3

Installing System Components

This section describes how to install the following system components:

- Hard drives
- Power supplies
- System fans
- SAS controller daughter card
- RAID battery
- Internal USB memory key connector
- Expansion cards
- Expansion card cage
- Cooling shroud
- Fan bracket
- RAC card
- Optical, diskette, and tape drives
- System memory
- Processors
- System battery
- Expansion-card riser boards
- Sideplane board
- SAS/SATA Backplane board
- Control panel assembly
- System board

Recommended Tools

You may need the following items to perform the procedures in this section:

- Key to the system keylock
- #1 and #2 Phillips screwdrivers
- T-10 Torx driver
- Wrist grounding strap

Inside the System

⚠️ **CAUTION: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.**

In Figure 3-1, the bezel and system cover are removed to provide an interior view of the system.

Figure 3-1.   Inside the System
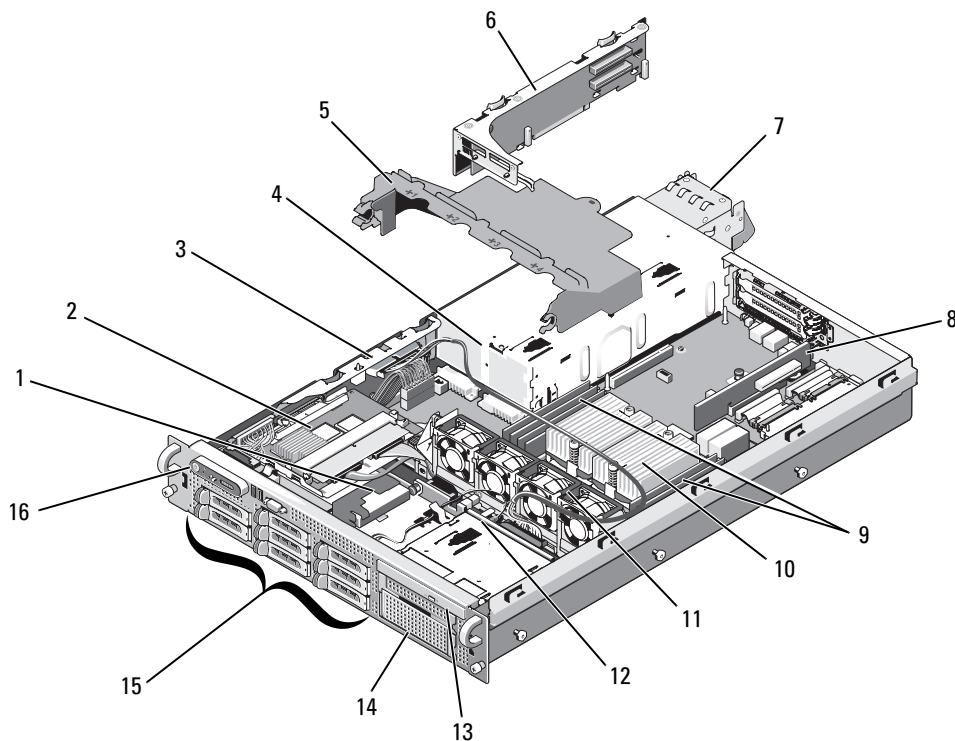
1	RAID battery (optional)	2	SAS controller or optional SAS RAID controller daughter card	3	sideplane
4	power supply bay	5	cooling shroud	6	expansion-card cage and left riser (PCIe slots 2 and 3)
7	power supplies (1 or 2)	8	center riser (PCIe slot 1)	9	memory modules (up to 8)
10	heatsinks and microprocessors (1 or 2)	11	hot-pluggable fans (4)	12	SAS/SATA backplane
13	slimline optical drive (optional)	14	media bay for optional diskette drive and/or tape drive	15	SAS or SATA hard drives (up to 8)
16	control panel				

Figure 3-3.   Removing the Front Bezel

| 1 | bezel lock | 2 | control panel LCD |
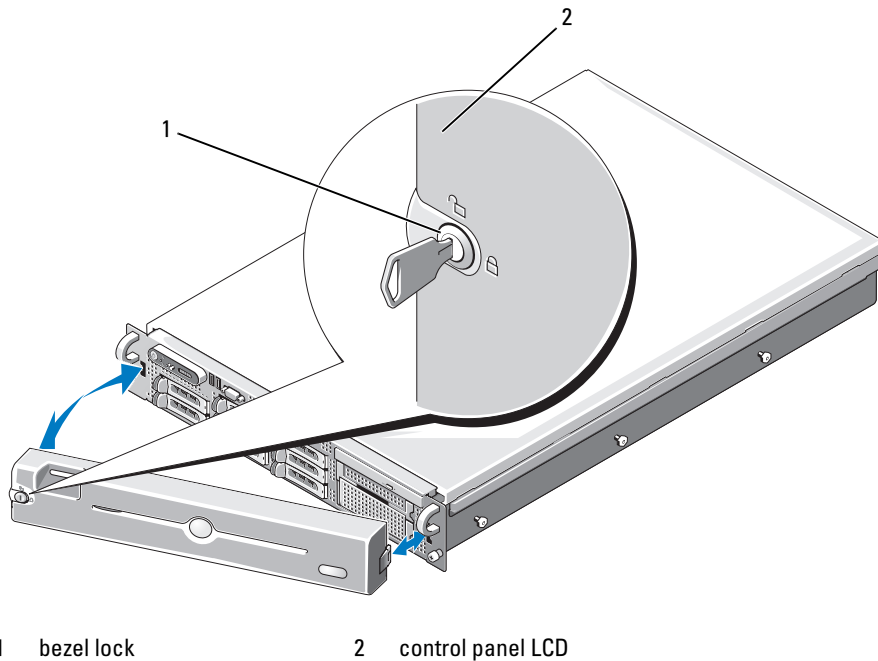
Replacing the Front Bezel

To replace the front bezel, perform the above steps in reverse.

Opening and Closing the System

⚠ **CAUTION: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.**

Opening the System

To upgrade or troubleshoot the system, remove the system cover to gain access to internal components.

1 Unless you are installing a hot-plug component such as a cooling fan or power supply, turn off the system and attached peripherals, and disconnect the system from the electrical outlet and peripherals.

2 To remove the system cover, turn the latch release lock counter-clockwise to the unlocked position. See Figure 3-4.

3 Lift up on the latch on top of the system. See Figure 3-4.

4 Grasp the cover on both sides and carefully lift the cover away from the system.

Closing the System

1 Lift up the latch on the cover.

2 Place the cover on top of the system and offset the cover slightly back so that it clears the chassis J hooks and lays flush on the system chassis. See Figure 3-4.

3 Push down the latch to lever the cover into the closed position.

4 Rotate the latch release lock in a clockwise direction to secure the cover.

Figure 3-4. Removing the Cover

| 1 | latch | 2 | latch release lock | 3 | alignment J hooks |
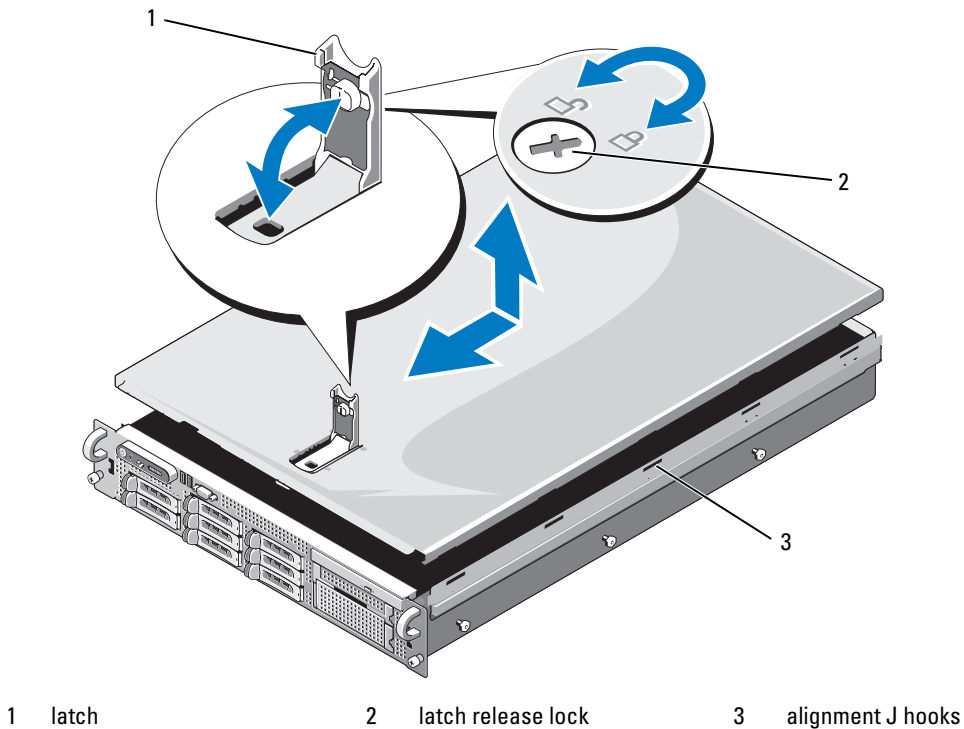
Hard Drives

This subsection describes how to install and configure SAS or SATA hard drives in the system's internal hard-drive bays. Your system features up to eight 2.5-inch hard drives. All drives connect to the system board through the SAS/SATA backplane board. See Figure 6-3. Hard drives are supplied in special hot-pluggable drive carriers that fit in the hard-drive bays.

NOTICE: Before attempting to remove or install a drive while the system is running, see the documentation for the optional SAS RAID controller daughter card to ensure that the host adapter is configured correctly to support hot-plug drive removal and insertion.

Figure 3-15. Removing and Installing the Cooling Shroud
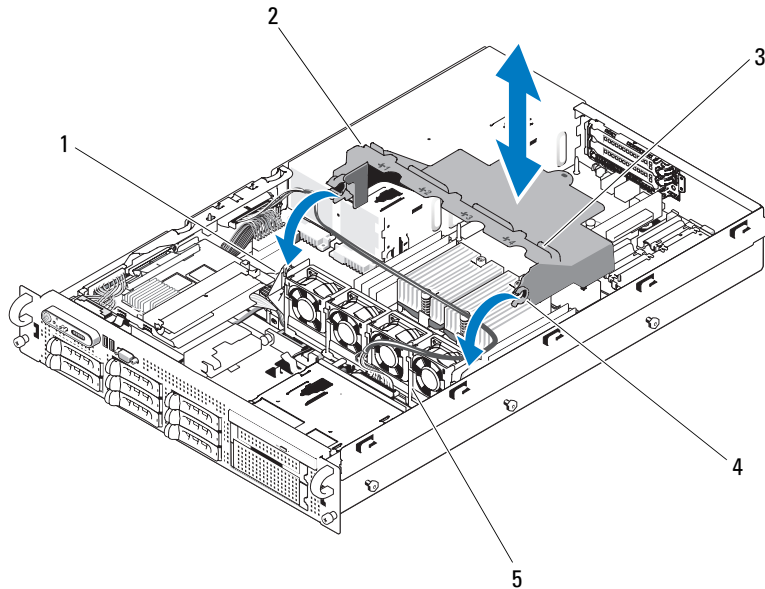
1	shroud pivots (2)	2	cooling shroud	3	cable tabs
4	shroud hinges (2)	5	fan bracket			

Installing the Cooling Shroud

1 Align the hinges on the shroud with the pivots located on each end of the fan bracket. See Figure 3-15.

2 Lower the shroud straight down into the system until the hinges snap into place on the pivots.

3 Rotate the shroud down over the processor(s) and memory modules.

4 Route the optical drive cable through the cable tabs on top of the cooling shroud.

5 Reinstall the left riser board. See "Installing the Left Riser Board" on page 103.

6 Reinstall the expansion cards into the left riser board. "Installing an Expansion Card" on page 72.

7 Close the system. See "Closing the System" on page 56.

8 Reconnect the system to the electrical outlet and turn on the system and attached peripherals.

Installing Memory Modules

⚠️ **CAUTION: Only trained service technicians are authorized to remove the system cover and access any of the components inside the system. See your *Product Information Guide* for complete information about safety precautions, working inside the computer, and protecting against electrostatic discharge.**

1 Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet.

2 Open the system. See "Opening the System" on page 55.

3 Remove the memory cooling shroud. See "Removing the Cooling Shroud" on page 74.

🚫 **NOTICE:** Never remove the memory cooling shroud without first powering down the system. Overheating of the system can develop quickly resulting in a shutdown of the system and the loss of data.

4 Locate the memory module sockets on the system board. See Figure 6-2.

⚠️ **CAUTION: The DIMMs are hot to the touch for some time after the system has been powered down. Allow time for the DIMMs to cool before handling them. Handle the DIMMs by the card edges and avoid touching the DIMM components.**

5 Press the ejectors on the memory module socket down and out, as shown in Figure 3-26, to allow the memory module to be inserted into the socket.

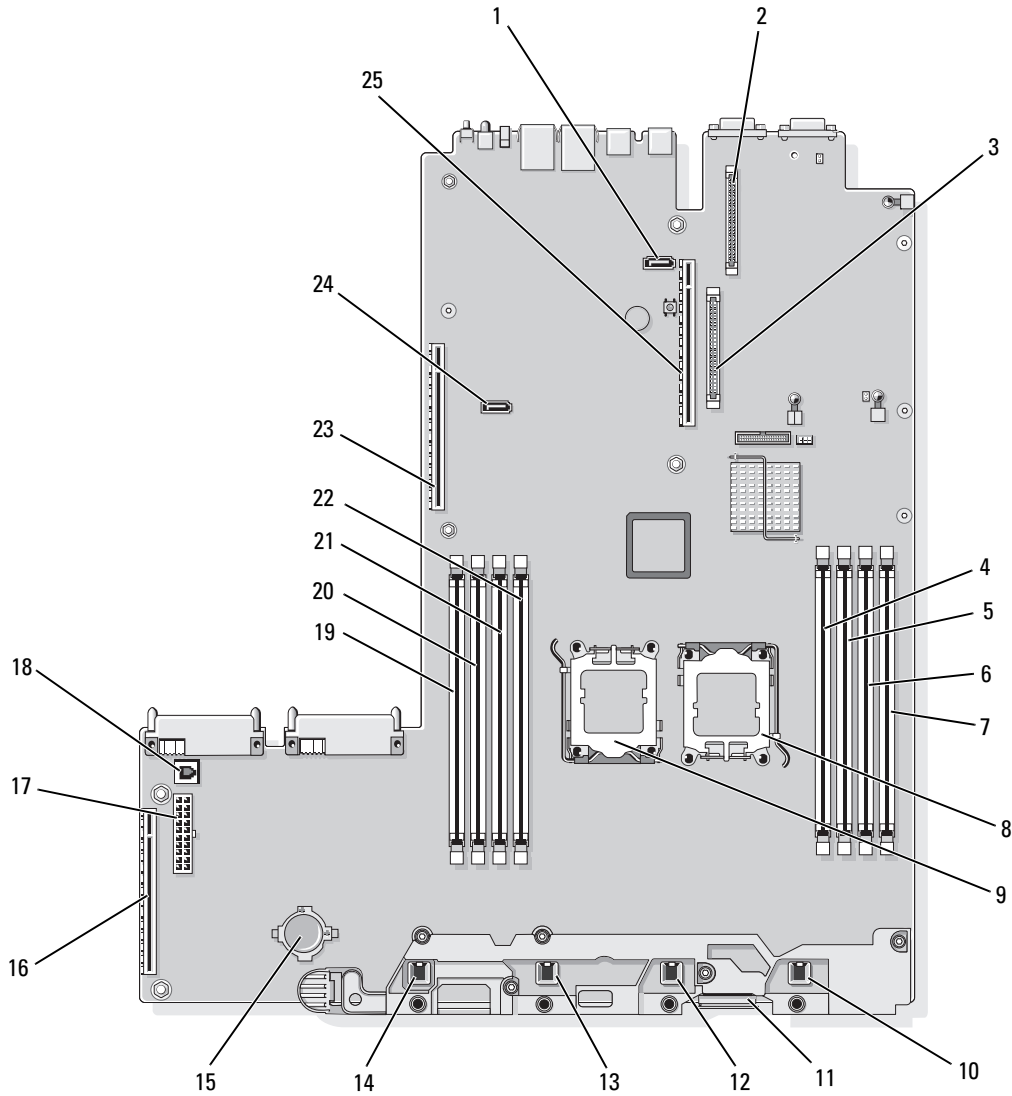**Figure 3-26.   Installing and Removing a Memory Module**
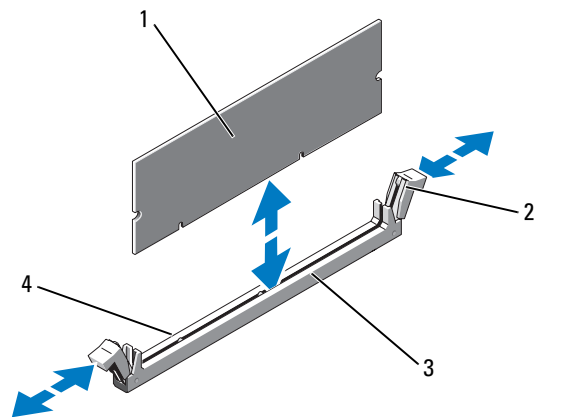
1	memory module	2	memory module socket ejectors (2)	3	socket
4	alignment keys (2)				

System Board Connectors

See Figure 6-2 and Table 6-2 for the location and description of system board connectors.

Figure 6-2.   System Board Connectors

Table 6-2. System Board Connectors

	Connector	Description
1	SATA_B	SATA B connector
2	RAC_CONN2	Remote Access Control (RAC) card 2
3	RAC_CONN1	Remote Access Control (RAC) card 1
4	DIMM 4	Fourth memory module slot (processor 1)
5	DIMM 3	Third memory module slot (processor 1)
6	DIMM 2	Second memory module slot (processor 1)
7	DIMM 1	First memory module slot (processor 1)
8	CPU1	Microprocessor 1
9	CPU2	Microprocessor 2
10	FAN4	System cooling fan
11	FLOPPY	Floppy drive connector
12	FAN3	System cooling fan
13	FAN2	System cooling fan
14	FAN1	System cooling fan
15	BATTERY	System battery
16	SIDEPLANE	Sideplane connector
17	BACKPLANE	Backplane power connector
18	TOE_KEY	TCP/IP Offload Engine Key
19	DIMM 5	First memory module slot (processor 2)
20	DIMM 6	Second memory module slot (processor 2)
21	DIMM 7	Third memory module slot (processor 2)
22	DIMM 8	Fourth memory module slot (processor 2)
23	RISER1	Left riser board connector
24	SATA_A	SATA A connector
25	RISER2	Center riser board connector