Sun StorEdge™ CompactPCI Dual Ultra1 Differential SCSI Host Adapter Installation and User's Guide

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Shielded Cables: Connections between the workstation and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted pair (UTP) cables.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

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Declaration of Conformity

Compliance Model Number:	Emerald
Product Name:	Sun StorEdge CompactPCI Dual Ultra 1 Differential SCSI Host Adapter (x6749A)

EMC

European Union

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022:1998/CISPR22:1997		Class A
EN55024:1998	EN61000-4-2	4 kV (Direct), 8 kV (Air)
	EN61000-4-3	3 V/m
	EN61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
	EN61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines
		2 kV AC Line-Gnd, 0.5 kV DC Power Lines
	EN61000-4-6	3 V
	EN61000-4-8	1 A/m
	EN61000-4-11	Pass
EN61000-3-2:1995 + A1, A2, A14		Pass
EN61000-3-3:1995		Pass

Safety

This equipment complies with the following requirements of the Low Voltage Directive 73/23/EEC:

EC Type Examination Certificates:

EN60950:1992, 2nd Edition, Amendments 1, 2, 3, 4, 11

Supplementary Information

This product was tested and complies with all the requirements for the CE Mark.

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Preface

This *Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter Installation and User's Guide* describes how to install and use your CompactPCI adapter.

The procedures in this manual are for system or network administrators experienced in installing similar hardware in a Solaris™ operating environment.

How This Book Is Organized

The document is organized as follows:

Chapter 1 describes the hardware and software requirements for the adapter as well as the adapter features.

Chapter 2 tells you how to install and remove the adapter.

Chapter 3 explains how to verify that the adapter is functioning properly and how to customize its performance.

Appendix A provides pin assignments for the SCSI connector.

Appendix B provides the specification details of the adapter.

Using UNIX Commands

This document may not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris operating environment
- Other software documentation that you received with your system

Typographic Conventions

Typeface	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the *User's Guide.* These are called *class* options. You *must* be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type `rm` *filename.*

Shell Prompts

Shell	Prompt
C shell	*machine_name*%
C shell superuser	*machine_name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Related Documentation

Application	Title	Part Number
Installation	*Solaris Sun Hardware Platform Guide*	806-5048
All	*Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter Release Notes*	816-1032
Diagnostic testing	*Sun VTS 4.3 User's Guide*	806-7705
Diagnostic testing	*Sun VTS 4.3 Test Reference Manual*	806-7704

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1. **Go to the Sun web site:**

   `http://www.sun.com`

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3. **Under Hardware, select Documentation.**
4. **Under Product Documentation, select Network Storage Solutions.**
5. **Under Product Documentation, select Adapters.**

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CHAPTER **1**

About the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter

The Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI host adapter offers a connection to the two high-voltage Ultra1 differential SCSI buses on the same card.

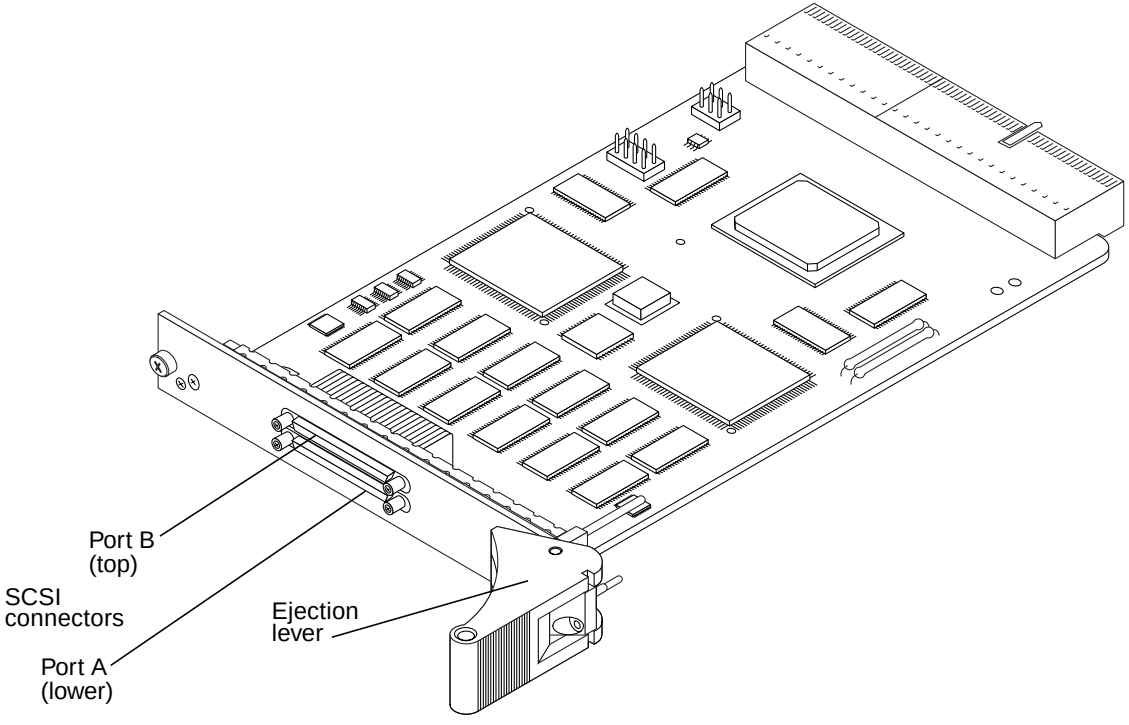

FIGURE 1-1 Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter

Features

This section lists the features of the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI host adapter.

CompactPCI

- Supports hot-swap cPCI installation and removal
- Conforms to the cPCI specification, PICMG 2.0 D3.0
- Conforms to cPCI hot swap specification PICMG 2.1 R1.0

Dual SCSI RISC Processors

- Execution of multiple I/O control blocks from the host
- Reduced host intervention and interrupt overhead

SCSI Interface

- ANSI SCSI X3.131-1994 compliant
- ANSI X3T10/1071D SCSI-3 Fast-20 compliant
- ANSI X3T10/855D SCSI-3 Parallel Interface Compliant
- Asynchronous and synchronous transfers supported
- Synchronous SCSI data transfer rates
  - Wide and Ultra SCSI (40 Mbytes/sec)
  - Ultra SCSI Narrow (20 Mbytes/sec)
  - Wide and Fast SCSI (20 Mbytes/sec)
  - Fast SCSI Narrow (10 Mbytes/sec)
  - Normal (5 Mbytes/sec)
- High-voltage differential transceivers

Hardware and Software Requirements

Before using the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI host adapter, make sure your system meets the following hardware and software requirements.

Component	Requirements
Hardware	Any Sun system with an available cPCI slot
Software	The Solaris 8 operating environment
Firmware	OpenBoot™ PROM version 3.0.
Peripherals attached to PCI adapter	All SCSI-2 high-voltage differential devices
SCSI cables	Use only standard cabling supported by Sun to ensure reliable SCSI interface connections

CHAPTER 2

Installing and Extracting the Adapter

This chapter describes how to install and extract the list of the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter into a supported system.

This chapter contains the following sections:

Note – Refer to your system installation or service manual (and the SCSI device installation manual, as necessary) for detailed instructions for the following tasks.

Preparing for Installation

Before installing the adapter, prepare for the installation by assembling the appropriate tools, unpacking the ship kit, and selecting an I/O slot in the system.

Tools and Equipment Needed

You will need:

- Number 0 Phillips screwdriver
- SCSI cable[1] with a 68-pin VHDCI[2] connector
- Electrostatic discharge (ESD) mat (optional)

Contents of the Ship Kit

The ship kit should contain the following items:

- CompactPCI card
- Antistatic wrist strap
- This manual
- Two SCSI cables

Caution – Electrostatic discharge can damage the integrated circuits on the cards. Leave the card in its antistatic envelope until you are ready to install it into the system.

Physical Limitations

Due to the physical size of the SCSI cables, it is not recommended to have more that four (4) of these SCSI dual channel adapters loaded into contiguous cPCI slots in a cPCI backplane.

1. Approved cables are Sun part numbers: 530-2453-02 (2 m), 530-2454-02 (4 m), 530-2452-02 (8 m), and 530-2455-02 (10 m).

2. VHDCI is Very High Density Cable Interconnect as defined in *VHDCI Shielded Configurations*, SFF-8441.

Determining the Type of Adapter Installation

The adapter is a hot-swappable component that can be installed into a hot-swap-compliant system without interrupting the operation of the system. The adapter can also be installed in a cold environment, where you power down the system before you install the adapter.

Determine whether you want to perform a hot or cold installation of the adapter using the following criteria:

- In a hot installation, you can install the adapter while the system is running, without interrupting the operation of the server. Depending on the level of hot-swap your server is running (full or basic), you may be required to enter software commands before and after the installation.
- In a cold installation, you must shut down the operating system and power down the system before installing the adapter. After the installation, you must power the system back on for the system to recognize the new adapter.

Note – This chapter describes the general procedure needed for either a hot or cold installation. Because software commands and LED displays can differ for each server, refer to your server's documentation for the exact installation procedures.

Models of Hot-Swap

Hot-swap, a key feature of the PCI Industrial Computer Manufacturers Group (PICMG) standard, means that a CompactPCI adapter that meets the PICMG standard can be reliably inserted into or extracted from a powered and operating CompactPCI platform without affecting the other functions of the platform. The standard also defines state transitions from the hardware and software connection processes that allow the card to be connected and configured.

The adapter supports two models of hot-swap:

- Basic hot-swap
- Full hot-swap

The models can be explained by first defining the following processes:

- Hardware connection process—the electrical connection (and disconnection) of an I/O card.
- Software connection process—the software management by the operating system of the board (allocating/releasing resources, attaching/detaching device drivers, and so on).

In the basic hot-swap model, the hardware connection process can be performed automatically by the hardware, while the software connection process requires operator assistance.

In the full hot-swap model, both the hardware and the software connection process are performed automatically.

Installing the Adapter

This section contains the procedures required for installing the card in the server.

Note – This section provides a general overview of the tasks needed to prepare for either a hot or cold installation. For the exact procedures required for your system, refer to the documentation that shipped with your system.

▼ To Prepare the System for a Cold Installation

1. **Before shutting down the operating environment and halting the system, ensure that all significant application activity on the server has stopped.**
2. **Follow the appropriate procedures, as documented in the system's service manual, to shut down and halt the system.**

   Refer to the system's documentation for the complete power down procedure.
3. **Press the power switch on the system's status panel to power down the system.**

   Refer to the system's documentation for the location of the power switch.
4. **Verify that the system's power LED is off (unlit) indicating that the system is completely powered off.**

   Once the system has been shut down and powered off, you can safely install the card.

▼ To Prepare the System for a Hot Installation

- **Follow the appropriate procedures, as documented in the system's documentation, to prepare the system for a hot installation of the adapter.**

  Refer to the system's documentation for the complete hot-swap instructions.

1. **Type the following command**:

```
% cfgadm
```

   Confirm that the intended slot can be identified as unconfigured on the list.

▼ To Install the Adapter

Note – Refer to the system service or administration guide for detailed instructions for following tasks.

---

1. **Get the antistatic wrist strap from the ship kit.**
2. **Unwrap the first two folds of the wrist strap and wrap the adhesive side firmly against your wrist.**
3. **Peel the liner from the copper foil at the opposite end of the wrist strap and attach the copper end of the strap to a bare metal area on the front of the server.**
4. **Identify the slot number where you want to insert the adapter.**
5. **Remove the filler panel from the slot you selected.**

   Refer to the system's documentation for instructions on how to remove the filler panel.

6. **Remove the card from its antistatic envelope and package and place it on the electrostatic discharge mat.**

   If an electrostatic discharge mat is not available, you can place the card on the antistatic envelope it was shipped in.

   Before installing the card in the system, push on the red release button and open the card's ejection lever (see FIGURE 2-1).

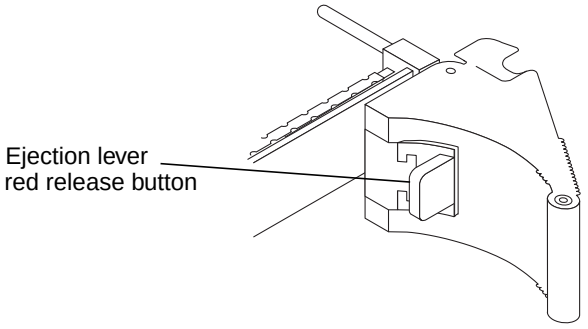

FIGURE 2-1 Opening the Ejection Lever

7. **Pull back the ejection lever and slide the card into the cPCI slot.**

Caution – Do not use excessive force when installing the adapter into the cPCI slot. You may damage the adapter's connector or the pins on the backplane, causing permanent damage to the adapter or the system. If the adapter does not seat properly when you apply even pressure, remove the adapter and carefully reinstall it.

8. **Applying even pressure at both corners of the card, push the card until it is firmly seated in the slot.**

   In a hot-swap installation, when the card is properly seated and the physical connection is complete the blue LED lights up.

9. **Push the ejection lever over the sprocket toward the card and into the locked position.**

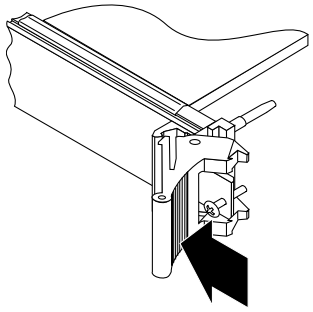

FIGURE 2-2 Closing the Ejection Lever

This locks the card into the slot and completes the hardware installation. In a hot installation, the blue LED should go off.

If the blue LED does not go off, it either means the system into which you inserted the card does not fully support the hot-swap feature or the card is not properly seated.

10. **Using a No. 0 Phillips screwdriver, tighten the captive screws inside the card's ejection lever.**

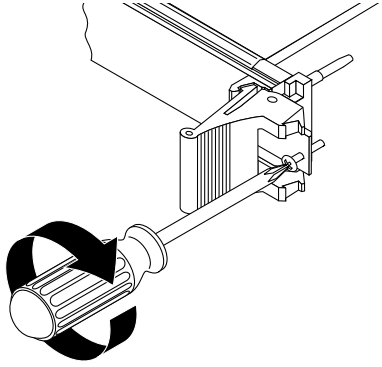

FIGURE 2-3 Tightening the Ejection Lever Captive Screw

11. **Remove the wrist strap from the chassis and your wrist.**

Note – In a hot-swap situation the storage devices will automatically be configured by Solaris.

---

12. **Check your system documentation for any additional actions that may be required to configure the system software for the newly inserted card.**

    For example, in some systems you must type the following command:

```
% cfgadm -c configure attachment_point
```

    This turns off the blue LED and initiates the software, which responds by configuring the system software for the newly inserted card.

13. **Attach the SCSI cable to either Port A or Port B of the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter.**

    See FIGURE 2-4 on page 13. Refer to FIGURE 3-1 on page 21 to determine whether to connect to Port A or Port B.

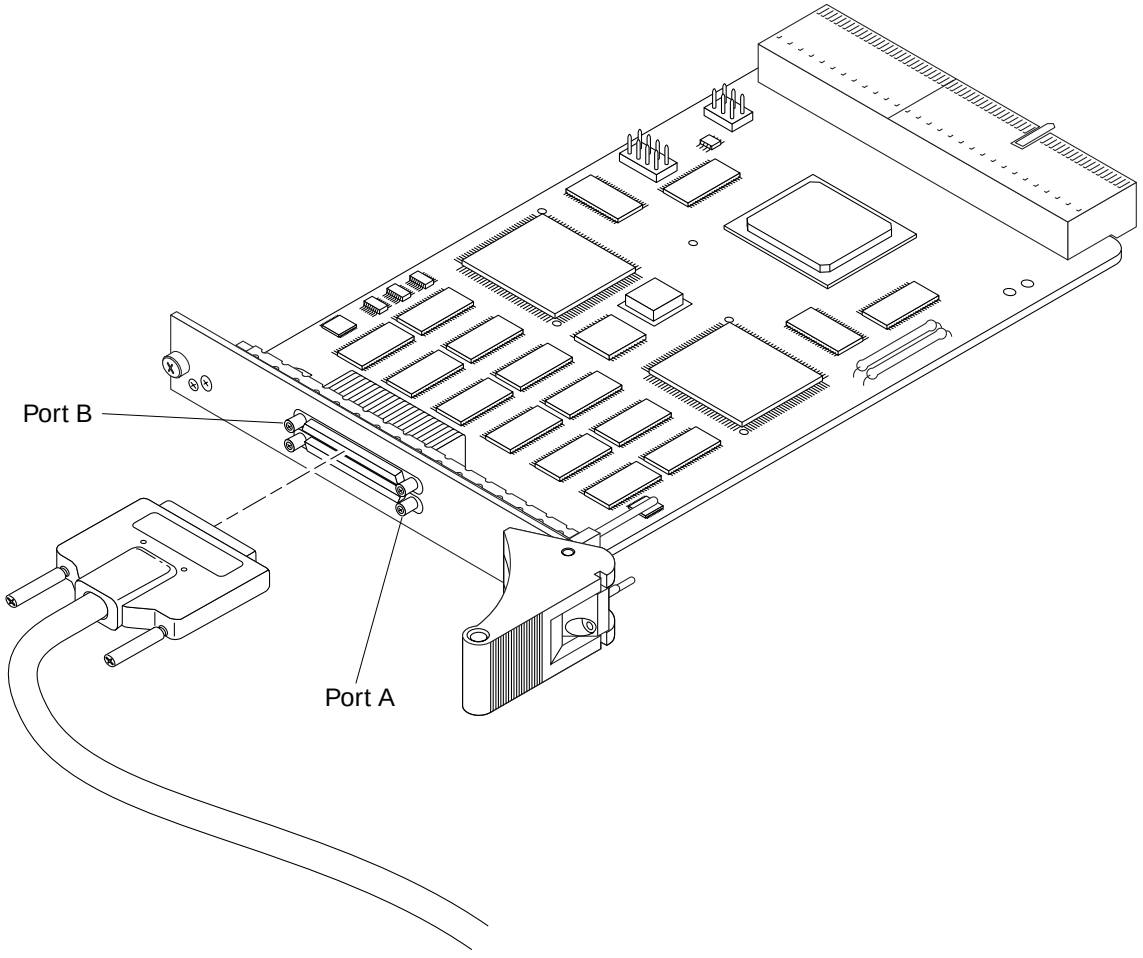

FIGURE 2-4 SCSI Cable Attaching to Port B of Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter

Attaching the Adapter to the System

After installing the adapter, you must make the system recognize the new adapter. The procedure for attaching the adapter to the system depends on whether you installed the adapter in a hot-swap or cold environment.

- If you performed a hot installation, see "To Attach the Adapter in a Hot-Swap Environment" on page 14.
- If you powered down the system before installing the card, see "To Power on the System After a Cold Installation" on page 15.

Note – If you performed a cold installation, see Chapter 3, "Software Requirements and Configuration Verification" for the software configuration instructions.

▼ To Attach the Adapter in a Hot-Swap Environment

1. **Follow the hot-swap procedures for attaching an I/O card to the system in the system's documentation.**

   The system software should automatically reconfigure the newly swapped card. Refer to the system's server or hardware installation manual for the attachment procedure specific to your system.

2. **To verify the proper configuration, type the following:**

   ```
   # cfgadm
   ```

   Verify the "configured" status of the appropriate slots.

3. **Check the hot-swap LED on the adapter.**
   - If the adapter was installed correctly, the blue LED should be off.
   - If the hot-swap LED remains on (lit), the adapter was not installed correctly. Remove and reinstall the adapter to make sure it is seated correctly in the slot.

     If you have to reinstall the card, be sure to follow the instructions outlined in your system's service manual for the removal and replacement of I/O cards.

     Refer to the system documentation for additional troubleshooting instructions.

▼ To Power on the System After a Cold Installation

1. **Before powering on the system, make sure that all the cables are connected and the peripheral devices are powered on.**
2. **Follow the appropriate procedures, as documented in the system's hardware installation manual, to power on the system.**

   Refer to the system's documentation for the complete power on procedure.
3. **Check the hot-swap LED on the adapter.**
   - If the adapter was installed correctly, the blue LED should be off.
   - If the hot-swap LED remains on (lit), the adapter was not installed correctly. Remove and reinstall the adapter to make sure it is seated correctly in the slot.

     If you have to reinstall the card, be sure to follow the instructions outlined in your system's service manual for the removal and replacement of I/O cards.

     Refer to the system documentation for additional troubleshooting instructions.
4. **Verify that the system's power LED is on (lit), indicating that the system has completely powered on.**

Extracting the Adapter

The adapter is a hot-swappable component that can be extracted from a hot-swap-compliant system without interrupting the operation of the system. The adapter can also be extracted from a cold environment, where you power down the system before you extract the adapter.

Determining the Type of Adapter Extraction

Determine whether you want to perform a hot extraction of the adapter or a cold extraction.

- In a hot-swap extraction, you may be required to enter software commands before and after the extraction to detach the adapter from the system correctly.
- In a cold extraction, you must shut down the system's operating system and power down the system before extracting the adapter.

Note – The following procedures provide a general overview of the tasks needed to prepare for either a hot or cold extraction. For the specific procedures required for your system, refer to the documentation that shipped with your system.

▼ To Extract the Adapter From a Hot Environment

1. **As superuser, identify the cPCI card to be removed.**

   You must know the slot number (attachment point ID).

   ```
   # cfgadm
   ```

   I/O assemblies are indicated by "`..sg--..`". The attachment points (board slots) displayed are numbered staring with 0 at the system board side of the cPCI I/O assembly.

2. **Detach (unconfigure) the cPCI card to be removed.**

   ```
   # cfgadm -c unconfigure attachment_point
   ```

   Where *attachment_point* is `pcisch`*xxx*.

3. **Repeat the attachment point list to confirm the board detachment.**

```
# cfgadm
```

4. **Check that the blue LED is on**.

   The Removal OK LED on the system chassis must change from green to amber to signal the unconfigured state. When the Removal OK LED is amber, it is safe to remove the cPCI card.

5. **Push on the red release button and pull back on the card's ejection lever.**
6. **Slide the card out of the cPCI slot.**

▼ To Extract the Adapter From a Cold Environment

1. **Before shutting down the operating environment and halting the system, ensure that all significant application activity on the server has stopped.**
2. **Follow the appropriate procedures, as documented in the system's service manual, to shut down and halt the system.**

   Refer to the system's documentation for the complete power down procedure.

3. **Press the power switch on the system's status panel, or use the appropriate console command to power down the system.**

   Refer to the system's documentation for the location of the power switch.

4. **Verify that the system's power LED is off (unlit) indicating that the system is completely powered off.**

   Once the system has been shut down and powered off, you can safely extract the card.

CHAPTER 3

Software Requirements and Configuration Verification

This chapter gives you information that is necessary for you to use the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter in a system.

Device Driver Software Requirements

To support the device drivers for the Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter, you must have at least the Solaris operating environment 8 4/01 installed in your system.

- Once installed, the boards will have device paths similar to `/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5` (scsi)
- Under these nodes, there will be one instance of the device driver that has device nodes similar to:
  `/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5/st` (byte)
  `/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5/sd` (block)
- Go to Sun's Web site; see "Accessing Sun Documentation Online" on page xviii, and read the *Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter Release Notes* to obtain any necessary software patch IDs.

Verifying the Installation Before Booting the System

There are two ways to verify and identify the proper installation of the CompactPCI Dual Ultra1 Differential SCSI host adapter before booting the operating system.

- Method 1 - `show-devs`
- Method 2 - `probe-scsi-all`

Method 1 - `show-devs`

1. **Access the ok prompt.**
2. **Type the `show-devs` command.**

   A sample output is displayed in FIGURE 3-1. The device paths of the adapter are highlighted in bold.

```
ok show-devs
/ (gptwo)
/ssm@0,0 (gptwo)
/ssm@0,0/pci@19,600000 (pci)
/ssm@0,0/pci@19,600000/pci@1 (pci)
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@5 (scsi-fcp)
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@5/fp@0,0 (fp)
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@5/fp@0,0/disk (block)
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@4 (scsi-fcp)
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@4/fp@0,0 (fp)
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@4/fp@0,0/disk (block)
/ssm@0,0/pci@19,700000 (pci)
/ssm@0,0/sghsc@18,700000 (sghsc)
/ssm@0,0/pci@18,600000 (pci)
/ssm@0,0/pci@18,600000/pci@1/SUNW,isptwo@4 (scsi)
/ssm@0,0/pci@18,600000/pci@1/SUNW,isptwo@4/st (byte)
/ssm@0,0/pci@18,600000/pci@1/SUNW,isptwo@4/sd (block)
/ssm@0,0/pci@18,600000/pci@1/SUNW,hme@0,1 (network)
/ssm@0,0/pci@18,600000/pci@1/pci08e.1000@0
/ssm@0,0/pci@18,700000 (pci)
/ssm@0,0/pci@18,700000/pci@2 (pci)
/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5 (scsi)1
/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5/st (byte)
/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5/sd (block)
/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@4 (scsi)2
/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@4/st (byte)
/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@4/sd (block)
/ssm@0,0/pci@18,700000/pci@1 (pci)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@5 (scsi)1
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@5/st (byte)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@5/sd (block)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4 (scsi)2
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/st (byte)
/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4/sd (block)
/ssm@0,0/pci@18,700000/bootbus-controller@4
/ssm@0,0/memory-controller@3,400000 (memory-controller)
```

1. Device paths with `isptwo@5` indicate the use of Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter Port B.
2. Device paths with `isptwo@4` indicate the use of Sun StorEdge CompactPCI Dual Ultra1 Differential SCSI Host Adapter Port A.

FIGURE 3-1 `show-devs` Command Sample Output

Method 2 - `probe-scsi-all`

1. **Access the ok prompt.**

2. **Type the** `probe-scsi-all` **command.**

   The following sample output is displayed. The devices attached to the adapter are highlighted in bold.

Note – A dual-channel adapter always displays two SCSI paths:
- /SUNW.isptwo@4
- /SUNW.isptwo@5

Note – A single-channel SCSI adapter will only display a path like:
.../SUNW,isptwo@4.

```
ok probe-scsi-all
/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@5
LiD HA LUN - Port WWN --- ---- Disk description -----
3d  3d  0     5080020000037e74   SUN       SENA             1.09
35  35  0     220000203718b3ae   SEAGATE   ST318203FSUN18G  034A

/ssm@0,0/pci@19,600000/pci@1/SUNW,qlc@4
LiD HA LUN - Port WWN --- ---- Disk description -----
26  26  0     2100002037651bbc   SEAGATE   ST318304FSUN18G  0626
2d  2d  0     220000203718b3ae   SUN       SENA             1.09

/ssm@0,0/pci@18,600000/pci@1/SUNW,isptwo@4
Target 0
   Unit 0 Disk FUJITSU MAJ3182M SUN18G 0503
Target 1
   Unit 0 Disk FUJITSU MAJ3182M SUN18G 0503
Target 2
   Unit 0 Processor 2
Target 3
   Unit 0 Processor 2
Target 4
   Unit 0 Removable Tape HP C5683A C911
Target 6
   Unit 0 Removable Read Only device TOSHIBA DVD-ROM SD-M14001

/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@5 (no disks attached)

/ssm@0,0/pci@18,700000/pci@2/SUNW,isptwo@4
Target b
   Unit 0 Disk SEAGATE ST34501WCSUN4.2G0558
Target f
   Unit 0 Processor SYMBIOS D1000 2

/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@5
Target 0
   Unit 0 Disk FUJITSU M2954ESP SUN4.2G2848
Target 1
   Unit 0 Disk SEAGATE ST34371W SUN4.2G3162
Target e
   Unit 0 Processor SYMBIOS D1000

/ssm@0,0/pci@18,700000/pci@1/SUNW,isptwo@4 (no disks attached)
```

Testing the Installation Using the Solaris Operating Environment

SunVTS

TABLE 3-1 lists the documentation that is available for the SunVTS™ program.

TABLE 3-1 SunVTS References

Application	Title	Part Number
Diagnostic testing	*Sun VTS 4.3 User's Guide*	806-7705
	Sun VTS 4.3 Test Reference Manual	806-7704

You can test the installation using the SunVTS diagnostic program. The SunVTS program verifies the functionality, reliability, and configuration of your host adapter. Install both the 32- and 64-bit versions of the SunVTS program.

▼ To Test the Installation

1. **Install Sun VTS 4.3.**

   Sun VTS is bundled with the Solaris 8, 4/01 supplement CD.

2. **To invoke the SunVTS program locally on a system running CDE, type the following as** `root`:

```
# cd /opt/SUNWvts/bin
# ./sunvts
```

3. **From the SunVTS menus:**

   a. **Select devices None and select "intervention."**

   b. **Select mode Functional test.**

   c. **Select SCSI devices (ispx) where** *x* **is the controller number as in c***x***t***y***d***z***.**

      The `"disktest"` option is automatically selected.

d. Right click on “disktest” and select Test Parameter Options.

e. Select to enable the preferred options and click Apply.

f. Select Start to start the test.

APPENDIX **A**

Interface Signals

Differential SCSI VHDCI Connector Signals

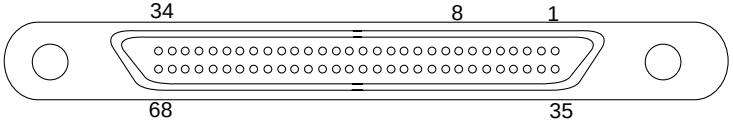

FIGURE A-1 68-pin SCSI VHDCI Connector

TABLE A-1 Differential SCSI Connector Signals

Pin	Signal	Pin	Signal
1	+ DB (12)	35	– DB (12)
2	+ DB (13)	36	– DB (13)
3	+ DB (14)	37	– DB (14)
4	+ DB (15)	38	– DB (15)
5	+ DB (P1)	39	– DB (P1)
6	Ground	40	Ground
7	+ DB (0)	41	– DB (0)
8	+ DB (1)	42	– DB (1)
9	+ DB (2)	43	– DB (2)

TABLE A-1 Differential SCSI Connector Signals *(Continued)*

Pin	Signal	Pin	Signal
10	+ DB (3)	44	– DB (3)
11	+ DB (4)	45	– DB (4)
12	+ DB (5)	46	– DB (5)
13	+ DB (6)	47	– DB (6)
14	+ DB (7)	48	– DB (7)
15	+ DB (P)	49	– DB (P)
16	DIFFSENS	50	Ground
17	TERMPWR	51	TERMPWR
18	TERMPWR	52	TERMPWR
19	RESERVED	53	RESERVED
20	+ ATN	54	– ATN
21	+ Ground	55	Ground
22	+ BSY	56	– BSY
23	+ ACK	57	– ACK
24	+ RST	58	– RST
25	+ MSG	59	– MSG
26	+ SEL	60	– SEL
27	+ C / D	61	– C / D
28	+ REQ	62	– REQ
29	+ I / O	63	– I / O
30	Ground	64	Ground
31	+ DB(8)	65	– DB(8)
32	+ DB(9)	66	– DB(9)
33	+ DB(10)	67	– DB(10)
34	+ DB(11)	68	– DB(11)

APPENDIX **B**

Specifications

Performance Specifications

TABLE B-1 Performance Specifications

Feature	Specification
cPCI clock	33 MHz max
cPCI data burst transfer rate	264 Mbytes / sec. (64-bit wide)
SCSI synchronous transfer rate	20 / 40 Mbytes / sec
SCSI asynchronous transfer rate	Max. 10 Mbytes / sec. 16-bit Max. 5 Mbytes / sec. 8-bit
cPCI data / address lines	AD63-0
cPCI modes	Master / slave
SCSI interface	High-voltage differential (HVD)
SCSI bus parity	Yes
SCSI 8-bit bus devices	Yes
SCSI 16-bit bus devices	Yes

Physical Characteristics

TABLE B-2 Physical Characteristics

Dimension	Measurement
Length	160 mm
Width	100 mm
Height (not including PCB) • Primary component side • Back component side	 13.4 mm (max.) 1.52 mm (max.)
Weight	184.27 grams

Power Requirements

TABLE B-3 Power Requirements

Specification	Measurement	Maximum Ripple
Maximum power consumption	7.0 watts	
5v (+5/-3%) supply current	0.65 A typical	50 mV
3.3v (+5/-3%) supply current	0.18 A typical	50 mV

Environmental Specifications

TABLE B-4 Environmental Specifications

Condition	Operating Specification	Storage Specification
Temperature	0° to 55° C (+32° to +131° F)	-40° to +65° C (-40° to +149° F)
Relative humidity	5 to 95% non-condensing (45° C, wet bulb temperature)	0 to 95% non-condensing 10° C/hour
Altitude	-1000 to +15,000 feet	-1000 to + 50,000 feet
Shock	10g, 1/2 sine wave, 11 msec	60g, 1/2 sine wave, 11 msec
Vibration, peak-to-peak displacement	0.005 in. max (5 to 32 Hz)	0.1 in. max (5 to 17 Hz)
Vibration, peak acceleration	0.25g (5 to 500 Hz) (Sweep rate = 1 octave/min.)	0.25g (5 to 500 Hz) (Sweep rate = 1 octave/min.)

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