeakDetector_0"</pre>	Disable leak detection alarm

Contact Customer Support and Return the Chassis or Components

SUMMARY

If you need to return a hardware component to Juniper Networks, Inc., you need a Return Material Authorization (RMA) number and the equipment serial number. Contact the Juniper Networks Technical Assistance Center (JTAC) to generate an RMA number. You may also need to locate the chassis or component details using the CLI or by referring to equipment labels. You then pack and ship the component.

IN THIS SECTION

- [Contact Customer Support | 118](#)
- [Return a Hardware Component to Juniper Networks | 119](#)
- [Locate the Serial Number of the QFX5250 or its Components | 120](#)
- [Remove the Solid-State Drives for RMA on a QFX5250 Switch | 123](#)
- [Request a Return Material Authorization | 123](#)
- [Guidelines for Packing and Shipping Hardware Components | 124](#)

Contact Customer Support

You can contact JTAC 24 hours a day, seven days a week.

Chat	Use the Ask me icon at the bottom right of the Support page. Don't see the Chat icon? Read this.
Web	Juniper Support Portal Government Support Portal

Telephone	U.S. and Canada (Toll-free): 1-888-314-JTAC (5822) Outside the US or Canada, use the relevant country number listed on the regional tabs listed on the Contact Support page. Federal Government Support: 1-833-900-1454
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NOTE: We do not support opening new cases through e-mail. Please use one of the above options to contact JTAC.

Return a Hardware Component to Juniper Networks

If a hardware component fails, contact Juniper Networks to obtain an RMA number. We use this number to track the returned material at the factory and to return the repaired or new components to you, as needed.



NOTE: Do not return any component to Juniper Networks unless you have first obtained an RMA number. Juniper Networks reserves the right to refuse shipments that do not have an RMA number. Refused shipments are returned to you by collect freight.

To return a defective hardware component:

1. Determine the part number and the serial number of the defective component. See "[Locate the Serial Number of the QFX5250 or its Components](#)" on page 120.
2. Obtain an RMA number from JTAC as described in "[Request a Return Material Authorization](#)" on page 123.
3. For a liquid-cooled model with leakage, ensure that you follow the leakage maintenance steps. See "[Leakage Maintenance for the QFX5250 Switch](#)" on page 104.
4. Pack the component for shipment. See "[Guidelines for Packing and Shipping Hardware Components](#)" on page 124.

For more information about return and repair policies, see the **Support** page at <https://support.juniper.net/support/>.

Locate the Serial Number of the QFX5250 or its Components

IN THIS SECTION

- [List the QFX5250 Chassis and Component Details Using the CLI | 120](#)
- [Locate the Chassis Serial Number ID Label | 122](#)

If the device is operational and you can access the CLI, you can list serial numbers for the device and for some components with a CLI command. If you don't have access to the CLI, or if the serial number for the component doesn't appear in the command output, you can locate the serial number ID label on the device or component.



NOTE: If you want to find the serial number ID label on a component, you need to remove the component from the device chassis.

List the QFX5250 Chassis and Component Details Using the CLI

To list the device and device components and their serial numbers, enter the `show chassis hardware` command on the CLI. The following is an output of `show chassis hardware` for the QFX5250 liquid-cooled model:

```
host@device> show chassis hardware
Hardware inventory:
Item                Version  Part number  Serial number  Description
Chassis
PSM 0               BUILTIN    252001312    LA5125AN0010  QFX5250-640E-L
PSM 1               BUILTIN    252001311    LA5125AN0010  DC-DC 1600W Brick
PSM 2               BUILTIN    252001326    LA5125AN0010  DC-DC 1600W Brick
Routing Engine 0    BUILTIN    BUILTIN      BUILTIN        RE-QFX5250-640E-L
CB 0                REV 03     650-191066   LA5125AN0010  QFX5250-640E-L
FPC 0               BUILTIN    BUILTIN      BUILTIN        QFX5250-640E-L
  PIC 0             BUILTIN    BUILTIN      BUILTIN        64x1600G-OSFP
    Xcvr 0          REV 01     740-189762   1W1CMAB0100F  ORHS-1600G-DR8-2-P
    Xcvr 1          REV 01     740-189762   1G1CMAB0201T  ORHS-1600G-DR8-2-P
    Xcvr 2          REV 01     740-189762   1G1CMAA3702W  ORHS-1600G-DR8-2-P
    Xcvr 3          REV 01     740-189762   1W1CMAA49003  ORHS-1600G-DR8-2-P
    Xcvr 4          REV 01     740-189762   1W1CMAA4800S  ORHS-1600G-DR8-2-P
```

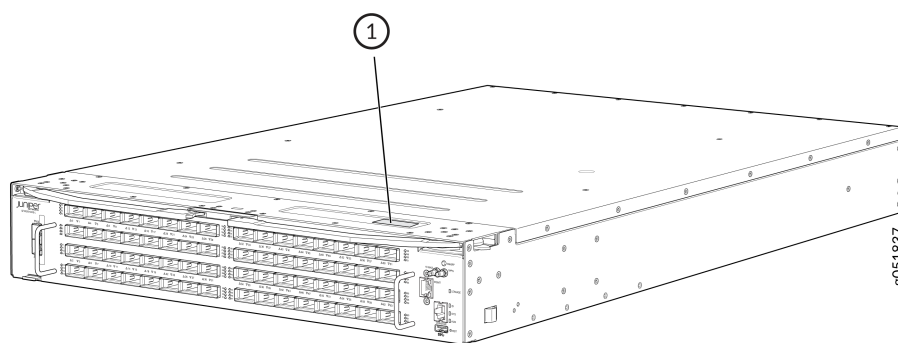
Xcvr 5	REV 01	740-189762	1W1CMMAA4800R	ORHS-1600G-DR8-2-P
Xcvr 6	REV 01	740-189762	1W1CMMA01004	ORHS-1600G-DR8-2-P
Xcvr 7	REV 01	740-189762	1G1CMMAA37032	ORHS-1600G-DR8-2-P
Xcvr 8	REV 01	740-189762	1G1CMMA0201G	ORHS-1600G-DR8-2-P
Xcvr 9	REV 01	740-189762	1W1CMMAA44013	ORHS-1600G-DR8-2-P
Xcvr 10	REV 01	740-189762	1W1CMMAA51005	ORHS-1600G-DR8-2-P
Xcvr 11	REV 01	740-189762	1G1CMMAA3701L	ORHS-1600G-DR8-2-P
Xcvr 12	REV 01	740-189762	1G1CMMA0200W	ORHS-1600G-DR8-2-P
Xcvr 13	REV 01	740-189762	1W1CMMA01003	ORHS-1600G-DR8-2-P
Xcvr 14	REV 01	740-189762	1W1CMMA01005	ORHS-1600G-DR8-2-P
Xcvr 15	REV 01	740-189762	1G1CMMA02005	ORHS-1600G-DR8-2-P
Xcvr 16	REV 01	740-189762	1G1CMMAA37021	ORHS-1600G-DR8-2-P
Xcvr 17	REV 01	740-189762	1G1CMMAA3703H	ORHS-1600G-DR8-2-P
Xcvr 18	REV 01	740-189762	1G1CMMA0200H	ORHS-1600G-DR8-2-P
Xcvr 19	REV 01	740-189762	1G1CMMA0201J	ORHS-1600G-DR8-2-P
Xcvr 20	REV 01	740-189762	1G1CMMA0201Z	ORHS-1600G-DR8-2-P
Xcvr 21	REV 01	740-189762	1W1CMMA01007	ORHS-1600G-DR8-2-P
Xcvr 22	REV 01	740-189762	1G1CMMA02026	ORHS-1600G-DR8-2-P
Xcvr 23	REV 01	740-189762	1G1CMMA0200L	ORHS-1600G-DR8-2-P
Xcvr 24	REV 01	740-189762	1W1CMMA01009	ORHS-1600G-DR8-2-P
Xcvr 25	REV 01	740-189762	1W1CMMAA4800H	ORHS-1600G-DR8-2-P
Xcvr 26	REV 01	740-189762	1W1CMMA01001	ORHS-1600G-DR8-2-P
Xcvr 27	REV 01	740-189762	1W1CMMA01006	ORHS-1600G-DR8-2-P
Xcvr 28	REV 01	740-189762	1W1CMMA01008	ORHS-1600G-DR8-2-P
Xcvr 29	REV 01	740-189762	1G1CMMA02001	ORHS-1600G-DR8-2-P
Xcvr 30	REV 01	740-189762	1G1CMMA0201S	ORHS-1600G-DR8-2-P
Xcvr 31	REV 01	740-189762	1G1CMMA0200G	ORHS-1600G-DR8-2-P
Xcvr 32	REV 01	740-189762	1G1CMMA02007	ORHS-1600G-DR8-2-P
Xcvr 33	REV 01	740-189762	1G1CMMA02028	ORHS-1600G-DR8-2-P
Xcvr 34	REV 01	740-189762	1G1CMMA0201E	ORHS-1600G-DR8-2-P
Xcvr 35	REV 01	740-189762	1W1CMMA01002	ORHS-1600G-DR8-2-P
Xcvr 36	REV 01	740-189762	1G1CMMA02014	ORHS-1600G-DR8-2-P
Xcvr 37	REV 01	740-189762	1G1CMMA0201K	ORHS-1600G-DR8-2-P
Xcvr 38	REV 01	740-189762	1G1CMMAA47009	ORHS-1600G-DR8-2-P
Xcvr 39	REV 01	740-189762	1G1CMMA0200Z	ORHS-1600G-DR8-2-P
Xcvr 40	REV 01	740-189762	1G1CMMA02015	ORHS-1600G-DR8-2-P
Xcvr 41	REV 01	740-189762	1G1CMMA0202L	ORHS-1600G-DR8-2-P
Xcvr 42	REV 01	740-189762	1G1CMMA0201D	ORHS-1600G-DR8-2-P
Xcvr 43	REV 01	740-189762	1G1CMMAA3900B	OSFP-1600G-DR8-2-P
Xcvr 44	REV 01	740-189762	1G1CMMA0200P	ORHS-1600G-DR8-2-P
Xcvr 45	REV 01	740-189762	1W1CMMAA49002	ORHS-1600G-DR8-2-P
Xcvr 46	REV 01	740-189762	1G1CMMA02020	ORHS-1600G-DR8-2-P
Xcvr 47	REV 01	740-189762	1G1CMMA0201Q	ORHS-1600G-DR8-2-P

Xcvr 48	REV 01	740-189762	1G1CMMA02023	ORHS-1600G-DR8-2-P
Xcvr 49	REV 01	740-189762	1W1CMMAA49006	ORHS-1600G-DR8-2-P
Xcvr 50	REV 01	740-189762	1W1CMMA0100B	ORHS-1600G-DR8-2-P
Xcvr 51	REV 01	740-189762	1G1CMMA0201X	ORHS-1600G-DR8-2-P
Xcvr 52	REV 01	740-189762	1W1CMMAA4800J	ORHS-1600G-DR8-2-P
Xcvr 53	REV 01	740-189762	1W1CMMA0100A	ORHS-1600G-DR8-2-P
Xcvr 54	REV 01	740-189762	1W1CMMAA44011	ORHS-1600G-DR8-2-P
Xcvr 55	REV 01	740-189762	1G1CMMAA3900J	OSFP-1600G-DR8-2-P
Xcvr 56	REV 01	740-189762	1W1CMMAA44027	ORHS-1600G-DR8-2-P
Xcvr 57	REV 01	740-189762	1W1CMMAA49001	ORHS-1600G-DR8-2-P
Xcvr 58	REV 01	740-189762	1W1CMMAA4800T	ORHS-1600G-DR8-2-P
Xcvr 59	REV 01	740-189762	1W1CMMA0100D	ORHS-1600G-DR8-2-P
Xcvr 60	REV 01	740-189762	1W1CMMA0100E	ORHS-1600G-DR8-2-P
Xcvr 61	REV 01	740-189762	1G1CMMA0200Q	ORHS-1600G-DR8-2-P
Xcvr 62	REV 01	740-189762	1W1CMMAA51001	ORHS-1600G-DR8-2-P
Xcvr 63	REV 01	740-189762	1G1CMMA0202A	ORHS-1600G-DR8-2-P
Xcvr 64	REV 01	740-021308	AQQ0K0E	SFP+-10G-SR

Locate the Chassis Serial Number ID Label

You can find the chassis serial number in either the `show chassis hardware` command output or physically on top of the QFX5250 switch. See [Figure 37 on page 122](#).

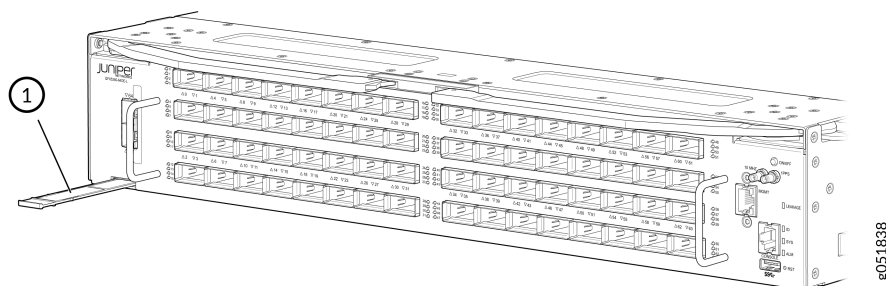
Figure 37: Location of the Serial Number ID Label on QFX5250 Liquid-Cooled Switch



1– Serial number ID label

You can also find the serial number on the pull out tab on the front panel of the device.

Figure 38: Pull-tab QR Code in QFX5250 Liquid-Cooled Switch



1– Serial number ID label

Remove the Solid-State Drives for RMA on a QFX5250 Switch

For information on how to remove solid-state drives for RMA on a QFX5250 switch, see ["Remove the Solid-State Drive from a QFX5250 Switch" on page 93](#).

Request a Return Material Authorization

If you are returning a device or hardware component to Juniper Networks for repair or replacement, obtain an RMA number from JTAC.

Before you request an RMA from JTAC, be prepared to provide the following information:

- Your existing service request number, if you have one
- Serial number of the device or component
- Your name, organization name, telephone number, fax number, and shipping address
- Details of the failure or problem
- Type of activity you were performing on the device when the problem occurred
- Configuration data displayed by one or more `show` commands

You can contact JTAC using the [Support](#) page or by telephone.

If you're contacting JTAC by telephone:

- To report a new incident, press the star (*) key to be routed to the next available support engineer.

- To enquire about an existing case, enter your 12-digit service request number followed by the pound (#) key.

The support representative validates your request and issues an RMA number for return of the device or component.

Guidelines for Packing and Shipping Hardware Components

When you return the chassis or components:

- Make sure to adequately protect them with packing materials. Pack them properly to prevent the pieces from moving around the carton.
- Use the original shipping materials, if they are available.
- Place the individual components in antistatic bags.
- Write the RMA number on the exterior of the box to ensure proper tracking.

10

CHAPTER

Safety and Compliance Information

IN THIS CHAPTER

- Site Guidelines and Requirements | **126**
 - QFX5250 Safety | **129**
 - Agency Approvals for QFX5250 | **129**
 - Restriction of Hazardous Substances (RoHS) Directive Compliance | **133**
-

Site Guidelines and Requirements

IN THIS SECTION

- [Site and Electrical Guidelines | 126](#)
- [Clearance Requirements | 128](#)
- [Clearance Requirements for QFX5250 | 128](#)

You must install the device in a rack or cabinet in a dry, clean, well-ventilated, and temperature-controlled environment.

Follow these environmental guidelines:

- Maintain the recommended liquid flow rate specifications for normal device operation. See "[Flow Rate Specifications](#)" on page 57.
- Use the recommended coolant with the liquid-cooled QFX5250 switch.

Site and Electrical Guidelines

IN THIS SECTION

- [General Site Installation Guidelines | 126](#)
- [Electrical Wiring Guidelines | 127](#)

General Site Installation Guidelines

Efficient device operation requires proper site planning and maintenance. It also requires proper layout of the equipment, rack or cabinet, and wiring closet.

To prevent environmental damage and ensure your device operates within specified limits:

- Keep the area around the chassis free from dust and conductive material, such as metal flakes.

- Follow the prescribed electrostatic discharge (ESD) prevention procedures to prevent damaging the equipment. Static discharge can cause components to fail completely or intermittently over time.
- Install the device in a secure area, so that only authorized personnel can access the device.

Electrical Wiring Guidelines



WARNING: You must provide a properly grounded and shielded environment and use electrical surge-suppression devices.

Table 35: QFX5250 Electrical Wiring Guidelines

Site Wiring Factor	Guidelines
Signaling limitations	If your site experiences any of the following problems, consult experts in electrical surge suppression and shielding: • Improperly installed wires cause radio frequency interference (RFI). • Damage from lightning strikes occurs when wires exceed recommended distances or pass between buildings. • Electromagnetic pulses (EMPs) caused by lightning can damage unshielded conductors and electronic devices.
Radio frequency interference	To reduce or eliminate RFI from your site wiring, you can: • Use a twisted-pair cable with a good distribution of grounding conductors. • If you must exceed the recommended distances, use a high-quality twisted-pair cable with one ground conductor for each data signal when applicable.
Electromagnetic compatibility	If your site is susceptible to problems with electromagnetic compatibility (EMC), particularly from lightning or radio transmitters, seek expert advice. Strong sources of electromagnetic interference (EMI) may cause the following problems: • Destruction of the signal drivers and receivers in the device • Equipment damage due to power surge in electrical lines

Clearance Requirements

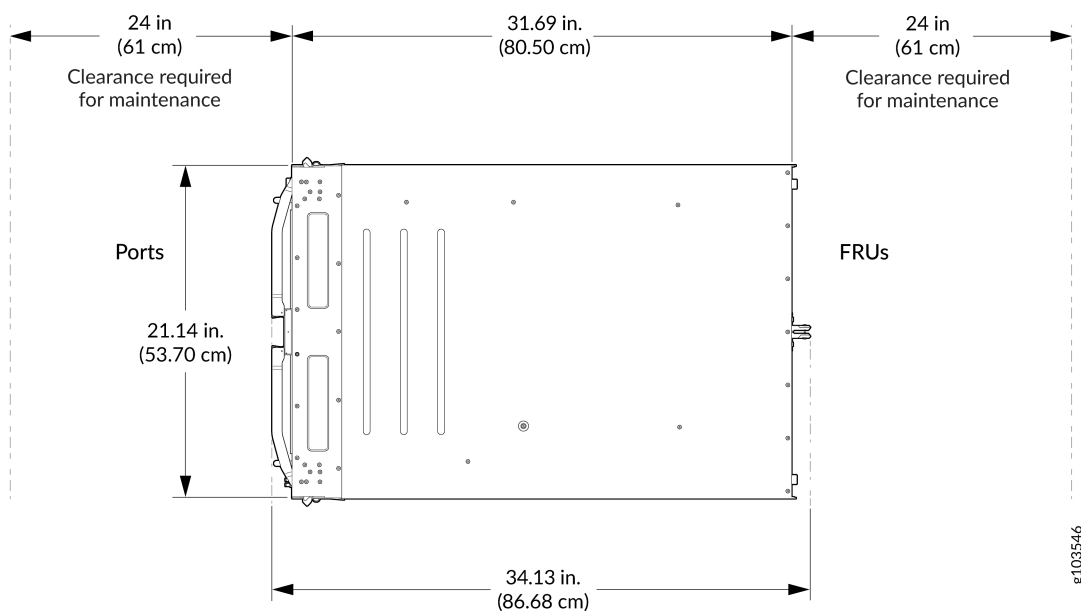
When you plan the site for installing the device, ensure that there is sufficient space around the installed chassis.

- For service personnel to remove and to install hardware components, and to accommodate the interface and power cable bend radius, there must be adequate space at the front and rear of the appliance.

Clearance Requirements for QFX5250

QFX5250-64OE-L (Liquid-cooled Model)—Leave at least 24 in. (61 cm) both in the front and rear of QFX5250 switch. For service personnel to remove and install hardware components, you must leave adequate space at the front and back of the switch.

Figure 39: Clearance Requirements for Liquid-flow and Hardware Maintenance of QFX5250 Liquid-cooled Model



QFX5250 Safety

IN THIS SECTION

- [Safety Information | 129](#)

Safety Information

The [Juniper Networks Safety Guide](#) provides general safety information and guidelines for all Juniper Networks products. Follow the guidelines provided in the guide to reduce the likelihood of personal injury, equipment damage, and damage to surrounding areas.

Read and understand the QFX5250 specific safety information provided in this hardware guide along with the information provided in the Juniper Networks Safety Guide.

Agency Approvals for QFX5250

IN THIS SECTION

- [Agency Approvals | 129](#)
- [Compliance Statements | 131](#)

The QFX5250 switches comply with the following standards:

Agency Approvals

Safety

- IEC 62368-1:2014 (2nd Edition) Audio/Video, Information and Communication Technology Equipment.

- IEC 62368-1:2018 (3rd Edition) Audio/Video, Information and Communication Technology Equipment.
- IEC 62368-1:2023 (4th Edition) Audio/Video, Information and Communication Technology Equipment.
- EN 62368-1:2014+A11:2017 Audio/Video, Information and Communication Technology Equipment
- UL 60950-1:2007 R10.14 Information Technology Equipment
- CAN/CSA-C22.2 No. 60950-1-07, Amd 1:2011, Amd 2:2014 Information Technology Equipment
- UL/CSA 62368-1:2025 (4th Edition) Audio/Video, Information and Communication Technology Equipment
- IEC/EN 60825-1 Safety of Laser Products – Part 1: Equipment classification and requirements

EMC

- FCC 47 CFR Part 15
- ICES-003 / ICES-GEN
- BS EN 55032
- BS EN 55035
- EN 300 386 V1.6.1
- EN 300 386 V2.2.1
- BS EN 300 386
- EN 55032
- CISPR 32
- EN 55035
- CISPR 35
- IEC/EN 61000 Series
- IEC/EN 61000-3-2
- IEC/EN 61000-3-3
- AS/NZS CISPR 32
- VCCI-CISPR 32

- BSMI CNS 15936
- KS C 9835 (Old KN 35)
- KS C 9832 (Old KN 32)
- KS C 9610
- BS EN 61000 Series

Compliance Statements

Argentina

EQUIPO DE USO IDÓNEO.

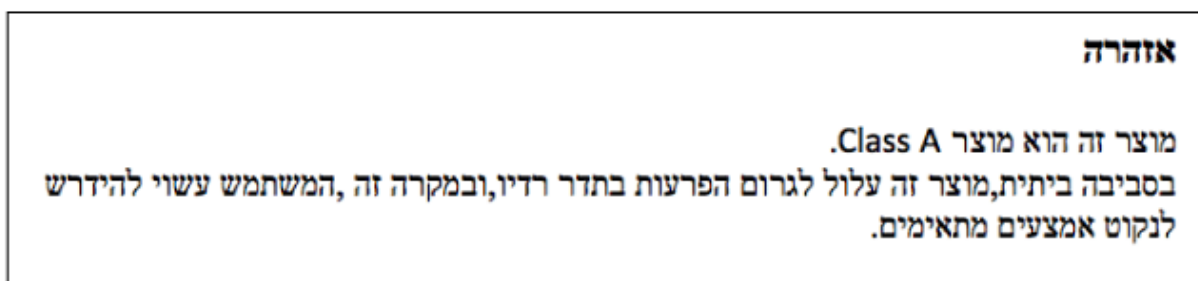
Canada

CAN ICES-3 (A)/NMB-3(A)

European Community

This is a Class A product. In a domestic environment, this product might cause radio interference in which case the user might be required to take adequate measures.

Israel



Translation from Hebrew—Warning: This product is Class A. In residential environments, the product might cause radio interference, and in such a situation, the user might be required to take adequate measures.

Japan

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用する
と電波妨害を引き起こすことがあります。この場合には使用者が適切な対策
を講ずるよう要求されることがあります。 VCCI-A

The preceding translates as follows:

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this product is used near a radio or television receiver in a domestic environment, it might cause radio interference. Install and use the equipment according to the instruction manual. VCCI-A.

Taiwan

BSMI Class A Statement

This section provides the Taiwan BSMI Class A Statement information for the switches this guide covers.

Figure 1. Taiwan BSMI Class A Statement

警告: 為避免電磁干擾，本產品不應安裝或使用於住宅環境。

The preceding translates as follows:

To avoid electromagnetic interference, this product is prohibited for use in residential areas.

United States

The hardware equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, might cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Restriction of Hazardous Substances (RoHS)

Directive Compliance

Juniper Networks is committed to environmentally responsible behavior. As part of this commitment, we continually work to comply with environmental standards such as the Restriction of Hazardous Substances (RoHS) Directive.

RoHS Details :

單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
外殼 Enclosure	○	○	○	○	○	○
電路板組件 PCBA	—	○	○	○	○	○
風扇 Fan	—	○	○	○	○	○
電源供應器 Power Supply Module	—	○	○	○	○	○
線材 Cable Wire	○	○	○	○	○	○
備考1. “超出0.1 wt %” 及 “超出0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1: “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition. 備考2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2: “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence. 備考3. “—” 係指該項限用物質為排除項目。 Note 3: The “—” indicates that the restricted substance corresponds to the exemption.						