

# JNP-QSFP-40GE-IR4

Part number: 740-056707

## 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-IR4 40 Gigabit Optics for up to 2 km transmission over SMF

## Overview

Part Number	740-056707
Speed	40 Gigabit Ethernet
Breakout Capable	No
Transceiver Type	QSFP+
Product Type	Optical Transceiver
Connector	Duplex LC
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.
- 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-IR4

Signaling rate, each lane	40 Gbps (10 Gbps per lane)
Transmitter fibers	Dual
Transmitter wavelengths (range)	Lane 0-1264.5 nm through 1277.5 nm Lane 1-1284.5 nm through 1297.5 nm Lane 2-1304.5 nm through 1317.5 nm Lane 3-1324.5 nm through 1337.5 nm
Transmitter output power, each lane (minimum)	-7.0 dBm
Transmitter output power, each lane (maximum)	2.3 dBm
Receiver input power, each lane (minimum)	-11.5 dBm
Receiver input power, each lane (maximum)	2.3 dBm
Cable type	SMF
Core size/cladding	9/125 $\mu$ m
Distance	2 km
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
<b>Routing</b>		
ACX5000		
ACX5448-D	Junos OS 19.3R1	
ACX5448-M	Junos OS 19.3R1	
ACX5448	Junos OS 18.2R1	
ACX6360	Junos OS 18.4R1	
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	
PTX1000	Junos OS 16.1X65-D30	
PTX10003	Junos OS Evolved 19.1R1	
PTX10004	Junos OS Evolved 20.3R1	
PTX10008	Junos OS 18.2R1	
PTX10016	Junos OS 18.2R1	
<b>Switching</b>		
EX4400-24X	Junos OS 23.1R1	
EX4600		
EX9204	Junos OS 20.3R1	
EX9208	Junos OS 20.3R1	
EX9214	Junos OS 20.3R1	
EX9251	Junos OS 18.1R1	
EX9253	Junos OS 18.2R1	
QFX5110	Junos OS 15.1X53-D210	

Platform	Introduced Release	Additional Information
QFX5120-32C	Junos OS 22.2R1	
QFX5130-32CD	Junos OS Evolved 22.2R1	
QFX5120-48Y	Junos OS 22.2R1	
QFX5200-32C	Junos OS 15.1X53-D30	
QFX5210-64C	Junos OS 22.2R1	
QFX5220-32CD	Junos OS Evolved 22.2R1	
QFX5220-128C	Junos OS Evolved 22.2R1	
QFX5700	Junos OS Evolved 22.2R1	
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 22.2R1

### 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

Name	Description	Platforms and Introduced Releases	
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
EX9253-6Q12C <sup>(EOL)</sup>	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 <sup>(EOL)</sup>	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
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

## 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

## Why buy optics from Juniper?

There is value in choosing Juniper over 3<sup>rd</sup> 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 3<sup>rd</sup> 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 3<sup>rd</sup> party optics

- JTAC will only assist with host-related issues unrelated to the use of 3<sup>rd</sup> 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 3<sup>rd</sup> 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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