

Chapter 21

Monitoring the Host Subsystem

You monitor and maintain the host subsystem (the Routing Engine and the Control Board) on the routing platform, which provides the routing and system management functions for the router. (See Table 68.)

Table 68: Checklist for Monitoring the Host Subsystem

Monitor Host Subsystem Tasks	Command or Action
Understanding the Host Subsystem on page 290	
M320 and T320 Router and T640 Routing Node Routing Engines on page 291	
M320 and T320 Router and T640 Routing Node Control Boards on page 292	
Host Subsystem Location on page 294	
Checking the Host Subsystem Status on page 295	show chassis craft-interface Look at the LEDs on the craft interface or the component faceplate.
Checking the Routing Engine Status on page 297	show chassis routing-engine show chassis environment routing-engine
Checking the Control Board Status on page 298	show chassis environment cb

This chapter provides basic information about monitoring the host subsystem components: the Routing Engine and the Control Board. For more detailed information about monitoring the Routing Engine, see “Monitoring the Routing Engine” on page 125. For more detailed information about monitoring the Control Board, see “Monitoring the Control Board” on page 301.

Understanding the Host Subsystem

Purpose	Inspect the host subsystem to ensure that the Routing Engine and Control Board function properly.
What Is a Host Subsystem	<p>The host subsystem provides routing and system management functions on the M320 and T320 routers and the T640 routing node. The host subsystem is comprised of two components: the Routing Engine and the Control Board. For a host subsystem to function, both of these components must be installed and operational.</p> <p>The Routing Engine maintains the routing tables used by the router and controls the routing protocols that run on the router.</p> <p>The Control Board provides control and monitoring functions for the router—determining Routing Engine mastership, controlling power, performing reset and SONET clocking for the other router components, monitoring and controlling fan speed, and monitoring system status using I²C controllers.</p> <p>You can install one or two host subsystems on the router. You can install one or two Routing Engines. The Routing Engines install into the upper rear of the chassis in the slots labeled RE0 and RE1. If two Routing Engines are installed, one functions as master and the other acts as backup. If the master Routing Engine fails or is removed, and the backup is configured appropriately, the backup restarts and becomes master. The Routing Engines are hot-pluggable. Each Routing Engine requires that a Control Board be installed in the adjacent slot.</p> <p>The Control Boards install into the upper rear of the chassis in the slots labeled CBO and CB1. If two Control Boards are installed, one functions as master and the other acts as backup. If the master Control Board fails or is removed, the backup restarts and becomes master. The Control Boards are hot-pluggable. Each Control Board requires a Routing Engine to be installed in the adjacent slot. CBO installs above RE0, and CB1 installs below RE1. A Control Board does not function if no Routing Engine is present in the adjacent slot.</p>

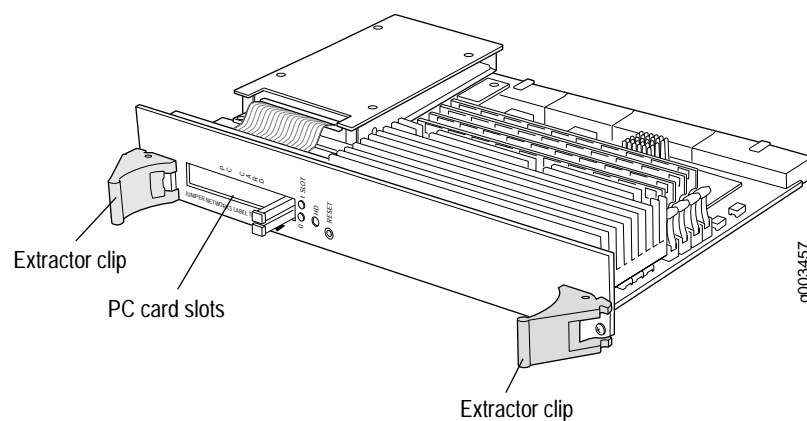
M320 and T320 Router and T640 Routing Node Routing Engines

The following sections describe the Routing Engine component used on each routing platform.

M320 Router Routing Engine

Figure 116 shows the Routing Engine component used on the M320 router.

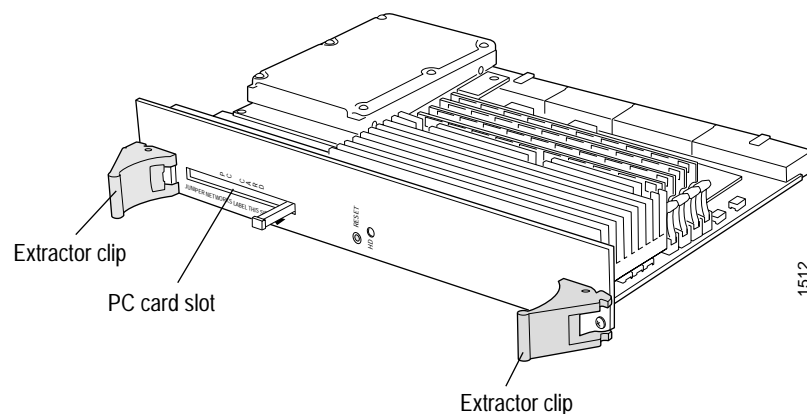
Figure 116: M320 Router Routing Engine Component



T320 Router and T640 Routing Node Routing Engine

Figure 117 shows the Routing Engine component used on the T320 router and T640 routing node.

Figure 117: T320 Router and T640 Routing Node Routing Engine Component



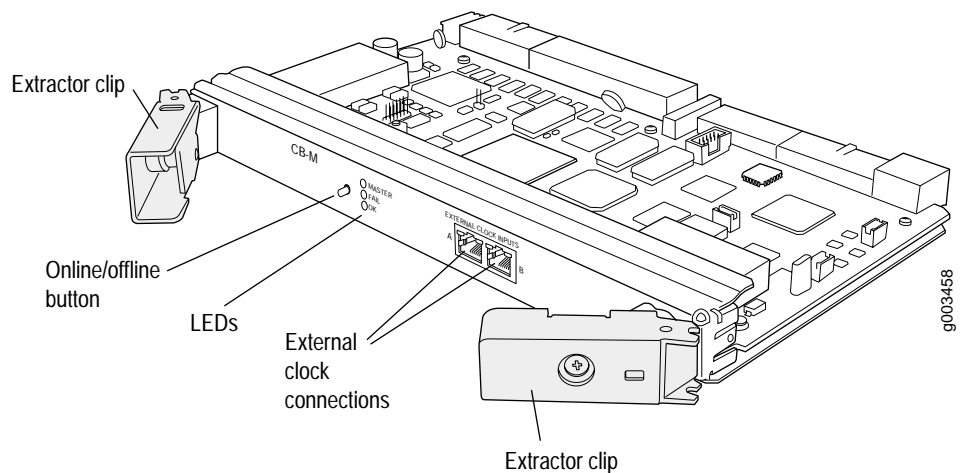
M320 and T320 Router and T640 Routing Node Control Boards

The following sections describe the Control Board used on each routing platform.

M320 Router Control Board

Figure 118 shows the Control Board component used on the M320 router.

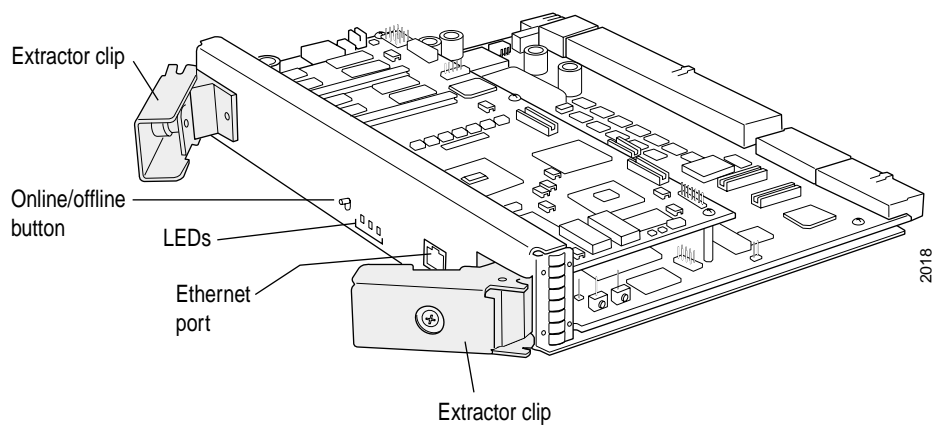
Figure 118: M320 Router Control Board Component



T320 Router Control Board

Figure 119 shows the T320 router Control Board component of the host subsystem.

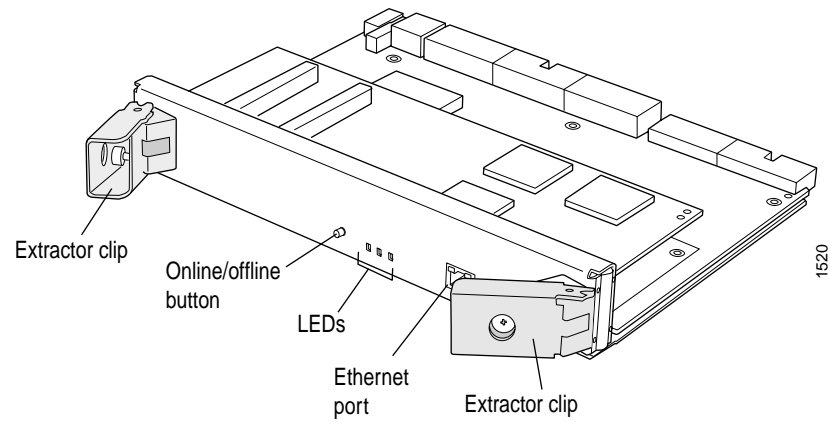
Figure 119: T320 Router Control Board Component



T640 Routing Node Control Board

Figure 120 shows the T640 routing node Control Board component of the host subsystem.

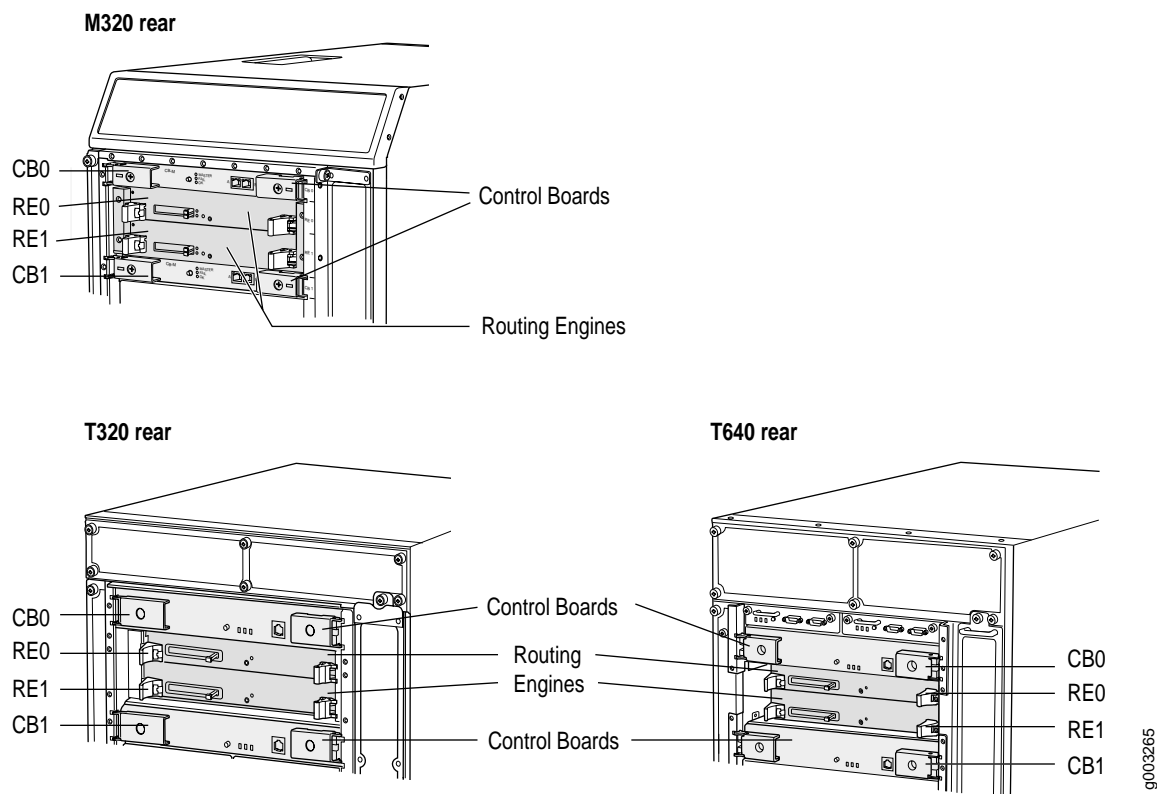
Figure 120: T640 Routing Node Control Board Component



Host Subsystem Location

Figure 121 shows the location of the host subsystem components on the M320 and T320 routers and the T640 routing node.

Figure 121: M320 and T320 Router and T640 Routing Node Host Subsystem Location



You can install one or two host subsystems into the midplane from the rear of the chassis. Each host subsystem functions as a unit: the Routing Engine requires the corresponding Control Board to operate, and vice-versa. If the adjacent component is not present, the Routing Engine or Control Board will not function. RE0 installs below CB0, and RE1 installs above CB1 otherwise the circuit will not be connected.

You take the host subsystem offline and online as a unit. Before you replace a Routing Engine or a Control Board, you must take the host subsystem offline. The host subsystem is hot-pluggable.

- See Also**
- Monitoring the Routing Engine on page 125
 - Monitoring the Control Board on page 301
 - Host Redundancy Overview on page 463
 - Monitoring Redundant Routing Engines on page 491
 - Monitoring Redundant Control Boards on page 559

Checking the Host Subsystem Status

Each host subsystem has three LEDs that display its status. The host subsystem LEDs are located on the right side of the craft interface.

To check the host subsystem status, use the following JUNOS command-line interface (CLI) operational mode command:

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

Sample Output m320@host> **show chassis craft-interface**

FPM Display contents:

```
+-----+
|router001|
|2 Alarms active |
|R: PEM 1 Not OK |
|R: PEM 0 Not OK |
+-----+
```

Front Panel System LEDs:

Routing Engine 0 1

```
-----
OK      *  *
Fail    .  .
Master  *  .
[...Output truncated...]
```

What It Means On M320 and T320 routers and T640 routing nodes, the Front Panel System LEDs section of the command output shows the Routing Engine status. The state can be OK, Fail, or Master. An asterisk (*) indicates the operating state.

Alternative Actions Check the LEDs on the Routing Engine and the Control Board faceplates at the rear of the router.

Check the Routing Engine or Host Subsystem LEDs on the craft interface. If the red LED is lit, look at the LCD display for more information about the cause of the problem.

Figure 122 shows the location of the Routing Engine LEDs on the M320 router craft interface.

Figure 122: M320 Router Host Subsystem Craft Interface LEDs

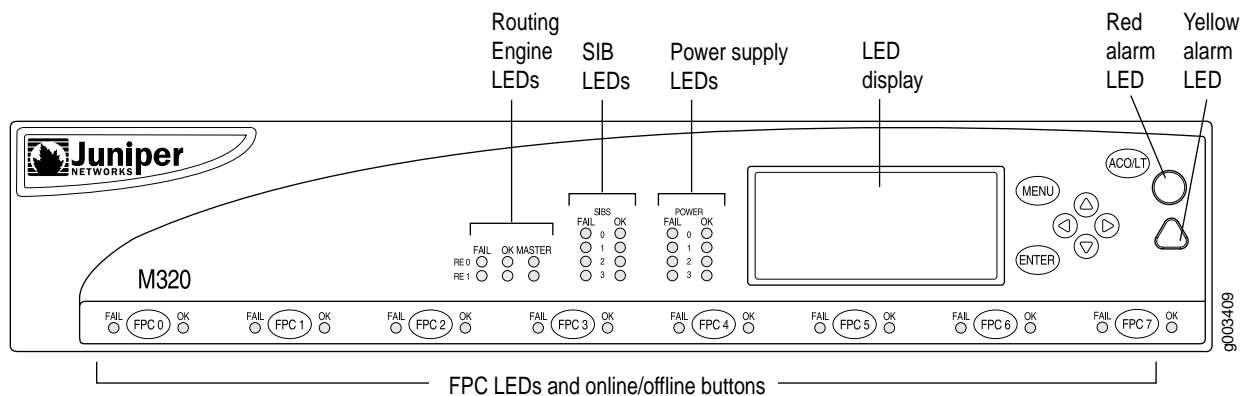


Table 69 describes the M320 router Routing Engine LED states.

Table 69: M320 Router Routing Engine Craft Interface LEDs

Label	Color	State	Description
FAIL	Red	On steadily	Host is offline.
OK	Green	On steadily	Host is online and is functioning normally.
MASTER	Green	On steadily	Host is functioning as master.

Figure 123 shows the location of the Host Subsystem LEDs on the T320 router and T640 routing node craft interface.

Each host subsystem has LEDs, located on the upper right of the craft interface, which indicate its status. The LEDs labeled HOST0 show the status of the Routing Engine in slot RE0 and the Control Board in slot CB0. The LEDs labeled HOST1 show the status of the Routing Engine in slot RE1 and the Control Board in slot CB1.

Figure 123: T320 Router and T640 Routing Node Host Subsystem Craft Interface LEDs

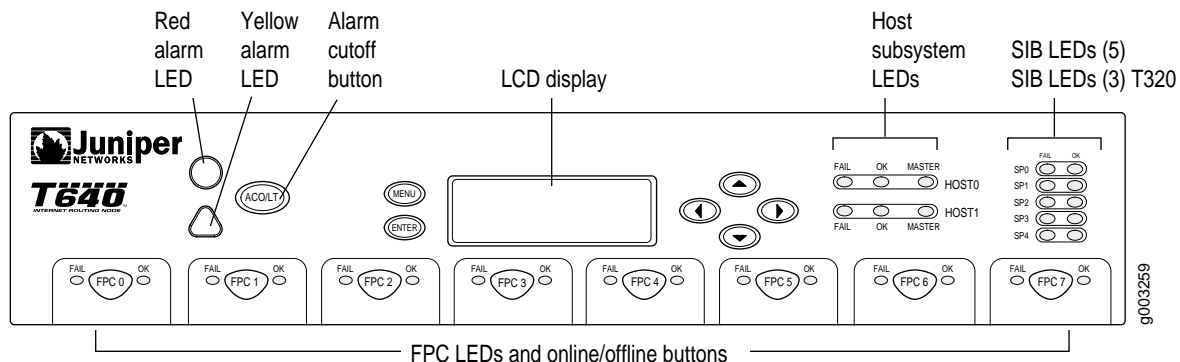


Table 70 describes the T320 router and T640 routing node host subsystem LED states.

Table 70: T320 Router and T640 Routing Node Host Subsystem Craft Interface LEDs

Label	Color	State	Description
OK	Green	On steadily	Host is online and functioning normally.
FAIL	Red	On steadily	Host is offline.
MASTER	Green	On steadily	Host is functioning as master.

Checking the Routing Engine Status

This section provides a brief description of monitoring the Routing Engines as part of the host subsystem on the T320 router and T640 routing node. For more detailed information about monitoring the Routing Engine, see “Monitoring the Routing Engine” on page 125.

Action To check the Routing Engine status, use the following CLI command:

```
user@host> show chassis routing-engine
```

Sample Output

```
user@host> show chassis routing-engine
Routing Engine status:
Slot 0:
  Current state      Master
  Election priority  Master (default)
  Temperature        28 degrees C / 82 degrees F
  CPU temperature    27 degrees C / 80 degrees F
  DRAM               2048 MB
  Memory utilization  11 percent
  CPU utilization:
    User             0 percent
    Background       0 percent
    Kernel           5 percent
    Interrupt        1 percent
    Idle             94 percent
  Model              RE-4.0
  Serial ID          P11123900322
  Start time         2004-09-25 19:32:31 PDT
  Uptime             9 days, 20 hours, 53 minutes, 8 seconds
  Load averages:     1 minute  5 minute 15 minute
                    0.00    0.00    0.00
Routing Engine status:
Slot 1:
  Current state      Backup
  Election priority  Backup (default)
  Temperature        29 degrees C / 84 degrees F
  CPU temperature    30 degrees C / 86 degrees F
  DRAM               2048 MB
  Memory utilization  10 percent
  CPU utilization:
  [...Output truncated...]
```

What It Means The command output displays the Routing Engine slot number, current state (Master, Backup, or Disabled), election priority (Master or Backup), and airflow temperature. The command output also displays the total DRAM available to the Routing Engine processor, the CPU utilization percentage, and the Routing Engine serial number for the slot. Additionally, the command output displays when the Routing Engine started running, how long the Routing Engine has been running, and the time, uptime, and load averages for the last 1, 5, and 15 minutes.

Check the Uptime to ensure that the Routing Engine has not rebooted since it started running.

Alternative Actions To check the Routing Engine environmental status information, such as the operating state, function, and operating temperature, use the following CLI command:

```
user@host> show chassis environment routing-engine
Routing Engine 0 status:
  State           Online Master
  Temperature      28 degrees C / 82 degrees F
Routing Engine 1 status:
  State           Online Standby
  Temperature      29 degrees C / 84 degrees F
```

Check the LCD display on the craft interface to view information about the router temperature and the status of the Routing Engines.

Checking the Control Board Status

This section provides a brief description of monitoring the Control Board as part of the host subsystem on T320 routers and T640 routing nodes. For more information about monitoring the Control Board, see “Monitoring the Control Board” on page 301.

Action To monitor the Control Board environmental status, use the following CLI command:

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

Sample Output

```
user@host> show chassis environment cb
CB 0 status:
  State           Online Master
  Temperature      32 degrees C / 89 degrees F
Power:
  1.8 V           1807 mV
  2.5 V           2473 mV
  3.3 V           3312 mV
  4.6 V           4793 mV
  5.0 V           5008 mV
  12.0 V          11677 mV
  3.3 V bias      3294 mV
  8.0 V bias      7272 mV
  BUS Revision     16
  FPGA Revision    45
CB 1 status:
  State           Online Standby
  Temperature      31 degrees C / 87 degrees F
Power:
  1.8 V           1809 mV
```

2.5 V	2448 mV
3.3 V	3305 mV
4.6 V	4765 mV
5.0 V	4989 mV
12.0 V	11633 mV
3.3 V bias	3284 mV
8.0 V bias	7301 mV
BUS Revision	16
FPGA Revision	45

What It Means The command output displays environmental information about both Control Boards installed in the router. It displays the Control Board slot, operating status, temperature of air flowing past the Control Board, power supply, and circuitry and field programmable gate array (FPGA) revision information.

The Control Board status can be Present, Online, Offline, or Empty. The command also indicates whether the Control Board is master.

