

Prioris™ HX 6000 Server  
PowerGrade with Pentium® Pro Chip  
Upgrade

---

Installation Guide

Order Number: ER-PCB5U-IA. A01

**Digital Equipment Corporation**

**April 1997**

---

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation.

Restricted Rights: 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.

**FCC Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modification made to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio and television reception; however, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to a different outlet than the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

DO NOT attempt to modify this equipment. If modified, the FCC may void your authority to operate this equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations and meets all requirements of the Australian/New Zealand Regulation AS3548.

Prioris, DEC, ServerWORKS, and the DIGITAL logo are trademarks of Digital Equipment Corporation. Intel and Pentium are registered trademarks of Intel Corporation. MS-DOS is a registered trademark of Microsoft Corporation. All other trademarks and registered trademarks are the property of their respective holders.

© 1997 Digital Equipment Corporation.

All Rights Reserved.

# Contents

<b>Introduction</b>	<b>1</b>
Kit Contents .....	1
Tools and Supplies Needed.....	1
Processor Compatibility in a Multiprocessor Environment.....	2
<b>Boot the Quick Launch CD-ROM and Create Diskettes</b>	<b>2</b>
<b>Enable the On-Board VGA Controller</b>	<b>3</b>
<b>Power Down the Server</b>	<b>3</b>
Set Switches on the Main Logic Board .....	4
Replace the Panel and Reconnect the Cables .....	5
<b>Power Up the Server and Update Your BIOS</b>	<b>5</b>
<b>Powergrade Installation</b>	<b>6</b>
Remove the CPU Module .....	6
Install the CPU Chip .....	7
Install the Voltage Regulator Module(s) .....	11
Check the CPU Speed Settings .....	12
Reset the Switches on the Main Logic Board .....	13
Install the CPU Module .....	13
Install any Video Option Card .....	14
Replace the Panel and Reconnect the Cables .....	14
<b>Run the System Configuration Utility (SCU)</b>	<b>14</b>

<b>Troubleshooting</b>	<b>15</b>
Using the Crisis Recovery Diskette if Necessary .....	15
Bulletin Board Access .....	15



## Figures

Figure 1 HX 6000 Main Logic Board Switch Location .....	4
Figure 2 Removing the CPU Module .....	6
Figure 3 Removing the Clip from the Shipping Holder .....	7
Figure 4 Removing the New CPU from its Shipping Holder .....	8
Figure 5 Installing the New CPU Chip .....	9
Figure 6 Installing the Clip to Secure the CPU to the CPU Module .....	10
Figure 7 Installing a Voltage Regulator Module .....	11
Figure 8 CPU Module Switch Location.....	12
Figure 9 Installing the CPU Module in an HX 6000 Server .....	13

## Tables

Table 1 Kit Contents .....	1
Table 2 CPU Module CPU Speed Switch Settings .....	12

## Conventions

Symbol	Meaning
	<b>NOTE:</b> Provides general information.
	<b>WARNING:</b> Indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.



**NOTE:** You may lose data if you have not backed up your system. If you do not wish to install this kit yourself, contact Digital Customer Service. For a nominal fee, a Customer Service Technician can install it for you.

## PowerGrade Option Warranty

*This document is a supplement to the warranty information and terms provided with your Prioris Server.*

### **PowerGrade Options Limited Warranty**

PowerGrade option kits are qualified Digital Personal Computer Hardware Options that are warranted to be free from defects in material and workmanship under normal use. This Limited Warranty does not extend to any Product not purchased from Digital or from an Authorized Digital Reseller. This Limited Warranty also does not extend to any Product that has been damaged or rendered defective (a) by operation outside the usage parameters stated in section four entitled *Warranty Exclusions and Limitations of Liability* of the *Digital Personal Computers Warranty and Service Information* document; (b) as a result of accident, misuse or abuse; (c) as a result of service or installation by anyone other than Digital, an Authorized Digital Reseller, or an Authorized Digital Service Provider, or (d) by the use of parts not manufactured or sold by Digital.

Upon installation in the appropriate Prioris Server, the PowerGrade option will carry the longer of either a one year Return-to-Digital warranty or the remainder of the warranty period for the Digital Prioris Server.

Digital warrants that the PowerGrade option you have purchased from Digital, or from an Authorized Digital Reseller, will function correctly when properly installed in the appropriate Prioris server if the CPU contained within this kit is within one stepping (version) of the CPU(s) that originally came with your Prioris Server.

### **Warranty Exclusions and Limitations of Liability**

Installation of a PowerGrade option requires handling and installing a CPU chip, which must be performed with extreme care to avoid product damage. Therefore, Digital recommends that the installation of this option be performed by an Authorized Digital Service Provider.

**Please refer to the “Digital Personal Computers Warranty and Service Information” document provided with your Digital Prioris Server for further information.**



---

## Prioris™ HX 6000 Server PowerGrade with Pentium® Pro Chip Upgrade

### Introduction

Thank you for purchasing this PowerGrade kit. This kit contains all the components and instructions required to upgrade your CPU configuration from one to two 200 MHz *Pentium® Pro* processors with 256KB or 512KB cache.

Installing this kit may involve updating your system BIOS (Basic Input-Output System). To do this, you will need to remove any video option card, if installed, and enable the internal VGA controller. Once the BIOS process has completed successfully, you can then reinstall any video option card. You **must** install the new BIOS **before** installing your Powergrade kit. This installation guide provides the necessary details.

### Kit Contents

**Table 1. Kit Contents**

Item
<i>Pentium® Pro 200 MHz /512KB CPU assembly or Pentium® Pro 200 MHz /256KB CPU assembly</i>
Voltage regulator module
Antistatic wrist strap
ServerWORKS Quick Launch CD-ROM
Installation Guide

### Tools and Supplies Needed

- Phillips screwdriver, 1 pt.
- Antistatic wrist strap with grounding clip (supplied)
- Three MS-DOS formatted diskettes

## **Processor Compatibility in a Multiprocessor Environment**

Intel and Digital recommend using identical steppings/versions of processors within a multiprocessor system whenever possible, since these configurations have received the greatest amount of validation testing. Since it is not possible to validate every combination of processor steppings, each new stepping of a processor is fully validated only against the latest stepping. At press time, there were no known incompatibility issues about mixing CPU steppings in a multiprocessor system. Please refer to the readme file on the ServerWORKS Quick Launch CD-ROM to view the latest CPU Compatibility information. If you have any concerns about processor compatibility within a multiprocessor system, please contact your local Authorized Digital Reseller for assistance.

## **Boot the Quick Launch CD-ROM and Create Diskettes**

During this procedure, you will create a crisis recovery diskette, BIOS upgrade diskette, and a System Configuration Utility (SCU) diskette. The Quick Launch CD-ROM contains the required BIOS, crisis recovery software, and SCU.

1. Power on your server and boot the ServerWORKS Quick Launch CD-ROM.
2. Select the "Documentation" button, then view the Readme file for CPU Compatibility issues.
3. From the Quick Launch Main Screen, select the "Installations & Utilities" button and the Utility tab.
4. Insert a DOS-formatted diskette into drive A, and choose "Crisis Recovery Diskette," and select Continue.
5. Insert another diskette into drive A, choose "BIOS Phlash Diskette," and select Continue.
6. Insert another diskette into drive A, choose "System Configuration Utility (SCU)" diskette, and select Continue.
7. Select the BIOS version that you created in step 5 to create the appropriate SCU diskette.
8. Select Exit to end Quick Launch and remove the CD-ROM.

## Enable the On-Board VGA Controller

If your system has an optional video controller, you will need to remove it and enable the on-board VGA controller. If you are already using the on-board controller, skip this procedure and go to “Power Down the Server.”

1. Insert the SCU diskette into drive A and turn on or reset your server. The diskette should boot automatically.
2. When the SCU title appears, press any key to continue. Afterwards, follow the instructions on your screen to access the SCU main menu.
3. From the main menu, use the arrow keys to highlight an item and then press Enter to select it. Press F1 at any time for help about a selection.
4. Select the Advanced Control Group and enable the Embedded - PCI VGA controller.
5. Select Save and Exit to save this selection.

## Power Down the Server

1. Turn off your server.
2. Disconnect any external devices, the **ac power cord**, and the monitor power cord.
3. Unlock the security lock on the server.
4. Remove the left side panel by sliding it toward the rear of the server.
5. If present, remove any Video Option Card.

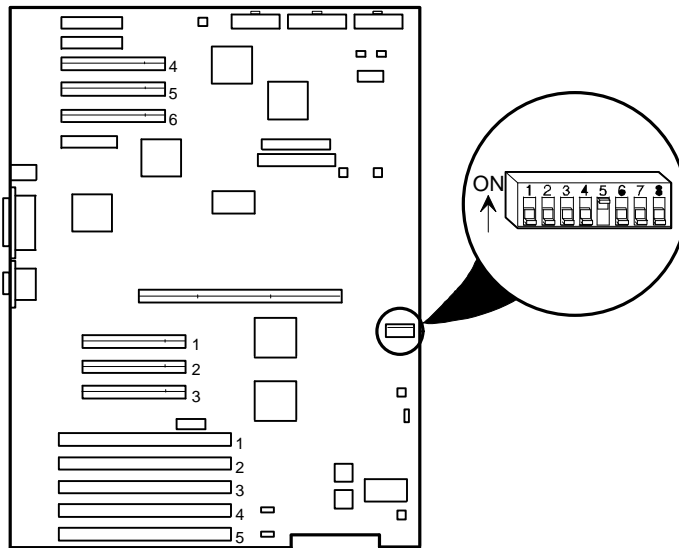


**WARNING:** You might injure yourself or damage your server if you attempt to remove the side panel before unplugging the ac and monitor power cords.

## Set Switches on the Main Logic Board

Make sure that the following switches are set:

SW1-1	BIOS upgrade	Enabled (On)
SW1-3	Boot block update	Enabled (On)



DEC01028-6a

Figure 1. HX 6000 Main Logic Board Switch Location

## Replace the Panel and Reconnect the Cables

1. Install the left side panel. The server may not power up with the side panel removed.
2. Connect the monitor video cable to the embedded VGA connector if not already connected.
3. Connect the previously removed cables, the monitor power cord, and the server power cord to the back of the server.

## Power Up the Server and Update Your BIOS

Use the following procedure to update your BIOS:

1. Power up and boot the server with the BIOS Upgrade diskette installed in drive A.
2. Change the directory to upgrade. Example:  

```
A:\cd upgrade
```
3. At the MS-DOS prompt, type `phlash` and press Return.
4. The BIOS upgrade continues and the system reboots.



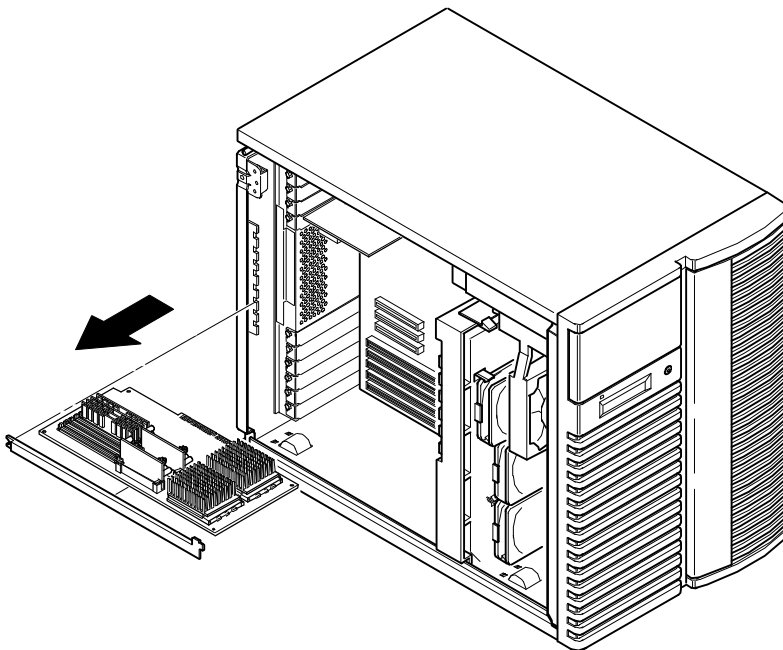
**NOTE:** DO NOT power down the system once this procedure has started. If the system loses power, or if at the end of this procedure the system fails, please refer to the section, "Troubleshooting – Using the Crisis Recovery Diskette if Necessary."

5. Remove the diskette from Drive A.

## Powergrade Installation

### Remove the CPU Module

1. Power down the server, as described on page 3.
2. Place the antistatic wrist strap on your wrist and connect the grounding clip to a non-painted metal surface of the computer's chassis.
3. Using a Phillips screwdriver, unscrew and remove the CPU module retaining bracket (Figure 2).
4. Grasping both ends of the CPU module, carefully remove it from the main logic board and place it on an antistatic surface.

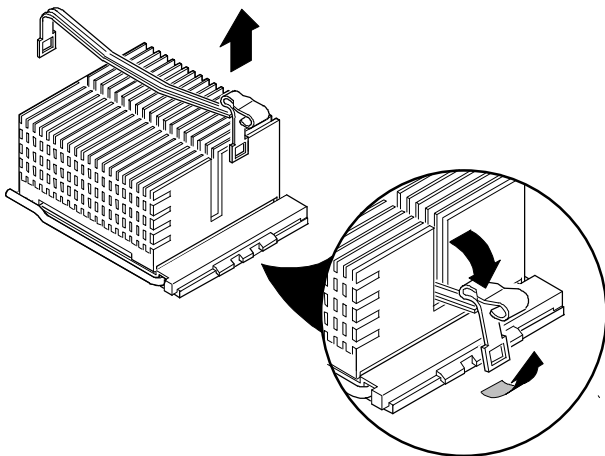


DEC01024

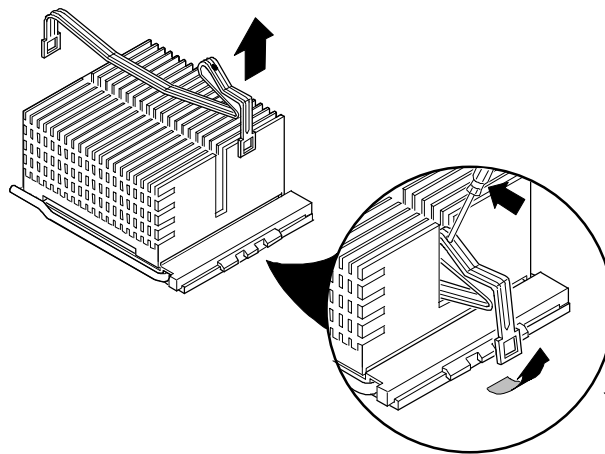
**Figure 2. Removing the HX 6000 CPU Module**

## Install the CPU Chip

1. Remove the CPU chip from its shipping holder by removing the retaining clip. To remove the clip, press down firmly on the top of the clip. If needed, press down with a small screwdriver in the hole of the second style clip shown in Figure 3.



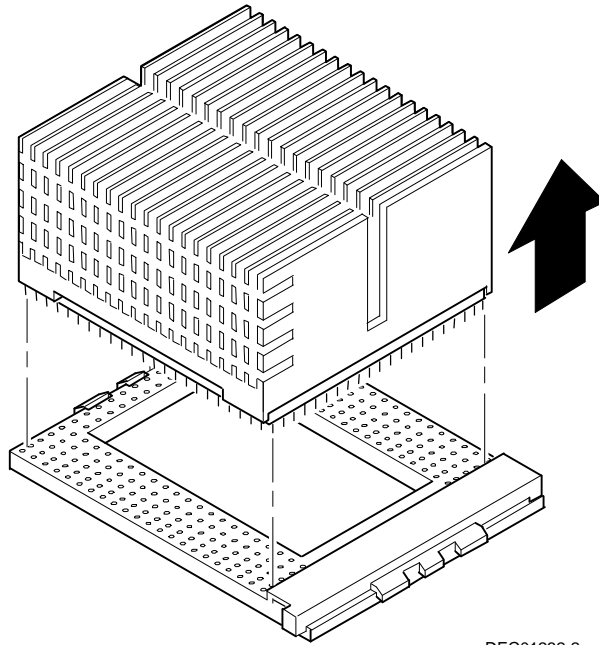
DEC01211-2



DEC01211-3

**Figure 3. Removing the Clip from the Shipping Holder**

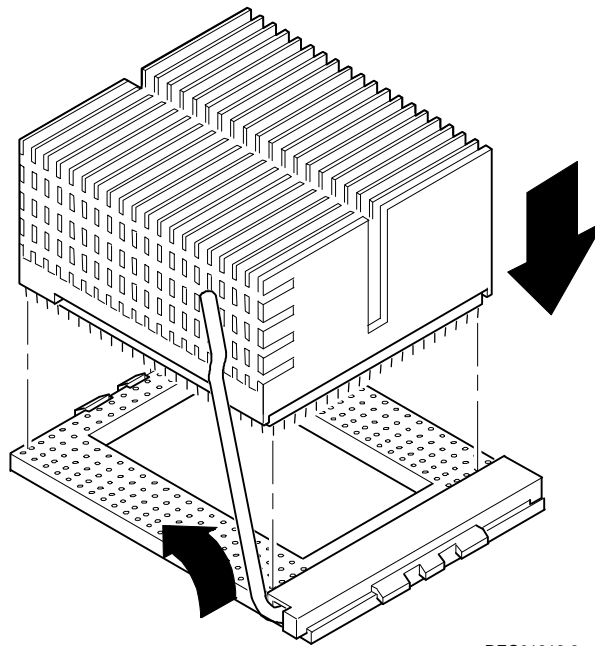
2. Remove the CPU/heat sink assembly from its shipping holder. Do not pull the heat sink off of the CPU chip. Use care not to bend the pins.



DEC01232-2

**Figure 4. Removing the New CPU from its Shipping Holder**

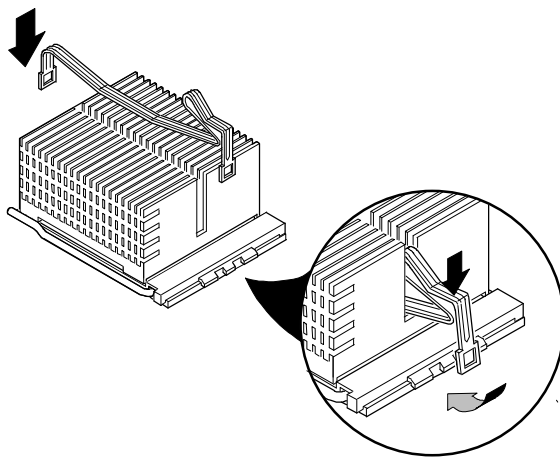
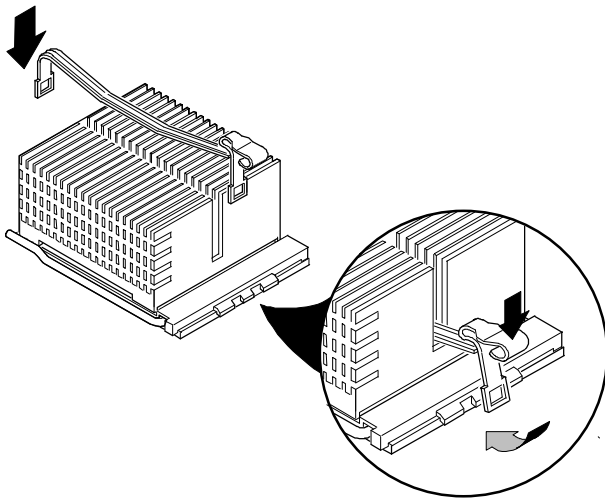
3. On the CPU module, lift up on the lever of the empty CPU socket. Position the pins of the new CPU chip in the socket of the CPU module. Note that the pins are denser on one side for correct orientation.
4. Lower the lever to engage the pins (Figure 5).



DEC01212-3

**Figure 5. Installing the New CPU Chip**

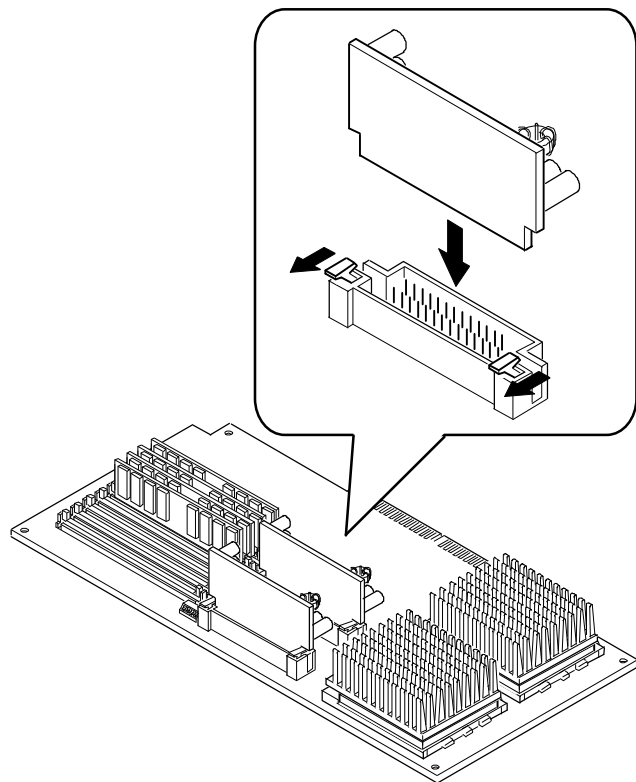
5. Install the retaining clip by installing the back side of the clip first, then pressing it into place as shown in the circle in Figure 6.



**Figure 6. Installing the Clip to Secure the CPU to the CPU Module**

## Install the Voltage Regulator Module(s)

Install a voltage regulator module into the empty voltage regulator socket on the CPU module. Note: A voltage regulator module must be installed for each CPU that is installed in the system.



DEC01032-3

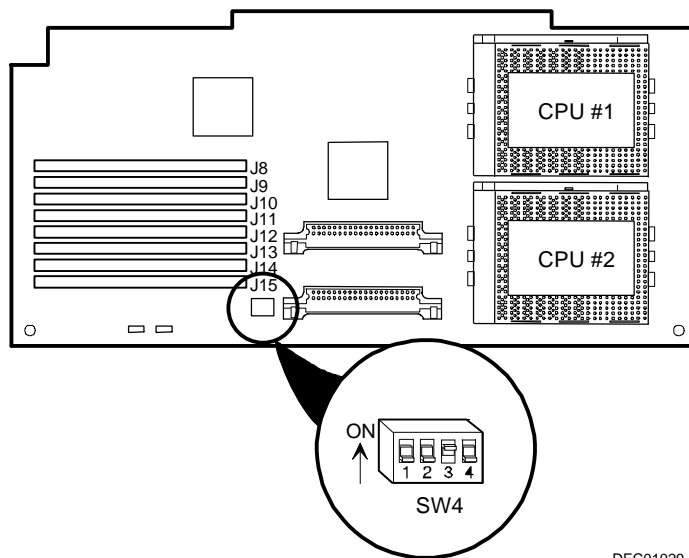
**Figure 7. Installing a Voltage Regulator Module**

## Check the CPU Speed Settings

Check the switch settings, shown in Figure 8, for a CPU with a speed of 200 MHz as listed in Table 2.

**Table 2. CPU Module CPU Speed Switch Settings**

CPU Speed	Switch	Position	Description
200 MHz	SW4-1	Down	66 MHz bus frequency × 3 bus/core frequency
	SW4-2	Down	
	SW4-3	Up	
	SW4-4	Down	



DEC01029-5

**Figure 6. CPU Module Switch Location**

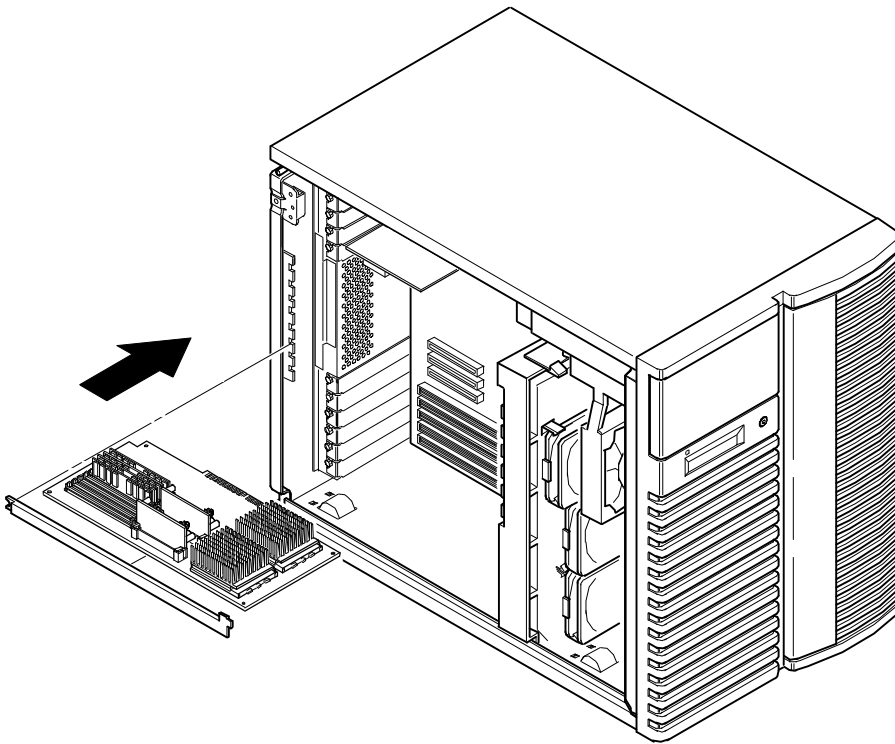
## Reset the Switches/Jumper on the Main Logic Board

Make sure that the following switches are set to prevent any unauthorized update to your BIOS.

SW1-1 Off	BIOS upgrade	Disabled
SW1-3 Off	Boot block update	Disabled

## Install the CPU Module

1. Install the CPU module into the CPU slot on the main logic board.
2. Secure the CPU module to the main logic board using the previously removed retaining bracket, screw, and a Phillips screwdriver.



DEC01024-3

Figure 7. Installing the CPU Module in an HX 6000 Server

## Install any Video Option Card

If you previously removed a video option card, you can install it again.

## Replace the Panel and Reconnect the Cables

1. Install the left side panel and lock the server. The server will not power up with the side panel removed.
2. Connect any cables and power cords previously removed to the back of the server.

## Run the System Configuration Utility (SCU)

Power up and boot your server from the SCU diskette. The SCU enables you to check or change your server's configuration. Run the SCU to configure your server for the new CPU chip or module.

To start and run the SCU:

1. Insert the SCU diskette into drive A and turn on your server. The diskette should boot automatically.
2. When the SCU title appears, press any key to continue. Afterwards, follow the instructions on your screen to access the SCU main menu.
3. From the main menu, press the up or down arrow to highlight an item and then press Enter to select it. Press F1 at any time for help about a selection.
4. From the main menu select `Configure Computer` and then `View and Edit Details`. Example:  
  
If you installed a video option card, select the `Advanced Control Group` and disable the `Embedded - PCI VGA controller`.
5. Make sure that the `Boot Option` is drive "A: then C:"
6. Select `Save and Exit` to configure your server for the CPU module.
7. When complete, remove the SCU diskette from drive A.

8. Move the video cable to the newly installed video card (if you have one) and reboot your server.

*Refer to Chapter 2, "Server Software and Utilities," in your computer System Reference Guide for any additional information on running the SCU.*

## Troubleshooting

### Using the Crisis Recovery Diskette if Necessary

The crisis recovery diskette may be used only if your computer's BIOS fails or if a BIOS upgrade is unsuccessful.

When using the Crisis Recovery diskette, you must remove any video option card and enable the on-board VGA.

1. Turn off the server and set SW1-2 in Figure 1 to ON (Recovery mode).
2. Insert the Crisis Recovery diskette into drive A and reboot the computer.



**NOTE:** Remember to return the switch to its Normal position after using the crisis recovery diskette.

### Bulletin Board Access

For future reference, you can access product information and software updates using the Internet at:

**<http://www.windows.digital.com>**

**<http://www.windows.digital.com/~ftp/00-index.htm>**

You can also access software updates through Digital's Bulletin Board Service (BBS) by calling in the United States **508-496-8800**.

The BBS is **not** a source for technical support. For advice, please call your local Authorized Digital Service Provider.