HP NetServer E 200
Installation Guide

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Audience Assumptions

The guide is for the person who installs, administers, and troubleshoots LAN servers. Hewlett-Packard Company assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels and are familiar with weight and stability precautions for rack installations.

Contents

1 Setting Up the HP NetServer

Setup Steps

The following topics and diagrams provide the most efficient way to set up the HP NetServer E 200. It is important to follow the setup steps in the exact order shown below. Skip any steps that do not apply to you. To provide further details, these steps include references to other sections of this manual and to other documents.

Preparations

CAUTION	The HP NetServer E 200 weighs approximately 33 lbs. (16 kgs), excluding a keyboard or monitor. Use appropriate lifting precautions when you move it.

Verify Contents

Unpack the contents of the shipping box and locate the ReadFirst sheet.

Verify the contents of the shipping box (including the installation kit) against the Contents list included with your HP NetServer E 200. If anything is missing or damaged, call your reseller.

Save Packaging

Store the empty boxes and packing material in a safe place. This is especially important if you plan to ship the HP NetServer E 200 elsewhere for final installation.

Find the Installation Kit

HP NetServer E 200 Installation Kit

This kit contains the ReadFirst sheet, the NOS Installation Guide, and the HP Startup CD-ROM shipped with each HP NetServer.

Support Documentation

HP NetServer E 200 Installation Guide

This document describes installation, hardware upgrades, configuration, and troubleshooting of your HP NetServer.

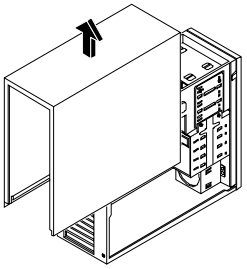
Installation Options

WARNING	Before removing the cover, always disconnect the power cord and unplug telephone cables. Disconnect the power cord to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry. Disconnect telephone cables to avoid exposure to shock hazard from telephone ringing voltages.

WARNING	The following upgrades (PCI boards, memory DIMMs, and hard disk drives) require removing the cover from the HP NetServer E 200. *BE SURE* to disconnect power from the NetServer before opening it. *BE SURE* to observe appropriate ESD precautions when handling electronic components.

If Installing Accessories, remove Cover

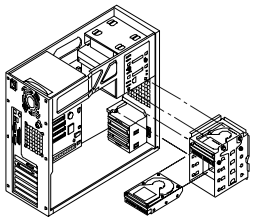
Refer to Chapter 3, "Opening and Closing the HP NetServer."



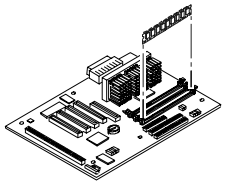
Add Hard Disk Drives

For details refer to Chapter 4, "Installing Mass Storage Devices."

The HP NetServer can use IDE and SCSI hard disk drives, depending on the model.



Add Memory

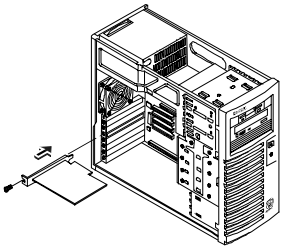


Use only HP supported DIMMs.

Supported DIMMs may be installed in any combination, in any slot.

For details refer to Chapter 5, "Installing Additional Memory."

Add PCI Boards



The slot assignments of additional disk drive controller boards may affect boot order.

For details refer to Chapter 6, "Installing Additional Boards."

Replace the Cover

Ensure all cables are properly routed and all components are fully seated.

For details refer to Chapter 3, "Opening and Closing the HP NetServer."

Installing the HP NetServer

1) Read the ReadFirst Sheet

View the ReadFirst sheet from the HP NetServer E 200 Installation Kit. The ReadFirst Sheet is a quick reference guide to help you install your HP NetServer.

2) Connect Peripherals

For details on rear panel interface connectors, refer to Chapter 2, "Controls, Ports, and Indicators."

For details on connecting the keyboard, mouse, monitor, and UPS, refer to Chapter 7, "Connecting the Monitor, Keyboard, Mouse, and UPS."

3) Run HP Startup CD-ROM

Run the HP Startup (NOS drivers/Diagtools) CD to create the diskettes necessary to install the NOS drivers or test your NetServer's hardware integrity.

The Startup CD-ROM also has a flash utility you can use to backup your BIOS configuration, in case the CMOS is corrupted later on.

Refer to Chapter 8, "Configuring the HP NetServer."

4) Run DiagTools (Optional)

To verify the HP NetServer hardware is fully functional, **boot from the DiagTools** diskettes and follow the screen instructions to run the **Basic Test.**

View and then Save the **Support Ticket,** as this will contain an inventory of your hardware.

Refer to Chapter 8, "Configuring the HP NetServer."

5) Read the NOS Installation Guide

Read the desired topic in the **NOS Installation Guide** included in your NetServer E 200 Installation Kit before starting to install the desired NOS. It includes the instructions for installing all supported NOSs and creating the NOS driver diskettes.

Refer to Chapter 8, "Configuring the HP NetServer."

2 Controls, Ports, and Indicators

Introduction

This chapter describes the controls, ports, and indicators on the front and rear of the HP NetServer E 200. Before installation, familiarize yourself with the HP NetServer's controls and indicators. Figures 2-1 and 2-3 show the front and rear of the NetServer respectively.

Front Panel

The HP NetServer's switches, indicators, and the externally accessible mass storage devices are shown in Figures 2-1 and 2-2.

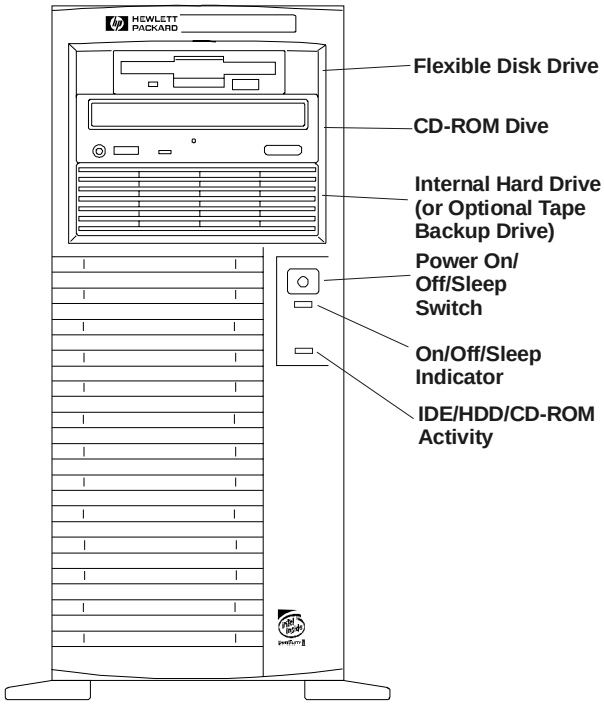
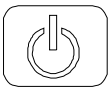
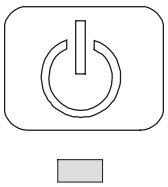


Figure 2-1. Front Panel

Table 2-1 provides the front panel power switch and the associated indicator definitions.

Table 2-1. Front Panel Switch and Indicators

Control / Indicator	Description
Power On/Off/Sleep Switch 	This button turns the HP NetServer power On or Off, and if available, also transitions the NetServer between Power On and sleep states. If sleep states are not available, then this button only turns power On or Off. The sleep states are NOS dependent and not available if your NOS does not support power management based on the ACPI (Advanced Configuration and Power Interface) standard. Refer to "Applying Power to the HP NetServer" and "Sleep States (ACPI)" later in this chapter.
On/Off/Sleep LED 	This green LED indicator provides the power state of the NetServer: **Steady** green when the NetServer is operating normally. **Off** when the NetServer is powered off. **Blinking** green at one Hz rate indicates the NetServer is in a sleep state and under ACPI control.
Drive Active LED 	This yellow LED indicator flashes during internal drive activity (IDE CD-ROM and/or IDE hard drives, depending on model). This indicator does not reflect SCSI drive activity.

Additional Front Panel Controls and Indicators

Input and storage devices provide additional front panel's controls and indicators, as shown in Figure 2-2.

The controls and indicators for an optional backup tape device in Figure 2-2 and Table 2-2 only reflect a HP Backup Tape Drive. See Table 2-2 for HP Backup Tape Drive LED Codes.

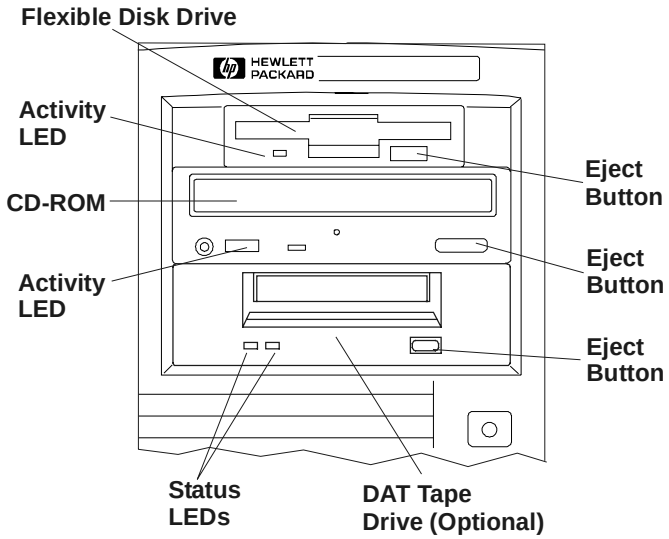


Figure 2-2. Input and Storage Device Controls and Indicators

Table 2-2. Backup Tape Drive LED Codes

Left LED	Right LED	Definition
Off	Off	No Power
On	Off	Cartridge Loaded, but No activity
Flashing*	Off	Cartridge Loaded and Active
Pulsing**	Off	Loading/Unloading/Ejecting/Power-On
Off	On	Self Test Fail
Off	Pulsing**	No Cartridge, but Caution (cleaning required)
On	Pulsing**	Cartridge Loaded, but Caution (cleaning required)
Flashing*	Pulsing**	Cartridge Loaded, Drive Active, Caution (cleaning required)
Pulsing**	Pulsing**	Cartridge Loading/Unloading, Caution (cleaning required)

* Flashing at 4 Hz rate

** Pulsing at 2 Hz rate

NOTE For more information on a HP Backup Tape Drive and its error codes, refer to the documentation provided with the tape drive or refer to Hewlett-Packard's web site at:
`http://www.hp.com`

Refer to Chapter 4, "Installing Mass Storage Devices," for installation information.

Rear View

The ports and connectors on the NetServer's rear panel are shown in Figure 2-3 and listed below.

- The Serial Port A is a standard serial connector.
- The Serial Port B is a standard serial connector.
- The Parallel Port is a standard parallel connector, which supports Extended Capabilities Port (ECP)/Enhanced Parallel Port (EPP).
- The Mouse Port accepts a standard mouse with a PS/2 connector.
- The Keyboard Port accepts a standard keyboard with a PS/2 connector.
- The Video Port connector is provided by an AGP board, with its relevant specifications listed in the "Video Display Modes" section of Appendix A, "Specifications."
- The Power Connector accepts a standard power cable to connect the HP NetServer E 200 with the site power supply.
- The external SCSI connector can be provided by the SCSI Controller board inserted into PCI slot 1. However, it can't be used if the internal 68-pin connector on the SCSI controller board is used to control internal SCSI drives.

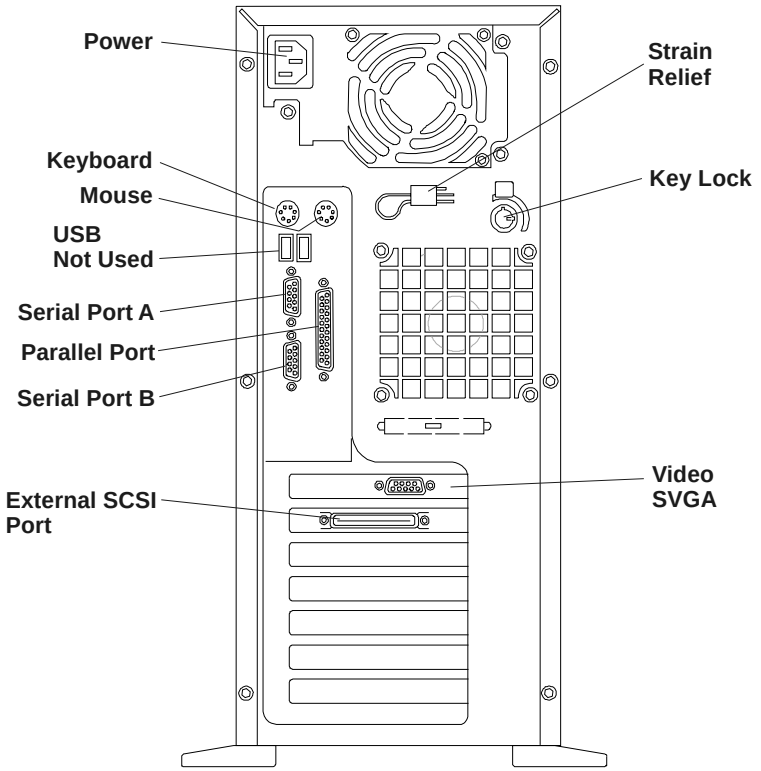


Figure 2-3. Rear Panel and Ports

Applying Power to the HP NetServer

Powering-Up the HP NetServer

The HP NetServer E 200 powers up and loads the operating system when you press the power button on the front panel. This runs a set of Power On Self Tests (POST) during this process. For details refer to Chapter 9, "Troubleshooting."

NOTE	Turn on power to the monitor connected to the HP NetServer before you power-on the NetServer. This allows proper auto-configuration of video output of the NetServer as the system boots up.

Powering-Down the HP NetServer

1. Log off all users and if necessary, back-up files.
   - ◊ Schedule the power down for a time when the fewest users will be affected by the NetServer's downtime.
   - ◊ If you will be doing any kind of hardware or software upgrade, be sure your NetServer's data has been backed up.
2. Follow instructions in your network operating system (NOS) manufacture's documentation to gracefully shut down all networking software and applications.
3. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally this completes the power down procedure.

NOTE	The power supply will continue to provide standby current to the NetServer until the power cable is disconnected from the rear panel.

Connecting AC Power to Multiple-Server Configurations

The HP NetServer temporarily draws a large "inrush current," when first connected to an AC power source. This also occurs when the NetServer is in a standby mode (power is turned off and the power cord is plugged into AC power). The inrush current is much greater than the NetServer's normal operating current and generally, the AC power source can handle the normal inrush current.

However, if you install several HP NetServers on one circuit, precautions are necessary. If there is a power failure and power is then restored, all the servers immediately begin to draw inrush current at the same time. If the circuit breakers on the incoming power line have insufficient capability, the breaker may trip and thus prevent the servers from powering up.

When preparing your site for installation, allow for the additional inrush current. See "Power Requirements" in Appendix A.

Sleep States (ACPI)

The HP NetServer supports the ACPI (Advanced Configuration and Power Interface) standard, which is a key component of a NOS's directed power management. The supported features are only available when an ACPI-compliant NOS is installed on the NetServer. The term "sleep state" refers to any of several reduced power consumption states in which normal NOS activity has ceased.

The NetServer supports several sleep states, including a sleep state with a short wake-up time, sometimes referred to as "standby" or "suspend" by various operating systems. In this sleep state the NetServer appears to be off and is indicated by no display on the monitor and no activity for the CD-ROM or internal hard drives. However, the power LED is slowly flashing and the fans are operating.

An additional sleep state supported by the NetServer is one with a slower wake-up time, sometimes referred to as "hibernate" by various operating systems. In this sleep state, the NetServer appears to be off as mentioned earlier, but the fans and the power LED are also turned off. This sleep state's unique feature (and the reason for its slower wake-up time) is that the NetServer's state (applications running, screens open, etc.) just prior to hibernate has been saved to disk and must be restored from disk upon wake-up. This method of restoring the NetServer's operation is much faster than rebooting the NetServer, which would require running all the start-up self-tests before starting the NOS.

The NetServer supports certain types of system activity, which is used as wake-up events from these sleep states. These wake-up events can be generated from the power button, LAN activity, and scheduled events.

NOTE The Wake-on-LAN feature is not supported in the HP NetServer E 200.

The HP NetServer's power management policies (transitions between various power states) and the user options are specific to the particular ACPI-compliant NOS installed on the NetServer. If your respective NOS is ACPI-compliant, refer to the power management features in the instructions provided for more information.

The HP NetServer's power button can be configured to initiate a sleep state (Sleep button), a "soft off," or a graceful shutdown of the NOS, rather than an immediate shutdown of the power supply. The power button configurations are dependent on the user interface provided by the ACPI-compliant NOS. While power

management is under the control of the ACPI-compliant NOS, the HP NetServer's power button is capable of an override in case of a non-responsive NOS.

NOTE	The HP NetServer power button will force a power down without waiting for the NOS to gracefully shut down the NetServer if the power button is pressed and held in excess of four seconds.

CAUTION	If the power button override is used, there is a strong possibility of corrupted or lost data.

3 Opening and Closing the HP NetServer

Introduction

This chapter describes how to remove and replace the HP NetServer's main cover and adjust the stabilizing feet on the bottom of the chassis.

WARNING	Before removing the cover, always disconnect the power cord and unplug telephone cables. Disconnect the power cord to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry. Disconnect telephone cables to avoid exposure to shock hazard from telephone ringing voltages.

Tools Required

- 1 Torx T-15 driver
- 1 ¼-inch flat blade screwdriver

Removing the Cover

To remove the cover, follow these steps:

NOTE	These steps do not include the removal of the front bezel of the NetServer. You ***do not*** need to remove the front bezel of the HP NetServer E 200 to install internal accessories, such as memory or mass storage.

1. Turn off the NetServer and disconnect the power cord and any phone line.
2. Unlock the cover, using the key in the key bag located on the rear of the NetServer.

   The locking mechanism is at the rear of the NetServer. See Figure 3-1.
3. Remove six (6) Torx T-15/slotted screws. See Figure 3-1 .

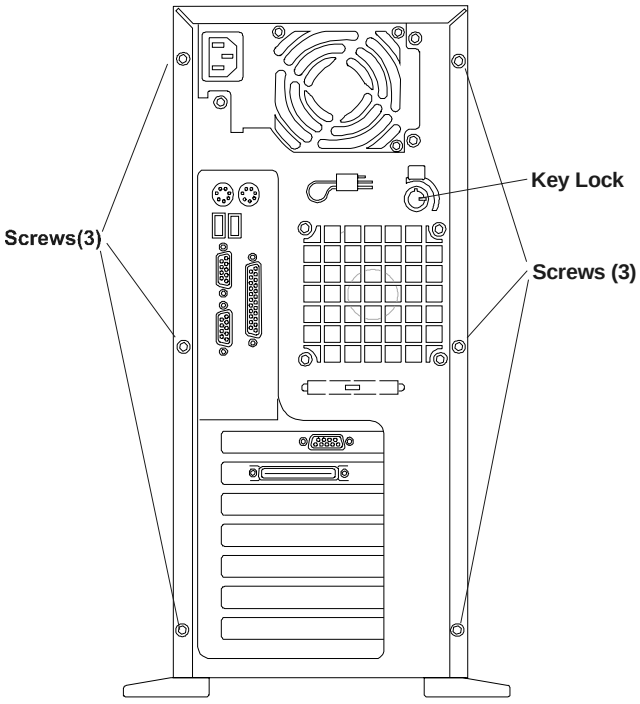


Figure 3-1. Screws and Lock Holding on Cover

4. Remove the NetServer cover.

   a. Place your hands near the bottom front of the cover, one along each side.

   b. Pull the cover slightly back to release it and then lift up and off the chassis. See Figure 3-2.

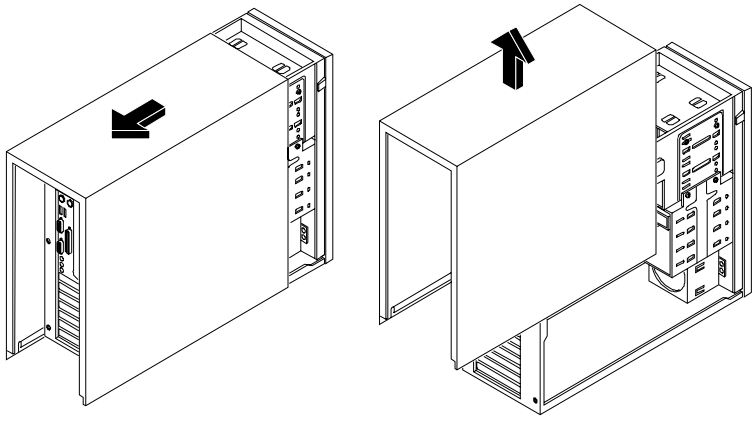


Figure 3-2. Removing the Cover

Replacing the Cover

To replace the cover, follow these steps:

1. If necessary, return the air duct to its closed position.
2. Place one hand on either side of the cover and press inward lightly while lowering the cover onto the chassis.

   The cover's flanges rest on the rails inside the chassis. See Figure 3-3.

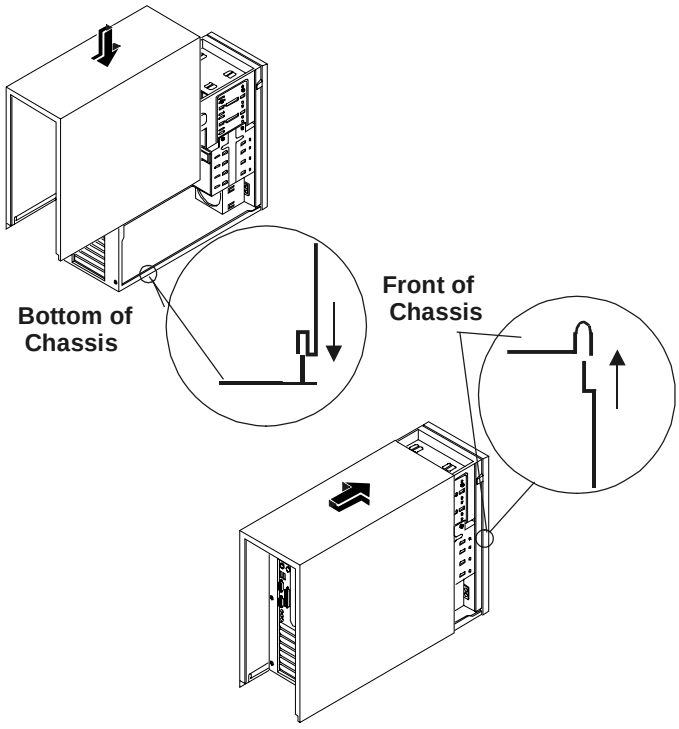


Figure 3-3. Replacing the Cover

3. Push the cover forward until it is seated in place.
4. Replace the six (6) Torx T-15/slotted screws in the rear. See Figure 3-1.
5. Re-lock the cover using the key lock.

Adjusting the HP NetServer Feet

The stabilizing feet are used to steady the HP NetServer during normal operation and must be turned outward during the installation process. When adding internal accessories to the NetServer, turn the feet inward so the NetServer will lay flat on its side on the floor or a table.

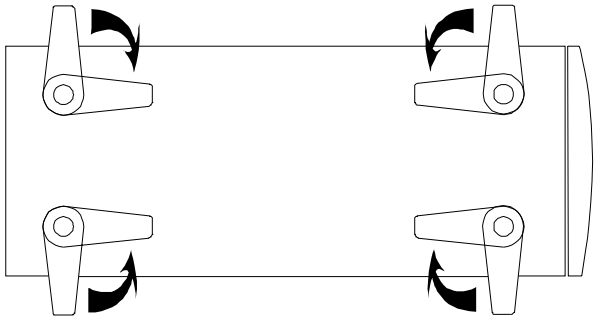


Figure 3-4. Turn Feet Inward before Laying the NetServer on Its Side

4 Installing Mass Storage Devices

Introduction

This chapter describes how to install the internal mass storage devices, including the internal hard disk drives (IDE or SCSI) and the optional Tape Backup (DAT) Drive. The requirements for external SCSI drives are provided in the respective topic later in this chapter.

The base HP NetServer E 200 comes standard with one flexible disk drive, one IDE CD-ROM, and at least one SCSI or IDE hard disk drive. The removable mass storage cage can hold an additional four hard disk drives with cabling.

Please refer to the appropriate section below according to your NetServer configuration (IDE or SCSI).

Tools Required

Check your device's documentation for additional tool requirements.

- 1 Torx T-15 driver
- 1 ¼-inch flat blade screw driver

Boot Priority

The HP NetServer E 200 is provided in two models, IDE or SCSI, and the model type affects the boot priority. The HP NetServer searches for bootable devices in a specific order, which is set up in the BIOS Utility.

IDE Model Boot Order:

1. IDE CD-ROM Drive
2. Flexible Disk Drive
3. IDE Hard Drive
4. PCI slot 1
5. PCI slot 2
6. PCI slot 3
7. PCI slot 4
8. ISA slot

SCSI Model Boot Order:

1. IDE CD-ROM Drive
2. Flexible Disk Drive
3. IDE Hard drive (if boot drive)
4. SCSI A Channel (provided by SCSI Controller board)
5. PCI slot 1
6. PCI slot 2
7. PCI slot 3
8. PCI slot 4
9. ISA slot

On each SCSI Controller channel, the NetServer scans for a boot device starting at device ID 0 and works up through the ID numbers (0-15). The SCSI controller board is always SCSI ID 7. The optional tape drive will use SCSI address ID 4.

NOTE	The boot order can be changed using the NetServer's (BIOS Setup) Utility (press [**Del**] during the boot process) and the SCSI configuration utility.

IDE Mass Storage Devices

This section provides the configuration of the mass storage devices, if you have selected an IDE version of the HP NetServer E 200.

IDE Controller Configuration

The embedded IDE controller is available for both models (IDE or SCSI) of the HP NetServer. The embedded IDE controller is an Ultra DMA/66 E-IDE dual channel controller, which provides IDE-1 and IDE-2 connectors. Each channel can only control two IDE devices.

The base IDE NetServer model uses the IDE-1 connector for the IDE CD-ROM and the IDE boot drive. The Setup Utility (BIOS) can be used to change the boot order of the flexible disk drive and the IDE drive devices. Refer to Chapter 8, "Configuring the HP NetServer," for more information.

IDE Mass Storage Additions

Table 4-1 lists the number and types of mass storage devices that may be added to the IDE model of the HP NetServer.

Table 4-1. IDE Mass Storage Device Types

Interface Types	Max Number of Devices Possible	Installed Devices and Addresses
Flexible disk drive	1	Factory installed flexible disk drive in shelf 1 (top shelf)
IDE-1	2*	Factory installed CD-ROM drive in shelf 2
		Factory installed IDE hard drive in shelf 3
		Or optional IDE Tape-backup device in shelf 3
IDE-2	2**	Two optional IDE hard drives in the removable mass storage cage (shelves 4 and 5)

* You may connect an IDE Tape-backup device.

** An additional IDE cable is required if not configured with original order.

SCSI Mass Storage Devices

This section provides the configuration of the mass storage devices, if you have selected a SCSI version of the HP NetServer E 200. Only one SCSI cable is provided and it has four 68-pin, high-density connectors for the available hard disk drive shelves. This cable also has a terminator on the end of the cable so it does not require an enabled termination on the individual SCSI hard drive. The base SCSI configuration has at least one SCSI hard drive connected to the factory installed SCSI cable.

SCSI Controller Configuration

The SCSI controller board uses the Symbios (SCSI) Controller Utility to control the SCSI controller settings. If you order the SCSI model, you typically do not need to configure the SCSI controller, because the utility will automatically recognize SCSI devices connected to it.

Run the SCSI Select Utility to verify or modify the SCSI controller settings, low-level format SCSI disks, or verify SCSI media. Refer to Chapter 8, "Configuring the HP NetServer," for further information.

CAUTION	You must not connect high voltage differential (HVD) SCSI devices on the SCSI bus or you will damage the other LVD SCSI devices.

The single channel Ultra Wide PCI SCSI controller board provided with the NetServer SCSI model includes three SCSI connectors and is normally installed on PCI slot 1.

- 1 internal 68-pin connector – This internal connector is used to control the internal SCSI drives; up to a total of four SCSI drives.
- 1 internal 50-pin connector – This internal connector is provided but not used.
- 1 external 68-pin connector – This external SCSI connector is only used for external SCSI devices and requires no additional internal cabling or jumper and switch settings. This connector can have up to 15 devices connected to it externally.

NOTE	Only one connector can be configured for Channel A at a time. Therefore, you could not have a SCSI device connected to the external connector at the same time as internal SCSI devices are connected to the internal 68-pin connector.

SCSI Mass Storage Additions

Table 4-2 lists the number and types of mass storage devices that may be added to the SCSI model of the HP NetServer.

Table 4-2. SCSI Mass Storage Device Types

Interface Types	Max Number of Devices Possible	Installed Devices and Addresses
Flexible disk drive	1	Factory installed flexible disk drive in slot 1 (top shelf)
IDE-1	2*	• Factory installed CD-ROM drive in shelf 2 (Primary) • Factory installed IDE hard drive in shelf 3, or • Optional IDE Tape-backup device in shelf 3.

Interface Types	Max Number of Devices Possible	Installed Devices and Addresses
IDE-2	2*	Two additional IDE hard drives in the removable mass storage cage (shelves 4, 5, 6, and 7) are limited by the number of SCSI drives installed. The removable mass storage cage is limited to 4 drives.
Ultra Wide SCSI Channel A	up to 4**	• Up to four installed SCSI hard disk drives in the removable mass storage cage (addresses = ID 0, 1, 2, 3). • Optional Tape Drive in shelf 3 (address = ID 4) • SCSI controller (address = ID 7)

* The primary IDE (IDE-1) cable is connected to the factory-installed CD-ROM drive with a second IDE connector provided for an IDE hard drive or optional IDE tape backup device. The secondary (IDE-2) IDE connector is available for the SCSI model of the NetServer, but is limited by the number of SCSI drives installed. An additional IDE cable for IDE-2 is required if not configured with the original order.

** SCSI channel A can support up to 4 devices. However, to get the maximum number of SCSI hard drives installed (4) may require using the IDE-1 cable for the boot drive.

Installing Hard Disk Drives

The installation of the hard disk drives is the same for both IDE or SCSI drives. The IDE drives require setting jumpers on the drives for the master and slave drive selection before installing the drives. The SCSI drives are set up electrically in the SCSI configuration utility.

1. If the NetServer is already installed and working, gracefully power down the NetServer.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Disconnect the power cable and any external cables connected to the NetServer.

   If necessary, label them to expedite re-assembly.

3. Remove the cover and turn in the NetServer feet (so that the NetServer will lie flat on its side).

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

4. Lay the NetServer on its side (components showing).

5. Unsnap the air duct and move it out of the way. See Figure 4-1.

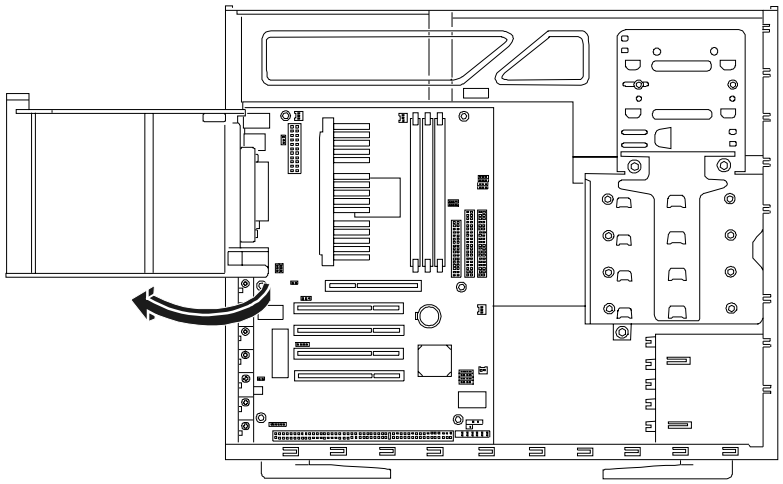


Figure 4-1. Moving the Air Duct

6. Loosen three captive screws on the mass storage cage. See Figure 4-2.

7. Unplug the power and SCSI or IDE cables to any hard disk drives already in the cage.

CAUTION	Install and remove connectors carefully and avoid displacing any pins.

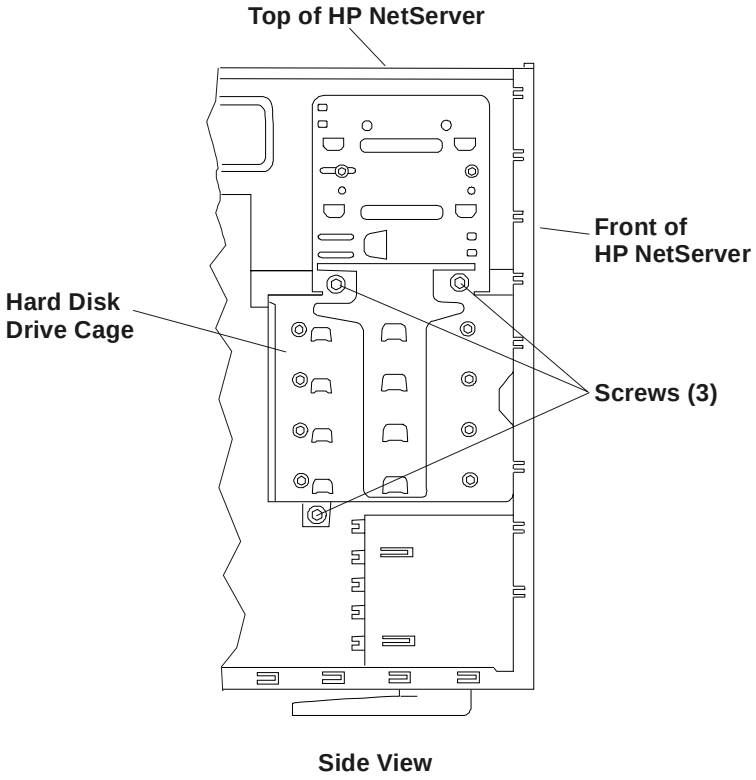


Figure 4-2. Captive Screws Holding the Hard Disk Drive Cage

8. Remove the mass storage cage. See Figure 4-3.

CAUTION	All mounting screws that thread into the hard disk drive must be #6-32 and not exceed ¼-inch in length. Longer screws may cause internal damage to the mass storage device. Damage caused by using incorrect mounting screws may not be covered by the HP warranty.

9. Slide the drive into the cage opening with the cable connectors toward the rear of the NetServer. See Figure 4-3.

   Align the screw holes on the drive (or the shelf or brackets) with the screw holes in the hard disk drive cage.

NOTE If the hard disk drive you are planning to install already has a mounting tray attached, you must remove it before you can install the drive in your HP NetServer.

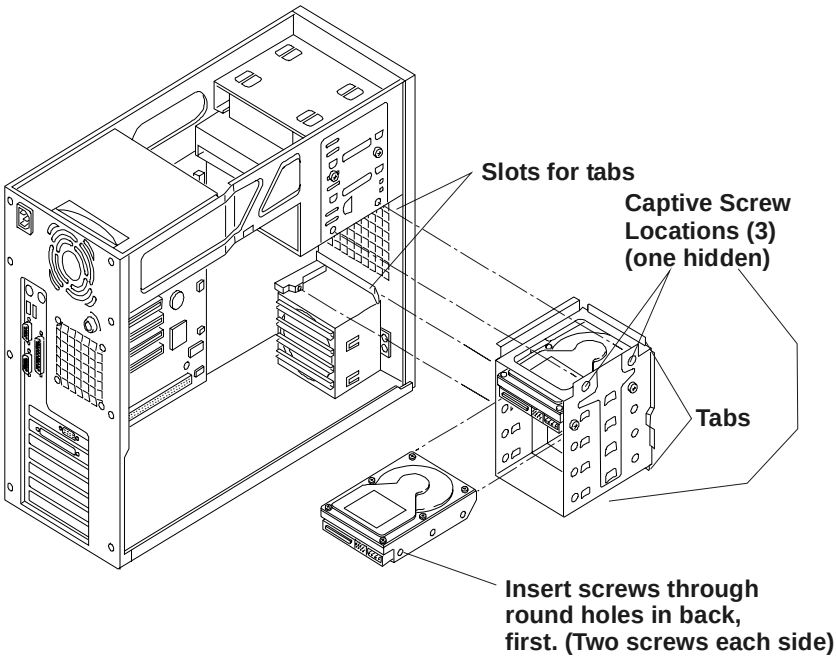


Figure 4-3. Adding a Hard Disk Drive

10. Install the screws to secure the drive (or the shelf or the brackets) to the mass storage cage.

    a. Attach one of the screws through the round screw hole at the rear of the cage, then through the elongated hole at the front of the cage.

    b. Repeat on the other side of the cage. See Figure 4-4.

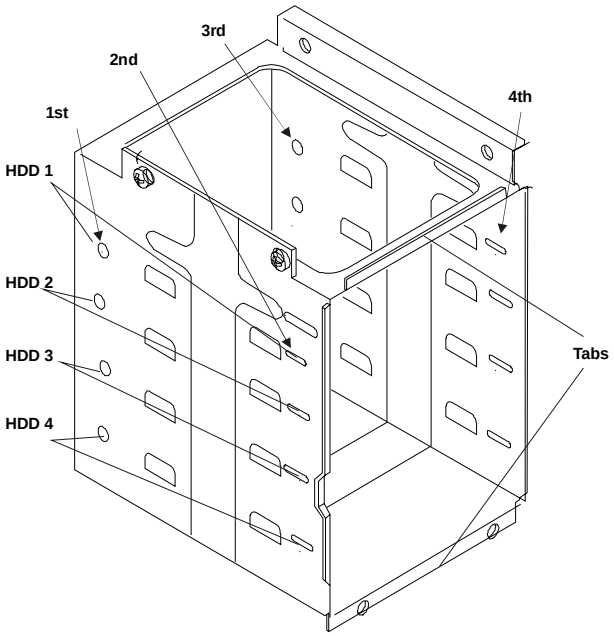


Figure 4-4. Hard Disk Drive Cage Screw Holes

NOTE	Ensure you set up the IDE drive jumpers for master/slave operation before re-inserting the hard drive cage back into the NetServer. Refer to step 11 and the BIOS setup instructions.

11. Reinstall the mass storage cage.

    Ensure the tabs at the front on the cage slide into the slots provided for each one. See Figure 4-3.

12. Connect the IDE cable to the disk drive.

    There are 2 connectors on each IDE cable. The primary cable is intended for the IDE CD-ROM and the factory installed hard disk drive (boot drive) in the drive cage. The secondary cable is intended for the optional tape drive and/or additional hard disk drive(s).

13. Connect the power cable to the drives.

The power cable is split into two cables, each with three power connectors. The designed distribution is:

- One string of three: CD-ROM, hard drive or optional tape drive, top hard disk drive in mass storage cage.
- Second string of three: lower three hard disk drives in mass storage cage.

If a power connector has no mate (for example, no optional tape drive installed), leave it unconnected and use connector designed for the device you are connecting.

14. Replace the NetServer cover, external cables, and power cord.

External SCSI Connector

The SCSI version of HP NetServer provides an external SCSI connection for external SCSI devices. However, this connection can only be used if the internal 68-pin connector is not used to control internal SCSI drives. See Figure 4-5.

NOTE If the SCSI controller board in PCI slot 1 is used for the internal SCSI drives and an active external SCSI connector for external devices is required, an additional SCSI controller board must be installed.

The external SCSI connector provided on the SCSI Controller board does not require any additional internal wiring. This connector only requires an external SCSI cable to connect the external SCSI devices. The last SCSI device in the SCSI chain should be terminated.

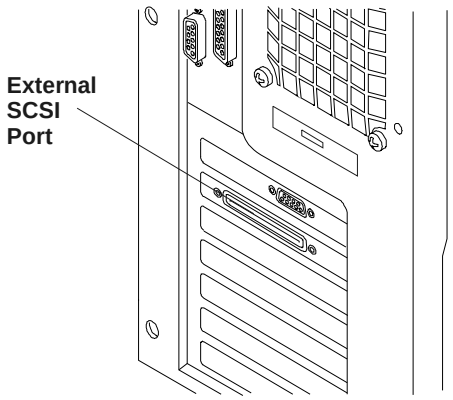


Figure 4-5. External SCSI Connector

5 Installing Additional Memory

Introduction

This chapter provides the instructions for installing and removing DIMMs on the system board in the HP NetServer E 200. The video memory is provided on the AGP adapter board and comes with 4 MB standard and cannot be upgraded.

NOTE	The EDO DIMMs and PC 100 SDRAM DIMMs from earlier HP NetServer models will fit into the DIMM slots in the HP NetServer E 200, but the EDO DIMMs and PC 100 SDRAM will not function properly. Use only 133 MHz SDRAM registered DIMMs acquired from HP.

To ensure you have the correct DIMMs before installation, refer to one of the following for a list of qualified DIMMs:

- HP Order Assistant on the HP web site at:
  `http://www.hp.com/go/netserver`
- HP Customer Service

Tools Required

Use an anti-static service kit (3M 8501/8502/8503 or equivalent). This kit includes a static-dissipating work surface, a chassis clip lead, and a wrist-strap.

Memory Installation Guidelines

- The HP NetServer E 200 uses only 3.3V, 133 MHz (PC133), registered SDRAM DIMMs, which are electrically different from the EDO and PC100 SDRAM memory modules used in previous HP NetServer models.

NOTE	The registered DIMMs are required because the HP NetServer uses error checking.

- The HP NetServer ships with at least one DIMM (64 MB) in the three DIMM slots of main memory on the system board and supports up to 728 MB. See Figure 5-1 for slot location.

- Use only HP DIMMs, which are available in the following DIMM sizes: 64, 128, and 256 MB.
- DIMM sizes may be mixed on the system board.
- DIMMs may be installed in any combination in any slot.

  However, HP recommends starting at slot 0 (or A) and filling the slots in sequential order: 0 (or A), 1 (or B), etc.

NOTE	Some NOSs (Windows 2000, NetWare 5.1) require at least 128 MB or more of memory to install.

Installing Additional DIMMs

1. If the NetServer is already installed and working, gracefully power down the NetServer.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Disconnect the power cables and any external cables connected to the NetServer.

   If necessary, label each one to expedite re-assembly.

3. Remove the cover and turn in the NetServer feet (so that the NetServer will lie flat on its side).

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

WARNING	The power supply will continue to provide standby current to the HP NetServer until the power cable is disconnected.

4. Lay the NetServer on its side (components showing).

CAUTION	The DIMMs are sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the accessory kit: Leave the memory module in the anti-static container until you are ready to install it. Use an anti-static wrist-strap and a grounding mat. Before you remove a memory module from the anti-static container, touch a grounded, unpainted metal surface on the HP NetServer to discharge static electricity.

5. Unsnap the air duct and move it out of the way. See Figure 4-1.
6. Locate the DIMM slots on the system board. See Figure 5-1.

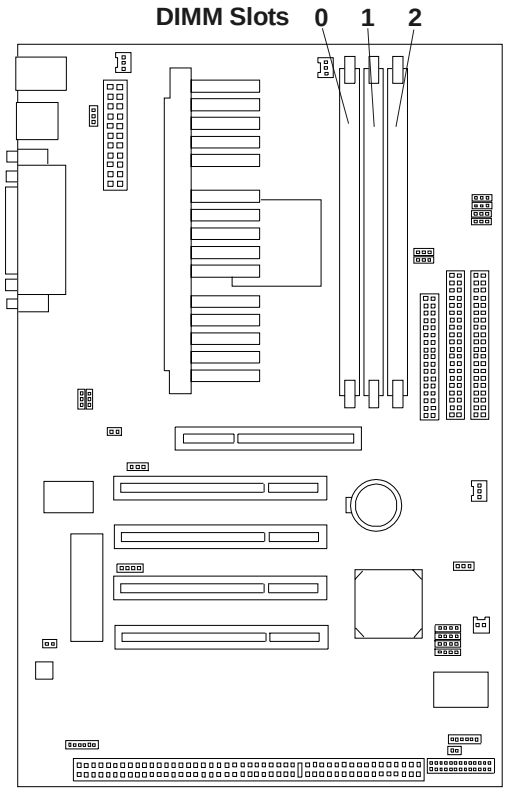


Figure 5-1. DIMM Locations on System Board

7. Install the DIMMs in the desired slot. See Figures 5-2 and 5-3:
   a. Choose a DIMM slot for the desired DIMM.

      DIMMs may be installed in any combination, in any slot.

   b. Spread the two retaining latches on the slot outward.

CAUTION	Use only HP DIMMs, which are 3.3V, 133 MHz (PC133), and registered SDRAM DIMMs. Damages caused by non-HP parts are not covered under HP's warranty.

   c. Remove a DIMM from its protective container, handling the module by its edges.

      If necessary, lay it on an anti-static surface.

   d. Align the notches on the DIMM with the keys on the slot. See Figure 5-2.

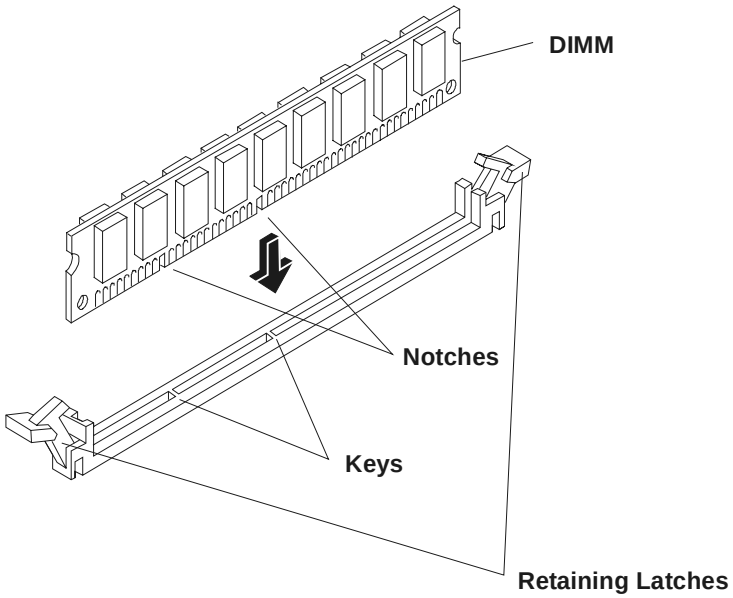


Figure 5-2. DIMM to Slot Alignment

   e. Holding the DIMM at 90 degrees to the system board, press the DIMM fully into the slot until the retaining latches close.

f. If the latches do not close, the DIMM is not inserted correctly.

NOTE	If the DIMMs are not seated properly, you may get a blank screen when the NetServer boots.

8. Repeat all of Step 7 to install the additional DIMMs for your memory configuration.

NOTE	Most DIMMs are dimensionally identical. So, if you have two or more DIMMs installed, you should check all DIMMs are seated by sliding a straight edge (a pen, for example) across the top edges and verify it remains in continuous contact with all of the DIMMs.

Removing DIMMs

You may need to remove a DIMM module to increase your memory configuration or to replace a defective DIMM.

1. If the NetServer is already installed and working, gracefully power down the NetServer.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Disconnect the power cable and all external cables and, if necessary, label them to support re-assembly.

WARNING	The power supply will continue to provide standby current to the NetServer until the power cable is disconnected.

3. Remove the top cover from the NetServer.

   Refer to Chapter 3, "Opening and Closing the HP NetServer," for details.

4. Open the retaining latches.
5. Lift the DIMM completely away from the slot. See Figure 5-3.

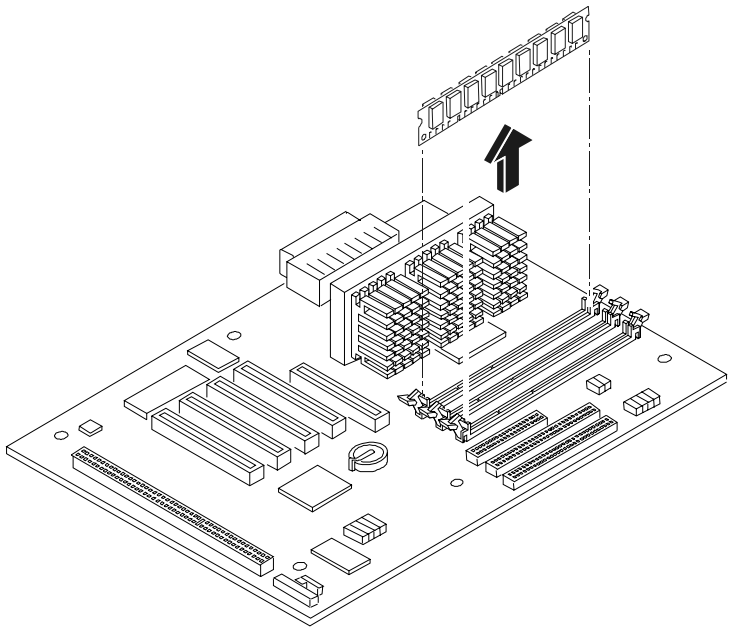


Figure 5-3. Removing the DIMM

6. Place the DIMM in its anti-static container.
7. Repeat steps 4-6 for as many DIMMs as you need to remove.

6 Installing Additional Boards

Introduction

This chapter describes how to install accessory boards into the system board of the HP NetServer E 200. The HP NetServer includes four PCI slots and one ISA slot. See Figure 6-1.

Tested PCI Boards

For a list of tested PCI boards, check for compatibility under the Hardware Tested Products list for the HP NetServer E 200 under the Service and Support topic for the specific NOS used in the NetServer at HP's web site:

`http://www.netserver.hp.com`

CAUTION	Some accessory board outputs may exceed U.S. National Electrical code (NFPA 70) Class 2 or limited power source limits and must use appropriate interconnecting cabling in accordance with the National Electrical Code. (All Hewlett-Packard boards comply with Class 2.)

NOTE	The HP NetServer E 200 does not support HP NetRAID boards or Disk Array Controller (DAC) boards.

Tools Required

The following tools will be required to install or remove accessory boards into the HP NetServer.

- Torx T-15 or ¼-inch flat blade screwdriver
- Anti-static services kit (3M 8501/8502/8503 or equivalent) - This kit includes a static-dissipating work surface, a chassis clip lead, and a wrist-strap

Accessory Board Installation Guidelines

For every accessory board you install, the NetServer needs to set aside available resources to support it. An accessory board typically requires resources such as an IRQ (Interrupt Request) and port address.

- The PCI boards use the Plug-and-Play feature to correctly assign the IRQ resources automatically.
- ISA boards with the Plug-and-Play feature are automatically assigned resources such as IRQ settings.
- Some ISA boards, may require manually setting the resources needed for the board on the board and in the (BIOS) Setup Utility

  Refer to "Configuring an ISA Non-Plug-and-Play Board" in Chapter 8, "Configuring the HP NetServer," for details.

Boot Priority

The HP NetServer E 200 is provided in two models, IDE or SCSI, and the model type affects the boot priority. The HP NetServer searches for bootable devices in a specific order, which is set up in the BIOS Utility.

IDE Model Boot Order:

1. IDE CD-ROM Drive
2. Flexible Disk Drive
3. IDE Hard Drive
4. PCI slot 1
5. PCI slot 2
6. PCI slot 3
7. PCI slot 4
8. ISA slot

SCSI Model Boot Order:

1. IDE CD-ROM Drive
2. Flexible Disk Drive
3. IDE Hard Drive (if used as boot drive)
4. SCSI A Channel (provided by SCSI Controller board)

5. PCI slot 1
6. PCI slot 2
7. PCI slot 3
8. PCI slot 4
9. ISA slot

The NetServer scans for a boot device on SCSI Channel A starting at device ID 0 and works up through the ID numbers (0-15). The SCSI controller board is always set at SCSI ID 7. If an optional SCSI tape drive is installed, set it at SCSI address ID 4.

NOTE	The boot order can be changed using the HP NetServer's (BIOS) Setup Utility (press [Del] during the boot process) and the SCSI Select Utility.

Interrupt Sharing

The HP NetServer provides IRQ sharing, since the number of IRQs are limited. This means two devices (for example, two PCI slots) may share the same interrupt. Using this scheme the NetServer is capable of supporting more accessory devices and avoiding internal conflicts. However, interrupt-sharing results in a small performance loss as the operating system has to resolve which of the devices caused the interrupt before it responds.

NOTE	HP does not support the USB ports and by changing the USB Function from [Enabled] to [Disabled] you can free up another IRQ. If your are not using one or both of the two serial ports and the single parallel port, you can also disable these ports to free up more IRQs.

IRQ sharing is automatically assigned for the PCI slots in the HP NetServer. The single ISA bus expansion slot gets the first IRQ assignment followed by the four PCI slots, followed by the AGP slot and USB port respectively.

If you are installing a PCI board that does not support interrupt sharing, refer to the accessory board documentation and make the specified changes in the Setup Utility to support the accessory board. If your are installing a non-Plug and Play ISA board, refer to the procedure in Chapter 8, "Configuring the HP NetServer," for the resource assignments of the non-Plug and Play ISA board.

NOTE	The AGP Video board shipped with the HP NetServer has the interrupt jumper on the board disabled. HP recommends leaving this jumper in the disabled position, unless you are using intensive video operations such as 3D rendering, which can be improved by enabling this jumper on the AGP board.

Installing Accessory Boards

To install an accessory board, refer to the following procedure

1. If the NetServer is already installed and working, gracefully power down the NetServer.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Disconnect the power cables and any external cables connected to the NetServer.

   If necessary, label each one to expedite re-assembly.

3. Remove the cover and turn in the NetServer feet (so that the NetServer will lay flat on its side).

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

WARNING	The power supply will continue to provide standby current to the HP NetServer E 200 until the power cable is disconnected.

CAUTION	Wear a wrist-strap and use a static-dissipating work surface connected to the chassis when handling components. Ensure the metal of the wrist-strap contacts your skin.

4. Lay the NetServer on its side with the system board facing up (component side up).

5. Read the documentation included with the accessory board and follow any special instructions.

   PCI boards must be set to INT A on the board if jumpers are provided.

6. Identify the accessory slot number to be used.

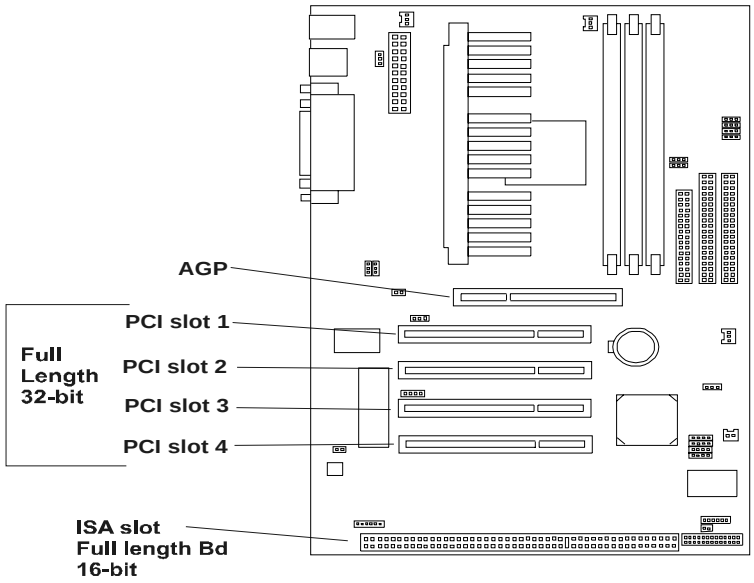


Figure 6-1. Accessory Slots

7. Use the T-15 driver or flat blade screwdriver to remove the PCI slot cover for each slot to be used, and store it for future use. See Figure 6-2.

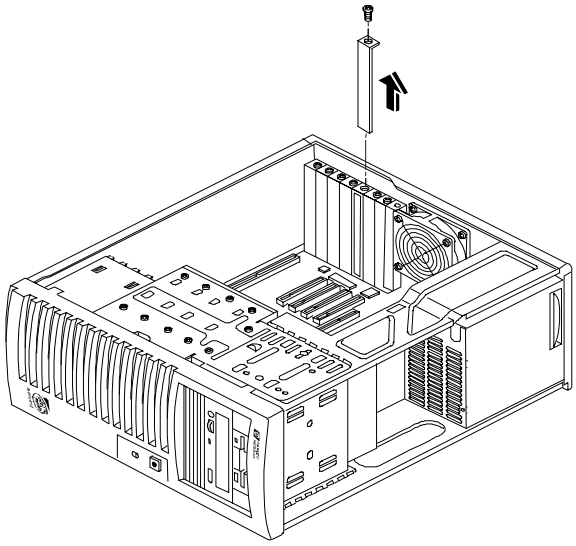


Figure 6-2. Removing the Accessory Slot Cover

8. Slide the accessory board into the slot. See Figure 6-3.

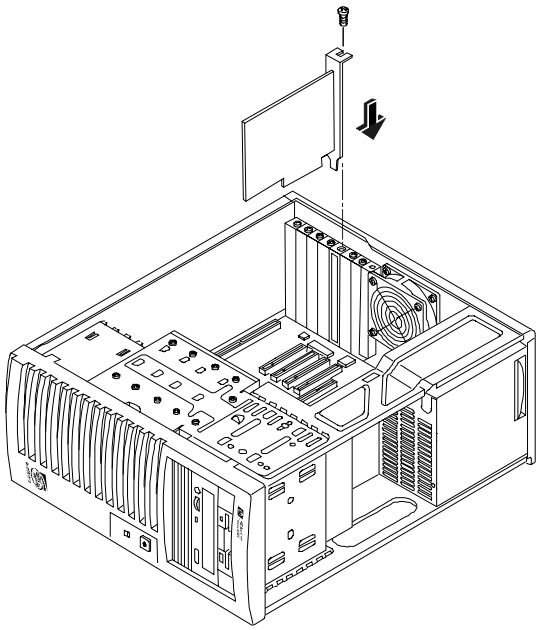


Figure 6-3. Inserting an Accessory Board

9. Secure the accessory board using the screw you previously removed with the slot cover.

   Use the T-15 driver or flat blade screwdriver.

10. Once the accessory board is installed, you may need to install software drivers.

    The drivers for the new board are either part of your existing system software or included on a flexible diskette included with the accessory board.

Removing Accessory Boards

1. Apply the Steps 1 through 9 in reverse from the installation procedure to remove the accessory boards.
2. Replace the slot cover on all empty slots to prevent EMI and cooling problems.

7 Connecting the Monitor, Keyboard, Mouse, and UPS

Use this chapter to connect the monitor, keyboard, and mouse cables and the AC power cord to the appropriate connectors on the rear of the chassis. When connecting the HP NetServer to peripherals, use the cable ties and labels provided with the product. See Figure 7-1.

If you are using a switch box to connect one monitor, keyboard and mouse to a number of servers, refer to the instructions provided with the switch box.

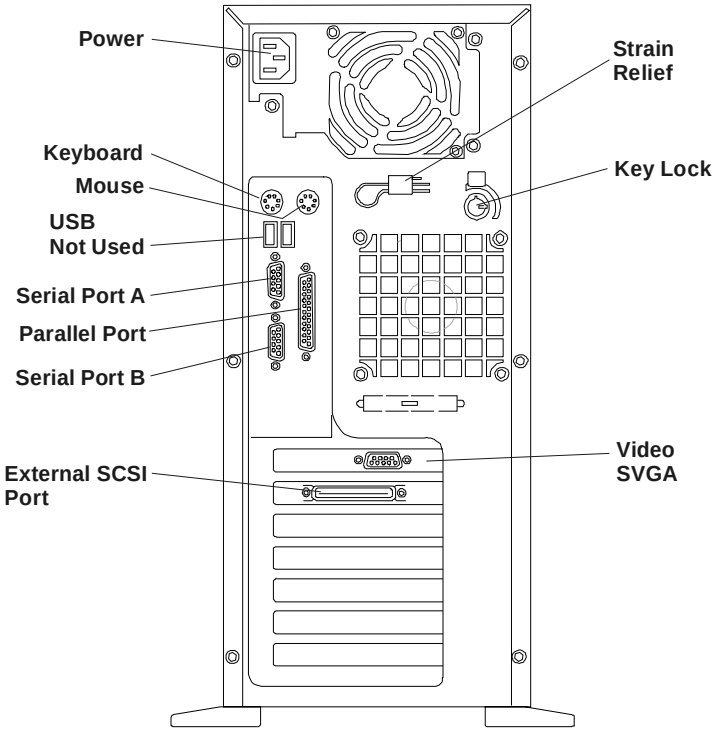


Figure 7-1. Rear Panel Ports

1. If you have an uninterruptible power supply (UPS), install the UPS near the HP NetServer.

   Refer to the instructions supplied with the UPS.

2. Connect the mouse, keyboard, and monitor to the HP NetServer.
3. Connect the power cord to the rear of the NetServer.
4. Use the power cord strain relief clamp to secure the power cord.
5. Connect the NetServer's power cord to the UPS outlet.
6. Power up the UPS.
7. Refer to the first few pages of Chapter 8, "Configuring the HP NetServer," before powering up the NetServer.

   When the front panel power switch is turned on, the HP NetServer performs the power on self test (POST). If an error condition occurs, note any error messages appearing on the display, then refer to Chapter 9, "Troubleshooting."

8 Configuring the HP NetServer

Introduction

This chapter provides the setup instructions for your HP NetServer E 200. The first few topics in this chapter provide an overview of the HP Startup CD-ROM. The balance of this chapter provides the necessary instructions for setting up the (BIOS) Setup Utility and the optional SCSI Select Utility used to configure the HP NetServer E 200.

You may choose to make changes to the (BIOS) Setup Utility before or after you install any additional accessories into the NetServer. However, you must reconfigure the NetServer after installing any additional options to allow the NetServer to recognize the options. For more information on the overall process, refer to Chapter 1, "Setting Up the HP NetServer."

The instructions provided for the (BIOS) Setup Utility are used to configure the following NetServer options:

- HP NetServer Date and Time
- Setting the HP NetServer's Boot Passwords
- Setting Internal Device Boot Priority
- Configuring ISA Non-Plug and Play boards
- Clearing Boot Passwords (CMOS)
- Updating BIOS

The instructions provided for the SCSI Select Utility are used to:

- Verify or modify SCSI controller settings.
- Low-level format the SCSI disks or verify the SCSI disk media, if necessary.

  The SCSI configuration utility used for the HP NetServer E 200 is the Symbios SCSI Select Utility.

HP Startup CD-ROM

The HP Startup CD-ROM provides you with the latest NOS drivers, DiagTools Utility, BIOS Flash utility, and a diskette creation Utility.

- Run the HP Startup CD-ROM on the HP NetServer to obtain the required NOS drivers and the DiagTools Utility located on the CD-ROM.

  You need to boot the NetServer with the HP Startup CD-ROM inserted into the CD-ROM drive to access contents of the CD. The CD-ROM contains the latest NOS drivers (SCSI, IDE, NIC and Video) for the supported NOSs and the DiagTools Utility.

- To Install the NOS drivers on the NetServer, refer to NOS Installation later in this chapter.

Contents of the HP Startup CD-ROM

The following is a list of items contained on the HP Startup CD-ROM:

- Boot file (file containing boot instructions for the NetServer)
- NOS directories (Win 2000/NT 4.0 and NetWare 5.x/4.x)
- NOS Drivers subdirectories (SCSI, IDE, NIC and Video)
- DiagTools Utility
- Make Diskette Utility
- BIOS Flash Utility

Accessing the HP Startup CD-ROM

The HP Startup CD-ROM provides the instructions for accessing and using the CD-ROM.

NOS Installation

The instructions for manually installing your specific network operating system (NOS) and the respective NOS drivers is provided in the *HP NetServer E 200 NOS Installation Guide*.

NOTE	The DiagTools Utility will start automatically when you boot the NetServer with the DiagTools disk #1.

Setup (BIOS) Utility

The HP NetServer has a Setup Utility (BIOS) in read-only memory used to control the NetServer's BIOS settings stored in the CMOS section of the EEPROM on the system board. The utility features several system configuration and housekeeping options, including security.

The following sections describe how to access the Setup Utility and how to perform selected tasks.

NOTE	HP recommends using the default settings unless otherwise noted as a factory setting. Refer to Table 8-2 later in this chapter for the factory exceptions to the default settings.

Starting the Setup Utility

Use the Setup Utility to reconfigure the HP NetServer on the initial power up of the NetServer, change settings after installing new options, or you are prompted to "Run Setup" on the screen.

1. If the NetServer is not already powered on, turn on the monitor and the NetServer.
2. Start the Setup Utility by pressing the [DEL] key during the Power-On Self Test (POST) execution of the boot process.

   ```
   Press <DEL> (Delete key) to enter SETUP
   ```

   The above statement appears during the beginning of the boot process on screen. There are menu choices to select from once the Setup Utility loads.

The following topic provides a list of menu choices and descriptions of each one.

Menu Bar

The Setup Utility provides a menu bar leading to several menus and submenus. The menu bar choices are:

- Main – Use this menu when making changes to the basic NetServer configurations, such as system time/date, changes to flexible disk drive, manually setting IDE master/slave devices and hard drive settings, selecting BIOS language, and setting supervisor/user passwords.
- Advanced – Use this menu to enable/disable changes for advanced features and should only be attempted by knowledgeable and skilled users. HP

recommends using the default settings unless otherwise noted as a factory setting. Refer to Table 8-2 later in this chapter for the factory settings.

CAUTION	Damage caused to the HP NetServer by non-factory settings may not be covered under the HP warranty. HP reserves the right to charge for resolving problems caused by unauthorized or untrained non-HP personnel who have altered factory settings.

- Power – Use this menu to enable and configure Power Management features, especially those relative to ACPI sleep states, such as power saving features, but the wake up states, relative to Wake-on-Ring and Wake-on-LAN are not supported.
- Boot – Use this menu to set or change the boot order of mass storage devices used to boot the NOS. This menu also provides other options and features at or during boot time.
- Exit – Use this menu to exit the current menu or specify how to exit the Setup Utility, such as exit discarding changes, saving changes, or loading default settings.

Using the Setup Screens

The BIOS Utility provides a legend bar at the bottom of each screen to navigate through the various setup menus and help screens, which can be easily accessed from anywhere in the Setup Utility. The following items list the navigating functions between menus and Table 8-1 lists the keys found in the legend bar to navigate within the menus with the corresponding alternates and function descriptions.

- Use the right or left (← or →) arrow key on the keyboard to select or move between menu bar items.
- The item heading in square brackets represents the default setting for that field.
- The menu items with a right pointer (➢) preceding the field names indicate this is submenu with more selections.
- To visit the submenu, select it with the arrow keys and press the <**Enter**> key. The submenu then appears in place of the current screen.

- Use the <**Esc**> key to exit any menu. If you press <**Esc**> on a submenu, the previous screen appears. When you are making selections from a submenu, use the <**Esc**> key to close the submenu without making a selection.
- Use the scroll bar to the right of the help window to view more information than can be displayed on screen.
- Use the <**PgUp**> and <**PgDn**> or the up and down (↑ or ↓) arrow keys to scroll through the entire help document.
- Press <**Home**> to display the first page or press <**End**> to go to the last page in the help document.
- To exit the help window, press <**Enter**> or <**Esc**>.

NOTE	If you accidentally make unwanted changes to any fields, use the set default hot key <**F5**> to delete changes.

Table 8-1. Setup Utility Legend Bar Functions

Navigation Key(s)	Function Description
<F1> or <Alt + H>	Displays the General Help screen from anywhere in the Setup Utility.
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu.
← or → (keypad arrow)	Selects the menu item to the left or right.
↑ or ↓ (keypad arrow)	Moves the highlight up or down between fields.
- (minus key)	Scrolls backward through the values for the highlighted field.
+ (plus key) or spacebar	Scrolls forward through the values for the highlighted field.
<Enter>	Brings up a selection menu for the highlighted field.
<Home> or <PgUp>	Moves the cursor to the first field.
<End> or <PgDn>	Moves the cursor to the last field.
<F5>	Resets the current screen to its Setup Defaults.
<F10>	Saves changes and exits the Setup Utility.

Changing System Date and Time

Use this topic to change the HP NetServer's date and time and refer to the following procedure.

1. To reach the Setup Utility, boot or reboot the NetServer and press the **<Del>** key when prompted.
2. If necessary, use the left-arrow key to select **Main** from the menu bar at the top of the screen.

   Once in the Setup Utility, the menu bar appears at the top of the screen with "Main, Advanced, Power, Boot, and Exit" shown. The Main menu is the default menu and should be the highlighted selection at the left of the menu bar when the Setup Utility first opens.
3. If necessary, use the up-arrow key to move to the **System Time** field.

   The "System Time" field is highlighted by default when the "Main" menu is selected. This field actually consists of three sub-fields enclosed in brackets [xx:xx:xx]: Hours to the left (24-hour clock), Minutes in the middle, and Seconds to the right.
4. Use the + or – keys to change the hour and press <**Tab**> or **<Shift> + <Tab>** to move to the minutes field.
5. Use the + or – key to change the minutes and press <**Tab**> or **<Shift> + <Tab>** again to move to the seconds field.
6. Use the + or – key to change the seconds and then use the arrow keys to leave this field.
7. Scroll to **System Date** field to enter the system date in the field.

   The dates are entered in the "System Date" field in the same way as the time was entered in the "System Time" field. This field also has three separate sub-fields for Month, Day, and Year enclosed in brackets [xx/xx/xxxx]. Use four digits for the year number.
8. Use the + or – key to change month and press <**Tab**> or **<Shift> + <Tab>** to move to the day field.
9. Use the + or – key to change the day and press <**Tab**> or **<Shift> + <Tab>** again to move to the year field.
10. Use the + or – key to change the year and then use the arrow keys to leave this field.
11. Choose **<F10>** from the list of options.

    A dialog appears asking you to confirm your decision.

12. Choose **Yes** and then press **Enter**.

    The HP NetServer will reboot.

Setting the HP NetServer's Passwords

Use this topic to set passwords to access the BIOS Setup Utility. The password is not used to boot the NetServer, but is required to access the Setup Utility. The Utility provides two separate passwords; supervisor and user password. The supervisor has complete access to the Setup Utility, but the user password has limited access.

To configure the HP NetServer for passwords, refer to the following procedure.

1. If not already in the Setup Utility, boot or reboot the NetServer and press the **<Del>** key when prompted.

   Pressing <**Ctrl**> <**Alt**> <**Del**> together will reboot the NetServer.

2. Use the down-arrow key to select Supervisor Password from the Main menu.

3. Press <**Enter**> to open the field selection.

   When the field opens, the pop-up dialog box for Enter Password appears.

   You can use a password of up to eight alphanumeric characters. Passwords are not case sensitive. Symbols and other keys are ignored.

4. Type in a password and press <**Enter**>.

   The Confirm Password dialog box appears.

5. To confirm the password, type the password again and press <**Enter**>.

   The Supervisor Password in the Main menu is now set to [Enabled]. The Supervisor password provides full access to all configuration fields in the Setup Utility.

6. Repeat steps 2 through 5 to set the User Password field.

   The User Password field only provides limited access to the Setup Utility fields, such as System Time, Date, and Password.

7. To clear a password while in the Utility, select the field item (Supervisor or User) Password.

8. Press <**Enter**> to open the field.

   When the field opens, the pop-up dialog box for Enter Password appears.

9. Press <**Enter**> without typing anything in the dialog box, which will clear the existing password.

   The (Supervisor or User) Password in the Main menu will change to [Disabled]. If both Supervisor and User passwords are [Disabled] anyone can access all the Setup Utility's functions.

10. To save and exit choose **<F10>** from the list of options.

    A dialog appears asking you to confirm your decision.

11. Choose **Yes** and then press **Enter**.

    Then the HP NetServer reboots.

NOTE	If you have forgotten the supervisor password or both passwords, the Setup Utility does not allow you to reset the password. You must reset the passwords outside of the utility by clearing CMOS. Refer to "Clearing CMOS" later in this chapter.

Changing Internal Device Boot Priority

You can change the boot priority of the HP NetServer's internal mass storage devices, including the CD-ROM, the flexible disk drive (or other removable device), and hard drives connected to the HP NetServer's internal SCSI ports.

The default boot order for each model is:

IDE Model Boot Order:

1. IDE CD-ROM Drive
2. Flexible Disk Drive
3. IDE Hard Drive
4. PCI slot 1
5. PCI slot 2
6. PCI slot 3
7. PCI slot 4
8. ISA slot

SCSI Model Boot Order:

1. IDE CD-ROM Drive

2. Flexible Disk Drive
3. IDE Hard drive (if the boot drive)
4. SCSI A Channel (provided by SCSI Controller board)
5. PCI slot 1
6. PCI slot 2
7. PCI slot 3
8. PCI slot 4
9. ISA slot

To change the boor order, refer to the following procedure.

1. Select "Boot" from the menu bar using the left or right keys, and press <**Enter**> to open the menu.

   A Boot setting screen appears, very similar to the one below.

   ```
   1. Removable Device       [Legacy Floppy]
   2. IDE Hard Drive         [HP 8.4GB]
   3. ATAPI CD-ROM           [HP CD-112]
   4. Other Boot Device      [Disabled]
   ```

   The list provides the current boot order of the internal device types. If the IDE Hard Drive selection is moved to the top of the boot list, it will use the hard drive you select in Steps 3-4 to boot the NetServer. If a bootable SCSI Disk Controller board is used, the controller board must be set up in the SCSI Configuration utility after "Other Boot Device" is moved to the top of the boot order.

2. Use the down- or up-arrow key to move to the device type field.

   a. Use the <+> plus or <Space> key to promote the selected device type up the list in the boot order.

   b. Use the minus (-) key to move the device type down the list.

3. To change the boot order of the hard drives installed, scroll to "IDE Hard Drive" and press <**Enter**>.

   A hard drive (HD) boot list similar to the one below appears on screen depending on the hard drives installed. The NetServer attempts to boot the NOS on the first hard disk drive found in this list. If no NOS is found, the NetServer tries the next hard drive in the list until a NOS is found.

```
1. [HP 8.4GB A]
2. [HP 8.4GB A]
```

4. Use the plus (+) or minus (-) keys to move the desired hard drive to the top of the HD boot list.

   The IDE HD boot list has a maximum capacity of four (4) hard drives, but the number of IDE hard drives is limited by the other IDE devices used in the NetServer. For example, the IDE CD-ROM and the optional IDE tape back-up device.

5. Select <**F10**> to Save and Exit after making all the desired changes.

   A dialog appears asking you to confirm your decision.

6. Choose "Yes" and press **Enter**.

   Then the HP NetServer reboots.

Clearing CMOS

The Setup Utility does not provide a method of clearing CMOS from within the Utility. To clear or erase the CMOS configuration settings, including the forgotten supervisor password, you must move the CMOSCL jumper on the system board. Moving the jumper erases all your configuration settings by clearing the CMOS Real Time Clock (RTC).

1. Power down the HP NetServer and remove the power cord.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

2. Gain access to the system board by removing the cover.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

3. On the system board, locate the CMOSCL jumper. See Figure 8-1.

4. Set jumper CMOSCL to **Clear** (pins 2 and 3).

5. Wait for 15 seconds, then return the CMOSCL jumper to **Normal** (pins 1 and 2).

6. Insert power cord and power up the HP NetServer and hold down the <**Delete**> key during boot up.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

7. Re-enter all your settings in the Setup Utility, including your password.

   You must reboot the NetServer for all the settings to take affect. The Setup Utility will prompt you to re-start the NetServer when you exit and save changes.

8. Exit and save changes, which reboots the NetServer.
9. Replace the cover and return the NetServer to normal operation.

   Refer to Chapter 3, "Opening and Closing the HP NetServer."

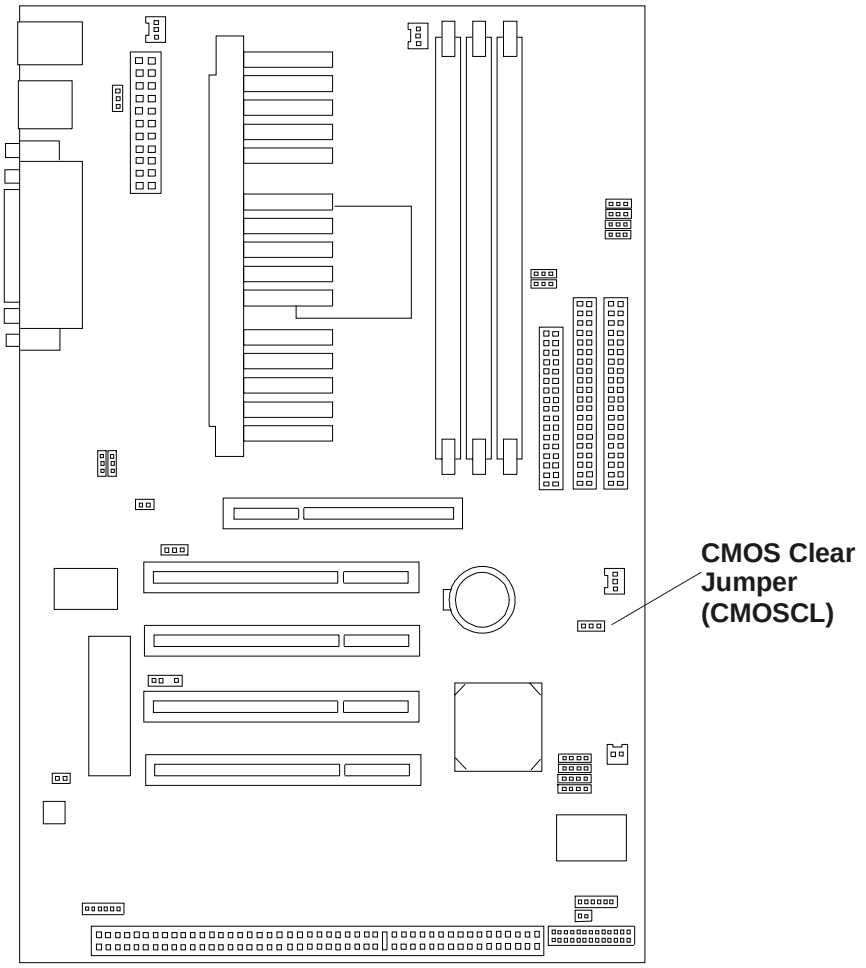


Figure 8-1. CMOS Clear Jumper location

Configuring ISA Non-Plug-and-Play Boards (Optional)

This section describes how to configure the NetServer for legacy or Non Plug-and-Play (non-PnP) ISA accessory boards.

Reserving Resources for ISA Non-Plug-and-Play Boards

If you have installed an ISA non-Plug-and Play accessory board, you must reserve system resources for it. Turn on the monitor and the NetServer, and start the Setup Utility by pressing the [**Del**] key when prompted.

```
Press <Del> to enter SETUP
```

NOTE	Pressing the [**Del**] key when prompted should start the Setup Utility. For some ISA boards, the Setup Utility may not start when you press the [**Del**] key. When this happens you must remove the ISA board, use the Setup Utility to reserve system resources for the ISA board, and reinstall the ISA board.

Use the Setup Utility to allocate system resources to the ISA non-Plug-and-Play accessory board.

Configuring an ISA Non-Plug-and-Play Board

If you are installing a legacy or Non Plug-and-Play (non-PnP) ISA accessory board (such as certain modem boards, network interface boards, or multi-port boards) in the NetServer, you must reserve system resources for the board by using the Setup Utility.

1. Read the documentation for the accessory board and determine what system resources are required.

   The resources may include memory range, I/O port range, DMA channel, and interrupt (IRQ) level. For some resources there may be one value, or several values from which you may select by configuring jumpers or switches on the board. A board may not require resources from all of these categories. If the documentation for the board does not discuss some of these resources, then it may not be required and need not be reserved.

2. Turn on power to the NetServer and display monitor.

3. When you see the following message, press the [**Del**] key.

   ```
   Press <Del> to enter SETUP
   ```

4. If a password has been set, provide it when prompted.
5. When the Setup Utility menu is displayed, use the right arrow key to select the Advanced menu.
6. Use the down arrow key to highlight **PCI Configuration**, and press **Enter** to select the submenu.

   The PCI Configuration menu opens providing both PCI and ISA configuration options.
7. Use the down arrow key to highlight **PCI/PNP ISA IRQ Resource Exclusion**, and press **Enter** to select the submenu.

   The PCI/PNP ISA IRQ Resource Exclusion menu opens providing a list of the available IRQs. If you are installing a non-PnP ISA board that requires a unique IRQ and your are not using an ISA Configuration Utility (ICU) you must set the required field for the specific IRQ.
8. Use the up and down arrow keys to highlight a specific IRQ for the legacy (non-PnP) ISA board being installed.
9. Press the + or - key on the keypad to change [No/ICU] to [Yes] and reserve the required IRQ.
10. Reserve any additional IRQs needed for the board and then press **ESC** to exit the submenu.
11. Use the down arrow key to highlight **PCI/PNP ISA DMA Resource Exclusion**, and press **Enter** to select the submenu.

    The PCI/PNP ISA DMA Resource Exclusion menu opens providing a list of DMA channels used by non-PnP ISA boards. These fields indicate if the displayed DMA channel for each field is being used by a non-PnP ISA board. If you are installing a non-PnP ISA board that requires a unique DMA channel, and your are not using an ISA Configuration Utility (ICU), you must set the required field for the specific DMA channel.
12. Use the up and down arrow keys to highlight a specific DMA channel for the legacy (non-PnP) ISA board being installed.
13. Press the + or - key on the keypad to change [No/ICU] to [Yes] and reserve the required DMA.
14. Press **ESC** to exit the submenu.
15. Use the down arrow key to highlight **PCI/PNP ISA UMB Resource Exclusion**, and press **Enter** to select the submenu.

    The PCI/PNP ISA UMB Resource Exclusion menu opens showing ISA MEM Block Base [No/ICU] as the only field displayed. This field allows

you to set the base address and block size of the non-PnP board that uses any memory segment with in the C800 and DFFF address range. If you are using this type of board and you are not using an ISA Configuration Utility (ICU) to specify its address range, you must select a base address from the six available options, [C800], [CC00], [D000], [D400], [D800], and [DC00].

16. Press + or – to change the value and then select a base address from the six available options listed above.

    The ISA MEM Block SIZE field appears for selecting the block size. If you have more than one non-PnP ISA board in your NetServer that requires the use of this address range, you can increase the block size to 8K, 16K, 32K, or 64K. If you are using an ISA Configuration Utility (ICU) to accomplish this task, leave the ISA MEM Block Base at its default setting of [No/ICU].

17. Select the appropriate block size and then press **ESC** twice to exit these submenus.

18. When all the necessary IRQs and other resources are reserved, press the [**F10**] function key to save and exit.

    A dialog appears asking you to confirm your decision.

19. Choose "Yes" and press **Enter**.

    The HP NetServer reboots.

NOTE	If you change your mind and want to exit the Setup Utility **without** making the changes you have selected, press ESC once or twice to return to the Setup Utility menu. Use the right arrow key to select the **Exit** menu. Use the down arrow key to highlight **Exit Discarding Changes**. In the Confirmation dialog box, use the right arrow key to highlight **Yes**. Press Enter to answer "**Yes**" to the question.

Updating BIOS

The flash utility used to update the BIOS is provided on the HP Startup CD-ROM. Instructions are provided on the CD about creating the system diskette, copying the flash utility, and updating the BIOS. Refer to the HP web site for BIOS updates.

NOTE You may find it helpful to save the Setup Utility (BIOS) configuration to a diskette after making the Setup Utility changes. If the CMOS is corrupted later, you will have a backup available to reload the Setup Utility configuration. Refer to the instructions on the HP Startup CD-ROM.

Setup Utility Factory Settings

Table 8-2. Setup Utility Factory Settings

Menu Title	Field Name/ Submenu	Factory Set/ Sub-field	Factory Set
Main	Legacy Diskette A	[1.44M, 3.5] Default	
	Halt On	[All Errors] Default	
Advanced	AGP Capability	[2X Mode] Default	
	PCI Configuration		
		VGA BIOS Sequence	[AGP/PCI]
Boot	Boot order is changed according to the needs of the customer.		
	Removable Device	[Legacy Floppy] Default	
	Other Boot Device	[SCSI Boot Device]	
	Quick Power On Self Test	[Disabled] Memory checking is required	
	Boot Up Floppy Seek	[Disabled]	

Use the Setup Utility's defaults except where noted in this table. Some fields labeled [Auto] affect subsequent fields, which will be N/A or grayed out.

Using the SCSI Configuration Utility

The HP NetServer uses the Symbios SCSI Select Utility to configure or changes SCSI settings. The SCSI Select Utility is used for verifying or modifying the SCSI controller settings for the devices connected to SCSI controller board.

To access the SCSI Select Utility following the instructions on screen shortly after the NetServer begins the boot process, a message appears:

```
<Ctrl A> for SCSI Select
```

NOTE	You typically would not need to use this utility unless you are an experienced administrator or requested to do so by a support provider.

There are two main topics under SCSI Select and each one is described under the following topics:

- **Configure/View Host Adapter Setting**
- **SCSI Disk Utilities**

Configure/View Host Adapter Setting

Use this menu option to configure the SCSI controller and the devices connected to it.

- Host Adapter SCSI - Sets host adapter IDs.
- Boot Device Options - Sets boot channel and boot SCSI ID.
- Advanced Configuration Options - Reset SCSI, display <Ctrl><A> message, enables or disables SCSI BIOS and features.

SCSI Disk Utilities

Use this menu option to format and verify media.

- Select device - Select a device for low-level formatting or media verification.

CAUTION	Low-level formatting of a disk drive will destroy all of its data.

9 Troubleshooting

Introduction

If you are having problems installing your HP NetServer, there are a number of different tools available for troubleshooting.

The HP NetServer E 200 Installation Kit contains:

- **NOS Installation Guide** – Provides instructions and tips for installing the applicable NOS on the HP NetServer.
- **HP Startup CD-ROM** – The CD-ROM contains:
  - ◊ **HP DiagTools Utility** – This utility is an easy-to-use hardware diagnostic for NetServer verification, burn-in, and rapid troubleshooting.

NOTE	This utility must be run from diskettes, which you create from the HP Startup CD-ROM (NOS drivers/DiagTools) included in the HP NetServer E 200 Installation Kit. The HP DiagTools utility generates a text file containing the hardware detected and the DiagTools test results. This text file, called a support ticket, should be saved to a diskette and used for future reference, especially by your support provider.

- The **Power-On Self Test (POST)** provides text error messages to help find problems during the boot process. Refer to Table 9-1 for the POST text error messages found later in this chapter.

Common Installation Problems

The following sections contain general procedures to help you locate installation problems. If you need assistance, it is recommended that you contact your reseller first. If you need to get assistance from Hewlett-Packard, refer to Appendix C, "Service and Support," for information on service and support.

WARNING	Before removing the cover, always disconnect the power cord and unplug telephone cables. Disconnect telephone cables to avoid exposure to shock hazard from telephone ringing voltages. Disconnect the power cord to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry.

NetServer Will Not Power On

Follow these steps if the power/activity light does not light green after you press the power-on button:

1. Remove the AC power cord, wait 15 seconds, reconnect the power cord, and try again.
2. Verify all cables and power cords are firmly plugged into the respective receptacles.
3. If the NetServer is plugged into a switched multiple-outlet box, ensure the switch on the outlet box is turned on.
4. Plug a different electrical device (such as a printer) into the power outlet, and turn on the device to verify the outlet has power.
5. Verify the power supply is firmly connected to the system board connector.
6. Verify the front panel power switch is connected to the system board.

Troubleshooting Sequence

To troubleshoot an installation problem, do the following:

- First, ensure the NetServer is configured properly.

  Most NetServer problems are the result of incorrect BIOS and SCSI configurations.

- If it is a network-related error, determine if the NetServer has enough memory and hard disk drive capacity.

  Consult the NOS manufacturer's manual and its requirements.

- Verify all cables and boards are securely plugged into the appropriate connectors or slots.
- Remove all options added since the NetServer was received and then add one option, and only one option, at a time.

NOTE	If the NetServer has a large amount of memory installed, it may take 30 seconds for the first screen to display.

If it is a hardware error, follow these steps:

1. Log all users off the network and power down the NetServer.
2. Remove the NetServer's cover.

WARNING	Before removing the cover, always unplug telephone cables and disconnect the power cord. Unplug telephone cables to avoid exposure to shock hazard from telephone ringing voltages. Disconnect the power cord to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry.

3. Simplify the HP NetServer configuration to the base configuration required:

   One monitor, one flexible disk drive, one CD-ROM drive, one hard disk drive, keyboard, mouse, and NIC. Remove all third party options, and re-install one at a time, checking the NetServer after each installation.

4. Boot the HP NetServer.
   - ◊ If the NetServer does not function, consult the troubleshooting steps in the section "Hardware Problems."
   - ◊ If you get a text error message, see the section "Error Messages" below.
5. If the NetServer still will not boot, clear the CMOS memory and reboot.

   Refer to "Clearing the CMOS Configuration."

Error Messages

The HP NetServer does have text error messages that will display under the stated error condition. However, if there is no error message, it usually means something is not connected correctly or powered on.

No Error Messages Displayed

General Checks:

1. Verify all external cables and power cables are firmly plugged in.
2. Verify the power outlet is working.
3. Verify the computer and monitor are turned on.

   The power-on indicator (green) should be illuminated.

4. Verify the display's contrast and brightness settings are correct.
5. Verify all internal cables are properly connected and all boards firmly seated.
6. Verify the processor module is fully seated in the slot on the system board.
7. Verify all DIMMs are installed correctly and fully seated.
8. Verify the DIMMs are aligned in the slots.

After Installing an Accessory:

1. Turn off the monitor, the computer, and any external devices.
2. Unplug all cables from the power outlet.
3. Remove the cover.
4. Check the following:
   - ◊ If you have installed an accessory board, verify the board is firmly seated in its slot and any switches or jumpers on the accessory board are properly set.

     Refer to the instruction manual provided with each board.
   - ◊ Check all internal cabling and connections.
   - ◊ If you have changed any switches on the system board, verify each one is properly set.
5. Replace the cover and connect all cables.
6. Turn on the monitor and computer.
7. If the NetServer still does not work:
   - ◊ Repeat steps 1, 2, and 3 of this section.
   - ◊ Remove all accessories, except the primary boot hard disk drive and AGP video board.
   - ◊ Replace the cover and connect all cables.
   - ◊ Turn on the monitor and the computer.
   - ◊ If the NetServer now works, replace the boards and accessories one at a time to determine which one is causing the problem.

If a POST Error Message Appears:

If an error occurs during the power-on self test (POST) a text error message usually displays. A text error message would be, "keyboard error or no keyboard present." Refer to Table 9-1 for the text error messages.

NOTE	HP recommends correcting the error before proceeding, even if the NetServer appears to start successfully.

If you have corrected the problem displayed in the error message, but the POST still reports the error message after the NetServer starts, clear the CMOS configuration, as described in "Clearing the CMOS Configuration" later in this chapter.

Power-On Self Test (POST) Error Messages

Power-on self test error messages display in normal video (white text on black background) during the boot process. Table 9-1 describes POST text error messages and some of the corrective actions you may take to remedy the problem.

Table 9-1. POST Text Error Messages

Message	Corrective Action
Memory test failed	If the BIOS detects an error during memory test, additional information will appear giving specifics about the type and location of the memory error.
If the screen is blank	If the screen is blank with no boot messages and the NetServer is powered on: • Verify the monitor is turned on. • Verify the video cable is connected to the monitor and the video connection on the rear of the NetServer. • Verify the DIMMs are properly installed.
Keyboard error or no keyboard present	• Verify the keyboard is connected to the correct connector (not the mouse connector) at the rear of the NetServer. If the problem persists, replace the keyboard or contact your HP support organization.

Message	Corrective Action
Floppy disk(s) failed	This occurs if the BIOS can't find or initialize the flexible disk drive controller or the flexible disk drive. If there is no flexible disk drive installed, ensure the drive selection in Setup is set to "None". • Verify the data cable is connected between the controller and the flexible disk drive. • Ensure the flexible disk drive has a power connector attached to it.
Primary (Master or Slave) hard disk error	The BIOS has detected an error in the Primary, Master or Slave, IDE hard drive. • Verify both Master and Slave IDE hard drive are connected to the data and power cables.
Secondary (Master or Slave) hard disk error	The BIOS has detected an error in the Secondary, Master or Slave, IDE hard drive. • Verify both Master and Slave IDE hard drive are connected to the data and power cables.
No CD-ROM found	The BIOS could not find a CD-ROM (IDE or SCSI) when searching for hardware devices. • Verify the CD-ROM is connected to the data and power cables and it is in the boot list.
SCSI BIOS not loaded	If none of the SCSI devices are connected to the SCSI Controller, the SCSI BIOS will not be loaded. • Verify all SCSI devices have data and power cables connected and the data cable is connected to the SCSI Controller.
Disk Boot Failure	The BIOS had difficulty with the boot drive and provides you with an option to boot the NetServer. • Insert System Disk and press Enter.
No SCSI Boot Device detected	The BIOS could not find an IDE device to boot from, so it looked for a SCSI device to from and found none. • Verify which device type you are booting from and ensure all mass storage devices have data and power cables connected.

Message	Corrective Action
Operating system not found	• Verify the boot drive has power and the correct data (IDE or SCSI) cables connected. • Verify the hard drive cable is securely plugged into the system board (for IDE drives) or the SCSI controller board (for SCSI drives). • Verify the boot device is enabled in the Boot menu (IDE or SCSI). • Verify the boot device has a NOS installed. If the problem persists, contact your HP support organization.
CMOS checksum error	If the checksum of the CMOS is incorrect, the NetServer loads the default BIOS configuration. A checksum error may indicate the CMOS has been corrupted or the battery is weak. • Enter [Del] the Setup Utility, reset to defaults and make changes to factory settings. See Table 8-2. • Press F10 to save changes and Exit. The NetServer will reboot. • If the problem persists, replace the battery or reinstall the BIOS and contact your HP support organization.
Hardware Monitor found an error	The Hardware Monitor is a submenu of the Power menu listed in the menu bar of the Setup Utility. If any of the items in the monitored list are out of range, this error message will appear. This error message will give you two options: • Press <**F1**> to continue – This allows you to complete the boot process. • Press <**Del**> to enter the Setup Utility – This allows you to view the item or items out of range.

NOTE If a NetServer configuration error is reported during the startup routine (boot messages), clear the CMOS memory as described under "Clearing the CMOS Configuration," and restart the NetServer.

Clearing the CMOS Configuration

You may need to clear the CMOS configuration (BIOS) if the configuration has been corrupted. The CMOS could be corrupted by incorrect settings made in the Setup Utility, which could cause the display to be unreadable.

The Setup Utility does not provide a method of clearing CMOS from within the Utility. To clear or erase the CMOS configuration settings, including a forgotten password, you must move the CMOSCL jumper on the system board. This erases all your configuration settings by clearing the CMOS Real Time Clock (RTC).

1. Power down the HP NetServer and gain access to the system board.

   Refer to Chapter 2, "Controls, Ports, and Indicators," and Chapter 3, "Opening and Closing the HP NetServer."

2. On the system board, locate the CMOSCL jumper. See Figure 9-1.
3. Set jumper CMOSCL to **Clear** (pins 2 and 3).
4. Wait for 15 seconds, then return the CMOSCL jumper to **Normal** (pins 1 and 2).
5. Replace the cover.

   Refer to Chapter 3, "Opening and Closing the HP NetServer," and Chapter 2, "Controls, Ports, and Indicators."

6. Power up the HP NetServer and hold down the <**Delete**> key during boot up.

   Refer to Chapter 2, "Controls, Ports, and Indicators."

7. Re-enter all your settings in the Setup Utility, including the passwords.

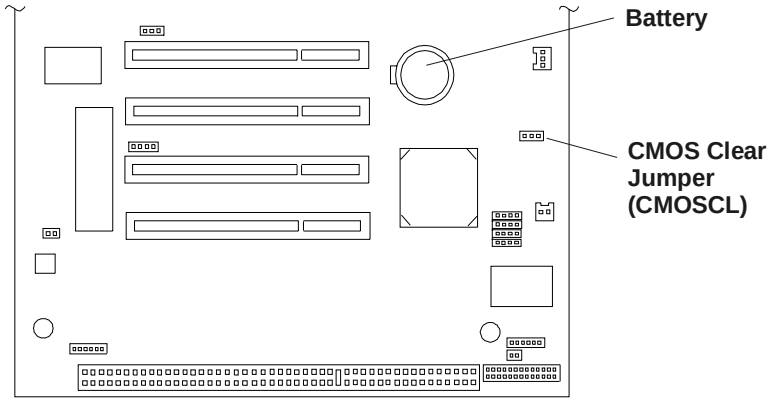


Figure 9-1. CMOS Clear Jumper Location

Hardware Problems

This section describes what to do if you have problems with your monitor, mass storage devices, printer, accessory boards, keyboard, or mouse.

Monitor Does Not Work

NOTE	If the NetServer has a large amount of memory installed, it may take 30 seconds for the first screen to display.

1. If nothing is displayed on the screen, but the NetServer boots and you have verified the keyboard, disk drives, and other peripheral devices are functioning properly:
   - ◊ Verify the monitor is plugged in and power is turned on.
   - ◊ Verify the brightness and contrast controls of the monitor are properly set.
   - ◊ Verify the monitor video cable is securely connected to the NetServer.
   - ◊ Turn off the monitor and NetServer and unplug each one from the power outlet.
   - ◊ Disconnect the video cable from the NetServer and examine the video cable connector pins to see if any of the pins are bent. If any of the pins are bent carefully straighten.
   - ◊ If you have manually configured any accessories, verify each does not use the same I/O address as the AGP board (03B0h to 03DFh).

     Refer to the documentation supplied with the accessory for more information.
   - ◊ Verify the AGP board is correctly seated in its slot.
2. If the display image does not align with the screen (usually after changing resolutions), use the display's controls to center the image.

   Refer to the monitor manual for information about the controls.
3. If the screens generated by the NOS do not look right, check the NOS manual to find out what video standard is required.

   Also check your monitor manual to find out which refresh rate is required.
4. If the screen goes blank after the NOS has booted, contact your HP support organization.

Keyboard or Mouse Does Not Work

1. Verify the keyboard and mouse are connected to the correct connectors.

   Refer to the color code on the rear panel of the NetServer and the color-coded keyboard and mouse connectors.

2. Verify the mouse is correctly defined in the control options of your NOS.
3. Clean the mouse ball and rollers using a lint-free cloth.

CD-ROM Drive Does Not Work

1. Verify a CD is inserted in the drive.
2. Verify the power and data cables are correctly connected to the CD-ROM device.
3. Verify the CD-ROM is configured correctly in the Main and Boot menus of the Setup Utility.
4. If you intend to boot from the CD, ensure CD-ROM option is enabled in Main and Boot menus of the Setup Utility.
5. For further information, see your CD-ROM documentation.

IDE Device Does Not Work

If error messages display on the monitor indicating a failure of a IDE hard disk or tape backup device, perform these checks:

1. Verify the power cable is securely connected to the drive, and the flat IDE cable is securely connected to the drive and to the system board.
2. Ensure connector pins are not displaced or bent.

SCSI Device Does Not Work

If error messages display on the monitor indicating a failure of a SCSI hard disk or tape backup device, perform these checks:

1. Verify the power cable is securely connected to the drive, and the flat cable is securely connected to the drive and to the SCSI controller board.
2. Verify all SCSI devices have unique IDs.
3. Ensure the SCSI device is set for cable termination, not drive terminated.

   HP SCSI drives come set for cable termination.
4. Verify the connector pins on the SCSI devices are not displaced or bent.

Installing a Replacement Battery

If your HP NetServer repeatedly loses its configuration or the processor clock stops, you should replace the battery. To replace the battery, refer to the following procedure.

WARNING	There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn the old battery. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

1. Power down the HP NetServer and unplug the power cord.
2. Remove the NetServer cover and the cooling duct.
3. Lay the NetServer on its side with the system board components facing up.

4. If necessary remove the accessory board preventing access to the battery.
5. Insert a small flat blade screwdriver or similar tool between battery and spring latch. See Figure 9-2.
6. Push the spring latch away from battery to release the battery.

   The spring contacts beneath the battery cause it to pop up allowing you to grasp the battery.
7. Remove the existing battery.

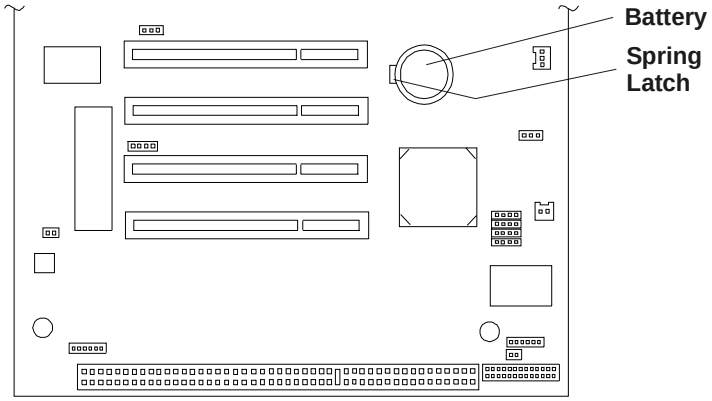


Figure 9-2. Battery on System Board

8. Insert the new battery with the positive sign (+) facing up into the socket.
9. Press down on the center of the battery with your thumb pushing the battery down into the socket.

   The battery should snap into place.
10. Ensure the spring latch holds the battery firmly.
11. Replace the cooling duct/cover and the NetServer cover.
12. Power on the NetServer and reset the settings in the (BIOS) Setup Utility.

Setup Utility Problems

If you cannot run the Setup Utility, the NetServer's configuration in CMOS memory may have become corrupt. The only way to recover from a corrupted configuration is to clear it. Refer to "Clearing the CMOS Configuration," earlier in this chapter.

Resetting Lost Passwords

The Setup Utility allows you to recover the User password, if you have forgotten it. The User password can be reset if you know the Supervisor password, which allows you to enter the Setup Utility.

User Password

If you have forgotten the User password, but the Supervisor password is set and known, perform the following steps:

1. Restart the NetServer.
2. During the boot process, press [**DEL**] to start the Setup Utility.
3. Use the down-arrow key to select User Password from the Main menu.
4. Press <**Enter**> to open the field selection.

   When the field opens, the pop-up dialog box for Enter Password appears.

   You can use a password of up to eight alphanumeric characters. Passwords are not case sensitive. Symbols and other keys are ignored.
5. Type in a new password and press <**Enter**>.

   The Confirm Password dialog box appears.
6. To confirm the password, type the new password again and press <**Enter**>.

   The User Password in the Main menu is set to [Enabled].
7. To save and exit choose **<F10>** from the list of options.

   A dialog appears asking you to confirm your decision.
8. Choose **Yes** and then press **Enter**.

   Then the HP NetServer reboots.

Supervisor Password

If you have forgotten the Supervisor password, there is no provision for accessing the Setup Utility and resetting the Supervisor Password. Therefore the only method available to you is to clear CMOS. Refer to the "Clear CMOS" section in Chapter 8, "Configuring the HP NetServer."

The NetServer will continue to function normally, but you will not be able to access or change the NetServer configuration settings in the Setup Utility.

A Specifications

Introduction

This appendix provides the power requirements, operating conditions (environment requirements), physical requirements, hardware specifications, and video resolutions of the HP NetServer E 200. The system board layouts and the factory set jumpers are also provided. See Figures A-1 and A-2.

The specifications and requirements listed below can vary if you install a mass storage device in the NetServer that has more stringent environmental limits. Ensure the operating environment for the mass storage devices you intend to install are compatible with the NetServer environment requirements.

Requirements

The following tables provide the specifications for the HP NetServer E 200 required for normal operation.

Table A-1. Power Supply Specifications

Parameter	Characteristics
Input Type	Auto-ranging
Input – Maximum Range	100 to 120 VAC 4.6 A at 50/60 Hz (Mexico = 4,6 A at 50/60 Hz)
	200 to 240 VAC 2.8 A at 50/60 Hz (Mexico = 2,8 A at 50/60 Hz)
Operating Current	100 VAC 5.3 A (Mexico = 5,3 A)
	120 VAC 4.6 A (Mexico = 4,6 A)
	200/208 VAC 3.2 A (Mexico = 3,2 A)
	220/230 VAC 2.8 A (Mexico = 2,8 A)
In-rush Current	25 A
Operating Power	256 W continuous 305 W maximum continuous

Table A-2. Environment Requirements

Parameter	Range/Value
Temperature	
Operating	5° to 35° C (41° to 95° F)
Non-operating	-40° to +65° C (-40° to +149° F)
Humidity	
Operating	20% to 80% relative humidity, non-condensing
Non-operating	5% to 95% relative humidity, non-condensing
Altitude	
Operating	-30 to 3,045 m (~ 10,000 ft)
Non-operating	-30 to 12,180 m (~ 40,000 ft)
Thermal Output	
Maximum Operating	1007 BTU/hr

Table A-3. Weight and Dimensions

Parameter	Dimensions
Weight	Approx. 33 lbs. (16 kg.), depending on configuration – excludes keyboard and monitor.
Height	16.54 inches (420 mm)
Width	7.09 inches (180 mm)
	11.67 inches (296.5 mm) Feet opened
Depth	19.69 inches (500 mm)

Table A-4. Hardware Specifications

Specification	Characteristics
Processors	Intel Pentium III processors: supported speeds 533 and 600MHz; 512KB level 2 cache on processor.
Chipset	VIA Apollo Pro133 AGP2x set with 133Mhz front side bus speed support
Memory	Supports up to three SDRAM DIMMs for a maximum total of 768 MB (3 x 256 MB).
	Supported DIMM types: 64MB, 128MB or 256MB registered; 72 bits wide, ECC single-bit correcting, multi-bit detecting.
Video	AGP slot (rev. 1.0 compliant) with bundled ATI Rage IIc AGP (Accelerated Graphics Port) video board with 4MB SDRAM; supporting up to 1600x1200, 65K colors.
	The IRQ jumper (enable/disable) on the AGP board is set to disable by default.
SCSI	HP Ultra/wide SCSI single channel PCI controller board; 40MB/s transfer rate, two 68-pin connectors and one 50-pin connector.
IDE	Ultra DMA/66 E-IDE dual channel embedded controller.
PCI Bus	32-bit, 33 MHz speed. PCI rev. 2.2 compliant.
I/O	Two Serial ports
	One bi-directional parallel port with ECP/EPP high-speed support;
	A PS/2 style mouse and keyboard connectors.
CD-ROM	Bundled HP CD-ROM drive; IDE interface; 40x speed.

Table A-5. Video Display Modes

Resolution	Max. Refresh Rate @ 256 Colors	Max. Refresh Rate @ 65K Colors	Max. Refresh Rate @ 16.7M Colors
640x480	200Hz	200Hz	200Hz
800x600	200Hz	200Hz	160Hz
1024x768	150Hz	150Hz	120Hz
1152x864	120Hz	120Hz	85Hz
1280x1024	100Hz	100Hz	85Hz
1600x1200	76Hz	76Hz	Not available

System Board Layout

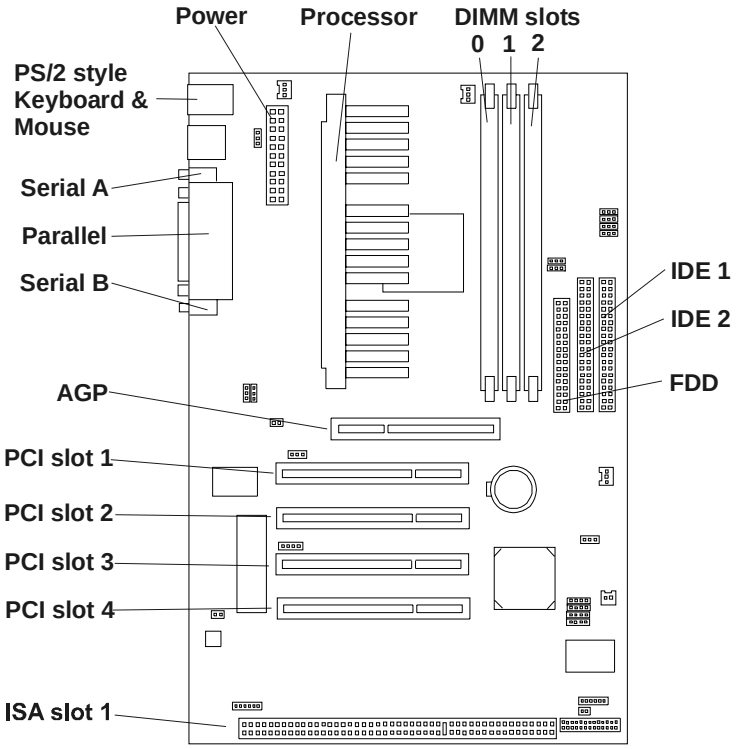


Figure A-1. HP NetServer E 200 System Board

Factory Default Jumper Settings

This topic provides the factory default settings for jumpers and the location of connectors on the system board not called out in Figure A-1. The factory jumper settings should not be altered or it may cause damage to the system board or components on the board. See Table A-6 and Figure A-2.

CAUTION	Do not alter the restricted (factory) settings or damage may result due to capability issues. HP reserves the right to charge for resolving problems caused by unauthorized or untrained non-HP personnel who have made changes to restricted jumper settings and unsupported features.

Table A-6. Jumper and Connector Restrictions

Item No.	Supported/ Restricted	Description
1	Not Supported	CPU Fan Power connector (CPU_FAN)
2	Supported	This connector is used for the chassis fan (PWR_FAN)
3	Not Supported	Keyboard Power Up Setting jumper (KBPWR) • Default = Disabled
4	Restricted	I/O Voltage setting jumper (VIO) • Factory set = Normal
5	Restricted	Voltage Regulator Output Setting jumper (VCORE) • Factory set = Normal
6	Not Supported	CPU Thermal Sensor connector (JTCPU)
7	Not Supported	Wake-On-LAN connector (WOL_CON)
8	Not Supported	Chassis Intrusion Alarm connector (Chasis)
9	Not Supported	Power Supply Thermal Sensor connector (JTPWR)
10	Not Supported	System Management Bus connector (SMB)
11	Supported	Panel connector – This header provides the connections for the power switch and power indicator on the front panel
12	Supported	This connector provides the IDE LED activity light connection (IDELED) on the front panel
13	Not supported	Infrared Port Module connector (IR)

Item No.	Supported/ Restricted	Description
14	Restricted to supported CPUs	CPU Core/Bus Frequency Multiple jumpers • 533Mhz CPU setting {BF3}={2-3} {BF2}={2-3} {BF1}={1-2} {BF0}={2-3} • 600Mhz CPU setting {BF3}={1-2} {BF2}={2-3} {BF1}={1-2} {BF0}={2-3}
15	Not supported	Wake-On-Ring connector (WOR)
16	Supported	Clear CMOS jumper (CMOSCL) • Normal (pins 1 and 2) • Clear (pins 2 and 3)
17	Not supported	Chassis Fan connector (CHA_FAN)
18	Restricted	PCI BUS Frequency Multiple Selection jumpers • 533 Mhz/600 Mhz CPU setting {MS0}={2-3} {MS1}={1-2}
19	Restricted	CPU Bus Frequency Selection • 533 Mhz/600 Mhz CPU setting {FS3}={1-2} {FS2}={1-2} {FS1}={1-2} {FS0}={1-2}

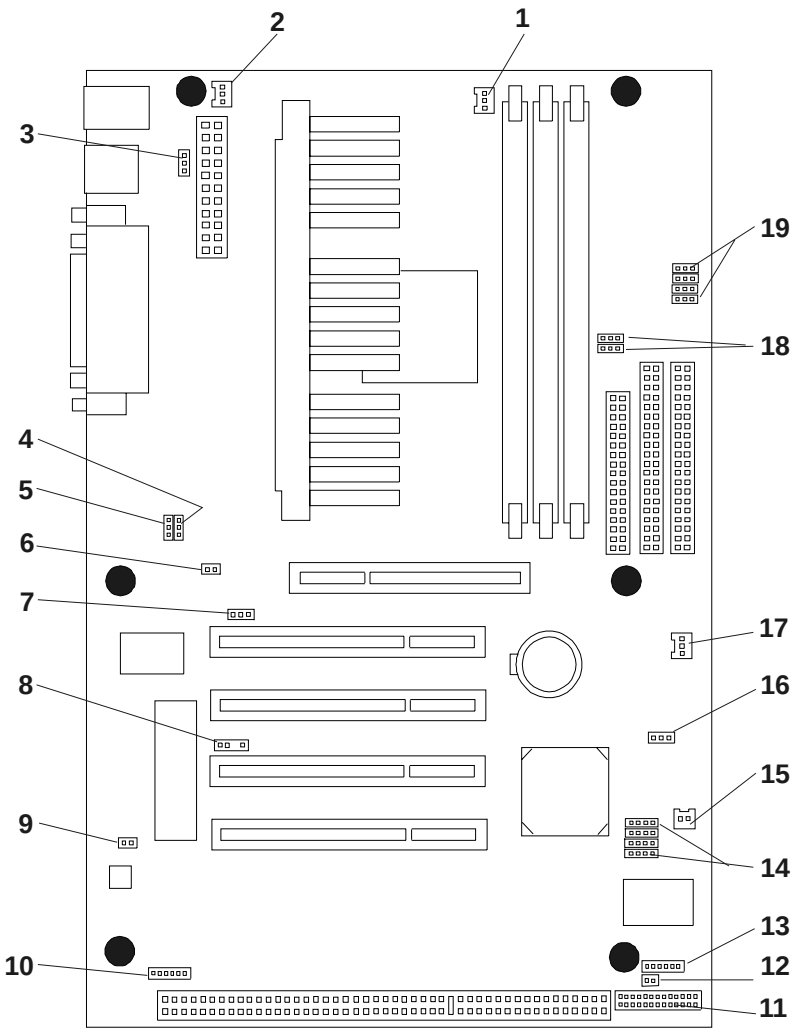


Figure A-2. Jumper and Connector Locations

B Regulatory Information

Regulatory Notices - Electromagnetic Compliance

Electromagnetic Compatibility (EMC) requirements have been established in many countries to regulate the radio frequency energy generated by Information Technology Equipment (ITE). This energy is generated during the normal and intended use of this equipment and so it is limited by country regulations to levels intended to minimize potential interference to other electrical equipment, including public safety services.

Two levels of radio frequency energy are allowed according to the type or use of equipment. Class A levels have been established for use in commercial or business environments. Class B levels are lower than the class A requirement and have been established for use in residential environments. Class B levels are also suitable when the environment includes electrically sensitive equipment.

The NetServer equipment you have purchased has been provided with a compliance label to indicate where it may be used with reasonable protection to the environment in which it is used. Additional statements are provided below as required by the requirements of international and domestic regulations.

NOTE	Check the label on your product to determine the level of operation.

Notice for United States

Class A Equipment

This equipment has been tested and found to comply with the limits for Class A digital devices, pursuant to Part 15 of the FCC (Federal Communications Commission) Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user is required to correct the interference at their own expense.

Class A Accessories

Installation and use of a Class A accessory creates a system that meets the requirements for industrial and commercial environments. If you are installing a class A accessory in a system that has been labeled as a class B product, the requirements and notice for class A equipment shall be applied.

Class B Equipment

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 (Federal Communications Commission) Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Hewlett-Packard's system certification tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your computer. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment. Cables used with this device must be properly shielded to comply with the requirements of the FCC.

Notice for Canada (Industry Canada)

For products labeled "Class A"

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For products labeled "Class B"

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

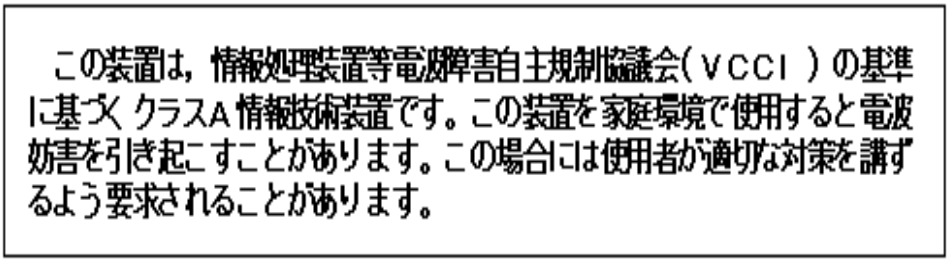
Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Notice for Japan

The configuration of the NetServer you have purchased may be in either the class A or class B category.

For products labeled as Class A:

This equipment is in the Class A category information technology equipment based on the rules of Voluntary Control Council For Interference by Information Technology Equipment (VCCI). When used in a residential area, radio interference may be caused. In this case, user may be required to take appropriate corrective actions.



For products labeled as Class B:

This equipment is in the Class B category information technology equipment based on the rules of Voluntary Control Council For Interference by Information Technology Equipment (VCCI). Although aimed for residential area operation, radio interference may be caused when used near a radio or TV receiver.

Read the instructions for correct operation.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

Notice for Korea

The configuration of the NetServer you have purchased may be in either the class A or class B category.

Class A Equipment:

Please note that this equipment has been approved for business purposes with regards to electromagnetic interference, if purchased in error for use in residential area, you may wish to exchange the equipment where you purchased it.

Class B Equipment:

Please note that this equipment has been approved for non-business purposes with regards to electromagnetic interference. This equipment can be allowed for use in all areas as well as residential areas.

A급 기기 :

이기기는 업무용으로 전자파 장해검정을 받은 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

B급기기 :

이기기는 비업무용으로 전자파 장해검정을 받은기기서 주거지역은 물론 모든 지역에서 사용할 수 있읍니다.

Notice for Taiwan

Class A Warning Statement

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Notice for European Union

Radio Frequency Emissions Warning for Accessories

This product has been found to comply with CISPR 22 Class B EMC emission limits. Installation and use of a Class A accessory creates a system that meets the requirements for industrial and commercial environments. However, in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Declaration of Conformity (US and EU)

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's/Supplier Name:	Hewlett-Packard Company
Manufacturer's/Supplier Address:	10955 Tantau Avenue Cupertino, CA 95014-5040 USA

declares, that the product

Product Name:	NetServer
Model Number(s):	E 200
Product Options:	ALL

conforms to the following Product Specifications:

Safety:	IEC 60950: 1991+A1 +A2 +A3 +A4 / EN 60950: 1992+A1 +A2 + A3 +A4+A11 GB 4943-1995
EMC:	CISPR 22:1993 +A1 +A2 / EN 55022:1994 +A1 +A2 GB 9254-1988 EN 50082-1:1992 - Generic Immunity IEC 801-2:1991, 4 kV CD, 8 kV AD IEC 801-3:1984, 3 V/m IEC 801-4:1988, 0.5 kV Signal Lines, 1 kV Power Lines FCC Title 47 CFR, Part 15

Supplementary Information:
1) The product was tested in a typical configuration with Hewlett-Packard peripherals.
2) The product complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

The product herewith complies with the requirements of the following directives and carries the CE marking accordingly:
- EMC Directive 89/336/EEC including CE Marking Directive 93/68/EEC
- Low Voltage Directive 73/23/EEC

Cupertino, April 3, 2000

Regulatory Engineering Manager

North American Contact: Hewlett-Packard Company Product Regulations Manager
3000 Hanover Street, Palo Alto, CA 94304 Phone: 650-857-1501
European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department ZQ/Standards Europe, Herrenberger Straße 130, D-7030 Böblingen (FAX: + 49-7031-14-3143)
Quality Management Services & Systems Phone ++613 9272 8355

Regulatory Notices - Product Safety

The following information applies only to NetServers with factory-installed components.

CD-ROM Electrical Safety Statements

The following information applies only to servers with factory-installed CD-ROM drives.

CD-ROM Electrical Safety Statement – United States

WARNING	To prevent fire or shock hazard, do not expose the unit to rain or moisture. To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Laser Safety Statements – United States

CAUTION	This CD-ROM mass storage system contains a laser system and is classified as a "Class-1 Laser Product" under a U.S. Department of Health and Human Services (DHHS) Radiation Performance standard according to the Radiation Control for Health and Safety Act of 1968. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

CAUTION	Use of controls, adjustments or the performance procedures other than those specified herein may result in hazardous radiation exposure. To prevent direct exposure to laser beam, do not try to open the enclosure.

Laser Safety - Finland

LASERTURVALLISUUS

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

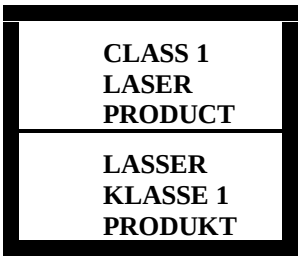
HP NetServer E 200 - verkkopalvelimeen voidaan asentaa lisävarusteena laitteensisainen CD-ROM-lukulaite, joka on laserlaite.

Kyseinen CD-ROM-lukulaite on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä lukulaitteen suojakotelo estää laseräteen pääsyn laiteen ulkopuolelle. Laitteen turvallisuusluokka on määritetty standardin EN 60825 (1991) mukaisesti.

Laser Safety - Germany

VORSICHT	Diese Gerät enthält ein Laser-System und ist als "LASER PRODUKT DER KLASSE 1"klassifiziert. Für den richtigen Gebrauch dieses Modells die Bedienungsanleitung sorgfältig durchlesen und als Referenz aufbewahren. Falls Probleme mit diesem Modell aufreten, die nächste "authorisierte Services-Verrtetung" benachrichtigen. Um einen direkten Kontakt mit dem Laserstrahl zu vermeiden, soll das Gehäuse nicht geöffnet werden.

VORSICHT	Die Verwendung von anderen Steuerungen oder Einstellungen oder das Durchführen von anderen Vorgängen als in der Bedienungsanleitung beschrieben kann gefährliche Strahlenexpositionen zur Folge haben.



This CD-ROM Drive Unit is classified as a CLASS 1 LASER PRODUCT.

The CLASS 1 LASER PRODUCT label is located on the top of the drive.

Bei diesem CD-ROM-Laufwerk CDU56S handelt es sich um ein Laser-Produkt der Klasse 1. Ein entsprechender Aufkelber mit der Beschriftung LASER KLASSE 1 PRODUKT befindet sich der Obersiete des Geräts.

Battery Safety Statements

This product uses a lithium battery.

Battery Statements – United States

WARNING	Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Battery Statements – France

AVERTISSEMENT	Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Noise and Ergonomic Safety Statements

Noise Declaration and Ergonomics - Germany

Sound Pressure: LpA < 55 dB (A)

am Arbeitsplatz, Beobachter Position (workplace, bystander position)
normaler Betrieb (normal operation)
nach DIN 45635 T. 19 (per ISO 7779)

This product has not been evaluated for compliance with the ZH1/618 ergonomic requirements.

C Service and Support

For all service and support information, see the *HP NetServer Warranty and Service/Support Booklet* included with your product.

D Warranty and Software License

Warranty

See the *HP NetServer Warranty and Service/Support Booklet* included with your product for all warranty and service/support information.

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If your Computer was shipped with a Recovery CD, (i) the Recovery CD and/or Support Utility software may be used only for restoring the hard disk of the HP computer system with which the Recovery CD originally was provided, and (ii) if separate EULA(s) are included with your Computer for any other MS products which are included on the Recovery CD, those MS products are subject to the terms of their respective EULA(s).

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