Sun StorageTek™ Enterprise Class 4Gb FC PCI-E ExpressModule HBA User's Guide

For HBA Model SG-XPCIE2FC-QB4-Z

Sun Microsystems, Inc.
www.sun.com

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Preface

This guide describes how to install or remove the Sun StorageTek RoHS 6 Compliant, Enterprise Class 4Gb FC Dual Port PCI-Express Singlewide ExpressModule HBA (also referred to as the Sun StorageTek Enterprise Class 4Gb FC PCI-E ExpressModule HBA). It also explains how to verify driver version and install any necessary patches. This document is written for technicians, system administrators, application service providers (ASPs), and users who have advanced experience troubleshooting and replacing hardware. Additional Sun StorageTek Enterprise Class 4Gb FC PCI-E ExpressModule HBAs can be ordered through Sun Microsystems using the following part number:

Number of Ports	Marketing Part Number
Dual	SG-XPCIE2FC-QB4-Z

How This Document Is Organized

Chapter 1 provides an overview of the product and lists the various operating systems, host platforms, switches, and storage systems that support the HBA.

Chapter 2 describes how to install and remove the HBA.

Chapter 3 describes how to download and install the HBA drivers and patches.

Chapter 4 contains the latest supplementary information for the preceding chapters.

Appendix A provides the required product safety information.

Using UNIX Commands

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

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

  http://docs.sun.com

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

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.

Related Documentation

The document listed as online is available at:

http://docs.sun.com/source/819-0139/

Title	Part Number
Solaris Fibre Channel and Storage Multipathing Administration Guide	819-0139

Documentation, Support, and Training

Sun Function	URL
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CHAPTER 1

Supported System Configurations

This chapter provides a basic overview of the Sun StorageTek RoHS 6 Compliant, Enterprise Class 4Gb FC Dual Port PCI-Express Singlewide ExpressModule HBA (henceforth referred to as *HBA*). This chapter also describes the various operating systems, host platforms, storage, and infrastructure configurations that support the HBA. It contains the following topics:

- "Product Features" on page 1
- "Basic Interoperability" on page 2
- "Operating System Requirements" on page 4

Product Features

The HBA consists of a single wide, PCI ExpressModule bus expansion board that interfaces a 4-lane (8-lane physical) PCI Express bus to a Fibre Channel (FC) optical media bus. The HBA can act as either an initiator or a target. The board supports two independent FC buses operating at 4.25 Gbits/sec. It is also backward compatible with 2.125-Gbit/sec and 1.0625-Gbit/sec devices. Small Form Factor (SFF) optical transceivers are used to connect to the external FC buses.

See TABLE 1-1 for a list of the HBA's features.

TABLE 1-1 HBA Features

Feature	Description
PCI connector	x8
PCI signaling environment	PCI Express x4 (4 active lanes)
PCI transfer rate (maximum)	PCI Express Generation One (2.5 Gbits/sec) x4

TABLE 1-1 HBA Features *(Continued)*

Feature	Description
Number of FC buses	Two
Number of devices supported	126 devices per FC loop
FC bus type (external)	Fiber optic media, short-wave, multi-mode fiber (400-M5- SN-S)
FC transfer rate	400 MB/sec per port maximum, half duplex 800 MB/sec per port maximum, full-duplex
FC interface chip	QLogic ISP2432
ISP RAM	256kx36 SSRAM, parity protected, per port
BIOS ROM	One 1-MB flash ROM, field-programmable
NVRAM	One 2-KB EEPROM, field-programmable
External connectors	Two LC duplex connectors
Maximum FC cable length	1 Gbps: 500 meters using 50/125 µm core fiber 300 meters using 62.5/125 µm core fiber 2 Gbps: 300 meters using 50/125 µm core fiber 150 meters using 62.5/125 µm core fiber 4 Gbps: 150 meters using 50/125 µm core fiber 70 meters using 62.5/125 µm core fiber
LED indicators	Three LEDs per channel (yellow, green, amber) on front panel as status indicators Power LED, Attention LED, and a push button on front panel to support hot-swap functionality
Form Factor	PCI ExpressModule, single wide

Basic Interoperability

This section provides information about selected platforms, storage systems, and switches that are compatible with the heterogeneous FC network design of the HBA. This section contains the following topics:

- "Host Platform Support" on page 3
- "Storage System Support" on page 3
- "Fibre Channel Switch Support" on page 3

Host Platform Support

The HBA is supported by the platforms and operating systems (OSs) listed in TABLE 1-2.

TABLE 1-2 Platform and Operating System Support

Platform	Supported OSs
Sun Blade X8000	Sun Solaris, Linux, and Windows

The system must have an available PCI Express ExpressModule slot in which you can install the HBA.

Storage System Support

The HBA supports the storage systems listed below.

- Sun StorEdge 3510 and 3511 FC Arrays
- Sun StorEdge 6020 and 6120 Arrays
- Sun StorEdge 6130 Array
- Sun StorageTek 6140 Array
- Sun StorageTek FlexLine 380 Storage System
- Sun StorEdge 6320 system
- Sun StorEdge L25 and L100 tape libraries with Fibre Channel / LVD Internal Bridge
- Sun StorEdge C4 tape library with LVD SCSI to Fibre Channel Card
- Sun StorEdge L500 tape library
- Sun StorEdge L180, L700 tape libraries
- Sun StorEdge L5500, L8500 tape libraries

Fibre Channel Switch Support

The HBA is supported with the FC switches listed in TABLE 1-3.

TABLE 1-3 Fibre Channel Switch Support

Switch
2 Gb QLogic SANbox 5200 switch
2 Gb Sun StorEdge Network switch
4 Gb QLogic SANbox 5600 and 5602 Stackable FC Switches
2 Gb Brocade SilkWorm 3200 and 3800 switches
2 Gb Brocade SilkWorm 3250 and 3850 switches
2 Gb Brocade SilkWorm 3900 switch
2 Gb Brocade SilkWorm 12000 and 24000 Core Fabric switches
4 Gb Brocade SilkWorm 4100 switch
4 Gb Brocade SilkWorm 48000 and 200E
2 Gb McDATA Sphereon 4300 switch
2 Gb McDATA Sphereon 4500 switch
4 Gb McDATA Sphereon 4400 and 4700 switches
2 Gb McDATA Intrepid 6064 director
2 Gb McDATA Intrepid 6140 director

Operating System Requirements

The HBA requires the following operating system (OS) levels:

TABLE 1-4 Supported Operating System Versions

Operating Systems	Supported Versions
Linux	Red Hat Enterprise Linux (RHEL) 4 U3 x64
	SuSE Linux Enterprise Server (SLES) 9 SP3 x64
Solaris	Solaris 10 (x64/x86) Update 2 with the recommended patch cluster. Patch 119131-21 is required. It is available at http://sunsolve.sun.com.

TABLE 1-4 Supported Operating System Versions

Operating Systems	Supported Versions
Windows	Windows Server 2003 Enterprise Edition x64
	Windows Server 2003 Standard Edition x64
	Windows Server 2003 Enterprise Edition x86 w/SP1
	Windows Server 2003 Standard Edition x86 w/SP1

Drivers, management utilities, and diagnostics for using the HBA with Linux are available here:

http://support.qlogic.com/support/defaultsun_page.asp

CHAPTER 2

Hardware Installation and Removal

The following instructions describe the tasks required to install the HBA. Refer to your system installation or service manual for detailed instructions.

This chapter contains the following topics:

- "Installing the Hardware" on page 7
- "Removing the Hardware" on page 16

Caution – Damage to the HBA can occur as the result of careless handling or electrostatic discharge (ESD). Always handle the HBA with care to avoid damage to electrostatic sensitive components. To minimize the possibility of ESD-related damage, Sun strongly recommends using 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 the connectors.
- Place the HBA on a properly grounded anti-static work surface pad when it is out of its protective anti-static bag.

Installing the Hardware

The hardware installation process involves the following general steps:

1. Verifying the package contents
2. Installing the hardware
3. Applying power

4. Configuring the HBA
5. Verifying the installation

The following sections describe these steps in more detail.

▼ To Verify the Packaging Contents

Confirm that the HBA is shipped with the following document *Accessing Documentation*, 819-1209-*xx*.

▼ To Install the HBA Hardware

1. **Refer to your system installation or service manual to determine an appropriate ExpressModule slot in which to install the HBA.**

2. **Press down the plastic tab to release the ExpressModule latch and pull the lever out until it is nearly perpendicular with the ExpressModule front panel.**

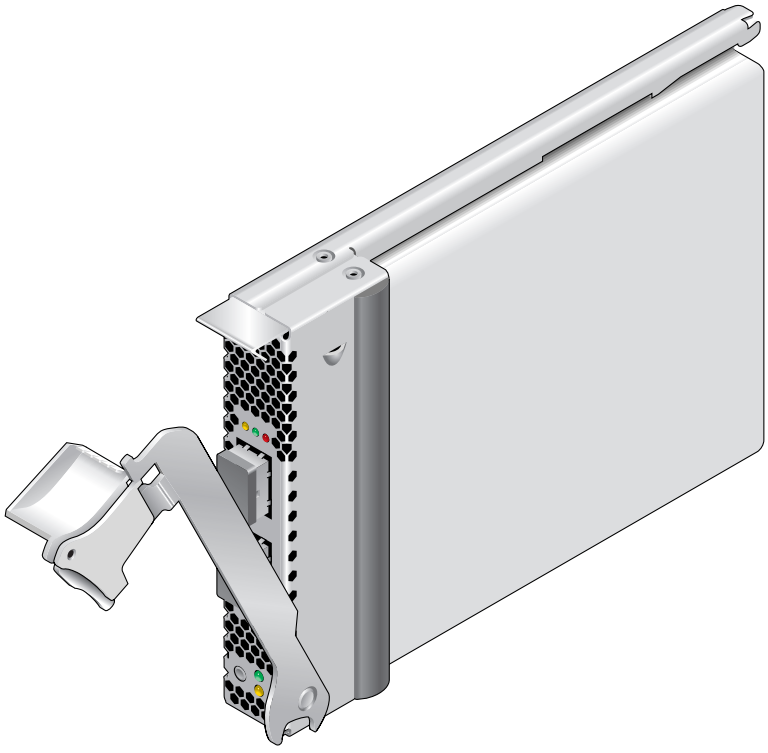

FIGURE 2-1 HBA Latch

3. **Insert the HBA into its slot, being careful that the tooth on the bottom of the lever does not come in contact with the chassis sheet metal during insertion.**

4. **When the HBA is inserted nearly all the way into its slot, push the lever back into its fully closed position, allowing the lever tooth to insert the HBA fully into place.**

▼ To Attach the Optical Cable

Note – The HBA does not allow normal data transmission on an optical link unless it is connected to another similar or compatible Fibre Channel (FC) product (that is, multimode to multimode).

Use multimode fiber-optic cable, intended for short-wave lasers, that adheres to the specifications in TABLE 2-1.

TABLE 2-1 Optical Cable Specifications

Fiber-Optic Cable	Maximum Length	Minimum Length	Connector
62.5/125 µm (multimode)	300 meters at 1.0625 Gbit/sec 150 meters at 2.125 Gbit/sec 70 meters at 4.25 Gbit/sec	2 meters	LC
50/125 µm (multimode)	500 meters at 1.0625 Gbit/sec 300 meters at 2.125 Gbit/sec 150 meters at 4.25 Gbit/sec	2 meters	LC

Follow these steps when attaching the optical cable:

1. **Connect the fiber-optic cable to an LC connector on the HBA (see FIGURE 2-2).**

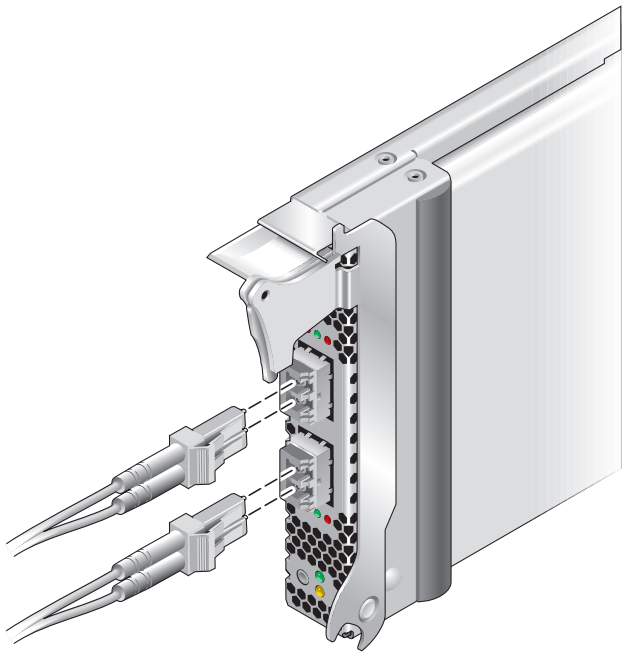

FIGURE 2-2 Attaching the Optical Cables

2. **Connect the other end of the cable to the FC device.**

After the optical cable is connected to the HBA, you are ready to apply power to the system. If power is already applied to the system, proceed to "To Configure the HBA When Using Hot Plug" on page 12.

▼ To Apply Power

1. **Verify that the HBA is securely installed in the system.**
2. **Verify that the correct optical cable is attached.**
3. **Refer to your system installation or service manual to determine how to power up the system blade.**
4. **Observe the light-emitting diodes (LEDs) status for the POST results as shown in** TABLE 2-2**.**

   TABLE 2-2 summarizes LED indicator combinations. Refer to FIGURE 2-3 to determine the location of the LEDs. Each port has a corresponding set of LEDs that provide a visual indication of the operating state.

TABLE 2-2 LED Indicator Status Definitions

Hardware State	Yellow LED (4 Gbps)	Green LED (2 Gbps)	Amber LED (1 Gbps)	Comments
Power Off	Off	Off	Off	Card doesn't have power
Power On (before firmware initialization)	On	On	On	On continuously
Power On (after firmware initialization)	Flash	Flash	Flash	All at the same time
Firmware Fault	Flash in sequence	Flash in sequence	Flash in sequence	Flashing in sequence of Yellow-->Green -->Amber
1 Gbps Link Up/Active	Off	Off	On/Flash	On for link up Flash if I/O activity

TABLE 2-2 LED Indicator Status Definitions *(Continued)*

Hardware State	Yellow LED (4 Gbps)	Green LED (2 Gbps)	Amber LED (1 Gbps)	Comments
2 Gbps Link Up/Active	Off	On/Flash	Off	On for link up Flash if I/O activity
4 Gbps Link Up/Active	On/Flash	Off	Off	On for link up Flash if I/O activity
Beacon	Flash	Off	Flash	Yellow and amber flashing at the same time like a heart beat

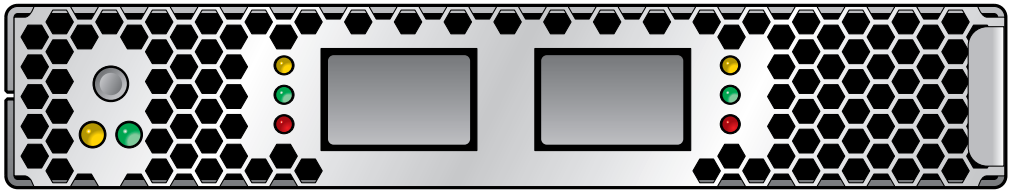

FIGURE 2-3 LEDs and Attention Button

▼ To Configure the HBA When Using Hot Plug

1. **Locate the green Power indicator near the bottom of the HBA front panel.**

   Its meaning is as follows:

   - Dark – Power is not applied to the HBA. Removal is permitted, or the HBA needs to be configured.
   - Flashing – Hot-plug operation is in process. Removal of the HBA is not permitted.
   - Solid green – The HBA is properly configured. Removal is not permitted.

2. **If the green Power indicator is not illuminated, briefly press the Attention button near the bottom of the HBA front panel.**

   The green power LED should blink for approximately five seconds and then remain on, indicating that the HBA has been properly configured.

   To cancel the operation, press the button again before it stops blinking.

▼ To Verify Proper Installation During Boot in x64-Based Systems Using BIOS

- **When the following screen is displayed during system power-on initiation, press Control-Q.**

```
QLogic Corporation
QEM2462 PCI Fibre Channel ROM BIOS version 1.15
Copyright (c) QLogic Corporation 1993-2006. All rights reserved.
www.qlogic.com

Press <Ctrl-Q> for Fast!UTIL

BIOS for Adapter 0 is disabled

BIOS for Adapter 1 is disabled
ROM BIOS NOT INSTALLED
```

The following is displayed.

```
QLogic Corporation
QEM2462 PCI Fibre Channel ROM BIOS version 1.15
Copyright (c) QLogic Corporation 1993-2006. All rights reserved.
www.qlogic.com

Press <Ctrl-Q> for Fast!UTIL

BIOS for Adapter 0 is disabled

BIOS for Adapter 1 is disabled
ROM BIOS NOT INSTALLED

<CTRL-Q> Detected, Initialization in progress, Please wait...
```

Then the following QLogic Fast!UTIL menu is displayed.

```
                    QLogic Fast!UTIL

                  Select Host Adapter
Adapter Type    I/O Address    Slot    Bus    Device    Function

QEM2462         E800           00      83     00        1
QEM2462         E400           00      83     00        0
```

▼ To Verify Attached Storage in x64-Based Systems Using BIOS

1. **Use the arrow key to select the HBA port that has devices connected, and press Enter.**

   The following QLogic Fast!UTIL menu is displayed.

```
                    QLogic Fast!UTIL

                  Selected Adapter
Adapter Type    I/O Address Slot Bus Device Function
QEM2462         A400        00   04  00     0

                   Fast!UTIL Options

                Configuration Settings
                Scan Fibre Devices
                Fibre Disk Utility
                Loopback Data Test
                Select Host Adapter
                Exit Fast!UTIL
```

2. **Use the arrow key to select** `Scan Fibre Devices`**, and press Enter.**

The following QLogic Fast!UTIL menu is displayed. In the example that follows, two ports of a storage array are attached to the selected port of the HBA through a switch.

```
                    QLogic Fast!UTIL

                  Scan Fibre Channel Loop
ID  Vendor      Product         Rev         Port Name     Port ID

0   No device present
1   SUN         Universal Xport 0610    200600A0B816005E 6E0200
2   SUN         Universal Xport 0610    200700A0B816005E 6E0300
3   No device present
4   No device present
5   No device present
6   No device present
7   No device present
8   No device present
9   No device present
10  No device present
11  No device present
12  No device present
13  No device present
14  No device present
15  No device present

Use <PageUp/PageDown> keys to display more devices, <ESC> to exit
```

3. **To exit QLogic Fast!UTIL, press the Escape key, select** `Exit Fast!UTIL`**, and press Enter.**

   The following is displayed.

```
   Exit Fast!UTIL

Reboot System
Return to Fast!UTIL
```

▼ To Verify Proper Installation Using Solaris

1. **Use the** `cfgadm` **command to verify proper ExpressModule installation:**

```
cfgadm
```

If the ExpressModule is properly installed and connected, you should see output similar to the following:

```
Ap_Id                Type          Receptacle   Occupant     Condition
c3                   fc            connected    configured   ok
c4                   fc            connected    configured   ok
pcie5                fibre/hp      connected    configured   ok
```

2. **If an ExpressModule adapter is shown as unconfigured or disconnected, use the** `cfgadm -c configure` **command to configure the adapter.**

▼ To Verify Attached Storage Using Solaris

1. **Use the** `cfgadm` **command to verify attached storage:**

   ```
   cfgadm -al
   ```

   If the ExpressModule is properly installed and storage is connected properly, you should see output similar to that shown below. In this example, one port of an ExpressModule adapter is connected through a fabric switch to two ports of a disk array.

```
Ap_Id                  Type         Receptacle   Occupant     Condition
c3                     fc-fabric    connected    configured   unknown
c3::200600a0b816005e   disk         connected    configured   unknown
c3::200700a0b816005e   disk         connected    configured   unknown
c4                     fc           connected    unconfigured unknown
pcie5                  fibre/hp     connected    configured   ok
```

2. **If an adapter is shown as unconfigured, use the** `cfgadm -c configure` **command to configure it.**

Removing the Hardware

The following instructions describe the tasks required to remove the HBA. Refer to your system installation or service manual for detailed ExpressModule adapter removal instructions.

The hardware removal process involves the following general steps:

1. Either halting the operating system and removing power from the server blade, or preparing the HBA for hot plug removal with one of the following:
   - The HBA Attention button
   - The Solaris OS
2. Removing the HBA hardware

▼ To Prepare the HBA for Removal Using the HBA Attention Button

- **Press and release the Attention button near the bottom of the HBA front panel.**

  The green LED near the button should blink for approximately five seconds, indicating that the HBA is being prepared for removal.

  Press the button again before the LED stops blinking to abort the operation.

  Once the LED goes dark, the HBA can safely be removed.

▼ To Prepare the HBA for Hot Plug Removal Using Solaris

If you want to remove the HBA without first halting the operating system and removing power from the associated server blade, you may first prepare it for removal as follows:

1. **Use the `cfgadm` command to identify the HBA to be removed.**

```
Ap_Id              Type         Receptacle   Occupant     Condition
pcie5              fibre/hp     connected    configured   ok
pcie6              fibre/hp     connected    configured   ok
```

2. **Use the `cfgadm -c unconfigure` command to unconfigure the attachment point ID (`Ap_Id`) for the HBA.**
3. **Use the `cfgadm -c disconnect` command to prepare the HBA for removal.**

   A flashing Power indicator LED indicates that the HBA is being prepared for removal. A dark Power indicator LED indicates that the HBA is ready to be removed.

▼ To Remove the HBA Hardware

Depress the ExpressModule latch to disengage the HBA, and then pull forward and down to dislodge it. You should then be able to easily remove the HBA.

CHAPTER 3

Software Installation

After you have completed the hardware installation and powered on the computer, follow the instructions listed for your operating system to install the HBA driver and any other utilities required for your installation. This chapter contains the instructions for installing software and the driver for the HBA.

This chapter contains the following topics:

- "Installing the HBA Driver Patches for Solaris" on page 19
- "Solaris Diagnostic Support" on page 20
- "Installing the HBA Driver With Red Hat and SuSE Operating Systems" on page 20
- "Red Hat and SuSE OS Diagnostic Support" on page 21
- "Installing the HBA Driver With the Windows Operating System" on page 22
- "Windows Diagnostic Support" on page 22

Installing the HBA Driver Patches for Solaris

No additional patches or packages are required to support the HBA on minimum supported versions of Solaris for x64/x86 systems. See "Release Notes" on page 23 for the latest bug information and resolution.

Solaris Diagnostic Support

Diagnostic support for the HBA is included in SunVTS 6.2 or later. This utility supports the following functions:

- Connectivity verification
- Firmware version and checksum test
- Selftest
- Loopback tests
  - External
  - Internal, single-bit
  - Internal, 10-bit
  - Mailbox

Installing the HBA Driver With Red Hat and SuSE Operating Systems

No updates are required to support the HBA on minimum supported versions of Linux.

Note – For diagnostic support, you may need to rebuild the Linux driver. Before rebuilding the drivers for Linux, you must have the relevant Linux operating system (OS) installed on your hard disk. The driver and utilities are available for download at the QLogic support site for Sun Microsystems.

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1. **Visit the QLogic support site for Sun Microsystems at:**
   `http://support.qlogic.com/support/defaultsun_page.asp`
2. **Locate the Enterprise 4Gb Fibre Channel Host Bus Adapter section, and click the Linux link below the table.**
3. **Locate the AMD64 Driver Source Tarball for RHEL or SuSE Linux. Click the Download link to copy the driver files to a local file system.**
4. **Click the Readme link and follow driver build and installation instructions.**

Red Hat and SuSE OS Diagnostic Support

Diagnostic support for the HBA is available through a graphical user interface (GUI) utility or a command-line interface (CLI) utility. These utilities support the following functions:

- Connectivity verification
- BIOS, FCode, EFI, and firmware version information
- Link status, including topology, data rate, and statistics
- Vital product data (VPD) information
- Attached devices list
- Option ROM, NVRAM update utilities
- Loopback test
- Read/Write Buffer test

Follow these steps to install diagnostic support:

1. **Visit the QLogic support site for Sun Microsystems at:**

   `http://support.qlogic.com/support/defaultsun_page.asp`

2. **Locate the Enterprise 4Gb Fibre Channel Host Bus Adapter section, and click the Linux link below the table.**

3. **Locate the SANsurfer CLI or SANsurfer PRO (GUI) diagnostic utility. Click the Download link to copy diagnostic archive to a local file system.**

4. **Click on the Readme link for additional information.**

Installing the HBA Driver With the Windows Operating System

No updates are required to support the HBA on minimum supported versions of Windows.

Windows Diagnostic Support

Diagnostic support for the HBA is available through a GUI utility or a CLI utility. These utilities support the following functions:

- Connectivity verification
- BIOS, FCode, EFI, and firmware version information
- Link status, including topology, data rate, and statistics
- Vital Product Data (VPD) information
- Attached devices list
- Option ROM, NVRAM update utilities
- Loopback test
- Read/Write Buffer test

For Windows, use the following tasks to install diagnostic support:

1. **Visit the QLogic support site for Sun Microsystems at:**

   http://support.qlogic.com/support/defaultsun_page.asp

2. **Locate the Enterprise 4Gb Fibre Channel Host Bus Adapter section, and click the Windows link below the table.**
3. **Locate the SANsurfer CLI (command line) or SANsurfer PRO (GUI) diagnostic utility. Click the Download link to copy diagnostic archive to a local file system.**
4. **Click on the Readme link for additional information.**

CHAPTER 4

Release Notes

This chapter contains the latest supplementary information for the preceding chapters in this Sun StorageTek™ Enterprise Class 4Gb FC PCI-E ExpressModule HBA User's Guide.

This chapter contains the following topics:

- "Solaris 10 for x64/x86 Operating Systems" on page 23
- "Red Hat Enterprise Linux 4 and SuSE Linux Enterprise Server 9 Systems" on page 24
- "Windows Server 2003 Operating System" on page 24

Solaris 10 for x64/x86 Operating Systems

The following are known issues and bugs related to the Solaris 10 for x64/x86 operating system:

TABLE 4-1 Known Issues and Bugs Related to Solaris 10 for x64/x86

Bug ID	Summary	Workaround	Resolution
6353136	qlctest opens exclusive path to adapter port prohibiting multiple test instances to run	Run SunVTS on only one HBA port at a time.	SunVTS 6.3

Patch 119131-21 is required. It is available at `http://sunsolve.sun.com`.

Red Hat Enterprise Linux 4 and SuSE Linux Enterprise Server 9 Systems

There are no known issues for these operating systems.

Windows Server 2003 Operating System

There are no known issues for this operating system.

APPENDIX **A**

Declaration of Conformity, Regulatory Compliance, and Safety Statements

This appendix contains the following information that applies to the Sun StorageTek RoHS 6 Compliant, Enterprise Class 4Gb FC Dual Port PCI-Express Singlewide ExpressModule HBA:

- "Declaration of Conformity" on page 27
- "Safety Agency Compliance Statement" on page 29
- "Regulatory Compliance Statements" on page 41

Declaration of Conformity

Compliance Model Number: **PX2520101-XX**

Product Family Name: **Sun StorageTek, Enterprise Class 4Gb FC Dual Port PCI-Express Singlewide ExpressModule HBA (SG-XPCIE2FC-QB4-Z, SG-PCIE2FC-QB4-Z)**

EMC

USA - FCC Class A
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 A per (as applicable):
EN 55022:1994 +A1:1995 +A2:1997Class A

EN 61000-3-2:2000	Pass
EN 61000-3-3:1995 +A1:2001	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	GS Certificate No.
IEC 60950-1:2001, 1st Edition	CB Scheme Certificate No.

Evaluated to all CB Countries

UL and cUL/CSA 60950-1:2001, CSA C22.2 No. 60950-00 File: **PENDING** 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/

Dennis P. Symanski DATE

Worldwide Compliance Office
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/S/

Donald Cameron DATE

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Safety Agency Compliance Statement

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

Declared noise emissions in accordance with ISO 9296, A-weighted, operating and idling:

Measure and Environment	
L_{wAd} (1B = 10 dB)	
at or below 25ºC	8.0 B
at max ambient	8.4 B
L_{pAm} bystander	
at or below 25ºC	66 dB
at max ambient	69 dB

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

Valeurs déclarées d'émission acoustique en conformité avec la norme ISO 9296, Pondéré A, en fonctionnement et inactif:

Mesure et environnement	
L_{wAd} (1B = 10 dB)	
à ou en dessous de 25ºC	8.0 B
à temp. ambiante maxi.	8.4 B
L_{pAm} assistant	
à ou en dessous de 25ºC	66 dB
à temp. ambiante maxi.	69 dB

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

Angegebene Geräuschentwicklung im Einklang mit ISO 9296, A-bewertet, in Betrieb und im Ruhezustand:

Messwert und Umgebung	
L_{wAd} (1B = 10 dB)	
bei oder unter 25ºC	8.0 B
bei max. Umgebung	8.4 B
L_{pAm} Umstehende	
bei oder unter 25ºC	66 dB
bei max. Umgebung	69 dB

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 Netzkabeln müssen alle Netzkabel abgetrennt werden, um das System völlig von der Stromversorgung zu trennen.

Warnung bezüglich Batterien

Achtung – Bei unsachgemäßer Handhabung oder nicht fachgerechtem Austausch der Batterien besteht Explosionsgefahr. Verwenden 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 integrierter 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 vermeiden, 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.

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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

Emisiones acústicas declaradas de acuerdo con la norma ISO 9296 (decibelios A), en funcionamiento y reposo:

Medición y condiciones ambientales	
L_{wAd} (1B = 10 dB)	
a 25ºC o menos:	8.0 B
máxima temp. ambiente:	8.4 B
L_{pAm} (posición de observación)	
a 25ºC o menos:	66 dB
máxima temp. ambiente:	69 dB

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.

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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.

Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan
- Bureau of Standards Metrology and Inspection (BSMI) — Taiwan

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 it is not installed and used in accordance with the instruction manual, it 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.

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 A Parts

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.

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.

ICES-003 Class A Notice - Avis NMB-003, Classe A

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

ICES-003 Class A Notice - Avis NMB-003, Classe A Parts

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

VCCI 基準について

クラス A VCCI 基準について

クラス A VCCI の表示があるワークステーションおよびオプション製品は、クラス A 情報技術装置です。これらの製品には、下記の項目が該当します。

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

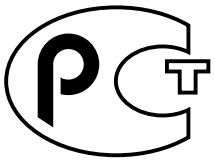
クラス B VCCI 基準について

クラス B VCCI の表示 があるワークステーションおよびオプション製品は、クラス B 情報技術装置です。これらの製品には、下記の項目が該当します。

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをしてください。

BSMI Class A Notice

The following statement is applicable to products shipped to Taiwan and marked as Class A on the product compliance label.

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

GOST-R Certification Mark