SFPP-10GE-LRM (EOL)

Part number: 740-021310

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

10 Gigabit Ethernet Long Reach Multimode (LRM) SFP+

Overview

Part Number	740-021310
Speed	10 Gigabit Ethernet
Breakout Capable	No
Transceiver Type	SFP+
Product Type	Optical Transceiver
Connector	Duplex LC
Monitoring Available	Yes
Digital Optical Monitoring	Yes
Common Optic Equivalent	SFP-10G-LRM-C

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-LRM

Signaling rate, each lane	10 Gbps	
Transmitter fibers	Dual	
Transmitter wavelengths (range)	1310 nm	
Transmitter output power, each lane (minimum)	–6.5 dBm	
Transmitter output power, each lane (maximum)	0.5 dBm	
Receiver input power, each lane (minimum)	–21 dBm	
Receiver input power, each lane (maximum)	0.5 dBm	
Cable type	SMF	MMF
Core size/cladding	9/125 µm 50/125 µm	62.5/125 µm 50/125 µm
Fiber grade	ITU-T G.652 OM2	FDDI/OM1 OM3
Effective modal bandwidth	– 500 MHz x km	500 MHz x km 500 MHz x km
Distance	300 m 220 m	220 m 220 m
Maximum Power consumption (W)	1 W	
Operating Temperature (range)	–5° C to 85° C	
Storage temperature	–40° C to 85° C	

Supported Platforms

Platform	Introduced Release	Additional Information
Routing		
ACX7100-48L	Junos OS Evolved 21.1R1	
ACX7509	Junos OS Evolved 21.4R1	
MX104	Junos OS 13.2R2	
MX240	Junos OS 10.0R2	
MX480	Junos OS 10.0R2	
MX960	Junos OS 10.0R2	
MX2008	Junos OS 15.1F7	
MX2010	Junos OS 12.3R2	
MX2020	Junos OS 12.3R1	
SDN and Orchestration		
NFX350	Junos OS 19.4R1	
Security		
SRX380	Junos OS 20.1R1	
SRX650		
SRX1400		
SRX1500		
SRX3400		
SRX3600		
Switching		
EX2300	Junos OS 23.4R1	
EX2300 Multigigabit	Junos OS 18.1R3	Supported only on EX2300-48MP
EX3300	Junos OS 11.3R1	
EX3400	Junos OS 15.1X53-D50	
EX4200	Junos OS 9.5R1	EX4200-24F-S and EX4200-48T-S switches—Junos OS for EX Series switches, Release 12.3R4 or later

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Platform	Introduced Release	Additional Information
EX4300	Junos OS 13.2X50-D10	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	Junos OS 21.1R1	
EX4400-48T	Junos OS 21.1R1	
EX4400-24T	Junos OS 21.1R1	
EX4400 Multigigabit	Junos OS 21.2R1	
EX4400-48F	Junos OS 21.1R1	
EX4500	Junos OS 10.3R2	
EX4550	Junos OS 12.2R1	EX4550-32F-S switches—Junos OS for EX Series switches, Release 12.3R5 or later
EX4600	Junos OS 21.3R1	
EX6200	Junos OS 11.3R2	
EX8208	Junos OS 9.5R1	
EX8216	Junos OS 9.5R1	
EX9204		
EX9208		
EX9214		
EX9253	Junos OS 18.3R1	

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/	EX9253 Junos OS 18.3R1

I/O cards (IOCs)

Name	Description	Platforms and Introduced Releases
10 Gigabit Ethernet		
SRX1K-SYSIO-XGE	10-Gigabit Ethernet SYSIOC	SRX1400

Line Cards

Name	Description	Platforms and Introduced Releases
10 Gigabit Ethernet		
ACX7509-FPC-20Y	ACX7509 20X1GE/10GE/25GE/50GE LINE CARD	ACX7509 Junos OS Evolved 21.4R1
EX9200-32XS	A line card with 32 10-Gigabit Ethernet ports	EX9204 EX9208 EX9214

Modular Port Concentrators (MPCs)

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
MPC-3D-16XGE-SFPP	16x10GE MPC	MX240 Junos OS 10.0R2 MX960 Junos OS 10.0R2 MX2010 Junos OS 12.3R2	MX480 Junos OS 10.0R2 MX2008 Junos OS 15.1F7 MX2020 Junos OS 12.3R1

Network Processing Cards (NPCs)

Name	Description	Platforms and Introduced Releases	
10 Gigabit Ethernet			
SRX1K3K-NP-2XGE-SFPP	2-port Ethernet SFP+ NP-IOC for SRX3400, SRX3600, and SRX1400 Services Gateways	SRX1400 Junos OS 12.1X44-D10 SRX3600 Junos OS 12.1X44-D10	SRX3400 Junos OS 12.1X44-D10

Uplink Modules

Name	Description	Platforms and Introduced Releases
10 Gigabit Ethernet		
EX-UM-4SFPP-MR	EX4300, 4-Port 10G SFP+/4-Port 1G SFP Uplink Module	EX4300 Multigigabit Junos OS 18.2R1
EX-UM-4X4SFP	EX4300, 4-Port 10G SFP+/4-Port 1G SFP Uplink Module	EX4300 Junos OS 13.2X50-D10
EX-UM-8X8SFP	EX4300, 8-Port 10G SFP+/ 8-Port 1G SFP Uplink Module	EX4300 Junos OS 13.2X51-D15

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Name	Description	Platforms and Introduced Releases	
EX4400-EM-4Y	4x25G SFP28 extension module for EX4400 series of switches. MACsec AES256	EX4400 Junos OS 21.1R1 EX4400-24T Junos OS 21.1R1 EX4400-48F Junos OS 21.1R1	EX4400-48T Junos OS 21.1R1 EX4400 Multigigabit Junos OS 21.2R1

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.
