Juniper QFX5120-48T-AFO

Datasheet

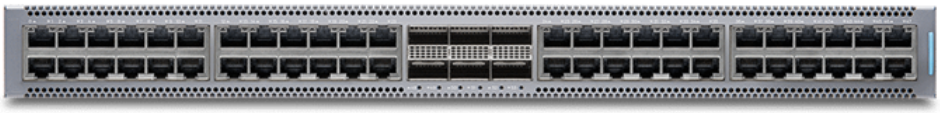
Product Overview

- Juniper QFX5120-48T-AFO is a fixed 1U data center leaf and campus distribution switch with 48 dual-speed 1GbE/10GbE RJ-45 ports.
- It adds six 40/100GbE QSFP28 uplink ports for high-bandwidth aggregation, server access, and data center fabric connectivity.
- The platform provides up to 2.16 Tbps bidirectional switching capacity, 1 Bpps forwarding, and latency as low as 800 ns.
- The AFO configuration provides front-to-back airflow, two 1+1 redundant hot-pluggable 650W AC power supplies, and five hot-pluggable fan modules.
- QSFP28 ports support 40GbE, 100GbE, 2 × 50GbE, and selected 4 × 10GbE or 4 × 25GbE channelization modes.
- Junos OS, a 2.2 GHz quad-core Intel CPU, 16GB memory, 100GB SSD storage, RJ-45 management, console, and USB interfaces support daily operations.

Product Highlights

- **48-Port 1/10GbE Copper Access:** Provides 48 dual-speed RJ-45 ports for server and campus access without requiring optical transceivers.
- **40/100GbE Uplinks:** Six QSFP28 ports provide high-bandwidth uplinks for aggregation, leaf, and campus distribution networks.
- **Flexible QSFP28 Channelization:** Supports 2 × 50GbE on the six QSFP28 ports and 4 × 25GbE on the uplink ports, with 4 × 10GbE available on ports 50 and 51.
- **AFO Hardware Redundancy:** Combines front-to-back airflow, dual 1+1 AC power supplies, and five 4+1 redundant fan modules.

Detailed Features



QFX5120-48T-AFO

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Component	Specification
Product Type	Fixed 1U data center leaf and campus distribution switch
Downlink Ports	48 × 1/10GbE RJ-45
Uplink Ports	6 × 40/100GbE QSFP28
Switching Capacity	2.16 Tbps bidirectional
Forwarding Rate	1 Bpps

Dual-Speed Copper Access

The QFX5120-48T-AFO provides 48 RJ-45 ports with 1GbE and 10GbE support for dense server and campus access deployments.

High-Bandwidth Uplinks

Six QSFP28 ports support 40GbE or 100GbE operation, enabling high-capacity aggregation and leaf-spine connectivity.

QSFP28 Channelization

All six QSFP28 ports support 2 × 50GbE and 4 × 25GbE channelization, while ports 50 and 51 also support 4 × 10GbE.

Low-Latency Junos Switching

The switch provides 2.16 Tbps bidirectional throughput, 1 Bpps forwarding capacity, and 800 ns latency.

Front-to-Back AFO Cooling

The AFO variant directs airflow from the front panel to the rear panel and provides 132 CFM airflow volume.

Redundant AC Power

Two JPSU-650W-AC-AO 650W AC power supplies operate in a 1+1 redundant, hot-pluggable configuration.

Five-Fan Reliability

Five QFX5110-FANAFO fan modules provide 4+1 redundancy and match the front-to-back airflow direction.

Junos Operations Platform

Junos OS runs on a 2.2 GHz quad-core Intel CPU with 16GB DRAM and 100GB SSD storage, supported by RJ-45 management, console, USB, 10 MHz, and PPS interfaces.

Technical Specifications

Product Specifications

Feature	Value
Product Model	QFX5120-48T-AFO
Product Type	Fixed 1U data center leaf and campus distribution switch
Downlink Ports	48 × 1/10GbE RJ-45
Uplink Ports	6 × 40/100GbE QSFP28
Switching Capacity	2.16 Tbps bidirectional (1.08 Tbps unidirectional)
Forwarding Rate	1 Bpps
Switching Mode	Cut-through and store-and-forward
Switch Chip	Broadcom Trident3
Latency	800 ns
QSFP28 Ports	48 through 53
40GbE Interfaces	6
100GbE Interfaces	6
2 × 50GbE Channelization	All six QSFP28 ports
4 × 25GbE Channelization	All six QSFP28 ports
4 × 10GbE Channelization	Ports 50 and 51
RJ-45 Ports	48 dual-speed 1GbE/10GbE copper ports

Feature	Value
Management Port	1 × RJ-45 management port
Console Port	1 × RJ-45 console port
USB Port	1 × USB 2.0 Type-A port
10 MHz Port	Supported
PPS Port	Supported
MAC Addresses	288,000
IPv4 Routes	351,000 unicast FIB / 106,000 multicast
IPv6 Routes	172,000 unicast FIB / 52,000 multicast
VLAN IDs	4,094
ARP Entries	64,000
Link Aggregation Groups	64
Ports per LAG	64
Jumbo Frames	9216 bytes
MSTP Instances	64
VSTP Instances	509
Virtual Chassis	Up to 2 devices
Power Supplies	2 × 650W AC, 1+1 redundant, hot-pluggable
AC PSU Model	JPSU-650W-AC-AO
Power Consumption	Max 218W; typical 213W (current Juniper web specifications)
AC PSU Consumption	Max 251W; average 205W (AFO HCT configuration)
Fan Modules	5 × hot-pluggable, 4+1 redundant
Fan Model	QFX5110-FANAFO
Airflow	Front-to-back; AFO
Airflow Volume	132 CFM
CPU	2.2 GHz quad-core Intel
Memory	16 GB DRAM
Storage	100 GB SSD
Operating System	Junos OS
Operating Temperature	0°C to 40°C
Storage Temperature	-40°C to 70°C

Feature	Value
Operating Altitude	Up to 6000 ft (1828 m)
Dimensions (H × W × D)	1.72 × 17.36 × 20.48 in (4.37 × 44.09 × 52.02 cm)
Chassis Depth with FRUs	22.7 in (57.66 cm)
Weight	24.25 lb (11 kg), fully loaded with all components

Product Comparison

Feature	QFX5120-48T-AFO	QFX5120-32C-AFO	QFX5120-48Y-AFO2
Primary ports	48 × 1/10GbE RJ-45 + 6 × 40/100GbE QSFP28	32 × 40/100GbE QSFP28 + 2 × 10GbE SFP+	48 × 1/10/25GbE SFP28 + 8 × 40/100GbE QSFP28
Switching capacity	2.16 Tbps / 1 Bpps	6.4 Tbps / 2 Bpps	4 Tbps / 2 Bpps
Native access interface	48 × 1/10GbE RJ-45	2 × 10GbE SFP+	48 × 1/10/25GbE SFP28
40GbE ports	6	32	8
100GbE ports	6	32	8
2 × 50GbE channelization	All 6 QSFP28 ports	Supported on QSFP28 ports	Not specified in selected comparison source
4 × 25GbE channelization	All 6 QSFP28 ports	Ports 0–30	8 QSFP28 ports
4 × 10GbE channelization	Ports 50 and 51	Ports 0–30	8 QSFP28 ports
Form factor	1U leaf/access	1U spine/access/leaf	1U access/leaf
Power supplies	2 × 650W AC, 1+1	2 × 650W AC, 1+1	2 × 650W AC, 1+1
Fan modules	5, 4+1 redundant	6, 5+1 redundant	5
Airflow	Front-to-back, AFO	Front-to-back, AFO	Front-to-back, AFO2
Power consumption	Max 218W; typical 213W	Max 310W; typical 291W	Max 272W; typical 247W
Dimensions (H × W × D)	1.72 × 17.36 × 20.48 in	1.7 × 17.26 × 20.27 in	1.72 × 17.36 × 20.48 in
Weight	24.25 lb (11 kg)	21.12 lb (9.58 kg)	23.7 lb (10.75 kg)

Feature	QFX5120-48T-AFO	QFX5120-32C-AFO	QFX5120-48Y-AFO2
Best fit	Copper server access with 40/100GbE uplinks	High-density 40/100GbE spine or leaf	1/10/25GbE access with 40/100GbE uplinks

Accessories

Category	Accessories
Included Accessories	- 2 × 650W AC power supplies with front-to-back airflow
	- 5 × fan modules with front-to-back airflow
Optional Accessories	- Supported QSFP+/QSFP28 optics and DAC/AOC cables
	- QSFP28 breakout cables for supported 2 × 50GbE, 4 × 25GbE, and 4 × 10GbE channelization

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USA Branch

35 E Horizon Ridge Pkwy, Ste 110 #30131, Henderson, NV 89002, USA

UK Branch

Third Floor, 207 Regent Street, London W1B 3HH, UK

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