

Chapter 24

Monitoring the SIBs

You monitor the Switch Interface Boards (SIBs) that provide the switching function to the destination Flexible PIC Concentrator (FPC). The SIBs create the switch fabric for the routing platforms, providing up to a total of 640 million packets per second (Mpps) of forwarding. (See Table 78.)

Table 78: Checklist for Monitoring the SIBs

Monitor SIB Tasks	Command or Action
Understanding the SIBs on page 326	
M320 Router, T320 Router, and T640 Routing Node SIB Location on page 328	
M320 Router SIBs on page 329	
T320 Router SIBs on page 329	
T640 Routing Node SIBs on page 329	
Monitoring the SIB Status on page 329	
1. Display the SIB Summary Status on page 330	show chassis sibs
2. Display the SIB LED Status at the Command Line on page 330	show chassis craft-interface
3. Check the SIB LED Status on the Faceplate on page 330	Check the SIB faceplate at the back of the T320 router and the T640 routing node chassis.
4. Display the SIB Environmental Status on page 331	show chassis environment show chassis environment sib slot
Displaying SIB Alarms on page 332	
1. Display Current SIB Alarms on page 332	show chassis alarms
2. Display SIB Error Messages in the System Log File on page 333	show log messages match sib
3. Display SIB Error Messages in the Chassis Daemon Log File on page 333	show log chassisd match sib
Verifying SIB Failure on page 334	
1. Check the SIB Connection on page 334	1. Make sure that the SIB is properly seated in the midplane. 2. Ensure that none of the pins are bent. 3. Check the thumbscrews on the ejector locking tabs.
2. Check the SIB Fuses on page 334	The fuses for the SIBs are located in the rear of the midplane behind the power supply in slot PEMO.

Monitor SIB Tasks	Command or Action
3. Perform an SIB Swap Test on page 336	<ol style="list-style-type: none"> 1. Take the SIB offline. 2. Replace the SIB with one that you know works. 3. Bring the SIB online. 4. Check the SIB status.
Getting SIB Hardware Information on page 337	
1. Display SIB Hardware Information on page 337	show chassis hardware
2. Locate the SIB Serial Number ID Label on page 338	Look on the top left of the SIB component.
Returning the SIB on page 338	Follow the procedure in the appropriate router hardware guide.

Understanding the SIBs

Purpose Inspect the SIBs to ensure that they provide the switching function to the destination FPCs.

What Is an SIB A SIB forwards packets to a destination FPC.

Table 79 shows the SIB characteristics for the M320 router, T320 router, and the T640 routing node.

Table 79: SIB Packet Forwarding Characteristics

Routing Platform	Million Packets per Second (Mpps) Forwarding	Number of SIBs per Chassis	Redundancy
M320	385	4	No
T320	320	3	Yes
T640	640	5	Yes

Figure 134 shows the M320 router SIB component.

Figure 134: M320 Router SIB Component

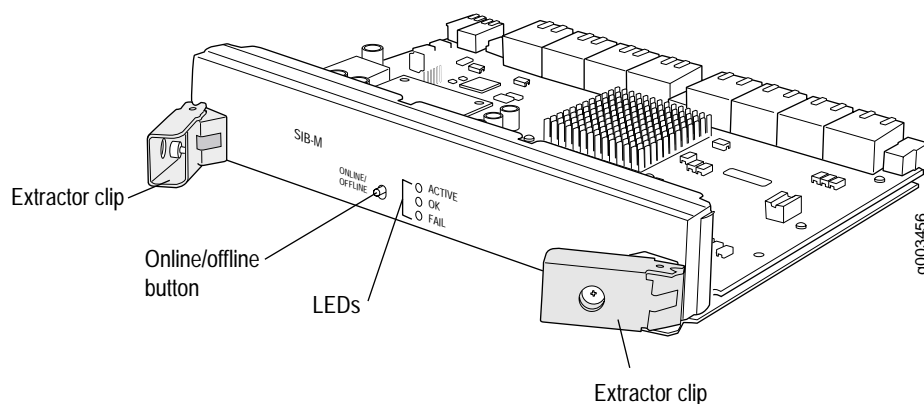


Figure 138 shows the T320 router and T640 routing node SIB component.

Figure 135: T320 Router and T640 Routing Node SIB Component

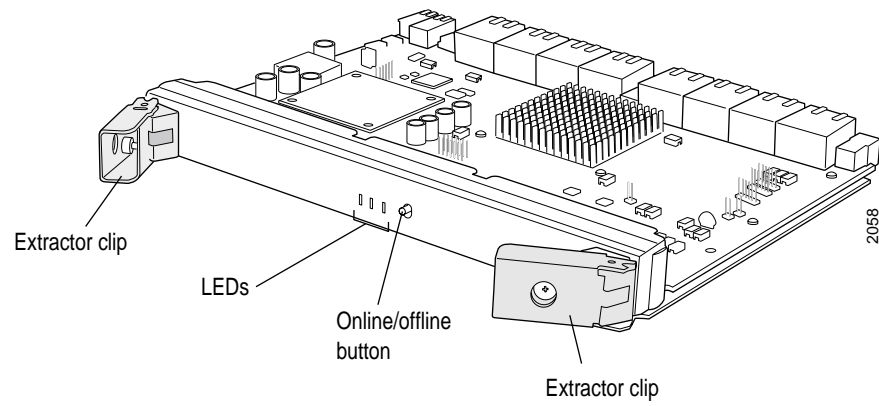
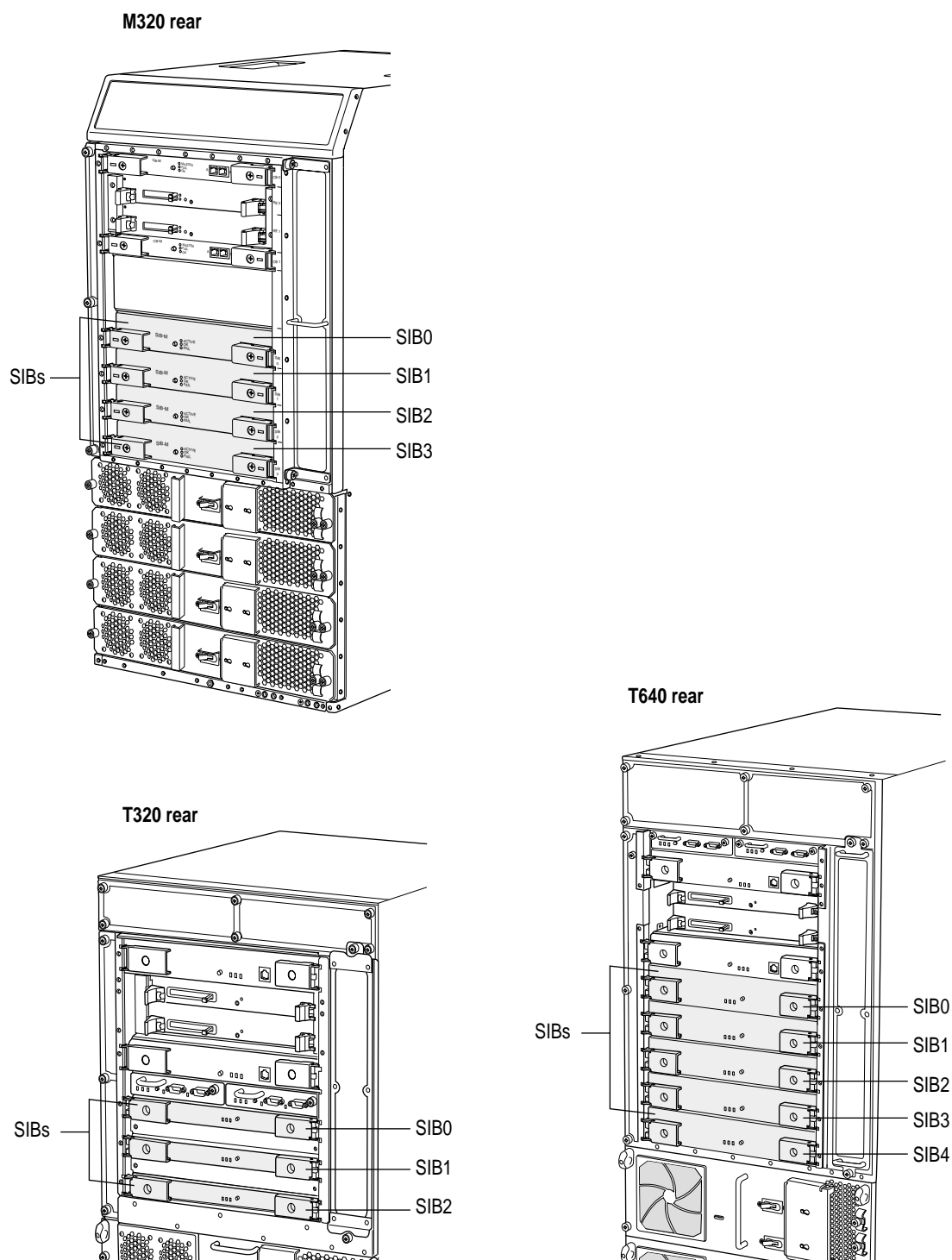


Figure 136 shows the location of the SIBs on the M320 router, T320 router, and the T640 routing node.

Figure 136: M320 Router, T320 Router, and T640 Routing Node SIB Location



M320 Router SIBs

Four SIBs are installed in the M320 router. The SIBs are located at the center rear of the chassis in the slots labeled SIB0 through SIB3 (top to bottom). See Figure 136 on page 328. All four SIBs are active, and there is no backup.

T320 Router SIBs

Three SIBs are installed in the router. The SIBs are located at the center rear of the chassis in the slots labeled SIB0 through SIB2 (see Figure 136 on page 328).

Each FPC has a dedicated ASIC with five high-speed links that connect to the SIBs. Two high-speed links connect to SIB1 and SIB2. One high-speed link connects to SIB0. SIB0 acts as a backup to SIB1 and SIB2. In the event of a complete SIB failure, SIB0 will become active. Because SIB0 has only one high-speed link to each FPC, only three links will remain active. A slight degradation in forwarding capacity may occur. When the failed SIB is replaced, it will become active and SIB0 will revert to backup. The router will regain full forwarding capacity.

T640 Routing Node SIBs

Five SIBs are installed in the routing node. The SIBs are located at the center rear of the chassis in the slots labeled SIB0 through SIB4 (top to bottom). See Figure 136 on page 328.

Each FPC1 and FPC2 has a dedicated ASIC with five high-speed links that connect to the SIBs (one link per SIB). An FPC3 has two dedicated ASICs, and each ASIC has five high-speed links that connect to the SIBs (a total of 10 links). One of the five SIBs—usually SIB4—acts as a backup to the remaining four SIBs. In the event of a SIB failure, the backup SIB becomes active and traffic forwarding continues without any degradation. When the failed SIB is replaced, it becomes the new backup.

Monitoring the SIB Status

Steps To Take To monitor the SIB status, follow these steps:

1. Display the SIB Summary Status on page 330
2. Display the SIB LED Status at the Command Line on page 330
3. Check the SIB LED Status on the Faceplate on page 330
4. Display the SIB Environmental Status on page 331

Step 1: Display the SIB Summary Status

Action To display the SIB summary status, use the following JUNOS software command-line interface (CLI) command:

```
user@host> show chassis sibs
```

Sample Output

```
t640@host> show chassis sibs
Slot State      Uptime
0  Spare
1  Online       4 hours, 5 minutes, 47 seconds
2  Online       4 hours, 5 minutes, 42 seconds
3  Online       4 hours, 5 minutes, 37 seconds
4  Online       4 hours, 5 minutes, 33 seconds
```

What it Means The command output displays the SIB slot number: 0, 1, 2, 3, and 4. The output also displays the operating status of each SIB as Online, Offline, or Empty, and how long each SIB has been online.

Step 2: Display the SIB LED Status at the Command Line

Action To display the SIB LED status, use the following CLI command:

```
user@host> show chassis craft-interface
```

Sample Output

```
t640@host> show chassis craft-interface
[...Output truncated...]
SIB LEDs:
SIB 0 1 2 3 4
-----
Red   . . . . .
Green * * * * *
```

What it Means The command output is for a T640 routing node. Asterisks (*) represent the operating state. The status colors represent the possible SIB operating states: Red (Fail) and Green (OK). All SIBs are functioning normally.

Step 3: Check the SIB LED Status on the Faceplate

Action To check the SIB LED status, remove the component cover and look on the SIB faceplate at the back of the T320 router and the T640 routing node (see Figure 135 on page 327).

Table 80 describes the SIB LED states.

Table 80: SIB LEDs

Label	Color	State	Description
OK	Green	On steadily	SIB is functioning normally.
		Blinking	SIB is starting up.
FAIL	Amber	On steadily	SIB has failed.
ACTIVE	Green	On steadily	SIB is in active mode.

Step 4: Display the SIB Environmental Status

Action To display the SIB environmental information, use the following CLI command:

```
user@host> show chassis environment
```

Sample Output

```
T640@host> show chassis environment
Class Item      Status  Measurement
Temp PEM 0      Absent
  PEM 1         OK     32 degrees C / 89 degrees F
  SCG 0         OK     37 degrees C / 98 degrees F
  SCG 1         Absent
Routing Engine 0 OK     35 degrees C / 95 degrees F
Routing Engine 1 Absent
  CB 0          OK     36 degrees C / 96 degrees F
  SIB 0         OK     44 degrees C / 111 degrees F
  SIB 1         OK     50 degrees C / 122 degrees F
  SIB 2         OK     50 degrees C / 122 degrees F
  SIB 3         OK     50 degrees C / 122 degrees F
  SIB 4         OK     52 degrees C / 125 degrees F
[...Output truncated...]
```

What it Means The command output displays each component installed in the router, including the operating status and temperature.

Alternative Action If there is a problem with the SIB status, you can display more detailed environmental information with the following CLI command:

```
user@host> show chassis environment sib
```

```
user@host> show chassis environment sib
SIB 0 status:
State          Spare
Temperature    44 degrees C / 111 degrees F
Power:
GROUND         0 mV
1.8 V          1807 mV
2.5 V          2478 mV
3.3 V          3308 mV
1.8 V bias     1797 mV
3.3 V bias     3284 mV
5.0 V bias     5018 mV
8.0 V bias     7440 mV
SIB 1 status:
State          Online
Temperature    50 degrees C / 122 degrees F
Power:
GROUND         0 mV
1.8 V          1814 mV
2.5 V          2485 mV
3.3 V          3321 mV
1.8 V bias     1794 mV
3.3 V bias     3313 mV
5.0 V bias     5028 mV
8.0 V bias     7553 mV
SIB 2 status:
[...Output truncated...]
SIB 3 status:
[...Output truncated...]
SIB 4 status:
[...Output truncated...]
```

The command output displays the SIB slot, status, and temperature of the air flowing past the SPP card and the power supply voltages.

You can display the environmental status of a particular SIB with the following CLI command:

```
user@host> show chassis environment sib slot
```

Displaying SIB Alarms

Steps To Take To display SIB alarms and error messages, follow these steps:

1. Display Current SIB Alarms on page 332
2. Display SIB Error Messages in the System Log File on page 333
3. Display SIB Error Messages in the Chassis Daemon Log File on page 333

Step 1: Display Current SIB Alarms

Table 81 lists the SIB alarms that display in the craft interface LCD display and at the CLI command line.

For conditions that trigger SIB alarms, see “T320 Router Chassis Component Alarm Conditions” on page 77 and “T640 Routing Node Chassis Component Alarm Conditions” on page 80.

Table 81: SIB Alarm Messages

Component	LCD Short Version	CLI Long Version
SIB	SIB <i>sib-number</i> Failure	RED ALARM—SIB <i>sib-number</i> Fault
	SIB <i>sib-number</i> Removed	RED ALARM—SIB <i>sib-number</i> Absent
	Spare SIB Failure	YELLOW ALARM—Spare SIB Fault
	Spare SIB Removed	YELLOW ALARM—Spare SIB Absent
	Check SIB	YELLOW ALARM—Check SIB

Action To display the current SIB alarms, use the following CLI command:

```
user@host> show chassis alarms
```

Sample Output

```
user@host> show chassis alarms
1alarms currently active
Alarm time      Class  Description
2004-01-29 18:37:09 PST  Minor  SIB 2 Not Online
```

What it Means The command output displays the alarm date, time, severity level, and description.

Step 2: Display SIB Error Messages in the System Log File

Action To display the SIB error messages in the system log file, use the following CLI command:

```
user@host> show log messages | match sib
```

Sample Output

```
user@host> show log messages | match sib
Jan 29 18:37:07 toto spmb0 CMGSIB: SIB #2 state transition SIB_STATE_ONLINE ->
SIB_STATE_OFFLINE_ACK_WAIT
Jan 29 18:37:09 toto spmb0 CMGSIB: SIB #2 state transition SIB_STATE_OFFLINE_AC
K_WAIT -> SIB_STATE_OFFLINE
Jan 29 18:37:09 toto spmb0 CMGSIB: SIB #0 state transition SIB_STATE_SPARE -> S
IB_STATE_ONLINE_WAIT
```

What it Means The messages system log file records the time the failure or event occurred, the severity level, a code, and a message description. You can also use the `show log messages | match sib` command to see error messages that are generated when an SIB fails or is offline. Use this information to diagnose an SIB problem and to let the Juniper Networks Technical Assistance Center (JTAC) know what error messages were generated and the router events that occurred before and after the problem. For more information about system log messages, see the *JUNOS System Log Messages Reference*.

Step 3: Display SIB Error Messages in the Chassis Daemon Log File

The chassis daemon (`chassisd`) log file keeps track of the state of each chassis component.

Action To display the SIB error messages logged in the chassis daemon log file, use the following CLI command:

```
user@host> show log chassisd | match sib
```

Sample Output

```
user@host> show log chassisd | match sib
Jan 29 18:37:07 CHASSISD_FRU_OFFLINE_NOTICE: Taking SIB 2 offline - Offlined by
cli command
Jan 29 18:37:07 CHASSISD_SNMP_TRAP10: SNMP trap: FRU power off: jnxFruContentsIn
dex 15, jnxFruL1Index 3, jnxFruL2Index 0, jnxFruL3Index 0, jnxFruName SIB 2, jnx
FruType 9, jnxFruSlot 3, jnxFruOfflineReason 7, jnxFruLastPowerOff 1701082, jnxF
ruLastPowerOn 3250
Jan 29 18:37:09 send: yellow alarm set, device SIB 2, reason SIB 2 Not Online
Jan 29 18:37:09 fm_rcv_hsl_start_sib_ack plane case. Checking plane control to
all line cards?
Jan 29 18:37:09 fm_rcv_hsl_start_sib_ack: Awaiting spmb ack for LC#0!
Jan 29 18:37:09 fm_rcv_hsl_start_sib_ack plane case. Checking plane control to
all line cards?
Jan 29 18:37:09 fm_rcv_hsl_start_sib_ack: Awaiting spmb ack for LC#0!
Jan 29 18:37:09 fm_rcv_hsl_start_sib_ack plane case. Checking plane control to
all line cards?
Jan 29 18:37:09 fm_rcv_hsl_start_sib_ack plane case. Sending plane control to a
ll line cards!
```

What It Means The chassisd database provides the date, time, and a component status message. The chassisd database is dynamic. It is initialized at router startup and is updated when components are added or removed. You can search for multiple items in the chassisd log file by using the `| match sib` command to see error messages that are generated when an SIB fails or is offline. Use this information to diagnose an SIB problem and to let JTAC know what error messages were generated and the router events that occurred before and after the problem. For more information about system log messages, see the *JUNOS System Log Messages Reference*.

Verifying SIB Failure

Steps To Take To verify SIB failure, follow these steps:

1. Check the SIB Connection on page 334
2. Check the SIB Fuses on page 334
3. Perform an SIB Swap Test on page 336

Step 1: Check the SIB Connection

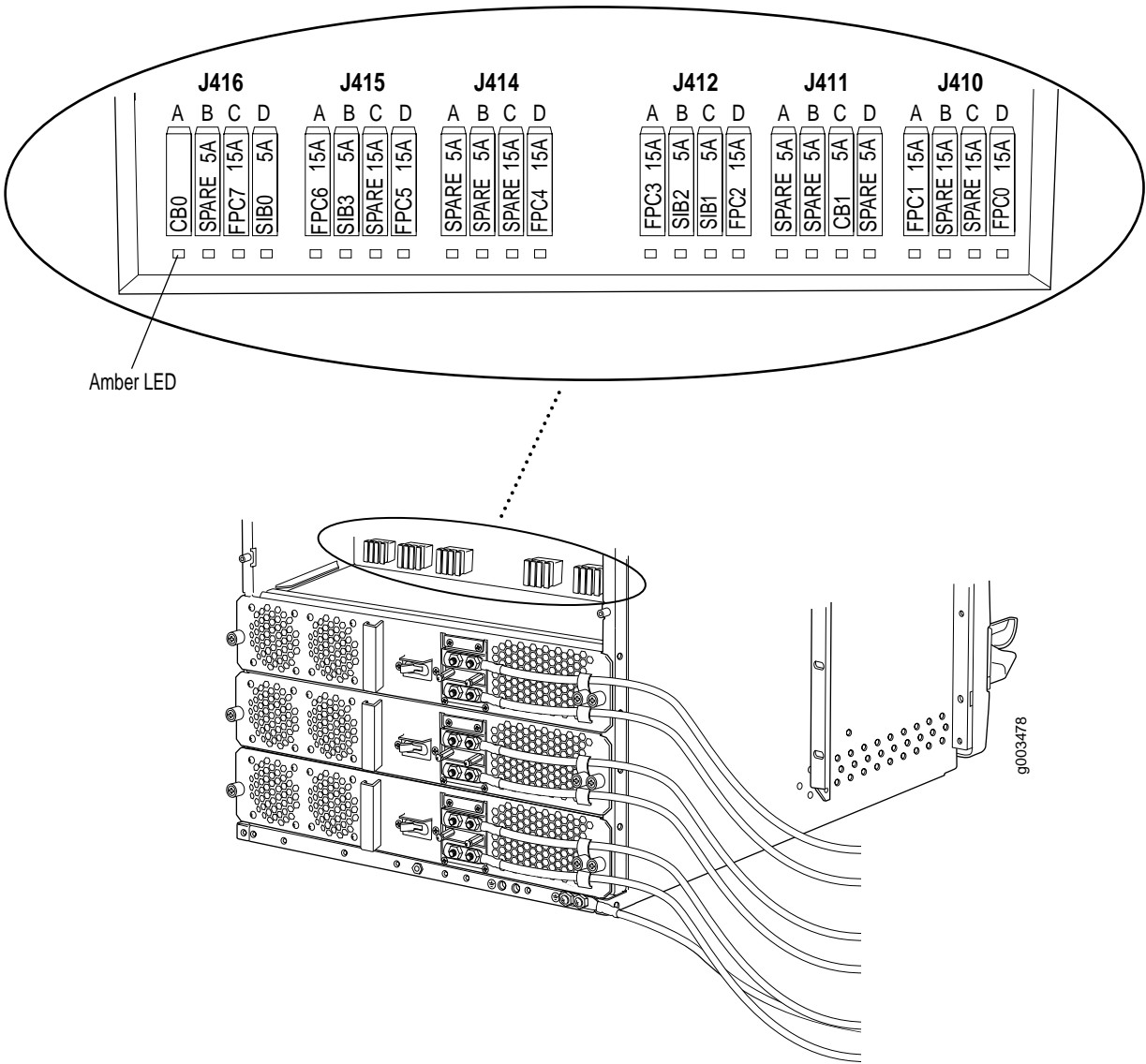
Action To check the SIB connection, make sure that it is properly seated in the midplane. Ensure that none of the pins are bent. Check the thumbscrews on the ejector locking tabs.

Step 2: Check the SIB Fuses

The M320 router requires fuses for the SIBs. The fuses for the Control Board, SIBs, and FPCs are located in the rear of the midplane behind the power supply in slot PEM0. When the fuse for an SIB blows, the SIB stops functioning even though it is installed correctly and the power supplies are providing power to the router.

Figure 137 shows the location of the fuses in the rear of the midplane for the SIBs. (The labels shown in the figure do not appear on the actual fuses—the clear cover on every fuse reads BUSS GMT-X—and might not match the labels on the midplane. Ignore the labels on the midplane.)

Figure 137: Component Fuses in the M320 Router Midplane



Step 3: Perform an SIB Swap Test

SIBs are hot-insertable and hot-removable.



NOTE: Before performing a swap test, always check for bent pins in the midplane and check the SIB for stuck pins in the connector. Pins stuck in the component connector can damage other good slots during a swap test.

Action To perform a swap test on an SIB, follow these steps:

1. Take the SIB offline by doing one of the following

Use the following CLI command:

```
user@host> request chassis sib slot number offline
```

Press the online/offline button on the SIB faceplate. Press and hold down the button until the green ONLINE LED goes out (about 5 seconds).

2. Have ready an antistatic mat placed on a stable, flat surface.
3. Attach an electrostatic discharge (ESD) wrist strap to your bare wrist, and connect the wrist strap to one of the ESD points on the chassis.
4. Loosen the captive screws on the ejector handles on each side of the SIB faceplate.
5. Flip the ejector handles outward to unseat the SIB.
6. Grasp both ejector handles, pull firmly on the SIB, and slide the SIB about three-quarters of the way out of the chassis.
7. Move one of your hands underneath the SIB to support it, and slide it completely out of the chassis.
8. Hold the replacement SIB by placing one hand underneath to support it and the other hand on one of the ejector handles on the SIB faceplate.
9. Carefully align the sides of the SIB with the guides inside the chassis.
10. Slide the unit into the chassis, carefully ensuring that it is correctly aligned.
11. Grasp both ejector handles and press them inwards to seat the SIB.
12. Tighten the captive screws on the ejector handles.
13. Bring the SIB online by doing one of the following

Use the following CLI command:

```
user@host> request chassis sib slot number online
```

Press the offline/online button until the green ONLINE LED lights to bring the SIB online.

Getting SIB Hardware Information

Steps To Take To get the hardware information you need to return a failed SIB, follow these steps:

1. Display SIB Hardware Information on page 337
2. Locate the SIB Serial Number ID Label on page 338

Step 1: Display SIB Hardware Information

Action To display the SIB hardware information, use the following CLI command:

```
user@host> show chassis hardware
```

Sample Output

```
user@host> show chassis hardware
Item      Version Part number Serial number Description
Chassis           19061      T640
[...Output truncated...]
SIB 0      REV 05  710-003980 HF9603      SIB-I8
SIB 1      REV 05  710-003980 HF9577      SIB-I8
SIB 2      REV 05  710-003980 HF9540      SIB-I8
SIB 3      REV 05  710-003980 HF9550      SIB-I8
SIB 4      REV 05  710-003980 HF9592      SIB-I8
```

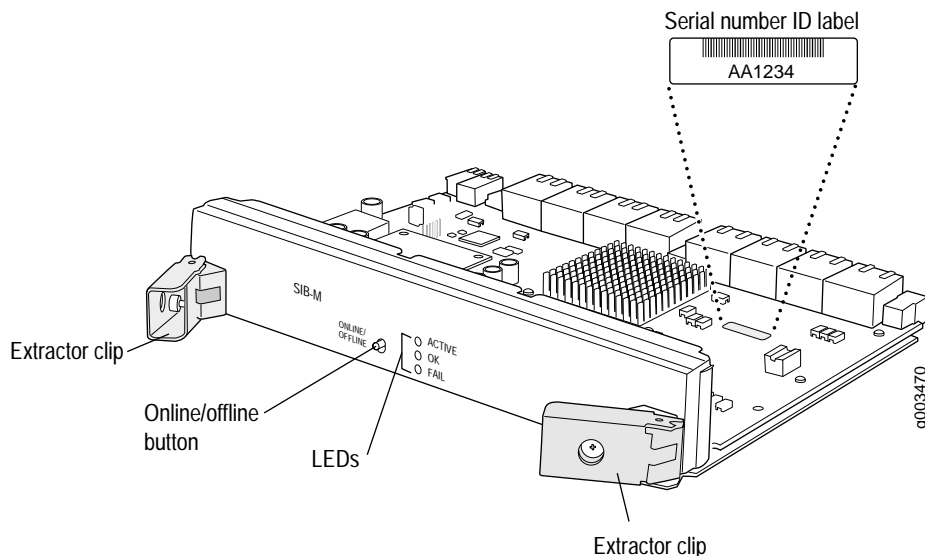
What it Means The command output displays the SIB slot number, revision level, part number, serial number, and description.

Step 2: Locate the SIB Serial Number ID Label

Action To find the SIB serial number ID label locations, do the following:

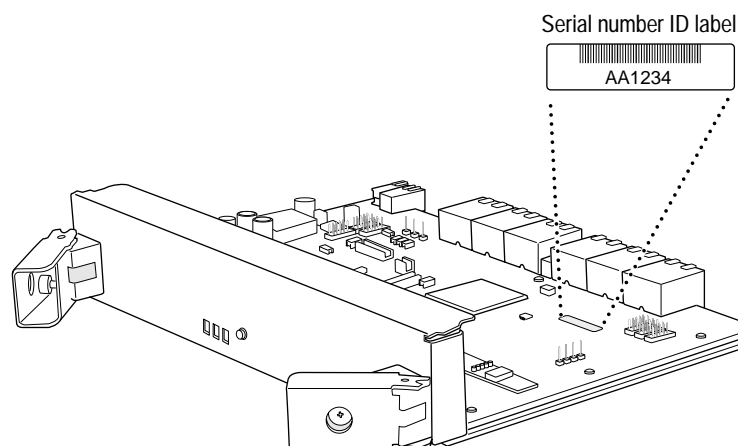
On the M320 router, the SIB serial number label is located on the right side of the top of the component (see Figure 138).

Figure 138: M320 Router SIB Serial Number ID Label location



On the T320 router and the T640 routing node, the SIB serial number ID label is located on the left side of the top panel of the component (see Figure 139).

Figure 139: Serial Number Label on the SIB



Returning the SIB

Action To return a failed SIB, see “Return the Failed Component” on page 86 or the appropriate router hardware guide.