

# SRX5400, SRX5600, and SRX5800 Services Gateway Card Reference

September 2019

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# SRX5400, SRX5600, and SRX5800 Services Gateway Card Overview

The cards described in this guide let you upgrade and customize your SRX5400, SRX5600, or SRX5800 Services Gateway to suit the needs of your network. The following types of cards are available for the SRX5400, SRX5600, and SRX5800 Services Gateways:

- I/O cards (IOCs) provide additional physical network connections to the services gateway. Their primary function is to deliver data packets arriving on the physical ports to the Services Processing Cards (SPCs) and to forward data packets out the physical ports after services processing.
- Flex IOCs have two slots for port modules that add additional physical network connections to the services gateway. Like IOCs, their primary function is to deliver data packets arriving on the physical ports to the SPCs and to forward data packets out the physical ports after services processing.
- Modular Port Concentrators (MPCs) have slots on the front panel that accept smaller cards called Modular Interface Cards (MICs). Each MIC has one or more physical interfaces on it. An MPC with MICs installed functions in the same way as a regular I/O card (IOC), but allows greater flexibility in adding different types of Ethernet ports to your services gateway. MPCs and MICs are similar in form and function to Flex IOCs and port modules. However, the two use different form-factors, so you cannot install port modules in an MPC, nor can you install MICs in a Flex IOC.
- Services Processing Cards (SPCs) provide the processing power to run integrated services such as firewall, IPsec and IDP. All traffic traversing the services gateway is passed to an SPC to have services processing applied to it.
- Switch Control Boards (SCBs) power on and power off IOCs and SPCs; control clocking and system resets; and control booting, monitor, and system functions. Each SCB has a slot in the front panel for a Routing Engine.

Although the following modules are not cards in the sense of having a form-factor that fits the card cage of the SRX5400, SRX5600, and SRX5800 Services Gateway, this guide also addresses the following modules that fit into certain SRX5400, SRX5600, and SRX5800 Services Gateway cards:

- Routing Engines fit into slots in SCBs and maintain the routing tables, manage the routing protocols used on the device, control the device interfaces and some chassis components, and provide the interface for system management and user access to the device.
- Port modules fit into slots in Flex IOCs and add additional physical network interface ports to the services gateway.
- Modular Interface Cards (MICs) fit into slots in MPCs and add additional physical network interface ports to the services gateway. MPCs and MICs are similar in form and function to Flex IOCs and port modules. However, the two use different form-factors, so you cannot install port modules in an MPC, nor can you install MICs in a Flex IOC.

# Cards Supported on SRX5400, SRX5600, and SRX5800 Services Gateways

Table 1 on page 4 describes the cards and other modules supported on the SRX5400, SRX5600, and SRX5800 Services Gateways.

Table 1: Supported Cards for SRX5400, SRX5600, and SRX5800 Services Gateways

Card Name and Model Number	Earliest Supported Junos OS Release	
	SRX5400	SRX5600 and SRX5800
<b>SPCs</b>		
Services Processing Card SRX5K-SPC-2-10-40 Specifications	Not supported	9.2
Services Processing Card SRX5K-SPC-4-15-320 Specifications	12.1X46-D10	12.1X44-D10
Services Processing Card SRX5K-SPC3 Specifications	18.2R1-S1	18.2R1-S1
<b>Interface Cards</b>		
I/O Card SRX5K-40GE-SFP Specifications	Not supported	9.2
I/O Card SRX5K-4XGE-XFP Specifications	Not supported	9.2
Flex I/O Card (SRX5K-FPC-IOC) Specifications	Not supported	10.2
Modular Port Concentrator (SRX5K-MPC) Specifications	12.1X46-D10	12.1X46-D10
SRX5K-MPC3-40G10G Specifications	15.1X49-D10	15.1X49-D10
SRX5K-MPC3-100G10G Specifications	15.1X49-D10	15.1X49-D10
<a href="#">"SRX5K-IOC4-10G Specifications" on page 50</a>	19.3R1	19.3R1

Table 1: Supported Cards for SRX5400, SRX5600, and SRX5800 Services Gateways (continued)

Card Name and Model Number	Earliest Supported Junos OS Release	
	SRX5400	SRX5600 and SRX5800
<a href="#">"SRX5K-IOC4-MRAT Specifications" on page 53</a>	19.3R1	19.3R1
<b>SCBs</b>		
Switch Control Board SRX5K-SCB Specifications	12.1X46-D10	9.2
Switch Control Board SRX5K-SCBE Specifications	12.1X47-D15	12.1X47-D15
Switch Control Board SRX5K-SCB3 Specifications	15.1X49-D10	15.1X49-D10
<a href="#">"Switch Control Board SRX5K-SCB4 Specifications" on page 73</a>	Not supported	19.3R1
<b>Other modules</b>		
Flex I/O Card Port Module SRX-IOC-16GE-SFP Specifications	Not supported	10.2
Flex I/O Card Port Module SRX-IOC-16GE-TX Specifications	Not supported	10.2
Flex I/O Card Port Module SRX-IOC-4XGE-XFP Specifications	Not supported	10.2
MIC with 1x100GE CFP Interface (SRX-MIC-1X100G-CFP)	12.1X46-D10	12.1X46-D10
MIC with 2x40GE QSFP+ Interfaces (SRX-MIC-2X40G-QSFP)	12.1X46-D10	12.1X46-D10
MIC with 10x10GE SFP+ Interfaces (SRX-MIC-10XG-SFPP)	12.1X46-D10	12.1X46-D10
MIC with 20x1GE SFP Interfaces (SRX-MIC-20GE-SFP)	12.1X47-D10	12.1X47-D10

**Table 1: Supported Cards for SRX5400, SRX5600, and SRX5800 Services Gateways (continued)**

Card Name and Model Number	Earliest Supported Junos OS Release	
	SRX5400	SRX5600 and SRX5800
<i>Routing Engine SRX5K-RE-13-20 Specifications</i>	12.1X46-D10	9.2
<i>Routing Engine SRX5K-RE-1800X4 Specifications</i>	12.1X47-D15	12.1X47-D15
<a href="#">"Routing Engine SRX5K-RE3-128G Specifications" on page 81</a>	19.3R1	19.3R1

[Figure 1 on page 7](#) is an interoperability matrix that describes the compatibility between various interface cards for the SRX5400, SRX5600, and SRX5800 Services Gateways.

Figure 1: Interoperability Matrix for SRX5400, SRX5600, and SRX5800 Services Gateways

Model Numbers	SRX5400 SRX5K-SCB SRX5K-RE-13-20	SRX5600/SRX5800 SRX5K-SCB SRX5K-RE-13-20	SRX5K-SCBE SRX5K-RE-1800X4	SRX5K-SCB3 SRX5K-RE-1800X4	SRX5K-SPC-2-10-40	SRX5K-SPC-4-15-320	SRX5K-SPC3	SRX5K-4XGE-XFP SRX5K-40GE-SFP SRX5K-FPC-IOC	SRX5K-MPC (SRX-MIC-20GE-SFP), (SRX-MIC-10XG-SFP), (SRX-MIC-1X100G-CFP), (SRX-MIC-2X40G-QSFP)	SRX5K-MPC3-40G10G SRX5K-MPC3-100G10G	SRX5K-IOC4-10G SRX5K-IOC4-MRAT	SRX5600/SRX5800 SRX5K-SCB4 SRX5K-RE3-128G	SRX5600/SRX5800 SRX5K-SCB4 SRX5K-RE-1800X4	SRX5K-SCB3 SRX5K-RE3-128G
SRX5400 SRX5K-SCB SRX5K-RE-13-20	✓	✗	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗
SRX5600/SRX5800 SRX5K-SCB SRX5K-RE-13-20	✗	✓	✗	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗
SRX5K-SCBE SRX5K-RE-1800X4	✗	✗	✓	✗	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗
SRX5K-SCB3 SRX5K-RE-1800X4	✗	✗	✗	✓	✗	✓	✓	✗	✓	✓	✓	✗	✗	✗
SRX5K-SPC-2-10-40	✗	✓	✗	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗
SRX5K-SPC-4-15-320	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SRX5K-SPC3	✗	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓
SRX5K-4XGE-XFP SRX5K-40GE-SFP SRX5K-FPC-IOC	✗	✓	✗	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗
SRX5K-MPC (SRX-MIC-20GE-SFP) (SRX-MIC-10XG-SFP) (SRX-MIC-1X100G-CFP) (SRX-MIC-2X40G-QSFP)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SRX5K-MPC3-40G10G SRX5K-MPC3-100G10G	✗	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓
SRX5K-IOC4-10G SRX5K-IOC4-MRAT	✗	✗	✗	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓
SRX5600/SRX5800 SRX5K-SCB4 SRX5K-RE3-128G	✗	✗	✗	✗	✗	✓	✓	✗	✓	✓	✓	✓	✗	✗
SRX5600/SRX5800 SRX5K-SCB4 SRX5K-RE-1800X4	✗	✗	✗	✗	✗	✓	✓	✗	✓	✓	✓	✗	✓	✗
SRX5K-SCB3 SRX5K-RE3-128G	✗	✗	✗	✗	✗	✓	✓	✗	✓	✓	✓	✗	✗	✓

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# Services Processing Card SRX5K-SPC-2-10-40 Specifications

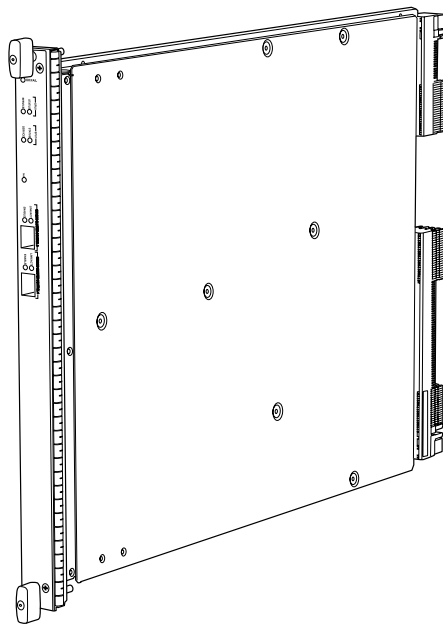
The SRX5K-SPC-2-10-40 Services Processing Card (SPC) contains two Services Processing Units (SPUs), which provide the processing power to run integrated services such as firewall, IPsec, and IDP (see [Figure 2 on page 8](#)). All traffic traversing the services gateway is passed to an SPU to have services processing applied to it. Traffic is intelligently distributed by I/O cards (IOCs) to SPUs for services processing.

The services gateway must have at least one SPC installed. You can install additional SPCs to increase services processing capacity.

You can install SPCs in any of the slots that are not reserved for Switch Control Boards (SCBs). If a slot is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the device.

[Figure 2 on page 8](#) shows a typical SPC supported on the services gateway.

**Figure 2: Services Processing Card SRX5K-SPC-2-10-40**



Each SPC consists of the following components:

- SPC cover, which functions as a ground plane and a stiffener.
- Two small form-factor pluggable (SFP) chassis cluster control ports for connecting multiple devices into a redundant chassis cluster. See [Chassis Cluster Feature Guide for SRX Series Devices](#) for more information about connecting and configuring redundant chassis clusters.





**CAUTION:** If you face a problem running a Juniper Networks device that uses a third-party optic or cable, the Juniper Networks Technical Assistance Center (JTAC) can help you diagnose the source of the problem. Your JTAC engineer might recommend that you check the third-party optic or cable and potentially replace it with an equivalent Juniper Networks optic or cable that is qualified for the device.

- Fabric interfaces.
- Two Gigabit Ethernet interfaces that allow control information, route information, and statistics to be sent between the Routing Engine and the CPU on the SPCs.
- Two interfaces from the SCBs that enable the boards to be powered on and controlled.
- Physical SPC connectors.
- Midplane connectors and power circuitry.
- Processor subsystem, which includes a 1.2-GHz CPU, system controller, and 1 GB of SDRAM.
- LEDs on the faceplate that indicate the SPC and SPU status.

<b>Description</b>	SPC with two SPUs
<b>Software release</b>	<ul style="list-style-type: none"> <li>• Junos OS Release 9.2 and later</li> </ul>
<b>Cables and connectors</b>	<p><b>CHASSIS CLUSTER CONTROL 0</b> and <b>CHASSIS CLUSTER CONTROL 1</b>—SFP ports for control links in chassis cluster configurations.</p> <p>Supported SFP transceivers:</p> <p>1000BASE-LH (model numbers SRX-SFP-1GE-LH, SRX-SFP-1GE-LH-ET)</p> <p>1000BASE-LX (model numbers SRX-SFP-1GE-LX, SRX-SFP-1GE-LX-ET)</p> <p>1000BASE-SX (model numbers SRX-SFP-1GE-SX, SRX-SFP-1GE-SX-ET)</p>
<b>Controls</b>	None
<b>Supported Slots</b>	<ul style="list-style-type: none"> <li>• SRX5600—Any slot, except the bottom slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li> <li>• SRX5800—Any slot, except the slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li> </ul>
<b>Power Requirement</b>	Maximum 351 W
<b>Weight</b>	Approximately 13 lb (5.9 kg)

**LEDs**

**OK/FAIL LED**, one bicolor:

- Steady green–The SPC is operating normally.
- Red–The SPC has failed and is not operating normally.
- Off–The SPC is powered down.

**STATUS LED**, one tricolor for each of the two SPUs **SPU 0** and **SPU 1**:

- Green–The SPU is operating normally.
- Amber–The SPU is initializing.
- Red–The SPU has encountered an error or a failure.
- Off–The SPU is offline. If all four SPUs are offline, it is safe to remove the SPC from the chassis.

**SERVICE LED**, one bicolor for each of the two SPUs, **SPU 0** and **SPU 1**:

- Green–Service is running on the SPU under acceptable load.
- Amber–Service on the SPU is overloaded.
- Off–Service is not running on the SPU.

**HA LED**, one tricolor:

- Green–Clustering is operating normally. All cluster members and monitored links are available, and no error conditions are detected.
- Red–A critical alarm is present on clustering. A cluster member is missing or unreachable, or the other node is no longer part of a cluster because it has been disabled by the dual membership and detection recovery process in reaction to a control link or fabric link failure.
- Amber–All cluster members are present, but an error condition has compromised the performance and resiliency of the cluster. The reduced bandwidth could cause packets to be dropped or could result in reduced resiliency because a single point of failure might exist. The error condition might be caused by:
  - The loss of chassis cluster links which causes an interface monitoring failure.
  - An error in an SPU or NPU.
  - Failure of the spu-monitoring or cold-sync-monitoring processes.
  - A chassis cluster IP monitoring failure.

**LINK/ACT LED**, one for each of the two ports **CHASSIS CLUSTER CONTROL 0** and **CHASSIS CLUSTER CONTROL 1**:

- Green–Chassis cluster control port link is active.
- Off–No link.

**ENABLE LED**, one for each of the two ports **CHASSIS CLUSTER CONTROL 0** and **CHASSIS CLUSTER CONTROL 1**:

- Green–The chassis cluster control port is enabled.
- Off–The chassis cluster control port is disabled.



# Services Processing Card SRX5K-SPC-4-15-320 Specifications

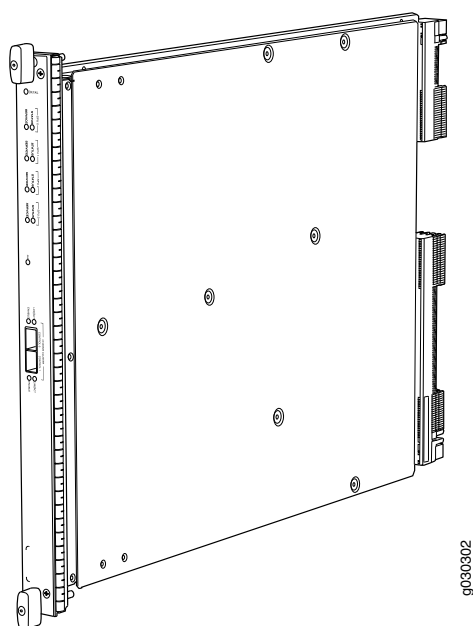
The SRX5K-SPC-4-15-320 Services Processing Card (SPC) contains four Services Processing Units (SPUs), which provide the processing power to run integrated services such as firewall, IPsec, and IDP (see [Figure 4 on page 12](#)). All traffic traversing the services gateway is passed to an SPU to have services processing applied to it. Traffic is intelligently distributed by I/O cards (IOCs) to SPUs for services processing.

The services gateway must have at least one SPC installed. You can install additional SPCs to increase services processing capacity.

You can install SPCs in any of the slots that are not reserved for Switch Control Boards (SCBs). If a slot is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the device.

If your services gateway contains a mix of SRX5K-SPC-4-15-320 SPCs and earlier SRX5K-SPC-2-10-40 SPCs, an SRX5K-SPC-4-15-320 SPC must occupy the lowest-numbered slot of any SPC in the chassis. This configuration ensures that the center point (CP) function is performed by the faster and higher-performance SPC type.

Figure 4: Services Processing Card SRX5K-SPC-4-15-320



Each SPC consists of the following components:

- SPC cover, which functions as a ground plane and a stiffener.
- Two small form-factor pluggable (SFP) chassis cluster control ports for connecting multiple devices into a redundant chassis cluster. See [Chassis Cluster Feature Guide for SRX Series Devices](#) for more information about connecting and configuring redundant chassis clusters.



**CAUTION:** If you face a problem running a Juniper Networks device that uses a third-party optic or cable, the Juniper Networks Technical Assistance Center (JTAC) can help you diagnose the source of the problem. Your JTAC engineer might recommend that you check the third-party optic or cable and potentially replace it with an equivalent Juniper Networks optic or cable that is qualified for the device.

- Fabric interfaces.
- Two Gigabit Ethernet interfaces that allow control information, route information, and statistics to be sent between the Routing Engine and the CPU on the SPCs.
- Two interfaces from the SCBs that enable the boards to be powered on and controlled.
- Physical SPC connectors.
- Midplane connectors and power circuitry.
- Processor subsystem, which includes a 1.2-GHz CPU, system controller, and 1 GB of SDRAM.
- LEDs on the faceplate that indicate the SPC and SPU status.

Description	SPC with four SPUs
Software release	<ul style="list-style-type: none"><li>• Junos OS Release 12.1X44-D10 and later</li></ul>
Cables and connectors	<p><b>CHASSIS CLUSTER CONTROL 0</b> and <b>CHASSIS CLUSTER CONTROL 1</b>—SFP ports for control links in chassis cluster configurations.</p> <p>Supported SFP transceivers:</p> <p>1000BASE-LH (model numbers SRX-SFP-1GE-LH, SRX-SFP-1GE-LH-ET)</p> <p>1000BASE-LX (model numbers SRX-SFP-1GE-LX, SRX-SFP-1GE-LX-ET)</p> <p>1000BASE-SX (model numbers SRX-SFP-1GE-SX, SRX-SFP-1GE-SX-ET)</p>
Controls	None

<b>Supported Slots</b>	<ul style="list-style-type: none"><li>• SRX5400—Any slot, except the bottom slot <b>0</b> which is reserved for SCB/RE.</li><li>• SRX5600—Any slot, except the bottom slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li><li>• SRX5800—Any slot, except the slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li></ul>
<b>Power Requirement</b>	<p>475 W typical, 585 W maximum</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"><li>• In the SRX5600 and SRX5800 Services Gateways, you must have high-capacity power supplies (either AC or DC) and high-capacity fan trays installed in the services gateway in order to install and use SRX5K-SPC-4-15-320 SPCs. If you do not have high-capacity power supplies and fan trays installed, the services gateway will log an alarm condition when it recognizes the SRX5K-SPC-4-15-320 SPCs.</li><li>• On SRX5600 Services Gateways with AC power supplies, we recommend that you use high-line (220v) input power to ensure the device has adequate power to support SRX5K-SPC-4-15-320 SPCs.</li></ul>
<b>Weight</b>	Approximately 18 lb (8.3 kg)

LEDs



**OK/FAIL LED**, one bicolor:

- Steady green—The SPC is operating normally.
- Red—The SPC has failed and is not operating normally.
- Off—The SPC is powered down.

**STATUS LED**, one tricolor for each of the four SPUs **SPU 0** through **SPU 3**:

- Green—The SPU is operating normally.
- Amber—The SPU is initializing.
- Red—The SPU has encountered an error or a failure.
- Off—The SPU is offline. If all four SPUs are offline, it is safe to remove the SPC from the chassis.

**SERVICE LED**, one bicolor for each of the four SPUs **SPU 0** through **SPU 3**:

- Green—Service is running on the SPU under acceptable load.
- Amber—Service on the SPU is overloaded.
- Off—Service is not running on the SPU.

**HA LED**, one tricolor:

- Green—Clustering is operating normally. All cluster members and monitored links are available, and no error conditions are detected.
- Red—A critical alarm is present on clustering. A cluster member is missing or unreachable, or the other node is no longer part of a cluster because it has been disabled by the dual membership and detection recovery process in reaction to a control-link or fabric-link failure.
- Amber—All cluster members are present, but an error condition has compromised the performance and resiliency of the cluster. The reduced bandwidth could cause packets to be dropped or could result in reduced resiliency because a single point of failure might exist. The error condition might be caused by:
  - The loss of chassis cluster links which causes an interface monitoring failure.
  - An error in an SPU or NPU.
  - Failure of the spu-monitoring or cold-sync-monitoring processes.
  - A chassis cluster IP monitoring failure.
- Off—The node is not configured for clustering or it has been disabled by the dual membership and detection recovery process in reaction to a control link or fabric link failure.

**LINK/ACT LED**, one for each of the two ports **CHASSIS CLUSTER CONTROL 0** and **CHASSIS CLUSTER CONTROL 1**:

- Green—Chassis cluster control port link is active.
- Off—No link.

**ENABLE LED**, one for each of the two ports **CHASSIS CLUSTER CONTROL 0** and **CHASSIS CLUSTER CONTROL 1**:

- Green—The chassis cluster control port is enabled.

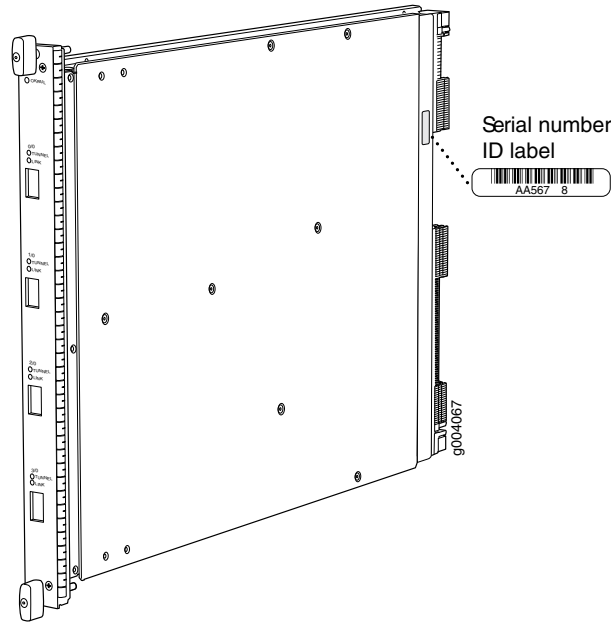


- Off-The chassis cluster control port is disabled.

**Serial Number  
Location**

The serial number label is located as shown in [Figure 5 on page 17](#).

**Figure 5: Serial Number Label (IOC Shown, Other Cards Similar)**



# Services Processing Card SRX5K-SPC3 Specifications

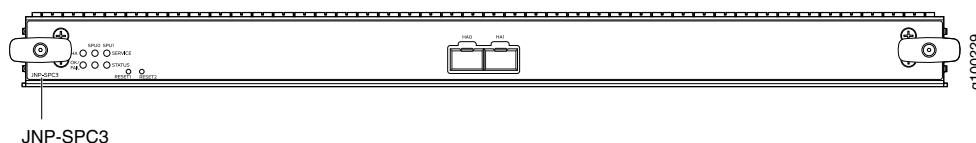
The SRX5K-SPC3 Services Processing Card (SPC) contains two Services Processing Units (SPUs) with 128GB of memory per SPU, that provide the processing power to run integrated services such as firewall, IPsec, and IDP (see [Figure 6 on page 18](#)). All traffic traversing the services gateway is passed to an SPU to have services processing applied to it. Traffic is intelligently distributed by I/O cards (IOCs) to SPUs for services processing.

The services gateway must have at least one SPC installed. You can install additional SPCs to increase services processing capacity.

SPCs cannot be installed in slots that are reserved for Switch Control Boards (SCBs) or in slot **11** on the SRX5800. If a slot is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the device.

**NOTE:** Your services gateway cannot have a mix of SRX5K-SPC-2-10-40 SPCs and SRX5K-SPC3 SPCs. Starting with Junos OS release 18.2R2 and then 18.4R1 but not 18.3R1, you can have a mix of SRX5K-SPC-4-15-320 SPCs and SRX5K-SPC3 SPCs.

Figure 6: Services Processing Card SRX5K-SPC3



Each SPC consists of the following components:

- SPC cover, which functions as a ground plane and a stiffener.
- Two 10-Gigabit Ethernet small form-factor pluggable plus (SFP+) chassis cluster control ports for connecting multiple devices into a redundant chassis cluster. See the [Chassis Cluster Feature Guide for SRX Series Devices](#) for more information about connecting and configuring redundant chassis clusters.



**CAUTION:** If you face a problem running a Juniper Networks device that uses a third-party optic or cable, the Juniper Networks Technical Assistance Center (JTAC) can help you diagnose the source of the problem. Your JTAC engineer might recommend that you check the third-party optic or cable and potentially replace it with an equivalent Juniper Networks optic or cable that is qualified for the device.

- Fabric interfaces
- One Gigabit Ethernet switch that provides control connectivity to the Routing Engine.
- Two interfaces from the SCBs that enable the boards to be powered on and controlled.
- Physical SPC connectors
- Midplane connectors and power circuitry.
- Processor subsystem, which includes a 2.3-GHz CPU, system controller, and two 128 GB solid state-drives (SSDs).
- LEDs on the faceplate that indicate the SPC and SPU status.

<b>Description</b>	SPC with two SPUs of 256 GB memory.
<b>Software release</b>	<ul style="list-style-type: none"> <li>• Junos OS Release 18.2R1-S1</li> </ul>
<b>Cables and connectors</b>	<p><b>HA0</b> and <b>HA1</b> SFP+ ports for control links in chassis cluster configurations.</p> <p>Supported transceivers:</p> <ul style="list-style-type: none"> <li>• 10GBASE-LR: transceiver model number SRX-SFP-10GE-LR</li> <li>• 10GBASE-SR: transceiver model number SRX-SFP-10GE-SR</li> </ul>
<b>Controls</b>	None
<b>Supported Slots</b>	<ul style="list-style-type: none"> <li>• SRX5400—Any slot, except the bottom slot <b>0</b> which is reserved for SCB/RE.</li> <li>• SRX5600—Any slot, except the bottom slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li> <li>• SRX5800—Any slot, except slot <b>11</b>, and the slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li> </ul>
<b>Power Requirement</b>	<p>650 W maximum</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• In the SRX5600 and SRX5800 Services Gateways, you must have high-capacity power supplies (either AC or DC) and high-capacity fan trays installed in the services gateway in order to install and use SRX5K-SPC3 SPCs. If you do not have high-capacity power supplies and fan trays installed, the services gateway will log an alarm condition when it recognizes the SRX5K-SPC3 SPCs.</li> <li>• On SRX5600 Services Gateways with AC power supplies, we recommend that you use high-line (220v) input power to ensure the device has adequate power to support SRX5K-SPC3 SPCs.</li> </ul>
<b>Weight</b>	Approximately 18 lb (8.3 kg)

**LEDs**

**OK/FAIL LED**, one bicolor:

- Steady green–The SPC is operating normally.
- Red–The SPC has failed and is not operating normally.
- Off–The SPC is powered down.

**STATUS LED**, one tricolor for each SPU **SPU 0** and **SPU 1**:

- Off–The SPU is offline.
- Blinking Amber–The SPU is initializing.
- Green–The SPU initialization is done and it is operating normally.
- Red–The SPU has encountered an error or a failure.

**SERVICE LED**, one tricolor for each SPU **SPU 0** and **SPU 1**:

- Off–The SPU is offline.
- Blinking Red–The SPU initialization is done.
- Blinking Amber–Service is initializing on the SPU.
- Green–Service is running on the SPU under acceptable load.
- Solid Red–Service encountered an error or a failure.

**HA LED**, one tricolor:

- Green–Clustering is operating normally. All cluster members and monitored links are available, and no error conditions are detected.
- Red–A critical alarm is present on clustering. A cluster member is missing or unreachable, or the other node is no longer part of a cluster because it has been disabled by the dual membership and detection recovery process in reaction to a control-link or fabric-link failure.
- Amber–All cluster members are present, but an error condition has compromised the performance and resiliency of the cluster. The reduced bandwidth could cause packets to be dropped or could result in reduced resiliency because a single point of failure might exist. The error condition might be caused by:
  - The loss of chassis cluster links which causes an interface monitoring failure.
  - An error in an SPU or NPU.
  - Failure of the spu-monitoring or cold-sync-monitoring processes.
  - A chassis cluster IP monitoring failure.
- Off–The node is not configured for clustering or it has been disabled by the dual membership and detection recovery process in reaction to a control link or fabric link failure.

**LINK/ACT LED**, one for each of the two ports **CHASSIS CLUSTER CONTROL 0** and **CHASSIS CLUSTER CONTROL 1**:

- Green–Chassis cluster control port link is active.
  - Off–No link.
-

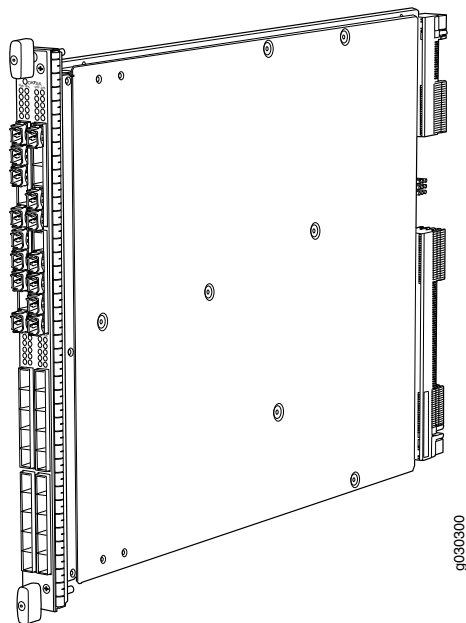
# I/O Card SRX5K-40GE-SFP Specifications

The SRX5K-40GE-SFP I/O card (IOC) is optimized for Ethernet density and supports 40 Gigabit Ethernet ports (see [Figure 7 on page 21](#)). The IOC assembly combines packet forwarding and Ethernet interfaces on a single board, with four 10-Gbps Packet Forwarding Engines. Each Packet Forwarding Engine consists of one I-chip for Layer 3 processing and one Layer 2 network processor. The IOCs interface with the power supplies and Switch Control Boards (SCBs).

You must install at least one IOC in the services gateway. The IOC can be of any of the available IOC or Flex IOC types.

You can install IOCs in any of the slots that are not reserved for Switch Control Boards (SCBs). If a slot is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

Figure 7: IOC SRX5K-40GE-SFP



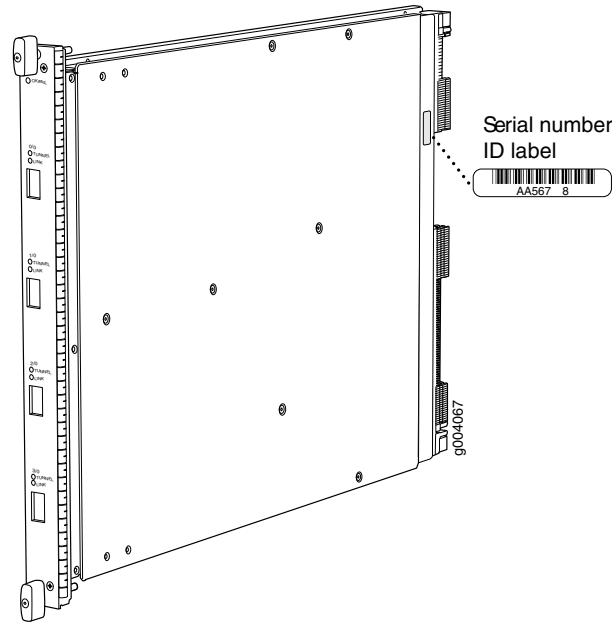
Description	<ul style="list-style-type: none"><li>• I/O card with 40 Gigabit Ethernet SFP ports</li><li>• Maximum configurable MTU: 9192 bytes</li><li>• Maximum throughput: 40 Gbps</li></ul>
Software release	<ul style="list-style-type: none"><li>• Junos OS Release 9.2 and later</li></ul>

<b>Cables and connectors</b>	<p>40 Gigabit Ethernet SFP ports</p> <p>Supported SFP transceivers:</p> <p>1000BASE-LH (model numbers SRX-SFP-1GE-LH, SRX-SFP-1GE-LH-ET)</p> <p>1000BASE-LX (model numbers SRX-SFP-1GE-LX, SRX-SFP-1GE-LX-ET)</p> <p>1000BASE-SX (model numbers SRX-SFP-1GE-SX, SRX-SFP-1GE-SX-ET)</p> <p>1000BASE-T (model numbers SRX-SFP-1GE-T, SRX-SFP-1GE-T-ET)</p>
<b>Controls</b>	None
<b>Supported Slots</b>	<ul style="list-style-type: none"> <li>• SRX5600—Any slot except bottom slots <b>0</b> or <b>1</b></li> <li>• SRX5800—Any slot except center slots <b>0</b>, <b>1</b>, or <b>2/6</b></li> </ul>
<b>Power Requirement</b>	312 W typical, 365 W maximum
<b>Weight</b>	Approximately 13 lb (5.9 kg)
<b>LEDs</b>	<p><b>OK/FAIL</b> LED, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—The IOC is operating normally.</li> <li>• Red—The IOC has failed and is not operating normally.</li> <li>• Off—The IOC is powered down.</li> </ul>

**Serial Number Location**

The serial number label is located as shown in [Figure 8 on page 23](#).

**Figure 8: Serial Number Label (IOC Shown, Other Cards Similar)**



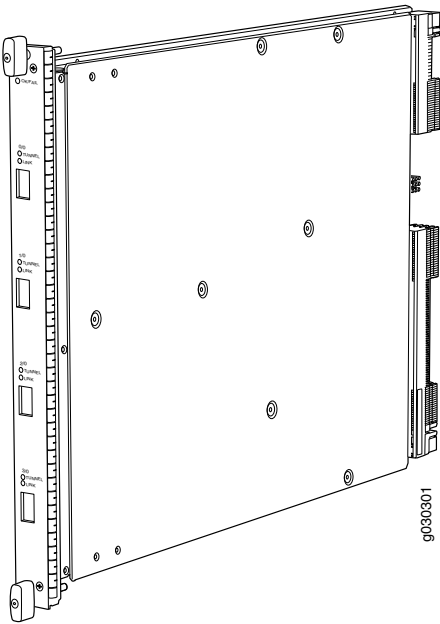
# I/O Card SRX5K-4XGE-XFP Specifications

The SRX5K-4XGE-XFP I/O card (IOC) supports four 10-Gigabit Ethernet ports (see [Figure 9 on page 24](#)). The IOC assembly combines packet forwarding and Ethernet interfaces on a single board, with four 10-Gbps Packet Forwarding Engines. Each Packet Forwarding Engine consists of one I-chip for Layer 3 processing and one Layer 2 network processor. The IOCs interface with the power supplies and Switch Control Boards (SCBs).

You must install at least one IOC in the services gateway. The IOC can be of any of the available IOC or Flex IOC types.

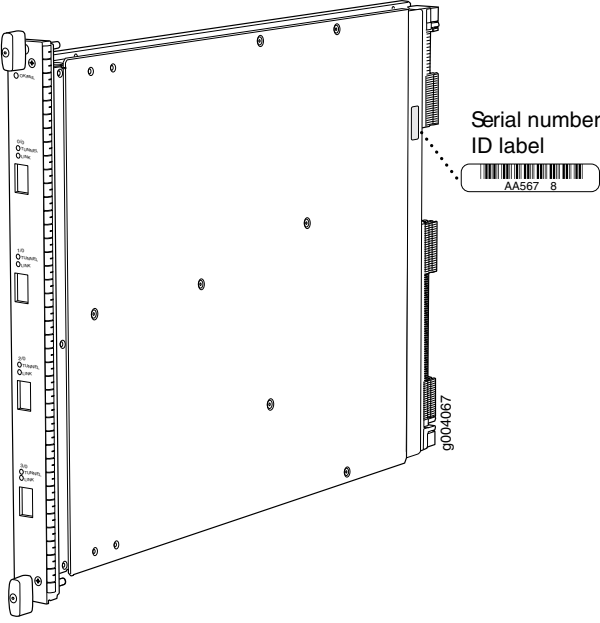
You can install IOCs in any of the slots that are not reserved for Switch Control Boards (SCBs). If a slot is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

Figure 9: IOC SRX5K-4XGE-XFP



Description	<ul style="list-style-type: none"><li>• I/O card with four 10-Gigabit Ethernet XFP ports</li><li>• Maximum configurable MTU: 9192 bytes</li><li>• Maximum throughput: 40 Gbps</li></ul>
Software release	<ul style="list-style-type: none"><li>• Junos OS Release 9.2 and later</li></ul>



Cables and connectors	<p>Four 10-Gbps XFP ports</p> <p>Supported XFP transceivers:</p> <p>10GBASE-ER (model numbers SRX-XFP-10GE-ER and SRX-XFP-10GE-ER-ET )</p> <p>10GBASE-LR (model numbers SRX-XFP-10GE-LR and SRX-XFP-10GE-LR-ET )</p> <p>10GBASE-SR (model numbers SRX-XFP-10GE-SR and SRX-XFP-10GE-SR-ET )</p>
Controls	None
Supported Slots	<ul style="list-style-type: none"> <li>• SRX5600—Any slot except bottom slots 0 or 1</li> <li>• SRX5800—Any slot except center slots 0, 1, or 2</li> </ul>
Power Requirement	312 W typical, 365 W maximum
Weight	Approximately 13 lb (5.9 kg)
LEDs	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—The IOC is operating normally.</li> <li>• Red—The IOC has failed and is not operating normally.</li> <li>• Off—The IOC is powered down.</li> </ul>
Serial Number Location	<p>The serial number label is located as shown in <a href="#">Figure 10 on page 25</a>.</p> <p><b>Figure 10: SRX5K-4XGE-XFP Serial Number Label</b></p> 

# Modular Port Concentrators and Interface Cards

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- [MIC with 20x1GE SFP Interfaces \(SRX-MIC-20GE-SFP\) | 29](#)
- [MIC with 10x10GE SFP+ Interfaces \(SRX-MIC-10XG-SFPP\) | 35](#)
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## Modular Port Concentrator (SRX5K-MPC) Specifications

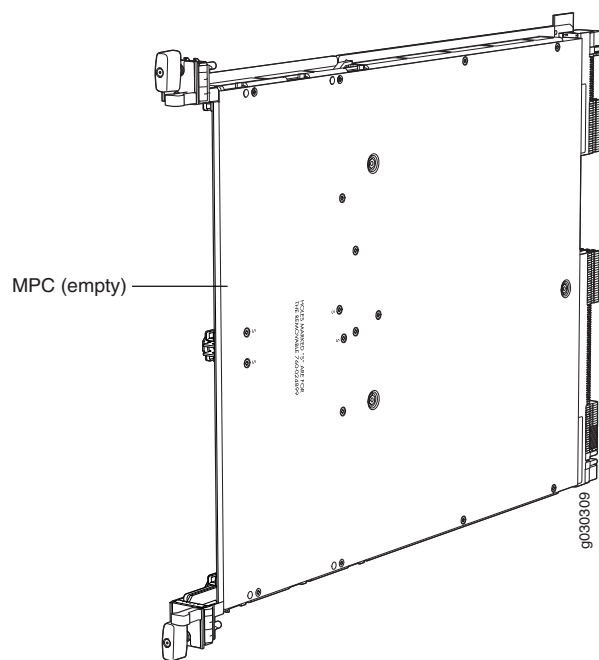
The SRX5K-MPC (see [Figure 11 on page 27](#)) is an interface card with two slots that accept MICs. These MICs add Ethernet ports to your services gateway. An MPC with MICs installed functions in the same way as a regular IOC but allows you to add different types of Ethernet ports to your services gateway. MPCs and MICs are similar in form and function to Flex IOCs and port modules. However, the two use different form-factors, so you cannot install port modules in an MPC, nor can you install MICs in a Flex IOC.

You must install at least one interface card in the services gateway. The interface card can be of any of the available IOC, Flex IOC, or MPC types. You can add just one MIC; or you can add two MICs of the same or different types.

You can install MPCs in any of the slots that are not reserved for Switch Control Boards (SCBs).

If a slot in the SRX5400, SRX5600, or SRX5800 Services Gateway card cage is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway. If a slot in an MPC is not occupied by a MIC, you must install a blank panel in the empty MIC slot to shield it and to allow cooling air to circulate properly through the MPC.

Figure 11: SRX5K-MPC



**NOTE:** When installing an SRX5K-MPC in an SRX5600 or SRX5800 Services Gateway:

- If the **session-distribution-mode** has not been explicitly configured using the CLI command:

```
user@host set security forwarding-process application-services session-distribution-mode
```

The SRX5K-MPC defaults to hash-based mode automatically even if existing SRX5K-MPC or non-MPCs are installed. You cannot set the **session-distribution-mode** to **normal**.

- If the **session-distribution-mode** has been explicitly configured to **normal**, and the MIC is installed in the device, then the SRX5K-MPC will remain offline, and the services gateway generates a major alarm and logs the event for troubleshooting. You must explicitly configure the **session-distribution-mode** using the CLI command:

```
user@host set security forwarding-process application-services session-distribution-mode hash-based
```

When installing an SRX5K-MPC in an SRX5400 Services Gateway, the **session-distribution-mode** will only function when **hash-based** mode is configured or set as the default. The normal mode is not supported.

A 9% drop is observed for PPS (throughput) when moving from session mode to hash mode (for SRX5K-MPC or non-MPCs), whereas no drop in performance is observed on CPS (connection per second) and session capacity numbers.

For more information about the CLI command, see the Junos OS documentation at [www.juniper.net/documentation/](http://www.juniper.net/documentation/).

<b>Description</b>	<ul style="list-style-type: none"> <li>• MPC with slots for two MICs</li> <li>• Maximum throughput: 75 Gbps per slot from Junos OS Release 12.1X46-D10 and later 120 Gbps per slot from Junos OS Release 12.1x47-D15 and later</li> </ul>
<b>Software release</b>	Junos OS Release 12.1x46-D10
<b>Cables and connectors</b>	Slots for two MICs
<b>Controls</b>	One ejector knob each for MIC slots <b>0</b> and <b>1</b> . Pull the ejector knob to unseat and partially eject the adjacent MIC.
<b>Supported slots</b>	<ul style="list-style-type: none"> <li>• SRX5400—Any slot except bottom slot <b>0</b></li> <li>• SRX5600—Any slot except bottom slots <b>0</b> or <b>1</b></li> <li>• SRX5800—Any slot except center slots <b>0</b> or <b>1</b></li> </ul>

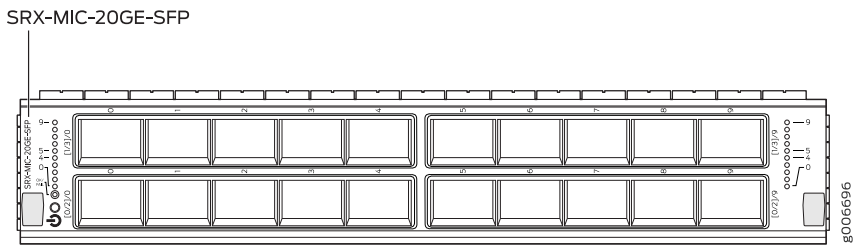
<b>Power requirement</b>	<p>Maximum of 570 W for the MPC with two MICs, including applicable transceivers.</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>• To install and use SRX5K-MPCs in the SRX5600 and SRX5800 Services Gateways, you must have high-capacity power supplies (either AC or DC) and high-capacity fan trays installed in the services gateways. All models of SRX5400 Services Gateways already include high-capacity supplies. If you do not have high-capacity power supplies and fan trays installed, the services gateway will log an alarm condition when it recognizes the SRX5K-MPCs.</li> <li>• On SRX5400 and SRX5600 Services Gateways with AC power supplies, we recommend that you use high-line (220 V) input power to ensure that the devices have adequate power to support SRX5K-MPCs.</li> </ul>
<b>Weight</b>	Approximately 10 lb (4.5 kg) without MICs
<b>LEDs</b>	<p><b>OK/FAIL LED, one bicolor:</b></p> <ul style="list-style-type: none"> <li>• Green–The MPC is operating normally.</li> <li>• Blinking green–The MPC is transitioning to online or offline.</li> <li>• Red–The MPC has failed and is not operating normally.</li> <li>• Off–The MPC is powered down.</li> </ul>
<b>Serial number location</b>	The serial number label is yellow and is located on the opposite side of the card.

## MIC with 20x1GE SFP Interfaces (SRX-MIC-20GE-SFP)

You use Modular Interface Cards (MICs) and Modular Port Concentrators (MPCs) to add different combinations of Ethernet interfaces to your services gateway to suit the specific needs of your network.

The SRX-MIC-20GE-SFP MIC (see [Figure 12 on page 30](#)) can be installed in the SRX-5K MPC to add twenty 1-Gigabit Ethernet small form-factor pluggable (SFP) Ethernet ports.

Figure 12: SRX-MIC-20GE-SFP



Description	<ul style="list-style-type: none"><li>• MIC with twenty 1-Gigabit Ethernet SFP Ethernet ports</li><li>• Fits into either of the two slots of SRX-5K-MPC</li><li>• Supports up to 20 Gbps of full-duplex traffic</li><li>• Maximum configurable MTU: 9192 bytes</li><li>• Maximum throughput: 20 Gbps</li></ul>
Software release	Junos OS Release 12.1X47-D10
Cables and connectors	<p>Sockets for 20 SFP Gigabit Ethernet transceivers.</p> <p>Supported SFP transceivers:</p> <p>1000BASE-LX (model numbers SRX-SFP-1GE-LX, SRX-SFP-1GE-LX-ET)</p> <p>1000BASE-SX (model numbers SRX-SFP-1GE-SX, SRX-SFP-1GE-SX-ET)</p> <p>1000BASE-T (model numbers SRX-SFP-1GE-T, SRX-SFP-1GE-T-ET)</p>
Weight	Approximately 1.2 lb (0.54 kg)
LEDs	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"><li>• Green–MIC is operating normally.</li><li>• Red–MIC has failed.</li><li>• Off–MIC is powered down.</li></ul> <p><b>LINK LED</b>, single color, one per SFP port:</p> <ul style="list-style-type: none"><li>• Green–Link is active.</li><li>• Off–Link is inactive.</li></ul>



Each MPC accepts up to two MICs. SRX-MIC-20GE-SFP is a 20-port Gigabit Ethernet MIC with SFP.

Each port on a MIC corresponds to a unique interface name in the CLI.

In the syntax of an interface name, a hyphen (-) separates the media type from the MPC number (represented as an **FPC** in the CLI). The MPC slot number corresponds to the first number in the interface. The second number in the interface corresponds to the logical PIC number. The last number in the interface matches the port number on the MIC. Slashes (/) separate the MPC number from the logical PIC number and port number:

#### *type-fpc/pic/port*

- *type*—Media type, which identifies the network device. For example:

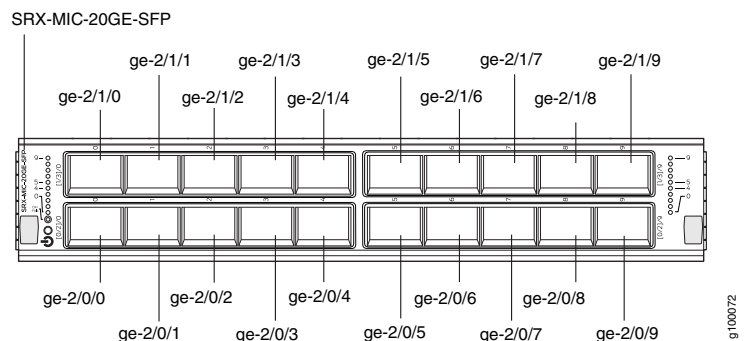
- ge—Gigabit Ethernet interface
- so—SONET/SDH interface
- xe—10-Gigabit Ethernet interface

For a complete list of media types, see *Interface Naming Overview*.

- *fpc*—Slot in which the MPC is installed in an SRX5400, SRX5600, or SRX5800 Services Gateway.
- *pic*—Two Logical PICs on the MIC, numbered 0 or 1 when installed in the first slot, and 2 or 3 when installed in the second slot.
- *port*—Port number.

Figure 13 on page 32 shows the SRX-MIC-20GE-SFP MIC installed in slot 0 of an MPC in slot 2 of an SRX5400, SRX5600, or SRX5800 Services Gateway.

**Figure 13: SRX-MIC-20GE-SFP Interface Port Mapping**



The SRX-MIC-20GE-SFP MIC contains two logical PICs, numbered **PIC 0** through **PIC 1** in the CLI. Each logical PIC contains 10 ports numbered **0** through **9**.



The sample output of the **show chassis fpc pic-status** command output displays two 20-port Gigabit Ethernet MICs with SFP — inserted into the slots of an MPC in slot 2.

The logical PICs of the two MICs— **10x 1GE(LAN) SFP** — are shown as **PIC 0, PIC 1, PIC 2, and PIC 3.**

```
user@host> show chassis hardware
node1:
-----
Slot 1   Online      SRX5k SPC II
  PIC 0   Online      SPU Cp
  PIC 1   Online      SPU Flow
  PIC 2   Online      SPU Flow
  PIC 3   Online      SPU Flow
Slot 2   Online      SRX5k IOC II
  PIC 0   Online      10x 1GE(LAN) SFP
  PIC 1   Online      10x 1GE(LAN) SFP
  PIC 2   Online      10x 1GE(LAN) SFP
  PIC 3   Online      10x 1GE(LAN) SFP

{primary:node1}
```

The **show interfaces terse** command output displays the Gigabit Ethernet interfaces that correspond to all the ports located on the two MICs.

```
user@host> show interfaces terse
```

Interface	Admin	Link	Proto	Local
	Remote			
gr-0/0/0	up	up		
ip-0/0/0	up	up		
lt-0/0/0	up	up		
ge-2/0/0	up	up		
ge-2/0/1	up	down		
ge-2/0/2	up	down		
ge-2/0/3	up	down		
ge-2/0/4	up	down		
ge-2/0/5	up	up		
ge-2/0/6	up	down		
ge-2/0/7	up	down		
ge-2/0/8	up	up		
ge-2/0/9	up	up		
ge-2/1/0	up	down		
ge-2/1/1	up	up		
ge-2/1/2	up	down		
ge-2/1/3	up	down		
ge-2/1/4	up	up		
ge-2/1/5	up	down		
ge-2/1/6	up	down		
ge-2/1/7	up	down		
ge-2/1/8	up	up		
ge-2/1/9	up	up		
ge-2/2/0	up	down		
ge-2/2/1	up	down		
ge-2/2/2	up	down		
ge-2/2/3	up	down		
ge-2/2/4	up	down		
ge-2/2/5	up	down		
ge-2/2/6	up	down		
ge-2/2/7	up	down		
ge-2/2/8	up	down		
ge-2/2/9	up	down		
ge-2/3/0	up	down		
ge-2/3/1	up	down		
ge-2/3/2	up	down		
ge-2/3/3	up	down		
ge-2/3/4	up	down		
ge-2/3/5	up	down		
ge-2/3/6	up	down		
ge-2/3/7	up	down		
ge-2/3/8	up	down		

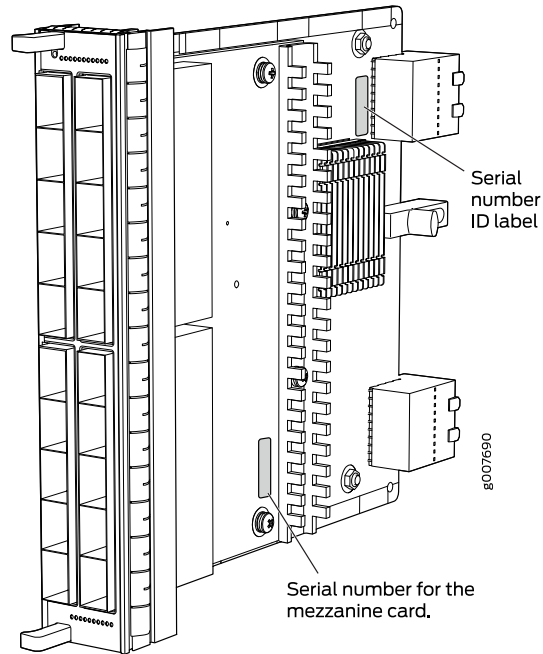
ge-2/3/9

up down

**Serial number location**

The serial number label is yellow and is located as shown in [Figure 14 on page 35](#).

**Figure 14: SRX-MIC-20GE-SFP Serial Number Label**

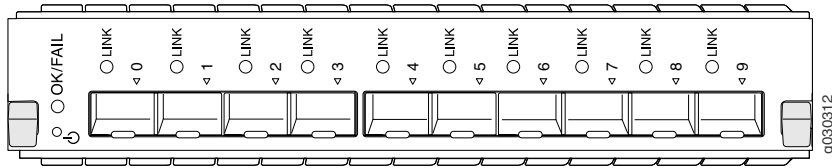


**NOTE:** The serial number for the mezzanine card is shown only for reference and is never used for any purpose.

## MIC with 10x10GE SFP+ Interfaces (SRX-MIC-10XG-SFPP)

You use MICs and MPCs to add different combinations of Ethernet interfaces to your services gateway to suit the specific needs of your network. The SRX-MIC-10XG-SFPP (see [Figure 15 on page 36](#)) can be installed in an MPC to add ten 10-Gigabit Ethernet SFP+ ports.

Figure 15: SRX-MIC-10XG SFPP



<b>Description</b>	<ul style="list-style-type: none"> <li>• MIC with ten SFP+ 10-Gigabit Ethernet ports</li> <li>• Fits into MPC</li> <li>• Supports up to 100 Gbps of full-duplex traffic</li> <li>• Maximum configurable MTU: 9192 bytes</li> <li>• Maximum throughput: 100 Gbps</li> </ul>
<b>Software release</b>	Junos OS Release 12.1X46-D10
<b>Cables and connectors</b>	<p>Sockets for ten 10-Gbps SFP+ transceivers</p> <p>See <a href="#">Hardware Compatibility Tool</a> for the transceivers supported.</p>
<b>Supported slots</b>	Either slot in SRX5K-MPC
<b>Weight</b>	Approximately 1.6 lb (0.7 kg)
<b>LEDs</b>	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Green—The MIC is operating normally.</li> <li>• Red—The MIC has failed and is not operating normally.</li> <li>• Off—The MIC is powered down.</li> </ul> <p><b>LINK LED</b>, single color:</p> <ul style="list-style-type: none"> <li>• Green—The link is active.</li> <li>• Off—No link.</li> </ul>

## Port and Interface Numbering

Each port on a MIC corresponds to a unique interface name in the CLI.

In the syntax of an interface name, a hyphen (-) separates the media type from the MPC number (represented as an **FPC** in the CLI). The MPC slot number corresponds to the first number in the interface. The second number in the interface corresponds to the logical PIC number. The last number in the interface matches the port number on the MIC. Slashes (/) separate the MPC number from the logical PIC number and port number:

#### **type-fpc/pic/port**

- **type**—Media type, which identifies the network device. For example:

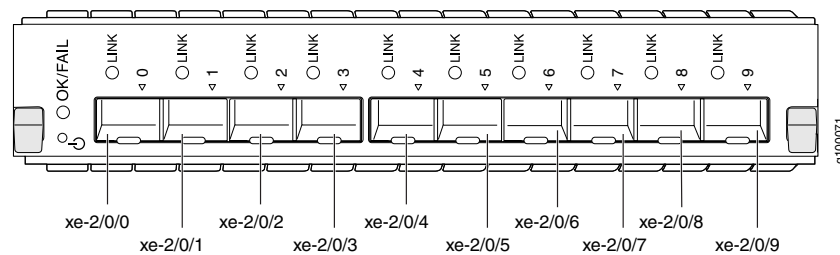
- **ge**—Gigabit Ethernet interface
- **so**—SONET/SDH interface
- **xe**—10-Gigabit Ethernet interface

For a complete list of media types, see *Interface Naming Overview*.

- **fpc**—Slot in which the MPC is installed in an SRX5400, SRX5600, or SRX5800 Services Gateway.
- **pic**—Logical PIC on the MIC, numbered 0 when installed in the first slot or 2 when installed in the second slot.
- **port**—Port number.

Figure 16 on page 38 shows the port and interface numbering of an SRX-MIC-10XG-SFPP MIC when it is installed in slot 0 of an MPC in slot 2 of an SRX5400, SRX5600, or SRX5800 Services Gateway.

**Figure 16: SRX-MIC-10XG-SFPP Port and Interface Numbering**



The SRX-MIC-10XG-SFPP MIC contains one logical PIC, numbered **PIC 0** in the CLI when inserted in the first slot of the MPC or **PIC 2** when inserted in the second slot of the MPC. Each logical PIC contains 10 ports numbered **0** through **9**.

The sample output of the **show chassis fpc pic-status** command displays two 10-port 10-Gigabit Ethernet MICs with SFP+ — inserted into the slots of an MPC in slot 2.

The logical PICs of the two MICs— **10x 10GE SFP+** — are shown as **PIC 0** and **PIC 2**.

```
user@host> show chassis fpc pic-status
Slot 1   Online          SRX5k SPC II
PIC 0    Online          SPU Cp
```

```

PIC 1 Online      SPU Flow
PIC 2 Online      SPU Flow
PIC 3 Online      SPU Flow
Slot 2 Online     SRX5k IOC II
PIC 0 Online      10x 10GE SFP+
PIC 2 Online      10x 10GE SFP+

```

The **show interfaces terse** command output displays the 10-Gigabit Ethernet interfaces that correspond to the 10 ports located on each MIC.

```

user@host> show interfaces terse

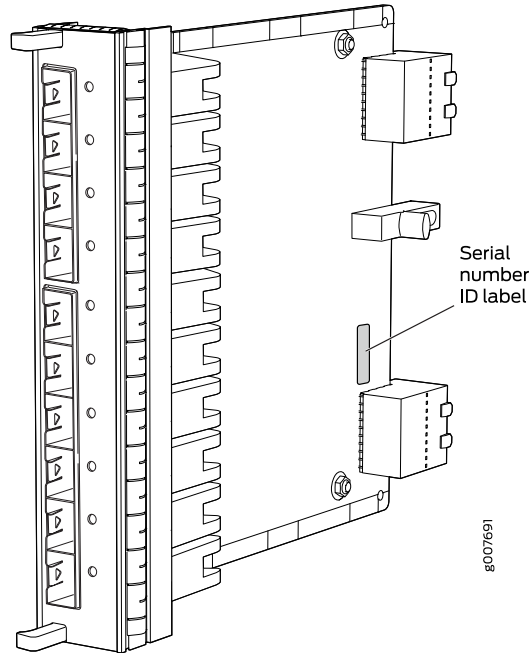
```

Interface	Admin	Link	Proto	Local	Remote
gr-0/0/0	up	up			
ip-0/0/0	up	up			
lt-0/0/0	up	up			
xe-2/0/0	up	up			
xe-2/0/1	up	up			
xe-2/0/2	up	up			
xe-2/0/2.0	up	up	inet	131.131.131.2/24	
			inet6	1300::2/64	
				fe80::224:dcff:fe20:b94c/64	
				multiservice	
xe-2/0/3	up	up			
xe-2/0/4	up	up			
xe-2/0/5	up	up			
xe-2/0/6	up	up			
xe-2/0/6.0	up	up	inet	141.141.141.1/24	
			inet6	1400::1/64	
				fe80::224:dcff:fe20:b950/64	
				multiservice	
xe-2/0/7	up	down			
xe-2/0/8	up	down			
xe-2/0/9	up	down			
xe-2/2/0	up	down			
xe-2/2/1	up	down			
xe-2/2/2	up	down			
xe-2/2/3	up	down			
xe-2/2/4	up	down			
xe-2/2/5	up	down			
xe-2/2/6	up	down			
xe-2/2/7	up	down			
xe-2/2/8	up	down			
xe-2/2/9	up	down			

### Serial number location

The serial number label is yellow and located as shown in [Figure 17 on page 40](#).

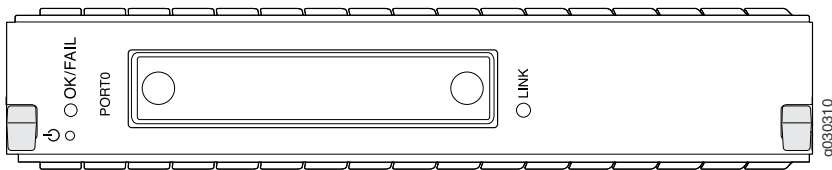
**Figure 17: SRX-MIC-10XG-SFPP Serial Number Label**



## MIC with 1x100GE CFP Interface (SRX-MIC-1X100G-CFP)

You use MICs and MPCs to add different combinations of Ethernet interfaces to your services gateway to suit the specific needs of your network. The SRX-MIC-1X100G-CFP (see [Figure 18 on page 40](#)) can be installed in an MPC to add one 100-Gigabit Ethernet CFP port.

**Figure 18: SRX-MIC-1X100G-CFP**



### Description

- MIC with one CFP 100-Gigabit Ethernet port
- Fits into MPC
- Supports up to 100 Gbps of full-duplex traffic
- Maximum configurable MTU: 9192 bytes
- Maximum throughput: 100 Gbps

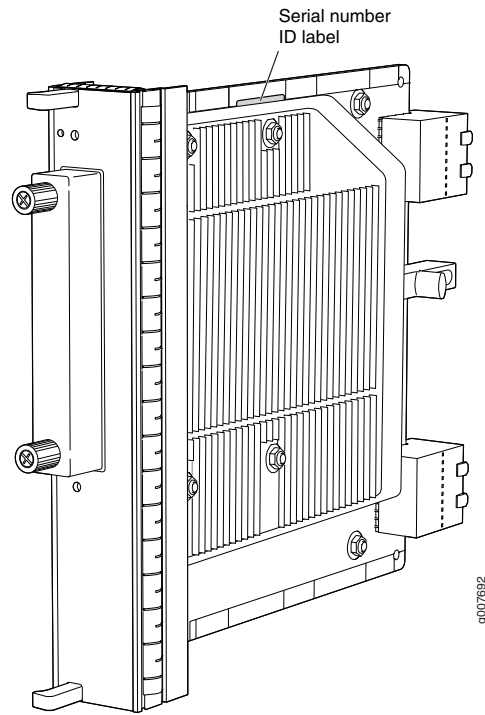


<b>Software release</b>	Junos OS Release 12.1X46-D10
<b>Cables and connectors</b>	<p>One socket for a 100-Gigabit CFP transceiver.</p> <p>Supported CFP transceivers:</p> <ul style="list-style-type: none"> <li>• 100GBASE-LR4 (model number: SRX-CFP-100G-LR4)</li> <li>• 100GBASE-SR10 (model number: SRX-CFP-100G-SR10)</li> </ul>
<b>Supported slots</b>	Either slot in SRX5K-MPC
<b>Weight</b>	Approximately 1.6 lb (0.7 kg)
<b>LEDs</b>	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Green—The MIC is operating normally.</li> <li>• Red—The MIC has failed and is not operating normally.</li> <li>• Off—The MIC is powered down.</li> </ul> <p><b>LINK LED</b>, single color:</p> <ul style="list-style-type: none"> <li>• Green—The link is active.</li> <li>• Off—No link.</li> </ul>

**Serial number location**

The serial number label is yellow and located as shown in [Figure 19 on page 42](#).

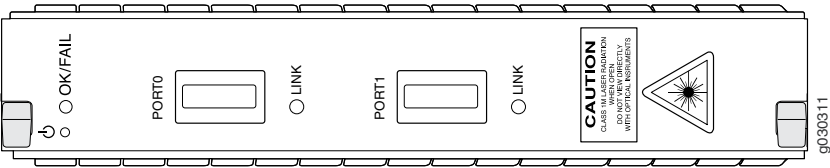
**Figure 19: SRX-MIC-1X100G-CFP Serial Number Label**



## MIC with 2x40GE QSFP+ Interfaces (SRX-MIC-2X40G-QSFP)

You use MICs and MPCs to add different combinations of Ethernet interfaces to your services gateway to suit the specific needs of your network. The SRX-MIC-2X40G-QSFP (see [Figure 20 on page 43](#)) can be installed in an MPC to add two 40-Gigabit quad small form-factor pluggable (QSFP+) Ethernet ports.

Figure 20: SRX-MIC-2X40G QSFP

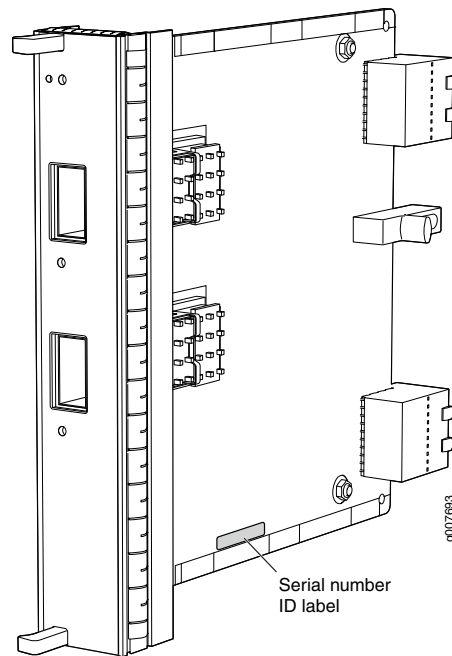


Description	<ul style="list-style-type: none"> <li>• MIC with two QSFP+ Ethernet ports</li> <li>• Fits into MPC</li> <li>• Supports up to 80 Gbps of full-duplex traffic</li> <li>• Maximum configurable MTU: 9192 bytes</li> <li>• Maximum throughput: 80 Gbps</li> </ul>
Software release	Junos OS Release 12.1X46-D10
Cables and connectors	<p>Sockets for two QSFP+ 40-Gigabit Ethernet fiber-optic transceivers.</p> <p>Supported QSFP+ transceiver:</p> <p>40GBASE-SR4 (model number SRX-QSFP-40G-SR4)</p> <p>40GBASE-LR4 (model number SRX-QSFP-40G-LR4)</p>
Supported slots	Either slot in SRX5K-MPC
Weight	Approximately 1.6 lb (0.7 kg)
LEDs	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Green–The MIC is operating normally.</li> <li>• Red–The MIC has failed and is not operating normally.</li> <li>• Off–The MIC is powered down.</li> </ul> <p><b>LINK LED</b>, single color, one per QSFP+ port:</p> <ul style="list-style-type: none"> <li>• Green–The link is active.</li> <li>• Off–No link.</li> </ul>

### Serial number location

The serial number label is yellow and typically located as shown in [Figure 21 on page 44](#).

Figure 21: SRX-MIC-2X40G-QSFP Serial Number Label



## SRX5K-MPC3-40G10G Specifications

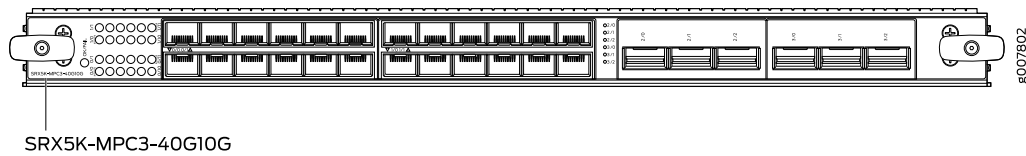
The SRX5K-MPC3-40G10G (IOC3) is an interface card that provides 10 Gigabit Ethernet and 40 Gigabit Ethernet interfaces, with a Packet Forwarding Engine that provides a 240 Gbps line rate. This interface card is supported on SRX5400, SRX5600, and SRX5800 Services Gateways. See [Figure 22 on page 45](#).

**NOTE:** These cards do not support plug-in Modular Interface Cards (MICs).

All ports on the interface card have dual-color LEDs for reporting link status.

The interface card also supports hot-pluggable optical modules.

Figure 22: SRX5K-MPC3-40G10G



If a slot in the SRX5400, SRX5600, or SRX5800 Services Gateway card cage is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

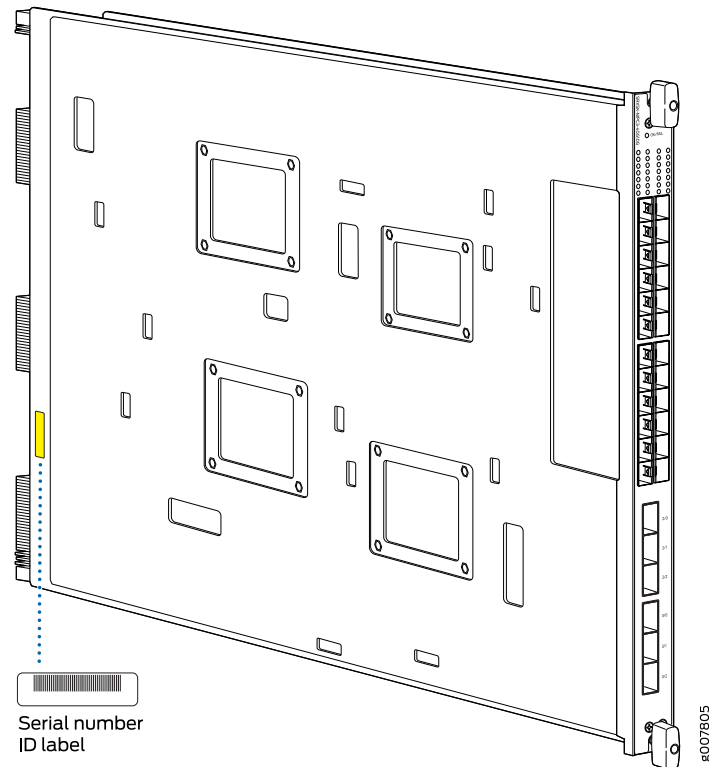
Description	<ul style="list-style-type: none"> <li>Fixed-configuration MPC with six 40-Gigabit Ethernet ports and twenty-four 10-Gigabit Ethernet ports</li> <li>Maximum throughput: 240 Gbps</li> <li>Maximum configurable MTU: 9192 bytes</li> </ul>
Software release	Junos OS Release 15.1X49-D10 and later
Supported Slots	<ul style="list-style-type: none"> <li>SRX5400 – Any slot, except the bottom slot <b>0</b> which is reserved for SCB/RE.</li> <li>SRX5600 – Any slot, except the bottom slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li> <li>SRX5800 – Any slot, except the middle slots <b>0</b>, <b>1</b>, and <b>2/6</b> which are reserved for SCB/RE and slots <b>0</b> (left most) and <b>11</b> (right most).</li> </ul> <p><b>NOTE:</b> You can use the 2/6 slot to install an interface card if an SCB is not already installed in it.</p>
Cables and connectors	<p>Sockets for 40-Gbps and 10-Gbps SFP+ transceivers</p> <p>See <a href="#">Hardware Compatibility Tool</a> for the transceivers supported.</p>
Power requirements	<p>Typical: 9.68 A @ 48 V (460 W)</p> <p>At different temperatures:</p> <ul style="list-style-type: none"> <li>55° C: 607 W</li> <li>40° C: 541 W</li> <li>25° C: 511 W</li> </ul>
Weight	21 lb (9.52 kg)

Hardware features	<ul style="list-style-type: none"> <li>• Line-rate throughput of up to 240 Gbps</li> <li>• Supports up to 32,000 queues per-slot</li> <li>• LAN-PHY mode at 10.3125 Gbps on a per-port basis</li> <li>• The ports are labeled as:             <ul style="list-style-type: none"> <li>• 10-Gigabit Ethernet ports: 0/0 through 0/11 and 1/0 through 1/11</li> <li>• 40-Gigabit Ethernet ports: 2/0 through 2/2 and 3/0 through 3/2</li> </ul> </li> </ul>
Software features	<ul style="list-style-type: none"> <li>• Optical diagnostics and related alarms</li> <li>• Two packet-forwarding engines, PFE0 and PFE1. PFE0 hosts PICO and PIC2. PFE1 hosts PIC1 and PIC3.</li> <li>• Configurable LAN-PHY mode options per 10-Gigabit Ethernet port</li> <li>• Intelligent oversubscription services</li> </ul> <p><b>NOTE:</b> At any one time you can have only one of the following PIC combinations powered on:</p> <ul style="list-style-type: none"> <li>• PICO &amp; PIC1</li> <li>• PICO &amp; PIC3</li> <li>• PIC2 &amp; PIC1</li> <li>• PIC2 &amp; PIC3</li> </ul> <p>If you configure any of the following invalid PIC combinations, the chassis will set PICO &amp; PIC1 combination online.</p> <ul style="list-style-type: none"> <li>• PICO &amp; PIC2</li> <li>• PIC1 &amp; PIC3</li> </ul>
LEDs	<p>OK/FAIL LED, one bicolor:</p> <ul style="list-style-type: none"> <li>• Solid green—MPC is functioning normally.</li> <li>• Blinking green—MPC is transitioning online or offline.</li> <li>• Red—MPC has failed.</li> </ul> <p>10-Gigabit Ethernet LINK LED, one green per port:</p> <ul style="list-style-type: none"> <li>• Green—Link is up.</li> <li>• Off—Link is down or disabled.</li> </ul> <p>40-Gigabit Ethernet LINK LED, one bicolor per port:</p> <ul style="list-style-type: none"> <li>• Green—Link is up.</li> <li>• Amber—Link is disabled.</li> <li>• Off—Link is down.</li> </ul>

Serial Number  
Location

The serial number label is located as shown in [Figure 23 on page 47](#).

**Figure 23: SRX5K-MPC3-40G10G Serial Number Label**



## SRX5K-MPC3-100G10G Specifications

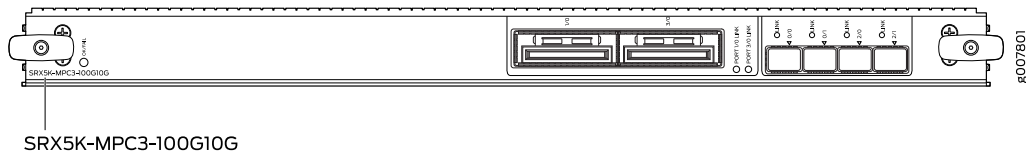
The SRX5K-MPC3-100G10G (IOC3) is an interface card that provides 100 Gigabit Ethernet and 10 Gigabit Ethernet interfaces, with a Packet Forwarding Engine that provides a 240 Gbps line rate. This interface card is supported on SRX5400, SRX5600, and SRX5800 Services Gateways. See [Figure 24 on page 48](#).

**NOTE:** These cards do not support plug-in Modular Interface Cards (MICs).

All ports on the interface card have dual-color LEDs for reporting link status.

The interface card also supports hot-pluggable optical modules.

Figure 24: SRX5K-MPC3-100G10G



If a slot in the SRX5400, SRX5600, or SRX5800 Services Gateway card cage is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

Description	<ul style="list-style-type: none"> <li>Fixed-configuration MPC with two 100-Gigabit Ethernet ports and four 10-Gigabit Ethernet ports</li> <li>Maximum throughput: 240 Gbps</li> <li>Maximum configurable MTU: 9192 bytes</li> </ul>
Software release	Junos OS Release 15.1X49-D10 and later
Supported Slots	<ul style="list-style-type: none"> <li>SRX5400 – Any slot, except the bottom slot <b>0</b> which is reserved for SCB/RE.</li> <li>SRX5600 – Any slot, except the bottom slots <b>0</b> or <b>1</b> which are reserved for SCB/RE.</li> <li>SRX5800 – Any slot, except the middle slots <b>0</b>, <b>1</b>, and <b>2/6</b> which are reserved for SCB/RE and slots <b>0</b> (left most) and <b>11</b> (right most).</li> </ul> <p><b>NOTE:</b> You can use the 2/6 slot to install an interface card if an SCB is not already installed in it.</p>
Cables and connectors	<p>Sockets for 100-Gbps and 10-Gbps SFP+ transceivers</p> <p>See <a href="#">Hardware Compatibility Tool</a> for the transceivers supported.</p>
Power requirements	<ul style="list-style-type: none"> <li>Typical: 10.52 A @ 48 V (505 W)</li> </ul> <p>At different temperatures:</p> <ul style="list-style-type: none"> <li>55° C: 607 W</li> <li>40° C: 541 W</li> <li>25° C: 511 W</li> </ul>
Weight	21 lb (9.52 kg)

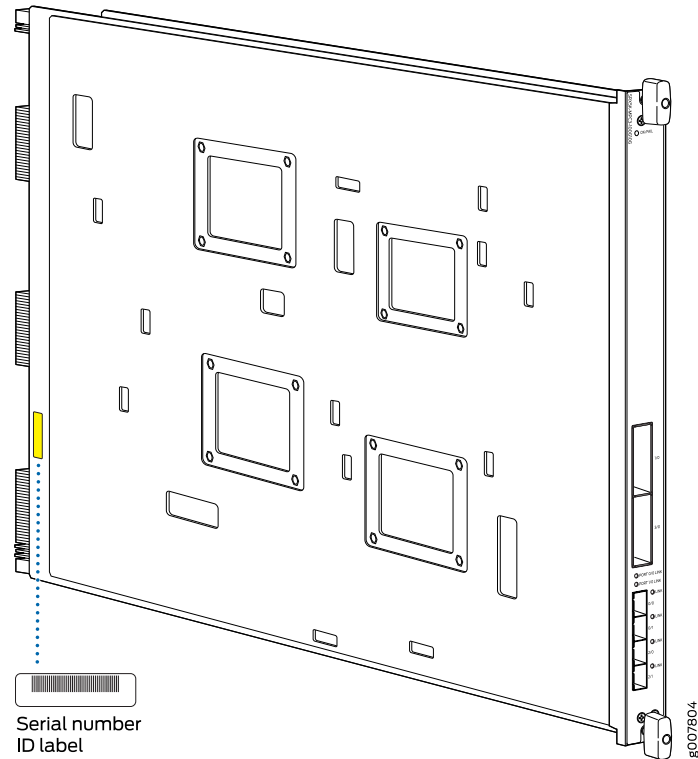


Hardware features	<ul style="list-style-type: none"> <li>• Line-rate throughput of up to 240 Gbps</li> <li>• Supports up to 32,000 queues per-slot</li> <li>• LAN-PHY mode at 10.3125 Gbps on a per-port basis</li> </ul> <p>The ports are labeled as:</p> <ul style="list-style-type: none"> <li>• 10-Gigabit Ethernet ports: 0/0, 0/1, 2/0, and 2/1</li> <li>• 100-Gigabit Ethernet ports: 1/0 and 3/0</li> </ul>
Software features	<ul style="list-style-type: none"> <li>• Configurable LAN-PHY mode options per 10-Gigabit Ethernet port</li> <li>• Optical diagnostics and related alarms</li> <li>• Intelligent oversubscription services</li> </ul>
LEDs	<p>OK/FAIL LED, one bicolor:</p> <ul style="list-style-type: none"> <li>• Solid green—MPC is functioning normally.</li> <li>• Blinking green—MPC is transitioning online or offline.</li> <li>• Red—MPC has failed.</li> </ul> <p>10-Gigabit Ethernet LINK LED, one bicolor per port:</p> <ul style="list-style-type: none"> <li>• Green—Link is up.</li> <li>• Amber—Link is disabled.</li> <li>• Off—Link is down or disabled.</li> </ul> <p>100-Gigabit Ethernet LINK LED, one bicolor per port:</p> <ul style="list-style-type: none"> <li>• Green—Link is up.</li> <li>• Amber—Link is disabled.</li> <li>• Off—Link is down.</li> </ul>

**Serial Number Location**

The serial number label is located as shown in [Figure 25 on page 50](#).

**Figure 25: SRX5K-MPC3-100G10G Serial Number Label**

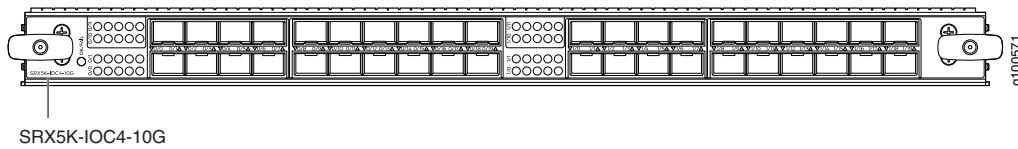


## SRX5K-IOC4-10G Specifications

SRX5K-IOC4-10G is a fixed-configuration interface card with a Packet Forwarding Engine that provides 400-Gbps line rate. This interface card provides scalability in bandwidth and services to the SRX5400, SRX5600 and SRX5800 Services Gateways. See [Figure 26 on page 51](#).

**NOTE:** SRX5K-IOC4-10G cards do not support plug-in Modular Interface Cards (MICs).

Figure 26: SRX5K-IOC4-10G



If a slot in the SRX5400, SRX5600, or SRX5800 Services Gateway card cage is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

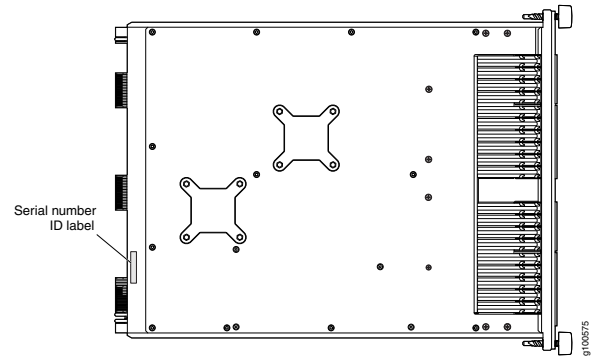
Description	<ul style="list-style-type: none"> <li>• Fixed-configuration IOC with forty 10-Gbps port speeds</li> <li>• Maximum throughput: 400-Gbps</li> <li>• Maximum configurable MTU: 9192 bytes</li> </ul>
Software release	Junos OS Release 19.3R1 and later
Supported slots	<ul style="list-style-type: none"> <li>• SRX5400—Any slot, except the bottom slots <b>0</b> and <b>1/0</b>, which are reserved for SCB/RE.</li> </ul> <p><b>NOTE:</b> Slot <b>1/0</b> is a dual purpose slot. You can install SRX5K-IOC4-10G in slot 2/6 if an SCB is not already installed in it.</p> <ul style="list-style-type: none"> <li>• SRX5600—Any slot, except the bottom slots <b>0</b> and <b>1</b>, which are reserved for SCB/RE.</li> <li>• SRX5800—Any slot, except the middle slots <b>0</b>, <b>1</b>, and <b>2/6</b>, which are reserved for SCB/RE, and slots <b>0</b> (most left) and <b>11</b> (most right).</li> </ul> <p><b>NOTE:</b> Slot 2/6 is a dual purpose slot. You can install SRX5K-IOC4-10G in slot 2/6 if an SCB is not already installed in it.</p>
Cables and connectors	See <a href="#">Hardware Compatibility Tool</a> for the transceivers supported.
Power requirements	<ul style="list-style-type: none"> <li>• Typical: 405 W</li> </ul> <p>At different temperatures:</p> <ul style="list-style-type: none"> <li>• 131° F (55° C): 500 W</li> <li>• 104° F (40° C): 465 W</li> <li>• 75° F (25° C): 430 W</li> </ul>
Weight	17 lb (7.7 kg)

Hardware features	<ul style="list-style-type: none"> <li>• Junos Trio chipsets for increased scaling for bandwidth, subscribers, and services</li> <li>• Forty 10-Gigabit Ethernet ports. The ports support SFP+ transceivers.</li> <li>• Requires high-capacity power supplies and high-capacity fan trays.</li> <li>• The ports are labeled as (see <a href="#">Figure 26 on page 51</a>):             <ul style="list-style-type: none"> <li>• 0/0 through 0/9</li> <li>• 0/10 through 0/19</li> <li>• 1/0 through 1/9</li> <li>• 1/10 through 1/19</li> </ul> </li> </ul>
Software features	<ul style="list-style-type: none"> <li>• Application security</li> <li>• Application Layer Gateway (ALG)</li> <li>• Attack detection and prevention</li> <li>• Class of service (CoS)</li> <li>• Equal-cost multipath (ECMP) load balancing</li> <li>• GPRS Tunneling Protocol (GTP)</li> <li>• High availability (chassis cluster)</li> <li>• Intrusion detection and prevention (IDP)</li> <li>• IPsec VPN</li> <li>• Layer 2 transparent mode</li> <li>• Logical systems</li> <li>• Network Address Translation (NAT)</li> <li>• Routing protocols (BFD, BGP, IGMP, IS-IS, MLD, Multicast, OSPF, PIM, RIP, and SCTP)</li> <li>• SSL proxy</li> <li>• Tenant systems</li> <li>• Unified threat management (UTM)</li> </ul>
LEDs	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—IOC is functioning normally.</li> <li>• Yellow—IOC has failed.</li> </ul> <p><b>LINK LED</b>, one green per port:</p> <ul style="list-style-type: none"> <li>• Steady green—Link is up.</li> <li>• Off—Link is down or disabled.</li> </ul>

## Serial Number Location

The serial number label is located as shown in [Figure 27 on page 53](#).

**Figure 27: SRX5K-IOC4-10G Serial Number Label**

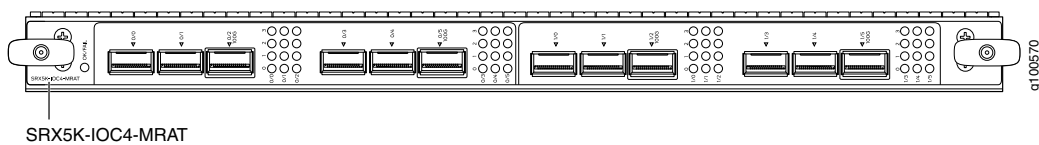


## SRX5K-IOC4-MRAT Specifications

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. See [Figure 28 on page 53](#).

**NOTE:** SRX5K-IOC4-MRAT cards do not support plug-in Modular Interface Cards (MICs).

**Figure 28: SRX5K-IOC4-MRAT**



If a slot in the SRX5400, SRX5600, or SRX5800 Services Gateway card cage is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

Description	<ul style="list-style-type: none"> <li>• Fixed-configuration IOC with 10-Gbps, 40-Gbps, and 100-Gbps port speeds</li> <li>• Maximum throughput: up to 480 Gbps (240 Gbps per PIC slot)</li> <li>• Maximum configurable MTU: 9192 bytes</li> </ul>
Software release	Junos OS Release 19.3R1 and later
Supported Slots	<ul style="list-style-type: none"> <li>• SRX5400—Any slot, except the bottom slots <b>0</b> and <b>1/0</b>, which are reserved for SCB/RE.  <b>NOTE:</b> Slot <b>1/0</b> is a dual purpose slot. You can install SRX5K-IOC4-10G in slot 2/6 if an SCB is not already installed in it.</li> <li>• SRX5600—Any slot, except the bottom slots <b>0</b> and <b>1</b>, which are reserved for SCB/RE.</li> <li>• SRX5800—Any slot, except the middle slots <b>0</b>, <b>1</b>, and <b>2/6</b>, which are reserved for SCB/RE, and slots <b>0</b> (most left) and <b>11</b> (most right).  <b>NOTE:</b> Slot 2/6 is a dual purpose slot. You can install SRX5K-IOC4-10G in slot 2/6 if an SCB is not already installed in it.</li> </ul>
Cables and connectors	See <a href="#">Hardware Compatibility Tool</a> for the transceivers supported.
Power requirements	<p>At different temperatures:</p> <ul style="list-style-type: none"> <li>• 131° F (55° C): 500 W</li> <li>• 104° F (40° C): 465 W</li> <li>• 75° F (25° C): 430 W</li> </ul>
Weight	15.7 lb (7.12 kg)

## Hardware features

- Junos Trio chipsets for increased scaling for bandwidth, subscribers, and services
- Twelve Gigabit Ethernet ports that can be configured as 40-Gigabit Ethernet port or as 4X10-Gigabit Ethernet port using a breakout cable. The ports support quad small-form factor pluggable plus (QSFP+) transceivers.
- Four out of the twelve ports can be configured as 100-Gigabit Ethernet ports. Port numbers **0/2, 0/5, 1/2** and **1/5** are the four 100-Gigabit Ethernet ports.
- You can configure different combination of port speeds as long as the aggregate capacity per group of six ports labeled **0/0** through **0/5** does not exceed 240 Gbps. Similarly, aggregate capacity per group of the other six ports labeled **1/0** through **1/5** should not exceed 240 Gbps.
- Requires high-capacity power supplies and high-capacity fan trays.
- The ports are labeled as (see [Figure 28 on page 53](#)):
  - 10-Gigabit Ethernet or 40-Gigabit Ethernet ports: **0/0, 0/1, 0/2 100G, 0/3, 0/4, 0/5 100G, 1/0, 1/1, 1/2 100G, 1/3, 1/4, and 1/5 100G**
  - 100-Gigabit Ethernet ports: **0/2 100G, 0/5 100G, 1/2 100G and 1/5 100G**

**NOTE:** Only ports marked **100G** support 100-Gigabit Ethernet speed using QSFP28 transceivers.

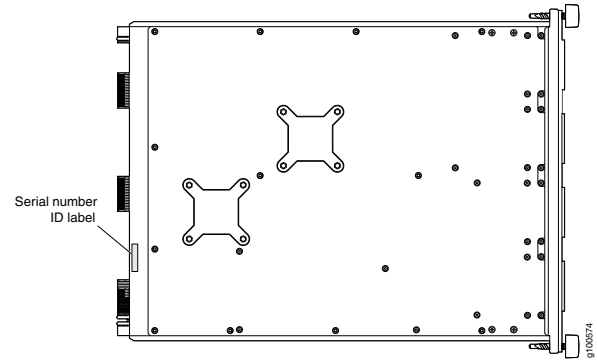
Software features	<ul style="list-style-type: none"> <li>• Application security</li> <li>• Application Layer Gateway (ALG)</li> <li>• Attack detection and prevention</li> <li>• Class of service (CoS)</li> <li>• Equal-cost multipath (ECMP) load balancing</li> <li>• GPRS Tunneling Protocol (GTP)</li> <li>• High availability (chassis cluster)</li> <li>• Intrusion detection and prevention (IDP)</li> <li>• IPsec VPN</li> <li>• Layer 2 transparent mode</li> <li>• Logical systems</li> <li>• Network Address Translation (NAT)</li> <li>• Routing protocols (BFD, BGP, IGMP, IS-IS, MLD, Multicast, OSPF, PIM, RIP, and SCTP)</li> <li>• SSL proxy</li> <li>• Tenant systems</li> <li>• Unified threat management (UTM)</li> </ul>
LEDs	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—IOC is functioning normally.</li> <li>• Yellow—IOC has failed.</li> </ul> <p><b>LINK LED</b>, one green per port (4 per QSFP+ cage):</p> <ul style="list-style-type: none"> <li>• Steady green—Link is up.</li> <li>• Off—Link is down or disabled.</li> </ul>



## Serial Number Location

The serial number label is located as shown in [Figure 29 on page 57](#).

**Figure 29: SRX5K-IOC4-MRAT Serial Number Label**



# Flex I/O Cards and Port Modules

## IN THIS SECTION

- [Flex I/O Card \(SRX5K-FPC-IOC\) Specifications | 57](#)
- [Flex I/O Card Port Module SRX-IOC-16GE-SFP Specifications | 59](#)
- [Flex I/O Card Port Module SRX-IOC-16GE-TX Specifications | 61](#)
- [Flex I/O Card Port Module SRX-IOC-4XGE-XFP Specifications | 62](#)

## Flex I/O Card (SRX5K-FPC-IOC) Specifications

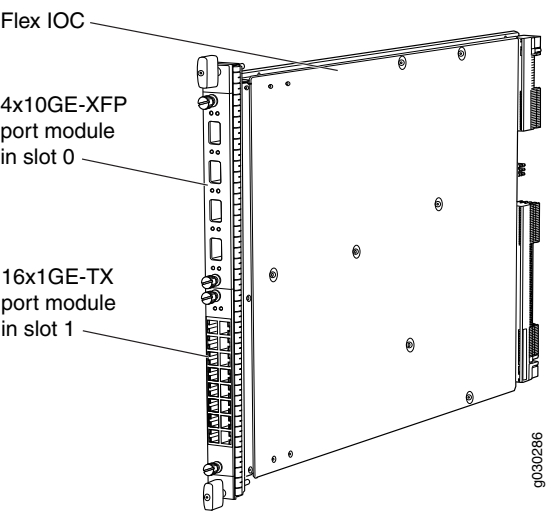
The SRX5K-FPC-IOC Flex I/O card (Flex IOC) ([Figure 30 on page 58](#)) is an IOC with two slots that accept port modules that add Ethernet ports to your services gateway. A Flex IOC with installed port modules functions in the same way as a regular IOC, but allows greater flexibility in adding different types of Ethernet ports to your services gateway.

Each Flex IOC has a processor subsystem, which includes a 1.2-GHz CPU, a system controller, 1 GB SDRAM, and two Packet Forwarding Engines with a maximum throughput of 10 Gbps each.

You must install at least one IOC in the services gateway. The IOC can be of any of the available IOC or Flex IOC types.

You can install Flex IOCs in any of the slots that are not reserved for Switch Control Boards (SCBs). If a slot is not occupied by a card, you must install a blank panel to shield the empty slot and to allow cooling air to circulate properly through the services gateway.

Figure 30: Flex IOC with Typical Port Modules

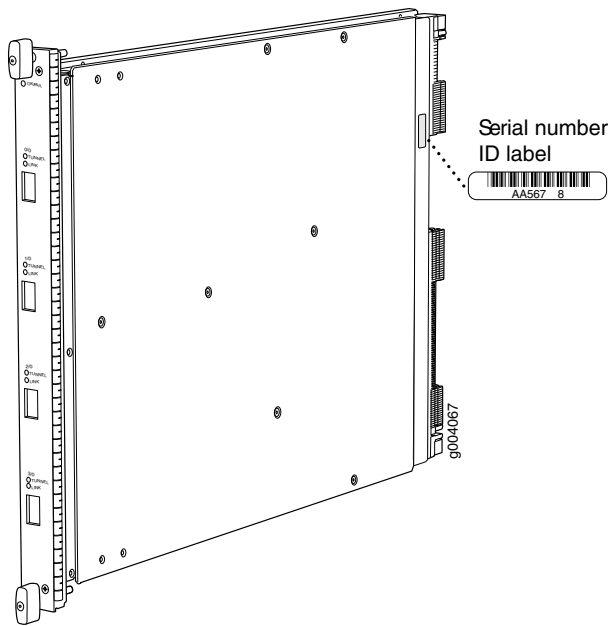


Description	<ul style="list-style-type: none"><li>Flex IOC with slots for two port modules</li><li>Maximum throughput: 10 Gbps (per PFE)</li></ul>
Software release	<ul style="list-style-type: none"><li>Junos OS Release 9.5R1 and later</li></ul>
Cables and connectors	Slots for two port modules
Controls	None
Supported Slots	<ul style="list-style-type: none"><li>SRX5600—Any slot except bottom slots 0 or 1</li><li>SRX5800—Any slot except center slots 0, 1, or 2/6</li></ul>
Power Requirement	312 W typical, 365 W maximum (includes port modules)
Weight	Approximately 10 lb (4.5 kg)
LEDs	<b>OK/FAIL LED</b> , one bicolor: <ul style="list-style-type: none"><li>Steady green—The Flex IOC is operating normally.</li><li>Red—The Flex IOC has failed and is not operating normally.</li><li>Off—The Flex IOC is powered down.</li></ul>

Serial Number Location

The serial number label is located as shown in [Figure 31 on page 59](#).

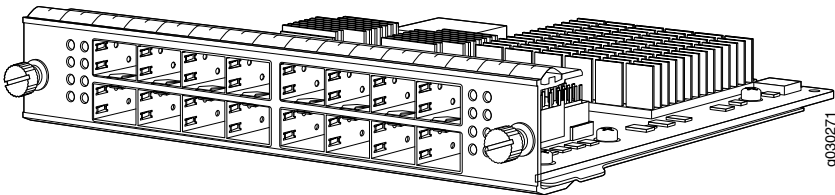
Figure 31: Serial Number Label (IOC Shown, Other Cards Similar)



## Flex I/O Card Port Module SRX-IOC-16GE-SFP Specifications

You use port modules and Flex I/O Cards (Flex IOCs) to add different combinations of small form-factor pluggable transceiver (SFP), 10-gigabit SFP transceiver (XFP), and copper ports to your services gateway to suit the specific needs of your network. The SRX-IOC-16GE-SFP port module ([Figure 32 on page 59](#)) installs into a Flex IOC to add sixteen 10/100/1000 Ethernet SFP ports.

Figure 32: Flex IOC Port Module SRX-IOC-16GE-SFP



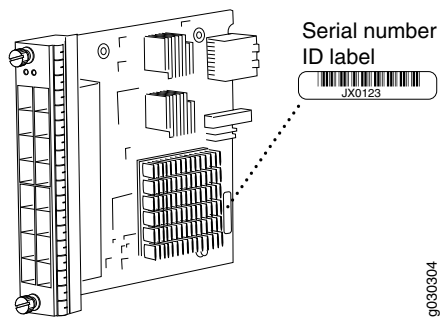
Description

- Port module with 16 Gigabit Ethernet SFP ports
- Maximum throughput: 10 Gbps
- Oversubscription ratio: 1.6:1
- Maximum configurable MTU: 9192 bytes

<b>Software release</b>	<ul style="list-style-type: none"> <li>• Junos OS Release 9.5R1 and later</li> </ul>
<b>Cables and connectors</b>	<p>16 Gigabit Ethernet SFP ports</p> <p>Supported SFP transceivers:</p> <p>1000BASE-LH (model numbers SRX-SFP-1GE-LH, SRX-SFP-1GE-LH-ET)</p> <p>1000BASE-LX (model numbers SRX-SFP-1GE-LX, SRX-SFP-1GE-LX-ET)</p> <p>1000BASE-SX (model numbers SRX-SFP-1GE-SX, SRX-SFP-1GE-SX-ET)</p> <p>1000BASE-T (model numbers SRX-SFP-1GE-T, SRX-SFP-1GE-T-ET)</p>
<b>Controls</b>	<p><b>ONLINE</b> Button—The <b>ONLINE</b> button on the port module front panel toggles the port module online and offline</p>
<b>Supported Slots</b>	<p>Either slot in SRX5K-FPC-IOC Flex IOC</p>
<b>Weight</b>	<p>Approximately 1.6 lb (0.7 kg)</p>
<b>LEDs</b>	<p><b>OK/FAIL</b> LED, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—The port module is operating normally.</li> <li>• Red—The port module has failed and is not operating normally.</li> <li>• Off—The port module is powered down.</li> </ul> <p><b>LINK</b> LED, single color, one per port:</p> <ul style="list-style-type: none"> <li>• Steady green—The link is active.</li> <li>• Off—No link.</li> </ul> <p><b>TX/RX</b> LED, single color, one per port:</p> <ul style="list-style-type: none"> <li>• Blinking Green—The port is receiving or transmitting data.</li> <li>• Off—No activity.</li> </ul>

**Serial Number Location**      The serial number label is located as shown in [Figure 33 on page 61](#).

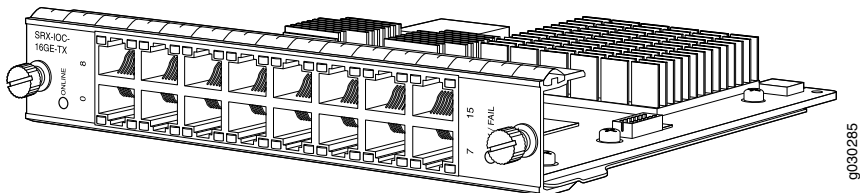
**Figure 33: Port Module SRX-IOC-16GE-SFP Serial Number Label**



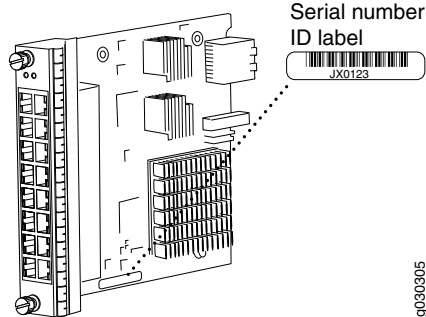
## Flex I/O Card Port Module SRX-IOC-16GE-TX Specifications

You use port modules and Flex I/O Cards (Flex IOCs) to add different combinations of small form-factor pluggable transceiver (SFP), 10-gigabit SFP transceiver (XFP), and copper ports to your services gateway to suit the specific needs of your network. The SRX-IOC-16GE-TX port module ([Figure 34 on page 61](#)) installs into a Flex IOC to add sixteen 10/100/1000 Ethernet RJ-45 copper ports.

**Figure 34: Flex IOC Port Module SRX-IOC-16GE-TX**



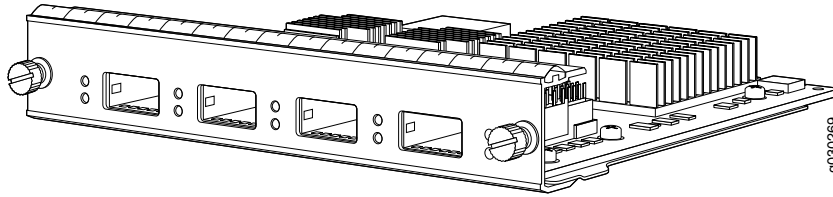
<b>Description</b>	<ul style="list-style-type: none"><li>• Port module with sixteen 10/100/1000 Ethernet RJ45 ports</li><li>• Maximum throughput: 10 Gbps</li><li>• Oversubscription ratio: 1.6:1</li><li>• Maximum configurable MTU: 9192 bytes</li></ul>
<b>Software release</b>	<ul style="list-style-type: none"><li>• Junos OS Release 9.5R1 and later</li></ul>
<b>Cables and connectors</b>	Sixteen RJ-45 1-Gbps ports
<b>Controls</b>	<b>ONLINE</b> Button–The <b>ONLINE</b> button on the port module front panel toggles the port module online and offline.

<b>Supported Slots</b>	Either slot in SRX5K-FPC-IOC Flex IOC
<b>Weight</b>	Approximately 1.6 lb (0.7 kg)
<b>LEDs</b>	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—The port module is operating normally.</li> <li>• Red—The port module has failed and is not operating normally.</li> <li>• Off—The port module is powered down.</li> </ul> <p><b>LINK LED</b>, single color, one per port:</p> <ul style="list-style-type: none"> <li>• Steady green—The link is active.</li> <li>• Off—No link.</li> </ul> <p><b>TX/RX LED</b>, single color, one per port:</p> <ul style="list-style-type: none"> <li>• Blinking green—The port is receiving or transmitting data.</li> <li>• Off—No activity.</li> </ul>
<b>Serial Number Location</b>	<p>The serial number label is located as shown in <a href="#">Figure 35 on page 62</a>.</p> <p><b>Figure 35: Port Module SRX-IOC-16GE-TX Serial Number Label</b></p> 

## Flex I/O Card Port Module SRX-IOC-4XGE-XFP Specifications

You use port modules and Flex I/O Cards (Flex IOCs) to add different combinations of small form-factor pluggable transceiver (SFP), 10-gigabit SFP transceiver (XFP), and copper ports to your services gateway to suit the specific needs of your network. The SRX-IOC-4XGE-XFP port module ([Figure 36 on page 63](#)) installs into a Flex IOC to add four 10-Gigabit Ethernet XFP ports.

Figure 36: Flex IOC Port Module SRX-IOC-4XGE-XFP

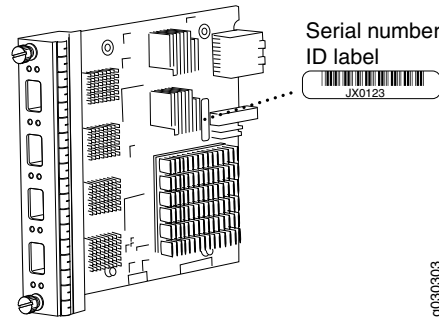


<b>Description</b>	<ul style="list-style-type: none"> <li>• Port module with four 10-Gigabit Ethernet XFP ports</li> <li>• Maximum throughput: 10 Gbps</li> <li>• Oversubscription ratio: 4:1</li> <li>• Maximum configurable MTU: 9192 bytes</li> </ul>
<b>Software release</b>	<ul style="list-style-type: none"> <li>• Junos OS Release 9.5R1 and later</li> </ul>
<b>Cables and connectors</b>	<p>4 XFP Ethernet ports</p> <p>Supported XFP transceivers:</p> <p>10GBASE-ER (model numbers SRX-XFP-10GE-ER and SRX-XFP-10GE-ER-ET )</p> <p>10GBASE-LR (model numbers SRX-XFP-10GE-LR and SRX-XFP-10GE-LR-ET</p> <p>10GBASE-SR (model numbers SRX-XFP-10GE-SR and SRX-XFP-10GE-SR-ET )</p>
<b>Controls</b>	<p><b>ONLINE</b> Button—The <b>ONLINE</b> button on the port module front panel toggles the port module online and offline</p>
<b>Supported Slots</b>	Either slot in SRX5K-FPC-IOC Flex IOC
<b>Weight</b>	Approximately 1.6 lb (0.7 kg)
<b>LEDs</b>	<p><b>OK/FAIL</b> LED, one bicolor:</p> <ul style="list-style-type: none"> <li>• Steady green—The port module is operating normally.</li> <li>• Red—The port module has failed and is not operating normally.</li> <li>• Off—The port module is powered down.</li> </ul> <p><b>LINK</b> LED, single color, one per port:</p> <ul style="list-style-type: none"> <li>• Steady green—The link is active.</li> <li>• Off—No link.</li> </ul>

**Serial Number Location**

The serial number label is located as shown in [Figure 37 on page 64](#).

**Figure 37: Port Module SRX-IOC-4XGE-XFP Serial Number Label**



## Switch Control Board SRX5K-SCB Specifications

The SRX5K-SCB Switch Control Board (SCB) ([Figure 38 on page 65](#)) performs the following functions:

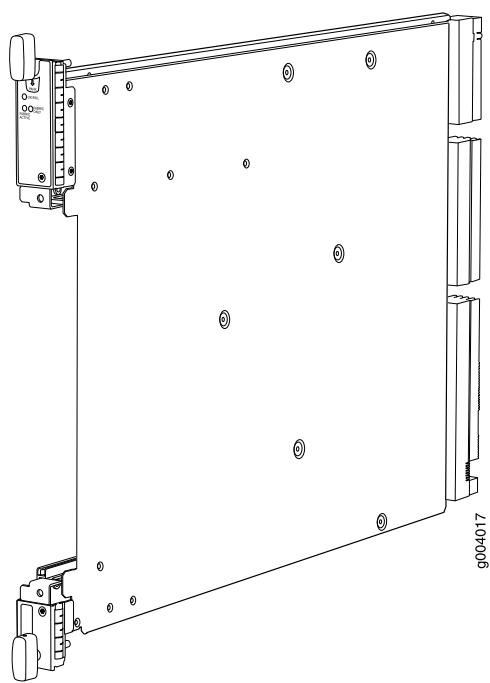
- Powers on and powers off I/O cards (IOCs) and Services Processing Cards (SPCs)
- Controls clocking, system resets, and booting
- Monitors and controls system functions, including fan speed, board power status, PDM status and control, and the system front panel
- Provides interconnections to all the IOCs within the chassis through the switch fabrics integrated into the SCB

SRX5400 and SRX5600 Services Gateways have one SCB each installed and you can install a second SCB for redundancy. The SRX5800 Services Gateway has two SCBs installed and you can install a third SCB for switch fabric redundancy.

The host subsystem is composed of a Routing Engine installed directly into a slot on the faceplate of the SCB. When there is no Routing Engine in a SCB, its slot must be covered with a blank panel.



Figure 38: Switch Control Board SRX5K-SCB



Each SCB consists of the following components:

- Chassis management Ethernet switch.
- I2C bus logic, used for low-level communication with each component.
- Component redundancy circuitry.
- Gigabit Ethernet switch that is connected to the embedded CPU complex on all components.
- Switch fabric—Provides the switching functions for the IOCs.
- Control FPGA—Provides the Peripheral Component Interconnect (PCI) interface to the Routing Engine.
- 1000Base-T Ethernet controller—Provides a 1-Gbps Ethernet link between the Routing Engines.
- Ethernet switch—Provides 1-Gbps link speeds between the Routing Engine and the IOCs.
- Circuits for chassis management and control.
- Power circuits for the Routing Engine and SCB.

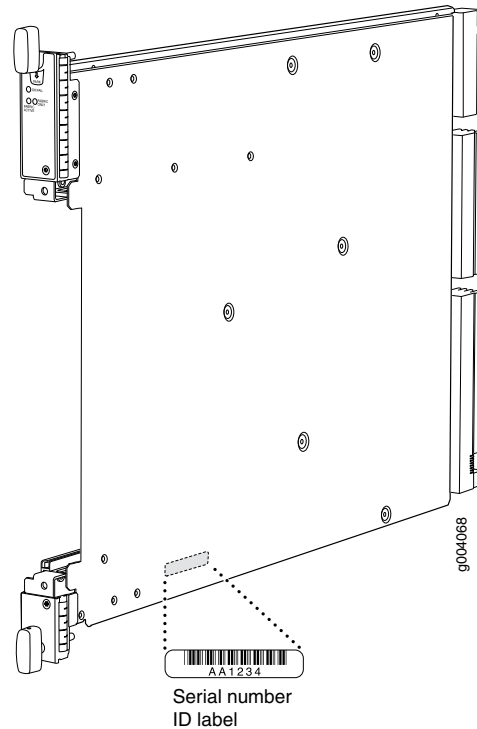
Description	<ul style="list-style-type: none"><li>• SCB with slot for Routing Engine</li><li>• Maximum throughput: 75 Gbps per slot</li></ul>
Software release	<ul style="list-style-type: none"><li>• Junos OS Release 9.2 and later</li></ul>
Cables and connectors	Slot for Routing Engine

<b>Controls</b>	None
<b>Supported Slots</b>	<ul style="list-style-type: none"> <li>• SRX5400–Only bottom slots <b>0</b> and <b>1/0</b></li> <li>• SRX5600–Only bottom slots <b>0</b> and <b>1</b></li> <li>• SRX5800–Only center slots <b>0, 1,</b> and <b>2/6</b></li> </ul>
<b>Power Requirement</b>	150 W
<b>Weight</b>	Approximately 10 lb (4.5 kg)
<b>LEDs</b>	<p><b>OK/FAIL LED</b>, one bicolor:</p> <ul style="list-style-type: none"> <li>• Green–The SCB is operating normally.</li> <li>• Red–The SCB has failed and is not operating normally.</li> <li>• Off–The SCB is powered down.</li> </ul> <p><b>FABRIC ONLY LED:</b></p> <ul style="list-style-type: none"> <li>• Green–The SCB is operating in fabric-only mode.</li> <li>• Off–The SCB is operating in fabric/control board mode.</li> </ul> <p><b>FABRIC ACTIVE LED:</b></p> <ul style="list-style-type: none"> <li>• Green–The fabric is in active mode.</li> </ul>

## Serial Number Location

The serial number label is located as shown in [Figure 39 on page 67](#).

**Figure 39: SCB Serial Number Label**



## Switch Control Board SRX5K-SCBE Specifications

Each SRX5K-SCBE consists of the following components:

- I2C bus logic for low-level communication with each component
- Component redundancy circuitry
- Control Board/Routing Engine mastership mechanism
- Gigabit Ethernet switch that is connected to the embedded CPU complex on all components
- Switch fabric to provide the switching functions for the MPCs
- 1000BASE-T Ethernet controller to provide a 1-Gbps Ethernet link between the Routing Engines

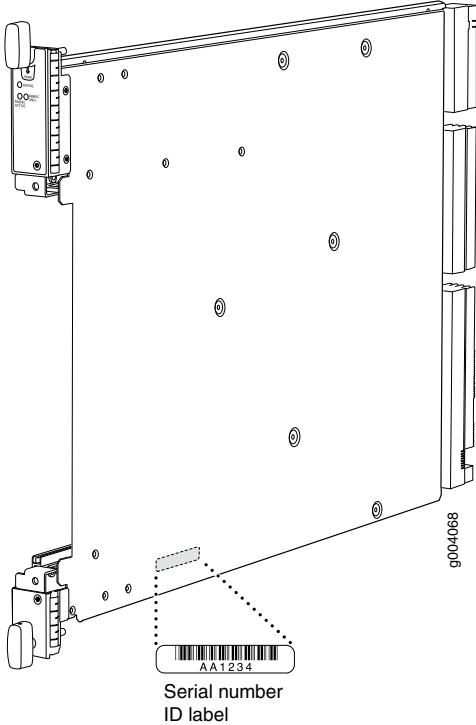
- Power circuits for the Routing Engine and the SRX5K-SCBE
- LEDs—Provides status of the SRX5K-SCBE and clocking interface

<b>Description</b>	<ul style="list-style-type: none"> <li>• SRX5K-SCBE with slot for Routing Engine</li> <li>• Maximum throughput: 120 Gbps per slot</li> </ul>
<b>Software release</b>	Junos OS Release 12.1X47-D15 and later
<b>Cables and connectors</b>	Slot for Routing Engine
<b>Controls</b>	None
<b>Supported slots</b>	<ul style="list-style-type: none"> <li>• SRX5400—Only bottom slots <b>0</b> and <b>1/0</b></li> <li>• SRX5600—Only bottom slots <b>0</b> and <b>1</b></li> <li>• SRX5800—Only center slots <b>0</b>, <b>1</b>, and <b>2/6</b></li> </ul>
<b>Power requirement</b>	<ul style="list-style-type: none"> <li>• 160 W at 131° F (55° C)</li> <li>• 130 W at 104° F (40° C)</li> <li>• 120 W at 77° F (25° C)</li> </ul>
<b>Weight</b>	9.6 lb (4.4 kg) with Routing Engine

Serial number location

The serial number label is located as shown in [Figure 40 on page 69](#).

**Figure 40: SRX5K-SCBE Serial Number Label**



The diagram shows a side view of the SRX5K-SCBE chassis. A callout box points to a label on the bottom right of the chassis. The label contains a barcode and the text 'Serial number ID label'. The label is located near the bottom rail of the chassis.

## SRX5K-SCBE LEDs

[Table 2 on page 69](#) describes the SRX5K-SCBE LEDs and their states.

Table 2: SRX5K-SCBE LEDs

Label	Color	State	Description
FABRIC ACTIVE	Green	On steadily	Fabric is in active mode.
FABRIC ONLY	Green	On steadily	SRX5K-SCBE operates in fabric-only mode.
	None	Off	SRX5K-SCBE operates in fabric/control board mode.

Table 2: SRX5K-SCBE LEDs (*continued*)

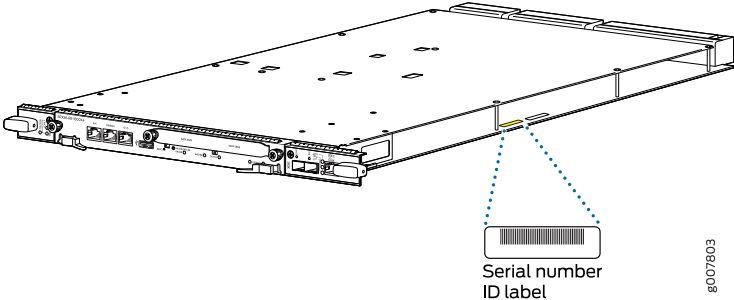
Label	Color	State	Description
OK/FAIL	Green	On steadily	SRX5K-SCBE is online.
	Red	On steadily	SRX5K-SCBE has failed.
	None	Off	SRX5K-SCBE is offline.

# Switch Control Board SRX5K-SCB3 Specifications

Each SRX5K-SCB3 (SCB3) consists of the following components:

- I2C bus logic for low-level communication with each component
- Component redundancy circuitry
- Control Board/Routing Engine mastership mechanism
- Gigabit Ethernet switch that is connected to the embedded CPU complex on all components
- Switch fabric to provide the switching functions for the MPCs
- Control field-programmable gate array (FPGA) to provide the Peripheral Component Interconnect (PCI) interface to the Routing Engine
- Circuits for chassis management and control
- Power circuits for the Routing Engine and SCB3
- LEDs to provides status of the SCB3

<b>Description</b>	SCB3 with slot for Routing Engine
<b>Software release</b>	Junos OS Release 15.1X49-D10 and later
<b>Cables and connectors</b>	Slot for Routing Engine
<b>Controls</b>	None
<b>Supported slots</b>	<ul style="list-style-type: none"> <li>• SRX5400—Only bottom slots <b>0</b> and <b>1/0</b></li> <li>• SRX5600—Only bottom slots <b>0</b> and <b>1</b></li> <li>• SRX5800—Only center slots <b>0, 1, and 2/6</b></li> </ul>
<b>Power requirement</b>	300 W
<b>Weight</b>	9.6 lb (4.4 kg) with Routing Engine

Serial number location	<p>The serial number label is located as shown in <a href="#">Figure 41 on page 72</a>.</p> <p><b>Figure 41: SRX5K-SCB3 Serial Number Label</b></p>  <p>The diagram shows a perspective view of the SRX5K-SCB3 circuit board. A yellow rectangular label is located on the right side of the board. A dashed blue line points from the label to a callout box. The callout box contains a barcode and the text 'Serial number ID label'. The text '8007803' is printed vertically on the right side of the board.</p>
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## SRX5K-SCB3 LEDs

[Table 3 on page 72](#) describes the SCB3 LEDs and their states.

**Table 3: SRX5K-SCB3 LEDs**

Label	Color	State	Description
FABRIC ACTIVE	Green	On steadily	Fabric is in active mode.
OK/FAIL	Green	On steadily	SCB3 is online.
	Red	On steadily	SCB3 has failed.
	–	Off	SCB3 is offline.
LINK	Green	On steadily	Port is enabled and link is established.
	–	Off	Port is disabled or no link is established.

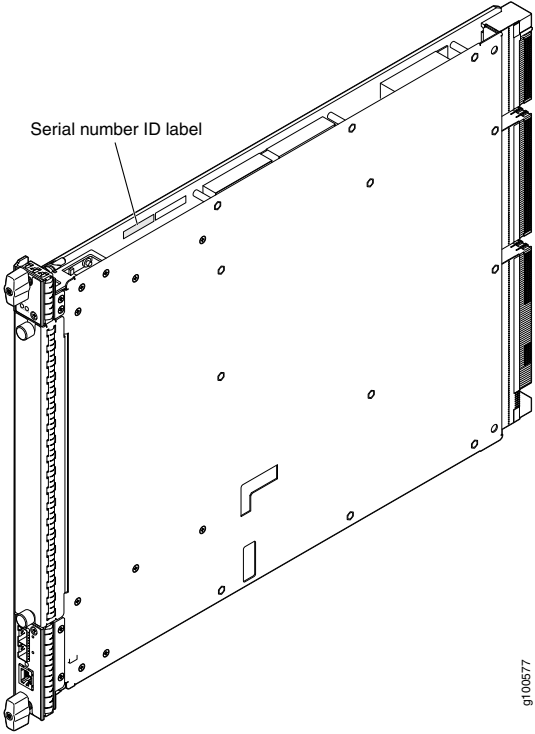


# Switch Control Board SRX5K-SCB4 Specifications

SRX5K-SCB4 (SCB4) consists of the following components:

- LEDs to provides status of the SCB4.
- Circuits for chassis management and control.
- Power circuits for the Routing Engine and SCB4.

<b>Description</b>	SCB4 with slot for SRX5K-RE-1800X4 and SRX5K-RE3-128G Routing Engines
<b>Software release</b>	Junos OS Release 19.3R1 and later
<b>Cables and connectors</b>	Slot for Routing Engine
<b>Controls</b>	None
<b>Supported slots</b>	<ul style="list-style-type: none"> <li>• SRX5400–Not supported</li> <li>• SRX5600–Only bottom slots <b>0</b> and <b>1</b></li> <li>• SRX5800–Only center slots <b>0</b>, <b>1</b>, and <b>2/6</b></li> </ul>
<b>Power requirement</b>	At different temperatures: <ul style="list-style-type: none"> <li>• 55° C: 425 W</li> <li>• 40° C: 400 W</li> <li>• 25° C: 385 W</li> </ul>
<b>Cooling requirement</b>	For efficient and reliable power and cooling, you must install SRX Series high-capacity power supplies and fan trays in the SRX Series chassis.
<b>Weight and Dimensions</b>	<ul style="list-style-type: none"> <li>• Weight: 13.6 lb (6.2 kg)</li> <li>• Width: 15.7 in (39.87 cm)</li> <li>• Depth: 21.2 in (53.85 cm)</li> <li>• Height: 1.2 in (3.05 cm)</li> </ul>

Serial number location	<p>The serial number label is located as shown in <a href="#">Figure 42 on page 74</a>.</p> <p><b>Figure 42: SRX5K-SCB4 Serial Number Label</b></p>  <p>The diagram shows a perspective view of the SRX5K-SCB4 circuit board. A label is indicated on the top edge of the board, near the front-left corner. The label is rectangular and contains the text 'Serial number ID label'. The board is populated with various components, including integrated circuits, capacitors, and connectors. The label is located on the top edge, near the front-left corner, and is labeled 'Serial number ID label'.</p> <p>g100577</p>
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## SRX5K-SCB4 LEDs

[Table 4 on page 74](#) describes the SCB4 LEDs and their states.

Table 4: SRX5K-SCB4 LEDs

Label	Color	State	Description
OK/FAIL	Green	On steadily	SCB4 is online.
	Red	On steadily	SCB4 has failed.
	–	Off	SCB4 is offline.
FABRIC			
ACTIVE	Green	On steadily	The switch fabric on this board is in Active mode.

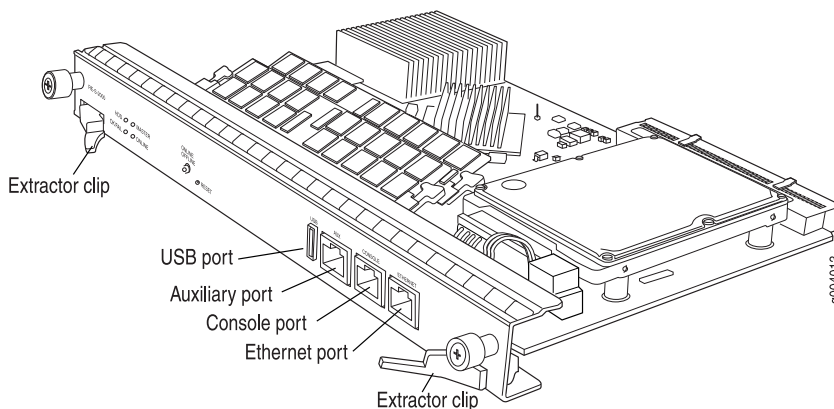
Table 4: SRX5K-SCB4 LEDs (*continued*)

Label	Color	State	Description
<b>ONLY</b>	Green	On steadily	The switch is in Fabric-Only mode.
<b>LINK (XGE port)</b>	Green	On steadily	SFP+ port is enabled and link is established.
	–	Off	SFP+ port is disabled or no link is established.
<b>GPS</b>	Green	On steadily	Indicates the status of the GPS clocking interface, and the link is OK.
	Yellow	Blinking	Activity on the clocking interface.

## Routing Engine SRX5K-RE-13-20 Specifications

The SRX5K-RE-13-20 Routing Engine ([Figure 43 on page 75](#)) is an Intel-based PC platform that runs the Junos operating system (Junos OS). Software processes that run on the Routing Engine maintain the routing tables, manage the routing protocols used on the device, control the device interfaces, control some chassis components, and provide the interface for system management and user access to the device.

Figure 43: Routing Engine



You must install at least one Routing Engine in the services gateway. You can install a second Routing Engine if both Routing Engines are running Junos OS Release 10.0 or later. A second Routing Engine is required if you are using the dual chassis cluster control link feature available in Junos OS Release 10.0 and later. The second Routing Engine does not perform all the functions of a Routing Engine and does not improve resiliency or redundancy. The second Routing Engine and the Switch Control Board (SCB) in which

it is installed do not constitute a host subsystem. The only function of the second Routing Engine is to enable the hardware infrastructure that enables the chassis cluster control 1 port on the Services Processing Card (SPC) used for chassis cluster control links. If you install only one Routing Engine in the services gateway, you must install it in the slot in the front panel of SCB0. If you install a second Routing Engine to use the dual chassis cluster control link feature, you install it in the slot in the front panel of SCB1.

The Routing Engine consists of the following components:

- CPU—Runs Junos OS to maintain the services gateway's routing tables and routing protocols. It has a Pentium-class processor.
- DRAM—Provides storage for the routing and forwarding tables and for other Routing Engine processes.
- USB port—Provides a removable media interface through which you can install Junos OS manually. Junos supports USB version 1.0.
- Internal flash disk—Provides primary storage for software images, configuration files, and microcode. The disk is a fixed compact flash and is inaccessible from outside the services gateway.
- Hard disk—Provides secondary storage for log files, memory dumps, and rebooting the system if the internal compact flash disk fails.
- HDD LED—Indicates disk activity for the hard disk drive.
- Management ports—Each Routing Engine has one 10/100-Mbps Ethernet port for connecting to a management network, and two asynchronous serial ports—one for connecting to a console and one for connecting to a modem or other auxiliary device. The interface ports are labeled **AUX**, **CONSOLE**, and **ETHERNET**.
- EEPROM—Stores the serial number of the Routing Engine.
- Extractor clips—Used for inserting and extracting the Routing Engine.
- Captive screws—Secures the Routing Engine in place.

The Routing Engine boots from the storage media in this order: the USB device (if present), then the internal flash disk, then the hard disk, then the LAN.

**NOTE:** For specific information about Routing Engine components (for example, the amount of DRAM), issue the **show chassis routing-engine** command.

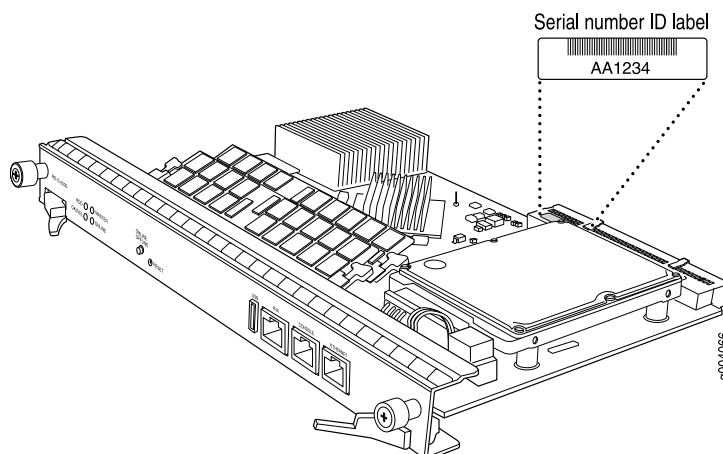
<b>Description</b>	Routing Engine for SRX5400, SRX5600, and SRX5800 Services Gateways
<b>Software release</b>	<ul style="list-style-type: none"> <li>• Junos OS Release 9.2 and later</li> <li>• Junos OS Release 10.0 and later required to install a second Routing Engine</li> </ul>

<b>Cables and connectors</b>	<p><b>AUX</b>—Connects the Routing Engine to a laptop, a modem, or another auxiliary device through a cable with an RJ-45 connector.</p> <p><b>CONSOLE</b>—Connects the Routing Engine to a system console through a cable with an RJ-45 connector.</p> <p><b>ETHERNET</b>—Connects the Routing Engine through an Ethernet connection to a management LAN (or any other device that plugs into an Ethernet connection) for out-of-band management.</p>
<b>Controls</b>	<ul style="list-style-type: none"> <li>• <b>RESET</b> button—Reboots the Routing Engine when pressed</li> <li>• <b>ONLINE/OFFLINE</b> Button—Not supported in the current release</li> </ul>
<b>Supported Slots</b>	<p>Front panel slot in an SCB installed in:</p> <ul style="list-style-type: none"> <li>• SRX5400: Bottom slot 0</li> <li>• SRX5600: Bottom slots 0 or 1</li> <li>• SRX5800: Center slots 0 or 1</li> </ul> <p><b>NOTE:</b> The services gateway host subsystem Routing Engine must be installed in the SCB in slot 0. A Routing Engine installed in an SCB in slot 1 only enables dual control links in chassis cluster configurations.</p>
<b>Power Requirement</b>	90 W
<b>Weight</b>	Approximately 2.4 lb (1.1 kg)
<b>LEDs</b>	<p><b>HDD LED:</b></p> <ul style="list-style-type: none"> <li>• Blinking green—The Routing Engine hard disk is functioning normally.</li> </ul> <p><b>MASTER LED:</b></p> <ul style="list-style-type: none"> <li>• Blue—The Routing Engine is Primary.</li> </ul> <p><b>NOTE:</b> The SRX5400, SRX5600, and SRX5800 Services Gateways do not support a secondary or backup Routing Engine, so the <b>MASTER</b> LED should always be lit.</p> <p><b>OK/FAIL LED, one bicolor:</b></p> <ul style="list-style-type: none"> <li>• Off—The Routing Engine is operating normally.</li> <li>• Red—The Routing Engine has failed and is not operating normally.</li> </ul> <p><b>ONLINE LED:</b></p> <ul style="list-style-type: none"> <li>• Blinking green—The Routing Engine is coming online.</li> <li>• Steady green—The Routing Engine is functioning normally.</li> </ul>

### Serial Number Location

The serial number label is located on the right side of the top of the Routing Engine as shown in [Figure 44 on page 78](#)

**Figure 44: SRX5K-RE-13-20 Serial Number Label**



## Routing Engine SRX5K-RE-1800X4 Specifications

Each Routing Engine consists of the following components:

- CPU—Runs Junos OS to maintain the routing tables and routing protocols.
- DRAM—Provides storage for the routing and forwarding tables and for other Routing Engine processes.
- USB port—Provides a removable media interface through which you can install the Junos OS manually. Junos OS supports USB version 1.0 and 2.0.
- CompactFlash card—Provides primary storage for software images, configuration files, and microcode. The CompactFlash card is fixed and is inaccessible from outside the device.
- Solid-state drive (SSD)—Provides secondary storage for log files, for generating core files, and for rebooting the system if the CompactFlash card fails.
- Interface ports—The **AUX**, **CONSOLE**, and **ETHERNET** ports provide access to management devices. Each Routing Engine has one 10/100/1000-Mbps Ethernet port for connecting to a management network, and two asynchronous serial ports—one for connecting to a console and one for connecting to a modem or other auxiliary device.
- EEPROM—Stores the serial number of the Routing Engine.
- Reset button—Reboots the Routing Engine when pressed.
- Online/Offline button—Takes the Routing Engine online or offline when pressed.

- Extractor clips—Inserts and extracts the Routing Engine.
- Captive screws—Secures the Routing Engine in place.

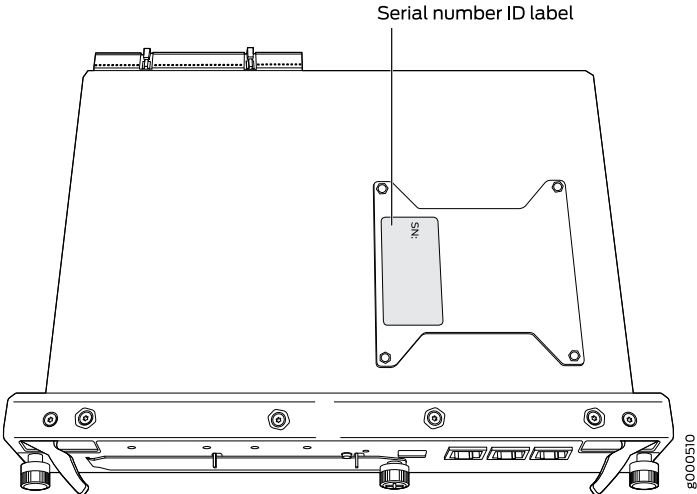
<b>Description</b>	Routing Engine for SRX5400, SRX5600, and SRX5800 Services Gateways
<b>Software release</b>	Junos OS Release 12.1X47-D15 and later
<b>Cables and connectors</b>	<p>Slot for Routing Engine</p> <ul style="list-style-type: none"> <li>• <b>AUX</b>—Connects the Routing Engine to a laptop, a modem, or another auxiliary device through a cable with an RJ-45 connector.</li> <li>• <b>CONSOLE</b>—Connects the Routing Engine to a system console through a cable with an RJ-45 connector.</li> <li>• <b>ETHERNET</b>—Connects the Routing Engine through an Ethernet connection to a management LAN (or any other device that plugs into an Ethernet connection) for out-of-band management.</li> </ul>
<b>Controls</b>	RESET button—Reboots the Routing Engine when pressed.
<b>Supported slots</b>	<p>Front panel slot in an SCB installed in:</p> <ul style="list-style-type: none"> <li>• SRX5400: Bottom slot 0</li> <li>• SRX5600: Bottom slots 0 or 1</li> <li>• SRX5800: Center slots 0 or 1</li> </ul> <p><b>NOTE:</b> The services gateway host subsystem Routing Engine must be installed in the SCB in slot 0. A Routing Engine installed in an SCB in slot 1 only enables dual control links in chassis cluster configurations.</p>
<b>Power requirement</b>	90 W
<b>Weight</b>	2.4 lb (1.1 kg)

Serial number location

The serial number label is located as shown in [Figure 45 on page 80](#).

**Figure 45: SRX5K-RE-1800X4 Serial Number Label**

Bottom view



The diagram shows the bottom view of the SRX5K-RE-1800X4 Routing Engine. A label is attached to the bottom plate, and a line points to it with the text 'Serial number ID label'. The label itself has 'SR' printed on it. The bottom plate has several screws and a small label '8000510' on the right side.

## SRX5K-RE-1800X4 LEDs

Each Routing Engine has four LEDs that indicate its status. The LEDs, labeled **MASTER**, **STORAGE**, **ONLINE**, and **OK/FAIL**, are located directly on the faceplate of the Routing Engine. [Table 5 on page 80](#) describes the Routing Engine LEDs and their states.

Table 5: SRX5K-RE-1800X4 LEDs

Label	Color	State	Description
MASTER	Blue	On steadily	Routing Engine is the master.
STORAGE	Green	Blinking	Indicates activity on the SSD or CompactFlash card.
ONLINE	Green	Blinking	Routing Engine is transitioning online.
	None	On steadily	Routing Engine is functioning normally.
OK/FAIL	Red	On steadily	Routing Engine has failed.



# Routing Engine SRX5K-RE3-128G Specifications

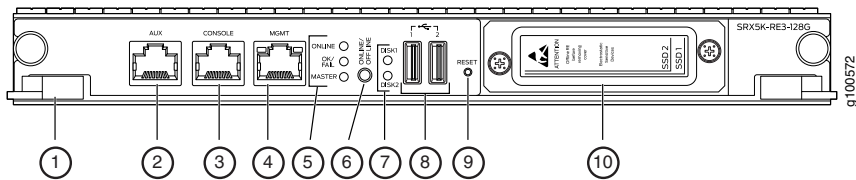
IN THIS SECTION

- [SRX5K-RE3-128G Routing Engine Components | 83](#)
- [SRX5K-RE3-128G Routing Engine LEDs | 84](#)
- [SRX5K-RE3-128G Routing Engine Boot Sequence | 85](#)

The Routing Engine maintains the routing tables, manages the routing protocols used on the device, controls the device interfaces, controls some chassis components, and provides the interfaces for system management and user access to the device.

[Figure 46 on page 81](#) shows the SRX5K-RE3-128G Routing Engine.

Figure 46: SRX5K-RE3-128G Routing Engine Front View



1—Extractor clips	6— <b>ONLINE/OFFLINE</b> button
2—Auxiliary port ( <b>AUX</b> )	7—SSD LEDs— <b>DISK1</b> and <b>DISK2</b>
3—Console port ( <b>CONSOLE</b> )	8—USB ports— <b>USB1</b> and <b>USB2</b>
4—Management port ( <b>MGMT</b> )	9— <b>RESET</b> button
5—Routing Engine status LEDs— <b>ONLINE</b> , <b>OK/FAIL</b> , and <b>MASTER</b>	10—SSD card slot cover

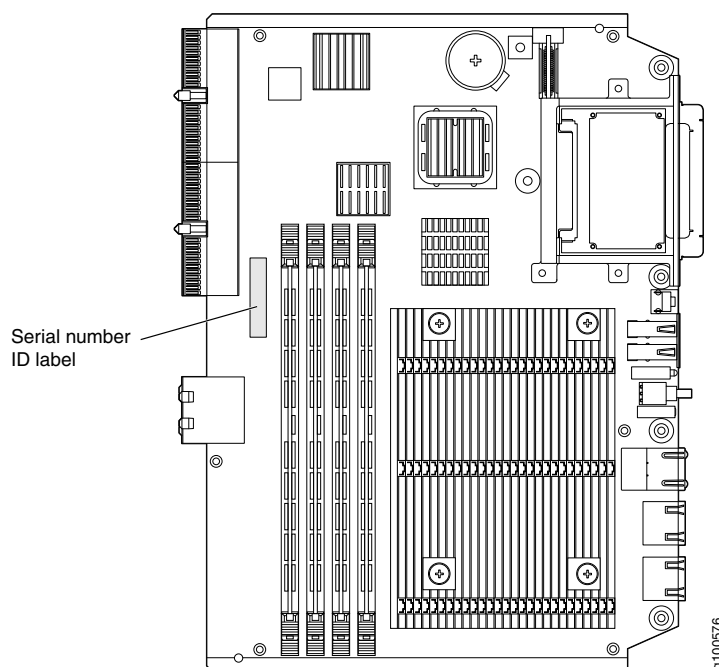
Description	Routing Engine for SRX5400, SRX5600, and SRX5800 Services Gateways, based on Intel's Haswell-EP CPU with 6 cores, and 128GB of DDR4 memory. It provides increased control plane performance and scalability along with virtualization features in the SRX Series 5000 line of chassis.
Software release	Junos OS Release 19.3R1 and later

<b>Cables and connectors</b>	<p>Slot for Routing Engine</p> <ul style="list-style-type: none"> <li>● <b>AUX</b>—Connects the Routing Engine to a laptop, a modem, or another auxiliary device through a cable with an RJ-45 connector.</li> <li>● <b>CONSOLE</b>—Connects the Routing Engine to a system console through a cable with an RJ-45 connector.</li> <li>● <b>MGMT</b>—Connects the Routing Engine through an Ethernet connection to a management LAN (or any other device that plugs into an Ethernet connection) for out-of-band management.</li> </ul>
<b>Controls</b>	<b>RESET</b> button—Reboots the Routing Engine when pressed.
<b>Supported slots</b>	<p>Front panel slot in an SCB installed in:</p> <ul style="list-style-type: none"> <li>● SRX5400: Bottom slot 0</li> <li>● SRX5600: Bottom slots 0 or 1</li> <li>● SRX5800: Center slots 0 or 1</li> </ul> <p><b>NOTE:</b> The services gateway host subsystem Routing Engine must be installed in the SCB in slot 0. A Routing Engine installed in an SCB in slot 1 only enables dual control links in chassis cluster configurations.</p> <p><b>NOTE:</b> In the SRX5600 or SRX5800 Services Gateways chassis cluster configurations, dual control links functionality is not supported if you mix SRX5K-RE-1800X4 and SRX5K-RE3-128G Routing Engines. To support dual control links you have to install two SRX5K-RE3-128Gs.</p>
<b>Power requirement</b>	110 W
<b>Weight</b>	2.69 lb (1.22 kg)

**Serial number location**

The serial number label is located as shown in [Figure 47 on page 83](#).

**Figure 47: SRX5K-RE3-128G Serial Number Label**



## SRX5K-RE3-128G Routing Engine Components

Each Routing Engine consists of the following components:

- CPU—Runs Junos OS to maintain the routing tables and routing protocols.
- EEPROM—Stores the serial number of the Routing Engine.
- DRAM—Provides storage for the routing and forwarding tables and for other Routing Engine processes.
- One 10-Gigabit Ethernet interface between the Routing Engine and Switch Control Board.
- Extractor clips—Control the locking system that secures the Routing Engine.
- Interface ports—The **AUX**, **CONSOLE**, and **MGMT** ports provide access to management devices. Each Routing Engine has one 10/100/1000-Mbps Ethernet port for connecting to a management network, and two asynchronous serial ports—one for connecting to a console and one for connecting to a modem or other auxiliary device.

**NOTE:**

The control interface names differ based on the routing engine:

- For RE2, the control interfaces are displayed as **em0** and **em1**.
- For RE3, the control interfaces are displayed as **ixlv0** and **igb0**.

For more information, see *show chassis cluster interfaces*.

- Status LEDs—[Table 6 on page 85](#) describes the functions of the **ONLINE**, **OK/FAIL**, **MASTER**, **DISK1**, and **DISK2** LEDs.
- **ONLINE/OFFLINE** button—Takes the Routing Engine online or offline when pressed.

**NOTE:** The **ONLINE/OFFLINE** button must be pressed for a minimum of 4 seconds.

- **USB1** and **USB2** ports—Provide a removable media interface through which you can install Junos OS manually. Junos OS supports USB versions 3.0, 2.0, and 1.1.
- **RESET** button—Reboots the Routing Engine when pressed.
- **SSD1** (primary) and **SSD2** (secondary) Solid-state drives (SSD)—Two 200-GB each slim solid-state drives that provide storage for software images, configuration files, microcode, log files, and memory dumps. The Routing Engine reboots from **SSD2** when boot from primary **SSD1** fails.
- Captive screws—Secures the Routing Engine.

## SRX5K-RE3-128G Routing Engine LEDs

Each Routing Engine has four LEDs that indicate its status. The LEDs, labeled **ONLINE**, **OK/FAIL**, **MASTER**, **DISK1**, and **DISK2**, are located directly on the faceplate of the Routing Engine. [Table 6 on page 85](#) describes the Routing Engine LEDs and their states.

Table 6: SRX5K-RE3-128G Routing Engine LEDs

Label	Color	State	Description
ONLINE	Green	Blinking slowly	Routing Engine is in the process of booting BIOS and the host OS.
		Blinking rapidly	Routing Engine is in the process of booting Junos OS.
	-	Off	Routing Engine is not online or not functioning normally.
OK/FAIL	Green	On steadily	Routing Engine is powering up.
	Yellow	On steadily	Routing Engine is not powering up, which indicates failure.
MASTER	Blue	On steadily	This Routing Engine is the master Routing Engine.
DISK1	Green	Blinking	Indicates presence of disk activity.
	-	Off	There is no disk activity.
DISK2	Green	Blinking	Indicates presence of disk activity.
	-	Off	There is no disk activity.

## SRX5K-RE3-128G Routing Engine Boot Sequence

Booting in a SRX5K-RE3-128G Routing Engine follows this sequence—the USB device, SSD1, SSD2, and LAN. SSD1 is the primary boot device. The boot sequence is tried twice for SSD1 and SSD2.

# Handling and Storing SRX5400, SRX5600, and SRX5800 Services Gateway Cards

## IN THIS SECTION

- [SRX5400, SRX5600, and SRX5800 Services Gateway Card Terminology | 86](#)
- [Handling an SRX5400, SRX5600, or SRX5800 Services Gateway Card | 87](#)
- [Storing an SRX5600, SRX5600, or SRX5800 Services Gateway Card | 89](#)

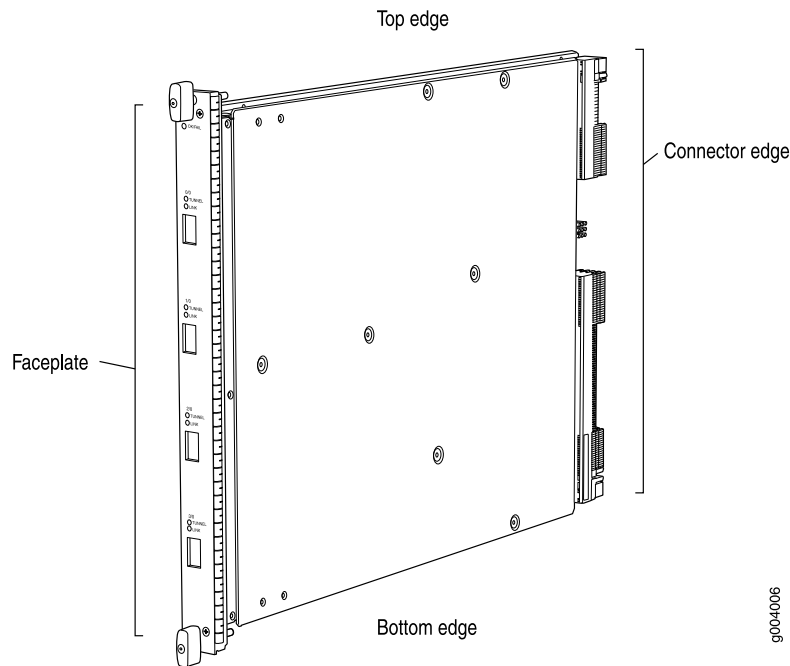
## SRX5400, SRX5600, and SRX5800 Services Gateway Card Terminology

Regardless of orientation, this information uses the same terms for all four edges of the card (see [Figure 48 on page 87](#)):

- Faceplate—Edge of the card that has connectors to which you connect cables or sockets in which you insert SFP or XFP transceivers.
- Connector edge—Edge opposite the faceplate; this edge has the connectors that attach to the midplane.
- Top edge—Edge at the top of the card when it is vertical.
- Bottom edge—Edge at the bottom of the card when it is vertical.

**NOTE:** This terminology applies to SPCs, IOC, MPCs, and SCBs in addition to Routing Engines and port modules.

Figure 48: Card Edges



SEE ALSO

*Cards Supported on SRX5400, SRX5600, and SRX5800 Services Gateways*

## Handling an SRX5400, SRX5600, or SRX5800 Services Gateway Card

When carrying a card, you can hold it either vertically or horizontally.

**NOTE:** A card weighs up to 18.3 lb (8.3 kg). Be prepared to accept the full weight of the card as you lift it.

To hold a card vertically:

1. Orient the card so that the faceplate faces you. To verify orientation, confirm that the text on the card is right-side up and the EMI strip is on the right-hand side.
2. Place one hand around the card faceplate about a quarter of the way down from the top edge. To avoid deforming the EMI shielding strip, do not press hard on it.

3. Place your other hand at the bottom edge of the card.

If the card is horizontal before you grasp it, place your left hand around the faceplate and your right hand along the bottom edge.

To hold a card horizontally:

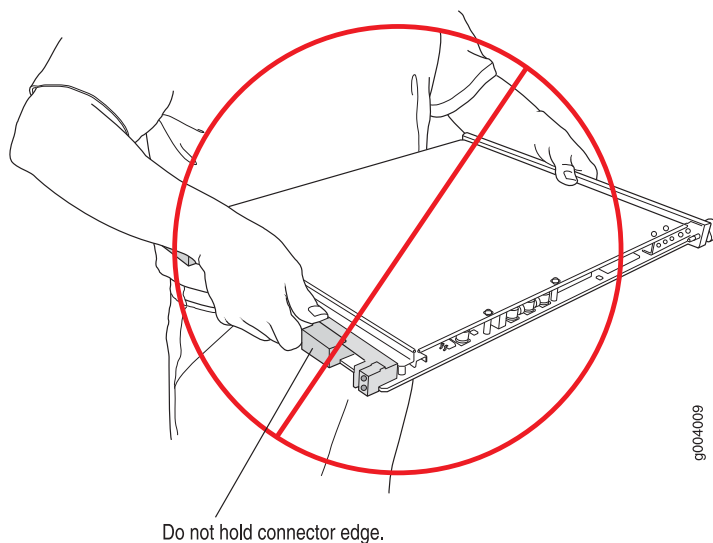
1. Orient the card so that the faceplate faces you.
2. Grasp the top edge with your left hand and the bottom edge with your right hand.

You can rest the faceplate of the card against your body as you carry it.

As you carry the card, do not bump it against anything. Card components are fragile.

Never hold or grasp the card anywhere except those places that this topic indicates are appropriate. In particular, never grasp the connector edge, especially at the power connector in the corner where the connector and bottom edges meet (see [Figure 49 on page 88](#)).

**Figure 49: Do Not Grasp the Connector Edge**



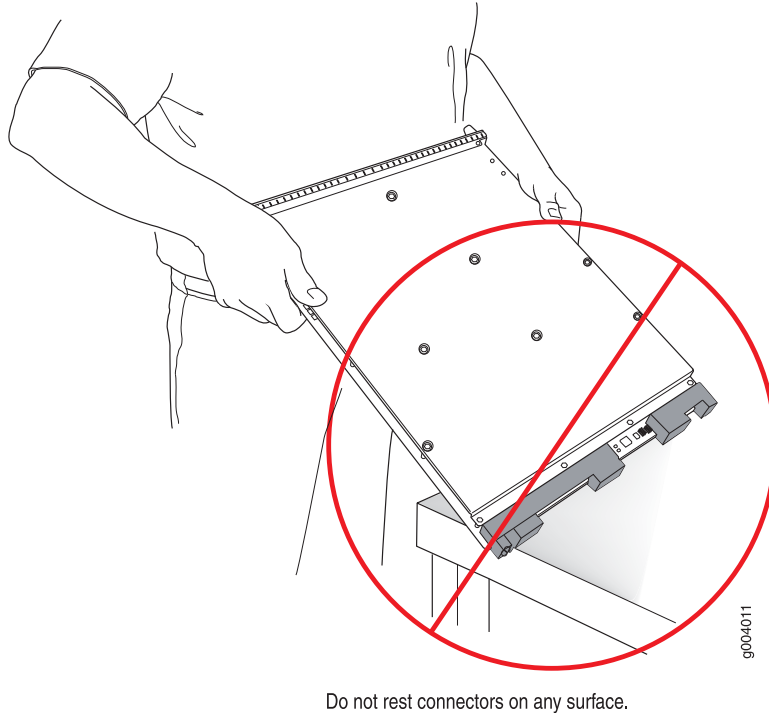
Never carry the card by the faceplate with only one hand.

Do not rest any edge of a card directly against a hard surface (see [Figure 50 on page 89](#)).

Do not stack cards.



**Figure 50: Do Not Rest the Card on an Edge**



If you must rest the card temporarily on an edge while changing its orientation between vertical and horizontal, use your hand as a cushion between the edge and the surface.

#### SEE ALSO

*Cards Supported on SRX5400, SRX5600, and SRX5800 Services Gateways*

## Storing an SRX5600, SRX5600, or SRX5800 Services Gateway Card

You must store a card as follows:

- In the services gateway chassis
- In the container in which a spare card is shipped
- Horizontally and sheet metal side down

When you store a card on a horizontal surface or in the shipping container, always place it inside an antistatic bag. Because the card is heavy, and because antistatic bags are fragile, inserting the card into the bag is easier with two people. To do this, one person holds the card in the horizontal position with the

faceplate facing the body, and the other person slides the opening of the bag over the card connector edge.

If you must insert the card into a bag by yourself, first lay the card horizontally on a flat, stable surface, sheet metal side down. Orient the card with the faceplate facing you. Carefully insert the card connector edge into the opening of the bag, and pull the bag toward you to cover the card.

Never stack a card under or on top of any other component.

#### SEE ALSO

*Cards Supported on SRX5400, SRX5600, and SRX5800 Services Gateways*

## Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <https://www.juniper.net/documentation/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <https://www.juniper.net/books>.

## Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or Partner Support Service support contract, or are covered under warranty, and need postsales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <https://www.juniper.net/support/warranty/>.
- JTAC Hours of Operation —The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

## Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <https://www.juniper.net/customers/support/>
- Search for known bugs: <https://prsearch.juniper.net/>
- Find product documentation: <https://www.juniper.net/documentation/>
- Find solutions and answer questions using our Knowledge Base: <https://kb.juniper.net/>
- Download the latest versions of software and review release notes:  
<https://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications:  
<https://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum:  
<https://www.juniper.net/company/communities/>
- Create a service request online: <https://myjuniper.juniper.net>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool:  
<https://entitlementsearch.juniper.net/entitlementsearch/>

## Creating a Service Request with JTAC

You can create a service request with JTAC on the Web or by telephone.

- Visit <https://myjuniper.juniper.net>.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see  
<https://support.juniper.net/support/requesting-support/>.

## Revision History

December 2012—Initial release

December 2013—Add SRX5K-MPC, SRX-MIC-1X100G-CFP, SRX-MIC-2X40G-QSFP, and SRX-MIC-10XG-SFP. Change title to SRX5400, SRX5600, and SRX5800 Services Gateway Card Reference

January 2014—Minor revisions

April 2014—Added SRX-MIC-20GE-SFP

October 2014—Added information about the new hardware components SCBE and RoutingEngine—SRX5K-SCBE and SRX5K-RE-1800X4.

February 2015—Minor revisions. Added list of supported transceivers.

June 2015—Added information about SCB3 and IOC3.

October 2015—Updated supported transceivers list for SRX5K-MPC3-40G10G, SRX5K-MPC3-100G10G, and SRX-MIC-10XG-SFPP.

April 2016—Updated the figure Interoperability Matrix for SRX5400, SRX5600, and SRX5800 Services Gateways

June 2016—Deleted a NOTE about SSD form the topic Routing Engine SRX5K-RE-1800X4 Specifications

September 2016—Updated the Software features description in the topic SRX5K-MPC3-40G10G Specifications

April 2017—Updated the Supported Slots section in the two SPC topics

April 2017—Updated the Figure: Interoperability Matrix for SRX5400, SRX5600, and SRX5800 Services Gateways

August 2018—Included the SRX5K-SPC3 Specifications topic and updated SPC relevant topics for SRX5400, SRX5600, and SRX5800 Services Gateways

December 2018—Updated the SRX5K-SPC3 Specifications topic and cards Supported topics for SRX5400, SRX5600, and SRX5800 Services Gateways

September 2019—Included SRX5K-IOC4-10G Specifications, SRX5K-IOC4-MRAT Specifications, Switch Control Board SRX5K-SCB4 Specifications, and Routing Engine SRX5K-RE3-128G Specifications topics for SRX5400, SRX5600, and SRX5800 Services Gateways

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