

Ultra™ Enterprise™ 6000/5000/4000 Systems Power Cord Installation

Revision to Power Cord Installation

Note – This replaces Chapter 2, “Cabling the System,” in the *Ultra Enterprise 6000/5000/4000 Systems Installation Guide* (part number 802-3844) that is in your binder.

Information in this document supersedes information in the previously released manual.



THE NETWORK IS THE COMPUTER®

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Cabling the System



This chapter contains procedures for connecting the power cord to the AC power supply and instructions for cabling the system to the network.

2.1 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.

2.2 Removing and Replacing the Enterprise 6000/5000 Cabinet Rear Screen and Kick Panel

Removing the Rear Screen and Kick Panel

- 1. Locate the plastic key that is in the accessory box.**
- 2. Open the door on the left side of the top bezel to access the key switch.**
The door opens when you press on the recessed area.
- 3. Turn the system key switch to \odot (the Standby position).**
See Figure 2-1.
- 4. Ensure that the AC power sequencer switch is set to Off.**
This switch is at the rear of the cabinet. See Figure 2-2.

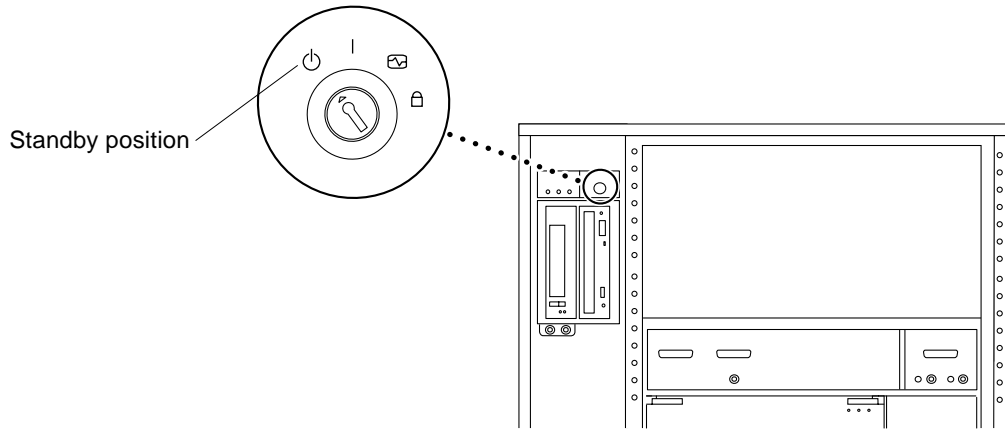


Figure 2-1 Keyswitch Standby Position

5. If the rear screen is still in place, remove it.

Note – If your system cabinet has a hinged rear door, use the sliding door latch to open the door, and proceed to Step 6 and Step 7.

- a. Remove two screws near the top of the screen.**
See Figure 2-2.
 - b. Tilt the screen out and lift it free of the chassis.**
Set the screen aside.
- 6. Remove the AC power cord that is coiled inside the server cabinet.**
Set the power cord aside.
- 7. Remove the kick panel by loosening the two screws.**
See Figure 2-3. Set the panel aside.

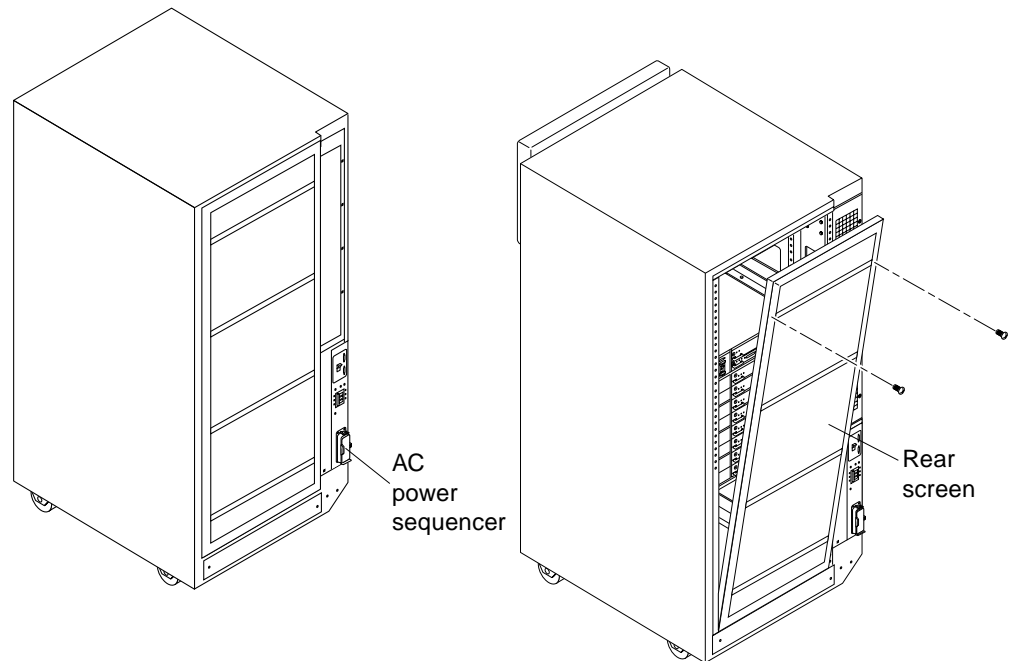


Figure 2-2 AC Power Sequencer Power Switch and Rear Screen

Replacing the Rear Screen and Kick Panel

- 1. Tighten the two screws to secure the kick panel to the cabinet.**
If cables are to be routed under the floor, the cables should be between the bottom panel and the kick panel. See Figure 2-3.
- 2. Place the bottom of the rear screen on the flanges near the cabinet bottom.**
- 3. Tilt the rear screen against the frame and install two screws to secure the screen in place.**
See Figure 2-2.
- 4. After all the cables are connected and the screen and panel have been replaced, power on the system.**

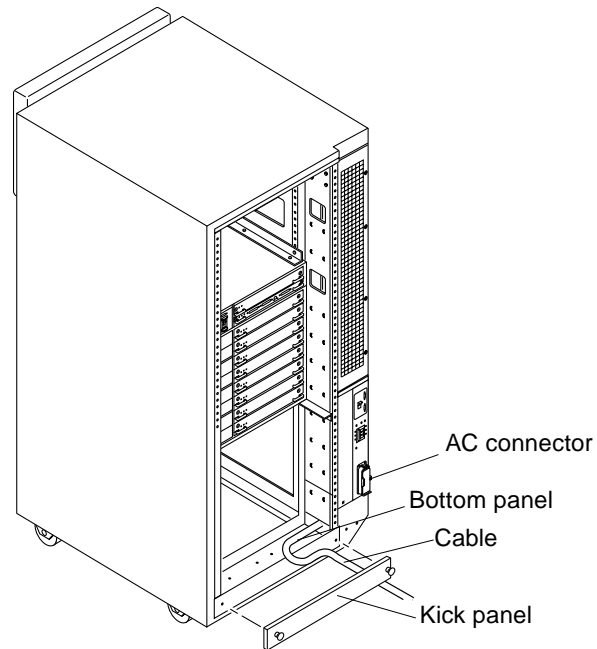


Figure 2-3 Routing Cables Under the Kick Panel

2.3 Connecting the Power Cords

2.3.1 Connecting the Enterprise 6000/5000 System Power Cord

- 1. Remove the rear screen and the kick panel.**
See Section 2.2, “Removing and Replacing the Enterprise 6000/5000 Cabinet Rear Screen and Kick Panel.”
- 2. Connect the power cord to the AC connector.**
This connector is at the rear of the cabinet at the bottom-right corner.
 - a. Open the spring-loaded cover on the AC connector housing.**
 - b. Plug in the power cord female end.**

3. **Route the AC power cord and external interface cables along the bottom panel of the cabinet and over the edge of the bottom panel.**
See Figure 2-3. The cables should be between the bottom panel and the kick panel when you replace the kick panel.

4. **Connect the male end of the power cord to a grounded wall outlet.**
The outlet must be a 200-240 VAC 30A circuit, dedicated solely to the server cabinet, as described in the site preparation instructions in Chapter 1.



Warning – Risk of electric shock. Do NOT turn on AC power to the unit yet.

5. **Continue with Section 2.4 through Section 2.7 for further cabling instructions, and then see Section 2.2 to replace the rear screen and kick panel.**

2.3.2 Connecting the Enterprise 4000 System Power Cord

1. **Insert the key provided with your system into the front panel key switch. Turn it to the Standby position (fully counterclockwise).**
See Figure 2-4.

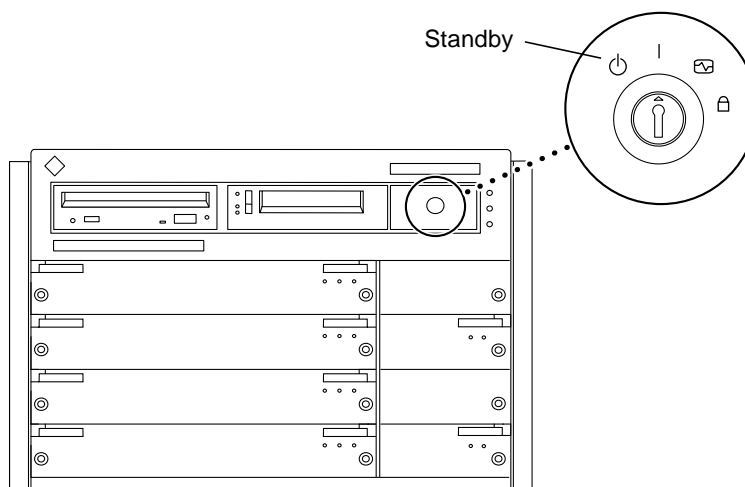


Figure 2-4 Key Switch Positions

2. **Turn the AC power switch to Off.**
This switch is in the upper left corner of the system rear. See Figure 2-5.

3. **Connect the female end of the power cord into the AC connector.**
This connector is to the left of the AC power switch on the system rear.
See Figure 2-5.
4. **Connect the male end of the power cord into a grounded wall outlet.**
The outlet must be a 100-240 VAC 15A circuit.

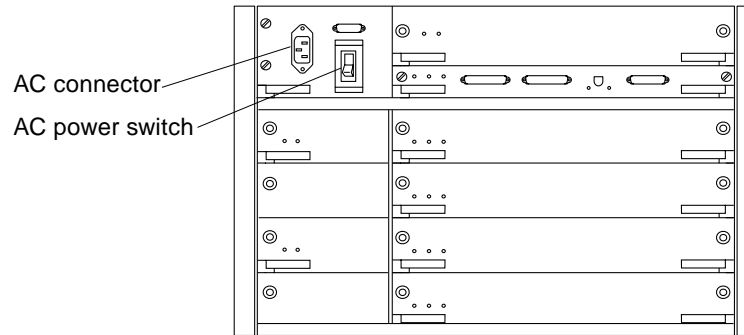


Figure 2-5 AC Power Switch and Power Receptacle



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

5. **Continue with Section 2.4 through Section 2.7 for further cabling instructions.**
6. **After all the cables are connected, power on the system.**

2.4 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 2-6 shows the twisted-pair Ethernet network cable.

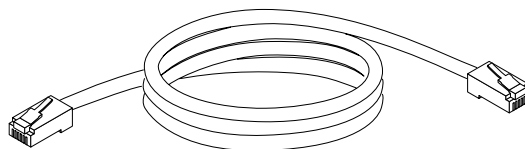


Figure 2-6 Network Cable

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. See Figure 2-7.

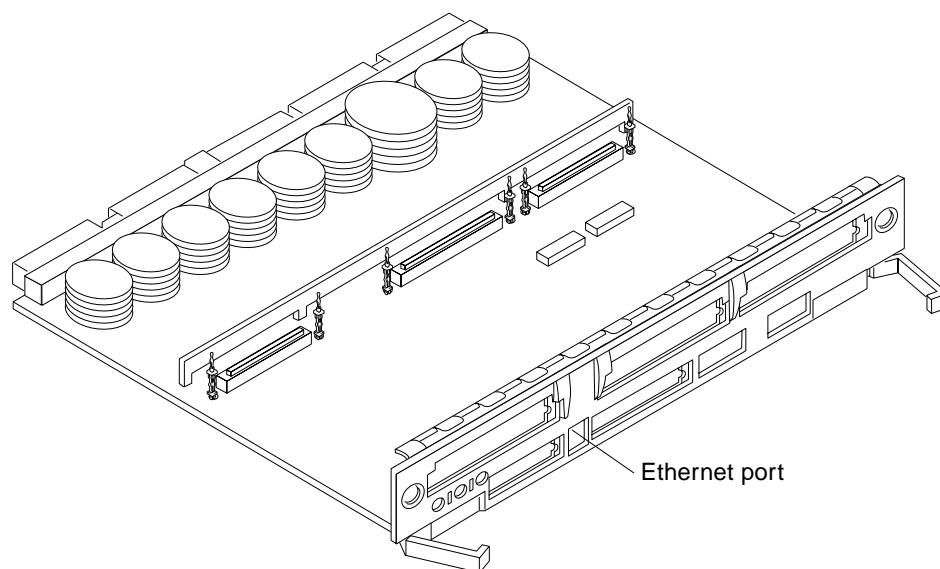


Figure 2-7 10/100BASE-T Ethernet Connection

3. Enterprise 6000/5000 systems only: route the cable down along the right mounting rail of the chassis.

Use tie wraps to secure the cable to the rail.

2.5 *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 2-8 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. See Figure 2-8. 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 2-8 shows the elements used in the installation process.

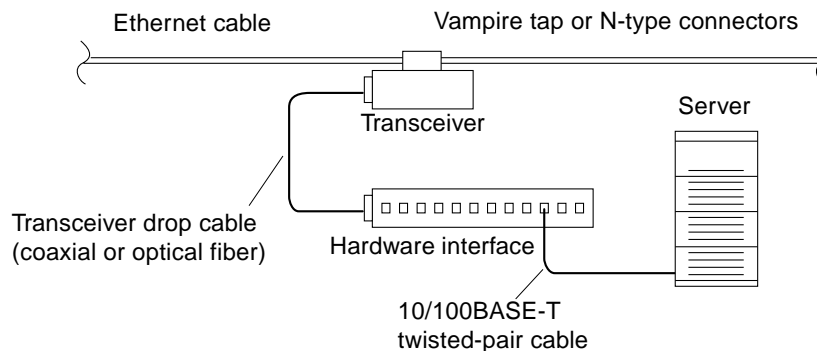


Figure 2-8 Connecting Twisted Pair Ethernet to N-type Coaxial Cable

Table 2-1 lists the cabling limitations for Ethernet.

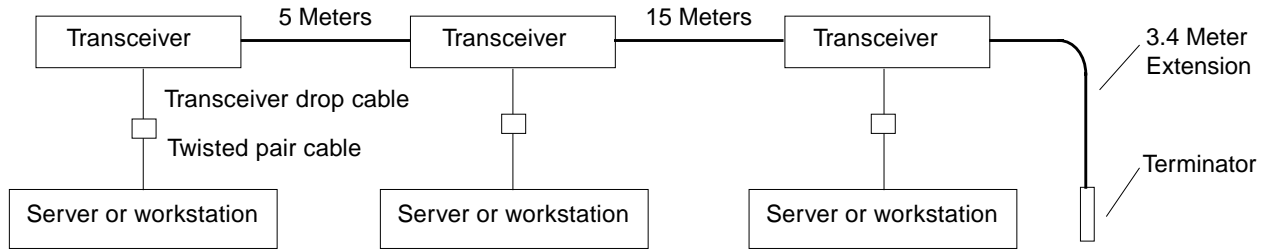
Table 2-1 Ethernet Cabling Limitations for N-type Coaxial Cable

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

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 2-9 shows an example of a typical network setup. The Ultra Enterprise 6000/5000/4000 systems can be any server shown in this figure.



Note: 5 Meters + 15 Meters + 3.4 Meter Extension = 23.4 Meters minimum length allowed.

Figure 2-9 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. See Section 3.4, “Failure of Network Communications,” and refer to the manual provided with your hub for more information about the Link Integrity Test function.

2.6 Connecting an ASCII Terminal

An ASCII terminal (or workstation) must 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 2-10.

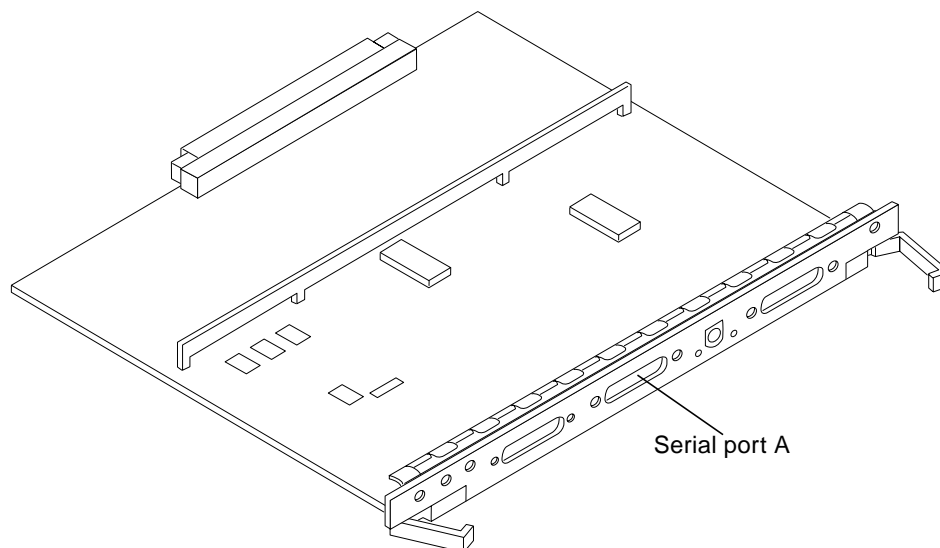


Figure 2-10 Clock Board

- 2. Enterprise 6000/5000 systems only: route the terminal cable from the clock board down along the right mounting rail of the cabinet.**
Use tie wraps to secure the terminal cable to the mounting rail.
- 3. Connect the terminal power cord into an AC wall outlet.**
- 4. 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 4 may differ from the setup at the customer site. These parameters can be changed in the NVRAM. Refer to the `set-defaults` and `printenv` commands in the *OpenBoot Command Reference* manual, part number 802-3242.

2.7 Connecting the Fiber Cable to the I/O Board

1. Remove the two plastic caps that cover the cable connector on the FC/OM module.
2. Remove the plastic cap covering the ends of the fiber cable.
3. Connect one end of the fiber cable into the FC/OM module installed on the I/O board.
Align the notch in the cable connector with the key notch in the module connector. See Figure 2-11.
4. Connect the other end of the fiber cable into the FC/OM connector on the SPARCstorage Array (or other storage device with fiber optics interface) rear panel.
Align the notch in the cable connector with the notch in the connector on the storage device rear panel.

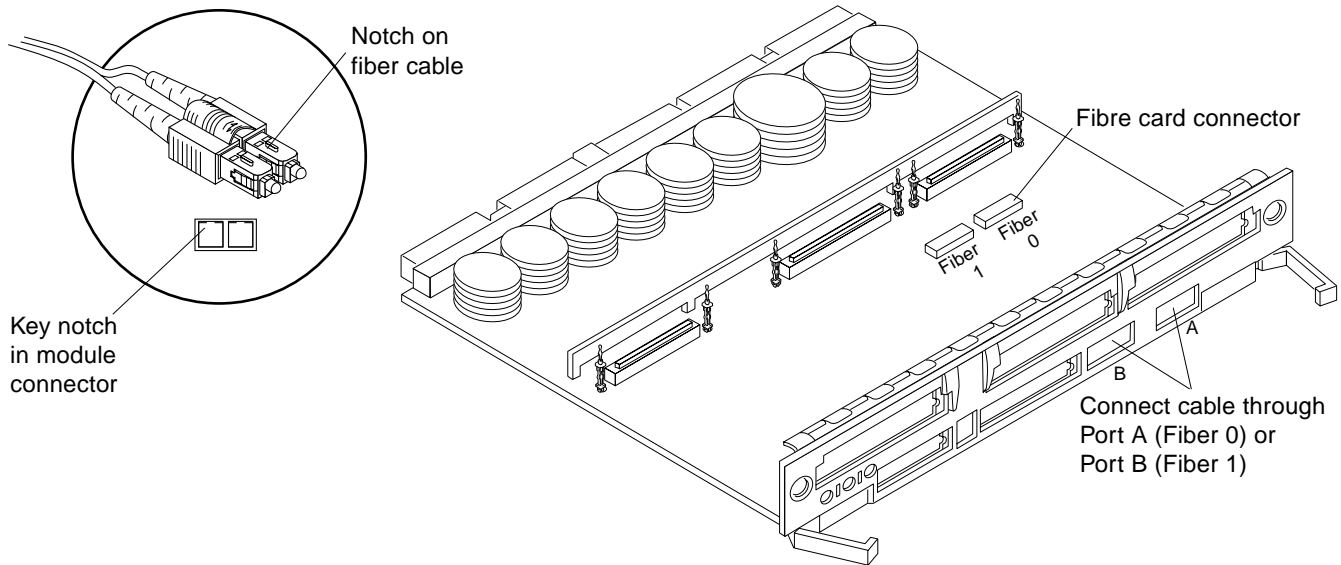


Figure 2-11 Fiber Cable and Fibre Card Connectors and Ports on the I/O Board

2.8 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 SCSI 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 six 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 2-2 lists internal measurements for the Enterprise servers.

Table 2-2 Internal SCSI Lengths (Approximate)

Location	Internal Length	Comments
Enterprise 6000 slot 1	3.7 meters	Includes I/O board traces and cables to SCSI tray
Enterprise 5000 slot 1	3.7 meters	Includes I/O board traces and cables to SCSI tray
Enterprise 4000 slot 1	1.4 meters	Includes I/O board traces and cables to SCSI tray
SBus I/O board	0.43 meter	Includes board traces only
Graphics I/O board	0.43 meter	Includes board traces only
Disk board	0.64 meter	Includes board traces only

For information on device addressing, priorities, and slot assignments, refer to Appendix D, “Rules for System Configuration” in the *Ultra Enterprise 6000/5000/4000 Systems Manual*, part number 802-3845.



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 15, use the onboard SCSI-2 port or an SBus card installed in an appropriate SBus slot.

Figure 2-12 shows the location of the onboard single-ended SCSI connector on the I/O board.

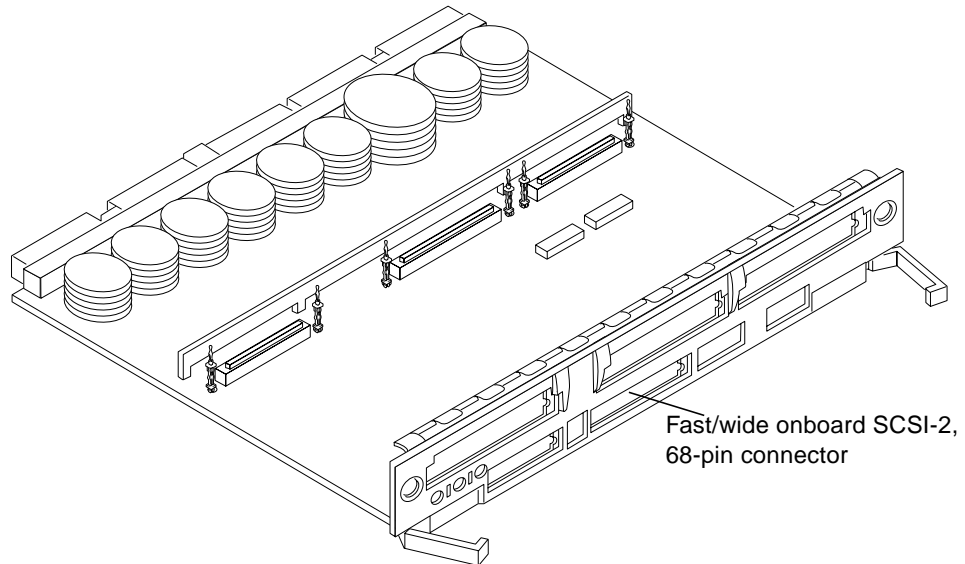


Figure 2-12 Onboard Single-ended SCSI Connector on the I/O Board

2. **Enterprise 6000/5000 systems only: route the cable from the I/O board down along the left mounting rail inside the cabinet.**
Use tie wraps to secure the cable to the left mounting rail.
3. **Connect the other end of the SCSI cable to the external SCSI-2 device.**
4. **Enterprise 6000/5000 systems only: return to Section 2.2, “Removing and Replacing the Enterprise 6000/5000 Cabinet Rear Screen and Kick Panel” to replace the screen and panel. Then power on and test the server.**

This concludes the hardware installation for the standalone server. You can now power on the system and test the server.