COMPAQ

AlphaServer GS160/320

Installation Guide

Order Number: EK-GS320-IN. C01

This manual discusses the installation of *Compaq AlphaServer* GS160/320 systems.

Compaq Computer Corporation

FCC Notice

This equipment generates, uses, and may emit radio frequency energy. The equipment has been type tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC rules, which are designed to provide reasonable protection against such radio frequency interference. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference. Any modifications to this device—unless expressly approved by the manufacturer—can void the user's authority to operate this equipment under part 15 of the FCC rules.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are equipment.

not expressly approved by Compaq Computer Corporation may void the user's authority to operate the
Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Taiwanese Notice

警告使用者:

這是甲類的資訊產品,在居住的
環境中使用時,可能會造成射頻
干擾,在這種情況下,使用者會
被要求採取某些適當的對策。

Japanese Notice

に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波
妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ず
るよう要求されることがあります。

Canadian Notice

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

Avis Canadien

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

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

EN55022 (CISPR 22) - Electromagnetic Interference

EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity

EN60950 (IEC950) - Product Safety

Warning!

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung!

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention!

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques spécifiques appropriées.

Contents

Index

Examples

Figures

Tables

Preface

Intended Audience

This manual tells how to install and power up *AlphaServer* GS160/320 systems. It is intended for installation and service professionals.

Document Structure

This manual uses a structured documentation design. Topics are organized into small sections, usually consisting of two facing pages. Most topics begin with an abstract that provides an overview of the section, followed by an illustration or example. The facing page contains descriptions, procedures, and syntax definitions.

This manual has four chapters.

- **Chapter 1, Overview,** provides a conceptual introduction to the system.

- **Chapter 2, GS160 Assembly,** describes how to assemble the base system by attaching the power cabinet to system cabinet 1.

- **Chapter 3, GS320 Assembly,** describes how to assemble a GS320 system by attaching system cabinet 2 to system cabinet 1 and the power cabinet to system cabinet 1.

- **Chapter 4, System Power-Up,** describes how to power up the system and when to boot the operating system.

Documentation Titles

Table 1   Compaq AlphaServer GS80/160/320 Documentation

Title	Order Number
QA–6GAAA–G8	AlphaServer GS80/160/320 Documentation Kit
EK–GS320–UG	*AlphaServer GS80/160/320 User's Guide*
EK–GS320–RM	*AlphaServer GS80/160/320 Firmware Reference Manual*
EK–GSPAR–RM	*AlphaServer GS80/160/320 Getting Started with Partitions*
EK–GS320–IN	*AlphaServer GS160/320 Installation Guide*
EK–GSR80–IN	*AlphaServer GS80 Installation Guide*
AG–RKSWB–BE	AlphaServer GS80/160/320 User Information CD (HTML files)
AG–RLVJA–BE	AlphaServer GS80/160/320 User Information CD (translations)
QA–6GAAB–G8	AlphaServer GS80/160/320 Service Documentation Kit
EK–GS320–SV	*AlphaServer GS80/160/320 Service Manual*
EK–GS320–RM	*AlphaServer GS80/160/320 Firmware Reference Manual*
AG–RKSZ*–BE	AlphaServer GS80/160/320 Service Information CD
EK–GSCON–IN	*AlphaServer GS80/160/320 System Management Console Installation and User's Guide*
EK–GS320–UP	*AlphaServer GS160/320 Upgrade Manual*
EK–GSR80–UP	*AlphaServer GS80 Upgrade Manual*
EK–GS320–SP	*AlphaServer GS80/160/320 Site Preparation*

Information on the Internet

Visit the Compaq Web site at www.compaq.com/alphaserver/site_index.html for service tools and more information about the *AlphaServer* GS160/320 systems.

Chapter 1
Overview

The *AlphaServer* GS160 and GS320 systems are high-performance server platforms designed for enterprise-level applications. They are distinguished by a high degree of versatility, scalability, and expandability.

These powerful, switch-based systems use four Alpha microprocessors per quad building block (QBB). Two QBBs paired back-to-back and rotated 180º with reference to each other form a system box, which is the smallest system-level configurable component of the *AlphaServer* GS320.

1.1 The System

The system consists of a power cabinet and one system cabinet or two system cabinets, depending on the configuration. The power cabinet contains the power supplies, the I/O components—the PCI boxes and storage units—and the OCP (operator control panel). The system cabinets house the system boxes that carry interconnect modules as well as CPU and memory modules.

The system cabinet can be configured with one or two system boxes. The first system box is located in the lower cavity of the cabinet and the second system box is inserted in the upper cavity. A fully configured system consists of a power cabinet and two system cabinets—system cabinet 1 and system cabinet 2—each system cabinet containing two system boxes.

Each QBB backplane contains a switch that acts as an interconnect between the CPU modules, memory modules, I/O riser modules, and the global port module. In an 8-processor configuration (single system box) a distribution board interfaces the two QBBs directly through their global ports. In configurations with more than one system box, a hierarchical switch replaces the distribution card and adds a second level switch to route information between the system boxes.

Figure 1–1 shows a block diagram of a system with a single system cabinet and one fully configured system box.

Figure 1–1 8-Processor AlphaServer GS160 Block Diagram

PK-0601-98
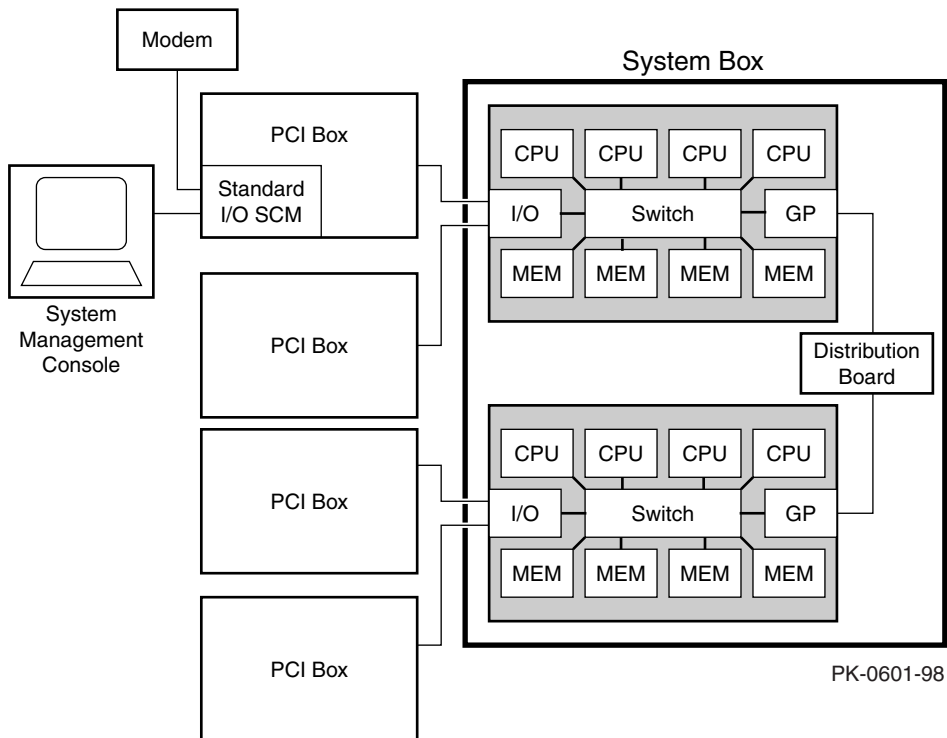
Figure 1–2 shows a block diagram of a system with a single system cabinet and two fully configured system boxes.

Figure 1–2   16-Processor AlphaServer GS160 Block Diagram

PK-0623-98
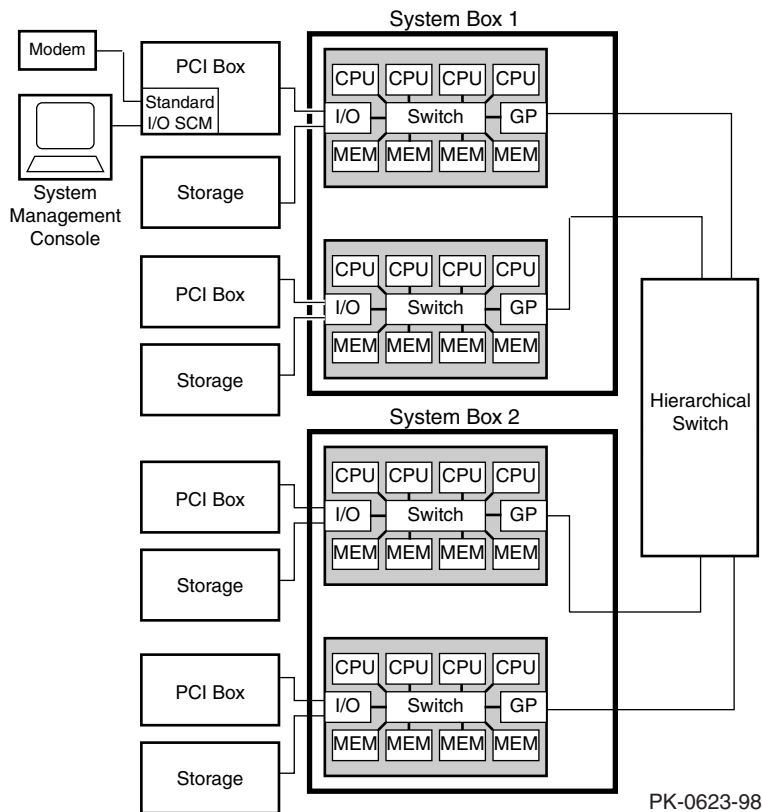
Figure 1–3 shows a fully configured system with a power cabinet, system cabinet 1, and system cabinet 2.

Figure 1–3   A Fully Configured AlphaServer GS320 System

GS320 Front View
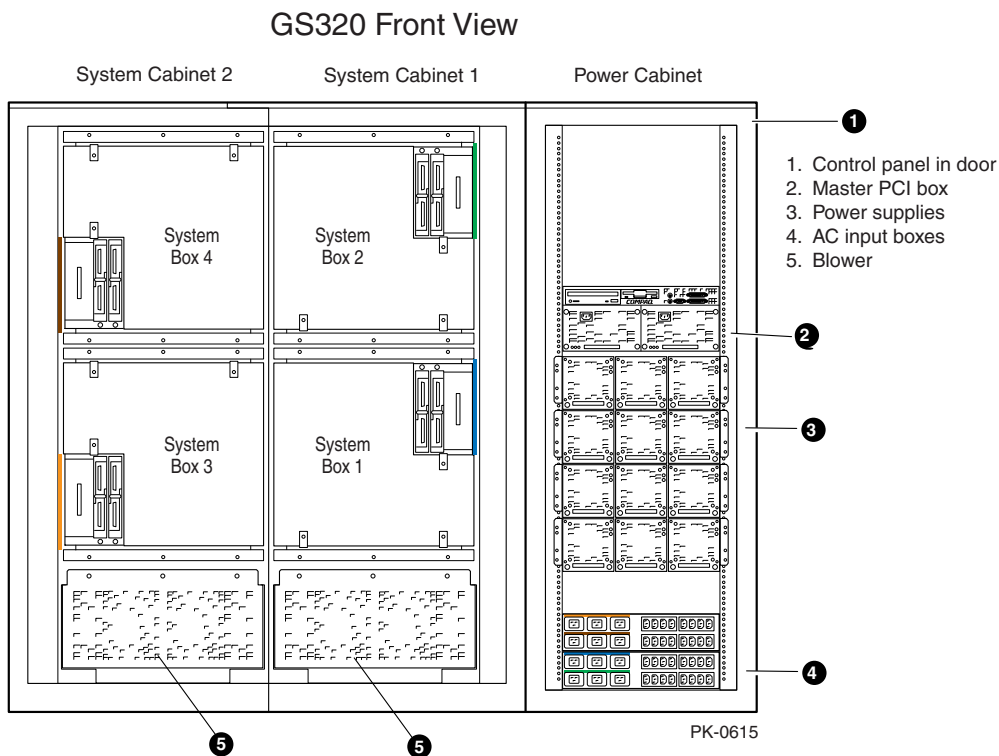
Expander cabinets accommodate additional PCI boxes and storage units. They are attached to the power cabinet and/or system cabinet. The expander cabinet can be placed next to the system or in a remote area.

1.2　Cabinets

Table 1–1 shows the model number of cabinets and power requirements for systems operating in various electrical environments.

Table 1–1　Cabinet Models and Power Requirements

Cabinet Model	Power Requirement
System Cabinet 1 H9A21-AA	Not Applicable
System Cabinet 2 H9A21-AB	Not Applicable
Power Cabinet H9A20-BA (North American/Japanese)	120-208V
Power Cabinet H9A20-BB (European)	380-415V
Expander Cabinet H9A20-AA (North American)	120V
Expander Cabinet H9A20-AB (European)	220-240V
Expander Cabinet H9A20-AC (North American/Japanese)	200-240V

1.3　Color Codes

System boxes and the associated power subracks and cables are color-coded for ease of reference and identification. Table 1–2 shows the color codes used for the system components.

Table 1–2　Color Codes of System Components

System Components	Color Code
System box 1, subrack 1, AC breakers, outlets, cables	Blue
System box 2, subrack 2, AC breakers, outlets, cables	Green
System box 3, subrack 3, AC breakers, outlets, cables	Orange
System box 4, subrack 4, AC breakers, outlets, cables	Brown

Chapter 2
GS160 Assembly

The base system consists of one system cabinet with a single system box and distribution board, and one power cabinet. The power cabinet contains the operator control panel, two AC input boxes, one power subrack and two power supplies, a 14-slot PCI box assembly (BA54A), and a PCI box mounting and accessory kit (CK-BA54A).

Expander cabinets are used for additional PCI boxes and storage shelves. An optional dual-AC switch can be attached to the power cabinet to ensure uninterrupted power supply to the system. Topics in this chapter include:

- System Cabinets

- Preparing for System Installation

- Assembling the Base GS160 System

- Adding Expander Cabinets

- Attaching a Dual-AC Switch Cabinet

The system boxes and the associated power subracks, cables, AC circuit breakers and outlets are color-coded for ease of reference and identification. Table 2–1 shows the color codes used for the system components.

Table 2–1   Color Codes of System Components

System Component	Color Code
System box 1, subrack 1, AC breakers, outlets, cables	Blue
System box 2, subrack 2, AC breakers, outlets, cables	Green
System box 3, subrack 3, AC breakers, outlets, cables	Orange
System box 4, subrack 4, AC breakers, outlets, cables	Brown

2.1 System Cabinets

System cabinets are the starting points for configuring and assembling standard and customized systems. This section describes the system, power, and expander cabinets.

Figure 2–1 System Cabinet 1 Assembly (H9A21-AA)

Shipping Support Bracket
(Front and Rear)

PK-0537-00
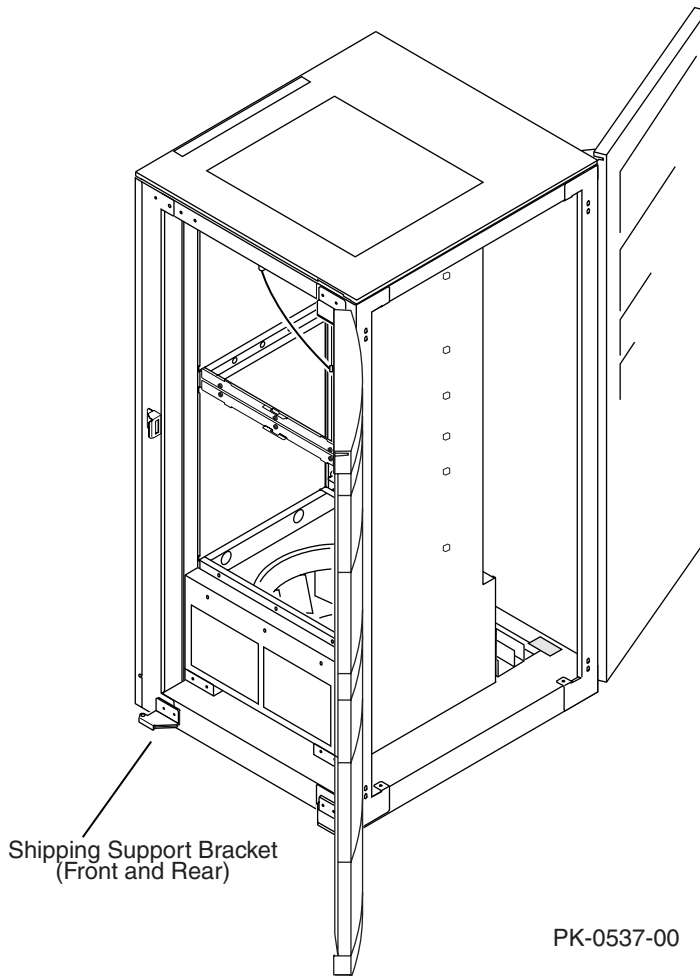
System cabinet 1 contains up to two system boxes. Each system box consists of two back-to-back quadrant building blocks. Figure 2–1 shows the system cabinet 1 assembly (H9A21-AA).

The power cabinet assemblies for the North American/Japanese and European versions (H9A20-BA and H9A20-BB, respectively) are the same except for the AC input boxes. The power components and I/O are housed in the power cabinet assembly. Figure 2–2 shows the power cabinet assembly. Refer to the Illustrated Parts Breakdown (EK-GS160-IP) for system cabinet parts.

Expander cabinets house additional PCI or storage boxes. Figure 2–3 shows the expander cabinet.

Refer to the Illustrated Parts Breakdown (EK-GS160-IP) for cabinet parts.

Figure 2–2 Power Cabinet Assembly (H9A20-BA/-BB)

Shipping Support Bracket
(Front and Rear)

PK-0539-00
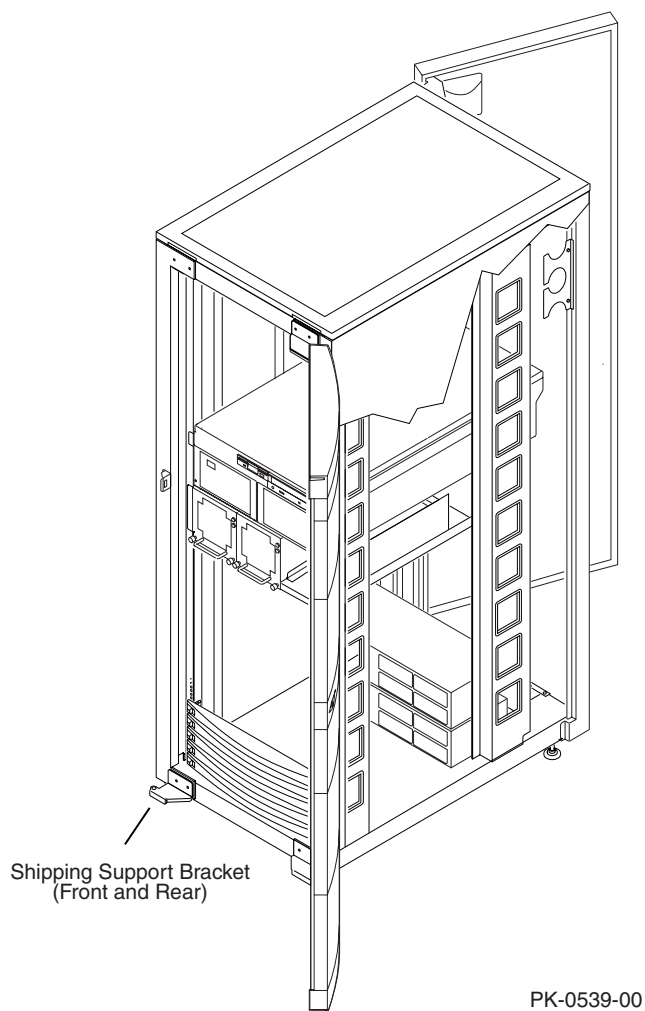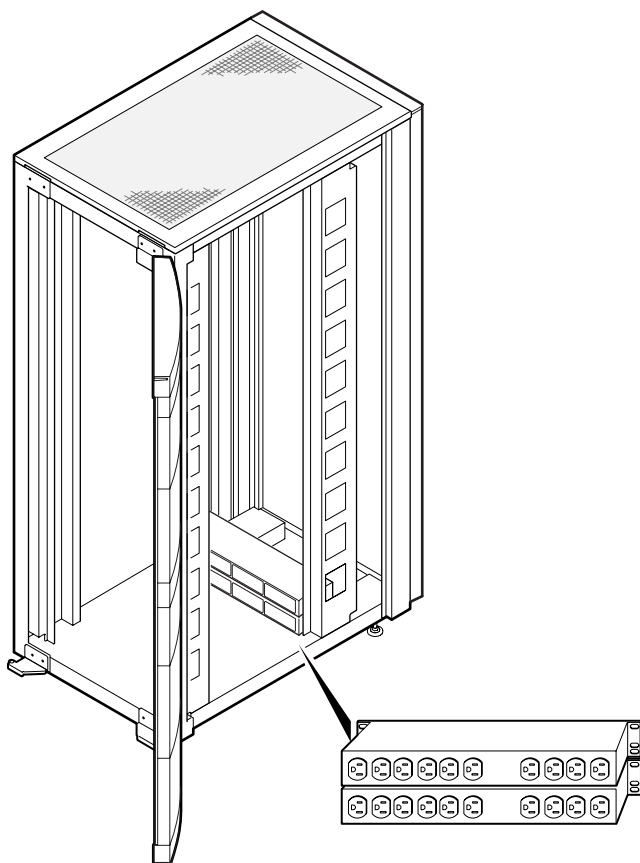
Figure 2–3   Expander Cabinet Assembly

PK-0540-99

NOTE: *The optional dual-AC switch cabinet has the same dimensions as the expander cabinet.*

2.2 Preparing for System Installation

The site must be properly prepared for the system to be installed. Make sure that you have the tools needed for the installation. Wait for any condensation on the metal surfaces to evaporate before powering up the system. Table 2–2 gives the joining kits required for the installation.

Table 2–2 Joining Kits Required for Installation

Joining Kit	Part Number
Power cabinet to system cabinet 1 (part of power cabinet assembly)	70-40120-01
Expander cabinet to power or system cabinet	70-40120-02

Before you start any installation procedure:

1. Ensure that the site is properly prepared to install the system. Refer to the *AlphaServer GS160/320 Site Preparation* for system specifications and requirements.

2. Ensure that you have the joining kit(s) listed in Table 2–2 for the installation.

3. Roll system cabinets off pallets.

4. Remove all protective packaging.

You are now ready to assemble the system.

After you have finished installing the system, hand the shipping brackets to the customer to keep for later use. Shipping brackets are required for moving the system.

⚠ **WARNING: Before you power up the system, inspect the modules for any visible sign of water condensation on the heatsinks, DC-to-DC converters, and the CPUs. Due to the large mass of the GS160/320 system, condensation may occur during dual-AC from a cold to a warm environment. Allow time for the condensation to evaporate completely. DO NOT power the system up if you notice any indication of condensation.**

2.3 Assembling a GS160 System

The base system consists of the power cabinet and system cabinet 1. The power cabinet contains the OCP, two AC power input boxes, a PCI box, a power subrack, and power supplies. System cabinet 1 contains one or two system boxes. The computer system is assembled on site by connecting the power cabinet to the system cabinet. Figure 2–4 shows an AlphaServer GS160 system.

Figure 2–4   AlphaServer GS160 System

System Cabinet 1

Power Cabinet

PK2236
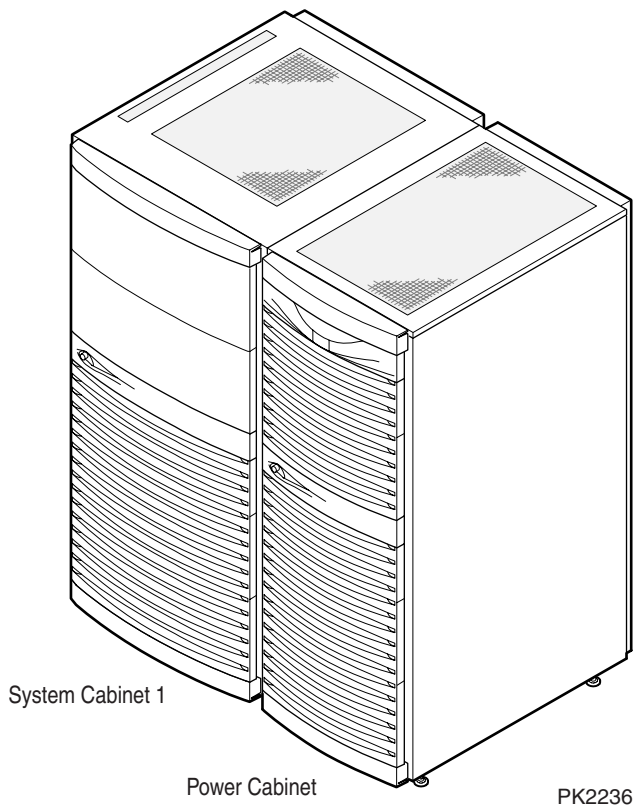
GS160 with One System Box

Unpack system cabinets and remove the orange shipping brackets. Refer to Figure 2–5 to Figure 2–8 while assembling the system.

1. Position system cabinet 1 at the predetermined location. Release the tie wraps on the CSB cable and hose cables that are coiled and attached to the side of the cabinet for later routing.

2. Lower the corner leveling feet on system cabinet 1 until the system cabinet is anchored and the casters are free to rotate.

3. Roll the power cabinet along the right side of system cabinet 1 until there is a minimum separation between the two cabinets ❶ (Figure 2–5).

4. Anchor the power cabinet and adjust the leveling feet for parallel and height alignment with the adjacent system cabinet ❷.

5. Secure the cabinets together with four bolts inserted through the system cabinet ❸ using Allen wrenches contained in the cabinet joining kit (P/N 70-40120-01). Remove the orange shipping brackets.

6. Make cable connections. Note the color code on the cables and the connectors (blue for system box 1 cables):

    • Power cable for the blower ❹ (Figure 2–6).

    • Power cable for the system box ❺.

    • Signal cable for the system box ❻.

    • CSB cable from the J2 connector of the distribution board to the CSB adapter and terminator on the power cabinet ❼. To make the installation of the cable easier, remove the mounting screws from the connector block. Connect the CSB cable and then replace the connector block.

- Connect the hose cable from the local I/O riser ports to the remote risers in the PCI box (Figure 2–7).

NOTE: *When the system is upgraded to two system boxes, only the power cable and the signal cable of the second system box need to be attached to the power cabinet. Also, for this upgrade, the distribution board must be replaced with a hierarchical switch. See the AlphaServer GS160/320 Upgrade Manual.*

---

7. Connect the system ground wire ❸ (Figure 2–6) from the power cabinet to the system cabinet as follows: remove the M5 Phillips screw ❾ from the system cabinet, attach the loose end of the ground wire, and secure it to the system cabinet with the screw.

8. Make the OCP connections to the PCI box and the power subrack.

   - Connect the signal cable from the J2 connector of the OCP ❶ to the first PCI box J3 connector ❷ (Figure 2–8).

   - Connect the power cable of the OCP ❸ (Figure 2–8) to the first power subrack. The OCP end of this power cable is connected to the J1 connector of the OCP, while the power subrack end ❹ is attached to connector J12. This end of the power cable is daisy-chained to additional power subracks in system upgrades.

NOTE: *If your system comes with two system boxes (blue and green), then a hierarchical switch will have been attached to system cabinet 1 instead of the distribution board. In such a case, you must connect the CSB cable from the H-switch to the CSB adapter and terminator on the power cabinet. You must make power and signal connections to system box 2 (Figure 2–6). In addition, you must make the OCP power connection to the J12 connector of the second (green) power subrack (Figure 2–8).*

Figure 2–5 shows how the system cabinet and the power cabinet are joined together.

Figure 2–5   Joining Power Cabinet to System Cabinet 1
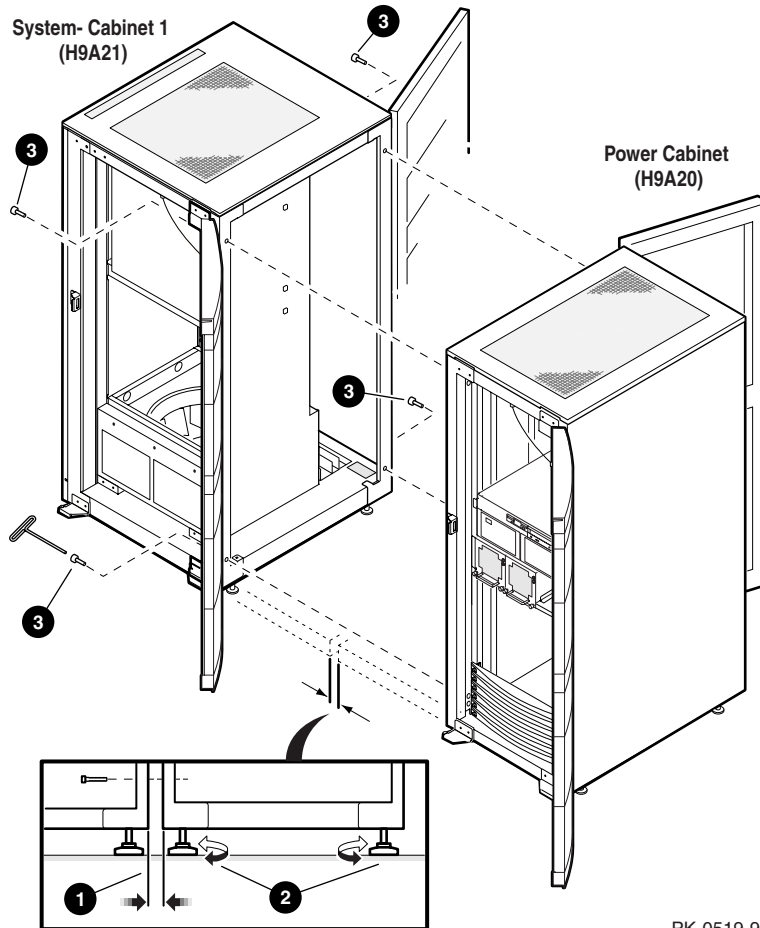
PK-0519-99

Figure 2–6 shows the cable connections between the system cabinet and the power cabinet.

Figure 2–6   Making System Cable Connections
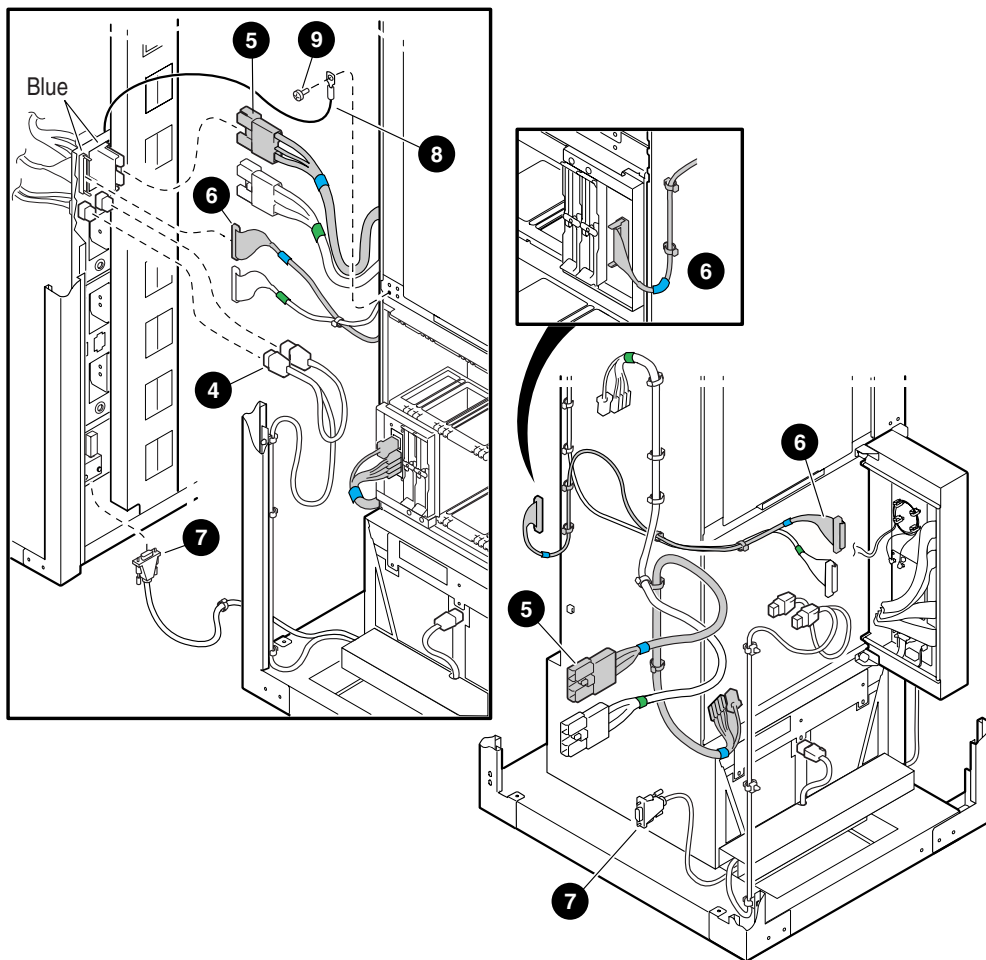
PK--0533-00

Figure 2–7 shows typical connections of I/O hoses between the local I/O riser ports and the remote risers in the PCI box. Note that Port 0 (or Port 2) is connected to J14 on the PCI box and Port 1 (or Port 3) is connected to J15.

Figure 2–7   I/O Hose Connections
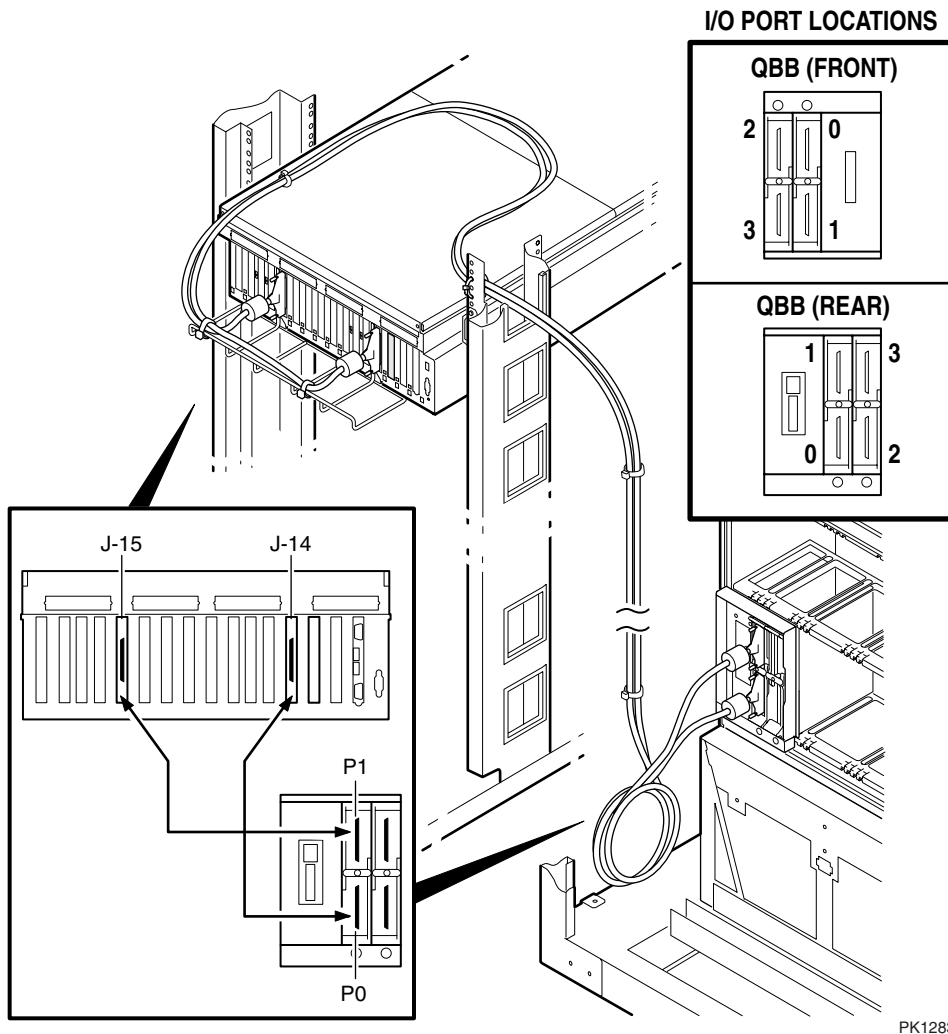
PK1283

Labels on the I/O hoses indicate the I/O port and the QBB to which they should be connected. Table 2–3 gives the label codes on the I/O hoses.

Table 2–3   I/O Hose Labels

Hose Label	QBB No.	Port No.
00	0	0
10	0	1
20	0	2
30	0	3
01	1	0
11	1	1
21	1	2
31	1	3
02	2	0
12	2	1
22	2	2
32	2	3
03	3	0
13	3	1
23	3	2
33	3	3

Figure 2–8   OCP Cable Connections to the Power Cabinet
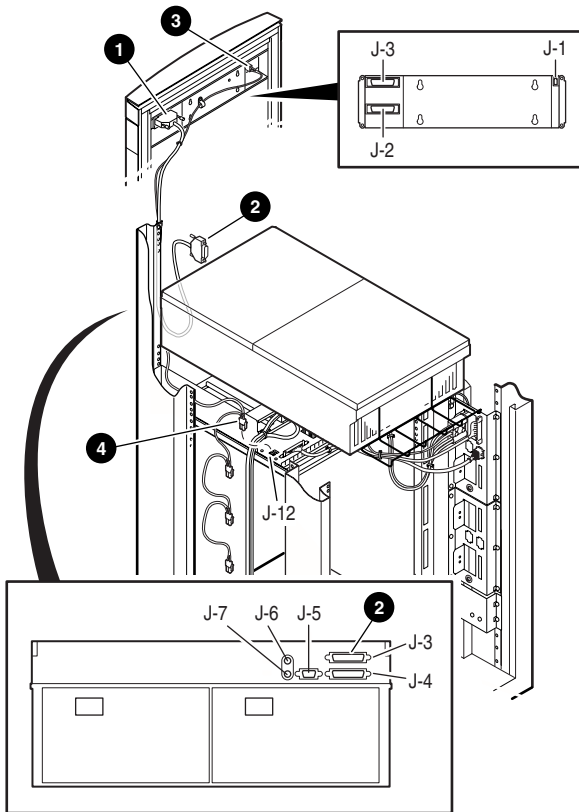
PK1281

This completes the installation of a GS160 system without the addition of expander cabinets. Refer to Section 2.4 for addition of expander cabinets.

After you have finished installing all cabinets you must install the system management console (See *AlphaServer GS80/160/320 System Management Console Installation Guide and User's Guide*, EK-GSCON-IN) before you proceed to power up the system.

GS160 with Two System Boxes

Unpack system cabinets and remove the orange shipping brackets. Refer to Figure 2–5, Figure 2–9, Figure 2–7, and to Figure 2–8 while assembling the system.

1. Position system cabinet 1 at the predetermined location. Release the tie wraps on the CSB cable and hose cables that are coiled and attached to the side of the cabinet for later routing.

2. Lower the corner leveling feet on system cabinet 1 until the system cabinet is anchored and the casters are free to rotate.

3. Roll the power cabinet along the right side of system cabinet 1 until there is a minimum separation between the two cabinets ❶ (Figure 2–5).

4. Anchor the power cabinet and adjust the leveling feet for parallel and height alignment with the adjacent system cabinet ❷.

5. Secure the cabinets together with four bolts inserted through the system cabinet ❸ using Allen wrenches contained in the cabinet joining kit (P/N 70-40120-01). Remove the orange shipping brackets.

6. Make cable connections. Note the color code on the cables and the connectors (blue for system box 1 cables and green for system box 2 cables):

    - Power cable for the blower ❹ (Figure 2–9).

    - Power cables for the system boxes ❺.

    - Signal cables for the system boxes ❻.

    - CSB cable from the H-switch to the CSB adapter and terminator on the power cabinet ❼. To make the installation of the cable easier, remove the mounting screws from the connector block. Connect the CSB cable and then replace the connector block.

    - Connect the hose cables from the local I/O riser ports to the remote risers in the PCI box (Figure 2–7). See Table 2–3 for the label codes on the I/O hoses.

7. Connect the system ground wire ❸ (Figure 2–6) from the power cabinet to the system cabinet as follows: remove the M5 Phillips screw ❾ from the system cabinet, attach the loose end of the ground wire, and secure it to the system cabinet with the screw.

8. Make the OCP connections to the PCI box and the power subracks.

    •   Connect the signal cable from the J2 connector of the OCP ❶ to the first PCI box J3 connector ❷ (Figure 2–8).

    •   Connect the power cable of the OCP ❸ (Figure 2–8) to the first (blue) and second (green, not shown) power subracks. The OCP end of this power cable is connected to the J1 connector of the OCP, while the power subrack ends ❹ are attached to J12 connectors. This end of the power cable is daisy-chained to additional power subracks in system upgrades.

Figure 2–9 Making System Cable Connections
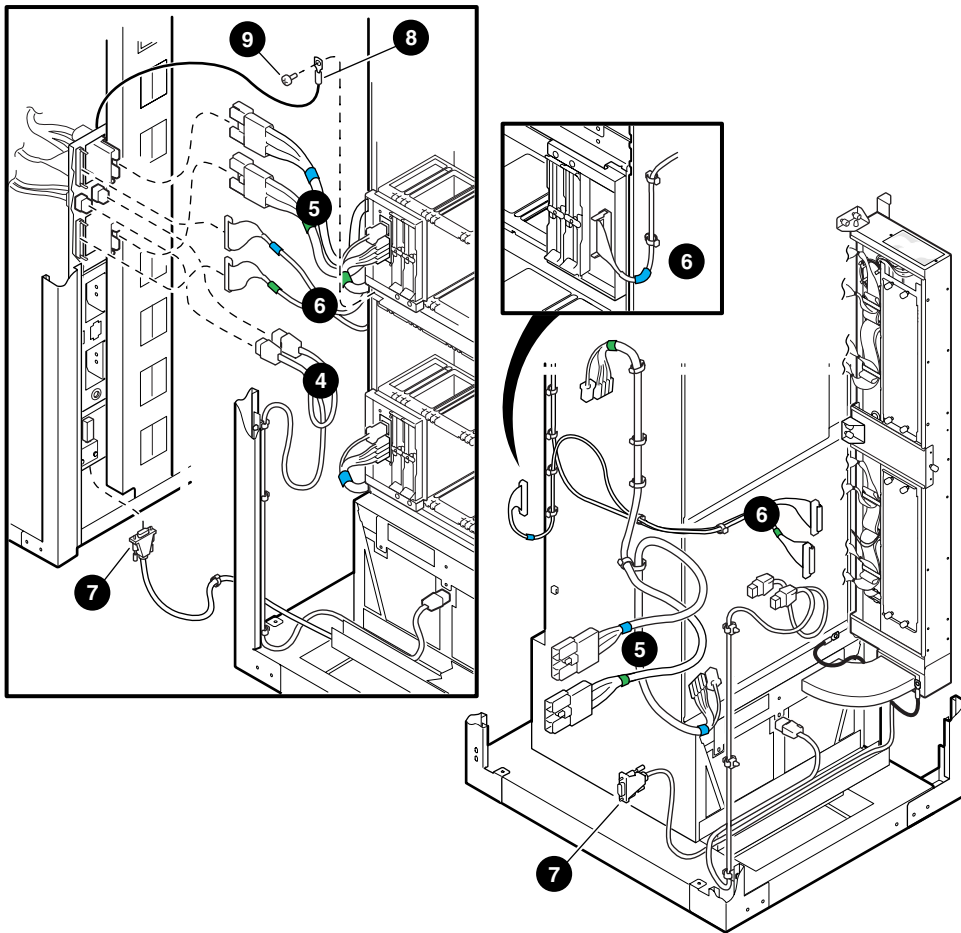
PK3228

2.4   Adding Expander Cabinets

Figure 2–10 shows the addition of an expander cabinet to a power cabinet.

Figure 2–10   Adding Expander Cabinets
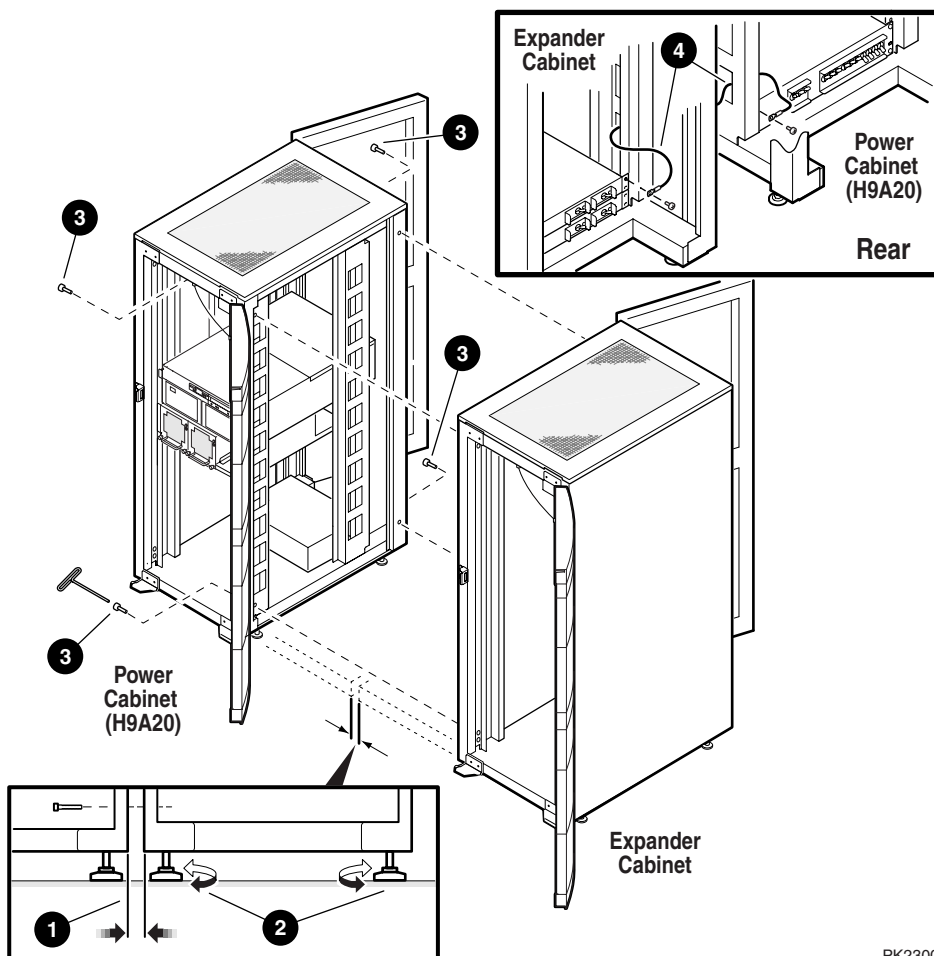
PK2300

Expander cabinets can be added to either side of the system. To add an expander cabinet, proceed as follows:

NOTE: *If a dual-AC switch is to be attached to the system, first attach the dual-AC switch to the power cabinet as discussed in Section 2.5. Then attach the expander cabinet to the dual-AC switch cabinet or system cabinet 1.*

---

1. Roll the expander cabinet flush along the side of the power cabinet or system cabinet leaving a minimum gap between cabinets ❶.

2. Align cabinet heights by adjusting the leveling feet ❷.

3. Once the expander cabinet is well aligned with the power or system cabinet, use the four screws and the Allen wrench supplied with the expander cabinet to secure the cabinets together at all corners ❸.

4. Connect the system ground wire from the expander cabinet to the power cabinet ❹ or system cabinet. For each additional expander cabinet, daisy chain a system ground wire.

5. Make host connections (PCI box, storage) and the CSB connection. These connections are configuration dependent.

This completes the installation of an expander cabinet.

2.5 Attaching a Dual-AC Switch Cabinet

The dual-AC switch cabinet is always attached to the power cabinet.
Figure 2–11 shows how a dual-AC switch is installed.

Figure 2–11   Attaching a Dual-AC Switch Cabinet
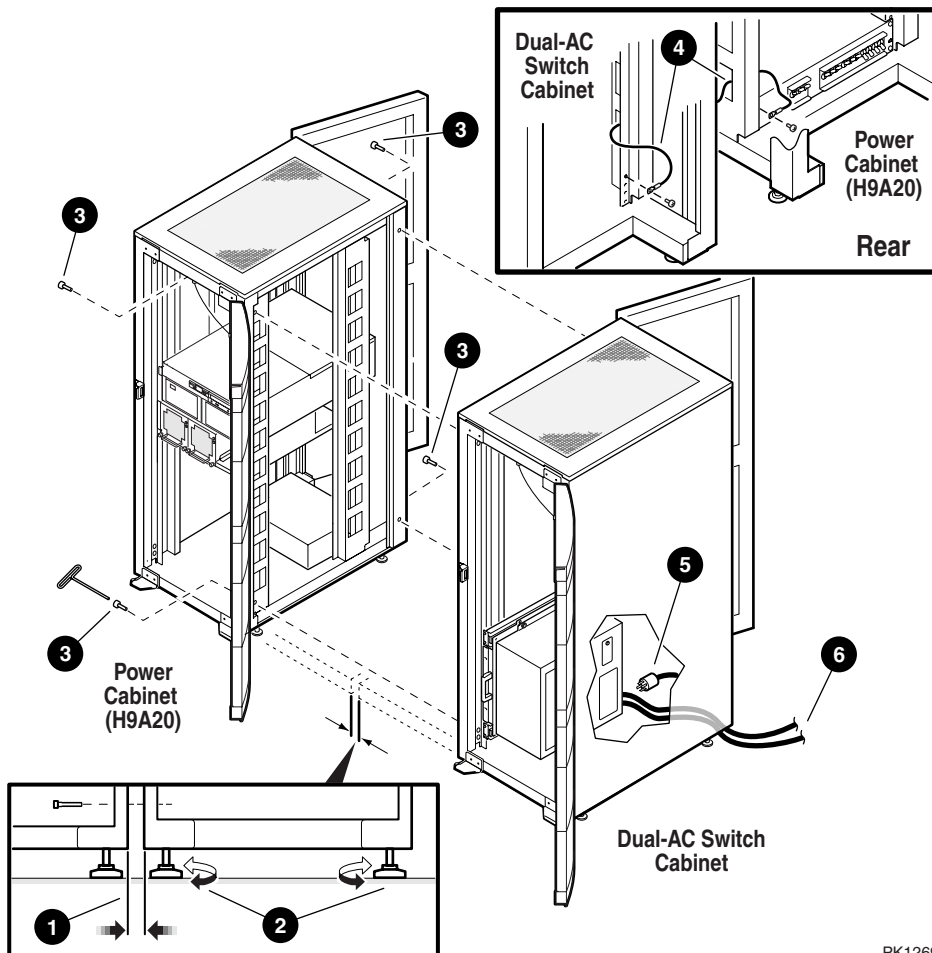
The dual-AC switch ensures an uninterrupted power supply to the system by transferring AC power input from the primary source to the secondary source when the primary stops supplying power. The GS160 system requires one power dual-AC switch located in the lower cavity of the dual-AC switch cabinet.

The dual-AC switch cabinet is attached to the right of the power cabinet. To add a dual-AC switch cabinet, proceed as follows: Roll the dual-AC switch cabinet flush along the side of the power cabinet leaving a minimum gap between cabinets ❶.

1. Align cabinet height by adjusting the leveling feet of the dual-AC switch cabinet ❷.

2. Once the dual-AC switch cabinet is aligned with the power cabinet, use the four screws and the Allen wrench supplied with the dual-AC switch cabinet to secure the cabinets together at all corners ❸.

3. Connect the system ground wire from the dual-AC switch cabinet to the power cabinet ❹.

4. Connect the power cable connector of the AC input box ❺ to the power output connector of the dual-AC switch.

5. Connect the primary power input cable of the dual-AC switch to the primary power source and the secondary power input cable to the secondary power source ❻. Note that the primary power source and the secondary power source are interchangeable. See the dual-AC switch documentation for interchanging the power sources.

Chapter 3
GS320 Assembly

This chapter describes the following topics:

- System Cabinet 2

- Assembling the GS320 System

Refer to Chapter 2 for discussions of other cabinets in the GS320 system as well as for procedures on the addition of expander cabinets and dual-AC switches.

3.1 AlphaServer GS320 System

The basic AlphaServer GS320 system is contained in three cabinets: power cabinet; system cabinet 1; system cabinet 2. Figure 3–1 shows a basic AlphaServer GS320 system.

Figure 3–1   AlphaServer GS320 System

System Cabinet 2

System Cabinet 1

Power Cabinet

PK1522
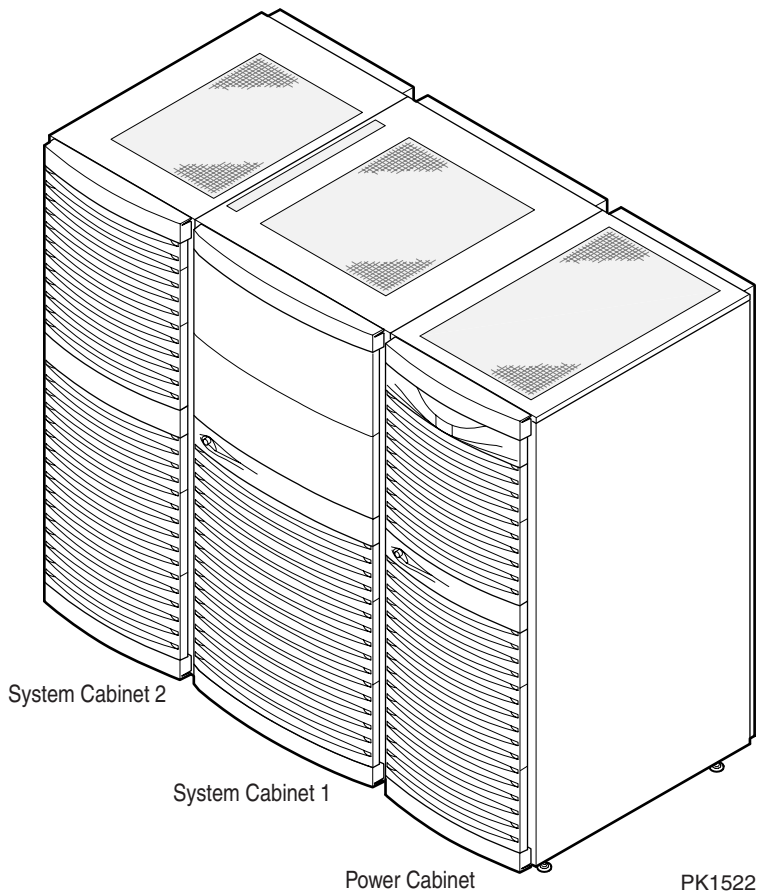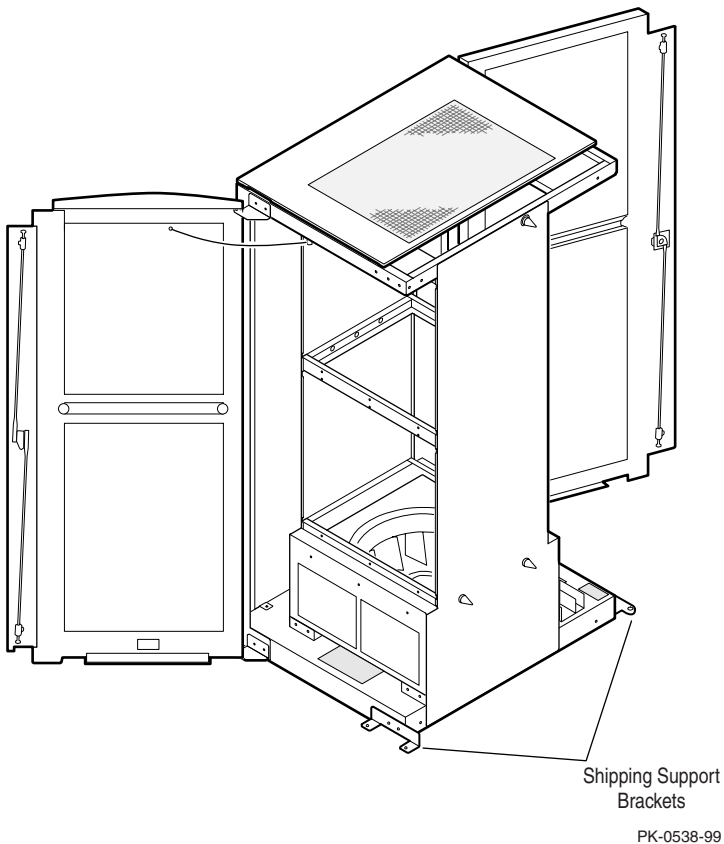
The GS320 system consists of two system cabinets (system cabinet 1 and system cabinet 2) and a power cabinet. The power cabinet contains the operator control panel, up to four power subracks (one power subrack for each system box), up to eight AC input boxes (two per system box) with power supplies, a 14-slot PCI box assembly (BA54A), and a PCI box mounting and accessory kit (CK-BA54A). System cabinet 1 contains two system boxes. System cabinet 2 may contain one or two system boxes. A hierarchical switch is attached to system cabinet 1.

Expander cabinets are used for additional PCI boxes and storage shelves. Optional dual-AC switches can be attached to the power cabinet to ensure uninterrupted power supply to the system.

3.2 System Cabinet 2

Figure 3–2 shows system cabinet 2. It is similar to system cabinet 1. It contains a blower and can accommodate two system boxes.

Figure 3–2 System Cabinet 2 Assembly (H9A21-BA)

Shipping Support
Brackets

PK-0538-99

System cabinet 2 is similar to system cabinet 1. It contains up to two system boxes. It is joined to system cabinet 1 to expand the system configuration from two system boxes to three or four system boxes. Refer to the Illustrated Parts Breakdown (EK-GS320-IP) for system cabinet parts.

3.3 Installing the GS320 System

The site must be properly prepared for the system to be installed. Make sure that you have the tools needed for the installation. Wait for any condensation on the metal surfaces to evaporate before powering up the system. Table 3–1 gives the joining kits required for the installation.

Table 3–1   Joining Kits Required for Installation

Joining Kit	Part Number
Power cabinet to system cabinet 1 (part of power cabinet assembly)	70-40120-01
System cabinet 2 to system cabinet 1	70-40121-01
Expander cabinet to power or system cabinet	70-40120-02

The system is assembled on site by connecting the two system cabinets and the power cabinet. Before you start any installation procedure:

1. Ensure that the site is properly prepared to install the system. Refer to the *AlphaServer GS160/320 Site Preparation* for system specifications and requirements.

2. Roll system cabinets off pallets.

3. Remove all protective packaging.

4. Ensure that you have the joining kits listed in Table 3–1 for the installation.

The system is installed in four stages:

1. Prepare system cabinet 1 for installation.

2. Prepare system cabinet 2 for installation.

3. Join system cabinet 2 to system cabinet 1.

4. Join power cabinet to system cabinet 1.

Refer to Chapter 2 if you need to install a dual-AC switch cabinet and/or expander cabinets.

After you have finished installing the system, hand the shipping brackets to the customer to keep for later use. Shipping brackets are required for moving the system.

⚠ **WARNING: Before you power up the system, inspect the modules for any visible sign of water condensation on the heatsinks, DC-to-DC converters, and the CPUs. Due to the large mass of the GS160/320 system, condensation may occur during transfer from a cold to a warm environment. Allow time for the condensation to evaporate completely. DO NOT power the system up if you notice any indication of condensation.**

3.3.1   Preparing System Cabinet 1 for Joining

Figure 3–3 shows how to prepare system cabinet 1 for joining.

Figure 3–3   Preparing System Cabinet 1 for Joining

PK-0522-99

Position system cabinet 1 at the predetermined location. Lower the corner leveling feet on system cabinet 1 until the system cabinet is anchored and the casters are free to rotate. Release the tie wraps on the CSB cable and hose cables that are coiled and attached to the sides of system cabinets for later routing.

Prepare system cabinet 1 for joining.

1. Remove the left side panel ❶ and top cover ❷.

2. Remove system box rear covers (not shown) and hierarchical switch (H-switch) covers ❸.

3. Loosen the H-switch mounting screws and gently rotate the H-switch toward system cabinet 1 ❹.

4. Remove the support pieces on the left side of the system cabinet, as well as the fastening hardware ❺. These pieces will not be reinstalled.

5. Remove the two labels that cover the lower alignment holes ❻.

NOTE: *If you are upgrading a single-system box system with a distribution board attached to system cabinet 1, you must replace the distribution board with a hierarchical switch. Procedures for the removal of the distribution board and the installation of the hierarchical switch are given in the AlphaServer GS160/320 Upgrade Manual.*

3.3.2 Preparing System Cabinet 2 for Joining

Figure 3–4 shows how to prepare system cabinet 2 for joining.

Figure 3–4 Preparing System Cabinet 2 for Joining

PK-0523-99
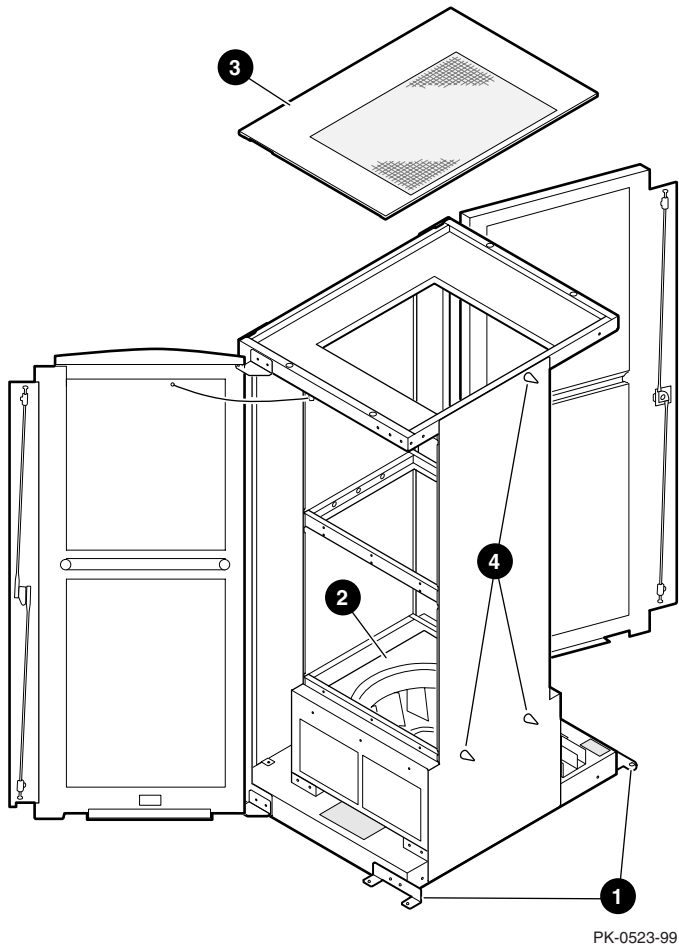
Prepare system cabinet 2 for joining.

1. Remove and discard the shipping brackets (front and rear) ❶.

2. Remove the blower ❷. Remove the fastening screws at the front and rear of the system cabinet and disconnect the power cable harness. Pull the blower out from the front of the cabinet.

3. Remove the top cover ❸. Open front and rear doors of the cabinet and gently lift off the top cover.

4. Remove the protective sleeves on the tapered pins ❹.

5. Make sure all the leveling feet are up so the cabinet can move freely.

3.3.3 Joining System Cabinet 2 to System Cabinet 1

Figure 3–5 shows how to join system cabinet 2 to system cabinet 1.

Figure 3–5 Joining System Cabinet 2 to System Cabinet 1

PK-0524-99
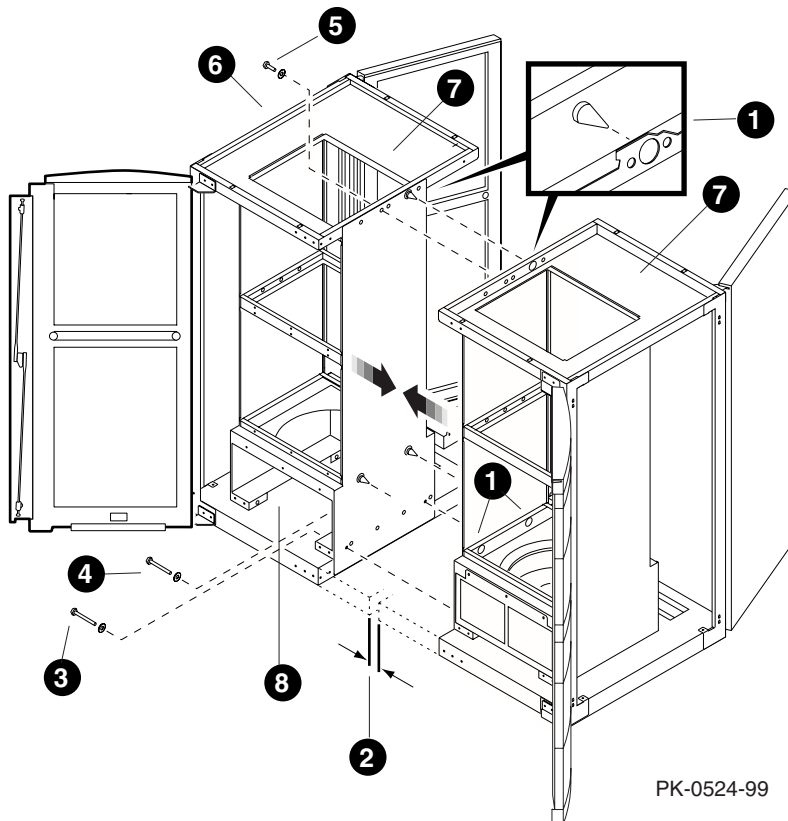
Join system cabinet 2 to system cabinet 1.

1. Position system cabinet 2 to the left of system cabinet 1. Note the taper pins on system cabinet 2 and the corresponding alignment holes on system cabinet 1 ❶.

2. With the front of the system cabinet bases aligned, roll system cabinet 2 toward system cabinet 1 until there is a minimum separation between the frames ❷.

3. From the accessory hardware bag shipped with system cabinet 2, remove and assemble items (bolts with washers) pointed to by ❸, ❹, and ❺ in Figure 3–5 (wrench supplied with kit).

4. Loosely thread item into hole at front of system cabinet 2 base ❸ and another item at rear of system cabinet 2 base ❹.

5. Thread item next to the upper taper pin ❺.

6. Tighten the three bolts in the sequence ❹, ❺, ❸.

7. Reinstall side panel on the left of system cabinet 2 ❻.

8. Reinstall top covers ❼.

9. Reinstall blower in system cabinet 2 ❽.

10. Make system box 3 and system box 4 cable connections to the H-switch. The connections include power ❶, the global ports ❷, clock modules ❸, and system ground ❹. Figure 3–6 shows the cable connections to the right side and Figure 3–7 to the left side of the H-switch.

Figure 3–6 Cable Connections to the Hierarchical Switch (1)
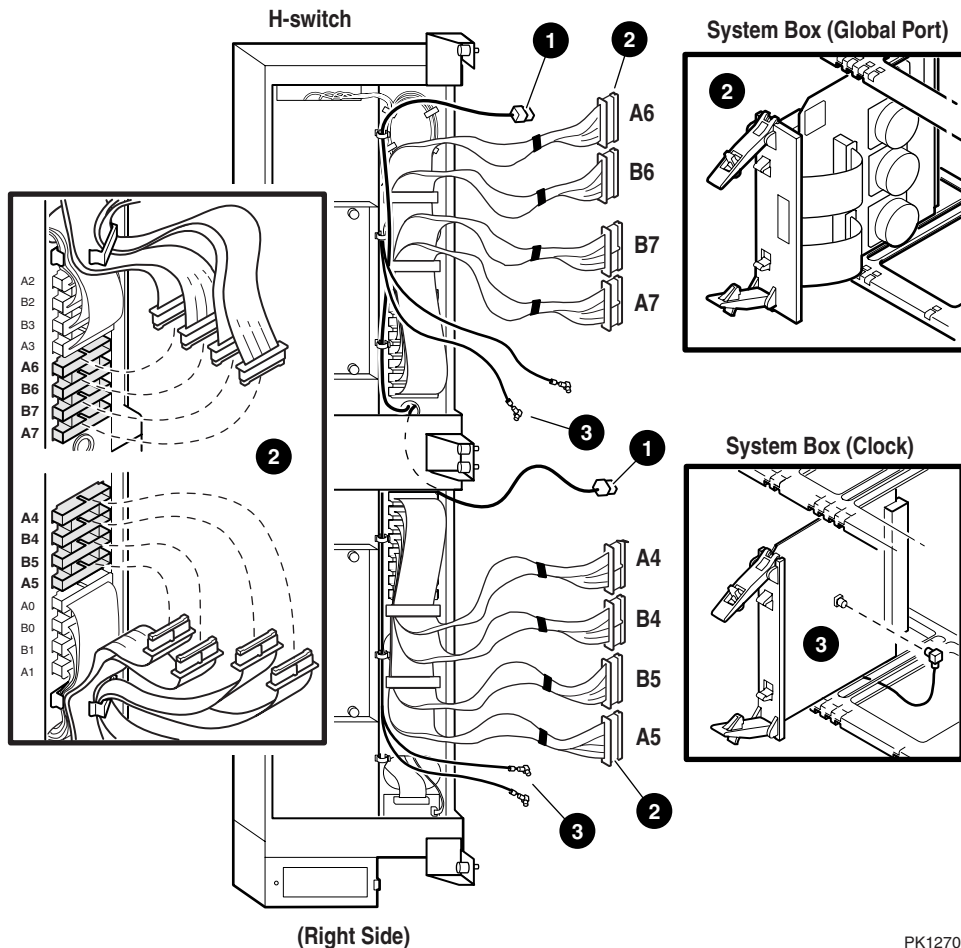
Figure 3–7   Cable Connections to the Hierarchical Switch (2)

PK1271
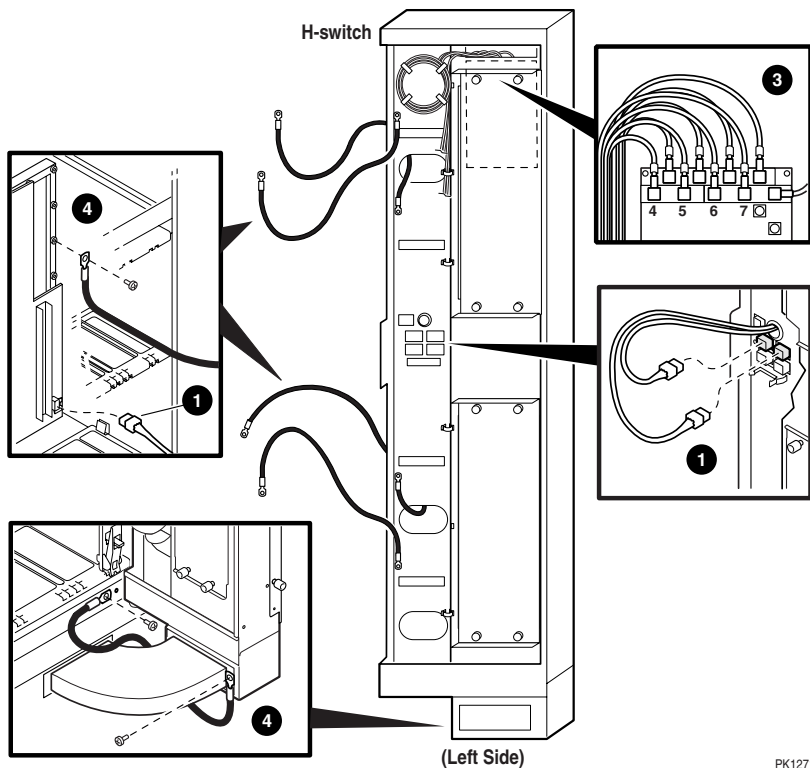
11. Rotate the hierarchical switch toward the system boxes and reattach the H-switch to the system cabinet frame. Install the H-switch covers.

12. Remove and discard the filler plate from the right side of the H-switch bottom. Install plenum to the H-switch ❶ (Figure 3–9) using the filler plate mounting screw.

13. Lower an outside corner leveling foot of system cabinet 2 until the associated caster is free to rotate. Repeat for the other three corner casters. Do not lower the center leveling feet.

3.3.4 Joining Power Cabinet to System Cabinet 1

Figure 3–8 shows how the power cabinet is joined to system cabinet 1.

Figure 3–8   Joining Power Cabinet to System Cabinet 1
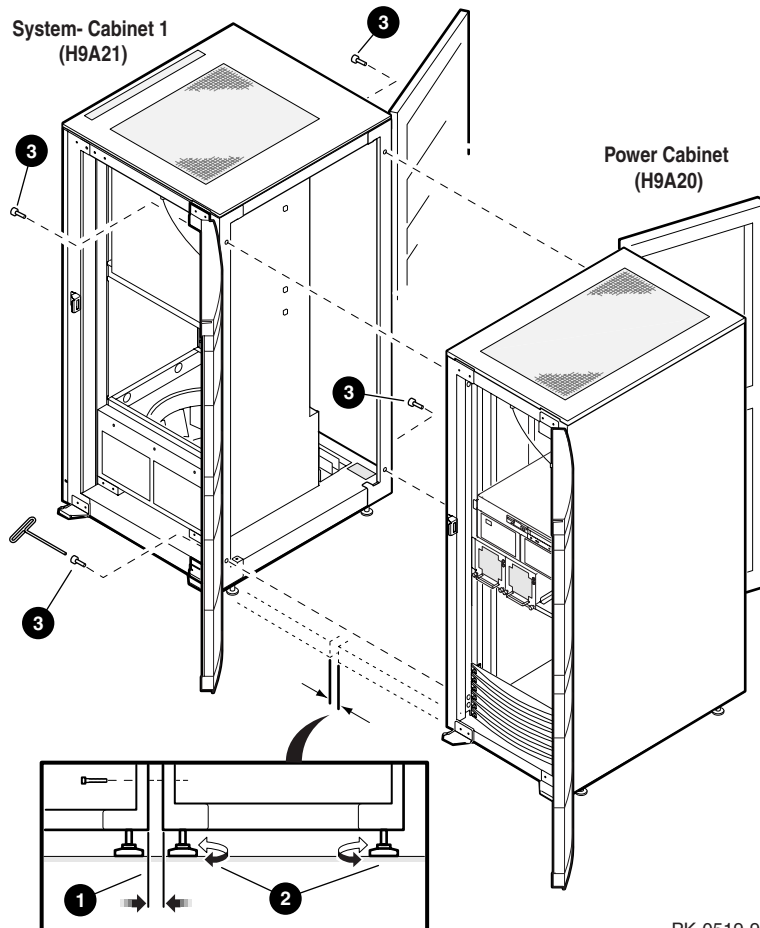
PK-0519-99

Refer to Figure 3–8, Figure 3–9, Figure 3–10, Figure 3–11, and Figure 3–12 while joining the power cabinet to system cabinet 1.

1. Roll the power cabinet along the right side of system cabinet 1 until there is a minimum separation between the two cabinets ❶ (Figure 3–8).

2. Anchor the power cabinet and adjust the leveling feet for parallel and height alignment with the adjacent system cabinet ❷ (Figure 3–8).

3. Secure the cabinets together with four bolts inserted through the system cabinet ❸ (Figure 3–8) using Allen wrenches contained in the cabinet joining kit (P/N 70-40120-01). Remove the orange shipping brackets.

4. Roll the power cabinet along the right side of system cabinet 1.

5. Install bolts to attach power cabinet loosely to system cabinet 1. Level the power cabinet to align with system cabinet 1. Tighten bolts (See Chapter 2).

6. Make all external cable connections to the disconnect panel on the power cabinet (Figure 3–9). These include:

    •   Power cables for the system boxes ❷.

    •   Power cable for the blower ❸.

    •   Signal cables for the system boxes ❹.
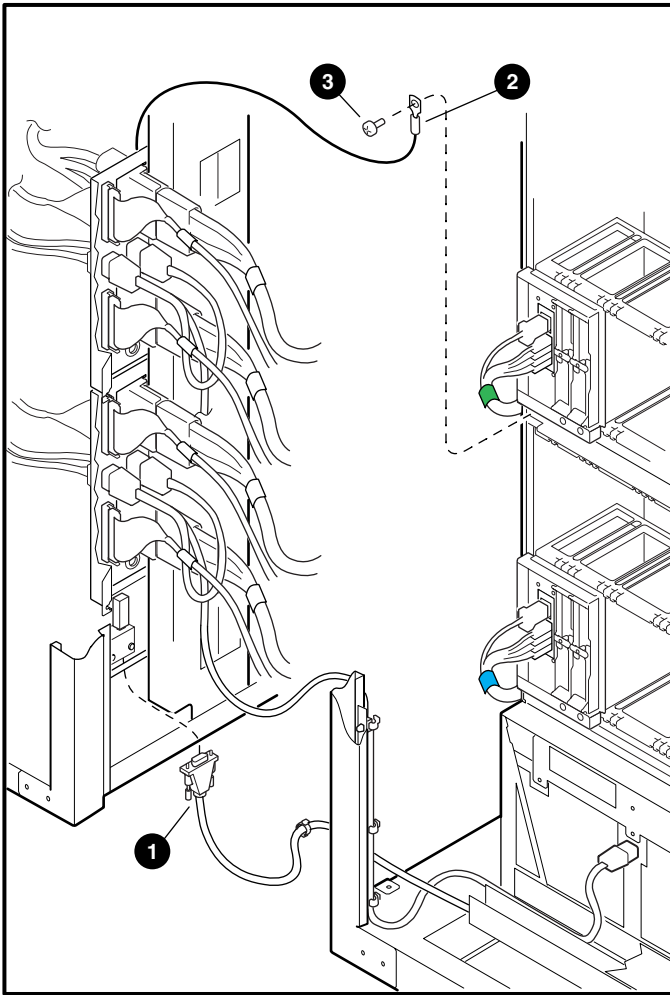
Figure 3–9   External Cable Connections

Orange

Brown
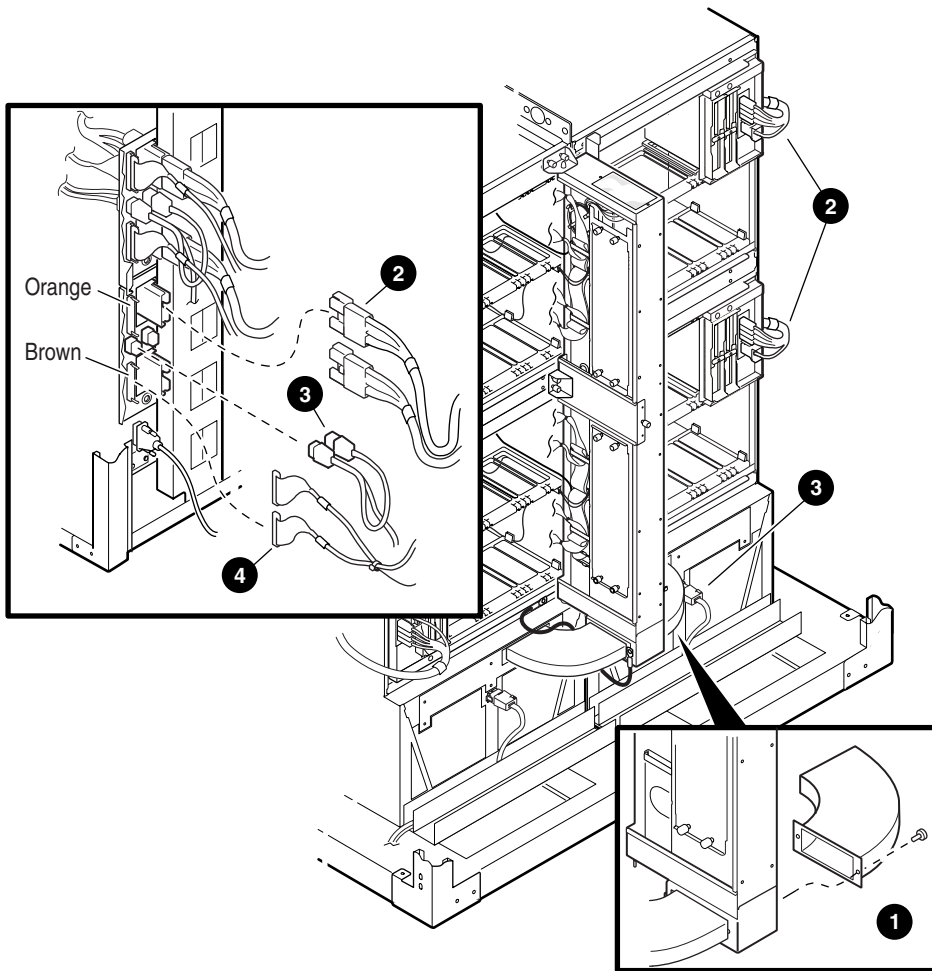
PK1272

7. Connect the CSB cable ❶ (Figure 3–10) from the H-switch to the CSB adapter and terminator on the power cabinet.

8. Connect the system ground wire ❷ (Figure 3–10) from the power cabinet to the system cabinet as follows: remove the M5 Phillips screw ❸ from the system cabinet, attach the loose end of the ground wire, and secure it to the system cabinet with the screw.
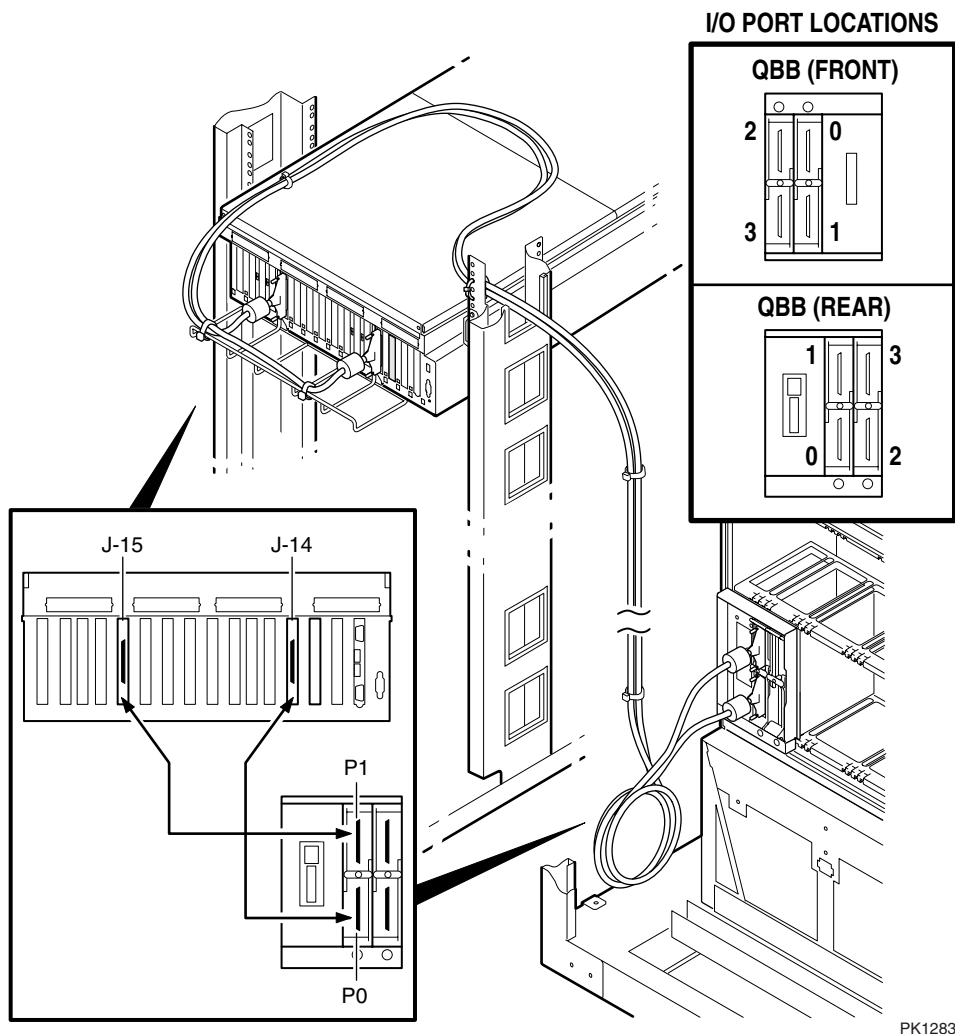
Figure 3–10   CSB and Ground Connections

PK3229

9. Connect the hose cables from the local I/O riser ports to the remote risers in the PCI boxes. Figure 3–11 shows typical connections of I/O hoses between the local I/O riser ports and the remote risers in the PCI box. Note that Port 0 (or Port 2) is connected to J14 on the PCI box and Port 1 (or Port 3) is connected to J15.

Figure 3–11   I/O Hose Connections
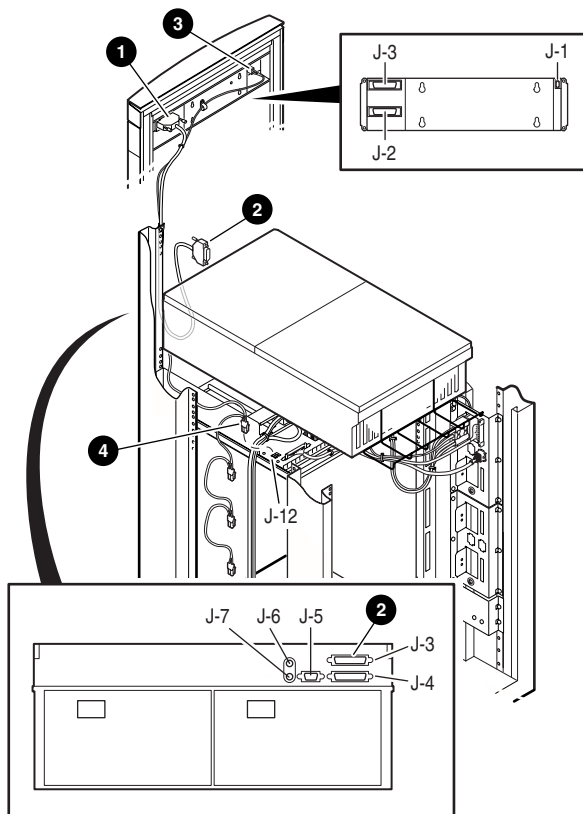
Labels on the I/O hoses indicate the I/O port and the QBB to which they should be connected. Table 3–2 gives the label codes on the I/O hoses for system cabinet 2. Refer to Chapter 2 for I/O hose labels for system cabinet 1.

Table 3–2   I/O Hose Labels for System Cabinet 2

Hose Label	QBB No.	Port No.
04	4	0
14	4	1
24	4	2
34	4	3
05	5	0
15	5	1
25	5	2
35	5	3
06	6	0
16	6	1
26	6	2
36	6	3
07	7	0
17	7	1
27	7	2
37	7	3

10. Connect the system ground wire from the power cabinet to the system cabinet as explained in Chapter 2.

11. Make the OCP connections to the first PCI box and the power subracks.

- Connect the signal cable from the J2 connector of the OCP ❶ to the first PCI box J3 connector ❷ (Figure 3–12).

- Connect the power cable of the OCP ❸ (Figure 3–12) to the power subracks. The OCP end of this power cable is connected to the J1 connector of the OCP, while the power subrack end ❹ is attached to connector J12 of each power subrack in a daisy-chained manner. Figure 3–12 shows one subrack only.

Figure 3–12   OCP Cable Connections to the Power Cabinet

PK1281

You have now finished installing a GS320 system. Refer to Chapter 2 if you need to add a dual-AC switch cabinet and/or expander cabinets. At this point you must install the system management console (See *AlphaServer GS80/160/320 System Management Console Installation Guide and User's Guide*, EK-GSCON-IN) before you proceed to power up the system.

⚠ **WARNING: Before you power up the system, inspect the modules for any visible sign of water condensation on the heatsinks, DC-to-DC converters, and the CPUs. Due to the large mass of the GS160/320 system, condensation may occur during transfer from a cold to a warm environment. Allow time for the condensation to evaporate completely. DO NOT power the system up if you notice any indication of condensation.**

3.4 Adding Expander Cabinets

Figure 3–13 shows the addition of an expander cabinet to a power cabinet.

Figure 3–13 Adding Expander Cabinets
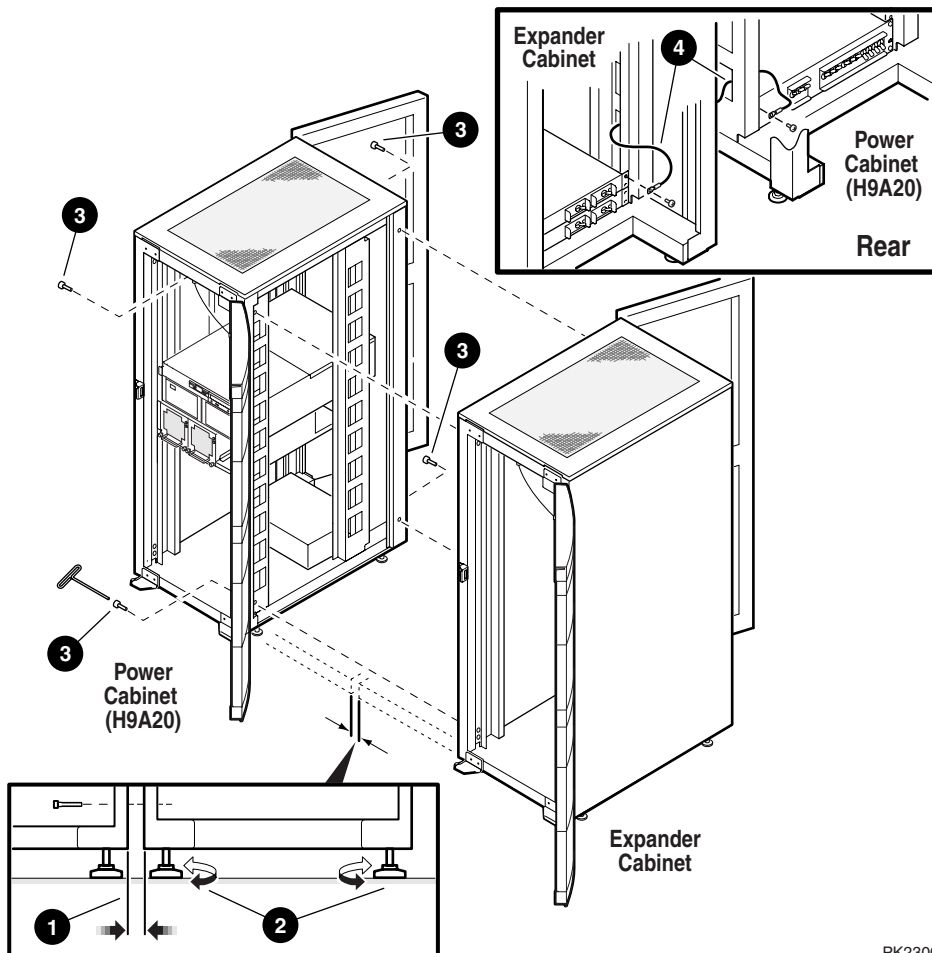
PK2300

Expander cabinets can be added to either side of the system. To add an expander cabinet, proceed as follows:

NOTE: *If a dual-AC switch is to be attached to the system, first attach the dual-AC switch to the power cabinet as discussed in Section 3.5. Then attach the expander cabinet to the dual-AC switch cabinet or system cabinet 1.*

---

1. Roll the expander cabinet flush along the side of the power cabinet or system cabinet leaving a minimum gap between cabinets ❶.

2. Align cabinet heights by adjusting the leveling feet ❷.

3. Once the expander cabinet is well aligned with the power or system cabinet, use the four screws and the Allen wrench supplied with the expander cabinet to secure the cabinets together at all corners ❸.

4. Connect the system ground wire from the expander cabinet to the power cabinet ❹ or system cabinet. For each additional expander cabinet, daisy chain a system ground wire.

5. Make host connections (PCI box, storage) and the CSB connection. These connections are configuration dependent.

This completes the installation of an expander cabinet.

3.5 Attaching a Dual-AC Switch Cabinet

The dual-AC switch cabinet is always attached the power cabinet. Figure 3–14 shows how a dual-AC switch cabinet is attached to the power cabinet.

Figure 3–14   Attaching a Dual-AC Switch Cabinet

The dual-AC switch ensures an uninterrupted power supply to the system by transferring AC power input from the primary source to the secondary source when the primary stops supplying power. The GS320 system requires two dual-AC switches. The lower switch is used for system cabinet 1 and the upper switch for system cabinet 2.

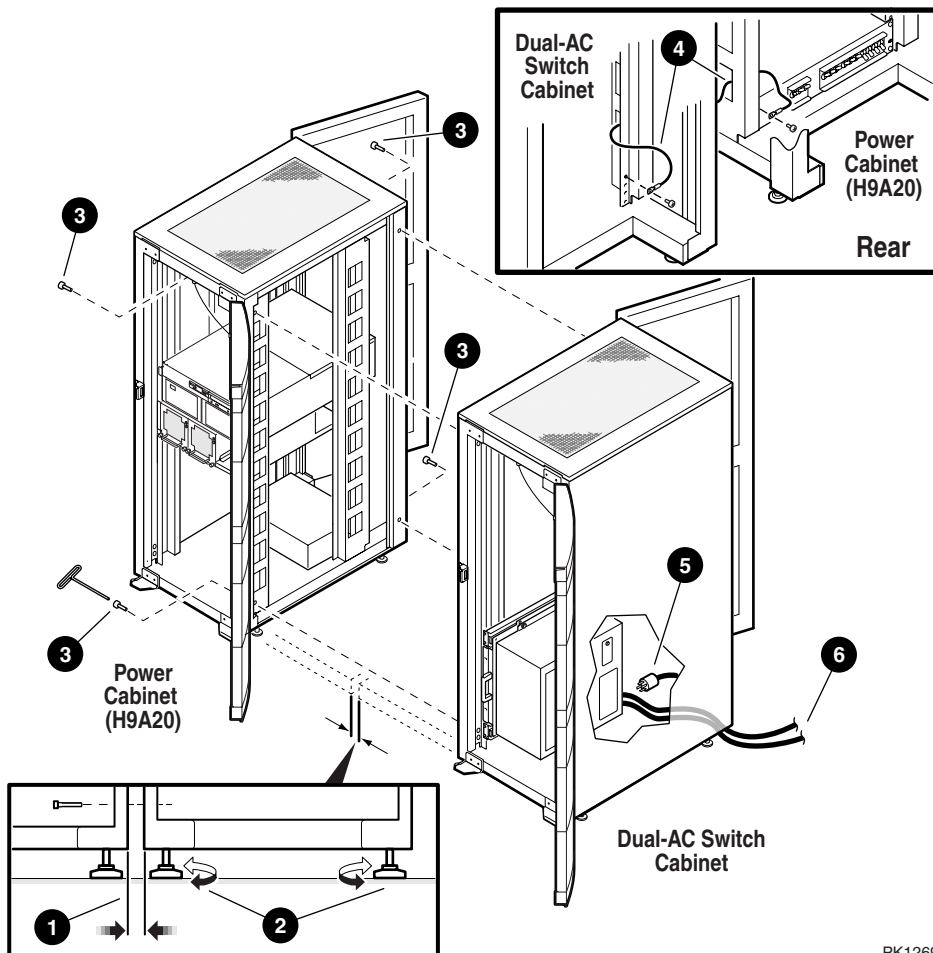The dual-AC switch cabinet is attached to the right of the power cabinet. To add a dual-AC switch cabinet, proceed as follows:

1. Roll the dual-AC switch cabinet flush along the side of the power cabinet leaving a minimum gap between cabinets ❶.

2. Align cabinet height by adjusting the leveling feet of the dual-AC switch cabinet ❷.

3. Once the dual-AC switch cabinet is well aligned with the power cabinet, use the four screws and the Allen wrench supplied with the dual-AC switch cabinet to secure the cabinets together at all corners ❸.

4. Connect the system ground wire from the dual-AC switch cabinet to the power cabinet ❹.

5. Connect the power cable connector of the AC input box ❺ to the power output connector of the dual-AC switch.

6. Connect the primary power input cable of the dual-AC switch to the primary power source and the secondary power input cable to the secondary power source ❻. Note that the primary power source and the secondary power source are interchangeable. See the dual-AC switch documentation for interchanging the power sources.

Chapter 4
System Power-Up

This chapter tells how to power up the system and what happens upon power-up. Sections include:

- Control Panel Keyswitch

- Installing the System Management Console

- Powering Up the System

- Q-VET Installation Verification

4.1 Control Panel Keyswitch

The operator control panel (OCP) keyswitch has three positions: Off, On, and Secure. Figure 4–1 shows the OCP keyswitch.

Figure 4–1   Operator Control Panel

Off   On   Secure
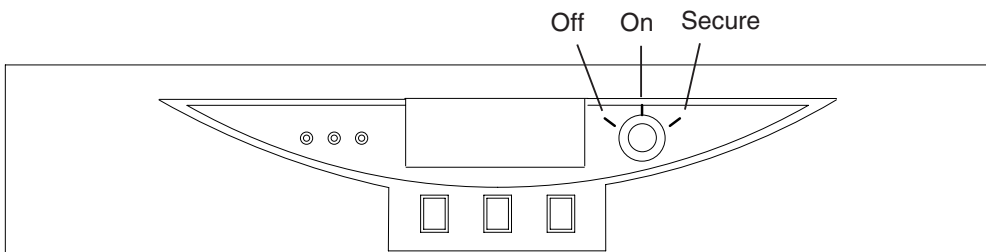
PK-0621A-99

Table 4–1 explains the functions selected by the keyswitch.

Table 4–1 Keyswitch Functions on the Control Panel

Keyswitch Position	Function
Off	System is powered off and cannot be powered on remotely.
On	System is powered on and can be remotely powered on or powered off.
Secure	System is powered on and cannot be remotely powered on or off.

Refer to the *AlphaServer GS80/160/320 User's Guide* or the *AlphaServer GS80/160/320 Service Manual* for functional descriptions of all control panel components.

4.2 Installing the System Management Console

Before you power up the system, you must install the system management console (SMC). Steps to be followed in installing the SMC are listed below. The procedures to install the SMC are fully detailed in the *AlphaServer GS80/160/320 System Management Console Installation and User's Guide*.

Steps to Install the SMC

1. Set up the SMC PC.

2. Install the SMC terminal server in the GS160/320 system.

3. Connect the terminal server to the power source.

4. Turn circuit breakers on but keep the keyswitch on Off.

5. Cable the PC to the terminal server and set up parameters.

6. Verify communication from the console to the system control manager.

You are now ready to power up the system.

⚠️ **WARNING: Before you power up the system, inspect the modules for any visible sign of water condensation on the heatsinks, DC-to-DC converters, and the CPUs. Due to the large mass of the system, condensation may occur during transfer from a cold to a warm environment. Allow time for the condensation to evaporate completely. DO NOT power the system up if you notice any indication of condensation.**

4.3   Powering Up the System

To power up the system, first turn the circuit breakers in all cabinets
on, then set the keyswitch on the OCP to the On position. Example 4–1
shows a sample console display on power-up. See the *AlphaServer
GS80/160/320 Service Manual* or the *AlphaServer GS80/160/320 User's
Guide* for explanations of the power-up display.

Example 4–1   Power-Up Display

```
SCM_E0> power on
Powering on PCI Box 0
Powering on PCI Box 1
QBB-0 Powering ON

~I~ Testing OCP Switch- passed
Power ON Phase INIT
QBB-1 Powering ON
QBB-2 Powering ON
QBB-3 Powering ON

~I~ SCM powered via PBM
SCM_E0>
QBB0 now Testing Step-0
QBB1 now Testing Step-0
QBB2 now Testing Step-0
QBB3 now Testing Step-0
~I~ SCMe1 non-csb member while it tests & initializes its
Shared RAM
SCM_E0> .
~I~ QBB0/PSM30 SysEvent: QBB_INIT_CD1              Reg0:7AB3
Reg1:3FFF (test-0)  (fmask/fts:8f)
.
~I~ QBB1/PSM31 SysEvent: QBB_INIT_CD1              Reg0:7AB3
Reg1:3FFF (test-0)  (fmask/fts:8f)

~I~ QBB2/PSM32 SysEvent: QBB_INIT_CD1              Reg0:768F
Reg1:0FFF (test-0)  (fmask/fts:8f)

~I~ QBB3/PSM33 SysEvent: QBB_INIT_CD1              Reg0:768F
Reg1:0FFF (test-0)  (fmask/fts:8f)
```

```
Testing SIO Shared RAM(please wait)

Initializing shared ram
Shared RAM Initialized

Powering ON H-Switch
SCM_E0>
~I~ HSW4/HPM40 SysEvent: HS_INIT_CD1              Reg0:000F
Reg1:D581

Phase 0
~I~ Enable HS Links: 0f

~I~ QbbConf(gp/io/c/m)=0000bbff Assign=0f SQbb0=00 PQbb=00
SoftQbbId=0000ba98
~I~ SysConfig: 00 00  00 00  00 00  00 00  07 1f  07 9f  37 3f
37 9f
SCM_E0>
~I~ HSW4/HPM40 SysEvent: LINK0_ON                Reg0:000F
Reg1:D581

~I~ HSW4/HPM40 SysEvent: LINK1_ON                Reg0:010F
Reg1:D581
SCM_E0>
~I~ HSW4/HPM40 SysEvent: LINK2_ON                Reg0:030F
Reg1:D581
SCM_E0>
~I~ HSW4/HPM40 SysEvent: LINK3_ON                Reg0:070F
Reg1:D581
SCM_E0> ...........
QBB0 now Testing Step-1
QBB1 now Testing Step-1
QBB2 now Testing Step-1
QBB3 now Testing Step-1
QBB0 now Testing Step-3
QBB1 now Testing Step-3
QBB2 now Testing Step-3
QBB3 now Testing Step-3..
QBB0 now Testing Step-5
QBB1 now Testing Step-5
QBB2 now Testing Step-4
QBB3 now Testing Step-4
QBB2 Step(s)-4 5  Tested
QBB3 Step(s)-4 5  Tested
Phase 1
```

```
QBB0 IO_MAP0: 0000A0C001333333
QBB1 IO_MAP1: 0000A1C101333333
QBB2 IO_MAP2: 0000000000000003
QBB3 IO_MAP3: 0000000000000003

~I~ QbbConf(gp/io/c/m)=0000bbff Assign=0f SQbb0=00 PQbb=00
SoftQbbId=0000ba98
~I~ SysConfig: 00 00  00 00  00 00  00 00  07 1f  07 9f  37 3f
37 9f
SCM_E0> .
QBB0 now Testing Step-7
QBB1 Step(s)-5 6  Tested
QBB2 Step(s)-5 6  Tested
QBB3 Step(s)-5 6  Tested
QBB0 now Testing Step-9..
QBB0 now Testing Step-A.
QBB0 now Testing Step-7
QBB0 now Testing Step-9..
QBB0 now Testing Step-A.
QBB0 now Testing Step-8
QBB0 now Testing Step-9..
QBB0 now Testing Step-A.
QBB0 now Testing Step-B.
Phase 2
QBB0 IO_MAP0: 0000A0C001333333
QBB1 IO_MAP1: 0000A1C101333333
QBB2 IO_MAP2: 0000000000000003
QBB3 IO_MAP3: 0000000000000003

~I~ QbbConf(gp/io/c/m)=0000bbff Assign=0f SQbb0=00 PQbb=00
SoftQbbId=0000ba98
~I~ SysConfig: 00 00  00 00  00 00  00 00  07 1f  07 9f  37 3f
37 9f
SCM_E0>
QBB0 now Testing Step-C
QBB1 now Testing Step-C
QBB2 now Testing Step-C
QBB3 now Testing Step-C..
```

```
Phase 3
~I~ QbbConf(gp/io/c/m)=0000bbff Assign=0f SQbb0=00 PQbb=00
SoftQbbId=0000ba98
~I~ SysConfig: 00 00  00 00  00 00  00 00  07 1f  07 9f  37 3f
37 9f
SCM_E0> .
QBB0 now Testing Step-D
QBB1 now Testing Step-D
QBB2 now Testing Step-D
QBB3 now Testing Step-D....
QBB0 IO_MAP0: 0000A0C001333333
QBB1 IO_MAP1: 0000A1C101333333
QBB2 IO_MAP2: 0000000000000003
QBB3 IO_MAP3: 0000000000000003

Phase 4
~I~ QbbConf(gp/io/c/m)=0000bbff Assign=0f SQbb0=00 PQbb=00
SoftQbbId=0000ba98

QBB0 unloading console across port0 from PCI Box-0
Console COM1 from master PCI Box-0
~I~ SysConfig: 00 00  00 00  00 00  00 00  07 1f  07 9f  37 3f
37 9f
Retrieving FRU information for Shared RAM...(please wait)
SCM_E0> .
QBB3 now Testing Step-E
QBB0 now Testing Step-E
QBB1 now Testing Step-E
QBB2 now Testing Step-E..
Power On Complete

Returning to system COM1 port


System Primary QBB0 : 0
System Primary CPU  : 0 on QBB0


Par hrd/csb CPU   Mem    IOR3 IOR2 IOR1 IOR0  GP   QBB   Dir PS
Temp
     QBB#   3210 3210      (pci_box.rio)      Mod BP    Mod 321
(:C)

(-)  0/30   PPPP P--P   --.- --.- P0.1 P0.0   P    P     P  P-P
28.0
```

```
(-)  1/31   PPPP --PP --.- --.- P1.1 P1.0   P   P    P  P-P
32.0
(-)  2/32   PPPP P--P --.- --.- --.- --.-   P   P    P  -PP
29.0
(-)  3/33   PPPP ---P --.- --.- --.- --.-   P   P    P  -PP
30.0


HSwitch  Type    Cables 7 6 5 4 3 2 1 0    Temp(:C)

HPM40    4-port         - - - - P P P P     32.0



PCI Rise1-1  Rise1-0  Rise0-1  Rise0-0   RIO  PS  Temp
Cab 7 6 5 4   3 2 1   7 6 5 4   3 2 1    1 0  21  (:C)

10  - - L -   - - -   - - - -   L - S    * *  PP  35.0
11  - - - -   - - -   - - - -   - - S    * *  PP  34.5


OpenVMS PALcode V1.80-1, Tru64 UNIX PALcode V1.74-1

system = QBB 0 1 2 3        + HS
 QBB 0 = CPU 0 1 2 3 + Mem 0    3 + Dir + IOP + PCA 0 1    +
GP  (Hard QBB 0)
 QBB 1 = CPU 0 1 2 3 + Mem 0 1    + Dir + IOP + PCA 0 1    +
GP  (Hard QBB 1)
 QBB 2 = CPU 0 1 2 3 + Mem 0    3 + Dir + IOP + PCA        +
GP  (Hard QBB 2)
 QBB 3 = CPU 0 1 2 3 + Mem 0      + Dir + IOP + PCA        +
GP  (Hard QBB 3)
micro firmware version is T5.5
shared RAM version is 1.4
hose 0 has a standard I/O module
starting console on CPU 0
initialized idle PCB
initializing semaphores
initializing heap
initial heap 300c0
memory low limit = 1fc000
heap = 300c0, 1ffc0
initializing driver structures
initializing idle process PID
initializing file system
initializing timer data structures
```

```
lowering IPL
CPU 0 speed is 731 MHz
create dead_eater
create poll
create timer
create powerup
access NVRAM
QBB 0 memory, 3 GB
QBB 1 memory, 3 GB
QBB 2 memory, 3 GB
QBB 3 memory, 1 GB
total memory, 10 GB
copying PALcode to 10bffe0000
copying PALcode to 20bffe0000
copying PALcode to 303ffe0000
probe I/O subsystem
probing hose 0, PCI
probing PCI-to-ISA bridge, bus 1
bus 1, slot 0 -- dva -- Floppy
bus 0, slot 1 -- pka -- QLogic ISP10x0
bus 0, slot 3 -- ewa -- DE500-BA Network Controller
bus 0, slot 15 -- dqa -- Acer Labs M1543C IDE
probing hose 1, PCI
probing hose 2, PCI
probing hose 3, PCI
bus 0, slot 5 -- pkb -- QLogic ISP10x0
probing hose 8, PCI
probing PCI-to-ISA bridge, bus 1
bus 1, slot 0 -- dvb -- Floppy
bus 0, slot 1 -- pkc -- QLogic ISP10x0
bus 0, slot 15 -- dqb -- Acer Labs M1543C IDE
probing hose 9, PCI
probing hose 10, PCI
probing hose 11, PCI
starting drivers
entering idle loop
starting console on CPU 1
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 1 speed is 731 MHz
create powerup
starting console on CPU 2
initialized idle PCB
initializing idle process PID
lowering IPL
```

```
CPU 2 speed is 731 MHz
create powerup
starting console on CPU 3
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 3 speed is 731 MHz
create powerup
starting console on CPU 4
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 4 speed is 731 MHz
create powerup
starting console on CPU 5
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 5 speed is 731 MHz
create powerup
entering idle loop
starting console on CPU 6
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 6 speed is 731 MHz
create powerup
starting console on CPU 7
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 7 speed is 731 MHz
create powerup
starting console on CPU 8
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 8 speed is 731 MHz
create powerup
starting console on CPU 9
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 9 speed is 731 MHz
create powerup
starting console on CPU 10
```

```
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 10 speed is 731 MHz
create powerup
starting console on CPU 11
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 11 speed is 731 MHz
create powerup
starting console on CPU 12
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 12 speed is 731 MHz
create powerup
starting console on CPU 13
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 13 speed is 731 MHz
create powerup
starting console on CPU 14
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 14 speed is 731 MHz
create powerup
entering idle loop
starting console on CPU 15
initialized idle PCB
initializing idle process PID
lowering IPL
CPU 15 speed is 731 MHz
create powerup
initializing GCT/FRU at 1fc000
initializing pka pkb pkc ewa dqa dqb
environment variable mopv3_boot created
version X5.8-4667 May  4 2000 02:24:27
AlphaServer Console X5.8-4667, built on May 4 2000 at 02:24:27
P00>>>
```

The SRM console prompt (`P00>>>`) is displayed at the end of power-up.

This completes the power-up initialization/testing sequence. The operating system can be booted and installed from the SRM console prompt.

Follow instructions given in the *AlphaServer GS80/160/320 User's Guide* to:

- Set boot options
- Boot and install *Tru64 UNIX*
- Boot and install *OpenVMS*

You can now run Q-VET to verify the system installation (Section 4.4).

4.4　Q-VET Installation Verification

Run the latest Q-VET released version to verify the system installation.

Compaq recommends running the latest Q-VET released version to verify that hardware on *Tru64 UNIX* and *OpenVMS* systems is installed correctly and is operational. Q-VET is the Qualification Verifier Exerciser Tool that is used by Compaq Product Engineers to exercise systems under development. Q-VET does not verify the operating system configuration.

If the system has been partitioned, Q-VET must be installed and run separately on each partition to verify the complete installation. Compaq Analyze must be installed on the operating system prior to running Q-VET.

You must always obtain the latest revision of Q-VET from the Q-VET Web site—the latest Q-VET release, information, Release Notes and documentation are located at http://chump2.mro.cpqcorp.net/qvet/. Q-VET is not FISed on new systems or included on the quarterly firmware CD. (It is distributed on the Tools Unplugged CD at http://phxmcs.phx.dec.com/mcstools_request.htm, but that version may not be the latest.)

CAUTION:

*Do **not** install the Digital System Verification Software (DECVET) on GS80, GS160, or GS320 systems.*

Non-IVP Q-VET scripts verify disk operation for some drives with "write enabled" techniques. These are intended for Engineering and Manufacturing Test. Run ONLY IVP scripts on systems that contain customer data or any other items that must not be written over. See the Q-VET Disk Testing Policy Notice on the Q-VET Web site for details. All Q-VET IVP scripts use Read Only and/or File I/O to test hard drives. Floppy and tape drives are always write tested and should have scratch media installed.

Q-VET should be used to verify a new system installation prior to configuring the system into a cluster or connecting any shared storage devices containing customer data.

Q-VET is to be used by Q-VET knowledgeable Compaq Service Personnel only.

---

*Q-VET **must** be de-installed upon completion of system installation verification. Do not leave this software at a customer site; misuse **may result in loss of customer data**.*

Swap or Pagefile Space

The system must have adequate swap space (on *Tru64 UNIX*) or PageFile space (on *OpenVMS*) for proper Q-VET operation. You can set this up either before or after Q-VET installation.

During initialization, Q-VET will display a message indicating the minimum amount of swap/pagefile needed, if it determines that the system doesn't have enough. You can then reconfigure the system.

If you wish to address the swap/pagefile size before running Q-VET, see the Swap/Pagefile Estimates on the Q-VET Web site.

4.4.1 Installing Q-VET

The procedures for installation of Q-VET differ between operating systems. You must install Compaq Analyze and Q-VET on each partition in the system.

TCP/IP (on Tru64 UNIX) or DecNet_Phase IV (on OpenVMS) should be configured before installing Q-VET.

Compaq Analyze must *be installed on each partition. Q-VET will not start if Compaq Analyze is not installed.*

Install and run Q-VET from the **SYSTEM** account on VMS and the **root** account on UNIX. Follow the instructions listed under your operating system to install Q-VET. Remember to install Q-VET in each partition.

Tru64 UNIX

1. Copy the kit tar file (*QVET_Vxxx.tar*) to your system.

2. If this is not a new install check for old Q-VET kits (or DECVET kits) via the following command.
   setld -i | grep VET

   Note the names of any listed kits such as OTKBASExxx etc.
   Remove the kits with the command
   setld -d   kit1_name kit2_name   kit3_name

3. Be sure that there is no directory named output. If so move to another directory or remove the output directory.
   rm -r output

4. Untar the kit with the command
   tax xvf   QVET_Vxxx.tar

5. Install the kit with the command
   setld -l output

6. During the install, if you intend to use the GUI you must select the optional GUI subset (QVETXOSFxxx).

7. The Q-VET installation will size your system for devices and memory. It also runs qvet_tune. You should answer '**y**' to the questions that are asked about setting parameters. If you do not, you may have trouble running Q-

VET. After the installation completes, you should delete the output directory with **rm -r output.** You can also delete the kit tar file.

8. You ___must___ reboot the system before starting Q-VET.

9. On reboot you can start Q-Vet GUI via **vet&** or you can run non GUI (Command Line) via **vet -nw**

OpenVMS

1. Delete any *QVETAXPxxx.A* or *QVETAXPxxx.EXE* file from the current directory.

2. Copy the self-extracting kit image file (*QVETAXPxxx.EXE*) to the current directory.

3. It is highly recommended, but not required, that you purge the system disk before installing Q-VET. This will free up space that may be needed for PageFile expansion during the AUTOGEN phase. **$purge sys$sysdevice:[*...]*.***

4. Extract the kit saveset with the command **$run QVETAXPxxx.EXE** and verify that the kit saveset was extracted by checking for the "Successful decompression" message.

5. Use **@sys$update:vmsinstal** for the Q-VET installation. The installation will size your system for devices and memory. You should choose all the default answers during the Q-VET installation. This will run the IVP, tune the system and reboot. During the install, if you ***do not*** intend to use the GUI, you can answer **no** to the question "Do you want to install Q-VET with the DECwindows Motif interface?"

6. After the installation completes you should delete the *QVETAXP0xx.A* file and the *QVETAXPxxx.EXE* file.

7. On reboot you can start Q-VET GUI via **$vet** or the command interface via **$vet/int=char**

4.4.2   Running Q-VET

You must run Q-VET on each partition in the system to verify the complete installation.

Compaq recommends that you review the Testing Notes section of the Release Notes before running Q-VET.

Follow the instructions listed under your operating system to run Q-VET in each partition. Choose the Long IVP script rather than the Short one.

Tru64 UNIX

Graphical Interface
1. From the Main Menu, select **IVP**, **Load Script** and select **Long IVP** (the IVP tests will then load into the Q-VET process window).

2. Click the **Start All** button to begin IVP testing.

Command-Line Interface
```
> vet -nw
Q-Vet_setup> execute .Ivp.scp
Q-Vet_setup> start
```

Note that there is a "**.**" in front of the script name, and that commands are case sensitive.

OpenVMS

Graphical Interface

1. From the Main Menu, select **IVP**, **Load Script** and select **Long IVP** (the IVP tests will then load into the Q-VET process window).

2. Click the **Start All** button to begin IVP testing.

Command-Line Interface

```
$ vet /int=char
Q-Vet_setup> execute ivp.vms
Q-Vet_setup> start
```

Note that commands are case sensitive.

Note: A quick IVP script is provided for a simple verification of device setup. It is selectable from the GUI IVP menu, and the script is called **.Ivp_short.scp** (**ivp_short.vms**). This script will run for 15 minutes and then terminate with a Summary log. The short script may be run prior to the Long IVP script if desired, but not in place of the Long IVP script, which is the full IVP test.

The Long IVP will run until the slowest device has completed one pass (typically 4 to 10 hours). This is called a Cycle of Testing.

4.4.3 Reviewing Results of the Q-VET Run

After running Q-VET, check the results of the run by reviewing the Summary Log.

If you run Q-VET as instructed, Q-VET will terminate testing after the slowest test has completed one pass and produce a Summary file. The termination message will tell you the name and location of this file. All exerciser processes are terminated automatically when the RunTime expires or manually via the Terminate command. After all exercisers report "Idle", the Summary Log is produced containing Q-VET-specific results and statuses as well as system log entries derived from Compaq Analyze.

1.   A message will be displayed showing the number of system events appended to the Summary Log:

```
"xx entries have been appended to the summary file"
```

2.   If there are more than 0 appendages, the following additional message is displayed.

```
"You MUST review these for Errors."
```

If the number is greater than 0, they must be reviewed for errors.

3.   If there are no Q-VET errors, no system event appendages, and testing ran to the specified completion time, the following message will be displayed.

```
"Q-VET Tests Complete: Passed"
```

4.   For automatic test run completions, there are two more possible outcomes:

-   If there were no exerciser errors, but there were other errors or significant events in the Summary Log that must be reviewed, the following message appears:

    `"Q-VET Tests Complete: Warning"`

-   If one or more exercisers had errors, this message appears:

    `"Q-VET Tests Complete: Fail"`

4.4.4 De-Installing Q-VET

The procedures for de-installation of Q-VET differ between operating systems. You must de-install Q-VET from each partition in the system.

You must de-install Q-VET from each partition. Failure to do so may result in the loss of customer data at a later date if Q-VET is misused.

Follow the instructions listed under your operating system to de-install Q-VET from a partition. The **qvet_uninstall** programs will remove the Q-VET supplied tools and restore the original system tuning/configuration settings.

Tru64 UNIX

1. **Stop, Terminate,** and **Exit** from Q-VET testing.

2. Delete (**rm**) any Q-VET kit file (QVET_Vxxx.tar).

3. Note: log files are retained in /usr/field/tool_logs

4. Execute the program **qvet_uninstall**

5. Reboot the system. You MUST reboot in any case, even if Q-VET is to be reinstalled.

OpenVMS

1. **Stop**, **Terminate,** and **Exit** from any Q-VET testing.

2. Delete QVETAXP0xx.A and QVETAXPxxx.EXE if they are still on the system.

3. Execute the program **@sys$manager:qvet_uninstall.com**

4. Note: log files are retained in **sys$specific:[sysmgr.tool_logs**]

5. Reboot the system. You MUST reboot in any case, even if Q-VET is to be reinstalled.

Index