System Upgrade Guide

D Class and R Class

HP 9000 Enterprise Servers

**HEWLETT®
PACKARD**

Legal Notices

The information in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be held liable for errors contained herein or direct, indirect, special, incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Restricted Rights Legend. Use, duplication or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 for DOD agencies, and subparagraphs (c) (1) and (c) (2) of the Commercial Computer Software Restricted Rights clause at FAR 52.227-19 for other agencies.

HEWLETT-PACKARD COMPANY
3000 Hanover Street
Palo Alto, California 94304
U.S.A.

Trademark Notices. UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.

Contents

Contents

Printing History

The manual printing date and part number indicate its current edition. The printing date will change when a new edition is printed. Minor changes may be made at reprint without changing the printing date. the manual part number will change when extensive changes are made.

Manual updates may be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details.

First Edition: February 1996

Second Edition: June 1996

Third Edition: November 1996

Fourth Edition: August 1997

Fifth Edition: August 1998

Sixth Edition: October 1998

NOTE

Reader Comments. We welcome your comments about our documentation. If you have editorial suggestions or recommended improvements for this document, please write to us. You can reach us through e-mail at: *hardwaredocs@cup.hp.com* or by sending your letter to: *Documentation Manager, M/S 5657, Hewlett-Packard Company, 8000 Foothills Blvd., Roseville, CA 95747-6588 USA.* Please include the following information in your message:

- Title of the manual you are referencing.

- Manual part number (from the title page).

- Edition number or publication date (from the title page).

- Your name.

- Your company's name.

SERIOUS ERRORS, such as technical inaccuracies that may render a program or a hardware device inoperative, should be reported to your HP Response Center or directly to a Support Engineer.

1 Introduction

Who Should Use this Guide

The procedures in this guide are intended to be performed by a person who is qualified in the installation and servicing of computer equipment, and is trained to recognize the hazards involved. The processor upgrade is installed in an area of the product where energy levels considered hazardous may be produced.

Required Tools

To perform the procedures in this upgrade guide, the following tools are required:

- Small flat-bladed screwdriver

- Torx driver, #10 and #15

- Phillips screwdriver.

Safety Considerations

WARNING	**The installation procedures in this guide require opening the system cabinet, which may expose you to high-energy (high-amperage) circuits, possible ejection of molten metal, and exposed sharp edges in equipment chassis. Be sure to remove all rings, watches, and other jewelry from fingers, wrists, and arms before opening the system cabinet.**

Electrostatic Discharge Precautions

Electrostatic discharge can damage the integrated circuits on printed-circuit boards. To prevent such damage from occurring, be sure to observe the following precautions when handling and installing boards:

- Use a grounding mat and an anti-static wrist strap, such as those included in the ESD Field Service Kit (HP P/N A3024-80004).

- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from you body to ground.

- Keep uninstalled printed-circuit boards in their protective anti-static bags until you are ready to install them.

- Handle printed-circuit boards by their edges after you have removed them from their protective anti- static bags.

Upgrades Covered by This Guide

Upgrade Product	Upgrade Option	Upgrade From	Upgrade To
A3377A (1)	850	D200	Dx10
A3378A (1)	850	D200	D250/1
	851	Dx10	Dx50/1
A3379A (1)	850	D200	D250/2
	851	Dx10	Dx50/2
	852	Dx50/1	
A3428A (1)	850	D200	Dx60/2
	851	Dx10	
	855	Dx20	
	856	Dx30	
	852	Dx50/1	
	853	Dx50/2	
A3565A (1&2)	850	D200	Dx70/1
	851	Dx10	
	855	Dx20	
	856	Dx30	
	852	Dx50/1	
A3595A (1)	850	D200	Dx70/2
	851	Dx10	
	855	Dx20	
	856	Dx30	
	852	Dx50/1	

Upgrade Product	Upgrade Option	Upgrade From	Upgrade To
	853	Dx50/2	Dx70/2
	854	Dx60/2	
	857	Dx70/1	
A3585A (1, 2, & 3)	850	D200	Dx30
	851	Dx10	
	855	Dx20	
	001	D2xx system board.	
	002	D3xx system board.	
A3720A(1 & 2)	850	D200	Dx80/1
	851	Dx10	
	855	Dx20	
	856	Dx30	
	852	Dx50/1	
	857	Dx70/1	
A3721A(1 & 2)	850	D200	Dx80/2
	851	Dx10	
	855	Dx20	
	856	Dx30	
	852	Dx50/1	
	853	Dx50/2	
	854	Dx60/2	
	857	Dx70/1	
	858	Dx70/2	
	859	Dx80/1	

Upgrade Product	Upgrade Option	Upgrade From	Upgrade To
A3383A	D2xx to D3xx Chassis upgrade		D390/1
	001	Adds an Access Port Card	
	002	Adds a FW-SCSI Interface Card	
A4907A	850 851 852 853 854 855 856	Dx00 Dx10 Dx50/1 Dx50/2 Dx60/2 Dx20 Dx30	
A4908A	857 858 859 860 861	Dx70/1 Dx70/2 Dx80/1 Dx80/2 D390/1	D390/2
A5195A		R380/1	R380/2
A5196A		R380/1 R380/2	R390/1
A5197A		R380/1 R380/2 R390/1	R390/2

Note 1: to upgrade from D2xx to D3xx, combine this upgrade with A3383A.

Note 2: If the current D-Class system has Artist Color 2D Graphics Interface card A4077A, it is not compatible with the upgraded system and must be replaced by the Enhanced Graphics Interface Card, A4450A.

Note 3: Systems with serial number prefixes of 3637 or less, need to have options 001 or 002 with the A3585A upgrade. Systems with serial number prefixes 3638 or greater, do not need options 001 or 002 with the A3585A upgrade. The system serial number is located inside the front, removable media door.

Note 4: D390 Servers do not support the A3402A 100VG vard.

NOTE	For the A3383A upgrade product, option 001 is required for D3xx systems. Option 002 is required with Hotswap assemblies.

2   Upgrade Procedures

This chapter provides all the procedures to perform all of the supported system upgrades for the D Class and R Class servers. Some of these upgrades are Processor/ Memory card upgrades and some require some internal parts of the Chassis to be replaced. Be sure to identify the appropriate procedures to perform for the upgrade kit components. Review the Upgrade Overview before starting the upgrade itself.

Upgrade Overview

The upgrade overview listed here is for a full upgrade. Not all system upgrades will require all of the following steps to be performed. Please review these steps to determine which ones apply to your upgrade.

D Class Server Overview

D Class Servers

    A. **Perform a full system backup before starting any upgrade.**

    B.   Run the upgrade script.

CAUTION

Step B should only be performed if the Processor is being upgraded from a D200, D210, or D310 to a Dx20, Dx30, Dx50, Dx60, Dx70, Dx80, or D390. Once the upgrade script is run on a computer, DO NOT run it again. This will cause the computer to be non-usable. If any problems occur during or after the upgrade script is run, contact the Hewlett-Packard Service representative or the Response Center.

    C.   Shut down the operating system.

    D.   Turn off power to the server.

    E.   Remove the front bezel.

    F.   Remove the side panel.

    G.   Remove the EMI cover.

    H.   Remove the processor/memory card.

    I.   Transfer memory modules.

    J.   Remove power supply.

    K.   Remove system/core I/O card.

L.   Install new system/core I/O card.

M.   Remove Single-ended SCSI disks.

N.   Install disk bay for fast-wide SCSI disks.

O.   Install fast-wide SCSI disks.

P.   Install new power supply.

Q.   Install the new processor/memory card.

R.   Install FW-SCSI to HP-HSC adapter card.

S.   Replace the EMI cover.

T.   Replace the side panel.

U.   Replace the front bezel.

R Class Server Overview

R Class Servers

A.   **Perform a full system backup before starting any upgrade.**

B.   Shut down the operating system.

C.   Turn off power to the system.

D.   Remove the top metal panels.

E.   Remove the EMI cover

F.   Remove the memory SIMM retainer.

G.   Remove the processor/memory card.

H.   Transfer memory modules.

I.   Install the new processor/memory card.

J.   Replace the memory SIMM retainer.

K.   Replace the EMI cover.

L.   Replace the top sheet metal panels.

After completing the installation procedures, proceed to the section (located in *Chapter* 3) for instructions on how to verify that the upgrade has been correctly installed. If the upgrade verification is not successful, refer to the *D Class and R Class Operator's Guide* or call HP for assistance.

D Class System Upgrades

A. System Backup

Refer to the appropriate system software documentation (System Administration type books) for the procedures to perform a full system backup.

B. Run Upgrade Script

1. Warn all users to log off the system.

2. Insert the CD-ROM disk that came with your processor upgrade kit into the server's CD-ROM drive. If you do not have a CD-ROM device, contact your Hewlett-Packard Service representative for help.

3. Activate the file on the CD-ROM and follow the instructions.
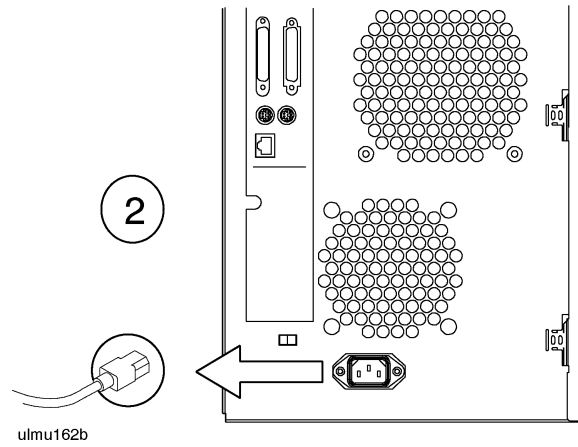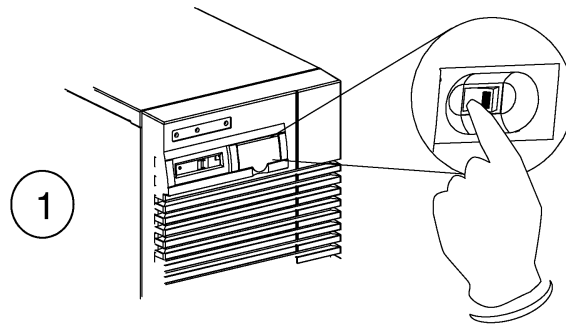
C. Shut Down the Operating System

Before going to the next step of the upgrade procedure, shut down the operating system by entering:

```
shutdown -h
```

D. Turn Off Power to the System

1. Set the Power switch on the server front panel to the OFF position (green light goes out).

2. Disconnect the power cord from the system cabinet.

ulmu162b

E. Remove the Front Bezel

1. Unlock the front peripheral door using the key that was shipped with your server.

2. Grab the bottom sides of the front bezel, and pull the bottom of the bezel slightly out from the cabinet.

3. Carefully push the bezel up so that the top of the bezel comes loose from the top of the cabinet, then pull the bezel away from the cabinet.
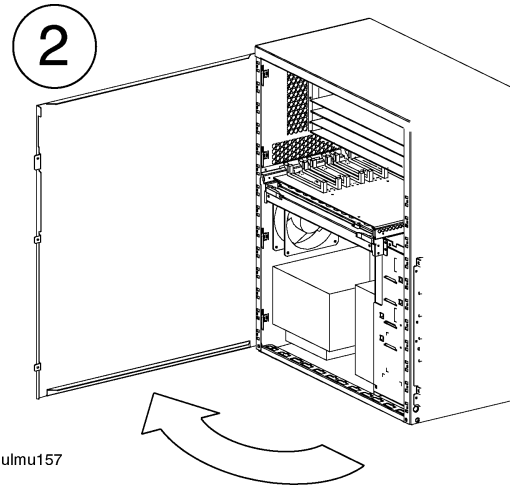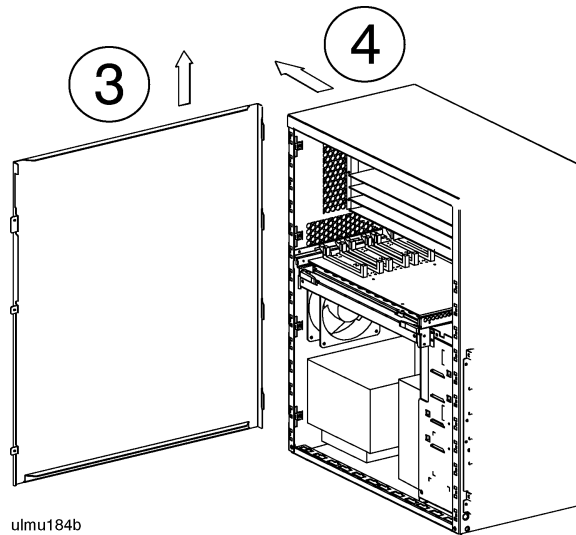

ulmu164c
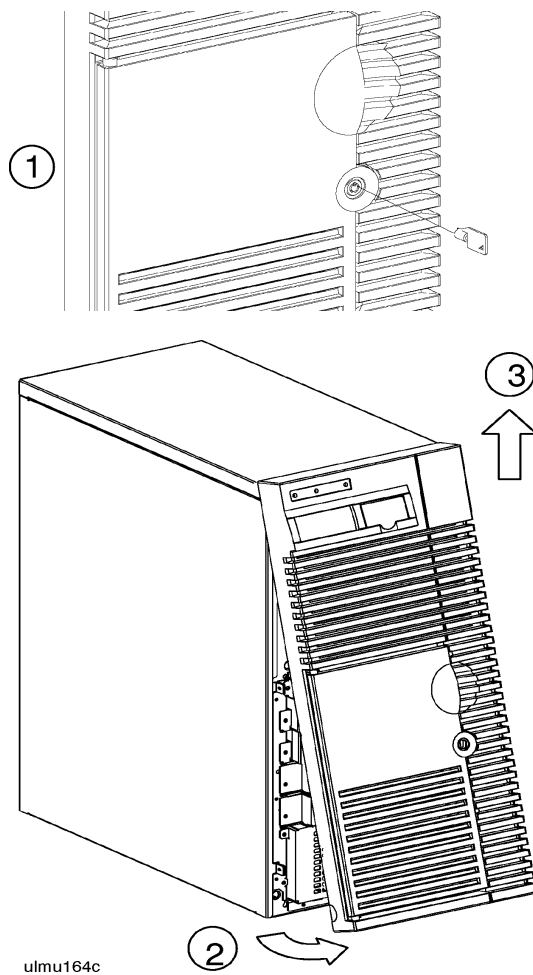
F. Remove the Side Panel

1. Loosen three captive side panel screws with a Torx #15 driver.

ulmu156
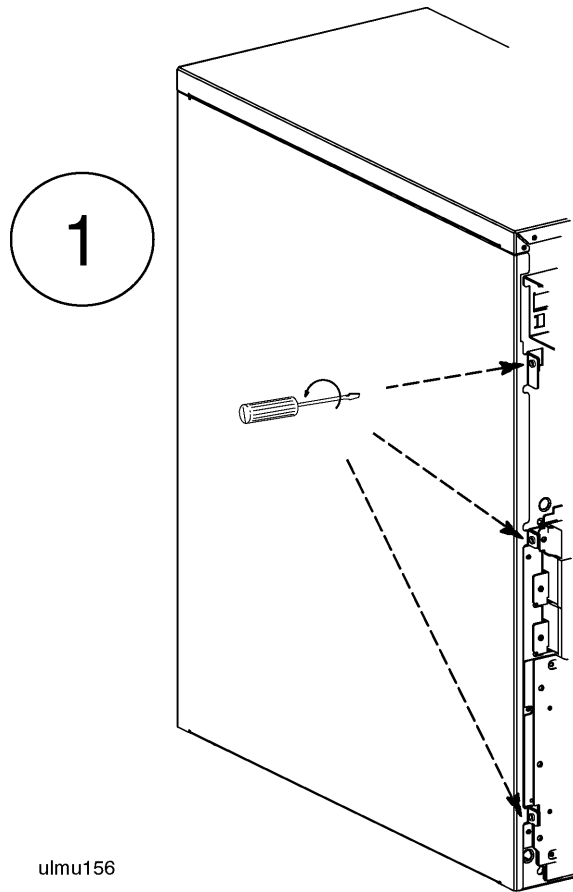
2. Grasp the front edge of the side panel and swing it away from the system cabinet.

ulmu157

3. Remove the side panel by lifting it up so that its four hinge tabs come out of the slots at the rear of the cabinet.


ulmu184b

4. Carefully set the panel aside.

G. Remove the EMI Cover

D Class servers that have the Hot-Swap Module installed will have an EMI cover installed over the processor/memory card. To remove the EMI cover:

1. Loosen the two notches at the bottom of the EMI cover from the tabs on the processor/memory card by pushing up and slightly flexing the EMI cover until the notches come loose.

2. Pull the EMI cover down slightly until the two notches at the top of the cover come loose from the tabs at the top of the server cabinet.

3. Remove the SCSI ribbon cable from the Fast/Wide SCSI card.

4. Remove the other end of the SCSI ribbon cable from the connector on the hot-swap backplane, and set the EMI cover and ribbon cable aside.
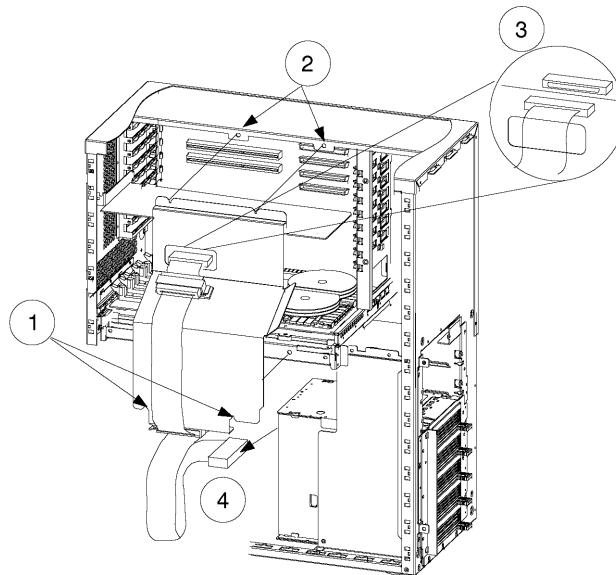
ulio705

H. Remove the Processor/Memory Card

1. Attach an anti-static strap to your wrist, and ground it to the main chassis.

2. Loosen and remove the two (2) screws that secure the processor/memory card to the chassis.

3. For Dx70/Dx80 systems, disconnect the two power cables from the DC-to-DC converter board under the processor assembly.

4. Pull out the two plastic levers on the processor/memory card.
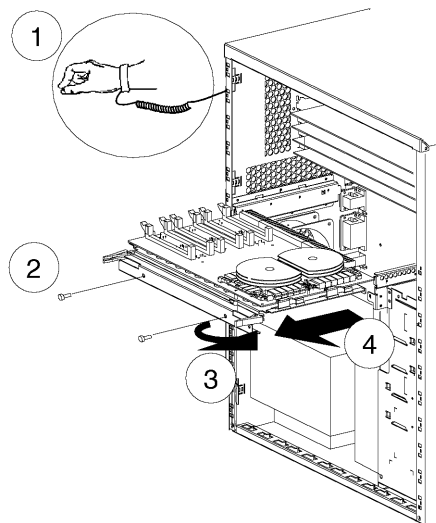
ulmu178

5. Pull the processor/memory card out of the system cabinet, and set it down on an anti-static mat

I. Transfer Memory Modules

If you are installing a new Processor/Memory board as part of your system upgrade, you should now transfer the memory SIMMs from the old Processor/Memory board to the new Processor/Memory board. If you also have additional (new) memory, install it now, following the memory rules listed.

Memory Rules

1. Memory modules should be installed in pairs (a pair consists of two memory SIMMs of the same memory size).

2. The largest memory modules (SIMM pairs) must be installed in the lowest numbered slots followed by the next largest memory modules in the next lowest pair of slots, until all memory modules are installed.

3. Refer to the appropriate Figure (2-1, 2-2, 2-3, or 2-4) for the slot numbering sequence for the model number of your system.

4. If a Processor-only upgrade is being performed, skip to step Q, otherwise continue with the next step.

| NOTE | **Models D250/D260/D350/D360 Only.** If memory modules of 64Mb or 256Mb are part of your memory, your computer's PDC must be revision 36.20 or later. To verify the PDC revision level, use the *fv* command in the Boot Console Handler.

Models D210/D310 Only. If memory modules of 64Mb are part of your memory, your computer's PDC must be revision 36.20 or later. To verify the PDC revision level, use the *fv* command in the Boot Console Handler.

Model Dx70 Only. If memory modules of 512Mb are part of your memory, your computer's PDC must be revision 37.28 or later. To verify the PDC revision level, use the *fv* command in the Boot Console Handler.

PDC Revision Check

Perform the following steps to check the PDC revision level using the Boot Console Handler:

1. Log on as root and enter `reboot -r`. This command will shutdown the operating system and reboot the system.

2. If autoboot is on, you will receive the following message:
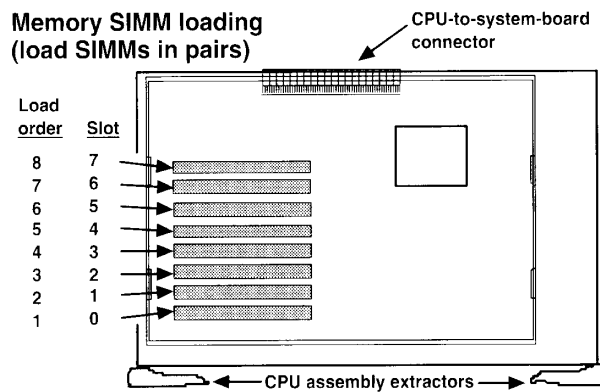
   ```
   "Process is starting autoboot process
   To discontinue, press any key within 10 seconds"
   ```

   At this point, press any key within 10 seconds to interrupt the boot process.

3. The Main menu is displayed. At the Main menu prompt enter **in**.

4. The Information Menu is displayed. At the information Menu prompt, enter **fv**.

The system will respond with the current PDC firmware revision. If the revision is does not match the specified revision in the NOTE, contact your local Hewlett-Packard Service Personnel for PDC Firmware Update procedures.
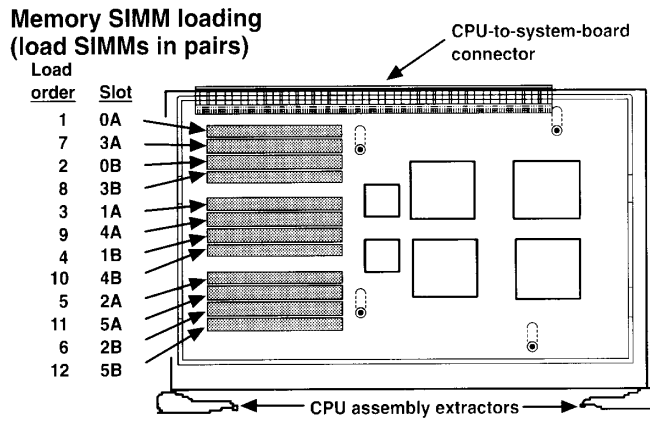
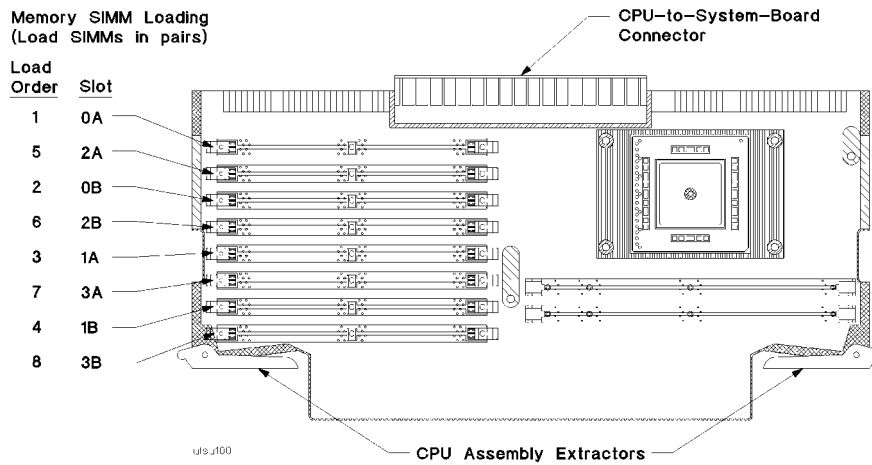**Figure 2-1**   **D200/D210/D310 Memory Locations**

Figure 2-2   **D250/D350/D260/D360 Memory Locations**
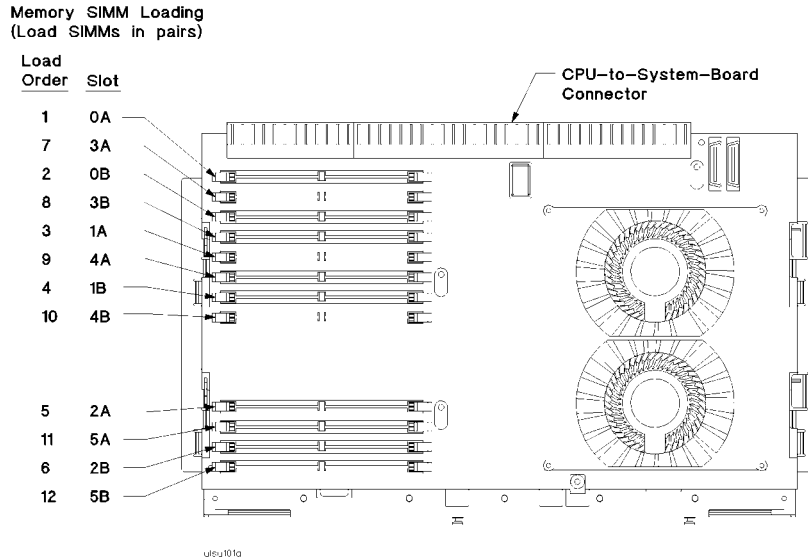

Figure 2-3   **D220/D230/D320/D330 Memory Locations**

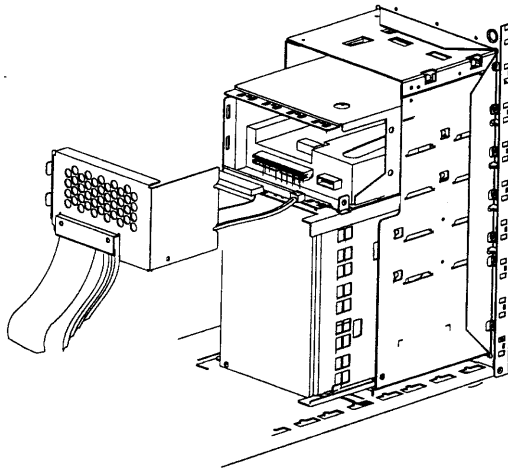**Figure 2-4   D270/D370 and D280/380 Memory Locations**

Figure 2-5   D390 Memory Locations
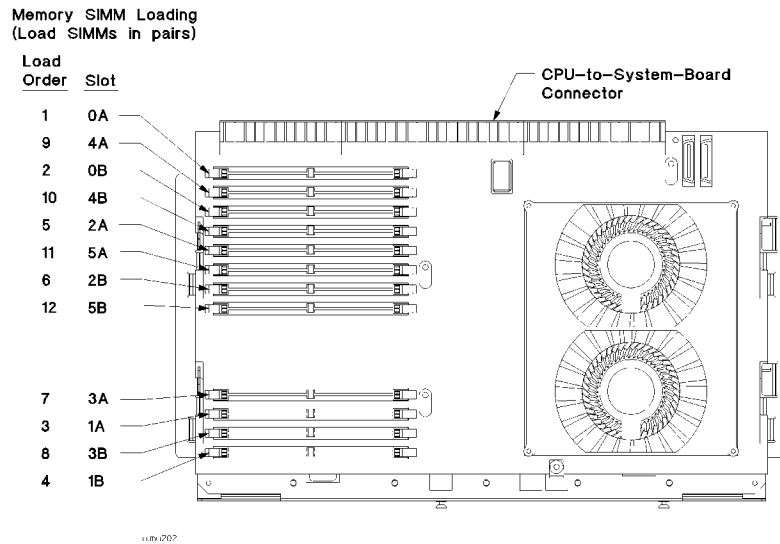
J. Remove Power Supply

1. Remove the SCSI cable from the EMI clip, located on the back of the removable media housing.

2. Remove the removable media housing sheet metal cover from the back of the media housing.

3. Disconnect the power cables from the removable media devices.

4. Disconnect the power cables from the hotswap bay or SE-SCSI disks.

5. Disconnect all power supply cables from internal boards.

6. Loosen and remove the four (4) screws that secure the power supply to the rear panel.

7. Pull the power supply out of the server cabinet.
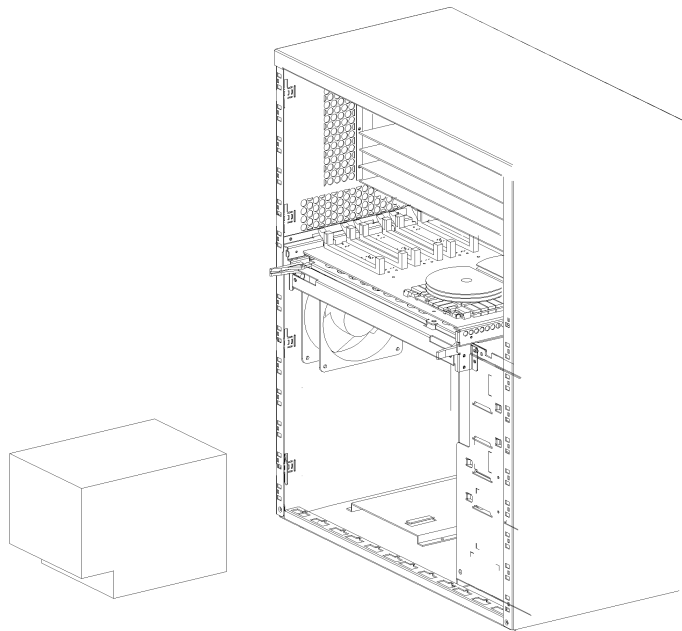
ulsm702

K. Remove System/Core I/O Board

1. Disconnect all external cables from the back of the computer.

2. Remove the two screws that secure the I/O card retainer bracket to the I/O card cage.

3. Pull the bracket out of the cabinet.
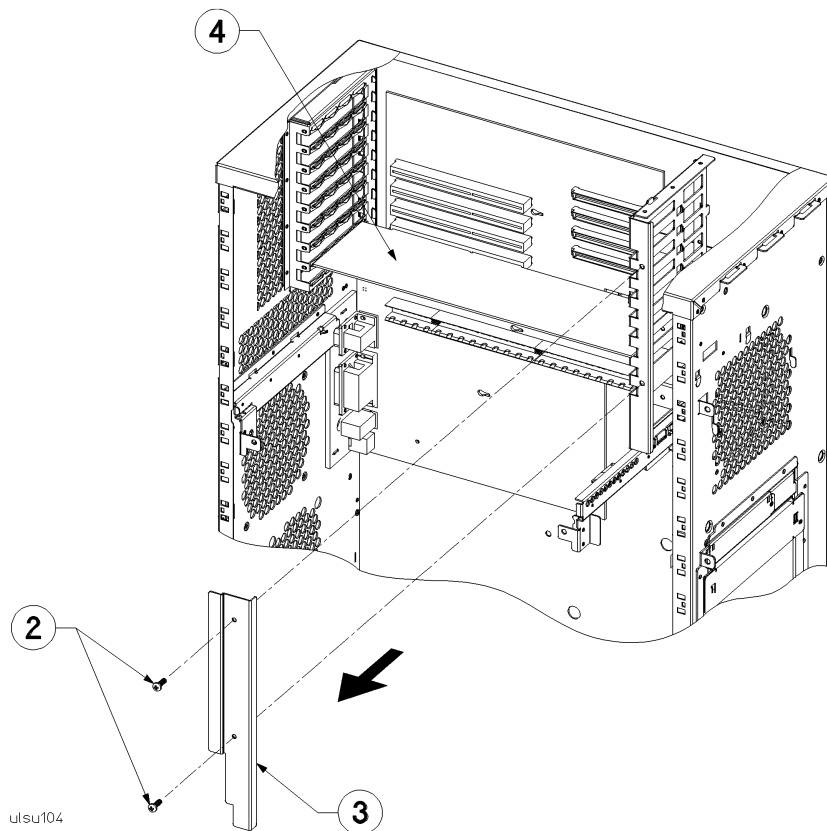
4. Remove all EISA or HSC I/O cards.

5. Remove the two retaining screws (one at top right, and one at bottom left) that secure the system/core I/O board to the inside of the server cabinet.

6. Slide the system/core I/O board toward the front of the server cabinet to loosen it from the stand-offs that the board mounts on.

7. Pull the system/core I/O board out of the cabinet.
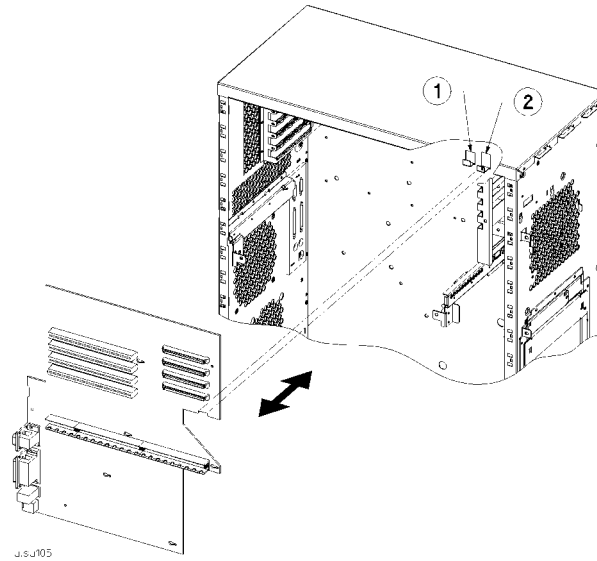
L. Install New System/Core I/O Board

1. Place the system/core I/O board into the server cabinet, aligning the five keyholes in the board with the five stand-offs on the inside of the cabinet wall. Be aware that there are two mounting tabs (1) and (2) on the inside of the cabinet. The system card hooks onto tab (2) with tab (1) behind the card as a standoff.

2. Slide the system/core I/O board toward the rear of the server cabinet while at the same time pushing the board toward the side of the cabinet so that the stand-offs are inserted and locked into the five keyholes on the board.

3. Secure the system/core I/O board to the cabinet using the two mounting screws.

4. Replace the EISA or HSC I/O cards that were removed.

5. Re-connect all cables that were removed.

If this completes the upgrade, skip ahead to step P, otherwise, proceed with the following steps.

M. Remove Single-Ended SCSI Disk

Before removing the S/E SCSI disks from the computer cabinet, be sure a full system backup has been performed.

1. Disconnect all data and power cables from the back of the S/E SCSI disks.

2. Remove the two (one on each side) mounting screws from the front of the S/E SCSI disks, and slide the disks out of the lower peripheral bay.

3. If there is an EMI cover plate below the S/E SCSI disks, remove it also.
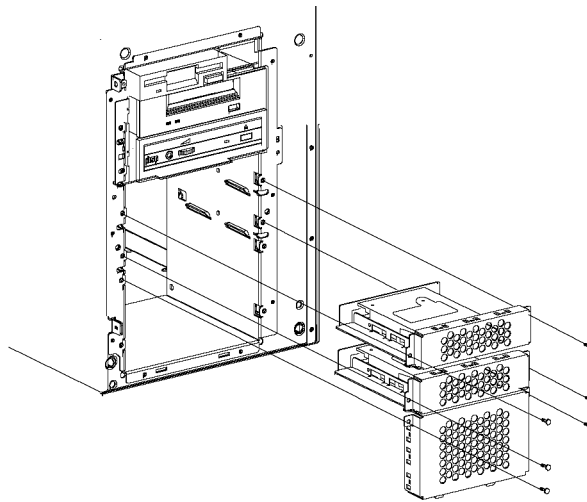
ulpu719a

N. Install Disk Bay for F/W SCSI Disks

1. Insert the Hotswap Peripheral bay into the lower peripheral bay of the cabinet.

2. Secure the hotswap disk bay with six (three along each side) mounting screws.

3. Connect the power cables, F/W SCSI data cable, and presence cable to the hotswap backplane.

4. Connect the other end of the presence cable to the system/core I/O card. Refer to the system label on the inside of the side panel for location diagrams.

The FW-SCSI data cable connects to the FW-SCSI adapter card installed in step R (HSC card slot 1). This is done before the EMI shield is replaced (step S).

ulsu106
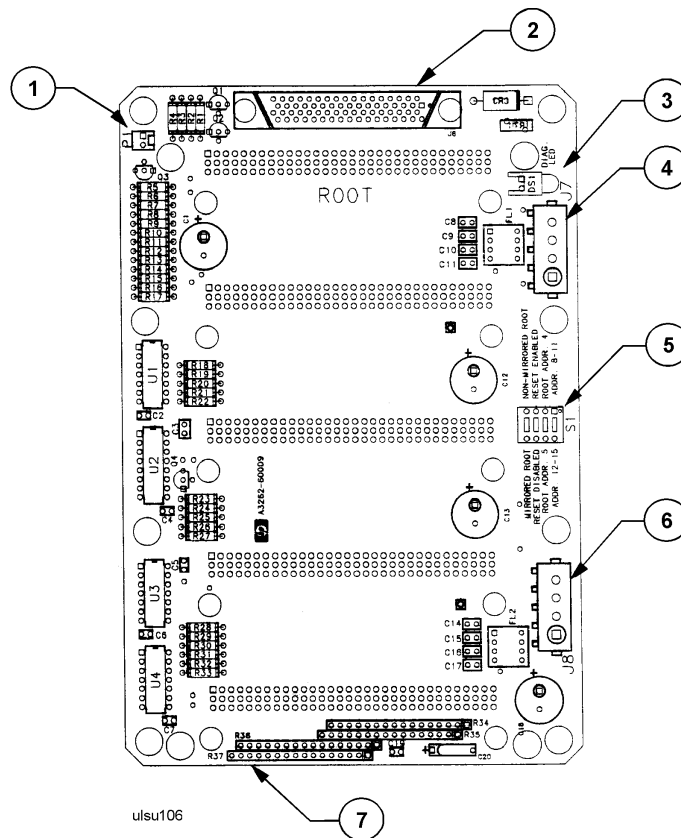
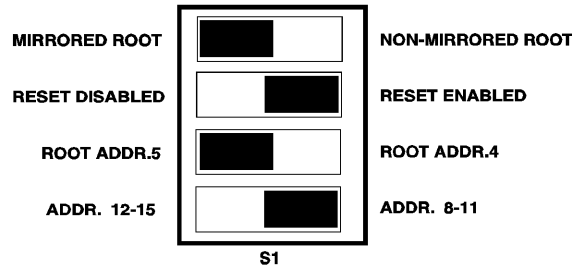| 1	Presence Cable Connector
2	SCSI Bus Connector
3	Diagnostics LED
4	Upper Power connector
5	Four position dip switch, S1
6	Lower Power Connector
7	SCSI Bus Termination

The four position dip switch (S1), located on the hotswap backplane, enables and disables certain functions, and controls disk module addressing. You may need to reset some of these switches to accommodate your system needs. The individual switch positions are defined as follows:

MIRRORED ROOT		NON-MIRRORED ROOT
RESET DISABLED		RESET ENABLED
ROOT ADDR.5		ROOT ADDR.4
ADDR. 12-15		ADDR. 8-11

S1

hsswitch.tif

Mirrored Root Switch Position:

The first position is labeled MIRRORED ROOT — NON-MIRRORED ROOT. When set to mirrored root, the top most disk module will exhibit a normal spin delay of either 40 or 50 seconds, dependent on the root address setting. Spin delays are necessary for modules included in LVM mirroring. The non-mirrored root setting will allow the top disk module to begin spin-up at power on. The default setting is mirrored root.

Reset Switch position:

The second position is labeled RESET DISABLED — RESET ENABLED. This switch determines if the hot-plug event reset circuitry is active or inactive. The default setting is reset enabled.

Root Address Switch Position:

The third position is labeled ROOT ADDR.5 — ROOT ADDR.4. This switch selects the SCSI address of the top disk module (root) independent of the other disk module locations. The default setting is root addr.5.

Address Switch Position:

The fourth position is labeled ADDR. 12-15 — ADDR. 8-11. The lower four disk module positions in a Model D3xx system will be either 12, 13, 14, 15, or 8, 9, 10, 11. In the Model D2xx system optional hotswap bay, the second disk position will be either 12 or 8. The default setting is addr. 8-11.

O. Install F/W SCSI Disks

1. Pull out the latch of the disk so that it is in the open position.

2. Insert the disk into a peripheral slot. The disks should be loaded top to bottom.

3. Push the disk all the way into the slot. The disk locking latch should click shut when the disk is completely inserted. If it does not click, gently push the latch until you hear or feel the latch lock into place.
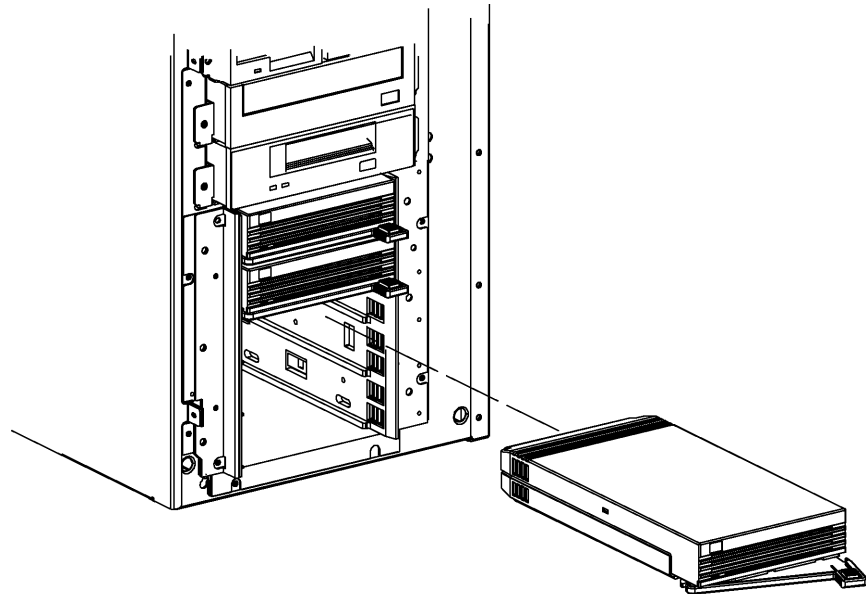
ulmu168

P. Install New Power Supply

1. Insert the new power supply into the computer cabinet.

2. Secure the power supply to the chassis with the four mounting screws.

3. Reattach all the power supply cables that were removed (from the peripherals and System/Core I/O card).

   A. For models D270/D370, D280/D380, and D390 there are two power connectors on the bottom of the Processor/Memory card for the power regulator portion of that card.

   B. The connectors are identical and keyed the same. You can interchange these connections without causing a power problem.

4. Set the voltage switch to the appropriate setting for your area.

NOTE   System models D270/D370, D280/D380, and D390 have a power supply that automatically switches to match the input voltage level. There is no voltage selector switch on those two models.

5. **DO NOT** plug the power cord in at this point.

Q. Install New Processor/Memory Card

1. Verify that an anti-static strap is still strapped to your wrist, and grounded to the main chassis.

2. Place the Processor/Memory card into the system cabinet so that the card rests on the metal rails with the large connector facing into the cabinet.

3. Pull the extractor levers on the Processor/Memory card out away from the card.

   A. For models D270/D370, D280/D380, and D390 there are two power connectors on the bottom of the Processor/Memory card for the power regulator portion of that card.

   B. The connectors are identical and keyed the same. You can interchange these connections without causing a power problem.

4. Slide the Processor/Memory card into the system cabinet until the large connector is properly seated in the corresponding system board connector.

5. Push in the two extractor levers on the Processor/Memory card.

6. Insert and tighten two screws to secure the Processor/Memory card in the cabinet.
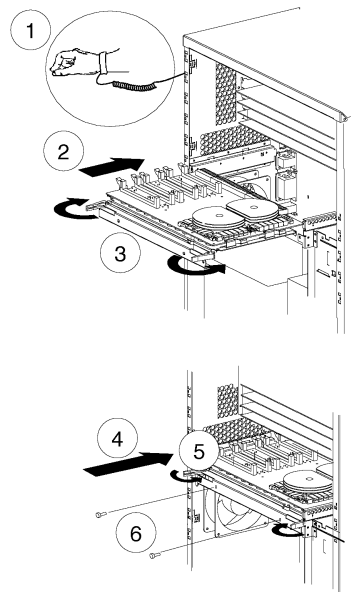
ulmu703

R. Install FW-SCSI to HP-HSC Adapter Card

1. Install the FW-SCSI card (P/N A2874-66005) into HSC slot number 1. Refer to the system label on the inside of the side panel for location diagrams.

2. Insert the slot retaining screw (one per card) and tighten to secure the adapter card in place.

3. Place the I/O card retainer bracket (removed in step K) onto the I/O card guide (right side.

4. Insert and tighten two screws to secure the retainer bracket.

S. Replace the EMI Cover

If your server came with an EMI cover installed, and you removed it in step G, you must reinstall it. If you have added the hotswap assembly as part of the upgrade you must add the EMI cover to the system. To install the EMI cover:

1. Place the EMI cover and SCSI ribbon cable close enough to the upper cabinet to connect the upper end of the ribbon cable to the connector on the FW-SCSI adapter card.

2. Insert the two upper notches of the EMI cover onto the tabs at the top of the server cabinet.

3. Flex the EMI cover slightly to insert the two notches at the bottom of the EMI cover onto the tabs of the processor/memory card.

4. Connect the lower end of the SCSI ribbon cable on the EMI cover to the backplane connector on the Hot-Swap Module.
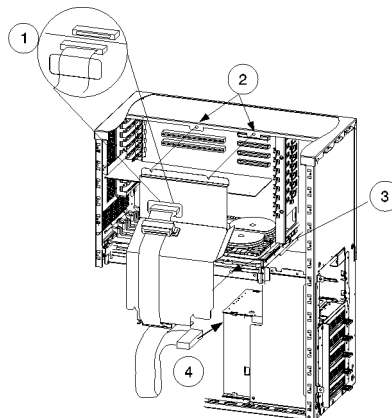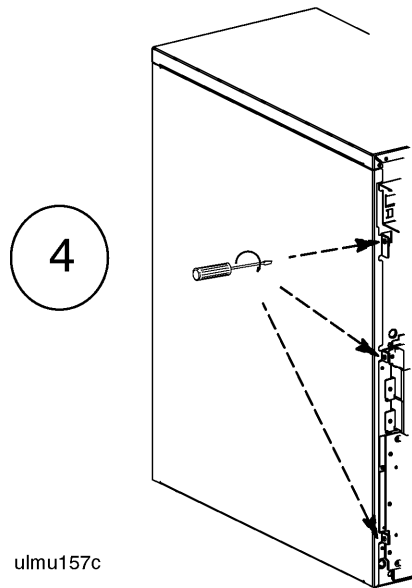
ulio704
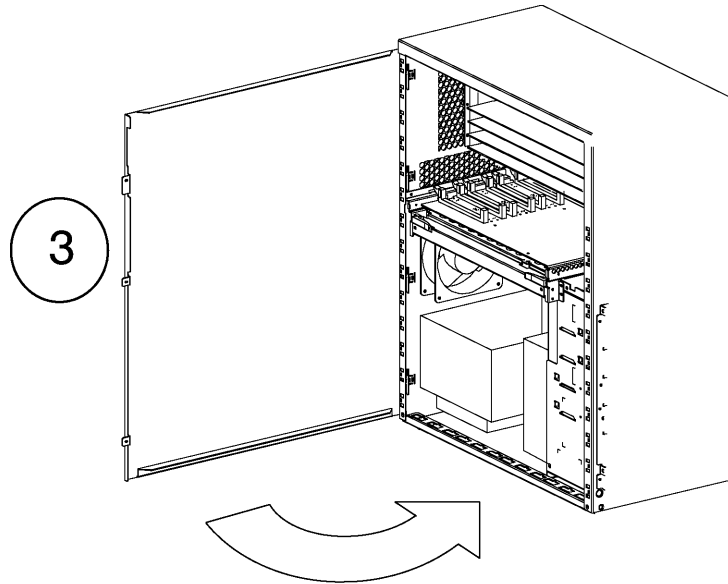
T. Replace the Side Panel

1. Position the hinge tabs of the side panel so that they go into the four slots at the rear of the system cabinet.

2. Lower the side panel until the hinge tabs are firmly resting in the slots.

ul184
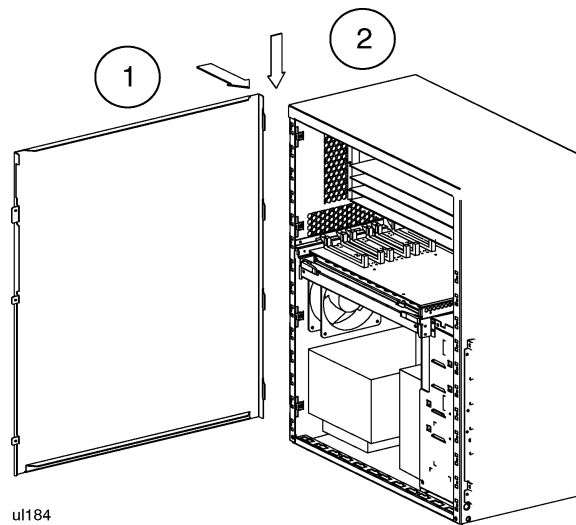
3. Close the side panel.

4. Align and tighten the three captive screws of the side panel into the holes at the front of the system cabinet.

ulmu157c

U. Replace the Front Bezel

1. Place the top of the bezel down onto the top front of the system cabinet, and press the top of the bezel down until it clicks into place.

2. Push the bottom of the bezel into the bottom of the system cabinet front until it clicks into place.

3. Lock the peripheral door.
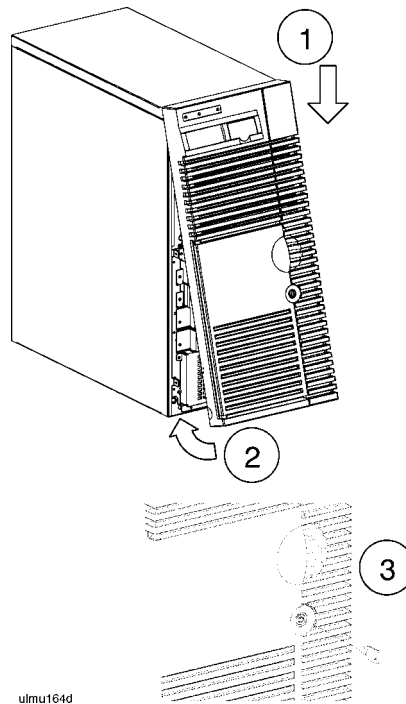
ulmu164d

This completes the upgrade installation procedure. Proceed to the **Upgrade Verification** procedure in *Chapter 3*.

R Class System Upgrades

A. System Backup

Refer to the appropriate system software documentation (System Administration type books) for the procedures to perform a full system backup.
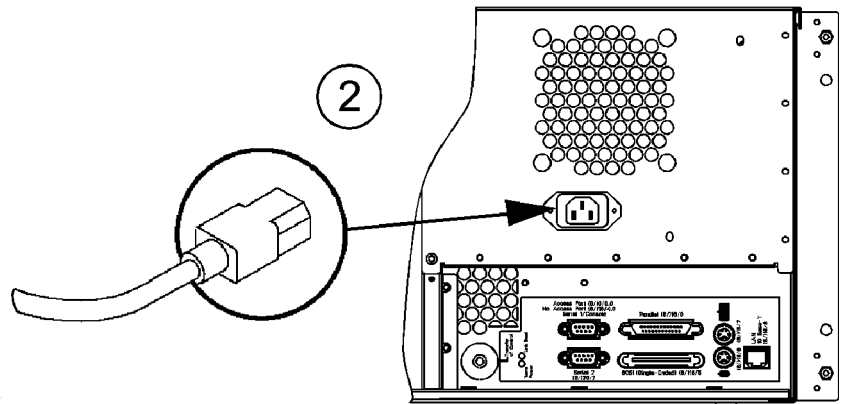
B. Shut Down the Operating System

Before going to the next step of the upgrade procedure, shut down the operating system by entering:

```
shutdown -h
```

C. Turn Off Power to the System

1. Set the Power switch on the server front panel to the OFF position.

2. Disconnect the AC power cord from the system cabinet.
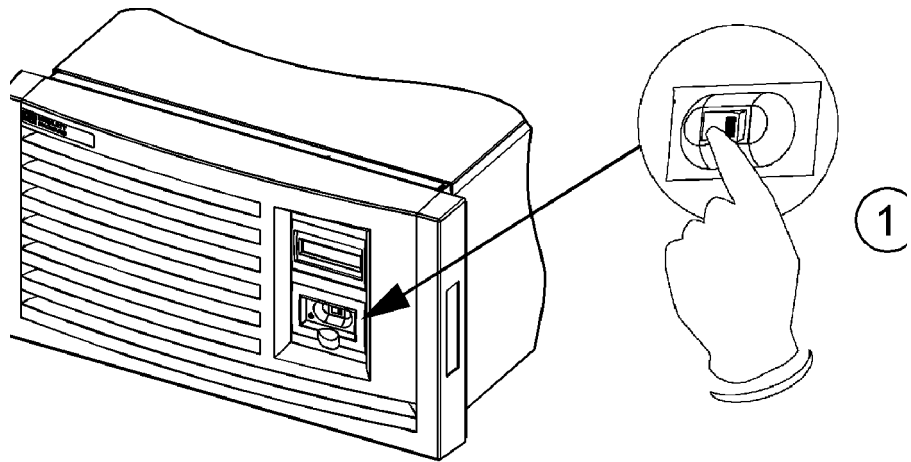
mu004

D. Remove the Top Cover

1. Remove the three screws holding the top sheet metal cover in place.

2. Grasp the sides of the top front panel and lift it up and toward the rear.

3. Pull the top rear panel toward the front of the server, then lift it up and out.
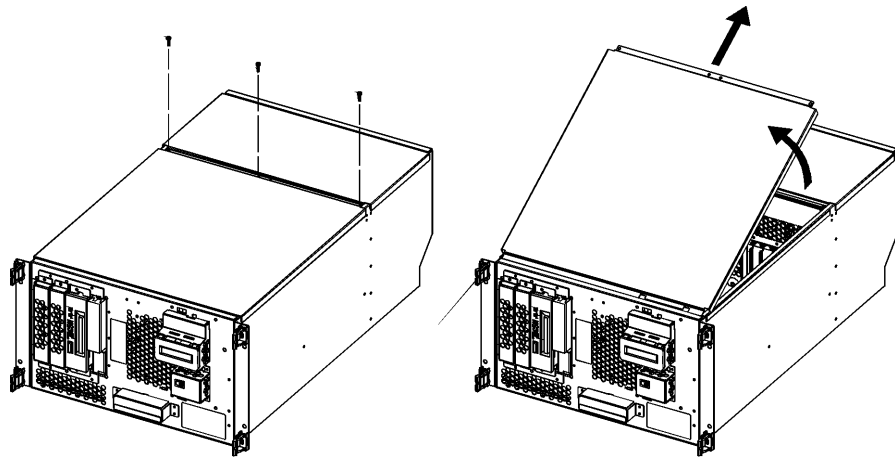
dfmu006

E. Remove the EMI Cover

1. Loosen the two notches at the top of the EMI cover from the tabs on the Processor/Memory card by pulling back and slightly flexing the EMI cover until the notches come loose.

2. Pull the EMI cover up slightly until the two notches at the bottom of the cover come loose from the tabs at the side server chassis.
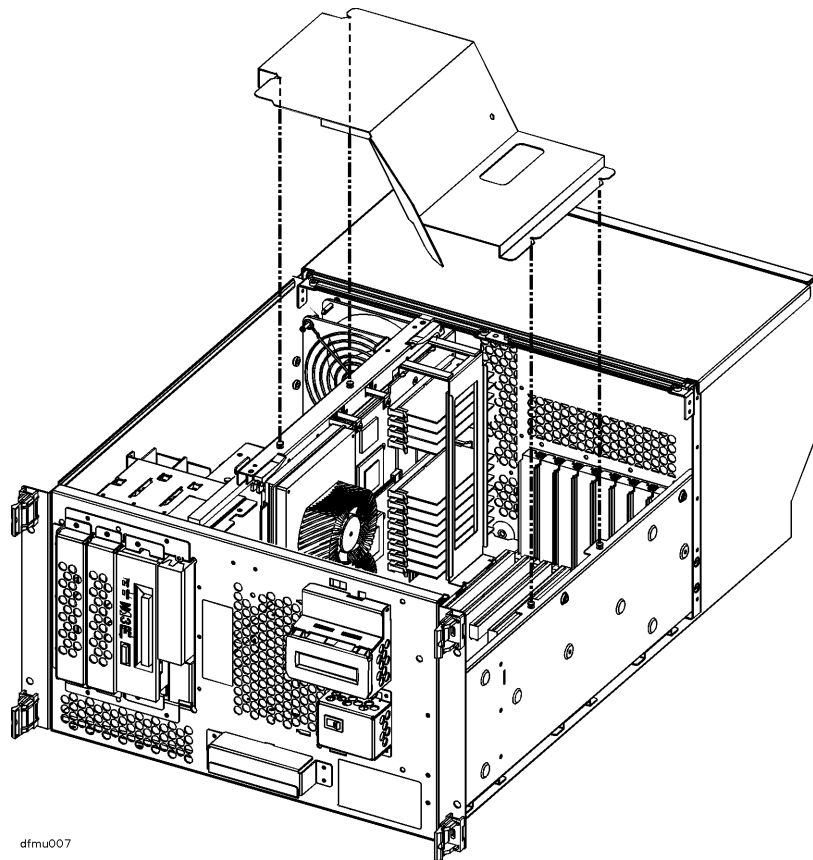
dfmu007

F. Remove the Memory Simm Retainer

Lift the memory SIMM retainer directly up and out of the system.
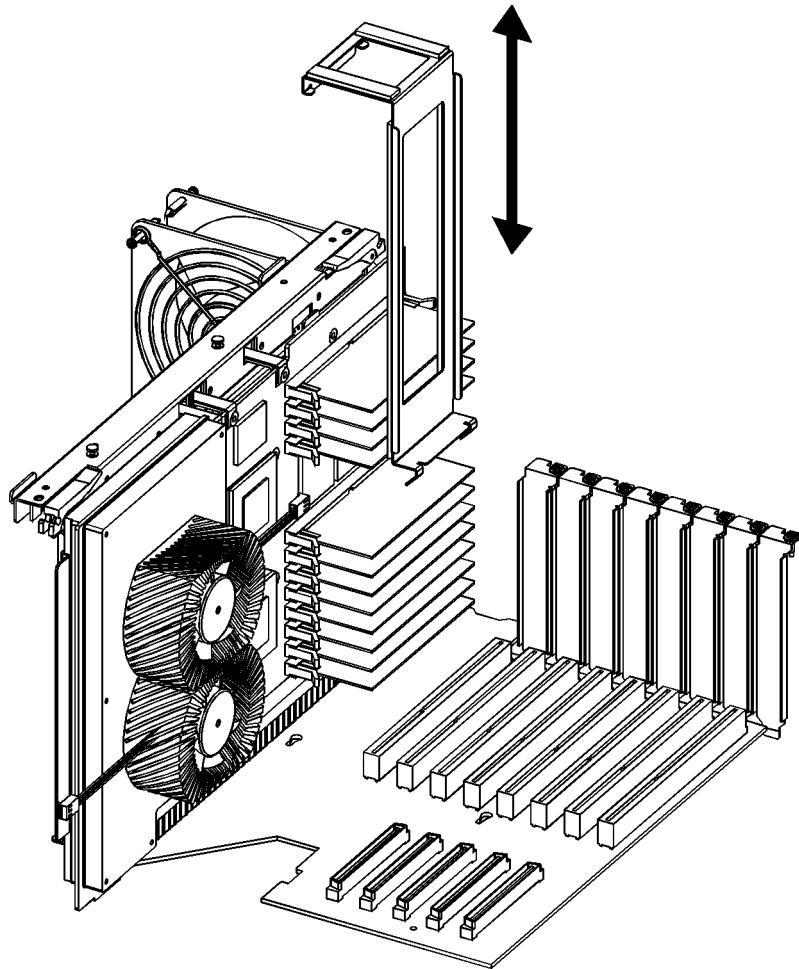
dfmu005

G. Remove the Processor/ Memory Card

1. Attach an anti-static strap to your wrist, and ground it to the main chassis.

2. Disconnect the cables label P13 and P14 from the back of the Processor/ Memory card.

3. Loosen and remove the two (2) screws that secure the Processor/Memory card to the chassis.

4. Pull out the two plastic levers on the Processor/Memory card.

5. Pull the Processor/Memory card out of the system cabinet, and set it down on an anti-static mat.

H. Transfer Memory Modules

If you are installing a new Processor/Memory board as part of your system upgrade, you should now transfer the memory SIMMs from the old Processor/Memory board to the new Processor/Memory board. If you also have additional (new) memory, install it now, following the memory rules listed.

Memory Rules

1. Memory modules should be installed in pairs (a pair consists of two memory SIMMs of the same memory size).

2. The largest memory modules (SIMM pairs) must be installed in the lowest numbered slots followed by the next largest memory modules in the next lowest pair of slots, until all memory modules are installed.

3. Refer to Figure 2-6 and Figure 2-7 for the slot numbering sequence for the model number of your system.

4. If a Processor-only upgrade is being performed, skip to step N, otherwise continue with the next step.

Figure 2-6   **Memory Module Load Order — R380**
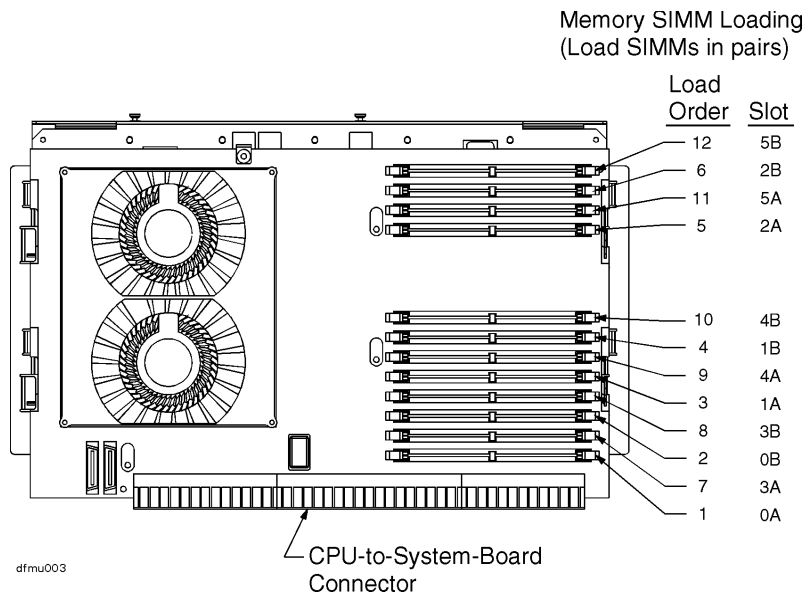
Figure 2-7 **Memory Module Load Order — R390**

Memory SIMM Loading
(Load SIMMs in pairs)

Load Order	Slot
4	1B
8	3B
3	1A
7	3A
12	5B
6	2B
11	5A
5	2A
10	4B
2	0B
9	4A
1	0A

dfmu009

CPU-to-System-Board Connector
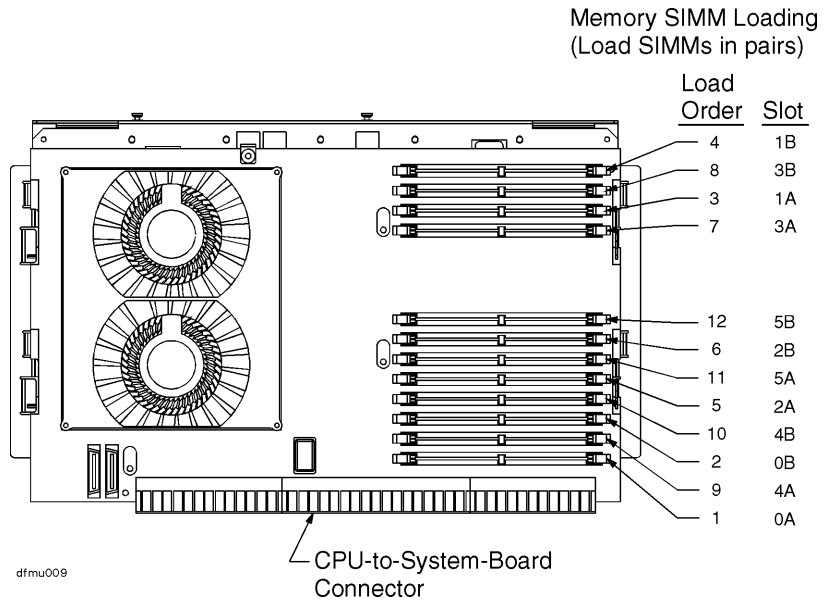
I. Install New Processor/Memory Card

1. Verify that an anti-static strap is still strapped to your wrist, and grounded to the main chassis.

2. Place the Processor/Memory card into the system cabinet so that the card rests on the metal rails with the large connector facing into the cabinet.

3. Pull the extractor levers on the Processor/Memory card out away from the card.

4. Slide the Processor/Memory card into the system cabinet until the large connector is properly seated in the corresponding system board connector.

5. Push in the two extractor levers on the Processor/Memory card.

6. Insert and tighten two screws to secure the Processor/Memory card in the cabinet.

7. Attach the two power connectors on the bottom of the Processor/Memory card for the power regulator portion of that card. (The connectors are identical and keyed the same. You can interchange these connections without causing a power problem.)

J. Replace the Memory SIMM Retainer

Refer to the figure on this page while performing these steps.

1. Position the memory SIMM retainer between the memory SIMMs and the HSC card slot, centered over the memory SIMMs.

2. Lower the retainer until its bottom flange rests on the plastic HSC card connector just above the system board in the bottom of the chassis.

|	
CAUTION	Avoid contact between the metal tabs at the foot of the retainer and the circuitry on the system board beneath. Otherwise, damage to the system board may occur.

3. Pull the top of the retainer toward the memory SIMMS until the top rear flange hooks behind the processor/memory board, and the small tabs next to the flange rest on the top edge of the processor/memory board.
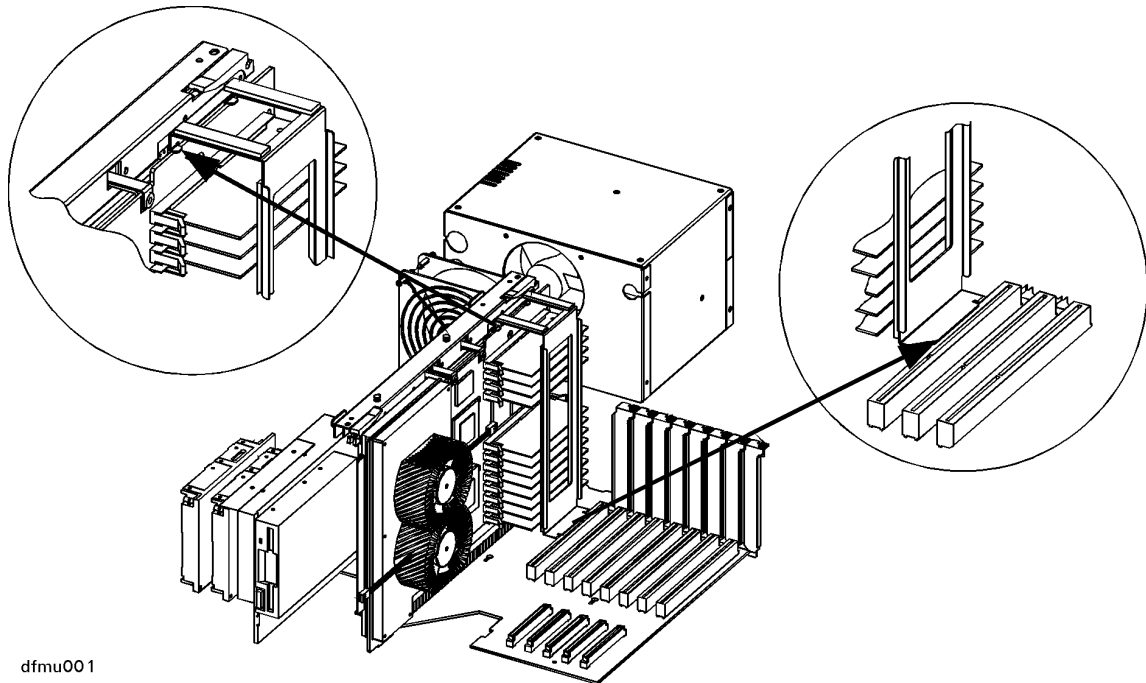
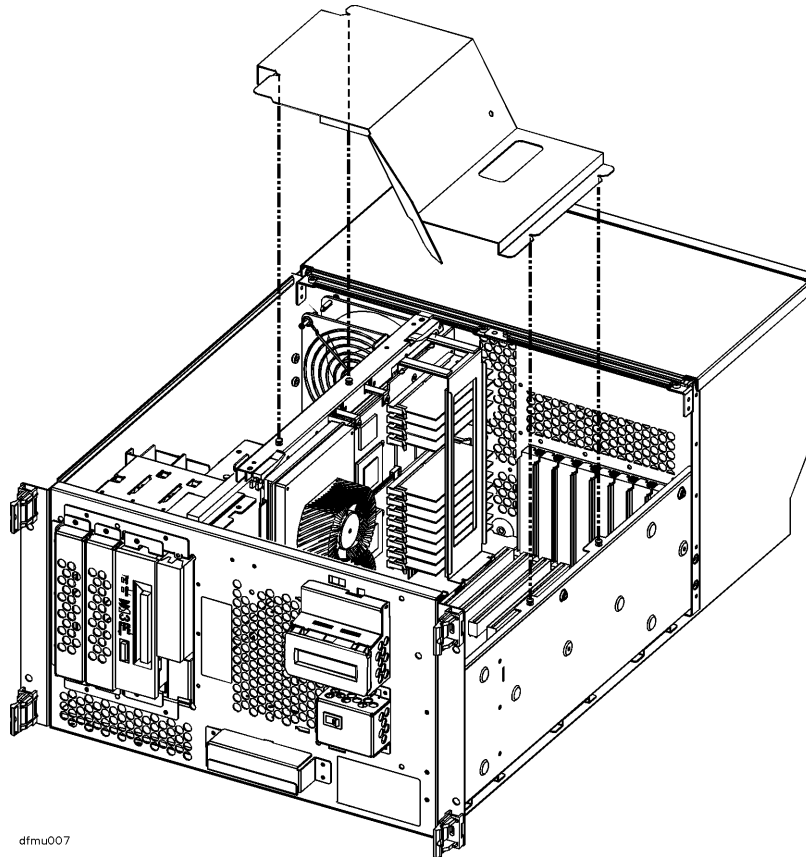dfmu001

K. Replace the EMI Cover

Place the EMI cover as shown in the illustration below.

1. Insert the two lower notches of the EMI cover onto the tabs at the side of the server cabinet.

2. Flex the EMI cover slightly to insert the two notches at the top of the EMI cover onto the tabs on the processor/memory card.

dfmu007

L. Replace the Top Sheet Metal Panels

1. Position the hinge tabs of the side panel so that they go into the four slots at the rear of the system cabinet.

2. Lower the side panel until the hinge tabs are firmly resting in the slots.

3. Close the side panel.

4. Align and tighten the three captive screws of the side panel into the holes at the front of the system cabinet.
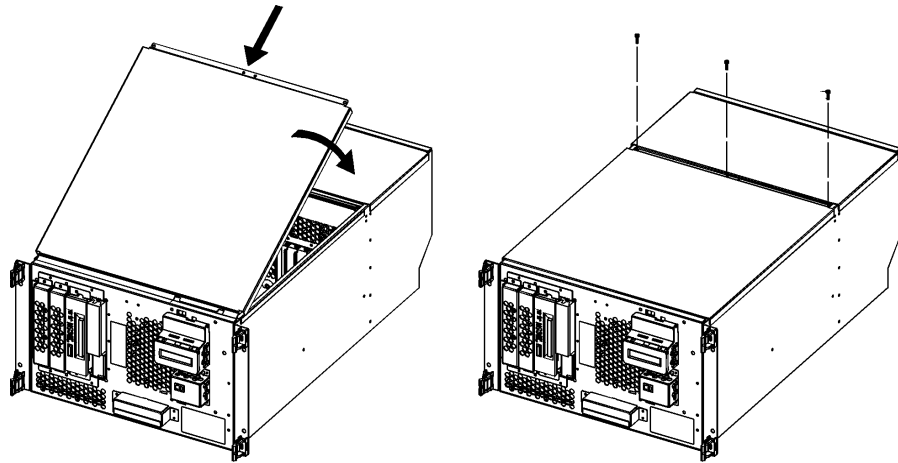
dfmu008

This completes the upgrade installation procedure. Proceed to the **Upgrade Verification** procedure in *Chapter 3*.

3   Upgrade Verification

Overview

The following list is a summary of the verification process. Refer to the Upgrade Verification Procedure below for detailed instructions.

A. Connect power cord.

B. Turn on power to the system.

C. Observe console display for selftest error messages.

D. Halt boot process to get the Boot Console prompt.

E. Verify upgrade installation by running the proper Boot Console Handler process.

F. Run Support Tools Manager from the Operating System prompt.

Upgrade Verification Procedure

A. Connect Power Cord

Connect the power cord to the system cabinet.

NOTE   Be sure to verify that the voltage selector switch is set to the voltage that matches the source outlet voltage. R Class servers and D Class models Dx70 and Dx80 do not have a voltage selector switch. Those two models have an auto-ranging power supply.

B. Turn On Power to the System

Set the front panel power switch on the system cabinet to the ON position. The Green light should come on.

C. Check for Selftest Error Messages

1. Observe console display for selftest error messages.

2. If error messages appear, write them down and refer to the *D Class and R Class Operator's Guide* (part number A3262-96016) for more information, or contact your local Hewlett-Packard Service Representative.

D. Halt the Boot Process to Get to the Boot Console Prompt

If Autoboot is set to ON, you will have to interrupt the boot process to get to the Boot Console Handler, where you will have access to the commands for verifying the memory installation.

When prompted; "**To discontinue, please press any key within 10 seconds**", press any key to halt the boot process. The following screen should be displayed on the system console.

```
Processor is booting from first available device.

To discontinue, press any key within 10 seconds.

Boot terminated.

------- Main Menu ---------------------------------------------------------


      Command                           Description
      -------                           -----------
      BOot [PRI|ALT|<path>]             Boot from specified path
      PAth [PRI|ALT|CON|KEY] [<path>]   Display or modify a path
      SEArch [DIsplay|IPL] [<path>]     Search for boot devices
      TOC                               Soft boot the system

      COnfiguration [<command>]         Access Configuration menu/commands
      INformation [<command>]           Access Information menu/commands
      SERvice [<command>]               Access Service menu/commands
```

```
        DIsplay                              Redisplay the current menu
        HElp [<menu>|<command>]              Display help for menu or command
        RESET                                Restart the system
--------
Main Menu: Enter command >
```

E. Verify Upgrade Installation

1. At the Main menu prompt, type "**in**" to get to the Information menu.

2. Select the appropriate information command to display the components that were installed from the upgrade kit. You may also select Help for more information on the commands available.

3. For Dx20/Dx30/Dx70 upgrades, confirm the current model by booting the system to **ISL**. The LCD will display the model. Select the appropriate sticker from the A1703-80088 label and apply it to the "model" field of the door label.

4. For R Class upgrades and D Class Dx80 upgrades, confirm the current model by typing "**in pr**" at the prompt. The terminal will display the current model. Select the appropriate sticker from the A1703-80088 label and apply it to the "model" field of the door label.

5. When finished, return to the Main Menu and type "**bo**" to continue the boot process.

6. Refer to step F for verification type diagnostics run from the operating system.

F. Operating System Online Diagnostics

At the operating system interface, you can run the online diagnostics to further verify the upgrade installation. The diagnostics are available in the Support Tools Manager (STM), in three different user interfaces:

- Graphical user interface (xstm)

- Menu interface (mstm)

- Command line interface (cstm).

Graphical User Interface (XSTM)

1. To use the graphical user interface, you must have a graphics console running HP VUE.

2. To access the xstm, type *xstm* at the operating system prompt in a terminal window.

3. Use the mouse to point and click on menus or components on the map.

Menu Interface (MSTM)

1. To access the menu interface, type *mstm*.

2. You can verify the upgrade installation components by pressing the *verify* function key.

3. you can press the *Help* function key at any time to get more information.

Command Line Interface (CSTM)

1. To access the command line interface, type *cstm*.

2. To get more information, type *help*.

After running the desired verification diagnostics, the hardware upgrade installation is complete. You may have to do some system or I/O level configuration in the software.

If the verification procedure indicates that a problem exists, contact your local Hewlett-Packard Service Representative.

Troubleshooting

For troubleshooting information, refer to the *D Class and R Class Operator's Guide*, or contact your local Hewlett- Packard Service Representative.