

Superdome Installation Guide

HP 9000 Systems

Sixth Edition



Manufacturing Part Number : A5201-10028

60304

USA

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Preface

Revision History

Table 1 Revisions After July 2001

Revision	Part Number	Release Date	Description
Sixth	A5201-10028	March 2004	Added Appendix for new SMS, an hp Server rx2600
Fifth	A5201-10022	November 2001	Added new PDCA options.
Fourth	A5201-10017	August 2001	Updated for Caribe.
Third	A5201-10014	July 2001	Added Safety and Regulatory section in preface, Added no-boot-disk chapter. Added info on lower breaker value usage, pay-per-use and iCOD modem support. Added general corrections per edits.

Safety and Regulatory Information



For your protection, this product has been tested to various national and international regulations and standards. The scope of this regulatory testing includes electrical/mechanical safety, radio frequency interference, acoustics, and known hazardous materials. Where applicable, approvals obtained from third-party test agencies are shown on the product label.

Notes, Cautions, and Warnings

WARNING Warnings highlight procedures or information necessary to avoid injury to personnel. The warning should tell the reader exactly what will result from what actions and how to avoid them.

CAUTION A caution highlights procedures or information necessary to avoid damage to equipment, damage to software, loss of data, or invalid test results.

NOTE A note highlights supplemental information.

Acronyms

Table 2 lists acronyms used in this document.

Table 2 Acronyms

Acronym	Definition
PE	Protective earth
Class 1	Grounded equipment
PDCA	Power Distribution Controller Assembly
EPSS	Electronic Performance Support Service

Safety in Material Handling

WARNING Do not lift the cabinet manually. To avoid physical injury you must use a mechanical lifting device.

WARNING Use care when lifting a cell boards. Each cell board can weigh as much as 48 pounds (22kg). It is preferable to use a mechanical lifting device to avoid physical injury.

WARNING Use care when working with hazardous voltages. This equipment may be configured with dual input line sources. Hazardous voltages and energy maybe present even after the removal of a single input source. Trained service personnel must follow the service guidelines.

WARNING Do not stand in front of the equipment as it is rolled off the pallet in to the ramps. When removing the equipment from the shipping pallet, follow the guidelines specified in the Installation Procedures section of the appropriate equipment guides (Superdome or I/O Expansion Cabinet).

WARNING Do not attempt to move the Superdome cabinet, either packed or unpacked, up or down an incline of more than 15°.

USA Radio Frequency Interference FCC Notice

The Federal Communications Commission (in CFR Part 15) has specified that the following notice be brought to the attention of the users of this product.

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

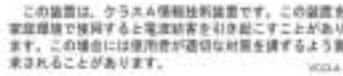
The user is cautioned that changes or modifications not expressly approved by Hewlett-Packard could result in the equipment being noncompliant with FCC Class A requirements and void the user's authority to operated the equipment.

Japanese Radio Frequency Interference VCCI

This equipment is a Class A category (Information Technology Equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, etc. Read the instructions for correct handling.

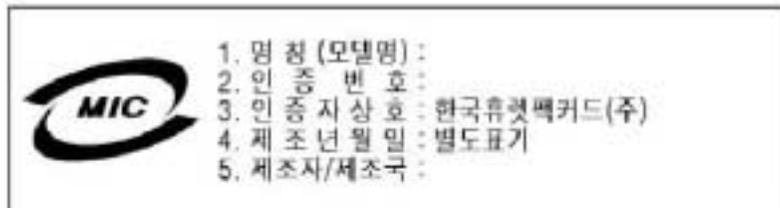
Figure 1 Japanese RFI Statement



Korean RFI Statement

1. Equipment Name (Model Name):
2. Certification No:
3. Name of Certification Recipient:
4. Date of Manufacture:
5. Manufacturer/Nation:

Figure 2 Korean RFI Statement

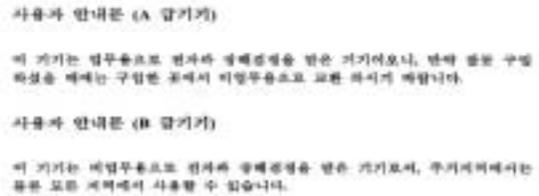


Certification Number: E - AAAAA - BB - CCCC

- E: EMC registration
- AAAAA: equipment codes (RRL notice, 2000.10.26)
- BB: certification year

- CCCC: registration number

Figure 3 Class A and B Equipment Statement



Translation

Class A Equipment:

Please note that this equipment has been approved for business purpose with regards to electromagnetic interference, if purchased un error for use in residential area, you may wish to exchange the equipment where you purchase it.

Class B Equipment:

Please note that this equipment has been approved for non-business with regards to electromagnetic interference. So, this equipment can be allowed to use all area as well as residential area.

European Union RFI Statement

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.

Canada RFI Statement

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

Notice relative aux interférences radioélectriques (Canada)

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

BSMI (Taiwan)

This product is fully compliant to CNS 13438 (CISPR 22: 1993) Class A. The EMC label is in the form shown in Figure 4. The eight # signs represent an eight-character, alpha-number string..

Figure 4 Taiwan EMC Label



Figure 5 Taiwan Safety and Regulatory Label



Acoustics (Germany)

Acoustic Noise (A-weighted Sound Pressure Level LpA) measured at the bystander position, normal operation, to ISO 7779: LpA = 75 dB.

Geräuschemission (Deutschland)

Lärmangabe (Schalldruckpegel LpA) gemessen am fiktiven Arbeitsplatz bei normalem Betrieb nach DIN 45635, Teil 19: LpA = 75 dB.

IT Power System

This product has not been evaluated for connection to an IT power system (an AC distribution system having no direct connection to earth according to IEC 60950).

TT, TN-C, and TN-C-S Power Systems

These products should not be connected to power systems that switch open the return lead when the return lead also functions as the protective earth. A separate PE ground wire must be connected to the equipment at the designated PE terminal tie point.

High Leakage Current

WARNING High leakage current. Ground (earth) connection essential before connecting the supply.

Installation Conditions

See installation instructions before connecting this equipment to the input supply.

Voir la notice d'installation avant de raccorder au réseau.

WARNING Please note the following conditions of installation:

Install a PE (protective earthing) conductor that is identical in size, insulation material, and thickness to the branch-circuit supply conductors. The PE conductor insulation must be green with yellow stripes. The earthing conductor is to be connected from the unit to the building installation earth or, if supplied by a separately derived system, at the supply transformer or motor-generator set grounding point.

WARNING NORDIC Class 1 Equipment

Denmark: Før tilslutning af de øvrige ledere, se medfølgende installationsvejledning.

WARNING NORDIC Class 1 Equipment

Sweden: Apparaten skall anslutas till jordat uttag, när den ansluts till ett nätverk.

Disconnect Devices Disconnect devices or circuit breakers must be used to protect the system against abnormal hazards. Table 3 details the circuit breaker specifications.

Table 3 Wall Disconnect Device Circuit Breaker Specification

Agency approvals:	UL, CSA, VDE
Interrupt capacity	5,000A minimum
Breaker type	Magnetic trip
Voltage rating	Delta 250V minimum, WYE 420V minimum
Input Source	Delta 3 pole + PE, WYE 4 pole + PE
Circuit Interruption	Simultaneous trip of all poles
Ground	The PE (Protective Earth Ground) wire is not switched

WARNING Provide a disconnect device to protect against abnormal hazards.

Systems configured with a full complement of cells, memory, and I/O and connected to a 5-wire source must have a maximum 60A 3-phase with neutral (4-pole) circuit breaker installed as part of the building installation.

Systems configured with a full complement of cells, memory, and I/O and connected to a 4-wire source must have a maximum 80A 3-phase (3-pole) circuit breaker installed as part of the building installation.

IMPORTANT Refer to Table 4 to select the appropriate size circuit breaker for systems configured without a full complement of cells, memory, and I/O.

Table 4 shows Superdome power requirements by configuration (i.e. number of cell boards, amount of memory per cell, and number of I/O chassis). This requirement applies to 32-way-capable systems with PA8600 or PA8700 processors.

There are two columns of power numbers (Watts). The Power Breaker column shows the power used to size the wall breaker at the installation site. The Typical Power column shows typical power. Typical power numbers are for PA8600 systems and may be used to assess average utility cost of cooling and electrical power. Expect these typical numbers to be about 18% less for PA8700 systems. Table 4 also shows the recommended breaker sizes for 4-wire and 5-wire sources

Table 4 Typical Superdome Configurations

Cell Boards	Memory Per Cell Board	I/O Chassis Modules	Breaker Power^a	Recommended 3-pole Breaker Size^{a,b}	Recommended 4-pole Breaker Size^{a,c}	Typical Power	Typical Cooling
Qty.	GBytes	Qty.	Watts	Amps (min.)	Amps (min.)	Watts	BTU/HR
8	16	4	10660	40	25	8460	28,850
8	16	2	9600	40	25	7780	26,530
8	8	4	9220	40	25	7340	25,030
8	8	2	8160	30	20	6660	22,710
8	4	4	8500	35	20	6780	23,120
8	4	2	7440	30	20	6100	20,800
6	16	4	9040	35	20	7140	24,350
6	16	2	7980	30	20	6460	22,030
6	8	4	7960	30	20	6300	21,480
6	8	2	6900	30	20	5620	19,160
6	4	4	7420	30	20	5880	20,050
6	4	2	6360	30	20	5200	17,730
4	16	4	7420	30	20	5820	19,850
4	16	2	6360	30	20	5140	17,530
4	8	4	6700	30	20	5260	17,940
4	8	2	5640	25	20	4580	15,620
4	4	4	6340	30	20	4980	16,980

Table 4 Typical Superdome Configurations (Continued)

Cell Boards	Memory Per Cell Board	I/O Chassis Modules	Breaker Power^a	Recommended 3-pole Breaker Size^{a,b}	Recommended 4-pole Breaker Size^{a,c}	Typical Power	Typical Cooling
Qty.	GBytes	Qty.	Watts	Amps (min.)	Amps (min.)	Watts	BTU/HR
4	4	2	5280	25	20	4300	14,660
2	16	2	4740	20	20	3820	13,030
2	8	2	4380	20	20	3540	12,070
2	4	2	4200	20	20	3400	11,600

a. These numbers are valid only for the specific configurations shown. Any upgrades may require a change to the breaker size. A 5-wire source utilizes a 4 pole breaker and a 4-wire source utilizes a 3 pole breaker. *The PE (Protective Earth) ground wire is not switched.*

b. An input power source supplied from a 3-pole plus protective earth (PE), 4-wire system will always be wired as 240 volts phase-to-phase, no neutral or common, plus a PE ground. Three phase input voltage (240VAC) to the equipment is connected phase-to-phase. Examples of 4 wire: 200-volt phase-to-phase, 208-volt phase-to-phase, 240-volt phase-to-phase

c. An input power source supplied from a 4-pole +PE, 5 wire system may be wired as either:

208VAC phase-to-phase voltage with a common, plus a PE ground. Three phase input voltage (208VAC) to the equipment is connected phase-to-phase. The common is *not* connected to the PDCA neutral terminal.

415VAC phase-to-phase voltage with a neutral return, plus a PE ground. Three phase input voltage (230-240VAC) to the equipment is connected phase-to-neutral. The neutral is connected to the PDCA neutral terminal. Examples of 5 wire: 208-volt phase-to-phase, 380-volt phase-to-phase, 415-volt phase-to-phase

CAUTION For supply connections, use wires suitable for at least 105 °C.

Utiliser des fils convenant á une température de 105 °C pour les connexions d'allmenation.

Network Connected Equipment

The installation must provide a ground connection for the network equipment.

CAUTION Sweden: Apparaten skall anslutas till jordat uttang när deb abskuts till ett nätverk.

CAUTION Norway: Apparaten skall anslutas till jordat uttang nar deb abskuts till ett natverk.

Fuse Warnings

Superdome Only:

WARNING If the system has two PDCA installed, ensure that power is removed from both PDCA before removing fuses.

WARNING Disconnect power before changing fuse.

CAUTION For continued protection against risk of fire, replace fuses only with same type and rating.

Lithium Battery Caution

WARNING Observe the correct polarity when changing the lithium battery. There is a danger of explosion if battery is installed incorrectly.

Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and local disposal requirements.

IMPORTANT Switzerland: Annex 4.10 of SR 814.013 applies to batteries.

Australian C-Tick Label

Figure 6 Australian C-Tick Label

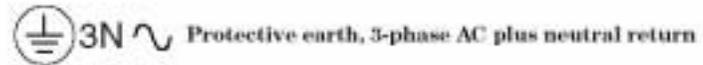


International Symbols (IEC335-1)

Figure 7 **Four Wire Connection**



Figure 8 **Five Wire Connection**



Associated Documents

The following documents provide more details on the topics presented in this manual:

- *Standard for the Protection of Electronic Computer Data Processing Equipment*, (NFPA75) National Fire Protection Association
- EIA Standard RS-232-C, Electronic Industries Association
- *Electrostatic Discharge Failures of Semiconductor Devices*, Unger, B.A. 1981, Bell Laboratories
- IEC 60950, EN 60950, UL 60950, CSA 22.2 No. 950 *Standards for Safety of Information Technology Equipment*

- IEC 60417, IEC 335-1, ISO 3864, IEC 617-2 International Symbols

Figure 9 Superdome Declaration of Conformity - Page 1

DECLARATION OF CONFORMITY																													
according to ISO/IEC Guide 22 and EN 45014																													
Manufacturer's Name:	Hewlett-Packard Company																												
Address:	3000 Waterview Parkway Richardson, TX 75080, USA																												
declares that the product																													
Product Name:	SUPERDOME (HP High Performance SMP Server)																												
Model Number(s):	SPP5, [Marketing nomenclature: Model 16, SD16000, Model 32, SD32000, Model 64, SD64000]																												
Base Product Number(s):	A5200A, A5201A, A5202A, A6113A																												
Product Option(s):	All																												
conforms to the following Product Specifications:																													
Safety:	IEC 60950:1991 + A1+A2+A3+A4 (with national differences for the countries listed on page 2) EN 60950:1992 + A1+A2+A3+A4+A11 UL 1950 , 3 rd edition																												
EMC:	<table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">CISPR 22:1993 + A1 / EN 55022:1994 + A1+A2 Class A</td> <td style="width: 30%;">Radiated Emissions</td> </tr> <tr> <td>EN 55022:1994, Class A, 30 MHz to 5 GHz</td> <td>Conducted Emissions</td> </tr> <tr> <td>EN 55022:1994, Class A, 150 kHz to 30 MHz</td> <td>Immunity for ITE</td> </tr> <tr> <td>EN 55024:1998</td> <td>ESD</td> </tr> <tr> <td>EN 61000-4-2:1995, 8kV CD / 8kV AD</td> <td>Radiated Immunity</td> </tr> <tr> <td>EN 61000-4-3:1996, 100kHz-30MHz, 10 V/m, 1kHz AM</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">30MHz-80MHz, 3V/m, 1kHz AM</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">80MHz-1GHz, 10V/m, 1kHz AM</td> <td></td> </tr> <tr> <td>ENV 50204:1995, 900MHz, PM, 10 V/m</td> <td>Radiated Immunity</td> </tr> <tr> <td>EN 61000-4-4:1995, 1kV Powerline, 0.5kV signal cables</td> <td>EFT</td> </tr> <tr> <td>EN 61000-4-5:1995, 2kV CM, 1kV DM</td> <td>Surge</td> </tr> <tr> <td>EN 61000-4-6:1996, .150MHz - 400MHz, 3 V_{rms}, 1kHz AM</td> <td>Conducted Immunity</td> </tr> <tr> <td>EN 61000-4-8:1993, 3 A/m, 50Hz</td> <td>Magnetic Immunity</td> </tr> <tr> <td>EN 61000-4-11:1994, 11V_{max} (10ms), 161V_{max} (0.5s), 11 V_{max} (5s)</td> <td>Voltage Dips & Interrupts</td> </tr> </table>	CISPR 22:1993 + A1 / EN 55022:1994 + A1+A2 Class A	Radiated Emissions	EN 55022:1994, Class A, 30 MHz to 5 GHz	Conducted Emissions	EN 55022:1994, Class A, 150 kHz to 30 MHz	Immunity for ITE	EN 55024:1998	ESD	EN 61000-4-2:1995, 8kV CD / 8kV AD	Radiated Immunity	EN 61000-4-3:1996, 100kHz-30MHz, 10 V/m, 1kHz AM		30MHz-80MHz, 3V/m, 1kHz AM		80MHz-1GHz, 10V/m, 1kHz AM		ENV 50204:1995, 900MHz, PM, 10 V/m	Radiated Immunity	EN 61000-4-4:1995, 1kV Powerline, 0.5kV signal cables	EFT	EN 61000-4-5:1995, 2kV CM, 1kV DM	Surge	EN 61000-4-6:1996, .150MHz - 400MHz, 3 V _{rms} , 1kHz AM	Conducted Immunity	EN 61000-4-8:1993, 3 A/m, 50Hz	Magnetic Immunity	EN 61000-4-11:1994, 11V _{max} (10ms), 161V _{max} (0.5s), 11 V _{max} (5s)	Voltage Dips & Interrupts
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EN 61000-4-8:1993, 3 A/m, 50Hz	Magnetic Immunity																												
EN 61000-4-11:1994, 11V _{max} (10ms), 161V _{max} (0.5s), 11 V _{max} (5s)	Voltage Dips & Interrupts																												
Supplementary Information:	The product as stated above complies with the requirements of the Low Voltage Directive 73/23/EEC, and the EMC Directive 89/336/EEC, as amended by 93/68/EEC.																												
<u>September 26, 2000</u> Date	 by: Cecil Clayton Hewlett-Packard Company Product Regulations Manager																												
European Contact:	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Strasse 130, D-71034 Boeblingen, Germany (FAX +49-7031-14-3143)																												

Figure 10 Superdome Declaration of Conformity - Page 2

FCC Regulations (USA Only)

The Federal Communications Commission (in 47 CFR Part 15) has specified that the following notice be brought to the attention of the users of this product.

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

The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance (Hewlett-Packard) could result in the equipment being non-compliant with the FCC Class A requirements and void the user's authority to operate the equipment.

Additional International Approvals

AS/NZS 3548:1995 C-Tick & Supplier Code (N279)
ICES-003 Issue 3
VCCI Class A
BSMI, CNS-13438 11/94(Rev. 5/97)
MIC No. 1996-18, Class A
GB4943-1995
GB9254-1988

Australia/New Zealand
Canada
Japan
Taiwan
Korean
China
China

IEC 60950 Evaluated Country National Differences

CENELEC, AT= Austria, AU= Australia, BE= Belgium, CA= Canada, CH= Switzerland, CN= China, CZ= Czech Republic, DE= Germany, DK= Denmark, ES= Spain, FI= Finland, FR= France, GB= United Kingdom, GR= Greece, HU= Hungary, IE= Ireland, IL= Israel, IN= India, IT= Italy, JP= Japan, KR= Republic of Korea, NL= The Netherlands, NO= Norway, PL= Poland, RU= Russia, SE= Sweden, SG= Singapore, SI= Slovenia, SK= Slovakia, TR= Turkey, UA= Ukraine, US= United States, ZA= South Africa

1 Introduction

This guide provides installation and configuration procedures for the Hewlett-Packard Precision Architecture-RISC (PA-RISC) Superdome system.

The instructions in this guide are written for Customer Engineers (CE) who are experienced or inexperienced at installing Superdome systems.

First-time Installers. If you are installing a Superdome for the first time, you should read this manual. It provides details about each step in the installation process. Some steps must be performed before others can be completed successfully. To avoid having to undo and redo an installation step, we urge you to follow the installation sequence outlined in this guide. After you have done one installation, you may use Appendix B to refresh your memory on the installation sequence.

Experienced Installers. Appendix B contains a checklist that describes the procedure to install a factory-integrated Superdome. The factory-integrated checklist is a summary of the tasks described in the body of the manual.

Manual Scope

Detailed information on the following subjects is covered in this manual:

- Safety and environment considerations
- Unpacking and inspection
- Preparing the Superdome for booting
- Verifying and booting the Superdome
- Checking the system after installation
- Troubleshooting
- Installation checklist
- LAN Interconnections
- Connecting a laptop to the GSP using the customer LAN
- Accessing the GSP using a modem
- A180 Support Management Station (SMS) setup
- Connecting multiple SPU cabinets
- Connecting SMS cables and setting SCSI addresses

Audience

Only HP Customer Engineers (CEs) and service personnel, who have successfully completed HP's authorized training should perform these installation procedures.

Notational Conventions

This section discusses notational conventions used in this book.

<i>Italic</i>	In paragraph text, italic identifies new and important terms and titles of documents. In command syntax diagrams, <i>italic</i> identifies variables that must be supplied by the user.
Bold	In paragraph text, bold identifies either equipment markings, or actions required of a user.

WARNING **Warnings highlight procedures or information necessary to avoid injury to personnel. The warning should tell the reader exactly what will result from what actions and how to avoid them.**

CAUTION A caution highlights procedures or information necessary to avoid damage to equipment, damage to software, loss of data, or invalid test results.

NOTE A note highlights supplemental information.

Customer Responsibilities

Before the system can be installed, the system site must comply with the specifications outlined in the *Site Preparation Guide*, which can be found at the following URL: <http://docs.hp.com> or on the Customer CD-ROM that came with the system.

The service and installation requirements for any peripheral equipment to be installed with the system should also be taken into consideration before the installation process gets under way. Refer to the appropriate manual for each peripheral being installed.

Customer Engineer Responsibilities

The CE is responsible for verifying that the site has been prepared for the Superdome, making sure that the site is properly grounded and that the power requirements have been met. In general, the CE is responsible for unpacking, installing the Superdome in the computer room (including installing the optional *Support Management Station*, sometimes called a teststation), powering on and booting each configured partition to the HP-UX prompt, and cleaning up the installation site.

Accepting the Equipment

The customer should oversee the arrival of the equipment, including checking the inventory and moving the equipment to the final installation location.

The customer and the field engineer should inspect the equipment when it is unpacked and inventory the equipment with the *Sales Order Packing Slip* or the customer's *Bill of Material*. It is the customer's responsibility to obtain and complete a damage claim form from the shipping representative if the system has been damaged. Refer to "Inspecting the Shipping Containers for Damage" on page 13 for more information on checking the inventory.

Associated Documentation

- *Superdome Site Preparation Guide, HP 9000 Systems, Fourth Edition, HP Manufacturing Part Number A5201-10011*
- *Instant Capacity On Demand (iCOD) Release Notes for Version x.x, HP Manufacturing Part Number B9073-90003*
- *Managing Superdome Complexes — A Guide for HP-UX System Administrators*
- *Ignite-UX Administration Guide — HP 9000 Computers with HP-UX 10.x or 11.x*

Most of these documents may be found at one or more of these places:

- <http://docs.hp.com>
- <http://superdome.hp.com>
- Customer CD-ROM that came with the system
- Electronic Performance Support System (EPSS) CD-ROM

Communications Interference

Hewlett-Packard system compliance tests are conducted with Hewlett-Packard supported peripheral devices and shielded cables, such as those received with the system. The system meets interference requirements of all countries in which it is sold. These requirements provide reasonable protection against interference with radio and television communications.

Installing and using the system in strict accordance with Hewlett-Packard's instructions minimizes the chances that the system will cause radio or television interference. However, Hewlett-Packard does not guarantee that the system will not interfere with radio and television reception.

Take these precautions:

- Use only shielded cables.
- Install and route the cables per the instructions provided.
- Ensure that all cable connector screws are firmly tightened.
- Use only Hewlett-Packard supported peripheral devices.
- Ensure that all panels and cover plates are in place and secure before system operation.

Electrostatic Discharge

Hewlett-Packard systems and peripherals contain assemblies and components that are sensitive to electrostatic discharge (ESD). Carefully observe the precautions and recommended procedures in this manual to prevent component damage from static electricity.

Take these precautions:

- Always wear a grounded wrist strap when working on or around system components.
- Treat all assemblies, components, and interface connections as static-sensitive.
- When unpacking cards, interfaces, and other accessories that are packaged separately from the system, keep the accessories in their conductive plastic bags, until they are ready to be installed.
- Before removing or replacing any components, or installing any accessories in the system, select a work area where potential static sources are minimized, preferably an anti-static work station.
- Avoid working in carpeted areas, and keep body movement to a minimum while installing accessories.

Installation Warranty

The factory provides an installation warranty that is effective from the time the customer receives the shipment until Field Services turns the system over to the customer. Upon inspection of a received system and/or during installation of the system, if any parts or accessories are missing or defective, they will be replaced directly from the factory via a priority process. To request replacement parts, contact the local Order Fulfillment group who will coordinate the replacement with the factory.

2 Unpacking and Inspecting

This chapter describes what to do before unpacking the Superdome Enterprise Server and how to unpack the system itself.

WARNING Do not attempt to move the Superdome cabinet, either packed or unpacked, up or down an incline of more than 15°.

Verifying Site Preparation

Verifying Site Preparation includes two tasks: gathering LAN information and verifying electrical requirements.

Gathering LAN Information

The LAN connections to a Superdome can be extensive. The time it takes to install the system can be reduced dramatically when the LAN information from the customer is readily available. Gathering the correct LAN information is part of the site prep process. Ideally, you got this information before you arrived at the site; however, if you did not, have the customer get the IP addresses you need while you are unpacking the system. To help you get the information you need, remove the “Superdome LAN Interconnect Diagram” in Appendix C and have the customer fill out the table that accompanies the diagram.

Verifying Electrical Requirements

The site should have been verified for proper grounding and electrical requirements prior to the system being shipped to the customer. Grounding should have been done as part of the site preparation. Before you unpack and install the Superdome, verify with the customer that grounding specifications and power requirements have been met.

The grounding specifications and electrical requirements for the system are thoroughly discussed in the *Site Preparation Guide*, which can be found on the Hewlett Packard Web site, <http://docs.hp.com>.

Checking the Superdome Inventory

The *Sales Order Packing Slip* lists all equipment shipped from Hewlett-Packard. Use this packing slip to verify that all equipment has arrived at the customer site.

NOTE To identify each item by part number, refer to the *Sales Order Packing Slip*.

One of the large overpack containers is labeled “Open Me First.” This box contains the Solution Information Manual and DDCAs. Unpacking Instructions are in the plastic bag taped to the System Processing Unit (SPU).

The following items are in other containers and should be checked against the packing list:

- Power Distribution Control Assembly (PDCA) and power cord
- Two blower housings per SPU cabinet
- Four blowers per SPU cabinet
- Four side skins with related attachment hardware
- SPU blower bezels and front door assemblies
- Support Management Station (if ordered)
- Cables
- Optional equipment
- Boot device with HP-UX installed, if ordered
- Bay Connect Kit (for the Superdome 64 Way)

Inspecting the Shipping Containers for Damage

Hewlett-Packard shipping containers are designed to protect their contents under normal shipping conditions. After the equipment arrives at the customer site, carefully inspect each carton for signs of shipping damage.

WARNING **Do not attempt to move the Superdome cabinet, either packed or unpacked, up or down an incline of more than 15°.**

A tilt indicator is installed on the back and side of the SPU shipping container. If the container has been tilted to an angle that could cause equipment damage, the beads in the indicator shift positions. If a carton has received a physical shock, and the tilt indicator is in an abnormal condition, visually inspect the unit for any signs of damage. If damage is found, document the damage with photographs, and contact the transport carrier immediately.

Figure 2-1 Tilt Indicator (Normal)

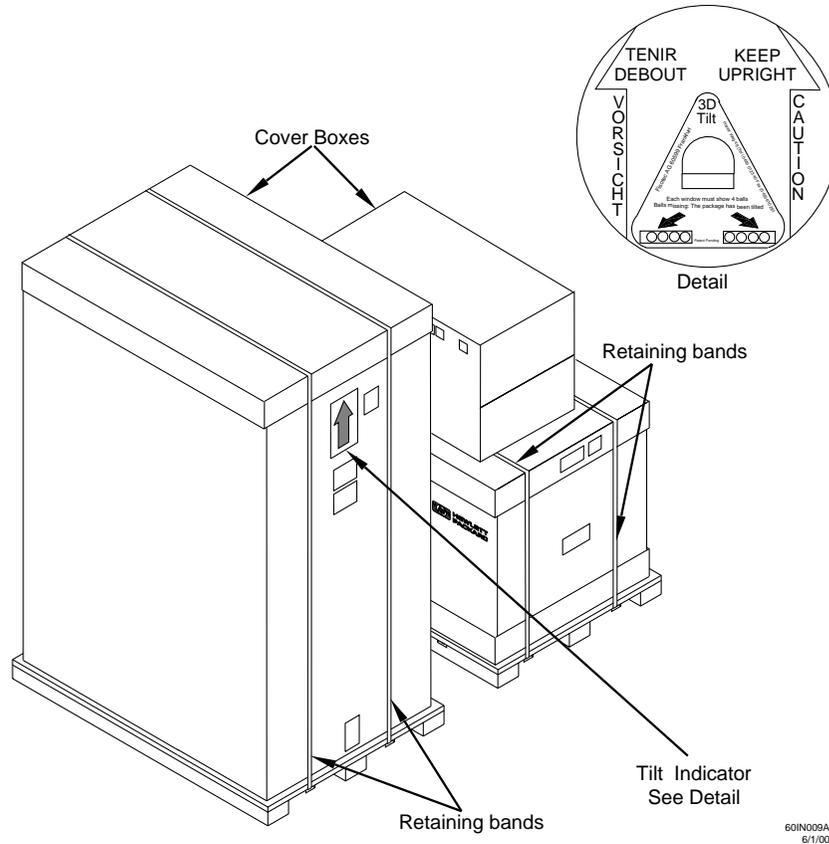
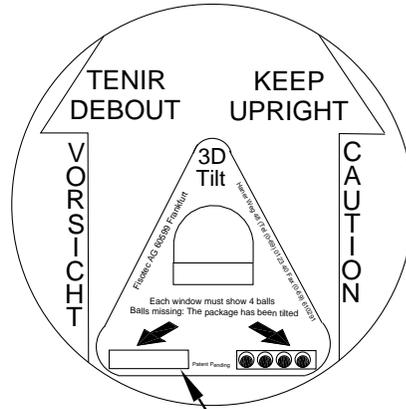


Figure 2-2 Tilt Indicator (Abnormal)



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NOTE If the tilt indicator shows that an abnormal shipping condition has occurred, write “possible hidden damage” on the Bill of Lading, and keep the packaging.

Inspection Precautions

- When the shipment arrives, check each container against the carrier's Bill of Lading. Inspect the exterior of each container immediately for mishandling or damage during transit. If any of the containers are damaged, request the carrier's agent be present when the container is opened.
- When unpacking the container(s), inspect each item for external damage. Look for broken controls and connectors, dented corners, scratches, bent panels, and loose components.

NOTE HP recommends keeping the shipping container or the packaging material. If it becomes necessary to repackage the cabinet, the original packing material will be needed.

If you decide to discard the shipping container or packaging material, please dispose of them in an environmentally responsible manner (recycle, if possible).

Claims Procedures

If the shipment is incomplete, the equipment is damaged, or it fails to meet specifications, notify the nearest Hewlett-Packard Sales and Service Office. If damage occurred in transit, notify the carrier as well.

Hewlett-Packard will arrange for replacement or repair without waiting for settlement of claims against the carrier. In the event of damage in transit, retain the packing container and packaging materials for inspection.

Unpacking and Inspecting Superdome Hardware Components

Tools Required

The following tools are required to install the Superdome:

- Standard hand tools (such as a crescent wrench)
- ESD grounding strap
- Digital Ohm-Voltmeter (or VOM) capable of reading AC/DC voltages
- 1/2-in wrench/socket
- 9/16-in wrench
- #2 Phillips screwdriver
- Flathead screwdriver
- Wire cutters or utility knife
- Safety goggles or glasses
- T10, T15, T20, T25, T30 Torx drivers
- 9-pin to 25-pin serial cable (HP Part Number 24542G)
- 9-pin to 9-pin Null modem cable (HP Part Number F1047-80002)
- Serial display device. A serial display device can be a device such as an HPTERM, a laptop connected by a serial cable or LAN connection, or any device capable of displaying text and communicating with the Guardian Service Processor (GSP).

Unpacking the Superdome SPU Cabinet

CAUTION Use three people to unpack the SPU cabinet safely.

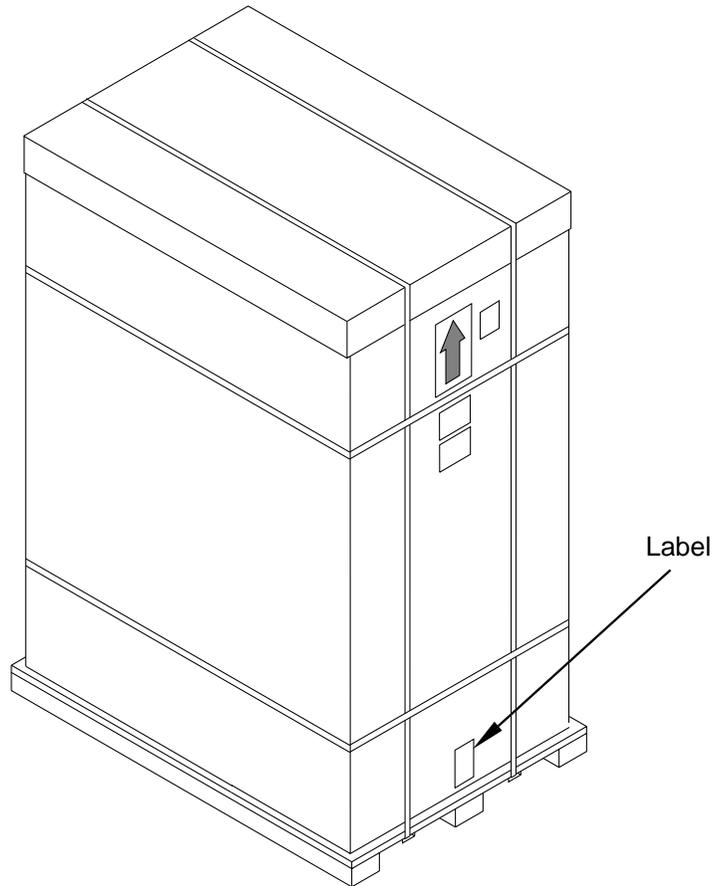
It is recommended that you remove the cardboard shipping container before you move the cabinet into the computer room.

NOTE If unpacking the SPU cabinet in the computer room, make sure you position it so that it can be moved into its final position easily. Notice that the front of the SPU cabinet is the side with the label showing how to align the ramps.

To unpack the cabinet, perform the following steps:

- Step 1.** Position the packaged SPU cabinet so that a clear area about three times the length of the package (**about 12 feet**) is available in front of the unit, and at least two feet are available on the sides.

Figure 2-3 Front of SPU Cabinet Container

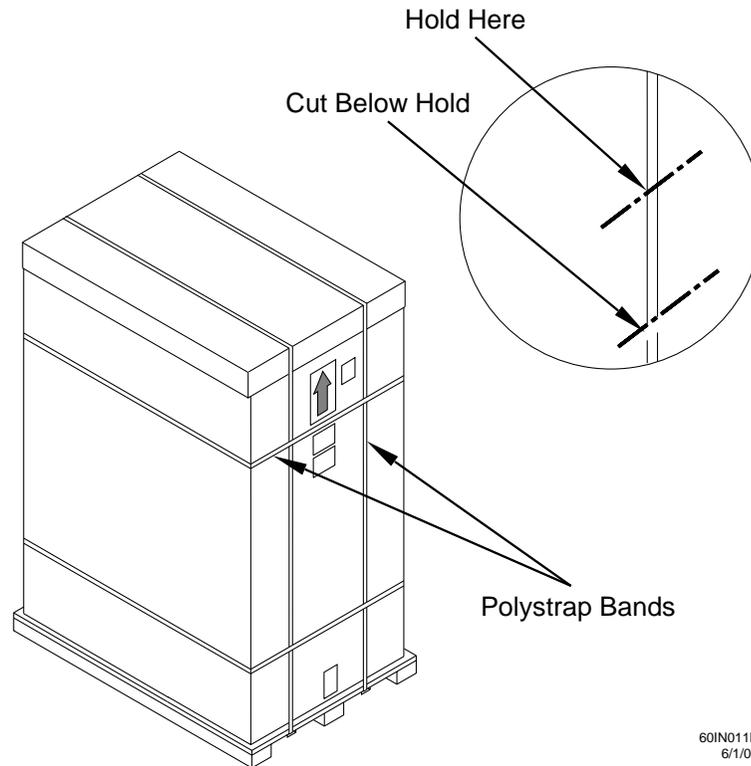


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- Step 2.** Cut the plastic polystrap bands around the shipping container.

WARNING Do not stand directly in front of the strapping while cutting it. Hold the band above where you intend to cut and wear protective glasses. These bands are under tension. When cut, they spring back and could cause serious eye injury.

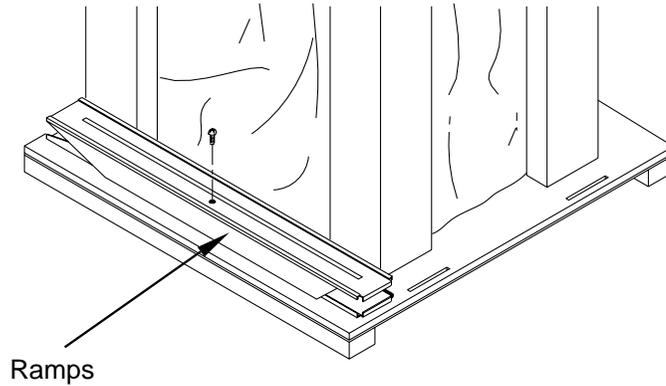
Figure 2-4 Cutting Polystrap Bands



- Step 3.** Lift the cardboard corrugated top cap off of the shipping box.
- Step 4.** Remove the corrugated sleeves surrounding the cabinet.
- Step 5.** Remove the stretch wrap, the front and rear top foam inserts, and the four corner inserts from the cabinet.

Step 6. Remove the ramps from the pallet and set them aside.

Figure 2-5 Removing the Ramps from the Pallet



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Step 7. Remove the plastic anti-static bag by lifting it straight up off the cabinet, and check for damage.

If you find damage, follow the claims procedure. Some damage may be repaired by replacing the damaged part.

If extensive damage is found, it may be necessary to repack and return the entire cabinet to HP.

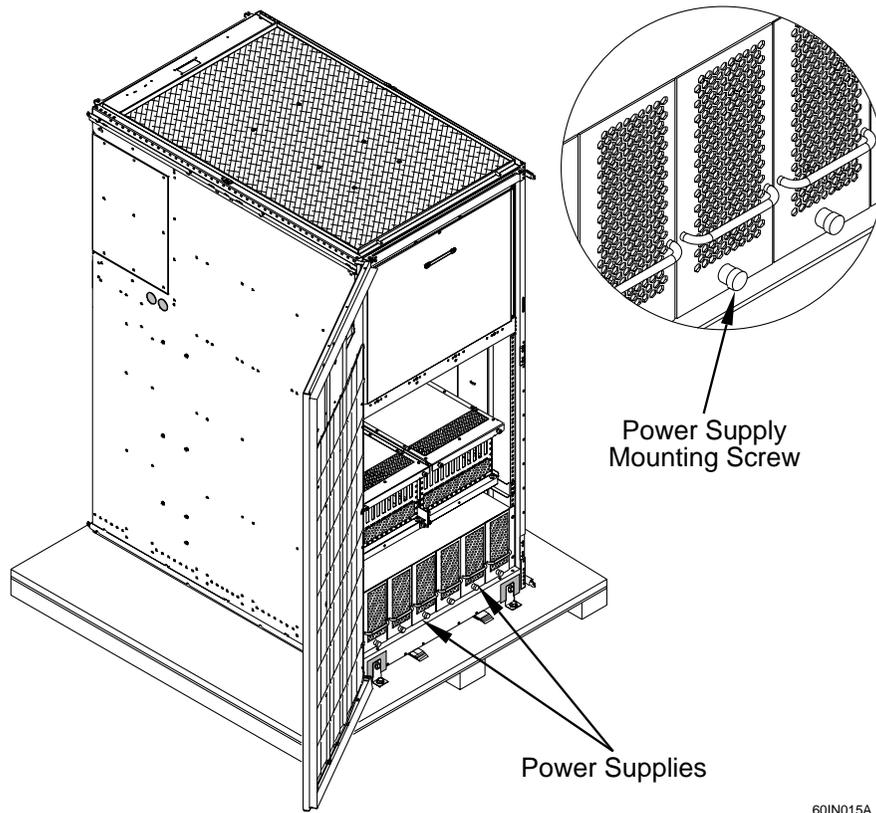
Exterior:

Check the cabinet exterior for signs of shipping damage:

Step 1. Look at the top and sides for dents, warpage, or scratches.

Step 2. Check that the power supply mounting screws are in place and **locked**.

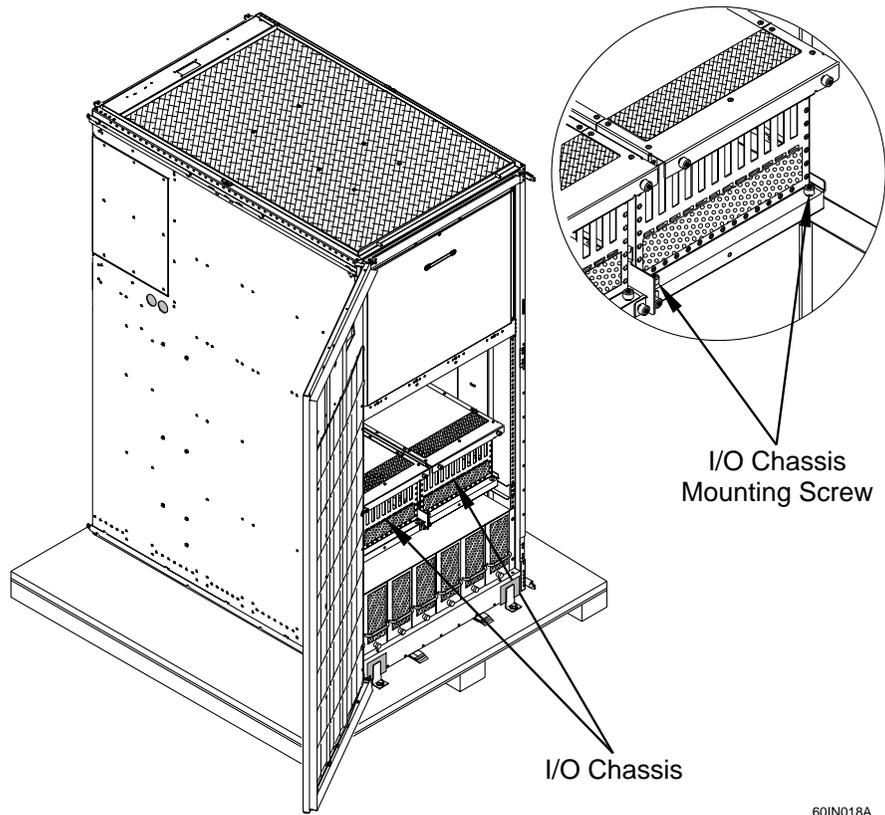
Figure 2-6 Check Power Supply Mounting Screws



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Step 3. Check to see that the I/O chassis mounting screws are in place and secure.

Figure 2-7I/O Chassis Mounting Screws



Interior:

Check all components for signs of shifting during shipment, or any signs of damage.

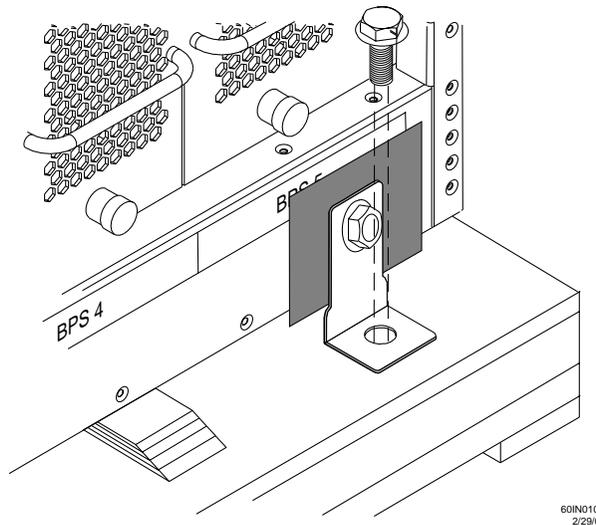
Step 4. Remove the shipping strap that holds the BPSs in place during shipping.

Figure 2-8 Remove BPS Shipping Strap



Step 5. Remove the pallet mounting brackets and pads on the side of the pallet where the ramp slots are located.

Figure 2-9 Removing the Mounting Brackets



Step 6. On the other side of the pallet, remove only the bolt on each mounting bracket that is attached to the SPU cabinet.

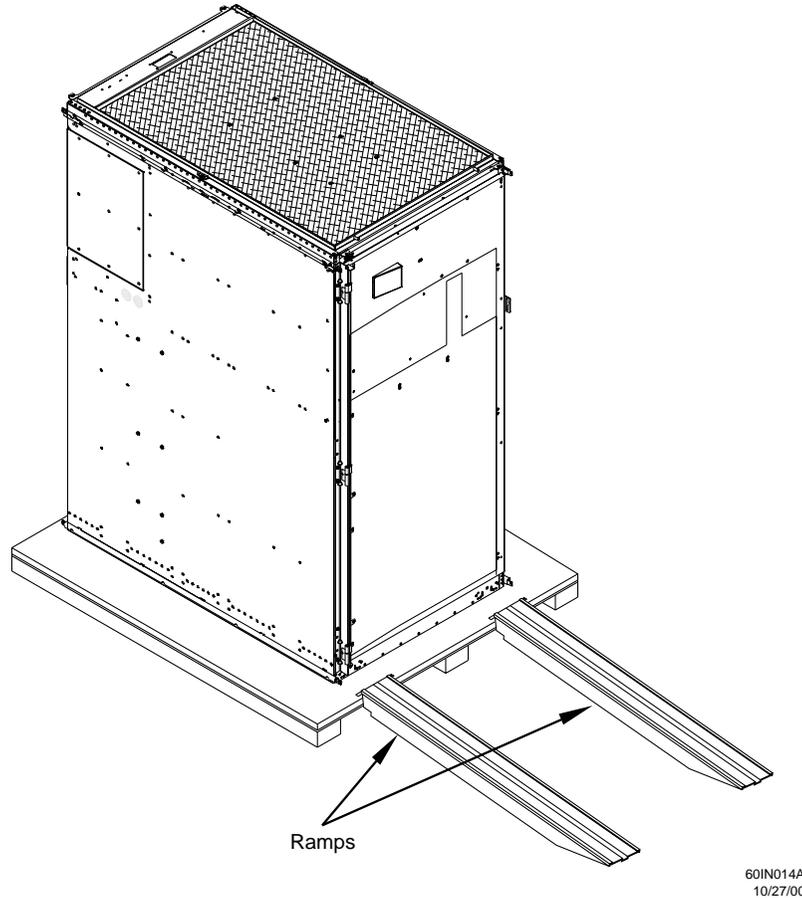
WARNING Do not remove the bolts on the mounting brackets that attach to the pallet. These bolts prevent the cabinet from rolling off the back of the pallet.

Step 7. Insert the ramps into the slots on the pallet.

CAUTION Make sure the ramps are **parallel and aligned**.

The casters on the cabinet should roll unobstructed onto the ramp.

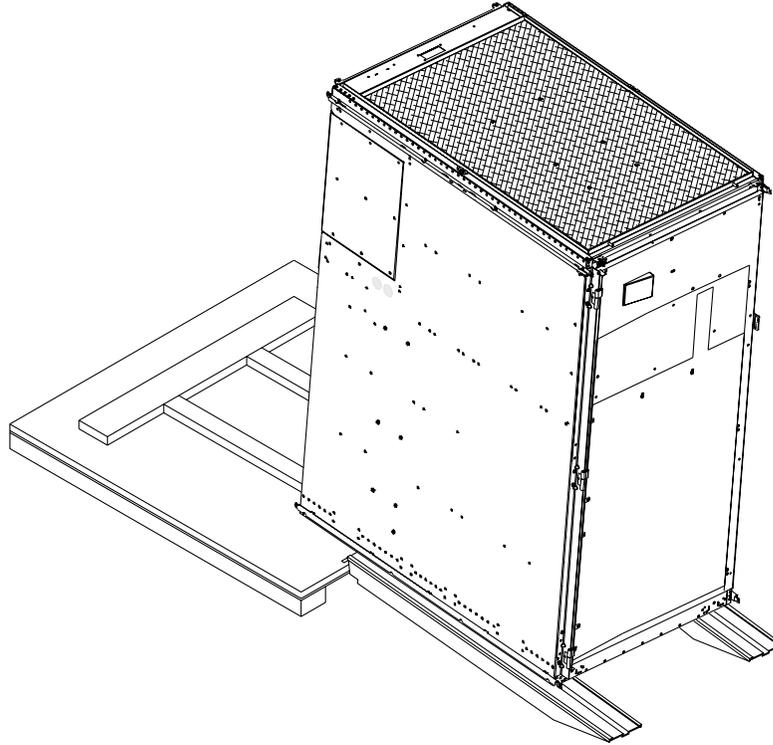
Figure 2-10 Positioning the Ramps



WARNING The cabinet can weigh as much as 1400 lbs. Three people are required to roll the cabinet off the pallet. Position one person at the rear of the SPU cabinet and one person on each side.

Step 8. Carefully roll the cabinet down the ramp.

Figure 2-11 Rolling the SPU Cabinet Down the Ramp



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WARNING Do not attempt to move the Superdome cabinet, either packed or unpacked, up or down an incline of more than 15°.

Step 9. Unpack any other SPU cabinet that was shipped.

Unpacking the Peripheral Cabinet

When ordered with a Superdome system, the Support Managements Station (SMS) and its peripherals come in a peripheral cabinet, racked and cabled. Unpack the peripheral cabinet according to the installation instructions that come with it.

NOTE If, by special arrangement, the SMS is shipped to the customer separate from a peripheral cabinet, refer to Appendix I, “Unpacking the SMS, Connecting Cables, and Setting SCSI Addresses,” on page 233 for instructions on how to cable the peripherals and set SCSI addresses.

Unpacking Other Equipment

Unpack the cartons that accompany the SPU cabinet:

- Step 1.** After opening the other boxes and removing their contents, find the carton marked *MANUALS AND ACCESSORIES* and remove the checklist.
- Step 2.** Open all other cartons and make sure all of the equipment on the list has been received. This includes options, spare parts, cables, and software. Refer to the original purchase order, if required.
- Step 3.** If optional assemblies or cards have been ordered separately, make sure they have been furnished with the shipment, and are in accordance with the purchase order.
- Step 4.** Make sure that the system model number and serial number are identical to those specified on the packing list. The numbers are printed on the System Information Labels located at the bottom front of the system. They are accessible by opening the front door.

Unpacking the PDCA

At least one Power Distribution Control Assembly (PDCA) is shipped with the Superdome. In some cases, the customer may have ordered two PDCAs, the second to be used as a backup power source. Unpack the PDCA now and ensure it has the power power cord option for your installation.

Currently there are several power cord options available for the PDCAs. These are shown in Table 2-1. Only options 6 and 7 are currently available in new superdome configurations. The other options shown in Table 2-1 are obsolete but are given in case you encounter a Superdome with obsolete power cord options.

Table 2-2 details options 4 through 7.

Table 2-1 Available Power Options

Option ^a	Source Type	Source Voltage (nominal)	PDCA Required	Input Current Per Phase 200-240 VAC ^b	Power Receptacle Required
1 ^c	3-phase	Voltage range 200-240 VAC, phase-to-neutral, 47-63 Hz (EUR typical) ^d	five-wire	25A Maximum per phase	No receptacle required. Electrician must hardwire power to the PDCA ^b
2 ^e	3-phase	Voltage range 200-240 VAC, phase-to-phase, 47-63 Hz (US typical)	four-wire	44A Maximum per phase	No receptacle required. Electrician must hard-wire power to the PDCA ^b
4 ^f	3-phase	Voltage range 200-240 VAC, phase-to-phase, 47-63 Hz	four-wire	44A Maximum per phase	Connector and plug provided with a 2.5-meter power cable. Electrician must hard-wire receptacle to 100A site power. ^{b,g}
5 ^h	3-phase	Voltage range 200-240 VAC, phase-to-neutral, 47-63 Hz	five-wire	25A Maximum per phase	Connector and plug provided with a 2.5-meter power cable. Electrician must hard-wire receptacle to 63A site power. ^{b,d}
6	3-phase	Voltage range 200-240 VAC, phase-to-phase, 47-63 Hz	four-wire	44A Maximum per phase	Connector and plug provided with a 2.5-meter power cable. Electrician must hard-wire receptacle to 60A site power. ^{b,d}
7	3-phase	Voltage range 200-240 VAC, phase-to-neutral, 47-63 Hz	five-wire	25A Maximum per phase	Connector and plug provided with a 2.5-meter power cable. Electrician must hard-wire receptacle to 32A site power. ^{b,d}

- a. Option 3 has been deleted.
- b. A dedicated branch circuit is required for each PDCA installed.
- c. Option 1 deleted January 2001.
- d. 415 VAC phase-to-phase is possible.
- e. Option 2 deleted January 2001.
- f. Option 4 will be obsolete in the fourth quarter of 2001.
- g. Refer to for detailed specifics related to this Option.
- h. Option 5 will be obsolete in the fourth quarter of 2001.

Table 2-2 Option 4 through 7 Specifics

PDCA Part Number	Attached Power Cord	Attached Plug	Receptacle Required
A5201-69023 (Option 6)	OLFLEX 190 (PN 600804) is a 2.5 meter multi conductor, 600 volt, 90 degree C, UL and CSA approved, oil resistant flexible cable. (8 AWG 60 A capacity)	Mennekes ME 460P9 (60 A capacity)	Mennekes ME 460R9 (60 A capacity)
A5201-69024 (Option 7)	H07RN-F (OLFLEX PN 1600130) is a 2.5 meter heavy duty neoprene jacketed harmonized European flexible cable. (4 mm ² 32A capacity)	Mennekes ME 532P6-14 (32A capacity)	Mennekes ME 532R6-1500 (32 A capacity)
			Connector Provided
A5201-69009 (Option 4)	OLFLEX 190 (PN 600404) is a 2.5 meter multi conductor, 600 volt, 90 degree C, UL and CSA approved, oil resistant flexible cable. (100 A capacity)	Mennekes ME 4100P9 (100 A capacity)	Mennekes ME 4100C9 (100 A capacity)
A5201-69008 (Option 5)	H07RN-F (OLFLEX PN 1600111) is a 2.5 meter heavy duty neoprene jacketed harmonized European flexible cable. (63 A capacity)	Mennekes ME 563P6-1235 (63 A capacity)	Mennekes ME 563C6-1245 (63 A capacity)

Returning Equipment

If you find damaged equipment, use the following procedure to return it to Hewlett-Packard.

Use the original packing material to repackage the cabinet for shipment. If the packing material is not available, contact your local Hewlett-Packard Sales and Support Office regarding shipment.

Before shipping, place a tag on the container (or equipment) to identify the owner and the service to be performed. Include the equipment model number and the full serial number, if applicable. The model number and the full serial number are printed on the System Information Labels located at the bottom front of the SPU cabinet.

WARNING **Three people are required to push the cabinet up the ramp and position it on the pallet. Check the condition of the loading/unloading ramp before use. If the ramp appears damaged, DO NOT attempt to push the loaded cabinet up the ramp onto the pallet. Contact your local Hewlett-Packard Sales and Support Office regarding shipment.**

Repackaging:

- Step 1.** Assemble the HP packing materials that came with the cabinet.
- Step 2.** Carefully roll the SPU cabinet up the ramp.
- Step 3.** Attach the pallet mounting brackets to the pallet and the SPU cabinet.
- Step 4.** Reattach the ramps to the pallet.
- Step 5.** Replace the plastic anti-static bag and foam inserts.
- Step 6.** Replace the cardboard surrounding the cabinet.
- Step 7.** Replace the cardboard caps.
- Step 8.** Secure the assembly to the pallet with straps.

The cabinet is now ready for shipment.

3 Preparing Superdome for Booting

After a site has been prepared, the system has been unpacked, and components have been inspected, the system can now be prepared for booting.

Moving the Superdome System and Related Equipment to the Installation Site

Carefully move the SPU cabinet (or cabinets, if there are more than one) and its related equipment to the installation site, but not into its final location. (If the system is to be placed at the end of a row, you will need to add side bezels before positioning the cabinet in its final location.) Check the path from where the system was unpacked to its final destination to make sure the way is clear and free of obstructions. If you are required to move the cabinet up ramps, be sure to maneuver it using three people.

Unpacking and Installing the Blower Housings and Blowers

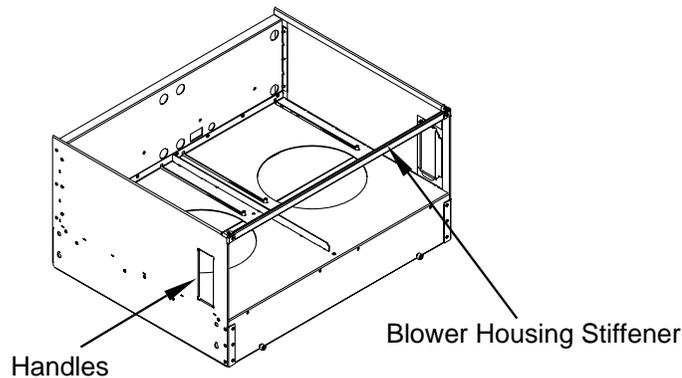
There are two blower housings and four blowers for each SPU cabinet. Although similar in size, the blower housings for each SPU cabinet are not the same; one has a connector to which the other attaches. Use the following procedure to unpack and install the housings and blowers:

Step 1. Unpack the housings from the cardboard box and set them aside.

The rear housing is labeled **Blower 3 Blower 2**. The front housing is labeled **Blower 0 Blower 1**.

CAUTION Do not lift the housing by the stiffener. You can damage it.

Figure 3-1 Blower Housing Stiffener



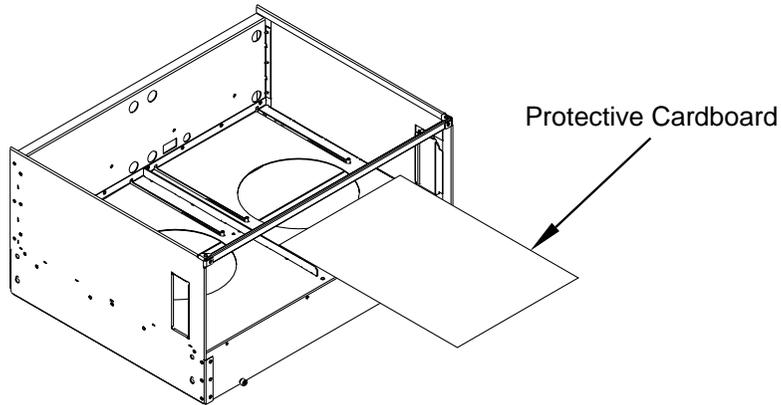
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Step 2. Remove the cardboard from the blower housing.

Unpacking and Installing the Blower Housings and Blowers

This cardboard protects the housing baffle during shipping. If it is not removed, the fans will not work properly.

Figure 3-2 Removing Protective Cardboard from the Housing

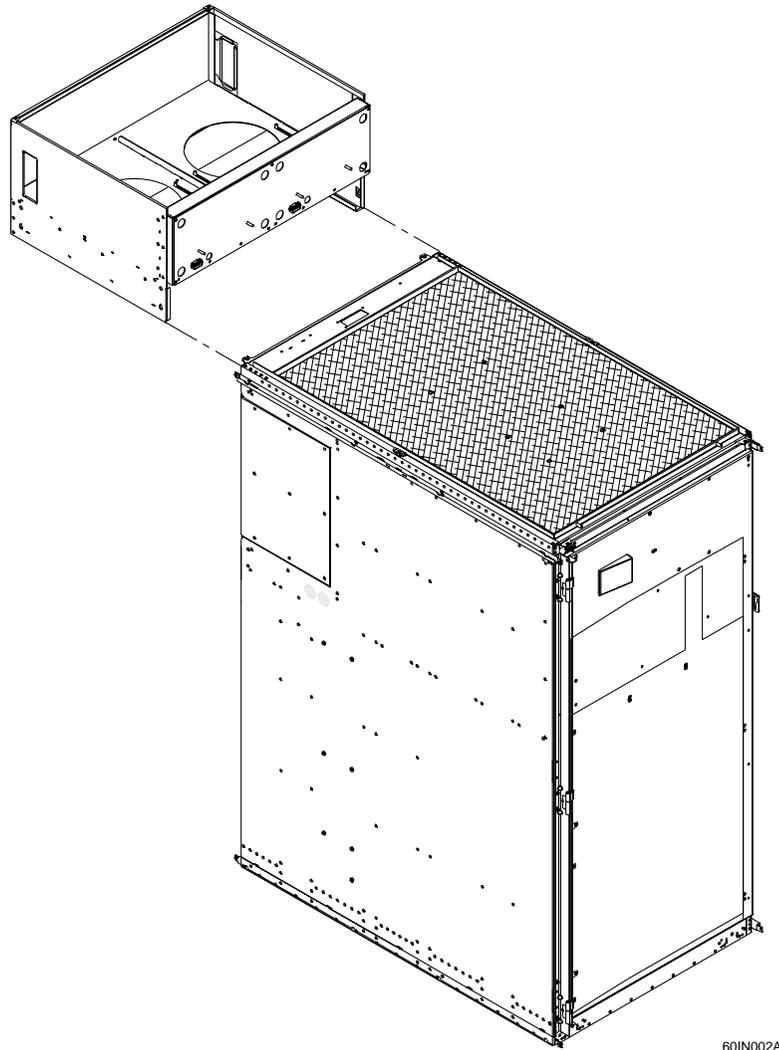


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NOTE Double-check that you removed the protective cardboard.

- Step 3.** Using the handles on the housing labeled **Blower 3 Blower 2**, part number A5201-62029, align the edge of the housing over the edge at the top rear of the SPU cabinet, slide it into place, and tighten the thumbscrews at the front of the housing.

Figure 3-3 Installing the Rear Blower Housing

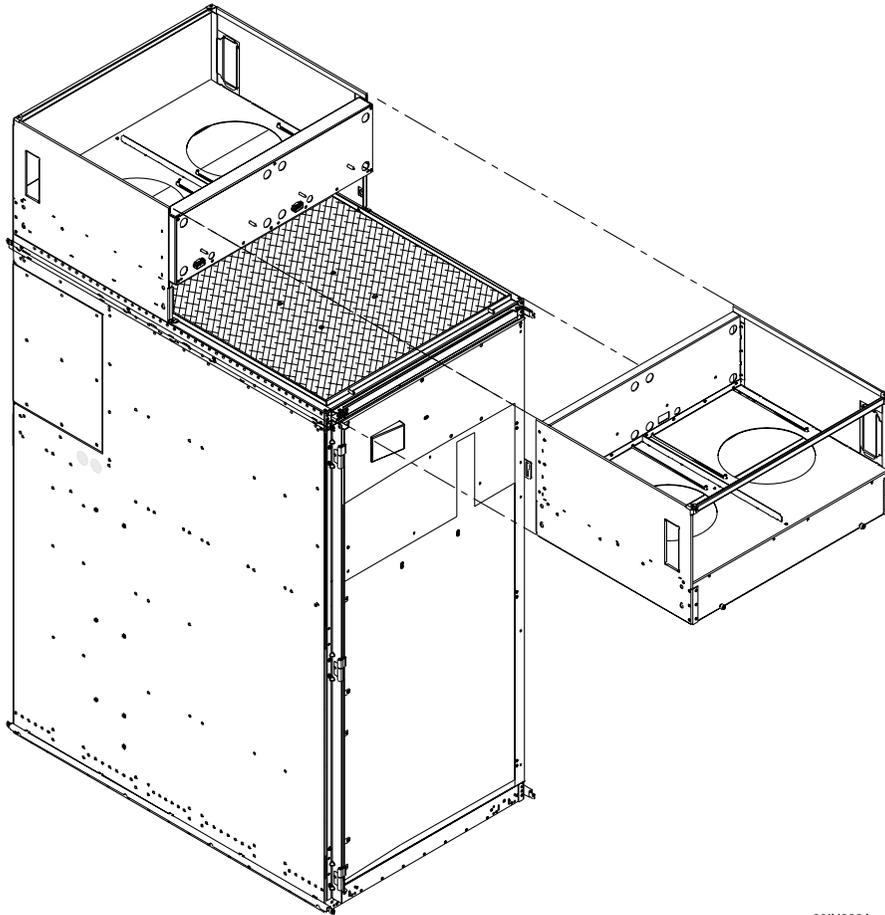


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Unpacking and Installing the Blower Housings and Blowers

- Step 4.** Using the handles on the housing labeled **Blower 0 Blower 1**, part number A5201-62030, align the edge of the housing over the edge at the top front of the SPU cabinet, and slide it into place until the connectors at the back of each housing are fully mated; then tighten the thumbscrews at the front of the housing.

Figure 3-4 Installing the Front Blower Housing

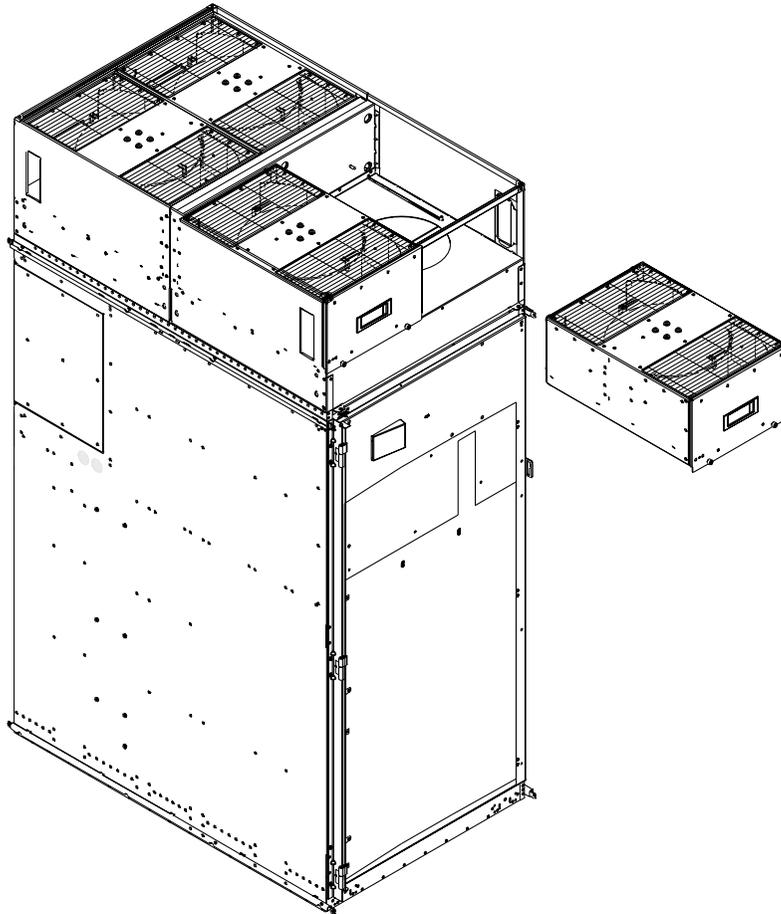


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- Step 5.** Unpack each of the four blowers.

Step 6. Insert each of the four blowers into place in the blower housings with the thumbscrews at the bottom.

Figure 3-5 Installing the Blowers



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Step 7. Tighten the thumbscrews at the front of each blower.

Step 8. If required, install housings on any other SPU cabinets that were shipped with the system.

Step 9. If you have a Superdome 64 Way system, proceed to Appendix F to join the cabinets together.

Attaching Side Skins and Blower Side Bezels

There are two cosmetic side panels that affix to the left and right sides of the Superdome system. In addition, there are bezels that cover the sides of the blowers. (Later in the installation process you will be given instructions on how to attach front and back blower bezels.)

IMPORTANT Be sure to attach the side skins at this time in the installation sequence, especially if the Superdome is to be positioned at the end of a row of cabinets or between cabinets.

Attaching the Side Skins

There are four side skins: two front-side skins and two rear-side skins.

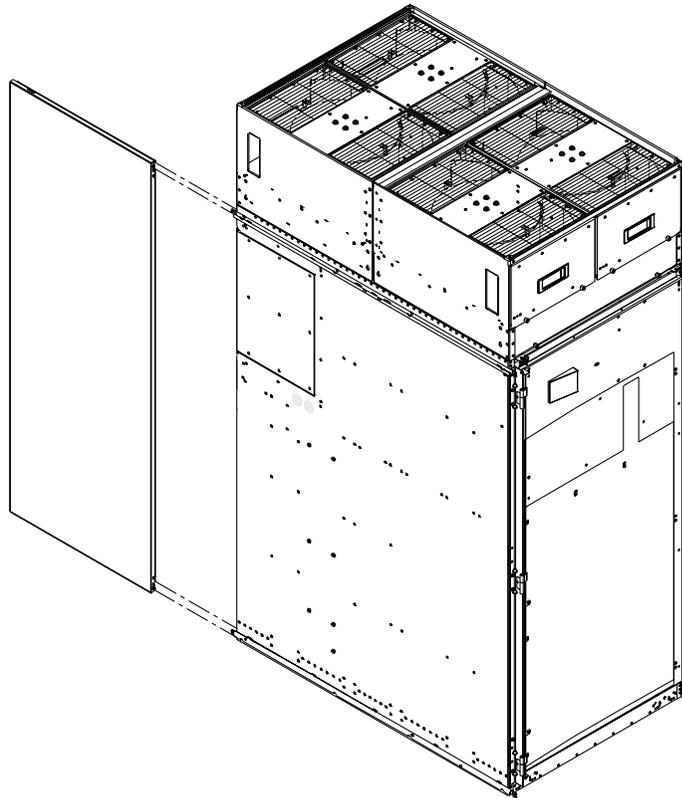
NOTE For Superdome 64 Way systems, you attach side skins to the left side of Cabinet 0 and the right side of Cabinet 1.

To attach the side skins:

- Step 1.** Remove the side skins from their boxes and protective coverings, if you have not already done so.
- Step 2.** From the end of the brackets at the back of the cabinet, position the side skin *with the lap joint* (rear) over the top bracket and under the bottom bracket, and gently slide it into position.

Two skins are installed on each side of the cabinet, one has a lap joint (rear) and one does not (front). The side skins with the lap joint is marked *Rear* and the side skins without the lap joint is marked *Front*.

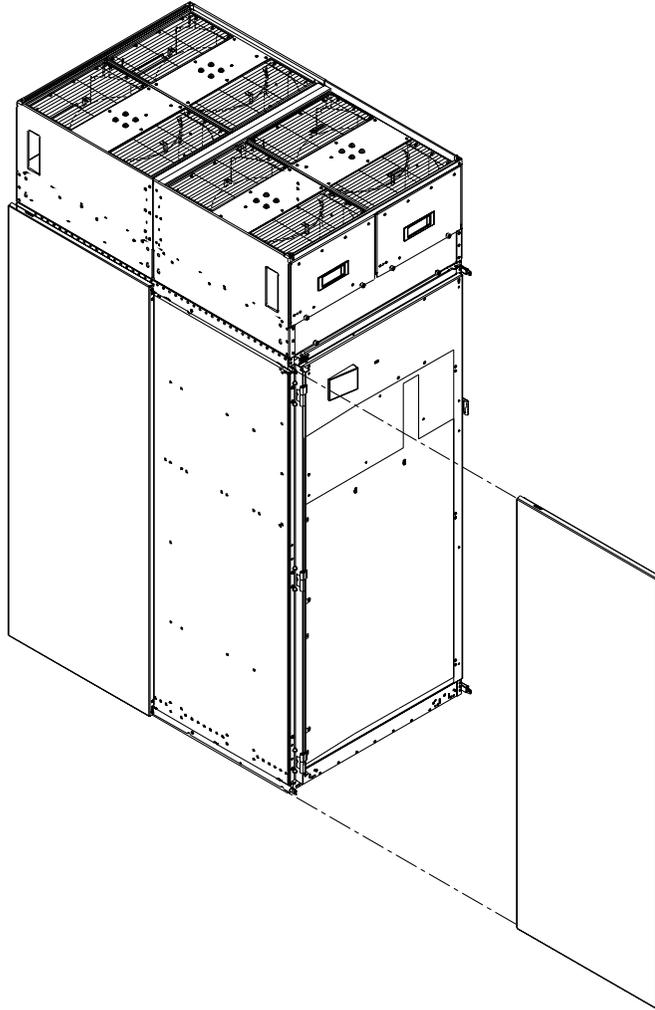
Figure 3-6 Attaching the Rear Side Skin



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Step 3. Attach the skin *without the lap joint* (front) over the top bracket and under the bottom bracket and gently slide the skin into position.

Figure 3-7 Attaching the Front Side Skins



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Step 4. Push the side skins together, making sure the skins overlap at the lap joint.

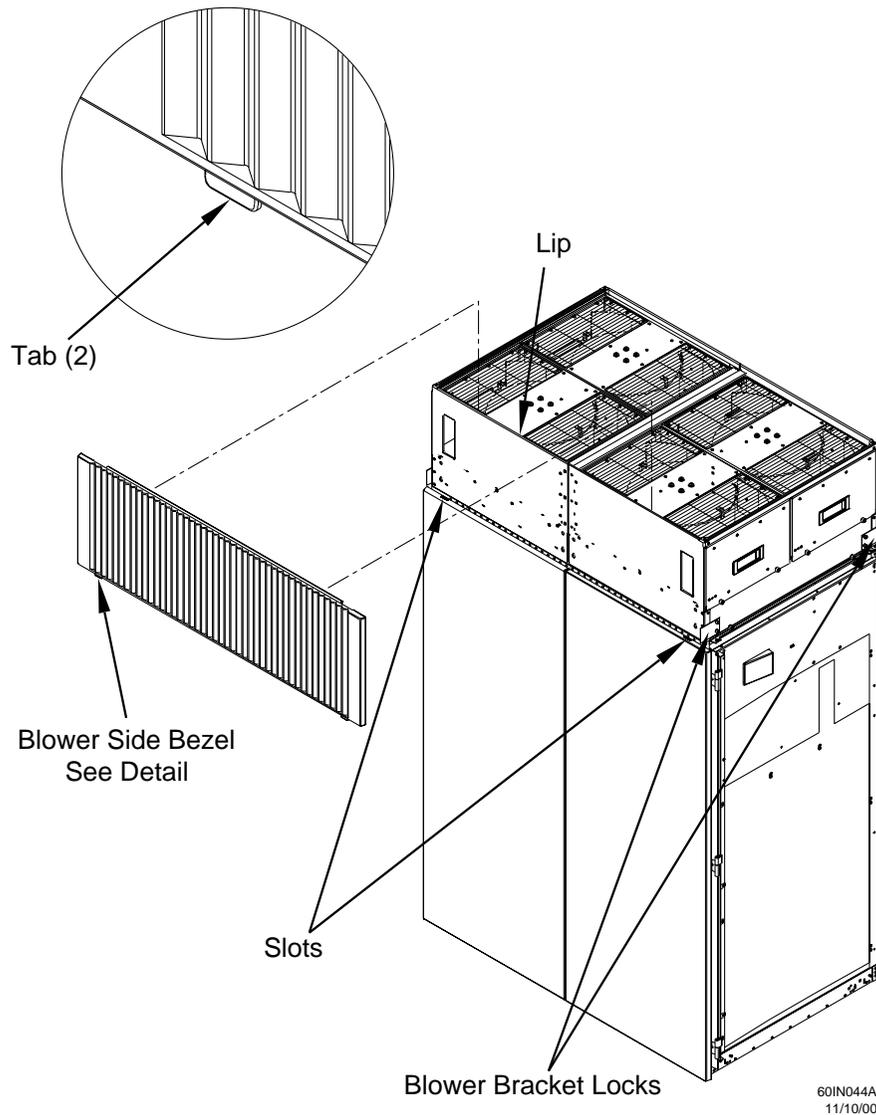
Attaching the Blower Side Bezels

The bezels are held on at the top by the bezel lip, which fits over the top of the blower housing frame, and is secured at the bottom by tabs that fit into slots on the cabinet side panels.

The right and left blower side bezels are attached using the same procedure.

Step 1. Place the side bezel slightly above the blower housing frame.

Figure 3-8 Attaching the Side Bezels and Blower Bracket Locks



Step 2. Align the lower bezel tabs to the slots in the side panels.

Step 3. Lower the bezel so the bezel top lip fits securely on the blower housing frame and the two lower tabs are fully inserted into the side panel slots.

Step 4. Using a Torx 10 drive, attach the screws (HP P/N 0515-4271) to secure the skins to the top and bottom brackets.

NOTE Use four screws to attach the side skins to the top and bottom brackets, except for the top bracket on the right side (as you face the front of the cabinet). Do not attach the rear screw on that bracket. Insert all screws but do not tighten until all side skins are aligned.

Step 5. Repeat Step 1 through Step 4 for the skins on the other side of the cabinet.

Step 6. To secure the side bezels to the side skins, attach the blower bracket locks (HP P/N A5201-00268) to the front and back blowers using a T20 Torx driver.

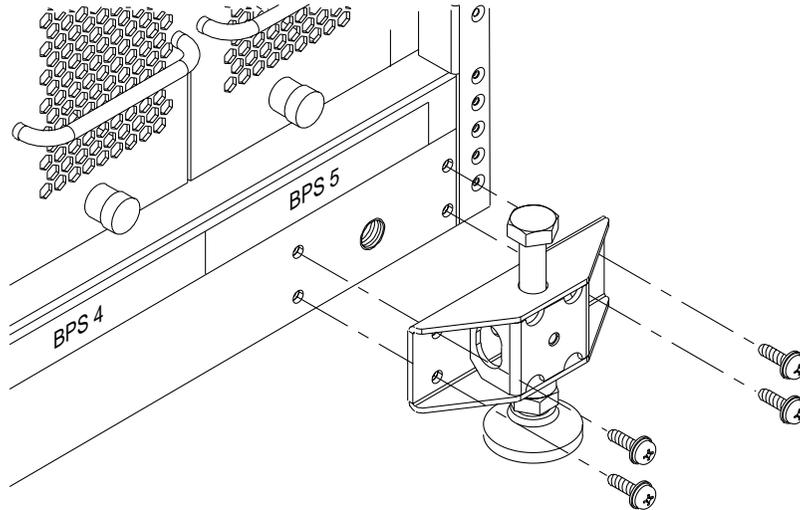
There are two blower bracket locks on the front blowers and two on the rear. Refer to Figure 3-8.

Attaching the Leveling Feet and Leveling the SPU Cabinet

After you position the SPU cabinet, attach and adjust the leveling feet using the following procedure:

- Step 1.** Remove the leveling feet from their packages.
- Step 2.** Attach the leveling feet to the cabinet using four (T25 Torx) screws.

Figure 3-9Attaching the Leveling Feet



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- Step 3.** Screw down each leveling foot clockwise, until it is in firm contact with the floor.

Installing the Front Door Bezels and the Front and Back Blower Bezels

There are two doors: one at the front and one at the back. The back door is shipped on the chassis and requires no assembly. The front door, which is also shipped on the chassis, requires the assembly of two plastic bezels to its front surface and a cable from the door to the upper front bezel. In addition, there are bezels that fit over the blowers at the front and back of the SPU cabinet.

Installing the Front Door Bezels

The front door assembly includes two cosmetic covers, a control panel, and a key lock. Installing the front door is a three-step process: connecting the control panel ribbon cable from the chassis to the control panel, and mounting the two plastic bezels onto the metal chassis door.

NOTE The procedure in this section requires two people and must be performed with the front metal chassis door open.

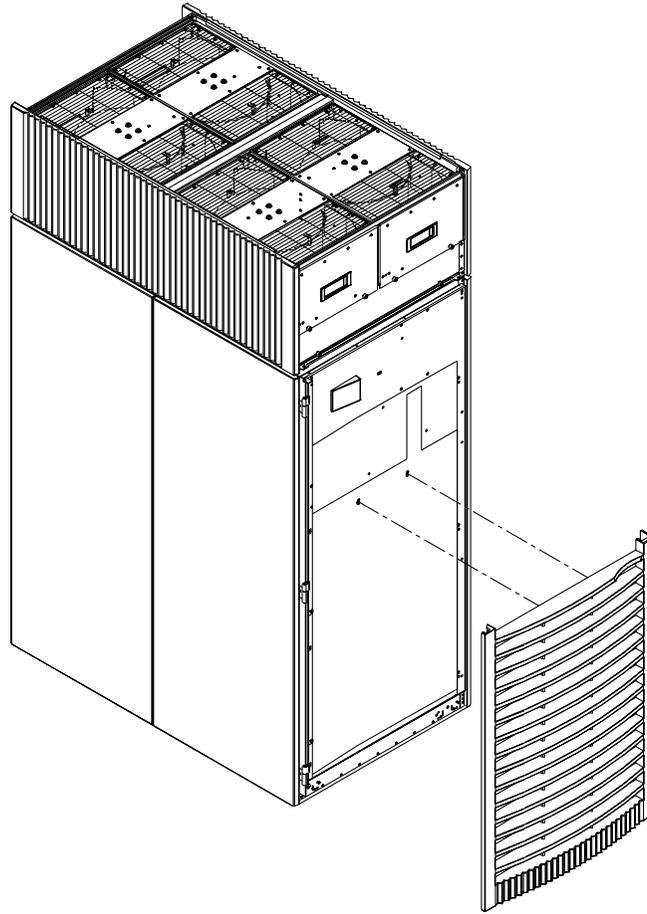
To install the front door assembly:

Step 1. Open the door, unsnap the screen, and remove the filter.

Step 2. Remove the SPU cabinet keys that are taped inside the top front door bezel.

Step 3. Insert the shoulder studs on the lower door bezel into the holes on the front door metal chassis.

Figure 3-10 Installing the Lower Front Door Assembly



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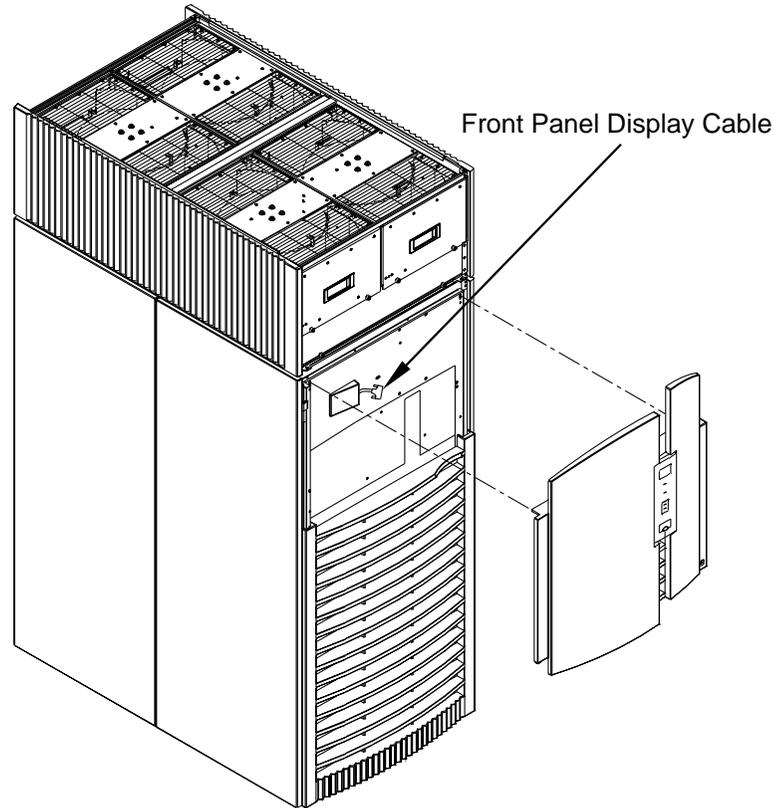
Step 4. Using a Torx 10 driver, secure the lower door bezel to the front door chassis with 10 of the screws provided (HP P/N 0515-0372). Insert all screws loosely, then torque them after the bezel is aligned.

Step 5. Remove the keys taped to the upper door bezel.

Installing the Front Door Bezels and the Front and Back Blower Bezels

- Step 6.** While one person holds the upper door bezel near the door chassis, attach the ribbon cable to the back of the control panel on the bezel and tighten the two flathead screws.

Figure 3-11 Installing the Upper Front Door Assembly



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- Step 7.** Insert the shoulder studs on the upper door bezel into the holes on the front door metal chassis.
- Step 8.** Using a Torx 10 driver, secure the upper door bezel to the metal door with eight of the screws provided, part number 0515-0372. Be sure to hold down on the hinge side of the bezel while tightening the screws to prevent misalignment of the bezel.

Installing the Rear Blower Bezel

The rear blower bezel is a cosmetic cover for the blowers and is located above the rear door.

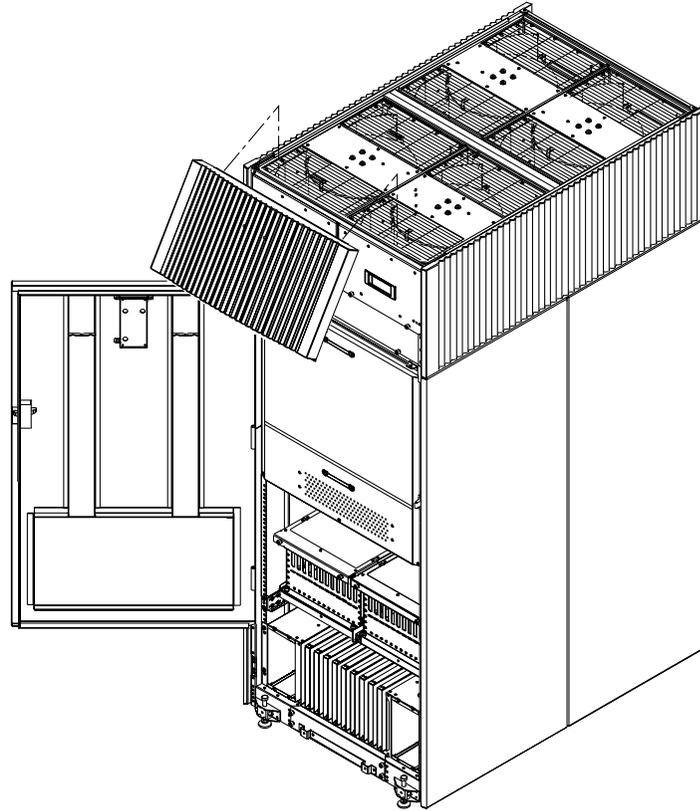
To install the rear blower bezel:

- Step 1.** If you have not already done so, open the rear cabinet door.

The latch is located on the right side of the door.

- Step 2.** Slide the bezel over the blower housing frame, hooking the lip of the bezel onto the cross support of the blower housing, hold the bottom of the bezel. Rotate the bezel from the top a until the bottom snaps in place.

Figure 3-12 Installing the Rear Blower Bezel



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- Step 3.** Align the bezel over the nuts that are attached to the bracket at the rear of the cabinet.

- Step 4.** Using a T20 Torx driver, tighten the two captive screws on the lower flange of the bezel.

NOTE Tighten the screws securely, otherwise the screw may interfere with your ability to close the door.

- Step 5.** Close the cabinet rear door.

Installing the Front Blower Bezel

The front blower bezel is a cosmetic cover for the blowers and is located above the front door. To install it, use the following procedure:

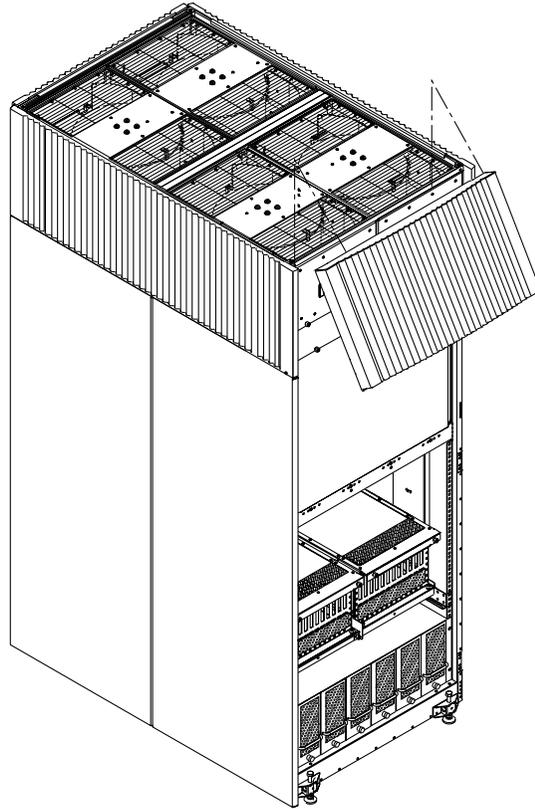
- Step 1.** If you have not already done so, open the front door.

Installing the Front Door Bezels and the Front and Back Blower Bezels

The latch is located on the right side of the front door.

- Step 2.** Position the bezel over the blower housing frame, hooking the lip of the bezel onto the cross support of the blower housing.

Figure 3-13 Installing the Front Blower Bezel



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- Step 3.** Align the bezel over the nuts that are attached to the bracket at the front of the cabinet.

- Step 4.** Using a T20 Torx driver, tighten the two captive screws on the lower flange of the bezel.

NOTE Tighten the screws securely, otherwise the screw may interfere with your ability to close the door.

- Step 5.** Close the front door.

Installing and Verifying the PDCA

All Superdomes are delivered with the appropriate cable plug for Options 6 and 7. The mating receptacle connector is not provided as with Options 4 and 5.

Check the voltages at the receptacle prior to plugging in the PDCA plug. Refer to Figure 3-15 and Figure 3-16 on page 49 for pin locations.

- To verify the proper wiring for a four-wire PDCA, use a DVM to measure the voltage at the receptacle. Voltage should read 200 - 240 Vac phase-to-phase as measured between the receptacle pins as follows: L1 to L2, L2 to L3, L1 to L3.

- To verify the proper wiring for a five-wire PDCA, use a DVM to measure the voltage at the receptacle. Voltage should read 200 - 240 Vac phase-to-neutral as measured between the receptacle pins as follows: L1 to N, L2 to N, L3 to N.

Figure 3-14 PDCA Assembly for Options 4 through 7

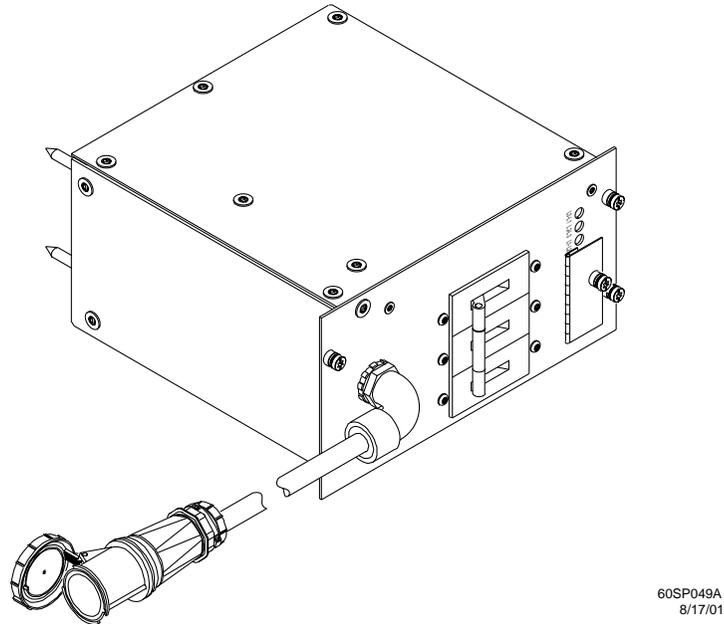


Figure 3-15 Four-Wire Connector

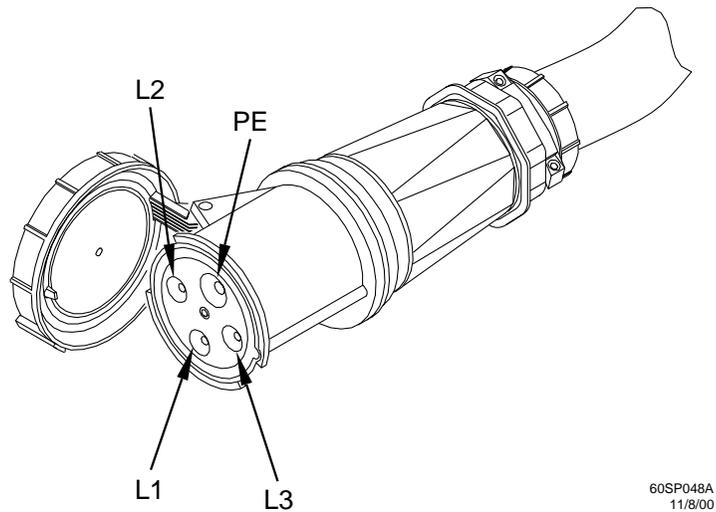
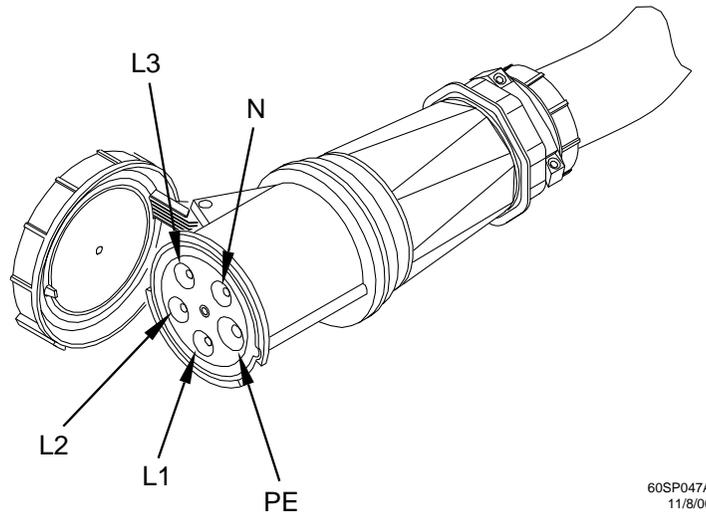


Figure 3-16 **Five-Wire Connector**

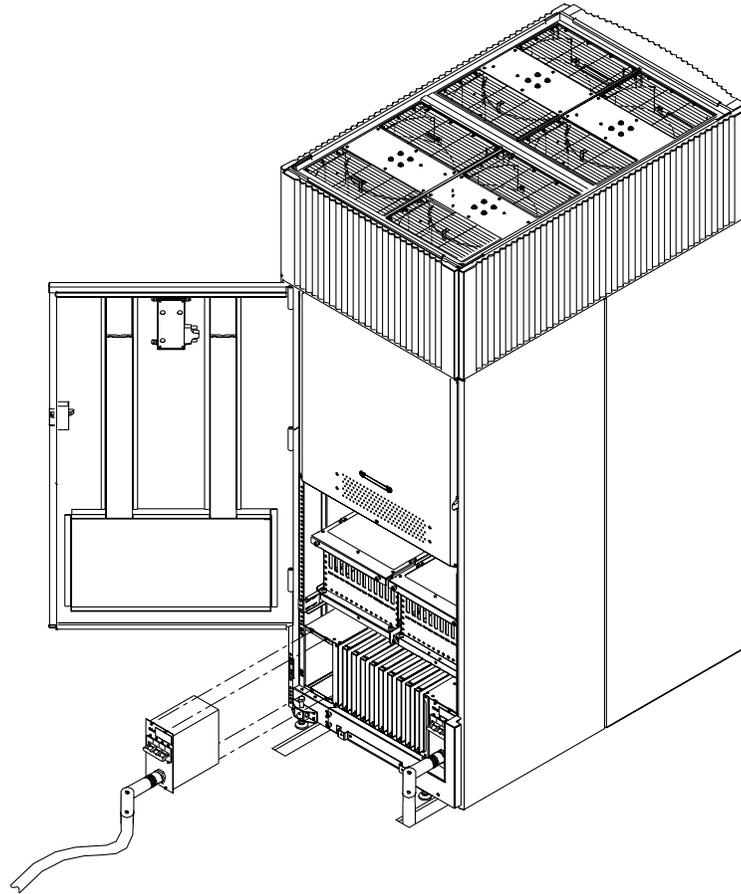


Use the following procedure to install the PDCA:

- Step 1.** Make sure the circuit breaker on the PDCA is **Off**.
- Step 2.** Remove the rear PDCA bezel by removing the two retaining screws.
- Step 3.** Remove the L bezel that covers the PDCA openings by removing one screw. If two PDCAs are to be installed, remove both L bezels.
- Step 4.** Run the power cord down through the appropriate opening in the floor tile.
- Step 5.** Partially insert the PDCA into its slot.
- Step 6.** Slip the L bracket under the power cord on the rear of the PDCA.
- Step 7.** While holding the L bracket in place, insert the PDCA completely into the cabinet and secure the L bracket with one screw.

If you are installing only one PDCA, insert it into the enclosure on the rear-left side of the cabinet.

Figure 3-17 Installing the PDCA



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Step 8. Using a T20 Torx driver, attach the four screws that hold the PDCA in place.

Step 9. Plug in the PDCA connector.

Step 10. If required, repeat Step 4. through Step 8. for the second PDCA.

Step 11. Re-install the rear PDCA bezel.

CAUTION Before checking the voltage, make sure the electrical panel breaker is **On** and the PDCA breaker is **Off**.

Step 12. Check the voltage at the PDCA.

1. Using a T20 Torx driver, remove the screw on the hinged panel at the top of the PDCA. Refer to Figure 3-18.

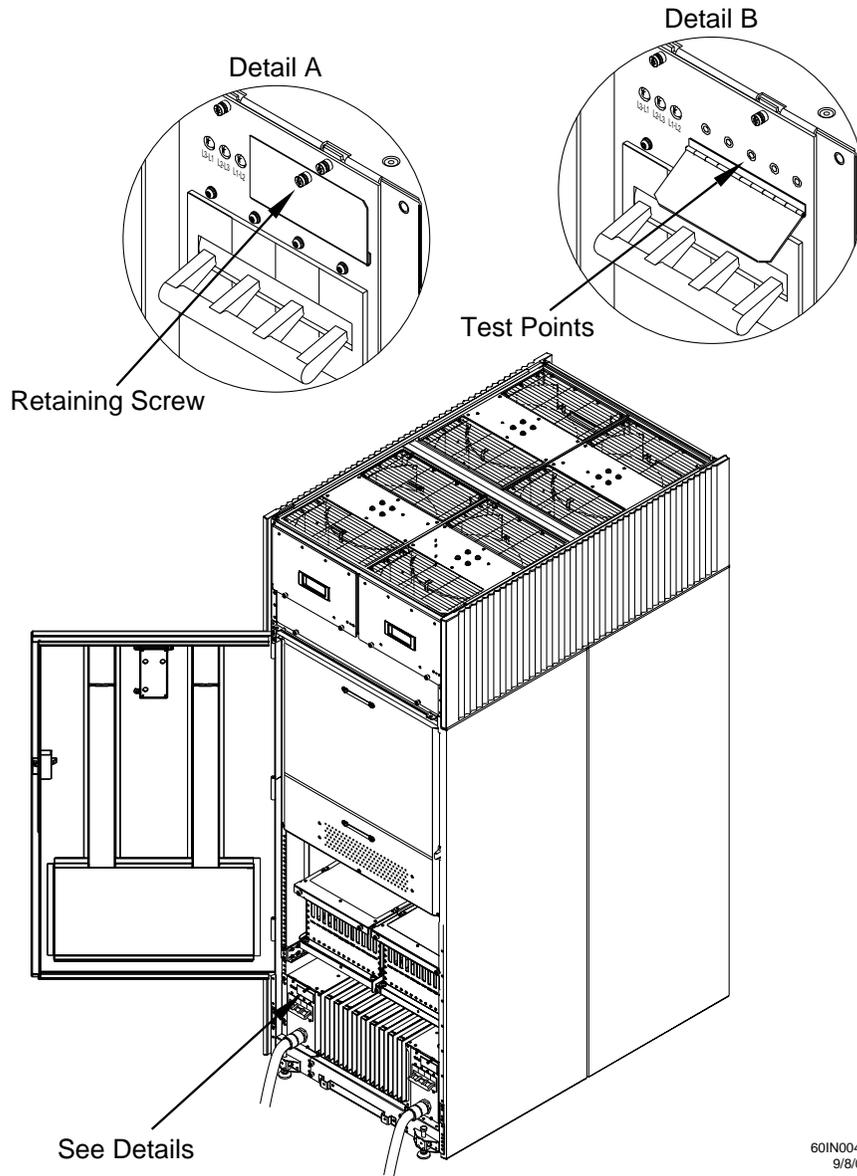
2. Using a Volt-Ohm meter (VOM), check the following test points to make sure they conform to the specifications for the PDCA and local electrical specifications:

Table 3-1 4- and 5-Wire Voltage Ranges

4-Wire	5-Wire
L2 to L3: 200-240 V	L1 to N: 200-240 V
L2 to L1: 200-240 V	L2 to N: 200-240 V
L1 to L3: 200-240 V	L3 to N: 200-240 V
	N to Ground: ^a

a. Neutral to ground voltage can vary from millivolts to several volts depending on the distance to the ground/neutral bond at the transformer. Anything over 3 V should be investigated by a site prep or power specialists.

Figure 3-18 Checking PDCA Test Points (5-Wire)



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If the voltage values do not match the specifications, have the customer contact an electrician to troubleshoot the problem.

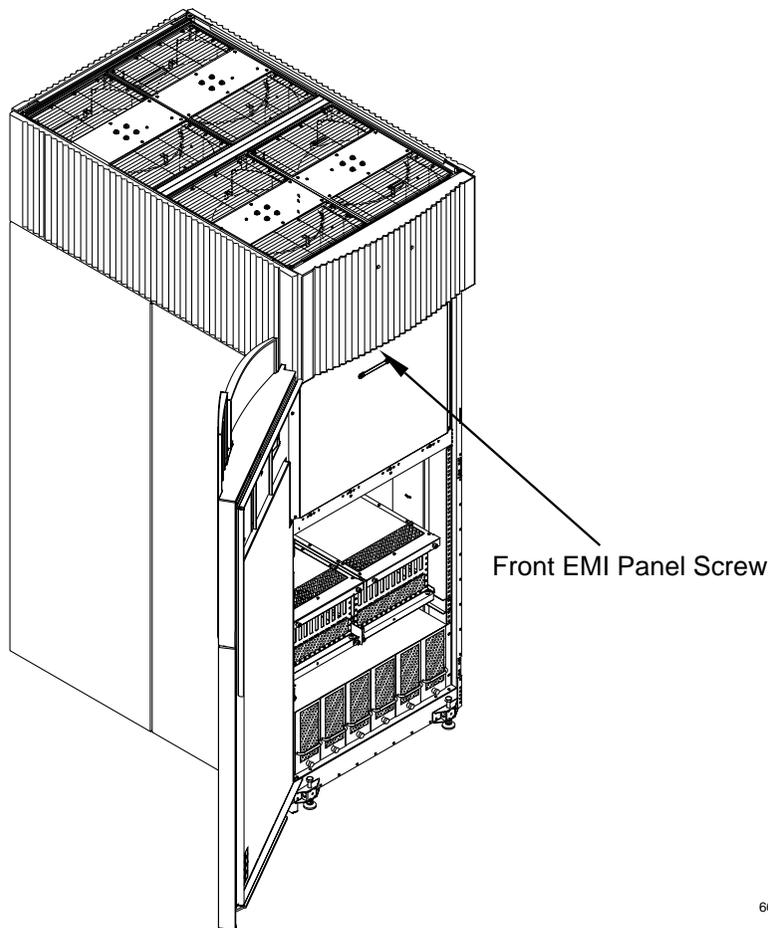
Removing the EMI Panels

Remove the front and back electromagnetic interference (EMI) panels to access ports on the Superdome and to visually check whether components are in place and the LEDs are properly illuminated when you apply power to the system.

To remove the front and back EMI panels:

Step 1. Using a T20 Torx driver, loosen the captive screw at the top center of the front EMI panel.

Figure 3-19 Removing Front EMI Panel Screw



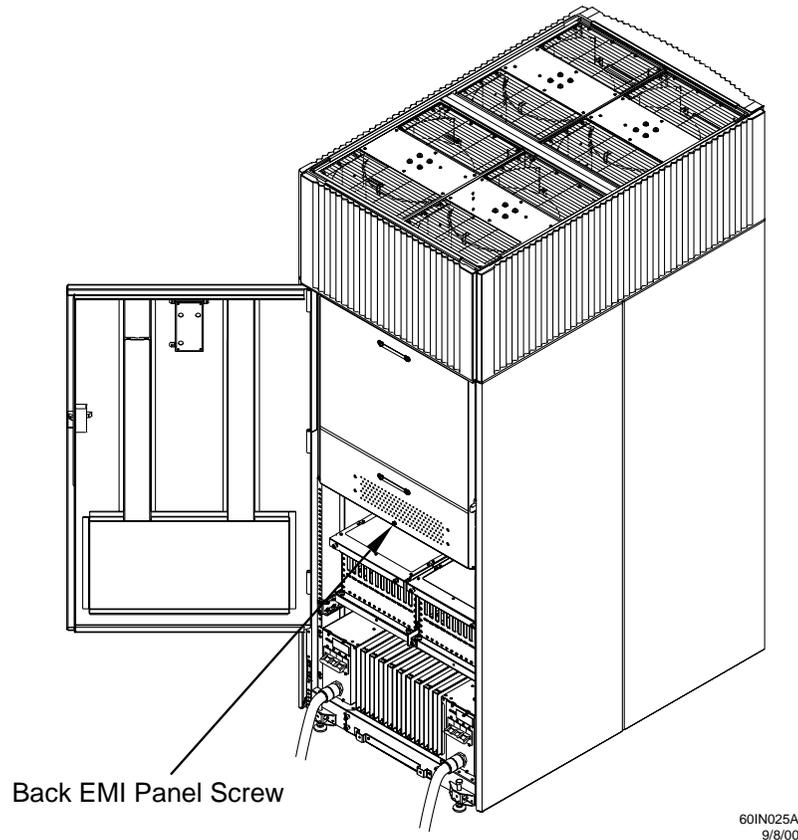
Step 2. Use the handle provided to remove the EMI panel and set it aside.

When in position, the EMI panels (front and back) are tightly in place. Removing them takes controlled, but firm, exertion.

NOTE If you are installing a Superdome 64 Way, you can skip the remaining steps in this section and continue on to “Installing the Support Management Station (SMS)” on page 55.

Step 3. Loosen the captive screw at the lower center of the back EMI panel.

Figure 3-20 Removing the Back EMI Panel



Step 4. Use the handle provided to gently remove the EMI panel; then, set it aside.

NOTE If you are installing a Support Management Station, continue on to the next section. If not, go to “Verifying and Booting Superdome” on page 79.

Installing the Support Management Station (SMS)

If you are not installing an SMS, you can skip this section and continue with the procedures in Chapter 4, “Verifying and Booting Superdome.”

An SMS has two primary functions: to test the integrity of the electronics and to update firmware.

If the Superdome complex already has an SMS, there is no need to install another one. Only network links need to be established between the existing SMS and the SPU cabinet you are installing.

When ordered with a Superdome system, the SMS and its peripherals come in a peripheral cabinet, racked and cabled. To install the SMS, you have only to:

1. Install the peripheral cabinet according to the installation instructions that come with it.

NOTE	If, by special arrangement, the SMS is shipped to the customer separate from a peripheral cabinet, refer to Appendix I, “Unpacking the SMS, Connecting Cables, and Setting SCSI Addresses,” on page 233.
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2. Power on the peripheral cabinet.
3. Power on the SMS peripherals.
4. Power on the SMS.

Setting Up the CE Tool (PC)

NOTE The information in this and subsequent sections pertains to the hp A500 SMS. See Appendix A, hp Server rx2600 Support Management Station, for connecting and setting up the new hp Server rx2600 SMS.

The CE Tool is usually a laptop. It allows you to communicate with the Guardian Service Processor (GSP) in SPU **Cabinet 0**. The GSP monitors the activity of a single SPU cabinet or a complex (where more than one SPU or I/O Expansion cabinet is installed and connected to the GSP).

During installation, communicating with the GSP allows you to perform such tasks as:

- Verifying that the components are present and installed correctly.
- Setting LAN IP addresses.
- Shutting down power to such “entities” as cells and card cages.

You can communicate with the GSP in several ways. The recommended method is to connect the CE tool to the Local RS-232 port on the GSP. In user tests, this has been shown to be the quickest and most reliable way to communicate with the GSP. After you gain experience with Superdome installations, you may want to experiment with other ways, including connecting a *crossover* LAN cable directly from the Customer LAN connection on the GSP to the LAN card adapter on your CE Toolkit, and running Reflection 1 (see Appendix D). You may also want to communicate with the GSP using a modem (see Appendix E).

Setting CE Tool Parameters

After powering on the CE tool, make sure the communications settings are:

- 8/none (parity)
- 9600 baud
- Xon/Xoff (Receive)
- None (Transmit)

If your CE tool is a laptop using Reflection 1, you can check or change these communications settings using the following procedure:

Step 1. From the Reflection 1 Main screen, pull down the **Connection** menu and select **Connection Setup**.

Step 2. Select **Serial Port**.

Step 3. Select **Com1**.

Step 4. Check the settings and change, if required.

Go to **More Settings** to set Xon/Xoff. Click **OK** to close the More Settings window.

Step 5. Click **OK** to close the Connection Setup window.

Step 6. Pull down the **Setup** menu and select **Terminal** (under the **Emulation** tab).

Step 7. Select any HP terminal type.

Preferred types are **HP70092**, **HP70096** or **HP70094**, **HP70098**.

Step 8. Click **Apply**.

This option is not highlighted if the terminal type you want is already selected.

Step 9. Click **OK**.

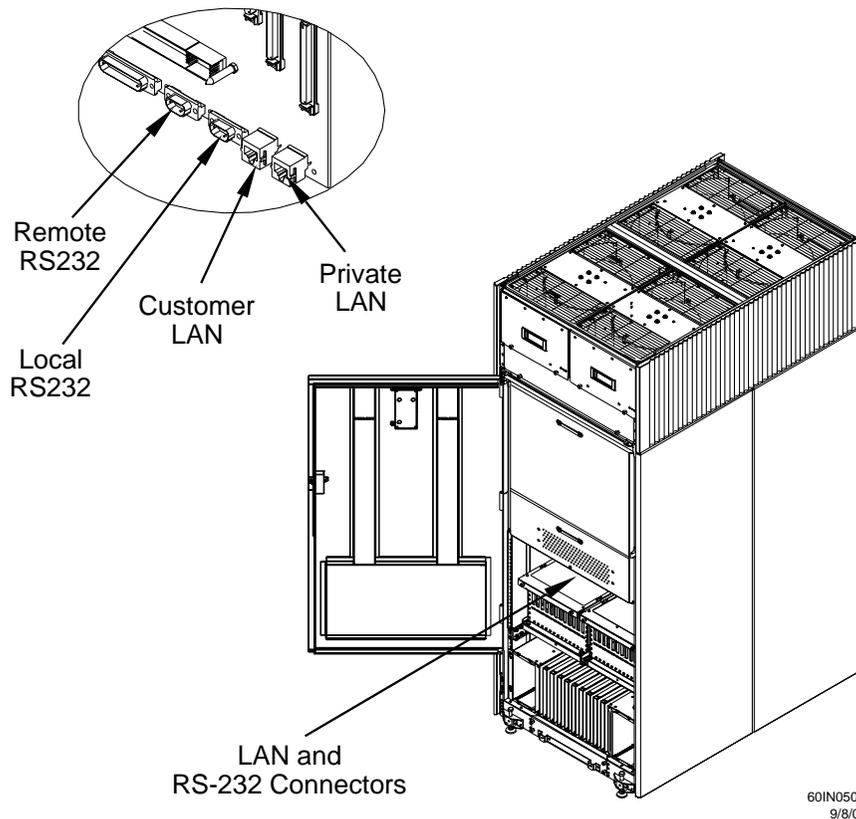
Connecting the CE Tool to the Local RS-232 Port on the GSP (Recommended)

This connection allows you to communicate directly with the GSP. You can create one window only on your CE tool to monitor the GSP. When enabled, it gives you direct access to the GSP and any partition.

Use the following procedure to connect the CE tool to the Local RS-232 Port on the GSP:

Step 1. Connect one end of a Null modem cable (9-pin to 9-pin) to the **Local RS-232** port on the GSP (the second DB9 connector from the left).

Figure 3-21 RJ-45 LAN and RS-232 Connectors in SPU Cabinet

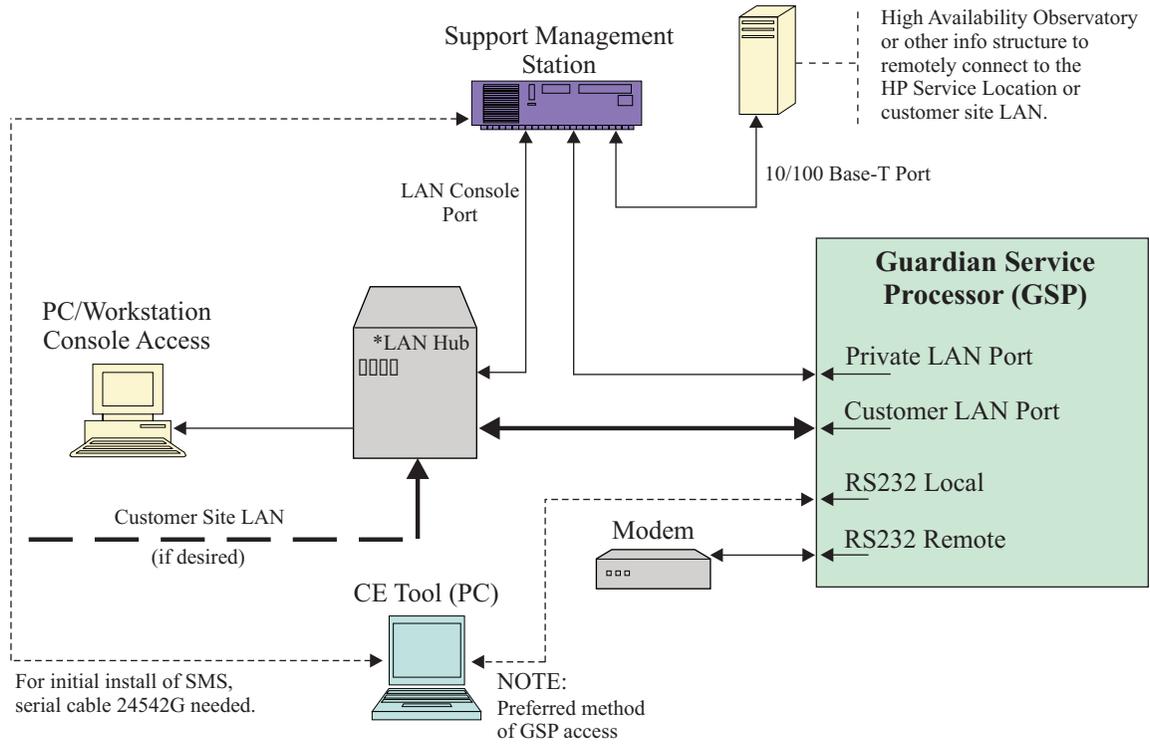


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Step 2. Connect the other end of the RS-232 cable to the CE tool.

In the following illustration, a dotted line between *CE Tool (PC)* and *RS-232 Local* shows the connection that should be made:

Figure 3-22 Superdome LAN Interconnect Diagram



***LAN hubs to be customer supplied**

Dashed lines indicate temporary connections.
 Solid lines indicate permanent connections.

Turning On Housekeeping Power and Logging In to the GSP

After connecting the serial display device, you are ready to switch on the AC breakers and login to the Guardian Service Processor (GSP). Switching on the breakers powers up the Bulk Power Supplies (BPS) at the front of the SPU cabinet, which in turn provides +5 V housekeeping (HKP). HKP power distributes +5 V power to the logic that requires it.

Before powering up the GSP and SPU cabinet for the first time:

Step 1. Verify that the AC voltage at the input source is within specifications for each cabinet being installed.

Step 2. Make sure:

- You are wearing an ESD wrist strap.
- The AC breakers are in the **Off** position. See Figure 3-23.
- The cabinet power switch at the front of the cabinet is in the **Off** position.
- The AC breakers and cabinet switches on the I/O Expansion Cabinet (if one is present) are in the **Off** position.

Step 3. If you have not already done so, power on the serial display device.

The preferred tool is the CE Tool running Reflection 1.

To power up the GSP, set up a communications link, and login to the GSP:

Step 1. Turn on the AC breakers on the Power Distribution Control Assembly (PDCA) (or assemblies, if there are more than one), at the back of the SPU cabinet.

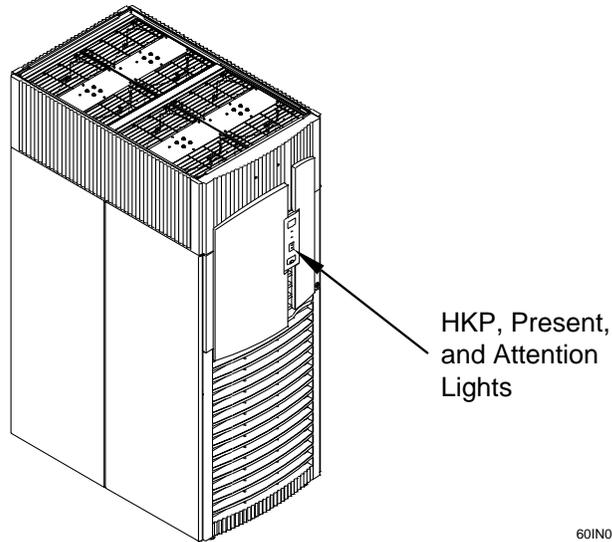
Power on any other SPU cabinets that were shipped with the system.

On the front and back panel of a Superdome 32 Way, you should see the **HKP** (Housekeeping) and the **Present** lights illuminate.

Turning On Housekeeping Power and Logging In to the GSP

On a Superdome 64 Way cabinet 0, the **HKP** (Housekeeping) and the **Present** lights illuminate, but only the **HKP** (Housekeeping) LED illuminates on cabinet 1 (the right cabinet).

Figure 3-23 Front Panel Display with Housekeeping (HKP) Power On, Present, and Red Attention Light



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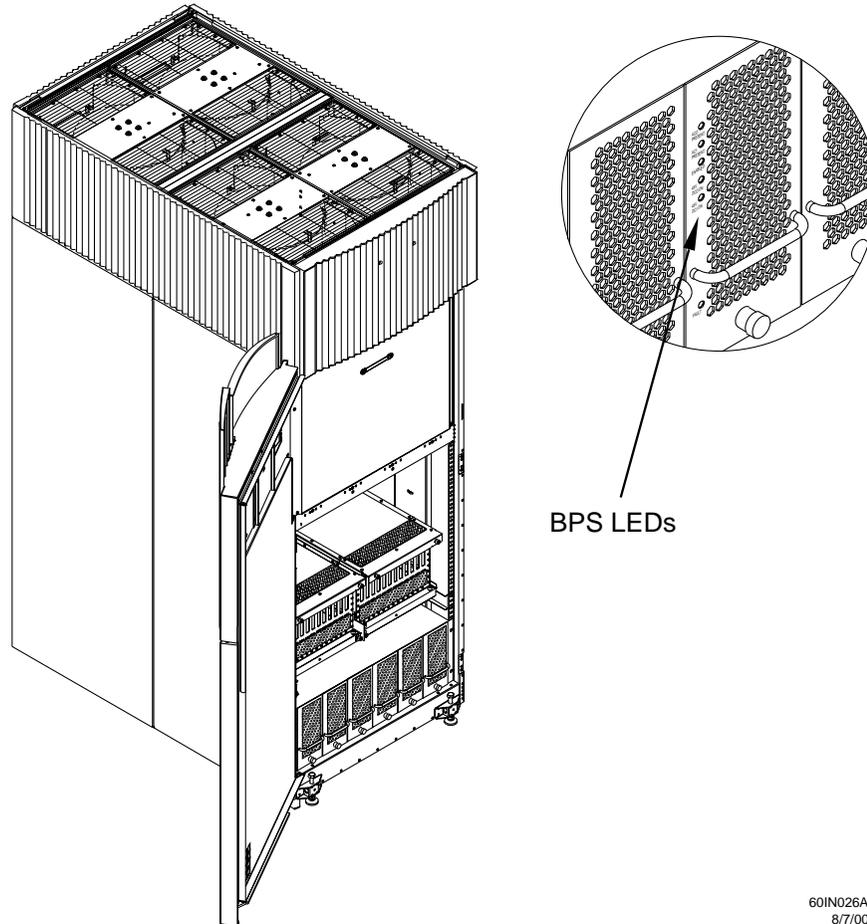
Step 2. Check the Bulk Power Supply (BPS) LEDs.

When on, the breakers on the PDCA distribute power to the BPSs. AC power is present at the BPSs when:

- The amber light on the BPS next to the label **AC0 Present** (if the breakers on the PDCA on the left side at the back of the SPU cabinet) is **on**.

- The amber light on the BPS next to the label **AC1 Present** (if the breakers on the PDCA on the right side at the back of the SPU cabinet) is **on**.

Figure 3-24BPS LEDs



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Step 3. Login to the GSP:

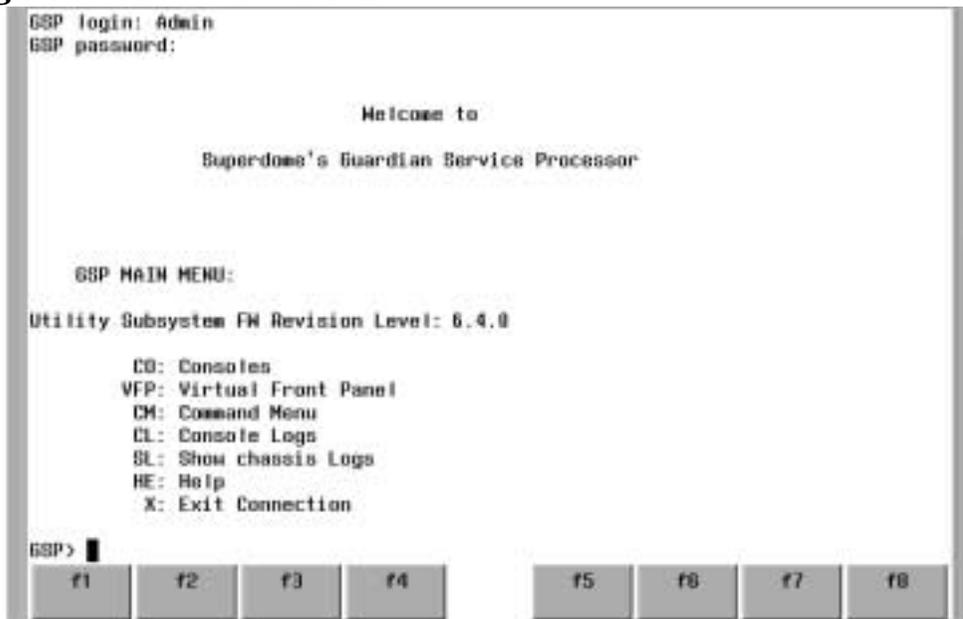
1. Enter **Admin** at the login prompt. (This value is case sensitive.)

It takes a few moments for the GSP prompt to appear. If it does not, make sure your laptop serial device settings are correct: 8 bits, no parity, 9600 baud, and Xon/Xoff. Then, try again. Also, check the heartbeat LED on the GSP.

2. Enter **Admin** at the password prompt. (This value is case sensitive.)

The GSP Main Menu appears:

Figure 3-25 GSP Main Menu



Setting the Private and Customer LAN Information on the GSP

This section discusses how to set and verify the Superdome Guardian Service Processor (GSP) private and customer LAN port information. LAN information includes the GSP network name (host name), the GSP IP address, the subnet mask, and gateway address. This information is provided by the customer.

NOTE The default IP address for the Private LAN port on the GSP is **192.168.2.10**.
The default IP address for the Customer LAN port on the GSP is **192.168.1.1**.

To set the customer and private LAN IP addresses:

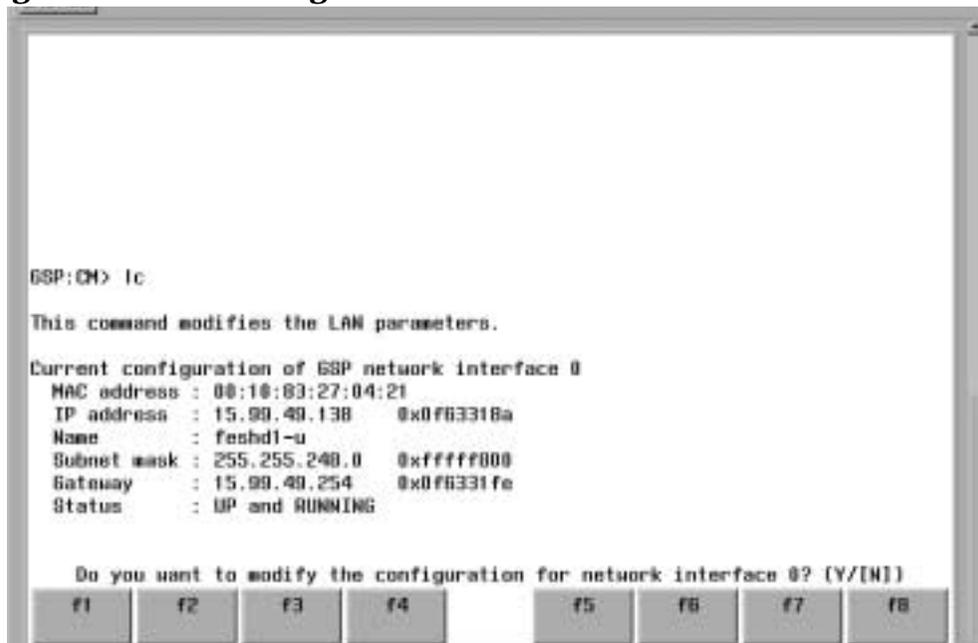
Step 1. From the GSP Command Menu prompt (*GSP:CM>*), enter **1c** (for LAN Configuration).

The screen displays the default values and asks if you want to modify them. It is a good idea to write down the information, as it may be required for future troubleshooting.

If you are not already in the Command Menu, enter **ma** to return to the Main Menu, then enter **cm**

When you enter **1c**, the following screen appears:

Figure 3-26 LAN Configuration Screen



If the LAN software on the GSP is working properly, it should see the message: “LAN status: UP and RUNNING.” The value in the “IP address” field has been set at the factory. You will need to get the customer and private LAN IP addresses from the customer.

NOTE The customer LAN IP address is designated LAN Port 0, and the private LAN IP address (the one from the Support Management Station to the SPU cabinet) is designated LAN Port 1.

Setting the Private and Customer LAN Information on the GSP

Step 2. The prompt will ask if you want to modify the LAN port 0; enter **y**.

The current Customer IP address is shown; then the following prompt appears: *Do you want to modify it? (Y/[N])*

Step 3. Enter **y**.

Step 4. Enter the new IP address.

The customer should provide this address for LAN Port 0.

Step 5. Confirm the new address.

Step 6. Enter the GSP Network Name.

This is the host name for the customer LAN. You can use any name you like. The name can be as many as 64 characters, and include alpha numerics, - (dash), _ (under bar), . (period), or a space. It is recommended that the name be a derivative of the complex name. For example, Acme.com_GSP.

Step 7. Enter the LAN parameters for *Subnet mask* and *Gateway address*.

This information should come from the customer.

Step 8. At the prompt, *Do you want to modify the configuration for Lan Port 1?*, enter **y**.

Here you are setting the LAN parameters for the Private LAN port on the GSP.

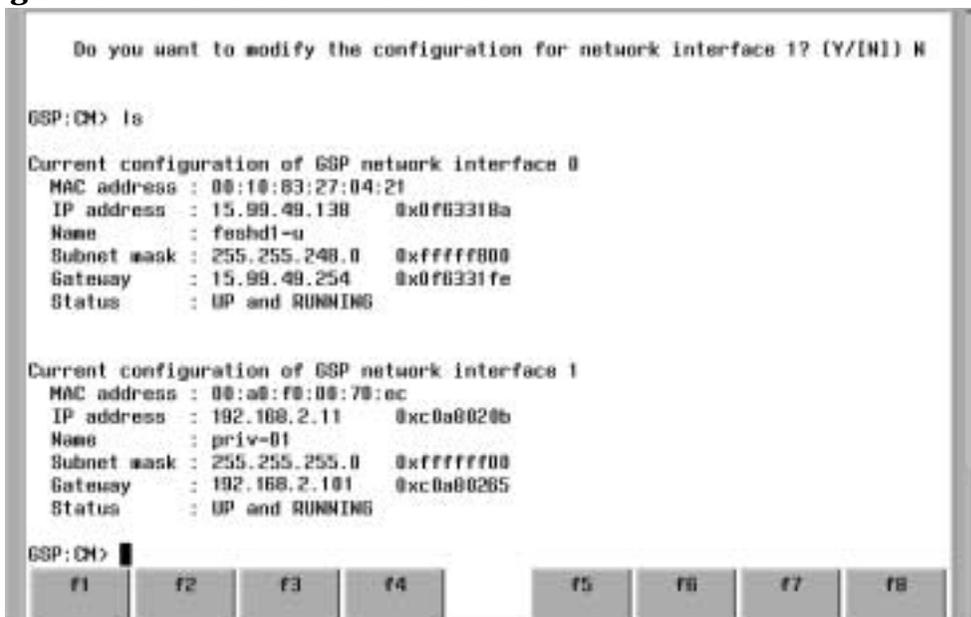
Step 9. Enter the LAN parameters.

The name of the first private port attached to the SMS is **priv-01** and its IP address is **192.168.2.11**. If additional complexes are added at the customer site, a hub is required and the second complex private port is called **priv-02** with an IP address of **192.168.2.12**, and so on.

Step 10. To check the LAN parameters and status, enter the **ls** command at the GSP Command Menu prompt (*GSP:CM>*).

A screen similar to the following appears:

Figure 3-27The ls Command Screen



To return to the GSP main menu, enter **ma**.

To exit the GSP, enter **x** at the GSP main menu.

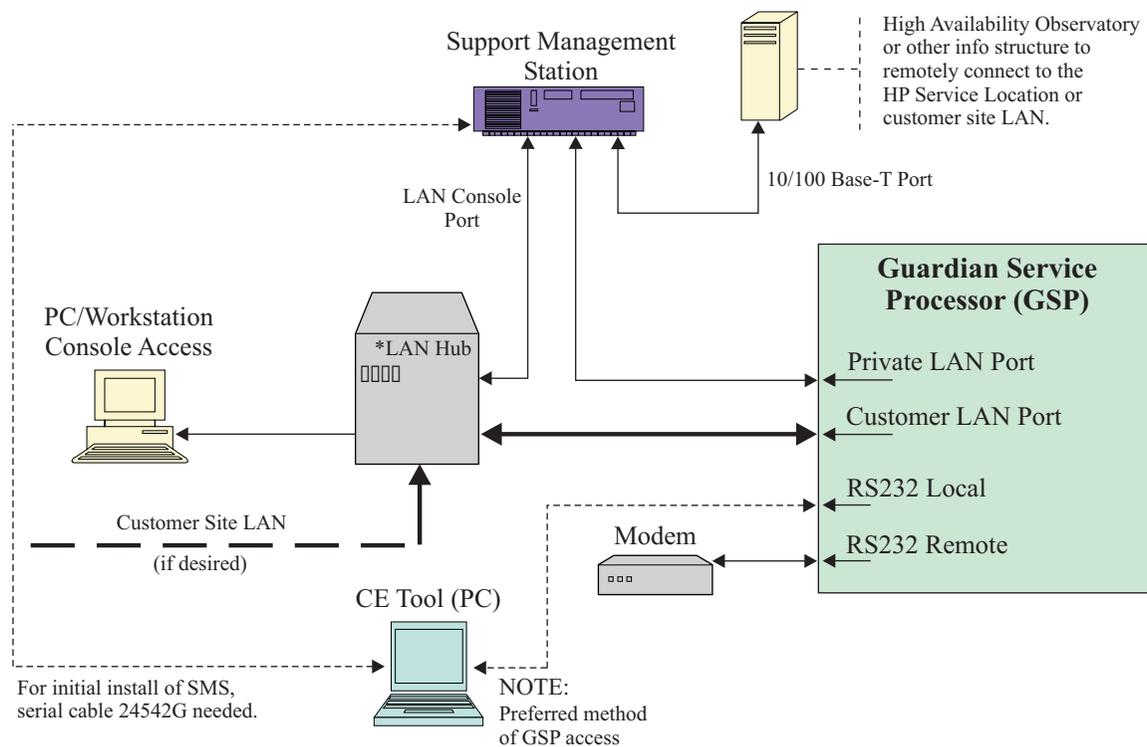
Connecting the Customer Console

This connection allows you to communicate with the GSP over the customer's LAN. The LAN cables required for this procedure should be supplied by the customer.

NOTE This is the only way to communicate with the GSP over the customer's network.

In Figure 3-28, connecting the customer console is shown as a solid line between the *PC/Workstation Console Access* and the *LAN HUB*, and as a solid line between the *LAN HUB* and the *Customer LAN Port on the GSP*.

Figure 3-28 Superdome LAN Interconnect Diagram



- Step 1.** Connect one end of a LAN cable to the LAN port on the customer-supplied PC/Workstation console.
- Step 2.** Connect the other end of the LAN cable to the customer's hub.
- Step 3.** Connect one end of another LAN cable to the customer's hub.
- Step 4.** Connect the other end of this second LAN cable to the **Customer LAN** port on the Superdome GSP.

Connecting the CE Tool to the A500 Support Management Station

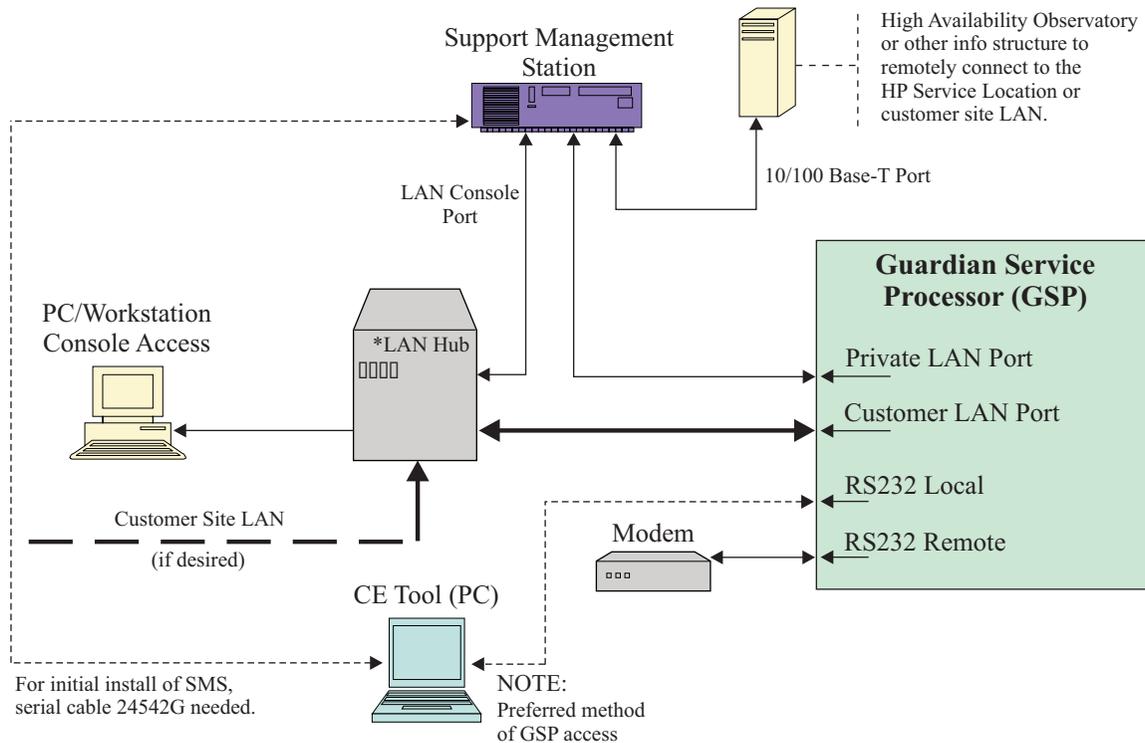
NOTE The information in the following sections applies to the A500 Support Management Station (SMS) only.

Connecting the CE Tool to the SMS allows you to configure the SMS. It requires a 9-pin female to 25-pin male serial cable:

- Step 1.** Disconnect the serial cable from the **Local RS-232** port on the GSP and the CE tool.
- Step 2.** Connect one end of the serial cable (9-pin female to 25-pin male, P/N 24542G) to the serial port on the CE tool.

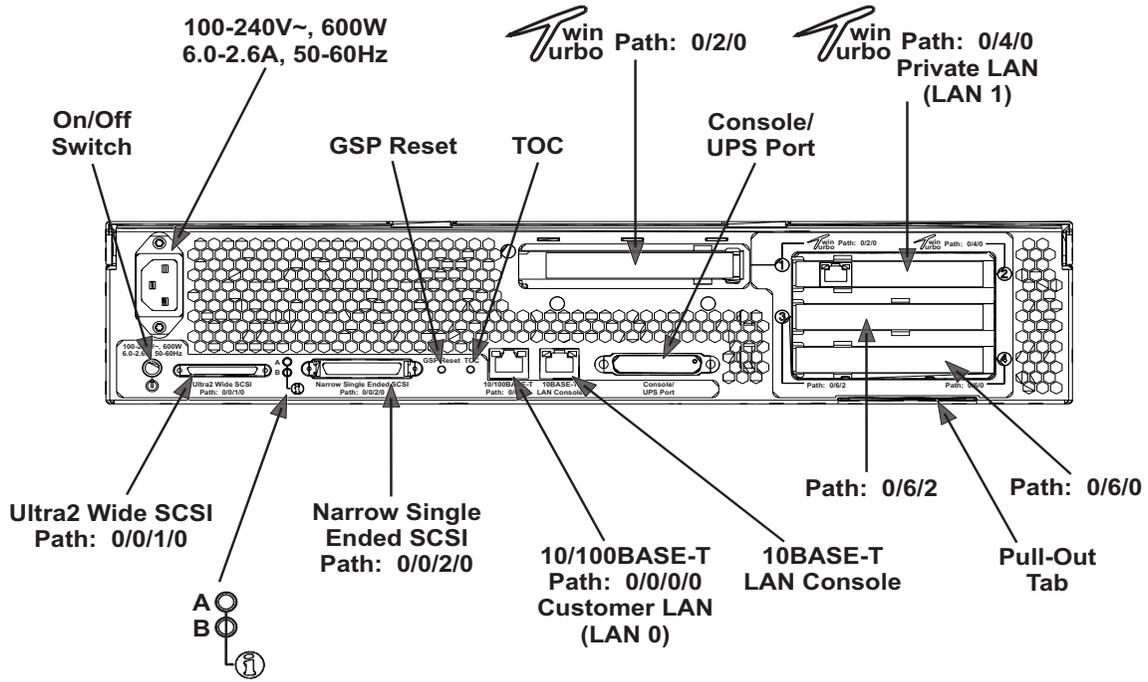
In Figure 3-29, this connection is shown as a dotted line between the CE TOOL (PC) and the SMS.

Figure 3-29 Superdome LAN Interconnect Diagram



- Step 3.** Connect the other end of the serial cable to the port on the SMS labeled **Console UPS Port**.

Figure 3-30SMS Ports (A500)



Connecting the Support Management Station for LAN (Private and Customer) and Console Access

The Support Management Station (SMS) can be integrated into the customer's LAN, so that it can be accessed from the customer console or from a remote console device. In addition, the SMS is connected directly to the SMS GSP to support such functions as updating firmware and running JTAG Utility for Scan Tests (JUST) software. The sections that follow explain how to make these connections.

Setting Up the SMS for Private LAN Access

A SMS is equipped with a LAN card that is specifically intended for use as a direct communications link with the Superdome GSP. Superdome-related SMS functions, such as updating firmware and running JUST, are performed over this LAN link. For the Private LAN port to work, the SMS must be powered on and the operating system must be running.

To set up the SMS for private LAN access:

- Step 1.** Connect one end of the customer-supplied crossover LAN cable to the upper right RJ-45 connector (Path 0/4/0) at the back of the SMS.

NOTE If you are connecting more than one Superdome, this connection must be routed through a hub.

- Step 2.** Connect the other end of the LAN cable to the right RJ-45 connector marked **Private LAN** at the back of the SPU cabinet.

Setting Up the SMS for Customer LAN Access

The procedure in this section describes how to connect a customer console to the customer LAN for console access and customer access to the SMS GSP. For this LAN port to work, the SMS must be powered on and the operating system must be running.

To connect the SMS for LAN console access:

- Step 1.** Connect one end of the customer-supplied LAN cable to the left RJ-45 connector labeled 10/100 BASE-T, Path 0/0/0/0, at the bottom rear of the SMS. See Figure 3-30 on page 68.

NOTE If ordered by the customer, the High Availability Observatory (HAO) is accessed over this LAN port.

- Step 2.** Connect the other end of the LAN cable to the customer's hub.

Setting Up the SMS for LAN Console Access

The procedure in this section describes how to connect a LAN cable to allow LAN console access to the SMS. Even if the power to the SMS is off, but the AC power cord on the SMS is plugged in, and HP-UX is not running, this port is active and available over the LAN. Its function is similar to the access available to the Superdome GSP.

To connect the SMS for LAN console access:

Connecting the Support Management Station for LAN (Private and Customer) and Console Access

Step 1. Connect one end of the customer-supplied LAN cable to the right RJ-45 connector, labeled 10BASE-T LAN Console, at the bottom rear of the SMS. See Figure 3-30 on page 68.

NOTE The LAN console port is a 10 Base-T only.
 The hub must be 10 or 10/100 Base-T.

Step 2. Connect the other end of the LAN cable to the customer’s hub.

Setting the LAN Console IP Address on the SMS

Setting the LAN console IP address on the SMS is similar to setting up the private and customer LAN IP addresses on the Superdome system. You use the SMS GSP *lc* command to set the address.

To set the customer and private LAN IP addresses:

Step 1. From the CE Tool, login to the SMS GSP and press **Enter**.

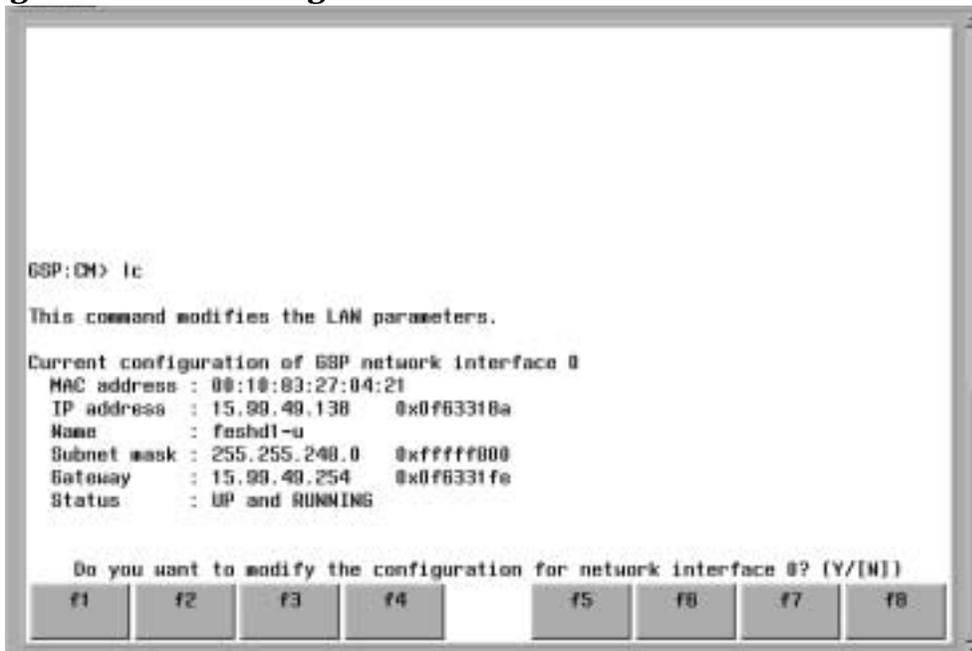
You should see the prompt, *Service Processor login*. If the SMS was already present at the customer site, you will have to get the login and password. For new SMSs, however, you can press **Enter** to temporarily bypass the login and password prompts. Then you can set these values later.

Step 2. From the SMS GSP Command Menu prompt (*GSP:CM>*), enter **1c** (for LAN Configuration), and press **Enter**.

The screen displays the default values and asks if you want to modify them. It is a good idea to write down the information, as it may be required for future troubleshooting.

When you enter **1c**, the following screen appears:

Figure 3-31 LAN Configuration Screen



Connecting the Support Management Station for LAN (Private and Customer) and Console Access

If the LAN software on the SMS GSP is working properly, it should say “LAN status: UP and RUNNING.” The value in the “IP address” field has been set at the factory. Get the SMS LAN IP address from the customer.

Step 3. Enter *y*.

The current IP address is shown; then the following prompt appears: *Do you want to modify it? (Y/[N])*

Step 4. Enter *y*.**Step 5.** Enter the new IP address.

The customer should provide this address for the SMS Console LAN.

Step 6. Confirm the new address.**Step 7.** Enter the SMS GSP Network Name.

You can use any name you like. The name can be as many as 64 characters, and include alpha numerics, - (dash), _ (under bar), . (period), or a space.

Step 8. Enter other LAN parameters.

This information should come from the customer.

Step 9. To check the LAN parameters and status, enter the *ls* command at the SMS GSP Command Menu prompt (*GSP:CM>*).

A screen similar to the following appears:

Figure 3-32The *ls* Command Screen

```

Do you want to modify the configuration for network interface 1? (Y/[N]) N

GSP:CM> ls

Current configuration of GSP network interface 0
MAC address : 00:10:83:27:04:21
IP address  : 15.99.49.138   0x0f63318a
Name       : feshd1-u
Subnet mask : 255.255.248.0 0xfffff800
Gateway    : 15.99.49.254  0x0f6331fe
Status     : UP and RUNNING

Current configuration of GSP network interface 1
MAC address : 00:a0:f0:00:70:ec
IP address  : 192.168.2.11  0xc0a8020b
Name       : priv-01
Subnet mask : 255.255.255.0 0xffffffff
Gateway    : 192.168.2.101 0xc0a802b5
Status     : UP and RUNNING

GSP:CM>
  
```

Powering On and Booting the Support Management Station

To power on the Support Management Station (SMS), press the On/Off switch at the back of the A-Class system. See Figure 3-30 on page 68.

If the SMS was ordered from HP, it should boot at power on.

At the BCH prompt, enter `b0` to boot the SMS.

After it boots, continue with the next section.

Setting the Private and Customer IP Addresses on the Support Management Station

In a previous procedure, you set the IP address for LAN console access to the Support Management Station (SMS). In this section you will set the IP address for the Private LAN connection to the GSP on the Superdome, and the IP address for customer LAN access to the SMS.

When the SMS boots for the first time, it prompts you for network configuration information (using the `set_parms` script).

NOTE The customer should supply the IP address for customer LAN access.

Running `set_parms`

The script `set_parms` runs during the boot process. The first time `set_parms` runs in the stand-alone mode, it prompts you to answer several questions.

You need the following information for this setup.

- IP addresses
- Host name
- Global network mask
- Complex Key to modify complex serial numbers
- Gateway router IP address

To enter `set_parms` information:

Step 1. After you power on the SMS, the screen cycles through all of the choices that are available for the type of monitor and keyboard that is connected. Select `type 3` for the monitor and `type 46` (PS2_DIN_US_English) for the keyboard.

Step 2. The script `set_parms` runs during the boot process and asks:

```
Are you are ready to link this system to a network?
```

Step 3. Enter `y`.

Step 4. Enter the complex name when `set_parms` prompts you for a system name.

CAUTION Do not use the name "Private" for LAN 0 port during `set_parms`; it is reserved for LAN port 1.

Step 5. Enter the appropriate time zone information, and all appropriate site specific networking information when prompted.

Verifying the LAN Connections

Use the following procedure to verify the LAN communications to the Superdome Guardian Service Processor (GSP) and to the Support Management Station (SMS) GSP. You should check connectivity to the:

- Private LAN Port on the Superdome GSP
- Customer LAN Port on the Superdome GSP
- Private LAN Port on the SMS GSP
- Customer LAN Port on the SMS GSP

Use the *ping* command to verify LAN connectivity. You can use either the customer-provided PC/Workstation console or your CE tool (laptop).

If you use the PC/Workstation console, use the HP-UX command, *ping*. For example: `/usr/sbin/ping 192.168.2.10` (where *192.168.2.10* is the IP address of the Private LAN port on the GSP).

If you use your CE laptop, use the *ping* command from the MS-DOS command.

Installing and Verifying Support Management Station Software

The Support Management System (SMS) software comprises the JTAG Utility for Scan Tests (JUST) software and the Firmware Update Utility (FWUU). JUST is the software on the SMS that tests the functionality of the system. It tests the connections between cabinets, and the connections between cells and the I/O bays. The FWUU is used, as the name suggests, to update firmware. Both of these software bundles reside in the `/opt` directory.

NOTE JUST and FWUU software procedures are continually being updated with the most accurate information available. To review the most current procedures on how to install, configure, and run JUST software and the Firmware Update Utility, refer to the Electronic Performance Support System (EPSS) CD-ROM or, on the Web, go to *superdome.hp.com*. Click *System Hardware*, then click *Support Management Station Hardware*.

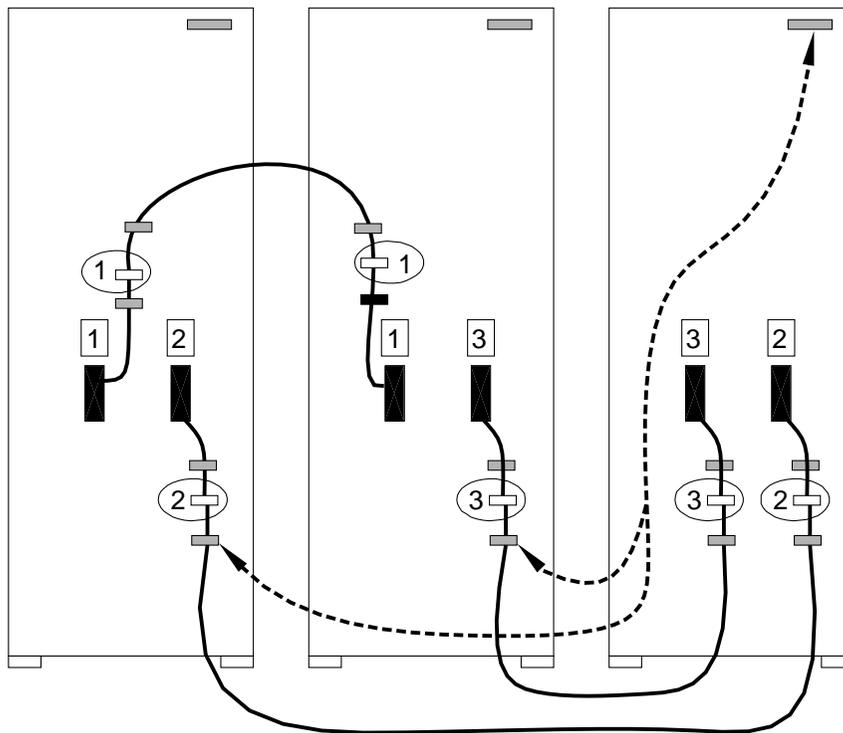
For information on software patches, refer to *www.hp.com* and refer to *Resources--Software Patches*.

Connecting the Cables

When shipped, the Superdome I/O cables are attached and tied inside the cabinet. When the system is installed, these cables must be untied, routed, and connected to the cabinets where the other end of the cables terminate. Use the following guidelines and Figure 3-33 to route and connect cables. For more information on cable routing, refer to “Routing I/O Cables” on page 77.

- Each cabinet is identified with a unique color. The cabinet color label is located at the top of the cabinet.
- The colored label closest to the cable connector corresponds to the color of the cabinet to which it is attached.
- The colored label farther away from the cable connector corresponds to the color of the cabinet where the other end of the cable is attached. In Figure 3-33, the dotted lines show where the label is located and where the cable terminates.
- Each cable is also labeled with a unique number. This number label is applied on both ends of the cable and near the port where the cable is to be connected. In Figure 3-33, the cable number labels are indicated by circled numbers and the cabinet port numbers are indicated with boxed numbers.

Figure 3-33 Cable Labeling



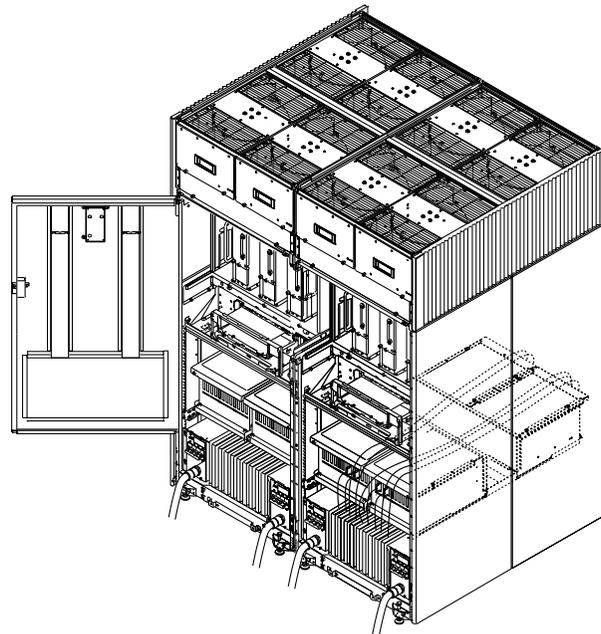
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Routing I/O Cables

Routing the cables is a significant task in the Superdome installation process. It is important not only for the immediate need of completing the installation, but efficient cable routing is important when future service calls are made.

Neatness counts. The most efficient use of space is to route cables so that they are not crossed or tangled.

Figure 3-34 Routing I/O Cables



Use the following procedure and guidelines to route cables through the cable groomer at the bottom rear of the cabinet.

Step 1. Remove the cable access plate at the bottom of the groomer.

Step 2. Beginning at the front of the cabinet, route the cables using the following pattern:

1. Route the first cable on the left side of the left-most card cage first. Route it under the Peripheral Controller Interface (PCI) card cage toward the back of the cabinet and down through the first slot at the right of the cable groomer.
2. Route the second cable on the left side of the left-most card cage to the right of the first cable, and so on, until you complete routing all of the cables in the card cage.

The number and width of cables vary from system to system. Use your judgement and the customer's present and estimated future needs to determine how many cables should be routed through each cable groomer slot.

3. After you route the left most card cage at the front of the cabinet, route the cables in right-most card cage at the back of the cabinet. Begin with the right cable in the card cage and work toward the left.

Routing I/O Cables

4. After you route the cables in right-most card cage at the rear of the cabinet, return to the front of the system and route the cables in the next card cage to the right.
5. Repeat the above pattern until you route all of the cables.

Step 3. Reattach the cable access plate at the bottom of the cable groomer.

Step 4. Reattach the cable groomer kick plate at the back of the SPU cabinet.

4 Verifying and Booting Superdome

After the Superdome system has been installed in the computer room, it should be powered on, verified that the proper hardware is installed, and booted.

Verifying Presence of UGUY and Cells

To perform this activity, you can either connect to the Guardian Service Processor (GSP) over the customer console or connect your CE tool (laptop) to the RS-232 Local port on the GSP.

After you login to the GSP, verify whether the GSP detects the presence of the UGUY and all cells installed in the cabinet. The UGUY is the name given to the combined Clock and Utilities Board (CLU) and the Power Monitor 3 (PM3), a device that monitors 48V power distribution and environmental conditions in the cabinet. It is important for the GSP to detect the UGUY and the cells. If it does not, the partitions will not boot.

You may have a mix of Landshark (original 500-Mhz Superdome cell boards) and Caribe (faster processors) cell boards in a Superdome cabinet as shown in Figure 4-1. But you may not mix cell boards within a partition.

Figure 4-1 **Mixed Cell Boards**



WARNING **Do not mix original cell or Caribe cell boards with within the same partition.**

WARNING **Do not mix CPU ASICs (PA8600 vs. PA8700) on either the original or Caribe cell boards.**

To determine if the GSP detects the UGUY and cells:

Step 1. At the GSP prompt, enter `cm`.

This displays the Command Menu. Among other things, the Command Menu allows you to view or modify the configuration and/or look at utilities controlled by the GSP.

Powering On the SPU Cabinet (48 V)

After you power on the Guardian Service Processor (GSP) (+5 V HKP), and check whether the GSP detects the presence of the UGUY and cells, you are ready to power up the SPU cabinet, or, apply the 48 V power to the system.

If you are using a crossover cable with your laptop, you may want to review SPU cabinet activity for each partition configured, as the SPU cabinet powers up and boots. You can open windows for the complex and for each partition. It is recommended that you open at least two windows:

- A window showing all activity in the complex. (If you have been following the installation procedure in this manual, you should already have a window open on your laptop.)

To display activity for the complex:

Step 1. If you have not already done so, open a separate Reflection 1 window and connect to the GSP.

Step 2. From the GSP Main Menu, select the `VFP` (Virtual Front Panel) command with the `s` option.

- A window showing activity for a single partition.

To display activity for each partition as it powers up:

Step 1. Open a separate Reflection 1 window and connect to the GSP.

Step 2. Select the `VFP` command and choose the partition you want to view.

You should not see any activity on the screen at this point in the installation process.

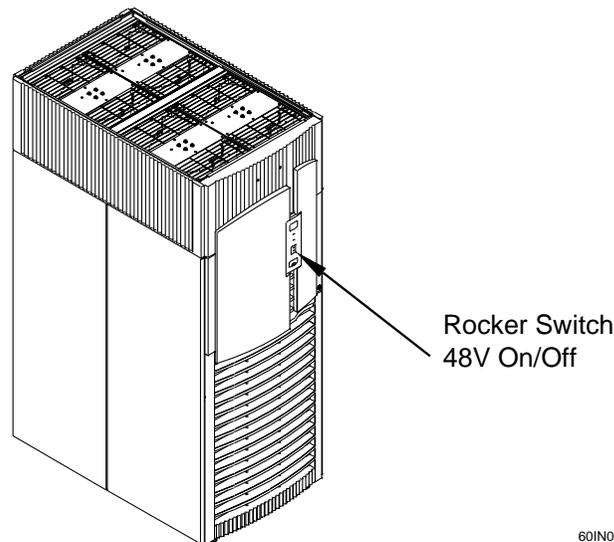
NOTE You cannot open more than one window using a serial display device.

To power on the SPU cabinet:

Step 1. Switch on the power switch at the front of the cabinet.

Switch on each SPU cabinet shipped with the system.

Figure 4-3 SPU Cabinet Power Switch



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After you turn on the SPU cabinet power switch, the following events occur:

- 48 V power flows to the SPU cabinet.
- The 48 V LED on the front and back panels (where the rocker switch is located) goes on.
- The green LED on each blower turns on.
- Processor Dependent Code (PDC) starts to run on each cell.
- Cell selftest executes.
- Hardware initializes for the cabinet.
- Console communication is established.
- The red attention light (on the front and back panel) turns off.

NOTE If you selected the GSP's VFP option (on the Main Menu of the GSP screen), you should see activity at this time. However, if you didn't select VFP, the Boot Console Handler (BCH) prompt (*Main Menu: Enter command or menu>*) should appear shortly (in about 2 minutes for a two cell partition). If it does not appear, see "If the Partition Doesn't Boot to the BCH Prompt" on page 112.

Step 2. When activity on the Reflection 1 screen stops, return to the GSP Main Menu by typing **Ctrl-B**.

Step 3. Enter **co** to enter console mode.

Step 4. Enter the partition number of the partition you want to boot.

Step 5. Press **Enter** once or twice until you see the BCH prompt (*Main Menu: Enter command or menu>*).

Verifying the System Configuration and Setting Boot Parameters

At this point in the installation process, the hardware is set up, the Guardian Service Processor (GSP) is connected to the LAN, the AC and DC power have been turned on, and the selftest is completed. Now you're ready to verify the configuration.

After you power on DC and the selftest is completed, the BCH prompt appears (*Main Menu: Enter command or menu>*).

Step 1. Enter `di` to display a list of the Boot Console Handler (BCH) commands.

Step 2. To display the Information Menu (to check the configuration), enter `in`.

Step 3. Check the following parameters, by selecting the corresponding command from the menu, to verify that what the customer ordered is what the customer received:

- **PR** (Processor)
- **ME** (Memory)
- **IO** (Check the "PCI Device Information" to determine if the values match the devices installed in the I/O chassis.)
- **WA** (Check the warnings to determine if problems occurred during selftest.)
- **MA** (to return to the BCH Main Menu)

Setting Automatic System Restart

The system can be set to automatically reboot, without user interference, in the event of a CPU or DIMM failure. The command used to initiate this process is the BCH command, `autostart`.

The `autostart` command is used to set and display the value of the autostart flag. It is available in the Configuration Menu of the BCH. Normally if a CPU or DIMM failure is detected, the boot process stops at the BCH prompt. If the autostart flag is set to *on*, the partition attempts to boot without user input. If the autostart flag is set to *off* and a CPU or DIMM failure is detected, the boot process for the partition stops at the BCH prompt and awaits user input. The default setting for the autostart flag is *off*.

NOTE The `autostart` setting is ignored and the boot process stops at the Boot Console Handler (BCH) if any of the system selftests have been set to be skipped using the `fastboot` command.

To set the autostart flag:

Step 1. Enter `ma` to return to the BCH Main Menu.

Step 2. At the BCH Main Menu enter `co`, to go to the Configuration Menu.

Step 3. At the Configuration Menu, enter `au` (`autostart`), to display the autostart setting.

Step 4. Enter `au on` to set the autostart flag to *on*.

Enter `au off` to set the autostart flag to *off*.

Example 4-1 Entering Autostart Settings

```
Configuration Menu: Enter command > au
Autostart: OFF
Configuration Menu: Enter command > au on
Autostart: ON
Configuration Menu: Enter command > au off
Autostart: OFF
Configuration Menu: Enter command >
```

Step 5. Repeat this procedure for each partition you want to automatically restart.

Running JUST Software

JUST software procedures are continually being updated with the most accurate information available. To review the most current procedures on installing, configuring, and running JUST software, refer to the Electronic Performance Support System (EPSS) CD-ROM.

IMPORTANT Please use the new JUST Exploration Tool described in Appendix H, “JUST Exploration Tool,” on page 207 for running scan tests.

Booting Superdome Partitions

Booting Superdome partitions includes the steps listed below. Following this section are detailed procedures for each of these tasks.

- Listing the partitions you want to boot
- Listing the path to each boot device
- Listing the cell number associated with the core I/O adapter card for the partition
- Listing the core I/O adapter location for each partition
- Installing the boot device for the partition (if required)
- Powering down the cell associated with the core I/O adapter card for the partition
- Connecting the boot device cable
- Powering up the cell associated with the core I/O adapter card for the partition
- Booting UNIX on the partition
- Booting the other partitions (if there are others)

NOTE You can boot as many as eight partitions for each Superdome cabinet. It is easy to lose track of the partitions you have and have not booted. You need to be organized to boot all of the partitions in an efficient way. To help you keep track of the partitions you have booted, use the table on the next page.

In order to boot the partitions on the Superdome, you need specific values from the boot path for each Superdome partition. You will use the values you enter in the table to match boot devices to partitions. Refer to “Determining and Documenting Boot Information” on page 88 to fill in the table. (Feel free to remove the table from this guide.)

WARNING Do not mix original cell or Caribe cell boards with within the same partition.

WARNING Do not mix CPU ASICs (PA8600 vs. PA8700) on either the original or Caribe cell boards.

Table 4-1 Boot Information

Partition	Primary Boot Path	Logical Cell #	Physical Cabinet # of Cell	Physical Cell Slot # within Cabinet	Boot Device Adapter Physical Location Within the PCI Card Cage			
					Slot #	Cabinet #	I/O Bay #	I/O Chassis #

Step 3. At the GSP Command Menu, enter a number for one of the partitions.

This is the first partition you will boot. Later you will boot the remaining partitions.

Step 4. In a few moments, press **Enter** once or twice and you should see the BCH prompt (*Main Menu: Enter command or menu>*).

Step 5. Enter **ma** to verify that you are in the BCH Main Menu.

Step 6. Enter **pa** to display the path for the partition you selected in step 3.

The Path command lists the paths for the primary, High Availability (HA) alternative, and the alternate boot paths as they are configured from the factory. The customer may want to change what device they boot from.

Step 7. Fill in the **Primary Boot Path** column of Table 4-1 with the primary boot path for the partition you selected in step 3.

Step 8. Check with the customer that the boot paths are correct for the devices they want to boot from. If they are not, change the boot path.

NOTE Remember that the third value in the path represents the Local Bus Adapter Number, or Rope number. You have to translate the physical slot number to the Rope number using Table 4-2.

Step 9. Take the first number of the primary boot path in Table 4-1 on page 87, and copy that number into the **Logical Cell #** column.

The first number of the primary boot path is the cell number. For example, if the primary boot path is 0/1/2/3/4/5.6, the logical cell number is 0. From this number you can derive the values for **Physical Cabinet # of Cell** and **Physical Cell Slot # within Cabinet**, columns four and five in Table 4-1.

Step 10. Fill in the **Physical Cabinet # of Cell** and the **Physical Cell Slot # within Cabinet** columns of Table 4-1.

These numbers can be derived from the **Logical Cell #** (column 3 in Table 4-1). Cell numbers are numbered sequentially beginning at 0. Logical cell numbers for a Superdome 32 Way system range from 0-7. Logical cell numbers for a Superdome 64 Way system range from 0-15, 0-7 are reserved for Cabinet 0 and 8-15 are reserved for Cabinet 1.

The first number in the Primary Boot Path represents the logical cell number. If that number is between 0 and 7, the physical cabinet # for the cell is Cabinet 0 and the physical cell number is the same as the logical cell number. For example, if the primary boot path is 2/1/2/3/4/5.6, the physical cabinet number for the cell is Cabinet 0 and the physical cell number is 2.

If the logical cell number is between 8 and 15, the physical cabinet number for the cell is Cabinet 1 and the physical cell number is the logical cell number minus 8. For example, if the primary boot path is 8/1/8/3/4/5.6, the physical cabinet number for the cell is Cabinet 1 and the physical cell number is 0. Cell numbers begin at 0 for each cabinet.

Step 11. Fill in the **Slot #** column of Table 4-1.

You need this information to connect the cable between the boot device and the adapter card for the boot device.

Use the third value in the Primary Boot Path and the following table to determine the PCI card cage slot number, **column 6 in Table 4-1**. The third value in the path command represents the number of the Lower Bus Adapter (LBA), sometimes referred to as the Rope number, for the device. There is a one-to-one correspondence between the LBA number and the physical slot number in the PCI card cage. The following table shows that correspondence for a twelve-slot card cage.

Table 4-2 LBA Mapped to Physical Slot Numbers

Slot #	11	10	9	8	7	6	5	4	3	2	1	0/CIO
LBA #	8	9	10	11	12	14	6	4	3	2	1	0

For example, in the path, 8/1/8/3/4/5.6, 8 represents the LBA (or Rope value) of the path. The physical PCI card cage slot number that corresponds to 8, is 11.

Step 12. Enter `Ctrl B` to return to the GSP Main Menu.

Step 13. At the GSP Main menu, enter `co`.

To return to the GSP Main Menu from the GSP Command Menu, enter `ma`.

Step 14. At the GSP Command Menu, enter `de`.

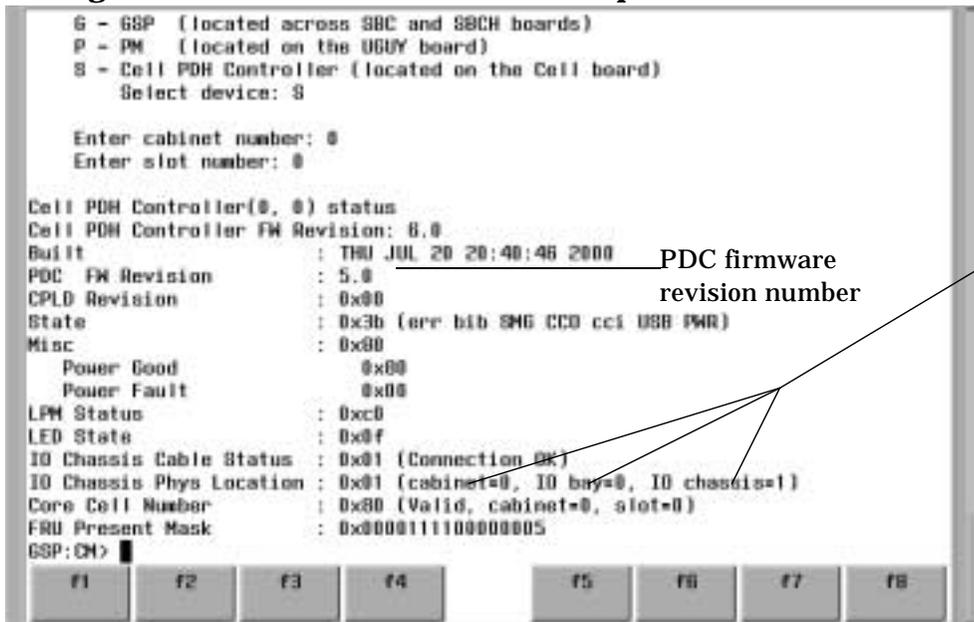
Step 15. Select the `s` option.

Step 16. Enter the Physical Cabinet # of Cell for the partition from Table 4-1, **column 4**.

Step 17. Enter the **Physical Cell Slot # within Cabinet** for the partition from Table 4-1, **column 5**.

The following screen appears:

Figure 4-4GSP de Command with s Option



Physical location of PCI card cage

Step 18. Fill in the **Cabinet #**, **I/O Bay**, and **I/O Chassis #** from the information listed in the `de` command.

In the example screen above, *cabinet* refers to the SPU cabinet number (which can have values of 0 - 7 for SPU cabinets, and 8 and above for Expansion Cabinets), *MIOB* refers to the Master I/O Backplane (sometimes referred to an *I/O bay*), which can have values of 0 for the front of the SPU cabinet and 1 for the back, and *slot* refers to the PCI card cage chassis number (which can have values of 1 and 3 (right to left, respectively) for the front and back of the SPU cabinet).

If the PCI card cages are located in an Expansion Cabinet (which would be true for cabinet numbers of 8 and higher), the MIOB can have values of 0, 1, or 2 (from the bottom of the cabinet to the top) and slots (PCI card cage chassis number) can have values of 0 and 3, from left to right.

NOTE Card cage slot numbers for card cages in an Expansion Cabinet are sequenced from 11-0 (bottom to top) for card cages on the left side of the cabinet and 0-11 (bottom to top) for card cages on the right side of the cabinet.

Step 19. Repeat this procedure for each partition you listed in Table 4-1, then continue.

Setting Up the Boot Device

In some cases, a boot device is shipped with the Superdome system. In other cases, the customer already has a boot device. If the customer already has a boot device, cable it to the appropriate I/O adapter card. More often than not, the boot device adapter card is located in the SPU cabinet.

The procedure that follows describes the steps to set up the boot device:

Step 1. Install the boot device (if required), or have the customer identify the location of the existing boot device.

Step 2. Shut down the cell.

Before connecting the cable between the boot device and the boot device adapter card, you need to power off the cell that communicates with the boot device adapter card.

1. At the GSP Main Menu, enter **cm**.

If you are at the BCH prompt, enter **Ctrl B** to return to the GSP.

2. Enter **pe** (for Power Entity).

3. Enter **c** (for cell).

4. Enter the following information for the partition you want to boot:

- Cabinet number (the **Physical Cabinet # for Cell** from Table 4-1, column 4. Enter 0 (zero) if the cabinet contains the GSP.)
- Slot number (the **Physical Cell Slot # within Cabinet** from Table 4-1, column 5).

5. Select **off** or press **Enter**.

When you power down the cell, you also power down the card cage that is cabled to that cell.

6. Verify that the cell is off, by checking the LED on the cell board.

Step 3. Install the boot device adapter card in the slot specified in **column 6** in Table 4-1.

Step 4. Connect the cable between the boot device and the boot device adapter card.

NOTE When power is off to the cell, it is also off to the Peripheral Controller Interface (PCI) card cage chassis that the cell controls. If there are other I/O adapter cards that need to be installed, now is the time to do it. If you have to install a Core I/O card, refer to “Determining the Location of the Core I/O Card” on page 117 and “Installing a Core I/O Card” on page 119. To install I/O adapter cards, use the instructions in “Installing Superdome I/O Cards” on page 94.

Step 5. Power on the cell.

If you are not already at the GSP Command Menu, enter `ma` to return to the Main Menu.

1. At the GSP Main Menu, enter `cm`.

If you are at the BCH prompt, enter `Ctrl B` to return to the GSP.

2. Enter `pe` (for Power Entity).

3. Enter `c` (for cell).

4. Enter the same **cabinet and slot information** you entered in step 2d above.

5. Enter `on`.

It takes two to four minutes to power on the cell and the PCI cards in the card cage. Green lights in the card cage power on for each slot in a predefined order.

6. Check that the green LED on the cell board and the green LEDs on the card cage are on.

It takes two to four minutes to power on the cell and card cage. Green lights in the card cage power on for each slot in a predefined order (Rope # in ascending order).

Booting UNIX on the Partition(s)

WARNING Do not mix original cell or Caribe cell boards with within the same partition.

WARNING Do not mix CPU ASICs (PA8600 vs. PA8700) on either the original or Caribe cell boards.

To boot UNIX on a partition:

Step 1. At the GSP Main Menu, enter `co`.

If you are at the BCH prompt, enter `Ctrl B` to return to the GSP Main Menu.

If you are at the GSP CM Menu, enter `ma` to return to the GSP Main Menu.

Step 2. Identity the partition you want to boot.

Use the list of partitions in Table 4-1 to keep track of the partitions you boot.

You can boot the partitions in any order.

Step 3. At the BCH prompt, enter `bo`.

The prompt, Do you wish to stop at the ISL prompt prior to booting? (y/n) appears.

Step 4. Enter n.

If the partition fails to boot, or if the SPU was shipped without *instant ignition*, you may have to boot from a DVD that contains the operating system and other necessary software. See “Booting a Superdome Using a DVD” on page 111.

Step 5. To boot the other partitions, choose the next unbooted partition from those listed in Table 4-1, and repeat steps 1-4.

Installing Superdome I/O Cards

The SPU comes from the factory with the I/O cards that the customer ordered already installed. However, there may be times when you may have to add a card that was ordered after the original system was ordered, or install a card that the customer simply wants to add as part of the installation. This section contains a brief procedure on how to install a Peripheral Controller Interface (PCI) I/O card. Complete information about I/O cards is available on the Web site (<http://superdome.hp.com>).

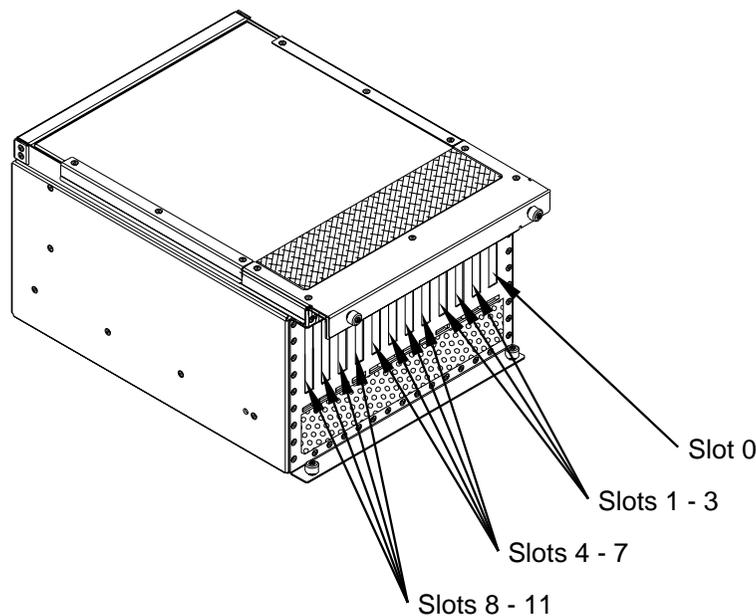
Selecting a PCI Card Slot

This section contains information on selecting the appropriate card slot for any *supported* PCI card.

Each 12-slot PCI card cage provides: eight card slots (0 - 3 and 8 - 11) for 1x or 2x PCI card types, and four card slots (4 - 7) for 4x PCI card types. Thus, to distribute I/O traffic evenly through each 12-slot card cage:

- Load slower (1/2x) legacy cards alternately between empty slots 0 - 3 and slots 8 - 11. See Figure 4-5.
- Load faster (4x) legacy cards alternately between empty slots 4 - 5 and slots 6 - 7.

Figure 4-5 PCI Card Install Details



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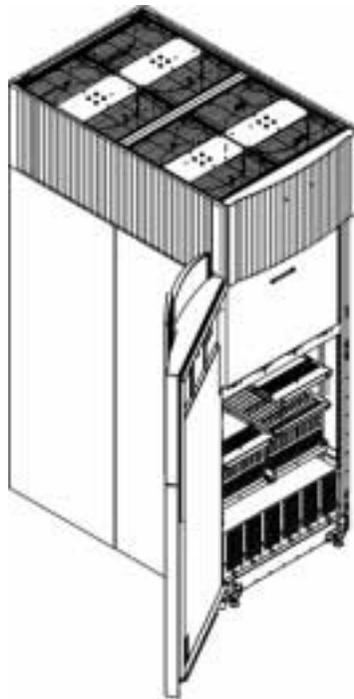
Installing a PCI Card

Use the following procedure to install any PCI card (*except the core I/O card, which is in slot 0*) while the *target* partition is powered on.

NOTE For information on installing a PCI card while the partition is powered off, refer to “Installing a PCI I/O Card While the Cell is Off” on page 120. The core I/O card can only be installed when the *target* partition is powered off.

- Step 1.** Visually inspect the PCI card for proper part number and revision number.
- Step 2.** Choose the most appropriate *unused* PCI card slot for a balanced operation. Refer to “Selecting a PCI Card Slot”.
- Step 3.** Use SAM menus to select the appropriate I/O path of the *target* PCI card slot within the *target* partition.
- Step 4.** Select the *target* PCI card path (green Power LED is off; amber Attention LED is off).
- Step 5.** Make sure you are wearing a wrist strap.
- Step 6.** Loosen the thumbscrews on the top EMI shield of the *target* PCI card slot and lift it forward and up.

Figure 4-6 Removing Top Cover of I/O Chassis



- Step 7.** Install the PCI card into the plastic guide of the *target* slot connector by pushing the plastic card guide into the connector.
- Step 8.** Replace the cover and tighten the thumbscrews.
- Step 9.** Route and connect the external cable(s) to the *target* PCI card.
- Step 10.** Use SAM menus to define the I/O path of the *target* PCI card slot.
- Step 11.** Select the *target* PCI card path.
- Step 12.** Power ON the *target* PCI card's path.

Step 13. Select Bring Online

The amber Attention LED turns off.

The PCI card is now functional.

Verifying the PCI Card Installation

Use the information in this section to verify the installation of a PCI card.

Step 1. Run Support Tools Manager (STM) online tests for the PCI card.

Step 2. Resolve any diagnostic faults.

Installing Peripherals

Install any peripherals that were delivered with the system. Refer to the manuals that came with the peripheral for instructions on how to install them in a peripheral cabinet.

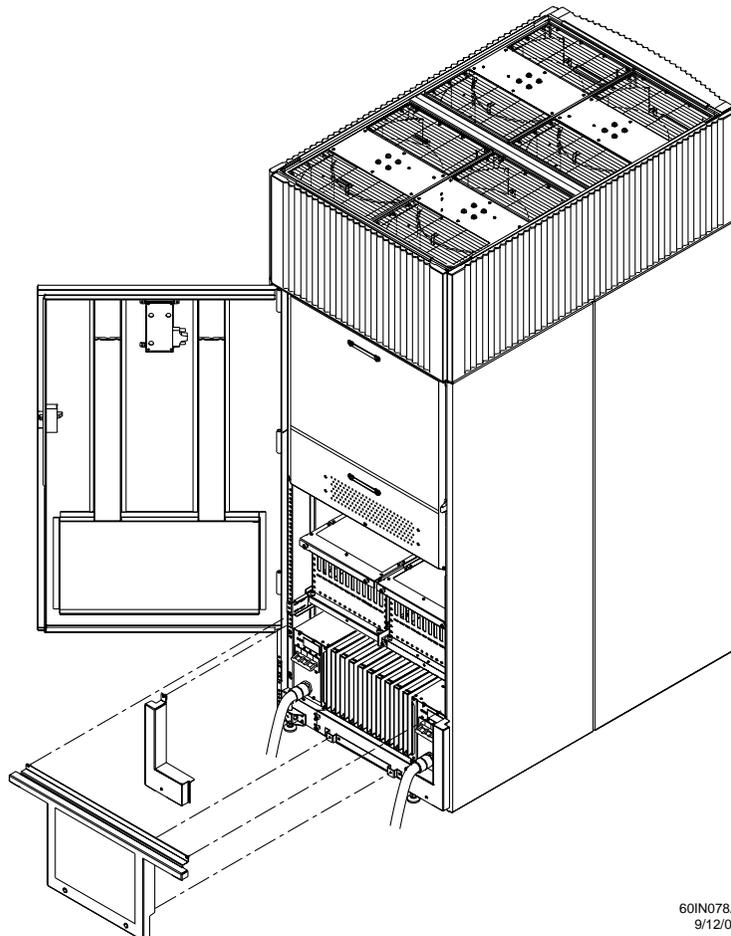
Attaching Rear Kick Plates

Kick plates serve the practical purpose of protecting cables from accidentally being disconnected or damaged, as well as add an attractive cosmetic touch to the SPU cabinet. There are three metal pieces to attach to the bottom rear of the cabinet.

To install the kick plates:

- Step 1.** Hold the left kick plate(A5201-0671) in position and attach a clip nut (0590-2318) on the cabinet column next to the hole in the flange at the top of the kick plate.
- Step 2.** Using a screw (0515-0671) and a T25 Torx driver, attach the flange on the kick plate to the nut clip.
- Step 3.** Using a Torx 10 driver and a screw (0515-4271), attach the bottom of the kick plate to the center hole in the leveling foot.

Figure 4-7Attaching Rear Kick Plates



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- Step 4.** Perform steps 1-3 on the right kick plate (A5201-00281).

- Step 5.** Position the upper flange of the center kick plate (A5201-00261) under the I/O tray's complementary mounting bracket (A5201-00402) so as to retain the center kick plate top flanges. No top screws are needed on the center kick plate due to bracket A5201-00402. This unsymmetrical bracket must be orientated with the hole located nearest the edge in the up position.
- Step 6.** Using a T20 Torx driver, tighten the thumbscrews at the bottom of the center kick plate.

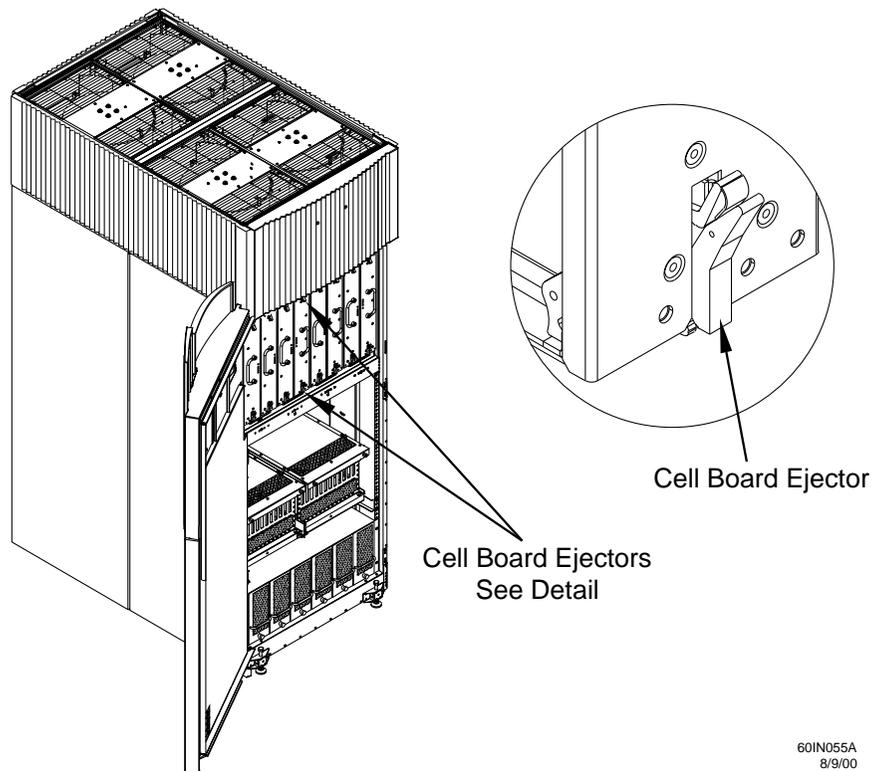
Performing a Visual Inspection and Completing the Installation

After booting the system, you should carefully inspect it and reinstall the EMI covers. Here are the steps required to perform a final inspection and complete the installation:

- Step 1.** Visually inspect the system to verify that all components are in place and secure.
- Step 2.** Check that the cables are secured and routed properly.
- Step 3.** Check that the cell board ejectors are secure.

If the ejectors are broken or open, the cell board is disconnected.

Figure 4-8 Cell Board Ejectors

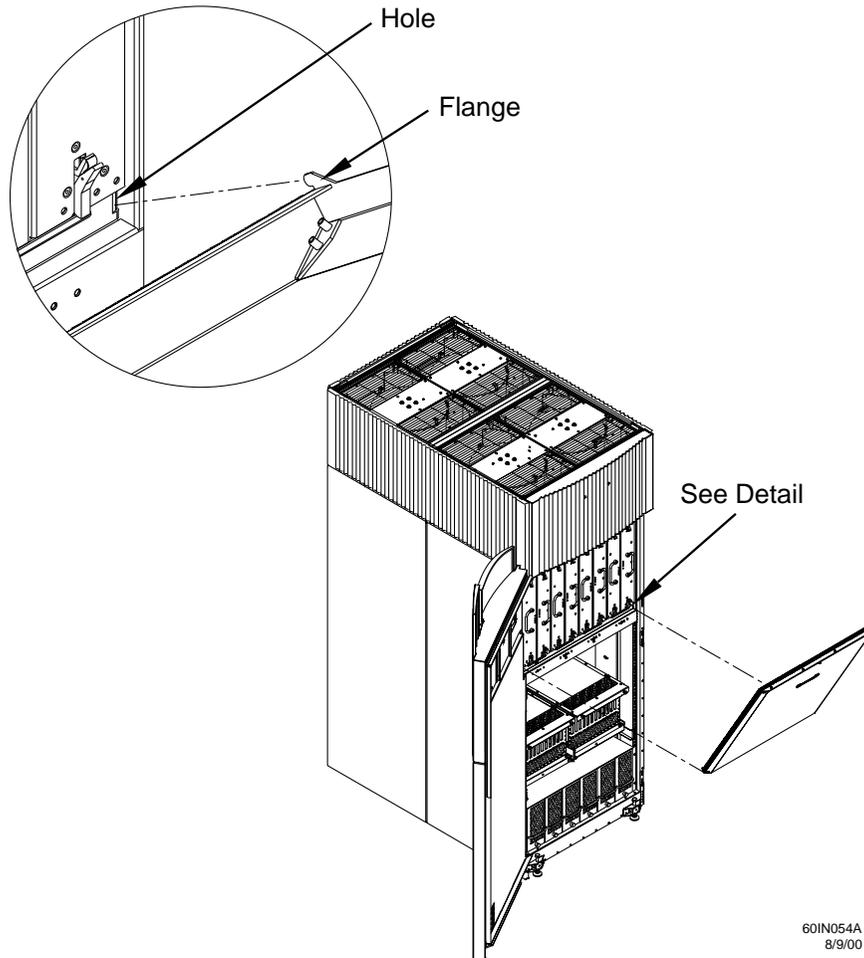


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- Step 4.** Reinstall the front EMI panel.

1. Hook the flange at the lower corners of the EMI panel into the holes on the SPU cabinet.

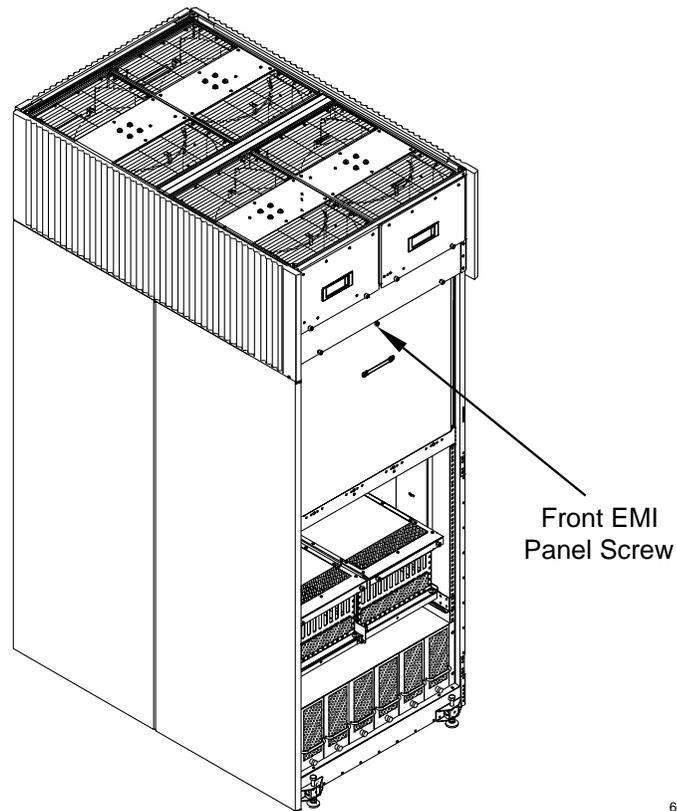
Figure 4-9 Front EMI Panel Flange and SPU Cabinet Holes



2. Position the panel at the top lip and lift the panel up while pushing the bottom into position.
You may have to compress the EMI gasket to get the panel to seat properly.

3. Reattach the screw at the top of the EMI panel.

Figure 4-10 Attaching Front EMI Panel



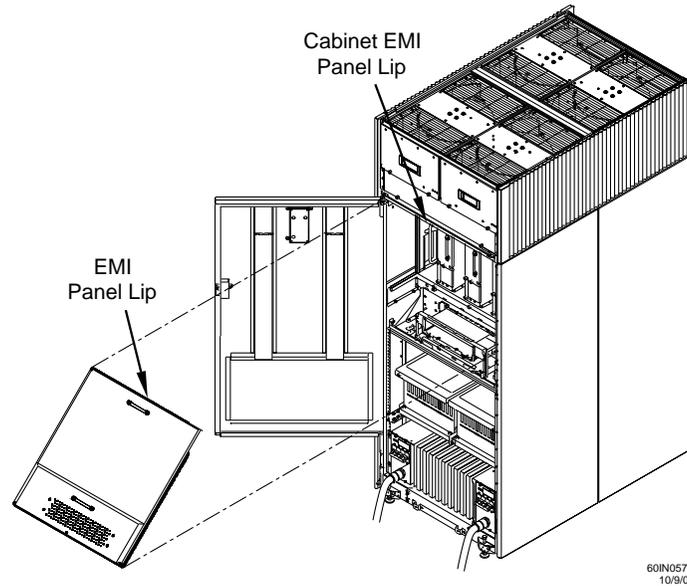
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Step 5. Check that the cables inside the rear enclosure are secure.

Step 6. Reinstall the back EMI panel.

1. Align the lip inside the cabinet with the lip on the EMI Panel.

Figure 4-11 Reinstalling the Back EMI Panel



2. Push the EMI panel up and in. You may have to compress the EMI gasket at the top of the enclosure to get the panel to seat properly.
3. Reattach the screw at the bottom of the EMI panel.

Setting Up Network Services

For complete information on how to set up network services, refer to the following URL:

<http://superdome.hp.com>

Then click on **Networking**.

Enabling iCOD

iCOD stands for *Instant Capacity On Demand*. It refers to the additional processors that are shipped with the Superdome but have not been purchased by the customer. These processors are not immediately available for customer use but can be activated when the customer needs more computing resources.

As part of the installation procedure, you need to test each E-mail connection that notifies Hewlett-Packard when the customer has allocated additional CPUs beyond the amount that they initially purchased.

You must remind the customer to verify that E-mail can be sent from each partition. You must also remind the customer of the requirement to download the license. While these tasks are the customer's responsibility, you should assist and verify that they have been completed as part of the installation process.

IMPORTANT Each bootable partition requires a connection to the internet to send E-mail to notify Hewlett-Packard that the customer has allocated additional CPUs beyond the amount initially purchased. Each bootable partition must be configured to perform this operation.

IMPORTANT Ensure that the customer is aware that if they are taking advantage of the iCOD program downloads and accepts the iCOD license.

Complete information about iCOD, including enabling processors, is contained in the document, *Instant Capacity On Demand (iCOD) Familiarization Guide*. It is located at <http://superdome.hp.com>. Click on the iCOD link and display the Familiarization Guide. For information about the notification procedure, refer to the section of the guide called *Installation Checklist for New iCOD System*.

5 Post Superdome System Installation Check

After the Superdome system has been installed in a computer room and verified, you should conduct the post installation check. Before turning the system over to the customer, it is important to inspect the system visually and clean up the installation area. Do the following:

- **Inspect circuit boards.** Check that all circuit boards are installed and properly seated and that the circuit board retainers are reinstalled.

- **Inspect cabling.** Check that all cables are installed, secured, and properly routed.
- **Inspect test points.** Check that test leads are removed from the test points, and that the test points are properly covered.
- **Clean up and dispose of debris.** Remove all debris from the area, and dispose of it properly.
- **Perform final check.** Inspect the area to ensure that all parts, tools, and other items used to install the system are disposed of properly. Then, if you have not already done so, close and lock the doors.
- **Enter information in the Gold Book.** When you complete the installation and cleanup, we recommend that you make the appropriate notations in the Gold Book, which should have been shipped with the system.
- **Obtain customer acceptance (if required).** This includes thanking the customer for choosing Hewlett-Packard.

6 Troubleshooting and Installation-Related Tasks

This chapter contains information that may be helpful in tracking and correcting problems that may occur during installation. By no means does it represent an exhaustive list of Superdome troubleshooting procedures.

NOTE To find complete troubleshooting information, go to <http://superdome.hp.com> and click on *Troubleshooting the System* or refer to your Electronic Performance Support System (EPSS) CD-ROM.

This chapter contains troubleshooting information on the following subjects:

- Booting using a DVD. See “Booting a Superdome Using a DVD” on page 111.
- Failure to boot to BCH prompt. See “If the Partition Doesn’t Boot to the BCH Prompt” on page 112.
- Determining the boot path. See “Determining the Boot Path” on page 113.
- Setting the boot path. See “Setting the Boot Path” on page 114.
- Running offline diagnostics. See “Running Offline Diagnostics and Utilities” on page 115.
- Superdome 64 Way fails to boot. See “Superdome 64 Way Fails to Boot” on page 116.
- Locating the Core I/O card. See “Determining the Location of the Core I/O Card” on page 117.
- Installing a core I/O card. See “Installing a Core I/O Card” on page 119.
- Installing a PCI Card While the SPU Cabinet is off. See “Installing a PCI I/O Card While the Cell is Off” on page 120.

Booting a Superdome Using a DVD

If the system you are installing does not have “instant ignition” (a feature that allows the system to boot automatically as soon as it is installed), or if it fails to boot, you may have to boot using a DVD that contains the operating system and other relevant files.

To boot from the DVD:

Step 1. Load the operating system CD-ROM into the DVD drive.

Step 2. At the Guardian Service Processor (GSP) Main menu, enter `co`.

To return to the GSP Main Menu from the GSP Command Menu, enter `ma`.

You will see a list of the partitions.

Step 3. Enter the number of the partition you want to boot and press **Enter**.

Step 4. In a few moments, press **Enter** once or twice and you should see the BCH prompt (*Main Menu: Enter command or menu>*).

Step 5. Enter `di` to display a list of the BCH commands.

Step 6. Enter `pa` to display the path for the partition you selected in step 3.

The path command lists the paths for the primary, HA (High Availability) alternative, and the alternate boot paths.

Step 7. Change the path to the DVD device.

Step 8. Enter `bo`.

The partition will boot using the path you specified.

Step 9. When the ISL prompt appears, enter `hpux`.

If the Partition Doesn't Boot to the BCH Prompt

If you do not see the BCH prompt after you power on the SPU cabinet (48 V), check to see if “Boot Is Blocked” (BIB) for the cell being booted is on. BIB must be *off* for the cell to boot. If you are using a serial display device that is not connected to the customer LAN: that is, the serial display device is connected to the Private RS232 port at the back of the SPU cabinet, use the following procedure to check if *Boot Is Blocked*.

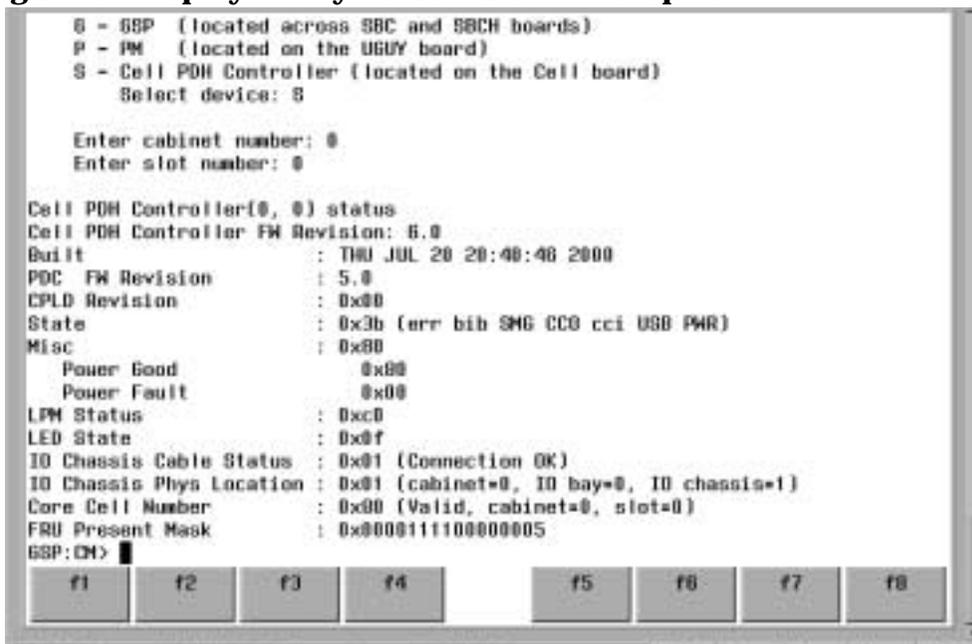
Step 1. From the Guardian Service Processor (GSP) Main Menu, enter `cm`.

Step 2. Enter `de` with the `s` option.

Step 3. Enter the cabinet and slot numbers.

If you don't know the slot number for the boot cell of the partition, use the `cp` command at the GSP Command Menu prompt (`GSP:CM>`).

Figure 6-1 Display Entity Screen with SINC Option



```
G - GSP (located across SBC and SBCH boards)
P - PM (located on the UGUY board)
S - Cell PDH Controller (located on the Cell board)
  Select device: S

Enter cabinet number: 0
Enter slot number: 0

Cell PDH Controller(0, 0) status
Cell PDH Controller FW Revision: 6.0
Built : THU JUL 20 20:40:46 2000
POC FW Revision : 5.0
CPLD Revision : 0x00
State : 0x3b (err bib SMG CCG cci USB PWR)
Misc : 0x00
  Power Good : 0x00
  Power Fault : 0x00
LPM Status : 0xc0
LED State : 0x0f
IO Chassis Cable Status : 0x01 (Connection OK)
IO Chassis Phys Location : 0x01 (cabinet=0, IO bay=0, IO chassis=1)
Core Cell Number : 0x00 (Valid, cabinet=0, slot=0)
FRU Present Mask : 0x0000111100000005
GSP:CM>
```

Step 4. Under *State* look for *bib* (lower case) or *BIB* (upper case). *BIB* means *boot is blocked*; *bib* means *boot is not blocked*.

Step 5. To reset a cell from *BIB* to *bib*, enter `bo`.

Determining the Boot Path

The path to a device and function for an adapter card in an I/O card cage should be in the Read Me First packet that was shipped with the system. If it is not in the packet, you can determine the path to a device and function for an adapter card in an I/O card cage using the Offline Diagnostic Environment (ODE) module called, *MAPPER2*. For instructions on how to run ODE, refer to “Running Offline Diagnostics and Utilities” on page 115.

Setting the Boot Path

Setting the Boot Path

To set the boot path, at the Guardian Service Processor (GSP) Main Menu, enter `PA PRI Hcell/SBA/LBA/dev/func.device specific`, where:

- *Hcell* is the cell number.
- *SBA* (System Bus Adapter) is the REO number, which is always 0.
- *LBA* (Local Bus Adapter) is the Rope number, which can have one of the following numbers depending on the slot the device is in. See Table 6-1.
- *dev* is the PCI device number. Up to 32 are possible. Most PCI cards have only one device, or function; some have two; and some have as many as four functions.
- *func.device* is the PCI function for cards that are multifunction and the device specific information, such as the SCSI ID for a disk.

Table 6-1 LBA Mapped to Physical Slot Number

LBA	Slot	Type
0	0	2x
1	1	2x
2	2	2x
3	3	2x
4	4	4x
6	5	4x
8	11	4x
9	10	4x
10	9	2x
11	8	2x
12	7	2x
14	6	2x

For example: `PA pri 0/0/2/0/0.2` is a path to a SCSI disk drive on Cell 0, System Bus Adapter (SBA) 0, Local Bus Adapter (LBA) 2, PCI device 0, PCI function 0, SCSI ID 2.

Enter `co` to display the Configuration menu, which can be used to set Auto Start and Auto Boot.

Running Offline Diagnostics and Utilities

Offline diagnostics and utilities can be run from the Support Plus CD-ROM, when it is used as bootable media:

- Step 1.** Boot the computer system to the Boot Console Handler (BCH) prompt (for example, *BOOTADMIN>*), and enter **search** for a list of bootable devices.
- Step 2.** Select the CD-device and boot from that device (for example, *BOOTADMIN> bootSCSI.3.3.*).
- Step 3.** At the ISL prompt, enter **ODE**.

NOTE *ODE* stands for Offline Diagnostics Environment.

- Step 4.** Enter **help** for a list and description of available commands. Enter **help <command>** or **help <var>** for additional information.
- Step 5.** To list the ODE modules that will run on the current computer system, enter **ls** at the *ODE* prompt.
- Step 6.** To run an ODE module interactively, enter the module name at the *ODE* prompt. Once the ODE module loads, enter **help** for a list of commands.
- Step 7.** To run a module non-interactively, enter **run** at the *ODE* prompt.

For complete information on offline diagnostics, see Chapter 3 in the *Support Plus: Diagnostic User's Guide* or refer to the EPSS and click on "Troubleshooting the System," then click "Superdome: Support Tools."

Running the Extended Memory Test

The extended memory test in ODE is called, *MEM2*. It is a 64-bit Memory Test Diagnostic.

Running the Peripheral Verification Test

The peripheral verification test in ODE is called, *PERFVER2*. It is a 64-bit peripheral verifier.

Superdome 64 Way Fails to Boot

Among the reasons the Superdome 64 Way may not boot is that the firmware versions in the two cabinets are not identical.

To verify that the firmware for the cabinets is identical:

Step 1. From the Guardian Service Processor (GSP) Main Menu, enter `cm`.

Step 2. At the GSP Command Menu, enter `de`.

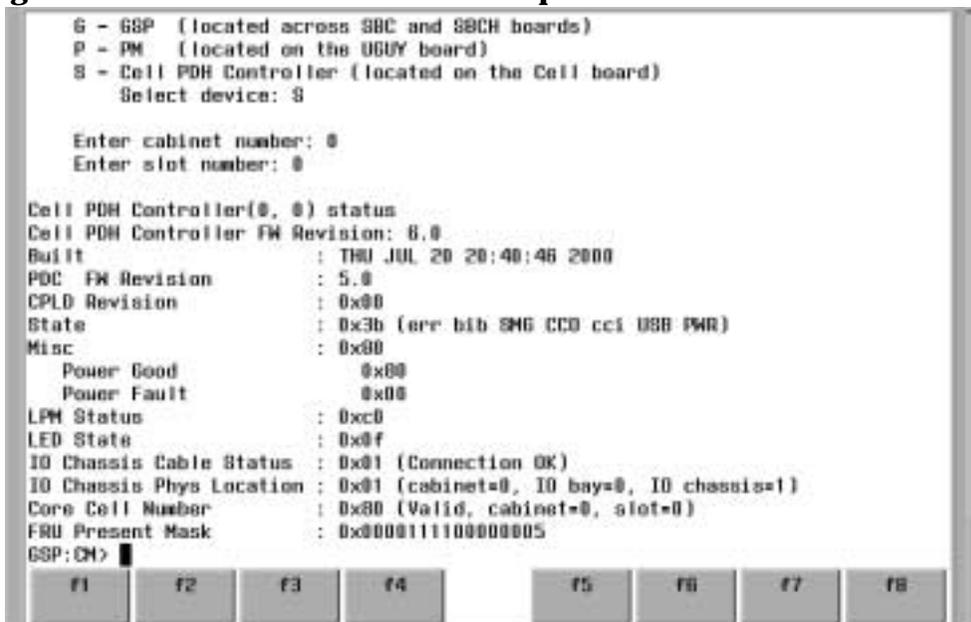
Step 3. Select the `s` option.

Step 4. Enter the cabinet number.

Be sure to keep track of the cabinet number you choose. Later you will choose the cabinet number of the other cabinet in order to compare the firmware revision numbers.

The following screen appears:

Figure 6-2GSP `de` Command with `s` Option



Step 5. Note the PDC firmware revision number next to the *PDC FW Revision* field.

Step 6. Check the firmware revision number for the firmware in the other cabinet.

Step 7. Compare the numbers.

If the numbers are different, the firmware for one or both of the cabinets may have to be updated, depending on the revision number of the most current firmware.

Determining the Location of the Core I/O Card

Core I/O cards that are present in 12-slot card cages are indicated on the screen by an *x* in the column marked 1 or 3 (and no *x* in the columns marked 0 and 2). For example, if there is a Core I/O card in a 12-slot card cage at the left front of the cabinet (I/O Bay 0), there will be an *x* below the *1* in the column marked *IO Bay 0, IO Chas.*

Core I/O cards in 6-slot card cages are indicated on the screen by an *x* in a column marked 0, 1, 2, or 3, depending on the physical location of the card cage. For example, if there is a Core I/O card in each of four 6-slot card cages in I/O Bays 1 (MIOB1), there will an *x* below the *1* in the column marked *IO Bay 1 IO Chas.*

The `du` command screen shown in Figure 6-3 on page 117 shows Core I/O cards in I/O Bays 0 and 1, and I/O Chassis 1 and 3.

Installing a Core I/O Card

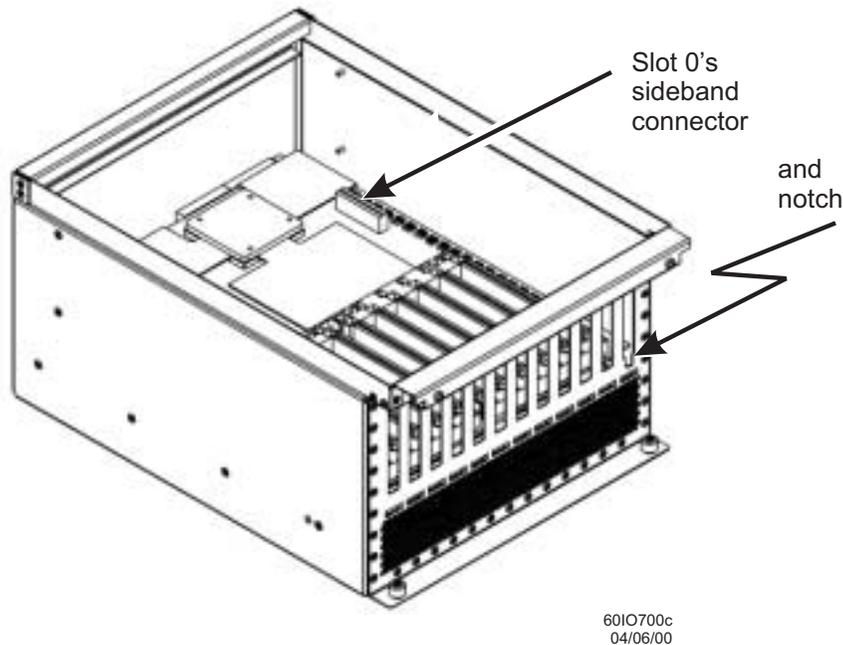
The Core I/O card for Superdome Precision Architecture-Reduced Instruction Set Computing (PA-RISC) servers is an HP-designed multi-function (1x) Peripheral Component Interconnect (PCI) card containing a 10/100Base-T LAN (device 1) and three RS-232 serial ports (device 0). One of the three serial ports is required by every partition in order to communicate using console functions, in conjunction with the Guardian Service Processor (GSP), via the *sideband* connector. Like the I/O subsystem, the Core I/O card is a mandatory component for bringing up a partition.

To install the Core I/O card, DC power to the card cage must be turned off. Refer to “Installing a PCI I/O Card While the Cell is Off” on page 120.

Locating the Core I/O Slot

Core I/O cards can be installed only in slot 0 of a 12-slot PCI card cage. A tab on the bottom of the bulkhead's metal electromagnetic interference (EMI) shield prevents full insertion into any other slot. Slot 0 has a special notch to allow full insertion and an additional sideband connector (shown in Figure 6-4) required by some special functions also incorporated into the Core I/O card.

Figure 6-4 Core I/O Card's Location in 12-Slot Card Cage



Installing a PCI I/O Card While the Cell is Off

The following procedure can be used to install any Peripheral Controller Interface (PCI) card while the *target* partition is powered off.

CAUTION The Core I/O card can only be installed when the *target* partition is powered off.

Step 1. Visually inspect the PCI card for proper part number and revision.

Step 2. Choose the most appropriate *unused* PCI card slot for a balanced operation.

Step 3. Shut down the cell.

Turn off power to the cell that communicates with the PCI card cage containing the device adapter card.

1. At the GSP Main Menu, enter **cm**.

If you are at the BCH prompt, enter **Ctrl B** to return to the Guardian Service Processor (GSP).

2. Enter **pe** (for Power Entity).

3. Enter **c** (for cell).

4. Enter the following information for the partition you want to power off:

- Cabinet number. (Enter 0 (zero) if the cabinet contains the GSP.)
- Slot number.

5. Select **off** or press **Enter**.

By powering down the cell, you also power down the card cage that is cabled to that cell.

6. Verify that the cell is off by checking the LED on the cell board.

Step 4. Loosen the thumbscrews on the top electromagnetic interference (EMI) shield of the *target* PCI card slot and lift it forward and up.

Step 5. Install the PCI card into the plastic guide of the *target* slot connector by pushing the plastic card guide into connector.

Step 6. Replace the cover and tighten the thumbscrews.

Step 7. Route and connect the external cable(s) to the *target* PCI card.

Step 8. Power on the cell.

1. If you are not already at the GSP Command Menu, enter **ma** to return to the Main Menu.

2. At the GSP Main Menu, enter **cm**.

If you are at the BCH prompt, enter **Ctrl B** to return to the GSP.

3. Enter **pe** (for Power Entity).

4. Enter **c** (for cell).

5. Enter the same cabinet and slot information you entered in step 3d above.

6. Enter **on**.

It takes 2-4 minutes to power on the cell and all of the PCI card slots in the card cage. Green lights in the card cage will power on for each slot in a predefined order.

7. Check that the green LED on the cell board and the green LEDs on the card cage are on.

Step 9. Verify the PCI card installation. See “Verifying the PCI Card Installation” on page 96.

7 No-Boot-Disk Superdome Installations

Overview

Superdomes may ship without factory integrated boot disks for each partition. That is, the customer has not purchased a disk for use with Superdome (no boot disk). For these systems to boot and operate, customer must furnish a boot disk.

General Checklist

Prior to the installation of a Superdome that is shipped with no boot disks, the CE must know its configuration and connectivity plan in order to know in advance what hardware and software is to be configured. This information may be obtained from the ASE, Solution Architect (TCO), or the Solution Consultant (HPC).

This chapter presents a general checklist to follow when dealing with a no-boot-disk Superdome. It contains checklists for:

- XP or EMC Symmetrix Boot Device
- JBOD Boot Device
- Installing the Superdome Operating System From an Image
- Installing the Superdome Operating System From Available Media

General Checklist

The following checklist is an installation aid and should be used only after you have installed a few systems using the detailed procedures described in the body of this manual.

1. A Superdome with no boot disk must be installed and verified the same as a Superdome shipped with mass storage. All the same steps and procedures must be performed, except those concerning booting the OS on those partitions where there is no boot device.
2. The connection of the customer's mass storage device is subject to the arrangement between the customer and HP solution manager.

NOTE Some disk vendors may insist that they connect the customer's disks to the Superdome using the vendor supplied cables.

3. The CE must ensure that after the installation, the Superdome can boot all configured partitions to BCH, and the partitions are per customer requirements and configuration plans.

NOTE Provision and installation of the OS media is arranged by the Deployment Project Manager.

4. The CE must run scan test on the Superdome per the installation checklist found in Appendix B, "Installation Checklist," on page 149 and any other tests requested by the solution manager of the installation team. Please use the new JUST Exploration Tool described in Appendix H, "JUST Exploration Tool," on page 207 for running scan tests.
5. Once the customer's mass storage, CD/DVD drives, and other peripherals have been connected, the CE must ensure that all the potential bootable devices, including CD/DVD drives can be seen using the `sea` command at the BCH prompt.
6. Once the CE is satisfied that all required checks, configurations, and test have been performed, the system is ready to be handed to the ASE, TC, or consultant for OS and other software installation.
7. Based on circumstances, the CE must agree with the TC or consultant at which point the installation is complete.

XP or EMC Symmetrix Boot Device

Use the following checklist as a guide when connecting the Superdome to an XP or EMC Symmetrix boot device:

1. Verify the storage device is a Superdome supported device.
2. Confirm that the current firmware level of the XP or EMC Symmetrix is correct (the customer will supply the required information).
3. Verify the correct hardware is ordered with the Superdome that will allow connectivity to the XP or EMC Symmetrix.
4. Work with the customer to establish and verify requirements for number and size of disks. The customer is responsible for making sure disks are reserved in the storage device.
5. Prior to install, confirm that the Superdome firmware is at a supported level.
6. Obtain a copy of the LUN map from the customer.

NOTE	The Solution Consultant should provide a document to the CE with the above noted requirements. The Deployment Project Manager may be able to assist the CE in accessing these documents.
-------------	--

Required Materials

Before using the delivery checklist, make sure that the storage cables are long enough to reach from the Superdome to the storage device. Appropriate termination devices may be required.

Also required is the HP-UX 11i media provided by the customer.

Delivery Checklist

After the Superdome and Support Management Station (if purchased) have been installed, follow the guidelines below upon system delivery:

1. Physically connect the Superdome to the XP or EMC Symmetrix.
This requires one or more cables for each partition being installed.
2. Verify the appropriate disk devices are available using ODE and mapper2.
ODE is available by booting from the HP-UX 11i Support Plus CD.

JBOD Boot Device

Use the following checklist when connecting the Superdome to a JBOD boot device:

1. Verify that the storage device is supported by Superdome.
2. Confirm that firmware level of the JBOD device is current.
3. Verify that the correct hardware is ordered with the Superdome to allow connectivity to the JBOD.
4. Work with the customer to establish and verify requirements for the number and size of the disks. The customer is responsible for making sure that the disks are reserved in the storage device.
5. Prior to install, confirm that the Superdome firmware is at a supported level.

NOTE	The Solution Consultant should provide a document to the CE with the above noted requirements. The Deployment Project Manager may be able to assist the CE in accessing these documents.
-------------	--

Required Materials

Before using the delivery checklist, make sure that the storage cables are long enough to reach from the Superdome to the storage device. Appropriate termination devices may be required.

Delivery Checklist

After the Superdome and Support Management Station (if purchased) have been installed, follow the guidelines below upon system delivery:

1. If necessary, set the dip switches on the storage device to match the required configuration (SCSI address, alternate links, etc.).
2. Physically connect the Superdome to the storage device.
This requires one or more cables for each partition being installed.
3. Verify that the appropriate disk devices are available using ODE and mapper2.
ODE is available by booting from the HP-UX 11i Support Plus CD.

Installing the Superdome Operating System From an Image

The following requirements must be met before the installing the Superdome operating system from an image:

- Access to a DVD device for each partition being installed
- Partition configuration information
- Operating environment and file system information

NOTE The ASE should obtain information from the Integration Package (Visio drawings and UNIX questionnaire). The ASE can obtain a copy of the Integration Package (located on plato) and must have all other required materials.

Required Materials

To install the operating system from an image, an HP-UX 11i system image tape must be created on a Superdome. Other HP-UX 11i media may be required depending on customer requirements.

Also required is the HP-UX 11i media certificate and the certificates for each optional software package installed.

Delivery Checklist

After the Superdome and Support Management Station (if purchased) have been installed, follow the guidelines below upon system delivery:

1. Verify the connections to the storage devices.
2. Create the image from another Superdome if required.
3. Create the Genesis partition.
4. Install the image on the Genesis partition.
5. Create any additional partitions using the `parcreate` command.
6. Install the appropriate image on each additional partition.
7. Verify that the partitions are able to reboot successfully.
8. Verify network connectivity.

Installing the Superdome Operating System From Available Media

The following requirements must be met before the installing the Superdome operating system from available media:

- Access to a DVD device for each partition being installed
- Partition configuration information
- Operating environment and file system information

NOTE The ASE should obtain information from the Integration Package (Visio drawings and UNIX questionnaire). The ASE can obtain a copy of the Integration Package (located on plato) and must have all other required materials.

Required Materials

The following is required to install the operating system from available media:

- HP-UX 11i install and core OS media (customer copy plus certificates)
- HP-UX 11i application media (customer copy plus certificates)
- HP-UX 11i Support Plus media (customer copy)

Delivery Checklist

After the Superdome and Support Management Station have been installed, follow the guidelines below upon system delivery:

1. Verify connections to the storage devices.
2. Create the Genesis partition.
3. Install HP-UX 11i on the Genesis partition.
4. Install all additional HP-UX applications.
5. Install the patches on the Genesis partition.
6. Make any custom configuration changes (that is, kernel parameters, network configuration, additional file systems, etc.).
7. Create any additional partitions using the `parcreate` command.
8. Install HP-UX on each additional partition.
9. Install additional HP-UX applications on each additional partition.
10. Install patches on each additional partition.
11. Make any custom configuration changes (that is, kernel parameters, network configuration, additional file systems, etc.) on each additional partition.
12. Verify that the partitions are able to reboot successfully.
13. Verify connectivity to the storage devices.
14. Verify network connectivity.

15. Run `collect` script to collect system information used by `ipatch` on each partition.
16. Submit `psifile` to AIC via E-mail.
17. AIC gets patch analysis and ships to customer.
18. Customer alerts ASE upon receipt of `ipatch` tape.
19. When the `ipatch` update is received, install custom patch on each partition.

A hp Server rx2600 Support Management Station

The hp Server rx2600 replaces the A500 as the Superdome SDnn Support Management Station. The new SMS uses the new Itanium® 2 based processors) and runs the HP-UX 11.11 v2 operating system.

Installing the hp Server rx2600 SMS

Figure A-1 **hp Server rx2600 Without Front Bezel**



The hp Server rx2600 is installed only in a peripheral equipment rack and uses the optional TFT5600 rack-mounted monitor, keyboard, and mouse. In addition the new SMS uses the C7508A Tape Array for booting and other management functions. This appendix describes the rack-mounting procedures and how to prepare the hp Server rx2600 for use as the new Superdome SDnn SMS.

Required Tools

The following tools are required to modify and mount the cabinet slide rails:

- TorX drivers: #10, #15, and #20
- Number 2 Phillips head screwdriver
- 3/8-inch nut driver

Racking the hp Server rx2600 SMS

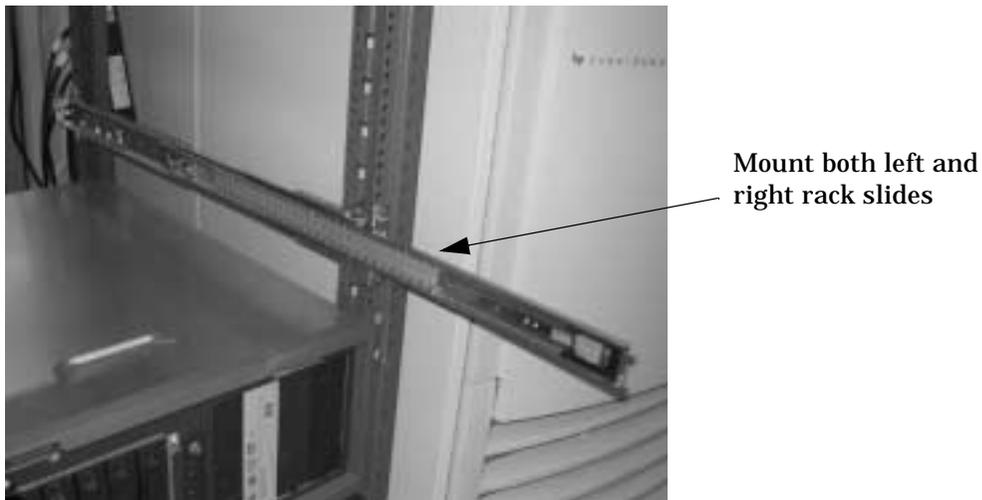
The rack-mount kit is supplied with a complete procedure, *installation guide, midweight slide kit, hp5064-9670*, to mount the hp Server rx2600 into an equipment rack. The following procedure augments this procedure:

Step 1. Open the hp Server rx2600 field rack kit and remove the left and right rack rails (part number 5064-9671).

Step 2. Use the supplied installation guide mentioned above to mount both the left and right rack slides into the rack.

An included mounting template allows convenient location of the appropriate rack mounting holes

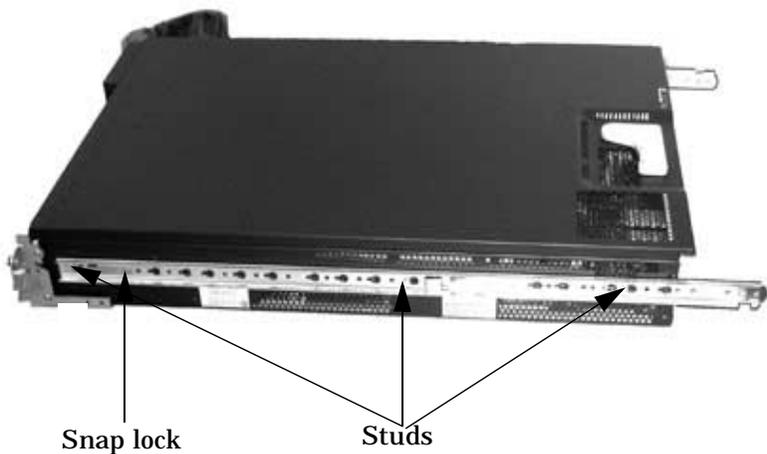
Figure A-2 hp Server rx2600 Slides



Step 3. Mount the equipment slides to both sides of the hp Server rx2600.

The slides have three holes that mate to the matching studs on the SMS. The stud toward the front has a snap lock. Align the holes to the studs and press the slides down. Then push them forward to engage the snap lock.

Figure A-3 hp Server rx2600 Equipment Slides



Step 4. Using two people, carefully lift and align the equipment slides on the hp Server rx2600 to the equipment slides in the rack.

Step 5. Disengage the slide lock release and slide the hp Server rx2600 into the rack.

Figure A-4 Disengaging the Lock Releases



Step 6. Attach the appropriate colored bezel onto the front of the unit.

Do this by aligning the slot on the left side of the bezel to the clip on the hp Server rx2600 and then snapping the bezel on the right side.

Figure A-5 Attaching the hp Server rx2600 SMS Bezel

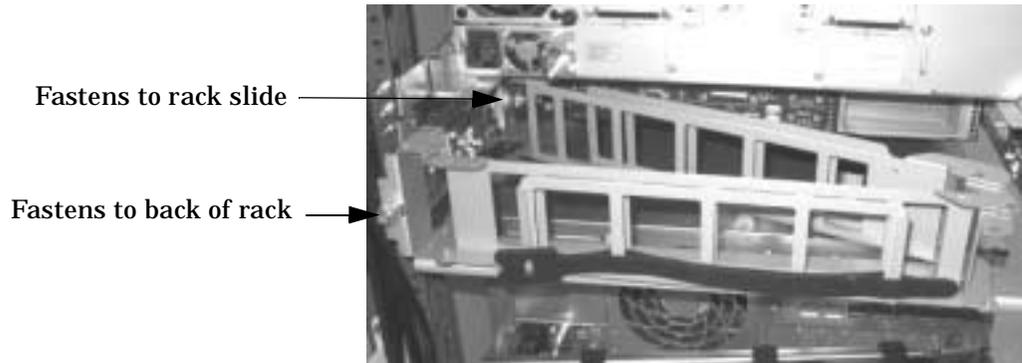


Alignment clip

Step 7. Attach the hp Server rx2600 cable management arm (CMA) per the enclosed instructions.

There are three thumbscrews: two secure the CMA to the back of the rack and one secures the arm to the rack slides. See figure below:

Figure A-6 hp Server rx2600 Cable Management Arm



Installing the Tape Array 5300A

I/O for the hp Server rx2600 is installed in the Tape Array 5300 chassis. Perform the following procedure.

Step 1. Install each storage unit into the Tape Array 5300 by sliding it into the appropriate slot.

The correct configuration is:

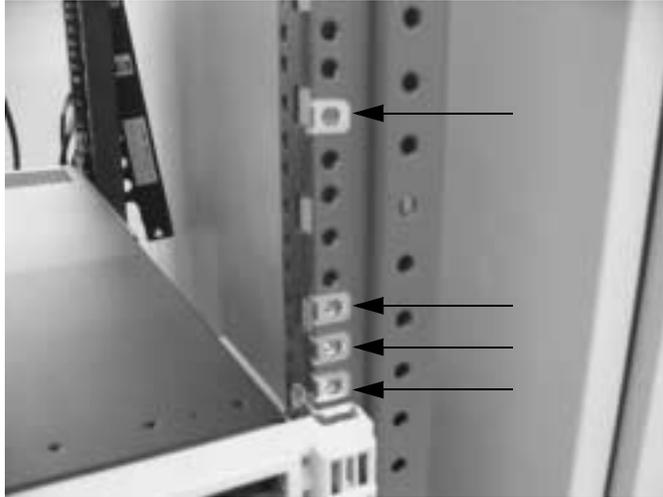
- DVD drive in slot 1
- DAT drive in slot 3

Ensure that the storage unit back connector engages with its mating chassis connector and pull up the locking mechanism on the left of the storage unit.

Step 2. Mount the Tape Array 5300 rack shelves into the rack following the supplied installation procedure and using the supplied rack mounting hardware.

A template is supplied for determining the appropriate rack hole locations. There are a total of eight mounting clips, four installed on each side of the rack for the front of the unit. There are a total of four mounting clips, two installed on each side of the rack for the rear of the unit.

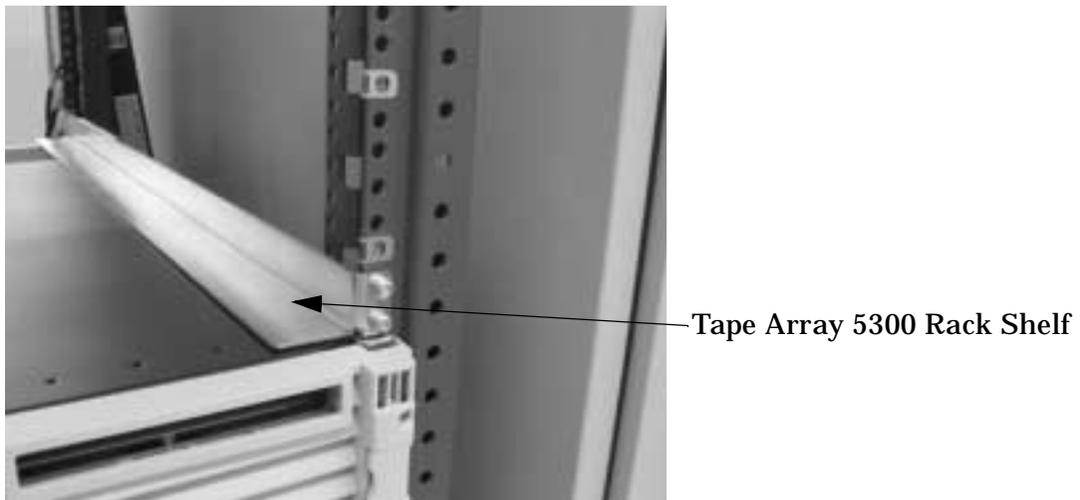
Figure A-7 Location of Front Mounting Clips for Tape Array 5300



Step 3. Install the Tape Array 5300 rack shelves into the rack using the supplied procedure.

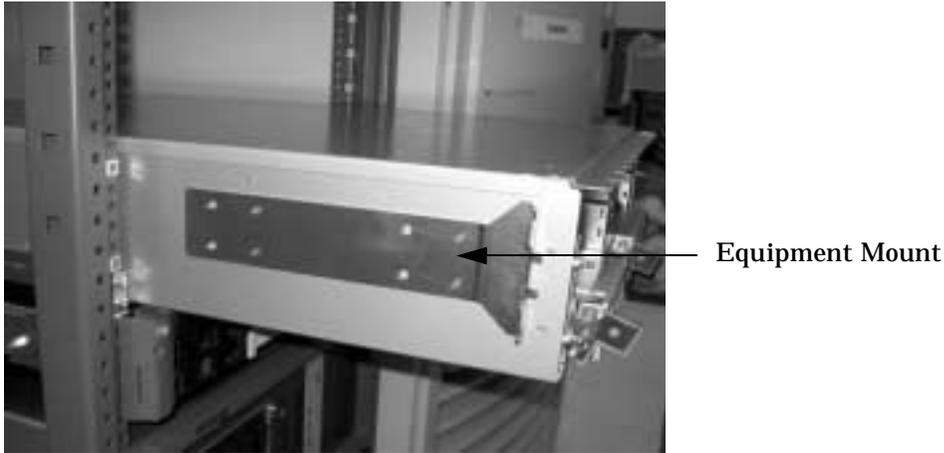
The lower two mounting clips on the front and the two on the rack rear are used to mount a shelf on each side.

Figure A-8 Tape Array 5300 Rack Shelf



Step 4. Attach the Tape Array 5300 equipment mounts using the supplied procedure and hardware.

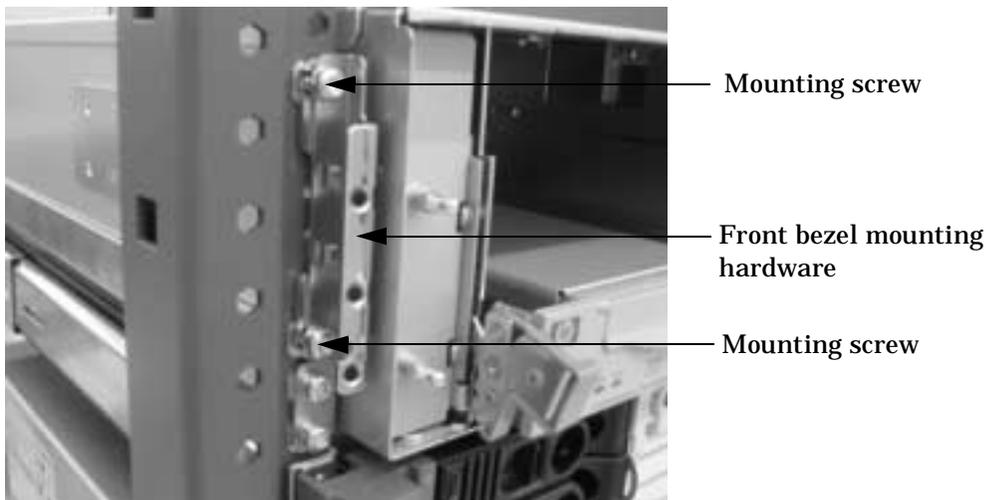
Figure A-9 Tape Array 5300 Equipment Rack Mount



Step 5. Slide the Tape Array 5300 fully into the rack.

Step 6. While holding the bezel mounting hardware with one hand, tighten the supplied Torx screws to secure the Tape Array 5300 and bezel mounting hardware on both left and right sides. See figure below.

Figure A-10 Securing Both the Tape Array 5300 and Front Bezel Mounting Hardware

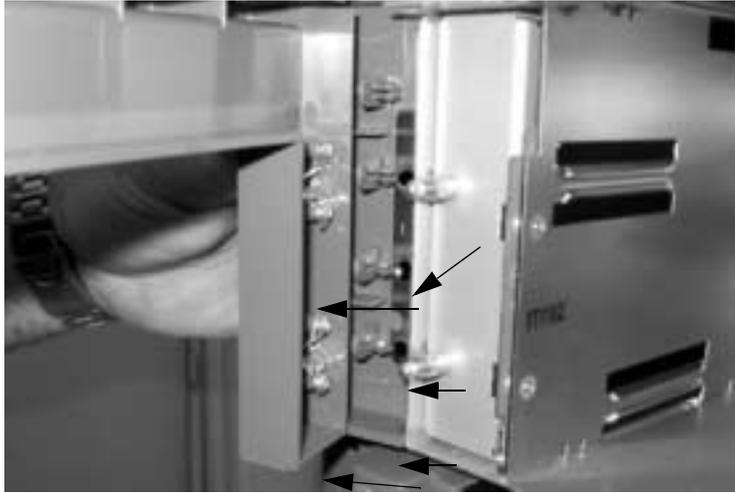


Step 7. Attach the Tape Array 5300 front bezel.

For both sides of the front bezel and tape array: there are four plastic snap-studs on the bezel. Three of them line up with the three holes in the bezel mounting hardware. Also on the bezel are two clips that mate with two metal snap-studs on the tape array.

Align these snap-studs on one side and press the bezel onto the tape array front. Then do the same on the other side. See figure below:

Figure A-11 Attaching the Tape Array 5300 Front Bezel



Step 8. Install the drive bay bezels for vacant drive bays slots.

Align the two fingers on the right side of the bezel with the two slots in the drive bay and press in the bezel.

Figure A-12 Installing the Tape Array 5300 Vacant Drive Bay Bezels



Figure A-13 Tape Array Front Bezel and Vacant Drive Bay Bezels Installed



Vacant Drive Bay Bezels

Mounting the Optional TFT5600

Supplied with the TFT are left and right tool-less rack mounting rails and slides. Each rack rail uses two studs and a locking mechanism to secure it.

- Step 1.** Locate both left and right toolless rack rails.
- Step 2.** For each rail, locate two holes at the appropriate rack location, both front and back, and push the locking mechanism until it snaps.

Figure 7-1 TFT5600 Rails and Slides Mounted to System/E Cabinet Rack



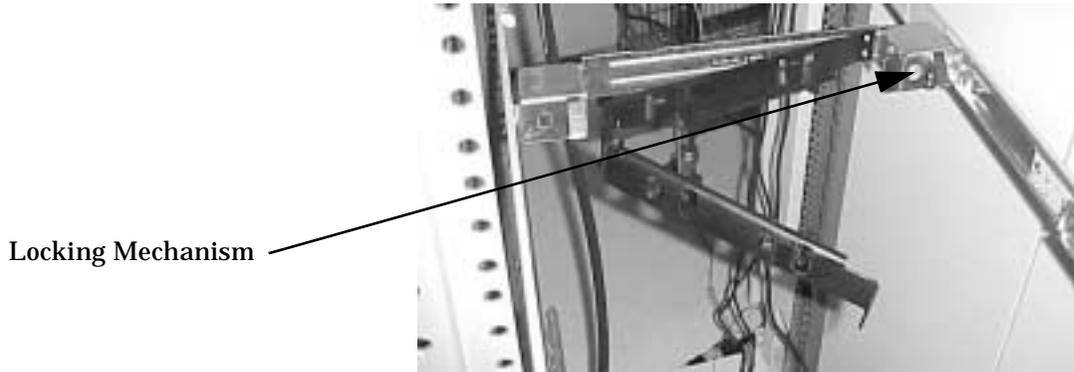
- Step 3.** Pull out the slides until they lock, both left and right.
- Step 4.** Mount the TFT5600 to the slides using supplied 3/8-inch, 6-32 Phillips-head screws. There are two screws on each side.

Figure 7-2 Installing the TFT5600



Step 5. Install the TFT5600 cable management arm to the rack mounts according to the instructions supplied with the unit.

Figure 7-3 TFT5600 Cable Management Arm Installed

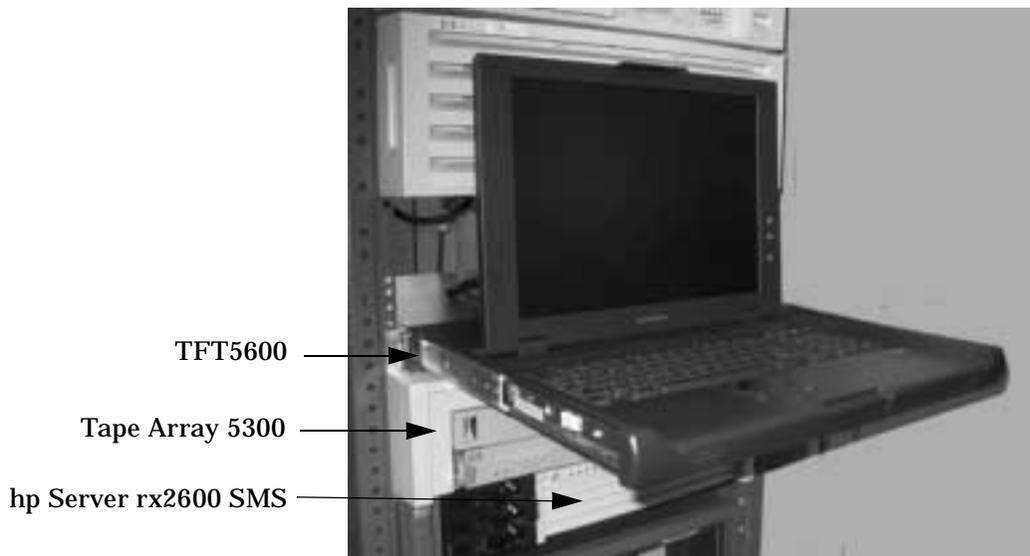


Once mounted, the TFT5600 may be pulled out on its slides. The slides lock whenever the unit is pulled out.

There is also a locking pin on the right side (looking from the front) of the cable management arm, shown in Figure 7-3, that secures the unit when pushed into the rack. Before pulling the unit out, first push in on the front of the unit to release this locking pin, then pull the unit out until it locks.

To stow the TFT5600 into the rack, release the locks on each side of the slides by pulling them toward the front of the unit.

Figure A-14 TFT5600 Monitor, Keyboard, and Touch Pad



Connecting the SMS Cables

After the SMS components have been installed, connect them using the following procedure:

NOTE Make sure all devices on the SCSI bus have a unique address and that the last device is terminated. Refer to the documentation accompanying each device to learn where to place terminators.

Step 1. Plug the hp Server rx2600, the Tape Array 5300, and the TFT5600 power cords from each unit to the rack power strip and refer to Figure A-16 for the remaining connections.

Step 2. Connect the Customer LAN and Private LAN.

Figure A-15 hp Server rx2600 Connections

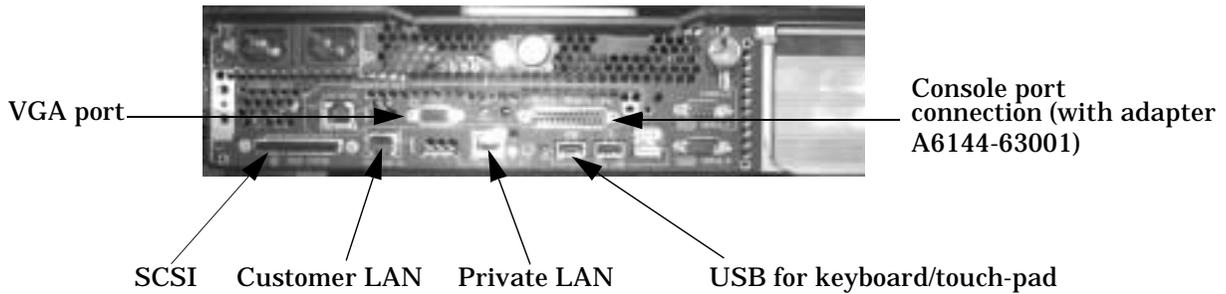
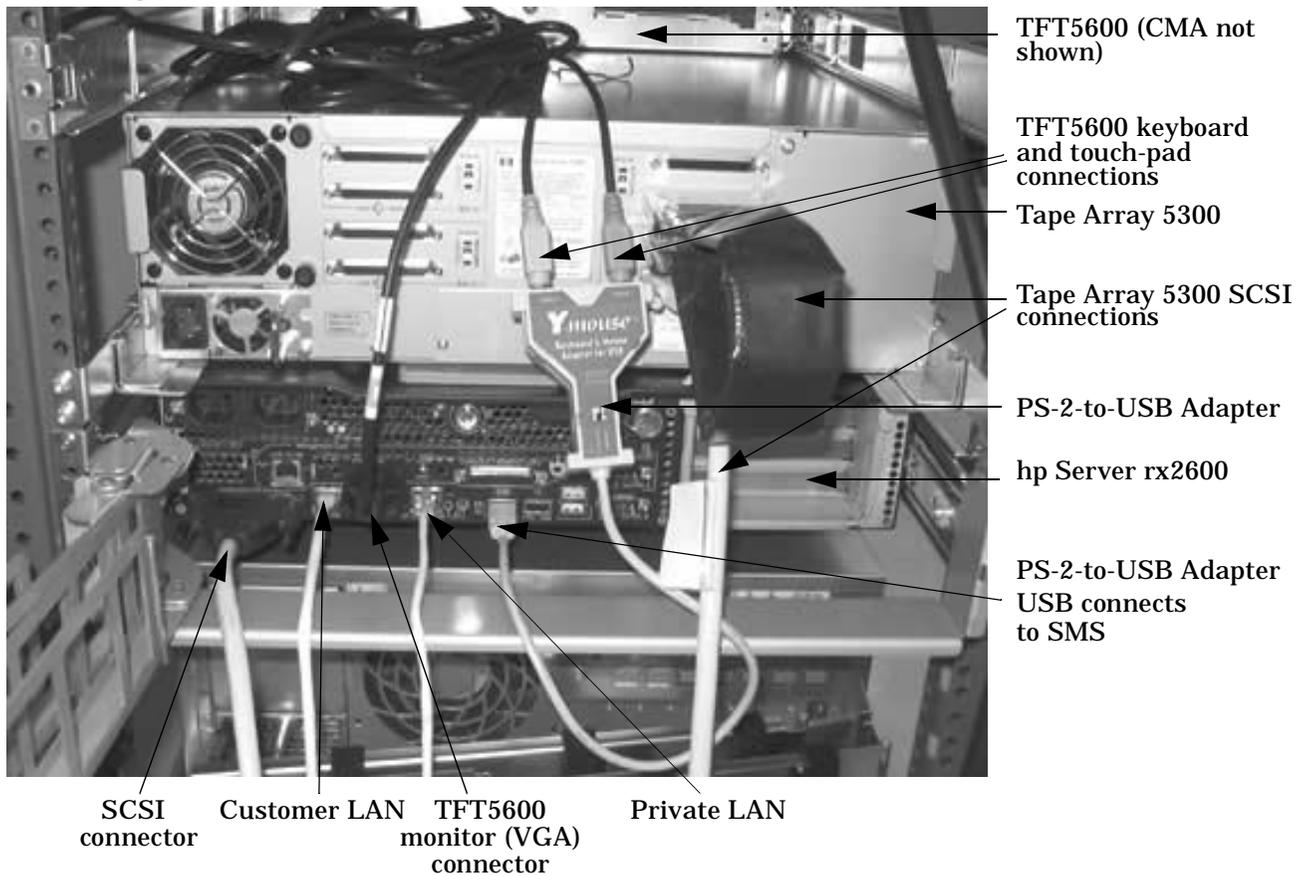


Figure A-16 SMS Connections



Step 3. Connect the TFT5600 keyboard and touch-pad connectors to the supplied USB adapter.

Step 4. Connect the PS-2-to-USB adapter to one of the two USB ports on the hp Server rx2600.

Step 5. Connect the TFT VGA cable to the VGA port on the hp Server rx2600.

Step 6. Connect a SCSI cable from the SCSI port on the hp Server rx2600 to the Tape Array 5300 SCSI port

Step 7. Connect the SCSI terminating cable from SCSI port 1 to the SCSI port 3.

Configuring the SMS

The SMS normally comes from the factory fully configured. If, however, the hp Server rx2600 should require setting up at the customer location, this section describes the configuration.

Connecting to the hp Server rx2600 Console

Before the optional SMS VGA monitor (TFT5600) can be used, the boot paths and operating system must be configured. To control this configuration process, a special adapter (part number A6144-63001) must be connected to the 25-pin DIN connector on the back of the hp Server rx2600 marked CONSOLE/REMOTE/UPS. The adapter has three 9-pin “pigtailed,” labelled CONSOLE, REMOTE, and UPS.

- Step 1.** Plug in the hp Server rx2600 but do not power up the unit.
- Step 2.** Connect a serial device or PC, such as the CE laptop, into the 9-pin DIN marked CONSOLE.
- Step 3.** Bring up a communication window on the serial device such as Hyper-Term or Reflection for UNIX and Digital.
- Step 4.** When the MP Menu appears, select the Command Menu and use the `lc` command to configure the MP LANs.
- Step 5.** Once the LANs are configured, enter `ma` to return to the Main MP Menu.
- Step 6.** Enter `co` to open the console.

EFI Boot Paths

- Step 1.** Power on the SMS by applying power first to the TFT5600 and then the hp Server rx2600.
- Step 2.** Escape the boot sequence at EFI. Press any key.
- Step 3.** Validate on EFI boot menu that the path defaults are set as follows:
 - primary: 0/1/1/0.0.0
 - secondary: 0/1/1/0.1.0

Enabling the VGA Local Console Output

- Step 1.** From the console window, go to the Boot Option Maintenance Menu and select Active Console Output Devices.
- Step 2.** Select `Acpi(HWP0002,700)/Pci(2|0)`.
- Step 3.** Select Save Settings to NVRAM.
- Step 4.** Select Exit.
- Step 5.** Select Exit again to go back to the main menu.

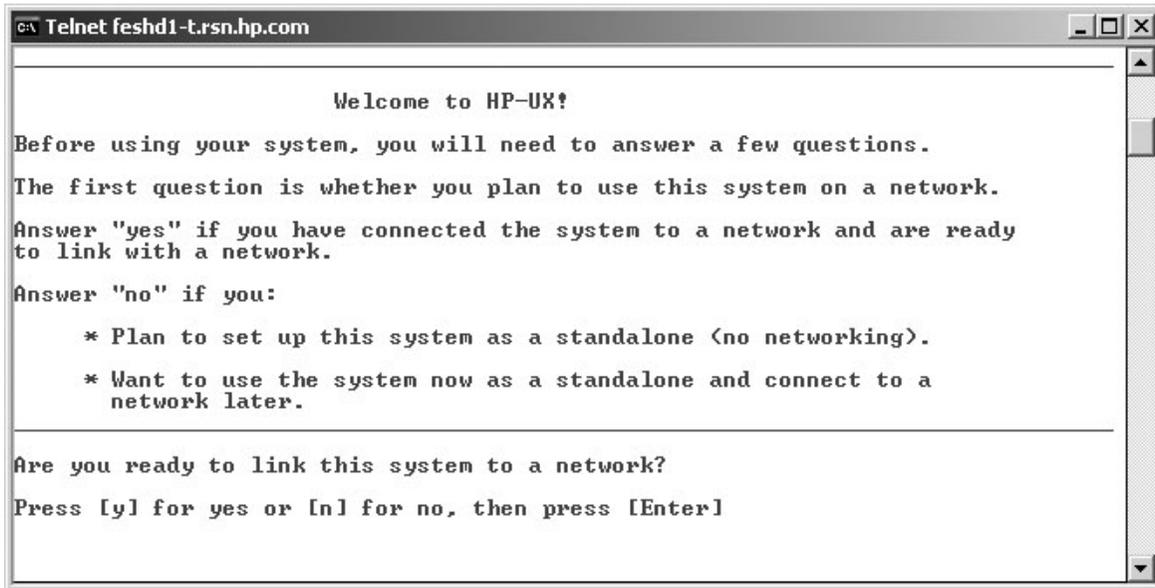
Configuring the Operating System

Perform the following to configure HP-UX 11i-v2:

- Step 1.** From the EFI boot manager menu, boot the operating system by selecting HP-UX Primary Boot at the EFI menu.

When the system boots to `set_parms`, the following menu appears.

Figure A-17 `set_parms` Menu



- Step 2.** Set the root password.

The default password `serialbus`.

- Step 3.** Enter the following data when prompted.

- IP addresses
- Host name
- Global network mask
- Gateway router IP address

- Step 4.** Using the `bdf` command, verify that these parameters are set as follows:

- `/tmp = 1000 MB`
- `/opt = 6900 MB`

- Step 5.** Verify that the DVD and DAT drives are configured as per the documentation sent with the system or set to default (DVD = 1, DAT = 3). Enter the following at the prompt:

```
# ioscan -fn
```

- Step 6.** If the DAT drive is not claimed by the operating system, enable it by entering `kcmodule stape=static`, to reboot the SMS.

Step 7. Install the SMS software bundles according to the supplied instructions.

Step 8. Enter the following at the prompt:

```
# swlist -l bundle
```

Review the software load table for ignite tools and SMS-Software.

Setting the Network Configuration

The customer questionnaire is delivered with the SMS. It contains the customer's hostnames and valid IP addresses.

Step 1. Verify the settings and adjust if necessary. At the prompt enter the following:

```
# more /etc/hosts
```

Step 2. Add the Private LAN address to the `/etc/host` file:

```
192.168.2.100 private
```

Step 3. Verify the valid IP against the customer questionnaire by entering the following at the prompt:

```
# more /etc/rc.config.d/netconf
```

Step 4. Edit the `/etc/rc.config.d/netconf` file and add the following:

NOTE The specific values may differ for different sites.

```
# INTERFACE_NAME[0]=lan0
```

```
# IP_ADDRESS[0]=192.168.2.100 — increment or change as required
```

```
# SUBNET_MASK[0]=255.255.255.0
```

```
# ROUTE_DESTINATION[0]=default
```

```
# ROUTE_MASK[0]=""
```

```
# ROUTE_GATEWAY[0]=192.168.2.100 — increment or change as required
```

```
# ROUTE_COUNT[0]=0 — increment or change as required
```

```
# ROUTE_ARGS[0]=""
```

Installing Scan Software

Step 1. Locate the `hpux_sms_scansw_<major>_<minor>.depot` installation.

Step 2. Start the software installation by entering the following:

```
swinstall -s /<fully qualified path>/hpux_sms_scansw_<major>_<minor>.depot SCAN-SW  
r=V<version number>
```

Step 3. Verify the installation by entering the following:

```
swverify SCAN-SW
```

Installing SMS Tools

Step 1. Locate the `hpux_sms_tools_<major>_<minor>.depot` installation.

Step 2. Start the software installation by entering the following:

```
swinstall -s /<fully qualified path>/hpux_sms_smstools_<major>_<minor>.depot  
SMS-TOOLS r=V<version number>
```

Step 3. Verify the installation by entering the following:

```
swverify SMS-TOOLS
```

Installing SMS Manageability Firmware

Step 1. Locate the `hpux_sms_firmware_<major>_<minor>.depot` installation.

Step 2. Start the firmware installation by entering the following:

```
swinstall -s /<fully qualified path>/hpux_sms_firmware_<major>_<minor>.depot  
UTIL-SYS-FIRMWARE r=V<version number>
```

Step 3. Verify the installation by entering the following:

```
swverify UTIL-SYS-FIRMWARE
```

Configuring scan and fwuu

Step 1. Switch to the `hduser` profile by entering the following at the prompt:

```
# su - hduser
```

Step 2. If the hostname (shown at the prompt below as `<hostname>`) is “privateX,” enter the following:

```
<hostname>% setenv SDP_GENERAL_LAN 1
```

Step 3. Run the scan setup script by enter the following at the prompt:

```
<hostname>% /opt/scansw/bin/scan_setup
```

Verify the following parameters are set as follow:

- hostname—MP private LAN (default is `priv-01`)
- IP address—IP address of the MP private LAN interface
- architecture—Halfdome = 32, Domelight = 16
- modify `.cshrc`—answer “yes”

Step 4. Validate all Core I/Os (CIO) are visible from the MP console by using the `ps` commands from the Command Menu. This data shows only after the system has booted to BIB or further.

```
CM> ps
```

Step 5. Ensure that all partitions are not at the OS level.

Step 6. Change to the `scan` directory by entering:

```
<hostname>% cd /opt/scansw/data
```

Step 7. Run the jet utility by entering the following:

```
<hostname>% jet
```

NOTE If the system does not return in 5-10 seconds, there could be a problem.

Step 8. Change to the complex directory by entering:

```
<hostname>% cd cplx_[gsp_hostname]
```

Verify that jet ran correctly

Running JUST

Step 1. On the SMS, enter the following to run JUST:

```
<hostname>% just -s [GSP hostname]
```

Step 2. Verify the scan tests passed by entering the following at the JUST prompt:

```
just> idv or d
```

If the system is an SD64 (two cabinets), check the flex cables by entering the following:

```
just> cable
```

Step 3. Exit JUST by entering `q` at the just prompt.

Step 4. Power cycle the Superdome system.

Verifying Firmware

Validate the firmware revision by using the `sysrev` command on the MP.

```
CM> sysrev
```

Cleaning Up and Creating a Backup

Step 1. Create a backup tape on the DAT drive by entering the following:

```
# /opt/ignite/bin/make_tape_recovery -A
```

Step 2. Check all MP error logs:

```
ctrl+b, s1
```

B Installation Checklist

This section provides a means of tracking progress to ensure that all steps required for a successful installation are completed.

Using the Checklist

The checklist provided here is an installation aid and should be used only after you have installed a few systems using the detailed procedures described in the body of this manual. This checklist is a compilation of the tasks described in this manual.

The checklist is organized as follows:

PROCEDURES The procedures outlined in this document in order.

IN-PROCESS The portion of the checklist that allows you to comment on the current status of a procedure.

COMPLETED The final check to ensure that a step has been completed and comments.

Major tasks are in **bold type**, subtasks are indented.

Table B-1 Factory-Integrated Installation Checklist

PROCEDURE		IN-PROCESS		COMPLETED	
		Initials	Comments	Initials	Comments
Chapter 2					
Gather LAN information					
Verify site preparation					
	Site grounding verified				
	Power requirements verified				
Check inventory					
Inspect shipping containers for damage					
Unpack SPU cabinet					

Table B-1 Factory-Integrated Installation Checklist (Continued) (Continued)

PROCEDURE		IN-PROCESS		COMPLETED	
	Allow proper clearance				
	Cut polystrap bands				
	Remove sleeves				
	Remove stretch wrap and foam inserts				
	Remove ramps				
	Remove antistatic bag				
	Check for damage (exterior and interior)				
	Remove pallet mounting brackets (front)				
	Remove top bolt from rear pallet mounting bracket				
	Position ramps and ramp extensions				
	Roll cabinet off ramp				
Unpack the peripheral cabinet (if ordered)					
Unpack the Support Management Station (if separate from peripheral cabinet). See Appendix I.)					
Unpack other equipment					
Unpack PDCA and verify the power cord is appropriate for customer's receptacle					
Remove and dispose of packaging material					
Chapter 3					
Move cabinet(s) and equipment to computer room					
Unpack and install blower housings and blowers					
Attach side skins					
Attach side bezels and bezel locks					
Move cabinets into final position					

Table B-1 Factory-Integrated Installation Checklist (Continued) (Continued)

PROCEDURE		IN-PROCESS		COMPLETED	
Attach leveling feet (32 Way)					
Connect Superdome 64 Way cabinets (if required). See Appendix G.					
	Check for proper equipment				
	Identify Cabinet 0 and Cabinet 1				
	Remove 48 V lug plugs on Cabinet 1				
	Position SPU cabinets close to each other (leave space between them)				
	Attach leveling feet on both cabinets				
	Ensure UGUY is set to Cabinet 1 (right cabinet from front)				
	Remove cable access panel on Cabinet 1				
	Ensure UGUY is set to Cabinet 0 (left cabinet from front)				
	Remove cable access panel on Cabinet 0				

Table B-1 Factory-Integrated Installation Checklist (Continued) (Continued)

PROCEDURE	IN-PROCESS	COMPLETED
Remove the ground strap from the back door of Cabinet 0		
Remove back door of Cabinet 0		
Position cabinets next to each other (approx. 1/2 inch)		
Remove door latch from cable access panel		
Install attachment brackets loosely		
Adjust leveling feet		
Complete installation of attachment brackets		
Groom cable access opening with EMI shields (5)		
Install clock cable		
Install USB cable		
Inspect flex cables for damage		
Remove U-turn assemblies (if present)		
Install 6-inch flex cables between cabinets		
Install 8-inch flex cables between cabinets		
Inspect cables for proper installation		
Reinstall back door		
Connect the back panel connector and ground strap		
Install front door bezels, and front and back blower bezels		

Table B-1 Factory-Integrated Installation Checklist (Continued) (Continued)

PROCEDURE		IN-PROCESS		COMPLETED	
	Install front door assembly				
	Connect control panel cable				
	Attach front blower bezel				
	Attach back blower bezel				
Install PDCA					
Check PDCA test points					
Remove EMI panels					
Set up CE tool and connect to Local RS-232 port on GSP					
Power on Circuit Breakers (Housekeeping)					
Check power to BPSs					
Log in to GSP					
Set private and customer LAN IP addresses on GSP					
Connect customer console					
Set up network on customer console					
Connect CE tool to SMS using 9-pin to 25-pin serial cable					
Connect SMS for LAN and console access					
	Set up SMS for private LAN access				
	Set up SMS for customer LAN access				
	Set up SMS for LAN console access				
Power on and boot the SMS					
Set private and customer IP addresses on SMS					
Verify LAN connection to GSP					
Install and verify SMS software					
Chapter 4					

Table B-1 Factory-Integrated Installation Checklist (Continued) (Continued)

PROCEDURE		IN-PROCESS		COMPLETED	
Verify presence of UGUY and cells					
Power on cabinet (48 V)					
Verify system configuration and set boot parameters					
Set automatic system restart					
Run JUST software					
Boot partitions (refer to Table 4-1 on page 87)					
	List partitions to boot				
	List primary boot path for each partition				
	Check boot paths with customer and revise as necessary				
	List logical cell number				
	List physical cabinet # of cell				
	List cell slot # within cabinet				
	List boot device adapter physical location in card cage (slot, cabinet, I/O Bay, and I/O chassis)				
	Install boot device (if required)				
	Power down cell for each partition				
	Connect boot device cable for each partition				
	Power up cell for each partition				
	Boot HP-UX for each partition				
Configure remote login (if required). See Appendix D.					
Verify remote link (if required). See Appendix D.					

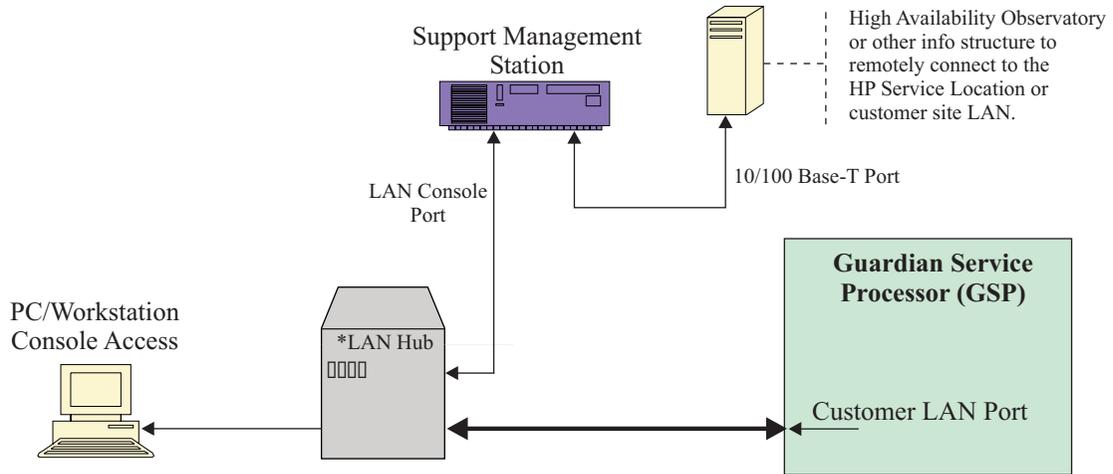
Table B-1 Factory-Integrated Installation Checklist (Continued) (Continued)

PROCEDURE		IN-PROCESS		COMPLETED	
Install non-factory-integrated I/O cards (if required)					
	Select PCI card slot				
	Install PCI card				
	Verify installation				
Route cables through cable groomer					
Install other peripherals (if required)					
Attach rear kick plates					
Perform visual inspection and complete installation					
	Cell board ejectors secure				
	EMI panels installed and secured				
Set up network services (if required)					
Test each e-mail connection					
Enable iCOD notification					
If the customer intends to take advantage of iCOD, ensure they download the iCOD license					
Chapter 5					
Final inspection of circuit boards					
Final inspection of cabling					
Final inspection of test points					
Area cleaned and debris disposed of					
Tools accounted for					
Parts and other items disposed of					
Make entry in Gold Book (recommended)					
Customer acceptance and signoff (if required)					

C Superdome LAN Interconnect Diagram

Gathering LAN information should have been covered as part of site preparation. If it was not, however, remove this sheet and give it to the customer. Have the customer fill in Table C-1 on page 158 with LAN information. Use the following diagram to help correlate the LAN connection with the IP address.

Figure C-1 Customer Supplied LAN Information Requirements



You need customer-supplied LAN information for:

- Customer port on Guardian Service Processor (GSP)
- Console port on Support Management Station (SMS)
- Customer network interface on SMS (10/100 Base-T Port)
- Each network interface on each partition
- PC/Workstation console

Table C-1 LAN Information

LAN Port:	Hostname (GSP Network Name)	IP Address	Subnet Mask	Gateway Address
SD ^a GSP Private	priv- <i>nn</i> (where <i>nn</i> is 01, 02, 03, ...) Default: priv-00	15.99.111.1 <i>nn</i> (where <i>nn</i> is 01, 02, 03, ...) Default: 15.99.111.100	255.255.255.0	15.99.111.99
SD GSP Customer LAN (refer to Figure C-1)				
SMS ^b Customer Port (LAN 1, 10/100 BASE-T Port)				
SMS LAN Console (refer to Figure C-1)				
SMS Private Port	private	15.99.111.99	255.255.255.0	15.99.111.99
PC/Workstation Console				
Partition 0 (Net Interface 1)				
Partition 0 (Net Interface 2)				

Table C-1 LAN Information (Continued)

LAN Port:	Hostname (GSP Network Name)	IP Address	Subnet Mask	Gateway Address
Partition 0 (Net Interface 3)				
Partition 1 (Net Interface 1)				
Partition 1 (Net Interface 2)				
Partition 1 (Net Interface 3)				
Partition 2 (Net Interface 1)				
Partition 2 (Net Interface 2)				
Partition 2 (Net Interface 3)				
Partition 3 (Net Interface 1)				
Partition 3 (Net Interface 2)				
Partition 3 (Net Interface 3)				
Partition 4 (Net Interface 1)				
Partition 4 (Net Interface 2)				
Partition 4 (Net Interface 3)				
SD ^c GSP Private	priv- <i>nn</i> (where <i>nn</i> is 01, 02, 03, ...) Default: priv-00	15.99.111.1 <i>nn</i> (where <i>nn</i> is 01, 02, 03, ...) Default: 15.99.111.100	255.255.255.0	15.99.111.99

- a. Superdome
- b. Support Management Station
- c. Superdome

D Connecting a CE Tool to the GSP Using the Customer LAN

The procedure described here allows direct access to the Guardian Service Processor (GSP) using the Customer LAN port. It lets you telnet directly from your laptop to the GSP. It is meant for more experienced CEs who have performed prior installations and feel at ease deviating from the procedure outlined in the

body of the manual.

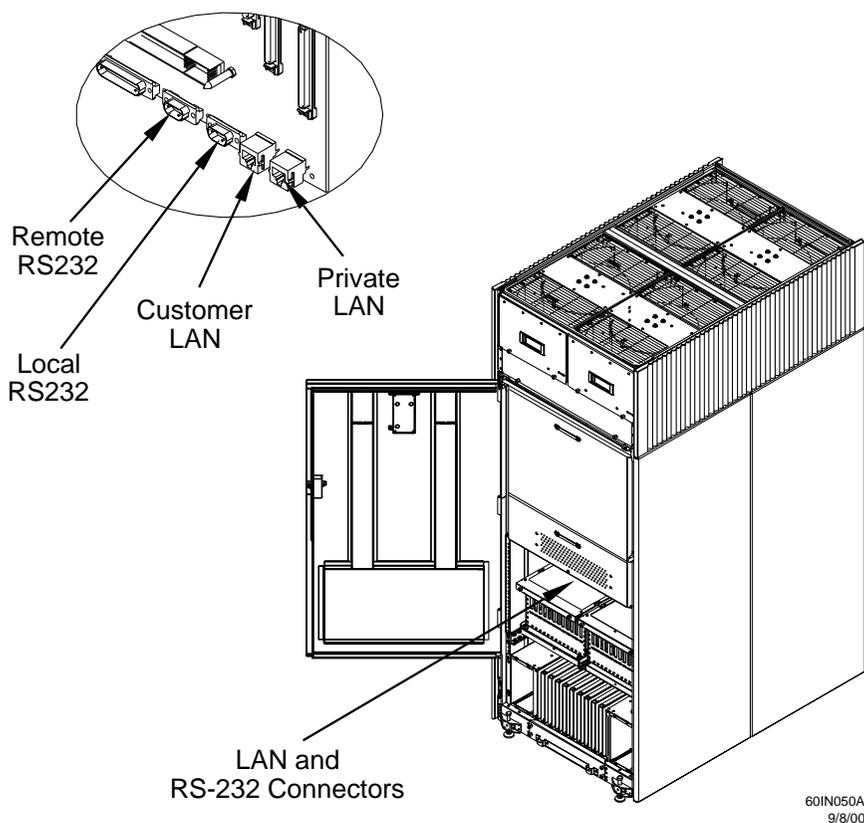
This procedure, which assumes that you are using a laptop running Reflection 1 with a crossover cable, **allows you to display multiple windows** to communicate by connecting to the customer's hub with a regular ethernet LAN cable. The disadvantage to this method is that unless you are on the same subnet as the customer, you have to reconfigure your laptop, and reconfigure it again after you have completed the installation.

To connect to the GSP using the customer LAN and a laptop:

NOTE To make this connection you need a LAN crossover cable (HP Part Number M3199-60102M).

Step 1. Connect one end of the LAN cable to the **Customer LAN** port on the GSP.

Figure D-1RJ-45 LAN and RS-232 Connectors in SPU Cabinet



Step 2. Connect the other end of the LAN cable to the LAN card adapter on the laptop.

Step 3. If you have not already done so, turn on your laptop.

Step 4. Set up a communications link with the GSP.

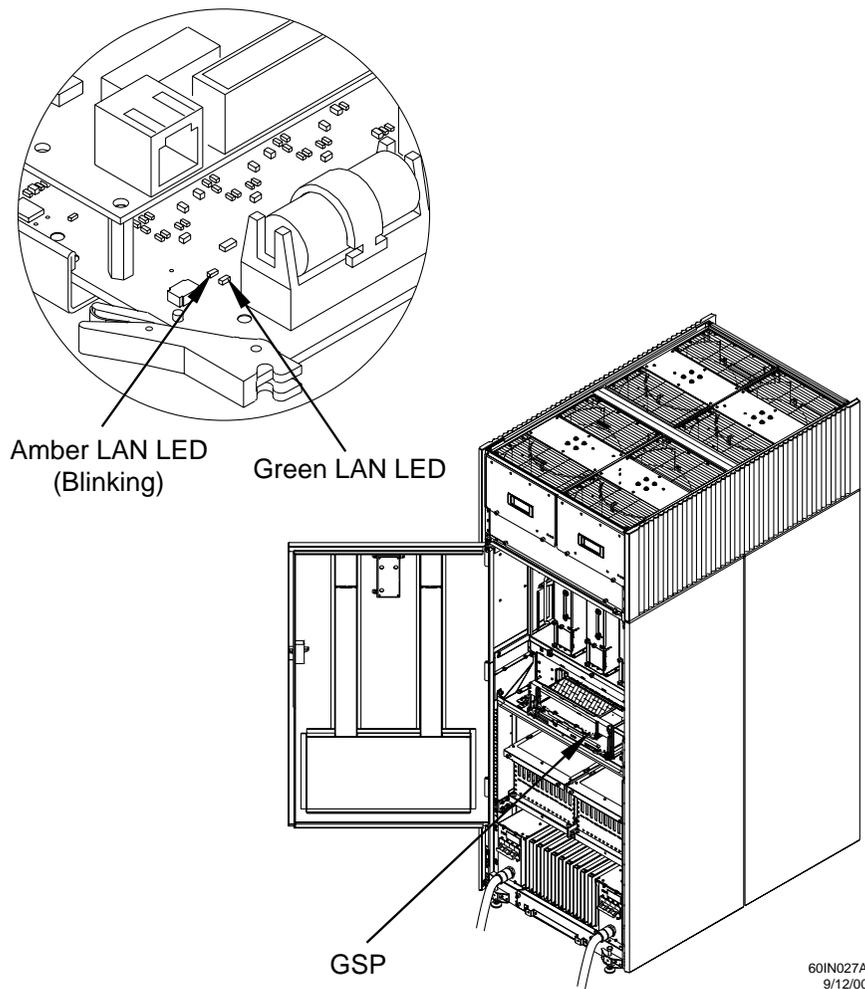
NOTE Do not use Direct Host Connect Protocol (DHCP) for the LAN profile on your laptop. It can lead to network communication failures.

1. Run *Reflection 1* on your laptop.
2. Click on the **Network** radio button.
3. Select **UNIX HOST with VT220 (Reflection 1)**.
4. Click **Connect**.
5. Enter the IP address for the GSP.

The factory default Customer LAN IP address for the GSP is 192.168.1.1. (The factory default Private LAN address for the GSP is 15.99.111.100.) Use this address when installing a system for the first time. After you login to the GSP, you can change this address by using the instructions in “Setting the Private and Customer LAN Information on the GSP” on page 63.

If LAN communications is established, the LAN activity LEDs on the GSP illuminate. One is a green light and the other is a blinking amber light.

Figure D-2LAN Activity LEDs



The GSP powers on and the GSP Login prompt appears (*GSP:login*).

NOTE

If you are unable to connect to the GSP using the crossover cable, you can connect by attaching an RS-232 cable between your laptop and the Local RS-232 port on the GSP. See “Connecting the CE Tool to the Local RS-232 Port on the GSP (Recommended)” on page 57. It takes a few moments for the GSP prompt to appear. If it does not, make sure your laptop serial device settings are correct (8 bits, 1 stop bit, no parity, 9600 baud, and Xon/Xoff), then, try again.

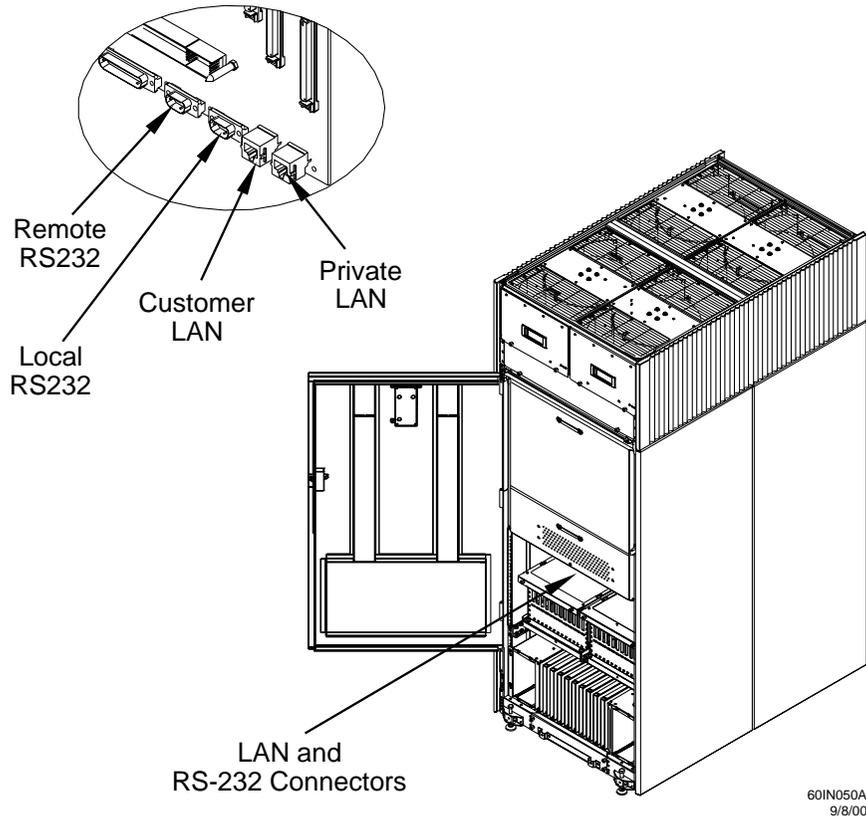
E Accessing the GSP Using a Modem

If you do not have access to the Guardian Service Processor (GSP) over the customer LAN, a modem may be used to access it remotely. A modem is often used in conjunction with a paging device to alert a remote monitor about the condition of the SPU. As with the Local RS-232 connection, **you can display one window only** on your display device. When enabled, it gives you direct access to the GSP and any partition.

To connect the serial display device to the GSP using a modem:

- Step 1.** At the site of the SPU cabinet, connect one end of a modem cable to the **Remote RS-232** port on the GSP.

Figure E-1RJ-45 LAN and RS-232 Connectors in SPU Cabinet



- Step 2.** Connect the other end of the RS-232 cable to the modem.
- Step 3.** Connect a dedicated phone (data) line to the modem.
- Step 4.** Set modem switches as specified in the modem documentation.

To modify the modem configuration to configure remote login, enter **ca** (Configure Asynchronous and Modem Parameters) at the GSP command prompt (*GSP:CM*) and follow the instruction on the screen.

Figure E-2 **The ca Command Screen**

```
GSP> ca

Enter HE to get a list of available commands

GSP:CM> ca

This command allows modification of the asynchronous parameters.

WARNING: Changing the asynchronous parameters requires reboot of the GSP
for proper local operation.

Do you want to modify the asynchronous parameters? (Y/[N])
f1 f2 f3 f4 f5 f6 f7 f8
```

Verifying Modem Communications

Verify the modem communications using the following procedure:

Step 1. If you have not already done so, get the modem phone number from the customer.

Step 2. Contact the testing organization.

Organizations may include: the World Wide System Integration Team (WWSIT) or the Global System Division (GSD).

Step 3. Provide the organization with the phone number and parameters set using the GSP `ca` command.

Step 4. Request confirmation of the communication link, or check the modem light for activity.

F A180 Support Management Station

Installing the A180 Support Management Station

This appendix contains information on how to install an A180 Support Management Station (SMS). Many of the procedures that apply to the A500, which is described in Chapter 3, also apply to the A180. For your convenience, those procedures have been repeated in this appendix.

This section describes the procedures to:

- Rack the SMS and its related peripherals, connect a local serial display device (console), and install appropriate cables.
- Set up the SMS to run scan software, to run the Boot Chassis Code Decoder tool, and to update firmware.

IMPORTANT Please use the new JUST Exploration Tool described in Appendix H, “JUST Exploration Tool,” on page 207 for running scan tests.

- Connect the customer’s LAN to the SMS.

Racking the A180 SMS and Peripherals

If you put the SMS and its peripherals in a rack, allow two EIA units for the A-Class server, the DVD player, and the DDS tape drive.

To unpack and rack the SMS, follow the A-Class instructions that came with the server, or refer to the following URL: <http://class.hp.com/hpus/systems/#aclass>.

Connecting SCSI Cables and Setting SCSI Addresses on the A180 SMS

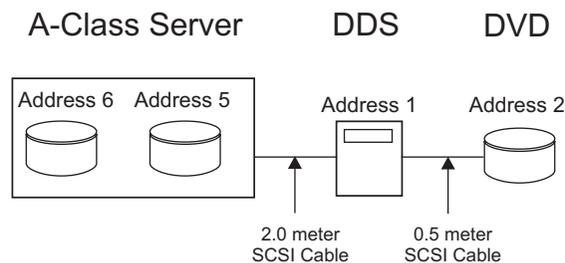
After the SMS components have been removed from their packaging, and have either been placed in a rack or stacked together on a table, the SCSI cables can be installed and the SCSI addresses can be set.

NOTE Make sure all devices on the SCSI bus have a unique address and that the last device is terminated. Refer to the documentation accompanying each device to learn where to place terminators.

To connect the SMS peripherals and set SCSI addresses:

- Step 1.** Connect the cables between the SMS, DDS tape drive, and DVD.

Figure F-1 Connecting DDS Tape and DVD/CD-ROM Drives to SMS



- Step 2.** Connect the power cables, one for each peripheral and one for the SMS.

Step 3. Set the SCSI ID of the DDS tape drive to **1** and the SCSI ID of the DVD to **2**.

The hard drive is preset to **6**, and **5** is available for another internal SCSI device.

Refer to the documentation accompanying each device to learn how to set SCSI addresses.

Step 4. Power on the DDS and DVD devices.

Step 5. Power on the SMS.

Setting Up the A180 Support Management Station Using the Web Console or the Serial Port

You can access the Support Management Station (SMS) to configure it in two ways: using the Web console port or using the serial console port. The method you choose depends on whether the customer has given you an IP address for the Web console. If you have an IP address for the Web console, refer to “Setting Up the A180 SMS Using the Web Console Port,” which follows. If you don’t have an IP address for the Web console, refer to “Setting Up the A180 SMS Using the CE Tool” on page 174.

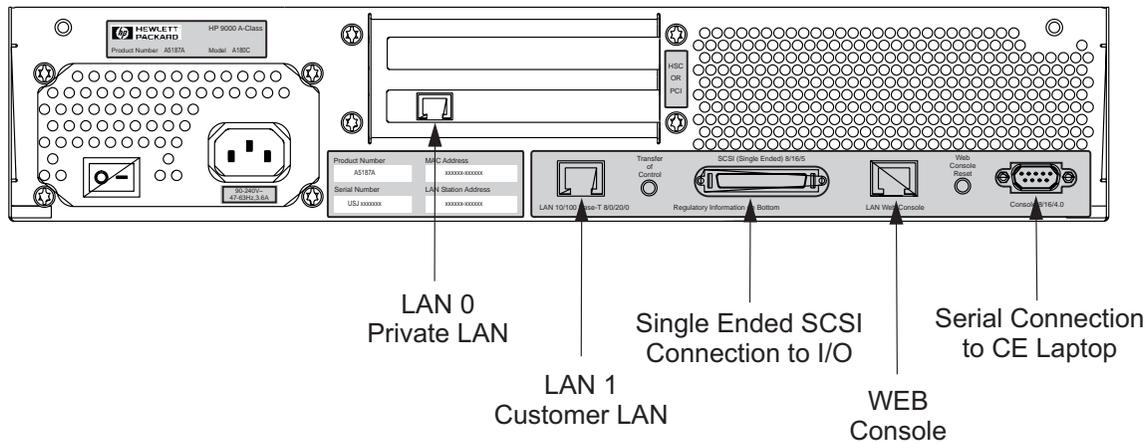
Setting Up the A180 SMS Using the Web Console Port

Setting up the SMS using the Web console port requires a customer-supplied IP address. If you do not have an IP address for the Web console, skip to “Setting Up the A180 SMS Using the CE Tool” on page 174.

To set up the SMS using the Web console port:

- Step 1.** Connect one end of a standard LAN cable to the **Web Console** port on the SMS.

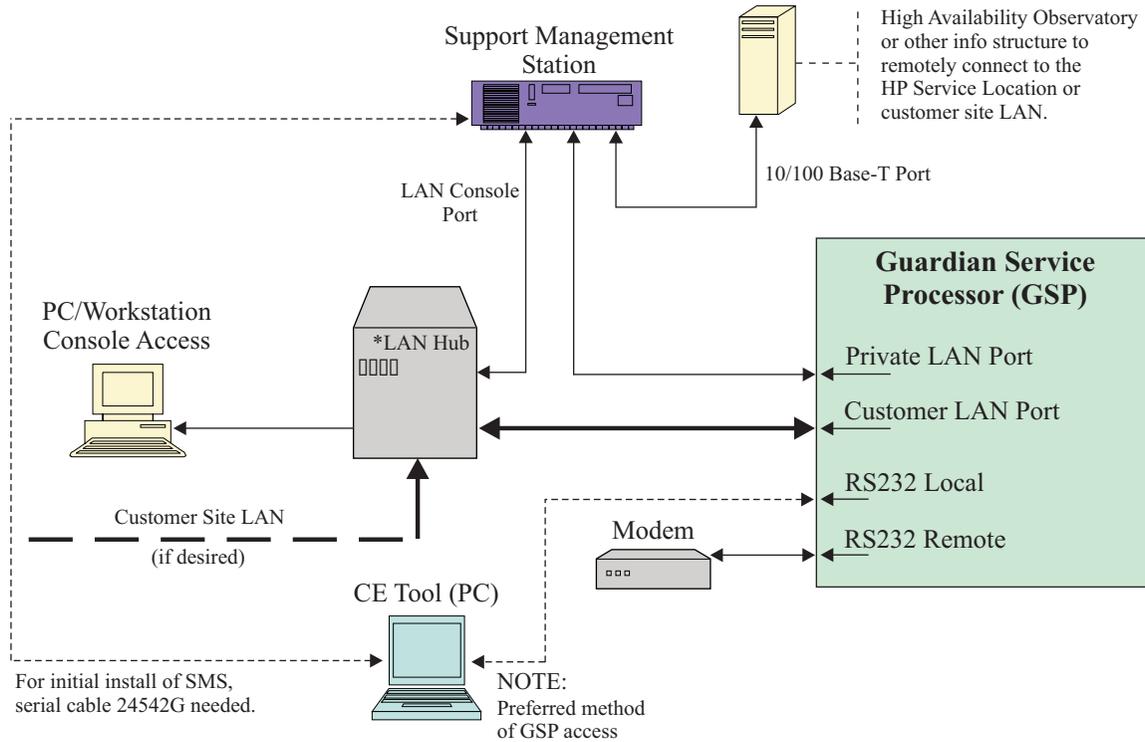
Figure F-2A180 Support Management Station Ports



- Step 2.** Connect the other end of the cable to the local network (usually a customer hub).

In Figure F-3 on page 173, this connection is shown as a solid line between the *LAN Hub* and the *Support Management Station*.

Figure F-3 Superdome LAN Interconnect Diagram



- Step 3.** Connect one end of a standard LAN cable to the port labeled **LAN 1 Customer LAN** in Figure F-2 on page 172.
- Step 4.** Connect the other end of the LAN cable to the local network (customer hub).
- Step 5.** Power on the SMS and wait about 45 seconds for it to complete its self test.
The power switch on the SMS is at the lower left on the back of the system.
- Step 6.** On your display device (CE tool, PC/workstation console), ping the default address of the Web console.
The default IP address for the Web Console is **192.0.0.192**.
If the Web console responds, go to step 9. If it does not, go to step 7.
- Step 7.** On your display device, enter `route add 192.0.0.192 <your IP address>`.
- Step 8.** Ping the IP address 192.0.0.192 again.
If it responds, continue. If it does not, try using a display device that is connected to the same "c" class subnet as the Web console and built-in port. Or, enter the command `arp -s 192.0.0.192 <MAC_address of web console>`. (The MAC address is on a label at the back of the A180.) Then, repeat step 6.
- Step 9.** After the Web console responds to a ping command, run your Web browser.
You can use Netscape or Internet Explorer. Make sure the version number is 3.02 or above.

Setting Up the A180 Support Management Station Using the Web Console or the Serial Port

Step 10. Verify that JAVA is enabled.

Step 11. In the address window, enter `http://192.0.0.192`.

If an error message appears, change your browser configuration to satisfy the error. Usually you have to turn off proxies.

Step 12. At the Web console screen on your browser, enter the user name `hduser` and set the password as `hd user` (`hd<space>user`).

By typing the username as `hduser` and the password as `hd user`, you keep the username/password combination the same as that of the OS on the SMS.

Step 13. Enter the Web console name, IP address, subnet mask, IP gateway, and system name.

The Web console reboots using the parameters you specified.

Step 14. In the address window of your browser, enter the new IP for the Web console.

For example, `http://111.222.333.444`.

Step 15. After logging in, click on **Access Console**.

A console window appears and you should see the BCH prompt.

You are now ready to boot the OS on the SMS. Refer to “Loading and Booting the OS on an A180 Support Management Station” on page 175.

When you are finished with the Web console, click on **Close Console**, then **Exit**.

Setting Up the A180 SMS Using the CE Tool

In addition to the Web console port, the serial console port on the SMS can be used with your CE laptop to set up the SMS operating system and additional software applications. Typically, this method is used when you do not have an IP address for the Web console.

NOTE The serial console port cannot be used to configure the Web console.

Step 1. Disconnect the serial cable from the Local RS-232 port on the Superdome GSP and the CE tool.

Step 2. Connect one end of a serial cable to the CE tool.

Use a null modem cable (9-pin to 9-pin) to make this connection.

Step 3. Connect the other end to the port labeled **Serial Connection to CE Laptop** in Figure F-2 on page 172.

In Figure F-3 on page 173, this connection is shown as a dotted line between the *CE TOOL (PC)* and the *SUPPORT MANAGEMENT STATION*.

Step 4. If you have not already done so, set up Reflection 1, or other appropriate terminal emulator software to connect with the port at 9600, 8/none, and HP-TERM. Refer to “Setting Up the CE Tool (PC)” on page 56.

You are now ready to boot the OS on the SMS. Refer to “Loading and Booting the OS on an A180 Support Management Station” on page 175.

Loading and Booting the OS on an A180 Support Management Station

Use the following procedure to boot an A180 Support Management Station (SMS) using either the Web console port or the serial console port:

Step 1. Boot the disk.

If the path is not correct, execute `sea` from BCH and reset the primary path, if needed. If the disk is not set up to automatically boot, continue with the next step. If the disk is set up to automatically boot, skip to step 5.

Step 2. Load the HPUX 11.x CoreOS CD in the drive and boot from that path.

Take the standard defaults for the installation. If it reboots automatically, refuse the network installation for now. Answer the questions required.

Step 3. After the OS loads, add the driver for the add-on LAN card.

1. Create a directory on which to mount the CD.

For example, `mkdir /CD`.

2. Load the applications CD in the CD drive.

3. Mount the drive.

For example, `mount/dev/dsk/c0t1d0 /CD`.

If you set the SCSI addresses differently, substitute that target for `cot1d0`.

Step 4. Execute the program, `swinstall -s /CD`.

Check the listings and select the A5230A driver (btlan5) and install it.

Step 5. After the OS reboots, enter the data for installing the network.

Step 6. Enter `set_parms initial`.

The program, `set_parms`, configures LAN 0 (the PCI LAN card) on the SMS, not the private LAN. The program runs and asks for such information as date/time, networking, root password (serialbus), etc.

If you have already answered some of the `set_parms` questions, you may need to run `set_parms network` only.

Step 7. Set the networking parameters.

You need to know if the site you are connecting to is using DHCP, DNS, NIS, and how to configure them. The system administrator or site network administrator has this information.

Step 8. Reboot the SMS by typing the command, `/etc/reboot`.

Step 9. Login as `hduser` and enter the password `hd user` to start the SMS environment and confirm the file system sizes, networking functionality, etc.

Connecting the A180 Support Management Station for LAN (Private and Customer)

The Support Management Station (SMS) can be integrated into the customer's LAN, so that it can be accessed from the customer console or from a remote console device. In addition, the SMS is connected directly to the SMS Guardian Service Processor (GSP) to support such functions as updating firmware and running JTAG Utility for Scan Tests (JUST) software. The sections that follow explain how to make these connections.

IMPORTANT Please use the new JUST Exploration Tool described in Appendix H, "JUST Exploration Tool," on page 207 for running scan tests.

Setting Up the A180 SMS for Private LAN Access

A SMS is equipped with a LAN card that is specifically intended for use as a direct communications link with the Superdome GSP. Superdome-related SMS functions, such as updating firmware and running JUST, are performed over this LAN link. For this LAN port to work, the SMS must be powered on and the operating system must be running.

To set up the SMS for private LAN access:

- Step 1.** Connect one end of the customer-supplied LAN cable to the RJ-45 connector labeled **LAN 0 Private LAN** in Figure F-2 on page 172.
- Step 2.** Connect the other end of the LAN cable to the right RJ-45 connector marked **Private LAN** at the back of the SPU cabinet.

Setting Up the A180 SMS for Customer LAN Access

The procedure in this section describes how to connect a LAN cable to allow LAN access to the SMS to perform functions such as JUST (scan) tests and firmware update. For this LAN port to work, the SMS must be powered on and the operating system must be running.

To connect the SMS for LAN console access:

- Step 1.** Connect one end of the customer-supplied LAN cable to the RJ-45 connector labeled **LAN 1 Customer LAN** in Figure F-2 on page 172.
- Step 2.** Connect the other end of the LAN cable to the customer's hub.

Setting the Private and Customer IP Addresses on the Support Management Station

In a previous procedure, you set the IP address for WEB console access to the Support Management Station (SMS). In this section you will set the IP address for the Private LAN connection to the Guardian Service Processor (GSP) on the Superdome, and the IP address for customer LAN access to the SMS.

With the SMS booted, use the HP-UX commands to set the IP address for the add-on LAN device.

NOTE The customer should supply the IP address for customer LAN access.

NOTE You have now completed the installation of the A180 SMS. To complete the Superdome installation process, refer to “Verifying the LAN Connections” on page 74, and continue.

Setting the Private and Customer IP Addresses on the Support Management Station

G Connecting Multiple SPU Cabinets

This appendix discusses the procedure to install a Superdome 64 Way. The Superdome 64 Way is a two-cabinet Superdome connected both physically and electronically.

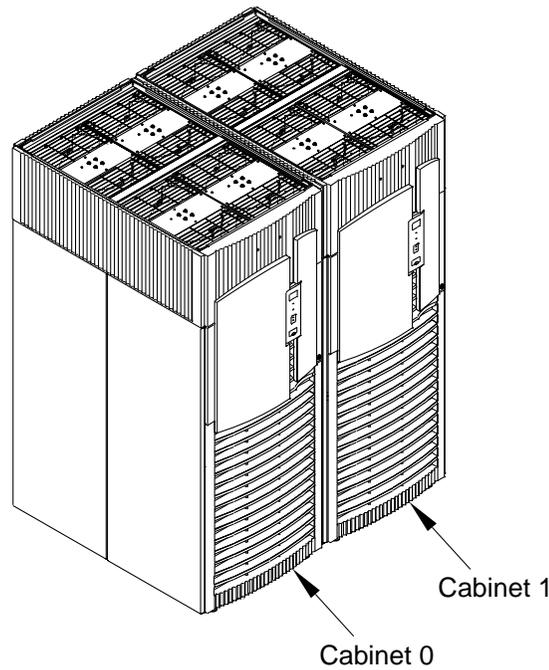
NOTE These instructions assume that you have unpacked both SPU cabinets using the unpacking instructions that came with the cabinets. Refer to “Unpacking the Superdome SPU Cabinet” on page 16.

To successfully complete the installation of a Superdome 64 Way, you must know which of the cabinets is Cabinet 0 and which is Cabinet 1. From the front of the cabinets, Cabinet 0 (Serial Number A5201A) should be positioned on the left, and Cabinet 1 (Serial Number A5202A) should be positioned on the right. The figure below shows the cabinets from the front.

The cabinets should be attached before the skins are put on.

The leveling feet must be put on after the skins are installed because of the interference between the right side panel screw and the leveling feet.

Figure G-1 Final Cabinet Positions and Numbers



60IN022A
7/21/00

Equipment Checklist

Check that you have the following equipment before you begin assembling and cabling the system:

- Leveling feet
- Cabinet brackets and screws (set of four)
- USB cable (P/N A5201-63058)
- 5" flex cables (set of six)
- 8" flex cables (set of two)

Positioning the SPU Cabinets for Connection

After unpacking the second cabinet, and verifying that you have Cabinet 0 (A5201A) and Cabinet 1 (A5202A), position them next to each other so that Cabinet 0 is to the left of Cabinet 1 as you face the cabinets from the front.

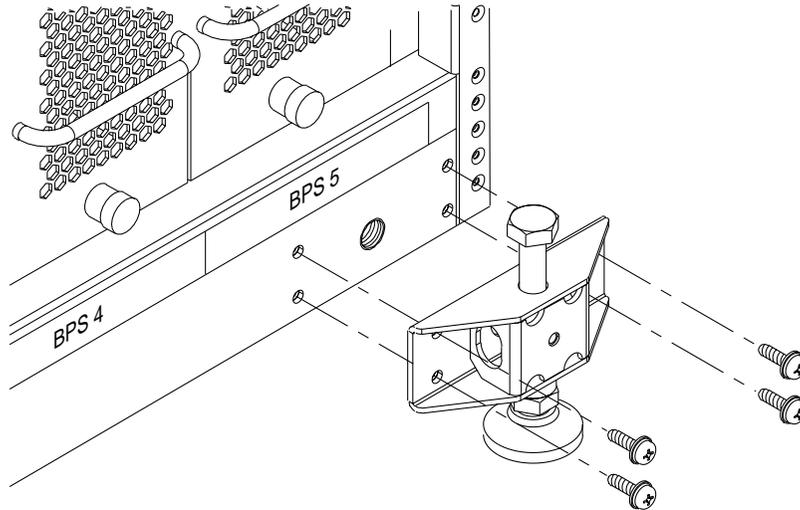
The system model number is on the label located at the bottom front of the cabinet.

Attaching the Leveling Feet on the SPU Cabinets

After you position the SPU cabinets, attach the leveling feet using the following procedure:

- Step 1.** Remove the leveling feet from their packages.
- Step 2.** Attach the leveling feet to the cabinet using four (T25 Torx) screws.

Figure G-2 Attaching the Leveling Feet



60IN016A
6/2/00

- Step 3.** Level the cabinets.

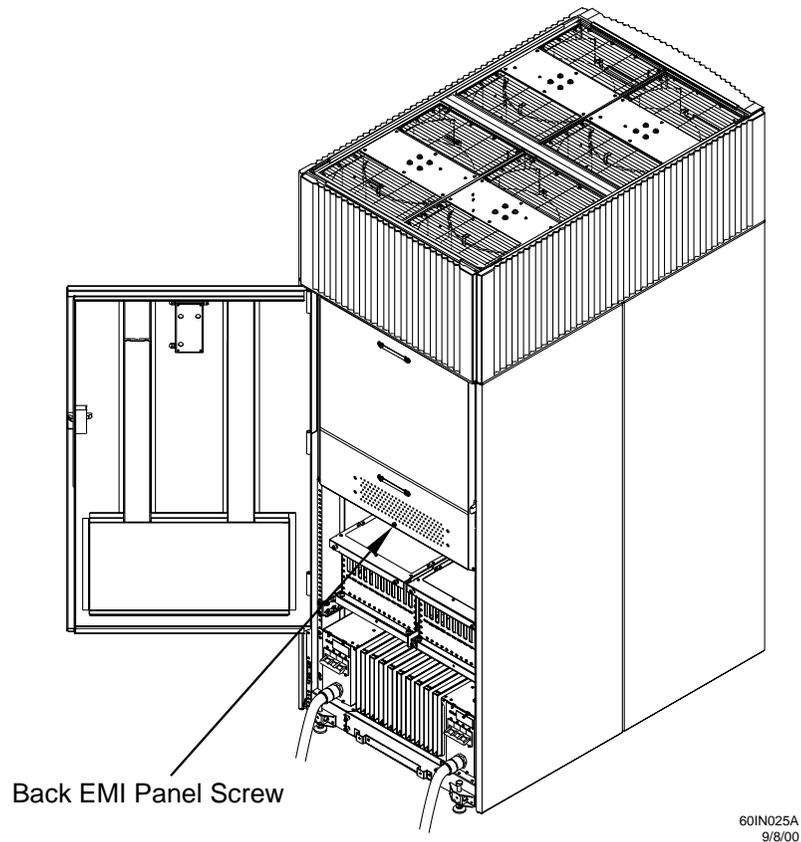
Removing the Rear EMI Panel

To make the necessary switch settings and to connect the proper cables, you'll need to remove the back EMI panel from each cabinet.

To remove the back EMI panel:

Step 1. Loosen the captive screw at the lower center of the back EMI panel.

Figure G-3 Removing the Back EMI Panel



Step 2. Use the handle provided to gently remove the EMI panel and set it aside.

Step 3. Remove the EMI panel for the other cabinet shipped with the system.

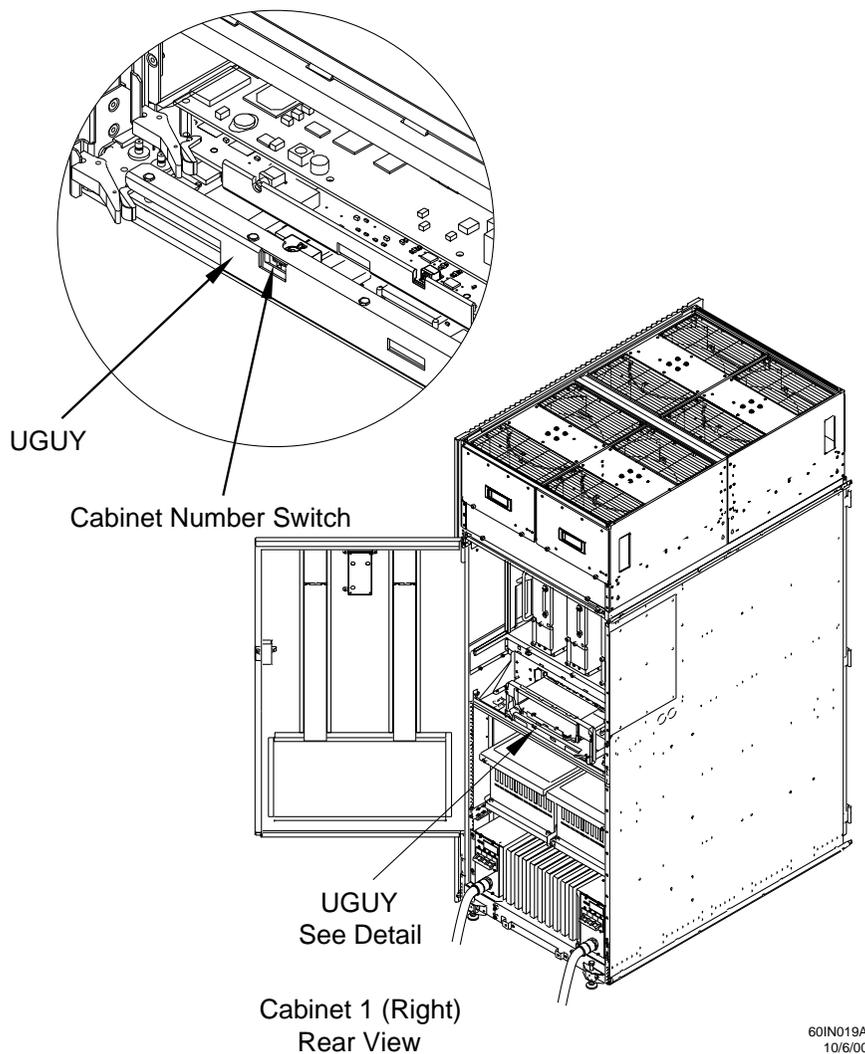
Preparing Cabinet 1 for Connection

Before you connect the cabinets, prepare Cabinet 1, the right cabinet (as you face the front of the both cabinets):

Step 1. Ensure that the UGUY is set as Cabinet 1.

The cabinet number is clearly marked on the UGUY board, just below the Cabinet Number Switch.

Figure G-4 Cabinet Number Location



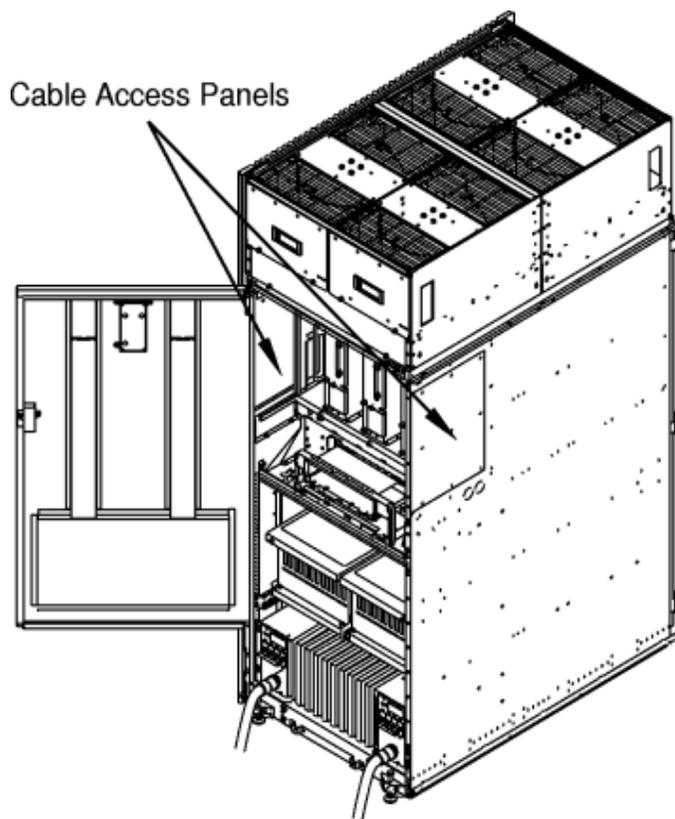
If the switch is not set to **1**, change it by turning the thumbscrew.

Remove the latch catch and associated hardware first; they will be needed later.

Step 2. Using a T20 driver, remove the cable access panel on the right as you face the rear of Cabinet 1. Keep the flathead screws.

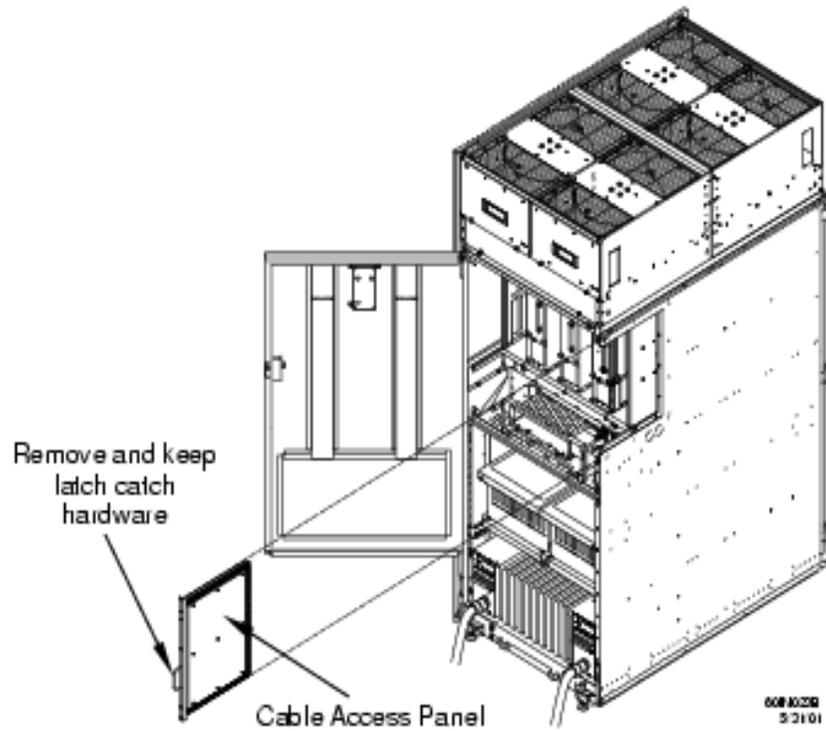
Remove the panel on the right side only.

Figure G-5 Cable Access Panel (before removal)



60IN023A
10/800

Figure G-6 Cable Access Panel (after removal)



Step 3. Remove the door latch from the cable access panel. You will reattach it to the cabinet later in this procedure.

Preparing Cabinet 0 for Connection

Before you connect the cabinets, prepare Cabinet 0, the left cabinet (as you face the front of the two cabinets):

Step 1. Ensure that the UGUY is set as **Cabinet 0**.

The cabinet number is clearly marked on the UGUY board, just below the Cabinet Number Switch.

If the switch is not set to **0**, you can change it by turning the thumbscrew.

Step 2. Remove the back door of Cabinet 0.

1. Remove the connector to the back panel.

NOTE	Remove the connector from the ribbon cable. Do not remove the ribbon cable from the back control panel.
-------------	---

2. Remove the grounding strap from the door.
3. Remove the door by lifting it up and off of its hinges.
4. Remove the hinge bracket.

Step 3. Using a T20 driver, remove the cable access panel on the left side as you face the rear of Cabinet 0. Keep the hardware.

Remove the left panel only. This panel is no longer needed and should be disposed of.

Connecting the Cabinets

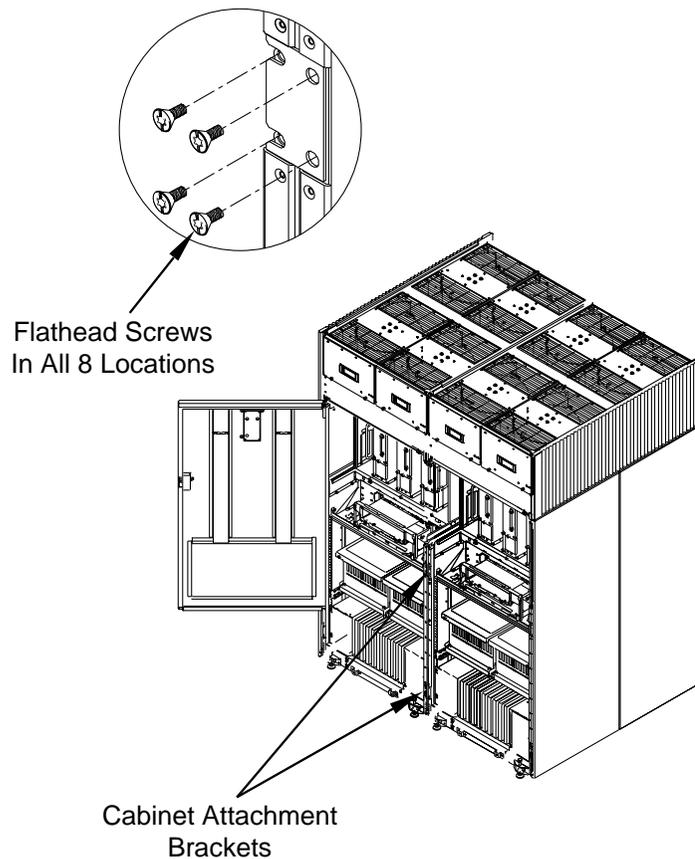
After preparing Cabinets 0 and 1, you are ready to connect them.

Installing the Rear Attachment Brackets

To install the rear attachment brackets:

- Step 1.** Orient the attachment brackets (A52201-00241) so that the countersunk side faces out.
- Step 2.** Using a T30 Torx driver, install each bracket using the flathead screws (0515-3210) provided in this kit.

Figure G-7 Installing the Rear Attachment Brackets



Installing the Front Attachment Brackets

This section describes how to install the front attachment brackets. Unlike the rear attachment bracket procedure, it is not necessary to remove the door and hinge at the front of the cabinet. To install the front attachment brackets:

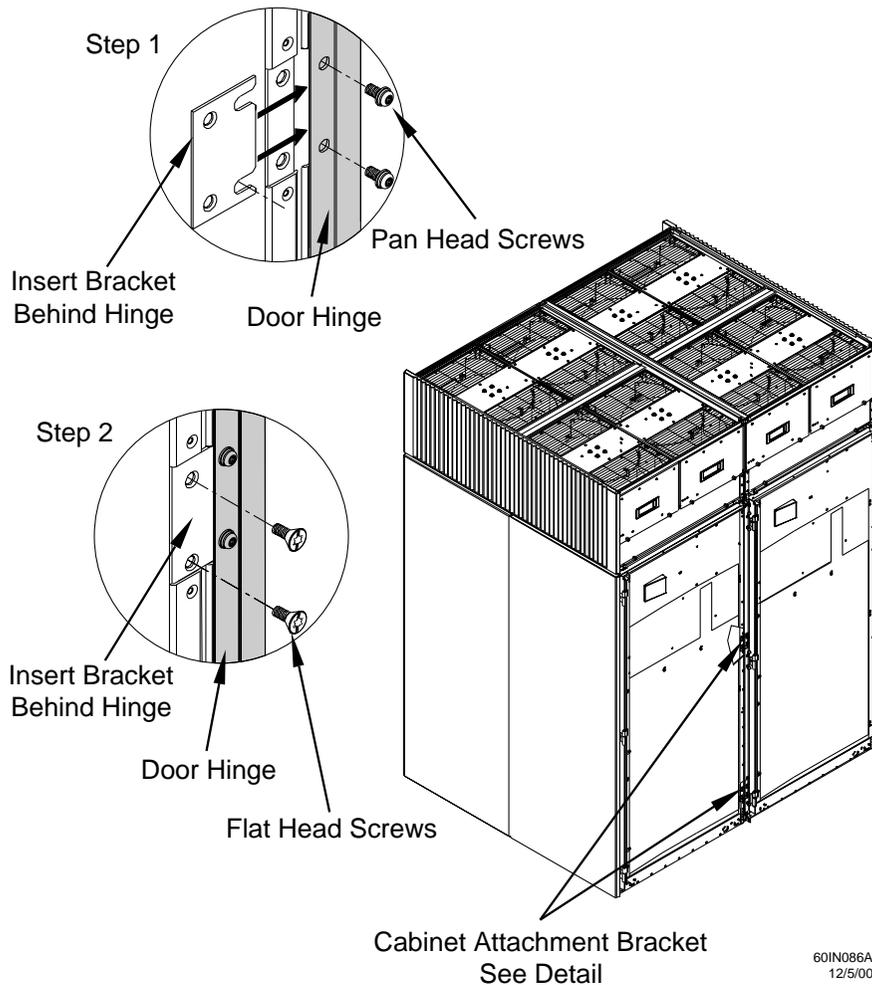
- Step 1.** On Cabinet 1, loosely install four (4) pan head screws (0515-0441) through the holes in the hinge, two for each attachment bracket. Refer to Figure G-8, Step 1.

Connecting the Cabinets

Step 2. Slide the slotted side of the attachment bracket (A5201-00241) into the slots between the cabinet and the hinge, so that the slots on the brackets fit around the pan head screws.

NOTE Make sure the bracket is between the back of the hinge and the front of the cabinet frame.

Figure G-8 Installing the Front Attachment Brackets



Step 3. Attach the remaining four (4) flathead screws (0515-3210) provided to install the brackets to Cabinet 0, two for each bracket.

Step 4. Using a T30 Torx driver, tighten all eight screws.

Grooming the Cable Access Opening

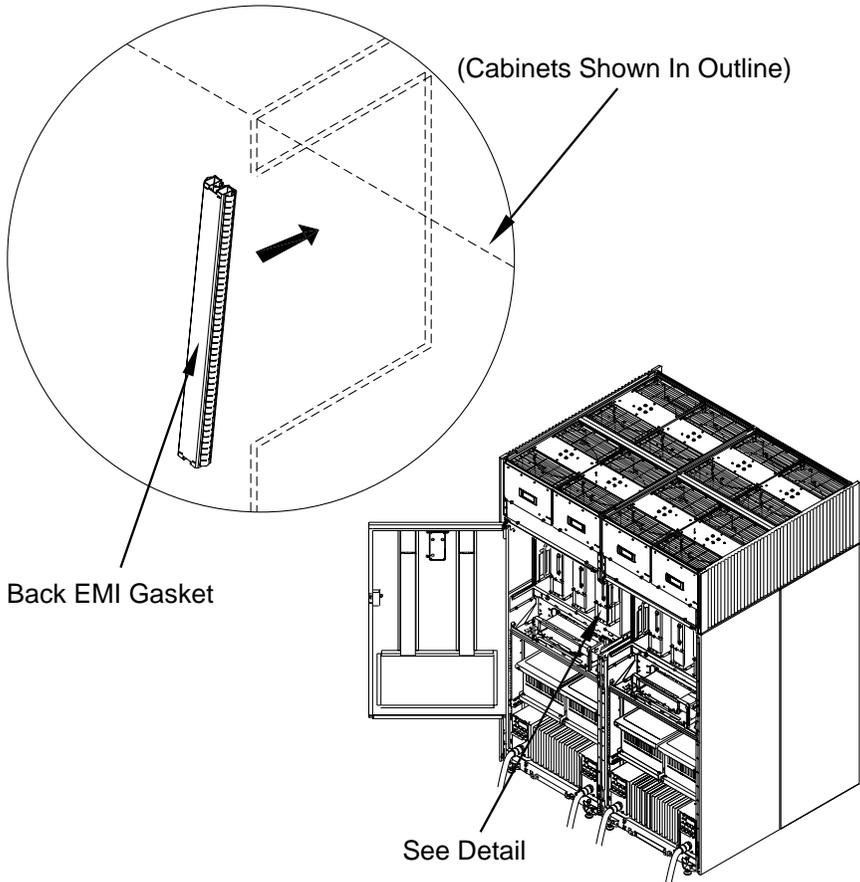
After removing the cable access panels and connecting the cabinets, you need to complete the physical connection of the cabinets by attaching electromagnetic interference (EMI) gaskets into the cable access opening.

Step 1. Attach the back access panel EMI gasket.

Position the gasket at the back on the access opening and press it into position.

NOTE Be sure the gasket is firmly seated in place.

Figure G-9 Installing the Back Access Panel EMI Gasket

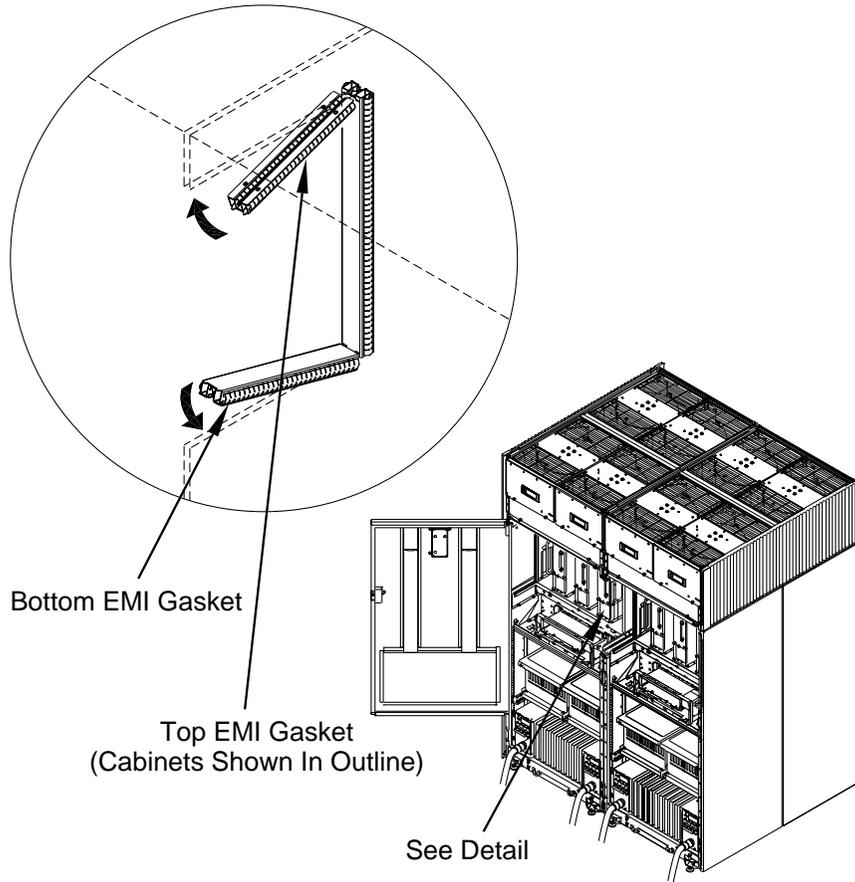


60IN074A
10/9/00

Step 2. Attach the bottom access panel EMI gasket.

Position the bent tabs on the gasket into the slots on the back EMI gasket, then push the gasket down and into place.

Figure G-10 Installing the Bottom and Access Panel EMI Gaskets



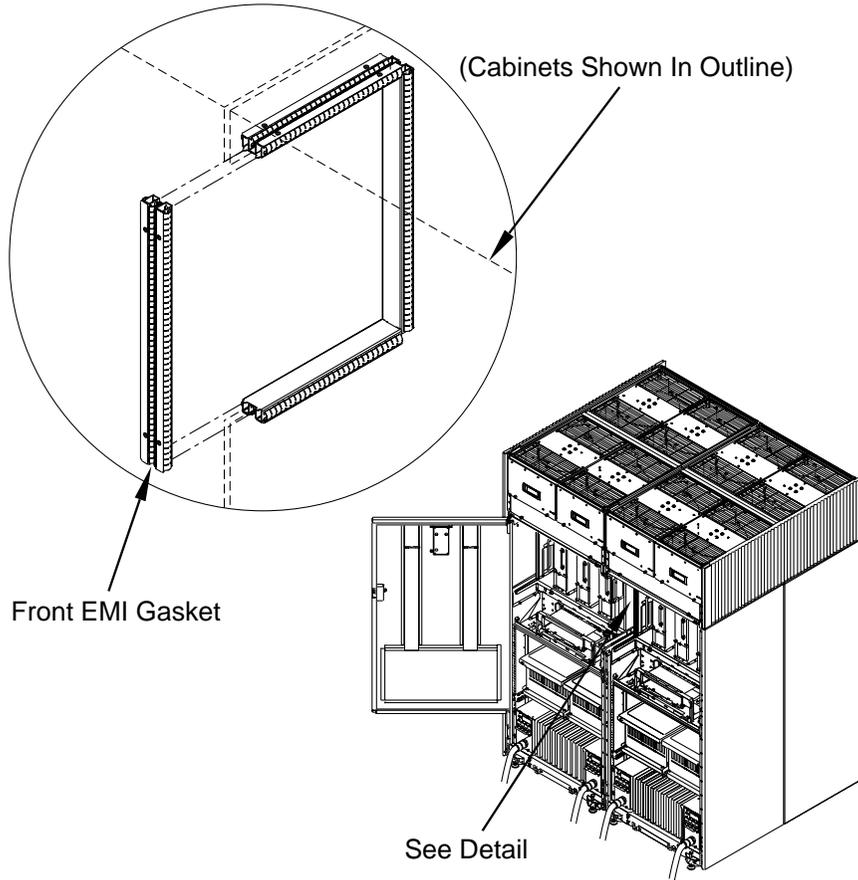
60IN075A
9/9/00

Step 3. Attach the top access panel EMI gasket.

Position the bent tabs on the gasket into the slots on the back EMI gasket, then push the gasket up and into place.

Step 4. Attach the front access panel EMI gasket.

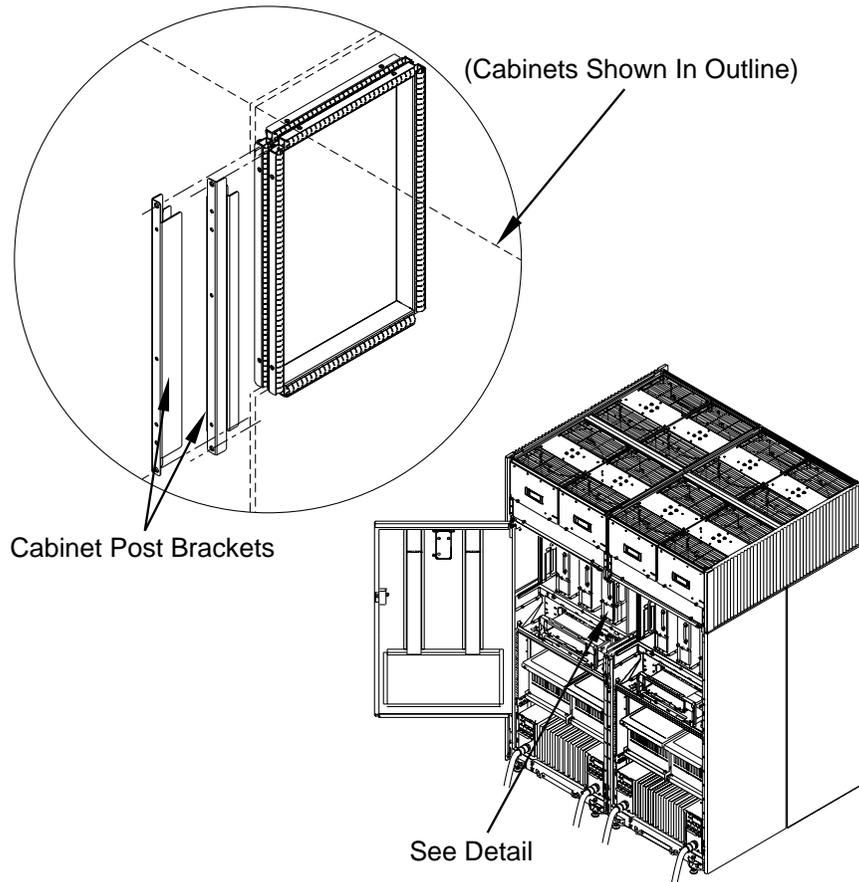
Figure G-11 Installing the Front Access Panel EMI Gasket



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10/9/00

Step 5. Install the two post brackets (A5201-00335) and attach the four screws.

Figure G-12 Installing the Cabinet Post Brackets



60IN077A
10/9/00

Step 6. Install the latch catch that was removed from the cable access panel to the cabinet post bracket.

Connecting Cables

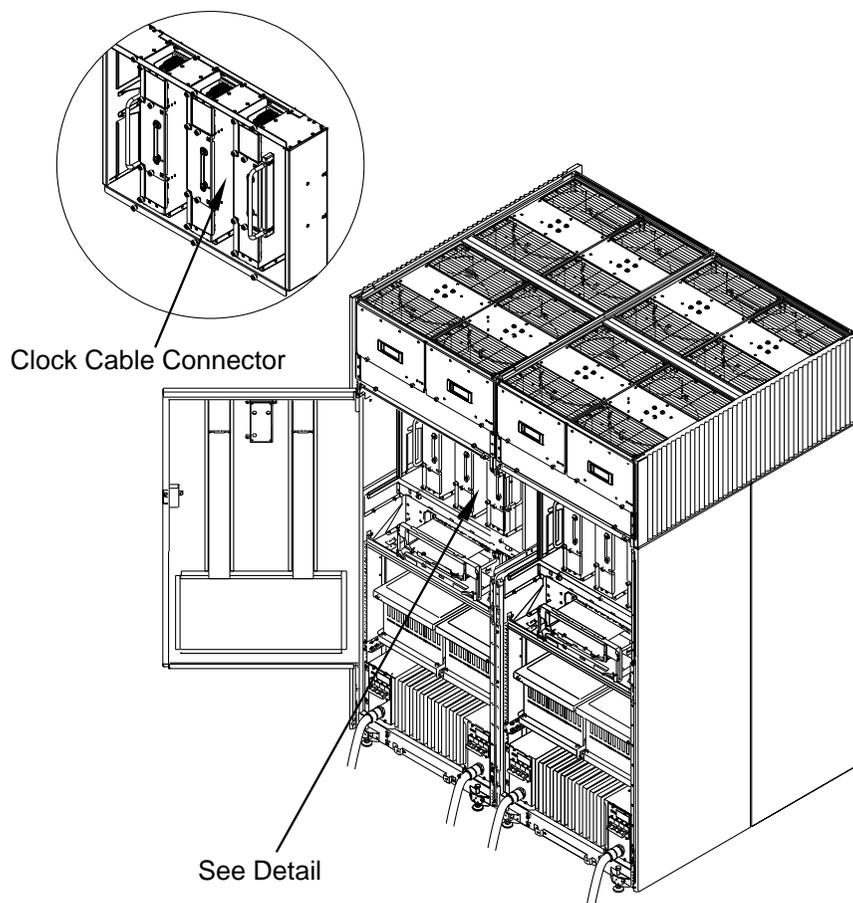
After connecting the cabinets on a Superdome 64 Way, you need to make the electronic connections. Use the following procedure to connect cables on a multi-cabinet system:

Step 1. Install the clock cable.

1. Locate the clock cable ports at the back of the left cabinet.

There should be a coiled clock cable connected on the backplane of Cabinet 1 at connector J28.

Figure G-13 Clock Cable Location on Cabinet 1

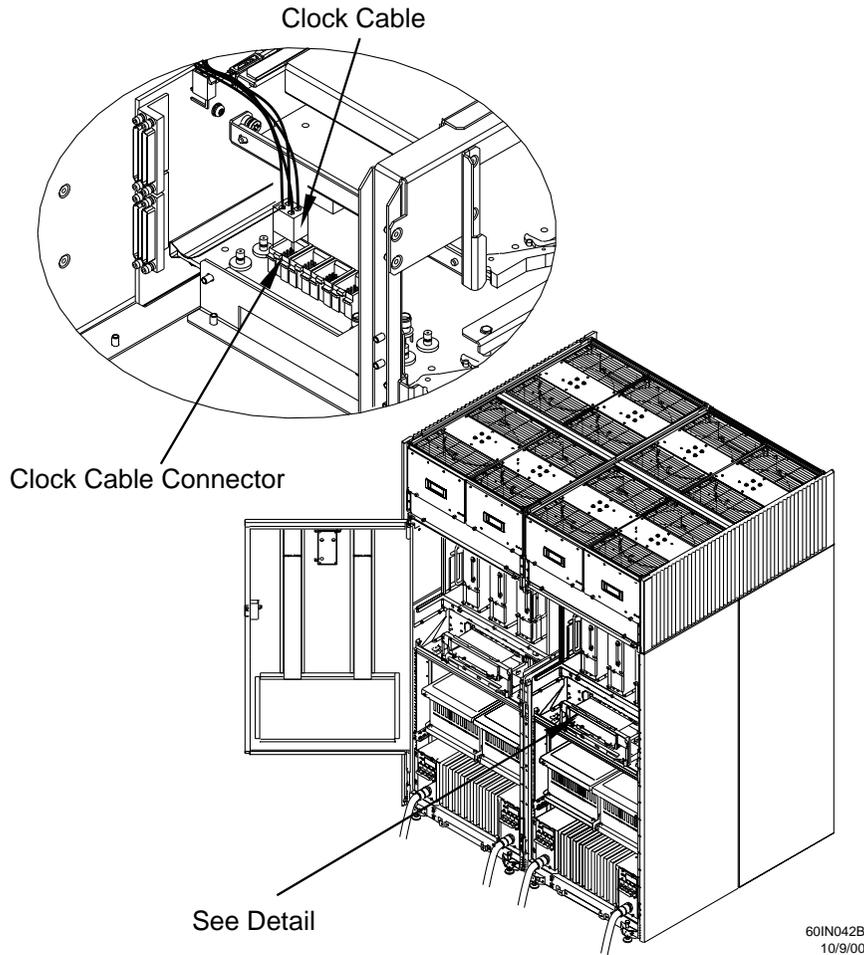


60IN069A
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2. Uncoil the clock cable and connect it to the RBP connector on the Cabinet 0 UGUY board.

Route the cable through the cable access opening between the cabinets.

Figure G-14 Clock Cable Connected to UGUY on Cabinet 0



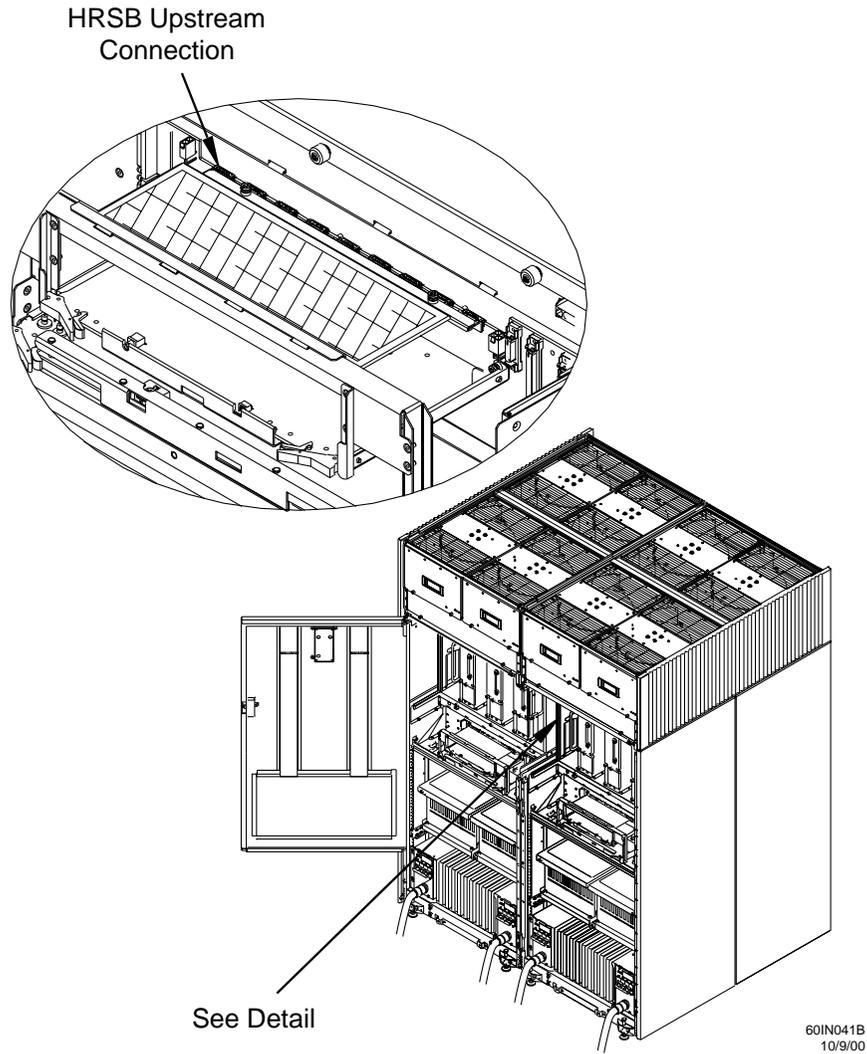
Step 2. Install the Universal Serial Bus (USB) cable (A5201-63058).

The USB ports are located on the top edge on the Utilities Connector Board (UCB). Make the connection from Cabinet 0 to Cabinet 1.

The connectors on the USB cable are marked UPSTREAM and DOWNSTREAM.

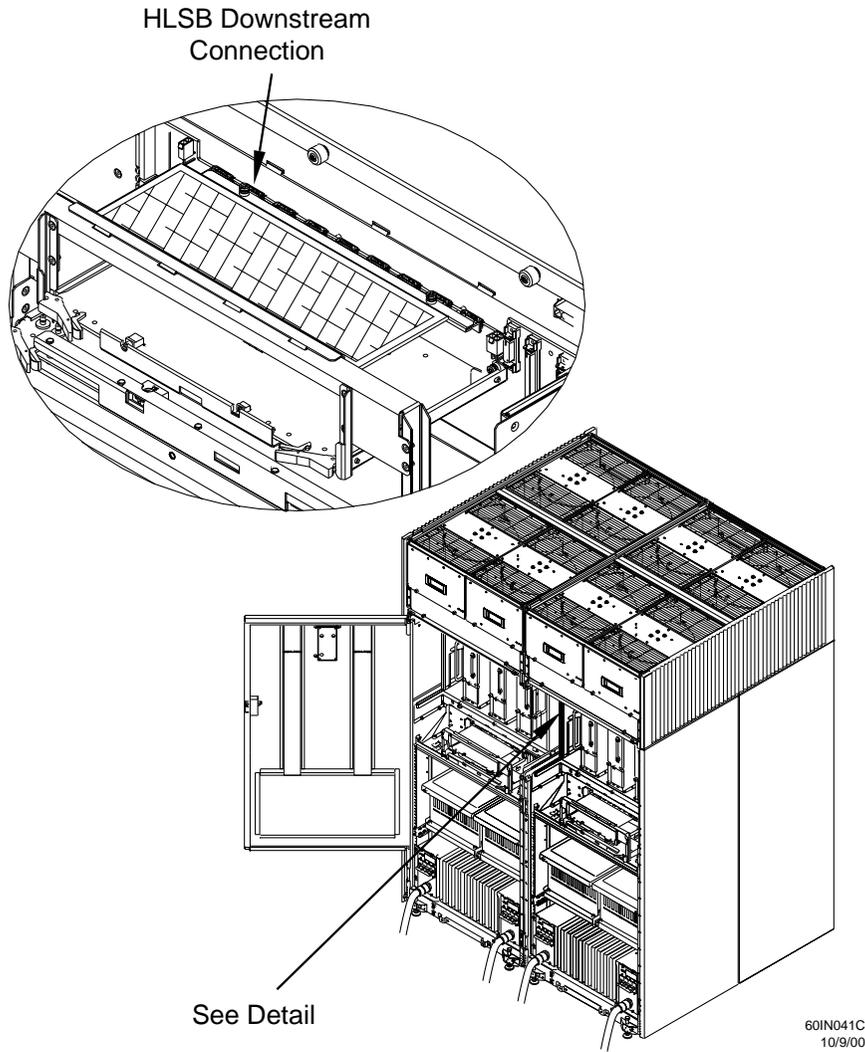
1. Attach the Upstream connector to the connector on the far left on Cabinet 1.

Figure G-15 Cabinet 1 Upstream Connector



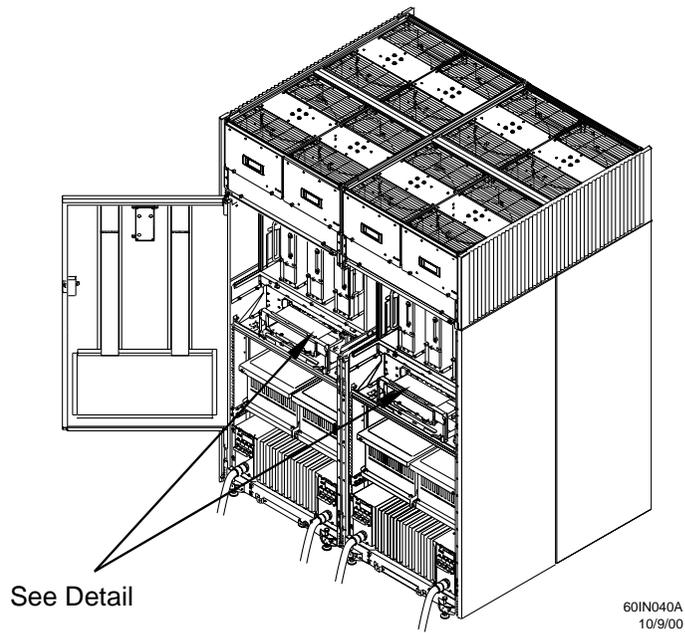
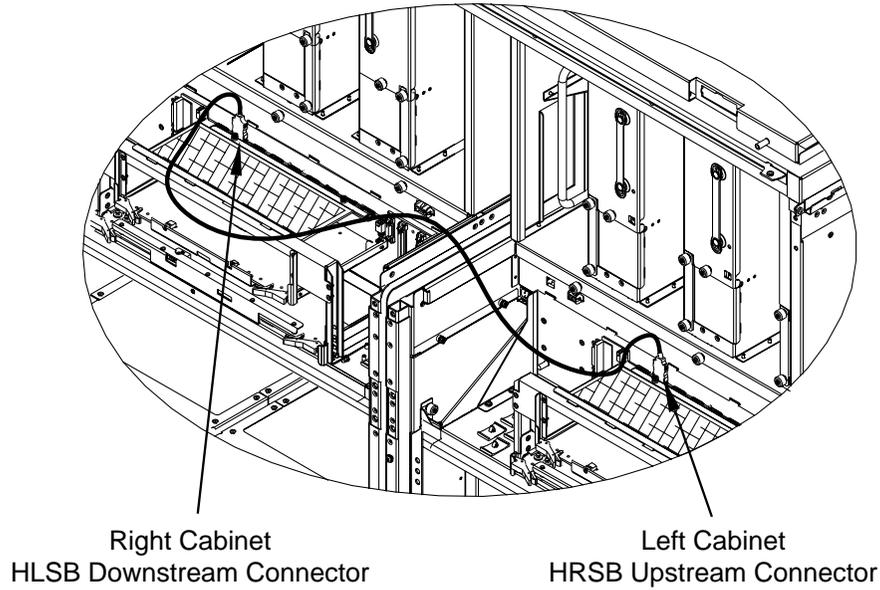
2. Attach the Downstream connector to the second connector from the left on Cabinet 0.

Figure G-16 Cabinet 0 Downstream Connector



The following figure shows what the Upstream and Downstream connections look like after they are installed.

Figure G-17 Upstream and Downstream Connections After Installation



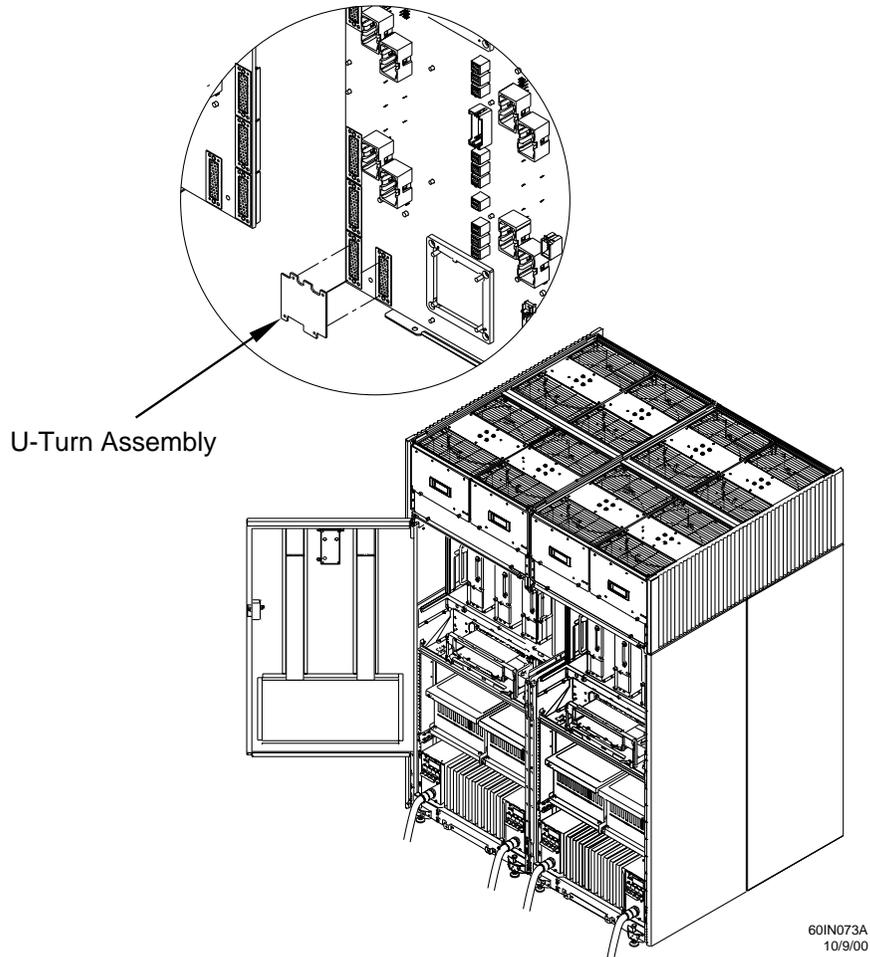
Step 3. Inspect all flex cables for damage before installing them.

Step 4. Using a T10 driver, remove the U-turn assemblies, if present.

Connecting Cables

U-turn assemblies are designed to protect the flex cable connectors on single cabinet systems. These assemblies must be removed before you can install the flex cables on a Superdome 64 Way. There is a U-turn assembly at the top and one at the bottom of the row of flex cable connectors on each SPU backplane.

Figure G-18 U-Turn Assemblies



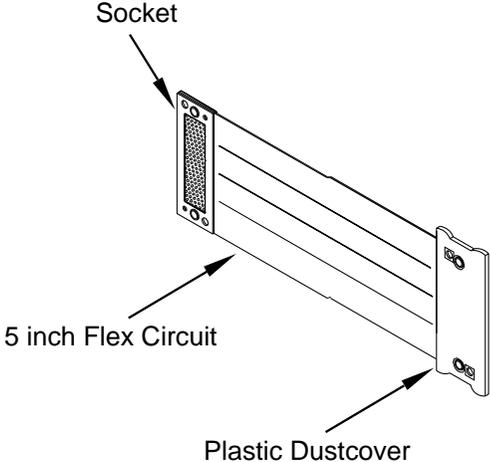
Step 5. Remove the dust covers from the flex cable connectors on the backplane, if present.

Step 6. Remove the black plastic dust covers from each flex cable as you install it.

Each flex cable comes with two dust covers (only one is shown in Figure G-19), which eliminate the risk of socket damage due to handling.

NOTE Leave the other dust cover on the part to prevent damage while installing it.

Figure G-19 Flex Cable with Dust Cover



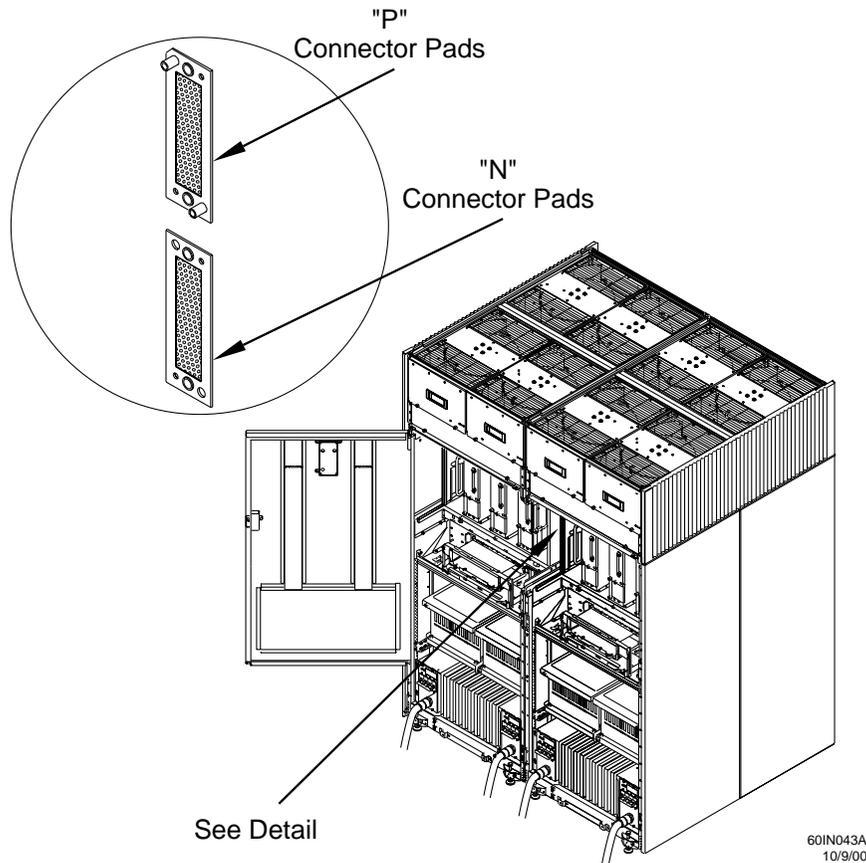
60IN088A
01/25/01

Step 7. Install the flex cables.

Each cable is keyed. Orient the cable so that the guide pin on the backplane fits into the holes on the cable. The guide pins on the backplane connector fits into the holes on the cable connector. In Figure G-20, the connector marked *N* (with no holes) fits on the connector marked *N* on the backplane. The connector marked *P* fits on the connector marked *P* on the backplane.

CAUTION Show extreme care when installing the flex cables. The physical connector ends of the cables should be carefully aligned with the connector pads on the backplanes. Any twisting, turning, or rolling of the connector during installation may cause connectivity problems.

Figure G-20 Keyed Cable Connector and Backplane



Step 1. Install the six 5-inch cables between the two cabinets.

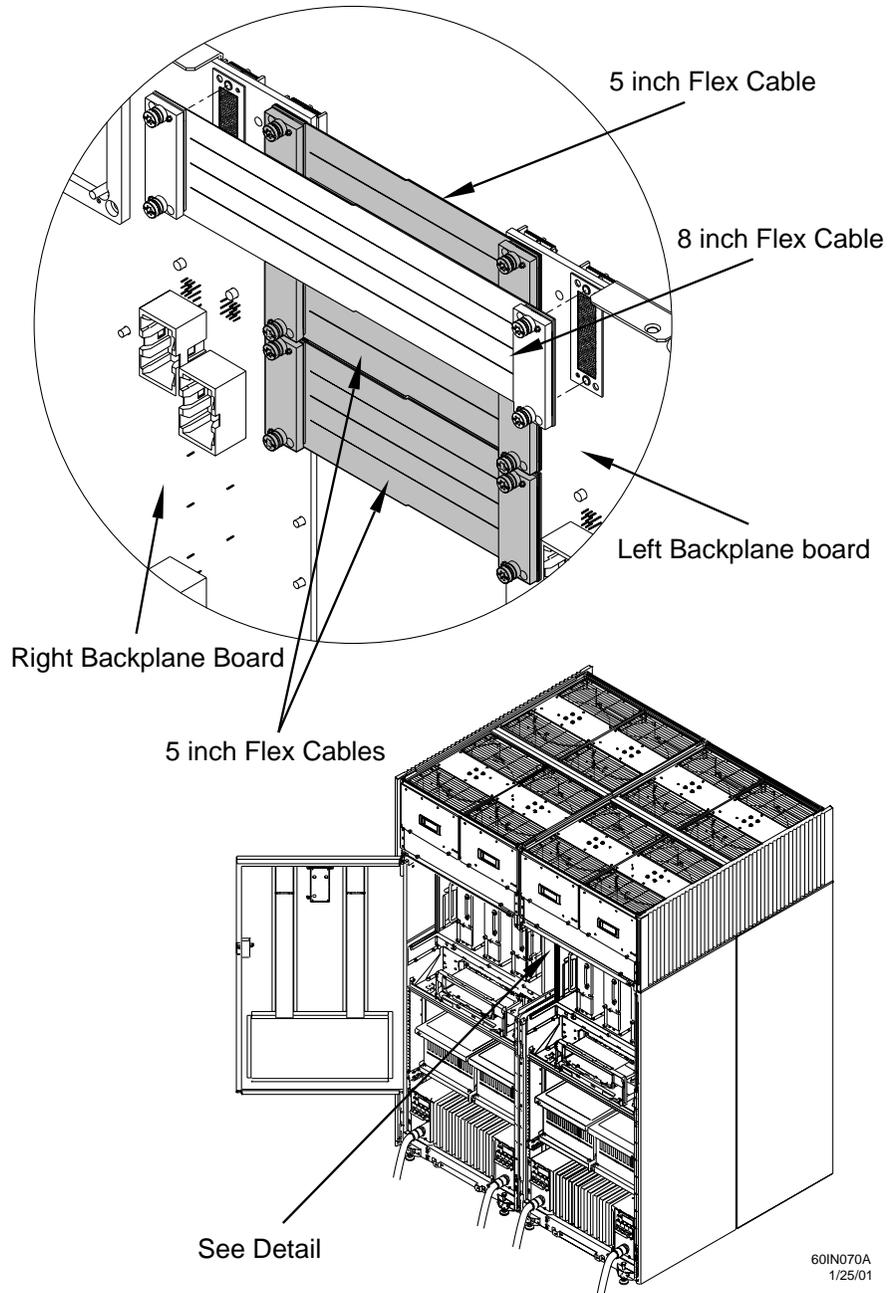
NOTE Be careful not to damage the connective material on the cables.

1. Use one hand to hold the socket flush with the backplane while you use the other to tighten screws.
2. Using a T10 driver, turn the top screw two revolutions. Be careful not to cross thread the screw.
3. Repeat step 1 for the bottom screw.
4. Using a T10 driver, tighten the top screw, then the bottom screw, two more revolutions.
5. Tighten the top screw, then the bottom screw, two and a half revolutions or until the screw fits snugly.

NOTE Do not overtighten the screws.

Step 2. Install the two 8-inch cables over the top and the bottom 5-inch cables.

Figure G-21 Installing 8-inch Cables

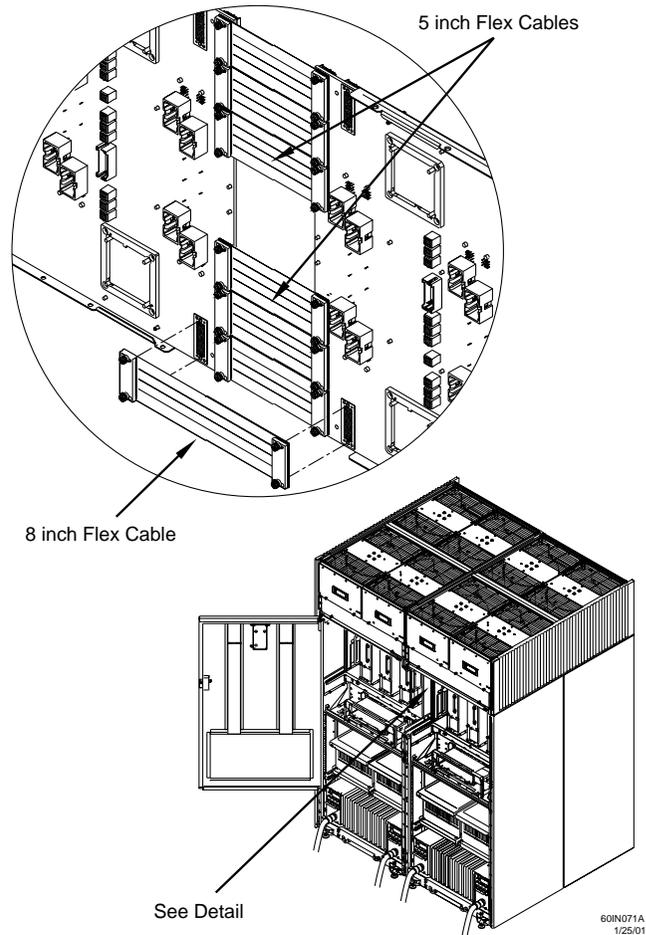


Step 3. Inspect the cables to verify that they are installed properly.

Connecting Cables

Figure G-22 shows what the upper four cables look like after they are installed. (The lower cables are identical, only inverted.)

Figure G-22 Flex Cables



Installing the Back Door

After you install the flex cables, reinstall the rear door.

- Step 1.** Reattach the door hinge bracket.
- Step 2.** Align the door on the hinges and remount the door.
- Step 3.** Replace the connector on the back panel.
- Step 4.** Reattach the ground strap to the door.
- Step 5.** Attach the door latch you removed from the old access panel to the appropriate place on the cabinet post bracket.
- Step 6.** Dispose of the old cable access panels

NOTE To continue with the installation, return to “Installing the Front Door Bezels and the Front and Back Blower Bezels” on page 42.

Connecting Cables

H JUST Exploration Tool

The JTAG Utility for Scan Tests (JUST) Exploration Tool, or JET, collects system information for each Superdome on a network and places it in files for use by other scan tools. JET gathers configuration data by executing a series of queries targeted at the Maintenance Processor (MP) and the CLU portion of the UGUY board.

Command Line Arguments

JET supports the following command line arguments:

Table H-1 **Command Line Arguments**

Argument	Parameters	Description
-v		Prints version information then exit.
-d	<debug level>	Specifies JET debug level. This parameter overrides any other specification of debug level.
-h		(lower case h) Prints short help page.
-f	<complex name> <node number>	Causes a forced disconnect from the specified node in the specified complex.
-i		Enter interactive mode.
-o		Outputs the old format <code>complex.cfg</code> configuration file. The default is to output the new format <code>cplx.cfg</code> file.
-r		Performs a JTAG reset on each path before scanning the ID rings. The default is to not perform the reset.

These options are specified using the following format:

```
jet [ -v ] [ -h ] [ -d <debug level> ] [ -f <complex name> <node number> ] [ -i ]
```

JET Interactive Mode

The interactive mode allows the user to run JET, display the current system configuration, and to update that configuration. To run in the interactive mode, enter `jet -i` at the prompt. When entering the interactive mode, the following is displayed:

Figure H-1 Interactive Mode Display

```
% jet -i
JET Interactive MAIN MENU!

Select from the following options.
 1) Run JET.
 2) Display current configuration data.
 3) Update configuration.
 X) Exit

Enter selection:
```

Select one of the options from the menu.

JET Run Menu

By entering a 1 at the main JET menu, it is placed in the run mode. Figure H-2 shows the run menu options. You may either interrogate all Superdome complexes of an individual complex.

Figure H-2 JET Run Display

```
JET Interactive RUN MENU!

Select from the following options.

 1) Interrogate all complexes.
 2) Select a complex to interrogate.
 X) Return to previous menu.

Enter selection:
```

When interrogating a single complex (entering option 2), the following is displayed:

Figure H-3 Individual Complex Interrogation Menu

```
JET Interactive COMPLEX SELECTION MENU!
```

```
Select from the following options.
```

- 1) feynman-s.
- X) Return to previous menu.

```
Enter selection: 1
```

In this case, the only complex available is feynman-s. If other complexes were available, they would be listed as well. shows a typical complex configuration.

Figure H-4 Typical Complex Configuration Dump

```
Links for complex feynman-s:  
DNA to REO links: 4  
TOGO flex links: 12
```

JET Current Configuration Display Menu

To view the current complex configuration, from the JET main menu, enter 2 from the JET main menu as shown in Figure H-5.

Figure H-5 Interactive Mode Display

```
% jet -i
```

```
JET Interactive MAIN MENU!
```

```
Select from the following options.
```

- 1) Run JET.
- 2) Display current configuration data.
- 3) Update configuration.
- X) Exit

```
Enter selection:
```

Figure H-6 Display Current Configuration Menu

```
JET Interactive COMPLEX SELECTION MENU!
```

```
Select from the following options.
```

- 1) feynman-s.
- X) Return to previous menu.

```
Enter selection: 1
```

Enter the number listed in the menu for the desired complex. In this example only one complex is online. Selecting a complex yields a typical menu as shown in Figure H-7.

Figure H-7 Configuration Display Options Menu

```
JET Interactive DISPLAY SELECTION!
```

```
Select from the following options.
```

- 1) Display all nodes.
- 2) Select a specific node.
- X) Return to previous menu.

```
Enter selection: 1
```

Selecting all nodes (option 1) displays a menu that lists of all the nodes in the complex as shown in Figure H-8.

Figure H-8 Typical List of Nodes

```
JET Interactive NODE SELECTION MENU!
```

```
  Select from the following options.
```

- 0) Node number 0.
- 1) Node number 1.
- 2) Node number 2.
- 3) Node number 3.
- 4) Node number 4.
- 5) Node number 5.
- 6) Node number 6.
- 7) Node number 7.
- 8) Node number 8.
- 9) Node number 9.
- 10) Node number 10.
- 11) Node number 11.
- 12) Node number 12.
- 13) Node number 13.
- 14) Node number 14.
- 15) Node number 15.
- X) Return to previous menu.

```
Enter selection: 0
```

Entering a node number yields a display that is typified in Figure H-9.

Figure H-9 Typical Node Configuration Display

```

-----
feynman-s Arch code: 80
Node: 0      PRESENT      UP_TO_DATE
Board:      MAIN BACKPLANE 0  PRESENT      UP_TO_DATE  HLSB2
Board:      HMIOB          0  PRESENT      UP_TO_DATE  HMIOB
Board:      HMIOB          1  PRESENT      UP_TO_DATE  HMIOB
Board:      HIOB           1  PRESENT      UP_TO_DATE  GXIOB3
Board:      HIOB           3  PRESENT      UP_TO_DATE  HIOB2
Board:      HIOB           5  PRESENT      UP_TO_DATE  HIOB2
Board:      HIOB           7  PRESENT      UP_TO_DATE  GXIOB3
Board:      CELL           0  PRESENT      UP_TO_DATE  OCB2-IPF
Board:      CELL           1  NOT PRESENT  UP_TO_DATE
Board:      CELL           2  NOT PRESENT  UP_TO_DATE
Board:      CELL           3  PRESENT      UP_TO_DATE  OCB2-IPF
Board:      CELL           4  NOT PRESENT  UP_TO_DATE
Board:      CELL           5  NOT PRESENT  UP_TO_DATE
Board:      CELL           6  NOT PRESENT  UP_TO_DATE
Board:      CELL           7  NOT PRESENT  UP_TO_DATE
Board:      PDH Card       0  PRESENT      UP_TO_DATE  OPDH
Board:      PDH Card       1  NOT PRESENT  UP_TO_DATE
Board:      PDH Card       2  NOT PRESENT  UP_TO_DATE
Board:      PDH Card       3  PRESENT      UP_TO_DATE  OPDH
Board:      PDH Card       4  NOT PRESENT  UP_TO_DATE
Board:      PDH Card       5  NOT PRESENT  UP_TO_DATE
Board:      PDH Card       6  NOT PRESENT  UP_TO_DATE
Board:      PDH Card       7  NOT PRESENT  UP_TO_DATE
Board:      Slot 0 CPU     0  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 0 CPU     1  NOT PRESENT  UP_TO_DATE
Board:      Slot 0 CPU     2  NOT PRESENT  UP_TO_DATE
Board:      Slot 0 CPU     3  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 0 CPU     4  NOT PRESENT  UP_TO_DATE
Board:      Slot 0 CPU     5  NOT PRESENT  UP_TO_DATE
Board:      Slot 0 CPU     6  NOT PRESENT  UP_TO_DATE
Board:      Slot 0 CPU     7  NOT PRESENT  UP_TO_DATE
Board:      Slot 1 CPU     0  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 1 CPU     1  NOT PRESENT  UP_TO_DATE
Board:      Slot 1 CPU     2  NOT PRESENT  UP_TO_DATE
Board:      Slot 1 CPU     3  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 1 CPU     4  NOT PRESENT  UP_TO_DATE
Board:      Slot 1 CPU     5  NOT PRESENT  UP_TO_DATE
Board:      Slot 1 CPU     6  NOT PRESENT  UP_TO_DATE
Board:      Slot 1 CPU     7  NOT PRESENT  UP_TO_DATE
Board:      Slot 2 CPU     0  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 2 CPU     1  NOT PRESENT  UP_TO_DATE
Board:      Slot 2 CPU     2  NOT PRESENT  UP_TO_DATE
Board:      Slot 2 CPU     3  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 2 CPU     4  NOT PRESENT  UP_TO_DATE
Board:      Slot 2 CPU     5  NOT PRESENT  UP_TO_DATE
Board:      Slot 2 CPU     6  NOT PRESENT  UP_TO_DATE
Board:      Slot 2 CPU     7  NOT PRESENT  UP_TO_DATE
Board:      Slot 3 CPU     0  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 3 CPU     1  NOT PRESENT  UP_TO_DATE
Board:      Slot 3 CPU     2  NOT PRESENT  UP_TO_DATE
Board:      Slot 3 CPU     3  PRESENT      UP_TO_DATE  CPUMOD
Board:      Slot 3 CPU     4  NOT PRESENT  UP_TO_DATE
Board:      Slot 3 CPU     5  NOT PRESENT  UP_TO_DATE
Board:      Slot 3 CPU     6  NOT PRESENT  UP_TO_DATE
Board:      Slot 3 CPU     7  NOT PRESENT  UP_TO_DATE
Board:      CORE IO       1  NOT PRESENT  UP_TO_DATE
Board:      CORE IO       3  NOT PRESENT  UP_TO_DATE
Board:      CORE IO       5  NOT PRESENT  UP_TO_DATE
Board:      CORE IO       7  NOT PRESENT  UP_TO_DATE

```

```

Link: source node = 0  INPUT-OUTPUT  CELL0_REO_IN
Link: source node = 0  INPUT-OUTPUT  CELL0_REO_OUT
Link: source node = 0  INPUT-OUTPUT  CELL3_REO_IN
Link: source node = 0  INPUT-OUTPUT  CELL3_REO_OUT

```

```
Link: source node = 0   BACKPLANE   TOGO_FLEX_0
Link: source node = 0   BACKPLANE   TOGO_FLEX_3
Link: source node = 0   BACKPLANE   TOGO_FLEX_6
Link: source node = 0   BACKPLANE   TOGO_FLEX_5
Link: source node = 1   BACKPLANE   TOGO_FLEX_7
Link: source node = 1   BACKPLANE   TOGO_FLEX_4
Link: source node = 1   BACKPLANE   TOGO_FLEX_0
Link: source node = 1   BACKPLANE   TOGO_FLEX_2
Link: source node = 1   BACKPLANE   TOGO_FLEX_6
Link: source node = 1   BACKPLANE   TOGO_FLEX_5
Link: source node = 1   BACKPLANE   TOGO_FLEX_1
Link: source node = 1   BACKPLANE   TOGO_FLEX_3
```

JET Update Configuration Menu

To update the configuration in a complex, 3 from the main JET menu as shown in Figure H-10.

Figure H-10 Interactive Mode Display

```
% jet -i

JET Interactive MAIN MENU!

Select from the following options.
1) Run JET.
2) Display current configuration data.
3) Update configuration.
X) Exit

Enter selection:
```

When selecting the Update Configuration Option, the menu shown in Figure H-11 is displayed, which shows a list of available complexes. Select the desired complex.

Figure H-11 Update Configuration Main Menu

```
JET Interactive COMPLEX SELECTION MENU!

Select from the following options.

1) feynman-s.
X) Return to previous menu.

Enter selection: 1
```

Figure H-12 Update Configuration Options Menu

```
JET Interactive Update menu.

Select from the following options.

1) Load new node configuration file.
2) Add a Board to an existing node.
3) Remove a Board from an existing node.
4) Load flex mate file.
5) Add a Link.
6) Remove a Link.
X) Return to previous menu.

Enter selection: 2
```

Select the desired option. In this example Option 2, Add a Board to an existing node, is chosen and series of menus is presented to the user to add the board. These menus are presented in the following examples:

Example H-1 **Selecting Node 0**

JET Interactive NODE SELECTION MENU!

Select from the following options.

- 0) Node number 0.
- 1) Node number 1.
- 8) Node number 8.
- X) Return to previous menu.

Enter selection: 0

Example H-2 **Selecting A Processor Board**

JET Interactive BOARD FAMILY SELECTION MENU!

Select from the following options.

- 2) BACKPLANE
- 3) PROCESSOR
- 5) IO
- X) Return to previous menu.

Enter selection: 3

Example H-3 **Selecting a PDH Riser Board**

JET Interactive BOARD TYPE SELECTION MENU!

Select from the following options.

- 1) CELL
- 2) PDH Card
- 3) Slot 0 CPU
- 4) Slot 1 CPU
- 5) Slot 2 CPU
- 6) Slot 3 CPU
- X) Return to previous menu.

Enter selection: 1

Example H-4 **Selecting the PDH Board**

JET Interactive CELL BOARD NUMBER SELECTION MENU!

Select from the following board numbers.

- 0) Board number 0
- 1) Board number 1
- 2) Board number 2
- 3) Board number 3
- 4) Board number 4
- 5) Board number 5
- 6) Board number 6
- 7) Board number 7
- X) Return to previous menu.

Enter selection: 1

Example H-5 **Selecting the PDH Board Name**

JET Interactive BOARD NAME SELECTION MENU!

Select from the following options.

- 1) OCB
- 2) OCB2
- 3) OCB2-IPF
- 4) OCB2-PA
- 5) OCB2-2
- 6) OCB2-2-IPF
- 7) OCB2-2-PA
- X) Return to previous menu.

Enter selection: 2

Example H-6 **Selecting the Correct Device Numbers**

JET Interactive DEVICE SELECTION for path number 0

JET Interactive DEVICE SELECTION for path number 1

Select the correct device for: jab, Reference designator: U33

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

Select the correct device for: jab, Reference designator: U34

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

Select the correct device for: jab, Reference designator: U43

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

Select the correct device for: jab, Reference designator: U42

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

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JET Interactive DEVICE SELECTION for path number 2

Select the correct device for: jab, Reference designator: U15

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

Select the correct device for: jab, Reference designator: U16

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

Select the correct device for: jab, Reference designator: U3

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

Select the correct device for: jab, Reference designator: U2

- 1) jab 0x082b2291
- 2) jab 0x182b2291
- 3) jab 0x282b2291

Enter selection: 3

JET Interactive Update menu.

Select from the following options.

- 1) Load new node configuration file.
- 2) Add a Board to an existing node.
- 3) Remove a Board from an existing node.
- 4) Load flex mate file.
- 5) Add a Link.
- 6) Remove a Link.
- X) Return to previous menu.

Enter selection: x

JET Interactive MAIN MENU!

Select from the following options.

- 1) Run JET.
- 2) Display current configuration data.
- 3) Update configuration.
- X) Exit

Enter selection: x

JET Help Menu

To obtain help on available JET run parameters, enter the `-h` argument in the run line as shown in Figure H-13.

Figure H-13 JET Help Menu

```
% jet -h

usage: jet [-d <debug level>] [-f <complex> <node>] [-h] [-i] [-v]

Where:

-d <debug level> = set debug level, valid values are 0 - 4.
-f <complex name> <node number> = force a disconnect.
-h = print this help page.
-i = interactive mode.
-o = Use old complex.cfg file format.
-r = Perform Jtag resets on all paths prior to scanning.
-s <complex name> = interrogate only the specified complex.
-v = print JET version information.
```

Data Files

Input Data Files

JET uses several input data files of two main types: configuration files and architecture files. The configuration files control how the JET utility operates and the architecture files provide information on the system under test.

NOTE Comments can be used in any of these files and are indicated by a # sign in front of the comment.

Input Data File Locations

Unless otherwise specified, JET looks for its data using a search algorithm that is valid for all scan tools. It first looks for a local `./config` directory. If it is found, JET then looks for the required file in that location. If the file is not found, then JET checks to see if the `SCANSW_DIR` environment variable has been set. If this variable is set to the path specified in the variable, it will be used to find the file. Failing this, JET looks in the default scan file directory path for the file.

Configuration Files

Configuration files control the flow of execution and other processing information needed by the JET application. There are currently three configuration files: `jet.cfg`, `cplx.ini`, and `board_name.map`.

JET Configuration File (Optional)

This file contains several parameters that define JET operation. If the file is not found, then JET uses its default values. Each of the parameters described for this file may or may not be present. If they are not present, default parameters are used.

This file must be located in the directory from which JET is executed and must have the name `jet.cfg`.

The following list describes parameters supported in the JET configuration file:

- *Cplx_INI_File*—Shows JET where to look for the `cplx.ini` file (this file is described below). The default for this field is the `/opt/scansw/data` directory. This field contains a path and file name.
- *Max_Msg_Retries*—Specifies JET how many times to resend a command before declaring a communications error. This field is a positive integer value with a default of five. It is used only with the UDP communications protocol.
- *Msg_Retry_Interval*—Specifies the amount of time to wait for a response to a command before timing out and resending the command. This is a positive floating point number with a default value of five seconds for UDP and 25 seconds for TCP.
- *Debug_Level*—Sets the debug level for JET. Based on this value, different amounts of data are logged into the `jet.log` file. The debug level is an integer value between zero and four.
- *Log_File*—Specifies the name of the JET log file. This field is a string specifying the path and file name of the file to use. The default is `/opt/scansw/data/jet.log`.

- *Cplx_Cfg_File*—Allows the redirection of the complex configuration file created by JET. This field is a string specifying the path and file name to use for this file. The default for this parameter is `/opt/scansw/data/complex.cfg`.

NOTE If any of the parameters listed above are present in the Jet Configuration File, they override the `SCANSW_DIR` environment variable and the default scan directory.

If this file is present it must end with the keyword `End_Of_File`.

Complex Initialization File

The `cplx.ini` file provides information on complex names, communications information, entity types, and protocols needed to communicate with the complex. Each complex that the SMS is responsible for should have an entry in this file.

The complex initialization, `cplx.ini`, file establishes a basis for communication between JET and the complex(es) being interrogated. JET uses this file when the JET Broadcast Enabled Flag is set to `FALSE`. This file contains a single line for each complex to be interrogated. JET looks for this file first by checking the `SCANSW_DIR` environment variable (if set). If this variable is not set, then JET looks for the file in the default `/opt/scansw/data` directory. The file location and name can be modified by setting the `Cplx_INI_File` parameter in the `jet.cfg` file. This overrides all other locations.

File Format There are two types of entries in the `cplx.ini`. The type of entry is present for a complex depends on whether the complex has multiple host entities or only a single host entity. Multi-host entries are specified with the key `MH` while single host entities are specified with the key `SH`. Multi-host entities have an additional parameter for the hostname associated with each host entry. Single-host entities use the complex name as the hostname for the complex.

Each entry in this file begins with the keyword `COMPLEX` followed by the name and architecture code of the complex. These fields are followed by the multi- or single-host selection key: either `MH` or `SH`. Following this field comes the host entities type and reference number along with its supported SDP protocol version. The last series of fields represent the communication protocol, IP address, and port number to use for communications with this host. The type of each of these parameters follows:

complex name—string

architecture code—unsigned short

hostname—string

entity type—GSP or NODE

entity reference num—integer

SDP version—string representation of a float

IP Address—IP address in dot notation

port number—unsigned short

Example H-7 Typical Usage

```
COMPLEX <complex name> <arch code> MH <hostname> <entity type> <entity ref num> <SDP
version> <protocol> <IP address> <port num>
```

or

```
COMPLEX <complex name> <arch code> SH <entity type> <entity ref num> <SDP version>
<protocol> <IP address> <port num>
```

Data Files**Example H-8 Typical cplx.ini File**

```

COMPLEX zurg-s      0x20  SH          GSP  0  1.0  TCP  15.99.83.130  5151
COMPLEX feynman-s  0x30  MH  host_1  GSP  0  1.0  UDP  19.99.83.101  5151
COMPLEX feynman-s  0x30  MH  host_2  GSP  0  1.0  TCP  15.99.83.102  5151

```

Board Name Mapping File

The `board_name.map` file has two basic purposes. The first is to map board names to board part numbers. This mapping is required, because the part numbers in the EPROMs are changed to indicate repair history of the board. JET must be able to provide the JUST tool with part number matching its data files. The second is to support the JET interactive mode. This file contains scan handle values that map a board name with the type of board that name represents. When a user is adding a board of a specific type, JET looks through this file to find the name of all boards matching the specified type. It then displays a list of these board names for the user to select.

This file is located by the default path search with the subdirectory `arch_<arch_code>/cmd` appended to the base path, unless it exists in the `./config` directory.

Format

Comments Comments in the `board_name.map` file are specified by placing a `#` character at the beginning of the line containing the comment. End of line comments are not currently supported.

Version The first non-comment field in the `board_name.map` file must start with the keyword `FILE_VERSION` followed by the version number entered as a double.

```
FILE_VERSION <version number>
```

Board Entries Each board in the system has an entry in this file, which consists of the following information:

Board name—String representing the board name

Board part number—String representing the board part number to place in the node configuration file for this board

Scan Revision—Scan revision of the board

Board family—Board family scan handle value

Board type—Board type scan handle value

Example H-9 Board Entries With Comments

```

#####
#<board family> <board part num> <scan revision> <board family> <board type>
#####
HI0B   A4856-60001   1   2   3

```

Architecture Files

Architecture files describe the system architecture, providing complex, node, board, and device information needed to properly interrogate the complex.

Complex Architecture File

This file describes the complex and contains information on the types of entities in the complex. Currently valid entity types are MPs and nodes. This file must have the name `complex.arc`.

Format

Comments Comments in this file are specified by placing a # character at the beginning of the line containing the comment. End of line comments are not currently supported.

Version Information The first non-comment field in the `cplx.ini` file must start with the keyword `FILE_VERSION` followed by the file version entered as a double.

GSP List Entries The first type of entry in this file list the MPs that are possible within the complex. A GSP list begins with the keyword `GSP_List` and ends with the keyword `End_GSP_List`. Between the begin and end tags are GSP entries defined as follows.

GSP Entries A GSP entry begins with the keyword `GSP_ID` and is followed by the GSP reference number as an unsigned integer.

`GSP_ID <reference number>`

Node List Entries The second type of entry in this file is a list of nodes. A node list begins with the keyword `Node_List` and ends with the keyword `End_Node_List`. Between the beginning and ending tags are the node entries as defined below.

Node Entries A node entry begins with the keyword `Node_ID` and is followed by the node type (either `PROCESSOR` or `IO_EXPANSION`), the nodes reference number, and a presence mask available boolean. If the mask available flag is `TRUE` then the next field is the bit in the mask representing this node, if the flag is `FALSE` then this field is omitted. The mask available field(s) are followed by the is host flag which indicates whether this entity is a host or not. If the host flag is `FALSE` then the entity to which commands destined for node are to be sent is specified along with its reference number.

`Node_ID <node type> <ref num> <mask flag> [<mask bit>] <host flag> [<entity type> <entity ref #>]`

End of file marker As with all scan files this file must end with the keyword `End_Of_File`.

Example H-10 Complex Architecture File

```
FILE_VERSION 4.0
```

```
GSP_List
```

```
    GSP_ID 0
```

```
End_GSP_List
```

```
Node_List
```

```
    Node_ID PROCESSOR 0 TRUE 0 FALSE GSP 0
```

```
    Node_ID IO_EXPANSION 8 FALSE TRUE
```

```
End_Node_List
```

```
End_Of_File
```

Node Architecture File

This file describes a node and contains the types of boards in each node type and a description of the scan paths in the node. This file contains a list of boards that make up the node followed by a list of paths. The path entries map the paths through the boards to the path in the node.

This file can currently have one of two names: `node_PROCESSOR.arc` or `node_IO_EXPANSION.arc`.

Format

Comments Comments are specified by placing a # character at the beginning of the line containing the comment. End of line comments are not currently supported.

Data Files

Version Information The first none comment field must start with the keyword `FILE_VERSION` followed by the file version entered as a double.

```
FILE_VERSION <version number>
```

Board Lists The board list section begins with the keyword `Board_List` and ends with the keyword `End_Board_List`. Between these tags are board entries for each of the boards in the node.

Board entries begin with the keyword `Board` followed by the board family, board type, and the board reference number. Board entries end with the keyword `End_Board`. Board entries contain a variable number of parameters each designated by a keyword. Each of the parameters that can be specified has default values that are used if the parameter is not present. Below is a list of the board options.

- *required*—By default boards are consider to be not required. If a board is required, it must have an entry beginning with the keyword `required` followed by an upper case boolean either `TRUE` or `FALSE`.
- *eprom*—By default boards are assumed to have serial EPROMs from which the board name and scan revision can be retrieved. If a board doesn't have an eprom then the board name, part number and scan revision must be supplied. An eprom entry begins with the keyword `EPROM` and is followed by a boolean indicating whether eprom data is available. If EPROM data is not available (`FALSE`) then the entry must specify the board name, part number, and scan revision as follows:

```
eprom <TRUE/FALSE> [<board name> <part number> <scan revision>]
```

- *num_scan_paths*—By default a board is assumed to have no (zero) scan paths. If a board has scan paths, the number of paths on the board must be defined, using the keyword `num_scan_paths` followed by an unsigned integer representing the number of scan paths on the board as follows:

```
num_scan_paths <# scan paths>
```

Masks By default a board is assumed to not have a presence mask. If a presence mask does exist for this board then an entry defining the mask is required. A mask entry begins with the keyword `mask` followed by a boolean indicating whether a mask is available. If a mask is available then the following data is also required. The bit in the mask that reflects this board, the type of mask to request (either `CELL_MASK`, `IO_MASK`, or `NODE_MASK`), the type of entity the mask should be sent to an that entities reference number.

```
mask <TRUE/FALSE> [<bit in mask> <mask type> <destination entity> <destination entity number>
```

Dependency A dependency is a relationship between boards. There are two currently supported dependency types: `CHILD` and `PARENT`. A board that contains a child dependency depends on the board specified in the dependency to be present. A board that contains a parent dependency must be present for the board specified in the dependency to be present. During normal JET operations these dependencies are used to resolve presence issues. In interactive mode these dependencies are used to prevent invalid configurations from being created.

By default, boards are considered to contain no dependencies. If a board has a dependency then an entry must be made. A dependency entry begins with the keyword `dependency` followed by the family, type and reference number of the board and the dependency type.

```
dependency <board family> <board type> <board number> <dependency type>
```

Example H-11 Board list

```
Board_List
Board 2 1 0
    required FALSE
    eprom TRUE
    num_scan_paths 3
    mask TRUE 3 IO_MASK GSP 0
```

```

        dependency 5 3 1 PARENT
    End_Board
    Board 5 1 5
        required TRUE
        eprom FALSE HMIOB A5201-60005 1
        num_scan_paths 1
        mask FALSE
        dependency 2 1 0 CHILD
    End_Board
End_Board_List

```

The Path List The next section of Node Architecture File defines the scan paths in the node. Each of the nodes scan paths are composed of one or more scan paths on the board defined in the board list. The path list begins with the keyword `Path_List` and ends with the keyword `End_Path_List`. Between these tags are the individual path definitions for the node.

Path Entries A path entry defines the boards and there scan paths that make up this node level scan path. A path entry begins with the keyword `Path` followed by the paths reference number. A path entry ends with the keyword `End_Path`. Between these tags are board entries for each board composing the path.

Board Entries A board entry in a path begins with the keyword `board` followed by the family, type, and reference number of the board and the path on the board that is to be used. These entries must be in order of how they appear on the path through the node as follows:

```
board <board family> <board type> <board reference num> <board path num>
```

Example H-12 Path Entry

```

Path_List
    Path 1
        board 2 1 0 2
        board 3 2 6 0
    End_Path
    Path 2
        board 5 1 1 1
        board 3 2 6 2
    End_Path
End_Path_List

```

End of File Marker This file must end with the keyword `End_Of_File`.

Board Architecture File

The Board Archiritecture File describes the scan paths and link connections present on the board. It lists the devices present on each board scan path along with there name, and removal information. It also has a section that lists the connections present on the board for links.

Data Files

A board architecture file must exist for each board part number/scan revision. Its file name has the form `brd_<board part number>_<scan revision>.arc`. This file is named using the prefix `brd_` followed by the board name and scan revision separated by an underscore and ending with the suffix `.arc`.

Format

Comments Comments in this file are specified by placing a `#` character at the beginning of the line containing the comment. End of line comments are not currently supported.

Version Information The first non-comment field in the `cplx.ini` file must start with the keyword `FILE_VERSION` followed by the files version entered as a double.

Example H-13 Board Architecture File Version

```
FILE_VERSION <version number>
```

Board Path Entries The first series of entries in this file describe the scan paths on the board and the devices on those paths. Each of these entries begins with the keyword `Board_Path` followed by the path number. The entries end with the keyword `End_Board_Path`. Between the beginning and ending tags the devices on the path are defined. A device entry begins with the keyword `Device` and is followed by the devices reference number, the device name, the devices reference designator, a boolean indicating whether the device is required, and finally the devices removal order.

- Device number—integer
- Device name—string
- Reference designator—string
- Required flag—TRUE | FALSE
- Removal order—integer

NOTE The removal order determines which non-required devices are missing if less than the maximum number of devices are encountered. The lower the removal order the more likely the device is missing.

Link Connection Entries Each link connection to this board needs to have an entry in this file. Link entries contain primary and secondary link connection information. A link entry is specified as follows.

Each entry begins with the keyword `Link_Type` followed by the link type number and ends with the keyword, `End_Link_Type`. Between the begin and end are entries for Primary and Secondary link connections. A primary link connection is the originating connection. The secondary entries are destinations for the link.

A primary link connection begins with the keyword `Primary` and ends with the keyword `End_Primary`. Between the begin and end tags the possible connections are listed as specified below:

- ID—Cable number of device selector number
- lookup—Number added to look up the correct entry
- loopback—Flag that indicates whether the connection is a loopback connection
- type—String that indicates the type of cable being processed
- part number—Part number of the cable as a string
- name—String representing the name of the link cable

Secondary link connections begin with the keyword `Secondary` and end with the keyword `End_Secondary`. Connections on a secondary link follow the same format as those of a primary link but use two less fields.

Link connections begin with the keyword `Connection` followed by the following fields.

- ID—Cable number of device selector number
- lookup—Number added to look up the correct entry
- loopback—Flag that indicates whether the connection is a loopback connection
- type—String that indicates the type of cable being processed

End of File This file must end with the keyword `End_Of_File`.

Example H-14 Board Architecture File

FILE_VERSION 4.0

```
#####
# Board_Path <path number>
#####
Board_Path1

#####
# Device <ref num> <device name> <ref des> <required> <removal order>
#####
Device6elroyU5007TRUE0
Device8dnaU5000FALSE1

End_Board_Path

#####
# Link_Type <link type>
#####
Link_Type1

Secondary

#####
# Connection <ID> <lookup> <loopback> <type> <brd ref des> <cable ref des>
#####
Connection10FALSEIOFC0014P1
Connection11TRUEIOFC0415N1

End_Secondary

Primary
```

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```
#####
# Connection <ID> <lookup> <loopback> <type> <brd ref des> <cable ref des>
#<PN> <name>
#####
Connection1 0 FALSE IO J5005T P1 A5201-63037_0001 CELL0_REO_IN
Connection1 1 TRUE IO J5033T P1 A5201-63037_0001 CELL1_REO_IN

End_Primary

End_Link_Type

End_Of_File
```

Device Architecture File

The device architecture file lists valid JTAG IDs for a device based on the device name. If a device does not have a JTAG ID, then a default ID entry must be included in this file. The file must exist for each device name present in the board architecture file. Its file name has the form dev_<device name>.arc, and is named by placing the prefix dev_ in front of the device name and ending it with the suffix .arc.

Format

Comments Comments in this file are specified by placing a # character at the beginning of the line containing the comment. End of line comments are not currently supported.

Version Information The first none comment field in the cplx.ini file must start with the keyword FILE_VERSION followed by the files version entered as a double.

Example H-15 Device Architecture File Version

```
FILE_VERSION <version number>
```

Device Entries Each valid JTAG ID for this device must have an entry in this file. Entries consist of the keyword Device_Id followed by the device name and the unsigned long representation of the JTAG ID.

Example H-16 Device ID

```
#####
# Device_Id <device name> <jtag id>
#####
Device_Id dna1 0x14076049
```

If a device does not have a JTAG ID, a default ID must be provided in this file. The format of a default entry begins with the keyword Default_Id followed by the device name and the default JTAG ID represented as a string.

The default JTAG ID string must begin with the 0x. The JUST tool looks for this these characters and strips them off to build its device file names.

Example H-17 Default ID

```
#####
# Default_Id    <device name>    <default jtag id string>
#####
Default_Idpcxx0x3AA2-1006
```

End of File Marker This file must end with the keyword `End_Of_File`.

Link Architecture File

The link architecture file describes the possible link interconnects possible within a complex. These connections are any that are not static within a system.

There is only one link architecture file for each complex and it must be named `link.arc`.

Output Data Files

JET produces both data files and log files. Other scan tools use the data files created by JET as input information. The log file generated by JET contains information on its execution. JET output files are described in the following sections.

Complex Configuration File

This file contains information on the systems available for test on a particular network. It is used by the `Libsdp` library to direct messages from the test station to the system under test.

There is only one complex configuration file, which must be named `complex.cfg`. It may contain entries for multiple complexes. JET places this file in the default scan directory `/opt/scansw/data`.

System entities represent MPs and nodes. The data contained in this file provides information on what entities can be tested and the basics of how to communicate with each of the entities specified. This file is normally created by JET. Below is a description of each entry in the file.

Comments Comments in this file are specified by placing a `#` character at the beginning of the line containing the comment. End of line comments are not currently supported.

Complex Entries Each complex entry in the file begins with the keyword `Complex` followed by the complex name string and the complex's architecture code. A complex entry ends with the keyword `End_Complex`. Both of these entries must be on separate own lines.

Example H-18 Complex Entries

```
Complex    <complex name> <architecture code>
.
.
.
End_Complex
```

Between these tags are the entity instances described below.

Entity Entries Entities exist within the complex tags. There are currently of two types: GSP or NODE. Each entity begins with the keyword `Entity`, followed by the entity type and its reference number, and ends with the keyword `End_Entity`. Each of these tags must be on a separate line as shown below:

Data Files

```
Entity <GSP|NODE> <reference number>
.
.
.
End_Entity
```

The fields between the entity tags are described in the following section.

Entity Parameters Each Entity in this file must contain one and only one of the following entries.

If the entity is a Host—meaning that it has an Ethernet presence with its own IP address— then the entity requires a hostname entry in the file. A hostname entry begins with the keyword `Hostname` and is followed by the hostname string, the communication protocol (UDP or TCP), its IP address in dot notation, and the communications port number.

```
Hostname <host name> <TCP|UDP> <ip address> <port number>
```

If an entity is not a host, then a reference to the target host entity must be supplied. This reference specifies which host entity commands targeted to this entity must be directed. This targeting entry begins with the keyword `Target_Entity` followed by the entity type (`GSP|NODE`) and its reference number:

```
Target_Entity<target entity type><target entity ref number>
```

Firmware information entries:

Firmware Information Entries Each entity must have a firmware information entry. This entry defines the capabilities of the firmware to processes Scan Requests. A firmware entry begins with the keyword `Firmware` followed by the supported sequence queue depth and queue size in kilobytes, and the version of the SDP protocol supported.

```
Firmware <queue depth> <queue size kBytes> <SDP version>
```

End of File The complex configuration file must always end with the keyword `End_Of_File`.

Example File The following is an example of the Complex Configuration File:

```
#####  
# complex name architecture code  
#####  
Complex zurg- s0x20  
#####  
# entity type entity reference number  
#####  
Entity GSP0  
#####  
# host name protocol address port  
#####  
Hostname zurg -s UDP 15.99.83.130 5151  
#####  
#queue depth queue size SDP version  
#####  
Firmware 165536 1.0  
End_Entity  
#####  
# entity type entity reference number  
#####  
Entity NODE 0  
#####  
# entity type entity reference number  
#####  
Target_Entity GSP 0  
#####  
#queue depthqueue size SDP version  
#####  
Firmware 16553 6 1.0  
End_Entity  
End_Complex  
End_Of_File
```

Data Files**Node Configuration Files**

Each node detected by JET gets a node configuration file. These files are named `node_<node number>.cfg` and are placed in the default scan directory `/opt/scansw/data/cplx_<hostname>`. Where `hostname` is the name of the complex under test. These files define the boards and paths present in each node. This file is created by the Configuration Management Daemon (`cmd`).

An entry like the following must be supplied for each board in the node:

```
Board <scan handle> <board name> <board part number>_<scan revision>
```

An entry like the following must be supplied for each path in the node:

```
Path <path number>
```

Each device on the path must have an entry like the following:

```
Device <scan handle> <mechanical name> <device reference designator> <jtag identifier>
<device name>
```

The `mechanical name` field in the device descriptor line identifies a unique name for the device. This unique name is used by DSU to delineate between common devices on a scan path and is identified in the `partname.lst` file.

Flex Link Mating File

The flex link mating file contains information on the non-static connections within the system, needed to determine how the current system is connected. There is only one flex link file for a complex, and it must be named `flex.mte`. JET places this file in the default scan directory `/opt/scansw/data/cplx_<hostname>`.

The `flex.mate` file specifies all flex and cable connections for a complex. This file only contains information on all possible links that could exist in the complex base on the hardware present. Links that don't exist because hardware is not present are not listed. This file is generated by the Configuration Management Daemon (`cmd`).

An entry like the following must be present for each existing or possible link in the complex:

```
Link <cable scan handle> <cable part number> <cable name>
```

An entry like the following must exist for each connector on the link:

```
Mate <cable type> <board scan handle> <connector ref des> <cable ref des>
Mate <cable type> <board scan handle> <connector ref des> <cable ref des>
```

JET Log File

JET writes its execution information (errors and general informational) into a log file. The level of information is controlled by the `debug level` parameter in the `jet.cfg` file. This file is the first level for understanding problems encountered during JET execution. The name and location of this file are controlled by the `Log_File` parameter in the `jet.cfg` file.

Error Conditions

When errors are detected during update, several things can happen.

If the error is detected at the complex level, an error is written to the `complex.cfg` file, but the complex data will not be present in the file.

If an error is detected at the node level, the node configuration file will contain an error message and no data will be present.

If an error is detected at the board level, an error message is placed in the node configuration file for the board. This message prevents JUST from loading the file but does not affect any other board or path data in the file.

If an error is detected at the scan path level, the path entry in the file will contain an error message that prevents JUST from loading the file, but no other path data is affected.

In any of these cases, a `jet.err` file is created and an entry for the node is added to it. If an error occurs at the node level, the nodes entry is not placed in the `complex.cfg` file.

If an error is detected during link processing, a message is placed in the `flex.mte` file for certain error types. Due to the fact that the `flex.mte` file is complex wide, JET may encounter errors when testing a single node with other nodes in the complex powered off. This is a valid test condition. Therefore, link errors due to destination nodes not being present are dropped and a `jet.log` entry is made, but no error is entered into the `flex.mte` file.

I Unpacking the SMS, Connecting Cables, and Setting SCSI Addresses

This section contains a description of how to unpack, rack, cable, and set SCSI addresses for, the Support Management Station (SMS).

Unpacking the Support Management Station

Unpack the Support Management Station (SMS) and related peripherals and equipment, such as a DVD drive, a DDS tape drive, a peripheral housing.

The SMS and its peripherals can be placed on a table outside the I/O expansion cabinet or in a rack. See “Installing the Support Management Station (SMS)” on page 55.

Racking the Support Management Station and Peripherals

If you put the Support Management Station (SMS) and its peripherals in a rack, allow two EIA units for the A-Class server, the DVD player, and the DDS tape drive.

To unpack and rack the SMS, follow the A-Class instructions that came with the server or refer to the following URL: <http://class.hp.com/hpus/systems/#aclass>.

Connecting SCSI Cables and Setting SCSI Addresses on the Support Management Station

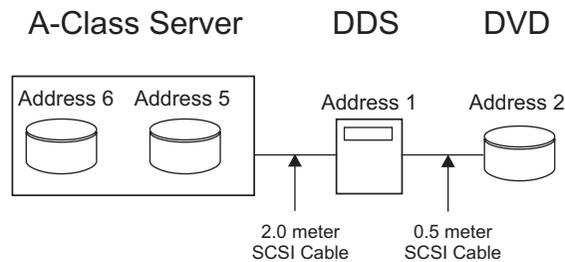
After the Support Management Station (SMS) components have been removed from their packaging and have either been placed in a rack or stacked together on a table, install the SCSI cables and set the SCSI addresses.

NOTE Make sure all devices on the SCSI bus have a unique address and that the last device is terminated. Refer to the documentation accompanying each device to learn where to place terminators.

To connect the SMS peripherals and set SCSI addresses:

Step 1. Connect the cables between the SMS, DDS tape drive, and DVD.

Figure I-1 Connecting DDS Tape and DVD/CD-ROM Drives to SMS



Step 2. Connect the power cables, one for each peripheral and one for the SMS.

Step 3. Set the SCSI ID of the DDS tape drive to **1** and the SCSI ID of the DVD to **2**.

The hard drive is preset to **6**, and **5** is available for another internal SCSI device.

Refer to the documentation accompanying each device to learn how to set SCSI addresses.