Pentium® II Processor Module

Installation Guide

Part Number: ER- B4UAE-IA. A01

Digital Equipment Corporation

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Preface P

Introduction

This guide describes how to install a Pentium® II processor module in a Prioris HX 6000 or MX 6200 Series server. This guide also describes how to add Dual In-Line Memory Modules (DIMMs) onto an existing Pentium® II processor module. The information presented will help to familiarize you with all aspects of the Pentium® II processor module and provide a reference tool for questions you might have in the future.

Audience

This guide is written specifically for anyone responsible for installing the Pentium® II processor module, or installing additional memory to an existing Pentium® II processor module.

Organization

This guide contains the following:

- Chapter 1: Getting Started — Describes the Pentium® II processor module kit contents, identifies the Pentium® II processor module component locations, and provides Pentium® II processor module configuration guidelines.
- Chapter 2: Upgrading Your BIOS — Describes the BIOS upgrade procedures and using the Crisis Recovery diskette.
- Chapter 3: DIMM Installation — Provides procedures for installing DIMMs on a Pentium® II processor module and installing a Pentium® II processor module in your server.
- Chapter 4: Pentium® II Processor Module Upgrade — Provides procedures for upgrading from a single Pentium® II processor configuration to a dual Pentium® II processor configuration.
- Chapter 5: Troubleshooting — Provides helpful problem solving information in the event of DIMM or Pentium® II processor module failures.
- Chapter 6: Technical Specifications — Provides vital Pentium® II processor module operating and performance specifications. Also included is information about the switch configurations for the Pentium® II processor module.

Related Material

For additional information on your Prioris HX 6000 or MX 6200 Series server that is not covered in this guide, refer to the:

Prioris HX 6000 System Reference (Part Number: ER-B50WW-UA. A01)

Prioris MX 6200 System Reference. (Part Number: ER-B40WW-UA. A01)

Special Notices

Three kinds of special notices are used in this Installation guide to emphasize specific information.

WARNING: indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.

CAUTION: indicates the presence of a hazard that might cause damage to hardware or that might corrupt software.

NOTES: are used to provide additional information.

Getting Started 1

Introduction

The Pentium® II processor module upgrade kits allow you to upgrade your server to a single or dual Pentium® II processor configuration. The Pentium® II processor module also allows you to install up to 512 MB of EDO/ECC server memory via Dual In-Line Memory Modules (DIMMs). Note that DIMMs must be ordered separately and installed on the Pentium® II processor module prior to installing it in the server.

CAUTION: Only install DIMMs supplied by Digital Equipment Corporation. DIGITAL does not support server performance, product warranty, or service calls resulting from installing non-qualified DIMMs.

The remainder of this chapter identifies the Pentium® II processor module kit contents, major components and configuration guidelines. Subsequent chapters provide instructions on how to:

1. Upgrade your server's BIOS to the minimum required version. Refer to Chapter 2, "Upgrading Your BIOS," for more information.

NOTE: You must install the required minimum BIOS revision before installing a Pentium® II processor module.

2. Install server memory (DIMMs) onto an existing Pentium® II processor module. Refer to Chapter 3, "DIMM Installation" for more information.
3. Install a Pentium® II processor module for the first time. Refer to Chapter 4, "Pentium® II Processor Module Upgrade" for more information.
4. Install a second Pentium II processor onto an existing Pentium® II processor module. Refer to Chapter 4, "Pentium® II Processor Module Upgrade" for more information.

Kit Contents

The Pentium® II processor module kit contains:

- One Pentium® II processor module
- One Pentium® II processor (installed)
- One Voltage Regulator Module (VRM)
- One terminator card
- Antistatic wrist strap
- ServerWORKS Quick Launch CD-ROM
- Installation Guide

NOTE: The Pentium® II processor module kit also includes a product nameplate and side panel labels. These items can be used to update your server with the latest Pentium® II product identity.

The Pentium® II processor upgrade kit contains:

- One Pentium® II processor
- One Voltage Regulator Module (VRM)
- Antistatic wrist strap
- Installation Guide

Pentium® II Processor Module Components

Item	Qty	Description
A	1	1st Pentium® II processor
B	1	2nd Pentium® II processor slot or terminator card
C	1	Dip switch for processor settings
D	4	DIMM sockets
E	1	2nd VRM slot
F	1	1st VRM

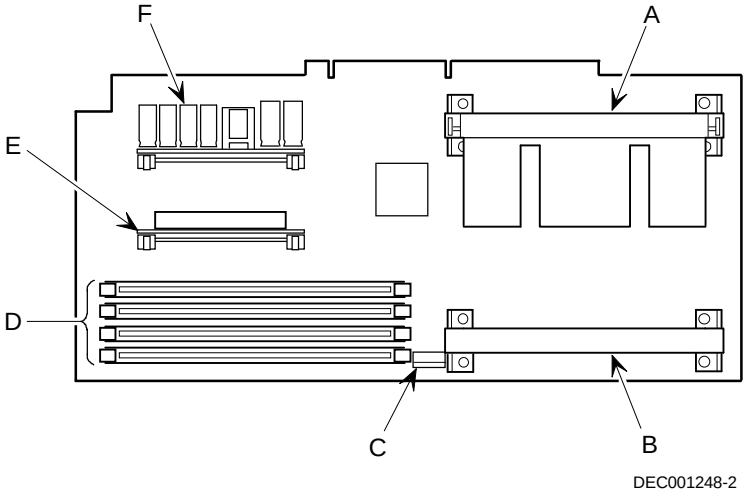

Figure 1-1. Pentium® II Processor Module Component Locations

Tools and Supplies Needed

To install the Pentium® II processor module you will need the following items:

- A Phillips screwdriver
- An antistatic wrist strap with grounding clip (supplied)
- Three 3 ½-inch, 1.44 MB high-density MS-DOS formatted diskettes

NOTE: Have the Prioris *HX 6000 or MX 6200 Series System Reference* available for reference during the BIOS upgrade and Pentium® II processor module installation procedures.

Minimum System Configuration

Installing Pentium® II processor modules in your Prioris HX 6000 or MX 6200 Series server for the first time requires system BIOS revision 2.0, or greater. To verify your BIOS revision, reboot your server. The BIOS revision appears on your monitor screen during server startup. You can also verify BIOS revision by scrolling through the Operator Control Panel (OCP) on the Prioris HX 6000 Series server while the server is running.

If your server does not have the correct BIOS version, Refer to Chapter 2 "Upgrading Your BIOS" for information on upgrading your server's BIOS. You **must** install the new BIOS **before** installing your Pentium® II processor module or upgrade kit.

Pentium® II Processor Module Configuration Guidelines

- Use only Digital-supplied Pentium® II processor modules
- Use only Digital-supplied DIMMs
- The server BIOS must be version 2.0 (or greater) to install a Pentium® II processor module

Pentium® II Processor Configurations

The following table lists the available MX 6200 and HX 6000 Pentium® II processor upgrade configurations. The Prioris MX 6200 and HX 6000 server can have one or two Pentium® II processors installed.

Model MX 6200 or Model HX 6000	
Previous Configuration	**Upgrade Configuration**
1P Pentium Pro 256 KB cache	1P Pentium® II 512 KB cache (processor module kit only)
2P Pentium Pro 256 KB cache	2P Pentium® II 512 KB cache (processor module kit and upgrade kit required)
1P Pentium Pro 512 KB cache	1P Pentium® II 512 KB cache (processor module kit only)
2P Pentium Pro 512 KB cache	2P Pentium® II 512 KB cache (processor module kit and upgrade kit required)
1P Pentium® II 512 KB cache	2P Pentium® II 512 KB cache (upgrade kit only)

Upgrading Your BIOS 2

Introduction

This chapter describes how to upgrade your server BIOS to the minimum required version 2.0 (or greater) using the supplied Quick Launch CD-ROM. You must install the required minimum BIOS revision before installing a Pentium® II processor module.

The following procedures must be performed to update your server BIOS:

1. Create server diskettes from the ServerWORKS Quick Launch CD-ROM
2. Prepare your server for a BIOS update
3. Install the BIOS update (version 2.0, or greater)
4. Use the Crisis Recovery diskette (if needed)

Each procedure is detailed in the following sections of this chapter.

Creating Server Diskettes

The supplied Quick Launch CD-ROM will be used to create the server diskettes required to update your BIOS. You will need to obtain three blank 3 ½-inch 1.44 MB high-density diskettes (MS-DOS pre-formatted) to complete this procedure.

During this procedure, you will boot the Quick Launch CD-ROM and create a:

- BIOS Upgrade diskette
- Crisis Recovery Diskette
- System Configuration Utility (SCU) diskette

To create server diskettes proceed as follows:

1. Power up your server and boot the ServerWORKS Quick Launch CD-ROM. Note the version of your system BIOS displayed during the boot process.
2. From the Quick Launch main screen select the “Documentation” button, then view the Readme file for Pentium® II processor compatibility issues and other related platform information.
3. From the Quick Launch main screen, select the “Installations & Utilities” button, the utility tab, and then select the product family.
4. Insert the first blank MS-DOS formatted diskette into drive A, and then choose “Crisis Recovery Diskette.” Click on “Continue” to create the diskette. When completed, remove the diskette from drive A and label the diskette appropriately.
5. Insert the second blank MS-DOS formatted diskette into drive A, and then choose “BIOS Phlash Diskette,” Click on “Continue” to create the diskette. When completed, remove the diskette from drive A and label the diskette appropriately.
6. Insert the third blank MS-DOS formatted diskette into drive A, and choose “System Configuration Utility (SCU)” diskette. Select the BIOS version that you created in step 5 to create the appropriate SCU diskette. Click on “Continue” to create the diskette. When completed, remove the diskette from drive A and label the diskette appropriately.

7. Select “Exit” to end Quick Launch. Remove the CD-ROM.

Preparing the Server for a BIOS Update

Before you can update the server BIOS you must set the BIOS upgrade and boot block update switches (SW1-1 and SW1-3) to the enabled (ON) positions (see Figure 2-1). To prepare the server for a BIOS update, proceed as follows:

1. Turn off power to all external devices connected to server, and then turn the server off.
2. Unplug the server power cord from the wall outlet.
3. Disconnect the monitor power cord and disconnect any external devices.
4. Remove the side panel.

WARNING: For HX 6000 Series servers only, removing the side panels activates two interlock switches located at the top-left and top-right of your server. These switches inhibit power to your server when activated. You might injure yourself or damage your server if you attempt to bypass these switches.

5. Locate the DIP switch on the main logic board, and set the BIOS upgrade and boot block update switches (SW1-1 and SW1-3, respectively) to the enabled (ON) positions.

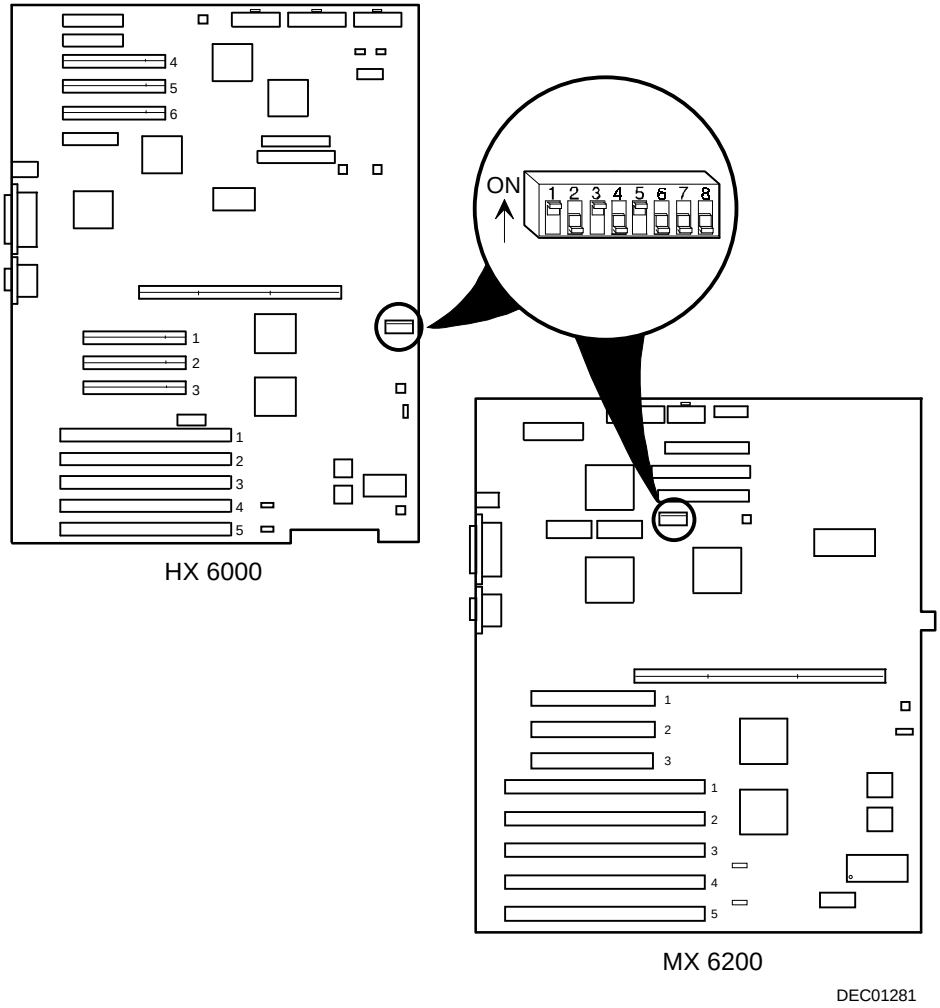

Figure 2-1. Dip Switch Locations

6. Replace the side panel.
7. Reconnect all external cables, power cords, and then turn power on.

Updating Your Server's BIOS

Your server is equipped with a flash ROM BIOS to allow easy upgrades as later versions become available. This BIOS initializes hardware and boots the operating system when the server is turned on. The BIOS also provides access to other services such as keyboard and disk drives.

To upgrade your BIOS to the required minimum version, proceed as follows:

1. Insert the BIOS Upgrade diskette that you created earlier into drive A.
2. Turn on the server.
3. Change the directory to `upgrade`.

   Example: `A:\> cd upgrade`
4. At the MS-DOS prompt, type `phlash` and then press Return. The following warning message appears on the monitor screen:

```
***Warning***

You are about to erase the system BIOS in
this machine.  Are you absolutely sure?

Press "Y" to continue.
```

NOTE: Do not power down the server once this procedure has started. If the server loses power, or if at the end of this procedure the server fails to boot, please refer to the section, "*Using the Crisis Recovery Diskett*e".

5. Enter “Y” for yes to continue the BIOS upgrade. When the process is completed, remove the diskette and the server will automatically reboot.
6. During the POST routine verify that the BIOS is at revision 2.0, or greater. If BIOS upgrade was successful proceed to “Reset the Switches on the Main Logic Board.”

If the BIOS did not upgrade correctly, repeat the above BIOS upgrade procedure.

If the BIOS upgrade fails again because of an unknown server interrupt or power failure, restore your server BIOS configuration using the “Crisis Recovery Diskette” procedures described later in this chapter.

Reset the Switches on the Main Logic Board

If the BIOS upgrade was successful:

1. Power down your server.
2. Disconnect any external devices, the ac power cord, and the monitor power cord.
3. Remove the side panel.
4. Locate the DIP switch on the main logic board, and set the BIOS upgrade and boot block update switches (SW1-1 and SW1-3, respectively) to the disabled (OFF) positions (see Figure 2-1).
5. Install the side panel.
6. Connect the previously removed cables, the monitor power cord, and the server power cord to the back of the server.
7. Proceed to Chapter 3, “DIMM Installation” for information on installing DIMMs and Pentium® II processor modules.

Using the Crisis Recovery Diskette

The Crisis Recovery diskette is used to restore your server BIOS should the BIOS update procedure fail. To restore your server BIOS:

1. Power down your server.
2. Disconnect any external devices, the ac power cord, the monitor signal cable, and the monitor power cord.
3. Remove the side panel.
4. If installed, remove the video expansion board. Afterwards, connect the monitor signal cable to the video connector located at the rear of the server.
5. On the main logic board, set SW1-2 to the ON position (Recovery Mode).
6. Replace the side panel.
7. Insert the Crisis Recovery diskette into drive A.
8. Power up the server and then follow the instructions on your monitor screen to restore your BIOS.
9. After the BIOS is restored, remove the Crisis Recovery diskette, and then power down the server.
10. Remove the side panel and reset SW1-2 to the OFF position (Normal).
11. If previously removed, install the video expansion board.
12. Replace the side panel.
13. Connect the previously removed cables, the monitor signal cable, the monitor power cord, and the server power cord.

DIMM Installation 3

Introduction

The Prioris HX 6000 and MX 6200 Series servers provide an EDO/ECC memory system. Depending on the model you ordered, the minimum supported memory is 32 MB. The maximum supported memory for both models is 512 MB. When configuring total system memory (DIMM combinations), make sure that you reference the memory configuration tables and follow all memory configuration guidelines.

CAUTION: DIMMs must be ordered separately. Only install DIMMs supported by Digital Equipment Corporation. DIGITAL does not support server performance, product warranty, or service calls resulting from installing non-qualified DIMMs.

Memory Configuration Guidelines

- Supported DIMMs: 168 pin, 72-bit 60 ns access time. EDO memory, ECC protected.
- Supported densities: DIMMs are available in 16 MB, 32 MB, 64 MB, and 128 MB for Prioris MX 6200 Series servers. DIMMs are available in 32 MB, 64 MB, and 128 MB for Prioris HX 6000 Series servers.
- Maximum memory: 512 MB.
- Each memory bank on the Pentium® II processor module will accommodate one DIMM memory module.
- Install DIMM memory modules starting with bank 0 (J15). See Figure 3-1 for DIMM socket locations.
- DIMM memory capacities can be mixed.

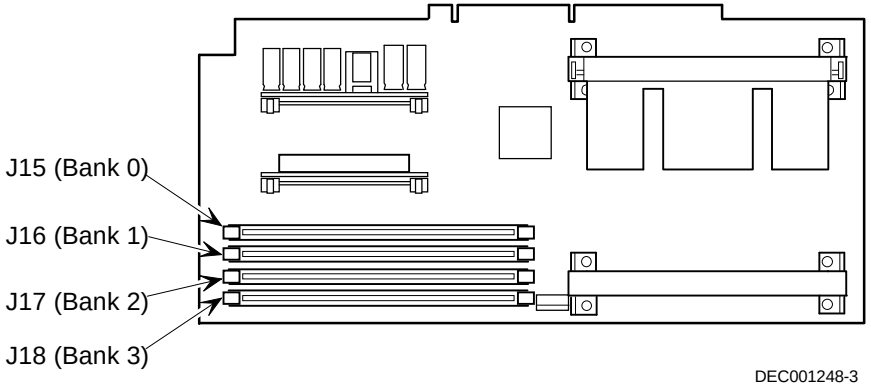

Figure 3-1. DIMM Socket Locations

Memory Configurations (HX 6000 Series Server)

Bank 0 (J15)	Bank 1 (J16)	Bank 2 (J17)	Bank 3 (J18)	Total Memory
64 MB				64 MB
64 MB	32 MB			96 MB
64 MB	64 MB			128 MB
64 MB	32 MB	32 MB		128 MB
64 MB	64 MB	64 MB		192 MB
64 MB	32 MB	32MB	32MB	160 MB
64 MB	64 MB	32 MB	32 MB	192 MB
64 MB	64 MB	64 MB	32 MB	224 MB
64 MB	64 MB	64 MB	64 MB	256 MB
128 MB				128 MB
128 MB	64 MB	32 MB		224 MB
128 MB	128 MB			256 MB
128 MB	128 MB	64 MB	32 MB	352 MB
128 MB	128 MB	128 MB		384 MB
128 MB	128 MB	128 MB	64MB	448 MB
128 MB	128 MB	128 MB	128 MB	512 MB

Table does not list all possible configurations

Memory Configurations (MX 6200 Series Server)

Bank 0 (J15)	Bank 1 (J16)	Bank 2 (J17)	Bank 3 (J18)	Total Memory
32 MB				32 MB
32 MB	16 MB			48 MB
32 MB	16 MB	16 MB		64 MB
32 MB	32MB			64 MB
32 MB	16 MB	16 MB	16 MB	80 MB
32 MB	32 MB	32 MB		96 MB
32 MB	32 MB	32 MB	32 MB	128 MB
64 MB				64 MB
64 MB	64 MB			128 MB
64 MB	64 MB	32 MB	32 MB	192 MB
64 MB	64 MB	64 MB		192 MB
64 MB	64 MB	64 MB	32 MB	224 MB
64 MB	64 MB	64 MB	64 MB	256 MB
128 MB				128 MB
128 MB	64 MB	32 MB	32 MB	256 MB
128 MB	128 MB			256 MB
128 MB	128 MB	64 MB	32 MB	352 MB
128 MB	128 MB	128 MB		384 MB
128 MB	128 MB	128 MB	64 MB	448 MB
128 MB	128 MB	128 MB	128 MB	512 MB

Table does not list all possible configurations

Installing DIMMs on the Pentium® II Processor Module

Use the following procedure to install DIMMs:

CAUTION: To avoid possible damage to the components, place the antistatic wrist strap on your wrist and connect the grounding clip to a non-painted metal surface of the server's chassis.

1. Remove the Pentium® II processor module from your server and place it on an antistatic surface.

CAUTION: Never install DIMMs on a Pentium® II processor module without first removing it from the server.

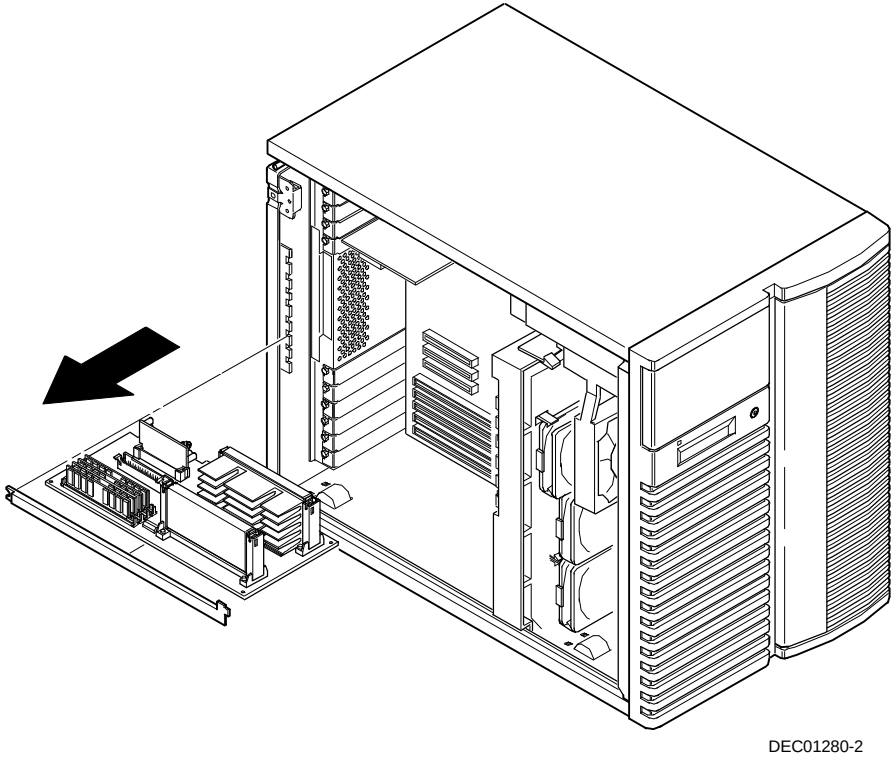

Figure 3-2. Removing a Pentium II Processor Module (HX 6000 Server)

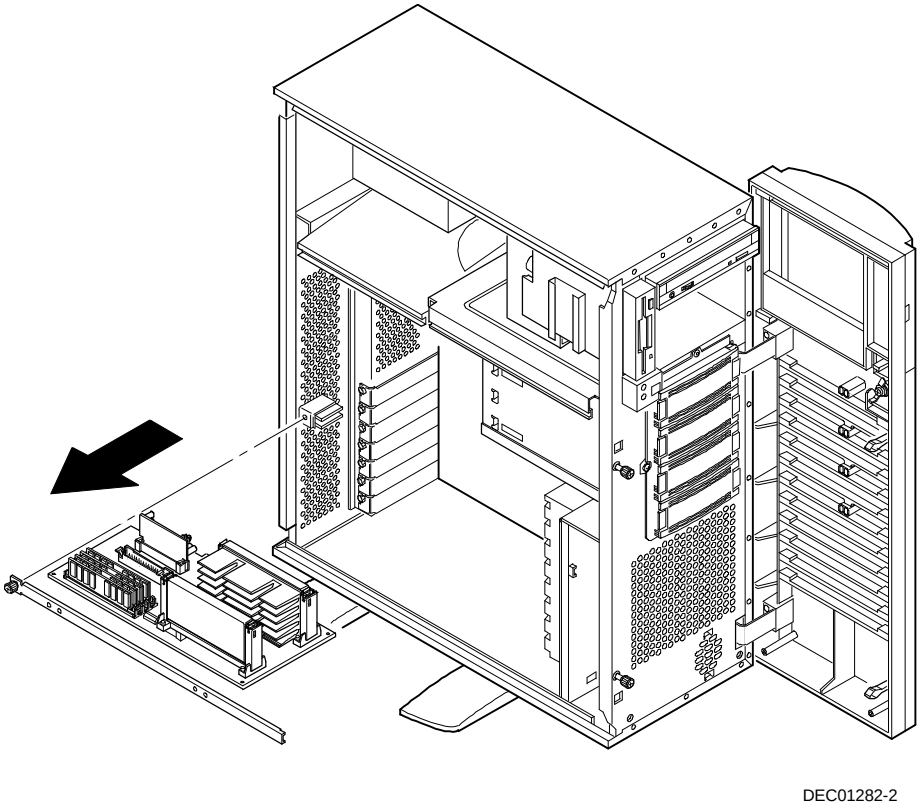

Figure 3-3. Removing a Pentium II Processor Module (MX 6200 Server)

2. Unpack the DIMMs. Refer to “Memory Configurations” described in earlier in this chapter for information on the supported memory configurations.

3. Install DIMMs starting with bank 0 on Pentium® II processor module, orient the DIMM so that the two notches at the bottom edge of the DIMM are aligned with the keyed socket (see Figure 3-4).

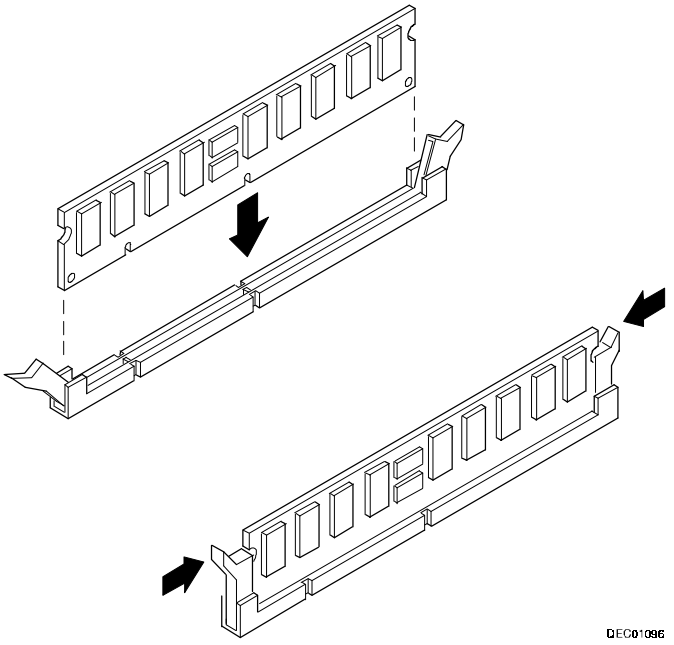

Figure 3-4. Installing a DIMM

4. Insert the DIMM straight down into its socket. Apply equal pressure to both ends of the DIMM until it fully seats in the socket.

   The plastic hold-down/ejector tabs snap into place when the DIMM is inserted correctly.

5. Continue installing DIMMs to complete your memory upgrade.
6. Install the Pentium® II processor module.

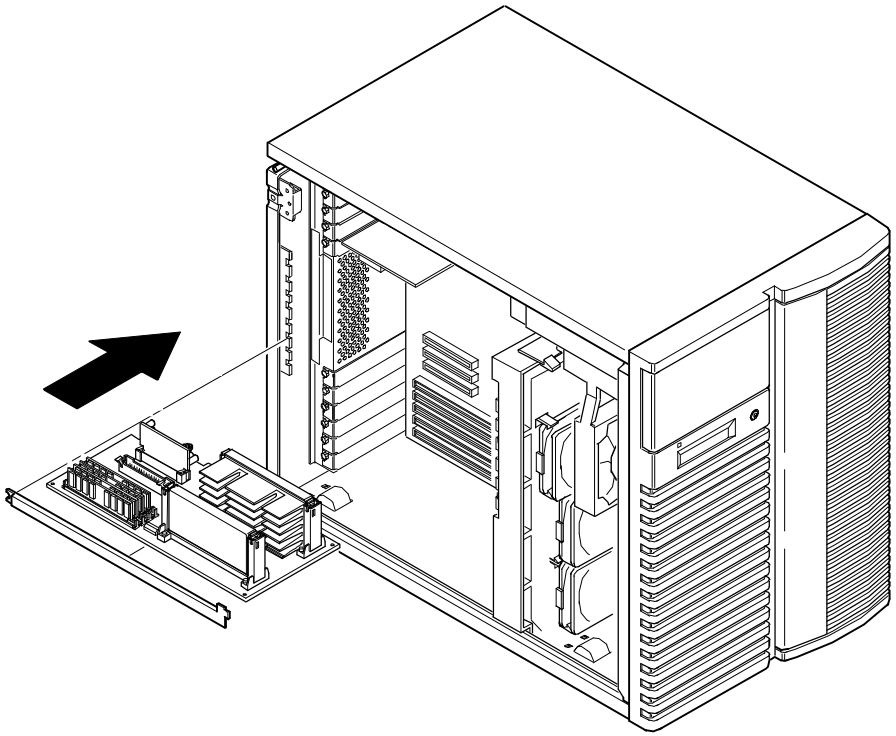

Figure 3-5. Installing a Pentium II Processor Module (HX 6000 Server)

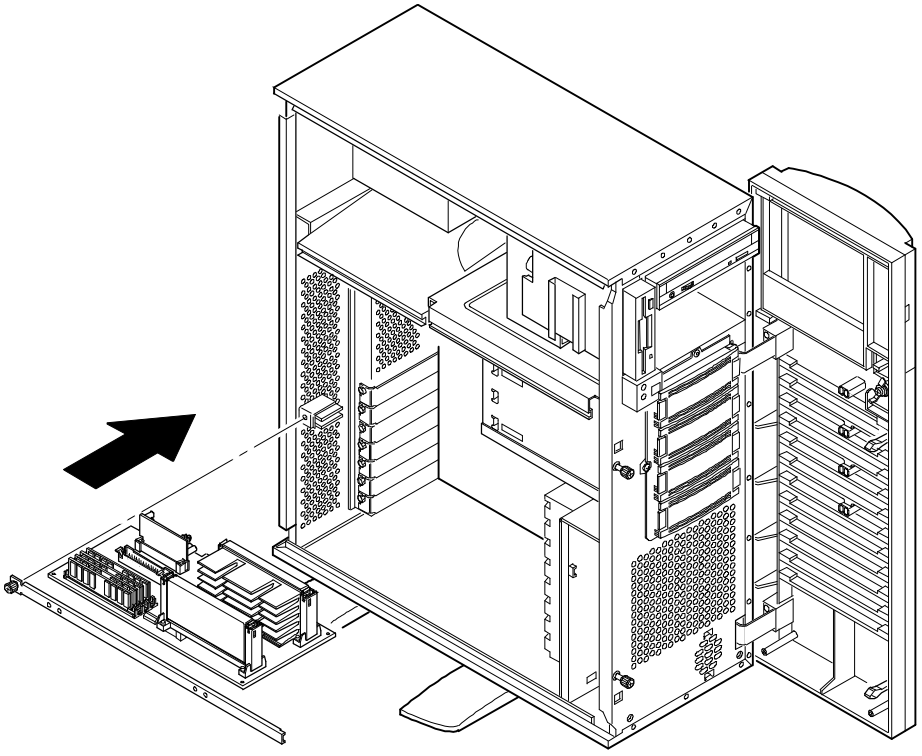

Figure 3-6. Installing a Pentium II Processor Module (MX 6200 Server)

7. Insert the SCU in drive A and boot the server.

   Refer to Chapter 2 "Creating Server Diskettes" if you do not have an SCU diskette available.

8. Select `Configure Computer` from the main menu.
9. Select `Save and Exit` to configure your server for the additional memory.

Pentium® II Processor Module Upgrade

Introduction

The Pentium® II processor module comes with a single Intel Pentium® II processor installed in the appropriate Slot 1 socket. If you wish to upgrade from a single processor configuration to a dual processor configuration, consider the following information prior to upgrading.

- Single Pentium® II processor modules must be installed in the primary Slot 1 socket (Processor 1) and have a termination card installed in the second Slot 1 socket (Processor 2). The termination card must be removed prior to installing a second processor.
- A VRM must be installed for each Pentium® II processor installed in the Pentium® II processor module.
- DIGITAL recommends that dual processor configurations use Pentium® II processors with identical stepping (manufacturing revision). Processors with different stepping might not function properly. Stepping information appears during the Power On Self Test (POST) for each processor.

  Refer to Chapter 6, "Server Management" for specific POST messages.

  Please refer to the readme file on the ServerWORKS Quick Launch CD-ROM to view the latest processor compatibility information. Also, contact your Digital sales representative or reseller for future processor upgrades and BIOS revisions.

Installing a Pentium® II Processor Module

Follow these procedures when installing a Pentium® II processor module for the first time:

1. Power down the server.
2. Disconnect all external devices, ac power, and monitor power.
3. Remove the side panel.
4. Place the antistatic wrist strap on your wrist and connect the grounding clip to a non-painted metal surface of the server's chassis.
5. For the HX 6000 server only, remove the existing CPU module (see Figure 4-1).

   For the MX 6200 server only, loosen the thumbscrew and then remove the retainer and CPU module (A, Figure 4-2).

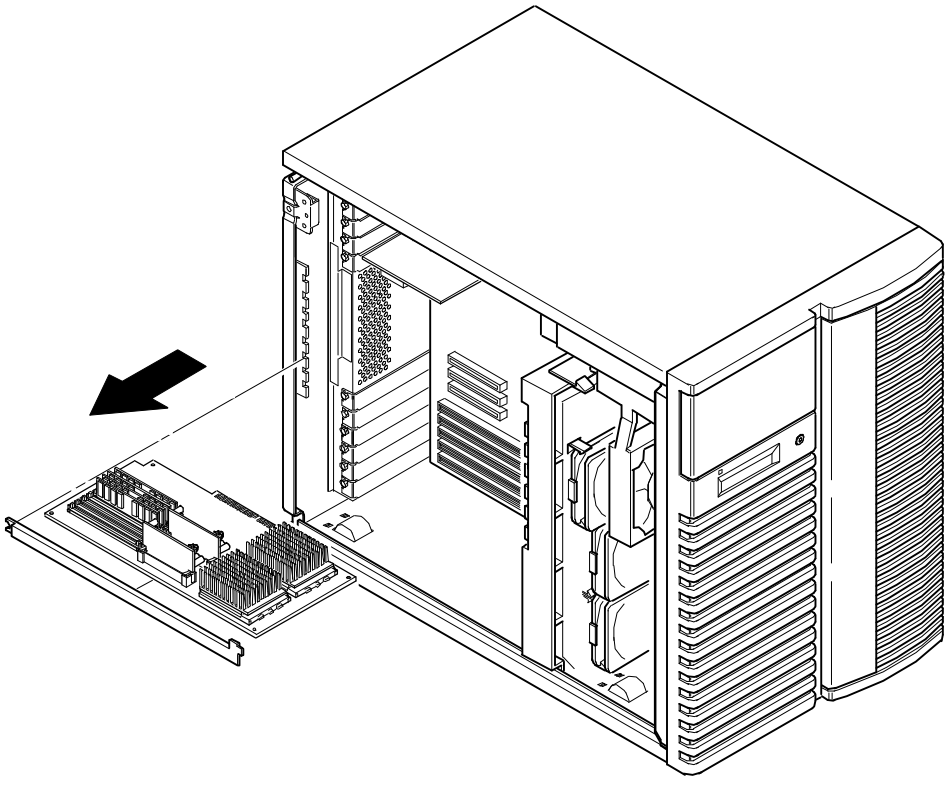

Figure 4-1. Removing a CPU Module (HX 6000 Server)

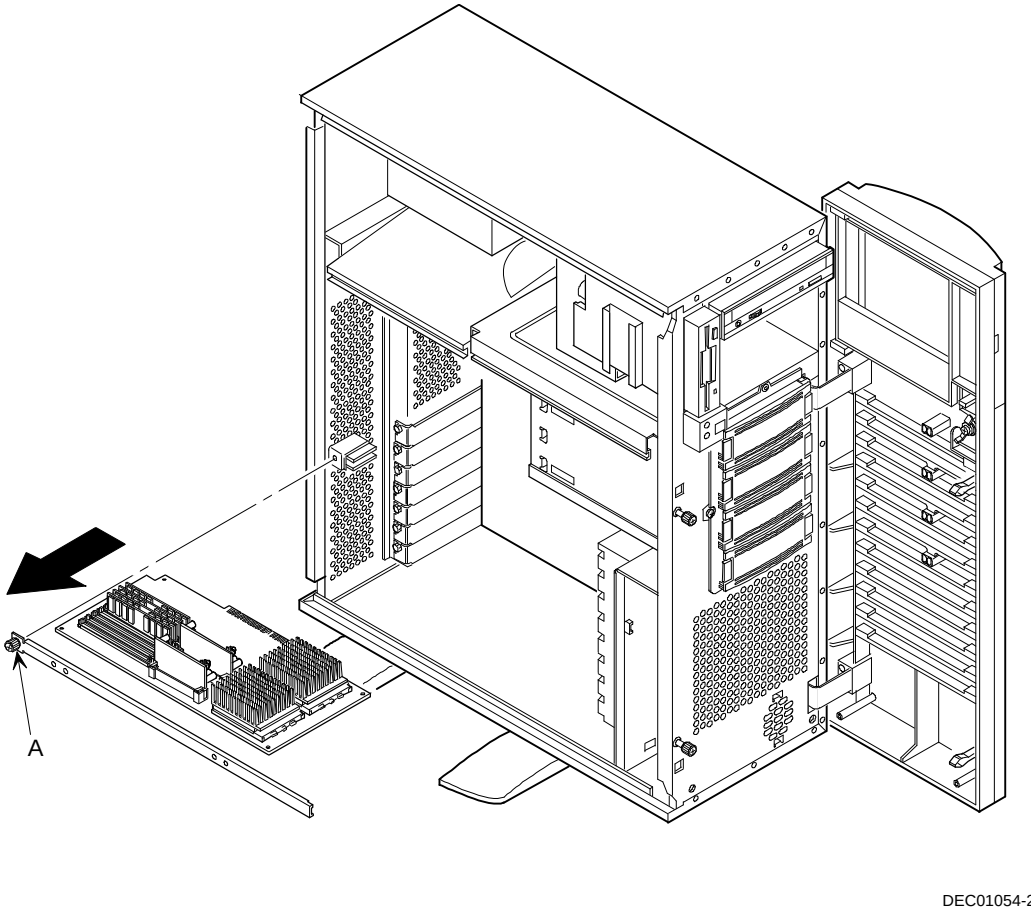

Figure 4-2. Removing a CPU Module (MX 6200 Server)

6. Remove the Pentium® II processor module from its shipping container and place it on an antistatic surface.
7. If necessary, install DIMMs.

   Refer to Chapter 3, "DIMM Installation," for more information.

8. Set all appropriate switch settings on the Pentium® II processor module.
   Refer to Chapter 6, "Technical Specifications," for switch locations.
9. Install the Pentium® II processor module.

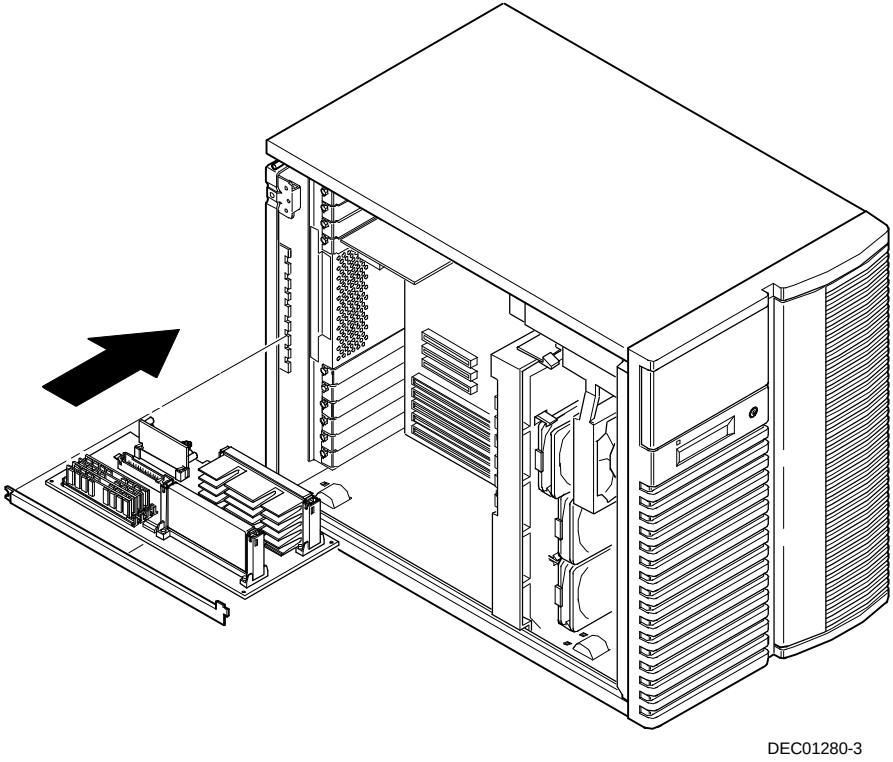

Figure 4-3. Installing a Pentium® II Processor Module (HX 6000 Server)

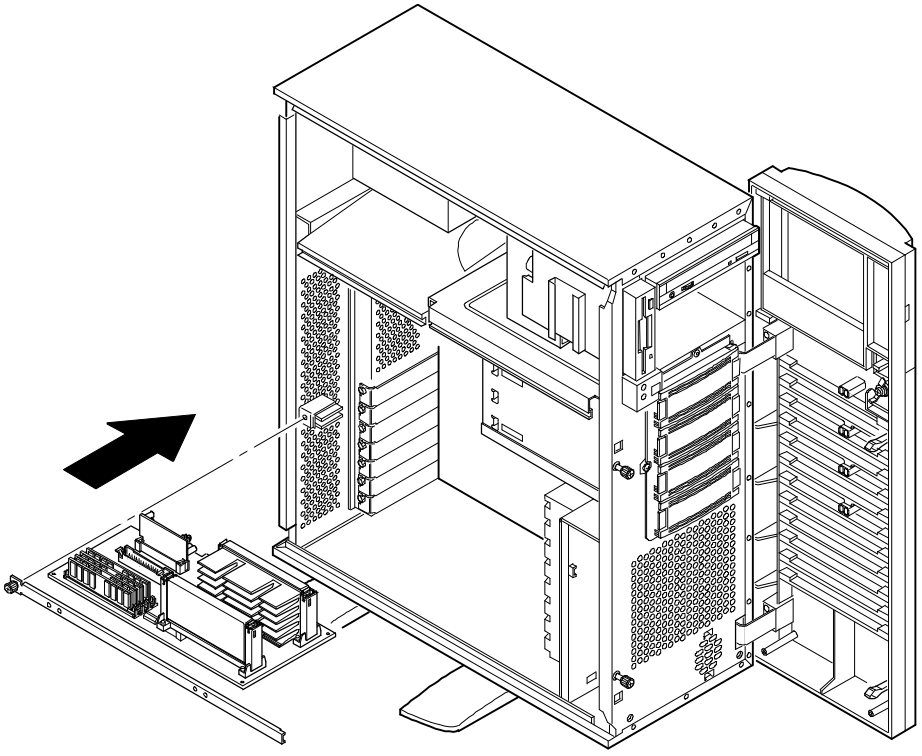

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Figure 4-4. Installing a Pentium® II Processor Module (MX 6200 Server)

Upgrade Procedures

To upgrade from a single-processor configuration to a dual-processor configuration:

1. Power down the server.
2. Disconnect all external devices, ac power, and monitor power.
3. Remove the side panel.
4. Place the antistatic wrist strap on your wrist and connect the grounding clip to a non-painted metal surface of the server's chassis.
5. Remove the Pentium® II processor module and place it on an antistatic surface.

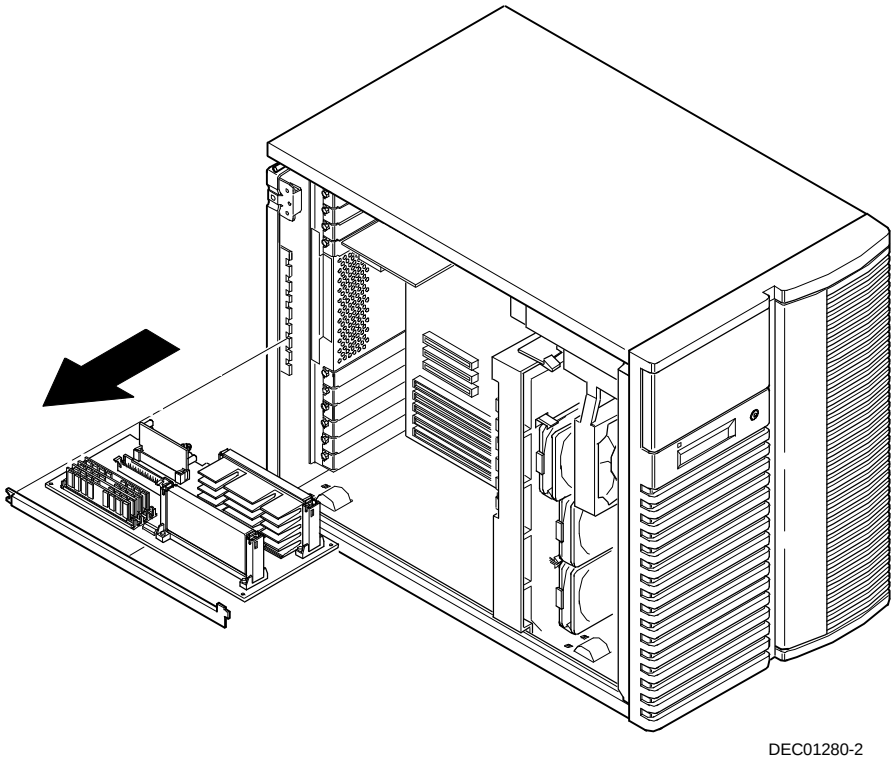


Figure 4-5. Removing a Pentium® II Processor Module (HX 6000 Server)

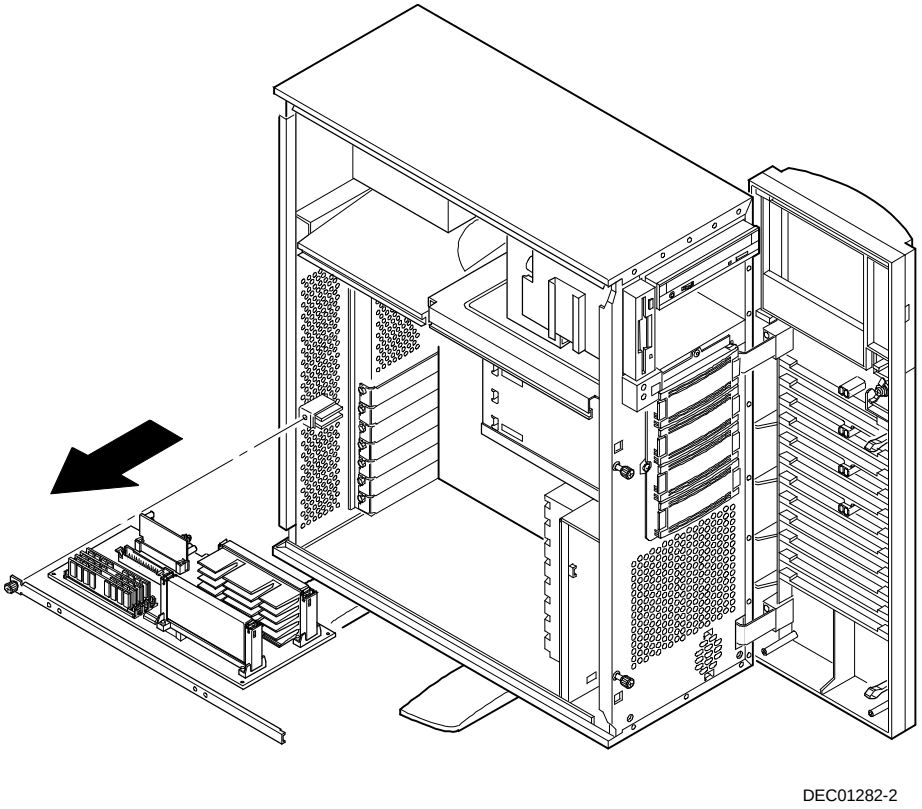


Figure 4-6. Removing a Pentium® II Processor Module (MX 6200 Server)

6. Remove the terminator card from the Pentium® II processor module (see Figure 4-7). Grasp the terminator by each end and pull up.

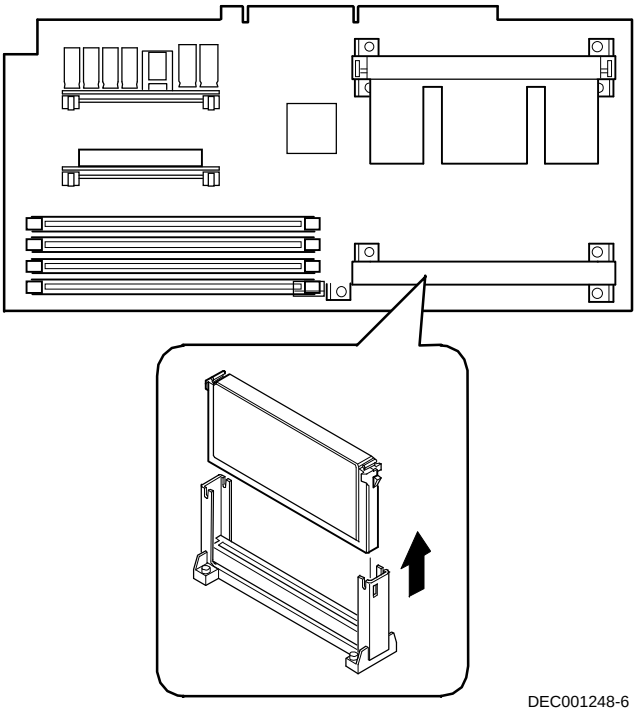


Figure 4-7. Removing the Terminator Module

7. Remove the new Pentium® II processor from its shipping container.
8. Insert the new processor into this slot (see Figure 4-8).
9. Secure the new Pentium® II processor to its socket by pushing out on the two plastic tabs at each side.

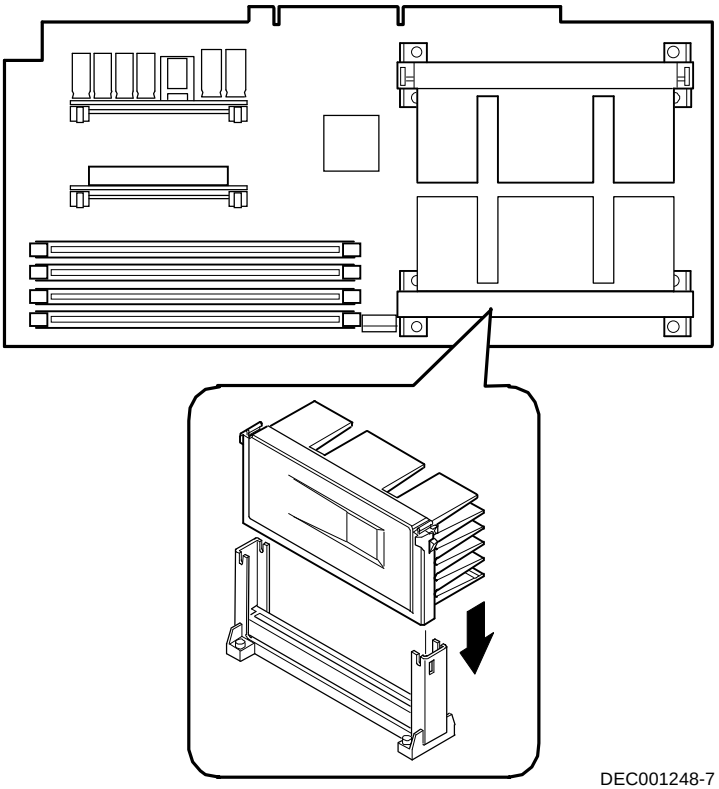
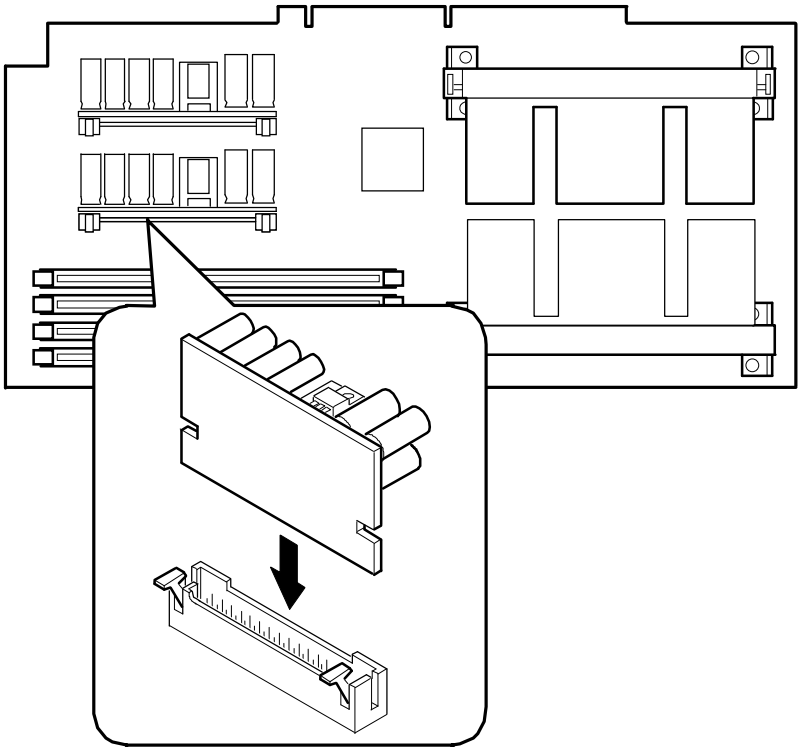


Figure 4-8. Installing the Second Pentium® II Processor

10. Remove the new VRM from its shipping container.
11. Install the second VRM into the empty VRM socket (see Figure 4-9).

NOTE: A VRM must be installed for each Pentium® II processor installed in the Pentium® II processor module.



DEC001248-9

Figure 4-9. Installing a VRM

12. Set all appropriate switch settings on the Pentium® II processor module.

    Refer to Chapter 6, "Technical Specifications," for switch locations.

13. Install the Pentium® II processor module.

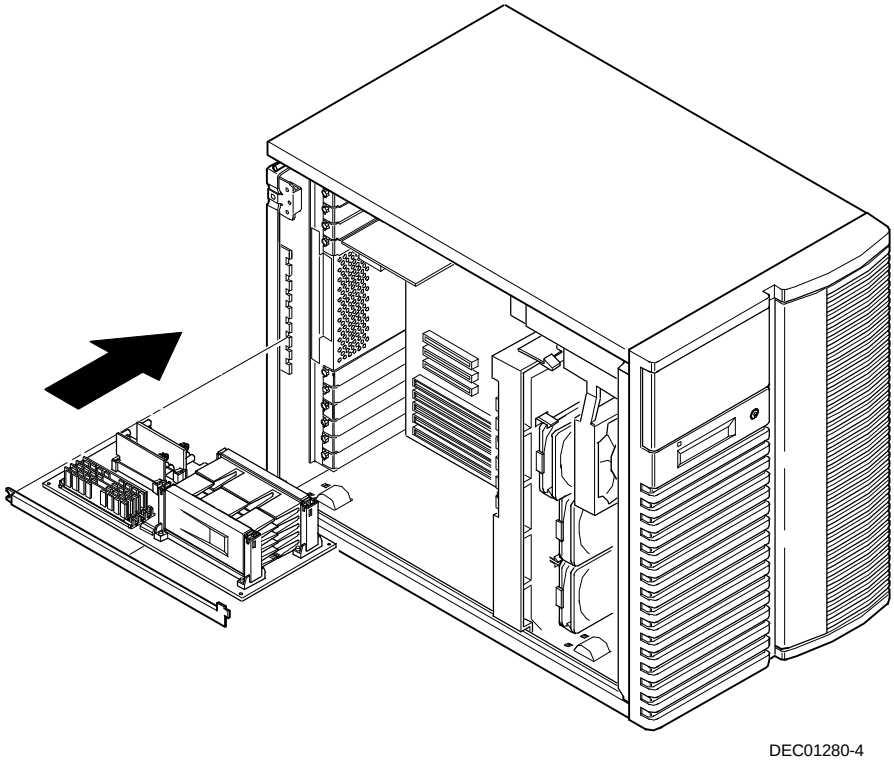
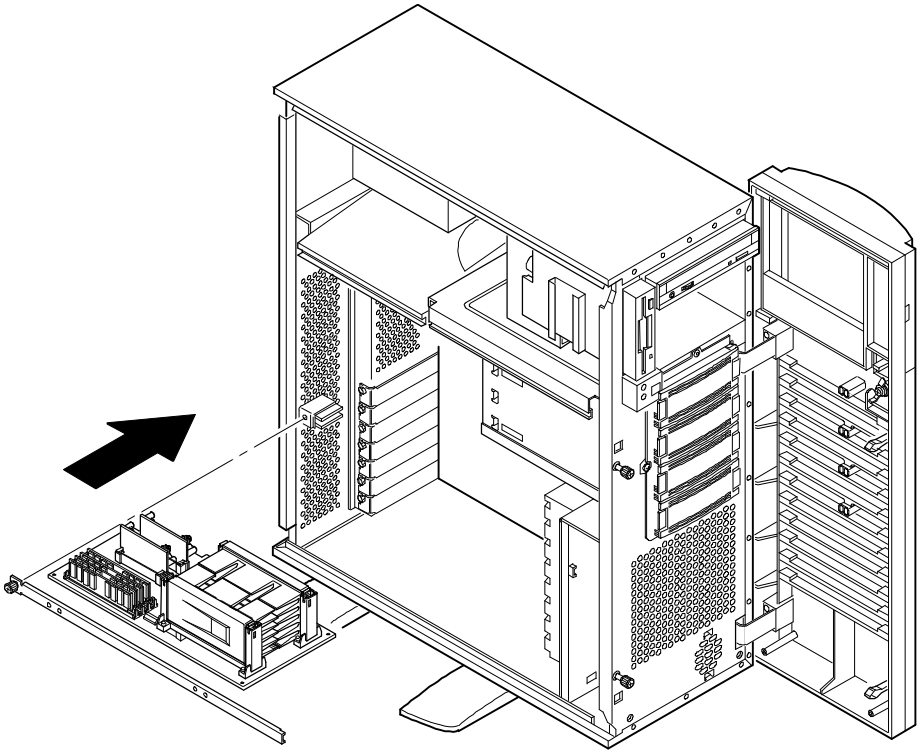


Figure 4-10. Installing the Pentium® II Processor Module (HX 6000 Server)



DEC01282-4

Figure 4-11. Installing the Pentium® II Processor Module (MX 6200 Server)

14. Replace the side panel.
15. Connect all external devices and restore power.

Troubleshooting 5

Introduction

The Prioris HX 6000 or MX 6200 Series server's Power-On Self Test (POST) can detect memory errors when it boots. The error can be isolated to a single DIMM on the Pentium® II processor module.

The memory error message format is:

```
<Type of error>: <Location>
```

Where:

```
<Correctable Error>:   <Jxx xxMB EDO DIMM>
```

If the error is correctable when the server boots, the BIOS displays the following:

```
 Press <F1> to resume
```

```
<Uncorrectable Error>: <Jxx xxMB EDO DIMM>
```

If the error is uncorrectable, the server halts after the memory test.

```
<Configuration Error>: <Jxx xxMB EDO DIMM>
```

This indicates that an error occurred while reading the memory configuration. The problem is either the DIMM, the Pentium® II processor module, or the main logic board. In all cases, the server halts when this error occurs.

Solving Memory Problems

To solve memory problems:

1. Swap the indicated DIMM with another and see if the problem goes away.
2. If not, swap the Pentium® II processor module and see if the problem goes away.
3. If not, swap the main logic board and see if the problem goes away.
4. If not, contact your service provider.

Technical Specifications 6

Introduction

This chapter provides information about the technical characteristics of the Pentium® II processor module. Information includes:

- Processor clock speed switch settings
- Ratio and frequency switch settings
- Processor clock frequency switch settings
- Server management
- HX6000 Series server OCP messages
- Server status
- MX 6200 server fault status

Processor Clock Speed Switch Settings

The following table provides the switch settings for a number of available Pentium® II processors. The switches are set correctly for the processor that came with the Pentium® II processor module you purchased.

Processor Speed	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
200 MHz(1)	On	Off	On	On	Off
233 MHz(1)	Off	Off	On	On	Off
266 MHz	On	On	Off	On	Off
300 MHz(2)	Off	On	Off	On	Off
333 MHz(2)	On	Off	Off	On	Off
366 MHz(2)	Off	Off	Off	On	Off
400 MHz(2)	On	On	On	Off	Off
433 MHz(2)	Off	On	On	Off	Off
466 MHz(2)	On	Off	On	Off	Off
500 MHz(2)	Off	Off	On	Off	Off
533 MHz(2)	On	On	Off	Off	Off

(1) Processor speeds not supported.

(2) The processor speeds indicated above are anticipated future processor products from Intel. This does not constitute a promise of the availability of such a processor, but should it be made available some time in the future, these are the needed switch settings to support such a processor.

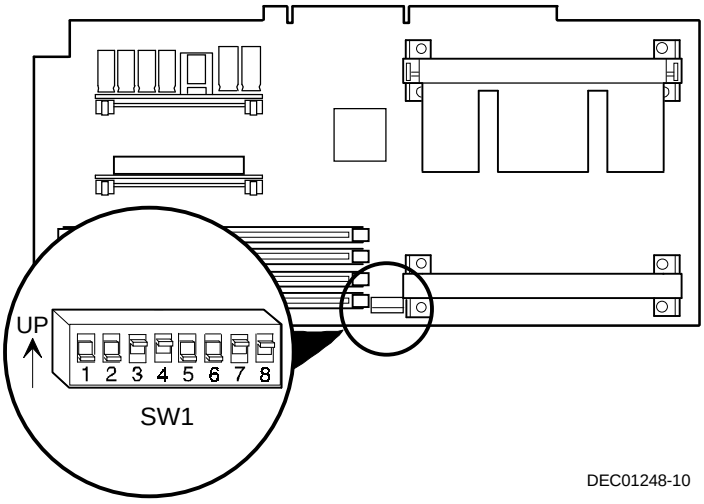


Figure 6-1. Pentium® II Processor Module Switch Settings

Ratio and Frequency Switch Settings

Feature	Function	Setting	Description
Bus/core frequency ratio	3/1	SW1-1, ON SW1-2, OFF SW1-3, ON SW1-4, ON	Sets processor clock speed x 3
	7/2	SW1-1, OFF SW1-2, OFF SW1-3, ON SW1-4, ON	Sets processor clock speed x 3.5
	4/1	SW1-1, ON SW1-2, ON SW1-3, OFF SW1-4, ON	Sets processor clock speed x 4(1)
	9/2	SW1-1, OFF SW1-2, ON SW1-3, OFF SW1-4, ON	Sets processor clock speed x 4.5
	5/1	SW1-1, ON SW1-2, OFF SW1-3, OFF SW1-4, ON	Sets processor clock speed x 5
			Must be set with SW1-1 processor/bus clock speed switch to match processor clock speed. For example, 66 MHz x 4 = 266 MHz processor. Refer to the Processor Clock Speed Switch Settings table.

(1) Factory default setting
OFF = Up; ON = down

continued

Feature	Function	Setting	Description
Bus/core frequency ratio	11/2	SW1-1, OFF SW1-2, OFF SW1-3, OFF SW1-4, ON	Sets processor clock speed x 5.5
	6/1	SW1-1, ON SW1-2, ON SW1-3, ON SW1-4, OFF	Sets processor clock speed x 6
	13/2	SW1-1, OFF SW1-2, ON SW1-3, ON SW1-4, OFF	Sets processor clock speed x 6.5
	7/1	SW1-1, ON SW1-2, OFF SW1-3, ON SW1-4, OFF	Sets processor clock speed x 7
	15/2	SW1-1, OFF SW1-2, OFF SW1-3, ON SW1-4, OFF	Sets processor clock speed x 7.5
	8/1	SW1-1, ON SW1-2, ON SW1-3, OFF SW1-4, OFF	Sets processor clock speed x 8
			Must be set with SW1-1 processor/bus clock speed switch to match processor clock speed. For example, 66 MHz x 4 = 266 MHz processor. Refer to the Processor Clock Speed Switch Settings table.

OFF = Up; ON = down

Processor Clock Frequency Switch Settings

Feature	Function	Setting	Description
Bus clock	66 MHz(1) 60 MHz	SW1-5, OFF SW1-5, ON	Determines the processor and PCI clock speed for the installed processor. This switch must be set along with the SW1-1 through SW1-4 Bus/Core frequency ratio switches. Refer to the Processor Clock Speed Switch Settings table.
Reserved	Reserved	SW1-6, OFF SW1-7, OFF SW1-8, OFF	Reserved for future use.

(1) Factory default setting
OFF = Up; ON = down

Server Management

The following table lists the POST messages that appear during POST in support of the Pentium® II processor module. These messages are also displayed on the HX 6000 server's OCP panel.

POST Message	Description
PROC 01 present (ID:xxxx, L2:xxxKB)	Indicates 1 or 2 processor(s) found.
PROC 02 present (ID: xxxx, L2:xxxKB)	The ID is the processor ID value that indicates the stepping of the processor. Like stepping chips should be installed on any given Pentium® II processor module.
PROC 01 present (ID:xxxx, failed)	Indicates processor 1 or 2 found, but has failed.
PROC 02 present (ID:xxxx, failed)	
The PROC slot terminator card is not installed	Indicates that for a single Pentium® II processor module the second bus is not terminated with a terminator card.
Processor module failed	Indicates that there may be a problem with the Pentium® II processor module itself (not the Pentium® II processor).

HX 6000 Series Server OCP Messages

OCP Message	Description
PROC1 temp=XXX C PROC2 temp=XXX C PROC voltages OK PROC 1 failure PROC 2 failure PROC 1 overheat PROC 2 overheat No PROC detected	A message displays indicating the number of processors present in the server, over temperature conditions, and processor failures.
"6xxxMPn/yyy"	Where: xxx = processor speed n = number of processors y = cache size
GTL1 1.5V= x.xxV	Most likely a processor module failure.
IO VOL 2.5V = x.xxV	Most likely a processor module failure.
PROC module fail	Pentium® II processor module failed.

Server Status Processor: Temperature Sensing

Possible Failure	Result
The temperature exceeds 72 °C	Backup fans activate without warning. If the temperature drops below 70 °C the backup fans are turned off.
The temperature exceeds the warning level (>75 °C)	A warning message appears and a warning beep sounds. If the temperature exceeds the warning level for more than five minutes, the server automatically shuts down.
The temperature exceeds the upper limit (>80 °C)	The server automatically shuts down.

MX 6200 Server Fault Status

Description	Server Fault LED Indicators			
	LED4	LED3	LED2	LED1
No power, server ready, power ON default	Off	Off	Off	Off
Shutdown, fan fault	Off	Off	Off	On
Shutdown, over temperature	Off	Off	On	Off
Shutdown, voltage fault	Off	Off	On	On
No terminator 1	Off	On	Off	Off
Wait for system boot	Off	On	Off	On
Wait for CPU active	Off	On	On	Off
No terminator 2	Off	On	On	On
Bank 0 fault (J15)	On	Off	Off	Off
Bank 1 fault (J16)	On	Off	Off	On
Bank 2 fault (J17)	On	Off	On	Off
Bank 3 fault (J18)	On	Off	On	On
Reserved	On	On	Off	Off
Reserved	On	On	Off	On
Reserved	On	On	On	Off
Processor module fail	On	On	On	On