



Overview: Cisco ASR 9000 Series Router SPA Interface Processors

This chapter describes the SPA interface processors (SIPs) that are supported on the Cisco ASR 9000 Series Aggregation Services Routers and contains the following sections:

- [SIP and SPA Compatibility, page 1-1](#)
- [Router Hardware Installation, page 1-2](#)
- [SIP Software and Hardware Compatibility, page 1-3](#)
- [Cisco ASR 9000 SIP-700 Overview, page 1-3](#)

SIP and SPA Compatibility

[Table 1-1](#) shows the SPAs that are supported on the Cisco ASR 9000 Series Aggregation Services Routers and the SIPs that support them:

Table 1-1 *SIP and SPA Compatibility on the Cisco ASR 9000 Series Router*

SPA	SIP-700
2-Port Channelized OC-12/DS0 SPA	X
1-Port Channelized OC48/STM16 DS3 SPA	X
2-Port OC-48/STM16 SPA	X
8-Port OC12/STM4 SPA	X
1-Port OC-192/STM-64 POS/RPR SPA	X
4-Port OC-3/STM-1 POS SPA	X
8-Port OC-3/STM-1 POS SPA	X
2-Port and 4-Port Clear Channel T3/E3 SPA	X
4-Port Channelized T3 to DS0	X
8-Port Channelized T1/E1 SPA	X
1-Port Channelized OC-3/STM-1 SPA	X
1-Port Channelized OC-3 ATM CEoP SPA	X
1-Port and 3-Port Clear Channel OC-3 ATM SPA	X

Table 1-1 SIP and SPA Compatibility on the Cisco ASR 9000 Series Router (continued)

SPA	SIP-700
1-Port Clear Channel OC-12 ATM SPA	X
2-Port OC-3 STM-1/OC-12 STM-4 POS SPA	X
4-Port OC-3 STM-1/OC-12 STM-4 POS SPA	X
4-Port OC-48/STM-16 POS-RPR SPA	X
2-Port Channelized T3/E3 ATM CEoP SPA	X
24-Port Channelized T1/E1/J1 ATM CEoP SPA	X

Router Hardware Installation

For Cisco ASR 9000 Series Router hardware installation and configuration information, refer to the installation and configuration guide for your router. The guide includes information on the router switch fabric and how it affects the operation of SIPs, as well as SIP slot locations, slot width, and other requirements.


Note

References to line cards in the router hardware installation and configuration guides apply equally to SIPs.

Supported Platforms

Cisco ASR 9000 SIP-700 SIPs are supported on all Cisco ASR 9000 Series Routers.

SIP Summary

Summary descriptions of all SIPs supported on the Cisco ASR 9000 Series Router are shown in [Table 1-2](#).

Table 1-2 SIP Summary

SIP	Product Number	Description	Maximum Number of Each Type of SPA Supported per SIP
Cisco ASR 9000 SIP-700	A9K-SIP-700	20G SPA Interface Processor, 4GB memory	2 single-width, double-height
	A9K-SIP-700-8G	20G SPA Interface Processor, 8GB memory	4 single-width, single-height ¹ 1 double-width, double-height 2 double-width, single-height

1. The OC192 POS SPA is single-width, single-height, however it is “logically” double-width in that it cannot run with another SPA in the adjacent bay, unless the other SPA is shut down.

SIP Software and Hardware Compatibility

For software configuration information, refer to the Cisco IOS XR software configuration and command reference publications for the installed Cisco IOS XR release. Also refer to the Cisco IOS XR software release notes for additional information. [Table 1-3](#) lists the Cisco IOS XR releases that are compatible with supported SIPs.

To ensure compatibility with the software, your SIPs should have a specific hardware revision number. The number is printed on a label affixed to the component side of the card. The hardware revision number can be displayed by using the **show diag rack/slot/CPU0** command. [Table 1-3](#) lists the hardware revision number for all supported SIPs.

Table 1-3 SIP Hardware and Software Compatibility

SIP	Part Number	Minimum Cisco IOS XR Software Release	Minimum Hardware Revision
Cisco ASR 9000 SIP-700	A9K-SIP-700	3.9	1.0
Cisco ASR 9000 SIP-700	A9K-SIP-700-8G	4.3.1	1.0

The **show version** command shows the system software version that is currently loaded and running. The **show platform** or **show diag** commands display the current hardware configuration of the router, including the ROMMON system software version that is currently loaded and running. For complete descriptions of **show** commands, refer to the *Cisco IOS XR Configuration Fundamentals Configuration Guide* and the *Cisco IOS XR Configuration Fundamentals Command Reference* for the installed Cisco IOS XR release.

Cisco ASR 9000 SIP-700 Overview

There are two types of Cisco ASR 9000 SIP-700 available; A9K-SIP-700 and A9K-SIP-700-8G.

- A9K-SIP-700 supports 4 GB of memory.
- A9K-SIP-700-8G supports 8 GB of memory.

Both types of Cisco ASR 9000 SIP-700 are identical in appearance and can be identified by the PID located on the faceplate of the SIP.

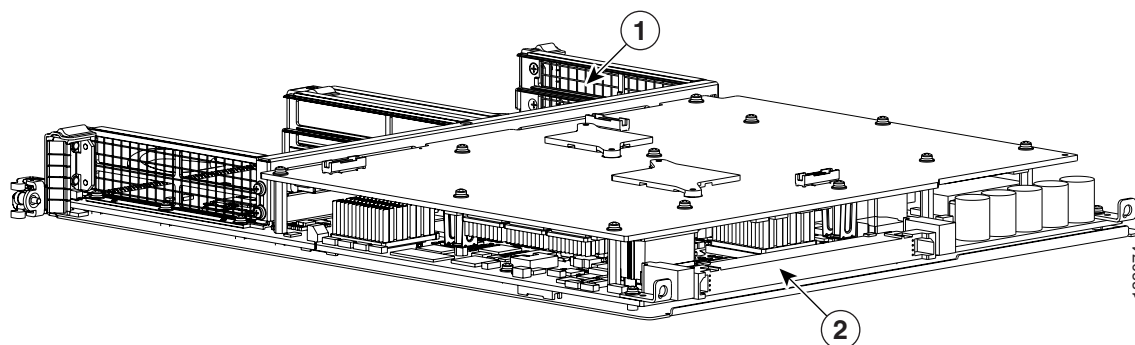
The following sections describe the Cisco ASR 9000 SIP-700:

- [Cisco ASR 9000 SIP-700 Board Components, page 1-4](#)
- [Cisco ASR 9000 SIP-700 LED, page 1-4](#)
- [Cisco ASR 9000 SIP-700 Physical Specifications, page 1-5](#)
- [SPA Subslot Numbering on the Cisco ASR 9000 SIP-700, page 1-5](#)
- [SPA Interface Addresses on the Cisco ASR 9000 SIP-700, page 1-6](#)

Cisco ASR 9000 SIP-700 Board Components

The main Cisco ASR 9000 SIP-700 board components are shown in [Figure 1-1](#).

Figure 1-1 Cisco ASR 9000 SIP-700 Board—Rear View

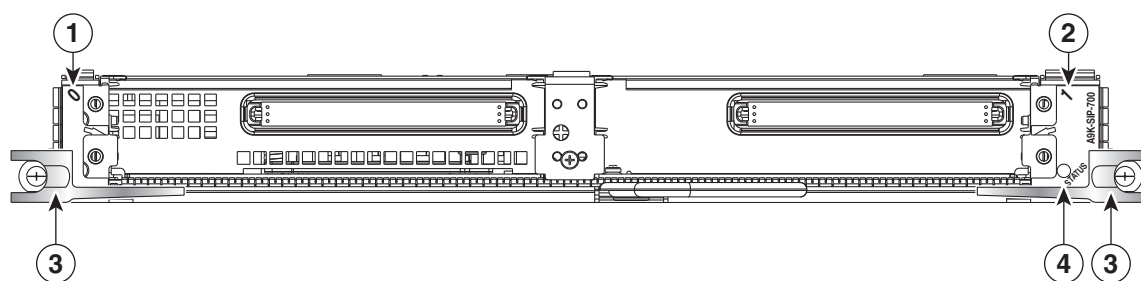


1	SPA enclosure	2	Backplane connector
----------	---------------	----------	---------------------

Cisco ASR 9000 SIP-700 LED

The Cisco ASR 9000 SIP-700 supports a maximum of 2 single-width, double-height SPAs, 4 single-width, single-height SPAs, 2 double-width, single-height SPAs, or 1 double-width, double-height SPA. Combinations are also supported, for example 2 single-width, single-height SPAs and 1 double-width, single-height SPA. The Cisco ASR 9000 SIP-700 faceplate has one Status LED. [Figure 1-2](#) shows the Cisco ASR 9000 SIP-700 faceplate with 2 double-width, single-height SPAs.

Figure 1-2 Cisco ASR 9000 SIP-700 Faceplate



1	SPA subslot 0	3	Ejector Levers
2	SPA subslot 1	4	Status LED for SPA in subslot 1

The Cisco ASR 9000 SIP-700 LED is described in [Table 1-4](#).

Table 1-4 Cisco ASR 9000 SIP-700 LED

LED Label	Color	State	Meaning
Status	Amber	On	SIP is powered and IOS-XR is loading.
	Green	On	SIP is active.
	N/A	Off	SIP is not installed correctly or is not powered.

Cisco ASR 9000 SIP-700 Physical Specifications

The Cisco ASR 9000 SIP-700 physical specifications are shown in the following table.

Table 1-5 Cisco ASR 9000 SIP-700 Physical Specifications

Description	Specifications
Physical dimensions	Occupies one line card slot on a Cisco ASR 9000 Series Aggregation Services Router
Shipping weight	10kg (22 lbs)
Operating temperature	32 to 104°F (0 to 40°C)
Relative humidity	10 to 90 percent, noncondensing
Storage temperature	–4 to 149°F (–20 to 65°C)

SPA Subslot Numbering on the Cisco ASR 9000 SIP-700

The Cisco ASR 9000 SIP-700 supports up to 2 single-width, double-height SPAs, up to 4 single-width, single-height SPAs, or up to 2 double-width, single-height SPAs. The Cisco ASR 9000 SIP-700 does not support double-width, double-height SPAs. Note that while the OC192 POS SPA is single-width, single-height, it is “logically” double-width in that it cannot run with another SPA in the adjacent bay, unless the other SPA is shut down.

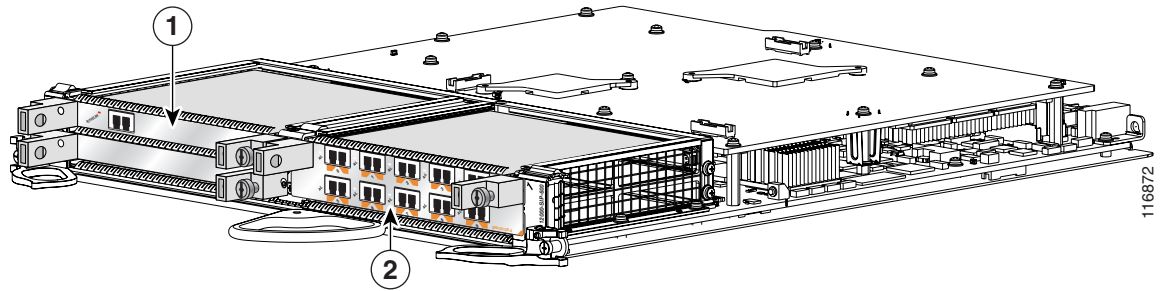
Bay 2 (Top Left)

Bay 0 (Top Right)

Bay 3 (Bottom Left)

Bay 1 (Bottom Right)

[Figure 1-3](#) shows a Cisco ASR 9000 SIP-700 with 2 SPAs installed. The left SPA slot is subslot 0 and the right SPA slot is subslot 1.

Figure 1-3 Subslot Locations for the 2-Port Channelized OC-12/DS0 SPA**Table 1-6** Subslot Locations for the 2-Port Channelized OC-12/DS0 SPA

Call Out Number	Description
1	Single height single width SPA in Subslot 1, Bay 0
2	Double height single width SPA in Subslot 0, Bay 3

SPA Interface Addresses on the Cisco ASR 9000 SIP-700

A Cisco ASR 9000 Series Aggregation Services Router identifies a SPA interface address by its rack number, SIP slot number, SPA subslot, and port number on the SPA, in the format *rack/slot/subslot/port*. Subslots and ports are numbered starting from 0, so each Cisco ASR 9000 SIP-700 has two subslots 0 (left) and 1 (right). For example, the interface addresses of a 2-port SPA located in the second SIP subslot, where the SIP is inserted into router line card slot 3 in rack 0 are 0/3/1/0 and 0/3/1/1. [Figure 1-4](#) shows the slot, subslot, and port locations for the 2-Port Channelized OC-12/DS0 SPA on a Cisco ASR 9006 6-slot chassis.

Figure 1-4 Slot, Subslot, and Port Locations for the 2-Port Channelized OC-12/DS0 SPA on a Cisco ASR 9006 6-Slot Chassis

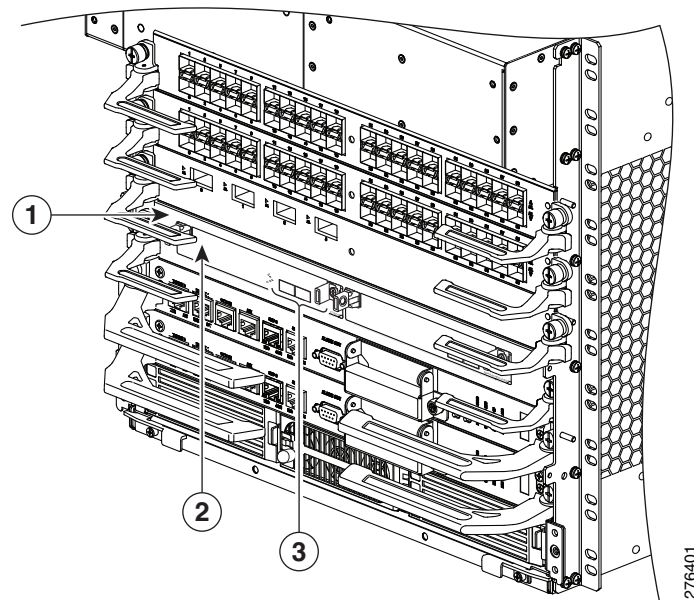


Table 1-7 Slot and Port Locations for the 2-Port Channelized OC-12/DS0 SPA

Call Out Number	Description
1	Slot 0
2	SPA in Subslot 0
3	Ports 0/0/0/0 and 0/0/0/1

Figure 1-5 shows the slot, subslot, and port locations for the 2-Port Channelized OC-12/DS0 SPA on a Cisco ASR 9010 10-slot chassis.

Figure 1-5 Slot, Subslot, and Port Locations for the 2-Port Channelized OC-12/DS0 SPA on a Cisco ASR 9010 10-Slot Chassis

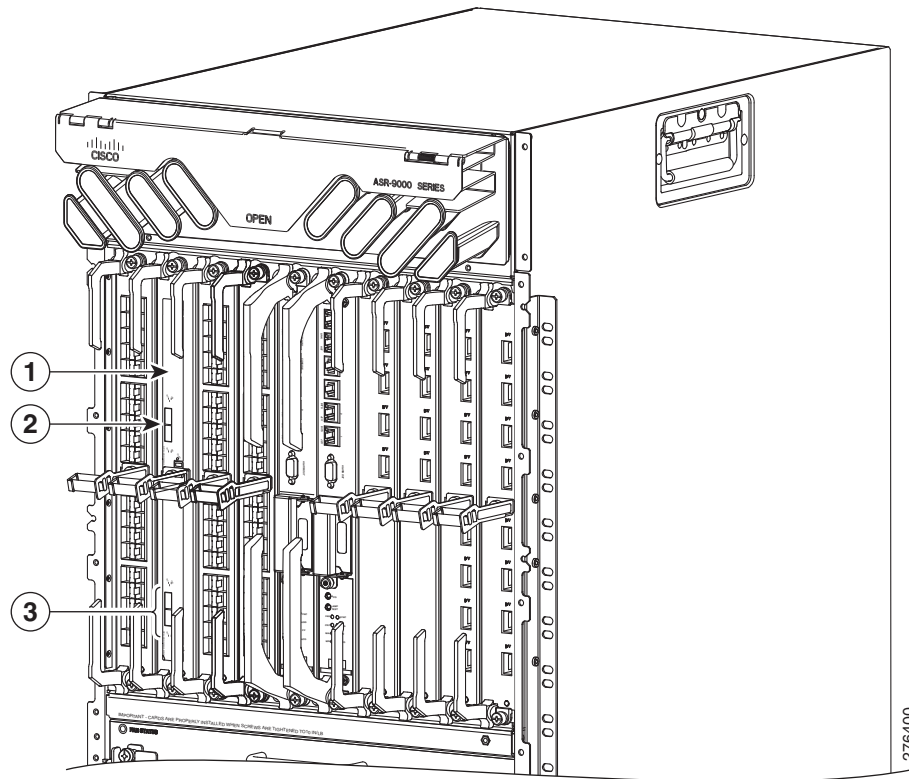


Table 1-8 Slot and Port Locations for the 2-Port Channelized OC-12/DS0 SPA in Slot 3

Call Out Number	Description
1	Slot 3
2	Subslot 0, Port 3/1/0/0 to 3/1/0/1
3	Ports of RSP1 in Slot 5