

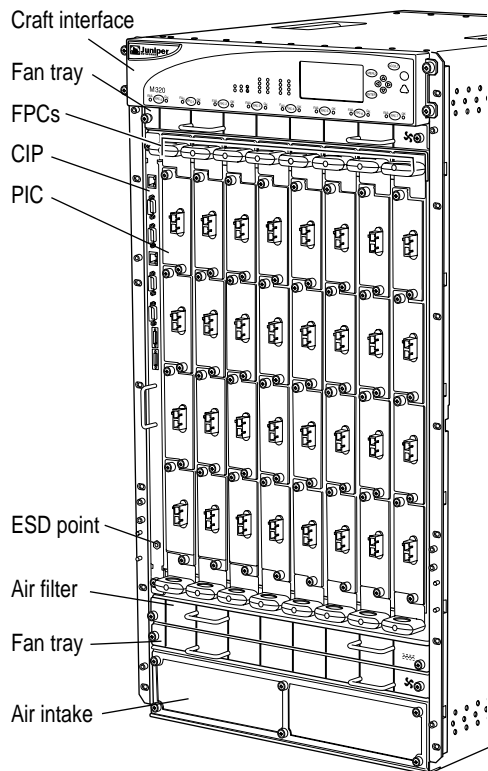
## Chapter 8

# M320 Internet Router Overview

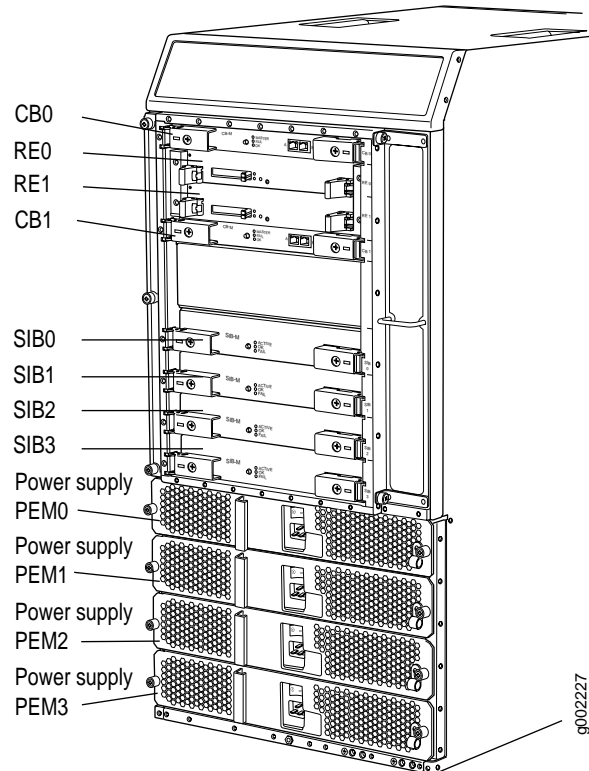
The M320 Internet router is a high-density edge aggregation, routing, and service creation platform that can be deployed in core, peering, and data center applications. Optimized for dense edge aggregation and service creation, the M320 router can provide a single point of edge aggregation for thousands of customers over any access type, including ATM, Frame Relay, Ethernet, and Time-Division Multiplexing (TDM), at any speed from DS0 up to OC192/STM64 and 10-Gigabit Ethernet. (See Figure 8.)

**Figure 8: M320 Router**

**M320 router front**



**M320 router rear**



The M320 router includes Switch Interface Boards (SIBs) that provide the switching function to the destination Flexible PIC Concentrator (FPC) at a total of 385 million packets per second (Mpps) of forwarding. The host subsystem, which consists of the Routing Engine and Control Board, provides the routing and system management functions of the router.

The router supports up to eight FPCs providing SONET/SDH OC-48/STM16, SONET/SDH OC192/STM64, and 160-Gigabit Ethernet media. The router supports three types of FPCs: FPC1 for hot-swappable M40e PICs, FPC2 for hot-swappable M160 PICs, and FPC3 for 10-Gbps T-series Physical Interface Cards (PICs). For more information about supported PICs, see the *M320 Internet Router PIC Guide*.

The M320 router provides a maximum aggregate throughput of 320 gigabits per second (GBps) full duplex. The JUNOS software runs on a control subsystem with dedicated hardware, ensuring that control functions are performed without affecting the forwarding subsystem. Forwarding and packet processing operations in the router are performed by dedicated programmable ASICs that enable the router to achieve data forwarding rates that match current fiber-optic capacity.

## M320 Router Major Hardware Components

Table 10 lists the T320 router major components and characteristics.

**Table 10: M320 Router Major Hardware Components**

Component	Quantity	Function	Redundant	Field-Replaceable	Offline Button
Connector Interface Panel (CIP)	1	Provides ports for external management and alarm relay devices; includes an electrostatic discharge (ESD) point	—	Hot-pluggable	—
Control Board	1–2	Monitors and controls router components (requires a Routing Engine)	Yes	Hot-pluggable (if not redundant)	Yes
Cooling system	2 front fan trays, 1 rear fan tray	Cools router components	Yes	Hot-removable, Hot insertable	—
Craft interface	1	Displays status and provides an interface for controlling router functions	—	Hot-removable, hot-insertable	—
FPC	1–8	Connects PICs to other router components, contains Packet Forwarding Engines (supports FPC1, FPC2, and FPC3)	—	Hot-removable, hot-insertable	Yes
Host subsystem	1–2	Consists of a Routing Engine and Control Board and provides routing and system management functions	Yes	Hot-pluggable	—
PIC	1–4 per FPC	Provides an interface to various network media	—	Hot-removable, hot-insertable	Yes
Power supply (DC only)	2	Distributes needed voltages to router components	Yes	Hot-removable, hot-insertable	—
Routing Engine	1–2	Provides routing functions and routing tables (requires a Control Board)	Yes	Hot-pluggable (if not redundant)	Reset button
SIB	4	Provides switching function to the destination FPC	Yes	Hot-removable, hot-insertable	Yes

Field-replaceable units (FRUs) are router components that can be replaced at the customer site. Replacing FRUs requires minimal router downtime. There are three types of FRUs:

Hot-removable and hot-insertable—You can remove and replace the component without powering down the router or interrupting the routing functions.

Hot-pluggable—You can remove the component without powering down the router, but routing functions are interrupted until the replacement is installed.

Requires router shutdown—You must power down the router before removing the component.

## Monitoring M320 Router Components

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See the following chapters for information about monitoring the M320 router components:

“Monitoring the Router Chassis” on page 107

“Monitoring the Routing Engine” on page 125

“Monitoring Redundant Routing Engines” on page 491

“Monitoring the Host Subsystem” on page 289

“Host Redundancy Overview” on page 463

“Monitoring the Control Board” on page 301

“Monitoring Redundant Control Boards” on page 559

“Monitoring FPCs” on page 163

“Monitoring PICs” on page 183

“Monitoring the Craft Interface” on page 197

“Monitoring Power Supplies” on page 217

“Monitoring Redundant Power Supplies” on page 507

“Monitoring the Cooling System” on page 251

“Monitoring Redundant Cooling System Components” on page 523

“Maintaining the Cable Management System, Cables, and Connectors” on page 275

“Monitoring the SIBs” on page 325

“Monitoring Redundant SIBs” on page 543

“Monitoring the CIP” on page 381