

SPARCcenter™ 2000/2000E Installation Manual



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Preface

This manual contains the procedures for installing a factory-configured Sun™ SPARCcenter 2000 and SPARCcenter 2000E system.

When You Need Help with UNIX® Commands

This manual does not include specific software commands or procedures. Refer to the operating system documentation when you need help with commands or procedures such as:

- Shutting down the system
- Booting the system
- Configuring devices
- Other software procedures

Related Books

The following documents contain helpful information.

Table P-1 Related Documents

Application	Name	Sun Microsystems Part Number
Safety	<i>SPARCcenter 2000 Regulatory Compliance Manual</i>	801-3051
Diagnostics	<i>SPARCcenter 2000 Post User's Guide</i>	800-7481
	<i>OpenBoot Command Reference</i>	800-6076
User's Guides	<i>SPARCcenter 2000 Storage Device User's Guide</i>	800-7009
	<i>Front-Load Tape Drive User's Guide</i>	800-7021
	<i>150MB Tape Drive User's Guide</i>	800-7020
	<i>5.0 GB 8mm Tape Drive User's Guide</i>	800-7022
	<i>10 Gbyte 8mm Tape Drive User's Guide</i>	801-7652
	<i>14 Gbyte 8mm Tape Drive User's Guide</i>	802-1850
	<i>20 Gbyte 4 mm Internal Tape Auto-Loader User's Guide</i>	801-4977
	<i>Writing FCODE Programs for SBus Cards</i>	800-5673
Service, System	<i>Sun SPARCcenter 2000 Service Manual</i>	801-2007
	<i>SPARCcenter 2000 System Board Manual</i>	800-6993
	<i>Sun-4D Technical Reference Manual</i>	800-6994
Service, Peripheral	<i>Front-Load Tape Drive Install</i>	800-7011
	<i>150 Mbyte 1/4-Inch QIC Tape Drive Installation Manual</i>	800-7010
	<i>2.1 Gbyte Disk Drive Installation Manual</i>	800-7007
	<i>2.5 Gbyte 1/4-Inch QIC Tape Drive Installation Manual</i>	
	<i>2.9 Gbyte Disk Drive Installation Manual</i>	801-6066
	<i>5 Gbyte 8mm Tape Drive Installation Manual</i>	800-7008
	<i>9 Gbyte Disk Drive Installation Manual</i>	802
	<i>10 Gbyte 8mm Tape Drive Installation Manual</i>	801-7651
	<i>DDS-1 4mm Internal Tape Autoloader Installation Manual</i>	801-4976
	<i>DDS-2 4mm Internal Tape Autoloader Installation Manual</i>	802

What Typographic Changes and Symbols Mean

The following table describes the type changes and symbols used in this book.

Table P-2 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. system% You have mail.
AaBbCc123	What you type, contrasted with on-screen computer output	system% su Password:
AaBbCc123	Command-line placeholder: replace with a real name or value	To delete a file, type <code>rm filename</code> .
AaBbCc123	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be root to do this.
Code samples are included in boxes and may display the following:		
%	UNIX C shell prompt	system%
\$	UNIX Bourne and Korn shell prompt	system\$
#	Superuser prompt, all shells	system#

Notes, Cautions, and Warnings



Warning – This equipment contains lethal voltage. Accidental contact 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

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France	05-90-61-57	05-90-61-58
Belgium	02-720-09-09	02-725-88-50
Luxembourg	32-2-720-09-09	32-2-725-88-50
Germany	01-30-81-61-91	01-30-81-61-92
The Netherlands	06-022-34-45	06-022-34-46
Sweden	020-79-57-26	020-79-57-27
Switzerland	155-19-26	155-19-27
Japan	0120-33-9096	0120-33-9097

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Preparing for Installation

This chapter introduces the major parts of the Sun SPARCcenter 2000 and SPARCcenter 2000E systems and describes site preparation tasks. Hereafter, the term SPARCcenter 2000 will be used to refer to both server systems.

1.1 Task Map

Table 1-1 lists, in order, the tasks for installing a SPARCcenter 2000 system.

Table 1-1 Task Map

Task	Reference
Site preparation	Chapter 1
Unpacking	Chapter 2
Cabling and SBus card installation	Chapter 3
Installing other options	Installation manual for each option
Powering up	Chapter 4
Diagnostics and verification	SPARCcenter 2000 Post User’s Guide and SPARCcenter 2000 Service Manual

1.2 Standard Features

The SPARCcenter 2000 system is packaged in a 56-inch cabinet as shown in Figure 1-1.

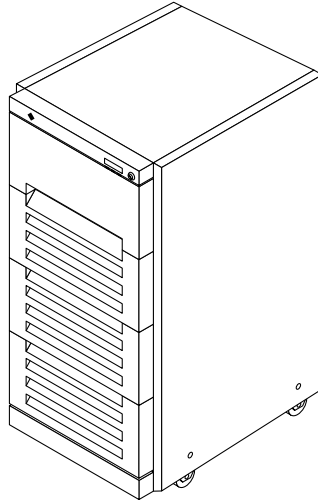


Figure 1-1 SPARCcenter 2000 System Cabinet

As shown in Figure 1-2, the server cabinet contains:

- System card cage
- Blower fan
- Power supplies — up to two
- AC distribution unit
- SCSI tray for removable media drives
- SunCD CD-ROM drive

The minimum configuration consists of:

- One system board
- Two SuperSPARC™ modules
- Eight SIMMs
- FSBE/S SBus cards for Ethernet and single-ended SCSI device interface

- DSBE/S or DWIS/S SBus cards for differential SCSI device interface
- Disk storage
- One tape drive
- One SunCD CD-ROM drive

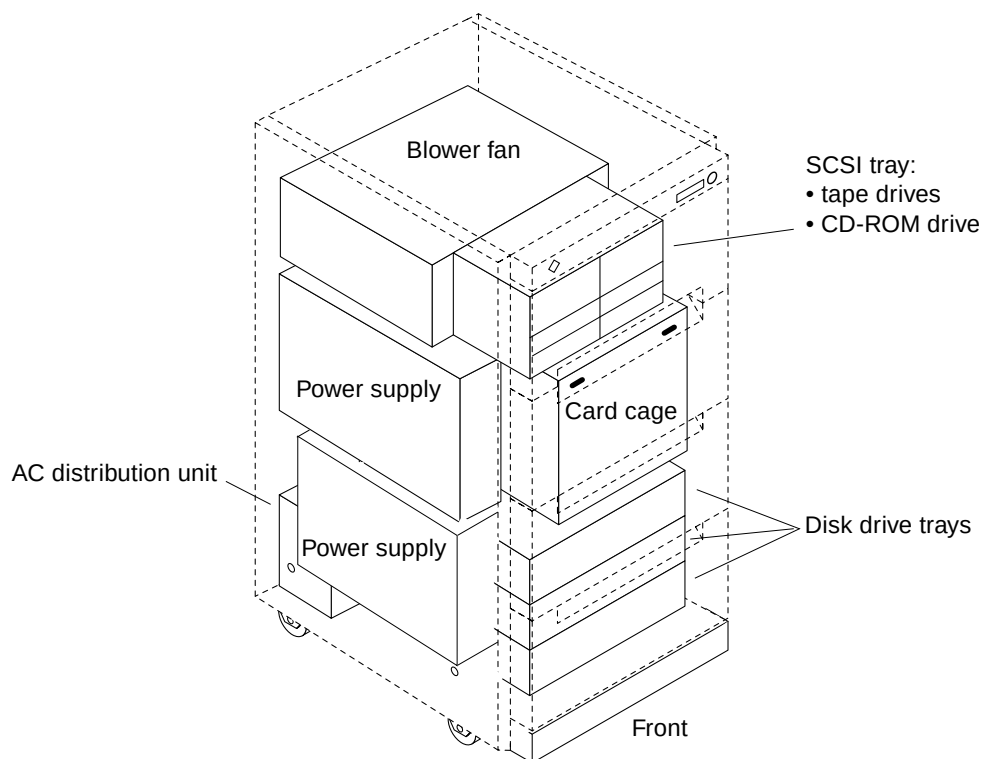


Figure 1-2 Major Subassemblies — Front View

1.3 Internal Options

The main cabinet contains the card cage and has space for disk drive trays and various types of drives.

Table 1-2 summarizes the internal options for the SPARCcenter 2000 system.

Table 1-2 SPARCcenter 2000 Internal Options

Option	Quantity	Comments
System board	1-10 per system	Jumper changes are not needed.
SuperSPARC module	1-20 per system	0-2 modules on each system board. (A moduleless board can provide additional memory and SBus slots for the system.)
SIMM	0, 8, or 16 SIMMs per board	Organized as 2 groups of 4 SIMMs or NVSIMMs. SIMMs are 8 Mbyte or 32 Mbyte. Battery-backed NVSIMMs are 1 Mbyte.
SBus card	1-40 per system	0-4 cards per system board.
SCSI tray	Maximum capacity is 3 full-height and 2 half-height drives, or 2 full-height and 4 half-height drives, or 4 full-height drives	SCSI tray takes removable-media drives only. One SunCD CD-ROM drive is standard equipment. Tape drives can be 1/4-inch tape drive, up to three 8 mm tape drives (or four half-height 8mm tape drives), or up to three 4mm internal tape auto-loader drives.
Disk drive tray	0-3 trays	A disk tray holds up to six 5 1/4-inch form factor disk drives.
Tape drive tray	1-2 tape trays	A tape tray holds up to four 8 mm tape drives.
1/2-inch front load tape drive	1-2 tape drives	

1.4 External Options

The SPARCcenter 2000 system includes the main cabinet and can include up to two tape expansion cabinets and up to four disk expansion cabinets.

Figure 1-3 shows the differences in front panels that identify the cabinet types.

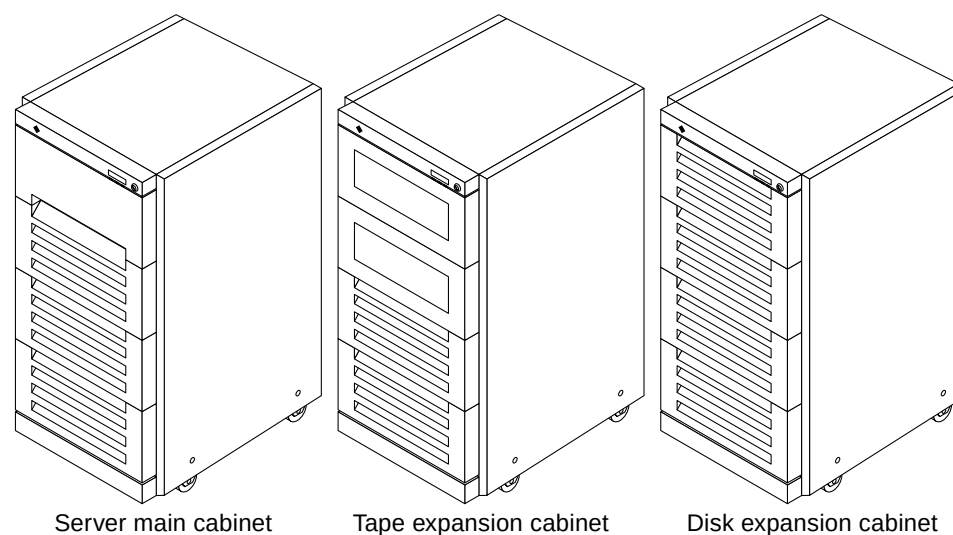


Figure 1-3 SPARCcenter 2000 System Main Cabinet and Expansion Cabinets

Peripheral devices require use of SBus interface cards that are installed on system boards in the system cabinet. Each system board has four SBus slots.

Note – Some server configurations do not have terminals or monitors. A TTY terminal can be attached temporarily to display system messages and results of self-test diagnostics.

1.5 Cabinet Specifications

These specifications are for the main and expansion cabinets.

1.5.1 Physical Specifications

Table 1-3 Cabinet Physical Specifications

	U.S.	Metric	Comments
Height	56 in	143 cm	
Width	30 in	77 cm	
Depth	39 in	99 cm	
Weight, main	800 lb approx	360 kg approx	Main cabinet
	1000 lb approx	455 kg approx	Expansion cabinet
Power cord	15 ft	4.6 m	

Table 1-4 Clearance and Service Access

	U.S.	Metric	Comments
Front	48 in	122 cm	
Rear	36 in	92 cm	
Right	2 in	5 cm	
Left	2 or 48 in	5 or 120 cm	If side-mounted interface ports are installed, allow 4 feet (1.2 meters) for service access. See Figure 1-7.

Table 1-5 Main Cabinet Shipping Specifications

Truck and Air Shipment	U.S.	Metric
Height	62.0 in	157 cm
Width	39.0 in	99 cm
Depth	44.5 in	113 cm
Weight, main cabinet with one power supply	875 lb, approx	400 kg, approx
Weight, expansion cabinet	1075 lb, approx	490 kg, approx

1.5.2 Electrical Specifications

The electrical specifications are listed separately for each cabinet type.

Table 1-6 Main Cabinet Electrical Specifications

Parameter		Value
Input current	Voltage range	200-240 VAC
	Current, maximum	24A
	Current frequency range	47-63 Hz
Output current	+5 VDC, maximum	330A
	+1.2 VDC, maximum	176A
	+12 VDC, maximum	14A
	-12 VDC, maximum	2A
	+24 VDC, maximum	9A
Input power rating	Total continuous power	3500W (with 3 drive trays)
Volt-Ampere rating		3600 VA
BTU rating		12,000 BTU
Power factor		0.98 at full load
Plug type	U.S.	NEMA L6-30P for 200-240 VAC
	International	32A, single phase IEC 309, connected for 220-240 VAC

1.5.3 Environmental Requirements

Table 1-7 Temperature Limits

	Operating¹		Non-operating	
	U.S.	Metric	U.S.	Metric
Recommended range	50° - 104°F	10° - 40°C	−4° - 140°F	−20° - 60°C
Minimum temperature	50°F at 20% RH	10°C at 20% RH	−4°F	−20°C
Maximum temperature	104°F at 20% RH	40°C at 20% RH	140°F	60°C
Maximum gradient	<27°F/hr <30% RH/hr	<15°C/hr <30% RH/hr	<27°F/hr <30% RH/hr	<15°C/hr <30% RH/hr
Dwell at extremes	8 hours	8 hours	24 hours	24 hours

1. The 1/2-inch front load tape drive has a maximum temperature limit of 86°F (30°C).

Table 1-8 Humidity Limits

	Operating		Non-operating	
	U.S.	Metric	U.S.	Metric
Recommended range	5% to 95% RH at 104°F	5% to 95% RH at 40°C	5% to 95% RH at 104°F	5% to 95% RH at 40°C
Minimum humidity	5%	5%	5%	5%
With tape drive	20%			
Maximum humidity	95%	95%	95%	95%
With tape drive	80%			
Maximum gradient	<30% RH/hr <27°F/hr	<30% RH/hr <15°C/hr	<30% RH/hr <18°F/hr	<30% RH/hr <10°C/hr
Dwell at extremes	8 hours	8 hours	120 hours	120 hours

Table 1-9 Altitude Limits

	Operating		Non-operating	
	U.S.	Metric	U.S.	Metric
Maximum altitude	10,000 ft	3 km	40,000 ft	12 km
Temperature range	50° - 104°F	10° - 40°C	32°F	0°C
Maximum gradient	<1.5kPa / min, <18°F / hr	<1.5kPa / min, <10°C / hr	<8kPa / min, <18°F / hr	<8kPa / min, <10°C / hr
Wet bulb	humidity 27C° non-condensing		humidity 27C° non-condensing	
Dwell at extremes	4 hours	4 hours	4 hours	4 hours

1.6 Site Preparation

1.6.1 Electrical Circuits

The server requires a 30A circuit.



Caution – Do not attach other electrical equipment to the server AC circuit; server reliability may be affected.

Two AC connector plug types are available. The NEMA L6-30P connector is used for 200-240V North American operation (Figure 1-4). The 32A, single-phase, IEC 309 connector is available for 220-240V international operation. (Figure 1-5).

The cabinet side of the AC cable is wired directly to the AC distribution unit.



Figure 1-4 NEMA L6-30P Electrical Connector



Figure 1-5 IEC 309 Electrical Connector

Note – If the appropriate mating receptacle is not available in your country, the plug may be removed from the cord. The cord can then be permanently connected to a dedicated branch circuit by a qualified electrician. Check local electrical codes for proper installation requirements.



Warning – The SPARCcenter 2000 cabinet has a high leakage current to ground. Strictly observe the following instructions to reduce the risk of electric shock.

The system requires an electrical circuit that is grounded to earth. The American standards group, Underwriters Laboratories Inc.®, specifies:

An insulated earthing conductor that is identical in size, insulation material, and thickness to the earthed and unearthed branch-circuit supply conductors, except that it is green with or without one or more yellow stripes, is to be installed as part of the branch circuit that supplies the unit or system. The earthing conductor described is to be connected to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor-generator set.

The attachment-plug receptacles in the vicinity of the unit or system are all to be of an earthing type, and the earthing conductors serving these receptacles are to be connected to earth at the service equipment.¹

The power cord provides a ground path that will protect the drives and boards in the cabinet from static electricity damage.

1. Information Technology Equipment — UL 1950, copyright 1989, 1991 by Underwriters Laboratories, Inc.



Caution – Do not make mechanical or electrical modifications to the server cabinet. Sun Microsystems® is not responsible for the regulatory compliance if the cabinet is modified.

1.6.2 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.

1.6.3 Ethernet Network

The SPARCcenter 2000 system follows the IEEE standard for 10Base-T Ethernet, also known as twisted-pair Ethernet.

The 10Base-T cable is a flat cable, approximately 50 percent wider than a modular telephone cable. The twisted-pair cables used with Sun Microsystems products have RJ-45 connectors that resemble the smaller RJ-11 connectors used for modular telephone cables.

The 10Base-T cable connects the server to a hardware interface (a converter or hub). A coaxial Ethernet cable or an optical fiber cable then connects the hardware interface to the network. Various types of hardware interfaces are available from Sun Microsystems and other companies.

Figure 1-6 illustrates one possible implementation of 10Base-T Ethernet.

Note – Multiplexer boxes require a transceiver when used with the Ethernet applications described in this manual.

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.

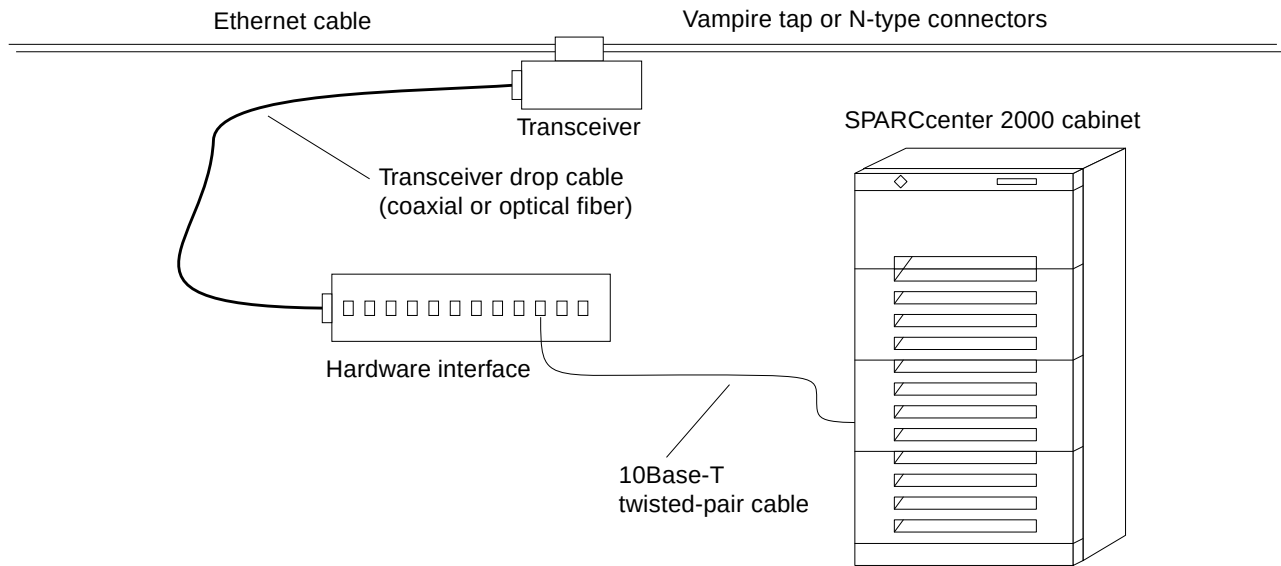


Figure 1-6 Types of Network Cables Used

1.6.4 Floorspace

- The server cabinets require approximately four feet of space in front and three feet of space in back for access by service personnel.
- There can be no more than two tape expansion cabinets in a system and the tape cabinets must be next to the server cabinet. Figure 1-7 shows one possible arrangement of cabinets. If serial/parallel port hardware is installed in the main cabinet, allow an additional three feet of access space to the left side of the cabinet. See Figure 1-7.
- The server system (including expansion cabinets) should have a dedicated AC breaker panel. The server system should not share this breaker panel with other, unrelated equipment.
- Keep power and interface cables out of the way of foot traffic. Cables can be routed inside walls, floors, ceilings, or in protective channels. Interface cables should be routed away from motors and other sources of magnetic or radio frequency interference.

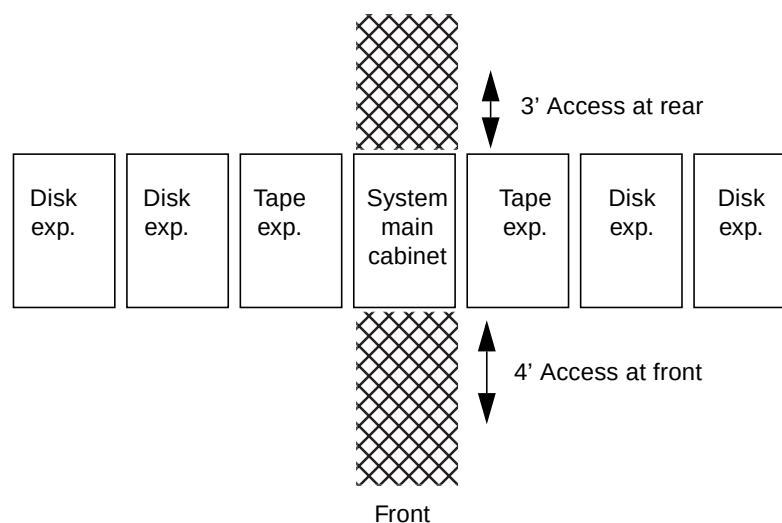


Figure 1-7 Server Access Areas — Top View

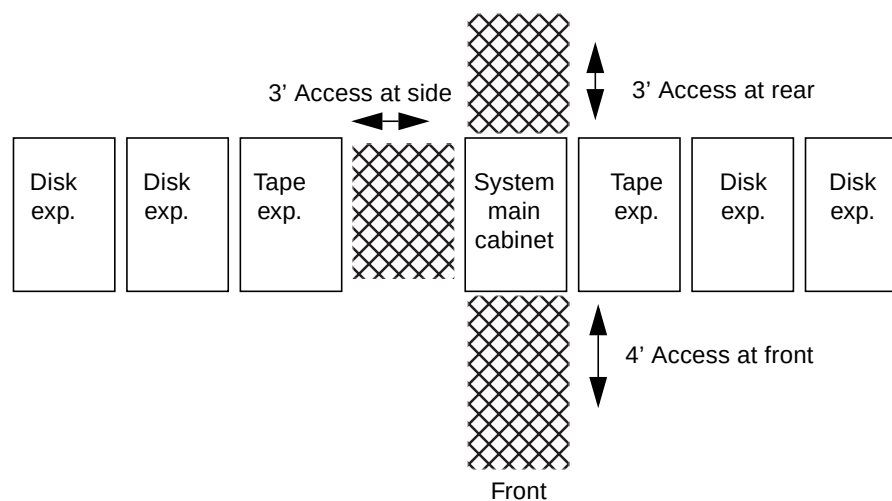


Figure 1-8 Server Access Areas for Serial/Parallel Port Hardware

Unpacking the System



This chapter describes how to inspect and unpack the shipping carton, and describes how to safely move the server cabinet to its working location.

2.1 Tools

- Tinsnips (for unpacking the cabinet)
- #2 Phillips screwdriver
- Levelling wrench (packed inside the system cabinet)
- Front panel key (packed in a recloseable bag in the accessory box)

2.2 Inspecting for Damage

Inspect the 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.

The document carton packed in the server shipping container contains this installation manual and the system service manual.

2.3 Unpacking the Server Cabinet

If the cabinet is already unpacked, go to Section 2.4, "Moving the System."

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

1. Cut the plastic or metal straps that are around the shipping container and lift off the corrugated top.

If you cannot store the shipping materials for future shipments, please recycle or dispose of the materials properly. Your local recycling authority can supply specific information.

2. Remove the sides of the container.

The container is held together by six plastic clips. To unlock a clip, press the two inner tabs together and pull out the entire clip.

3. Remove inner packing materials from the top and corners of the cabinet.

4. At the front of the pallet, lift the Velcro™ strip at each end of the wooden bar to detach the bar, then set it aside.

5. Slide out the two wooden ramps from under the cabinet.

6. Attach the wooden ramps to the pallet using the Velcro strip that is attached to each ramp.

Ensure both wheel guides (wooden strips) are to the outside. See Figure 2-1.

7. You are ready to move the cabinet, but first read the two “Caution” messages in the next section.

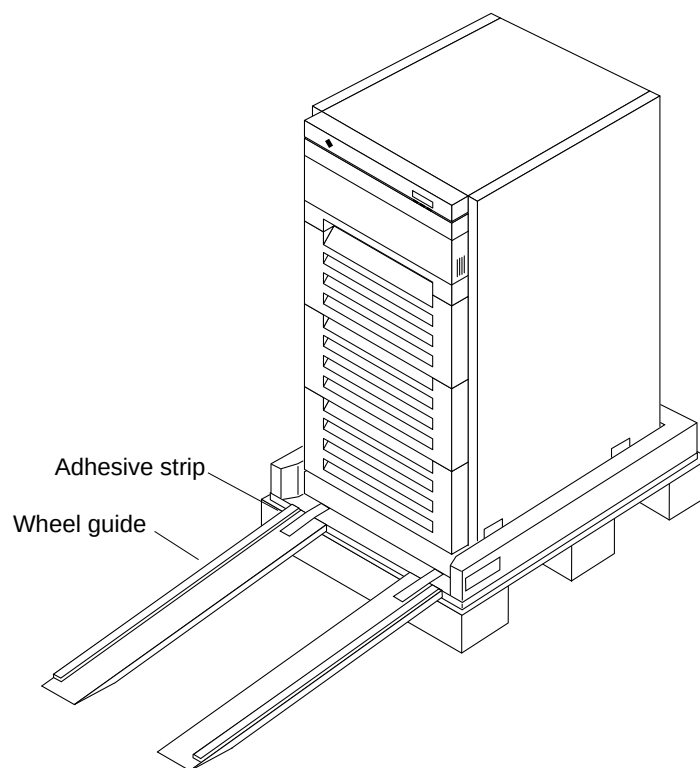


Figure 2-1 Attaching the Ramps to the Shipping Pallet

2.4 Moving the System

The system is heavy (1/2-ton / 500 kilograms, or more), and can be unstable when rolling down ramps.



Caution – Three or more people are needed to move the cabinet safely. Two people must push at the front of the cabinet to control the movement of the cabinet.



Caution – To prevent the cabinet from tipping over, push or pull only on the upper half of the cabinet.

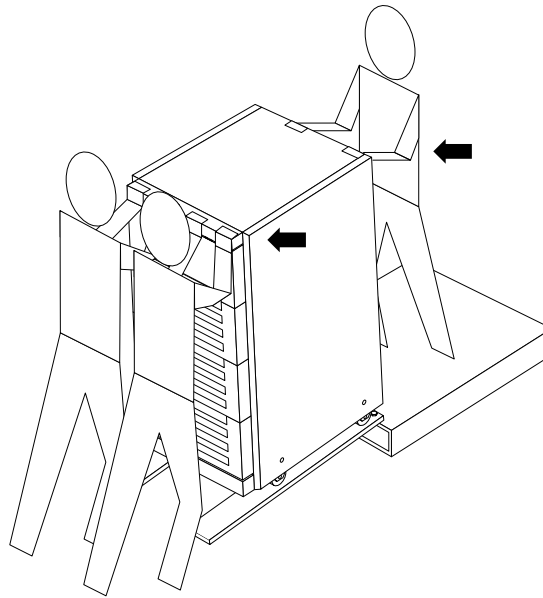


Figure 2-2 Moving the Server Safely Down the Ramps

2.5 Adjusting the Levelling Pads

After moving the cabinet to its operating location, adjust the levelling pads as described below.

1. **Take off the rear screen by removing the two screws shown in Figure 2-3.**
2. **Remove the levelling wrench by unlocking the plastic strap that holds it to the inside of the server cabinet.**
Do not cut the strap. Press the plastic tab to unlock the strap around the *wrench, then slide part of the strap through the lock to loosen the wrench.
3. **Extend the stabilizer bar fully from the bottom of the cabinet.**
See Figure 2-4.
4. **Screw the two stabilizer bar levelling pads down until they are 1/8- to 1/4-inch (three to six millimeters) above the floor.**
Make sure both pads are at equal heights above the floor. This clearance allows an extended stabilizer bar to stop the cabinet if it should begin to tilt.

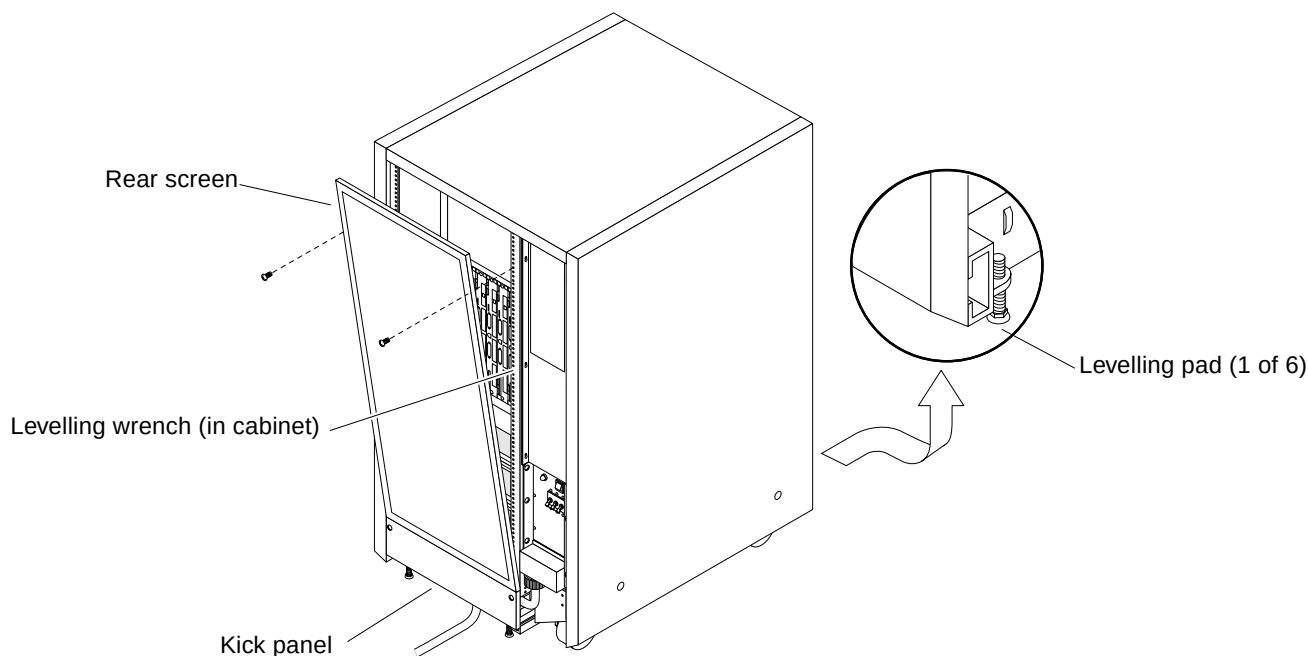


Figure 2-3 Rear Screen, Levelling Wrench, Kick Panel, and Levelling Pad

5. Slide the stabilizer bar into the cabinet.



Warning – Always extend the stabilizer bar before pulling the disk drive trays out for servicing.

6. Adjust the four levelling pads on the cabinet frame. The four pads should press against the floor so that the cabinet does not move.

To adjust levelling pads on the cabinet rear, you may have to remove the kick panel. Two captive screws attach the panel to the cabinet (Figure 2-3).

This completes the first part of the system installation. If you are unable to continue the installation at this time, close the cabinet:

1. **Secure the levelling wrench inside the cabinet.**
2. **Replace the kick panel if the panel was removed.**
3. **Attach the rear screen.**

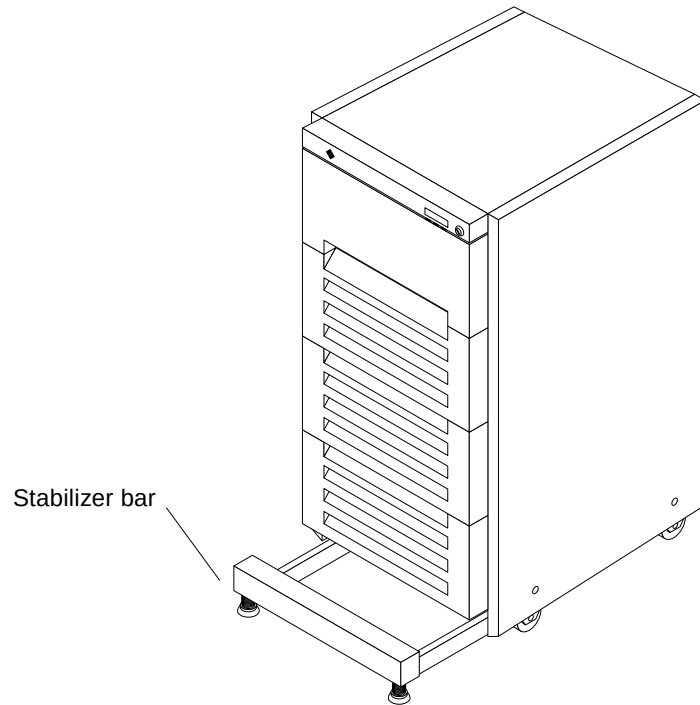


Figure 2-4 Stabilizer Bar

2.6 Shipping or Storing the System

Store the shipping materials for future use, if possible.

Use the original shipping containers and packing materials when shipping or storing the system. Reverse the order of the unpacking instructions pictured on the shipping container.



Caution – If an ordinary wooden pallet is used for shipping the system cabinet, extend the cabinet levelling pads so that the cabinet cannot roll. If the original shipping pallet (with side rails) is used for shipping, it is not necessary to lower the levelling pads.

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

Cabling the System

This chapter contains procedures for cabling the system to the network and supplying AC power.

3.1 Connecting the AC Power Cable

To prepare the AC power cord:

1. **Locate the gray plastic key that is in the accessory box.**
2. **Turn the system key switch to ϕ (the standby position).**
See Figure 3-1.
3. **Ensure that the AC distribution unit switch is set to Off.**
This switch is at the rear of the cabinet. See Figure 3-2.



Warning – Risk of Electric Shock. Turn off AC power at the AC distribution unit before you insert or remove boards and disk drives. For proper grounding of the system, do not disconnect the AC power cord from its receptacle.

4. **If the rear screen is still in place, remove it now.**
Remove two screws near the top of the screen. See Figure 3-3. Tilt the screen out and lift the screen free of the chassis. Set the screen aside.
5. **Take out the AC power cord that is coiled inside the server cabinet.**

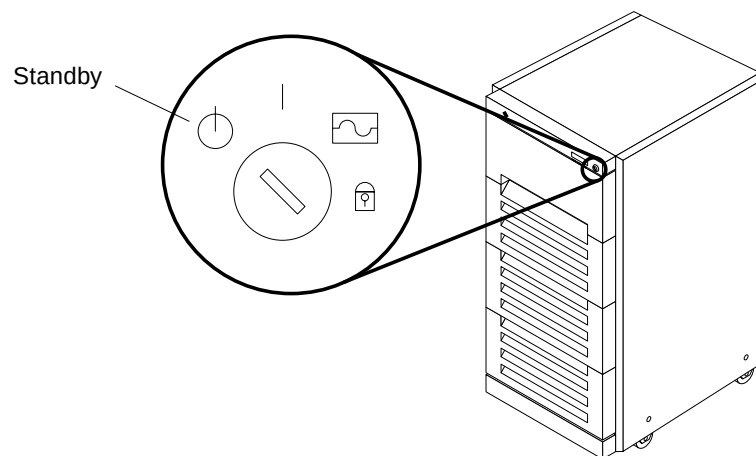


Figure 3-1 Key Switch Standby Position

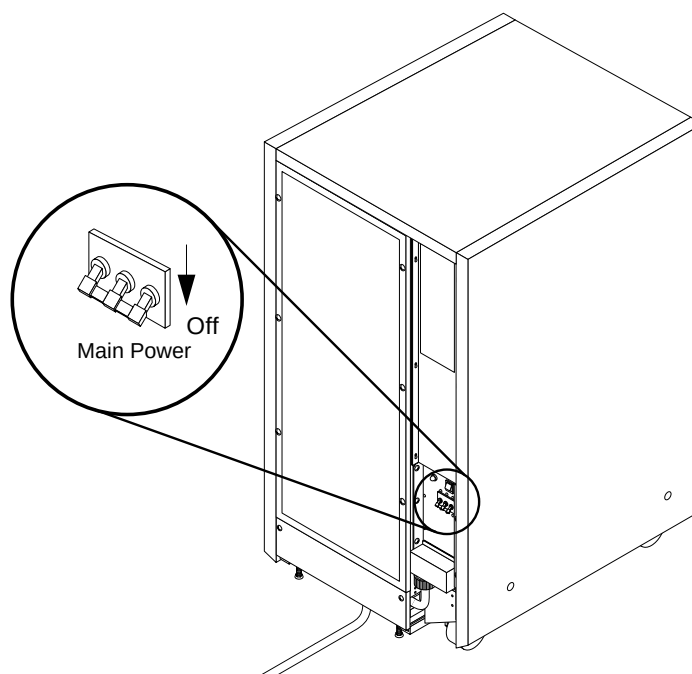


Figure 3-2 The AC Distribution Unit Power Switch

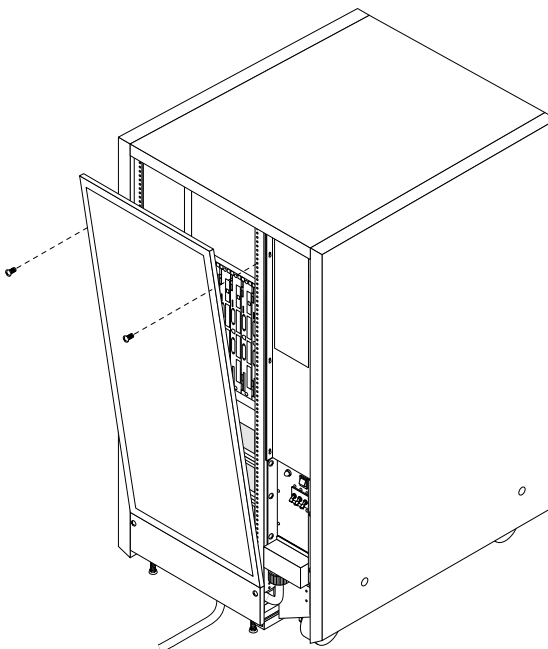


Figure 3-3 Rear Screen

Note – If the room does not have a raised floor, skip steps 6 and 7. In this case, it is not necessary to route this cable behind the kick panel.

6. Take off the kick panel by loosening the two captive screws.

See Figure 3-4. Set the panel aside.

7. 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 3-4. The cables should be between the bottom panel and the kick panel when you replace the kick panel.

8. Connect and route any remaining interface cables.

9. Uncoil the AC power cord and plug it into a grounded wall outlet.

The outlet must be a 200-240 Vac 30-ampere 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.

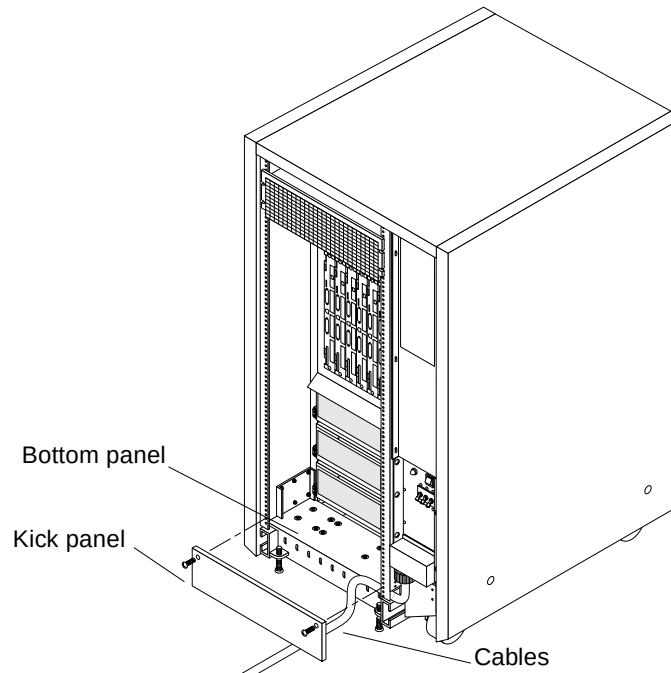


Figure 3-4 Routing Cables Under the Kick Panel

3.2 Attaching the Network Cable to the Master Board

The main network interface is an SBus card on the system master board (the system board in card cage slot 0). The SBus card and the interface cable may vary with the type of network. The locations specified in the following instructions assume the use of twisted-pair 10Base-T Ethernet.

To connect the server side of the cable:

1. Locate the network cable.

Figure 3-5 shows the twisted-pair style of Ethernet network cable.

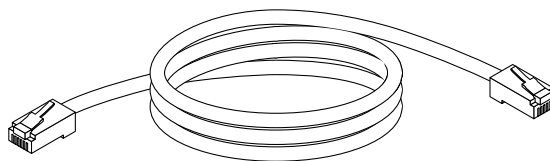


Figure 3-5 Example of Network Cable

For 10Base-T Ethernet, the default interface port is on a Fast Single Ended SCSI/Buffered Ethernet (FSBE/S) card in SBus slot 3 of the system board in card cage slot 0.

2. Plug the network cable into the SBus network port.

3. Route the cable down along the right mounting rail of the chassis.

Use tie wraps to secure the cable to the rail.

3.3 Precautions for JumpStart Automatic Installation

This system is able to 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.



Caution – JumpStart may incorrectly install the system as a stand-alone 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.

If JumpStart completes the installation incorrectly, you most likely need to reinstall Solaris 2.X manually.

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

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 by pressing L1-A (Stop-A), and perform a manual installation when ready.

3.4 *Connecting the System to the Network*

1. **Connect the network cable to a twisted-pair-to-transceiver interface box.**
2. **Connect the interface box via an appropriate cable to a network transceiver.**

Figure 1-6 on page 1-12 shows a typical arrangement for connecting the system to an Ethernet network.

3.5 *Connecting an ASCII Terminal*

An ASCII terminal must be attached to the server for viewing diagnostic messages. A terminal is not required for normal server operations, so it may be necessary to find a terminal to connect to the server.

To connect an ASCII terminal:

1. **Plug the terminal cable to port A on the system board in card cage slot 0.**
See Figure 3-6. The system board in card cage slot 0 is normally the system master in a new system.

Note – If the terminal does not display messages when the system is booted, the terminal may be connected to the wrong system board. If this occurs, refer to the *SPARCcenter 2000 Service Manual* for help in locating the system master.

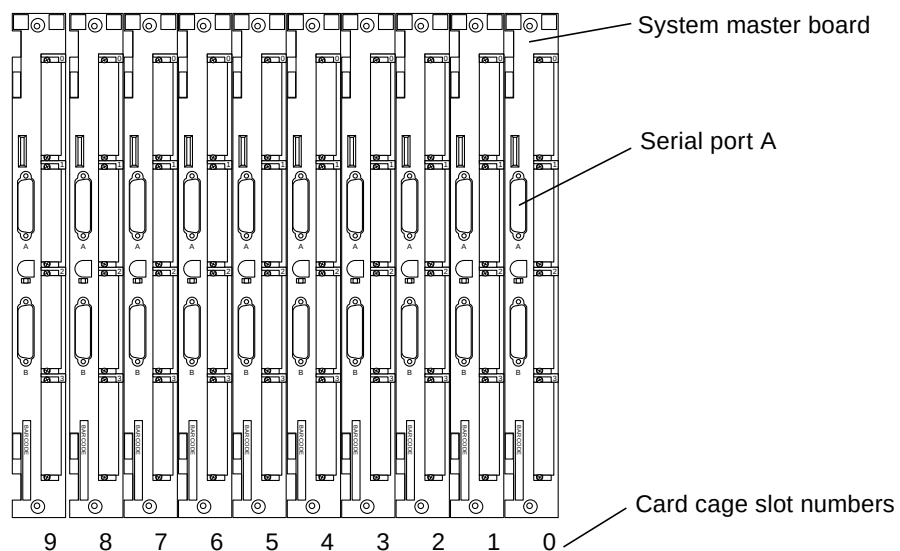


Figure 3-6 Serial Port for an ASCII Terminal

2. Route the monitor cable from the system 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 to an AC wall receptacle.

4. Configure the ASCII terminal software 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 set-up parameters listed in Step 4 may differ from the set-up at the customer site. See the set-defaults and printenv commands in the *OpenBoot Command Reference* manual.

3.6 Connecting External SCSI Devices

External SCSI devices connect to the system through one or more DSBE/S, FSBE/S or DWIS/S cards installed on the system boards.

For information on device ID priorities and slot assignments, refer to the *SPARCcenter 2000 Service Manual*.



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. Plug the cable for the external SCSI device to the appropriate SCSI host adapter card located in the SBus slots on a system board.**
- 2. Route the cable from the system 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 cable to the external SCSI device.**

3.7 Replacing the Rear Screen and Kick Panel

To replace the rear screen and the kick panel:

- 1. Fasten the two captive screws to secure the kick panel to the cabinet.**
See Figure 3-4. If cables are to be routed under the floor, the cables should be between the bottom panel and the kick panel.
- 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 3-3.**

This completes the hardware installation.

Powering the System On and Off



Use the instructions in this chapter to power on and off the system.

Note – The use of an ASCII terminal is recommended for installation. See Section 3.5, “Connecting an ASCII Terminal” for terminal settings and connections.

4.1 Powering On the System



Caution – For Solaris 2.X users: before powering on the system for the first time, read Section 3.3, “Precautions for JumpStart Automatic Installation.”

To power on the SPARCcenter 2000 system:

1. Begin with a safety inspection of the system:

- a. Turn the system key switch to ϕ (the standby position).**
See Figure 4-1.

Note – The standby position (ϕ) does not turn off any AC-powered drive trays in the lower part of the system cabinet. The key switch controls only the DC power supply and DC-powered devices in the main cabinet.

b. Turn the AC distribution unit power switch to Off.

The AC distribution unit is at the rear of the cabinet. See Figure 4-2.

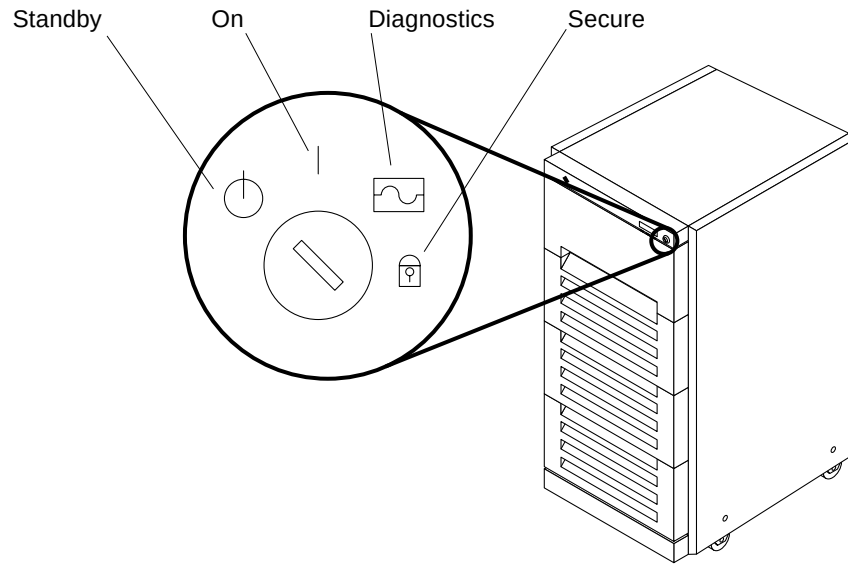


Figure 4-1 Key Switch Positions

c. Verify that the cabinet AC power cord is plugged into a wall socket.



Caution – The outlet must be a 200-240 Vac 30-ampere circuit intended solely for use by the server cabinet. The electrical receptacles must be grounded, and the grounding conductors serving these receptacles must be connected to the earth ground at the service equipment.



Caution – Do not disconnect the AC power cord from the wall socket when you work on or in the server cabinet. This connection provides a ground path that prevents damage from electrostatic discharge.



Warning – Never move the system or expansion cabinets when system power is on. Excessive movement can cause catastrophic disk drive failure. Always power the system OFF before moving it.

2. Turn on power to any expansion cabinets.

Read the documentation supplied with each type of expansion cabinet for specific instructions.

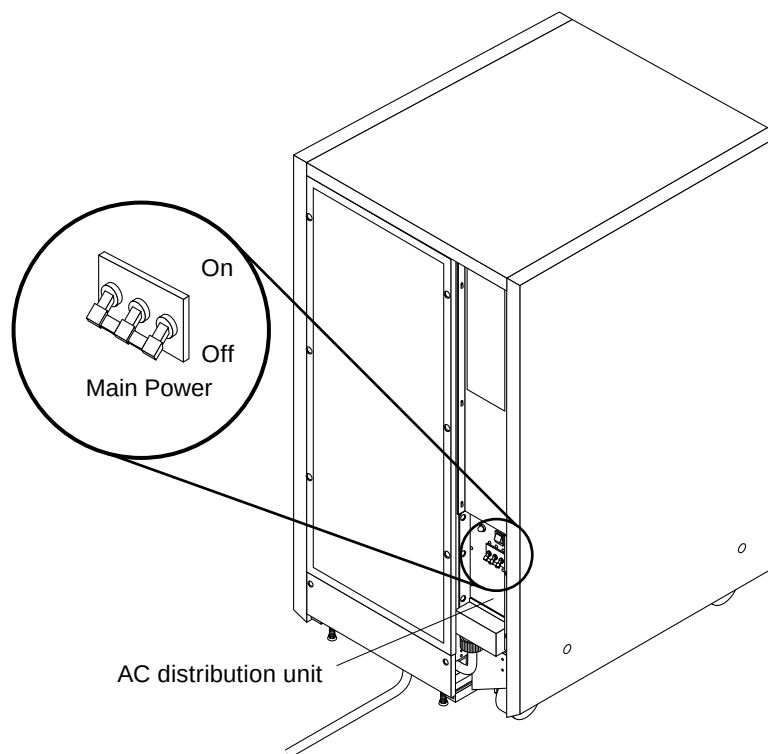


Figure 4-2 The AC Distribution Unit Power Switch

3. Turn on power to the terminal.

4. Set the system cabinet Local/Remote switch to Local.

See Figure 4-3.

5. Turn on the AC distribution unit power switch.

See Figure 4-2. Listen for the sound of AC-powered devices such as disk drives and fans in the disk drive tray(s).

Note – The front panel keys for this switch are packed in the accessory box.

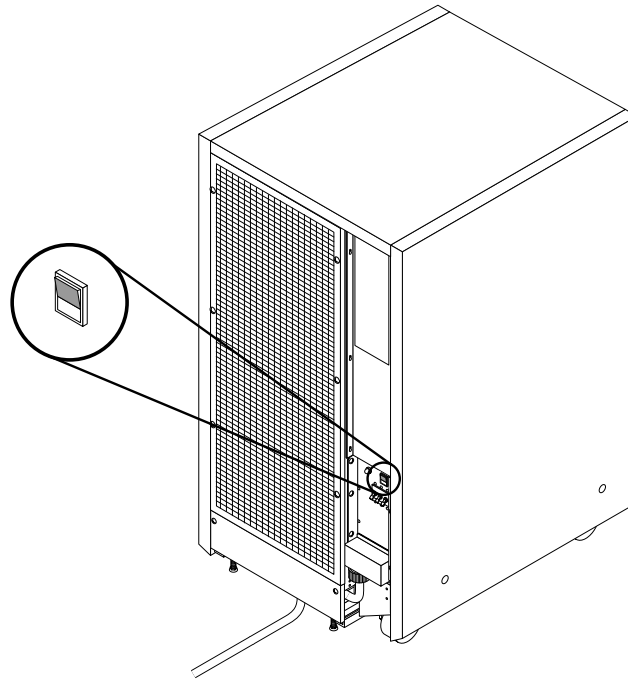


Figure 4-3 Local/Remote Switch

6. Turn the key switch to the On position.

The system will run POST diagnostics for about one minute and then boot.

You should see and hear several things happen:

- The DC-powered blower fan in the top of the cabinet begins turning.
- The left LED (green) on the front of the cabinet turns on immediately to indicate the DC power supply is functioning.
- The middle LED (yellow) lights immediately and should turn off after approximately 60 seconds.
- The right LED (green) lights after POST completes to denote boot is successful.
- The terminal beep indicates that the system is ready.
- The terminal screen lights up upon completion of the internal self-test.

7. Watch the terminal screen for any POST error messages.

Note – If the middle front panel LED remains lit after the system has booted, POST has found (and deconfigured) failing hardware in the main cabinet.

Note – POST does not test drives or internal parts of SBus cards. To test these devices, run OpenBoot PROM (OBP) diagnostics manually after the system has booted. Refer to the *OpenBoot Command Reference* for instructions.

8. To restart POST, or if the system hangs, press the reset switch on the back of the front panel. See Figure 4-4.

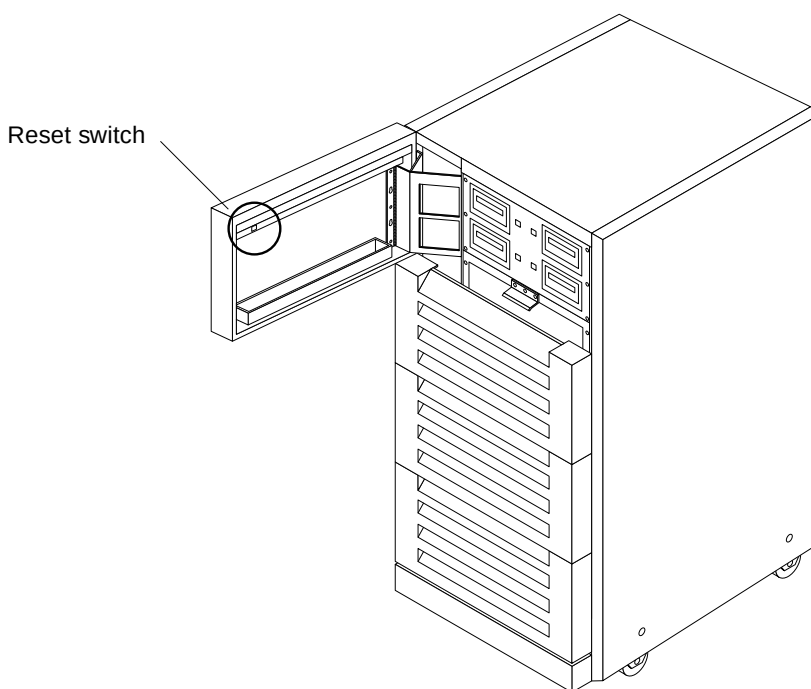


Figure 4-4 System Reset Switch

4.2 Reading Boot Messages

Use the boot software messages to verify the presence of options in the system. After POST 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 – The following screen display is an example only. The actual message displayed on the screen will vary with the software running on the system.

```
<<<< SPARCsystem 2000XX POST VX.X >>>>
...(various test messages)...
SPARCsystem 2000 Series (2 X XXXXXX), No Keyboard
ROM Rev. -.-, --- MB Memory installed, Serial #---.
Ethernet address -:-:-:-:-:-:-, Host ID: -----.
```

If POST indicates a hardware problem at this time, refer to the *SPARCcenter 2000 Service Manual* for further instructions.

Note – If there is no OpenBoot PROM master board in the system, or if the OBP master is replaced by an unprogrammed system board, the OpenBoot program may prompt you to select a system board to become the new OBP master. A terminal is necessary, both to see the OBP message, and to enter a slot selection—the system is not hung, but will pause indefinitely until you enter a selection. Refer to the *SPARCcenter 2000 Service Manual* for information about system master board selection.

Note – When the system finishes booting for the first time—if there is no appropriate server configuration file on the disk drive—it may be necessary to prevent the JumpStart automatic configuration program from running. See Section 3.3, “Precautions for JumpStart Automatic Installation.”

4.3 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 4-5.

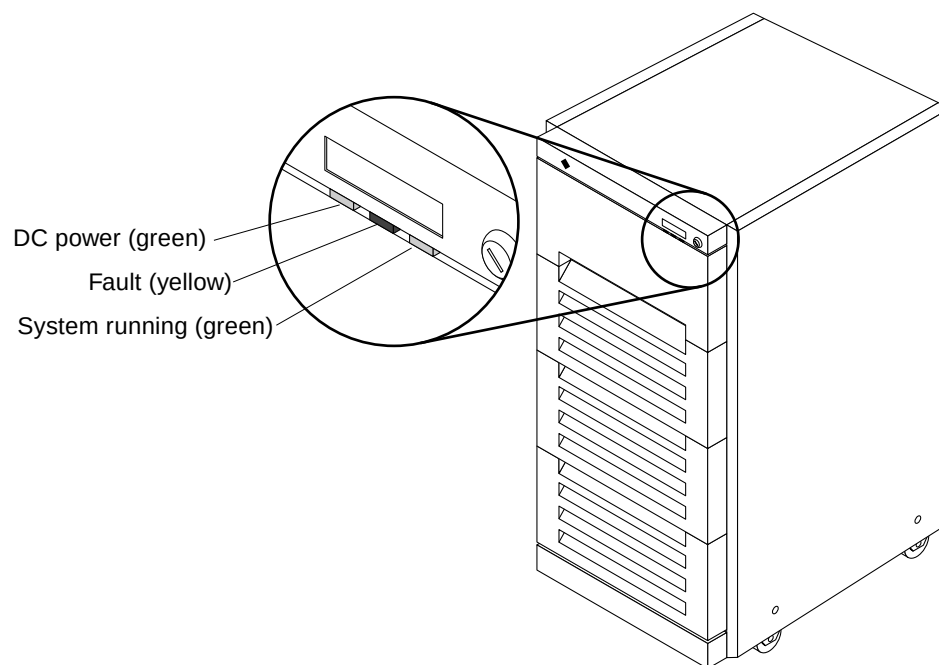


Figure 4-5 System Status LEDs

Table 4-1 summarizes LED status indications.

Table 4-1 LED Status Indicators

LED Location	LED	Condition
Front Panel	Left LED (green)	On — DC power supply is receiving AC current. Off — There is no DC power.
	Middle LED (yellow)	On — (first 60 seconds) Self-tests are running. Off — (after self-tests end) No hardware failures. On — (after self-tests end) Hardware failure was detected.
	Right LED (green)	Off — (first 60 seconds) Self-tests are running. On — (after self-tests end) System is running. Off — (after self-tests end) System cannot run; repair is needed.
Status LEDs (yellow, marked 0-7) on all system boards	All boards	LEDs cycle on and off in irregular pattern during POST. If no OBP master has been selected, LEDs will flash on one board after POST. (The system will pause indefinitely until you make a selection.)
	OBP master board	After POST ends, LEDs display cyclic pattern.

Table 4-1 LED Status Indicators (Continued)

LED Location	LED	Condition
	Slave boards with SuperSPARC modules	After POST ends, LEDs show solid pattern during OBP, then display cyclic pattern after system boots. (Because all boards display the same pattern after boot, you can identify the OBP master <i>only</i> during boot-up.)
	Slave boards without SuperSPARC modules	On boards without SuperSPARC modules, LEDs show solid pattern both during OBP and after system boots.
	Faulty boards	On broken boards, LEDs should turn off after system boots.

4.4 Powering Off the System

Halt the operating system as shown below before turning off system power. Failure to halt the operating system properly can cause the loss of disk drive data.

- 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.**
- 4. Wait for the system-halted message and the boot monitor prompt.**
- 5. Turn off the system power in this order:**
 - a. First: External drives and expansion cabinets (if any)
 - b. Next: System cabinet
 - c. Last: Terminal

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Revision History

Revision	Dash	Date	Comments
800-6975-16	-A	June 1996	Fifth Revision to FCS
800-6975-14	-A	October 1994	Fourth Revision to FCS
800-6975-13	-A	May 1994	Third Revision to FCS
800-6975-12	-A	August 1993	Second Revision to FCS
800-6975-11	-A	May 1993	First Revision to FCS
800-6975-10	-A	December 1992	First Customer Ship (FCS)

Reader Comments

We welcome your comments and suggestions to help improve the *SPARCcenter 2000 Installation Manual*, part number 800-6975-16. Please take time to let us know what you think about this manual.

- The tasks were well documented and easy to follow.

Strongly
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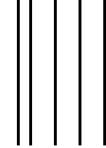
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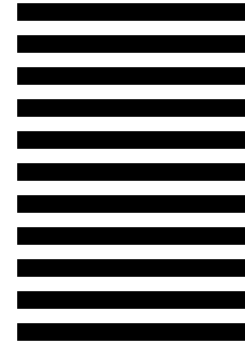
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