

Netfinity 5000

Express Setup and Installation



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Note

Before using this *Netfinity Server Library* and the product it supports, be sure to read the information in the "Legal and Safety Information" section of this *Server Library*.

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Express Setup and Installation

This setup and installation section contains the information that will guide you through:

- Setting up and cabling your server.
- Starting and configuring your server.
- Installing your network operating system (NOS).

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Overview

After reviewing the “Legal and Safety Information” section of this *Server Library*, these are the steps you will perform when you follow the Express Setup and Installation procedure.

Hardware Installation

- 1** Install hot-swap hard disk drives (if required).
- 2** Install a second microprocessor (optional).
- 3** Cable your server.
- 4** Verify your server is operating properly.
- 5** Install additional options.

Software Installation

- 1** Configure your hardware, install the network operating system (NOS), and install device drivers.
- 2** Enhance server performance with additional programs.

Safety Statement



Before installing this product, read the Safety Information.

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 **Safety Information** (安全信息)。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

安裝本產品之前，請先閱讀「安全資訊」。



DANGER

To avoid a shock hazard, do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.

To avoid shock hazard:

- The power cord must be connected to a properly wired and earthed receptacle.
- Any equipment to which this product will be attached must also be connected to properly wired receptacles.

When possible, use one hand to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

Electrical current from power, telephone, and communications cables is hazardous. To avoid shock hazard, connect and disconnect cables as described following when installing, moving, or opening covers of this product or attached devices.

To Connect

1. Turn Everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to receptacles.
4. Attach power cord(s) to outlet.
5. Turn device ON.

Note: In the UK, by law, the telephone cable must be connected after the power cord.

To Disconnect

1. Turn Everything OFF.
2. First, remove power cord(s) from outlet.
3. Remove signal cables from receptacles.
4. Remove all cables from devices.

Note: In the UK, the power cord must be disconnected after the telephone cable.

5



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

CAUTION:

Use safe lifting practices when lifting your machine.

Hardware Installation

This hardware installation procedure provides the information or provides references to the information you need to set up and cable your server, start your server, and verify that your server hardware is functioning properly.

Before you begin:

- Review the “Legal and Safety Information” section of this *Server Library*.
- If you have not unpacked your server, unpack it and use the “Inventory List” in the “Start Here” section of this *Server Library* to make sure you received all items shipped with the server.
- If your Netfinity 5000 server is a rack model and its planned location in the rack is easily accessible, you might want to install your server in the rack before you begin installing options. For installation instructions, refer to the “Rack Installation” information in the “Hardware Information” section of this *Server Library*.

Note: Some options cannot be installed while the server is in the rack.

- To maintain proper system cooling, do not operate the Netfinity 5000 server for more than two minutes without either a drive or a filler panel installed in each bay.

1. Installing Hot-Swap Hard Disk Drives

If required, use the following procedure to install a hot-swap hard disk drive in your Netfinity 5000 server.

- 1 Touch the static-protective bag containing the drive to any unpainted metal surface on the server; then, remove the drive from the bag.

Note: The UltraSCSI controller and the backplane of the hot-swap bays provide termination for the internal SCSI bus (cable) in your server. There are no termination requirements for any SCSI devices you install in the hot-swap bays or attach to this cable (bus).

- 2 Remove the filler panel **1** from one of the hot-swap bays. See the following illustration.

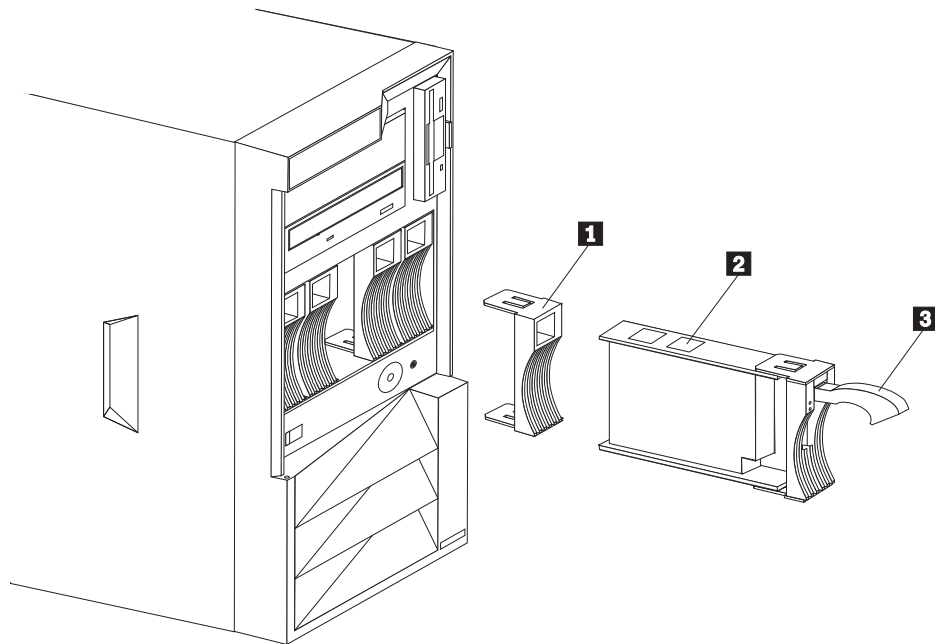
For the location of the drives, see the illustrations on the following page.

- 3 Insert the drive **2** into the bay.

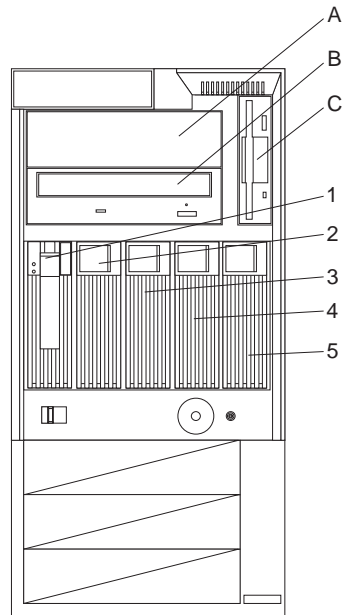
Ensure that the tray handle **3** on the drive is in the open position (perpendicular to the drive).

- 4 Slide the drive assembly into the bay until it connects to the backplane; then, move the handle to the locked (closed) position.

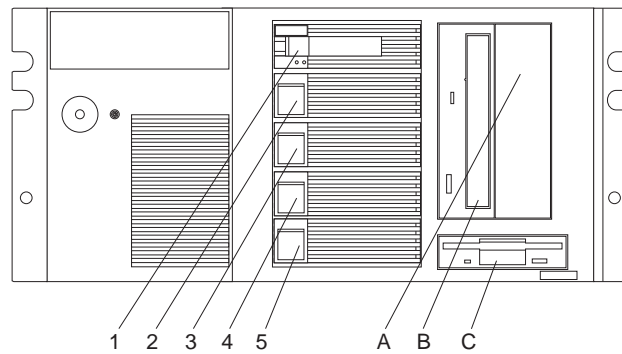
- 5 Continue with “2. Installing a Second Microprocessor” on page 8.



Tower Model



Tower Mode1



Rack Mode1

- A** Open bay
- B** CD-ROM drive bay
- C** Diskette drive bay
- 1** Hot-swap disk drive bay 1
- 2** Hot-swap disk drive bay 2
- 3** Hot-swap disk drive bay 3
- 4** Hot-swap disk drive bay 4
- 5** Hot-swap disk drive bay 5

2. Installing a Second Microprocessor

If you have an optional second microprocessor to install in your Netfinity 5000 server, do so now using the following procedure.

Before you begin:

- When you install a second microprocessor, it becomes the startup (boot) microprocessor.
- **Important:** If you install a second microprocessor after you install your network operating system (NOS), you *must* reinstall the NOS.
- To ensure reliable operation, make sure both microprocessors have identical internal clock frequencies, external clock frequencies, cache sizes, and voltage requirements.
- You must use the voltage-regulator module (VRM) that comes with the additional microprocessor.

The VRM for the primary microprocessor that comes with your server is built into the system board.

- For a list of supported operating systems, refer to <http://www.pc.ibm.com/support/> on the World Wide Web.

To install a microprocessor:

1 Remove the cover.

- On tower models, remove the side cover by pressing the side cover release lever. See item **17** under “Tower Model Controls and Lights” on page 15.
- On rack models, remove the top cover by removing the captive thumbscrew on the back of the cover.

2 Remove the terminator card from the microprocessor 2 connector.

For the location of the microprocessor 2 connector, see item **4** in the illustration on the following page.

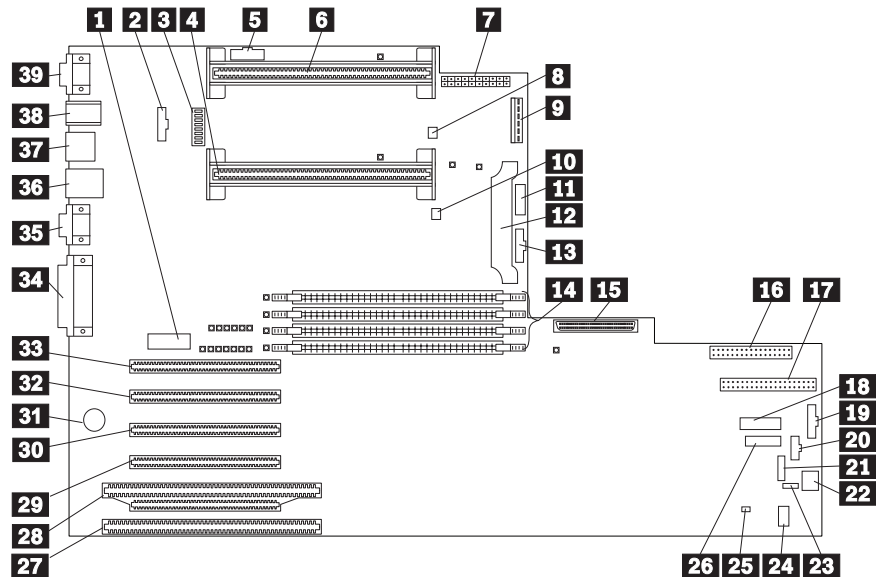
a Spread the posts of the secondary microprocessor connector bracket until the top of the terminator card is past the restraining latches.

b Lift the terminator card out of the connector.

3 Touch the static-protective package that contains the new microprocessor to any *unpainted* metal surface in the server; then, remove the microprocessor from the package.

The microprocessor in your server might be different from the microprocessor shown in the following illustrations.

System Board Connectors

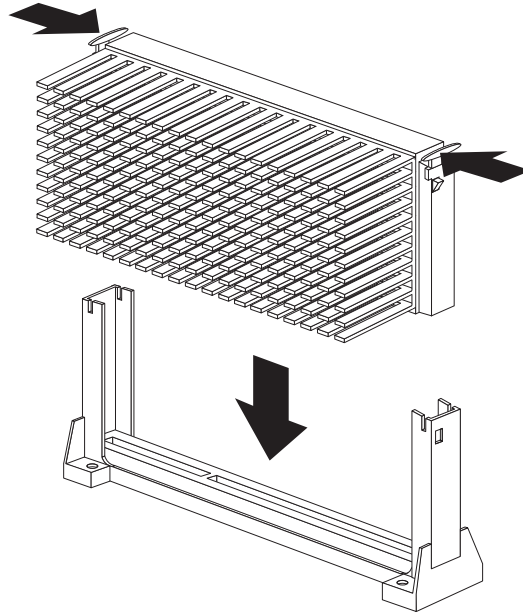


- | | | | |
|-----------|---|-----------|--|
| 1 | Systems management adapter connector (J21) | 23 | Reserved (J36) |
| 2 | Fan 2 connector (J6) | 24 | Reserved (J41) |
| 3 | System switch block (SW1) | 25 | Reserved (J39) |
| 4 | Microprocessor 2 connector (U21) | 26 | Reserved (J32) |
| 5 | Reserved (J1) | 27 | ISA connector (J40) |
| 6 | Microprocessor 1 connector (U2) | 28 | PCI/ISA connector, PCI bus 1 (J38) |
| 7 | Power connector (J3) | 29 | PCI connector, PCI bus 1 (J33) |
| 8 | Reserved (J8) | 30 | PCI connector, PCI bus 1 (J30) |
| 9 | Power connector (J4) | 31 | Battery |
| 10 | Reserved (J12) | 32 | PCI connector, PCI bus 1 (J28) |
| 11 | Power supply data connector (J10) | 33 | PCI connector, PCI bus 0 (J24) |
| 12 | Voltage regulator module (VRM) connector (U20) | 34 | Parallel/SCSI connectors (J19) |
| 13 | Fan 1 connector (J13) | 35 | Video port and Management C port connectors (J11). (The Management C port connector is above the video connector.) |
| 14 | DIMM 1 (J15), DIMM 2 (J16), DIMM 3 (J17), & DIMM 4 (J22) connectors | 36 | USB 1 and USB 2 port connectors (J9) (USB 2 is below USB 1.) |
| 15 | SCSI connector (J18) | 37 | Ethernet connector (J7) |
| 16 | Diskette drive connector (J23) | 38 | Mouse and keyboard connectors (J5). (The mouse connector is above the keyboard connector.) |
| 17 | IDE connector (J3) | 39 | Serial port A and B connectors (J2) (Serial port B is below serial port A.) |
| 18 | Operator LED panel (J29) | | |
| 19 | Reserved (J31) | | |
| 20 | Power-on switch panel (J34) | | |
| 21 | RS-485 connector (J35) | | |
| 22 | Reserved (J37) | | |

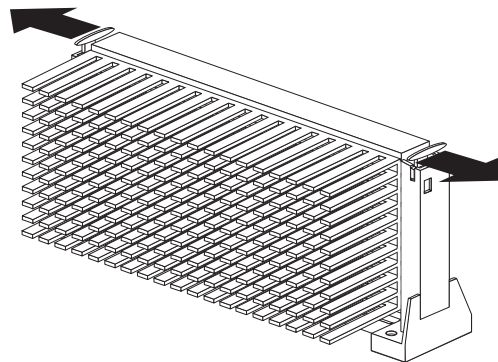
- 4 Press inward on the microprocessor retainer tabs until they click into place.

The retainer tabs are identified by the arrows at the top of the following illustration.

- 5 Align the microprocessor with the connector on the system board, insert the microprocessor into the guides, and continue pushing until the microprocessor is fully seated in the connector.



- 6 Pull outward on the retainer tabs to lock the microprocessor in place.



- 7 Install the voltage-regulator module (VRM).

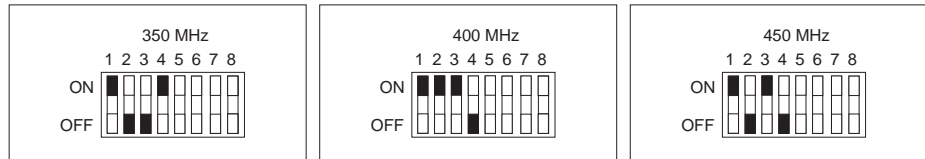
For the location of the VRM connector, see item **12** under “System Board Connectors” on page 9.

Attention:

If you select a setting for the frequency switch that is greater than the actual frequency of the microprocessor, you might damage the microprocessor.

For additional information about the switch settings, refer to the “Hardware Information” section of this *Server Library* or the label inside the server cover.

- 8** If you replaced the microprocessor with one that has a different speed, you must change the switch settings on the system board. For switch settings, see the following illustration.



For the location of the switches on the system board, see item **3** under “System Board Connectors” on page 9.

- 9** Review the documentation that comes with the microprocessor, to determine if you need to update the server BIOS.

The “ServerGuide and Netfinity Manager Information” section of this *Server Library* includes information about IBM Update Connector, which keeps your BIOS and device drivers current.

You can also obtain the latest level of BIOS for your server through the World Wide Web and the IBM Personal Computer Company Bulletin Board System (BBS). Refer to the “Getting Help Information” section of this *Server Library* for the appropriate World Wide Web addresses and bulletin board telephone numbers.

- 10** If you need to update the server BIOS, go to <http://www.pc.ibm.com/support/> on the World Wide Web and download the appropriate flash update program.
- a** Review the applicable README files, and use this information to create a *Flash Utility Diskette*.
 - b** Perform the POST/BIOS (flash) update procedure.
- 11** Because you installed a new microprocessor in your server, you might need to make changes to your operating system.
- If your operating system does not support SMP, install one of the SMP operating systems that your server supports. Refer to <http://www.pc.ibm.com/netfinity/> on the World Wide Web.
 - If your operating system does support SMP, refer to your operating-system documentation. You might need to make changes so that the operating system recognizes the new microprocessor.

- 12** Reinstall the cover.

- 13** Continue with “3. Cabling Your Server” on page 12.

3. Cabling Your Server

Use the following procedure to attach the cables to your Netfinity 5000 server.

- 1 Select a location that will allow for air circulation. Be sure to maintain minimum clearances around the server:

Front 102 mm (4 in.)

Rear 127 mm (5 in.)

Left and Right Sides 51 mm (2 in.)

- 2 Connect the device cables to the server. For the location of cable connectors, see the illustrations on the following page.

Important

- If you are attaching a modem or fax machine to the server and you are in the United Kingdom, plug in the power cords first; then, connect the telephone line to the wall outlet and the server.
- To connect the server 10BASE-T or 100BASE-TX port to a hub, use a UTP cable with RJ-45 connectors at both ends. An EIA/TIA-568 category 5 cable must be used for 100BASE-TX connectors to meet various standards, including electromagnetic compatibility.

- 3 Connect the power cord to the server.
- 4 Secure the power-cord cable, keyboard cable, and mouse cable in the strain-relief clamps.
 - Power cord in strain-relief clamp **2**.
 - Keyboard in strain-relief clamp **3**.
 - Mouse in strain-relief clamp **4**.

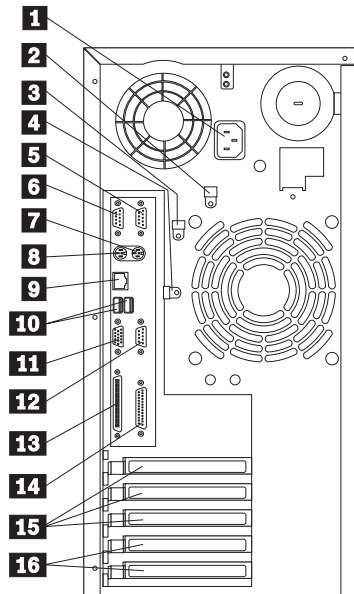
- 5 Connect all power cords to electrical outlets.

Important

After you plug the server power cord into an outlet and before you press the power switch, the power-on light will blink to indicate that power is present.

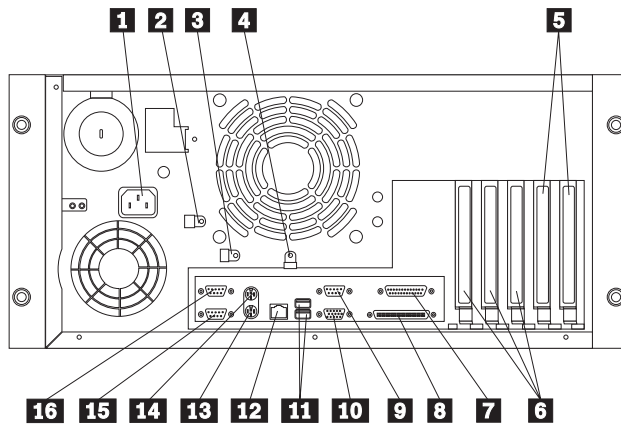
- 6 Continue with "4. Verifying Your Server Is Operating Properly" on page 14.

Tower Model Cable Connectors and Clamps



- 1** Power cord connector
- 2** Power cord strain-relief clamp
- 3** Keyboard cable strain-relief clamp
- 4** Mouse cable strain-relief clamp
- 5** Serial port A connector
- 6** Serial port B connector
- 7** Mouse connector
- 8** Keyboard connector
- 9** Ethernet connector
- 10** Universal serial bus (USB) connectors
- 11** Monitor connector
- 12** Management C connector
- 13** SCSI connector
- 14** Parallel port connector
- 15** PCI expansion slots
- 16** PCI/ISA expansion slots

Rack Model Cable Connectors and Clamps



- 1** Power cord connector
- 2** Power cord strain-relief clamp
- 3** Keyboard cable strain-relief clamp
- 4** Mouse cable strain-relief clamp
- 5** PCI/ISA expansion slots
- 6** PCI expansion slots
- 7** Parallel port connector
- 8** SCSI connector
- 9** Management C connector
- 10** Monitor connector
- 11** Universal serial bus (USB) connectors
- 12** Ethernet connector
- 13** Keyboard connector
- 14** Mouse connector
- 15** Serial port B connector
- 16** Serial port A connector

4. Verifying Your Server Is Operating Properly

Use the following procedure to verify that your Netfinity 5000 server is operating properly.

- 1 Turn on all external devices, such as your monitor, printer, and modem; then, turn on your server. For the location of controls and lights, see the illustrations on the following page.

Important

After you plug the power cord into an outlet, wait 20 seconds before pressing the power switch. During this time the system-management processor is initializing and the power-on switch does not respond.

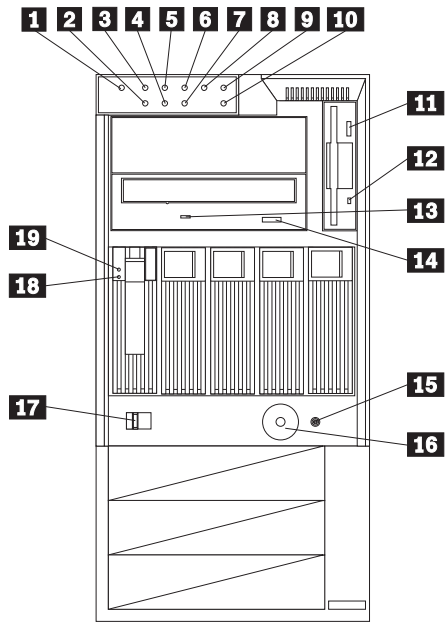
- 2 Press the power switch on the front of the server. The power-on light comes on and the power-on self-test (POST) begins.
- 3 Observe your monitor. When the system successfully completes its POST, the server beeps once, the POST complete light comes on, and a prompt appears on your monitor requesting that you insert startable (bootable) media.

Important

- The following POST message might appear because the operating system has not been installed.
1962 Drive does not contain a valid boot record
- If you have added or removed options, POST message 164 appears if configuration information has changed. Start the Configuration/Setup Utility program and select **Save Settings**.
- If any other error message appears, you hear more than one beep, or your monitor screen is blank, refer to the "Problem Solving" information in the "Hardware Information" section of this *Server Library* for instructions; then, return here and continue with "5. Installing Additional Options" on page 16.

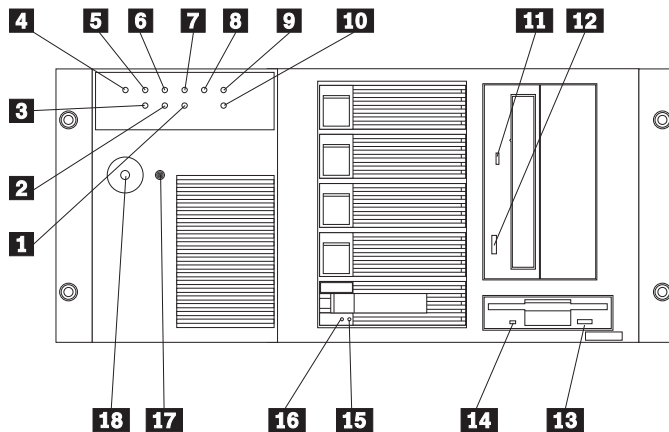
- 4 Continue with "5. Installing Additional Options" on page 16.

Tower Model Controls and Lights



- 1** Power-on light
- 2** Ethernet speed light
- 3** Power-on self-test (POST) complete light
- 4** Ethernet link status light
- 5** SCSI hard disk drive in-use light
- 6** Primary microprocessor activity light
- 7** Ethernet transmit/receive activity light
- 8** Secondary microprocessor activity light
- 9** System error light
- 10** Reserved
- 11** Diskette-eject button
- 12** Diskette drive in-use light
- 13** CD-ROM drive in-use light
- 14** CD-ROM eject button
- 15** Reset button
- 16** Power-on switch
- 17** Side-cover release lever
- 18** Hard disk drive status light
- 19** Hard disk drive activity light

Rack Model Controls and Lights



- 1** Ethernet transmit/receive activity light
- 2** Ethernet link status light
- 3** Ethernet speed light
- 4** Power-on light
- 5** Power-on self-test (POST) complete light
- 6** SCSI hard disk drive in-use light
- 7** Primary microprocessor activity light
- 8** Secondary microprocessor activity light
- 9** System error light
- 10** Reserved
- 11** CD-ROM drive in-use light
- 12** CD-ROM eject button
- 13** Diskette-eject button
- 14** Diskette drive in-use light
- 15** Hard disk drive status light
- 16** Hard disk drive activity light
- 17** Reset button
- 18** Power-on switch

5. Installing Additional Options

If you have additional options to install, do so now. For installation instructions, refer to the information in this *Server Library* and the information provided with the option.

- 1 Before installing additional options, turn off your server and unplug the server power cord from the outlet.

Important

- Adding or removing some options can change configuration information in the server. When you start (boot) the server after adding or removing options, POST message 164 appears if configuration information has changed. Start the Configuration/Setup Utility program and select **Save Settings**.
- If you plan to install multiple network adapters, install only one at this time. After you have installed the network operating system (NOS) and it is starting without errors, install the additional network adapters one at a time.

You can install all other adapters at once, but installing the adapters one at a time makes locating a defective adapter much easier.

- If you plan to install a RAID adapter in your Netfinity 5000 server, you must determine how you want to set up your disk arrays before you configure your server. The RAID levels (0, 1, or 5) of the disk arrays you configure determine the number of hard disk drives you need to install. RAID level-0 requires one drive (minimum), RAID level-1 requires two drives (minimum), and RAID level-5 requires three drives (minimum). For more information, refer to the information that comes with your RAID adapter.

- 2 Use the tables provided in the “Hardware Information” section of this *Server Library* to:

- Update the “Hardware Information” device-records tables with the new option information.
- If you installed a second microprocessor, update the microprocessor information.
- Record the server serial number and key serial number.

- 3 After you have installed all your options, return here and continue with “Software Installation” on page 17.

Software Installation

This software installation procedure provides the information you need to configure hardware, install device drivers, and install the network operating system (NOS).

1. Configuring Hardware and Installing the Network Operating System

For detailed information about ServerGuide hardware configuration, network operating system (NOS) installation, device driver installation, or partition sizes, refer to the “ServerGuide and Netfinity Manager Information” section of this *Server Library*.

Before you begin:

If the ServerGuide CD does not start, restart the server and press **F1** when F1 appears on the screen. Select **Configuration/Setup Utility** and check for the following:

- Invalid drive startup sequence (startable CDs require a CD-ROM in the startup sequence)
- Duplicate SCSI ID settings
- Duplicate IRQ assignments

To get started, do the following:

- 1** To configure hardware, insert the *HardwareGuide* CD (CD1); then, restart the server.

Important

Information about the ServeRAID configuration program is included with the ServeRAID option or in this *Netfinity Server Library*.

- 2** To install your NOS, insert the *SoftwareGuide* CD (CD2); then, restart the server. Refer to the *SoftwareGuide* CD label for NOS versions supported. Your copy of the NOS CD is required.

Important

If you decide not to use ServerGuide to install the NOS, continue with “Installing Your NOS without ServerGuide” on page 18.

- 3** Click on **README** to review hints and tips for your NOS installation.
- 4** From the Main Menu, click on **Operating System Installation**. Follow the online instructions to complete the installation.

After the NOS is installed, be sure to see “2. Enhancing Server Performance with Additional Programs” on page 18.

Installing Your NOS without ServerGuide

If you have already configured the server hardware, and you decide not to use ServerGuide to install your NOS, you must have system-specific NOS installation instructions and device drivers.

You can download the latest level of NOS installation instructions and device drivers from the World Wide Web at: <http://www.pc.ibm.com/support>

- 1** Click on **IBM Servers Support**.
- 2** From the **select family** field, click on **Netfinity 5000**.
- 3** From the list in the Netfinity 5000 window, click on the model.
 - To download device drivers, click on **Downloadable Files**.
 - To download NOS installation instructions, click on **Software information**.

2. Enhancing Server Performance with Additional Programs

As a convenience, ServerGuide includes current NOS updates provided by NOS software developers. There is no need to download updates from a Web site. To install updates, refer to the README file on the root directory of the ServerGuide *Operating System FixPak* CD.

Application Programs

The ServerGuide CDs include a variety of powerful application programs for which no activation keys are required. Some of these programs are:

- IBM Update Connector
 - Connects you to the IBM HelpCenter server to check for updates to your server BIOS, microcode (firmware), device drivers, and application programs.
- IBM Netfinity Manager
 - State-of-the-art systems management software
- IBM ServeRAID Programs
 - Administration and monitoring capability.

For more information about the application programs included with ServerGuide, refer to the "ServerGuide and Netfinity Manager Information" section of this *Server Library*.



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