

JNP-QSFPP-40G-BXSR

Part number: 740-080490

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

40GBASE-BXSR OM3 100m 850nm 70C

Overview

Part Number	740-080490
Speed	40 Gigabit Ethernet
Breakout Capable	No
Transceiver Type	QSFP+
Product Type	Optical Transceiver
Connector	Duplex LC
Monitoring Available	Yes
Digital Optical Monitoring	Yes
Additional Information	The 40-Gbps BXSR transceiver uses two bi-directional transmitter/receivers, each supporting 20 Gbps, over two multi-mode fiber strands (duplex multi-mode cable). The left LC receptacle transmits at a nominal wavelengths of 850 nm, and receives at a nominal wavelength of 900 nm. The right LC receptacle transmits at a nominal wavelengths of 900 nm, and receives at a nominal wavelength of 850 nm. Standard OM3/OM4 MMF patch cords can be used to interconnect 40-Gbps BXSR transceiver.

Note:

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

Specifications

Standard: 40GBASE-BXSR

Standards compliance (Ethernet/OTN Standard, for e.g. 100GBASE-LR4)	Compliant to IEEE802.3-2015 XLPP Electrical Specification	
MSA compliance (SFF, for e.g. SFF-8665)	SFF-8436	
Optic Type (Commercial Vs Service Provider Grade)	MMF	
Digital Diagnostic Monitoring	Tx Power Rx Power Bias Current Case Temperature Power Supply Voltage	
Signaling rate, each lane	20.625Gbd	
Transmitter wavelengths (range)	Wavelength 1: 832nm to 868nm Wavelength 2: 882nm to 918nm	
Receive lane wavelengths (range)	Wavelength 1: 832nm to 868nm Wavelength 2: 882nm to 918nm	
Transmitter RMS spectral width (maximum)	0.59 nm	
Transmitter output power, each lane (minimum)	-4.0 dBm	
Transmitter output power, each lane (maximum)	5.0 dBm	
Receiver input power, each lane (maximum)	+5.0 dBm	
Receiver sensitivity (OMA), each lane (maximum)	For Center Wavelength 1 @ 850nm: -7.1 dBm For Center Wavelength 2 @ 900nm: -7.7 dBm	
Stressed receiver sensitivity (OMA) each lane (maximum)	-3.83 dBm	
Cable type	MMF	
Core size/cladding	50/125 μ m	
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	
Typical Weight & Dimensions	Typically weight: 100 grams Dimensions(H x W x D): 13.5 x 18.4 x 72.4 mm	

Supported Platforms

Platform	Introduced Release	Additional Information
Routing		
ACX5000		
ACX7100-32C	Junos OS Evolved 21.2R1	
ACX7100-48L	Junos OS Evolved 21.1R1	
ACX7348	Junos OS Evolved 23.4R1	
ACX7509	Junos OS Evolved 21.4R1	
PTX10008	Junos OS 18.2R1	
PTX10016	Junos OS 18.2R1	
Switching		
EX3400	Junos OS 21.4R1	
EX4300 Multigigabit	Junos OS 21.3R1	
EX4400	Junos OS 22.1R1	
EX4400-48T	Junos OS 22.1R1	
EX4400-24T	Junos OS 22.1R1	
EX4400 Multigigabit	Junos OS 22.1R1	
EX4400-24X	Junos OS 23.1R1	
EX4400-48F	Junos OS 22.1R1	
EX4600	Junos OS 18.2R1	
EX4650-48Y	Junos OS 18.3R1	
EX9204	Junos OS 20.3R1	
EX9208	Junos OS 20.3R1	
EX9214	Junos OS 20.3R1	
QFX5100	Junos OS 18.2R1	
QFX5110	Junos OS 18.2R1	
QFX5120-32C	Junos OS 20.2R1	Supported on Junos OS 19.1R3-S1
QFX5120-48T	Junos OS 20.2R1	

Platform	Introduced Release	Additional Information
QFX5120-48Y	Junos OS 18.3R1	
QFX5120-48YM	Junos OS 20.4R1	
QFX5200-32C	Junos OS 18.2R1	
QFX5210-64C	Junos OS 21.1R1	
QFX5220-32CD	Junos OS Evolved 22.2R1	
QFX5220-128C	Junos OS Evolved 22.2R1	
QFX5230-64CD		
QFX5700	Junos OS Evolved 21.2R1	
QFX10002	Junos OS 18.2R1	
QFX10008	Junos OS 18.2R1	
QFX10016	Junos OS 18.2R1	
QFX10002-60C	Junos OS 20.2R1	Supported on Junos OS 19.1R3-S1

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

Line Cards

Name	Description	Platforms and Introduced Releases
40 Gigabit Ethernet		
ACX7300-FPC-2CD4C	ACX7300-2CD4C: 4-Port (QSFP28) & 2-Ports (QSFP56-DD)	ACX7348 Junos OS Evolved 23.4R1
ACX7509-FPC-16C	ACX7509 16X40GE/16X100GE LINE CARD	ACX7509 Junos OS Evolved 21.4R1

Name	Description	Platforms and Introduced Releases	
EX9200-12QS	A line card with six 40-Gigabit Ethernet rate-selectable ports, each of which can house transceivers	EX9204 Junos OS 21.4R1 EX9214 Junos OS 21.4R1	EX9208 Junos OS 21.4R1
EX9200-15C	Fixed-configuration line card with 15 rate-selectable ports. All ports can operate at 10-Gbps, 25-Gbps, 40-Gbps, or 100-Gbps speeds. The ports are configured to operate at 100-Gbps speed by default.	EX9204 Junos OS 20.3R1 EX9214 Junos OS 20.3R1	EX9208 Junos OS 20.3R1
QFX10000-30C	A 30-port 100-Gigabit or 40-Gigabit Ethernet QSFP28 line card	QFX10008 Junos OS 18.2R1	QFX10016 Junos OS 18.2R1
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 18.2R1	QFX10016 Junos OS 18.2R1
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 18.2R1	PTX10016 Junos OS 19.1R1 QFX10016 Junos OS 18.2R1

Uplink Modules

Name	Description	Platforms and Introduced Releases	
40 Gigabit Ethernet			
EX-UM-2QSFP-MR	EX4300MP 2-port 40GbE QSFP+/1-port 100GbE QSPF28 Uplink Module for EX4300-48MP	EX4300 Multigigabit Junos OS 21.3R1	
EX4400-EM-1C	1x100GbE QSFP28 extension module for EX4400 series of switches	EX4400-24X Junos OS 23.1R1	

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.

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