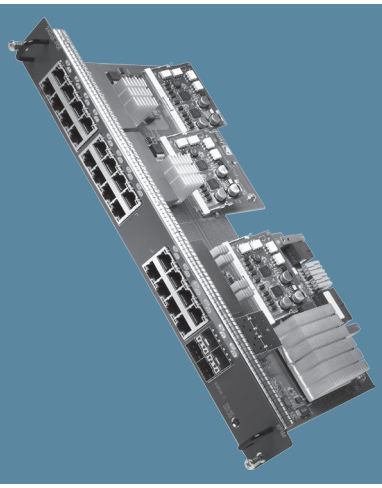


16-PORT AND 24-PORT GIGABIT ETHERNET XPIMS

Product Overview

Juniper Networks 16-port and 24-port gigabit Ethernet Physical Interface Modules (XPIMs) offer high densities of 10/100/1000 copper Ethernet ports and are also available in Power over Ethernet (PoE). These ports deliver the rich set of Layer 2–7 services available via Juniper Networks Junos operating system on the SRX650 Services Gateway.

Product Description

Juniper Networks XPIMs are a set of interface modules supported on Juniper Networks® SRX650 Services Gateway. These modules implement the full set of Layer 3–7 services offered in Juniper Networks Junos® operating system, and alternatively implement Layer 2 Ethernet switching for connecting local servers and PCs to the network.

Two XPIM models are available on the SRX650:

- 16-port 10/100/1000 copper Ethernet. This module is two slots high (double high) and one slot wide. An optional 16-port 10/100/1000 PoE switch module is available with 16 PoE ports.
- 24-port 10/100/1000 copper Ethernet. This module is two slots high (double high) and two slots wide (double wide). An optional 24-port 10/100/1000 PoE switch module is available with 24 PoE ports. The 24-port module supports up to 4 small form-factor pluggable transceivers (SFPs) from a variety of SFPs to implement 100 Mbps or 1 Gbps Ethernet optionally reusing the last 4 copper ports.

Architecture and Key Components

The XPIMs are highly flexible interfaces that give the network designer the tools to solve a wide variety of networking problems.

Network Segmentation

The XPIMs can be used to subnet or segment network traffic by configuring each Ethernet port as a separate routed network or subnet. This localizes broadcast and multicast traffic to a local segment and allows different security policies to be applied to each subnet. Alternatively, XPIM ports can be assigned to VLANs in Layer 2 (L2) switching mode to provide delineation and segmentation of the L2 broadcast domain.

Security Zones

Many organizations need to improve internal security and keep critical information private within departments. At the same time, they need to provide guest access and protect local resources. The XPIMs give the network designer the extra Ethernet ports necessary to implement security zones for departmental access.

Local Workgroups

The network designer can use the Ethernet switching capability of the XPIMs to create local workgroups. Integrating L2 switching into the SRX650 saves space and simplifies management by using a single user interface to configure the switch and the SRX650 secure router.

Features and Benefits

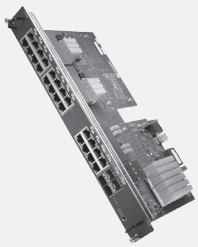
Table 1: XPIM Features and Benefits

Feature	Feature Description	Benefit
16- or 24-port copper Ethernet modules	• Provides GbE connectivity • Flexible for various applications, including multiport copper or fiber applications	Provides current or new infrastructure in the local site and ports for future expansion
Connects in the 20-GbE slots (#2 and 6 slots)	XPIMs use high-speed 20-GbE slots	Provides 20 Gbps L2 switching between XPIM modules and high-performance backplane connection to the system for maximum L3-7 security and routing throughput
High-density 20-GbE switch backplane	Provides additional Ethernet ports in security/routing devices	Increases deployment flexibility and cost effectiveness for branch and midrange routing or security platforms or both
Local switching	Provides switching and broadcast across ports in the card (software release and configuration dependent)	Integrates switching into high-performance branch office and midrange secure routing platforms to reduce operational costs and consolidate the number of networking devices in the branch office or regional site

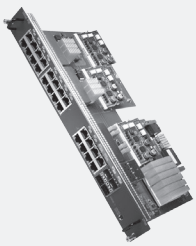
Product Options

Table 2: XPIM Options

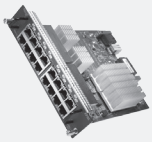
XPIM Part Number	Description
SRX-GP-24GE-POE	• PoE+ Ethernet switch 24-port 10/100/1000BASE-T XPIM. Includes four SFP slots. Supports up to 24 ports PoE+for SRX650. Double-high and double-wide. Uses four Gigabit-Backplane Physical Interface Modules (GPIM) slots. 20 Gbps connection only. • May only be installed in the four GPIM slots #1-2-3-4 or slots #5-6-7-8, and may not be installed in other slots. Connects to system at 20 Gbps in slot #2 or #6, and these slots also provide full PoE power. • Up to two of these XPIM modules can be used in the SRX650, placed in slots #1-2-3-4 and #5-6-7-8; the SRX650 will provide L2 switching interconnect at 20 Gbps between the two. • Supports PoE+ up to all 24 ports. • Total PoE+ power level (30W per port) is limited by the PSU, at approximately 247 W PoE power from a single 645 WAC-POE PSU, or approximately 494 W PoE power from two 645 W AC-POE PSUs.
SRX-GP-24GE	• Ethernet switch 24-port 10/100/1000BASE-T XPIM. Includes four SFP slots. Supports 24 ports Gigabit Ethernet. Hot-swappable PIM for SRX650. Four PIM slots, double-high and double-wide. Uses four GPIM slots. 20 Gbps connection. No PoE support (for PoE, use SRX-GP-24GE-POE). • May only be installed in the four GPIM slots #1-2-3-4 or slots #5-6-7-8, and may not be installed in other slots. Connects to system at 20 Gbps in slot #2 or #6. • Up to two of these XPIM modules can be used in the SRX650, placed in slots #1-2-3-4 and #5-6-7-8, and SRX650 will provide L2 switching interconnect at 20 Gbps between the two. • This module does not support PoE and is not upgradeable to add PoE support.
SRX-GP-16GE-POE	• PoE+ Ethernet switch 16-port 10/100/1000BASE-T XPIM. Supports up to 16 ports PoE+. Double-high uses two GPIM slots. 20 Gbps connection in XPIM slots is available. • Double-high—may only be installed in XPIM slots #2-4 (inserted in slot #2) or #6-8 (inserted in slot #6) for 20 Gbps backplane connection. May not be placed in other slot positions. Connects to system at 20 Gbps in slot #2 or #6. Slots #2 and #6 also provide full PoE power. • Up to two of these 16-port XPIM modules can be used in the SRX650, only installed in slots #2-4 and #6-8. SRX650 provides L2 switching interconnect at 20 Gbps between the two modules in slots #2-4 and #6-8 and PoE power in those slots. • Supports PoE+ up to all 16 ports. • Total PoE+ power level (30W per port) is limited by the PSU, at approximately 247 W PoE power from a single 645 WAC-POE PSU, or approximately 494 W PoE power from two 645 W AC-POE PSUs.
SRX-GP-16GE	• Ethernet switch 16-port 10/100/1000BASE-T XPIM. 16-port 10/100/1000BASE-T XPIM. Double-high uses two GPIM slots. 20 Gbps connection in XPIM (20 Gbps) slots, where also double-high is available. No PoE support (for PoE, use SRX-GP-16GE-POE). • Double-high—may only be installed in GPIM slots #2-4 (inserted in slot #2) or #6-8 (inserted in slot #6) for 20 Gbps backplane connection. May not be placed in other slot positions. Connects to system at 20 Gbps in slot #2 or #6. • Up to two of these 16-port XPIM modules can be used in the SRX650, placed in slots #2-4 and #6-8. SRX650 will provide L2 switching interconnect at 20 Gbps between the two in slots #2-4 and #6-8. • This module does not support PoE and is not upgradeable to add PoE support (for PoE, use SRX-GP-16GE-POE).



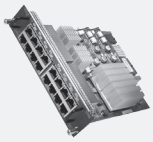
SRX-GP-24GE



SRX-GP-24GE-POE



SRX-GP-16GE



SRX-GP-16GE-POE

The list of available SFP modules for gigabit Ethernet with SFP slots is shown in the Ordering Information section.

Specifications

Table 3: 16-Port and 24-Port GbE XPIM Specifications

	16-Port GbE	16-Port GbE PoE	24-Port GbE	24-Port GbE PoE
Connector	16 x RJ-45	16 x RJ-45	24 x RJ-45, 4-port SFP	24 x RJ-45, 4-port SFP
Medium-dependent interface (MDI/MDI-X)	Auto-correcting MDI/MDI-X	Auto-correcting MDI/MDI-X	Auto-correcting MDI/MDI-X	Auto-correcting MDI/MDI-X
Ethernet speeds	10/100/1000 Mbps, autosensing	10/100/1000 Mbps, autosensing	10/100/1000 Mbps, autosensing	10/100/1000 Mbps, autosensing
Duplex	Autonegotiation or manual setting for duplex	Autonegotiation or manual setting for duplex	Autonegotiation or manual setting for duplex	Autonegotiation or manual setting for duplex
PIM slots required	Two slots high (double high) and one slot wide	Two slots high (double high) and one slot wide	Two slots high (double high) and two slots wide (double wide)	Two slots high (double high) and two slots wide (double wide)

Media Access Control (MAC)

- Maximum MAC addresses per module
  - Static MAC entries: 8,000
  - MAC addresses per module in hardware (static+dynamic): 32,000
  - Reserved MAC table entries: 512

Jumbo Frame

- Maximum jumbo frames: up to 9 KB

VLANs

- Maximum VLANs: 4,000

Link Aggregation Group (LAG)

- 802.3ad Link Aggregation Control Protocol (LACP) support:
  - Maximum of LAGs supported: 128 trunk groups
  - Maximum ports per LAG: 8 member ports per group

Spanning Tree Protocol (STP)

- Maximum multiple spanning-tree instances (MSTIs) supported: 512

Dimensions and Weight (W x H X D)

16-port Gigabit Ethernet XPIMs

- 1.58 x 6.72 x 8.5 in (4.0 x 17.1 x 21.6 cm)
- 1.5 lb (0.68 kg)

24-port Gigabit Ethernet XPIMs

- 1.58 x 13.49 x 8.5 in (4.0 x 34.3 x 21.6 cm)
- 2.79 lb (1.27 kg)

Environmental

- Operating temperature: 32º to 104º F (0º to 40º C)
- Storage temperature: -40º to 158º F (-40º to 70º C)
- Relative humidity: 5% to 90% noncondensing

LEDs

- XPIMs LEDs indicate port status with the following LED states:

16-Port Gigabit Ethernet XPIM LED States

- STATUS—Green light means that the XPIM is online and functioning normally; amber light means that the XPIM is starting up, running diagnostics, or shutting down; red light means that the XPIM has failed.
- LINK/ACT—Green light means that the port is online; light off means that the port is offline; light blinking means that the port is receiving or sending data.
- POE—Green light means that the port is PoE-enabled and online; light off means that the port is offline; light blinking means that the port is PoE-enabled and receiving or sending data. (Applicable to 16-port GbE XPIM).

24-Port Gigabit Ethernet XPIM LED States

- STATUS—Green light means that the XPIM is online and functioning normally; amber light means that the XPIM is starting up, running diagnostics, or shutting down; red light means that the XPIM has failed.
- LINK/ACT—Green light means that the port is online; light off means that the port is offline; light blinking means that the port is receiving or sending data.
- POE—Green light means that the port is PoE-enabled and online; light off means that the port is offline; light blinking means that the port is PoE-enabled and receiving or sending data. (Applicable to 16-port GbE XPIM).
- SFP ports 20–23—Green light means that the port is online; light off means that the port is offline; blinking activity light means that the port is receiving or sending data; light off means that the port might be on but is not receiving or sending data.

Safety

- CAN/CSA-C22.2 No. 60950-1 Information Technology Equipment
- UL 60950-1 Information Technology Equipment
- EN 60950-1 Information Technology Equipment
- IEC 60950-1 Information Technology Equipment

EMC

- FCC Part 15 Class A
- EN 55022 Class A
- AS/NZS 3548 Class A
- VCCI Class A

Immunity

- EN-61000-4-2 Electrostatic Discharge (ESD)
- EN-61000-4-3 Radiated Immunity
- EN-61000-4-4 EFT
- EN-61000-4-5 Surge
- EN-61000-4-6 Low Frequency Common Immunity

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit **www.juniper.net/us/en/products-services**.

Ordering Information

XPIMs

Part Number	Description
SRX-GP-24GE-POE	PoE Ethernet switch 24-port 10/100/1000BASE-T XPIM. The XPIM has 4 SFP slots and supports up to 24 ports PoE. It takes 4 GPIM (double high, double wide) slots.
SRX-GP-24GE	Ethernet switch 24-port 10/100/1000BASE-T XPIM. The XPIM has 4 SFP slots and supports 24 ports GbE. It takes 4 GPIM (double high, double wide) slots.
SRX-GP-16GE-POE	PoE Ethernet switch 16-port 10/100/1000BASE-T XPIM. It supports up to 16 ports PoE and takes 2 GPIM (double high and one slot wide) slots.
SRX-GP-16GE	Ethernet switch 16-port 10/100/1000BASE-T XPIM. It supports up to 16 ports and takes 2 GPIM (double high and one slot wide) slots.

SFP

Part Number	Description
SRX-SFP-1GE-LH	Small form-factor pluggable (SFP) 1000BASE-LH GbE optical transceiver
SRX-SFP-1GE-LX	Small form-factor pluggable (SFP) 1000BASE-LX GbE optical transceiver
SRX-SFP-1GE-SX	Small form-factor pluggable (SFP) 1000BASE-SX GbE optical transceiver
SRX-SFP-1GE-T	Small form-factor pluggable (SFP) 1000BASE-T GbE copper transceiver (uses Cat 5 cable)
SRX-SFP-FE-FX	Small form-factor pluggable (SFP) 100BASE-FX Fast Ethernet optical transceiver, LC connector
JX-SFP-FE-FX	100BASE-FX Fast Ethernet optical transceiver SFP
JX-SFP-1GE-LH	1000BASE-LH GbE optical transceiver SFP, 80 K reach
JX-SFP-1GE-LX	1000BASE-LX GbE optical transceiver SFP
JX-SFP-1GE-SX	1000BASE-SX GbE optical transceiver SFP, 550 m reach without DDM
JX-SFP-1GE-T	1000BASE-T GbE copper RJ-45 transceiver SFP

Operating System Versions

Part Number	Junos OS Version
SRX-GP-16GE-POE SRX-GP-16GE SRX-GP-24GE-POE SRX-GP-24GE SRX-SFP-1GE-LH SRX-SFP-1GE-LX SRX-SFP-1GE-SX SRX-SFP-1GE-T SRX-SFP-FE-FX	Junos OS 9.5 or later

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at **www.juniper.net**.

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