

M20 SSB Installation Instructions

Part No. 530-001668-01
Revision 2
31 March 2000

This document describes how to install a System and Switch Board (SSB) into an M20 Internet Backbone Router.

For additional installation and configuration information, refer to the following documentation:

- *M20 Internet Backbone Router Hardware Installation Guide*
- *JUNOS Internet Software Configuration Guide*
- *JUNOS Internet Software Command Reference*

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SSB Description

The SSBs occupy the top slots of the card cage, installing into the midplane from the front of the chassis (see Figure 1). Each SSB houses an Internet Processor ASIC and two Distributed Buffer Manager ASICs. The SSB communicates with the Routing Engine using a dedicated 100-Mbps Fast Ethernet link that transfers routing table data from the Routing Engine to the forwarding table in the Internet Processor ASIC. The link is also used to transfer from the SSB to the Routing Engine routing link-state updates and other packets destined for the router that have been received through the router interfaces. Figure 2 shows the SSB.

An M20 router can have up to two SSBs for redundancy. If two SSBs are installed, one acts as master and the other acts as backup. If the master SSB fails or is removed, the backup restarts and becomes the master SSB.

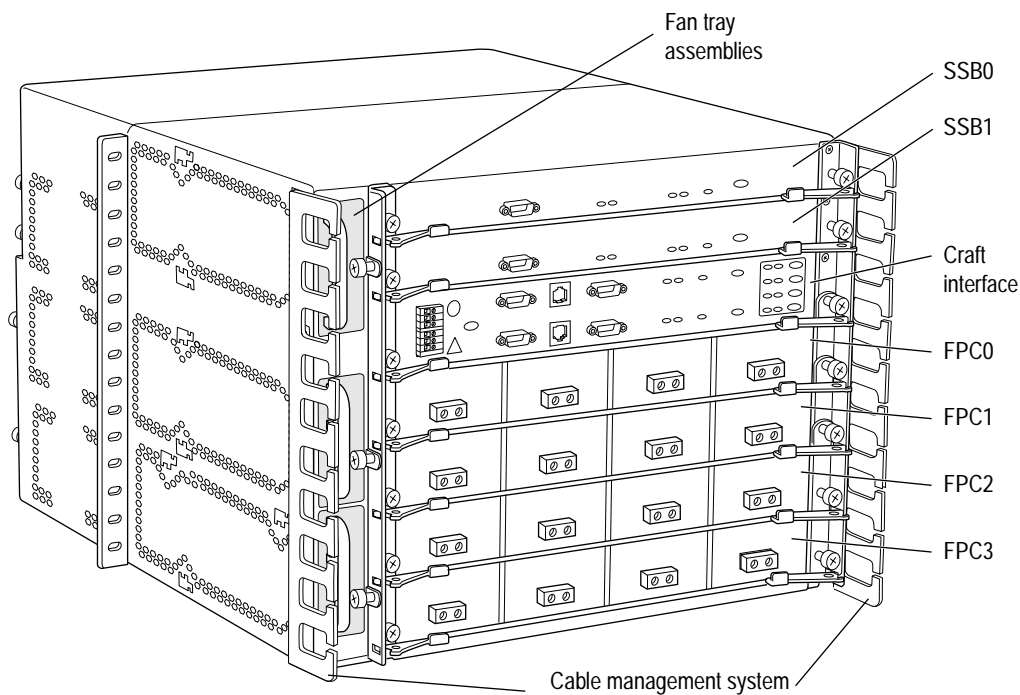
The following SSB functions cannot occur while both SSBs are removed from the router:

- Route lookups
- Monitoring of system components
- Transfer of exception and control packets
- FPC resets

SSBs are hot-insertable and hot-removable. You can remove and replace an SSB without powering down the router. You can remove both SSBs, but doing so interrupts packet forwarding and the Routing Engine responds by sending alarms through the Ethernet channel to the management console. When an SSB is replaced, it is rebooted by flash EEPROM.

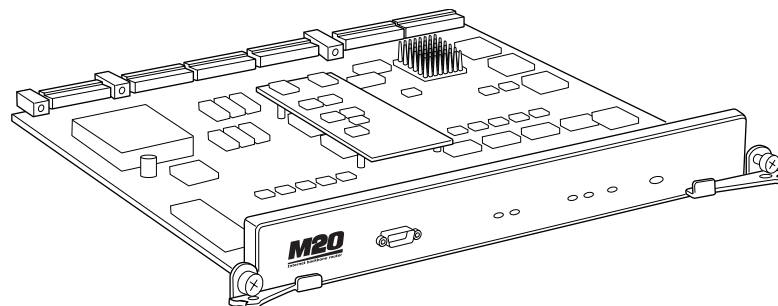
The M20 can also have two Routing Engines for redundancy. When you remove both Routing Engines, the master SSB enters a warm shutdown mode and continues its forwarding process for a limited time using a frozen forwarding table. The time limit is determined by a timer in the SSB. If you replace the Routing Engine during the warm shutdown period, the SSB unfreezes its forwarding tables and resumes normal functioning. Otherwise, the SSB shuts itself down.

Figure 1: Front of Chassis



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Figure 2: System and Switch Board



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Tools and Parts Required

To replace an SSB, you need the following tools and parts:

- Phillips (+) screwdrivers, numbers 1 and 2
- Electrostatic bags, one for each SSB removed
- ESD grounding wrist strap

Remove the Existing SSB

To remove the SSB, follow this procedure (see Figure 3):

1. Attach an ESD wrist strap to your bare wrist and connect the wrist strap to one of the two ESD points on the chassis.
2. Locate the SSB offline switch on the craft interface (see Figure 1) and press and hold down the switch for five seconds to take the SSB offline.

**Caution**

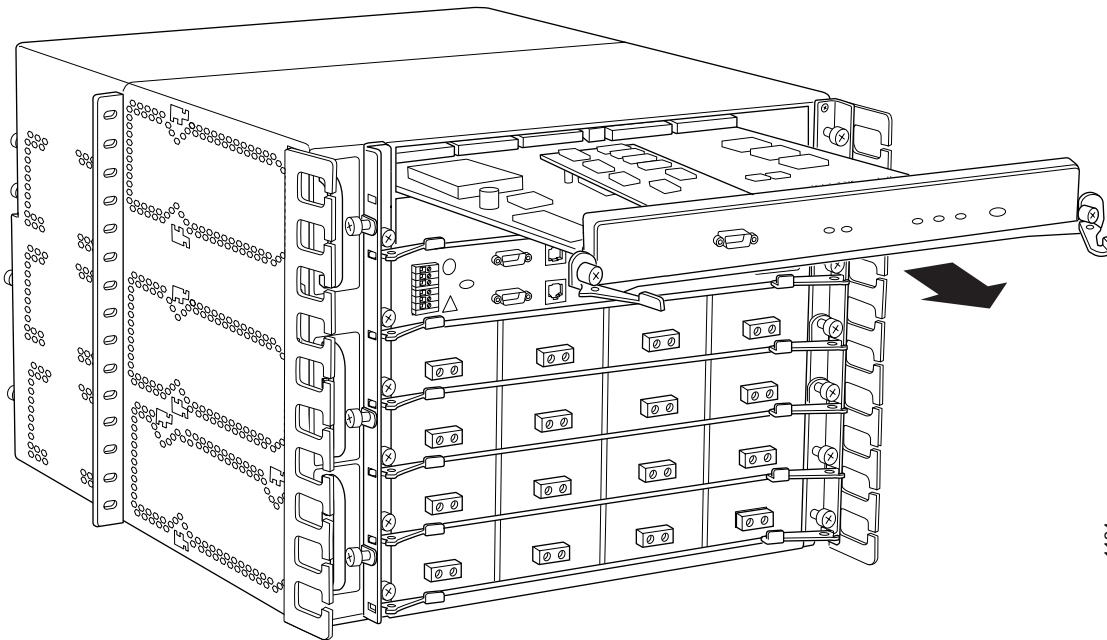
If you do not take the SSB offline before removing it, the router might lose data.

**Note**

If you have redundant SSBs, when you take the master SSB offline the backup SSB will take over as master.

3. Using the screwdriver, unscrew the thumbscrews on the left and right sides of the card carrier to unseat the SSB from the midplane.
4. Flip the ends of the two extractor clips, which are adjacent to the thumbscrews, towards the outside edges of the router.
5. Grasp both sides of the card carrier and slide the SSB about three-quarters of the way out of the router.
6. Place one of your hands underneath the SSB to support it, and slide it completely out of the chassis.

Figure 3: Remove the SSB



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Install the Replacement SSB

To install the replacement SSB, follow this procedure (see Figure 4):

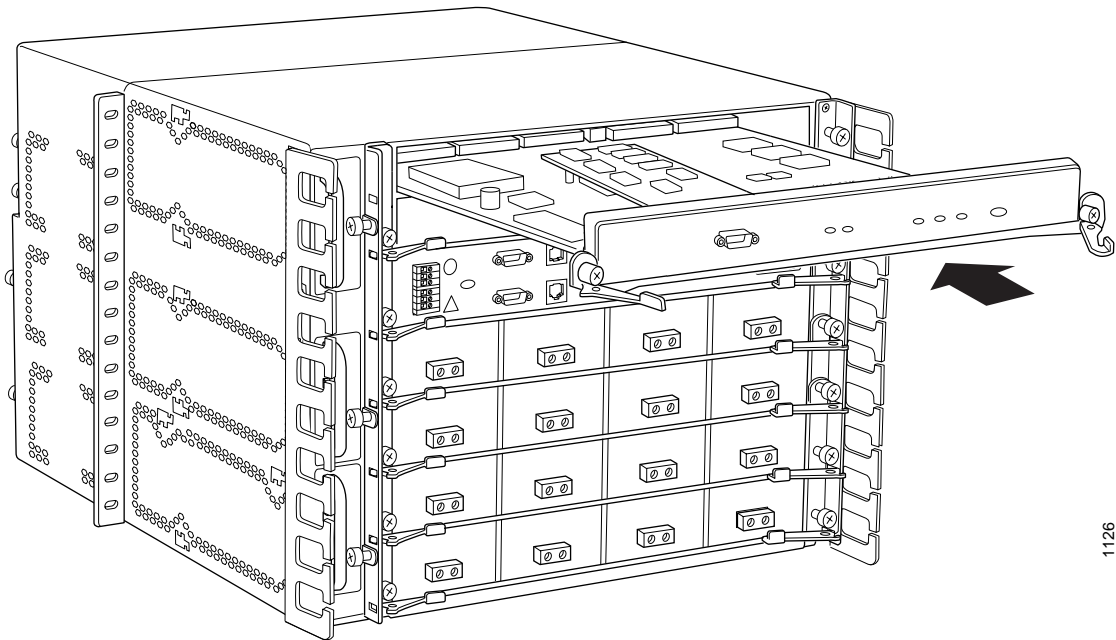
1. Attach an ESD wrist strap to your bare wrist and connect the wrist strap to one of the two ESD points on the chassis.
2. Grasp the front of the SSB card carrier with both hands and align the rear of the card carrier with the slide guides on the chassis.
3. Slide the SSB card carrier all the way into the card cage until it contacts the midplane.
4. Flip the extractor clips, located on the left and right sides of the card carrier, towards each other to lodge the SSB in place.
5. Tighten the thumbscrews on the left and right sides of the card carrier to seat the SSB.



Note

To seat the SSB properly, be sure to tighten the screws adequately. If the SSB is not seated properly, it will not function.

Figure 4: Reinstall the SSB



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Verify That the SSB Is Installed Correctly

When the SSB is installed into a running router, it is booted by flash EEPROM.

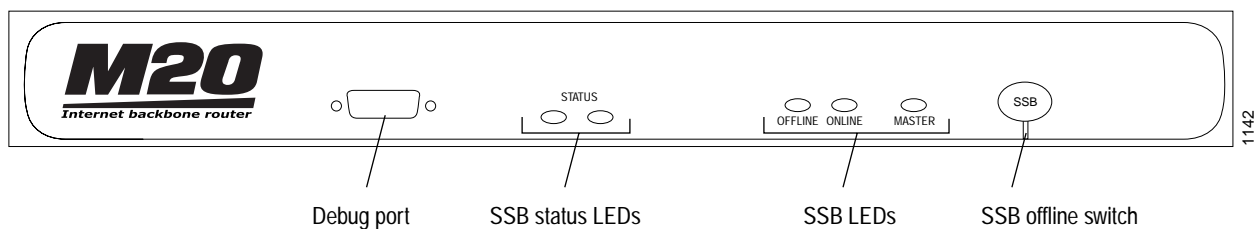
To verify that the SSB is functioning normally, check the LEDs on its faceplate (see Figure 5 and Table 1).

To check the status of the SSB, use the following CLI command:

```
user@host> show chassis ssb
```

For more information about using the CLI, see the JUNOS Internet software manuals.

Figure 5: SSB LEDs



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Table 1: SSB LEDs

Color	Label	State	Description
Amber	OFFLINE	On steadily	SSB is offline.
Green	OFFLINE	On steadily	SSB processor is running.
Blue	MASTER	On steadily	SSB is master.
Green	STATUS (left)	Blinking	SSB processor is running. Normally, the blinking is faint and becomes bright only when the SSB is processing many exceptions.
Green	STATUS (right)	Flashing	I/O interrupts are occurring.

Contact Juniper Networks

For technical support, contact Juniper Networks at support@juniper.net. If you are reporting a software problem, please issue the following command from the CLI before contacting support:

```
user@host> request support information | save filename
```

For documentation issues, contact Juniper Networks at tech-doc@juniper.net.

To provide a core file to Juniper Networks for analysis, gzip the file, rename the file to include your company name, copy it to [ftp.juniper.net:pub/incoming](ftp://ftp.juniper.net/pub/incoming), and then send the filename, along with software version information (the output of the `show version` command) and the configuration, to support@juniper.net.

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