Sun StorageTek™ PCI-E Dual Channel Ultra320 SCSI HBA Installation Guide

For HBA Model SG-XPCIE2SCSIU320Z

Sun Microsystems, Inc.
www.sun.com

Part No. 819-4187-11
September 2006, Revision A

Submit comments about this document at: http://www.sun.com/hwdocs/feedback

Contents

Figures

Tables

Preface

This *Sun StorageTek™ PCI-E Dual Channel Ultra320 SCSI HBA Installation Guide* is intended for experienced system administrators.

Before You Read This Book

Before you install and use the Sun StorageTek™ PCI-E Dual Channel Ultra320 SCSI HBA (host bus adapter) as described in this manual, you must read and understand the documents listed in the following table.

Topic	Title	Part Number
Diagnostics	*SunVTS 6.X User Guide* *SunVTS 6.X Reference Manual*	Varies according to the SunVTS software version being used. A different version of the SunVTS software is released with each release of the Solaris operating system

How This Book Is Organized

- Chapter 1 describes the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA and explains how to install it on your system, connect it to a storage device, and test it. It also includes instructions on booting from a hard disk connected to the host adapter.
- Chapter 2 contains the release notes for the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA.
- Appendix A provides general information and configuration rules about the host adapter.
- Appendix B contains the specifications for the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA (host bus adapter).
- Appendix C contains the Declaration of Conformity, regulatory, and essential safety information.

Using UNIX Commands

This document might not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. See the following for this information:

- Software documentation that you received with your system
- Solaris™ operating environment documentation, which is at

  `http://docs.sun.com`

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. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

* The settings on your browser might differ from these settings.

Accessing Sun Documentation

You can view, print, or purchase a broad selection of Sun documentation, including localized versions, at:

`http://www.sun.com/documentation`

To access Solaris OS usage documents listed under "Using UNIX Commands" on page xii and the SunVTS™ software documents listed in "Before You Read This Book" on page xi, go to `docs.sun.com`.

Note – Viewing and printing documents in Adobe® Portable Document Format (PDF) requires Adobe Acrobat Reader, which is downloadable for free from: `www.adobe.com/products/acrobat/readstep.html`.

Third-Party Web Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Contacting Sun Technical Support

If you have technical questions about this product that are not answered in this document, go to:

http://www.sun.com/service/contacting

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can submit your comments by going to:

http://www.sun.com/hwdocs/feedback

Please include the title and part number of your document with your feedback:

Sun StorageTek™ PCI-E Dual Channel Ultra320 SCSI HBA Installation Guide, part number 819-4187-11

CHAPTER 1

Installing, Connecting, and Testing the Host Adapter

This chapter describes the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA (host bus adapter) and explains how to install it into a host, connect it to SCSI storage devices, test the installation, and boot from a disk drive connected to the host adapter.

Note – If you are unfamiliar with Ultra320 SCSI configuration guidelines, read "Ultra320 SCSI Configuration" on page 31 before performing the procedures in this chapter.

This chapter contains the following sections:

Features

The Sun StorageTek PCI-E Dual Channel Ultra320 SCSI host bus adapter (HBA) is a low-profile single-slot, expansion board that interfaces a PCI Express (PCIe) x4 bus to two independent Ultra320 SCSI channels. The PCI Express interface has four full-duplex PCIe lanes and supports the PCIe r1.0a specification.

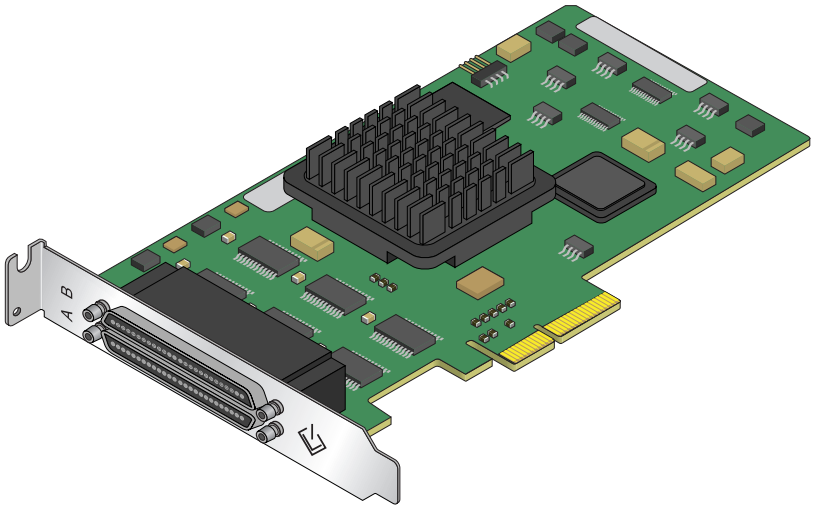

FIGURE 1-1 Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA

The host adapter includes the following features:

- Two independent SCSI channels that support single-ended (SE) and low-voltage differential (LVD) signaling:
  - Wide Ultra320 SCSI LVD synchronous transfer of up to 320 Mbytes/sec
  - Wide Ultra SE synchronous transfer of up to 40 Mbytes/sec
- Two external 68-pin very high density cable interconnect (VHDCI) right-angle connectors.
- LVD SCSI support for disk arrays, tape libraries, and tape drives:
  - Two 16-bit LVD interfaces with support for up to 15 targets on each SCSI bus
  - Active LVD termination
- Backward compatibility with SCSI-2 and SCSI-3 (Ultra1, Ultra2, and Ultra3) devices. For Sun StorEdge and StorageTek systems qualified and supported with this host adapter, see "Release Notes" on page 19.

- Field programmable 512-Kbyte flash ROM (contains BIOS, FCode, and firmware) for booting in a Sun SPARC or Sun x64 processor-based host system.
- RoHS compliant.

Supported Operating Systems

You can use the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA with the following operating systems (OSs):

- Solaris 10 for SPARC
- Solaris 10 for x64/x86
- RHEL 3
- RHEL 4
- SLES 9
- Windows Enterprise Server 2003

Installing the Host Adapter

Before you start, read these instructions, as well as the installation instructions for the storage devices to be connected to the host adapter. Also, before installing the host adapter, read "Release Notes" on page 19 for required information, including lists of supported host systems, cables, and storage devices.

Caution – This host adapter is only for connection to a single-ended (SE) or low-voltage differential (LVD) device, and it does not work if connected to a high-voltage differential (HVD) device. See "SCSI Symbols" on page 33 for images of the SCSI symbols.

▼ To Prepare for Hardware Installation

1. **Read and observe the safety information at the back of this book.**

   See "Safety Agency Compliance Statements" on page 45.

2. **Install Solaris 10 HW2 (minimum version for SPARC) or Solaris 10 x86 HW1 (minimum version for x86/x64) on the target host system.**

Note – The version of the OS that can run on a particular host system is specific to the host system. Refer to the host system documentation to determine the minimum required version of OS that can run on the target host system.

---

3. **Download and install the latest Solaris 10 (either SPARC or x86) recommended patch cluster on the host, as described in** "Release Notes" on page 19**.**

4. **Install any required driver patches on the host, as described in** "Release Notes" on page 19**.**

Caution – If the driver and any required patches described in the release notes are not installed, you might not be able to use the host adapter.

---

5. **Install the SunVTS software on the host.**

   The SunVTS software is shipped on the Supplemental Software CD-ROM along with the Solaris OS CD-ROM. Read the user's guide listed in "Before You Read This Book" on page xi for instructions on installing the SunVTS software.

6. **Exit the operating environment.**

   To inform any mounted users that the system will be going down, use the `shutdown` command. Otherwise, use the `init 0` command. See the man pages for these commands or the Solaris AnswerBook documentation.

```
# shutdown
...
ok
```

7. **Power off the system.**

   For instructions, refer to the service documentation that came with your system.

Caution – Damage to the HBA can occur as the result of careless handling or electrostatic discharge (ESD). To minimize the possibility of ESD-related damage, use both a workstation anti-static mat and an ESD wrist strap. Observe the following precautions to avoid ESD-related problems:

- Leave the HBA in its anti-static bag until you are ready to install it in the system.
- Always use a properly fitted and grounded wrist strap or other suitable ESD protection when handling the HBA, and observe proper ESD grounding techniques.
- Hold the HBA by the edge of the PCB or mounting bracket, not by the connectors.
- Place the HBA on a properly grounded anti-static work surface pad when it is out of its protective anti-static bag.

You are now ready to unpack and install the host adapter as described in the following text.

▼ To Unpack and Install the Host Adapter

1. **Unpack the box containing the host adapter.**

Note – Leave the host adapter in the protective bag until you are ready to install it.

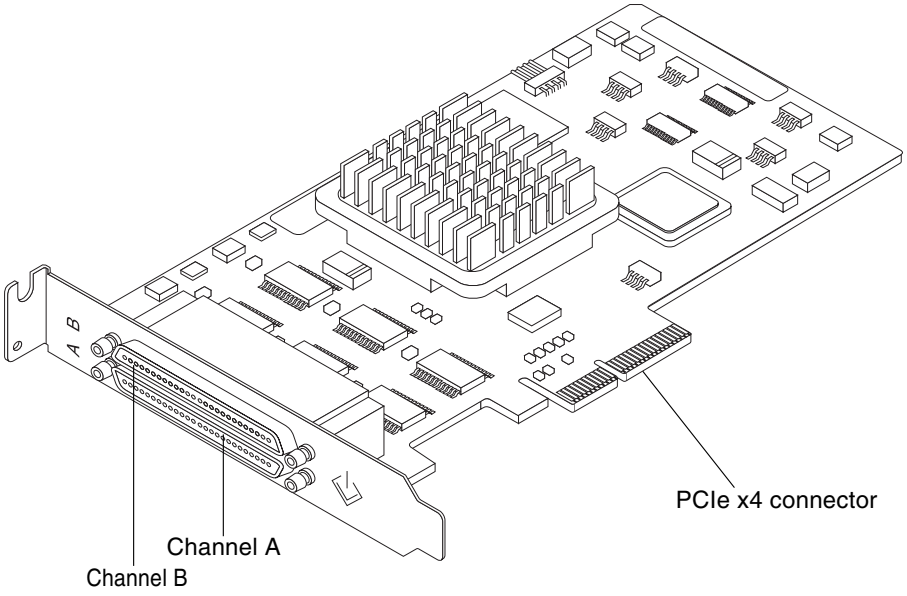

FIGURE 1-2 Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA VHDCI Connectors

The host adapter is shown in Figure 1-2. The Very High Density Cable Interconnect (VHDCI) connectors are for the VHDCI cables that are used to connect the host adapter to the storage device.

2. **Power off the computer, then disconnect the power cable.**
3. **Open the system.**

   Refer to your system documentation for information about how to open the system.
4. **Remove the filler panel for the desired slot.**

   Refer to the system documentation for information about removing filler panels.
5. **Remove the host adapter from its protective bag.**
6. **Select an empty PCI Express slot that can support a PCIe x4 card for this host bus adapter, and install the host bus adapter in that slot.**

   Refer to the system's hardware documentation for information about mounting details (mounting holes, standoff locking/unlocking, and screws to secure the card).

Caution – Using excessive force can bend or damage the host adapter edge connector. Make sure that the edge connector is properly aligned before pressing the adapter into place. The bracket around the two external connectors should fit into the empty space where the filler panel was removed in Step 4.

7. **If necessary, replace the low profile PCI bracket with a standard height PCI bracket in order to fit into a standard height PCI-E slot.**
8. **Close the system.**

The next two sections describe how to connect the host adapter to one or more storage devices and how to test the host adapter.

Connecting the Host Adapter

Before you connect the host adapter to the storage devices, do the following:

- Refer to the release notes on page 19 for the lists of supported cables and storage devices.
- Refer to Appendix A, "Ultra320 SCSI Configuration" on page 31 for general information on configuration for Ultra320 SCSI devices.
- Refer to your system documentation and the storage device installation manual for specific cabling and configuration instructions.

▼ To Connect SCSI Cables From the Host Adapter to the Storage Devices

- **Connect the host adapter to the storage devices using the appropriate cables.**

Testing the Host Adapter Installation

To test the host adapter installation in a Solaris environment, use SPARC OBP `probe-scsi-all` command, Solaris (SPARC or x64/x86) `format` command, or SunVTS `disktest` if the attached storage target is a disk array

▼ To Test the Installation Using the SPARC OBP `probe-scsi-all` Command

Note – This procedure is not valid in a Solaris 10 for x64/x86 environment. Instead, you must use the format command to verify the installation of the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA before attempting to use it in a Solaris 10 for x64/x86 environment.

---

1. **If you have disconnected the power cable, reconnect it.**
2. **Power on the connected storage device, and then power on the host.**
3. **Bring the system down to the `ok` prompt at run level 0.**

Note – If the host starts to reboot, interrupt the reboot process by pressing the Stop and A keys simultaneously.

---

4. **At the `ok` prompt, issue the `probe-scsi-all` command to verify that the system recognizes the host adapter.**

   The `probe-scsi-all` command displays the SCSI devices connected to the host, as shown in the following screen example.

```
ok probe-scsi-all
/pci@4,2000/pci@1/scsi@2
Target 0
Unit 0 DISK SEAGATE ST336605LSUN36G 0238
/pci@4,2000/pci@1/scsi@2,1
Target 0
Unit 0 DISK SEAGATE ST336605LSUN36G 0238
```

   In this example, the first SCSI port (`scsi@2`) has one disk drive connected (`Target 0`). The second SCSI port (`scsi@2,1`) also has one disk drive connected (`Target 0`). In the illustration of the host adapter in FIGURE 1-2, the first SCSI port is labeled as Channel A; the second SCSI port as Channel B.

▼ To Test the Installation Using the Solaris `format` Command

Use the following procedure to test the host adapter installation using the `format` command on a Solaris 10 for x64/x86 platform.

1. **Become a root user and type the `format` command.**

```
# format
Searching for disks...done
AVAILABLE DISK SELECTIONS:
       0. c1t0d0 <DEFAULT cyl 24611 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@a/pci17c2,10@4/sd@0,0
       1. c1t1d0 <DEFAULT cyl 24810 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@a/pci17c2,10@4/sd@1,0
       2. c3t8d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@8,0
       3. c3t9d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@9,0
       4. c3t10d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@a,0
       5. c3t11d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@b,0
       6. c3t12d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@c,0
       7. c3t13d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@d,0
Specify disk (enter its number):
```

2. **When prompted, type the number of the disk drive that is attached to the host adapter card you just installed and press Enter.**

```
# format
Searching for disks...done
AVAILABLE DISK SELECTIONS:
       0. c1t0d0 <DEFAULT cyl 24611 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@a/pci17c2,10@4/sd@0,0
       1. c1t1d0 <DEFAULT cyl 24810 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@a/pci17c2,10@4/sd@1,0
       2. c3t8d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@8,0
       3. c3t9d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@9,0
       4. c3t10d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@a,0
       5. c3t11d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@b,0
       6. c3t12d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@c,0
       7. c3t13d0 <DEFAULT cyl 24619 alt 2 hd 27 sec 107>
           /pci@0,0/pci1022,7450@b/pci1000,10c0@1,1/sd@d,0
Specify disk (enter its number): 2
selecting c3t8d0
[disk formatted]
```

The Format menu is displayed.

3. **Type** `analyze` **to select the type of test.**

```
FORMAT MENU:
       disk- select a disk
       type- select (define) a disk type
       partition- select (define) a partition table
       current- describe the current disk
       format- format and analyze the disk
       fdisk- run the fdisk program
       repair- repair a defective sector
       label- write label to the disk
       analyze- surface analysis
       defect- defect list management
       backup- search for backup labels
       verify- read and display labels
       save- save new disk/partition definitions
       inquiry- show vendor, product and revision
       scsi- independent SCSI mode selects
       cache- enable, disable or query SCSI disk cache
       volname- set 8-character volume name
       !<cmd>- execute <cmd>, then return
       quit
format> analyze
```

4. **Type** `read` **to further define the type of test, and then** `yes` **to continue.**

```
ANALYZE MENU:
       read- read only test (doesn't harm SunOS)
       refresh- read then write (doesn't harm data)
       test- pattern testing (doesn't harm data)
       write- write then read (corrupts data)
       compare- write, read, compare (corrupts data)
       purge- write, read, write (corrupts data)
       verify- write entire disk, then verify (corrupts data)
       print- display data buffer
       setup- set analysis parameters
       config- show analysis parameters
       !<cmd>- execute <cmd> , then return
       quit
analyze> read
Ready to analyze (won't harm SunOS). This takes a long time,
but is interruptable with CTRL-C. Continue? y
pass 1

Total of 0 defective blocks repaired.
analyze>
```

5. **Verify that no error occurred, as indicated by the output line** `Total of 0 defective blocks repaired`**. Contact your service provider if an error was observed.**

6. **Issue two** `quit` **commands to exit the test and the Format menu.**

```
analyze> q
FORMAT MENU:
        disk - select a disk
        type - select (define) a disk type
        partition - select (define) a partition table
        current - describe the current disk
        format - format and analyze the disk
        fdisk - run the fdisk program
        repair - repair a defective sector
        label - write label to the disk
        analyze - surface analysis
        defect - defect list management
        backup - search for backup labels
        verify - read and display labels
        save - save new disk/partition definitions
        inquiry - show vendor, product and revision
        scsi - independent SCSI mode selects
        cache - enable, disable or query SCSI disk cache
        volname - set 8-character volume name
        !<cmd> - execute <cmd>, then return
        quit
format> q
#
```

Your Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA is ready for use.

▼ To Test the Installation With the SunVTS Software

Use the SunVTS software to test a disk on a newly attached disk array in order to verify that the host adapter is properly installed.

For details about running the SunVTS software, refer to the *SunVTS 6.X User's Guide* and the *SunVTS 6.X Test Reference Manual.*

Note – Refer to the SunVTS documentation to determine whether the host platform is supported.

---

1. **As superuser, open the SunVTS window.**

```
# /opt/SUNWvts/bin/sunvts
```

2. **From the System Map, select a disk drive that is in an array connected to the host adapter.**
3. **Start the disk test.**
4. **Verify that no errors have occurred by checking the SunVTS status window.**
5. **If no problems occur, stop the SunVTS software.**

   Your host adapter is now ready to run applications.

Note – If problems occur, please contact your service provider for assistance.

Booting Through the Host Adapter

The Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA uses the Solaris `mpt` device driver, which is included in the Solaris 10 (SPARC or x64/x86) OS. This enables you to install Solaris 10 to a hard disk connected to the host adapter and 'warm' boot directly from the disk.

Note – A “warm” boot requires that the hard disk attached to the host adapter be powered on and available at the time the server is powered up. A “cold” boot, in which both the server and hard disk are powered up at the same time, is not supported.

After booting, install any required patches for the `mpt` driver. Refer to “Release Notes” on page 19 for instructions on downloading and installing `mpt` driver patches.

Note – The Sun StorEdge 3310 standalone SCSI array is presently limited to Ultra160 SCSI bus speeds only. Normally, the host adapter automatically lowers the transfer speed for attached storage devices that are not Ultra320 capable. However, for the Sun StorEdge 3310 standalone SCSI array, you must create an `mpt.conf` file to limit the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA to Ultra160 SCSI bus speeds. For instructions on creating the `mpt.conf` file, refer to the "Release Notes" on page 19.

▼ To Boot an x86 Server From an Internal or External Disk Drive

1. **Initiate a system boot.**

   During system booting, the BIOS initialization screen is displayed.

```
Press Ctrl-C to start LSI Logic Configuration Utility
```

2. **Immediately press Control–C.**

   The LSI Logic MPT SCSI Setup Utility menu is displayed.

```
LSI Logic MPT SCSI Setup Utility Version MPTBIOS-5.07.03Description
<Boot Adapter List><Global Properties>(Not part
LSI Logic Host Bus Adaptersof screen)

AdapterPCI Dev/PortIRQNVMBootLSIPCISCSI
       Bus Funcnumber OrderControlSlotChan
<1020/1030>35120009Yes0EnabledJ3B
<1020/1030>35024009Yes1EnabledJ3A
<1020/1030>34928009Yes2EnabledJ2B
<1020/1030>34830009Yes3EnabledJ2A
<1020/1030>34134009YesEnabledJ1B
<1020/1030>34038009YesEnabledJ1A
```

In this example there are three Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBAs installed in PCI slots J1, J2, and J3, and the one in PCI slot J3 uses Channel B (indicated by `Dev/Func = 51`) to connect to the storage device that contains the external boot disk.

3. **Press F2 as required to highlight** `<Boot Adapter List>` **in the second line of the menu, then press Enter.**

   The following information is displayed:

```
Boot Adapter List
Insert = Add an adapterDelete = Remove an adapter
AdapterPCI Dev/BootCurrentNext
       Bus FuncOrderStatusBoot
1020/10303 51  [0]On[On]
1020/10303 50  [1]On[On]
1020/10303 49  [2]On[On]
1020/10303 48  [3]On[On]

Hit Insert to select an adapter from this list:
<1020/1030351>
<1020/1030350>
<1020/1030349>
<1020/1030348>
<1020/1030341>
<1020/1030340>
```

4. **Use the arrow keys to highlight the HBAs in the** `Next Boot` **column and use the -/+ keys to disable all except the selected HBA that has external boot disk attached.**

```
Boot Adapter List
Insert = Add an adapterDelete = Remove an adapter
AdapterPCI Dev/BootCurrentNext
       Bus FuncOrderStatusBoot
1020/10303 51  [0]On[On]
1020/10303 50  [1]On[Off]
1020/10303 49  [2]On[Off]
1020/10303 48  [3]On[Off]

Hit Insert to select an adapter from this list:
<1020/1030351>
<1020/1030350>
<1020/1030349>
<1020/1030348>
<1020/1030341>
<1020/1030340>
```

5. **Press the Escape key.**

   The following information is displayed:

```
Boot property changes have been made
<Cancel Exit>
Exit the Configuration Utility
<Save Changes then exit this menu>
<Discard changes then exit this menu>
```

6. **Use the arrow key to highlight** `<Save Changes then exit this menu>` **and press Enter.**

   The LSI Logic MPT SCSI Setup Utility menu is displayed.

```
LSI Logic MPT SCSI Setup Utility Version MPTBIOS-5.07.03
<Boot Adapter List><Global Properties>
LSI Logic Host Bus Adapters

AdapterPCI Dev/PortIRQNVMBootLSI
       Bus Funcnumber OrderControl
<1020/1030>35120009Yes0Enabled
<1020/1030>35024009Yes1Disabled
<1020/1030>34928009Yes2Disabled
<1020/1030>34830009Yes3Disabled
<1020/1030>34134009YesDisabled
<1020/1030>34038009YesDisabled
```

7. **To prevent any disk drives attached to Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA from being used as the boot disk, use the arrow key to highlight the HBA that has the external boot disk attached, then press Enter.**

   The following information is displayed:

```
Adapter Properties
AdapterPCI Dev/
       Bus Func
1020/10303 51
       <Device Properties>
       Host SCSI ID[7]
       SCSI Bus Scan Order[Low to High (0..Max)]
       Removable Media Support[None]
       CHS Mapping[SCSI Plug and Play Mapping]
       Spinup Delay (Secs)[2]
       Secondary Cluster Server[No]
       Termination Control[Auto]
       <Restore Defaults>
```

8. **Ensure that** `<Device Properties>` **is highlighted, then and press Enter.**

   The following information is displayed:

```
Device Properties
SCSI   Device IdentifierMB/SecMT/SecDataScanScan
ID            WidthIDLUN's > 0
0      SEAGATE ST336607LSUN36G32032016YesYes
1      SEAGATE ST336607LSUN36G32032016YesYes
2      SEAGATE ST336607LSUN36G32032016YesYes
3      SEAGATE ST336607LSUN36G32032016YesYes
4      SEAGATE ST336607LSUN36G32032016YesYes
5      SEAGATE ST336607LSUN36G32032016YesYes
6      SEAGATE ST336607LSUN36G32032016YesYes
7      1020/103032016YesYes
8      SEAGATE ST336607LSUN36G32032016YesYes
9      SEAGATE ST336607LSUN36G32032016YesYes
10     SEAGATE ST336607LSUN36G32032016YesYes
11     SEAGATE ST336607LSUN36G32032016YesYes
12     SEAGATE ST336607LSUN36G32032016YesYes
```

9. **Use the arrow key to highlight the disk drives in the** `Scan ID` **column and use the -/+ key to change them from** `Yes` **to** `No`**. Do not change the boot disk.**

```
Device Properties
SCSI   Device IdentifierMB/SecMT/SecDataScanScan
ID            WidthIDLUN's > 0
0      SEAGATE ST336607LSUN36G32032016NoYes
1      SEAGATE ST336607LSUN36G32032016NoYes
2      SEAGATE ST336607LSUN36G32032016NoYes
3      SEAGATE ST336607LSUN36G32032016NoYes
4      SEAGATE ST336607LSUN36G32032016NoYes
5      SEAGATE ST336607LSUN36G32032016NoYes
6      SEAGATE ST336607LSUN36G32032016NoYes
7      1020/103032016YesYes
8      SEAGATE ST336607LSUN36G32032016YesYes
9      SEAGATE ST336607LSUN36G32032016NoYes
10     SEAGATE ST336607LSUN36G32032016NoYes
11     SEAGATE ST336607LSUN36G32032016NoYes
12     SEAGATE ST336607LSUN36G32032016NoYes
```

Note – In the example above, SCSI ID 7 indicates the HBA with the external boot disk attached, and SCSI ID 8 indicates the external boot disk.

---

10. **Press the Escape key twice.**

    The following information is displayed:

```
Adapter and/or device property changes have been made
<Cancel Exit>
Exit the Configuration Utility
<Save Changes then exit this menu>
<Discard changes then exit this menu>
```

11. **Use the arrow key to highlight** `<Save Changes then exit this menu>` **and press Enter.**
12. **Press the Escape key.**
13. **Use the arrow key to highlight** `Exit the Configuration Utility` **and press Enter.**

```
Saving global properties...
Global properties saved. Hit any key to reboot.
```

14. **Press any key to reboot the system.**

CHAPTER 2

Release Notes

This chapter contains the latest information about the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA (host bus adapter), part number SG-XPCIE2SCSIU320Z. Read this document so that you are aware of issues or requirements that can affect the installation and operation of the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA.

This chapter contains the following sections:

Note – Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Qualified Platforms

This section lists the supported host platforms and minimum operating system levels the for Sun Solaris, Linux, and Windows operating environments.

Sun Solaris Operating Systems

The following host platforms with this HBA are qualified with the Sun Solaris 10 for SPARC and Solaris 10 for x64/x86 systems.

Host Platform Support

- Sun Fire T1000 Server
- Sun Fire T2000 Server
- Sun Fire X2100 Server
- Sun Fire X4600 Server
- Sun Ultra 45 Workstation

Minimum Operating System Levels

- Sun Solaris 10 for SPARC (3/05 HW2) with the Solaris 10 for SPARC recommended patch cluster
- Sun Solaris 10 for x64/x86 (3/05 HW1) with the Solaris 10 for x64/x86 recommended patch cluster

---

Note – For the minimum OS level supported on the host platform, refer to the hardware platform documentation.

Linux Operating Systems

The Linux drivers required to run this HBA with the Linux OS are available for download at the Sun designated page at:

http://www.lsilogic.com/support/sun

Consult the Sun hardware platform documentation to determine which Linux releases are supported on each specific platform.

The following hardware and software are qualified with the Red Hat Enterprise Linux 3 and 4 and SuSE Linux Enterprise Server 9 systems.

Host Platform Support

- Sun Fire X2100 Server
- Sun Fire X4600 Server

Minimum Operating System Levels

- Red Hat Enterprise Linux
  - Red Hat Enterprise Linux 3 (x64/AMD64) and (x86/IA32)
  - Red Hat Enterprise Linux 4 (x64/AMD64)
- SuSE Linux Enterprise Server 9 for (x64/AMD64)

Windows Server 2003 Operating System

The host adapter device driver for Windows Server 2003 is available for download at the Sun designated web page at:

http://www.lsilogic.com/support/sun

Consult the Sun hardware platform documentation to determine which Windows releases are supported.

The following hardware and software are qualified with the Windows Server 2003 x86 and x64 systems.

Host Platform Support

- Sun Fire X2100 Server
- Sun Fire X4600 Server

Minimum Operating System Levels

- Windows Server 2003 (x86/IA32 and x64/AMD64)

Storage Systems Support

The following storage systems are supported for all of the previously listed operating systems.

Disk Storage Systems

- Sun StorageTek 3320 SCSI array (RAID and JBOD)
- Sun StorageTek 3120 SCSI array (JBOD)

- Sun StorageTek 3310 SCSI array (RAID and JBOD)
- Sun StorageTek S1 array
- Sun StorEdge D2 array

Tape Backup Systems

- Sun StorageTek C2 tape library with LTO 2, LTO 3 or SDLT 600 tape drive
- Sun StorageTek C4 tape library with LTO 2, LTO 3 or SDLT 600 tape drive
- Sun StorEdge L8 tape autoloader with Sun StorageTek LTO LVD, LTO 2 (Gen 2) LVD, or SDLT 320 tape drive
- Sun StorEdge L25/L100 tape library with Sun StorageTek LTO 1 (Gen 1) LVD, LTO 2 (Gen 2) LVD, LTO 3 (Gen 3) LVD, SDLT 320, or SDLT 600 tape drive
- Sun StorEdge L180 tape library with LTO 1 (Gen 1) LVD, LTO 2 (Gen 2) LVD, LTO 3 (Gen 3) LVD, and SDLT320 LVD tape drives
- Sun StorageTek StreamLine SL500 Modular Library System with LTO 2 (Gen 2) LVD and SDLT 320 LVD tape drives
- Sun StorageTek C2 tape library with LTO 3 or SDLT 600 tape drive
- Sun StorageTek C4 tape library with LTO 2, LTO 3 or SDLT 600 tape drive
- Sun StorageTek DAT 72 desktop tape drive
- Sun StorageTek LTO 2 (Gen 2) LVD desktop tape drive
- Sun StorageTek LTO 3 (Gen 3) LVD desktop tape drive
- Sun StorageTek SDLT 320 desktop tape drive
- Sun StorageTek SDLT 600 desktop tape drive

Qualified Cables

TABLE 2-1 lists the qualified cables for connecting the Sun StorEdge 3310 SCSI array, Sun StorageTek 3120 SCSI array, and Sun StorEdge D2 Array. TABLE 2-2 lists the qualified cables for connecting the Sun StorageTek S1 array to the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA.

Use the marketing part numbers in the tables when ordering cables. Use the manufacturing part numbers in the table to determine whether any already-purchased cables are supported. The manufacturing part numbers are stamped on the cables.

TABLE 2-1 Qualified Cables for the Sun StorEdge 3310, Sun StorageTek 3120, and Sun StorEdge D2 Arrays

Cable Type and Length	Marketing Part Number	Manufacturing Part Number
SCSI, VHDCI/VHDCI, 0.8 m	X1136A	530-2982-01 or later
SCSI, VHDCI/VHDCI, 0.8 m	X1136A-Z*	530-3629-01
SCSI, VHDCI/VHDCI, 1.2 m	X1137A	530-2983-01 or later
SCSI, VHDCI/VHDCI, 2 m	X1138A	530-2538-01 or later
SCSI, VHDCI/VHDCI, 2 m	X1138A-Z	530-3630-01
SCSI, VHDCI/VHDCI, 4 m	X3830B	530-2984-01 or later
SCSI, VHDCI/VHDCI, 4 m	X3830B-Z	530-3631-01
SCSI, VHDCI/VHDCI, 10 m	X3831B	530-2985-01 or later\
SCSI, VHDCI/VHDCI, 10 m	X3831B-Z	530-3632-01

* Cables with part numbers ending with -Z are RoHS compliant

\ This cable must have a part number ending with -02 to accommodate the maximum Ultra320 speed.

TABLE 2-2 Qualified Cables for the Sun StorageTek S1 Array

Cable Type and Length	Marketing Part Number	Manufacturing Part Number\
SCSI, HD-68/VHDCI, 0.8 m	X1132A	530-2452-03
SCSI, HD-68/VHDCI, 0.8 m	X1132A-Z*	530-3624-01
SCSI, HD-68/VHDCI, 2 m	X3832A	530-2453-03
SCSI, HD-68/VHDCI, 2 m	X3832A-Z	530-3625-01
SCSI, HD-68/VHDCI, 4 m	X3830A	530-2454-03
SCSI, HD-68/VHDCI, 4 m	X3830A-Z	530-3626-01
SCSI, HD-68/VHDCI, 10 m	X3831A	530-2455-03
SCSI, HD-68/VHDCI, 10 m	X3831A-Z	530-3627-01

* Cables with part numbers ending with -Z are RoHS compliant.

\ Cables with part numbers ending with -01 are not supported for use with the Sun StorageTek S1 array.

Downloading and Installing the Patches and Documentation

TABLE 2-3 lists the web sites from which you can download the required patches and documentation.

TABLE 2-3 Software and Documentation Download Sites

Software	Download Web Site	Notes
Patches	http://www.sun.com/sunsolve	
Documentation	http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Adapters/index.html http://docs.sun.com	The *Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA Installation Guide* is posted at these sites, and the translated versions of these release notes will be posted at these sites when they become available.

TABLE 2-4 shows the required patches.

TABLE 2-4 Patches for the Solaris 10 Operating System

Patch ID	Description	Installation Procedure
various	The appropriate recommended patch cluster for the Solaris OS version being used	"Downloading and Installing Solaris OS and Driver Patches" on page 25
• 119850-17 or later	• The latest Solaris 10 for SPARC mpt driver patch	• "To Download and Install the Solaris Driver Patch" on page 26
• 119851-15 or later	• The latest Solaris 10 for x64/x86 mpt driver patch	• "To Download and Install the Solaris Driver Patch" on page 26

TABLE 2-5 shows the utility programs and drivers for Windows 2003 and Linux operating systems.

TABLE 2-5 Windows 2003 and Linux Utility Programs and Drivers

Operating System	Utility Program	Driver	BIOS/Firmware
Windows Server 2003	`lsiutil v1.41`	`symmpi.sys v1.10.02`	5.07.03/1.03.27
Red Hat Enterprise Linux 3	`lsiutil v1.41`	`mptlinux-2.06.18-2`	5.07.03/1.03.27
Red Hat Enterprise Linux 4 and SuSE Linux Enterprise Server 9	`lsiutil v1.41`	`mptlinux v3.02.57`	5.07.03/1.03.27

Downloading and Installing Solaris OS and Driver Patches

This section tells you how to download the Solaris OS patch cluster and driver patch.

▼ To Download and Install the Solaris OS Recommended Patch Cluster

1. **Log in to the host.**
2. **In a browser, go to `www.sun.com/sunsolve`.**
3. **Under SunSolve℠ Patch Contents, click Patch Portal.**
4. **Under Downloads, click Recommended and Security Patches.**
5. **Read the software license agreement and click the Agree button.**
6. **In the Recommended & Security Patch Clusters for Solaris table, find Solaris 10 in the OS column, and click the appropriate View Readme in the Clusters column.**
7. **Print or save the `# CLUSTER_README` from the browser window.**
8. **Click the browser's Back button to return to the previous page.**
9. **In the Solaris 10 OS row, click HTTP or FTP (as desired) in the Clusters column.**
10. **In the Save As dialog box, enter a destination directory for the patch cluster, and click the OK button.**
11. **Follow the procedure in the `# CLUSTER_README` to install the patches.**

▼ To Download and Install the Solaris Driver Patch

1. **Log in to the host.**
2. **In a browser, go to** www.sun.com/sunsolve**.**
3. **Under SunSolve Patch Contents, click Patch Portal.**
4. **Under PatchFinder, enter the patch numbers from** TABLE 2-4 **for your specific Solaris release, and click the Find Patch button.**
5. **Print or save the patch instructions from the browser window.**
6. **Click either the HTTP or the FTP link in [Download Patch (*nnn,nnn* bytes) HTTP FTP].**
7. **In the Save As dialog box, enter a destination directory for the patch, and click the OK button.**

Downloading and Installing the Linux Driver and Firmware

Consult the Sun hardware platform document to determine which Linux releases are supported on your specific host platform.

▼ To Download and Install the Linux Driver

1. **Log in to the host.**
2. **In a browser, go to** www.lsilogic.com/support/sun**.**
3. **Click to select SG-XPCIE2SCSIU320Z.**
4. **Click to select and download the Linux driver that is supported by the Linux release (Red Hat Enterprise Linux or SuSE Linux Enterprise Server) on your hardware platform.**
5. **Click to select and download the corresponding Readme file for the Linux driver and follow the instructions in the Readme to complete the driver installation.**

▼ To Download and Update the Firmware

1. **Log in to the host.**
2. **In a browser, go to** www.lsilogic.com/support/sun**.**

3. **Click to select SG-XPCIE2SCSIU320Z.**
4. **Under Utilities, click Linux to download the Linux utility program, `lsiutil`.**
5. **Under Firmware, click to download the firmware zip file and corresponding readme file if posted Firmware/BIOS version is later than 1.03.27/5.07.03.**
6. **Unzip the firmware file and follow the instructions in the Readme file to update the firmware.**

Downloading and Installing the Windows Server 2003 Driver and Firmware

Consult the Sun hardware platform document to determine which Windows releases are supported on your specific host platform.

▼ To Download and Install the Driver

1. **Log in to the host.**
2. **In a browser, go to `www.lsilogic.com/support/sun`.**
3. **Click to select SG-XPCIE2SCSIU320Z.**
4. **Click to select and download the specific Windows driver that is supported by the Windows release on your hardware platform.**
5. **Click to select and download the corresponding Readme file for the Windows driver, and follow the instructions in the Readme file to complete the driver installation.**

▼ To Download and Update the Firmware

1. **Log in to the host.**
2. **In a browser, go to `www.lsilogic.com/support/sun`.**
3. **Click to select SG-XPCIE2SCSIU320Z.**
4. **Under Utilities, click Windows to download the Windows utility program, `lsiutil`, and the corresponding Readme file.**
5. **Under Firmware, click to download the firmware zip file and corresponding readme file if posted Firmware/BIOS version is later than 1.03.27/5.07.03.**
6. **Unzip the firmware file and follow the instructions in the Readme file to update the firmware.**

Known Issues

This section contains the currently known issues related to the Sun StorEdge PCI/PCI-X Dual Ultra320 SCSI host adapter.

Upgrading Firmware in a StorageTek 3120 SCSI Array Might Fail

Upgrading some older disk drive firmware in a Sun StorageTek 3120 SCSI array might fail if the older disk firmware does not correctly handle the Ultra320 SCSI protocol.

Workaround–If this happens, perform the following steps.

1. **Create a** `/kernel/drv/mpt.conf` **configuration file and insert the following line into it. This limits the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA to the Ultra160 SCSI protocol.**

```
scsi-options=0x1ff8;
```

2. **Then reboot the system and perform the disk firmware upgrade. After completing the upgrade, remove the inserted line from the** `/kernel/drv/mpt.conf` **file and reboot the system.**

Supporting the StorEdge 3310 JBOD SCSI Array's Ultra160 SCSI Speed

The Sun StorEdge 3310 JBOD SCSI array is only capable of running at the Ultra160 SCSI speed.

Workaround–To limit the 3310 SCSI array to the Ultra160 SCSI speed and to support up to 32 LUNS, perform the following steps.

1. **Create a file called** `/kernel/drv/mpt.conf` **with the following lines in it:**

```
device-type-scsi-options-list =
    "SUN     StorEdge 3310", "SE3310-scsi-options";
SE3310-scsi-options = 0x41ff8;
```

2. **Reboot the system.**

JBOD SCSI Arrays That Only Run at Ultra160 SCSI Speed

The StorEdge S1, D2, and D240 JBOD SCSI arrays are only capable of running at the Ultra160 SCSI speed. During system boot, the driver may print a warning message on the console during the speed negotiation.

Workaround–To prevent the warning message, perform the following step.

- **Create a /kernel/drv/mpt.conf configuration file and insert the following line into it. This limits the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA to the Ultra160 SCSI protocol.**

```
scsi-options=0x1ff8;
```

HBA Does Not Recognize LUN Numbers Greater Than 7

- 4994818–With OpenBoot™ PROM (OBP) commands, the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA does not recognize any RAID LUN number greater than 7.
- Workaround–Do not create a boot volume with a LUN (logical unit number) greater than 7.

BIOS Displays Only Eight LUNs

- 5053348–If more than eight LUNs are created in an array during system booting, the BIOS displays only eight LUNs (LUN 0 through 7).
- Workaround–Do not create a boot volume with a LUN number greater than 7.

Unrecognized Capability Messages

- 6441686–Unrecognized capability messages with SG-XPCIE2SCSIU320Z.
- Workaround–The unrecognized capability messages are for information only. You do not need to take any action.

Error Message is an Indication of Error Recovery

- 6444814–'<unknown reason>': retrying command messages with SG-XPCIE2SCSIU320Z (mpt) message indicates error recovery.
- Workaround–Ignore this message as long as there is no I/O error.

Service Contact Information

If you need help installing or using this product in the United States, call 1-800-USA-4SUN, or go to:

http://www.sun.com/service/contacting/index.html

APPENDIX **A**

Ultra320 SCSI Configuration

This appendix provides general information about Ultra320 SCSI configuration rules. This appendix discusses the following topics:

Target Devices

For Ultra320 SCSI performance of up to 320 Mbytes/sec, there can be a maximum of 15 devices connected to each port on the host adapter.

The available target addresses (SCSI IDs) for each port on the host adapter are 0 through F.

Note – SCSI ID 7 is reserved for the host adapter.

Bus Length

The maximum SCSI bus length is determined by the SCSI bus type (that is, the number of devices connected).

TABLE A-1 shows the maximum SCSI bus lengths for Ultra320 SCSI with an 8/16-bit bus width.

TABLE A-1 Bus Restrictions

SCSI Type	Peak Mbytes /sec	Single-Ended		LVD	
		Max Length (Meters)*	No. of Devices	Max Length (Meters)*	No. of Devices
SCSI-2					
Narrow	10	3	8	25	2
				12	8
Wide	20	3	16	25	2
				12	16
SCSI-3 Ultra1					
Narrow	20	1.5	8	25	2
		3	4	12	8
Wide	40	1.5	8	25	2
		3	4	12	16
SCSI-3 Ultra2					
Narrow	40	N/S\	N/S	25	2
				12	8
Wide	80	N/S	N/S	25	2
				12	16
SCSI-3 Ultra3					
Narrow	80	N/S	N/S	25	2
				12	8
Wide	160	N/S	N/S	25	2
				12	16
SCSI-3 Ultra320					
Narrow	160	N/S	N/S	25	2
				12	8
Wide	320	N/S	N/S	25	2
				12	16

* This maximum length must include the internal bus length of your system. Sun qualifies cable lengths of only up to 10 meters (22.8 feet).

\ N/S = not supported

Cabling and Termination

In order to maintain Ultra320 SCSI performance, all cables used must be Ultra320 SCSI compliant. In addition, the SCSI bus must be correctly terminated. Most Sun devices use auto-termination. For more information, see the documentation that came with the device.

This host adapter has active terminators with an automatic means of enabling and disabling the termination. The termination circuit derives its power from the PCI or SCSI bus. When the PCI bus power is removed, active SCSI termination is maintained if the other SCSI device supplies power to the Term Pwr pins of the SCSI bus.

SCSI Symbols

One of the four following symbols is placed near a SCSI port to indicate which type of SCSI the port is using. The icon might appear alone or with descriptive text.

Acronym	Meaning
SE	Single-ended
LVD	Low-voltage differential
MSE	Multi-mode single-ended
HVD	High-voltage differential

APPENDIX **B**

HBA Specifications

The chapter contains the specifications for the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA.

This appendix discusses the following topics:

Physical Dimensions

TABLE B-1 Physical Dimensions

Dimension	Board Without Bracket
Length	6.6 inches (16.765 centimeters)
Width	2.713 inches (6.89 centimeters)
Height	0.5 inches (1.27 centimeters)

Power Requirements

The power requirements are 12 volts 10%with a maximum current of 0.87 amps.

Performance Specifications

TABLE B-2 Performance Specifications

Feature	Specification
PCI Express transfer rate (max)	2.5 Gbits/sec x4
PCI Signaling Environment	PCI Express x4 (4 lanes)
SCSI synchronous maximum transfer rate	320 MBytes/sec (wide)
SCSI interface	Low-voltage differential
SCSI bus parity	Yes
SCSI cyclic redundancy check (CRC)	Yes
SCSI 8-bit bus devices	Yes
SCSI 16-bit bus devices	Yes

PCIe Edge Connector Pin Definitions

TABLE B-3 below details the pin assignments. Shaded signal names are unconnected pins.

TABLE B-3 PCI Express Connector J1

J1B (Top)		J1A (Bottom)	
SIGNAL NAME	**PIN**	**SIGNAL NAME**	**PIN**
+12V	1	PRSNT1#	1
+12V	2	+12V	2
+12V	3	+12V	3
GND	4	GND	4
SMCLK	5	TCK	5
SMDAT	6	TDI	6
GND	7	TDO	7
+3.3V	8	TMS	8
TRST#	9	+3.3V	9
3.3Vaux	10	+3.3V	10
WAKE#	11	PERST#	11
MECHANICAL	**KEY**	**MECHANICAL**	**KEY**
RESERVED	12	GND	12
GND	13	REFCLK+	13
PETp0	14	REFCLK-	14
PETn0	15	GND	15
GND	16	PERp0	16
PRSNT2#	17	PERn0	17
GND	18	GND	18
PETp1	19	RESERVED	19
PETn1	20	GND	20
GND	21	PERp1	21
GND	22	PERn1	22
PETp2	23	GND	23

TABLE B-3 PCI Express Connector J1 *(Continued)*

J1B (Top)		J1A (Bottom)	
SIGNAL NAME	**PIN**	**SIGNAL NAME**	**PIN**
PETn2	24	GND	24
GND	25	PERp2	25
GND	26	PERn2	26
PETp3	27	GND	27
PETn3	28	GND	28
GND	29	PERp3	29
RESERVED	30	PERn3	30
PRSNT2#	31	GND	31
GND	32	RESERVED	32

SCSI Connector Pin Definitions

FIGURE B-1 shows the pin numbering for the VHDCI and internal SCSI connectors.

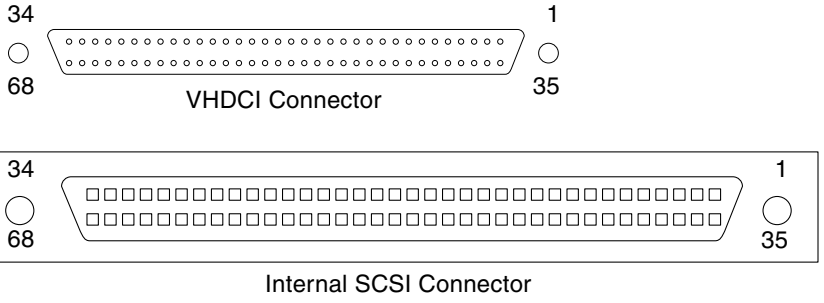

FIGURE B-1 VHDCI and Internal SCSI Connectors

TABLE B-4 lists the SCSI connector pin definitions.

TABLE B-4 SCSI Connector Pin Definitions

Pin	Description	Pin	Description	Pin	Description
1	+SD(12)	24	+RST	47	SD(6)-
2	+SD(13)	25	+MSG	48	SD(7)-
3	+SD(14)	26	+SEL	49	SDP-
4	+SD(15)	27	+C/D	50	Cable Sense (GND)
5	+SDP(1)	28	+REQ	51	TERMPWR
6	GND	29	+I/O	52	TERMPWR
7	+SD(0)	30	GND	53	OPEN
8	+SD(1)	31	+SD(8)	54	ATN-
9	+SD(2)	32	+SD(9)	55	GND
10	+SD(3)	33	+SD(10)	56	BSY-
11	+SD(4)	34	+SD(11)	57	ACK-
12	+SD(5)	35	SD(12)-	58	RST-
13	+SD(6)	36	SD(13)-	59	MSG-
14	+SD(7)	37	SD(14)-	60	SEL-
15	+SDP	38	SP(15)-	61	C/D-
16	DIFFSENS	39	SDP(1)-	62	REQ-
17	TERMPWR	40	GND	63	I/O-
18	TERMPWR	41	SD(0)-	64	GND
19	OPEN	42	SD(1)-	65	SD(8)-
20	+ATN	43	SD(2)-	66	SD(9)-
21	GND	44	SD(3)-	67	SD(10)-
22	+BSY	45	SD(4)-	68	SD(11)-
23	+ACK	46	SD(5)-		

APPENDIX C

Declaration of Conformity, Regulatory Compliance, and Safety Statements

This appendix contains information that applies to the Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA. This appendix discusses the following topics:

Declaration of Conformity

Declaration of Conformity

Compliance Model Number: **RHEA**
Product Family Name: **Sun StorageTek PCI-E Dual Channel Ultra320 SCSI HBA** (SG-XPCIE2SCSIU320Z)

EMC
USA - FCC Class B
This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1) This equipment may not cause harmful interference.
2) This equipment must accept any interference that may cause undesired operation.

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

As Information Technology Equipment (ITE) Class B per (as applicable):

EN 55022:1994 +A1:1995 +A2:1997	Class B
EN 61000-3-2:2000	Pass
EN 61000-3-3:1995 +A1:2000	Pass

EN 55024:1998 +A1: 2001 +A2:2003 Required Limits:

IEC 61000-4-2	4 kV (Direct), 8 kV (Air)
IEC 61000-4-3	3 V/m
IEC 61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
IEC 61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines, 2 kV AC Line-Gnd, 0.5 kV DC Power Lines
IEC 61000-4-6	3 V
IEC 61000-4-8	1 A/m
IEC 61000-4-11	Pass

Safety
This equipment complies with the following requirements of Low Voltage Directive 73/23/EEC:
EC Type Examination Certificates:

EN 60950-1:2001, 1st Edition +A11	TÜV Rheinland Certificate No.		
IEC 60950-1:2001, 1st Edition	CB Scheme Certificate No.		
Evaluated to all CB Countries			
UL and cUL/CSA 60950:2000, CSA C22.2 No. 60950-00	File:	Vol.	Sec.

Supplementary Information: This equipment was tested and complies with all the requirements for the CE Mark.
This equipment complies with the Restriction of Hazardous Substances (RoHS) directive 2002/95/EC.

/S/ _____ DATE
Dennis P. Symanski
Worldwide Compliance Office
Sun Microsystems, Inc.
4150 Network Circle, MPK15-102
Santa Clara, CA 95054, USA
Tel: 650-786-3255
Fax: 650-786-3723

/S/ _____ DATE
Donald Cameron
Program Manager/Quality Systems
Sun Microsystems Scotland, Limited
Blackness Road, Phase I, Main Bldg.
Springfield, EH49 7LR
Scotland, United Kingdom
Tel: +44 1 506 672 539
Fax: +44 1 506 670 011

Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Department of Communications (DOC) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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.

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.

FCC Class B Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

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.

Safety Agency Compliance Statements

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun Microsystems product.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols may appear in this book:

Caution – There is a risk of personal injury and equipment damage. Follow the instructions.

Caution – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.

Caution – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.

Depending on the type of power switch your device has, one of the following symbols may be used:

On – Applies AC power to the system.

Off – Removes AC power from the system.

Standby – The On/Standby switch is in the standby position.

Modifications to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems is not responsible for regulatory compliance of a modified Sun product.

Placement of a Sun Product

Caution – Do not block or cover the openings of your Sun product. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.

Noise Level

In compliance with the requirements defined in DIN 45635 Part 1000, the workplace-dependent noise level of this product is less than 70 db(A).

SELV Compliance

Safety status of I/O connections comply to SELV requirements.

Power Cord Connection

Caution – Sun products are designed to work with power systems having a grounded neutral (grounded return for DC-powered products). To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.

Caution – Not all power cords have the same current ratings. Do not use the power cord provided with your equipment for any other products or use. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.

注意 – 添付の電源コードを他の装置や用途に使用しない
添付の電源コードは本装置に接続し、使用することを目的として設計され、その安全性が確認されているものです。決して他の装置や用途に使用しないでください。火災や感電の原因となる恐れがあります。

The following caution applies only to devices with a Standby power switch:

Caution – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

The following caution applies only to devices with multiple power cords:

Caution – For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

Battery Warning

Caution – There is danger of explosion if batteries are mishandled or incorrectly replaced. On systems with replaceable batteries, replace only with the same manufacturer and type or equivalent type recommended by the manufacturer per the instructions provided in the product service manual. Do not disassemble batteries or attempt to recharge them outside the system. Do not dispose of batteries in fire. Dispose of batteries properly in accordance with the manufacturer's instructions and local regulations. Note that on Sun CPU boards, there is a lithium battery molded into the real-time clock. These batteries are not customer replaceable parts.

System Unit Cover

You must remove the cover of your Sun computer system unit to add cards, memory, or internal storage devices. Be sure to replace the cover before powering on your computer system.

Caution – Do not operate Sun products without the cover in place. Failure to take this precaution may result in personal injury and system damage.

Rack System Warning

The following warnings apply to Racks and Rack Mounted systems.

Caution – For safety, equipment should always be loaded from the bottom up. That is, install the equipment that will be mounted in the lowest part of the rack first, then the next higher systems, etc.

Caution – To prevent the rack from tipping during equipment installation, the anti-tilt bar on the rack must be deployed.

Caution – To prevent extreme operating temperature within the rack insure that the maximum temperature does not exceed the product's ambient rated temperatures.

Caution – To prevent extreme operating temperatures due to reduced airflow consideration should be made to the amount of air flow that is required for a safe operation of the equipment.

Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD and DVD Devices

The following caution applies to CD, DVD, and other optical devices.

Caution – Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Conformité aux normes de sécurité

Veuillez lire attentivement cette section avant de commencer. Ce texte traite des mesures de sécurité qu'il convient de prendre pour l'installation d'un produit Sun Microsystems.

Mesures de sécurité

Pour votre sécurité, nous vous recommandons de suivre scrupuleusement les mesures de sécurité ci-dessous lorsque vous installez votre matériel:

- Suivez tous les avertissements et toutes les instructions inscrites sur le matériel.
- Assurez-vous que la tension et la fréquence de votre source d'alimentation correspondent à la tension et à la fréquence indiquées sur l'étiquette de la tension électrique nominale du matériel
- N'introduisez jamais d'objets quels qu'ils soient dans les ouvertures de l'équipement. Vous pourriez vous trouver en présence de hautes tensions dangereuses. Tout objet étranger conducteur risque de produire un court-circuit pouvant présenter un risque d'incendie ou de décharge électrique, ou susceptible d'endommager le matériel.

Symboles

Vous trouverez ci-dessous la signification des différents symboles utilisés:

Attention – Vous risquez d'endommager le matériel ou de vous blesser. Veuillez suivre les instructions.

Attention – Surfaces brûlantes. Evitez tout contact. Les surfaces sont brûlantes. Vous risquez de vous blesser si vous les touchez.

Attention – Tensions dangereuses. Pour réduire les risques de décharge électrique et de danger physique, observez les consignes indiquées.

Selon le type d'interrupteur marche/arrêt dont votre appareil est équipé, l'un des symboles suivants sera utilisé:

Marche – Met le système sous tension alternative.

Arret – Met le système hors tension alternative.

Veilleuse – L'interrupteur Marche/Veille est sur la position de veille.

Modification du matériel

N'apportez aucune modification mécanique ou électrique au matériel. Sun Microsystems décline toute responsabilité quant à la non-conformité éventuelle d'un produit Sun modifié.

Positionnement d'un produit Sun

Attention – Evitez d'obstruer ou de recouvrir les orifices de votre produit Sun. N'installez jamais un produit Sun près d'un radiateur ou d'une source de chaleur. Si vous ne respectez pas ces consignes, votre produit Sun risque de surchauffer et son fonctionnement en sera altéré.

Niveau de pression acoustique

Le niveau de pression acoustique du lieu de travail définie par la norme DIN 45 635 Part 1000 doit être au maximum de 70 db(A).

Conformité SELV

Le niveau de sécurité des connexions E/S est conforme aux normes SELV.

Connexion du cordon d'alimentation

Attention – Les produits Sun sont conçus pour fonctionner avec des systèmes d'alimentation équipés d'un conducteur neutre relié à la terre (conducteur neutre pour produits alimentés en CC). Pour réduire les risques de décharge électrique, ne branchez jamais les produits Sun sur une source d'alimentation d'un autre type. Contactez le gérant de votre bâtiment ou un électricien agréé si vous avez le moindre doute quant au type d'alimentation fourni dans votre bâtiment.

Attention – Tous les cordons d'alimentation ne présentent pas les mêmes caractéristiques électriques. Les cordons d'alimentation à usage domestique ne sont pas protégés contre les surtensions et ne sont pas conçus pour être utilisés avec des ordinateurs. N'utilisez jamais de cordon d'alimentation à usage domestique avec les produits Sun.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur Veille:

Attention – L'interrupteur d'alimentation de ce produit fonctionne uniquement comme un dispositif de mise en veille. Le cordon d'alimentation constitue le moyen principal de déconnexion de l'alimentation pour le système. Assurez-vous de le brancher dans une prise d'alimentation mise à la terre près du système et facile d'accès. Ne le branchez pas lorsque l'alimentation électrique ne se trouve pas dans le châssis du système.

L'avertissement suivant s'applique uniquement aux systèmes équipés de plusieurs cordons d'alimentation:

Attention – Pour mettre un système équipé de plusieurs cordons d'alimentation hors tension, il est nécessaire de débrancher tous les cordons d'alimentation.

Mise en garde relative aux batteries

Attention – Les batteries risquent d'exploser en cas de manipulation maladroite ou de remplacement incorrect. Pour les systèmes dont les batteries sont remplaçables, effectuez les remplacements uniquement selon le modèle du fabricant ou un modèle équivalent recommandé par le fabricant, conformément aux instructions fournies dans le manuel de service du système. N'essayez en aucun cas de démonter les batteries, ni de les recharger hors du système. Ne les jetez pas au feu. Mettez-les au rebut selon les instructions du fabricant et conformément à la législation locale en vigueur. Notez que sur les cartes processeur de Sun, une batterie au lithium a été moulée dans l'horloge temps réel. Les batteries ne sont pas des pièces remplaçables par le client.

Couvercle de l'unité

Pour ajouter des cartes, de la mémoire ou des périphériques de stockage internes, vous devez retirer le couvercle de votre système Sun. Remettez le couvercle supérieur en place avant de mettre votre système sous tension.

Attention – Ne mettez jamais des produits Sun sous tension si leur couvercle supérieur n'est pas mis en place. Si vous ne prenez pas ces précautions, vous risquez de vous blesser ou d'endommager le système.

Mise en garde relative au système en rack

La mise en garde suivante s'applique aux racks et aux systèmes montés en rack.

Attention – Pour des raisons de sécurité, le matériel doit toujours être chargé du bas vers le haut. En d'autres termes, vous devez installer, en premier, le matériel qui doit se trouver dans la partie la plus inférieure du rack, puis installer le matériel sur le niveau suivant, etc.

Attention – Afin d'éviter que le rack ne penche pendant l'installation du matériel, tirez la barre anti-basculement du rack.

Attention – Pour éviter des températures de fonctionnement extrêmes dans le rack, assurez-vous que la température maximale ne dépasse pas la fourchette de températures ambiantes du produit déterminée par le fabricant.

Attention – Afin d'empêcher des températures de fonctionnement extrêmes provoquées par une aération insuffisante, assurez-vous de fournir une aération appropriée pour un fonctionnement du matériel en toute sécurité

Avis de conformité des appareils laser

Les produits Sun qui font appel aux technologies lasers sont conformes aux normes de la classe 1 en la matière.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

Périphériques CD et DVD

L'avertissement suivant s'applique aux périphériques CD, DVD et autres périphériques optiques:

Attention – L'utilisation de contrôles et de réglages ou l'application de procédures autres que ceux spécifiés dans le présent document peuvent entraîner une exposition à des radiations dangereuses.

Einhaltung sicherheitsbehördlicher Vorschriften

Lesen Sie vor dem Ausführen von Arbeiten diesen Abschnitt. Im folgenden Text werden Sicherheitsvorkehrungen beschrieben, die Sie bei der Installation eines Sun Microsystems-Produkts beachten müssen.

Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz bei der Installation des Geräts die folgenden Sicherheitsvorkehrungen:

- Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.
- Stellen Sie sicher, dass Spannung und Frequenz der Stromversorgung den Nennleistungen auf dem am Gerät angebrachten Etikett entsprechen.
- Führen Sie niemals Fremdobjekte in die Öffnungen am Gerät ein. Es können gefährliche Spannungen anliegen. Leitfähige Fremdobjekte können einen Kurzschluss verursachen, der einen Brand, Stromschlag oder Geräteschaden herbeiführen kann.

Symbole

Die Symbole in diesem Handbuch haben folgende Bedeutung:

Achtung – Gefahr von Verletzung und Geräteschaden. Befolgen Sie die Anweisungen.

Achtung – Heiße Oberfläche. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.

Achtung – Gefährliche Spannungen. Befolgen Sie die Anweisungen, um Stromschläge und Verletzungen zu vermeiden.

Je nach Netzschaltertyp an Ihrem Gerät kann eines der folgenden Symbole verwendet werden:

Ein – Versorgt das System mit Wechselstrom.

Aus– Unterbricht die Wechselstromzufuhr zum Gerät.

Wartezustand – Der Ein-/Standby-Netzschalter befindet sich in der Standby-Position.

Modifikationen des Geräts

Nehmen Sie keine elektrischen oder mechanischen Gerätemodifikationen vor. Sun Microsystems ist für die Einhaltung der Sicherheitsvorschriften von modifizierten Sun-Produkten nicht haftbar.

Aufstellung von Sun-Geräten

Achtung – Geräteöffnungen Ihres Sun-Produkts dürfen nicht blockiert oder abgedeckt werden. Sun-Geräte sollten niemals in der Nähe von Heizkörpern oder Heißluftklappen aufgestellt werden. Die Nichtbeachtung dieser Richtlinien kann Überhitzung verursachen und die Zuverlässigkeit Ihres Sun-Geräts beeinträchtigen.

Lautstärke

Gemäß den in DIN 45 635 Teil 1000 definierten Vorschriften beträgt die arbeitsplatzbedingte Lautstärke dieses Produkts weniger als 70 dB(A).

SELV-Konformität

Der Sicherheitsstatus der E/A-Verbindungen entspricht den SELV-Anforderungen.

Anschluss des Netzkabels

Achtung – Sun-Geräte sind für Stromversorgungssysteme mit einem geerdeten neutralen Leiter (geerdeter Rückleiter bei gleichstrombetriebenen Geräten) ausgelegt. Um die Gefahr von Stromschlägen zu vermeiden, schließen Sie das Gerät niemals an andere Stromversorgungssysteme an. Wenden Sie sich an den zuständigen Gebäudeverwalter oder an einen qualifizierten Elektriker, wenn Sie nicht sicher wissen, an welche Art von Stromversorgungssystem Ihr Gebäude angeschlossen ist.

Achtung – Nicht alle Netzkabel verfügen über die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastschutz und sind daher für Computersysteme nicht geeignet. Verwenden Sie bei Ihrem Sun-Produkt keine Haushalts-Verlängerungskabel.

Die folgende Warnung gilt nur für Geräte mit Standby-Netzschalter:

Achtung – Beim Netzschalter dieses Geräts handelt es sich nur um einen Ein/Standby-Schalter. Zum völligen Abtrennen des Systems von der Stromversorgung dient hauptsächlich das Netzkabel. Stellen Sie sicher, dass das Netzkabel an eine frei zugängliche geerdete Steckdose in der Nähe des Systems angeschlossen ist. Schließen Sie das Stromkabel nicht an, wenn die Stromversorgung vom Systemchassis entfernt wurde.

Die folgende Warnung gilt nur für Geräte mit mehreren Netzkabeln:

Achtung – Bei Produkten mit mehreren Netz-kabeln müssen alle Netzkabel abgetrennt wer-den, um das System völlig von der Stromver-sorgung zu trennen.

Warnung bezüglich Batterien

Achtung – Bei unsachgemäßer Handhabung oder nicht fachgerechtem Austausch der Batterien besteht Explosionsgefahr. Verwen-den Sie bei Systemen mit austauschbaren Batterien ausschließlich Ersatzbatterien desselben Typs und Herstellers bzw. einen entsprechenden, vom Hersteller gemäß den Anweisungen im Service-Handbuch des Produkts empfohlenen Batterietyp. Versuchen Sie nicht, die Batterien auszubauen oder außerhalb des Systems wiederaufzuladen. Werfen Sie die Batterien nicht ins Feuer. Entsorgen Sie die Batterien entsprechend den Anweisungen des Herstellers und den vor Ort geltenden Vorschriften. CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrier-ter Lithiumbatterie. Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgewechselt werden.

Gehäuseabdeckung

Sie müssen die Abdeckung Ihres Sun-Computersystems entfernen, um Karten, Speicher oder interne Speichergeräte hinzuzufügen. Bringen Sie vor dem Einschalten des Systems die Gehäuseabdeckung wieder an.

Achtung – Nehmen Sie Sun-Geräte nicht ohne Abdeckung in Betrieb. Die Nichtbeachtung dieses Warnhinweises kann Verletzungen oder Geräteschaden zur Folge haben.

Warnungen bezüglich in Racks eingebauter Systeme

Die folgenden Warnungen gelten für Racks und in Racks eingebaute Systeme:

Achtung – Aus Sicherheitsgründen sollten sämtliche Geräte von unten nach oben in Racks eingebaut werden. Installieren Sie also zuerst die Geräte, die an der untersten

Position im Rack eingebaut werden, gefolgt von den Systemen, die an nächsthöherer Stelle eingebaut werden, usw.

Achtung – Verwenden Sie beim Einbau den Kippschutz am Rack, um ein Umkippen zu vermeiden.

Achtung – Um extreme Betriebstemperaturen im Rack zu vermeiden, stellen Sie sicher, dass die Maximaltemperatur die Nennleistung der Umgebungstemperatur für das Produkt nicht überschreitet

Achtung – Um extreme Betriebstemperaturen durch verringerte Luftzirkulation zu vermei-den, sollte die für den sicheren Betrieb des Geräts erforderliche Luftzirkulation eingesetzt werden.

Hinweis zur Laser-Konformität

Sun-Produkte, die die Laser-Technologie verwenden, entsprechen den Laser-Anforderungen der Klasse 1.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD- und DVD-Geräte

Die folgende Warnung gilt für CD-, DVD- und andere optische Geräte:

Achtung – Die hier nicht aufgeführte Verwendung von Steuerelementen, Anpassungen oder Ausführung von Vorgängen kann eine gefährliche Strahlenbelastung verursachen.

Normativas de seguridad

Lea esta sección antes de realizar cualquier operación. En ella se explican las medidas de seguridad que debe tomar al instalar un producto de Sun Microsystems.

Medidas de seguridad

Para su protección, tome las medidas de seguridad siguientes durante la instalación del equipo:

- Siga todos los avisos e instrucciones indicados en el equipo.
- Asegúrese de que el voltaje y frecuencia de la fuente de alimentación coincidan con el voltaje y frecuencia indicados en la etiqueta de clasificación eléctrica del equipo.
- No introduzca objetos de ningún tipo por las rejillas del equipo, ya que puede quedar expuesto a voltajes peligrosos. Los objetos conductores extraños pueden producir cortocircuitos y, en consecuencia, incendios, descargas eléctricas o daños en el equipo.

Símbolos

En este documento aparecen los siguientes símbolos:

Precaución – Existe el riesgo de que se produzcan lesiones personales y daños en el equipo. Siga las instrucciones.

Precaución – Superficie caliente. Evite todo contacto. Las superficies están calientes y pueden causar lesiones personales si se tocan.

Precaución – Voltaje peligroso. Para reducir el riesgo de descargas eléctricas y lesiones personales, siga las instrucciones.

En función del tipo de interruptor de alimentación del que disponga el dispositivo, se utilizará uno de los símbolos siguientes:

Encendido – Suministra alimentación de CA al sistema.

Apagado – Corta la alimentación de CA del sistema.

Espera – El interruptor de encendido/espera está en la posición de espera.

Modificaciones en el equipo

No realice modificaciones de tipo mecánico ni eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de normativas en caso de que un producto Sun se haya modificado.

Colocación de un producto Sun

Precaución – No obstruya ni tape las rejillas del producto Sun. Nunca coloque un producto Sun cerca de radiadores ni fuentes de calor. Si no sigue estas indicaciones, el producto Sun podría sobrecalentarse y la fiabilidad de su funcionamiento se vería afectada.

Nivel de ruido

De conformidad con los requisitos establecidos en el apartado 1000 de la norma DIN 45635, el nivel de ruido en el lugar de trabajo producido por este producto es menor de 70 db(A).

Cumplimiento de la normativa para instalaciones SELV

Las condiciones de seguridad de las conexiones de entrada y salida cumplen los requisitos para instalaciones SELV (del inglés *Safe Extra Low Voltage*, voltaje bajo y seguro).

Conexión del cable de alimentación

Precaución – Los productos Sun se han diseñado para funcionar con sistemas de alimentación que cuenten con un conductor neutro a tierra (con conexión a tierra de regreso para los productos con alimentación de CC). Para reducir el riesgo de descargas eléctricas, no conecte ningún producto Sun a otro tipo de sistema de alimentación. Póngase en contacto con el encargado de las instalaciones de su empresa o con un electricista cualificado en caso de que no esté seguro del tipo de alimentación del que se dispone en el edificio.

Precaución – No todos los cables de alimentación tienen la misma clasificación eléctrica. Los alargadores de uso doméstico no cuentan con protección frente a sobrecargas y no están diseñados para su utilización con sistemas informáticos. No utilice alargadores de uso doméstico con el producto Sun.

La siguiente medida solamente se aplica a aquellos dispositivos que dispongan de un interruptor de alimentación de espera:

Precaución – El interruptor de alimentación de este producto funciona solamente como un dispositivo de espera. El cable de alimentación hace las veces de dispositivo de desconexión principal del sistema. Asegúrese de que conecta el cable de alimentación a una toma de tierra situada cerca del sistema y de fácil acceso. No conecte el cable de alimentación si la unidad de alimentación no se encuentra en el bastidor del sistema.

La siguiente medida solamente se aplica a aquellos dispositivos que dispongan de varios cables de alimentación:

Precaución – En los productos que cuentan con varios cables de alimentación, debe desconectar todos los cables de alimentación para cortar por completo la alimentación eléctrica del sistema.

Advertencia sobre las baterías

Precaución – Si las baterías no se manipulan o reemplazan correctamente, se corre el riesgo de que estallen. En los sistemas que cuentan con baterías reemplazables, reemplácelas sólo con baterías del mismo fabricante y el mismo tipo, o un tipo equivalente recomendado por el fabricante, de acuerdo con las instrucciones descritas en el manual de servicio del producto. No desmonte las baterías ni intente recargarlas fuera del sistema. No intente deshacerse de las baterías echándolas al fuego. Deshágase de las baterías correctamente de acuerdo con las instrucciones del fabricante y las normas locales. Tenga en cuenta que en las placas CPU de Sun, hay una batería de litio incorporada en el reloj en tiempo real. Los usuarios no deben reemplazar este tipo de baterías.

Cubierta de la unidad del sistema

Debe extraer la cubierta de la unidad del sistema informático Sun para instalar tarjetas, memoria o dispositivos de almacenamiento internos. Vuelva a colocar la cubierta antes de encender el sistema informático.

Precaución – No ponga en funcionamiento los productos Sun que no tengan colocada la cubierta. De lo contrario, puede sufrir lesiones personales y ocasionar daños en el sistema.

Advertencia sobre el sistema en bastidor

Las advertencias siguientes se aplican a los sistemas montados en bastidor y a los propios bastidores.

Precaución – Por seguridad, siempre deben montarse los equipos de abajo arriba. A saber, primero debe instalarse el equipo que se situará en el bastidor inferior; a continuación, el que se situará en el siguiente nivel, etc.

Precaución – Para evitar que el bastidor se vuelque durante la instalación del equipo, debe extenderse la barra antivolcado del bastidor.

Precaución – Para evitar que se alcance una temperatura de funcionamiento extrema en el bastidor, asegúrese de que la temperatura máxima no sea superior a la temperatura ambiente establecida como adecuada para el producto.

Precaución – Para evitar que se alcance una temperatura de funcionamiento extrema debido a una circulación de aire reducida, debe considerarse la magnitud de la circulación de aire requerida para que el equipo funcione de forma segura.

Aviso de cumplimiento de la normativa para la utilización de láser

Los productos Sun que utilizan tecnología láser cumplen los requisitos establecidos para los productos láser de clase 1.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

Dispositivos de CD y DVD

La siguiente medida se aplica a los dispositivos de CD y DVD, así como a otros dispositivos ópticos:

Precaución – La utilización de controles, ajustes o procedimientos distintos a los aquí especificados puede dar lugar a niveles de radiación peligrosos.

Nordic Lithium Battery Cautions

Norge

Advarsel – Litiumbatteri — Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige

Varning – Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danmark

Advarsel! – Litiumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Suomi

Varoitus – Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.