

DIGITAL Server 7300/7300R Series

Configuration and Installation Guide

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Preface

Intended Audience

This manual is for anyone who manages, operates, or services the system drawer in a DIGITAL Server 7300/7300R system.

Document Structure

This manual uses a structured documentation design. Topics are organized into small sections for efficient online and printed reference. Each topic begins with an abstract. You can quickly gain a comprehensive overview by reading only the abstracts. Next is an illustration or example, which also provides quick reference. Last in the structure are descriptive text and syntax definitions.

This manual has seven chapters and two appendixes, as follows:

- **Chapter 1, Configuration Rules**, gives configuration guidelines on installing the system drawer and other components in the pedestal or cabinet.
- **Chapter 2, Preparing the Cabinet**, gives site preparation information and tells how to stabilize the cabinet.
- **Chapter 3, Preparing the Pedestal**, gives site preparation information.
- **Chapter 4, Installing Components in Cabinet**, provides installation instructions on how to install options in the cabinet.
- **Chapter 5, Installing StorageWorks Shelves in Pedestal**, tells how to install this option in the pedestal.
- **Chapter 6, Making Connections**, describes how to connect the console terminal and other components to the system.

- **Chapter 7, System Power-Up and Verification**, tells how to check your system after power-up and provides booting instructions.
- **Appendix A, Cabinet to Pedestal System Drawer Conversion**, gives instructions on how to convert a cabinet system drawer to a pedestal system drawer and then install it on the pedestal.
- **Appendix B, Using H9A10-EC Cabinets**, gives you the H9A10-EC (metric) cabinet configuration rules and installation instructions.

Documentation Titles

The following table lists the books in the DIGITAL Server 7300/7300R documentation set.

DIGITAL Server 7300/7300R Documentation

Title	Order Number
DIGITAL Server 7300/7300R User and Configuration Documentation Kit	QC-06DAC-H8
<i>System Drawer User's Guide</i>	ER-K9FWW-UA
<i>Configuration and Installation Guide</i>	ER-K9FWW-IA
System Maintenance Kit	QA-5XGAA-GZ
<i>DIGITAL Server 7300/7300R Service Manual</i>	ER-K9FWW-SG

1

Configuration Rules

This chapter provides configuration rules for the following:

- Cabinet
- System Drawer Configuration Rules (Cabinet)
- Shelf Configuration Rules (Cabinet)
- Pedestal
- System Drawer Power System
- Cabinet Power System
- AC Power Strips in the Pedestal
- DIGITAL Server 7300/7300R System Drawer

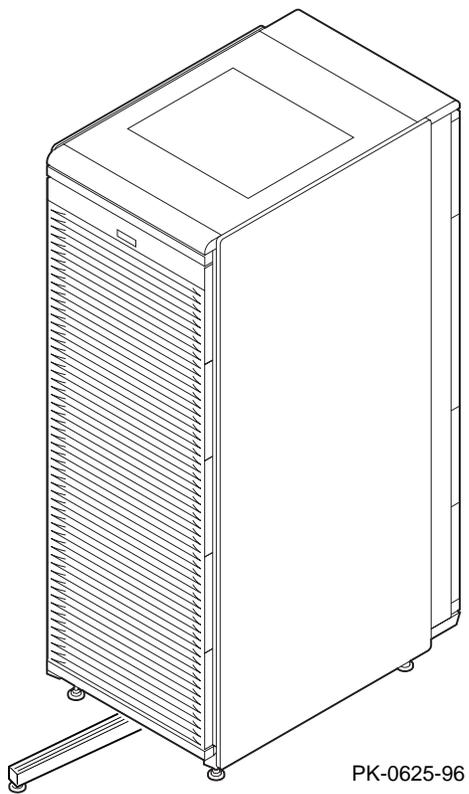
NOTE: The location of system drawers, StorageWorks shelves, and other components in the cabinet affect both cabinet stability and cooling efficiency. Careful consideration is required for system upgrades and unique configurations to comply with UL1950 safety requirements and to prevent premature component failure.

Configuration Rules

Cabinet

Figure 1-1 shows the H9A10 cabinet with the stabilizer extended.

Figure 1-1 Cabinet



Configuration Rules

About the Cabinet

- The cabinet contains the following components:
- Cabinet panel with fan and AC power-on LEDs
- Flushing fans
- Two AC power controllers, each with an AC circuit breaker
- Vertical mounting rails
- Stabilizer bar
- Wrist strap for static discharge protection

Cabinet Variants

The H9A10 cabinet has two variants. The H9A10-EL (domestic) cabinet contains two 120 V power controllers, each with 10 NEMA 5-15R outlets. The H9A10-EM (European) cabinet has two 240 V power controllers equipped with 12 IEC C13 outlets.

Cabinet Configuration Rules

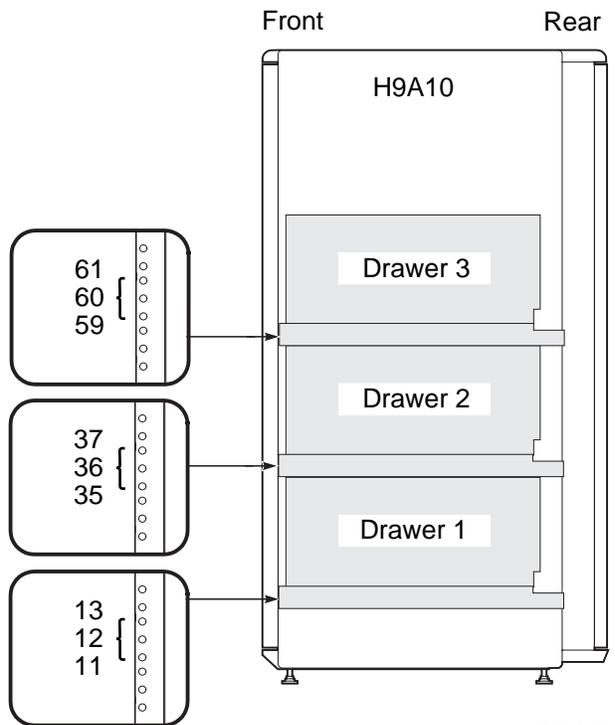
- The maximum number of system drawers is three.
- The maximum number of StorageWorks shelves in a one-system drawer cabinet is eight.
- The maximum number of StorageWorks shelves in a two-system drawer cabinet is six.
- The maximum number of StorageWorks shelves in a three-system drawer cabinet is two.

Configuration Rules

System Drawer Configuration Rules (Cabinet)

The H9A10 (RETMA) cabinet rails have a total of 34 U-units with 102 mounting holes. Table 1-1 gives the mounting holes to be used for a cabinet containing one to three system drawers.

Figure 1-2 System Drawer Mounting Holes



Configuration Rules

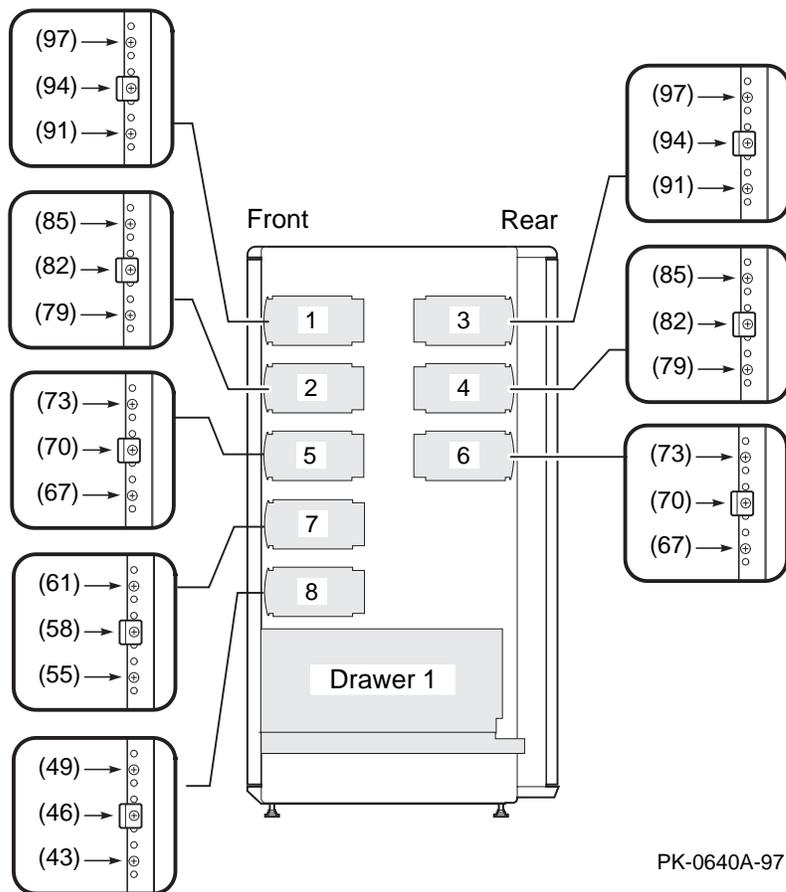
The H9A10 cabinet rails have a total of 34 U-units of vertical mounting height. Each U-unit is 1.75 inches in length. When you install a system drawer, begin counting the mounting holes from the rail bottom to top. According to how many system drawers you install, mark off the mounting holes listed in Table 1-1.

Table 1-1 H9A10 System Drawer Mounting Holes

One System Drawer	Two System Drawers	Three System Drawers
11, 12, 13	First: 11, 12, 13	First: 11, 12, 13
	Second: 35, 36, 37	Second: 35, 36, 37
		Third: 59, 60, 61

Configuration Rules

Figure 1-4 Shelves in One-System Drawer Cabinet

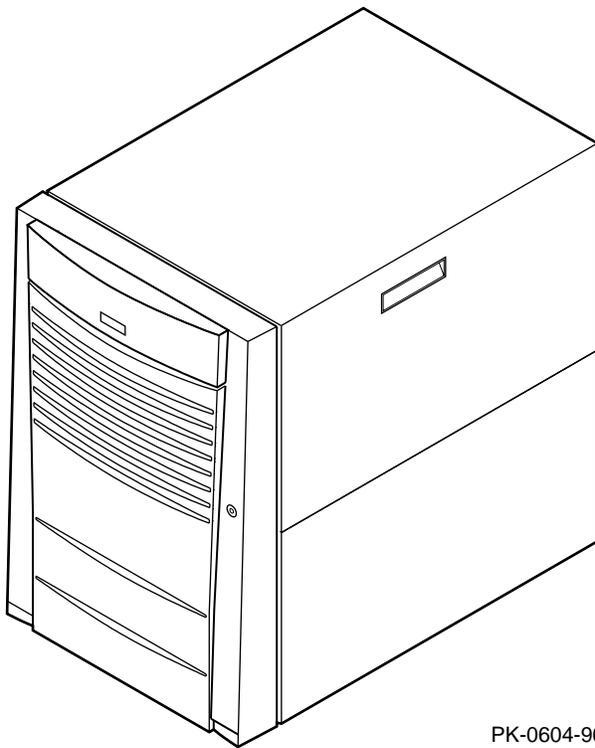


Configuration Rules

Pedestal

Figure 1-5 shows the pedestal.

Figure 1-5 Pedestal



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Configuration Rules

Pedestal Configuration Rules

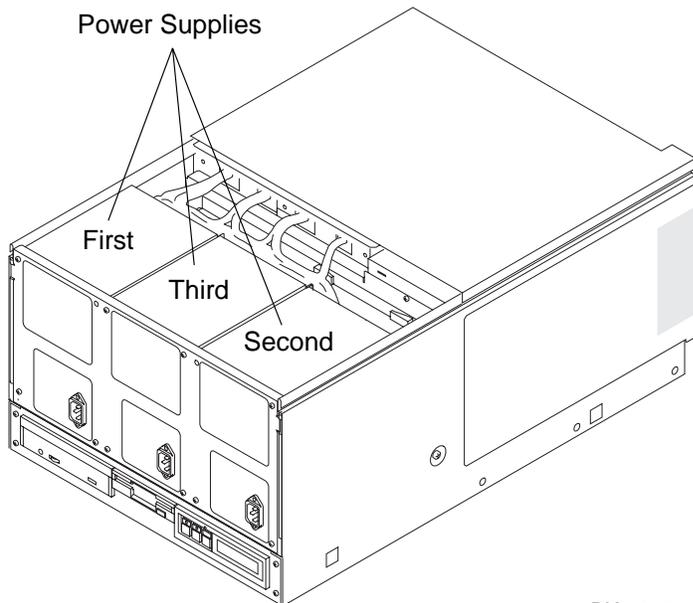
- One system drawer is installed in the pedestal.
- The maximum number of StorageWorks shelves is three.

Configuration Rules

System Drawer Power System

The system drawer contains one to three power supplies and distribution cables. Figure 1-6 shows the power components in the system drawer. Two AC power controllers complete the power system. See “Cabinet Power System.”

Figure 1-6 System Drawer Power Components



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Configuration Rules

About the System Drawer Power System

- A system drawer can contain up to three power supplies. The correct position of the three power supplies is shown in Figure 1-6.
- One power supply is required in a system with one or two CPUs.
- A second power supply is required for N+1 redundancy in a single- or dual-CPU system.
- Two power supplies are required in a system with three or more CPUs.
- Two power supplies are required in a system with two PCI card cages.
- A third power supply is required for N+1 redundancy in a system with three or more CPUs.
- A power harness connects the power supplies to the system motherboard, PCI motherboard, system fans, and drives.

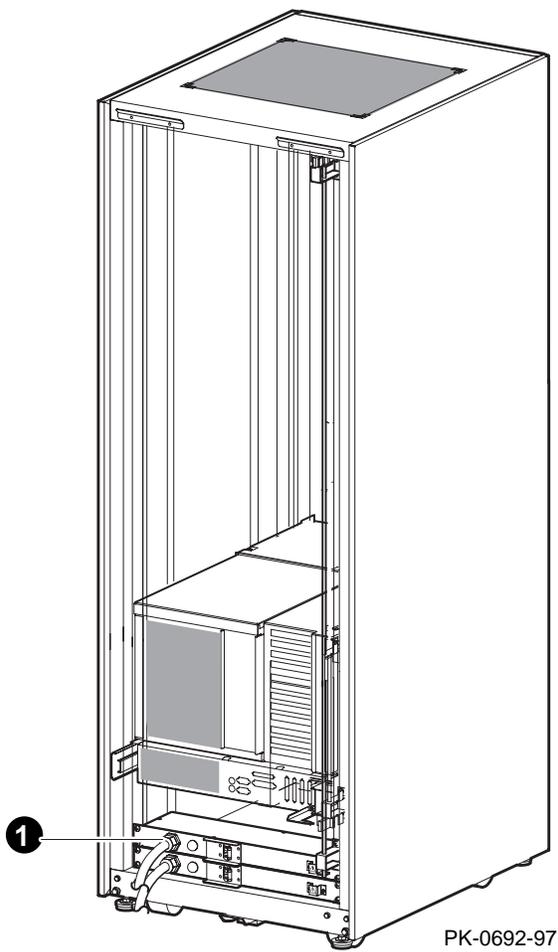
NOTE: Three power supplies provide N+1 redundancy in DIGITAL Server 7300/7300R systems with three or four CPUs.

Configuration Rules

Cabinet Power System

Figure 1-7 shows the two AC power controllers located at the bottom rear of the cabinet. The system drawer power cable(s) connect to the controllers. The controller power cables plug into a wall outlet.

Figure 1-7 Cabinet Power Controllers



Configuration Rules

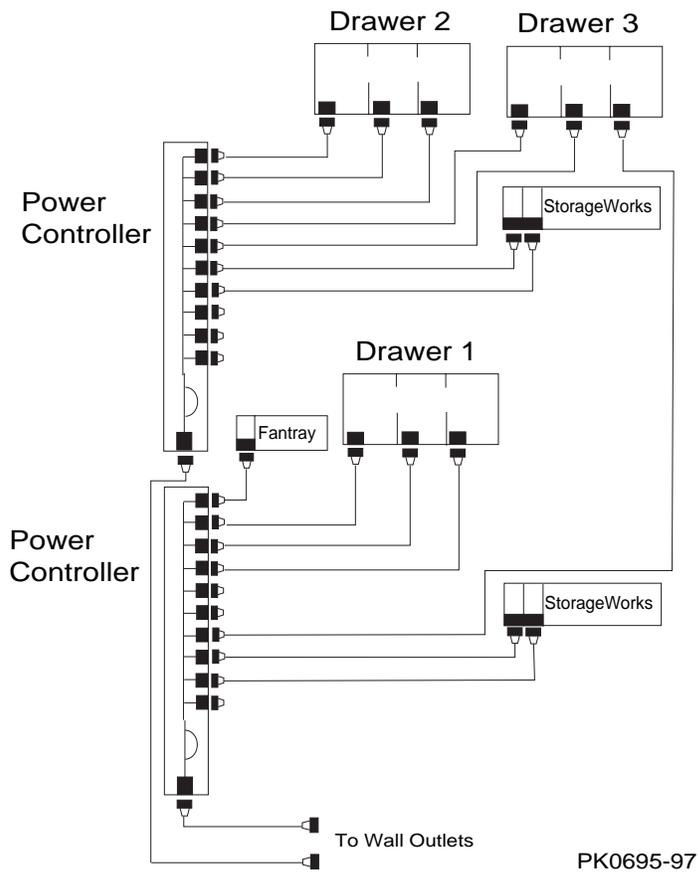
About the Cabinet Power System

The power controllers connect to an AC wall outlet. Each controller has a main power switch and 10 outlets for system drawers, StorageWorks shelves, and fan tray. When connecting system components to the controllers, note that system drawer power cables are gray; StorageWorks shelf power cables and fan tray power cables are gray. Configuration rules are:

- A system drawer contains one to three power supplies; each power supply has one power cable that connects to a power controller.
- A StorageWorks shelf has one power cable; a shelf equipped with a redundant power supply has two power cables.
- Connect all system drawer power cables to the same AC power controller.
- If a cabinet has three system drawers, connect the power cables as shown in Figure 1-8.

Configuration Rules

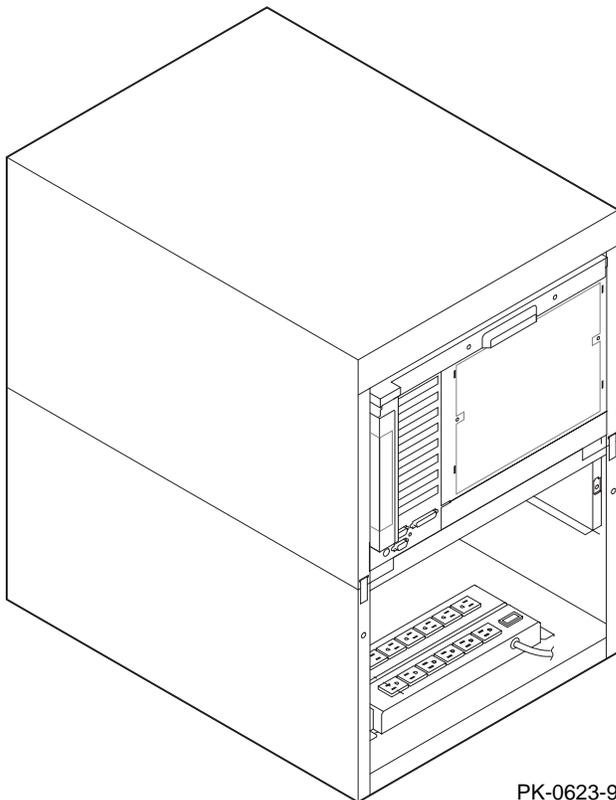
Figure 1-8 Power Connections for Three-Drawer Cabinet



AC Power Strips in the Pedestal

Figure 1-9 shows the pedestal with two AC power strips installed.

Figure 1-9 Pedestal with AC Power Strips



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Configuration Rules

Configuration Rules for Pedestal AC Power Strips

In pedestal systems, both AC power strip cables plug directly into a wall outlet.

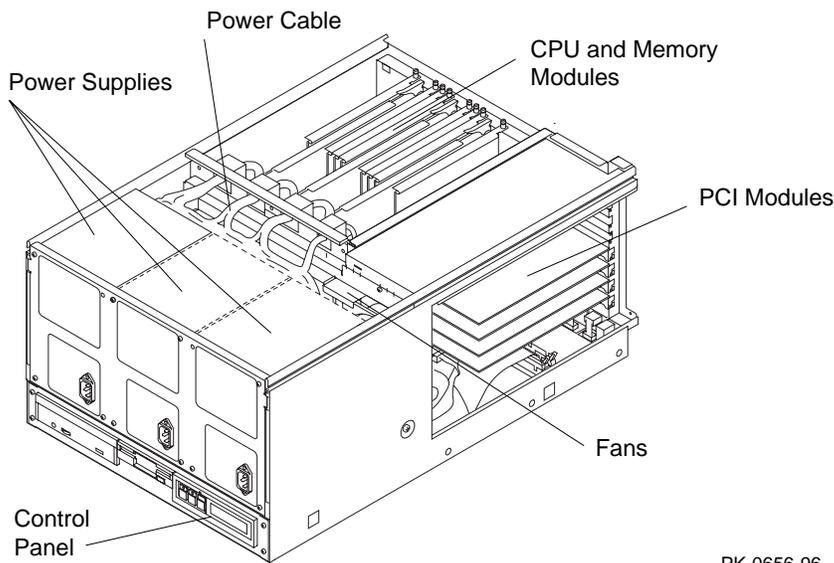
Configuration rules are:

- In North American models: one system drawer and one StorageWorks shelf per AC power strip
- In European models: one system drawer and two StorageWorks shelves per AC power strip
- In Japanese models: one system drawer and three StorageWorks shelves per AC power strip
- A second AC power strip is required if you install a third StorageWorks shelf in a North American or Japanese model.
- The maximum number of AC power strips is two.

DIGITAL Server 7300/7300R System Drawer

Figure 1-10 shows the components of the DIGITAL Server 7300/7300R system drawer. See the next section for system motherboard configuration rules; see the section following that for PCI motherboard configuration rules.

Figure 1-10 DIGITAL Server 7300/7300R System Drawer Components



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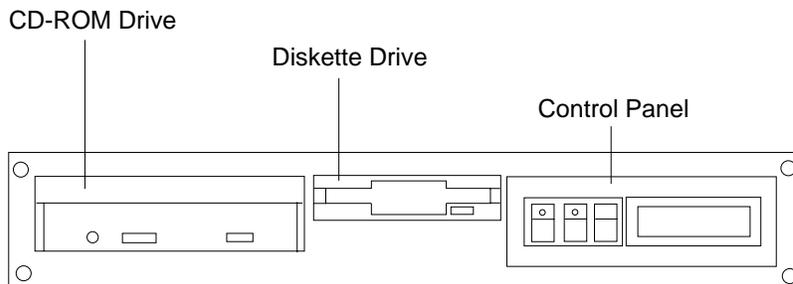
Configuration Rules

The DIGITAL Server 7300/7300R system drawer contains the following components:

- CPU card cage containing the system motherboard, CPU modules, memory modules, and the system bus-to-PCI bus bridge module
- PCI card cage containing PCI motherboard and PCI and EISA modules
- Power supplies and fans
- Control panel

In a cabinet system, the control panel is at the bottom front of the system drawer. In the pedestal system, the control panel is located at the top front of the enclosure.

Figure 1-11 DIGITAL Server 7300/7300R Control Panel

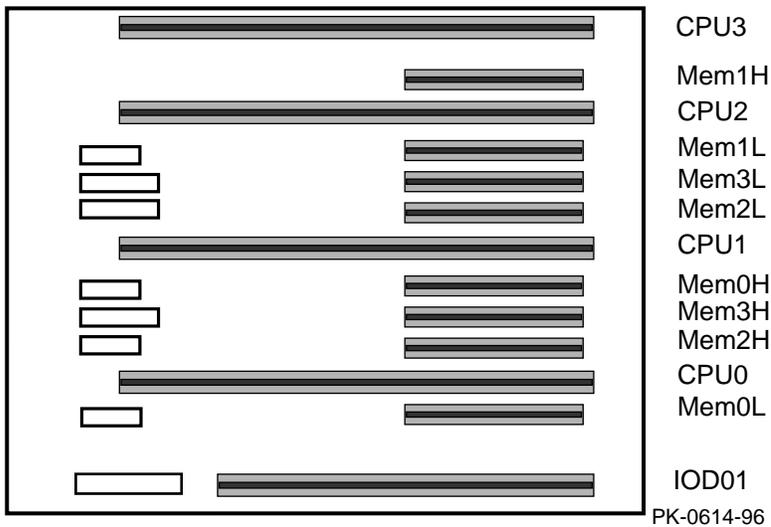


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DIGITAL Server 7300/7300R System Motherboard

The DIGITAL Server 7300/7300R system motherboard has four processor slots, eight memory slots, and one I/O slot.

Figure 1-12 DIGITAL Server 7300/7300R System Motherboard



Configuration Rules

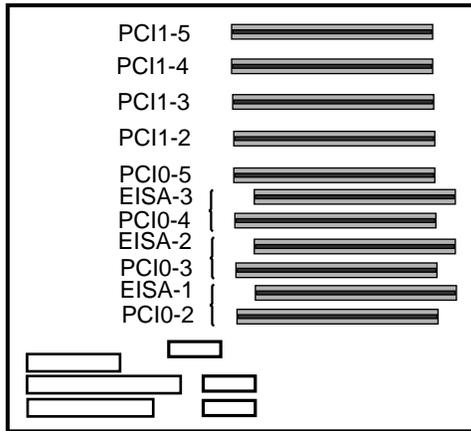
System Motherboard Configuration Rules

- The system motherboard has slots for four processor modules.
- The first processor module must occupy slot CPU0.
- The system motherboard has slots for eight memory modules (four memory pairs).
- Memory modules must be configured in matched pairs.
- When large memory pairs are configured with smaller memory pairs, the largest memory modules must be installed in the lowest order slots.
- The system motherboard has one slot for I/O.
- The power control module (PCM), located on the system motherboard, monitors voltages, CPU fan RPMs, system fan RPMs, and internal air temperature.

DIGITAL Server 7300/7300R I/O Interface

The I/O interface consists of the system bus-to-PCI bus bridge module and the PCI motherboard. The bridge module is the logical and physical connection from the system motherboard to the PCI motherboard. The server control module provides ports for the console terminal, keyboard, mouse, and other components.

Figure 1-13 DIGITAL Server 7300/7300R PCI Motherboard



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Configuration Rules

I/O Interface Configuration Rules

- The bridge module connects the system motherboard to the PCI motherboard; it is in slot IOD0/1 on the system motherboard.
- The VGA module must be in a PCI0 slot.
- The PCI motherboard supports two PCI 64-bit buses and one EISA bus.

PCI and EISA Slots

As shown in Figure 1-13, the PCI motherboard has five dedicated PCI slots and three slot pairs with connectors for a PCI option and an EISA option. You can install an option into only one member of each pair. Maximum configurations are:

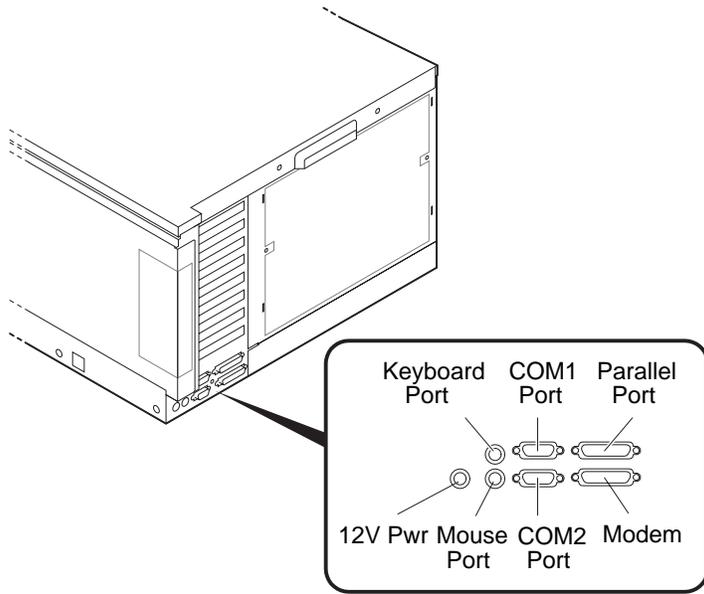
- Eight PCI options using the dedicated PCI slots and the PCI connectors in the three slot pairs. No EISA options can be installed with this configuration.
- Five PCI options using the dedicated PCI slots and three EISA options using EISA connectors on the three slot pairs.

NOTE: Multicard options, such as the CIPCA-AA storage adapter, which uses both one PCI and one EISA slot, or the CIPCA-BA, which uses two PCI slots, take up two of the eight available option slots.

Server Control Module

The server control module, located at the rear of the system drawer, has ports for the following devices: terminal (COM1), keyboard, mouse, printer, modem, 12V power, and an additional communications port (COM2). See Figure 1-14.

Figure 1-14 Server Control Module Ports



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Configuration Rules

2

Preparing the Cabinet

This chapter describes how to prepare the cabinet before installing system drawers and other components. Sections in this chapter include:

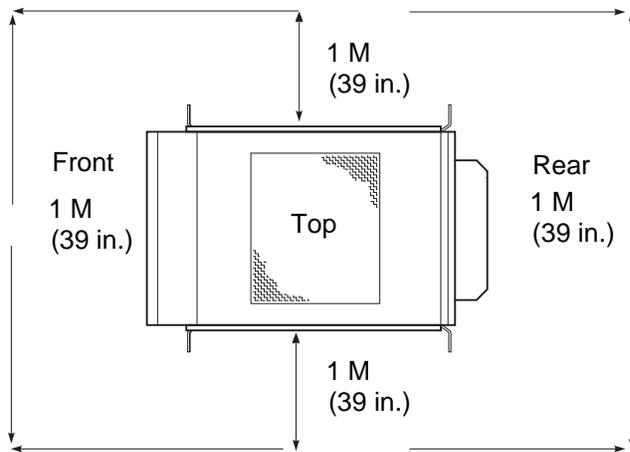
- Cabinet Environmental and Power Requirements
- Unpack and Check Cabinet
- Remove Cabinet from Pallet
- Stabilize the Cabinet
- Joining Two Cabinets

Preparing the Cabinet

Cabinet Environmental and Power Requirements

Figure 2-1 shows the clearance area necessary for service access.

Figure 2-1 Cabinet Service Area



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Preparing the Cabinet

Table 2-1 lists the environmental requirements. Table 2-2 lists the power requirements.

Table 2-1 Cabinet Environmental Specifications

Specification	Measurement
Operating temperature	10–35°C (50–95°F)
Relative humidity (non-condensing)	20–90%
Maximum operating altitude	3050 m (10,000 ft)
Minimum operating clearance	
Front	60 cm (24 in.)
Rear	60 cm (24 in.)

Table 2-2 Cabinet Power Requirements

Specification	Measurement
Maximum current rating	24 A
Operating voltage range	100–120 VAC (North American) 220–240 VAC (Europe)
Maximum power consumption	Configuration-specific
Operating frequency range	50 Hz to 60 Hz

Tools Required

You will need the following tools to install components in the cabinet:

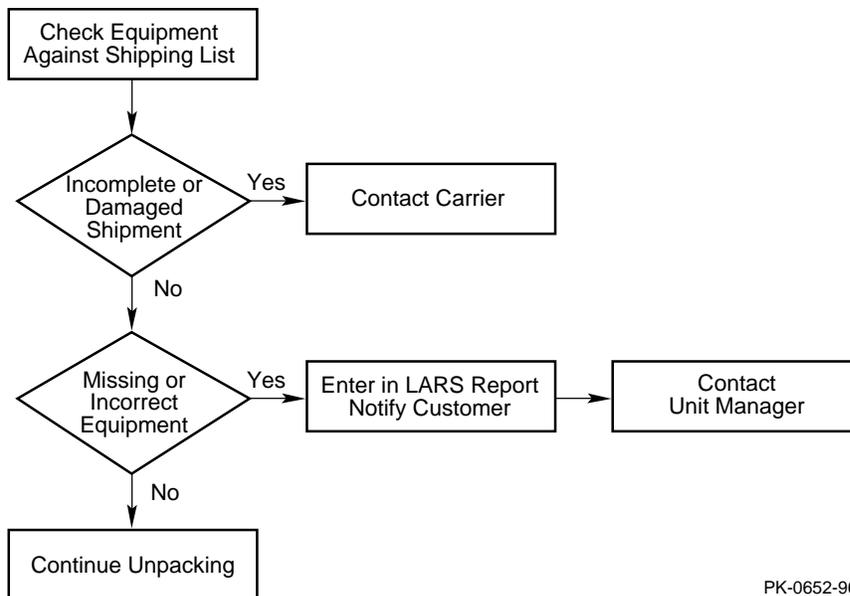
- Phillips screwdriver
- Adjustable wrench

Preparing the Cabinet

Unpack and Check Cabinet

Check to ensure that all system equipment is at the installation site. Then, unpack the equipment.

Figure 2-2 Cabinet System Inventory



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Preparing the Cabinet

If you find a damaged container or package, notify the carrier.

Compare items listed on the Product Delivery Document with the packing slip contained in a plastic envelope on the shipping box. Items should be compared throughout the installation procedure as boxes are unpacked and cabinets opened.

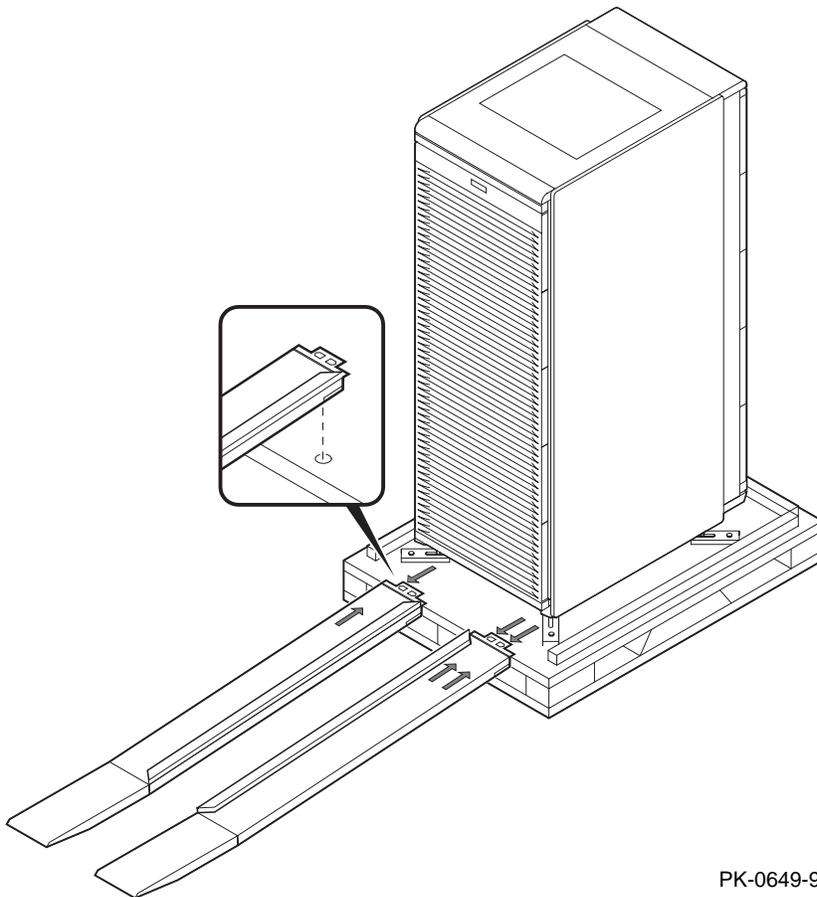
It is important to record information on damaged or opened containers on the Labor Activity Reporting (LARS) form.

Preparing the Cabinet

Remove Cabinet from Pallet

Check the cabinet for external damage. Remove the four shipping brackets that attach the cabinet to the pallet. Insert the ramps on the front of the pallet and remove the cabinet.

Figure 2-3 Removal from Pallet



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Preparing the Cabinet

WARNING: At least two people are required to remove the cabinet from the pallet.

WARNING: Serious injury may result if the cabinet is improperly handled or proper safety conditions are not met.

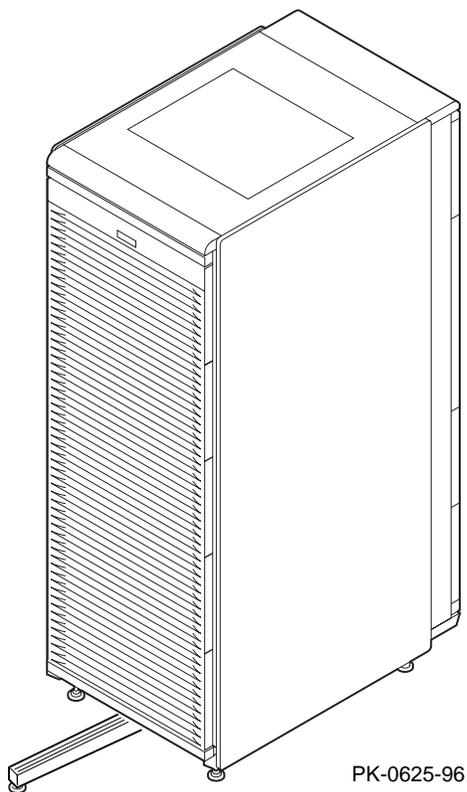
1. Check the cabinet sides, top, and front and rear doors for damage. Report any damage to the cabinet to the customer and your unit manager. Stop unpacking until the customer gives you permission to continue.
2. Using an adjustable wrench, remove the four bolts and shipping brackets that hold the cabinet leveler feet to the pallet.
3. The leveler feet are lowered to the pallet surface for shipment. Using the adjustable wrench, raise the feet to the uppermost position before removing the cabinet from the pallet (see Figure 2-5).
4. Attach the ramps by fitting the prongs into the holes on the front of the pallet. Place the ramps so that the runners are on the inside. Align the arrows on the ramps and pallet.
5. With two people working together (one in front and one in back) slowly roll the cabinet off the pallet down the ramps. Move the cabinet into position.

Preparing the Cabinet

Stabilize the Cabinet

The cabinet stabilizer bar is attached to the bottom of the cabinet. After removing the cabinet from the pallet, lower the cabinet leveler feet and then pull out the stabilizer bar.

Figure 2-4 Using the Cabinet Stabilizer Bar

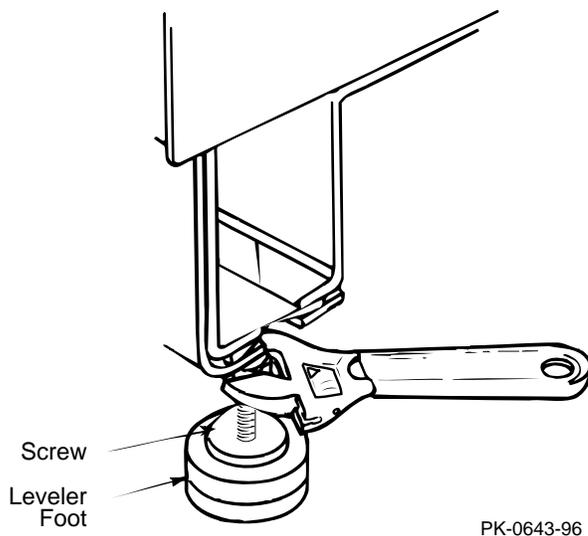


Preparing the Cabinet

1. Using an adjustable wrench or your hand, lower and adjust the leveler feet (Figure 2-5). Once the cabinet is level, lock each of the leveler feet in place by tightening the locknut at the top of each foot.
2. At the front of the cabinet, pull out the stabilizer bar from underneath the cabinet (see Figure 2-4). Adjust the leveler foot at the end of the stabilizer bar.

WARNING: Only DIGITAL Customer Service representatives or customer maintenance personnel who are familiar with computer hardware should slide system drawers out of the cabinet. Personnel should be experienced and trained in installing computers and related equipment. Before pulling a system drawer out, make sure that the stabilizer bar is fully extended; then adjust the leveler foot at the end of the bar so that it touches the floor.

Figure 2-5 Leveler Foot Adjustment

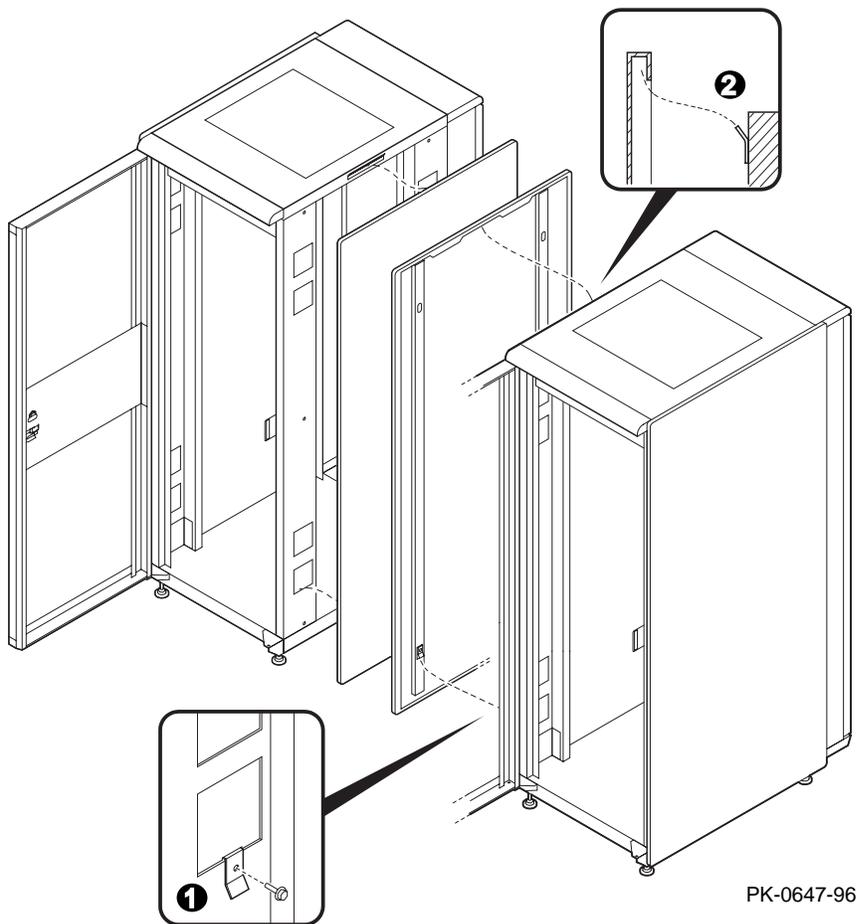


Preparing the Cabinet

Joining Two Cabinets

First, position the two cabinets side by side. Then, remove the inner side panels from each cabinet. Finally, install the joiner kit hardware and attach the cabinets together.

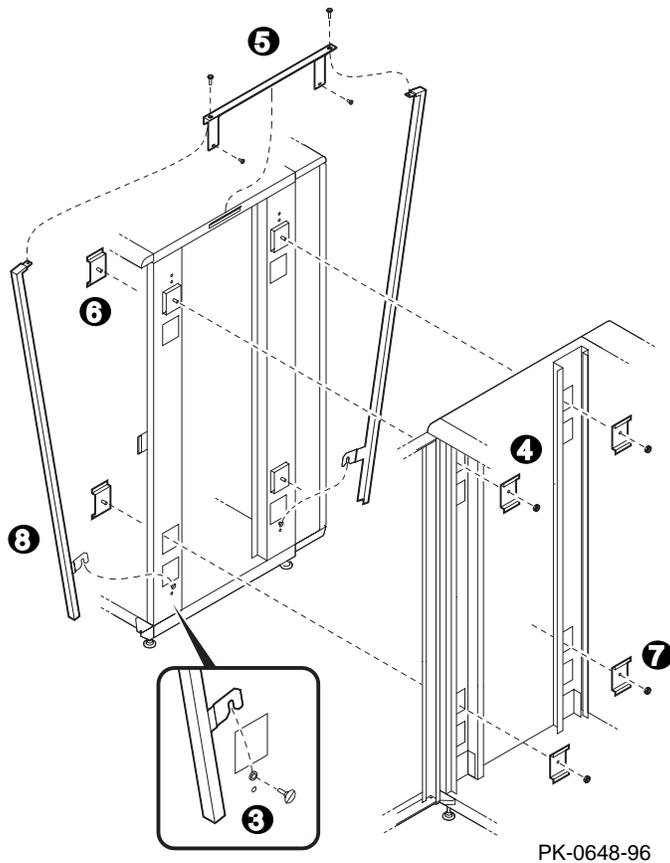
Figure 2-6 Side Panel Removal



Preparing the Cabinet

1. Position the cabinets side by side.
2. To remove a side panel, remove the two M5 screws at the bottom front and rear of the cabinet (see **1**).
3. Remove the side panel by lifting it up and away from the cabinet. The side panel rests on the hanger bracket located at the top of the cabinet (see **2**).
4. Repeat steps 2 and 3 on the other cabinet. Install the keybuttons (see **3**).

Figure 2-7 Installing the Joiner Hardware



Preparing the Cabinet

5. Install a black bracket at the upper front rail area in one cabinet (see 4).
6. Install the top trim piece using two Phillips screws (see 5).
7. Push the cabinets together.
8. Install a black bracket (6) in the same area in the other cabinet. Attach the cabinets by bolting the brackets together.
9. Repeat the bracket installation at the space provided at the bottom rear of the cabinet (see 7).
10. Install the front barrier piece by resting it on the keybutton (step 5) and attaching it to the cabinet top (see 8).
11. Level the cabinets.

3

Preparing the Pedestal

This section gives environmental requirements and unpacking guidelines for the pedestal.
Sections include:

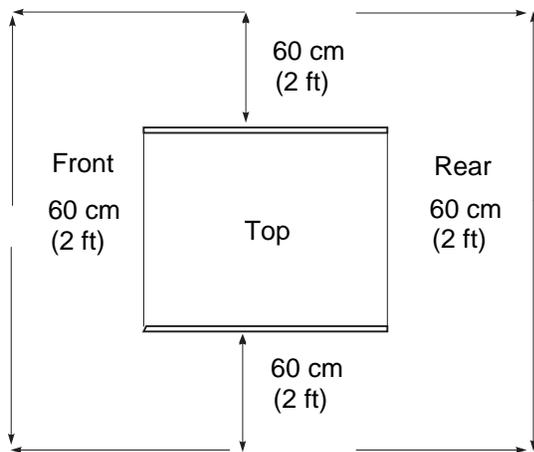
- Pedestal Environmental and Power Requirements
- Unpack and Check Pedestal

Preparing the Pedestal

Pedestal Environmental and Power Requirements

Figure 3-1 shows the clearance area necessary for service access.

Figure 3-1 Pedestal Service Area



PK-0606-96

Preparing the Pedestal

Table 3-1 lists the environmental specifications. Table 3-2 lists the power requirements.

Table 3-1 Pedestal Environmental Specifications

Specification	Measurement
Operating temperature	10–35° C (50–95° F)
Relative humidity (noncondensing)	20–90%
Maximum operating altitude	3050 m (10,000 ft)
Minimum operating clearance	
Front	60 cm (2 ft)
Rear	60 cm (2 ft)

Table 3-2 Pedestal Power Requirements

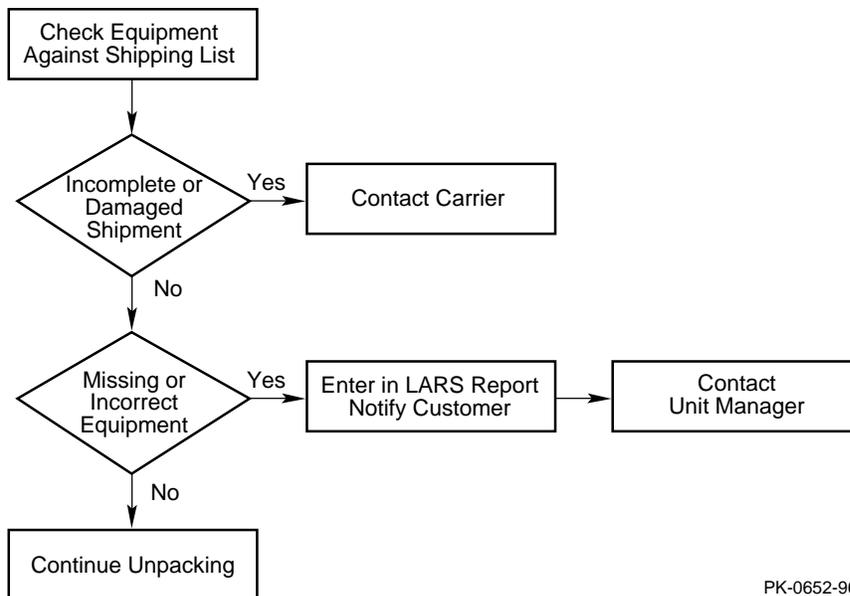
Specification	Measurement
Maximum current rating	12 A (North American) 10 A (Europe)
Typical power consumption	720 watts (DIGITAL Server 7200/7200R system)
Operating voltage range	100–120/200–240 VAC
Operating frequency range	50 Hz to 60 Hz
AC power	100–120 V, 12 A, single phase (North America and Japan) 200–240 V, 10 A, single phase (Europe)
Plug type	NEMA 5-15P (North America and Japan)

Preparing the Pedestal

Unpack and Check Pedestal

Check to ensure that all system equipment is at the installation site. Then, unpack the equipment.

Figure 3-2 Pedestal System Inventory



PK-0652-96

If you find a damaged container or package, notify the carrier.

Compare items listed on the Product Delivery Document with the packing slip contained in a plastic envelope on the shipping box. Items should be compared throughout the installation procedure as boxes are unpacked and cabinets opened.

It is important to record information on damaged or opened containers on the Labor Activity Reporting (LARS) form.

4

Installing Components in Cabinet

Some cabinet systems are shipped with factory-installed system drawers and StorageWorks shelves. However, both components may be ordered separately and slider rail kits are available when installing additional system drawers. This chapter provides guidelines for installing the system drawers and StorageWorks shelves in a cabinet. Sections include:

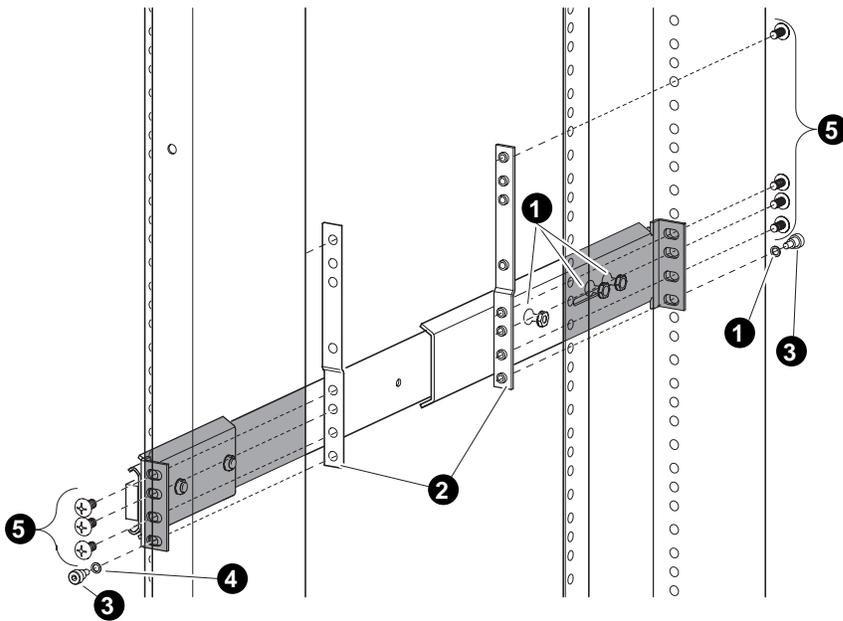
- Installing Slider Rails
- Installing the System Drawer
- Installing a StorageWorks Shelf

Installing Components in Cabinet

Installing Slider Rails

Attach Slide Assemblies to Cabinet Rails

Figure 4-1 Attaching Slide Assemblies



LJ-05545.T10

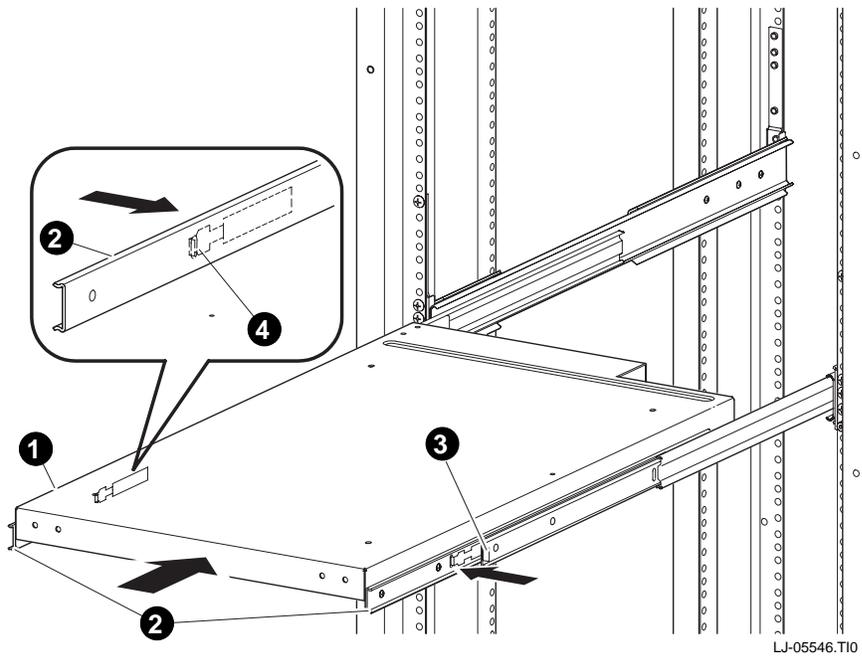
Installing Components in Cabinet

1. Loosen the three screws and nuts **1** securing the rear slide bracket to the slide assemblies (see Figure 4-1). This allows the length of the slide assemblies to be adjusted between the front and rear mounting rails.
2. Locate the right slide assembly.
3. Place the front slide bracket on the inside of the right front rail and align the holes from the bottom of the nut plate **2** with the four slide bracket holes on the right front rail.
4. Install one screw **3** and one washer **4** to secure the front slide bracket to the right front rail. Do not tighten.
5. Place the rear slide bracket on the inside of the right rear rail and align the holes from the bottom of the nut plate **2** with the four slide bracket holes on the right rear rail.
6. Install one screw and washer in the first hole to secure the rear slide bracket to the right rear rail. Do not tighten.
7. Install four truss-head screws **5** to secure the rear slide bracket and nut plate to the right rear rail. Do not tighten.
8. Tighten the three pan-head screws and hex nuts **1** that secure the right rear slide bracket to the right slide assembly.
9. Attach the left slide assembly to the left front and rear rails by repeating steps 1 through 8.
10. Tighten all screws only enough to allow play for the slides to align when the slide tray is installed in the cabinet.

Installing Components in Cabinet

Mount Slide Tray on Slides

Figure 4-2 Mounting the Slide Tray



Installing Components in Cabinet

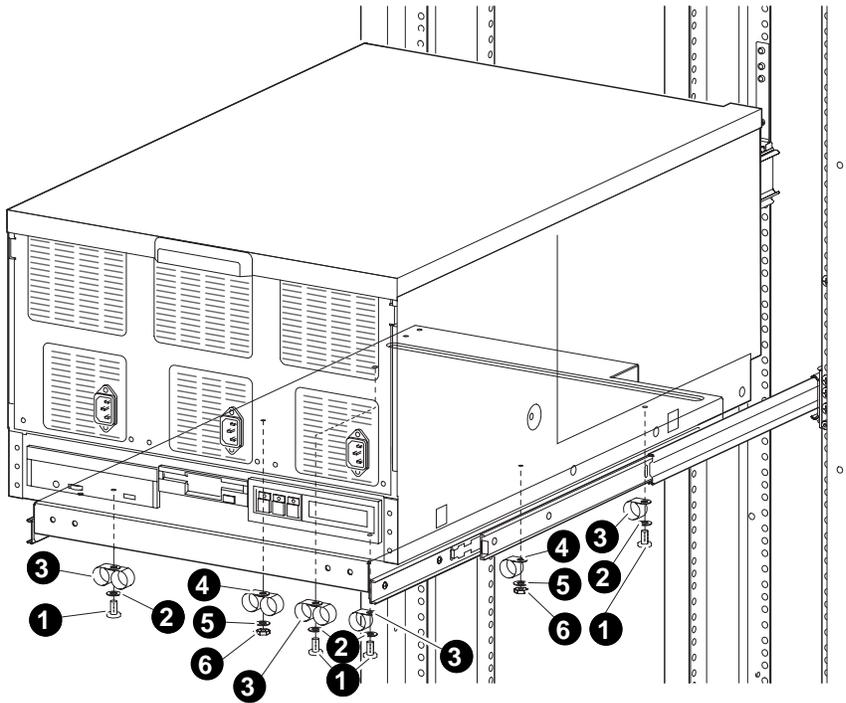
1. Fully extend the slides, then lift the slide tray ❶ and position it so that the inner races ❷ fit into the front end ❸ of the slides (see Figure 4-2).
2. Push the slide tray into the slides until it stops. Push in on the two locking levers ❹ if necessary and then push the slide tray into the cabinet.
3. Ensure the slide tray slides smoothly in and out of the cabinet.
4. Tighten the screws that secure each of the rear side brackets and nut plates to the rear rails.
5. Tighten the screws that secure each of the front side brackets and nut plates to the front rails.

Installing Components in Cabinet

Installing the System Drawer

Mount the System Drawer on Slide Tray

Figure 4-3 Mounting System Drawer on Slide Tray



LJ-05547.T10

Installing Components in Cabinet

WARNING: Before mounting the system drawer on the slide tray, ensure that the cabinet stabilizer is in place.

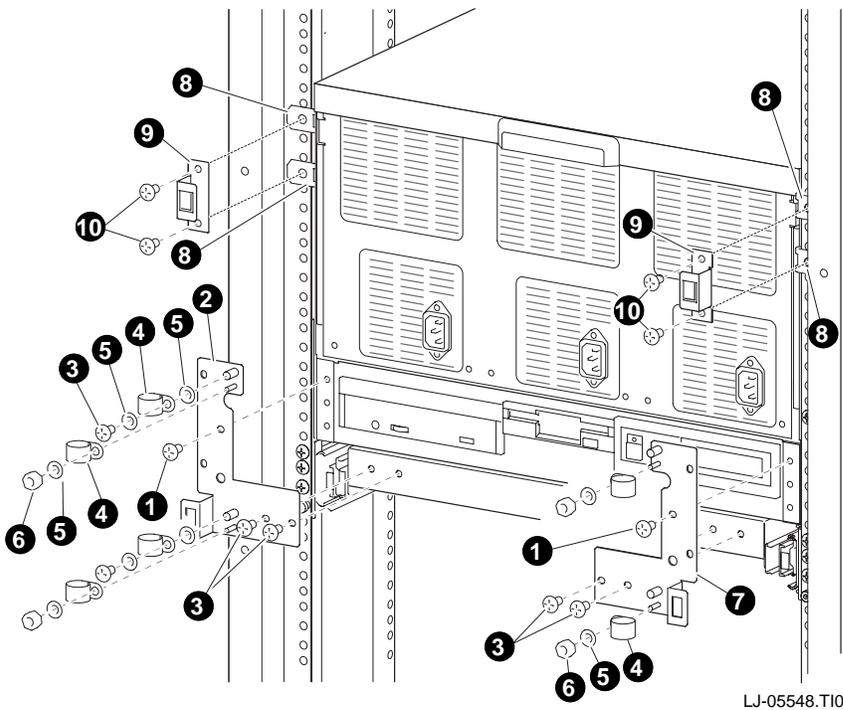
WARNING: The system drawer, fully configured, weighs 45 kg (100 lbs). Two people are required to install the system drawer in the cabinet.

1. Extend the slide tray to its fully extended position. The slide locking levers lock when the slides are fully extended.
2. Lift the system drawer just above the slide tray and then move it back and onto the slide tray.
3. Carefully position the system drawer until the four mounting holes in the bottom of the drawer line up with the four mounting holes in the bottom of the slide tray.
4. Secure the drawer using four screws ❶, flat washers ❷, and cable clamps ❸. Two cable clamps go on each screw under the left side of the slide tray and one cable clamp goes on each screw under the right side of the slide tray.
5. Install the cable clamps ❹ on the two studs located underneath the slide tray on the left and right sides using flat washers ❺ and kepnuts ❻. Two cable clamps go on the left stud and one cable clamp goes on the right stud.

Installing Components in Cabinet

Attach the Brackets

Figure 4-4 Attaching the Brackets



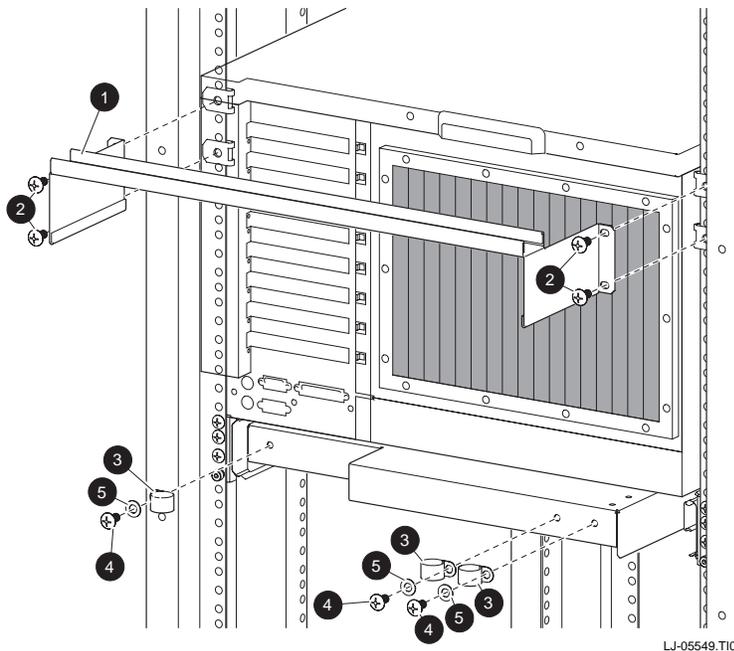
Installing Components in Cabinet

1. Remove the top screw ❶ on the left and right side of the system drawer control panel assembly (see Figure 4-4). Save the screws for later use.
2. Align the two holes at the bottom of the left catch bracket ❷ with the two holes in the left front edge of the slide tray.
3. Secure the left catch bracket to the slide tray with two truss-head screws ❸.
4. Secure the left catch bracket to the system drawer by replacing the screw removed in step 1.
5. Attach a cable clamp ❹ to each stud on the left catch bracket with flat washers ❺ and kepnuts ❻.
6. Attach a cable clamp to each standoff on the left catch bracket with flat washers and kepnuts.
7. Align the two holes at the bottom of the right catch bracket ❼ with the two holes in the right front edge of the slide tray.
8. Secure the right catch bracket to the slide tray with two truss-head screws.
9. Secure the right catch bracket to the system drawer by replacing the screw removed in step 1.
10. Attach a cable clamp to each of the studs on the right catch bracket with flat washers and kepnuts.

Installing Components in Cabinet

Install Cable Management Bracket

Figure 4-5 Installing Cable Management Bracket



LJ-05549.T10

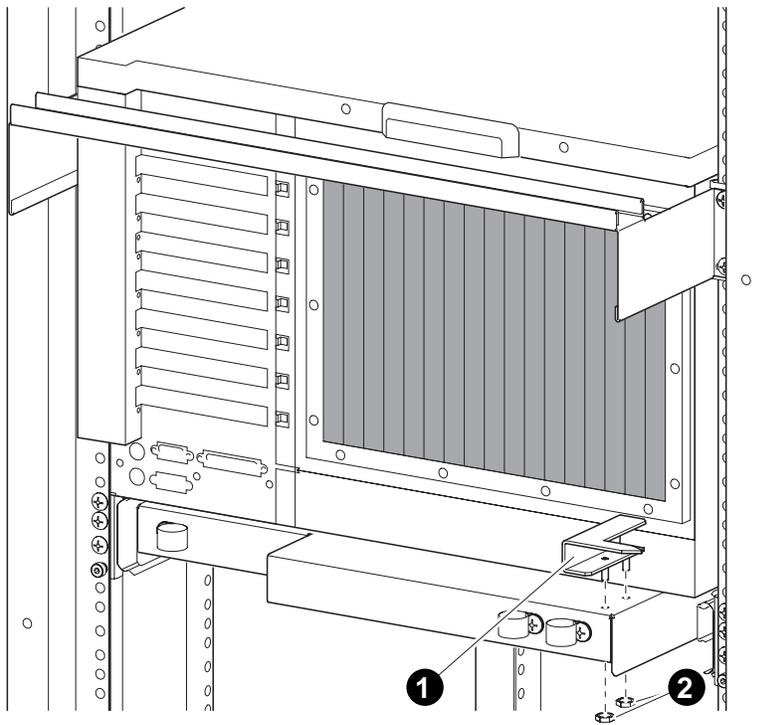
Installing Components in Cabinet

1. At the rear of the cabinet, locate the bracket installation holes shown in Figure 4-5.
2. Install a U-nut over each hole. The thread of the U-nuts should face toward the inside of the cabinet.
3. Secure the cable management bracket **1** to the rear rails by installing two truss-head screws **2** on each rear rail.
4. Secure the three cable clamps **3** to the rear edge of the slide tray with truss-head screws **4** and flat washers **5**.

Installing Components in Cabinet

Install Interlock Actuator Assembly

Figure 4-6 Installing the Interlock Actuator



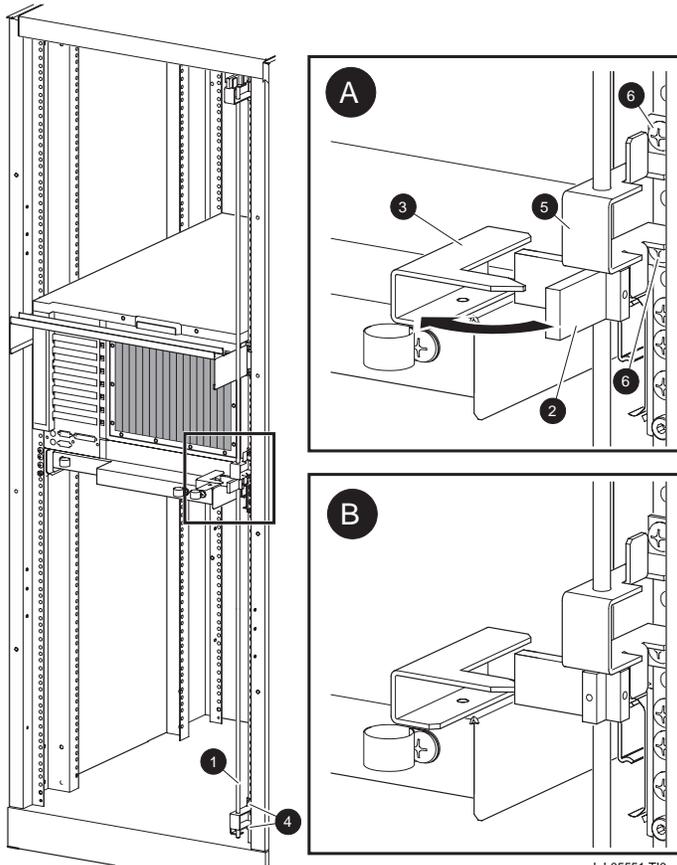
LJ-05550.T10

1. Mount the interlock actuator **1** on the left rear of the slide tray using two kepnuts **2** (see Figure 4-6).
2. Remove the screws securing the bottom mounting bracket **4** (see Figure 4-7).
3. Slide the mounting bracket off the bottom of the vertical bar.
4. Slide the stabilizer bracket **5** onto the bottom of the vertical bar.
5. Slide the actuator latch **2** onto the bottom of the vertical bar.
6. Replace the bottom mounting bracket **4** and install the screws removed in step 2. Do not tighten.
7. Secure the stabilizer bracket to the left rear rail with two truss-head screws **6**.

Installing Components in Cabinet

8. Position the actuator latch **2** to properly engage the interlock actuator **3**, and tighten the two screws to secure the latch to the vertical bar.
9. Tighten the screws to secure the bottom mounting bracket.

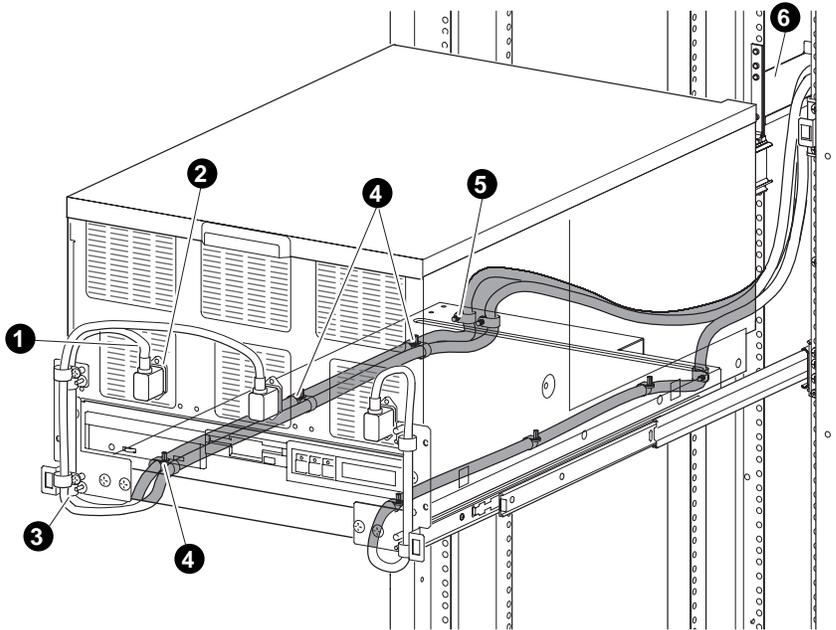
Figure 4-7 Installing Stabilizing Bracket and Latch



Installing Components in Cabinet

Route the Power Cables

Figure 4-8 Routing Power Cables



LJ-05553.T10

Installing Components in Cabinet

1. If necessary, remove the old power cables from the system. You must use the power cables shipped with the slider shelf assembly.
2. Fully extend the slide tray from the cabinet (see Figure 4-8).
3. Connect one end of the power cable(s) ❶ to the AC input receptacle(s) ❷ on the front of the system drawer.

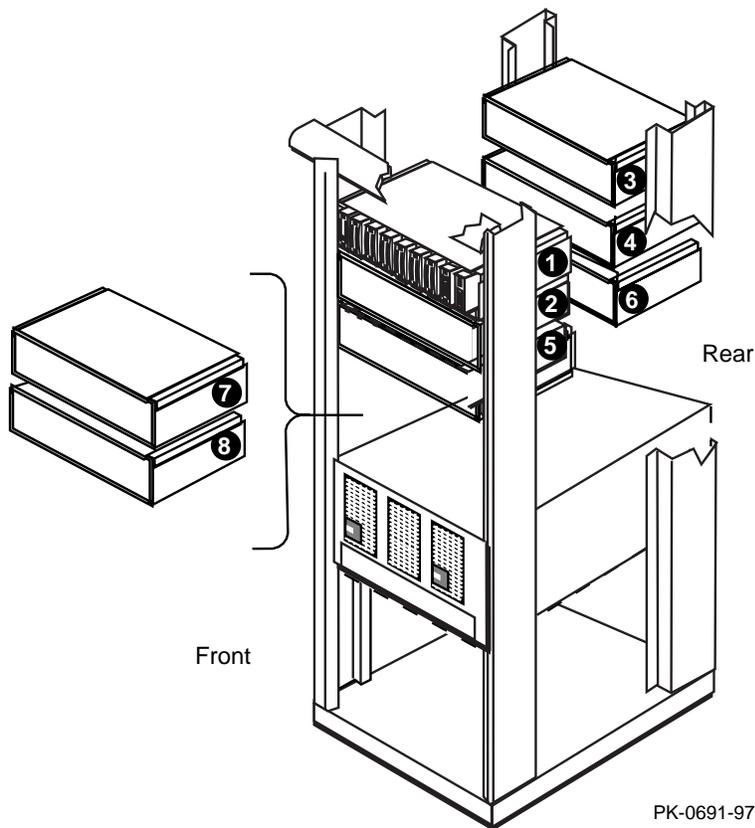
NOTE: When routing a power cable, you must remove the cable clamp, insert the cable in the clamp, and then reinstall it.

4. If the system has one power supply, route the power cable through the inside cable clamps ❸ on the left catch bracket.
5. If the system has a second power supply, route the power cable through the outside cable clamps on the left catch bracket.
6. Route the power cable through the cable clamps ❹ underneath the left side of the slide tray. Then route it through the two cable clamps on the left rear edge of the slide tray ❺.
7. Tie-wrap the cable to the cable management bracket ❻. Ensure that there is enough slack in the cable to prevent stress between the slide tray cable clamp and the cable management bracket.
8. If the system has a third power supply, route the power cable through the cable clamps on the right catch bracket. Then continue to route the cable as you did the others, using the cable clamps underneath the right side of the slide tray.

Installing a StorageWorks Shelf

The number of StorageWorks shelves you can install depends on the number of system drawers in the cabinet. For example, there is space for eight StorageWorks shelves in a cabinet with one system drawer. See Figure 4-9.

Figure 4-9 Sample Cabinet Configuration



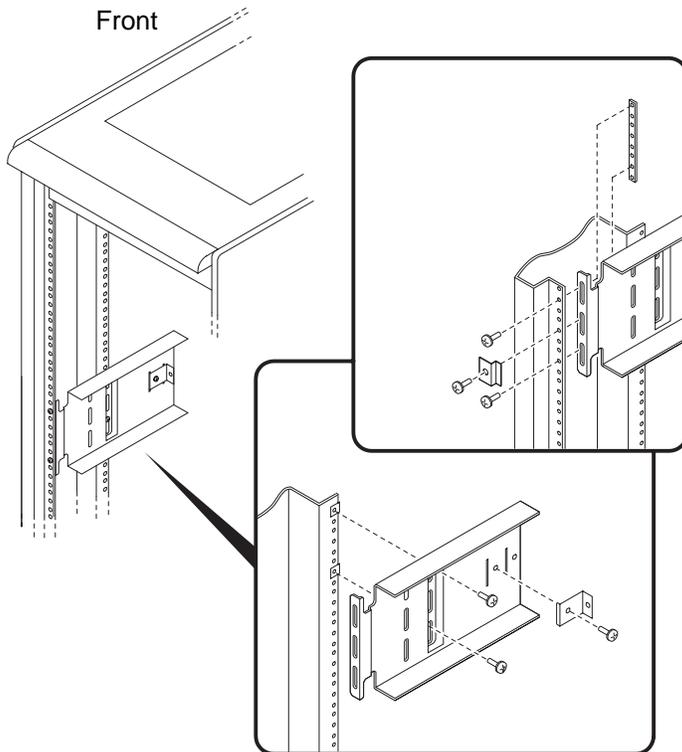
In the H910A cabinet, install the StorageWorks shelf mounting rails as shown in Figure 4-10.

1. Attach the U-nuts to the appropriate mounting holes.

Installing Components in Cabinet

2. Attach the mounting rail using two screws inserted into the two U-nut mounting holes.
3. Attach the front holding bracket and the two additional screws.
4. Attach the other holding bracket.
5. Install the StorageWorks shelf by sliding it onto the mounting rails.
6. Connect the shelf power cable to an AC power strip. Connect the shelf signal cable to the SCSI controller in the PCI card cage.

Figure 4-10 Installing Shelf Mounting Rails in H910A Cabinet



PK-0635-96

Installing Components in Cabinet

5

Installing StorageWorks Shelves in Pedestal

This chapter describes how to install the StorageWorks shelves in the pedestal.

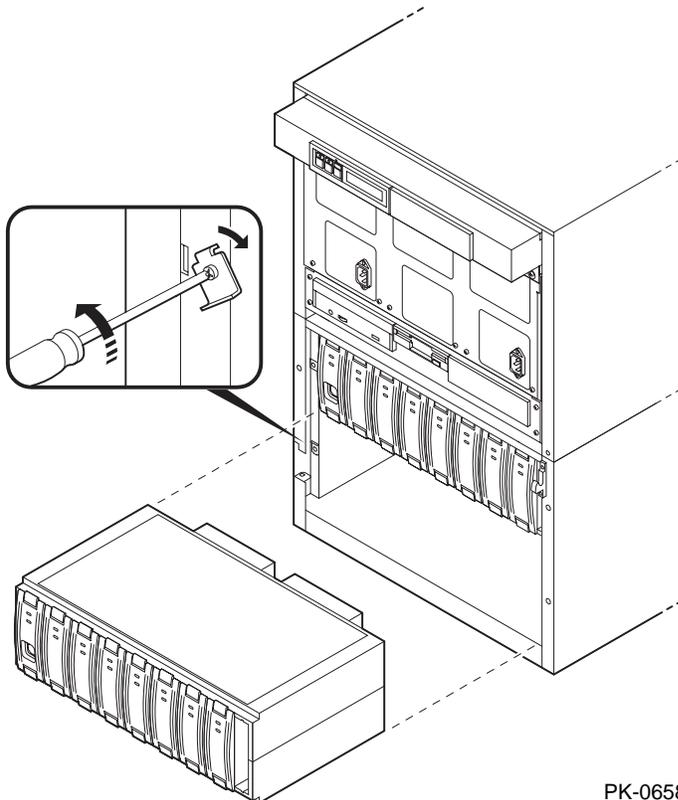
- Installation procedure

Installing StorageWorks Shelves in Pedestal

Install the StorageWorks Shelf

You can install a maximum of three StorageWorks shelves in a pedestal. There is space for two shelves in the front of the pedestal and one in the rear.

Figure 5-1 Installing a StorageWorks Shelf



PK-0658-96

Installing StorageWorks Shelves in Pedestal

1. Remove the top cover from the pedestal.
2. Slide the StorageWorks shelf into the pedestal base (see Figure 5-1). The pedestal base contains three sets of support rails for the StorageWorks shelves.
3. Attach the shelf with the hardware included with the option.
4. Connect the StorageWorks signal cable to the PCI SCSI port.
5. Connect the StorageWorks power cable to the AC power strip.
6. Replace the top cover.

Installing StorageWorks Shelves in Pedestal

6

Making Connections

This chapter describes how to connect system components and devices. Sections include:

- Connecting a Serial Terminal¹
- Connecting a Graphics Monitor
- Connecting the Remote Console Monitor
- Connecting the Ethernet Cable
- Connecting a StorageWorks Shelf

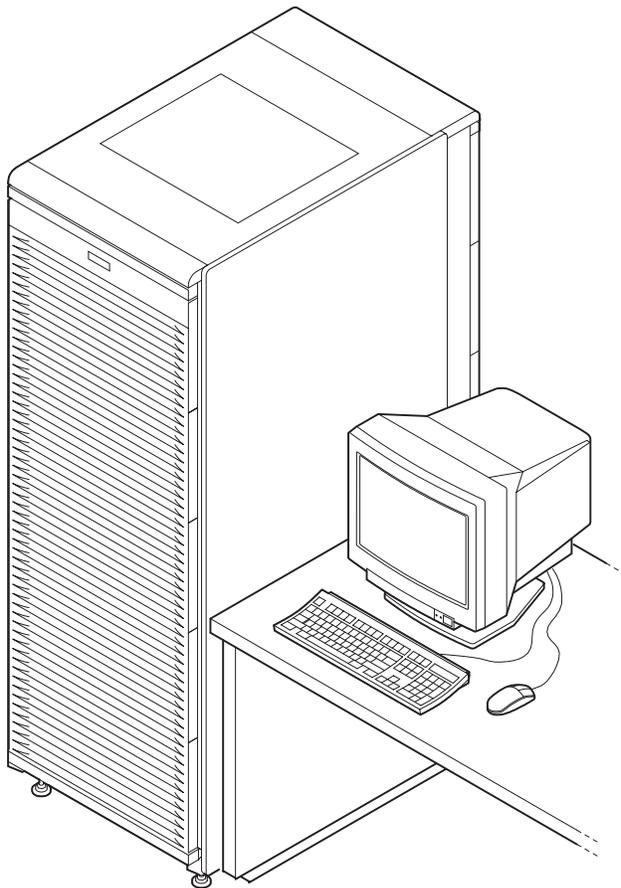
¹ This section shows a standard serial terminal. This terminal is connected to a single system drawer. Also available is the optional H4020-AA System Management Kit, a single terminal which mounts in the cabinet and can connect up to eight system drawers.

Making Connections

Connecting a Serial Terminal

Figure 6-1 shows the cabinet and a serial terminal. Connect the terminal to the COM1 port at the rear of the system drawer as shown in Figure 6-2. Keyboard, mouse, and printer ports are located near the console terminal port.

Figure 6-1 Cabinet and Console Terminal

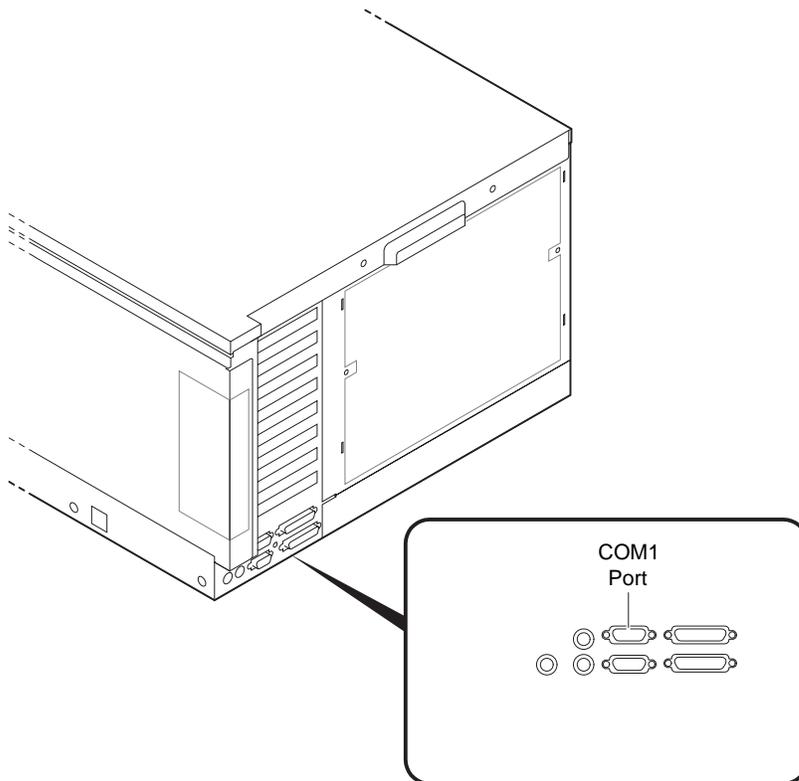


PK-0655-96

Making Connections

1. Unpack the serial terminal, if required. Locate the console terminal signal cable.
2. Connect one end of the cable to the COM1 port located at the rear of the system drawer (see Figure 6-2). Connect the other end of the cable to the console terminal, which connects to a 25-pin connector.
3. Connect the keyboard cable to the keyboard port at the rear of the serial terminal.
4. Connect the printer cable to the parallel port.

Figure 6-2 COM1, Serial Terminal Port



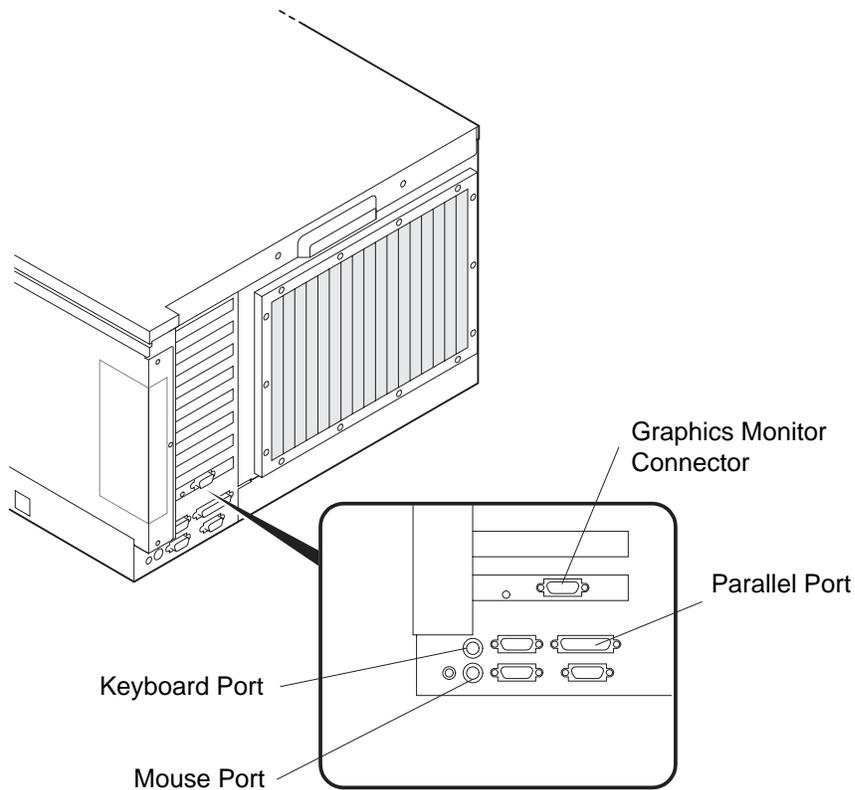
PK-0624A-96

Making Connections

Connecting a Graphics Monitor

Figure 6-3 shows the ports used to connect a graphics monitor. You connect the graphics monitor to the VGA module in the PCI card cage. Keyboard, mouse, and printer ports are located at the rear of the system drawer.

Figure 6-3 Graphics Monitor Ports



PK-0663-96

Making Connections

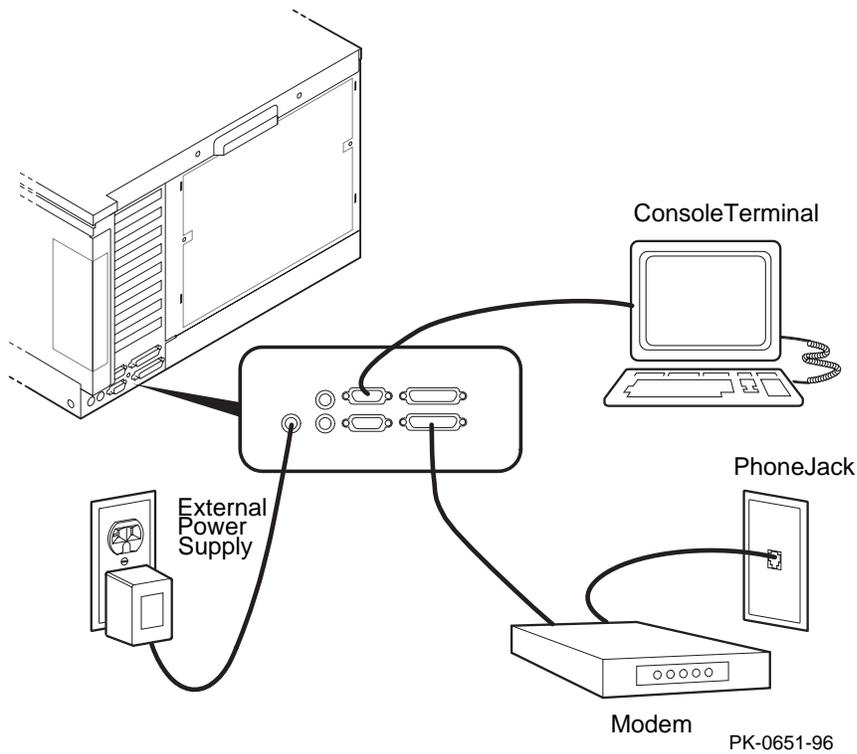
1. Unpack the graphics monitor, if required. Locate the signal cable.
2. Connect one end of the cable to the VGA port in the PCI card cage. Connect the other end of the cable to the graphics monitor, which connects to a 25-pin connector.
3. Connect the keyboard cable to the keyboard port at the rear of the system drawer.
4. Connect the mouse cable to the mouse port.
5. During power-up, you may want to capture the power-up display on a serial printer. To do this, connect a serial printer to the parallel port.

Making Connections

Connecting the Remote Console Monitor

Figure 6-4 shows the connections you make to enable the remote console monitor (RCM) in a pedestal system. The external 12V power supply is not required in cabinet systems. See the *System Drawer User's Guide* for instructions on how to operate the RCM.

Figure 6-4 Remote Console Monitor Connections

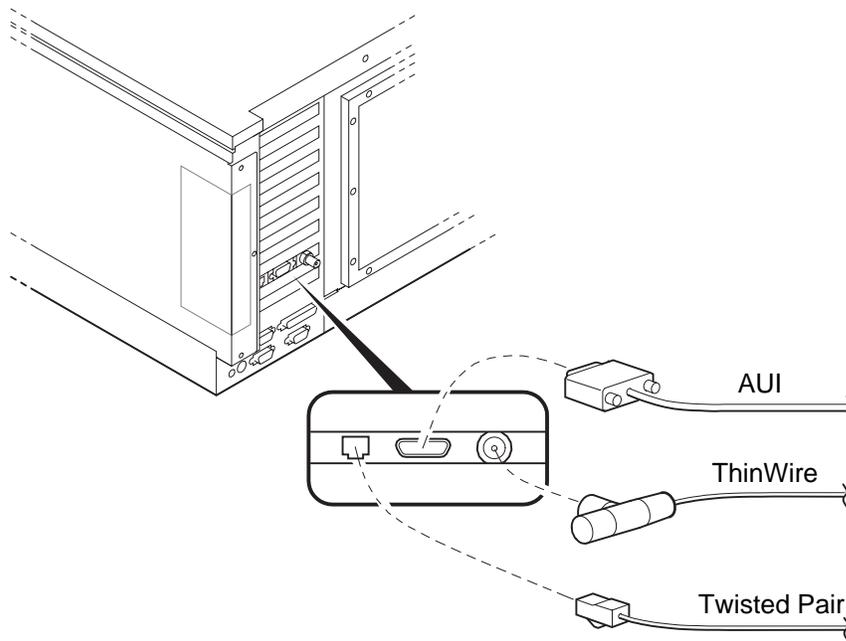


1. Connect the external power supply cable to the 12V power port (pedestal systems only). Connect the other end to a wall outlet (see Figure 6-4).
2. Connect the modem cable to the modem port. Connect the modem to a phone jack.

Connecting the Ethernet Cable

If the system includes an Ethernet port, connect the Ethernet cable to the I/O bulkhead and to the Ethernet transceiver. You can connect ThinWire, AUI, or twisted-pair Ethernet cables.

Figure 6-5 Ethernet Port



PK-0660-96

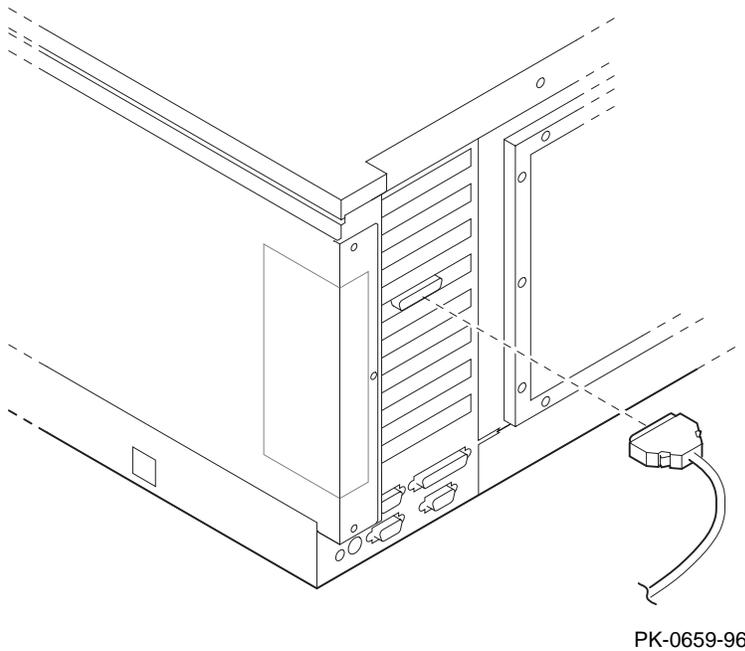
1. Connect the transceiver cable to the Ethernet port on the I/O bulkhead (see Figure 6-5).
2. Connect the other end of the cable to the Ethernet transceiver. See the appropriate Ethernet transceiver manual for more information.

Making Connections

Connecting a StorageWorks Shelf

When installing an additional StorageWorks shelf, connect the power cable to an AC power strip; connect the signal cable to the SCSI controller at the I/O bulkhead. See Chapter 1 for cabinet and pedestal configuration guidelines.

Figure 6-6 SCSI Port



1. Connect the StorageWorks power cable to an AC power strip.
2. Connect the StorageWorks signal cable to the I/O bulkhead at the rear of the system.

7

System Power-Up and Verification

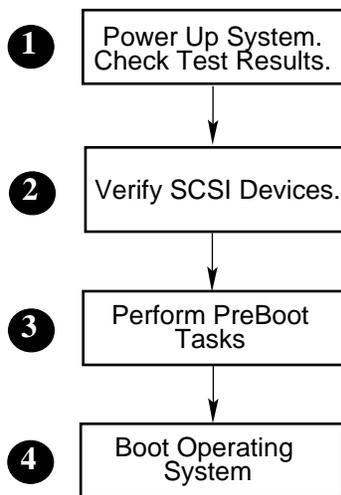
This chapter provides an overview of the power-up procedure, LED checks, and booting. Sections include:

- Verification Overview
- Turn On Power
- Check Power-Up Test Results
- If Power-Up Fails
 - Check Control Panel Message
 - Check Module LEDs
 - Check Cabinet Power and Fan LEDs
- Show Commands for Installation
- Preboot Tasks
 - Setting Environment Variables (EVs)
 - Running ECU
 - Running Utility Programs
 - Updating Firmware
- Booting Windows NT

Verification Overview

Use the following procedure to verify the system after installation.

Figure 7-1 Verification Procedure



PK-0653-96

System Power-Up and Verification

- ❶ When the system powers up, tests run. Verify that all tests have passed by checking the results in the test display.
- ❷ Enter the **show device** command and then check the output against the physical SBBs (storage building blocks).
- ❸ Perform preboot tasks such as setting environment variables and running ECU (EISA Configuration Utility), RCU (RAID Configuration Utility), and LFU (Loadable Firmware Update).
- ❹ Boot the operating system.

NOTE: Check all power cable connections from the system components to the AC power controllers. Make sure that both AC power controller circuit breakers are On.

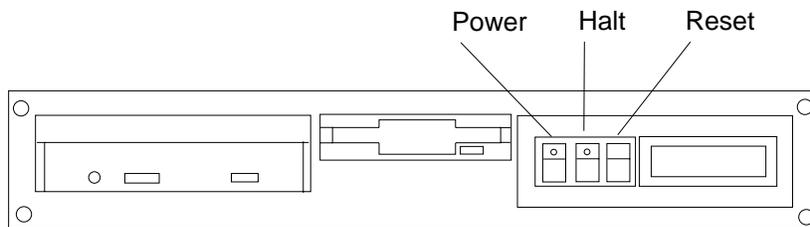
NOTE: Before you power up the system, you may want to connect a printer to the parallel port (located at the rear of the system drawer) to capture the power-up test results.

System Power-Up and Verification

Turn On Power

Check all power cable connections. Check that the AC power controller circuit breakers are On. Press the Power button. See Figure 7-2.

Figure 7-2 Control Panel



PK-0645C-96

System Power-Up and Verification

1. Press the Power button to power up the system. The Power button LED lights when pressed in.

Check Power-Up Test Results

After powering up the system, testing begins and status messages display on the console terminal and on the control panel display. Check the test results on the console terminal. Example 7-1 shows a sample display of test results.

Example 7-1 Test Results

```
SROM V2.0 on cpu0 ❶          #This section displays
SROM V2.0 on cpu1          #on serial terminals
XSROM V2.0 on cpu1 ❷       #only.
XSROM V2.0 on cpu0
BCache testing complete on cpu1 ❸
BCache testing complete on cpu0
mem_pair0 - 128 MB ❹
mem_pair1 - 128 MB
20..20..21..21..23..24..24.. ❺
Memory testing complete on cpu1
Memory testing complete on cpu0
```

```
starting console on CPU 0 ❻   #This section displays
sizing memory                 #on both serial and
  0  128 MB SYNC ❼           #graphics terminals.
  1  128 MB SYNC
starting console on CPU 1 ❽
probing IOD1 hose 1 ❾
  bus 0 slot 1 - NCR 53C810
  bus 0 slot 2 - DEC KZPSA
  bus 0 slot 3 - NCR 53C810
  bus 0 slot 4 - DECchip 21040-AA
  bus 0 slot 5 - DEC PCI MC
probing IOD0 hose 0
  bus 0 slot 1 - PCEB
  bus 0 slot 4 - DEC PCI FDDI
  bus 0 slot 5 - PBXGA-AA

configuring I/O adapters... ❿
  ncr0, hose 1, slot 1, bus 0
  kzpsa0, hose 1, slot 2, bus 0
  ncr1, hose 1, slot 3, bus 0
  tulip0, hose 1, slot 4, bus 0
  floppy0, hose 0, slot 0, bus 1
  pfi0, hose 0, slot 4, bus 0
```

System Power-Up and Verification

```
System temperature is 24 degrees C ①  
DIGITAL Server 7200/7200R Console V2.0-1, 24-JUL-1996  
10:47:18 ②
```

```
P00>>>
```

*NOTE: If the console and the system are configured in graphics mode (SRM console environment variable (EV) is set to **graphics**), test information covered by callouts ① through ⑥ will not display. If the SRM console EV **os_type** is set to **NT**, the Windows NT AlphaBIOS console will be loaded by the SRM console, unless the control panel Halt button is depressed. If this is the case, the SRM console ignores the **os_type** setting and halts when the SRM power-up initialization and configuration is completed.*

- ① SRM code runs on each CPU. The processor chips are tested and the path to the system flash ROM is verified. Each CPU then loads XSROM from the system flash ROM.
- ② XSROM prints banner if it is successfully loaded and started.
- ③ XSROM performs local B-cache initialization and testing on each CPU.
- ④ XSROM sizes memory via the system IIC bus.
- ⑤ Each CPU participates in memory initialization and testing.
- ⑥ XSROM loads the SRM system console from system flash ROM.
- ⑦ Console starts on the primary CPU and proceeds to re-size memory.
- ⑧ The primary CPU, running console, signals each secondary (running XSROM) to start console.
- ⑨ The primary CPU probes each PCI bus and the EISA bus to size the system.
- ⑩ The primary CPU configures and initializes those I/O adapters requiring initialization.
- ① The system temperature is reported.
- ② The console displays its version banner and console prompt.

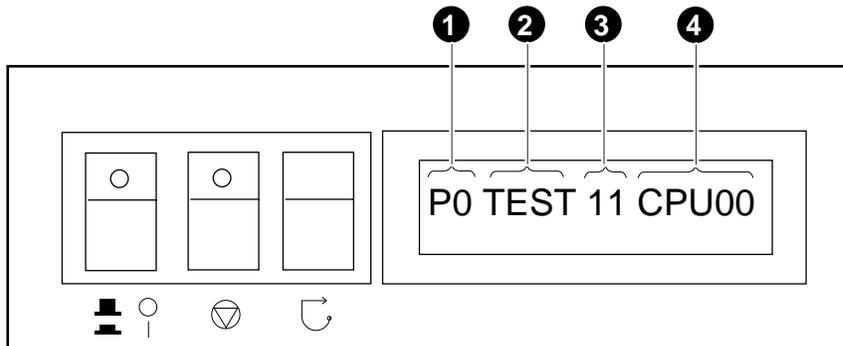
For a more detailed description of the test results, see the System Drawer User's Guide.

If Power-Up Fails

Check Control Panel Message

If the console prompt does not appear after test results, check the control panel message. Figure 7-3 shows the four display fields. Table 7-1 lists the description of each field.

Figure 7-3 Control Panel Display



PK-0706E-96

The control panel has a LED display (to control brightness, adjust the potentiometer located above the control panel Reset button). Status messages are displayed during power-up testing. Test failure information is also displayed.

NOTE: If an error occurs, you may need to reset the system and observe the display since display error messages are visible for approximately 4 seconds before power-up initialization and testing continues.

NOTE: If nothing is displayed on the control panel display and/or the serial display terminal, check the module LEDs (see "Check Module LEDs"). In cabinet systems, check the power and fan LEDs (see "Check Cabinet Power and Fan LEDs").

System Power-Up and Verification

Table 7-1 Control Panel Display

Field	Content	Display	Meaning
❶	CPU number	P0–P3	CPU reporting status
❷	Status	TEST	Tests are executing
		FAIL	Failure has been detected
		MCHK	Machine check has occurred
		INTR	Error interrupt has occurred
❸	Test number		(for DIGITAL use only)
❹	Suspected device	CPU0–3	CPU module number ²
		MEM0–3 and L, H, or *	Memory pair number and low module, high module, or either ³
		IOD0	Bridge to PCI bus 0 ⁴
		IOD1	Bridge to PCI bus 1 ⁴
		IOD2	Bridge to PCI bus 2 ⁵
		IOD3	Bridge to PCI bus 3 ⁵
		FROM0	Flash ROM ⁶
		COMBO	COM controller ⁶
		PCEB	PCI-to-EISA bridge ⁶
		ESC	EISA system controller ⁶
		NVRAM	Nonvolatile RAM ⁶
		TOY	Real-time clock ⁶
		I8242	Keyboard and mouse controller ⁶

² CPU module

³ Memory module

⁴ Bridge module (PCI 0 & 1)

⁵ Bridge module (PCI 2 & 3) (16-PCI slot drawer only)

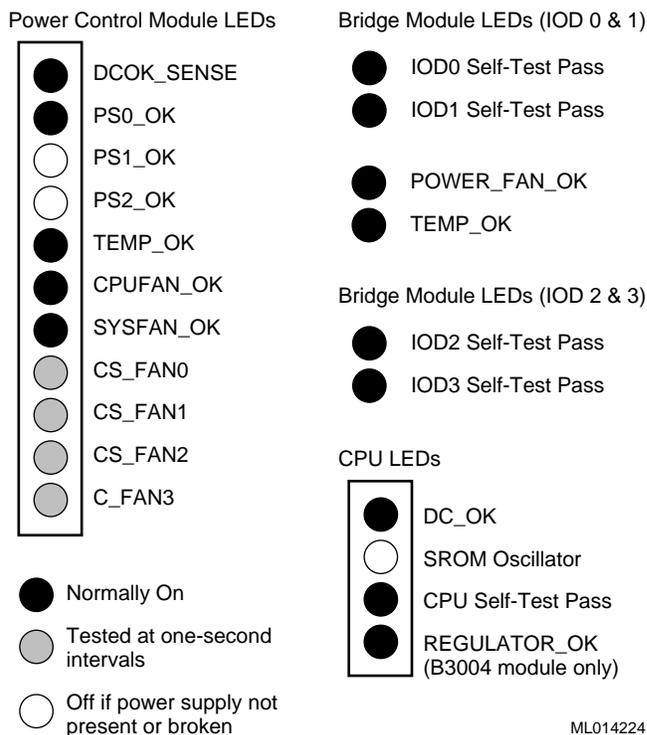
⁶ PCI motherboard

System Power-Up and Verification

Check Module LEDs

Figure 7-4 shows the CPU, bridge module, and power control module LEDs. Figure 7-2 lists LED status following a successful power-up. You can see all module LEDs from the rear of the system drawer. For more information on troubleshooting procedures, see the *DIGITAL Server 7200/7200R Service Manual*.

Figure 7-4 Module LEDs



ML014224

System Power-Up and Verification

Table 7-2 Module LEDs on Power-Up

LED	Power-Up State	Description
CPU Module		
DC OK	On	DC power is OK.
SR0M Oscillator	Off	SR0M loaded into processor.
CPU Self-Test Pass	On	Processor chip passed SR0M tests.
REGULATOR_OK	On	Regulator is working.
Base Bridge Module		
IOD0 Self-Test Pass	On	Bridge module passed SR0M tests.
IOD1 Self-Test Pass	On	Bridge module passed SR0M tests.
Optional Bridge Module		
IOD2 Self-Test Pass		
IOD3 Self-Test Pass		
POWER FAN OK	On	Power fan is running.
TEMP OK	On	Bridge module temperature is OK.
Power Control Module		
DCOK SENSE	On	DC power is okay.
PS0 OK	On	First power supply is operating.
PS1 OK	On (if present)	Second power supply is operating.
PS2 OK	On (if present)	Third power supply is operating.
TEMP OK	On	Temperature is OK.
CPUFAN OK	On	CPU fans are OK.
SYSFAN OK	On	System fans are OK.
CS FAN0	Blinking	Fan is OK.
CS FAN1	Blinking	Fan is OK.
CS FAN2	Blinking	Fan is OK.
C FAN3	Blinking	Fan is OK.

System Power-Up and Verification

Troubleshooting Questions

If a system drawer does not power up, the problem may be a disconnected power cord, a fan, or a cover interlock. Check the following:

In a pedestal system, is the AC power strip breaker on?

In a cabinet system, is the AC input box breaker on? Are the cabinet fans running? Check the green FAN LED on the fan tray. Is it on?

Is the system drawer power cord(s) plugged into the AC power strip?

Are the covers on the system drawer closed and the interlocks engaged? The cover interlocks must be engaged to enable power-up.

Check Cabinet Power and Fan LEDs

A fan tray with three exhaust fans is located at the top of the cabinet. The fans are powered by a power supply in the fan tray. A power LED and a fan LED are located on the fan tray front panel. Figure 7-5 shows the panel LEDs. See the *DIGITAL Server 7300/7300R Service Manual* for troubleshooting information on the cabinet fan tray.

Figure 7-5 Cabinet LEDs

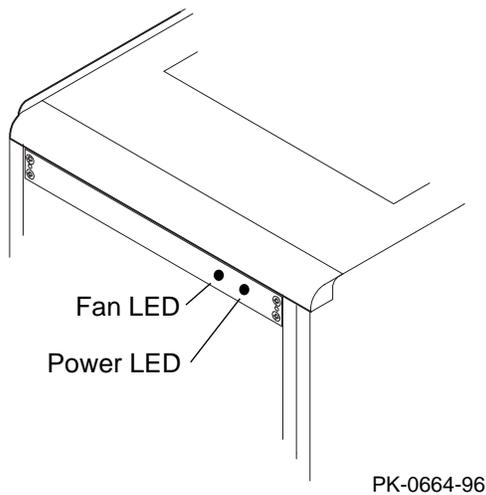


Table 7-3 Cabinet Power and Fan LEDs

LED	Power-Up State	Description
Power	On	Fan tray power is okay.
	Off	Fan tray power supply is broken, or there is an AC power problem.
Fan	Off	Fans are okay.
	Blinking	Replace malfunctioning fan.

System Power-Up and Verification

Show Commands for Installation

Use show commands to obtain information on the system configuration and power status. These commands are available from the SRM console, which is reached by powering up the system with the Halt button pressed in.

Example 7-2 Show Configuration

```
P00>>> show config ❶

                               Digital Equipment Corporation
                               DIGITAL Server 7300/7300R

Console V2.0-1      OpenVMS PALcode V1.18-8,

Module              Type      Rev      Name
System Motherboard  0      0000    mthbrbd0
Memory 128 MB SYNC  0      0000    mem0
Memory 64 MB SYNC   0      0000    mem1
CPU (1MB Cache)    1      0000    cpu0
CPU (1MB Cache)    1      0000    cpul
Bridge (IOD0/IOD1) 600    0021    iod0/iod1
PCI Motherboard     8      0000    saddle0

PCI0 (IOD0)
Slot  Option Name      Type      Rev      Name
1     PCEB             4828086   0004    pceb0
4     DEC PCI FDDI     f1011    0000    pfi0
5     PBXGA-AA        41011    0003    tga0

eisa0 (EISA connected to pceb0)
Slot  Option Name      Type      Rev      Name

PCI1 (IOD1)
Slot  Option Name      Type      Rev      Name
1     NCR 53C810       11000    0002    ncr0
2     DEC KZPSA        81011    0000    kzpsa0
3     NCR 53C810       11000    0002    ncr1
4     DECchip 21040-AA 21011    0023    tulip0
5     DEC PCI MC       181011   008B    mc0
P00>>>
```

System Power-Up and Verification

Example 7-3 Show Power

```
P00>>> show power ②
```

```
                Status
Power Supply 0   good
Power Supply 1   not present
Power Supply 2   good
System Fans      good
CPU Fans         good
Temperature      good
```

```
The system was last reset via a system software reset
```

```
0 Environmental events are logged in nvram
```

```
P00>>>
```

1. ① Use the **show configuration** command to see a listing of the modules in the system. This command shows the module motherboard or PCI slot number, module name, module type, revision, mnemonic, and the self-test status of PCI and EISA modules. In this example, all PCI and EISA modules passed (+) self-test.
2. ② The **show power** command displays status information on the power supplies, system fans, CPU fans, and system temperature.

For more information on the show commands, see the *System Drawer User's Guide*.

System Power-Up and Verification

Running ECU

The EISA Configuration Utility (ECU) is used to configure EISA options on DIGITAL Server systems. ECU is run in AlphaBIOS console mode. Example 7-4 shows the AlphaBIOS Setup display when run from a serial terminal.

Example 7-4 Running ECU

```
AlphaBIOS Setup                               F1=Help

Display System Configuration...
Upgrade AlphaBIOS
Hard Disk Setup...
CMOS Setup...
Install Windows NT
Utilities                                     Run ECU from floppy...
About AlphaBIOS...                           OS Selection Setup...
                                              Run Maintenance Program...

Insert the floppy containing EISA Configuration Utility
(ECU) and press ENTER to run it.

ESC=Exit
```

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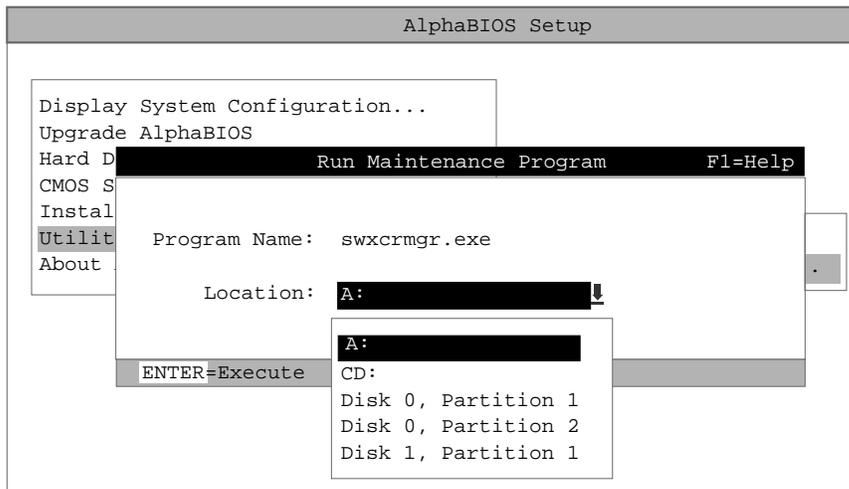
When AlphaBIOS is loaded from SRM, it checks to see if there is a graphics card or a keyboard. If one or the other is absent, then AlphaBIOS directs its output to the console serial line (top 9-pin connector). It assumes that the terminal connected to this port is a VT320 or later terminal.

1. Enter **alphabios** at the console prompt. The top-level AlphaBIOS screen appears.
2. At the top-level AlphaBIOS screen, select the operating system and press Enter to choose.
3. At the AlphaBIOS Setup screen, select Utilities. Under Utilities, select Run ECU from floppy. See Example 7-4.
4. Next, insert the floppy containing the EISA Configuration Utility and press Enter to run it.

Running Utility Programs

Maintenance programs such as RAID and EISA configuration utilities are run from the AlphaBIOS Utility menu. At the SRM console prompt, enter `alphabios` to bring up the AlphaBIOS console (you must run these utility programs in AlphaBIOS console mode). Example 7-5 shows the AlphaBIOS Setup screen and the Run Maintenance Program Dialog box.

Example 7-5 Run Maintenance Program Dialog Box



PK-0730A-96

1. At the Setup screen, select Utilities. Press Enter.
2. At the Utilities screen, select Run Maintenance Program. Press Enter.
3. In the Run Maintenance Program dialog box, type `swxcrmgr.exe` in the Program Name field.
4. Press Enter to execute the program.

System Power-Up and Verification

Updating Firmware

The Loadable Firmware Utility (LFU) is used to update firmware on any module in the system. Example 7-6 shows a sample LFU session; the firmware load device is the local CD-ROM drive.

Example 7-6 Running LFU

P00>>> lfu ❶

***** Loadable Firmware Update Utility *****

Select firmware load device (cda0, dva0, ewa0), or
Press <return> to bypass loading and proceed to LFU: cda0 ❷

Please enter the name of the options firmware files list, or
Press <return> to use the default filename [AS4X00FW]: AS4X00CP ❸

Copying AS4X00CP from DKA500.5.0.1.1 .
Copying [as4x00]RHREADME from DKA500.5.0.1.1 .
Copying [as4x00]RHSRMROM from DKA500.5.0.1.1
.....
Copying [as4x00]RHARCROM from DKA500.5.0.1.1

Function Description ❹

Display Displays the system's configuration table.
Exit Done exit LFU (reset).
List Lists device, revision, firmware name, and update
revision.
Lfu Restarts LFU.
Readme Lists important release information.
Update Replaces current firmware with loadable data image.
Verify Compares loadable and hardware images.
? or Help Scrolls this function table.

UPD> list ❺

Device	Current Revision	Filename	Update
Revision			
AlphaBIOS	V5.12-2	arcrom	V6.40-1

System Power-Up and Verification

```
srmflash          V1.0-9          srmrom          V2.0-3

UPD> update * ⑥
WARNING: updates may take several minutes to complete for each
device.

Confirm update on: AlphaBIOS          [Y/(N)] y

                        DO NOT ABORT!
AlphaBIOS          Updating to V6.40-1...  Verifying V6.40-1...
PASSED.

Confirm update on: srmflash          [Y/(N)] y

                        DO NOT ABORT!
srmflash          Updating to V2.0-3...  Verifying V2.0-3...  PASSED.

UPD> exit ⑦
P00>>>
```

- ① Enter the **lfu** command at the SRM console prompt.
- ② The user is prompted to select a firmware load device (for example, CDA0 (local CD-ROM drive), DUA0 (floppy drive)), or EWA0 (Ethernet). In this example, the user selects the local CD-ROM drive as the load device.
- ③ The user is prompted to enter the options firmware file list. The default filename is AS4X00FW.
- ④ A list of the LFU functions is displayed.
- ⑤ Enter **list** to get information on each device.
- ⑥ The user enters **update *** to update firmware on each device.
- ⑦ Enter **exit** to return to the console prompt.

Booting Windows NT

To boot Windows NT from the AlphaBIOS console, select the correct version of the operating system from the AlphaBIOS boot screen and press F2 to enter setup.

Figure 7-6 Booting Windows NT



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AlphaBIOS boots Windows NT in two stages. The first stage involves reading an OS Loader program from a disk. The name of the OS Loader program is OSLOADER.EXE. Once the OS Loader program executes, it uses the services provided by AlphaBIOS to load the operating system.

After the operating system is loaded, the OS Loader starts execution of the operating system. See the *System Drawer User's Guide* or the *AlphaBIOS User's Guide* for more information on the AlphaBIOS interface and boot procedures.

A

Cabinet to Pedestal System Drawer Conversion

This appendix explains how to convert the system drawer from a cabinet unit to a pedestal unit. Sections include:

- Mount the System Drawer
- Remove the Control Panel
- Cabling
- Install the Control Panel

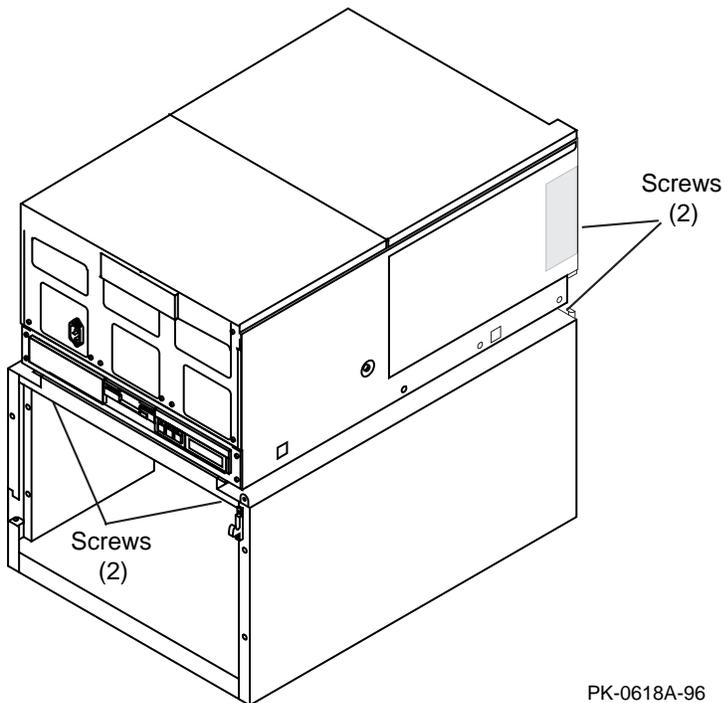
Cabinet to Pedestal System Drawer Conversion

Mount the System Drawer

WARNING: The system drawer, fully configured, weighs 45 kg (100 lbs). Two people are required to mount the system drawer on the pedestal base.

Mount the system drawer on the pedestal base by securing it with four screws (refer to Figure A-1).

Figure A-1 Mounting the System Drawer



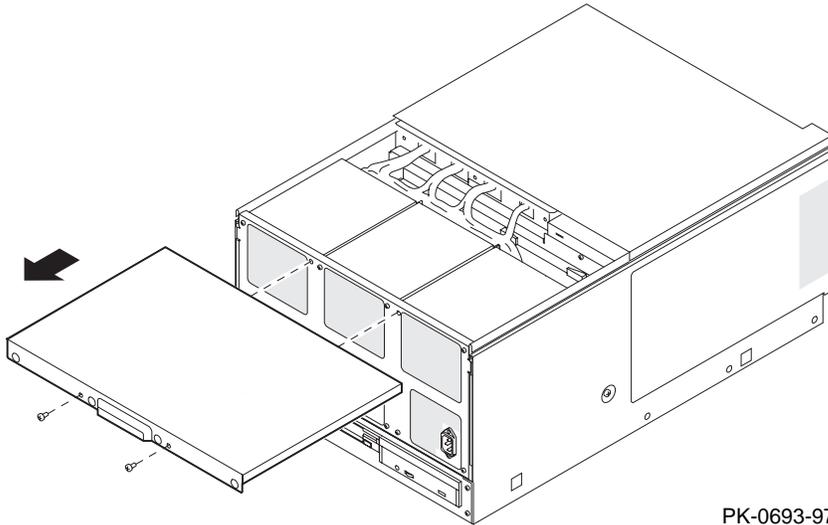
PK-0618A-96

Cabinet to Pedestal System Drawer Conversion

Remove the Control Panel

Remove the cover over the power supplies (2 screws). See Figure A-2. You will reuse this to cover the new control panel tray after installation.

Figure A-2 Removing the Cover



PK-0693-97

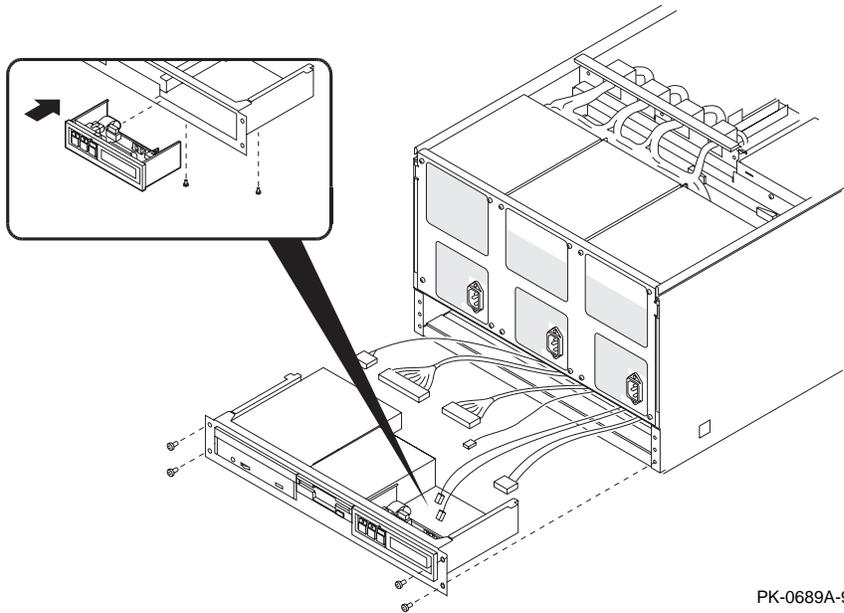
At the bottom of the system drawer, remove the four screws that secure the control panel tray to the drawer (see Figure A-3).

Pull out the control panel tray and remove the control panel by removing the two screws that attach it to the tray.

Disconnect the reset cable connector, the interlock cable connector, and the ribbon cable connector from the control panel. Note the cable connections.

Cabinet to Pedestal System Drawer Conversion

Figure A-3 Removing the Control Panel



PK-0689A-97

Open the conversion kit and locate the OCP housing (70-31990-01). Slide the OCP housing onto the system drawer.

Install a blank panel (70-31989-02) in the space left by the control panel removal.

Cabinet to Pedestal System Drawer Conversion

Cabling

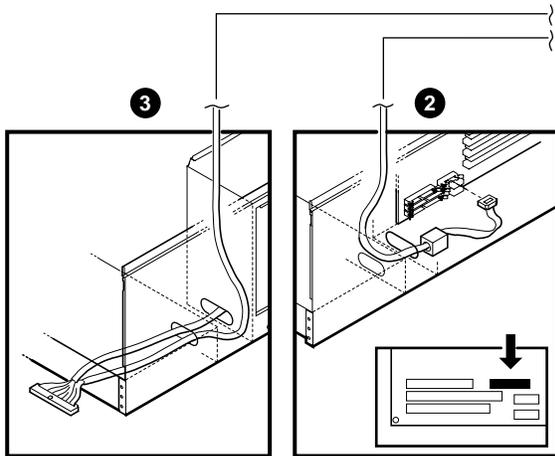
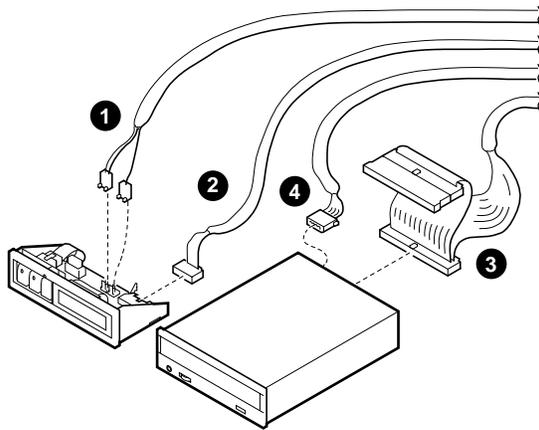
1. Locate the cable bulkhead (70-32020-01). Refer to Figure A-4 when making the cable connections.
2. Pull back the interlock cable to the bulkhead and connect it to the reset/interlock/power harness (17-04305-01). See ❶.
3. Carefully pull back the white cable to the bulkhead and connect it to the reset/interlock/power harness. See ❶.
4. A ribbon cable (17-04306-01) is attached to the bulkhead. Connect the other end of this cable to J14 on the system bus to PCI bus bridge module. See ❷. To access the module, remove the three screws that secure the PCI card cage cover and slide the cover away from the drawer.
5. The 12 V power cable is part of the reset/interlock/power harness on the bulkhead. Plug the cable into the connector near the CD drive. See ❸.
6. The SCSI cable (17-04306-01) has two connectors. Remove the terminator connector. Connect the SCSI connector to the bulkhead (two screws). See ❸.
7. Fasten the bulkhead to the chassis by installing the two screws. To access the two screw holes, slide the rear cover away. After you install the bulkhead, slide the rear cover to its original position.

NOTE: Be sure that all cabling is positioned away from the fan assembly.

At the bottom of the system drawer, slide the old control panel tray back in place and fasten it to the system drawer (four screws).

Cabinet to Pedestal System Drawer Conversion

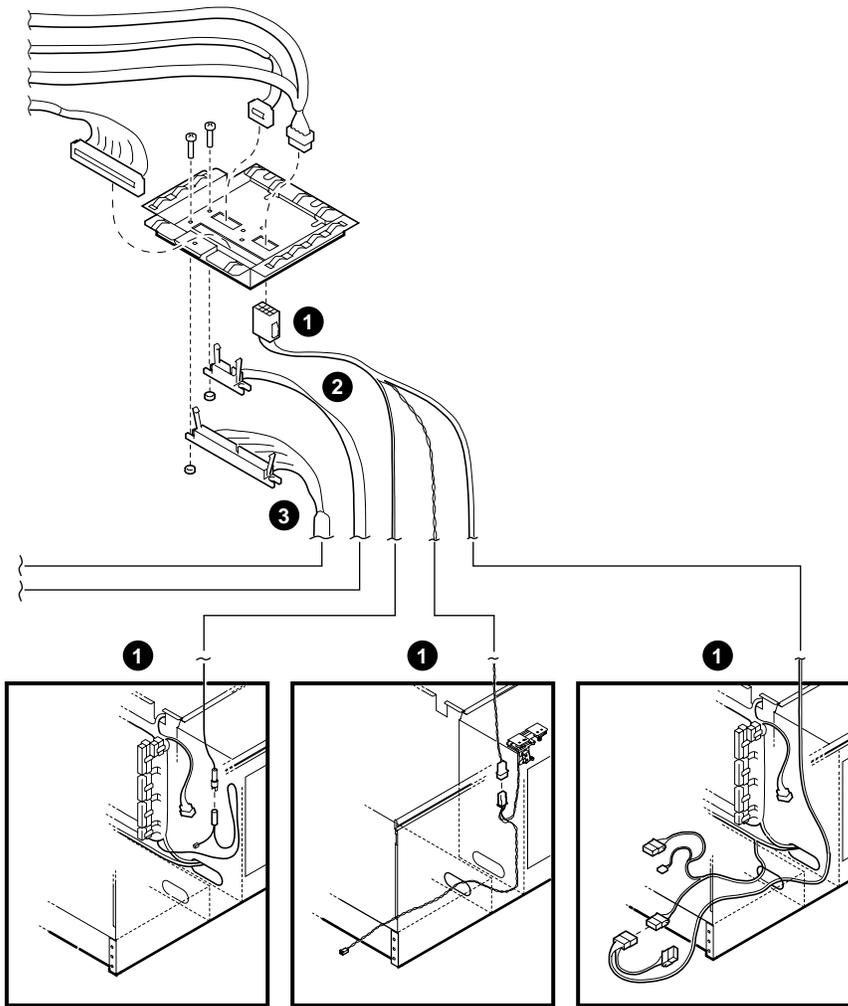
Figure A-4 Cabling



ML014226

Cabinet to Pedestal System Drawer Conversion

Figure A-4 Cabling (Continued)



ML014227

Cabinet to Pedestal System Drawer Conversion

Install the Control Panel

1. Mount the control panel onto the left side of the OCP housing.
2. Install a blank panel on the right side of the OCP housing.
3. Connect the reset/interlock/power harness connectors to the control panel. See ❶ and ❷ in Figure A-4.
4. Connect the SCSI cable to the CD drive. See ❸.
5. Secure all cables with a cable clamp.
6. Attach the OCP housing to the drawer (2 screws).
7. Install the cover on the OCP housing (2 screws).
8. Secure the rear cover (2 screws).
9. Secure the PCI card cage cover (3 screws).

NOTE: To convert a pedestal system drawer to a cabinet system drawer, reverse the steps in this appendix.

NOTE: A ribbon cable (17-04201-01) is required when converting a pedestal system drawer to a cabinet system drawer. Be sure you have this cable before you begin the conversion.

B

Using H9A10-EC Cabinets

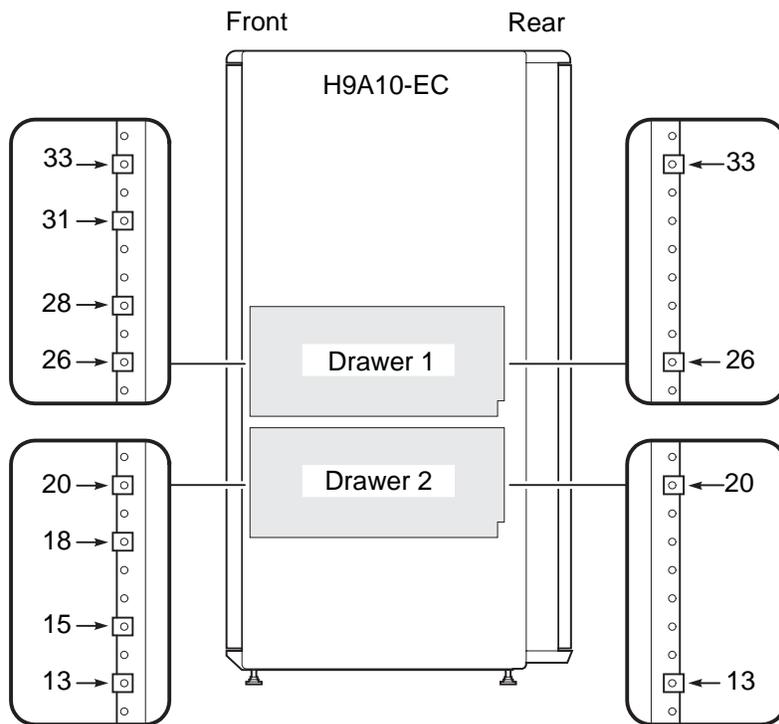
This chapter describes the H9A10-EC (metric). Sections include:

- H9A10-EC Cabinet Mounting Rails
- Installing Support Rails in H9A10-EC Cabinet
- StorageWorks Shelves in H9A10-EC Cabinet
- Installing StorageWorks Mounting Rails
- H9A10-EC Cabinet Power Strips

H9A10-EC Cabinet Mounting Rails

The H9A10-EC (metric) cabinet has a total of 62 mounting holes (units). Table B-1 lists the mounting holes used for a cabinet containing one to four system drawers. Table B-2 lists the configuration guidelines for installing two system drawers in a cabinet.

Figure B-1 H9A10-EC Cabinet Mounting Rails



PK-0628-96

The H9A10-EC cabinet is IEC (or IEEE STD. 1301-1991) compliant. The cabinet rails have a total of 62 SU units of vertical mounting height. When you install a system drawer, begin counting the mounting holes from the rail bottom to top.

Using H9A10-EC Cabinets

According to how many system drawers you install, mark off the mounting holes listed in Table B-1. Only the **topmost** mounting holes are listed.

Table B-1 H9A10-EC System Drawer Mounting Holes

One System Drawer	Two System Drawers	Three System Drawers	Four System Drawers
33	First: 33	First: 13	First: 13
	Second: 20	Second: 26	Second: 26
		Third: 39	Third: 39
			Fourth: 53

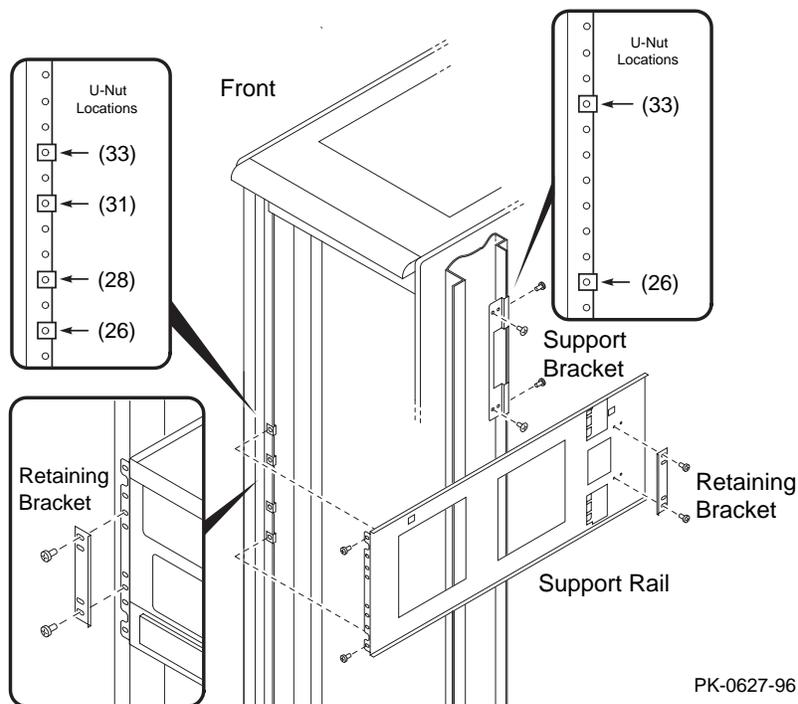
Table B-2 H9A10-EC Cabinet: Installing Drawers and Shelves

SU-Units Required	Component Installed	Height (Millimeters)
2	System display panel and fans	50
2	Empty	50
6	StorageWorks shelves 1 (front) and 3 (rear)	150
2	Empty	50
6	StorageWorks shelves 2 (front) and 4 (rear)	150
2	Empty	25
6	StorageWorks shelves 5 (front) and 6 (rear)	300
1	Space for cable clearance	25
12	System drawer (first)	300
1	Space for cable clearance	25
12	System drawer (second)	300
2	Empty	25
3	AC inlet	75

Installing Support Rails in H9A10-EC Cabinet

First, install the system drawer support rails. The rails have an interlock mechanism that holds the system drawer in place. Figure B-2 shows how to install the rails in the H9A10-EC (metric) cabinet.

Figure B-2 Installing Support Rails in the H9A10-EC Cabinet



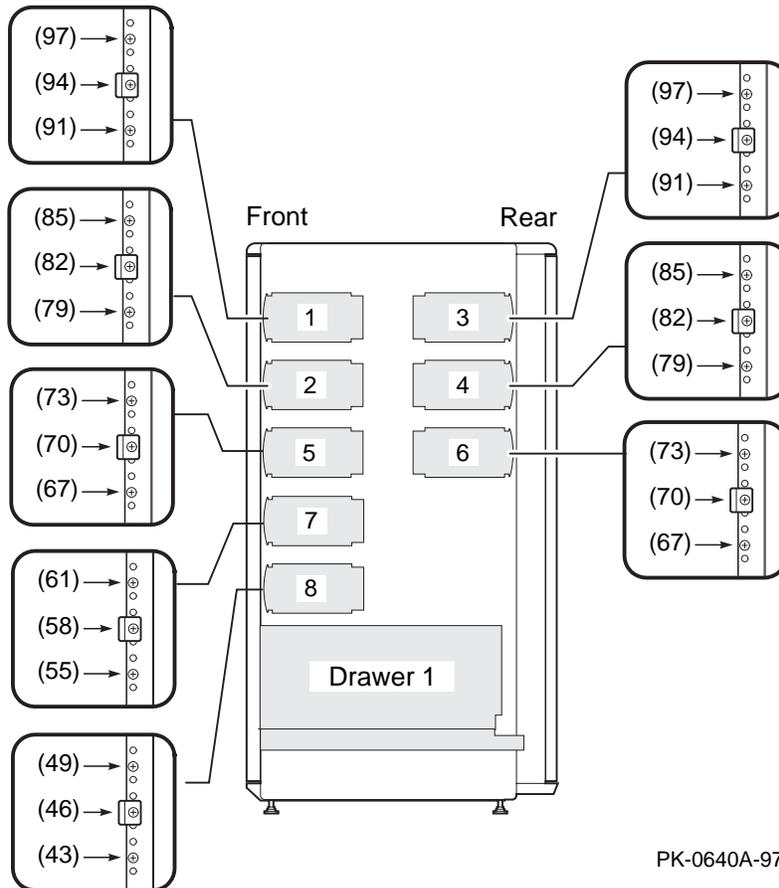
Using H9A10-EC Cabinets

1. Locate the proper mounting holes (cabinet front and rear) and insert the U-nuts over the holes. Note that there are two types of support rails; one support rail has two snap latches and the other has none. The support rails with snap latches must be installed on the right side of the cabinet when viewed from the cabinet front. In Figure B-2 the support rails installed will hold the first system drawer.
2. At the rear of the cabinet, line up and assemble the support bracket with the rail mounting holes, leaving the two side-mounted screws loose.
3. At the front of the cabinet, install the support rail on the two screws on the side of the support bracket and align with front rail mounting holes. Fasten the support rail to the mounting rail by installing the topmost and lowermost screws.
4. Tighten side mounting screws and secure support rail to bracket.
5. Install the other support rail.

StorageWorks Shelves in H9A10-EC Cabinet

The maximum number of StorageWorks shelves is eight in a one-system drawer H9A10-EC cabinet. The maximum number of StorageWorks shelves is six in a two-system drawer cabinet. See Figure B-3 and Figure B-4. These figures also show the proper mounting holes in the cabinet rails.

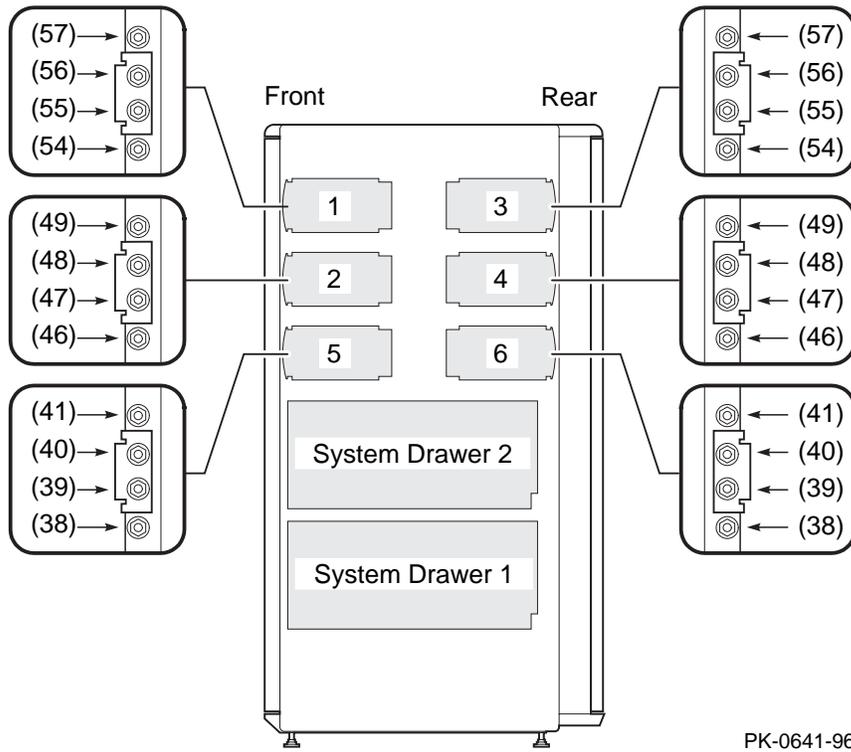
Figure B-3 H9A10-EC Cabinet: Shelves with One Drawer



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Using H9A10-EC Cabinets

Figure B-4 H9A10-EC Cabinet: Shelves with Two Drawers

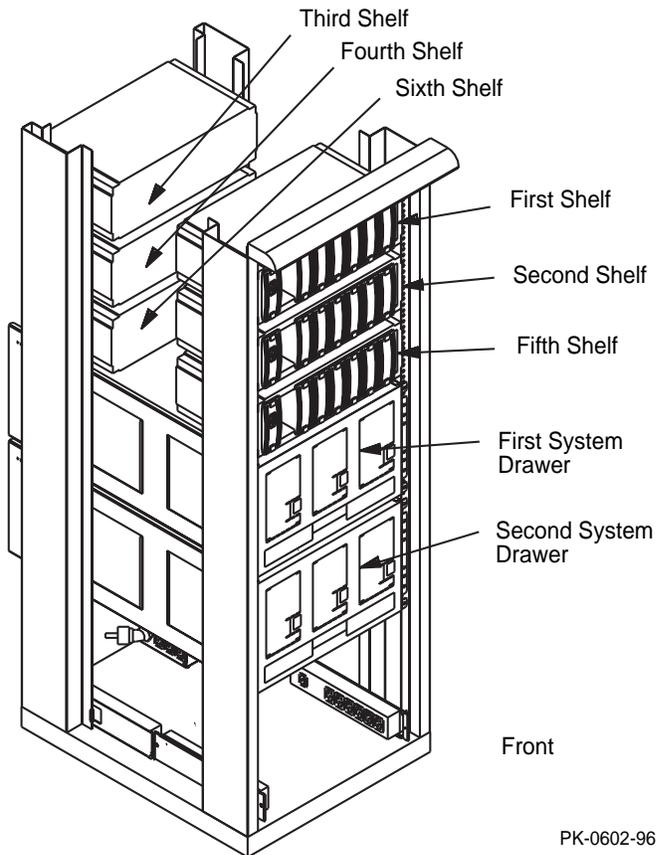


PK-0641-96

Installing StorageWorks Mounting Rails

The number of StorageWorks shelves you can install depends on the number of system drawers in the cabinet. For example, there is space for six StorageWorks shelves in a cabinet with two system drawers. See Figure B-5.

Figure B-5 Sample Cabinet Configuration



PK-0602-96

Using H9A10-EC Cabinets

In the H9A10-EC (metric) cabinet, install the StorageWorks shelf mounting rails as shown in Figure B-6.

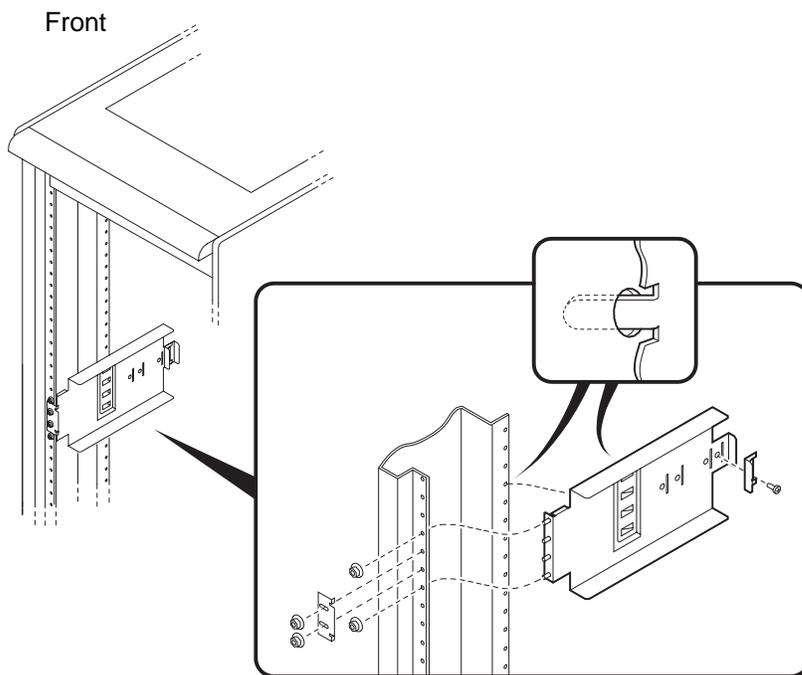
Guide the rail flanges through the appropriate mounting holes.

Attach the mounting rail with the brackets and nuts, as shown.

Install the StorageWorks shelf by sliding it onto the mounting rails.

Connect the shelf power cable to an AC power strip. Connect the shelf signal cable to the SCSI controller in the PCI card cage.

Figure B-6 Installing Shelf Mounting Rails in H9A10-EC Cabinet

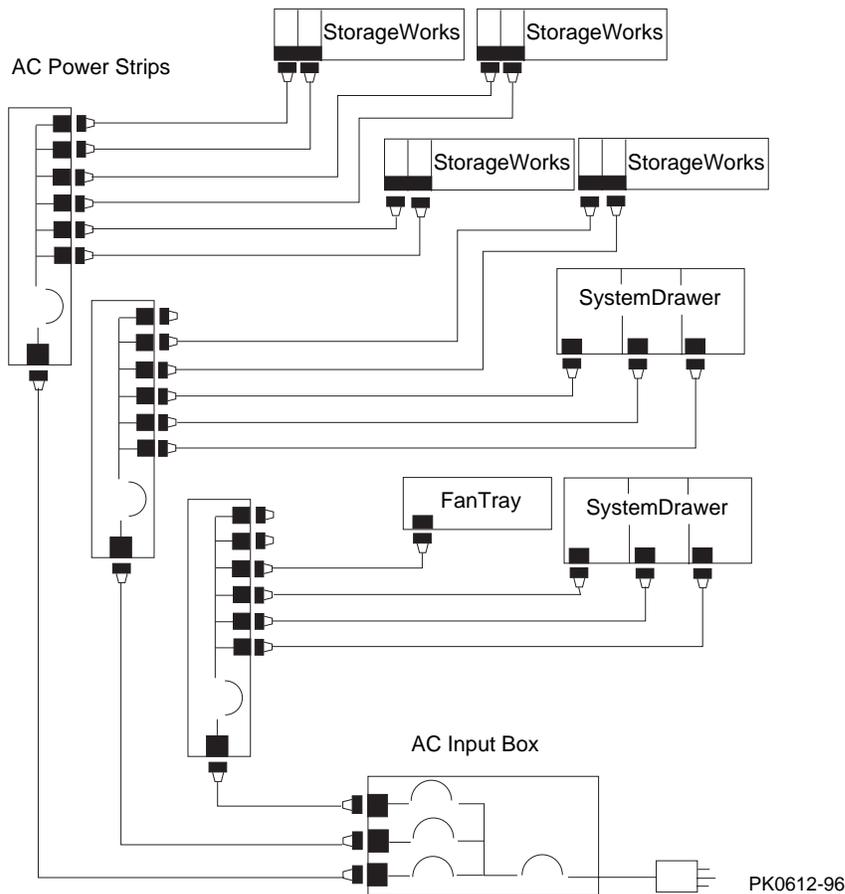


PK-0636-96

H9A10-EC Cabinet Power Strips

Figure B-7 shows a sample cabinet power configuration with two system drawers and four StorageWorks shelves. Each system drawer has three power supplies. Each StorageWorks shelf is equipped with a redundant power supply. Three AC power strips are used in this configuration.

Figure B-7 Sample Cabinet Power Configuration

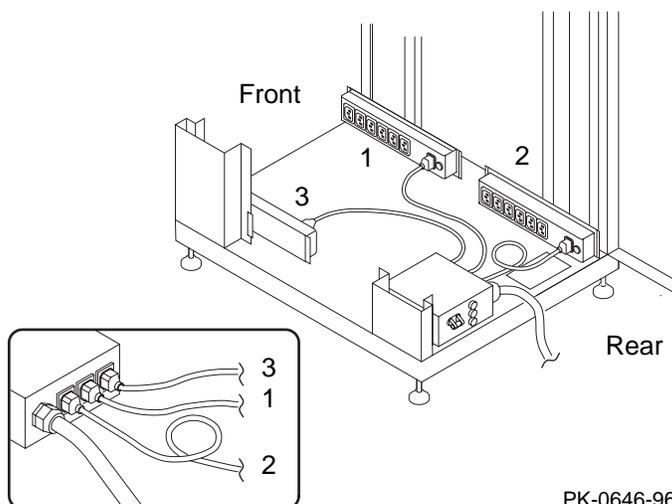


Using H9A10-EC Cabinets

AC power strips connect to an AC input box outlet. The AC input box has a two-pole main circuit breaker. Each AC power strip has a single-pole thermal circuit breaker and six outlets for system drawers, StorageWorks shelves, and fan tray. A maximum of three AC power strips can be used in the cabinet; they are installed in order of the numbers shown in Figure B-8. When connecting system components to AC power strips, note that system drawer power cables are black; StorageWorks shelf power cables and fan tray power cables are gray. Configuration rules are:

- A system drawer contains one to three power supplies; each power supply has one power cable that connects to an AC power strip.
- A StorageWorks shelf has one power cable; a shelf equipped with a redundant power supply has two power cables.
- Connect all system drawer power cables to the same AC power strip.
- A second power strip is required if you install more than three StorageWorks shelves in a cabinet with one system drawer.
- If a cabinet has four system drawers, connect the fourth system drawer input power cables to different AC power strips.

Figure B-8 Three AC Power Strips



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Using H9A10-EC Cabinets

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