



CHAPTER 2

Overview of Cisco uBR10012 Router SIPs

This chapter describes the wideband SPA interface processors (SIPs) that are supported on the Cisco uBR10012 router and contains the following sections:

- [SIP Summary, page 2-1](#)
- [SIP and SPA Addressing Format, page 2-2](#)
- [Cisco Wideband SIP Overview, page 2-2](#)
- [Cisco SIP-600 Overview, page 2-7](#)
- [Supported WAN Slot Configurations, page 2-11](#)
- [Upgrading to the Cisco SIP-600, page 2-17](#)

SIP Summary

[Table 2-1](#) shows summary descriptions of the SIPs that are supported on the Cisco uBR10012 router.



Note

The Description column indicates the aggregate bandwidth supported by the SIP across all subslots—not per SPA subslot.

Table 2-1 SIP Summary

SIP	Product Number	Description	Maximum Number of Cisco Wideband SPAs	Minimum Cisco IOS Release
Cisco Wideband SIP	UBR10-2XDS-SIP	2.5 Gbps (ingress and egress bandwidth) SPA interface processor for the Cisco Wideband SPA	2 ¹	12.3(21)BC
Cisco SIP-600	10000-SIP-600	1X10 Gbps SPA interface processor	PRE2 - 4 PRE4 - 6	12.2(33)SCB

1. The Cisco Wideband SIP supports not more than two Cisco Wideband SPAs.

SIP and SPA Addressing Format

Cisco IOS Release 12.2(33)SCB introduces a new addressing format to specify locations of SIPs and SPAs on a Cisco uBR10012 router. This format is different from the addressing format used in Cisco IOS Releases 12.2(33)SCA and 12.3BC. This change mostly applies to the CLIs that use a modular cable interface, a wideband cable interface, or a controller modular cable as an argument.

Table 2-2 lists the SIP and SPA addressing format used in different Cisco IOS releases.

Table 2-2 SIP and SPA Addressing Format

Cisco IOS Release	Syntax	Description
12.2(33)SCB	<i>slot</i> or <i>slot/subslot</i> for SIPs and <i>slot/bay/port</i> for SPAs	The SIP and SPA CLI uses this format to specify SIPs or any SPA resources on a SIP. For example, the channel 8 of a SPA in bay 1 of a SIP in slot 1 is specified as interface modular-cable 1/1/0:8 .
12.3BC and 12.2(33)SCA	<i>slot/subslot</i> for SIPs and <i>slot/subslot/bay</i> for SPAs	The SIP and SPA CLI uses this format to specify SIPs or any SPA resources on a SIP. For example, the channel 8 of a SPA in bay 1 of a SIP in slot 1 is specified as interface modular-cable 1/0/1:8 .

Cisco Wideband SIP Overview

The following sections describe the Cisco Wideband SIP:

- [Cisco Wideband SIP Processor, page 2-2](#)
- [Cisco Wideband SIP LEDs, page 2-3](#)
- [Cisco Wideband SIP Physical Specifications, page 2-3](#)
- [Identifying the Location of Cisco Wideband SIPs and SPAs, page 2-4](#)



Note

The Cisco Wideband SIP requires the Cisco uBR10012 Performance Routing Engine 2 (PRE2). The Cisco Wideband SIP is not supported on PRE4.

Cisco Wideband SIP Processor

The processor on a Cisco Wideband SIP is described in [Table 2-3](#).

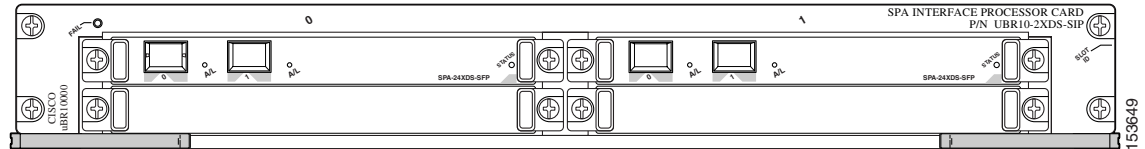
Table 2-3 Cisco Wideband SIP Processor

Type	Speed	Description
CPU	125 megahertz (MHz) internal operating frequency	Quad Integrated Communications Controller II

Cisco Wideband SIP LEDs

The Cisco Wideband SIP has one LED, as shown in [Figure 2-1](#). The Cisco Wideband SIP in [Figure 2-1](#) has two Cisco Wideband SPAs and two blank filler plates installed.

Figure 2-1 Cisco Wideband SIP Faceplate



The Cisco Wideband SIP FAIL LED is described in [Table 2-4](#). The FAIL LED is turned on by default and turned off by software after basic board functionality has been verified. If the FAIL LED remains on, the processor failed to initialize properly.

Table 2-4 Cisco Wideband SIP FAIL LED

LED Label	Color	State	Meaning
FAIL	Amber	On	The SIP has encountered an error, or the SIP software functionality is being verified.
		Off	The SIP is powered on, verified for basic functionality, and operating normally.

Cisco Wideband SIP Physical Specifications

The Cisco Wideband SIP physical specifications are shown in [Table 2-5](#).

Table 2-5 Cisco Wideband SIP Physical Specifications

Description	Specifications
Physical dimensions	The SIP occupies two full-height slots (either 1/0 and 2/0, or 3/0 and 4/0) and can be operated in a Cisco uBR10012 router.
Shipping weight	10 lb (4.54 kg)
Operating temperature	41°F to 104°F (5°C to 40°C) Short-term operating temperature is limited to 131°F (55°C) in compliance with Bellcore GR.
Storage temperature	-4°F to 149°F (-20°C to 65°C)
Relative humidity	Operating—nominal: 10% to 85% Operating—short term: 10% to 90% Storage: 5% to 95%

Identifying the Location of Cisco Wideband SIPs and SPAs

This section describes how to specify the physical locations of a Cisco Wideband SIP and Wideband SPA on a Cisco uBR10012 router within the Cisco IOS command-line interface (CLI) to configure or monitor these devices.

Specifying the Location for the Cisco Wideband SIP

In Cisco IOS commands, the Cisco Wideband SIP is designated by its location on a Cisco uBR10012 router. The location is in the form:

- *slot/subslot* (for Cisco IOS Releases 12.2(33)SCA and 12.3BC)
- *slot* or *slot/subslot* (for Cisco IOS Release 12.2(33)SCB and later)

On a Cisco uBR10012 router, the Cisco Wideband SIP occupies two full-height line card slots: either slots 1/0 and 2/0, or slots 3/0 and 4/0. On the Cisco IOS CLI, the location of the Cisco Wideband SIP is specified as follows:

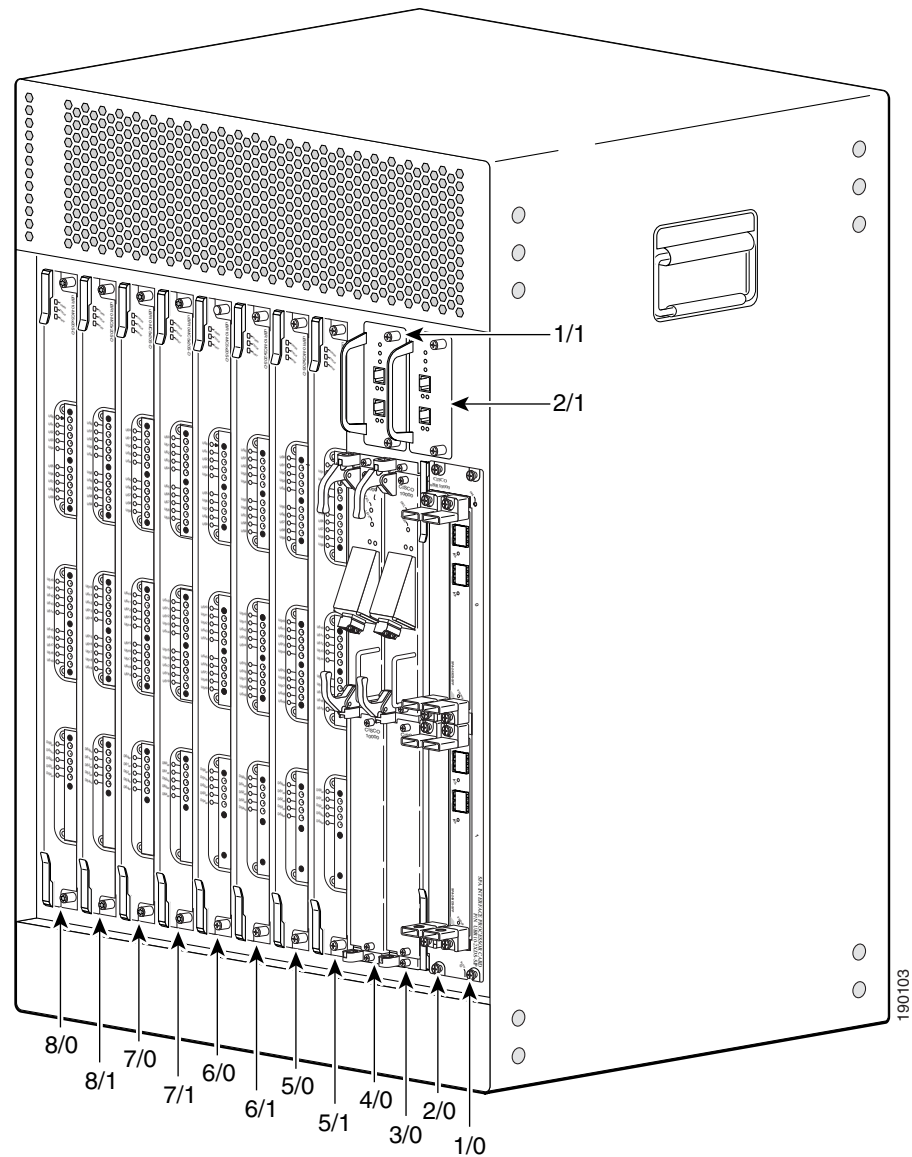
- If the Cisco Wideband SIP occupies slots 1/0 and 2/0, the location for the Cisco IOS CLI is specified as *slot/subslot 1/0*.
- If the Cisco Wideband SIP occupies slots 3/0 and 4/0, the location for the Cisco IOS CLI is specified as *slot/subslot 3/0*.

**Note**

When the Cisco uBR10012 router is used as a wideband CMTS, Half-Height Gigabit Ethernet (HHGE) line cards and the associated slot splitters must be installed in slot 3 or slot 4. Therefore, the Cisco Wideband SIP is installed in slots 1/0 and 2/0.

Figure 2-2 shows the slot numbering on the Cisco uBR10012 router.

Figure 2-2 Cisco uBR10012 Router Slot Numbering



Some Cisco IOS commands, such as **show diag**, allow you to display information about the Wideband SIP. These commands require you to specify the chassis location for the SIP that you want information about. For example, to display status and information about the Cisco Wideband SIP installed in *slot/bay 1/0*, enter the following command:

```
Router# show diag 1/0
```

Specifying the Location for the Cisco Wideband SPA

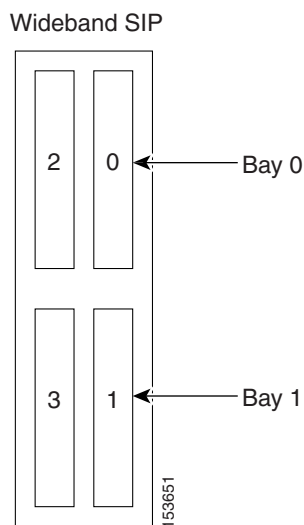
In Cisco IOS commands, the Cisco Wideband SPA is designated by its location in the Cisco uBR10012 chassis and in the Cisco Wideband SIP as follows:

slot/subslot/bay (for Cisco IOS Releases 12.2(33)SCA and 12.3BC)

slot/bay/port (for Cisco IOS Release 12.2(33)SCB and later)

A *bay* number identifies the location of each Wideband SPA in the Cisco Wideband SIP. Bay numbers in the Cisco Wideband SIP are shown in [Figure 2-3](#). The Cisco Wideband SPA can be installed in bay 0 or bay 1. Therefore, on a Cisco uBR10012 router when the Cisco Wideband SIP is installed in slot/subslot 1/0, the slot/subslot/bay locations for the two Cisco Wideband SPAs are 1/0/0 and 1/0/1.

Figure 2-3 Cisco Wideband SPA Bay Numbering in the Cisco Wideband SIP



Each Cisco Wideband SPA has two Gigabit Ethernet ports: one active and one redundant. The active port is used to send downstream traffic to one or more edge QAM devices. The individual Gigabit Ethernet ports on the Cisco Wideband SPA *are not specified* on the Cisco IOS CLI.

Some Cisco IOS commands, such as **show diag**, allow you to display information about the Cisco Wideband SPA. These commands require you to specify the chassis location for the SPA that you want information about. For example, to display status and information about the Cisco Wideband SPA installed in slot/subslot/bay 1/0/1, enter the following command:

```
Router# show diag 1/0/1
```

Cisco SIP-600 Overview

The Cisco SIP-600 serves as the host card for up to six SPAs. For details on the supported SPAs, see the “Supported SPAs for the Cisco SIP-600” section on page 2-9.

The following sections describe the SIP-600:

- [SIP-600 Processor, page 2-7](#)
- [SIP-600 LED, page 2-7](#)
- [SIP-600 Physical Specifications, page 2-9](#)
- [Supported SPAs for the Cisco SIP-600, page 2-9](#)
- [Identifying the Location of the Cisco SIP-600, page 2-9](#)
- [Cisco SIP-600 Restrictions, page 2-10](#)
- [WAN Slot Restrictions, page 2-10](#)

SIP-600 Processor

[Table 2-6](#) describes the processor on a SIP-600.

Table 2-6 **SIP-600 Processor**

Type	Speed	Description
CPU	800 megahertz (MHz) internal operating frequency	Power QUICC III integrated communications processor

SIP-600 LED

The SIP-600 has one LED, as shown in [Figure 2-4](#).

SIP-600 Physical Specifications

Table 2-8 lists the SIP-600 physical specifications.

Table 2-8 SIP-600 Physical Specifications

Description	Specifications
Physical dimensions (H x W x D)	16 x 2.44 x 10.4 in. (41.5 x 6.32 x 27 cm) The SIP occupies two physical slots in a chassis.
Weight	10 lb (4.6 kg)
Operating temperature	41 to 104°F (5 to 40°C)
Relative humidity	Operating—10 to 90 percent, noncondensing Storage—5 to 95%
Storage temperature	–4 to 149°F (–20 to 65°C)

Supported SPAs for the Cisco SIP-600

Table 2-9 lists the SPAs supported for the Cisco SIP-600.

Table 2-9 SIP-600 Physical Specifications

SIP	Supported SPAs	Minimum Cisco IOS Software
Cisco SIP-600	<ul style="list-style-type: none"> 5-Port Gigabit Ethernet SPA (SPA-5X1GE-V2) 1-Port 10-Gigabit Ethernet SPA (SPA-1X10GE-L-V2, supported only with PRE4 configuration) Cisco Wideband SPA 	12.2(33)SCB

Identifying the Location of the Cisco SIP-600

This section describes how to specify the physical locations for the Cisco SIP-600 and its SPAs on the Cisco uBR10012 router within the command-line interface (CLI) to configure or monitor these devices.

Specifying the Slot Location for the Cisco SIP-600

The Cisco SIP-600 is a full-height line card that occupies two physical slots in a Cisco uBR10012 router. Each chassis supports a maximum of two SIPs that can be inserted in the following slots:

- SIP slot 1
- SIP slot 3

Some commands allow you to display information about a SIP and its SPAs, such as **show inventory** and **show diag**. For example, to display information about the SIP installed in chassis slot 1 and its SPAs, use the **show diag** command.

Specifying the SPA Location in the Cisco SIP-600

The Cisco SIP-600 supports four bays (subslots) for the installation of SPAs. The SPA bays are numbered from 0 to 3 on a Cisco uBR10012 router. The number for each SPA bay is indicated by a small numeric label on the SIP faceplate.

SPAs on a Cisco uBR10012 router use an addressing format that specifies the physical location of the SIP, SPA, and interface in the format *slot/bay/port*, where:

- *slot*—Specifies the chassis slot number where the SIP is installed.
- *bay*—Specifies the secondary slot (subslot) of the SIP where the SPA is installed.
- *port*—Specifies the interface number that you want to select on the SPA.

To display information about a SPA, use the **show diag**, **show hw-module subslot**, and **show inventory** commands. For more information about SPA commands, see the *Cisco uBR10012 Universal Broadband Router SIP and SPA Software Configuration Guide* at the following URL:

http://www.cisco.com/en/US/docs/interfaces_modules/shared_port_adapters/configuration/ubr10012/1.2.3_23_bc/sipsp_d3.html

Cisco SIP-600 Restrictions

As of Cisco IOS Release 12.2(33)SCB, the Cisco SIP-600 has the following restrictions:

- A Cisco Wideband SIP and a Cisco SIP-600 cannot co-exist on a Cisco uBR10012 router.
- The Cisco SIP-600 can be configured in slots 1 and 3 only.
- For a PRE4 setup, all SPAs share a 11.2 Gbps ironbus connection.
- A PRE2 setup allows the typical ironbus connection in which bays 0 and 2 share a 2.8 Gbps ironbus connection and bays 1 and 3 also share a 2.8 Gbps ironbus connection.

WAN Slot Restrictions

Slots 1, 2, 3, and 4 in the Cisco uBR10012 router are referred to as WAN slots. These slots are capable of accepting various combinations of the Cisco SIP-600, Cisco Wideband SIP, and Half-Height Gigabit Ethernet line cards (HHGEs). In addition, the Cisco SIP-600 accepts various combinations of the Cisco Wideband SPA, 5-Port Gigabit Ethernet SPA, and 1-Port 10-Gigabit Ethernet SPA.

Following are the restrictions for the WAN slots:

- Limit of six Cisco Wideband SPAs per chassis.
- The Cisco Wideband SIP and Cisco SIP-600 cannot co-exist on a Cisco uBR10012 router.
- The Cisco SIP-600 supports only the following SPAs:
 - Cisco Wideband SPA
 - 5-Port Gigabit Ethernet SPA
 - 1-Port 10-Gigabit Ethernet SPA (PRE4 only)
- The Cisco Wideband SIP supports only the Cisco Wideband SPA.
- Half-Height Gigabit Ethernet line cards cannot be inserted in slot 1 or 2 because full reset capabilities are not available.
- With a PRE2 setup, a Gigabit Ethernet SPA cannot be horizontally adjacent to the Cisco Wideband SPA.
- For a PRE2 configuration with the 5-Port Gigabit Ethernet SPA, total bandwidth of GE ports per SPA should be limited to 2 Gbps. If more than two GE ports are enabled, total inbound or outbound aggregate bandwidth should be kept at 2 Gbps. If the bandwidth exceeds 2 Gbps, the support for Quality of Service (QoS) functionality cannot be guaranteed.

Supported WAN Slot Configurations

This section provides details about the supported PRE2 and PRE4 WAN slot configurations and contains the following topics:

- [Supported PRE2 WAN Slot Configurations, page 2-11](#)
- [Supported PRE4 WAN Slot Configurations, page 2-13](#)

Supported PRE2 WAN Slot Configurations

This section provides details about the possible WAN slot configurations supported on a Cisco uBR 10012 router with a PRE2 setup. Each table lists the SIP or half-height line card type that can be inserted in each pair of WAN slots (1 and 2, or 3 and 4). In the case of a SIP, the table also lists the combination of SPAs that can be placed in the SIP.

**Note**

Cisco SIP-600 bays 0 and 2, and 1 and 3 share ironbus resources.

Table 2-10 lists details of the WAN slot configuration with the Cisco Wideband SIP and an HHGE.

Table 2-10 PRE2 Configuration Sample A

Slots	SIP	SPAs/HHGE cards	Maximum Cards Supported
1 and 2	Cisco Wideband SIP	<ul style="list-style-type: none"> • Cisco Wideband SPA • Cisco Wideband SPA (optional) 	Up to two Cisco Wideband SPAs.
3 and 4	Half-Height	<ul style="list-style-type: none"> • HHGE • HHGE (optional) • HHGE (optional) • HHGE (optional) 	Up to four HHGEs.

Table 2-11 lists details of the WAN slot configuration with the Cisco SIP-600 and an HHGE.

Table 2-11 PRE2 Configuration Sample B

Slots	SIP	SPAs/HHGE cards	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to four Cisco Wideband SPAs.
3 and 4	Half-Height	<ul style="list-style-type: none"> • HHGE • HHGE (optional) • HHGE (optional) • HHGE (optional) 	Up to four HHGEs.

Table 2-12 lists details of the WAN slot configuration with the Cisco SIP-600 in the WAN slot pair 1 and 2.

Table 2-12 PRE2 Configuration Sample C

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> • 5-Port Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) 	Up to two Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-13 lists details of the WAN slot configuration with the Cisco SIP-600 in the WAN slot pair 3 and 4.

Table 2-13 PRE2 Configuration Sample D

Slots	SIP	SPAs	Maximum Cards Supported
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> 5-Port Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) 	Up to two Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-14 lists details of the WAN slot configuration with two SIPs.

Table 2-14 PRE2 Configuration Sample E

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> 5-Port Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) 	Up to two Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> 5-Port Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) 	Up to two Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Supported PRE4 WAN Slot Configurations

This section provides details about the possible WAN slot configurations supported on a Cisco uBR 10012 router with a PRE4 setup.



Note

In the case of a PRE4, all Cisco SIP-600 bays share one ironbus resource.

Table 2-15 lists details of the WAN slot configuration for the Cisco SIP-600 in the WAN slot pair 1 and 2 with the 5-Port Gigabit Ethernet SPA and the Cisco Wideband SPA.

Table 2-15 PRE4 Configuration Sample A

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> • 5-Port Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-16 lists details of the WAN slot configuration for the Cisco SIP-600 in the WAN slot pair 1 and 2 with the 1-Port 10-Gigabit Ethernet SPA and the Cisco Wideband SPA.

Table 2-16 PRE4 Configuration Sample B

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> • 1-Port 10-Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 1-Port 10-Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-17 lists details of the WAN slot configuration for the Cisco SIP-600 in the WAN slot pair 3 and 4 with the 5-Port Gigabit Ethernet SPA and the Cisco Wideband SPA.

Table 2-17 PRE4 Configuration Sample C

Slots	SIP	SPAs	Maximum Cards Supported
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> • 5-Port Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-18 lists details of the WAN slot configuration for the Cisco SIP-600 in the WAN slot pair 3 and 4 with the 1-Port 10-Gigabit Ethernet SPA and Cisco Wideband SPA.

Table 2-18 PRE4 Configuration Sample D

Slots	SIP	SPAs	Maximum Cards Supported
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> • 1-Port 10-Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 1-Port 10-Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-19 lists details of the WAN slot configuration using the 5-Port Gigabit Ethernet SPA and the Cisco Wideband SPA in both slot pairs.

Table 2-19 PRE4 Configuration Sample E

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> • 5-Port Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> • 5-Port Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-20 lists details of the WAN slot configuration using the 5-Port Gigabit Ethernet SPA and the Cisco Wideband SPA in the slot pair 1 and 2, and the 1-Port 10-Gigabit Ethernet SPA and the Cisco Wideband SPA in the slot pair 3 and 4.

Table 2-20 PRE4 Configuration Sample F

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> • 5-Port Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> • 1-Port 10-Gigabit Ethernet SPA • Cisco Wideband SPA • Cisco Wideband SPA (optional) • Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 1-Port 10-Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-21 lists details of the WAN slot configuration using the 1-Port 10-Gigabit Ethernet SPA and Cisco Wideband SPAs in the slot pair 1 and 2, and the 5-Port Gigabit Ethernet SPA and Cisco Wideband SPAs in the slot pair 3 and 4.

Table 2-21 PRE4 Configuration Sample G

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> 1-Port 10-Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 1-Port 10-Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> 5-Port Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 5-Port Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Table 2-22 lists details of the WAN slot configuration using the 1-Port 10-Gigabit Ethernet SPA and Cisco Wideband SPA in both slot pairs.

Table 2-22 PRE4 Configuration Sample H

Slots	SIP	SPAs	Maximum Cards Supported
1 and 2	Cisco SIP-600	<ul style="list-style-type: none"> 1-Port 10-Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 1-Port 10-Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.
3 and 4	Cisco SIP-600	<ul style="list-style-type: none"> 1-Port 10-Gigabit Ethernet SPA Cisco Wideband SPA Cisco Wideband SPA (optional) Cisco Wideband SPA (optional) 	Up to three Cisco Wideband SPAs. Note The 1-Port 10-Gigabit Ethernet SPA must be inserted in bay 0, and the Cisco Wideband SPAs in bays 1 and 3.

Upgrading to the Cisco SIP-600

An automated upgrade from the Cisco Wideband SIP to the Cisco SIP-600 is not supported in Cisco IOS Release 12.2(33)SCB. This section explains how to perform a manual upgrade from the Cisco Wideband SIP to the Cisco SIP-600.

To perform the upgrade, follow these steps:

Step 1 Load the Cisco IOS Release 12.2(33)SCB image or later on a Cisco uBR10012 router.



Note

Skip this step if the PRE2 or PRE4 is already running Cisco IOS Release 12.2(33)SCB or later. Both the configuration and CLI commands in Cisco IOS Release 12.2(33)SCB use a new indexing method. When a Cisco IOS Release 12.2(33)SCB or a later image is installed on the PRE, the PRE converts the Cisco Wideband SIP configuration commands to use the new indexing method. For details on the new indexing method, see the [“SIP and SPA Addressing Format” section on page 2-2](#).

Step 2 Copy the running configuration file to the flash drive or the TFTP server.

If a TFTP server is available, use the **copy running-config tftp** command. If a TFTP server is not available, copy the configuration file to the PRE flash drive and transport the configuration file to a system that can be used to edit the file.

Step 3 Open the configuration file in a text editor and search for the string “2jacket-1” and replace it with “4jacket-1.”

After replacing this string, the line should read “card 1 4jacket-1” where “1” is the slot location of the Cisco SIP-600.



Note

If you are using a PRE2 and do not plan to upgrade to a PRE4, then continue with Step 4, Step 5, and Step 6, as additional changes must be made to the configuration file for a PRE2. If you plan to use a PRE4 after upgrading to the Cisco SIP-600, skip Steps 4 through 6, and resume with Step 7. The Cisco Wideband SPA cannot be adjacent to a WAN SPA when the Cisco SIP-600 is used with a PRE2. Therefore, when Cisco Wideband SPAs are moved from the Cisco Wideband SIP to the Cisco SIP-600, they must be placed in bays that differ from the original Cisco Wideband SIP configuration. The recommended bays for the Cisco SIP-600 are 1 and 3. So you need to search for all configurations related to bay 0 in the configuration file and change it to bay 3. The configuration for bay 1 remains intact.

Step 4 Search for all configurations related to bay 0 in the configuration file and change it to bay 3 as shown below:

- a. Change “card 1/0 24rfchannel-spa-1” to “card 1/3 24rfchannel-spa-1.”
- b. Change “controller modular-cable 1/0/0” to “controller modular-cable 1/3/0.”

Step 5 Search for every wideband interface related to bay 0 and change bay 0 to bay 3.

Search for the string “interface wideband-cable1/0/0” and change all instances of it to “interface wideband-cable1/3/0.” For example, a line such as “interface wideband-cable1/0/0:0” changes to “interface wideband-cable1/3/0:0.”

Step 6 Search for the string “downstream modular-cable 1/0/0” and change all instances of it to “downstream modular-cable 1/3/0.”

Step 7 Once the configuration file has been edited for use with the Cisco SIP-600, copy the configuration file back to the PRE. If a TFTP server is available, use the **copy tftp ubr10k-config startup-config** command.

If a TFTP server is not available, copy the configuration file back to the PRE flash drive, and then transport the file to the PRE.

Step 8 Remove Cisco Wideband SPAs from the Cisco Wideband SIP. Then remove the Cisco Wideband SIP.

**Note**

Make a note of which cable is connected to which Cisco Wideband SPA. Later, the cable connections must be restored to the correct bay.

Step 9 Insert the Cisco SIP-600 in the same slot from which the Cisco Wideband SIP was removed. If the Cisco Wideband SIP was in slot 1/2, insert the Cisco SIP-600 in slot 1/2.

Step 10 If a PRE 4 is in use or a PRE 4 upgrade is planned immediately after the Cisco SIP-600 upgrade, then insert Cisco Wideband SPAs in bays 0 and 1 of the Cisco SIP-600.

Once inserted, restore the cable connections. Attach the cable from Cisco Wideband SIP bay 0 to the Cisco Wideband SPA in bay 0 of the Cisco SIP-600. Attach the cable from Cisco Wideband SIP bay 1 to the Cisco Wideband SPA in bay 1 of the Cisco SIP-600.

Step 11 If a PRE 2 is in use, insert Cisco Wideband SPAs in bays 1 and 3 of the Cisco SIP-600. Once inserted, restore the cable connections. Attach the cable from Cisco Wideband SIP bay 0 to the Cisco Wideband SPA in bay 3 of the Cisco SIP-600. Attach the cable from Cisco Wideband SIP bay 1 to the Cisco Wideband SPA in bay 1 of the Cisco SIP-600.

Step 12 To activate the configuration file, reload the PRE. Once the PRE reboots and initialization is complete, the Cisco Wideband SPA interfaces return to the same state they were in with the Cisco Wideband SIP.