Sun Enterprise 3500 System
Installation Guide

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Sun Enterprise 3500 System Installation Guide

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Contents

Preface

The *Sun Enterprise 3500 System Installation Guide* provides installation instructions for the factory-configured 5-slot system. These instructions are for an experienced system administrator with networking knowledge.

UNIX Commands

This document may not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

■ *Solaris 2.x Handbook for SMCC Peripherals*, which contains Solaris™ 2.x software commands

■ AnswerBook™ online documentation for the Solaris 2.x software environment

■ Other software documentation that you received with your system

Typographic Conventions

TABLE P–1   Typographic Conventions

Typeface or Symbol	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output.	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output.	`%` **`su`** `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Command-line variable; replace with a real name or value.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be `root` to do this. To delete a file, type `rm` *filename*.

Shell Prompts

TABLE P–2   Shell Prompts

Shell	Prompt
C shell	*machine_name*`%`
C shell superuser	*machine_name*`#`
Bourne shell and Korn shell	`$`
Bourne shell and Korn shell superuser	`#`

Related Documentation

TABLE P–3 Related Documents

Application	Title	Part Number
Service	*Sun Enterprise 3500 System Reference Manual*	805-2630
Software	*SMCC SPARC Hardware Platform Guide*	802-5341
	Solstice SyMON User's Guide	802-5355
	Dynamic Reconfiguration User's Guide for Sun Enterprise Systems	805-3530
Options	*Sun Enterprise Expansion Cabinet Installation and Service Manual*	805-4009
	Sun Enterprise 6/5/4/3x00 Board Installation Guide	805-4007
	4 Mbyte UltraSPARC II Installation Guide	805-1150
	Sun Enterprise 6/5/4/3x00 Systems SIMM Installation Guide	802-5032
	SBus+ and Graphics+ I/O Boards (100 MB/sec Fibre Channels) for Sun Enterprise 6/5/4/3x00 Systems	805-2704
	PCI+ I/O Board Installation and Component Replacement for Sun Enterprise 6/5/4/3x00 Systems	805-1372
	Sun Enterprise Peripheral Power Supply/AC Installation Guide	802-5033
	Sun Enterprise 3500 Auxiliary Peripheral Power Supply Installation Guide	805-4012
	Sun Enterprise 3500 Fiber Cable Organizer Installation Guide	805-4010
	Sun Enterprise 3500 Interface Board Installation Guide	805-4011
	Sun Enterprise Peripheral Power Supply Installation Guide	802-5033
	Sun Enterprise Power/Cooling Module (PCM) Installation Guide	802-6244

Ordering Sun Documents

SunDocsSM is a distribution program for Sun Microsystems technical documentation. Contact SunExpress for easy ordering and quick delivery. You can find a listing of available Sun documentation on the World Wide Web.

TABLE P–4 SunExpress Contact Information

Country	Telephone	Fax
Belgium	02-720-09-09	02-725-88-50
Canada	1-800-873-7869	1-800-944-0661
France	0800-90-61-57	0800-90-61-58
Germany	01-30-81-61-91	01-30-81-61-92
Holland	06-022-34-45	06-022-34-46
Japan	0120-33-9096	0120-33-9097
Luxembourg	32-2-720-09-09	32-2-725-88-50
Sweden	020-79-57-26	020-79-57-27
Switzerland	0800-55-19-26	0800-55-19-27
United Kingdom	0800-89-88-88	0800-89-88-87
United States	1-800-873-7869	1-800-944-0661

World Wide Web: `http://www.sun.com/sunexpress/`

Sun Documentation on the Web

The `docs.sun.com` web site enables you to access Sun technical documentation on the World Wide Web. You can browse the `docs.sun.com` archive or search for a specific book title or subject at `http://docs.sun.com`.

Sun Welcomes Your Comments

We are interested in improving our documentation and welcome your comments and suggestions. You can email your comments to us at `smcc-docs@sun.com`. Please include the part number of your document in the subject line of your email.

Notes, Cautions, and Warnings

Caution - This equipment contains lethal voltage. Accidental contact with centerplane, card cage, and drive areas can result in serious injury or death.

Caution - Improper handling by unqualified personnel can cause serious damage to this equipment. Unqualified personnel who tamper with this equipment may be held liable for any resultant damage to the equipment.

Individuals who remove any outer panels or open covers to access this equipment must observe all safety precautions and ensure compliance with skill level requirements, certification, and all applicable local and national laws.

Procedures contained in this document must be performed by qualified service-trained maintenance providers.

Note - Before you begin, carefully read each of the procedures in this manual. If you have not performed similar operations on comparable equipment, *do not attempt* to perform these procedures.

Preparing for Installation

This chapter describes how to prepare your site for the Sun Enterprise 3500 server system.

The tasks for installing the system are:

Unpacking the server

Preparing the site

Preparing the server

Cabling

Powering on

Using the software

Note - For information about physical specifications, electrical specifications, and environmental requirements, refer to Appendix A "Specifications," in the *Sun Enterprise 3500 System Reference Manual* (part number 805-2630).

1
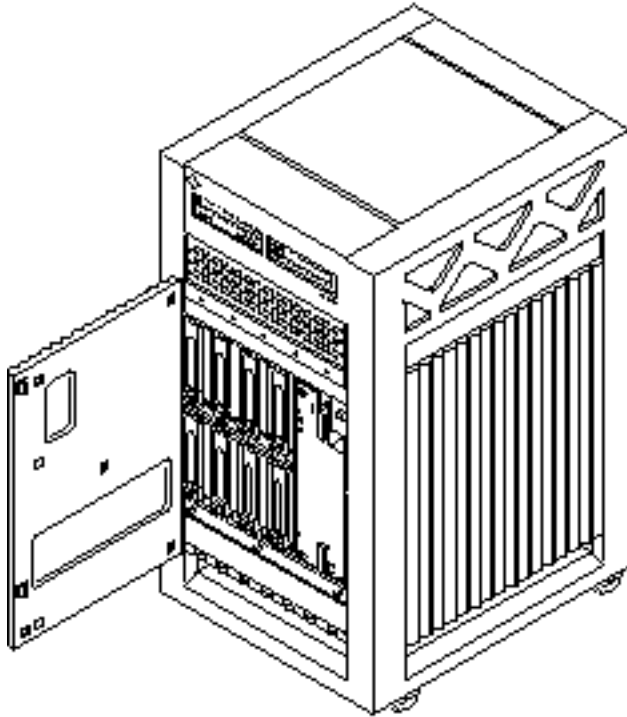
Figure 1–1   Enterprise 3500 System

Unpacking and Preparing the System

Note - Inspect all shipping cartons for evidence of physical damage. If a shipping carton is damaged, request that the carrier's agent be present when the carton is opened. Keep all contents and packing material for the agent's inspection.

If the system is already unpacked, go to "Preparing the Electrical Circuits" on page 3.

Caution - The system can weigh up to 185 lbs (84 kg). To prevent personal injury, two people are needed to lift the system safely. The rear support bracket is designed to support the system weight only when the system is stationary, on a flat surface. Do not attempt to lift the system by grasping the support bracket.

Tools

- #2 Phillips screwdriver
- System key for front door and key switch (packed in a bag in the accessory box)

Follow the graphical instructions on the shipping container to remove the system from the container. Remove the system key (for front door and key switch), and power cord from the shipping container. These are needed to power on the system.

Note - Any unpacking instructions printed on the outside of the shipping carton take precedence over information in this section.

Shipping and Storing the System

Save the original shipping containers and packing materials in case you need to store or ship your system.

If you cannot store the shipping materials, recycle or dispose of the materials properly. Consult your local recycling authority for information.

Preparing the Electrical Circuits

In planning where to place your equipment, remember that each of the following items requires access (by way of a separate power cord) to a power outlet:

- Enterprise 3500 system

- External peripherals

- Monitor used for diagnostics

The Enterprise 3500 system uses nominal input voltages of 100-120 VAC or 200-220 VAC. Sun products are designed to work with single-phase power systems having a grounded neutral conductor.

To reduce the risk of electrical shock, do not plug Sun products into another type of power source. Contact your facilities manager or a qualified electrician if you are unsure what type of power is supplied to your building.

Preparing the Air Conditioning

For the most reliable system operation:

- The room should have sufficient air conditioning capacity to support the cooling needs of the entire system.

- The air conditioning system should have controls that prevent excessive temperature changes.

Refer to Appendix A "Specifications," in the *Sun Enterprise 3500 System Reference Manual* for environmental information.

Preparing the Ethernet Network

The Enterprise 3500 system follows the IEEE standard for 10⁄100BASE-T Ethernet (twisted-pair) or MII (Media Independent Interface).

Twisted-pair cables used with Sun Microsystems products have RJ-45 connectors that resemble the smaller RJ-11 connectors used for modular telephone cables. For twisted-pair cable length, see Table 2–1.

A MII to AUI converter cable, available from Sun, enables the 10⁄100 Mbps Ethernet interface to run over 10 Mbps coaxial Ethernet networks. Other MII Ethernet connectivity products are available from third parties.

Figure 1–2 and Figure 1–3 illustrate types of network cables and possible implementations of 10⁄100BASE-T Ethernet.

Set up the network using Sun or third-party components. To obtain the best results, read any applicable manufacturer instructions. Be aware that Sun Microsystems cannot guarantee the performance of any components that are not purchased from Sun.
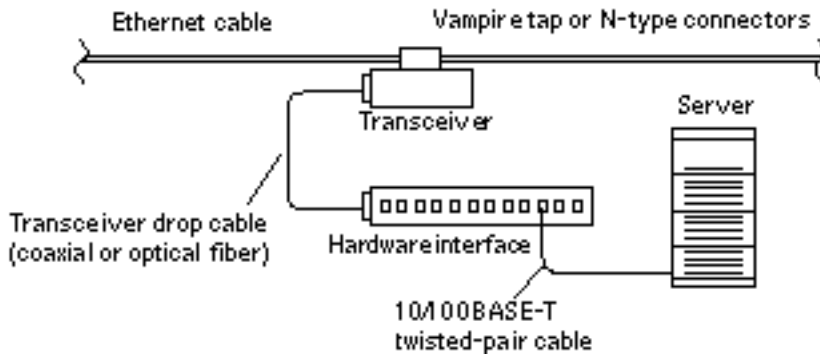
Figure 1–2   Types of Network Cables Used
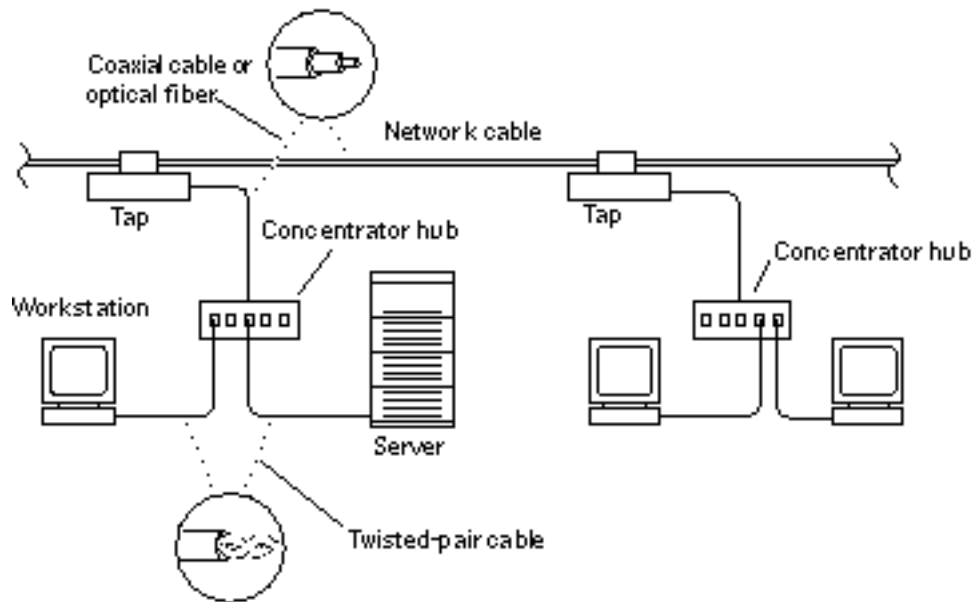
Figure 1–3 Example of 10/100BASE-T (Twisted-Pair) Ethernet

Note - Multiplexer boxes require a transceiver when used with the Ethernet applications described in this manual. Although these transceivers are compatible with Sun equipment, Sun Microsystems does not guarantee the performance of any component that was not purchased from Sun.

Many transceivers are compatible with both level-1 and level-2 Ethernet. To operate these transceivers with Sun equipment, set the device for level-2 operation following the manufacturer's instructions.

Sun equipment conforms to the Ethernet 10/100BASE-T standard, which states that the 10/100BASE-T Link Integrity Test function should always be enabled on both the host and the hub. If you have problems verifying connection between Sun equipment and your hub, verify that your hub also has the link test function enabled. Refer to "Failure of Network Communications" in the *Sun Enterprise 3500 System Reference Manual* (part number 805-2630), and refer to the manual provided with your hub.

Preparing the Area

Use the following guidelines to prepare a location for your server.

- The server unit requires approximately 1.5 feet (47 cm) of space in the front and rear for access by service personnel (Figure 1–4).

- A minimum space of 6 inches (16 cm) is required on both sides of the server to afford adequate air flow.

⚠️ **Caution -** To avoid exhaust air recirculation, do not put systems or peripherals next to each other, side by side.

- Keep power and interface cables clear of foot traffic. Route cables inside walls, under the floor, through the ceiling, or in protective channels. Route interface cables away from motors and other sources of magnetic or radio frequency interference.
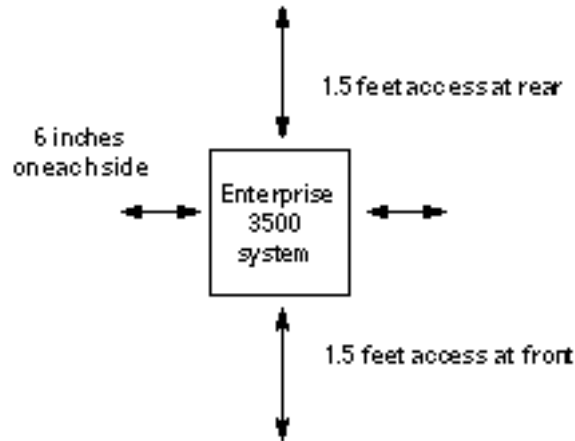
Figure 1–4   Enterprise 3500 Server Access Areas — Top View

Using the User Naming Area

To display the name of the server, IP address, owner, or other important information on the front of the machine:

1. **Remove the front bezel.**

    Refer to "Preparing for Service" in the *Sun Enterprise 3500 System Reference Manual* (see "Front Bezel").

2. **Snap out the narrow transparent window.**

    From the rear side of the bezel, gently squeeze the top and bottom edges together as you simultaneously push the transparent window out through the front of the bezel.

3. **Choose the information that will appear on the label.**

    Common items include the name of the server, IP address, name and contact information for the system administrator, and the group of users that the machine services.

4. **Use the colored paper provided with the system to make a label.**

    The available area for the paper label is 12 mm x 150 mm (0.5 in x 5.9 in). Print or write the desired information in an area this size and cut the label to fit the transparent window.

5. **Place the paper label inside the window, and snap the window back in place from the front side of the bezel.**

Cabling the System

This chapter contains instructions for installing the fiber cable organizer, cabling the system, and connecting the power cord to the AC power supply.

Preparing the System for Cabling

Make sure the server is in an area that allows access to both the front and rear of the chassis. This site should conform to site preparation guidelines and specifications covered in Chapter 1.

Installing the Fiber Cable Organizer

Use the fiber cable organizer to route the fiber optic cable to connect the interface board and the I/O+ board. A 2-meter cable is required when utilizing the internal FC-AL disk drives. The cable organizer can help prevent damage to the fiber optic cable by helping ensure the 1.0 inch minimum bend radius rule is observed.

The fiber cable organizer kit includes two organizer sections and one screw. To install the cable organizer:

1. **Remove the screw securing the power cord retainer clip to the support bracket at the rear of the system.**

2. **Orient one of the fiber cable organizer sections with the spool facing toward you. Set the hooks on the back of the organizer into the corresponding cutouts on the right side of the support bracket.**

   The top of the brace should be flush with the top of the support bracket. The organizer will extend below the bracket. See Figure 2–1.

3. **Secure the organizer by pushing it outward along the support bracket until the snap at the rear of the organizer clicks audibly into place.**

4. **Install the left spool brace by repeating step 2 and step 3.**

5. **Using the screw included in the kit, fasten the spool braces to the support bracket through the center front cut out formed when both braces are in place.**

6. **Remount the retainer clip through the hex nut at the notch on the side of the organizer.**

   Set the retainer clip screw into the hex nut.

7. **To wrap the 2-meter fiber cable around the organizer spools to interconnect the interface board and the I/O+ board for FC-AL disks, see "Wrapping the Fiber Cable on the Organizer" on page 22.**
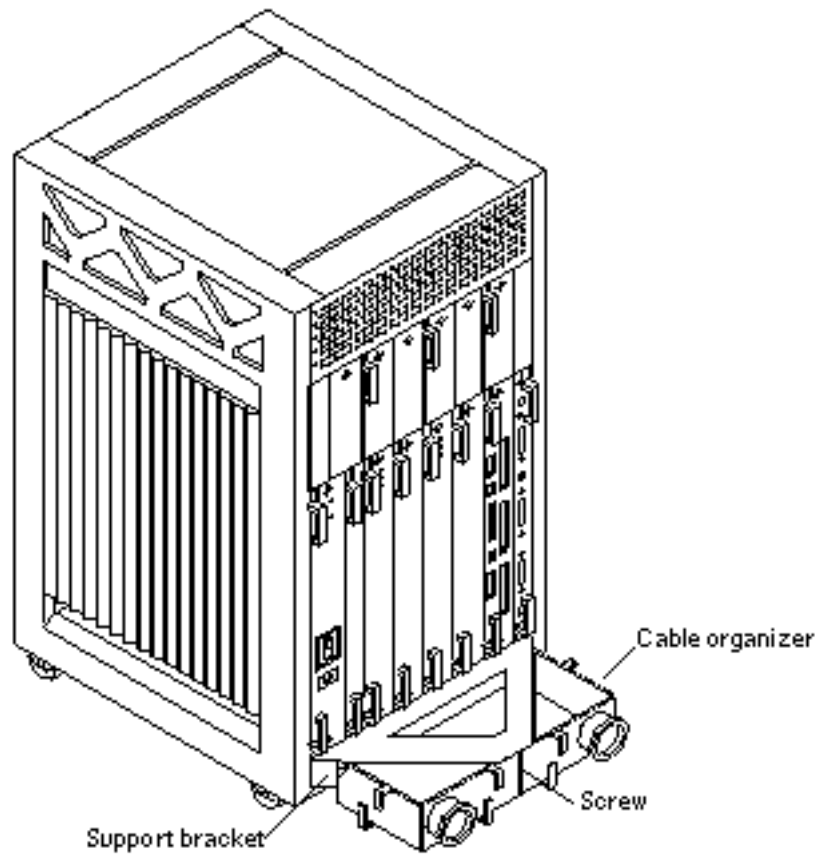
Figure 2–1   Fiber Cable Organizer Mounted on Support Bracket

Connecting the Power Cord

1. **Use the key provided with your system to unlock and open the Enterprise 3500 system front door.**

2. **Locate the system key switch in the upper right corner, insert the key provided, and turn the key switch to the Standby position. See Figure 2–2.**

Front view
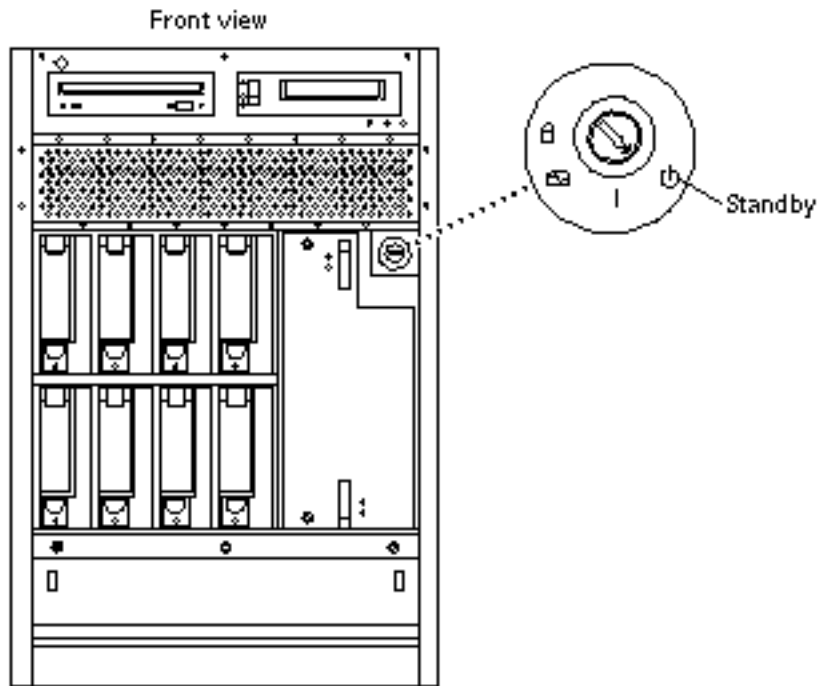
Figure 2–2   Key Switch Standby Position

3. **Turn the AC power switch to Off.**

    This switch is at the rear of the system, on the peripheral power supply/AC
    (PPS/AC) that is installed in the far left corner (Figure 2–3).

4. **Connect the female end of the power cord into the AC connector.**

    This connector is at the rear of the system, on the PPS/AC, just below the AC
    power switch (Figure 2–3).

5. **Route the power cord through the power cord retainer clip.**

    In Step 6 on page 10 of "Installing the Fiber Cable Organizer " on page 9, you
    reattached the plastic clip to the cable organizer that you mounted on the rear
    support bracket (Figure 2–3).

    a. **Use a Phillips screwdriver to open the plastic retainer clip.**

        Remove the screw.

    b. **Place the power cord inside the open retainer clip and replace the screw to
        close the clip.**

6. **Connect the male end of the power cord into a grounded outlet.**

   The outlet must be a 100-120 or 220-240 VAC 15A circuit.
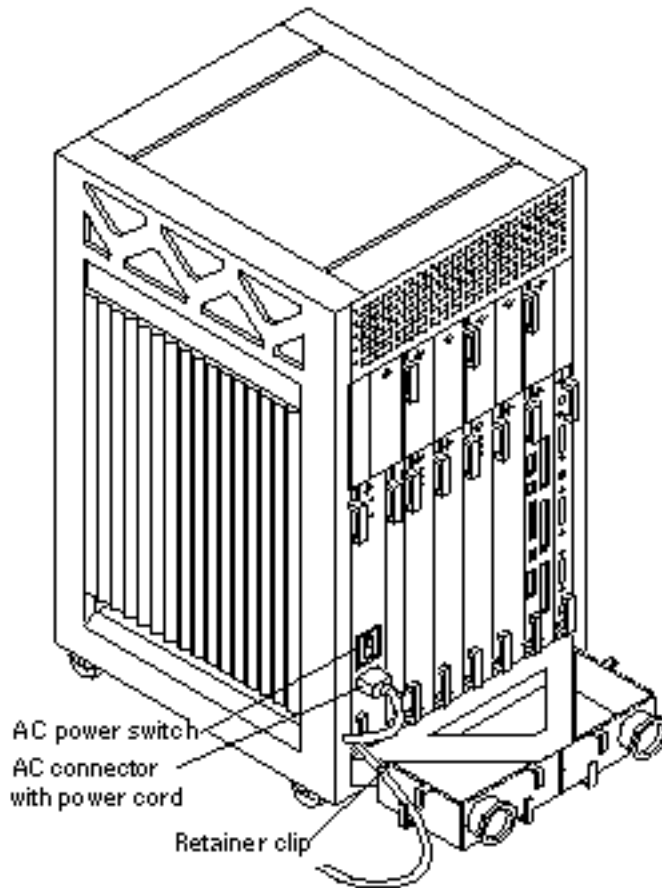
Figure 2–3   AC Power Switch, AC Connector, and Retainer Clip

Caution - Do NOT turn on power to the unit yet. Doing so can cause system damage to occur.

See the next sections to connect the network cable to the system, and to connect the system to the network.

Connecting the Network Cable to the System

The locations specified in the following instructions assume the use of twisted-pair 10BASE-T or 100BASE-T Ethernet.

1. **Locate the network cable.**

   Figure 2–4 shows the twisted-pair Ethernet network cable.
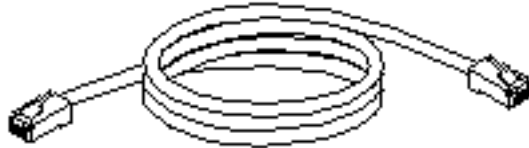
Figure 2–4 Network Cable

2. **Connect one end of the network cable into the RJ-45 twisted-pair network port.**

   For 10/100BASE-T Ethernet, the default interface port is the onboard connector on the I/O+ board in slot 1 (Figure 2–5).

Ethernet port
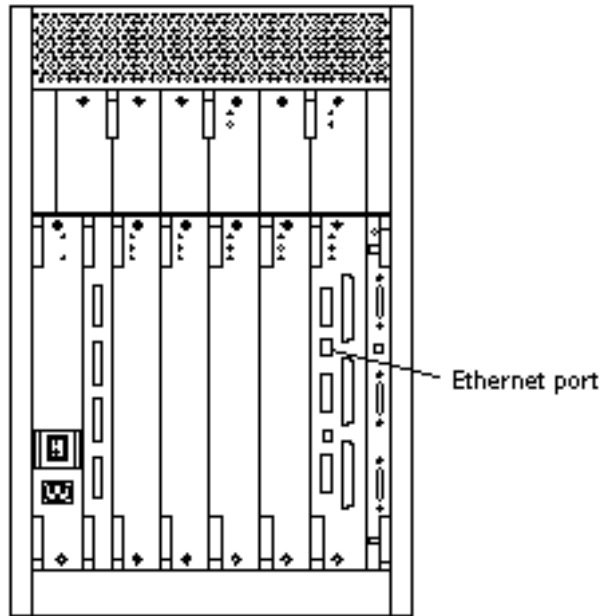
Figure 2–5   10/100BASE-T Ethernet Connection

Connecting the System to the Network

1. **Connect the network cable to a twisted-pair-to-transceiver interface box.**

2. **Connect the interface box with an appropriate cable to a network transceiver.**

    Figure 2–6 shows a typical arrangement for connecting the system to an Ethernet network.

3. **For Ethernet cables, determine if the cable has N-type screw-on connectors at the ends.**

- If the Ethernet cable lacks N-type connectors at the ends, use a "vampire" tap to connect the cable to the transceiver (Figure 2–6). To connect the cable to the transceiver, use instructions provided with the vampire tap.
- If the Ethernet cable has N-type connectors, connect the Ethernet cable to the transceiver:

a. **Screw the Ethernet coaxial cable into one of the round screw-on type connectors on the transceiver.**

   Use either one of the transceiver connectors.

b. **Screw the other Ethernet coaxial cable into the other round screw-on type connector on the transceiver.**

4. **Determine if a terminator should be installed. Table 2–1 lists the cabling limitations for Ethernet.**

5. **If termination is required, install a 50-ohm terminator in the unused transceiver N connector or at the end of the coaxial cable. Use a female double N-type connector.**

   Figure 2–6 shows the elements used in the installation process.
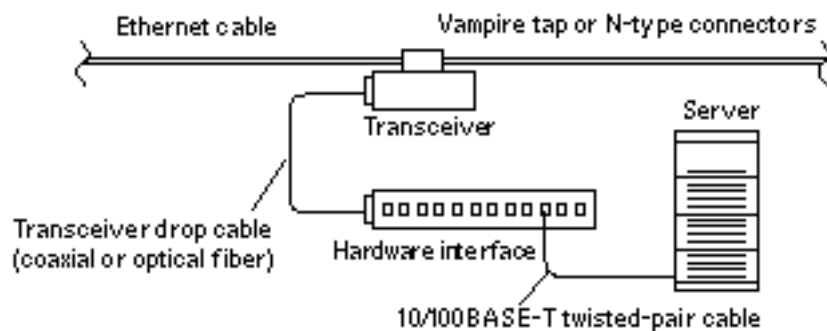
Figure 2–6   Connecting Twisted Pair Ethernet to N-type Coaxial Cable

Table 2–1 lists the cabling limitations for Ethernet.

TABLE 2–1   Ethernet Cabling Limitations for N-type Coaxial Cable

Cable Segment	Length in Meters
Allowed contiguous length of cable segments	23.4
	70.2
	117.0
	500.0 (1)
Distance between transceivers (multiples-of)	2.5 (2)
Minimum length of Ethernet coaxial cable segments	23.4
Maximum length of transceiver "drop" cable	50.0
Minimum length of twisted pair cable	no minimum
Maximum length of twisted pair cable	110

Note - (1) Finite lengths (as constrained by transmission line phenomena). Minimum length = 23.4M; maximum = 500M. If cable falls shorter than one of these values, add cable to achieve next-highest value.

(2) Transceivers are placed at intervals of 2.5 meters, or multiples of 2.5 meters along the Ethernet cable. Example: transceivers are connected 2.5 meters apart, not 2.0 meters. Example: transceivers are connected 15 meters apart (6 multiples of 2.5 meters), not 14.0 meters.

Figure 2–7 shows an example of a typical network setup. The Enterprise 3500 system can be any server shown in this figure.
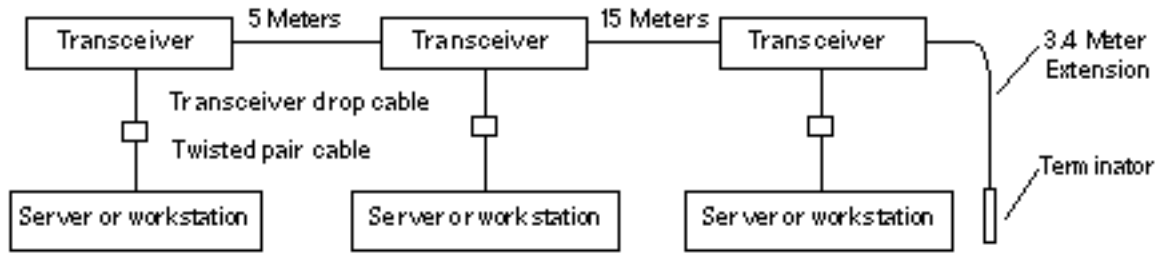
Figure 2–7   Ethernet Cabling Length — Example Using N-type Cable

> **Note -** Sun equipment conforms to the Ethernet 10/100BASE-T standard, which states that the 10/100BASE-T Link Integrity Test function should always be enabled on both the host and the hub. If you have problems verifying connection between Sun equipment and your hub, verify that your hub also has the link test function enabled. Refer to Section 8.6.1, "Failure of Network Communications," in the *Sun Enterprise 3500 System Reference Manual* (part number 805-2630), and refer to the manual provided with your hub for more information about the Link Integrity Test function.

6. **If all cables are connected, power on the system.**

Connecting an ASCII Terminal

An ASCII terminal (or workstation) can be attached to the server to display diagnostic messages produced by the firmware (power-on self-test/POST or OpenBoot™ PROM/OBP) program. A terminal is not required for normal server operations, so it may be necessary to locate a terminal to connect to the server.

1. **Connect the terminal cable into serial port A on the clock+ board. See Figure 2–8.**
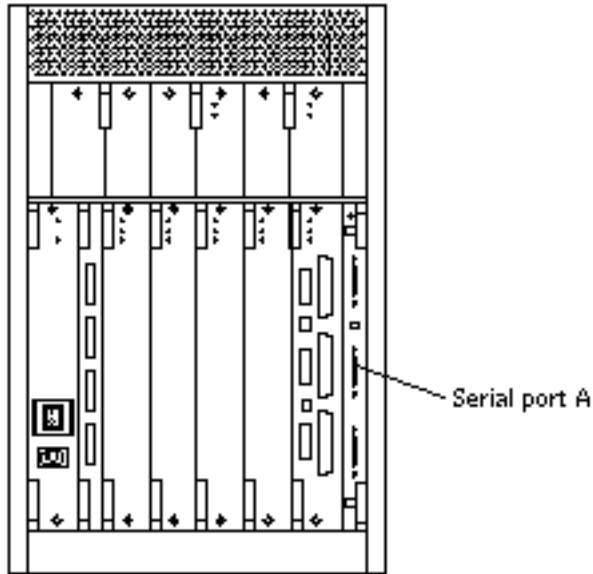
Figure 2–8   Clock+ Board

2. **Connect the terminal power cord into an AC wall outlet.**

3. **Configure the ASCII terminal as follows:**
    - 9600 bps
    - 1 stop bit
    - 8 data bits
    - Parity off
    - Full duplex

    Refer to the instruction manual shipped with the terminal for specific configuration instructions.

Note - The setup parameters listed in Step 3 on page 19 may differ from the setup at the customer site. These parameters can be changed in the NVRAM (nonvolatile random access memory). Refer to the set-defaults and printenv commands in the *OpenBoot Command Reference* manual, part number 802-3242.

Connecting the Fiber Cable to the I/O+ Board

1. **Remove the two plastic caps that cover the cable connector on the GBIC module.**

2. **Remove the plastic cap covering the ends of the fiber cable.**

3. **Connect one end of the fiber cable into the GBIC module installed on the I/O+ board.**

   Align the notch in the cable connector with the key notch in the module connector. See Figure 2–9.

4. **Connect the other end of the fiber cable into the GBIC connector on the SPARCstorage™ Array (or other storage device with fiber optic interface) rear panel.**

   Align the notch in the cable connector with the notch in the connector on the storage device rear panel.
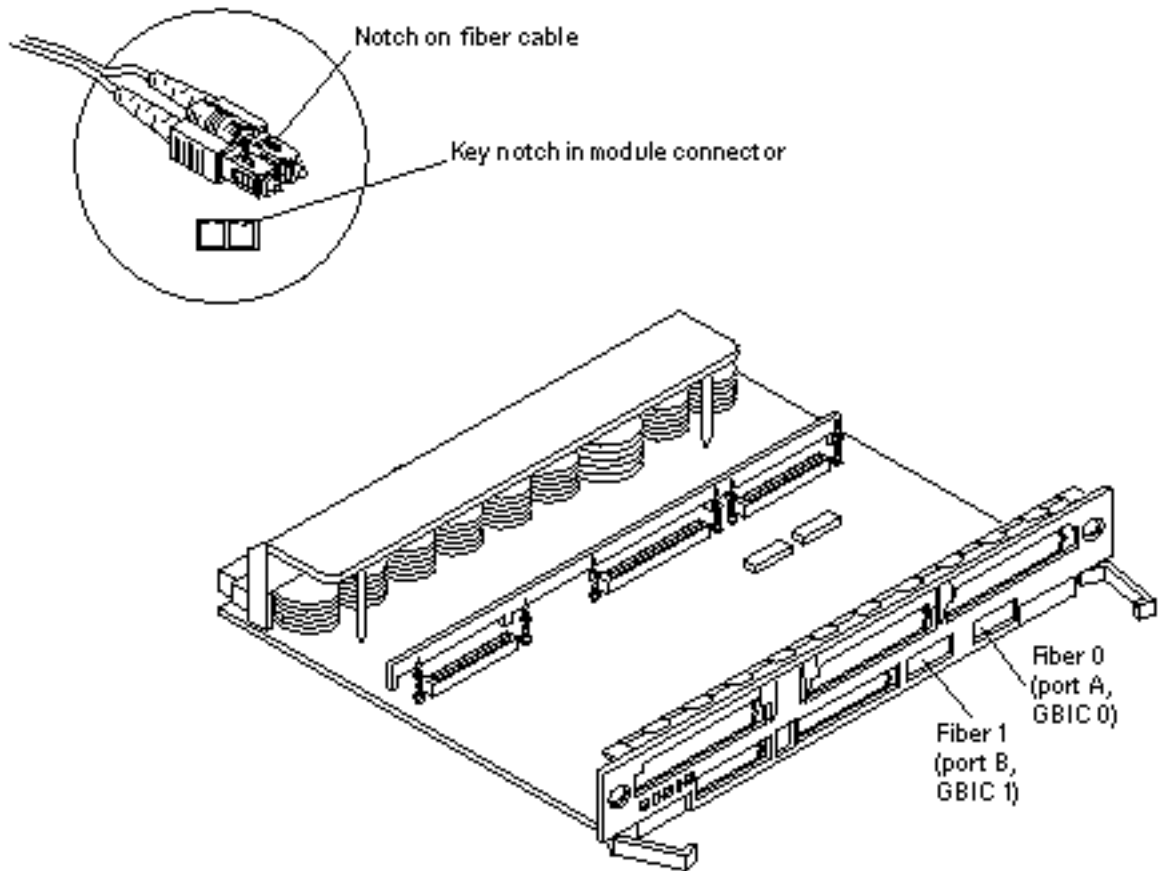
Figure 2–9   Fiber Cable and Fibre Card Connectors and Ports on the I/O+ Board

Connecting the Fiber Cable to the Interface Board and the I/O+ Board

Internal FC-AL disk drives require an interface board (IB) to communicate via the I/O+ board. Figure 2–10 identifies the GBIC ports on the interface board, and Table 2–2 identifies the GBIC associated with each disk drive.
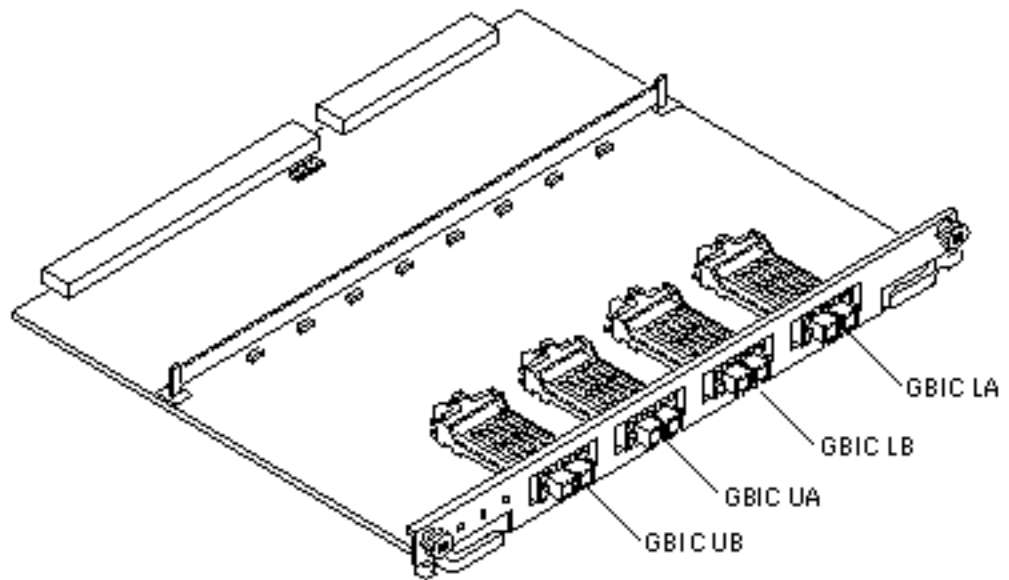
Figure 2–10   Interface Board

TABLE 2–2   GBIC Controllers for Disk Drive Ports

Disk Drives	Drive Port	GBIC Name and Location
0, 1, 2, 3	A	GBIC LA (Lower bank)
0, 1, 2, 3	B	GBIC LB (Lower bank)
4, 5, 6, 7	A	GBIC UA (Upper bank)
4, 5, 6, 7	B	GBIC UB (Upper bank)

Note - Reserve disk bay 0 for the boot disk.

Wrapping the Fiber Cable on the Organizer

To ensure that the fiber optic cable minimum bend radius rule (1.0 inch) is observed, use this procedure to wrap the cable around the spool organizer:

1. **Remove the two plastic caps that cover the cable connector on the GBIC module.**

2. **Remove the plastic cap covering the ends of the fiber cable.**

3. **Connect one end of the fiber cable into the GBIC module installed on the interface board rear panel.**

   Use the IB diagram and GBIC controllers table above to identify the GBIC for the disk drive. Align the notch in the cable connector with the key notch in the GBIC module connector. See Figure 2–11.
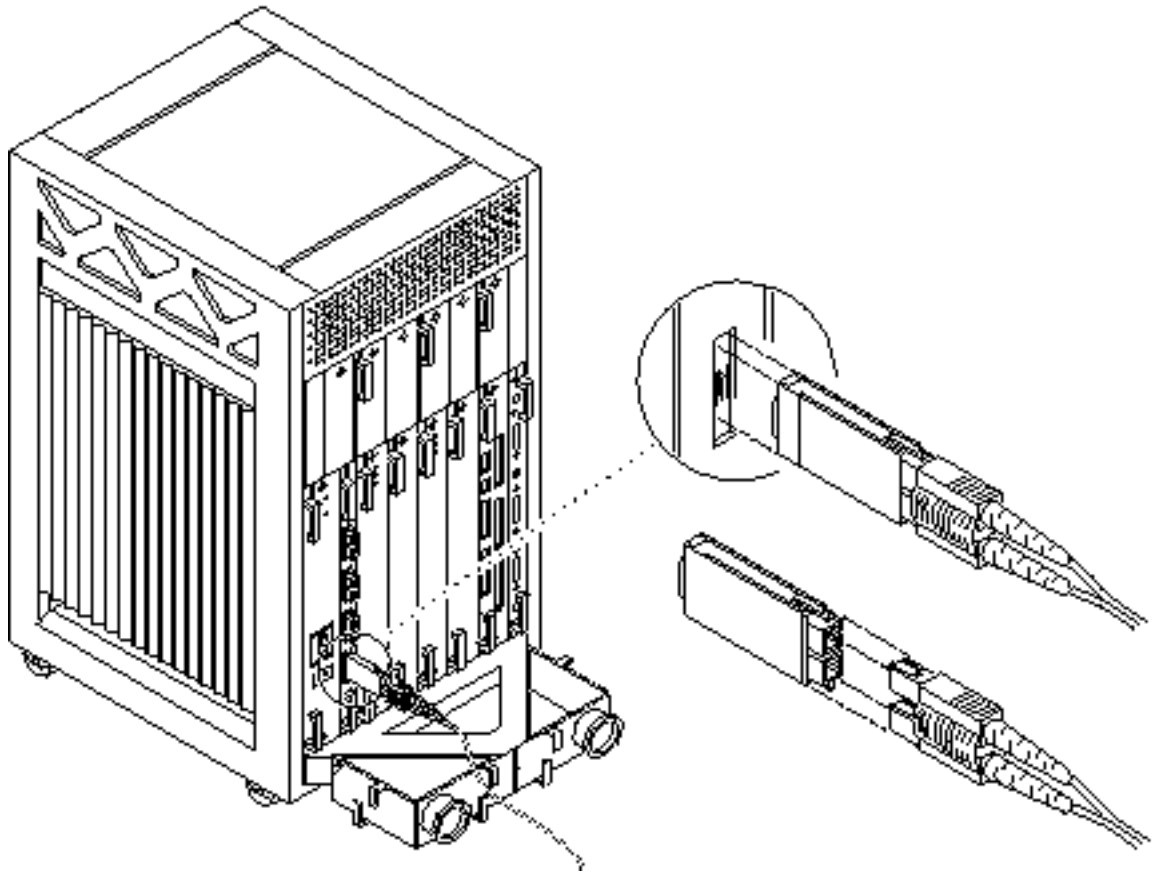
Figure 2–11   Fiber Cable Ports on the Interface Board

4. **Route the fiber cable down toward the bottom of the system, placing it through the left side restraints on the organizer.**

5. **Wrap the cable around the fiber cable organizer spools (mounted on the system rear support bracket) in a "figure 8" pattern as follows:**

Wrap the cable around the bottom of the left spool and then up and around the right spool, threading the cable through the center restraints on the organizer.

Thread the cable back through the center restraints, then down and around the left spool.
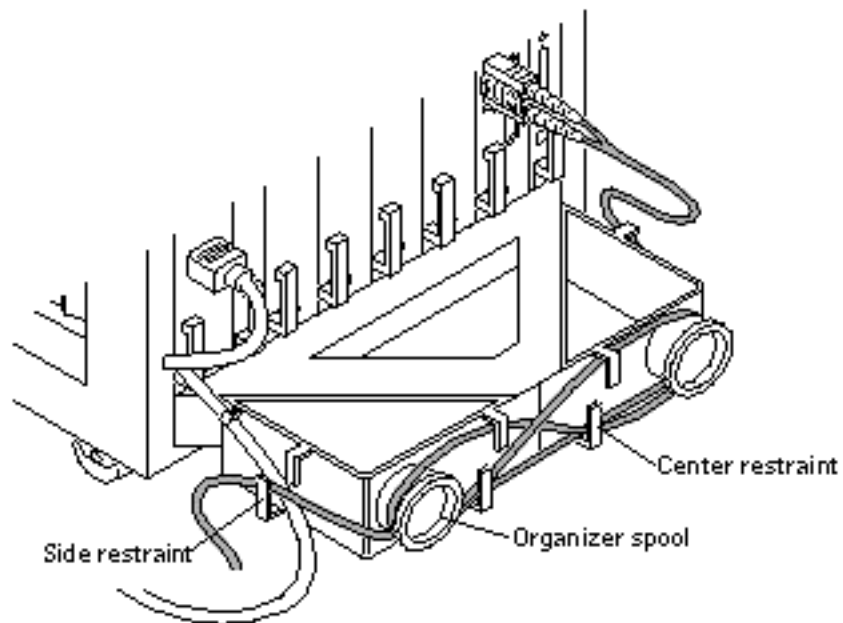
Figure 2–12   Fiber Cable in "Figure 8" Pattern

6. Repeat step 5 until the cable is the desired length, finishing on the right side. Thread the cable through the right side restraints and connect it to the I/O+ board.

Connecting External SCSI Devices

External SCSI-2 devices connect to your system through the built-in single-ended Fast/Wide SCSI-2 port on I/O+ boards (except for the board in slot 1), or through FSBE/S, DSBE/S, SWIS/S, or DWIS/S SBus cards installed on I/O+ boards.

Note - The onboard SCSI-2 bus on the I/O+ board in slot 1 controls internal media tray devices. Therefore, the external SCSI connector on the I/O+ board in slot 1 must always have a terminator installed.

Note - The maximum combined length for a string of SCSI cables is 6 meters for non-differential cables. For differential SCSI cables, the maximum is 25 meters. When calculating the total length of a SCSI string, include external cables, internal cables, and printed traces. Table 2–3 lists internal measurements for the Enterprise servers.

TABLE 2–3   Internal SCSI Lengths (Approximate)

Location	Internal Length
SBus+ I/O board	0.43 meter
Graphics+ I/O board	0.43 meter

For information on device addressing, priorities, and slot assignments, refer to "Rules for System Configuration" in the *Sun Enterprise 3500 System Reference Manual*, part number 805-2630.

Caution - Risk of equipment damage. Do not assign the same SCSI address to two devices sharing the same SCSI bus or SBus card.

To connect an external SCSI device to your system:

1. **Connect a SCSI cable to the appropriate SCSI-2 host on the I/O+ board.**

   - For the I/O+ board in slot 1, this is an SBus card installed in an appropriate SBus slot.
   - For I/O+ boards in slots 2 through 5, use the onboard SCSI-2 port or an SBus card installed in an appropriate SBus slot. Figure 2–13 shows the location of the onboard single-ended SCSI connector on the I/O+ board.

Fast/Wide onboard SCSI-2, 68-pin connector
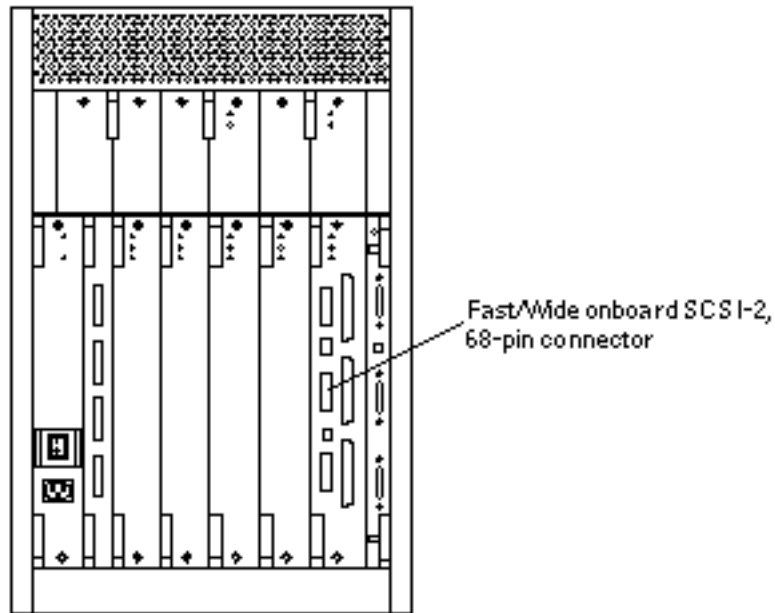
Figure 2–13   Onboard Single-ended SCSI Connector on the I/O+ Board

2. **Connect the other end of the SCSI cable to the external SCSI-2 device.**

3. **Power on the system and test the server.**

Powering the System On and Off

This chapter contains information about powering the system on and off, reading boot messages, and interpreting system status by viewing the LEDs.

Using JumpStart Automatic Installation

The Enterprise 3500 system can use the JumpStart™ automatic installation feature that is described in installation documents for Solaris software. The software that enables this feature is present on a hard disk in your system if the system was built at the factory with internal disk boards or disk trays.

JumpStart will run only when the system is powered on for the first time.

Caution - JumpStart may incorrectly install the system as a standalone workstation. You should prevent JumpStart automatic installation from proceeding if the appropriate server-specific configuration information is not in place. Information about the JumpStart feature is on a card titled "JumpStart Installation Instructions" that is provided with the system documentation.

To prevent JumpStart installation from occurring unintentionally:

- Do not connect the system to a network when you power it on initially.
- Do not place a Solaris release CD-ROM in a drive when you first power on the machine.

Note - If JumpStart automatic installation begins unintentionally, interrupt it by pressing L1-A (Stop-A) or Break (on TTYa). Perform a manual installation when you are ready.

If JumpStart completes the installation incorrectly, you may need to reinstall Solaris 2.x manually.

Powering On the System

Note - It is advisable to connect an ASCII terminal to the system during installation. See "Connecting an ASCII Terminal" on page 18 for terminal settings and connections. Observe the yellow (middle) LED on the front panel. It should go off when the boot process completes. If it remains lit, observe the terminal screen for boot messages produced by the firmware diagnostic program during power on.

To power on the Enterprise 3500 system:

1. **Begin with a safety inspection of the system.**

    a. **Use the key provided to unlock and open the system front door.**

    b. **Turn the system key switch to the Standby position. See Figure 3–1.**

    c. **Turn the AC power sequencer power switch to Off.**
       The AC power sequencer is at the rear of the enclosure. See Figure 3–2.

    d. **Verify that the AC power cord is plugged into a wall socket.**

Caution - Do not disconnect the power cord from the wall socket when working on the server. This connection provides a ground path that prevents damage from uncontrolled electrostatic discharge.

2. **Turn on power to any expansion cabinets.**
    Read the documentation supplied with each type of expansion cabinet for specific instructions.

3. **Turn on the terminal (if applicable).**

4. **Turn the AC power sequencer power switch to On. See Figure 3–2.**

5. **Turn the key switch to the On position. See Figure 3–1.**
    You should see and hear several things happen:
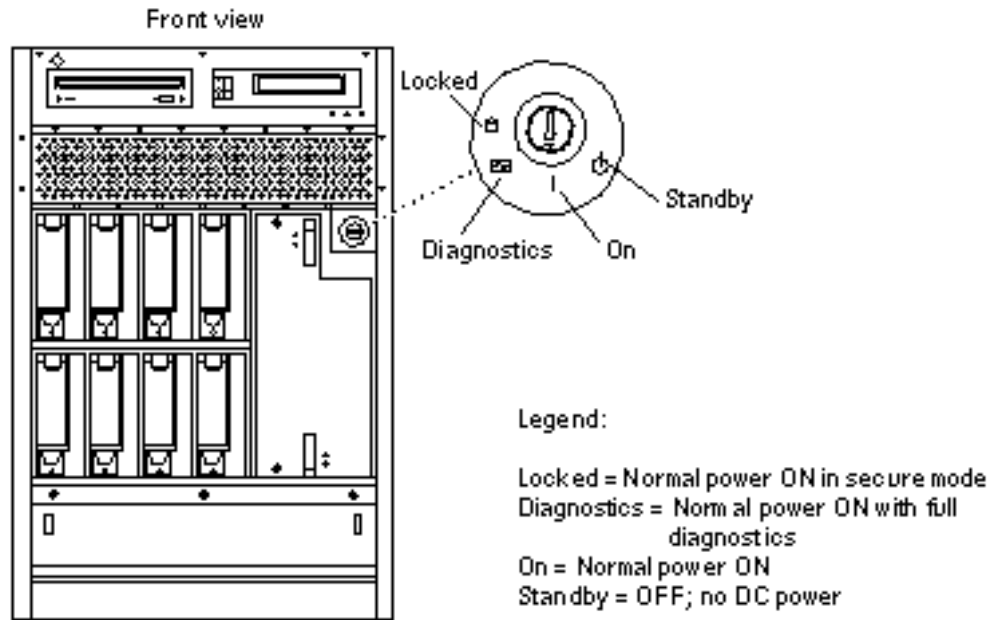
Figure 3–1   Key Switch Positions

- The fans in the power supplies begin turning.
- The left front panel LED (green) turns on immediately denoting that the power supply is delivering DC power.
- The middle front panel LED (yellow) flashes while POST runs for approximately 60 seconds. After 60 seconds, this LED turns off if the tests pass. If the LED remains lit after 60 seconds, a test has failed.
- The right front panel LED (green) flashes to show that boot is successful and the operating system is running. If this LED fails to turn on and the middle LED is on, a severe hardware fault exists.

Caution - Never move the system when the power is on. Failure to heed this warning may result in catastrophic disk drive failure. Always power the system off before moving it.
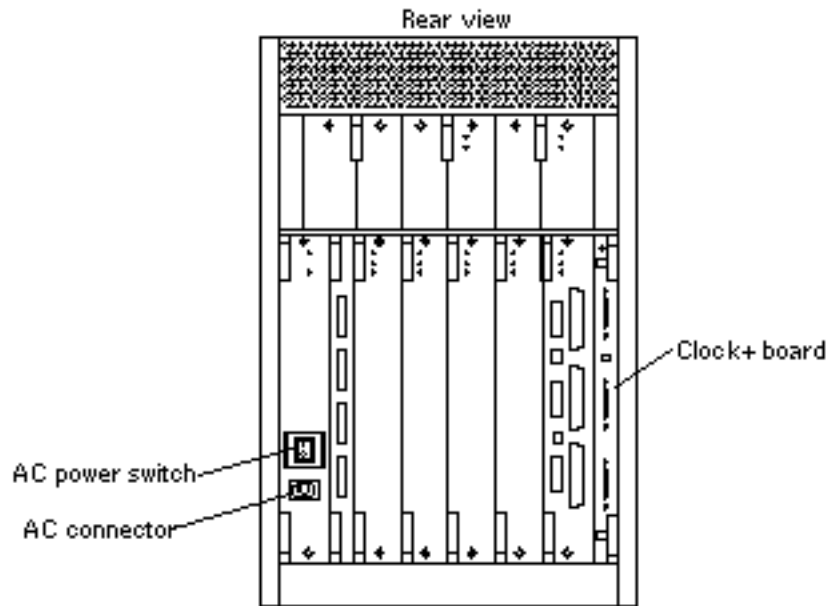
Figure 3–2   AC Power and Clock+ Board

6. **Watch the terminal screen for error messages from the firmware diagnostic program.**

   POST (power-on-self-test) tests subassemblies and some interface paths between subassemblies.

   At the conclusion of testing, firmware automatically attempts to reconfigure the system, omitting any parts of the system that have failed diagnostics.

   If there are no faults, or if firmware completes a successful reconfiguration in response to detected faults, the system boots.

   Note - If faulty parts are detected and configured out of the working system, you and the system manager must decide whether to operate the system until replacement parts arrive, or to halt operation. Also, if a faulty component cannot be replaced in the field, the entire subassembly (like the system board) must be replaced.

   ---

7. **To restart firmware, or if the system hangs, press the CPU reset switch on the clock+ board. See Figure 3–3.**
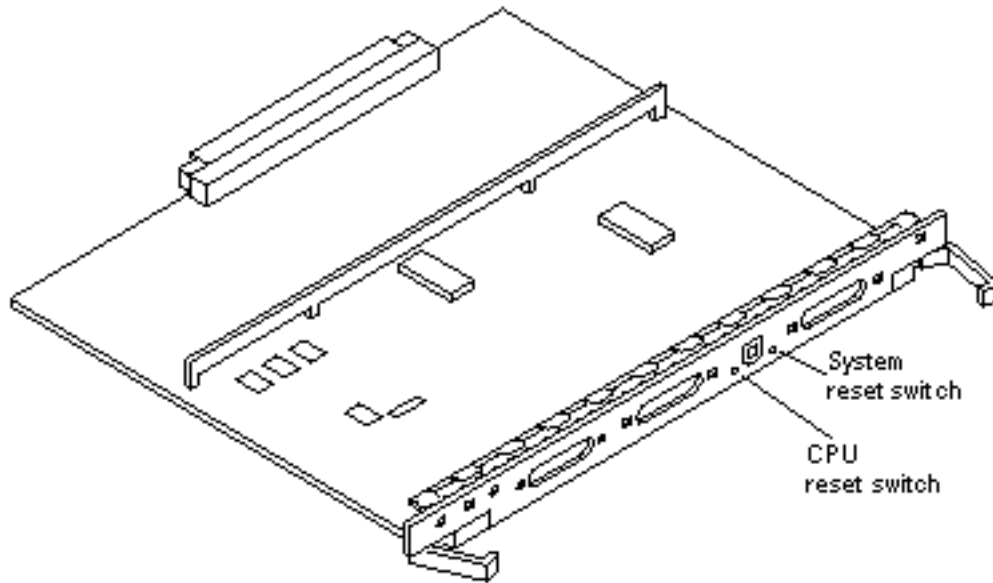
Figure 3–3   CPU Reset Switch on Clock+ Board

Reading Boot Messages

Use the boot software messages to verify that all options are installed and recognized by the system. After firmware completes the system self-test, a message similar to the following will appear on your screen. The message lists hardware detected in the system.

Note - This screen display is an example only. The actual message displayed on the screen will depend on the software running on your system.

```
5-slot Sun Enterprise 3500, Keyboard Present
OpenBoot -.- FCS, --- MB memory installed, Serial #---.
Ethernet address -:-:--:-:--:--, Host ID: ------.
```

If firmware indicates a hardware problem at this time, refer to the "Troubleshooting" section in the *Sun Enterprise 3500 System Reference Manual* for further instructions.

Boot the system using the procedure that is appropriate for your operating system. See the Preface "UNIX Commands," for a reference to documentation that describes this procedure.

Interpreting Status LED Patterns

If there is no terminal on the system, basic system status information is available on the front panel LEDs, as shown in Figure 3–4.

Figure 3–4   System Status LED

Note - The system is in OBP if the left LED is on (green), the middle LED is flashing (yellow), and the right LED is off.

After the boot process completes, check the status of the system by inspecting system status LEDs on the front panel. See Figure 3–4 and Table 3–1, which summarize LED status indications.

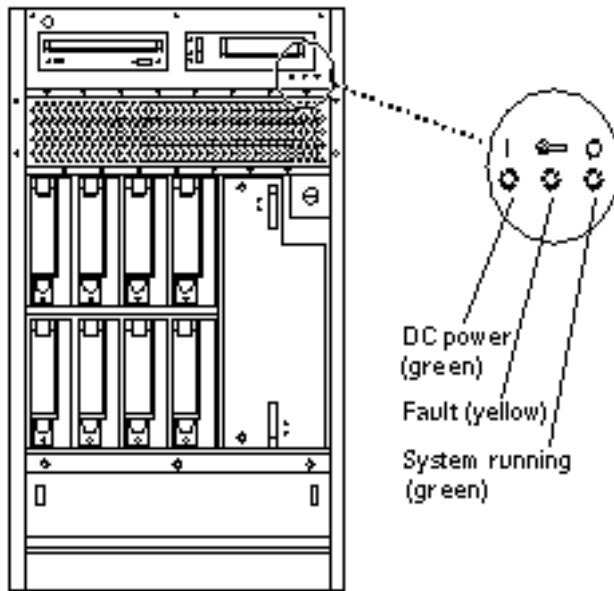**TABLE 3–1**   Front Panel LED System Status

LED Position	Condition
Left LED (green)	On — the power supply is delivering DC power
Middle LED (yellow)	On flashing — (first 60 seconds of AC power) self tests are running
	Off — (after self tests end) no hardware failures detected
	On — (after self tests end) hardware failure was detected
Right LED (green)	Off — (first 60 seconds of AC power) self tests are running
	On flashing — (after self tests end) system is running
	Off — (after self tests end) system cannot run; repair is needed

■ If the left LED is on (green), the middle LED is flashing (yellow), and the right LED is off, the system is in OBP.

Ideally, when the self-test completes, both left and right LEDs are on. Less ideal is if all LEDs are on (system needs service, but is able to run). The worst condition is if the left and middle LEDs are on (system cannot boot), or if no LED is on.

Powering Off the System

Before turning off the system power, you must halt the operating system. See the Preface, "UNIX Commands," to find references if you need help with the commands for this task or other system administration procedures.

Note - Failure to halt the operating system properly can cause the loss of disk drive data.

Note - Do not disconnect the terminal while the system is running.

Caution - To avoid damaging internal circuits, do not disconnect or connect any cable while power is applied to the system.

To shut down the system:

1. **Notify users that the system is going down.**

2. **Back up the system files and data to tape, if necessary.**

3. **Halt the system using the appropriate commands. Refer to the *Solaris Handbook for SMCC Peripherals* that corresponds to your operating system.**

4. **Wait for the system-halted message and the boot monitor prompt.**

5. **Use the key to unlock the system front door, and pull on the handle to open the door.**

6. **Locate the system key switch in the upper right corner, and turn the key switch to the Standby position (fully counterclockwise). See Figure 3–1.**

7. **Turn off the system power in this order:**
   1. External drives and expansion cabinets (if any)
   2. System AC power switch (see Figure 3–2)
   3. Terminal

For more system administration information on methods for shut-down and backup, see the Preface, "UNIX Commands," for references to documentation that describes these procedures.

Software

Operating System Software and Patches

Refer to the operating system documentation that came with your system.

Solaris 2.6 - Patch 105375-04

You must install Patch 105375-04 if the following conditions apply:

- You are running an earlier revision operating system (previous to the Solaris 2.6 operating environment that shipped with your system).

- Your Sun Enterprise system is configured with a Sun StorEdge™ A5000 device.

Contact your authorized Sun support provider about patch information for other Solaris operating environments.

Solstice SyMON Software

Solstice™ SyMON™ features a graphical user interface (GUI) display that shows various graphs reflecting system status.

Solstice SyMON, intended to complement network-wide and enterprise-wide system management tools, is accessible through an SNMP interface from network tools such as Solstice SunNet Manager™.

Refer to the online *Solstice SyMON User's Guide*, part number 802-5355, for starting and operating instructions.

Dynamic Reconfiguration

Dynamic Reconfiguration (DR) is a software enhancement that enables hardware alterations while the Enterprise server is powered-on. DR works with the hardware "hot plug" capability —the process of physically removing and inserting components while a server is running— to enable the system administrator to add or remove system boards, altering the configuration without needing to reboot the server.

Check with your Sun sales representative or systems engineer for information on the availability of DR.

The online *Dynamic Reconfiguration User's Guide for Sun Enterprise Systems* provides information about preparing your server to use DR, and instructions for performing DR operations.

CPU Over Temperature Safeguard (COS)

The CPU over temperature safeguard (COS) software feature is automatically available on the Sun Enterprise 3500 system. COS ensures that the temperature on any CPU/Memory+ board does not go above the safe operating range.

Refer to the online *Platform Notes*, part number 805-2022, for information about COS requirements and operation.

Regulatory Agency Compliance Statements

Your Sun product is marked to indicate its compliance class:

■ Federal Communications Commission (FCC)—U.S.A.

■ Department of Communications (DOC)—Canada

■ Voluntary Control Council for Interference (VCCI)—Japan

■ European Union (CE mark)—Europe

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

FCC, DOC, and VCCI Class Notices

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

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

Shielded Cables: Connections between the workstation and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted-pair (UTP) cables.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems™, Inc. may void the authority granted to the user by the FCC to operate this equipment.

DOC Class A Notice – Avis DOC, Classe A

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

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

VCCI

ＶＣＣＩ基準について

第一種ＶＣＣＩ基準について

第一種ＶＣＣＩを表示するワークステーションやオプション製品は、第一種情報
装置です。これらの製品には、下記の項目が該当します。

> この装置は、第一種情報装置（商工業地域において使用されるべき情報装置）
> で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に
> 適合しております。したがって、本装置を、住宅地域またはその隣接した地域で
> ご使用になりますと、ラジオ、テレビジョン受信機に受信障害を与えることがあります。
>
> 取扱説明書に従って正しくお取り扱いください。

Declaration of Conformity

Compliance ID.: ...

Product Name: Ultra Enterprise 3500 Family

EMC

European Union

This equipment complies with the following requirements of the EMC Directive 89/336/EEC

EN55022 / CISPR22 (1985)　　　Class A

EN50082-1　IEC 801-2 (1991)　　4 kV (Direct), 8 kV (Air)

IEC 801-3 (1984)　　3V/m

IEC 801-4 (1988)　　1.0 kV Power Lines, 0.5 kV Signal Lines

EN61000-3-2/IEC1000-3-2(1994)　　Pass

Safety

This equipment complies with the following requirements of Low Voltage Directive 73/23/EEC

EC Type Examination Certificates:

EN60950/IEC950 (1993)　　TUV Rheinland Certificate #

EN60950/IEC950 w/　　CB Scheme Certificate #

Nordic Deviations

Supplementary Information:

This product was tested and complies with all the requirements for the CE Mark. It was tested with all options and peripherals that Sun Microsystems, Inc. supports.

/S/

Dennis P. Symanski　　DATE　　John Shades　　DATE

Manager, Compliance Engineering　　Quality Assurance Manager

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