QFX-QSFP-40G-SR4

Part number: 740-067442

Optics Overview

Juniper Networks offers a complete portfolio of modular and fixed-chassis routers and switches for both WAN and data center networks. These solutions span Juniper's MX-Series Universal Routing Platform and PTX-Series Packet Transport Routers to EX-Series Ethernet Switches and QFX-Series Data Center Switches among others. Depending on deployment scenarios, Juniper's platforms support different pluggable optic modules that can be selected based on speed, distance, form-factor, and wavelength among other relevant attributes.

Additional Resources

Hardware Compatibility Tool

HCT contains a regularly updated database of Juniper's transceivers, DACs, and AOCs along with information regarding compatibility with Juniper's platforms and interface modules.

https://apps.juniper.net/hct/home/

Product Description

QSFP+ 40GBase-SR4 40 Gigabit Optics, 850nm for up to 150m transmission on MMF

Overview

Part Number	740-067442
Old Part Number(s)	740-032986
Speed	40 Gigabit Ethernet
Breakout Capable	No
Transceiver Type	QSFP+
Product Type	Optical Transceiver
Connector	MPO-12
Monitoring Available	Yes
Digital Optical Monitoring	Yes

Note:

- Monitoring Available - Can measure received optical power and display in CLI.
- Digital Optical Monitoring - Full support for SFF-8636.
- The common optics product line provides competitively priced single-SKU optics offerings for use across Juniper routing, switching, and security platforms.

Specifications

Standard: 40GBASE-SR4

Diagnostic support	Laser bias current–supported RX input power–supported Case temperature–supported Power supply voltage–supported Laser output power–not supported	
Signaling rate, each lane	40 Gbps	
Transmitter fibers	12	
Transmitter wavelengths (range)	850 nm	
Receive lane wavelengths (range)	840 nm to 860 nm	
Transmitter output power, each lane (minimum)	–7.6 dBm (per lane)	
Transmitter output power, each lane (maximum)	2.4 dBm (per lane)	
Receiver input power, each lane (minimum)	-9.5 dBm	
Receiver input power, each lane (maximum)	2.4 dBm	
Optical Transmitter 3-dB spectral width (maximum)	0.65 nm	
Cable type	MMF	
Core size/cladding	50/125 µm	50/125 µm
Fiber grade	OM3	OM4
Effective modal bandwidth	2000 MHz x km	4700 MHz x km
Distance	100 m	150 m
Maximum Power consumption (W)	3.5 W	
Operating Temperature (range)	0° C to 70° C	
Storage temperature	–40° C to 85° C	

Supported Platforms

Platform	Introduced Release	Additional Information
Routing		
ACX5000		
ACX7100-32C	Junos OS Evolved 21.2R1	
ACX7100-48L	Junos OS Evolved 21.1R1	
ACX7509	Junos OS Evolved 21.4R1	
MX2010	Junos OS 20.1R1	
MX2020	Junos OS 20.1R1	
PTX10001-36MR	Junos OS Evolved 20.2R1	
PTX10004	Junos OS Evolved 21.1R1 Junos OS Evolved 20.3R1	
PTX10008	Junos OS Evolved 21.1R1 Junos OS Evolved 20.1R1 Junos OS 18.2R1	
PTX10016	Junos OS Evolved 21.2R2 Junos OS Evolved 21.1R1 Junos OS 18.2R1	
Security		
SRX4300	Junos OS 24.2R1	
Switching		
EX3400	Junos OS 15.1X53-D50	
EX4300	Junos OS 13.2X51-D15	EX4300-24T, EX4300-24P, EX4300-48T, EX4300-48T-AFI, EX4300-48P, EX4300-48T-DC, and EX4300-48T-DC-AFI switches—Junos OS for EX Series switches, Release 13.2X50-D10 or later EX4300-32F switches—Junos OS for EX Series switches, Release 13.2X51-D15 or later EX4300-24T-S, EX4300-24P-S, EX4300-32F-S, EX4300-48T-S, and EX4300-48P-S switches—Junos OS for EX Series switches, Release 13.2X51-D26 or later
EX4300 Multigigabit	Junos OS 18.2R1	
EX4400 Breakout Supported	Junos OS 23.4R1	

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Platform	Introduced Release	Additional Information
EX4400-24X Breakout Supported	Junos OS 23.4R1	
EX4400-48F Breakout Supported	Junos OS 23.4R1	
EX4550	Junos OS 13.2X50-D10	EX4550-32T-AFI, EX4550-32T-AFO, EX4550-32T-DC-AFI, EX4550-32T-DC-AFO, EX4550-32F-AFI, EX4550-32F-AFO, EX4550-32F-DC-AFI, and EX4550-32F-DC-AFO switches—Junos OS for EX Series switches, Release 13.2X50-D10 or later EX4550-32F-S switches—Junos OS for EX Series switches, Release 12.3R5 or later
EX4600		
EX4650-48Y	Junos OS 18.3R1	
EX9204	Junos OS 12.3R2	
EX9208	Junos OS 12.3R2	
EX9214	Junos OS 12.3R2	
EX9251	Junos OS 18.1R1	
EX9253	Junos OS 18.2R1	
QFX3500		
QFX5100		
QFX5110	Junos OS 15.1X53-D210	
QFX5120-32C	Junos OS 19.1R1	
QFX5130-32CD	Junos OS Evolved 20.3R1	
QFX5130E-32CD	Junos OS Evolved 23.4R2	
QFX5120-48T	Junos OS 20.2R1	
QFX5120-48Y	Junos OS 18.3R1	
QFX5120-48YM	Junos OS 22.2R1	
QFX5200-32C	Junos OS 15.1X53-D30	
QFX5210-64C	Junos OS 18.1R1	
QFX5220-32CD	Junos OS Evolved 22.2R1	
QFX5220-128C	Junos OS Evolved 19.2R1	

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Platform	Introduced Release	Additional Information
QFX5230-64CD	Junos OS Evolved 23.4R2	
QFX5200-48Y	Junos OS 18.1R1	
QFX5700	Junos OS Evolved 21.2R1	
QFX5700E	Junos OS Evolved 23.4R2	
QFX10002	Junos OS 15.1X53-D10	
QFX10008	Junos OS 15.1X53-D30	
QFX10016	Junos OS 15.1X53-D61	
QFX10002-60C		

Supported Interface Modules

Flexible PIC Concentrators (FPCs)

Name	Description	Platforms and Introduced Releases	
40 Gigabit Ethernet			
QFX5K-FPC-16C	16X100G linecard for QFX5700 chassis	QFX5700 Junos OS Evolved 21.2R1	QFX5700E Junos OS Evolved 23.4R2
4 x 10 Gigabit Ethernet			
QFX5K-FPC-16C	16X100G linecard for QFX5700 chassis	QFX5700 Junos OS Evolved 21.2R1	

Line Cards

Name	Description	Platforms and Introduced Releases	
40 Gigabit Ethernet			
ACX7509-FPC-16C	ACX7509 16X40GE/16X100GE LINE CARD	ACX7509 Junos OS Evolved 21.4R1	
EX9200-6QS	A line card with six 40-Gigabit Ethernet ports and 24 10-Gigabit Ethernet ports	EX9204 Junos OS 12.3R2 EX9214 Junos OS 12.3R2	EX9208 Junos OS 12.3R2
EX9253-6Q12C (EOL)	A line card with six built-in QSFP+ ports, each of which can house QSFP+ pluggable transceivers and 12 built-in QSFP28 ports, each of which can house QSFP28 pluggable transceivers.	EX9253 Junos OS 18.2R1	
EX9253-6Q12C-M (EOL)	A line card with six built-in QSFP+ ports, each of which can house QSFP+ pluggable transceivers and 12 built-in QSFP28 ports with Media Access Control Security (MACsec) capability, each of which can house QSFP28 pluggable transceivers.	EX9253 Junos OS 18.2R1	

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Name	Description	Platforms and Introduced Releases	
MX10K-LC4800	The MX10K-LC4800 line card (model number: JNP10K-LC4800) is a fixed-configuration 44-port line card that provides a line-rate throughput of 4.8 Tbps. This line card supports 100-Gigabit Ethernet (100GbE) and 400GbE deployments.	MX10004 Junos OS 24.2R1	MX10008 Junos OS 24.2R1
PTX10K-LC1105	PTX10K 3Tbps MACse Line Card - 30x100G/30x40G	PTX10008 Junos OS 18.2R1	PTX10016 Junos OS 18.3R1
PTX10K-LC1201-36CD	PTX10K 36 ports of 400 Gigabit Ethernet that provide 14.4-Tbps line rate processing speeds	PTX10004 Junos OS Evolved 20.3R1 PTX10016 Junos OS Evolved 21.2R2	PTX10008 Junos OS Evolved 20.1R1
PTX10K-LC1202-36MR	36-port line card that has thirty-two QSFP28 ports capable of supporting 100-Gbps speed, and four QSFP56-DD ports capable of supporting 400-Gbps speed	PTX10004 Junos OS Evolved 21.1R1 PTX10016 Junos OS Evolved 21.1R1	PTX10008 Junos OS Evolved 21.1R1
QFX10000-30C-M	QFX10000 30-port 100G QSFP28 /24-port 40G QSFP+ with 6-port 100G QSFP28 line card, with MACSec	QFX10008 Junos OS 18.1R1	QFX10016 Junos OS 18.1R1
QFX10000-36Q	A 36-port 40-Gigabit Ethernet quad small form-factor pluggable plus transceiver (QSFP+) or 12-port 100GbE QSFP28 line card	QFX10008 Junos OS 15.1X53-D30	QFX10016 Junos OS 15.1X53-D61
QFX10000-60S-6Q	QFX10000 60-port 1/10G SFP/SFP+ line card with 6 40G QSFP+ / 2 100G QSFP28 ports	PTX10008 Junos OS 19.1R1 QFX10008 Junos OS 17.1R1	PTX10016 Junos OS 19.1R1 QFX10016 Junos OS 17.1R1
4 x 10 Gigabit Ethernet			
ACX7509-FPC-16C	ACX7509 16X40GE/16X100GE LINE CARD	ACX7509 Junos OS Evolved 21.4R1	

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Name	Description	Platforms and Introduced Releases	
EX9200-6QS	A line card with six 40-Gigabit Ethernet ports and 24 10-Gigabit Ethernet ports	EX9204 Junos OS 12.3R2 EX9214 Junos OS 12.3R2	EX9208 Junos OS 12.3R2
EX9253-6Q12C (EOL)	A line card with six built-in QSFP+ ports, each of which can house QSFP+ pluggable transceivers and 12 built-in QSFP28 ports, each of which can house QSFP28 pluggable transceivers.	EX9253 Junos OS 18.2R1	
EX9253-6Q12C-M (EOL)	A line card with six built-in QSFP+ ports, each of which can house QSFP+ pluggable transceivers and 12 built-in QSFP28 ports with Media Access Control Security (MACsec) capability, each of which can house QSFP28 pluggable transceivers.	EX9253 Junos OS 18.2R1	
PTX10K-LC1105	PTX10K 3Tbps MACse Line Card - 30x100G/30x40G	PTX10008 Junos OS 18.2R1	PTX10016 Junos OS 18.3R1
PTX10K-LC1201-36CD	PTX10K 36 ports of 400 Gigabit Ethernet that provide 14.4-Tbps line rate processing speeds	PTX10004 Junos OS Evolved 20.3R1 PTX10016 Junos OS Evolved 21.2R2	PTX10008 Junos OS Evolved 20.1R1
QFX10000-30C-M	QFX10000 30-port 100G QSFP28 /24-port 40G QSFP+ with 6-port 100G QSFP28 line card, with MACSec	QFX10008 Junos OS 18.1R1	QFX10016 Junos OS 18.1R1
QFX10000-36Q	A 36-port 40-Gigabit Ethernet quad small form-factor pluggable plus transceiver (QSFP+) or 12-port 100GbE QSFP28 line card	QFX10008 Junos OS 15.1X53-D30	QFX10016 Junos OS 15.1X53-D61
QFX10000-60S-6Q	QFX10000 60-port 1/10G SFP/SFP+ line card with 6 40G QSFP+ / 2 100G QSFP28 ports	PTX10008 Junos OS 19.1R1 QFX10008 Junos OS 17.1R1	PTX10016 Junos OS 19.1R1 QFX10016 Junos OS 17.1R1

Modular Port Concentrators (MPCs)

Name	Description	Platforms and Introduced Releases	
40 Gigabit Ethernet			
MX2K-MPC11E	The MX2K-MPC11E is a fixed-configuration Module Port Concentrator (MPC) which delivers bandwidth up to 4-Tbps per MPC slot for MX2020 and MX2010 routers.	MX2010 Junos OS 20.1R1	MX2020 Junos OS 20.1R1
4 x 10 Gigabit Ethernet			
MX2K-MPC11E	The MX2K-MPC11E is a fixed-configuration Module Port Concentrator (MPC) which delivers bandwidth up to 4-Tbps per MPC slot for MX2020 and MX2010 routers.	MX2010 Junos OS 20.1R1	MX2020 Junos OS 20.1R1

Uplink Modules

Name	Description	Platforms and Introduced Releases	
40 Gigabit Ethernet			
EX-UM-2QSFP	EX4300, 2-Port 40G QSFP+ Uplink Module	EX4300 Junos OS 13.2X51-D15	
EX-UM-2QSFP-MR	EX4300MP 2-port 40GbE QSFP+/1-port 100GbE QSPF28 Uplink Module for EX4300-48MP	EX4300 Multigigabit Junos OS 19.3R1	
EX4400-EM-1C	1x100GbE QSFP28 extension module for EX4400 series of switches	EX4400 Junos OS 23.4R1 Breakout Supported EX4400-48F Junos OS 23.4R1 Breakout Supported	EX4400-24X Junos OS 23.4R1 Breakout Supported
4 x 10 Gigabit Ethernet			
EX-UM-2QSFP	EX4300, 2-Port 40G QSFP+ Uplink Module	EX4300 Junos OS 13.2X51-D15	

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Name	Description	Platforms and Introduced Releases
EX-UM-2QSFP-MR	EX4300MP 2-port 40GbE QSFP+/1-port 100GbE QSPF28 Uplink Module for EX4300-48MP	EX4300 Multigigabit Junos OS 19.3R1

Why buy optics from Juniper?

There is value in choosing Juniper over 3rd party optics

✓ Full testing, validation, and JTAC support for Juniper optics

- Power, Electrical, and Management interfaces tested at the system level.
- Extended temperature and functional testing in DVT chamber using fully loaded systems.
- Full software integration into JUNOS/EVO for seamless part recognition, functionality, and telemetry.
- Latest qualification status and optics specifications published on Hardware Compatibility Tool.

✓ Single-source provider for 1G to 400G on a variety of optical technologies

- Juniper's optics portfolio is maintained and constantly refreshed based on vendor availability.
- Automatic supply chain diversity and supply continuity - multiple optics suppliers fulfilled through Juniper.

✓ Rigorous evaluation of optical vendors

- Juniper ensures uniformity across all vendors by standardizing P-Specs for management, specs, and logs.
- Vendors are scored based on engineering and supply-chain analysis.
- Factory audits and critical component evaluation (Ex. Who is supplying the laser?).

Aren't 3rd party optics the same?

Optics may be a commodity, but some things are too good to be true

× Juniper does not Provide JTAC support for 3rd party optics

- JTAC will only assist with host-related issues unrelated to the use of 3rd party optics.

× Not all optics are the same - standards compliance does not guarantee quality or performance

- Third-party providers lack system-level knowledge and testing.
- No guarantee of vendor reliability or accountability.

× Newer technologies (ex. Coherent 400G ZR/ZR+) are complex and not simply plug-and-play

- Significant software integration necessary to enable full functionality, management, and telemetry.
- Use of unqualified 3rd party high-power optics can damage the host equipment.

× Third-party providers simply can't scale

- Incomplete solution offerings and fast turnaround times only for limited quantities.
