HP NetServer E 800
User Guide

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Audience Assumptions

This 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.

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1 Controls, Ports, and Indicators

Introduction

Before operating the NetServer, familiarize yourself with the HP NetServer's controls, ports, and indicators, as shown in Figures 1-1 through 1-3.

Front Panel

The front panel of the HP NetServer provides the controls and indicators commonly used when operating the NetServer.

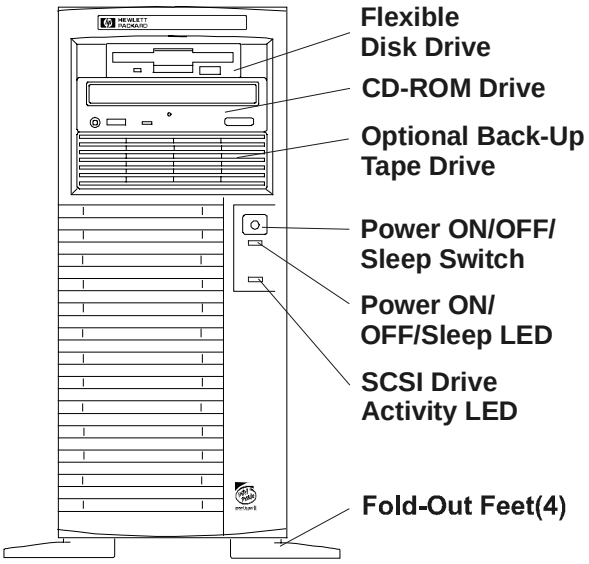
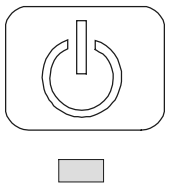


Figure 1-1. Front Panel

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

Table 1-1. Control 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 1-Hz rate indicates the NetServer is in a sleep state and under ACPI control.
Drive Active LED 	This yellow LED indicator flashes during SCSI disk drive activity.

Additional Front Panel Controls and Indicators

The input and storage devices provide additional front panel controls and indicators, which give control and operational status to the respective device.

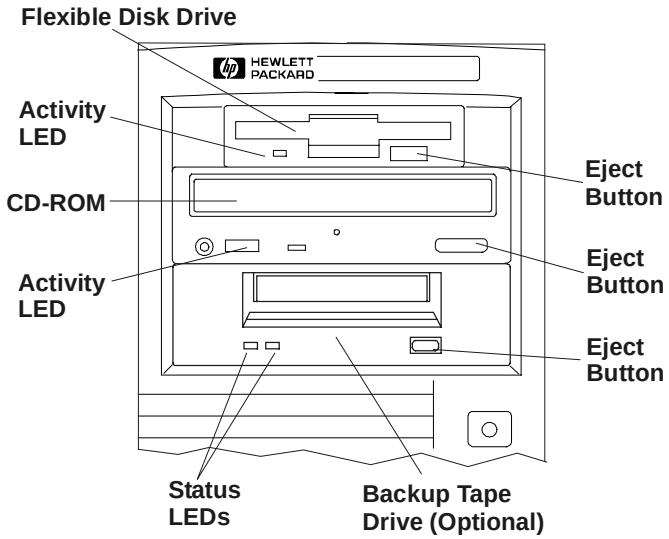


Figure 1-2. Input and Storage Device Controls and Indicators

Table 1-2. HP 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 the HP 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 3, "Installing Mass Storage Devices," for installation information.

Rear View

The ports and connectors at the rear are listed below and shown in Figure 1-3.

- The power connector accepts a standard power cable to connect the HP NetServer E 800 with the site power supply.
- The mouse port accepts a standard mouse with a PS/2 connector.
- The keyboard port accepts a standard keyboard with a PS/2 connector.
- Two USB ports are provided for printers, scanners, and external modems.
- The LAN port is included as an embedded controller based on Intel's 82559 10/100 BaseT Fast Ethernet controller. It has a RJ-45 LAN connector and two LEDs to indicate LAN speed and valid connection. Refer to Table 1-3 for the LAN LED indicators.
- The Serial Port A is a standard serial port.
- The Parallel Port is a standard parallel port which supports Extended Capabilities Port (ECP)/Enhanced Parallel Port (EPP).
- The Serial Port B is a standard serial port.
- The Monitor Port interface specifications are listed in Table A-4, "HP NetServer Hardware Specifications" and Table A-5, "Video Display Modes" of Appendix A, "Specifications."
- The optional external SCSI port provides access to external SCSI devices.

  The optional HP NetServer E 800 Internal/External SCSI Cable Kit (PN: P1774A) is required to install an external SCSI port.

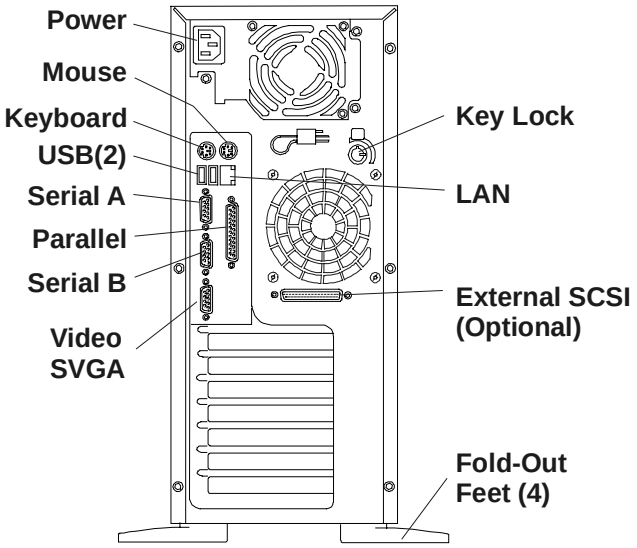
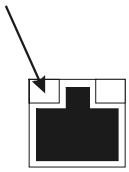
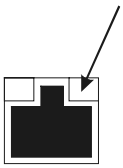


Figure 1-3. Rear Panel and Ports

Table 1-3. LAN Port (RJ45) LED Indicators

Indicator	Definition
Link LED 	This green LED is the activity/link indicator. **A steady on** LED indicates a valid LAN link. **A flashing** LED indicates there is LAN activity.
LAN Speed Indicator 	This yellow LED is the LAN speed indicator. **A steady off** LED indicates the LAN is operating at 10 Mbps LAN speed. **A steady on** LED indicates the LAN is operating at 100 Mbps LAN speed.

Applying Power to the HP NetServer

Powering-Up the NetServer

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 it boots.

1. Ensure the HP NetServer's power cord is connected to the power source. See Figure 1-3.
2. Press the Power button on the front control panel. See Figure 1-1.

   When you press the power button on the control panel, the NetServer powers up and loads the operating system. The system runs a set of power on self tests (POST) during this process. For details refer to Chapter 10, "Troubleshooting."

Powering-Down the NetServer

1. Log off all users and, if necessary, back up files.
   - ◊ Schedule the power down for a time when the NetServer being down will affect the fewest users.
   - ◊ If you will be doing any kind of hardware or software upgrade, ensure the NetServer's data has been backed up.
   - ◊ Follow instructions in your network operating system (NOS) documentation to gracefully shut down all networking software and applications.

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

2. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally this completes the power-down procedure.

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, but 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. Refer to Table A-1, "Power Supply Specifications" 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. The unique feature of this sleep state (and the reason for its slower wake-up time) is that the NetServer's NOS state (applications running, screens open, etc.) just prior to hibernate has been saved to disk and must be restored from disk upon wake-up. However, this method of restoring the NetServer's operation is much faster than a complete rebooting of the NetServer. This method still requires running all the start-up self-tests before starting the NOS, but loading the NOS and all the previously opened applications is much faster.

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 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 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.

2 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

The following tools may be required to remove and replace the cover.

- Torx T-15 driver
- 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 800 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 by using the key in the key bag located on the rear of the NetServer.

   The locking mechanism is at the rear. See Figure 2-1.
3. Remove six (6) T-15/slotted thumbscrews. See Figure 2-1.

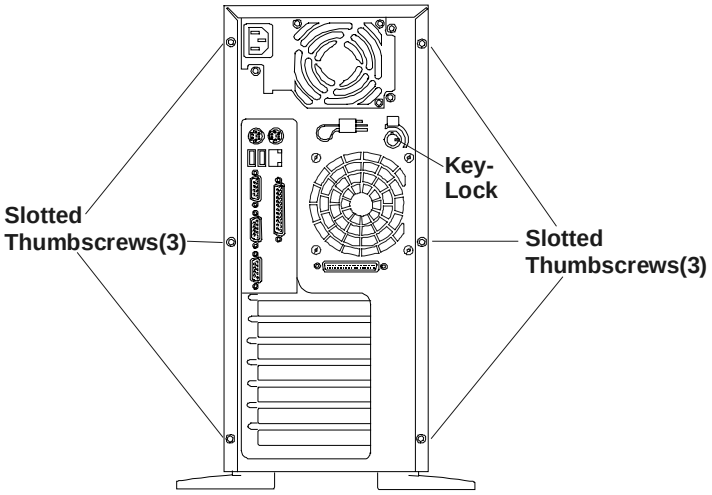


Figure 2-1. Screws and Lock Holding on Cover

4. Remove the NetServer cover. See Figure 2-2.
   a. Place both hands into the slot handles at the rear of the cover on both sides.
   b. Pull the cover back to release it and then lift it up and off the chassis.

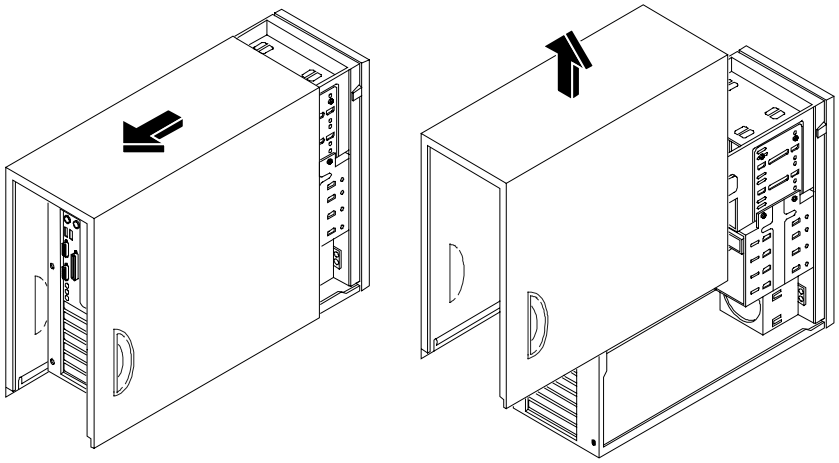


Figure 2-2. Removing the Cover

5. If you are installing accessories or servicing the NetServer, move the feet inward before turning it over on its right side.

   Refer to "Adjusting the HP NetServer Feet." The right and left sides are defined by facing the front of the HP NetServer.

Replacing the Cover

To replace the cover, follow these steps:

1. If you have been installing accessories or servicing the NetServer, return the feet to the normal position before turning the NetServer upright.

   Refer to "Adjusting the NetServer Feet" later in this chapter.

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

   The cover flanges rest on the rails inside the chassis. See Figure 2-3.

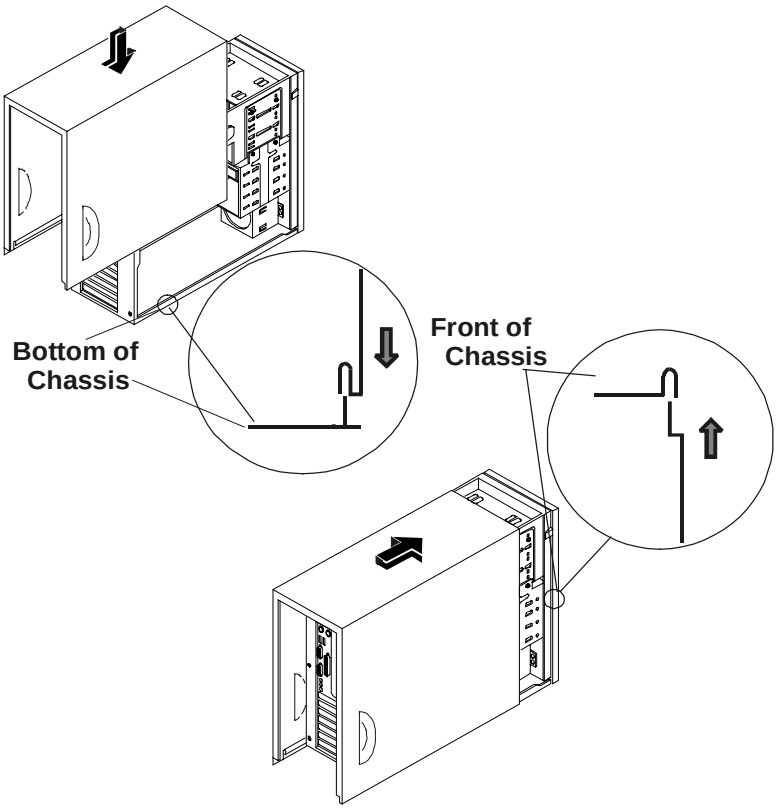


Figure 2-3. Replacing the Cover

4. Push the cover forward using the slotted handles until it is seated in place.
5. Replace the six (6) T-15/slotted thumbscrews in the rear. See Figure 2-1.
6. Re-lock the cover with the key lock at the rear of the NetServer.

Adjusting the NetServer Feet

The stabilizing feet are used to steady the HP NetServer during normal operation and must be turned outward during normal use. When adding internal accessories or servicing the NetServer, turn the feet inward before laying the NetServer on its side on the floor or a table. You must reverse the process when placing the NetServer upright before returning it to normal operation.

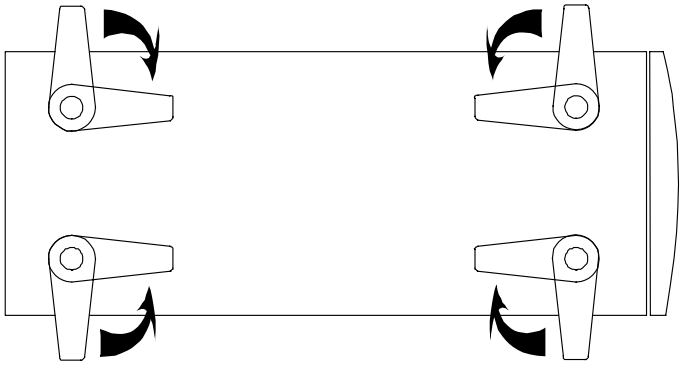


Figure 2-4. Turning Feet Inward

3 Installing Mass Storage Devices

Introduction

The HP NetServer E 800 comes standard with an IDE CD-ROM and a floppy disk drive with some configuration of SCSI hard disk drives and an optional SCSI tape backup drive. The internal mass storage cages can hold up to 5 SCSI hard drives (including a tape back-up drive) with cabling provided.

Tools Required

Check the mass storage device's documentation for additional tool requirements.

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

Mass Storage Guidelines

- General Guidelines
  - ◊ Use care when unpacking and handling the SCSI disk drives.

    The hard disk drives are very susceptible to mechanical shock and can be easily damaged by a drop as short as one-quarter of an inch. If the drop would crack an egg, it will damage the drive.
  - ◊ Do not stack drives.
  - ◊ The NetServer is internally limited to 7 mass storage shelves.

    The flexible disk drive and CD-ROM drive, which are standard on all models of the HP NetServer E 800, occupy shelves 1 and 2 respectively. See Figure 3-1.
  - ◊ If a backup tape drive is used, it occupies shelf 3, leaving only four mass storage shelves available for shelves 4-7, and at least one is required for the boot drive.
- IDE Devices
  - ◊ The embedded IDE controller is an Enhanced-IDE dual channel controller and provides two connectors (IDE-1 and IDE-2) for IDE devices.

    Refer to "System Board Layout" in Appendix A, "Specifications."

- ◊ The IDE CD-ROM uses only one connector on the cable from the primary channel (IDE-1) connector.
- ◊ A secondary IDE connector (IDE-2) is available, but is not supported by Hewlett-Packard.

- SCSI Device Selection
  - ◊ Use only low-voltage differential (LVD) SCSI devices.
  - ◊ Do not use high voltage differential (HVD) SCSI devices on either of the SCSI channels or damage will occur.
  - ◊ Ensure the SCSI devices you install do not have terminations installed. The SCSI drives are connected to a terminated cable and don't require termination on the SCSI drive.
  - ◊ Use only HP LVD SCSI 1-inch low profile 3.5-inch hard disk drives for the removable hard disk drive cage.
  - ◊ The embedded dual-channel Ultra-2 SCSI controller includes connectors for SCSI channels A and B.
  - ◊ Channel A is typically used for cabling the factory installed hard disk drive(s), which may consists of five SCSI drives (including an optional tape drive). The standard SCSI cable has five 68-pin, high-density connectors for the SCSI devices and has a terminator on the end of the cable.
  - ◊ The optional HP supplied tape drive comes with a 50-to-68-pin adapter to connect to the SCSI connector on the cable used to connect the tape drive.
  - ◊ Channel B may be used in a duplexing arrangement or to control an external mass storage solution. At least two SCSI hard disk drives are required if the duplexing option is used.

    Channel B may also be used to connect the optional tape drive, if the lesser speed of the tape drive slows down disk access time of the Ultra-2 SCSI drives.

    An additional cable kit is required for duplexing, external mass storage solutions, or connecting the optional tape backup drive. Refer to the appropriate topic later in this chapter.

Boot Priority

The NetServer's boot order should be considered when selecting a PCI slot on the system board. This is especially important if you are installing a board that requires an early number in the boot order. The board's boot priority is set by its slot location in the boot order.

By default the NetServer searches for boot devices in this order:

1. IDE CD-ROM drive
2. Flexible disk drive
3. Embedded SCSI A channel (typically the SCSI Drives)
4. Embedded SCSI B channel (typically the external SCSI Devices)
5. PCI slot 1
6. PCI slot 2
7. PCI slot 3
8. PCI slot 4
9. PCI slot 5
10. PCI slot 6
11. PCI slot 7

The embedded SCSI controller consists of two channels, A and B. Channel A is typically used to control the SCSI hard drives (4) and optional tape back up drive. Channel B is typically used to control the external SCSI devices. On each SCSI channel, the controller scans for a boot device starting at device ID 0 and works through the ID numbers. The NetServer's embedded controller is always SCSI ID 7. If an optional SCSI backup tape drive is used it would take address ID 4.

For information about booting off of a hard disk connected to an accessory board, see "Installing a Disk Array Controller Board" in Chapter 5.

NOTE	The boot order can be changed using the NetServer's (BIOS) Setup Utility and the SCSI Select Utility. Refer to Chapter 8, "Configuring the HP NetServer" for more information.

Installed Mass Storage Devices

Table 3-1 lists the number and types of mass storage devices that may be installed into the HP NetServer E 800.

Table 3-1. SCSI Mass Storage Device Types

Interface Types	Max Number of Devices	Installed Devices and Addresses
Flexible disk drive	1	Factory installed flexible disk drive in (top) shelf 1
IDE-1	2*	Factory installed CD-ROM drive in shelf 2 (Primary IDE connector)
Ultra SCSI Adapter	1** (optional)	Optional SCSI Tape Backup Drive in shelf 3 (address = ID 4)
Ultra-2 SCSI Channel A	up to 4 ***	• Factory installed SCSI hard drive in shelf 4 (address = ID 0) • Up to three additional SCSI hard disk drives in shelves 5, 6, and 7 of the removal hard disk drive cage (addresses = ID 1, 2, 3) • Optional duplexing of at least two SCSI drives in shelves 4, 5, 6, and 7 • Embedded SCSI controller (address = ID 7)
Ultra-2 SCSI Channel B	up to 15 ***	• Optional duplexing of up to two SCSI drives in shelves 4, 5, 6, and 7. • Optional control of up to 15 external SCSI devices

* The primary IDE (IDE-1) cable is connected to the factory-installed CD-ROM drive. A secondary IDE connector (IDE-2) is available, but is not supported by Hewlett-Packard.

** A 50-to-68-pin SCSI adapter is provided with the HP tape drive.

*** Both SCSI channels (A and B) can each support up to 15 devices; however, there are only enough internal storage shelves for four hard drives and one optional tape backup device. Channel B is typically used to control external SCSI devices. If you decide to duplex internal drives using Channel B, you are restricted to the internal drives only.

Duplexing Hard Drives

You may choose to duplex the drives in the HP NetServer's removable hard disk drive cage (only four drives possible). The NetServer supports an option to duplex the drives using the embedded dual channel SCSI controllers (SCSI A and B). There must be at least two SCSI drives available in the hard disk drive cage to duplex the drives. The NetServer also supports HP's NetRAID-1Si PCI Controller board to control the two duplexed channels.

CAUTION	To prevent damage to the embedded SCSI controller, don't use a HVD (high voltage differential) device.

If the duplexing option is required using the two embedded SCSI channels, refer to "Installing the Optional SCSI Accessory Cable Kit " later in this chapter for instructions on how to install the duplexing cable. If you choose to use an HP NetRAID-1Si PCI Controller board, refer to the documentation provided by the RAID controller board for cabling requirements.

Installing Hard Disk Drives

1. If the NetServer is already installed and operating, power down the NetServer as described in Chapter 1, "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 inward as described in Chapter 2, "Opening and Closing the HP NetServer."

   This allows the NetServer to lie flat when turned on its side.
4. Lay the NetServer on its side (components showing).
5. Unlatch the air duct and move it out of the way. See Figure 3-1.

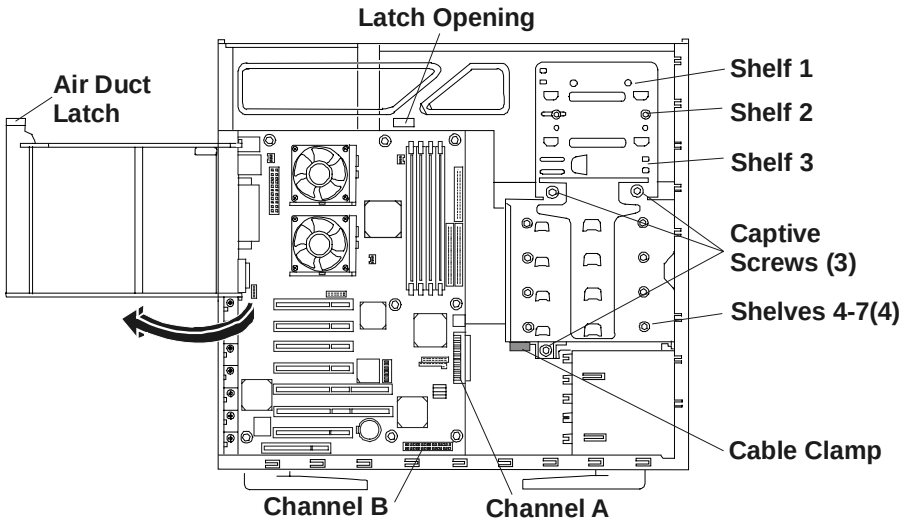


Figure 3-1. Moving the Air Duct

CAUTION	Install and remove connectors carefully, and avoid displacing any of the pins.

6. Unplug the power and SCSI cables to any hard disk drives already in the drive cage.

   If necessary, disconnect the SCSI cable from the cable clamp on the underside of the drive cage to free the drive cage. See Figure 3-1.

7. Loosen the three captive screws on the hard disk drive cage. See Figure 3-1.

8. Remove the hard disk drive cage from the chassis. See Figure 3-2.

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 the HP NetServer.

9. Slide the drive into the available cage opening with the cable connectors toward the rear of the NetServer. See Figures 3-2 and 3-3.

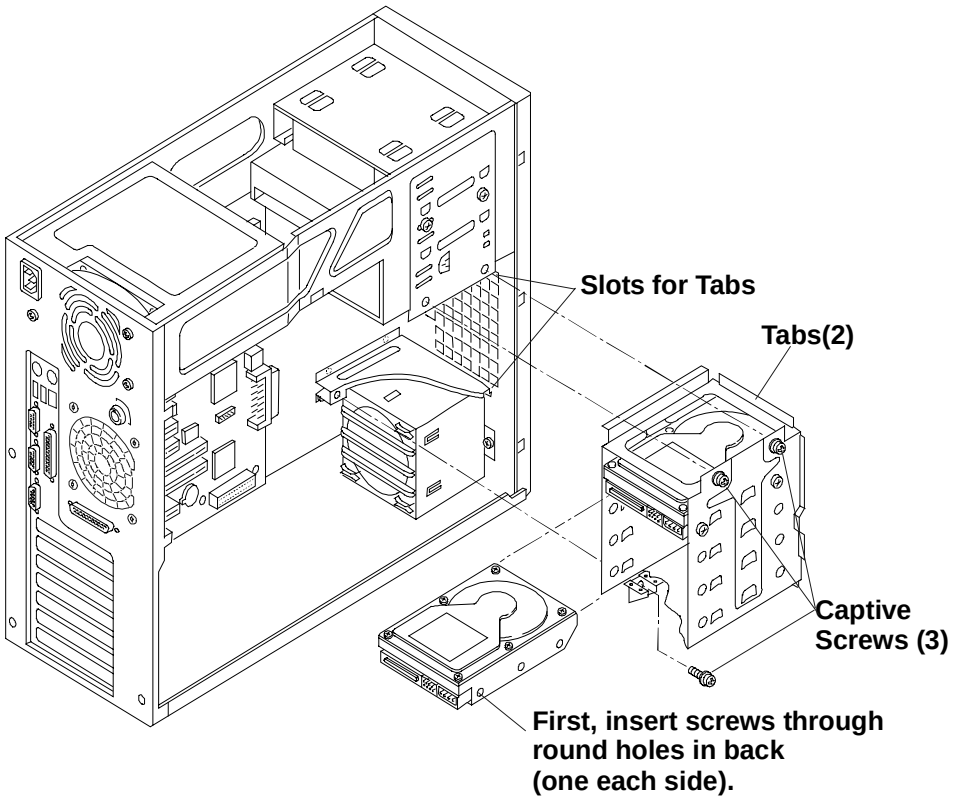


Figure 3-2. Adding a Hard Disk Drive

CAUTION	All mounting screws used to 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 incorrect mounting screws is not covered by the HP warranty.

10. Align the drive's screw holes with the holes in the hard disk drive cage and install the screws to secure the drive to the hard disk drive cage.

    a. Attach one of the screws through the round screw hole at the rear of the cage.

    b. Attach another screw through the round hole at the front of the cage on the same side.

If the round hole does not align with the mounting hole on the drive, use the nearest elongated hole.

c. Repeat steps a-b on the other side of the cage. See Figures 3-2 and 3-3.

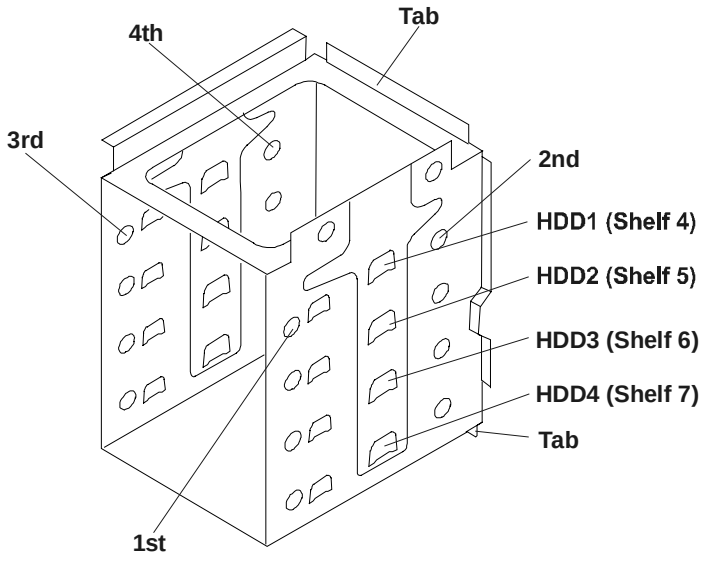


Figure 3-3. Hard Disk Drive Cage Screw Holes

11. Reinstall the hard disk drive cage.

    Ensure the tabs at the front on the cage slide into the slots provided for each one. See Figures 3-2 and 3-3.

12. Connect the SCSI cable to the disk drive(s). See Figure 3-1.

    There are five connectors on the standard SCSI cable, with four of the connectors intended for the four hard disk drives in the hard disk drive cage. The extra connector may be used for the optional tape drive. The standard SCSI cable has a terminator at the end of the cable.

NOTE	The slower speed of the tape drive may slow disk access time for the Ultra-2 SCSI drives. You may connect the tape drive separately from the Ultra-2 SCSI drives using the optional internal accessory SCSI cable. See Figure 3-6.

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, optional tape drive, top hard disk drive.
- Second string of three: lower three hard disk drives.

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

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

Installing the Optional SCSI Accessory Cable Kit

The HP NetServer can be configured to allow duplexing using the embedded SCSI controller (Channel A and B). This makes use of the second SCSI channel (Channel B) in the NetServer, but requires an additional cable that may not have been provided if you did not ask for this option when you placed your order. The duplex option requires installation of at least two SCSI hard disk drives in the drive cage (one for each channel), and a second SCSI cable (HP NetServer E 800 Internal Accessory SCSI Cable Kit, PN: P1773A).

Refer to Figures 3-4 and 3-6, when installing the cable into the Channel B connector and cabling the existing cable and channel B cable to the SCSI disk drives. The ribbon cable (P/N P1773A) used for duplexing Channel B has folds in the cable at the proper locations and will lie on top of the PCI boards, once it is installed.

You may also use this cable to connect the optional tape drive, which will separate the slower tape drive from the faster Ultra-2 SCSI drives. See Figure 3-5.

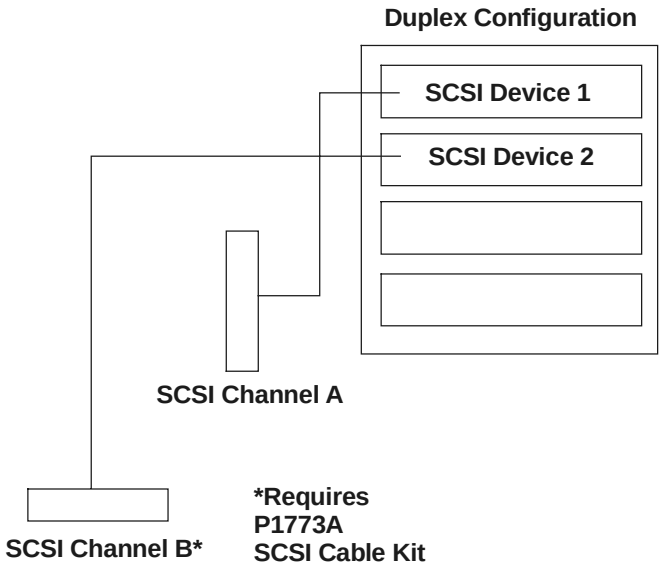


Figure 3-4. Duplexing Cable Configuration

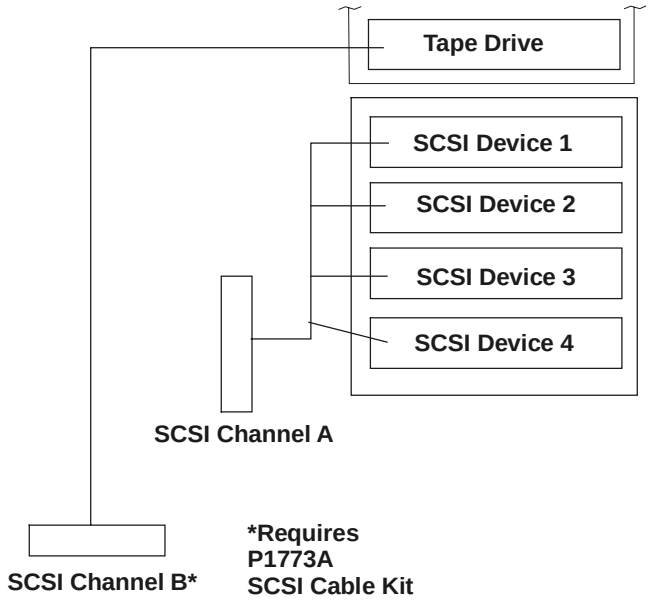


Figure 3-5. Alternate Tape Drive Configuration

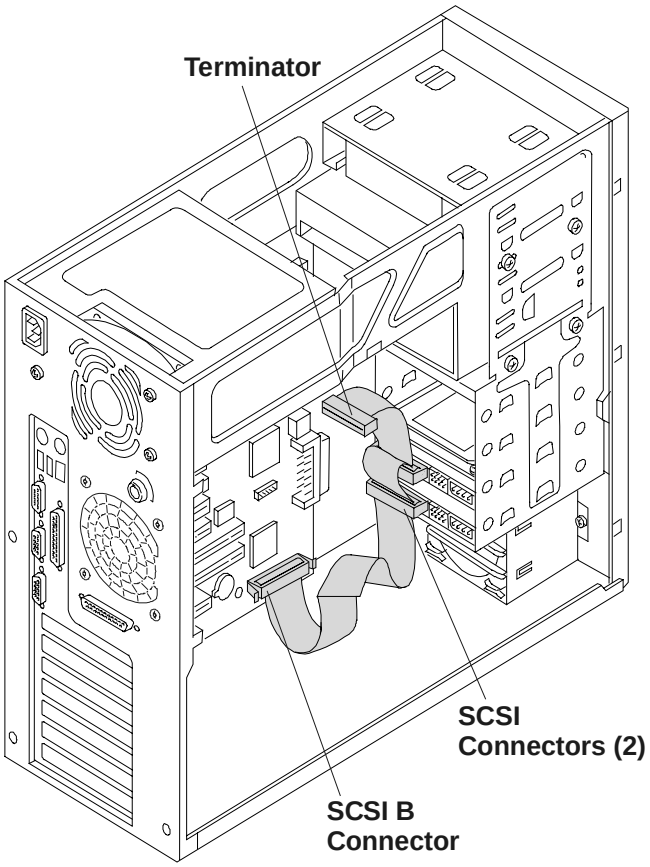


Figure 3-6. Installing Duplex Cabling

Installing the Optional Internal/External SCSI Cable Kit

The HP NetServer E 800 can be configured to extend one of its SCSI channels (typically channel B) to an external SCSI connector. This allows you to connect additional external mass storage devices to the second channel of the NetServer's embedded SCSI controller. It requires a second SCSI cable, HP NetServer E 800 Internal/External SCSI Cable Kit, PN: P1774A.

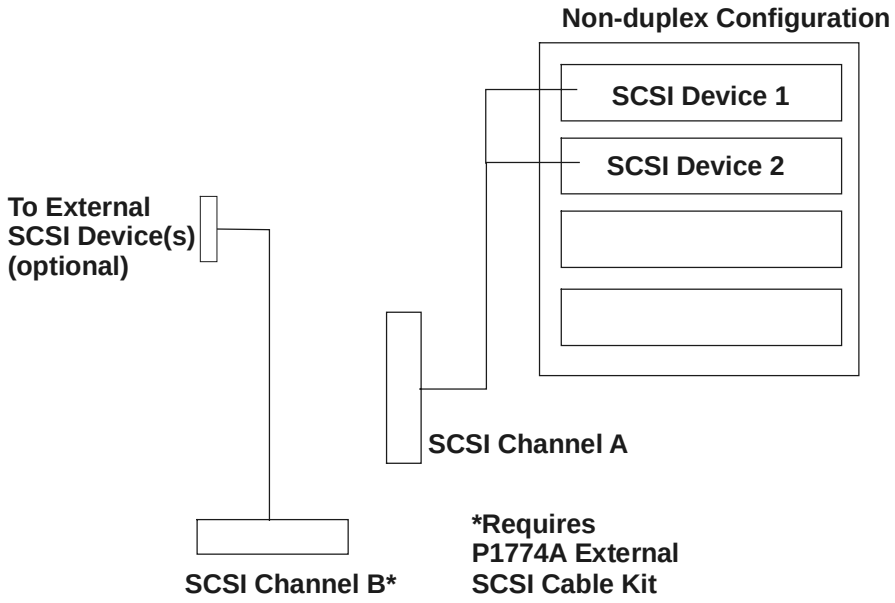


Figure 3-7. SCSI Cables Non-Duplex Connection

1. To install the external cable, connect one end to the free SCSI connector (Channel B) on the system board.

WARNING	Ensure you do not touch the sharp metal edges from the knock-out once you have removed it. The empty knock-out leaves sharp metal on the edges.

2. Using a flat blade screwdriver, pop out the external SCSI knock-out at the connector location shown on the rear of the NetServer. See Figure 3-8.

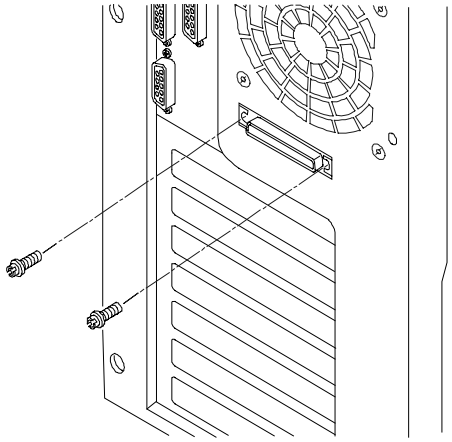


Figure 3-8. Connecting the Cable to the Rear of the NetServer

3. Thread the cable from the SCSI channel B connector, along the bottom edge of the chassis toward the rear of the chassis. See Figure 3-9.
4. Place the folds in the cable along the rear of the chassis and thread the remainder over the existing PCI boards to the knockout location.
5. Install the external connector end of the cable into the knockout opening in rear of the chassis and insert the two threaded studs from the outside. See Figures 3-8 and 3-9.

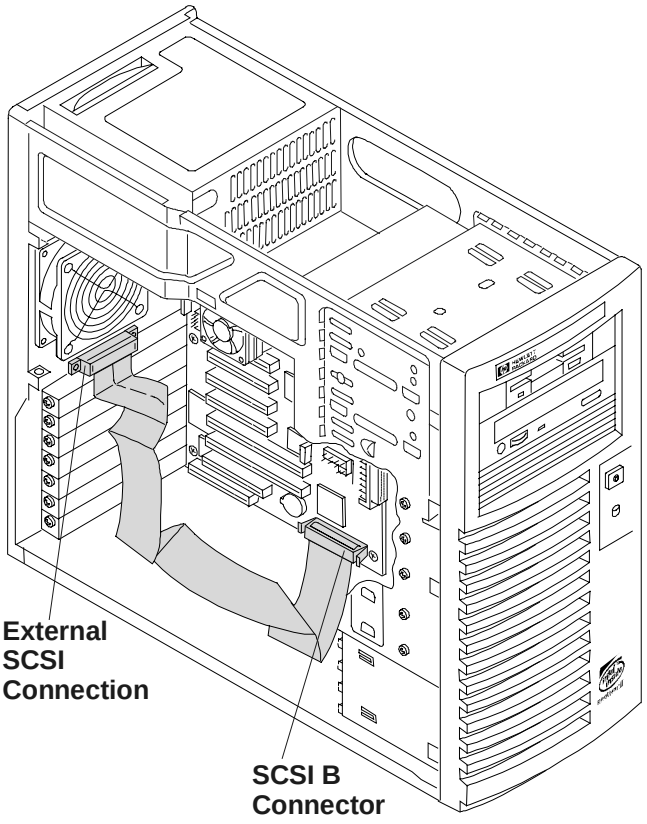


Figure 3-9. Threading External SCSI Cable

4 Installing Additional Memory

Introduction

The HP NetServer's main memory is implemented using four memory slots on the system board and it supports up to 2 GB (512 MB x 4) of memory. The NetServer uses only 3.3V, 168-pin, 133 MHz, buffered, SDRAM DIMMs and ships with at least one 128 MB DIMM. The embedded video controller is provided with 4 MB standard video memory and cannot be upgraded.

NOTE	Use only PC 133 (133 MHz) SDRAM DIMMs acquired from Hewlett-Packard. The EDO DIMMs and PC 100 SDRAM DIMMs from earlier HP NetServer models will fit into the DIMM slots in the HP NetServer E 800, but the EDO DIMMs and PC 100 SDRAM will not function properly.

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 800 only uses 133 MHz (PC133) buffered SDRAM DIMMs, which are electrically different from the EDO and PC100 SDRAM memory modules used in previous HP NetServer models.
- DIMMs sizes supported are 128 MB, 256 MB, or 512 MB in any combination.

- Supported memory capacity ranges from 128 MB to 2 GB maximum (512 MB per DIMM slot x 4 DIMM slots total). The minimum capacity is 128 MB (one DIMM).
- DIMM sizes may be mixed on the system board and may be loaded in any order (0 through 3).

  However, HP recommends starting at slot 0 and filling the slots in order with the largest size first: 0, 1, 2, and 3.
- Open slots between DIMMs are permitted.
- When handling DIMMs, observe anti-static precautions to avoid damage.

Installing Additional DIMMs

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

   Refer to Chapter 1, "Controls, Ports, and Indicators."
2. Disconnect the power cables and any external cables connected to the system.

   If necessary, label each one to expedite re-assembly.
3. Remove the cover and turn in the chassis feet inward to lay the chassis flat on its side.

   Refer to Chapter 2, "Opening and Closing the HP NetServer."

WARNING	The power supply will continue to provide standby current to the NetServer E 800 until the power cable is disconnected.

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.

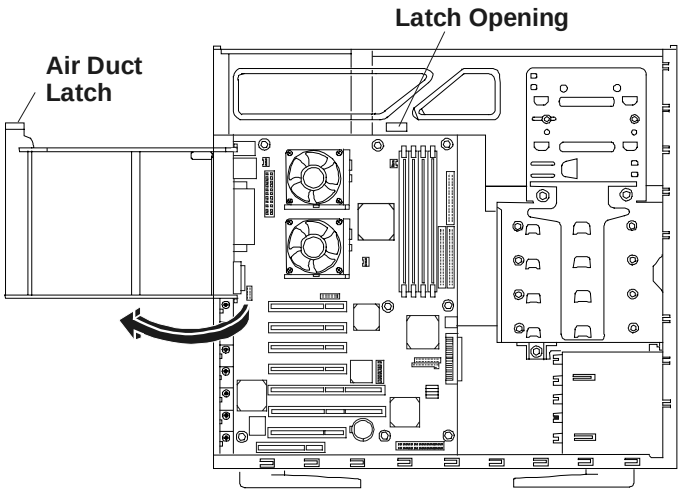


Figure 4-1. Opening the Air Duct

CAUTION	The memory modules 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. Always 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.

6. Locate the DIMM slots. See Figure 4-2.

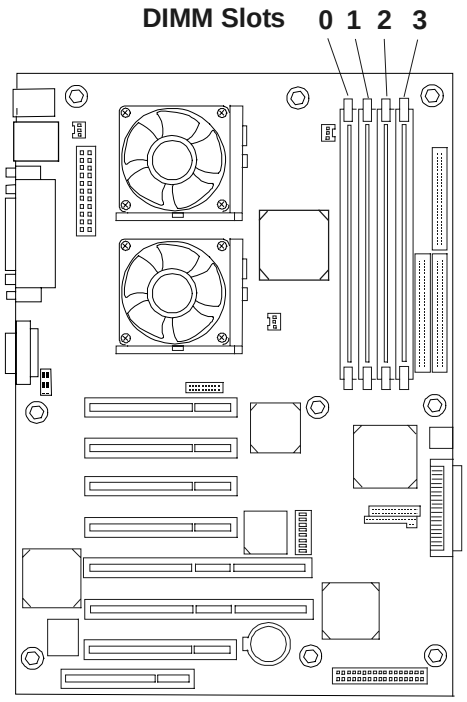


Figure 4-2. DIMM Locations on System Board

7. Remove a DIMM from its container, handling the module by its edges.
   Lay it on an anti-static surface.
8. Choose a slot into which you want to install a DIMM.
   DIMMs may be installed in any combination, in any slot.

CAUTION	Use only HP PC133 (133 MHz) buffered SDRAM DIMMs.

9. Spread the two retaining latches on the slot outward. See Figure 4-3.
10. Align the notches on the DIMM with the keys on the slot. See Figure 4-3.

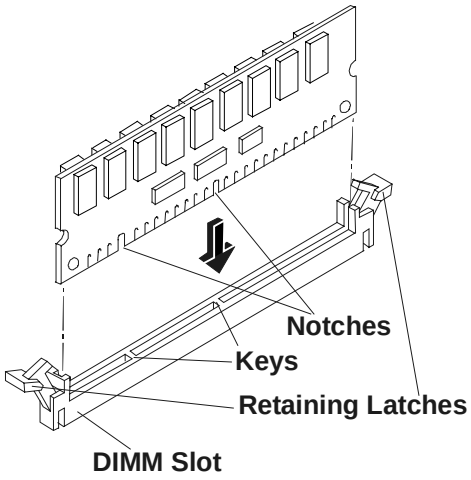


Figure 4-3. DIMM to Slot Alignment

11. Holding the DIMM at 90 degrees to the system board, press the DIMM fully into the slot until the retaining latches close. See Figure 4-4.

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

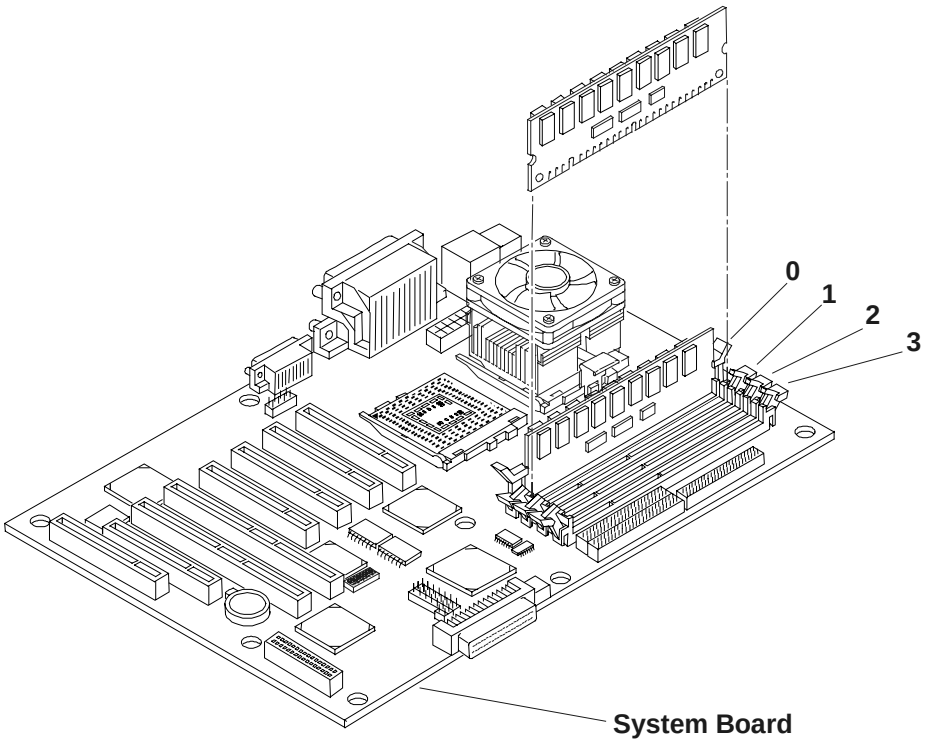


Figure 4-4. DIMM Insertion

12. Repeat to install all of the DIMMs for your memory configuration.

Removing DIMMs

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

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

   Refer to Chapter 1, "Controls, Ports, and Indicators."

2. Disconnect the power cables and all external cables.

   If necessary, label each one 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 2, "Opening and Closing the HP NetServer."
4. Open the retaining latches.
5. Lift the DIMM completely away from the slot.
6. Place the DIMM in its anti-static container.
7. Repeat steps 4-6 for as many DIMMs as you need to remove.

5 Installing Additional Boards

Introduction

The system board in the HP NetServer E 800 provides up to seven PCI slots (P1 through P7), with five 32-bits slots and two 64-bit slots.

Tested PCI Boards

For a list of tested PCI boards, check for compatibility in Configuration Assistant on the Navigator CD-ROM or look for the Hardware Tested Products list for the HP NetServer E 800 under the Service and Support topic for the specific NOS used in the NetServer at HP's web site:

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

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.)

Also refer to the Readme file and Configuration Advisor on your *HP NetServer Navigator CD-ROM*. Refer to Chapter 8, "Configuring the HP NetServer," for instructions.

Tools Required

The tools used to remove or add accessory boards in the NetServer include:

- Torx T-15 screwdriver
- ¼-inch flat blade screwdriver
- 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.

NOTE The HP NetServer E 800 may use the HP TopTools software, but it does not support the HP TopTools Remote Control board and does not have an I^2C connector on the system board. For more information on the use of the HP TopTools function, refer to Chapter 8, "Configuring the HP NetServer" and Chapter 9, "HP NetServer Online Documentation CD-ROM."

Accessory Board Installation Guidelines

The following sections provide the guidelines necessary to install the PCI accessory boards into the NetServer.

NOTE Some full-length PCI boards may need a plastic "handle" (board extension) on one end to stabilize the board in the NetServer. If the board requires one and it is not installed, you may need to install the handle on the board, before installing it in the HP NetServer.

IRQ Settings

The IRQ settings are automatically assigned and don't require user intervention. The HP NetServer uses the Plug-and-Play feature of the PCI boards to correctly assign its resources automatically.

Using the Primary or Secondary PCI Bus

To support seven PCI accessory slots in the NetServer, the NetServer E 800 has a Primary and Secondary PCI bus. The two busses are pear-to-pear, which provides approximately equal performance, except when using the two 64-bit slots versus the 32-bit slots. See Table 5-1.

Table 5-1. PCI Bus Selection

PCI Slots	PCI Bus
Slots 1 through 4	Primary PCI Bus
Slots 5 through 7	Secondary PCI Bus

Installing a Disk Array Controller Board

Adding a disk array controller board provides additional fault tolerance to your internal or external mass storage devices. If you plan on adding a disk array controller board to the HP NetServer E 800, HP recommends installing the HP NetRAID-1Si PCI board in slot 5. When installing a disk array controller board, you may alter the NetServer's boot order to allow the NetServer to boot off one of the array's drives. This boot order can be changed under the **Configuration** menu of the NetServer's (BIOS) Setup Utility or in the SCSI Configuration Utility.

Boot Priority

The NetServer's boot priority (BIOS search order for a boot drive) should be considered when selecting a PCI slot on the system board. This is especially important if you are installing a board that requires an early number in the boot order. The board's boot priority is set by its slot location in the boot order. See Figure 5-1.

The embedded SCSI controller consists of two channels, A and B. Channel A is typically used to control the internal SCSI drives. Channel B is typically used to control the external SCSI devices or used with Channel A to create disk duplexing. On each SCSI channel, the NetServer scans for a boot device starting at device ID 0 and works up from there.

By default the NetServer searches for boot devices in this order:

1. IDE CD-ROM drive
2. Flexible disk drive
3. SCSI A channel (typically the internal SCSI drives)
4. SCSI B channel (typically the external SCSI devices)
5. PCI slot P1
6. PCI slot P2
7. PCI slot P3
8. PCI slot P4
9. PCI slot P5 (64-bit slot)
10. PCI slot P6 (64-bit slot)
11. PCI slot P7

Installing Accessory Boards

Use this procedure to install accessory boards and observe the installation guidelines listed earlier.

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

   Refer to Chapter 1, "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 the chassis feet inward.

   Refer to Chapter 2, "Opening and Closing the HP NetServer."

   This allows the NetServer to lie flat when turned on its side.

WARNING	The power supply will continue to provide standby current to the NetServer 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 (components showing).
5. Read the documentation included with the accessory board and follow any special instructions.

NOTE	Adding a PCI-to-PCI bridge board to the HP NetServer may alter the NetServer's boot order. This boot order can be changed using the Setup Utility (press [**F2**] during the boot process). Refer to "Boot Priority" earlier in this chapter.

6. Identify the accessory slot number to be used. See Figure 5-1.

NOTE Refer to "System Board Layout" in the Appendix A, "Specifications" for connections not shown in Figure 5-1.

System Board (Top View)

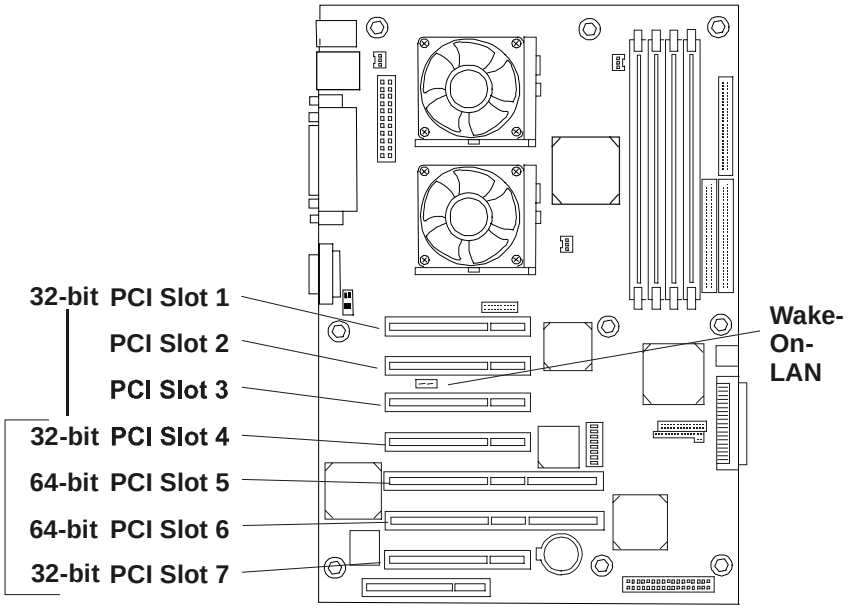


Figure 5-1. Accessory Slots

NOTE Refer to the Readme file, Tested Products List, or Configuration Advisor on your *HP NetServer Navigator CD-ROM* for specific slot recommendations for a particular PCI board type.

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 5-2.

   You may need to tilt the slot cover inward before lifting it out of the chassis.

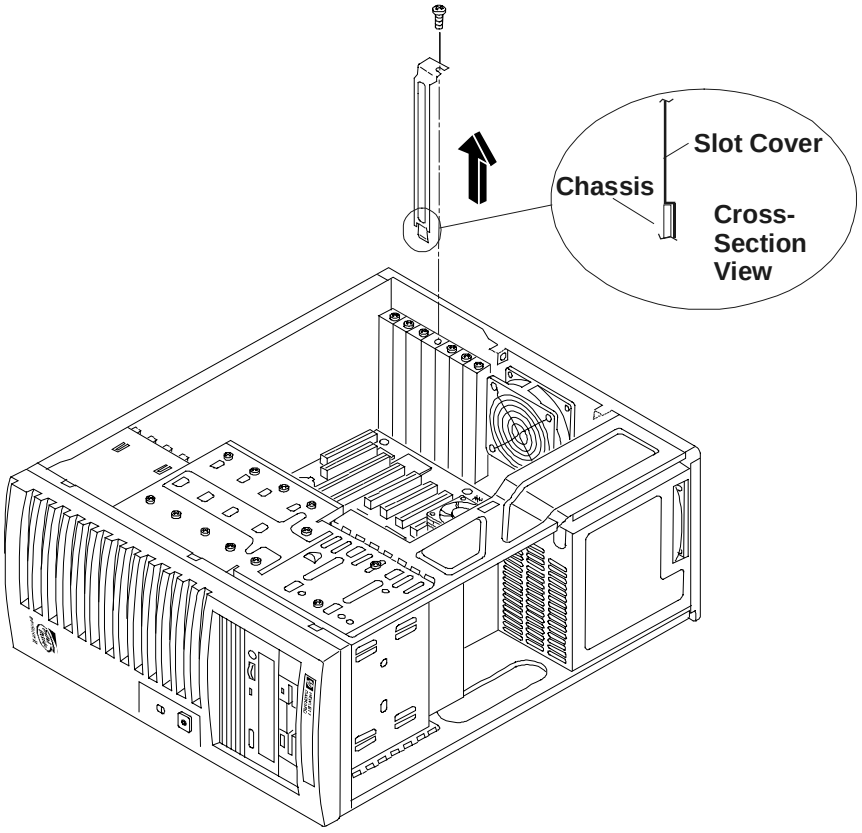


Figure 5-2. Removing the Accessory Slot Cover

NOTE	Ensure you save the slot covers for use later to prevent EMI interference. These slot covers make a better metal-to-metal contact than previous slot cover designs.

8. Slide the accessory board into the slot. See Figure 5-3.

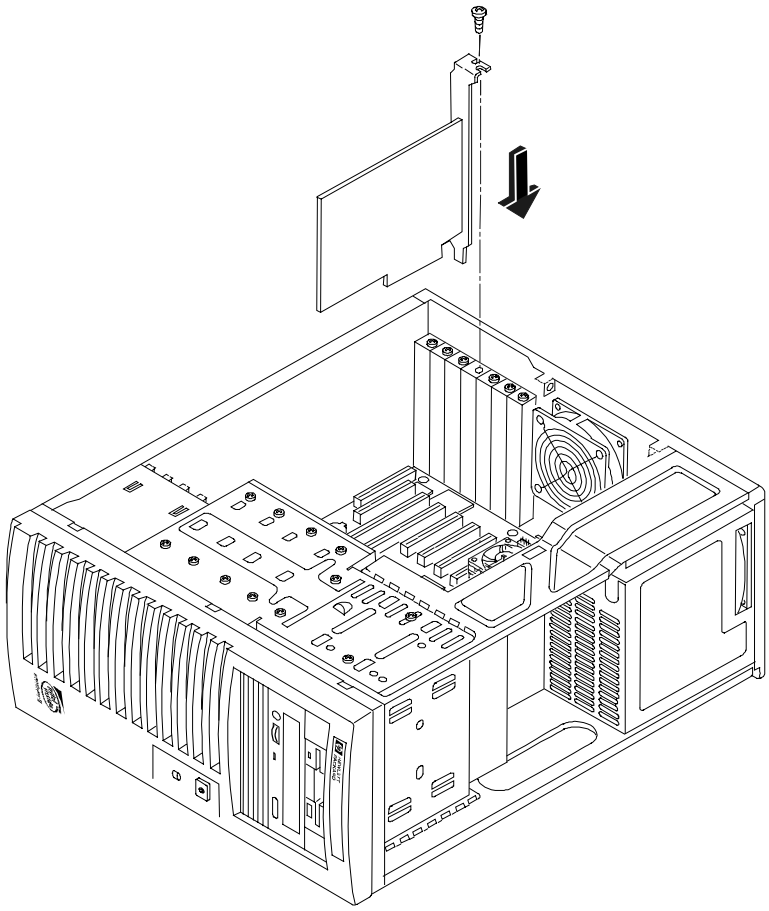


Figure 5-3. Inserting an Accessory Board

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

   Use the T-15 driver or flat blade screwdriver.

NOTE	You may need a plastic extension to secure the full length boards in PCI slots 4 through 7. See Figure 5-4.

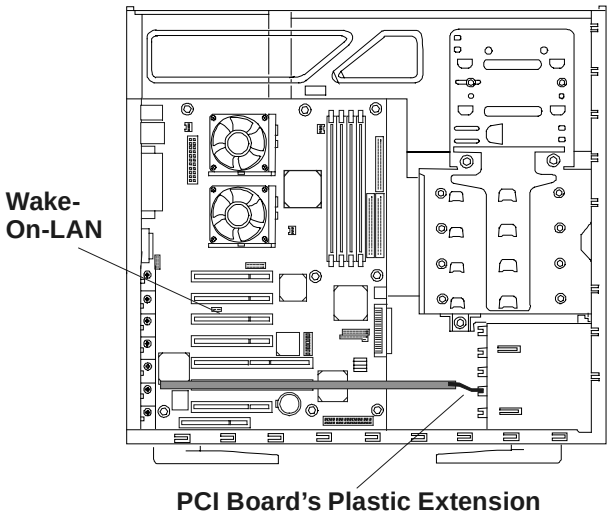


Figure 5-4. PCI Board Plastic Extension

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 provided with the accessory board.

Removing Accessory Boards

Apply the same steps as the installation procedure in reverse. Replace the slot cover. See the preceding sections for details.

6 Installing an Additional Processor

Introduction

The HP NetServer E 800 ships with at least one processor on the system board (primary processor socket – CPU 1) and the voltage regulator modules (VRMs) are embedded in the system board. Both processor sockets (primary and secondary) are located on the system board.

Tools Required

The following tools are required to access and install or remove the processors:

- Torx T-15 screwdriver
- ¼-inch flat blade screwdriver
- 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.

Processor Configuration Guidelines

The HP NetServer E 800 supports a variety of processor speeds with an FSB (front side bus) speed of 133 MHz. The NetServer supports processor speeds at 667, 733, and 800 MHz. Additional speeds may be supported as each one becomes available. Consult your HP reseller for details.

NOTE	Some processor speeds listed for this HP NetServer may not be supported. For the latest support information, visit the HP web site: **`http:/www.hp.com/go/netserver`**.

CAUTION	Do not open the new processor's protective bag or remove it from the bag until you are ready to install it. Before you remove a processor from the anti-static container, touch a grounded, unpainted metal surface on the HP NetServer to discharge static electricity.

- Both processors must be the same processor type and have the same product number, which insures the same clock speed, cache size, and FSB speed.
- The processors must operate at the designated speed stated by the product type on the processor.
- Use only processor upgrade kits with the same HP product number.

  This ensures the processor type, clock speed, and cache size are the same.
- Ensure you install the processor in the secondary slot (CPU 2), if the primary processor (CPU 1) is already installed.

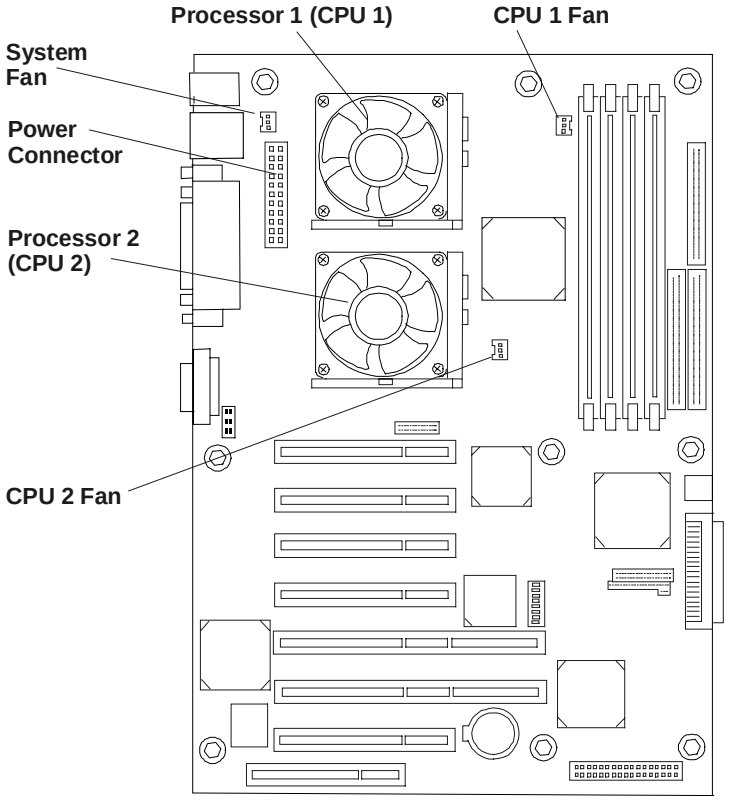


Figure 6-1. System Board

Installing a Second Processor

This section provides the instructions for installing a second processor and its accompanying cooling fan-heatsink on the system board.

CAUTION	The processor is sensitive to static electricity and can be easily damaged by improper handling. Do the following when handling the accessory kit: Leave the processor in the anti-static container until you are ready to install it. Wear an anti-static wrist strap and use a static-dissipating work surface or grounding mat connected to the chassis when handling components. Before you remove a processor from the anti-static container, touch a grounded, unpainted metal surface on the HP NetServer E 800 to discharge static electricity.

1. Unpack the processor shipping box and check the contents against its packing list.

CAUTION	Do not remove the processor from its bag and ensure the bag remains sealed until you are ready to install it.

2. If the NetServer is already installed and operating, shut down the NOS according to directions in your NOS documentation.
3. Press the power switch on the HP NetServer's control panel when prompted by the operating system.

   Normally, this completes the shutdown procedure.

WARNING	Power supplies will continue to provide standby current to the NetServer until the power cables are disconnected.

4. Disconnect the AC power cord.
5. Gain access to the system board by following the appropriate instructions for removing the cover and laying the chassis on its side.

Refer to Chapter 2, "Opening and Closing the HP NetServer," to gain access to the system board.

NOTE It is not necessary to remove the system board from the NetServer to install the second processor (CPU 2).

6. Lay the NetServer on its side (components showing).
7. Unlatch the air duct and move it out of the way. See Figure 6-2.

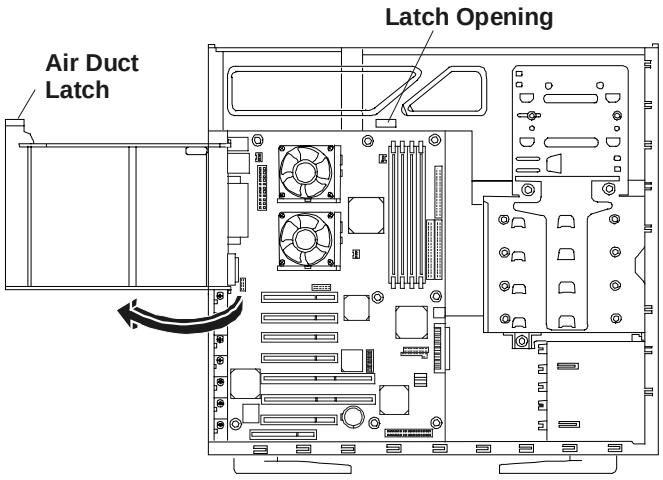


Figure 6-2. Moving the Air Duct

8. Ensure the processor speed of the second processor (CPU 2) is the same as the existing processor before installing the second processor.

NOTE If you are upgrading the second processor to a faster processor speed than the primary processor, the primary processor must also be changed. Both processors must have the same product number, which includes the same clock speed, cache size, and FSB speed.
The supported processors only perform at the rated speed indicated on the processor in the HP NetServer.

CAUTION	Always 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.

9. Open the ZIF (Zero Insertion Force) lever to allow removal of the terminator installed in the processor socket. See Figure 6-3.

   You need to pull the lever out away from the ZIF socket and then raise it to a full 90° to the system board.

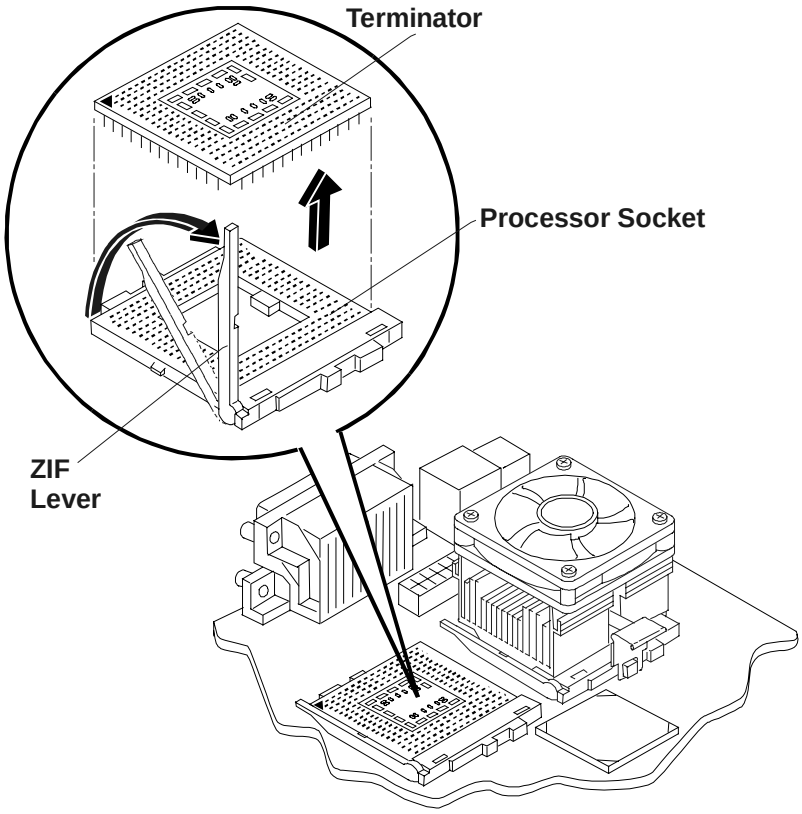


Figure 6-3. Removing the Terminator

NOTE	Retain the terminator for future use. The NetServer will not operate properly if using only one processor with no terminator installed.

10. Lift the terminator out of the socket and place it on anti-static surface or container.
11. Align the second processor over the empty processor socket.

    The socket has a triangle marking for pin-1 that should match the triangle for pin-1 on the processor near the end of the ZIF lever. See Figure 6-4.

CAUTION	Ensure you the align pin-1 of the processor with pin-1 of the processor socket or pin damage will occur.

12. Insert the second processor into the socket and close the ZIF lever to fully seat the processor.

    You should hear the ZIF lever click when it closes properly.

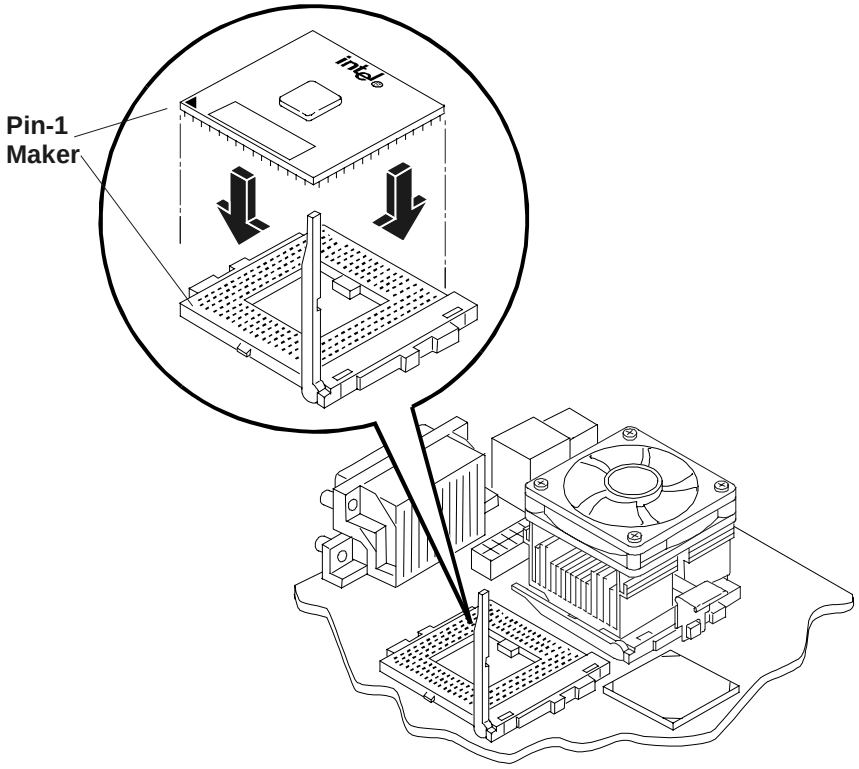


Figure 6-4. Installing the Processor on the System Board

NOTE	If you are installing both processors, you may need to remove the power connector to the system board to have full access to the processor in primary processor socket (CPU 1).

Installing the Cooling Fan-Heatsink

Once the processor is installed, the cooling fan-heatsink must be installed on top of the processor. Each processor requires a heatsink, with its cooling fan attached, and a thermal bonding between the processor and the heatsink, provided with the white thermal patch. The heatsink is mechanically connected to the processor socket with both latches, mechanically making contact with processor.

1. Remove the heatsink-fan assembly from the shipping container and ensure you do not touch the thermal patch on the bottom of the heatsink.
2. Ensure the latches are free and pointing away from the heatsink.
3. Position the heatsink over the second processor and:
   a. Tilt or roll it slightly to the rear of the chassis to help engage the hook latch and then connect the hook latch to the tab. See Figure 6-5.
   b. Rotate the heatsink back, placing it squarely on top of the processor and connect the thumb latch to the tab on the base of the processor socket on the side shown in Figure 6-5.

      The hook latch and thumb latch both hook underneath the tabs extending from the base of the processor socket base.
   c. Ensure the ridge on the bottom of the heatsink rest between the processor and the edge of the processor socket base.

CAUTION	Ensure you have made good contact with the processor to avoid thermal overheating. If you have not made good contact the processor, it will overheat within 20 seconds of power on and will shut down, possibly causing damage to the processor.

4. Connect the heatsink's cooling fan connector to the 2nd cooling fan connector (CPU 2 Fan) on the system board. See Figure 6-1.

CAUTION	Failure to connect the cooling fan to its power connector will cause the NetServer to shut down with no messages displayed and possible damage the processor.

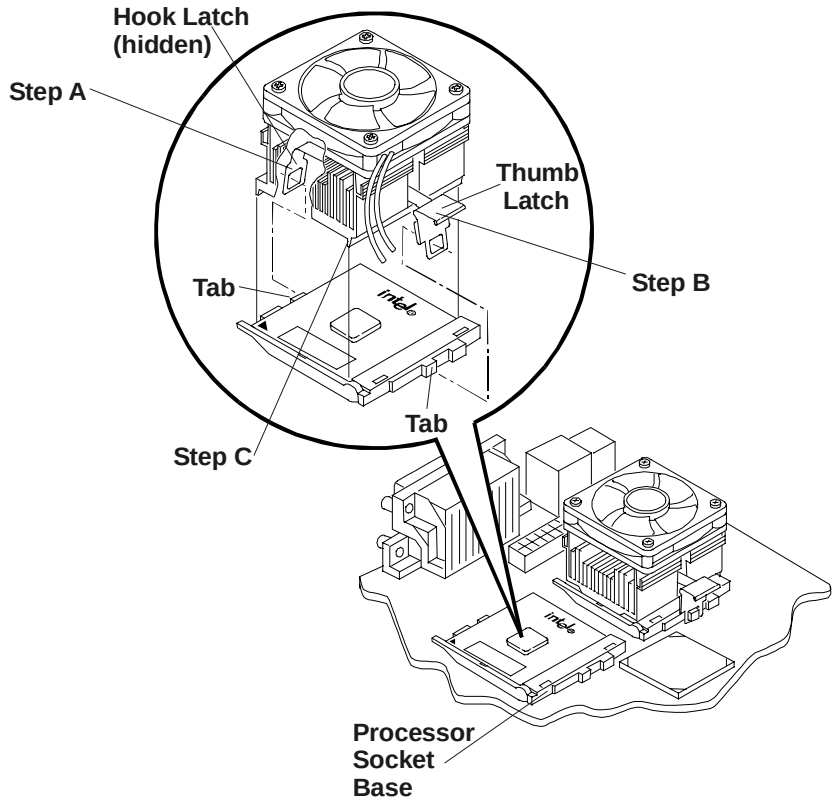


Figure 6-5. Installing the Processor on the System Board

NOTE	No speed switch settings are required for the supported processors (667, 733, and 800 MHz) in the HP NetServer. These processors rely on the internal settings within the processors and do not rely on the external switch settings. However, future upgrade processors may require switch settings of the configuration switch not listed in this chapter.

Firmware and Software Changes

This section deals with the firmware changes provided by the *HP NetServer Navigator CD-ROM* and the possible reinstalling of the NOS to recognize the second processor.

Upgrading the Firmware

If your processor included a new *HP NetServer Navigator CD-ROM*, insert the CD into the HP NetServer E 800 CD-ROM drive and power on the NetServer. Follow the instructions provided on screen to ensure the system BIOS is up-to-date. The system BIOS on the CD will be compared to the NetServer's current BIOS, and if necessary, will indicate to you the BIOS needs to be updated. Refer to Chapter 8, "Configuring the HP NetServer," for more information.

Reinstalling the NOS

You may have to reconfigure or reinstall your NOS in order to use the additional processor. If you have gone from a uni-processor to dual-processor configuration, check your NOS documentation or the Readme file and Configuration Advisor utilities on the *HP NetServer Navigator CD-ROM*.

Removing a Processor and Heatsink

Use this procedure to remove a processor and its heatsink. The heatsink and cooling fan must be removed first, before removing the processor.

CAUTION	Always 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. Before you touch the processor to remove it, touch a grounded unpainted metal surface on the HP NetServer to discharge static electricity.

NOTE	If you need to remove the primary processor (CPU 1), you may find it necessary to remove the power and system fan connectors to access the primary processor.

1. Disconnect the cooling fan connector from its respective cooling fan connector on the system board. See Figure 6-1.
2. Unhook the thumb latch on the heatsink and lift the heat sink up slightly from the processor. See Figure 6-5.
3. Rotate the heatsink away from the processor toward the rear of the NetServer, releasing the hook latch.
4. Lift the heatsink away from the processor and out of the NetServer.
5. Open the ZIF lever to allow removal of the processor. See Figure 6-4.
6. Grasp the processor by its edges and lift it out of the socket and place it on a static-dissipating work surface or into an anti-static bag.
7. If you are not replacing the processor with a new or replacement processor, you must install the terminator in the empty processor socket. See Figure 6-3.

7 Connecting the Monitor, Keyboard, Mouse, and UPS

Introduction

Use this procedure to connect the peripheral control devices and monitor to the HP NetServer E 800.

1. Connect the monitor, keyboard, and mouse to the HP NetServer E 800 using the connections provided on the rear of the chassis. See Figure 7-1.

NOTE	The two USB connectors are reserved for printers, scanners, and external modems, but not the keyboard or mouse.

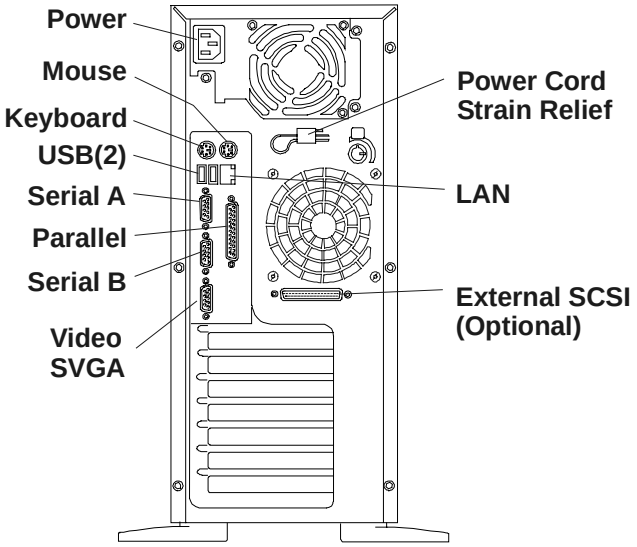


Figure 7-1. Rear Panel Ports

NOTE	If you have a console switch box, refer to the switch box's user guide for instructions on connecting the keyboard, mouse, and monitor.

CAUTION	The Keyboard and Mouse ports are both PS/2 ports, but are not interchangeable. If you plug the keyboard into the Mouse port, or the mouse into the Keyboard port, you will get an error message and the system will not finish the boot process.

2. Use the power cord strain relief clamp to secure the power cord.

   When connecting the HP NetServer to peripherals, use the cable ties and labels that come with the product. See Figure 7-1.

3. If a LAN connector is provided, you may connect it now, or wait until you have verified the NetServer's operation.

Connecting the UPS (Uninterruptible Power Supply)

1. If you do not have an UPS (Uninterruptible Power Supply) located near the HP NetServer, move it near the NetServer to connect the two devices.
2. Connect the serial cable provided between the UPS and the HP NetServer.

   Refer to the user guide included with the UPS for additional information.

3. If you have connected the serial cable between the two devices, turn on the UPS.

   The HP NetServer E 800 performs a diagnostic test when the power switch is turned on. If an error condition occurs, note any error code appearing on the display, then refer to Chapter 10, "Troubleshooting."

8 Configuring the HP NetServer

Introduction

This chapter describes how to configure the HP NetServer with the help of the *HP NetServer Navigator CD-ROM*, which is shipped with your NetServer. This CD-ROM also provides the latest information concerning your NetServer.

As you configure the NetServer, it's important to have the very latest configuration information. The CD-ROM will inform you of any applicable compatibility issues, and provide you with a current list of HP-tested peripherals and accessories. Refer to the "Tested Products List" on the *HP NetServer Navigator CD-ROM*, or on the HP web site at:

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

You should also be familiar with HP DiagTools (on the *HP NetServer Navigator CD-ROM*) and the *HP NetServer Online Documentation CD-ROM* to help you configure the NetServer.

HP NetServer Navigator CD-ROM

The *HP NetServer Navigator CD-ROM* provides you with two choices for running the CD-ROM and accessing its configuration information and utilities.

- Run the Navigator CD-ROM on the HP NetServer to obtain the required configuration information and set up the NetServer.

  You need to the run the Navigator CD-ROM on the NetServer to install the NOS and all the bundled drivers and utilities. Refer to the following topics for the contents of Navigator's Main Menu when used on the NetServer.

- Run the Navigator CD-ROM on any Windows PC after setting up the HP NetServer to obtain the required configuration information.

  Refer to "Running the Navigator CD-ROM on a Windows PC" later in the chapter for more information.

Contents of the *HP NetServer Navigator CD-ROM*

The Main Menu of the Navigator CD directs you to modules where you can perform the required configuration tasks, or access the utilities used in the configuration process. These tasks include:

- Configuring the NetServer hardware
- Preparing the NetServer for NOS installation
- Viewing information about the NetServer (such as Readme file, Configuration Advisories, Tested Products List)
- Obtaining software and drivers for the NetServer

Before the HP Navigator Main Menu is displayed initially, you may be prompted to set the language, time, and date.

If you have questions about the how to use the *HP NetServer Navigator CD-ROM*, refer to the instructions provided with the Navigator CD or the Help menu.

Obtaining *HP NetServer Navigator* Release History

The release history (archive) of the *HP NetServer Navigator CD-ROM* provides you with a list, in numerical order, of the firmware upgrades and software drivers for the HP NetServer. The release history is updated in the archive for each new release of the *HP NetServer Navigator CD-ROM*. The most current Status Report provides the latest information for your particular HP NetServer. To ensure you have the latest versions of the HP NetServer Navigator software, obtain the current *HP NetServer Navigator CD* release history in the archive.

The following items are contained in the Status Report for each CD-ROM release:

- Version number (HP NetServer model specific)
- HP models supported
- Release date
- Document Number
- Part number of the HP Navigator CD-ROM
- Major changes to the HP Navigator CD-ROM made for a specific release

  The Status Report for your specific *HP NetServer Navigator CD-ROM* describes in detail any software updates between this version of the CD-ROM and the previous version.

Status Report Identification

You must compare the Document Number on your *HP NetServer Navigator CD* with the most current Status Report's Document Number for your HP NetServer model.

- Each version of the *HP NetServer Navigator CD-ROM* has a four-digit Document Number, such as 77xx, corresponding to a Status Report, printed on the disk.
- Each Status Report has a different Document Number.

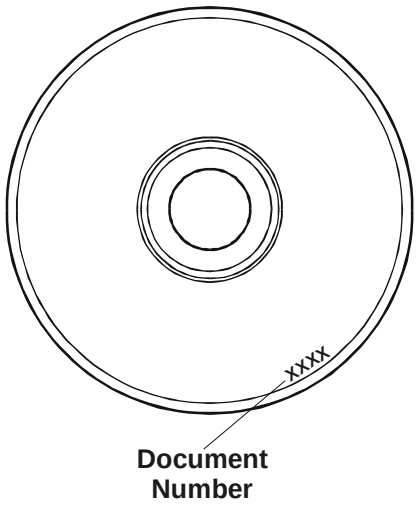


Figure 8-1. Location of Document Number on Navigator CD

You can obtain the release history (archive) and Status Report for your CD-ROM in one of these ways:

- Internet WWW--
  `http://netserver.hp.com/netserver/support/`
- Internet FTP--**`ftp://ftp.hp.com/pub/servers`**

Once on the web site, select from the following items:

1. Under Support Offerings and Support Categories, click on **HP NetServer Navigator CD**.

   HP NetServer Navigator CD >> Latest information for your HP NetServer system

2. Click on CD Status Report to view the latest information or the CD Archive to view the release history.

   NetServer Navigator CD Status Report >> Ensure the latest documentation for your HP NetServer system

NetServer Navigator CD Archive >> HP NetServer Navigator CD
Status reports are arranged with the most recent archived version first

3. Click on the Document ID number to view the latest Status Report (Release Notes).

Accessing the HP NetServer Navigator CD-ROM

Use this method to start and access the *HP NetServer Navigator CD-ROM*.

1. Ensure the HP NetServer is properly connected to the mouse, keyboard, monitor, and AC power, before attempting to power up the NetServer.
2. Press the power-on button to turn on power to the NetServer.
3. Press the CD-ROM drive eject button.
4. Place the *HP NetServer Navigator CD-ROM* in the drive, and press the eject button again to close the drive.

   The Navigator CD should start automatically.
5. If the Navigator CD does not start automatically, turn the power off, wait 10 seconds, and turn the power on again.

   If the NetServer fails to boot, follow the diagnostic instructions on the screen.
6. Go to the HP Navigator Main Menu.

   For detailed information about using the Navigator CD-ROM refer to the online Help on the CD.

Viewing the Readme File

This file includes the most recent HP NetServer information that was not available at the time of publication for this User Guide or the Installation Guide. It is important to check this file before proceeding with the installation.

1. Start the *HP NetServer Navigator CD-ROM*, as explained earlier.
2. Go to the HP Navigator Main Menu.
3. Select **Readme File**.

   The Readme file contains the latest information to help you install your HP NetServer. Read it carefully before beginning your installation.

HP Management Solutions

HP Management Solutions is a comprehensive suite of utilities, applications, and built-in features to manage NetServers locally or from remote locations. If you are unfamiliar with these products or concepts,

- Go to the Management Web site on the HP Web Site at

  `http://www.hp.com/go/netserver_mgmt`

  to view information on HP TopTools and all NetServer management options for your NetServer.

- Read the *HP NetServer Server Management Reference Guide* included with your NetServer. This guide covers TopTools and all other NetServer management utilities and options for the NetServer.

HP TopTools

HP TopTools is the browser-based management software that provides remote administration and monitoring of critical NetServer components. TopTools (with the NetServer component) provides vital information for the fastest troubleshooting and proactive management of your HP NetServers. Processors, memory, storage, and NICs are a few examples of the components managed by TopTools.

Some of the features of TopTools include:

- Notification of problems with key hardware components, including memory, disk drives, SCSI controllers, and NICs
- Unified event log to review a complete history of NetServer activity in one place
- Predictive disk problem warning backed by HP's pre-failure warranty replacement
- Disk capacity threshold alert and usage tracking
- View of critical NetServer inventory information, such as the BIOS version, driver and firmware versions, PCI slot contents, and serial and parallel ports
- Easy linkage with leading management platforms, including HP OpenView Network Node Manager and Computer Associates' Unicenter TNG and Tivoli products

- HP TopTools AutoAlert provides proactive warning of problems and advice on quick resolution through a friendly "traffic light" user interface
- Support for DMI 2.0, which provides the same Desktop Management Interface inventory information for NetServers as for desktop PCs

TopTools is included with every HP NetServer and should be installed to help your service provider troubleshoot your HP NetServer. TopTools is located on the *HP TopTools CD-ROM*.

For sites with a single-server installation, you may not need the power of the web-based HP TopTools. Instead, **HP TopTools Auto Alert** and **Local TopTools for Servers**, included on the *HP NetServer Navigator CD-ROM* can provide all the tools you need to manage your small business environment. Local TopTools for Servers provides the same information as HP TopTools but is run directly at the NetServer. Local TopTools for Servers is automatically installed on your NetServer when using the HP NetServer Navigator CD to install your Network Operating System. HP TopTools Auto Alert may be installed either from the *HP TopTools CD-ROM* or the *HP NetServer Navigator CD-ROM*.

- See the *HP NetServer Management Reference Guide* for detailed installation instructions.
- You can also download the TopTools software and documentation from the TopTools Web Site at:

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

pcANYWHERE32

pcANYWHERE32 is remote-control graphics-redirection software from Symantec Corporation included with your HP NetServer (on the *HP NetServer Navigator CD-ROM*) that allows you to take control of Microsoft Windows NT servers across the network or over a modem. Refer to the *HP NetServer Online Documentation CD-ROM* for details.

DiagTools

This utility provides an easy-to-use hardware diagnostic for NetServer verification, burn-in, and rapid troubleshooting. It must first be copied to diskettes and then executed from the diskettes.

NOTE	HP recommends using the HP DiagTools utility to verify all NetServer functions are operating correctly, after completing all the configuration topics. The HP DiagTools utility also 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.

Setup (BIOS) Utility

The HP NetServer (BIOS) Setup Utility is used to configure the following NetServer options:

- User Preferences
- Security
- Configuration
- Exit

Accessing the Setup Utility

The (BIOS) Setup Utility menu offers the choices listed above, and the corresponding items are described in the topics below.

1. Turn on the monitor and the HP NetServer.
2. Start the Setup Utility by pressing the [F2] key, when the following message appears on the boot screen.

   ```
   Press <F2> to enter SETUP
   ```

Menu Bar

The Setup Utility provides a menu bar with several menu selections. The menu bar choices are:

- **User Preferences** - Use this menu option to set the NetServer time, date and keyboard functions.
- **Security** - Use this menu option to set Power-on password protections and hardware security options. Two choices are available under Security:
  - ◊ Power-On Password - Use this option to set the administrator and user passwords, which will require a password to enter the Setup Utility or complete the boot process.

    The Administrator password must be set before setting the User password. Once the Administrator password is set, the Administrator can access and change all fields in the Setup Utility screens.

    If the User password is set, the user may change the system time, date, user password and a limited number of items in the various screens of the Setup Utility. The user may view all screens in the Setup Utility, but can't alter all of the settings.

    Hardware Security - Use the options under this head to enable or disable writing to floppy disks connected to the embedded controller. Also found here are switches for allowing booting from the floppy drive, disk drive, and CD-ROM.
- **Configuration** - Use this menu option to configure I/O ports, I/O addressing, interrupts, PCI slot masters, IRQ interrupt locking, and boot device ordering. You can also use this menu to enable/disable the following items; the embedded NIC, the Wake-on-LAN feature and the processor serial.
  - ◊ Integrated I/O Port - Configure ports for serial and parallel, assign base addresses and interrupts, pointing devices (mouse), and console redirection for remote control.
  - ◊ Flexible Disk Drive - Enable or disable the floppy disk drive controller.
  - ◊ Memory Cache - Enable or disable memory hole and enable or disable RAM to free address space.
  - ◊ IDE Devices - Set primary master/slave, secondary master/slave relationships on IDE devices, and set the local bus IDE adapter.

- ◊ PCI Slot Devices - Set a PCI slot as master, and PCI IRQ locking. The BIOS warns of conflicts.
- ◊ Boot Device Ordering - Set the boot order, including bootable boards.
- ◊ Wake-on-LAN - Wakes the NetServer from its "sleep" state upon receiving a "Magic Packet." While the NetServer is in the sleep state, the embedded LAN adapter scans all incoming frames addressed to the NetServer for a specific data sequence, indicating to the NIC's controller that this is a wake-up frame. If the NIC detects the data sequence, it alerts the NetServer's ACPI power management circuitry to wake up the NetServer. The wake-up frame is based on the industry-standard Magic Packet specification.
- ◊ Embedded NIC - Enable or disable the embedded LAN adapter and its features.
- ◊ Processor Serial Number – This feature can be enabled or disabled in the Setup Utility. Once this feature is enabled, the Setup Utility will read and display the serial number of the processor(s) installed in the NetServer.

- **Exit** – Exit the Setup Utility by saving changes or exit without saving changes, which reverts to previous settings.

  When you exit, the HP NetServer reboots.

Using the Setup Screens

Online help explains the settings displayed on the Setup Utility screens. Instructions are also provided for navigating between the screens and entering or changing the setup data.

- Press the right-arrow and left-arrow keys to move between selections on the menu bar. The menu bar is present at the top of the main selections.
- Press the up-arrow and down-arrow keys to move between fields on each screen. The currently-selected field will be highlighted.
- Certain fields ask you to choose from a list of entries. In such cases, press the plus (+) or minus(-) keys repeatedly to display each possible entry, or the **Enter** (or **Return**) key to choose from a pop-up menu.
- Small arrow points (➢) precede some field names. This means the field is actually a submenu. 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.

- The **Esc** key is the exit key. If you press the **Esc** key on one of the top-level screens, the Exit menu appears. If you press **Esc** on a submenu, the previous screen appears. When you are making selections from a pop-up menu, use the **Esc** key to close the pop-up without making a selection.

Changing the 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 system and press **F2** when prompted.
2. If necessary, use the left-arrow key to select **User Preferences** 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 " User Preferences, Security, Configuration, and Exit" shown. The User Preferences 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 "User Preferences" 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. Type in the hour and press **Enter** to move to the minutes field.
5. Then type in the minutes and press **Enter** again to move to the seconds' field.
6. Type in the seconds and press **Enter,** 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 is 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].
8. Type in the month and press **Enter** to move to the day field.
9. Then type in the day and press **Enter** again to move to the year field.
10. Type in the year and press **Enter**, and then use the arrow keys to leave this field.

    Ensure you enter all four digits for the year.
11. Use the right-arrow or left-arrow key to select the **Exit** menu.

12. Choose **Exit Saving Changes** from the list of exit options, then press **Enter**.

    A dialog appears and asks you to confirm your decision.

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

    The HP NetServer reboots and the date and time changes have been accepted.

Setting the HP NetServer's Boot Passwords

Use this topic to set a password to boot the HP NetServer. Further, you can have a separate administrator password and user password, but the user password is limited in access once booted.

To configure the HP NetServer for passwords, which will require a password on boot-up, refer to the following procedure.

1. If not already in the Setup Utility, boot or reboot the system and press **F2** when prompted.
2. Use the right-arrow or left-arrow key to select **Security** from the menu bar.

   As soon as it is selected, the selections for the Security menu appear as shown below.

   ➢**Power-On Password**

   ➢**Hardware Security**

   The arrowhead ➢ indicates there is a submenu to select from.

3. If necessary, use the arrow key to move to the **Power-On Password** menu selection and press **Enter**.

   The Power-On Password is highlighted by default when the Security menu is selected.

   The first line in the menu is, "Administrator Password is [Set or Not Set]"

   ◊ If no password has been set, then "Not Set" will appear in the field. If this is the case, then you are not allowed to set the User password until you set an Administrator password. With no password set you can still boot the NetServer without a password.

   The Administrator password controls access to the Setup Utility and its settings, but will not be in effect until you "Set" the password and reboot the NetServer.

   ◊ If "Set" is in the field, then you can change the Administrator password or scroll to the User password and change it. If you do not know the

existing Administrator password, then refer to "Resetting Lost Passwords" in Chapter 10, "Troubleshooting."

NOTE You must set the Administrator password before setting the User password. The Administrator password is the only password required to configure the HP NetServer to boot with a password.

4. Press the **Enter** key to enter a new password or change the old one.

   A pop-up menu appears titled, "Set Power-On Password". If no password has been entered, the field "Enter new password: [ ]" is highlighted. If a previous password has been entered, the field "Enter old password: [ ]" is highlighted.

NOTE To leave the pop-up menu without entering a password, press the **Esc** key at any time.

5. Enter the password (new or old) in the appropriate field and press **Enter.**

   The password is accepted and the next field just below it, "Re-enter new password: [ ]" or "Enter new password: [ ]" field is highlighted. For security reasons, the password does not appear on the screen.

6. If necessary, enter the new password in the "Enter new password: [ ]" field and press **Enter**.

NOTE	Entering nothing or "blank" in the "Enter new password" field followed by entering nothing or "blank" in the "Re-enter new password" field will turn off the password setting, changing it to "Not Set." If the Administrator Password is changed to "Not Set", the User password is forced to "Not Set."

7. Enter the new password again in the "Re-enter new password: [ ]" field and press **Enter**.

   After re-entering the new password and pressing enter, the pop-up menu disappears and the "Administrator Password is" field changes to "Set" and on the next boot the HP NetServer will requests a password to access the Setup Utility and complete the boot process.

8. If you only want a single password (Administrator), you may skip the "User Password is:" field and go to Step 10 to exit the utility and save changes.

9. If you want to enter a User password, use the arrow key to scroll to the "User Password is:" field and repeat Steps 4-7 for the User password.

10. If you have finished setting or changing passwords, press the **Esc** key to exit this menu.

11. Use the right-arrow key to go to the **Exit** menu.

12. Choose **Exit Saving Changes** from the list of exit options, and then press **Enter**.

    A dialog appears and asks you to confirm your decision.

13. Choose **Yes** and then press the **Enter** key.

    The HP NetServer reboots and the password changes have been accepted. After the NetServer reboots, you will be required to use your new password to enter the Setup Utility or complete the boot process. If you forget your password, refer to "Resetting Lost Passwords" in Chapter 10, "Troubleshooting. "

14. To change one of the passwords at a later date, return to the Security menu and repeat Steps 2 through 7 above for one or both passwords.

Remote Console Feature

The HP Remote Console is built into the HP NetServer's BIOS and is NOS independent. This feature uses HP's BIOS level remote access to diagnose and remedy problems associated with a NetServer's hardware operations or configuration.

Enabling the Remote Console Feature

To enable the Remote Console feature of the HP NetServer E 800, enter the BIOS Setup Utility as described previously, then do the following:

1. Select **Configuration** from the menu bar.
2. Select **Integrated I/O** Ports.
3. Select **Serial Ports**.
4. Select **Console Redirection**.
5. Set the **Com Port Address** to 3F8/IRQ 4 (Serial Port A).
6. Select a baud rate.
7. Select console type.
8. Select flow control.
9. Select modem for console connection.
10. Then, after setting up your NetServer and a remote PC console with modems, you install your terminal emulation software (pcANYWHERE32 included with the NetServer) on the remote console to establish a connection. For in-depth details on configuring and using the Remote Console feature, refer to the "Remote Administrator Guide" on the *HP NetServer Online Documentation CD-ROM*.

About the Remote Console Feature

The following text and illustration show how HP's Remote Console is connected to the HP NetServer.

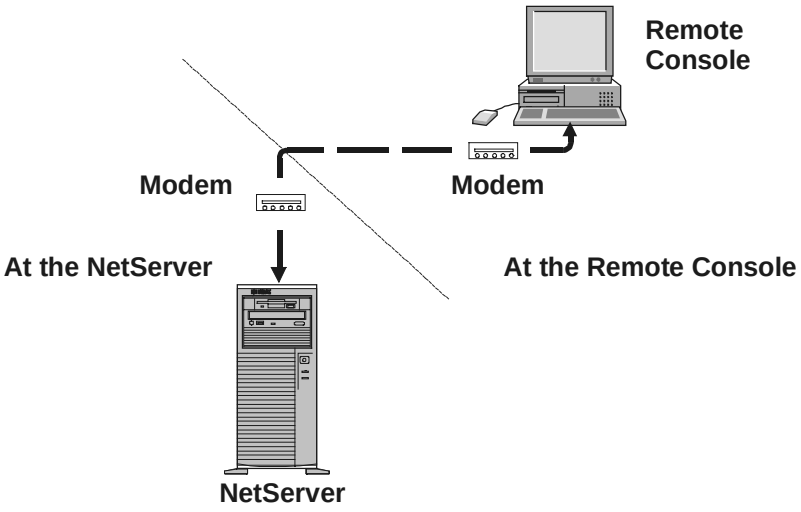


Figure 8-1. HP Remote Console Setup

1. At the NetServer – After setting the NetServer to receive using the Utility Partition Console Redirection feature, the NetServer may be taken over by the remote console.
2. At the Remote Console – Using a modem and pcANYWHERE32, the offsite remote console workstation may dial into and run diagnostic utilities on the HP NetServer.

Using the Remote Console feature, you can remotely access a customer's NetServer Utility Partition to:

- Update the NetServer BIOS.

  This feature is particularly useful since it allows you to update a NetServer's BIOS remotely.

- Run HP NetServer DiagTools.

  This utility provides you with ways to test a NetServer's hardware components, including system board function.

- Remotely boot the NetServer and view startup messages.
- Set or reset NetServer keyboard language.

In addition, your HP NetServer E 800 includes pcANYWHERE32 communications software (by Symantec Inc.) to graphically redirect your

Windows NT server console to a remote location. For in-depth details, refer to the "Remote Console Feature" on the Online Documentation CD.

SCSI Configuration Utility

The HP NetServer uses the Symbios SCSI Configuration Utility to verify or modify the embedded SCSI controller settings for the devices connected to the two SCSI channel connectors on the system board. If you need to verify or modify SCSI controller settings, or if you need to low-level format SCSI disks or verify SCSI disk media, run the Symbios Configuration utility:

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.

During the boot process the BIOS searchs for SCSI devices and the message "Symbios SCSI BIOS successfully loaded" will appear if there are devices connected to the SCSI controller. The SCSI controller can provide the bus, device, and channel configurations when active on screen.

To access the Symbios SCSI Configuration Utility, refer to the following instructions.

1. Reboot the HP NetServer.

   If you are already in the boot process, you should see the following message appear.

   ```
   Press <Ctrl C> to start Symbios Configuration
   Utility...
   ```

2. Press **Ctrl**+**C** keys to enter the utility.
3. Use the arrow keys to move the cursor, press **Enter** to select an option, and press **Esc** to exit.
4. To change SCSI controller settings:
   - ◊ Select an embedded SCSI controller or SCSI adapter from the list in the main menu and press **Enter**.
   - ◊ Select **Adapter Setup**.

     This option configures the SCSI controller ID setting and other advanced controller settings.
5. To format a hard disk or change hard disk parameters:

- ◊ Select an embedded SCSI controller or SCSI adapter from the list in the main menu and press **Enter**.
- ◊ Select **Device Selections** and press **Enter**.
- ◊ Select the hard disk to format and press **Enter**.
- ◊ Select **Format** menu option and press **Enter**.

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

Running the Navigator CD-ROM on a Windows PC

Using the HP Navigator CD-ROM in any Windows PC does not allow you to perform any configuration tasks. However, it does allow you to access the software drivers, the diagnostics, and the system information or find up-to-date configuration information in "What's New on the CD," in "System README," or in "Guide to Configure Server."

Use these sources to learn about applicable compatibility issues and get the latest list of HP-tested peripherals and accessories in the Test Products List in Configuration Advisor. These files include the most recent information that was not included in the printed installation or user documentation.

The Navigator CD-ROM will autorun on any PC with Windows 95, Windows 98, or Windows NT. Refer to following procedure to view these files.

1. Ensure the PC is powered on.
2. Press the CD-ROM drive eject button.
3. Place the *HP NetServer Navigator CD-ROM* in the drive, and press the eject button again to close the drive.

   The CD-ROM will start automatically using the auto-run feature as soon as the drive closes.
4. If the CD-ROM does not start automatically, push the eject button on the CD drive and re-insert the CD-ROM.

   The opening screen of the HP Navigator prompts you to select a HP NetServer model.
5. Select the HP NetServer E 800 from the pull down list of NetServer models.
6. Press the **Continue** arrow icon at the bottom right of the screen.

The next screen appears prompting you to select a NOS (Network Operating System).

7. Scroll down through the list of supported NOS and selected the NOS used with this installation.

   The HP Navigator main menu appears.

8. Scroll to "What's New on the CD" in the main menu and read it carefully before beginning your installation.

   You may also use the two icons to "Save to Diskette" or "Print" the information on screen.

9. Close the screen and scroll to "System README" and read it carefully or select of one of the options to save or print it before beginning your installation.

   The System README file contains the latest information to help you install your HP NetServer.

10. Access the other Menu items as required, such as "Configuration Advisor" under "Guide to Configure Server."

    The screens may display all or some of the following icons at the bottom of the screen.

    ◊ Exit – This icon allow you to exit the HP Navigator Program.

    ◊ Toolbox – This icon allows you to launch tools and utilities.

    ◊ Help – This icon displays online help for the screen displayed or item selected.

    ◊ Home – This icon allows you to return to the main menu from your present screen.

    ◊ Back – This icon allows you to return to the previous screen.

    ◊ Continue – This icon allows you to continue to the next screen or with the currently selected process.

    ◊ Save to Diskette – This icon allows you to save the contents of the file displayed on screen.

    ◊ Print – This icon allows you to print the contents of the file displayed on screen.

    ◊ Close or Done – This icon allows you to close the screen without taking any actions.

9 HP NetServer Online Documentation CD-ROM

Overview

The *HP NetServer Online Documentation CD-ROM* contains the entire set of documentation for your HP NetServer E 800. The *Online Documentation CD* provides a task-oriented interface that allows you to quickly and efficiently locate information including the following items to help you better understand your NetServer and make choices compatible with your network.

- Complete documentation of your HP NetServer and accessories
- Important information on installing your NOS
- Error message and beep code descriptions
- Available diagnostics and servicing information
- Parts lists
- Available management software options and documentation

Using the Online Documentation CD

The *HP NetServer Online Documentation CD-ROM* contains all your system documentation online. To use this CD you must have a browser (either Microsoft Internet Explorer 4.x, or Netscape Navigator version 4.*x* or greater) and the Adobe Acrobat Reader version 3.x or greater.

The CD may be accessed in one of the following ways:

- The CD will autorun when inserted into a PC running Microsoft Windows 95, 98 or NT 4.0.
- Or, point your browser to **index.htm** under the **start** directory.

10 Troubleshooting

Introduction

If you are having problems installing your HP NetServer, there are a number of different tools available for troubleshooting, including the information provided in the following topics in this chapter.

- *HP NetServer Online Documentation CD-ROM* contains the following tools:
  - ◊ Troubleshooting Information
  - ◊ Parts Information
  - ◊ List of Error Messages
  - ◊ List of Beep Error Messages
- Navigator CD-ROM provides several utilities for troubleshooting purposes.

  At the Main Menu, select "NetServer Utilities" to use the following tools:
  - ◊ Diskette Library - A collection of diskette images representing drivers, utilities and BIOS updates, which enables you to conveniently generate any flexible diskette available on the *HP NetServer Navigator CD-ROM*. For example, you can create the following diskettes: BIOS Update and NOS Drivers.
  - ◊ HP DiagTools Utility - An easy-to-use hardware diagnostic for NetServer verification, burn-in, and rapid troubleshooting. Use this image to copy DiagTools to two (2) flexible diskettes from the *HP NetServer Navigator CD-ROM*, and then execute from the flexible diskette.

Tools Required

Check the documentation provided with the NOS and accessory boards for additional tool requirements.

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

Common Installation Problems

The following sections contain general procedures to help you locate installation problems. If you need assistance, HP recommends contacting your reseller first. If you need to get assistance from Hewlett-Packard, refer to *HP NetServer E 800 Service Guide* for information on service and support located on the *HP NetServer Online Documentation CD-ROM*.

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.

Troubleshooting Sequence

To troubleshoot problems during installation, do the following:

- First, ensure the HP NetServer is configured properly.

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

- Verify all cables and boards are securely plugged into the appropriate connectors or slots.

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

  Refer to the network operating system (NOS) manual.

- Remove all added options and always change one thing, and only one thing, 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.

NetServer Will Not Power On

Follow these steps if the power/activity light does not light green after you press the power-on button, or the NetServer will not power on properly.

NOTE	If the Heatsink-cooling fan is not properly installed on the processor and connected to the fan power connection, the NetServer will automatically shut down within 10 seconds and provide no error messages, error codes, beep codes, or video display.

1. Remove the AC power cord, wait 15 seconds, reconnect the power cord, and try again.
2. Ensure all cables and the power cord are firmly plugged into the proper 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 it on to verify if the fault is with the power supply.
5. Verify the power supply is connected to the system board.
6. Verify the front power switch is connected to the system board.

Problems after NetServer is Powered On

If you think it is a hardware error, follow these steps and refer to "Hardware Problems" later in this chapter.

1. Log users off the LAN and power down the HP 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 required minimum, removing all third-party options.

   For example, reduce the NetServer to the monitor, one flexible disk drive, one CD-ROM drive, one hard disk drive, keyboard, mouse, and one NIC.

4. Power on the NetServer to start the boot process.
5. If the NetServer will not complete the boot process:

   a. Consult the troubleshooting steps in the section "Hardware Problems" later in this chapter.

   b. If you get an error message, see the section "Error Messages" below.

   c. Clear the CMOS memory and reboot.

      Refer to "Clearing the CMOS Configuration."

6. If you have completed a boot of the NetServer successfully, reinstall the third-party options one at a time, checking the NetServer after each installation.

Error Messages

There are two kinds of error messages that appear during the POST process and the causes of these messages may prevent the NetServer from completing the boot process. These are:

- Messages in reverse video (black text on white background)

  Press the **Return** key to see a definition of the message and what action to take to remedy the problem.

- Power-on self test (POST) errors - These display in normal video (white text on black background) and may be a text message or an alpha-numeric code. If an error with a text message occurs during the POST, details of the error are displayed. Follow the instructions on the screen. If an alpha-numeric code appears, refer to the *HP NetServer E 800 Service Guide* on the *HP NetServer Online Documentation CD-ROM*.

No Error Messages Displayed

General Checks:

1. All external cables and power cables are firmly plugged in.
2. The power outlet is working.

3. The NetServer and monitor are turned on. (The power-on indicator should be illuminated.)
4. The display's contrast and brightness settings are correct.
5. All internal cables are properly connected and all boards firmly seated.
6. Verify the processor and its heatsink-fan are fully seated in its socket on the system board.
7. Verify the Memory is installed correctly and fully seated.
8. Verify the slots and tabs are aligned in the DIMM connector.

After Installing an Accessory:

1. Turn off the monitor, the NetServer, 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 documentation provided with accessory board.
   - ◊ Check all internal cabling and connections.
   - ◊ If you have changed any switches on the system board, verify each one is properly set.

NOTE	Only two of the eight switches on configuration switch are used.

5. Replace the cover and connect all cables.
6. Turn on the monitor and NetServer.
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.
   - ◊ Replace the cover and connect all cables.
   - ◊ Turn on the monitor and the NetServer.

◊ If the NetServer now works, replace the boards and accessories one at a time to determine which one is causing the problem.

POST Error Messages

If you get a POST text error message in reverse video, press **Enter** (View System Error) to get a more detailed explanation and a possible solution.

If the NetServer starts, but POST still reports an error message, clear the CMOS configuration, as described later in this chapter.

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

Table 10-1 describes typical POST text errors and the corrective action you may take to remedy the problem.

Table 10-1. POST Error Messages

Message	Corrective Action
Operating system not found	• Verify the desired boot drive has power and its SCSI cable connected. • Verify the SCSI cable is securely plugged into the SCSI connector on the system board. • Verify the boot device is enabled in the Setup Utility under the Security menu. • Verify the boot device has an operating system installed. If the problem persists, contact your HP support organization.
Keyboard error	• 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
Mouse error	• Verify the mouse is connected to the correct connector (not the keyboard connector) at the rear of the NetServer. If the problem persists, replace the mouse or contact your HP support organization.
If no message appears (screen is blank)	• If no text or messages appear listen for the beep codes. Refer to the Service manual on the *HP NetServer Online Documentation CD-ROM.* • If no message appears but the NetServer stops after POST, verify the DIMMs are correctly installed.
If a configuration error occurs	If a NetServer configuration error is reported during the startup routine, clear the CMOS memory as described under "Clearing the CMOS Configuration," and restart the NetServer.
System CMOS checksum bad	• Press [**F2**] to run Setup. • Change settings as required. • Choose the Exit option, selecting Save Changes and Exit to save the new settings. The NetServer should reboot.

Clearing the CMOS Configuration

You may need to clear the CMOS configuration if the configuration has been corrupted, or if incorrect settings made in the Setup Utility have caused error messages to be unreadable.

To clear the configuration:

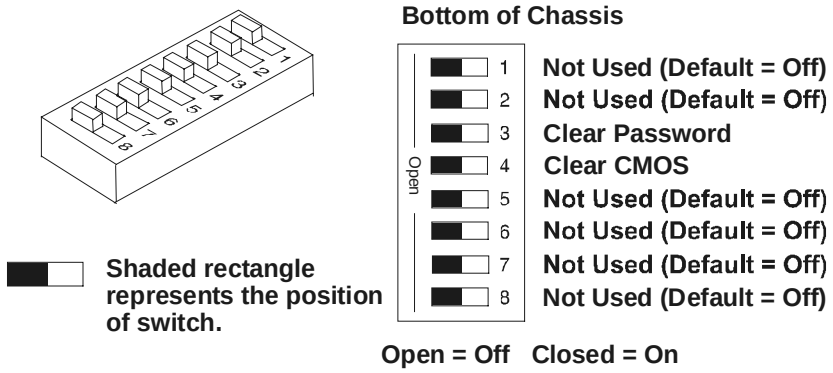
1. Turn off power to the NetServer and remove the cover.
2. Move switch 4 in the configuration switch on the system board (labeled "Clear CMOS") to the ON position. See Figures 10-1 and 10-2.
3. Turn on power to the NetServer.

   A message displays indicating the configuration has been cleared.
4. Turn off power to the NetServer.
5. Return switch 4 on the system board to the OFF position.

6. Replace the cover.
7. Turn on power to the NetServer and the following message displays:

   ```
   Incorrect System Configuration
   ```

8. Press [**F2**] to run the Setup Utility when **<F2=Setup>** appears.
9. Make any configuration changes required.
10. Choose the Exit option and save the changes to save the configuration and exit the Setup Utility.



10-1. Configuration Switch Positions

Resetting Lost Passwords

If you have forgotten the User or Administrator password, you can reset each one. The User password can be reset if you know the Administrator password, but the Administrator password can only be reset by a switch on the system board.

User Password

If you have forgotten the User password, but the Administrator password is known, perform the following steps:

1. Restart the NetServer.
2. During the boot process, press [**F2**] to start the Setup program.
3. Enter the Administrator password and then access the Security menu of the Setup Utility.
4. Scroll to the "User Password is" field and press **Enter**.

5. Enter the Administrator password as the old password and press **Enter**.

   This will replace the old, forgotten password.

6. Enter the new password in the "Enter new password: [ ]" field and press **Enter**.

NOTE	Entering nothing or "blank" in the "Enter new password" field followed by entering nothing or "blank" in the "Re-enter new password" field will turn off the password setting, changing it to "Not Set."

7. Enter the new password again in the "Re-enter new password: [ ]" field and press **Enter**.
8. Press **Esc** and scroll to the Exit menu and save the changes to save the new password.

Administrator Password

You can only reset a forgotten Administrator password by using the configuration switch on the system board. If you have forgotten the Administrator password, your NetServer will function normally, but you will not be able to access the Setup Utility or complete the boot process, if you reboot the NetServer. To reset the Administrator password, refer to the following procedure.

1. Turn off power to the HP NetServer.
2. Remove the cover.
3. Move switch 3 in the configuration switch on the system board (labeled "Clear Password") to the ON position. See Figures 10-1 and 10-2.
4. Turn on power to the NetServer and allow it to complete its startup routine.

   The old password will be erased.

5. Turn off power to the NetServer.
6. Return switch 3 in the configuration switch on the system board to the OFF position.
7. Replace the NetServer cover.
8. Turn on power to the NetServer and allow it to begin its startup routine.
9. If you wish to set a password again, press [**F2**] to start the Setup Utility.
10. Set the new Administrator password.
11. Choose the Exit option and save the changes to save the new password.

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 starts 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 are bent.

     If any of the pins are bent, carefully straighten each one.
   - ◊ If you have manually configured any accessories, verify each one does not use the same I/O address as the integrated video interface (03B0h to 03DFh).

     Refer to the documentation supplied with the accessory for more information.
2. If the display image does not align with the screen (usually after you have changed 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 operating system manual to find out which 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 I/O panel label on the rear panel of the NetServer.

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 device.
3. Verify the CD-ROM is configured correctly in the menu located under the Security menu in the Setup Utility.
4. If you intend to boot from the CD, ensure the option is enabled in the Setup Utility.
5. For further information, refer to your CD-ROM documentation.

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 connector on the system board.
2. Verify all SCSI devices have unique IDs.
3. Ensure your SCSI device is not terminated.
4. Ensure connector pins are not displaced or distorted.

Replacing a Battery

If your HP NetServer repeatedly loses its configuration or the processor clock stops, you should replace the battery.

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 power cord.
2. Remove the NetServer cover and the cooling duct/cover.
3. Lay the chassis on its side with the system board components facing up.
4. If necessary, remove the accessory board, which prevents access to the battery.
5. Insert a small flatblade screwdriver or similar tool between battery and spring latch. See Figure 10-2.
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.

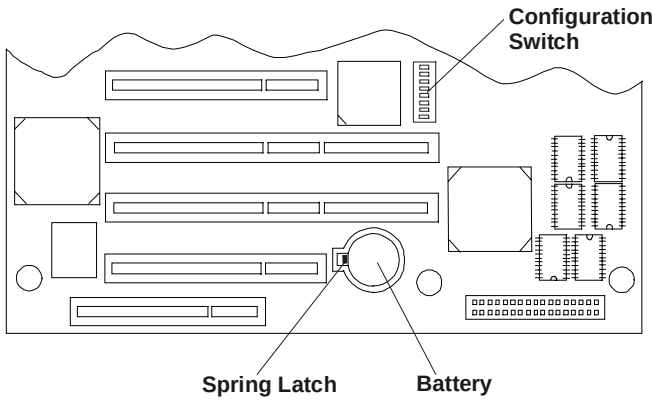


Figure 10-2. Battery on System Board

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 CMOS settings.

Problems Running the Setup Utility

If you cannot run the Setup Utility, the HP 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.

A Specifications

Introduction

This appendix provides the power requirements, operating conditions (environmental requirements), physical requirements, hardware specifications, and video resolutions of the HP NetServer E 800. The system board layout and the unused connectors are also provided. See Figures A-1 and A-2.

Requirements

The following tables provide the specifications required for normal operation of the HP NetServer E 800.

Table A-1. Power Supply Specifications

Parameter	Characteristics
Input Type	Auto-ranging
Input Range – Maximum	100 to 127 VAC ~5.0 A at 50/60 Hz 180 to 264 VAC at 47 - 63 Hz
	200 to 240 VAC ~ 2.85 A at 50/60 Hz
Operating Current	100 VAC: 5.3 A
	120 VAC: 4.6 A
	200/208 VAC: 3.2 A
	220/230 VAC: 2.8 A
In-rush Current	25 A
Operating Power	256 W Continuous

Table A-2. Environmental Requirements

Parameter	Conditions
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 3,000 m (~ 10,000 ft)
Non-operating	-30 to 12,000 m (~ 40,000 ft)
Thermal Output	
Maximum Operating	1007 BTU/hr

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

Table A-3. Weight and Dimensions

Weight	Approx. 30 lbs (14 kg.), depending on configuration – excludes keyboard and monitor.
Height	17.09 inches (434 mm)
Width	7.1 inches (180mm)
	11.67 inches (296.5mm) Feet opened
Depth	19.57 inches (497mm)

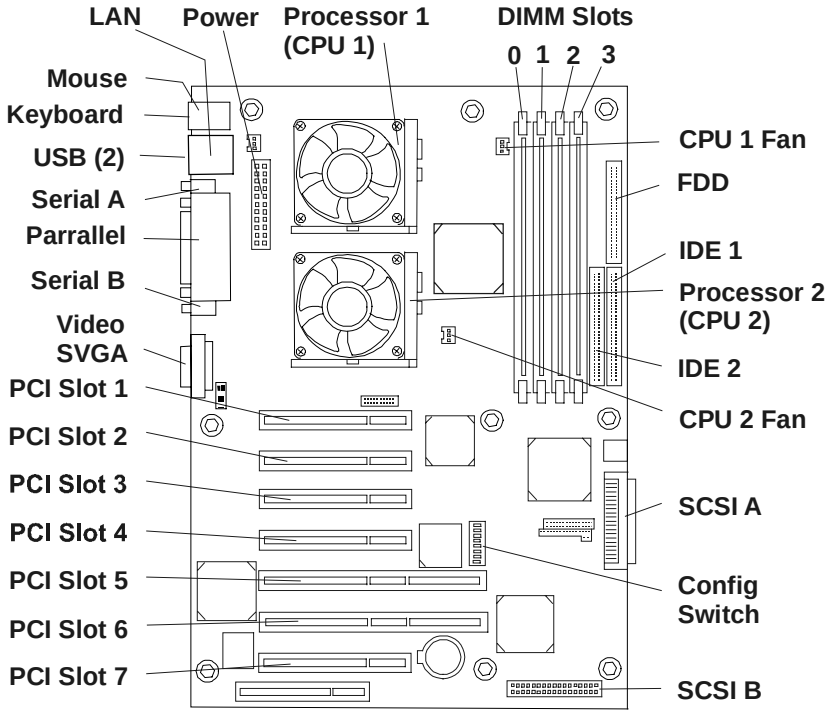
Table A-4. HP NetServer Hardware Specifications

Processors	Intel Pentium III (up to 2 processors), supported speeds: 667, 733, and 800 MHz; 256 KB level 2 cache on processor
Chipset	RCC LE chip set with 66/133 MHz bus speed support
Memory	Supports up to four SDRAM DIMMS for a maximum total of 2 GB. Supported DIMM types: 128MB, 256MB, and 512 MB buffered, 72 bits wide, ECC single-bit correcting, multi-bit detecting.
Video	Embedded ATI Rage XL chip video with 4MB SDRAM Supports up to 1600x1200, @ 65K colors. Refer to Table A-5, "Video Display Modes" for more details.
SCSI	Embedded Symbios Ultra-2 SCSI dual channel controller; 80 MB/s transfer rate with two 68-pin connectors
IDE	Embedded Enhanced-IDE dual channel controller
LAN	Embedded Intel 82559 10/100 PCI Fast Ethernet Controller; with Wake-on-LAN enabled/disabled via BIOS setup
PCI Bus	32-bit, 33 MHz speed, with two 64-bit slots and five 32-bit slots
I/O	Two Serial ports and one bi-directional parallel port with ECP/EPP high-speed support; PS/2 style mouse and keyboard connectors
CD-ROM	Bundled 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	200 Hz	200 Hz	200 Hz
800x600	200 Hz	200 Hz	160 Hz
1024x768	150 Hz	150 Hz	120 Hz
1152x864	120 Hz	120 Hz	85 Hz
1280x1024	100 Hz	100 Hz	85 Hz
1600x1200	76 Hz	76 Hz	Not available

System Board Layout



System Board (Top View)

Figure A-1. System Board Components/Connectors

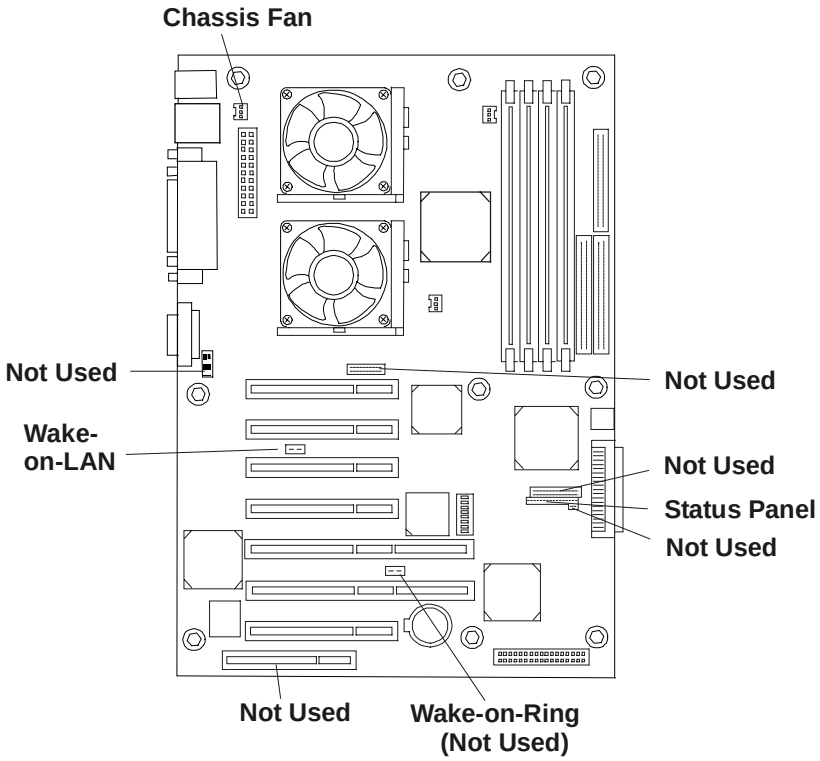


Figure A-2. System Board Connectors (Used/Unused)

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