SFPP-10GE-ZR

Part number: 740-041612

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

SFP+ 10GE Pluggable Transceiver, SMF, 1550nm for 80KM Transmission

Overview

Part Number	740-041612
Speed	10 Gigabit Ethernet
Breakout Capable	No
Transceiver Type	SFP+
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: 10GBASE-Z

Standards compliance (Ethernet/OTN Standard, for e.g. 100GBASE-LR4)	Multivendor agreement
MSA compliance (SFF, for e.g. SFF-8665)	SFF-8431 SFF-8472 SFF-8432
Digital Diagnostic Monitoring	Transceiver Temperature Transceiver Supply Voltage Tx Bias Current Tx output power Rx received optical power
Signaling rate, each lane	10 Gbps
Transmitter fibers	1
Transmitter wavelengths (range)	1530 nm to 1565 nm
Receive lane wavelengths (range)	1260 nm to 1565 nm
Transmitter output power, each lane (minimum)	0 dBm
Transmitter output power, each lane (maximum)	4 dBm
Receiver input power, each lane (minimum)	-24 dBm
Receiver input power, each lane (maximum)	-7 dBm
Receiver sensitivity (OMA), each lane (maximum)	-24 dBm
Cable type	SMF
Core size/cladding	9/125 µm
Distance	80 km
Maximum Power consumption (W)	1.5 W
Operating Temperature (range)	0° C to 70° C
Storage temperature	−40° C to 85° C
Typical Weight & Dimensions	Width: 14 mm Height: 12.05 mm Length: 57.5 mm Weight: 0.15 lb

Supported Platforms

Platform	Introduced Release	Additional Information
Routing		
ACX2100	Junos OS 12.3X54-D25	
ACX2200	Junos OS 12.3X54-D25	
ACX5448-D	Junos OS 19.3R1	
ACX5448-M	Junos OS 19.3R1	
ACX5448	Junos OS 18.2R1	
ACX7024	Junos OS Evolved 22.3R1	
ACX7100-32C	Junos OS Evolved 21.3R1	
ACX7100-48L	Junos OS Evolved 21.1R1	
ACX7348	Junos OS Evolved 23.4R1	
ACX7509	Junos OS Evolved 21.4R1	
MX104	Junos OS 13.3R8	The following releases are not supported: 14.1R1, 14.1R2, 14.1R3, 14.1R4, 14.1R5, 14.2R1, 14.2R2, 14.2R3, 15.1R1, 15.1F2
MX150	Junos OS 17.3R1	
MX204	Junos OS 17.4R1	Supported natively on the SFP+ ports and with a QSA adapter on the QSFP28 ports
MX240	Junos OS 12.2R1	
MX304	Junos OS 22.2R1	
MX480	Junos OS 12.2R1	
MX960	Junos OS 12.2R1	
MX2008	Junos OS 15.1F7	
MX2010	Junos OS 12.3R2	
MX2020	Junos OS 12.3R1	
MX10003	Junos OS 18.3R1	Use the QSA adapter to convert a 40-Gbps port to a 10-Gbps or a 1-Gbps port.
MX10004	Junos OS 22.3R1	
MX10008	Junos OS 21.2R1	

Platform	Introduced Release	Additional Information
MX10016	Junos OS 21.2R1	
PTX10001-36MR	Junos OS Evolved 21.2R1	
PTX3000		
PTX5000		
PTX10003	Junos OS Evolved 22.3R1	
PTX10004	Junos OS Evolved 21.1R1	
PTX10008	Junos OS Evolved 21.1R1	
PTX10016	Junos OS Evolved 21.1R1	
SDN and Orchestration		
NFX250		

Supported Interface Modules

Adapters

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
MAM1Q00A-QSA	NVIDIA LinkX Optics QSA Cable Adapter 40Gbps QSFP+ to 10Gbps SFP+ / 1Gbps SFP ports. For more information regarding ordering Mellanox products, please contact Mellanox at: https://www.nvidia.com/en-us/networking/ethernet/cable-accessories/	MX204 Junos OS 18.3R1 MX10003 Junos OS 18.3R1	MX304 Junos OS 22.2R1
MAM1Q00A-QSA28	NVIDIA LinkX Optics QSA Cable Adapter 100Gbps QSFP28 to 25Gbps SFP28; Supported interface work with MAM1Q00A-QSA28 revision A6 For more information regarding ordering NVIDIA products, please contact NVIDIA at: https://www.nvidia.com/en-us/networking/ethernet/cable-accessories/	ACX7100-32C Junos OS Evolved 21.3R1	

Line Cards

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
ACX7300-16Y	ACX7300-16Y: 16-port, multi-rate (SFP56)	ACX7348 Junos OS Evolved 23.4R1	
ACX7509-FPC-20Y	ACX7509 20X1GE/10GE/25GE/50GE LINE CARD	ACX7509 Junos OS Evolved 21.4R1	
MX10K-LC480	The MX10K-LC480 (Model number: JNP10K-LC480) is a fixed-configuration line card with 48 SFP/SFP+ ports.	MX10004 Junos OS 22.3R1 MX10016 Junos OS 21.2R1	MX10008 Junos OS 21.2R1
MX304-LMIC16	The MX304-LMIC16-BASE is a 16-port line card that supports maximum data throughput of 1.6 TB ingress and 1.6 TB egress	MX304 Junos OS 22.2R1	
100 Gigabit Ethernet			
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

Modular Interface Cards (MICs)

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
MIC3-3D-10XGE-SFPP	10-Gigabit Ethernet MIC with SFP+	MX240 Junos OS 12.3R1 MX960 Junos OS 12.3R1 MX2010 Junos OS 12.3R2	MX480 Junos OS 12.3R1 MX2008 Junos OS 15.1F7 MX2020 Junos OS 12.3R1

Modular Port Concentrators (MPCs)

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
MPC-3D-16XGE-SFPP	16x10GE MPC	MX240 Junos OS 12.2R1	MX480 Junos OS 12.2R1
		MX960 Junos OS 12.2R1	MX2008 Junos OS 15.1F7
		MX2010 Junos OS 12.3R2	MX2020 Junos OS 12.3R1
MPC4E-3D-2CGE-8XGE	2x100GE + 8x10GE MPC4E	MX240 Junos OS 12.3R2	MX480 Junos OS 12.3R2
		MX960 Junos OS 12.3R2	MX2008 Junos OS 15.1F7
		MX2010 Junos OS 12.3R2	MX2020 Junos OS 12.3R2
MPC4E-3D-32XGE-SFPP	32x10GE MPC4E	MX240 Junos OS 12.3R2	MX480 Junos OS 12.3R2
		MX960 Junos OS 12.3R2	MX2008 Junos OS 15.1F7
		MX2010 Junos OS 12.3R2	MX2020 Junos OS 12.3R2

Physical Interface Cards (PICs)

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
P1-PTX-24-10G-W-SFPP	10-Gigabit Ethernet LAN/WAN OTN PIC with SFP+ (PTX Series)	PTX3000 Junos OS 13.2R2	PTX5000 Junos OS 12.3R2
P1-PTX-24-10GE-SFPP	10-Gigabit Ethernet PIC with SFP+ (PTX Series)	PTX3000 Junos OS 13.2R2	PTX5000 Junos OS 12.1X48R1

Why buy optics from Juniper?
There is <u>value</u> 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 <u>not</u> 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.