QSFP-100G-PSM4-T2

Part number: 740-061406

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

QSFP28 100G base PSM4 optics for up to 500 m transmission over parallel SMF

Overview

Part Number	740-061406
Speed	4 x 25 Gigabit Ethernet, 100 Gigabit Ethernet
Breakout Capable	Yes
Breakout cables	MTP-4LC-S1M, MTP-4LC-S3M, MTP-4LC-S5M, MTP-4LC-S10M can be used as break-out cables
Transceiver Type	QSFP28
Product Type	Optical Transceiver
Connector	MPO-12 APC
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.

Specifications

Standard: 100G PSM4 MSA

Diagnostic support	Yes
Signaling rate, each lane	25.78125 GBd +/- 100 ppm
Transmitter wavelengths (range)	1295 nm through 1325 nm
Transmitter output power, each lane (minimum)	−9.4 dBm
Transmitter output power, each lane (maximum)	2.0 dBm
Receiver input power, each lane (minimum)	−12.66 dBm
Receiver input power, each lane (maximum)	2.0 dBm
Cable type	SMF
Core size/cladding	9/125 µm
Distance	500 m
Operating Temperature (range)	0° C to 70° C
Storage temperature	−40° C to 85° C

Supported Platforms

Platform	Introduced Release	Additional Information
Routing		
ACX6360	Junos OS 18.4R1	
ACX7100-32C Breakout Supported	Junos OS Evolved 21.2R1	
ACX7100-48L Breakout Supported	Junos OS Evolved 21.1R1	
MX204	Junos OS 17.4R1	
MX240 Breakout Supported	Junos OS 15.1F5	
MX480 Breakout Supported	Junos OS 15.1F5	
MX960 Breakout Supported	Junos OS 15.1F5	
MX2008	Junos OS 15.1F7	
MX2010 Breakout Supported	Junos OS 15.1F5	
MX2020 Breakout Supported	Junos OS 15.1F5	
MX10003	Junos OS 17.3R1	
MX10008	Junos OS 18.2R1	
MX10016	Junos OS 19.2R1	
PTX10001-36MR Breakout Supported	Junos OS Evolved 20.2R1	
PTX3000	Junos OS 15.1F5	
PTX5000	Junos OS 15.1F5	
PTX10003 Breakout Supported	Junos OS Evolved 19.1R1	
PTX10004 Breakout Supported	Junos OS Evolved 20.3R1	

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Platform	Introduced Release	Additional Information
PTX10008 Breakout Supported	Junos OS Evolved 20.1R1	
PTX10016		
Security		
SRX5400	Junos OS 15.1X53-D210	
SRX5600	Junos OS 15.1X53-D210	
SRX5800	Junos OS 15.1X53-D210	
Switching		
EX4300 Multigigabit	Junos OS 21.3R1	
EX4400 Breakout Supported	Junos OS 21.1R1	
EX4400 Multigigabit Breakout Supported	Junos OS 21.2R1	
EX4400-48F Breakout Supported	Junos OS 21.1R1	
EX4650-48Y Breakout Supported	Junos OS 18.3R1	
EX9204 Breakout Supported	Junos OS 20.3R1	
EX9208 Breakout Supported	Junos OS 20.3R1	
EX9214 Breakout Supported	Junos OS 20.3R1	
EX9251	Junos OS 18.1R1	
EX9253	Junos OS 18.2R1	
QFX5110	Junos OS 19.1R1	
QFX5120-48Y Breakout Supported	Junos OS 18.3R1	
QFX5120-32C Breakout Supported	Junos OS 19.1R1	
QFX5120-48T Breakout Supported	Junos OS 20.2R1	

Platform	Introduced Release	Additional Information
QFX5200-32C Breakout Supported	Junos OS 15.1X53-D210	
QFX5210-64C Breakout Supported	Junos OS 18.1R1	
QFX5220-32CD Breakout Supported	Junos OS Evolved 19.2R1	
QFX5220-128C Breakout Supported	Junos OS Evolved 19.2R1	
QFX5200-48Y Breakout Supported	Junos OS 18.1R1	
QFX5700 Breakout Supported	Junos OS Evolved 21.2R1	
QFX10002	Junos OS 15.1X53-D61	
QFX10008	Junos OS 15.1X53-D61	
QFX10016	Junos OS 15.1X53-D60	
QFX10002-60C		

Supported Interface Modules

Flexible PIC Concentrators (FPCs)

Name	Description	Platforms and Introduced Releases
100 Gigabit Ethernet		
QFX5K-FPC-16C	16X100G linecard for QFX700 chassis	QFX5700 Junos OS Evolved 21.2R1 Breakout Supported
QFX5K-FPC-4CD	4X400G linecard for QFX700 chassis	QFX5700 Junos OS Evolved 21.2R1 Breakout Supported

Name	Description	Platforms and Introduced Releases	
4 x 25 Gigabit Ethernet			
QFX5K-FPC-16C	16X100G linecard for QFX700 chassis	QFX5700 Junos OS Evolved 21.2R1 Breakout Supported	
QFX5K-FPC-4CD	4X400G linecard for QFX700 chassis	QFX5700 Junos OS Evolved 21.2R1 Breakout Supported	

I/O cards (IOCs)

Name	Description	Platforms and Introduced Releases	
100 Gigabit Ethernet			
SRX5K-IOC4-MRAT	SRX5K-IOC4-MRAT is a fixed-configuration interface card with a Packet Forwarding Engine that provides up to 480-Gbps (240-Gbps per PIC slot) line rate. This interface card provides scalability in bandwidth and services to the SRX5400, SRX5600, and SRX5800 Services Gateways. Note: SRX5K-IOC4-MRAT cards do not support plug-in Modular Interface Cards (MICs).</br>	SRX5400 Junos OS 19.3R1 SRX5800 Junos OS 19.3R1	SRX5600 Junos OS 19.3R1

Line Cards

Name	Description	Platforms and Introduced Releases	
100 Gigabit Ethernet			
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 Breakout Supported EX9214 Junos OS 20.3R1 Breakout Supported	EX9208 Junos OS 20.3R1 Breakout Supported

Name	Description	Platforms and Introduced Releases	
EX9253-6Q12C	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	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	
MX10K-LC2101	JNP10008/MX10008 24x100G/24x40G/96x10G Line Card	MX10008 Junos OS 18.2R1	MX10016 Junos OS 19.2R1
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 Breakout Supported	PTX10008 Junos OS Evolved 20.1R1 Breakout Supported
QFX10000-30C	A 30-port 100-Gigabit or 40-Gigabit Ethernet QSFP28 line card	QFX10008 Junos OS 15.1X53-D61	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 25 Gigabit Ethernet			
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 Breakout Supported EX9214 Junos OS 20.3R1 Breakout Supported	EX9208 Junos OS 20.3R1 Breakout Supported
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 Breakout Supported	PTX10008 Junos OS Evolved 20.1R1 Breakout Supported

Modular Interface Cards (MICs)

Name	Description	Platforms and Introduced Releases	
100 Gigabit Ethernet			
JNP-MIC1	12x100G/12x40G/48x10G Universal MIC	MX10003 Junos OS 17.3R1	
JNP-MIC1-MACSEC	12x100G/12x40G/48x10G Universal MACSEC MIC	MX10003 Junos OS 17.3R2	

Modular Port Concentrators (MPCs)

Name	Description	Platforms and Introduced Releases	
100 Gigabit Ethernet			
MPC10E-10C	MPC10E-10C-MRATE/MPC10E-10C-P-BASE, 10 x QSFP28/QSFP56-DD multirate port line card	MX240 Junos OS 19.2R1 `Breakout Supported` MX960 Junos OS 19.2R1 `Breakout Supported`	MX480 Junos OS 19.2R1 `Breakout Supported`
MPC10E-15C	MPC10E-15C-MRATE/MPC10E-15C-P-BASE, 15 x QSFP28/QSFP56-DD multirate port line card	MX240 Junos OS 19.1R1 `Breakout Supported` MX960 Junos OS 19.1R1 `Breakout Supported`	MX480 Junos OS 19.1R1 `Breakout Supported`
MPC7E-MRATE	MPC7E (Multi-Rate)	MX240 Junos OS 16.1R1 MX960 Junos OS 16.1R1 MX2010 Junos OS 16.1R1	MX480 Junos OS 16.1R1 MX2008 Junos OS 15.1F7 MX2020 Junos OS 16.1R1
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 `Breakout Supported`	MX2020 Junos OS 20.1R1 `Breakout Supported`

Name	Description	Platforms and Introduced Releases	
MX2K-MPC8E	MPC8E	MX2008 Junos OS 15.1F7 MX2020 Junos OS 16.1R1	MX2010 Junos OS 16.1R1
MX2K-MPC9E	MPC9E	MX2008 Junos OS 15.1F7 MX2020 Junos OS 16.1R1	MX2010 Junos OS 16.1R1
4 x 25 Gigabit Ethernet			
MPC10E-10C	MPC10E-10C-MRATE/MPC10E-10C-P-BASE, 10 x QSFP28/QSFP56-DD multirate port line card	MX240 Junos OS 19.2R1 Breakout Supported MX960 Junos OS 19.2R1 Breakout Supported	MX480 Junos OS 19.2R1 Breakout Supported
MPC10E-15C	MPC10E-15C-MRATE/MPC10E-15C-P-BASE, 15 x QSFP28/QSFP56-DD multirate port line card	MX240 Junos OS 19.1R1 Breakout Supported MX960 Junos OS 19.1R1 Breakout Supported	MX480 Junos OS 19.1R1 Breakout Supported
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 Breakout Supported	MX2020 Junos OS 20.1R1 Breakout Supported

Physical Interface Cards (PICs)

Name	Description	Platforms and Introduced Releases	
100 Gigabit Ethernet			
P3-10-U-QSFP28	10-Port 10-Gigabit Ethernet, 40-Gigabit Ethernet, 100-Gigabit Ethernet PIC with QSFP28 (PTX Series)	PTX3000 Junos OS 16.1R3	PTX5000 Junos OS 17.1R1

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Name	Description	Platforms and Introduced Releases
P3-15-U-QSFP28	15 Port 10-Gigabit, 40-Gigabit Ethernet, 100-Gigabit Ethernet PIC with QSFP28 (PTX Series)	PTX5000 Junos OS 15.1F5

Uplink Modules

Name	Description	Platforms and Introduced Releases
100 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

Why buy optics from Juniper?

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

- No support for third-party optics
- Power, Electrical, and Management interfaces tested at the system level
- Extended temperature and functional testing in DVT chamber using fully loaded systems
- Interoperability testing across Juniper products

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

- No third-party optical provider can match Juniper on this
- Juniper's optics portfolio is maintained and constantly refreshed based on vendor availability

✓ **Rapid shipping with lead times under 1 week**

- Accurate forecasting and vendor relationships makes Juniper a quick and reliable optics provider

✓ **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 that harmonize management, specifications, and logs
- Vendors are scored based on engineering and supply-chain analysis
- Factor audits and critical component evaluation (Ex. Who is supplying the laser? Etc.)

✓ **Third-party providers simply can't scale!**

- Limited support capabilities and a lack of system-level knowledge
- 2-day turnaround only possible for limited quantities via distributors (FS.com etc.)
- Several vendors have indicated that they would rather Juniper sell their optics
- IEEE and MSA compliance do not guarantee quality or advertised performance