



# Sun StorageTek™ PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Installation Guide

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Sun Microsystems, Inc.  
www.sun.com

Part No. 819-4487-11  
January 2007, Revision A

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# Preface

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This guide describes how to install the Sun StorageTek™ PCI-X Enterprise 2Gb FC Single Port host bus adapter and how to update the driver.

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## How This Book Is Organized

The single chapter describes how to install the HBA and update the driver.

Appendix A provides the safety, regulatory, and compliance information for the product.

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## 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. Refer to the following for this information:

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

<http://docs.sun.com>

---

# Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
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 <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>% You have mail.</code>
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output	<code>% <b>su</b></code> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

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

---

# Related Documentation

Application	Title	Part Number
Latest information	<i>Sun StorageTek(TM) PCI-X Enterprise 2Gb FC Single Port Host Bus Adapter Release Notes</i>	819-4488-xx
Locating documents	<i>Accessing Documentation</i>	819-1209-xx

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*Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Installation Guide*, part number 819-4487-11.



# Installing, Connecting, and Testing the Host Bus Adapter

---

This guide describes how to install and configure your new Sun StorageTek™ PCI-X Enterprise 2Gb FC Single Port Host Bus Adapter (Sun part number SG-XPCI1FC-QL2) in three simple steps. Throughout this document, the term “HBA” is used interchangeably with the words “Host Bus Adapter.”



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**Caution** – Keep the Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA in the antistatic bag until installation. The Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA contains parts that can be damaged by electrostatic discharge (ESD). Before handling the HBA, use standard methods to discharge static electricity. Place the HBA on the bag when examining it. Retain the bag for future use.

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This chapter contains the following topics:

- [“Software Requirements” on page 2](#)
- [“Tools and Equipment Needed” on page 3](#)
- [“Preparing for Installation” on page 3](#)
- [“Installing the Host Adapter” on page 8](#)
- [“Testing the Installation” on page 11](#)
- [“Booting From the Network Adapter” on page 13](#)

This *Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Installation Guide* describes how to install the Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA card in a system. These instructions are designed for an experienced system administrator or trained service provider.

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# Software Requirements

## Device Drivers

The minimum Solaris™ operating environment releases to support the device drivers for the Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA card is Solaris 8 update 4.

All of the drivers are unbundled with Solaris 8. See the *Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Release Notes*, 819-4488, for a list of packages, patches, and instructions for downloading them.

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**Note** – If the required packages and patches are not installed, you can not use the network adapter.

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- Once installed, Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA boards will have device paths similar to  
`/devices/pci@b,2000/pci@2/SUNW,qlc@x.`
- Under these nodes, there will be two instances of the `qlc` driver that has a device node similar to:  
`/devices/pci@b,2000/pci@2/SUNW,qlc@x/fp@0,0`
- For devices found, the nodes are created depending on the WWN of the device. For a WWN of 2100002037182670, the device path is similar to  
`/devices/pci@b,2000/pci@2/SUNW,qlc@x/fp@0,0/ssd@2100002037182670,0:a`
- Go to the <http://www.sun.com/products-n-solutions/hardware/docs> Web site, click *Storage* and then click *Adapters* and read the *Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Release Notes* to obtain software patch IDs.
- Go to the URL listed in the *Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Release Notes* to download the Fibre Channel transport device driver patches or, for updates, go to: <http://sunsolve.sun.com>.

---

## Tools and Equipment Needed

You may need to order fiber optic cables. You can order them in the following lengths:

- two-meter, part number X9722
- five-meter, part number X9723A
- 15-meter, part number X9724
- SC-SC coupler X9720A

You will also need:

- A No. 2 Phillips screwdriver
- An antistatic wrist strap
- A padded antistatic mat

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## Preparing for Installation



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**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 antistatic mat and an ESD wrist strap. You can get an ESD wrist strap from any reputable electronics store or from Sun as part number #250-1007. Observe the following precautions to avoid ESD-related problems:

- Leave the HBA in its antistatic 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 antistatic work surface pad when it is out of its protective antistatic bag.

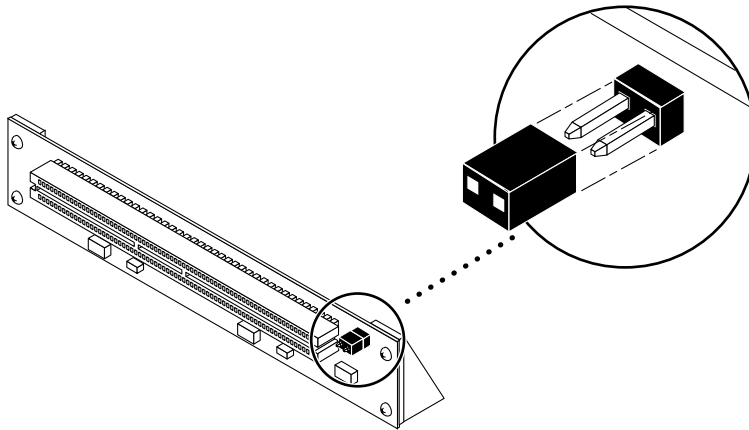
# Sun Enterprise Systems

The Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA card does not support JTAG. When you install the PCI host adapter in a Sun Enterprise™ system, be sure that the corresponding PCI riser card has the JTAG jumper removed (FIGURE 1).

---

**Note** – If the JTAG jumper is installed, the PCI I/O board will not be recognized or initialized during POST (power-on self-test) nor will it subsequently be recognized by the operating system.

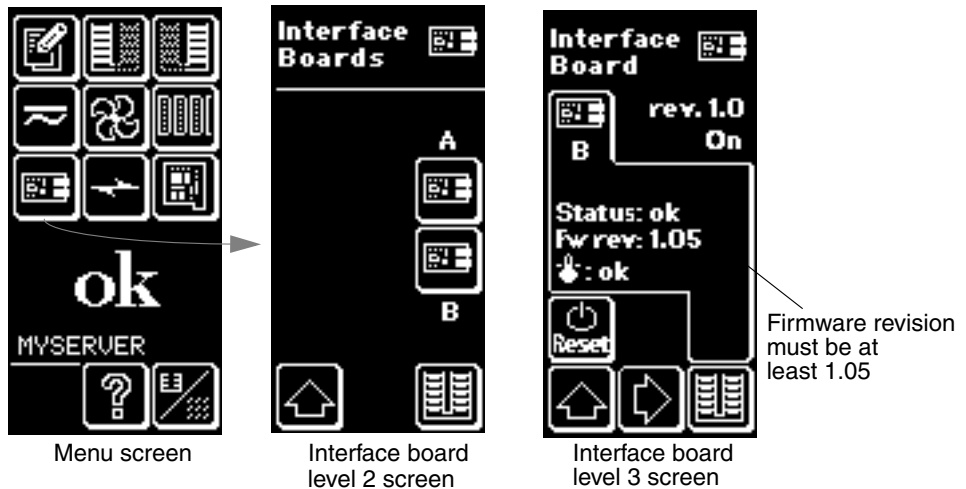
---



**FIGURE 1** JTAG Jumper

# Preparing for a Sun StorEdge A5x00 Installation

1. Use the array's front panel module (FPM) to ensure that the firmware level of the interface boards is at least 1.05.



**FIGURE 2** Checking the Sun StorEdge A5x00 Array Interface Board Firmware Level

If the firmware level is less than 1.05, you must upgrade the firmware using an SBus-based host system before you can connect the array to the Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA. The instructions for obtaining the upgrade patch are in Step 3.

2. **Determine which version of the Solaris™ operating environment you are using.**

Look at the `/etc/release` file and make sure the operating environment installed is at least Solaris 8. If you do not have an `/etc/release` file, you probably need to upgrade your operating environment to at least Solaris 8.

3. **Get the required software:**

- qlc driver
- SunVTSTM

- a. **Go to the <http://docs.sun.com> Web site and read the *Sun StorEdge A5000 Installation Supplement*.**

- b. **Go to the <http://www.sun.com/products-n-solutions/hardware/docs> Web site, click Storage and read the *Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Release Notes* for the software patch IDs.**

- c. **Download the software patches from the URL listed in the *Sun StorageTek PCI-X 2 Gb FC Single Port Host Bus Adapter Release Notes* or, for updates, go to: <http://sunsolve.sun.com>.**

Contact your support service provider if you cannot access these Web sites.

---

**Note** – Be sure to read and follow the directions in the README file for each patch.

---

**4. Log in as `root` on your system.**

**5. Verify that the `SUNWses`, `SUNWssad`, and `SUNWvts` packages have been installed on your system.**

Use the `/usr/bin/pkginfo` command and `grep` for each of the above patches. For example:

```
# /usr/bin/pkginfo | grep SUNWvts
system SUNWvts Online Validation Test Suite
```

If you are missing any of these patches, you can get them from the *Updates for Solaris Operating Environment* of your Solaris operating environment distribution.

**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 online documentation.

**7. Power off the system.**

Refer to the service documentation that came with your system.



---

**Caution** – Do not disconnect the power cord at this time. This connection provides the ground path necessary to remove and install printed circuit boards and components without damage.

---

**8. Choose a slot into which to install the host adapter.**


Follow the procedures in the documentation supplied with your system.

For systems that have more than one system board, you must also select and remove a system board that has an available PCI slot. Refer to your system documentation for specific instructions.

**9. Attach the antistatic wrist strap to your wrist and to a metal component on the system chassis.**

The wrist strap between you and the chassis provides the ground path necessary to safely remove and install the printed circuit boards and components without damaging them.

**10. For systems with a standby-type power switch, disconnect the power cord.**

Standby-type power switches have a  icon.

**11. Open the system.**

Refer to your system documentation for specific instructions.



---

**Caution** – If you need to remove a system board for installation, place the board on a padded antistatic mat to prevent damage.

---

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# Installing the Host Adapter

1. Pull the two dust covers out of the 2x5 optical transceiver (OT) connectors (FIGURE 3).



**FIGURE 3** Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA (Dust Covers Removed)

2. Install the host adapter in the PCI slot you have chosen.  
Installation details vary for each system. Refer to your system documentation for specific instructions.
3. Reassemble the system.  
Refer to your system documentation for specific instructions.
4. Disconnect the wrist strap.
5. Push the fiber optic cable connector into the OT connector until you hear a click.





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**Caution** – Fiber optic cables have keyed connectors; they can only be inserted into OT connectors.

---

6. **Connect the other end of the fiber optic cable to a device such as an array, switch or hub.**



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**Caution** – In multiple-initiator configurations, when a Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA is directly connected to a Sun StorEdge A5x00, each port on the host adapter must be connected to a separate loop on the A5x00.

---

Refer to the documentation that came with the device for specific instructions.

7. **Power on your peripherals and then your system.**

---

**Note** – When you power on the system, the LED lights on the HBA might blink. The LEDs are intended for manufacturing use only.

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---

**Note** – If your system starts to reboot, interrupt the reboot process by pressing the Stop-A keys.

---

The system should now be at the `ok` prompt. If a `>` prompt is showing, type `n` to switch to the `ok` prompt.

## 8. Make sure that the system recognizes the host adapter.

See [CODE EXAMPLE 1](#) and [CODE EXAMPLE 2](#). [CODE EXAMPLE 2](#) is a continuation of [CODE EXAMPLE 1](#).

### CODE EXAMPLE 1 System Recognition of the Host Adapter, Part 1

```
ok show-devs
/counter-timer@f,1c00
/pci@f,2000
/pci@f,4000
/counter-timer@e,1c00
/fhc@e,f8800000
/pci@e,2000
/pci@e,4000
/counter-timer@b,3c00
/fhc@a,f8800000
/sbus@a,0
/counter-timer@3,3c00
/sbus@3,0
/fhc@2,f8800000
/disk-board@6,0
/SUNW,UltraSPARC-II@5,0
/SUNW,UltraSPARC-ii@4,0
/fhc@4,f8800000
/SUNW,UltraSPARC-II@1,0
/SUNW,UltraSPARC-11@0,0
/fhc@0,f8800000
/central@1f,0
/virtual-memory
/memory@0,0
/aliases
/options
/openprom
/chosen
/packages
/pci@f,4000/SUNW,isptwo@3
/pci@f,4000/SUNW,isptwo@3/st
/pci@f,4000/SUNW,isptwo@3/sd
/fhc@e,f8800000/sbus-speed@0,500000
/fhc@e,f8800000/EEPROM@0,300000
/fhc@e,f8800000/flashprom@0,0
/fhc@e,f8800000/environment@0,400000
/fhc@e,f8800000/ac@0,1000000

/pci@e,2000/pci@2
/pci@e,2000/pci@2/SUNW,qlc@1
/pci@e,2000/pci@2/SUNW,qlc@1/fp@0,0
/pci@e,2000/pci@2/SUNW,qlc@1/fp@0,0/disk
```

**CODE EXAMPLE 2** System Recognition of the Host Adapter, Method A, Part 2

```
ok apply show-children /pci@e,2000/pci@2/SUNW,qlc@5
LiD HA --- Port WWN --- ----- Disk description ----
_3d 3d 5080020000025a5a SUN ----- SENA ----- 1.09PZX
_30 30 21000020370e6891 SEAGATE - ST19171FCSUN9.0G177E9823U86993
_33 33 21000020370e964f SEAGATE - ST19171FCSUN9.0G177E9823V06714
_36 36 21000020370e92c9 SEAGATE - ST19171FCSUN9.0G177E9823V11851
_2d 2d 5080020000025a59 SUN ----- SENA ----- 1.09PZX
_23 23 21000020370e930d SEAGATE - ST19171FCSUN9.0G177E9823V12050
_26 26 21000020370e9b08 SEAGATE - ST19171FCSUN9.0G177E9823V15713
```

In [CODE EXAMPLE 2](#), /pci@e,0/pci@1/pci@1/SUNW,qlc@5 is one port on the Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port HBA and the disks are in a Sun StorEdge A5000 array (SENA).

---

**Note** – The probe-scsi-all command does not function identically on all platforms, and does not in all cases probe for fiber channel devices. The probe-fcal-all command exists only on Sun Enterprise™ systems.

---

9. Reboot your system using the `boot -r` command.

---

# Testing the Installation

## SunVTS

Refer to the SunVTS documents in TABLE 1-4.

**TABLE 1** Sun VTS Documents

Application	Title	Part Number
Diagnostic Testing	<i>SunVTS 4.5 User's Guide*</i>	816-1575
	<i>SunVTS 4.5 Test Reference</i>	816-1576
	<i>SunVTS 4.3 User's Guide\</i>	806-7705
	<i>SunVTS 4.3 Test Reference</i>	806-7704

\* Use SunVTS 4.5 with Solaris 8 update 6 operating environment.

\ Use SunVTS 4.3 with Solaris 8 update 4 operating environment.

SunVTS is a diagnostic program that exercises your system to verify the functionality, reliability, and configuration of your host adapter. You will need to install both the 32- and 64-bit versions of SunVTS.

## Testing Procedure

1. To invoke SunVTS locally on a system running CDE, type the following as root:

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

2. From the SunVTS menus select the following:

- a. Select devices `None` and select `intervention`.

- b. Select mode `Functional test`.

- c. Select `HostAdapters qlcx` where `x` is the qlc number of the qlc port you want to run this test against.

- d. If you want to run the external loopback test, place a loopback plug into the qlc port that you want to test.

If you do not have an external loopback plug, you can make one by taking apart a fiber cable and plug the same cable into the transmitter and receiver of the qlc port.

- e. Right click on the qlc test and select `Test Parameter Options`.

- f. Enable the `External Loopback Test`.

---

**Note** – If you do not use a loopback plug, you can connect the qlc port to storage devices. In such a case, you will be testing both the qlc and the entire fiber loop.

---

- g. Select `Start` to start the test.

---

**Note** – If you select only the external loopback test, the different version diagnostic tests will not be run and the delay time between tests will be set to zero. This is a good way to test your fiber loop if you leave the qlc port attached to storage devices.

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# Booting From the Network Adapter

Booting from the network adapter requires special procedures in order to enable detection of installation devices. To boot from the small kernel image on the network adapter, you must use either a boot/install server or a temporarily directly-connected boot disk to enable bootability. The method using a boot install server is the Net Install Patching method and the method using a directly-connected boot disk is the Dump and Restore method. Both procedures should be performed by a knowledgeable UNIX system administrator.

The two methods are explained in this appendix in the sections:

- [“The Net Installation Method” on page 13](#)
- [“The Dump and Restore Method” on page 20](#)

The Dump and Restore method is more difficult than the Net Install Patching method and you might experience complications in the loss of the boot. However, the method is available to anyone with existing systems, whether small or large configurations, and it provides a disk image when you have completed the process.

The Net Install Patching method requires a jump-start server and network connectivity, and it is more suitable for large system configurations than for small ones. This method is easier than the Dump and Restore method and mitigates the risk of data loss.

---

**Note** – These procedures are necessary if the network adapter card driver is not bundled with the Solaris operating environment on the boot server on the network. Check your Solaris operating environment to determine whether the driver is bundled with it.

---

Booting through a network adapter is mandatory when the host is an enterprise-level system or other system that does not have its own directly-connected disks. It is optional and preferable when a host has a directly-connected disk, you might prefer to boot through the adapter because the 2 Gb connection is faster.

## The Net Installation Method

This section contains a bootability method that is different from the one starting at [“The Dump and Restore Method” on page 20](#). The topics in this section include:

- [“Overview of the Net Installation Method” on page 14](#)
- [“To Set Up the Boot/Install Server” on page 15](#)

- [“To Modify the Boot Image” on page 17](#)
- [“To Set Up the Client” on page 18](#)

The procedures in this section explain how to install the Solaris operating environment from a boot/install server onto the host with the host adapter. Any other host on the same subnet can be set up as a boot/install server.

---

**Note** – The procedure is identical whether you are using a boot server or an install server.<sup>1</sup> Therefore, the convention used in this chapter is to refer to either type of server as the “boot/install server.”

---

## Overview of the Net Installation Method

Installing a client from a boot/install server uses two images of the Solaris operating environment:

- A boot mini-root (which is referred to from here on as the *boot image*)
- A separate *install image* that gets copied onto the boot disk

This procedure assumes you know how to install Solaris software over the network as described in the Solaris installation manuals. For more information, see the man(1) pages for the commands that are used in this procedure.

---

**Note** – While you are setting up the boot/install server, you must either have the contents of the Solaris installation CD-ROM copied to a disk that is directly-connected to the boot/install server or have the Solaris installation CD inserted and mounted from an attached CD-ROM device.

---

You need to enable bootability using a boot/install server to make both images aware of the host adapter. At the start of the procedure, the system administrator downloads the driver and all required patches to an exported directory on the boot/install server.

The following steps explain the process. For actual instructions, begin with [“To Set Up the Boot/Install Server” on page 15](#).

1. The *boot image* is copied from a Solaris CD-ROM or from another location onto a disk that is attached to a boot/install server.
2. The driver package is added to the boot image.

You add the driver package to the boot image so that the boot/install server can then send and receive data through the host adapter on the boot client.

---

1. For the distinction between these two types of server, see the Solaris system administration documentation.

3. The client boots from the boot/install server, the interactive `suninstall(1M)` application starts, and the system administrator provides configuration information requested at the prompts.
4. After the system administrator provides all configuration information requested by the installation program, the installation of the Solaris operating environment begins.
5. The install image is copied to the client.
6. Before a reboot, while the client is still booted from the boot image mini-root, the driver and any needed patches are copied from the boot/install server and then installed in the *install image*.  
You install the driver package and patch the install image so that the host will be able to see the host adapter after a reboot.

---

**Note** – You can not use Jump Start until you modify the install image.

---

7. The host boots from the boot disk through the network adapter.

## ▼ To Set Up the Boot/Install Server

1. Switch users to root on the host to be used as the boot/install server.

```
% su
Password:
#
```

2. Use the `setup_install_server(1M)` command from the `Tools` directory in the location where the Solaris software resides.

As shown in the following screen example, the `setup_install_server` command copies the boot image to a directory on the boot/install server. (The boot directory is named `/boot_dir /<original_OS_dir>/Boot` in the example.) The example shows the command being run from the `Tools` directory on a mounted Solaris 8 installation CD-ROM.

```
# cd /cdrom/cdrom0/s0/Solaris_8/Tools
# ./setup_install_server -t /<original_OS_dir>/Boot /<new_OS_copy_dir>
```

3. Download the driver packages and the accompanying `README` file from Sun's download center into the `/<export_public>` directory on the boot/install server.
  - a. Go to the download center URL specified in the instructions on how to download the network adapter driver in the *Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter Release Notes*.
  - b. Download the `README` file.
  - c. Remove any previously-installed packages for this network adapter as instructed in the `README`.
  - d. Download the packages as described in the instructions in the release notes.
  - e. Use the `uncompress(1M)` and `tar(1M)` commands to uncompress and expand the packages in the `tar` file, as instructed in the `README`.



---

**Caution** – Do not use the `pkgadd(1M)` command line that is given in the `README` to install the packages. See [“To Modify the Boot Image” on page 17](#) to install relocatable versions of the packages.

---

4. Download the required patch(es) and the accompanying `README` file(s) from `sunsolve.sun.com` into the `/<export_public>` directory on the boot/install server.
  - a. See the release notes for a list of required patches.
  - b. Go to the URL specified in the instructions on how to download the network adapter driver required patch(es) in the release notes.
  - c. Download the `README` file.
  - d. Remove any previously-installed related-patches that may be specified in the `README`.
  - e. Download the patch(es) as described in the instructions in the release notes.
  - f. Use the `uncompress(1M)` and `tar(1M)` commands to uncompress and expand the patch(es) in the `tar` file, as instructed in the `README`.



---

**Caution** – Do not use the `patchadd(1M)` command line that is given in the `README` to install the patch(es). See [“To Modify the Boot Image” on page 17](#) to install relocatable versions of the patch(es).

---



## ▼ To Modify the Boot Image

### 1. Install the driver packages into the boot image.

The following example installs all packages previously downloaded into the `/<export_public>` directory.

---

**Note** – Refer to the `install_order` file for the proper order in which to install the packages. You must follow this order for a successful installation so the driver will run.

---

```
# cd /<export_public>
# pkgadd -R /<new_OS_copy_dir>/Boot -d .
```

### 2. Install any needed patches into the boot image.

The following example installs any patch(es) that were previously downloaded into the `/<export_public>` directory. Repeat the `patchadd` command for all the patches you need to add.

```
# cd /<export_public>
# patchadd -C /<new_OS_copy_dir>/Boot -M /<export_public> <patch_ID>
```

### 3. Make sure the host name, its IP address, and its Ethernet address have been added to the name service (`/etc` files, NIS, or NIS+).

### 4. Run the `add_install_client(1M)` command to add the host with the host adapter as a boot/install client.

The example shows the `add_install_client` command followed by the name of the host followed by its platform name.

```
# add_install_client <host_name> <platform_name>
```

---

**Note** – You can find the platform name by running the `uname` command with the `-m` option on the host that has the host adapter.

---

### 5. Log out of the boot/install server.

## ▼ To Set Up the Client

1. **Bring the client host (with the host adapter) down to the `ok` prompt at run level 0.**

See the Solaris system administration documentation for the commands that can be used with different configurations. The following example uses the `shutdown(1M)` command.

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



---

**Caution** – Do not reboot the boot/install server.

---

2. **Boot the host from the net.**

```
ok boot net
```

The Solaris interactive installation program runs from the boot/install server.

3. **Respond to the prompts according to your configuration, as instructed in the Solaris installation guide.**

Make sure to specify the new boot disk as the destination for the operating environment installation.

4. **When prompted to choose between automatic reboot or manual reboot, click the Manual Reboot button, complete the remaining question, and start the installation.**

This question offering a choice between automatic and manual reboot is the last question before the installation starts. If you are using the `suninstall` program, choose `boot manual`.

5. **Mount the `/<export_public>` directory which contains the driver packages and any needed patches onto the `/mnt` directory mount point.**

Enter the `mount` command followed by the hostname of the boot/install server, followed by a colon (:), followed by `/<export_public>` followed by `/mnt`. The following example uses `boot_install_server` as the name of the boot/install server.

```
# mount boot_install_server:/<export_public> /a/mnt
```

## 6. Install the driver packages into the install image.

The following example installs all packages previously downloaded into the `/<export_public>` directory. When prompted, install the packages in the order of `SUNWsan`, `SUNWcfpl`, `SUNWcfplx`.

```
# cd /a/mnt
# pkgadd -R /a -d .
```

## 7. Install any needed patches into the boot image.

The following example installs all patch(es) that were previously downloaded into the `/<export_public>` directory.

---

**Note** – Install the patches in their sequential numeric order to ensure the installation is successful.

---

```
# cd /a/mnt
# patchadd -R /a <patch_ID>
```

## 8. Bring the system down to the `ok` prompt at run level 0.

```
# halt
```

## 9. Reboot the host from the newly installed operating environment.

```
ok boot -r
```

# The Dump and Restore Method

This section contains a bootability method that is different from the one starting at [“The Net Installation Method” on page 13](#). The topics in this section include:

- [“Overview Of the Dump and Restore Method” on page 20](#)
- [“Partitioning the New Boot Disk the Same As the Temporary Boot Disk” on page 20](#)
- [“To Create File Systems on the New Boot Disk” on page 30](#)
- [“To Create the New Boot Files” on page 30](#)

## Overview Of the Dump and Restore Method

To enable bootability using a temporary boot disk, a boot disk must be directly connected, at least temporarily, to the host. The boot disk must have the following installed:

- The Solaris operating environment.
- The network adapter driver packages and any needed patches  
See the release notes for how to download and install the driver packages and any needed patches.

---

**Note** – The initial boot disk can be removed if it is not needed after the boot disk is enabled.

---

---

**Note** – The examples in this section show disk 0 as the directly-connected boot disk, and disk 2 as the designated new boot disk that is connected through the host adapter.

---

## Partitioning the New Boot Disk the Same As the Temporary Boot Disk

There are several sub procedures required to complete the first phase of enabling bootability from a temporarily connected boot disk. These sub procedures include:

- [“To Prepare To Partition the New Disk” on page 21](#)
- [“To Record the Partition Layout” on page 21](#)
- [“To Change To the New Boot Disk” on page 24](#)
- [“To Specify Slices On the New Boot Disk” on page 25](#)
- [“To Label the New Boot Disk” on page 29](#)

## ▼ To Prepare To Partition the New Disk

1. Switch users to root on the host with the host adapter.

```
% su
Password:
#
```

2. If the driver and any needed patches are not already installed, download the driver package from Sun's download center and install it on the host, following the instructions in the `README` file that comes with the driver.

To download the driver, follow the instructions in the release notes.

3. Reboot using the `reboot(1M)` command with the `-r` option.

```
# reboot -- -r
```

4. Log into the host as root.

## ▼ To Record the Partition Layout

After you log back into the host, you can record the layout of the partitions, or slices, on the system boot disk.

1. Enter the `format(1M)` command.

If needed, see the `format` man page and the instructions on adding a disk and using the `format` command in the Solaris administration documentation.

---

**Note** – These examples use disk 0 as the temporary disk (c0t0d0) and disk 2 (c7t16d0) as the new boot disk.

---

```
# format
Searching for disks...done

AVAILABLE DISK SELECTIONS:
  0. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
    /pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w2100002037e43542,0
  1. c0t2d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w21000020374205a1,0
  2. c7t16d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e01002b7c1,0
  3. c7t17d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e0100357c1,0
  4. c7t18d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e010032331,0
  5. c7t19d0 <drive not available: formatting>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e010032661,0
  6. c7t20d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e0100369e1,0

Specify disk (enter its number):
```

**2. Make a note of the device path name of the new boot disk.**

For example, for disk 2, the new boot disk in this example, the device path name shown is: `/pci@8,600000/SUNW,qlc@1/fp@0,0`. You use this information later in [Step 4](#) in [“To Specify the New Boot Disk as the Boot Device.”](#) on [page 34](#).

---

**Note** – The qlc number changes, depending on the type of host and slot in use.

---

**3. Specify the disk where the operating system is installed on the temporary boot disk.**

The following screen example specifies disk 2.

```
Specify disk (enter its number): 2
```

4. Enter the **partition** command to bring up the PARTITION MENU.

```
format> partition
PARTITION MENU:
  0      - change '0' partition
  1      - change '1' partition
  2      - change '2' partition
  3      - change '3' partition
  4      - change '4' partition
  5      - change '5' partition
  6      - change '6' partition
  7      - change '7' partition
select  - select a predefined table
modify  - modify a predefined partition table
name    - name the current table
print   - display the current table
label   - write partition map and label to the disk
!<cmd> - execute <cmd>, then return
quit
partition>
```

5. Enter the **print** command to display the partition table for the specified disk.

```
partition> print
Current partition table (original):
Total disk cylinders available: 3880 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders      Size      (start/end)  Blocks
  0      root      wm        0 - 1937      2.00GB    (1938/0/0)   4186080
  1      swap      wu       1938 - 2908    1.00GB    (971/0/0)   2097360
  2      backup    wm        0 - 3879      4.00GB    (3880/0/0)  8380800
  3  unassigned  wm         0              0          (0/0/0)      0
  4  unassigned  wm         0              0          (0/0/0)      0
  5  unassigned  wm         0              0          (0/0/0)      0
  6  unassigned  wm         0              0          (0/0/0)      0
  7      home      wm       2909 - 3879    1.00GB    (971/0/0)   2097360
```

As shown in the example, the temporary boot disk has three slices defined: 0 (root), 1 (swap), and 7 (home) with sizes, 2.00GB, 1.00GB, and 1.00GB.

6. Record the layout (sizes and numbers) assigned to the slices on the temporary boot disk, and enter `quit` when done.

```
partition> quit
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
  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
  volname   - set 8-character volume name
  !<cmd>    - execute <cmd>, then return
  quit
format>
```

As shown in the previous example, the `quit` command returns you to the `FORMAT MENU`.

## ▼ To Change To the New Boot Disk

After you record the partition layout, change to the new boot disk.

1. At the `format>` prompt, type `disk` to change the current disk to the new boot disk.



## 2. Enter the number of the disk to be formatted after the disk command.

The following screen example uses disk 2. The FORMAT MENU appears.

```
format> disk 2
selecting c7t16d0
[disk formatted]

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
    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
    volname   - set 8-character volume name
    !<cmd>    - execute <cmd>, then return
    quit

format>
```

## 3. Make a note of the device name of the disk.

The device name of the disk in the previous screen example is c7t16d0.

### ▼ To Specify Slices On the New Boot Disk

After you change to the new boot disk, specify one slice on the new boot disk for every slice on the temporary boot disk. The following examples specify the root slice 0 on the new boot disk to match slice 0 on the temporary boot disk.

**1. Enter the partition command to bring up the PARTITION MENU.**

```
format> p
PARTITION MENU:
  0      - change '0' partition
  1      - change '1' partition
  2      - change '2' partition
  3      - change '3' partition
  4      - change '4' partition
  5      - change '5' partition
  6      - change '6' partition
  7      - change '7' partition
select  - select a predefined table
modify  - modify a predefined partition table
name    - name the current table
print   - display the current table
label   - write partition map and label to the disk
!<cmd> - execute <cmd>, then return
quit
partition>
```

**2. Enter the number of the slice to be defined.**

Slice 0 is specified in the following example. As shown, the partition table for the new boot disk displays.

```
partition> 0
Current partition table (original):
Total disk cylinders available: 24620 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders      Size      Blocks
  0      root      wm        0 - 90         128.37MB  (91/0/0)    262899
  1      swap      wu        91 - 181       128.37MB  (91/0/0)    262899
  2      backup   wu        0 - 24619      33.92GB   (24620/0/0) 71127180
  3 unassigned wm         0              0         (0/0/0)     0
  4 unassigned wm         0              0         (0/0/0)     0
  5 unassigned wm         0              0         (0/0/0)     0
  6      usr      wm       182 - 24619    33.67GB   (24438/0/0) 70601382
  7 unassigned wm         0              0         (0/0/0)     0
Enter partition id tag[root]:
```

### 3. Enter the partition ID tag.

The following example shows a question mark (?) entered after the prompt. The list of accepted partition id tags displays. The example then shows the default partition id tag of root accepted by pressing the Return key.

```
Enter partition id tag[root]: ?
Expecting one of the following: (abbreviations ok):
      unassigned    boot        root        swap
      usr           backup      stand       var
Enter partition id tag[root]:
Enter partition permission flags[wm]:
```

### 4. Enter the partition permission flags.

The following example shows the default permission flags wm accepted by pressing the Return key.

```
Enter partition permission flags[wm]:
Enter new starting cyl[0]:
```

### 5. Enter the new starting cylinder.

The following example shows the default new starting cylinder of 0 accepted by pressing the Return key.

```
Enter new starting cyl[0]:
Enter partition size[262899b, 91c, 128.37mb, 0.13gb]:
```

### 6. Enter the partition size.

The following example shows the partition size of 2.00gb entered.

```
Enter partition size[262899b, 91c, 128.37mb, 0.13gb]: 2.00gb
partition>
```

7. Enter the **print** command to display the updated partition table.

The following example shows that the root tag, the wm permissions flag, and the partition size of 2.00GB are assigned to slice 0.

```
partition> print
Current partition table (unnamed):
Total disk cylinders available: 24620 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders      Size      Blocks
  0      root     wm        0 - 1451      2.00GB    (1452/0/0)    4194828
  1      swap     wu        91 - 181      128.37MB  (91/0/0)      262899
  2      backup   wu        0 - 24619     33.92GB   (24620/0/0)
71127180
  3 unassigned  wm        0              0          (0/0/0)      0
  4 unassigned  wm        0              0          (0/0/0)      0
```

8. Repeat [Step 2](#) through [Step 7](#) as needed until all slices are defined as they are in the temporary boot disk.

9. Enter the **quit** command to return to the **FORMAT** MENU.

```
partition> quit

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
  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
  volname   - set 8-character volume name
  !<cmd>    - execute <cmd>, then return
  quit

format>
```

## ▼ To Label the New Boot Disk

After you specify the slices on the new boot disk, label the new boot disk with the new partition table.

### 1. Enter the label command

```
format> label
```

### 2. Enter y[es] to continue.

```
Ready to label disk, continue? y
```

### 3. When the labeling is complete, enter q[uit] to quit the format program.

```
format> q  
#
```

## ▼ To Create File Systems on the New Boot Disk

- **Create a file system on each slice on the disk using the `newfs(1M)` command.**

Enter the `newfs` command followed by the device name of the slice. In this example, the device name for slice 0 of disk `c7t16d0` is `/dev/rdisk/c7t16d0s0`.

```
# newfs /dev/rdisk/c7t16d0s0
newfs: construct a new file system /dev/rdisk/c7t16d0s0: (y/n)? y
/dev/rdisk/c7t16d0s0:      4194828 sectors in 1452 cylinders of 27 tracks, 107
sectors
      2048.3MB in 46 cyl groups (32 c/g, 45.14MB/g, 7488 i/g)
super-block backups (for fsck -F ufs -o b=#) at:
 32, 92592, 185152, 277712, 370272, 462832, 555392, 647952, 740512, 833072,
925632, 1018192, 1110752, 1203312, 1295872, 1388432, 1480992, 1573552,
1666112, 1758672, 1851232, 1943792, 2036352, 2128912, 2221472, 2314032,
2406592, 2499152, 2591712, 2684272, 2776832, 2869392, 2958368, 3050928,
3143488, 3236048, 3328608, 3421168, 3513728, 3606288, 3698848, 3791408,
3883968, 3976528, 4069088, 4161648,
```

For more information, see the section on how to create file systems in the Solaris system administration documentation.

Do this step to create a file system on the new boot disk for every slice on the temporary boot disk. When you are finished, go to [“To Copy the Contents of Non-root File Systems onto the New Boot Disk”](#) on page 33.

## ▼ To Create the New Boot Files

This section has several sub procedures, including:

- [“To Copy the Boot Block and Root File System Contents To the New Boot Disk”](#) on page 31
- [“To Update the `vfstab` File”](#) on page 32
- [“To Copy the Contents of Non-root File Systems onto the New Boot Disk”](#) on page 33
- [“To Specify the New Boot Disk as the Boot Device.”](#) on page 34

## ▼ To Copy the Boot Block and Root File System Contents To the New Boot Disk

### 1. Install the boot block on the root (/) file system of the new disk.

The following example uses the `installboot(1M)` command to install the boot block. The boot block resides in the `/usr/platform/platform_name/lib/fs/ufs/bootblk` directory. The example shows invoking the `uname` command with the `-i` option between left single quotes on the command line to specify the platform name.

```
# /usr/sbin/installboot /usr/platform/`uname -i`/lib/fs/ufs/bootblk \  
/dev/rdisk/c7t16d0s0
```

For more information, see the instructions on how to install a boot block in the Solaris system administration documentation.

### 2. Mount the root file system from slice 0 of the new boot disk onto the `/mnt` mount point.

```
# mount /dev/dsk/c7t16d0s0 /mnt
```

### 3. Use the `ufsdump(1M)` and `ufsrestore(1M)` commands to copy the contents of the root file system from the temporary boot disk to the root slice of the new boot disk (on the `/mnt` mount point).

```
# ufsdump 0f - /dev/rdisk/c0t0d0s0 | ( cd /mnt; ufsrestore rf - )  
DUMP: Writing 32 Kilobyte records  
DUMP: Date of this level 0 dump: Tue 19 Feb 2002 02:44:35 PM PST  
DUMP: Date of last level 0 dump: the epoch  
DUMP: Dumping /dev/rdisk/c7t16d0s0 (hba2-81:/) to standard  
output.  
DUMP: Mapping (Pass I) [regular files]  
DUMP: Mapping (Pass II) [directories]  
DUMP: Estimated 1818082 blocks (887.74MB).  
DUMP: Dumping (Pass III) [directories]  
DUMP: Dumping (Pass IV) [regular files]  
Warning: ./lost+found: File exists  
DUMP: 88.77% done, finished in 0:01  
DUMP: 1818046 blocks (887.72MB) on 1 volume at 1363 KB/sec  
DUMP: DUMP IS DONE  
#
```

#### 4. Unmount the root file system on slice 0 from the /mnt mount point.

```
# umount /mnt
```

### ▼ To Update the vfstab File

After you copy the boot block and root files, update the vfstab file.

#### 1. Mount the root file system from slice 0 of the new boot disk onto the /mnt mount point.

```
# mount /dev/dsk/c7t16d0 /mnt
```

#### 2. Change directories to /mnt/etc and open the vfstab(4) file for editing.

The following example shows the file systems defined.

```
# cd /mnt/etc
# vi vfstab
...
/dev/dsk/c0t0d0s1      -      -      swap      -      no      -
/dev/dsk/c0t0d0s0      /dev/rdsk/c0t0d0s0      /      ufs      1      no      -
/dev/dsk/c0t0d0s7      /dev/rdsk/c0t0d0s7      /home    ufs      2      yes     -
```

#### 3. Replace the name of the temporary boot disk with the name of the new boot disk, and then save and quit the file.

The following example shows the disk name c0t0 changed to c3t8 in the mount table entries for slices 0, 1, and 7.

```
/dev/dsk/c7t16d0s1      -      -      swap      -      no      -
/dev/dsk/c7t16d0s0      /dev/rdsk/c7t16d0s0      /      ufs      1      no      -
/dev/dsk/c7t16d0s7      /dev/rdsk/c7t16d0s7      /home    ufs      2      yes     -
:wq
#
```



## ▼ To Copy the Contents of Non-root File Systems onto the New Boot Disk

### 1. Mount the file system onto the /mnt mount point.

This example shows the copying of the /home file system from slice 7 to the new boot disk.

```
# mount /dev/dsk/c7t16d0 /mnt
```

### 2. Use the `ufsdump(1M)` and `ufsrestore(1M)` commands to copy the contents of the file system from the temporary boot disk to the new boot disk.

```
# ufsdump 0f - /dev/rdisk/c0t0d0s0 | ( cd /mnt; ufsrestore rf - )
DUMP: Writing 32 Kilobyte records
DUMP: Date of this level 0 dump: Tue 19 Feb 2002 02:44:35 PM PST
DUMP: Date of last level 0 dump: the epoch
DUMP: Dumping /dev/rdisk/c7t16d0s0 (hba2-81:/) to standard
output.
DUMP: Mapping (Pass I) [regular files]
DUMP: Mapping (Pass II) [directories]
DUMP: Estimated 1818082 blocks (887.74MB).
DUMP: Dumping (Pass III) [directories]
DUMP: Dumping (Pass IV) [regular files]
Warning: ./lost+found: File exists
DUMP: 88.77% done, finished in 0:01
DUMP: 1818046 blocks (887.72MB) on 1 volume at 1363 KB/sec
DUMP: DUMP IS DONE
#
```

### 3. Unmount the file system from the /mnt mount point.

```
# umount /mnt
```

### 4. Repeat [Step 1](#) through [Step 3](#) as needed until you have copied all the file systems' contents to the new boot disk. When finished, go to ["To Update the vfstab File"](#) on page 32.

## ▼ To Specify the New Boot Disk as the Boot Device.

### 1. Bring the host with the host adapter down to the `ok` prompt at run level 0.

See the Solaris system administration documentation on shutting down a host for the commands that can be used with different configurations. The following screen example uses the `shutdown(1M)` command.

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

### 2. Use the `nvalias` command to alias the device name of the disk to a short name for the disk.

The following example uses `/pci@8,600000/SUNW,qlc@1/fp@0,0/disk@10,0`, which was the device path name for disk 2 in [“To Record the Partition Layout” on page 21](#).

```
ok nvalias disk2 /pci@8,600000/SUNW,qlc@1/fp@0,0/disk@10,0
```

### 3. Use the `nvstore` command to store the new alias followed by the `reset all` command.

```
ok nvstore
ok reset-all
```

### 4. Define the new boot disk as the default `boot-device`.

Use the data gathered in [Step 2 on page 22](#).

#### a. Enter the `setenv` command followed by the `boot-device` parameter followed by the name of the new disk.

```
ok setenv boot-device disk2
```

#### b. Enter the `reset` command.

```
ok reset
```

5. Enter the `boot` command with the `-r` option so that the Solaris operating environment can recognize the adapter.

```
ok boot -r
```



# Declaration of Conformity, Regulatory Compliance, and Safety Statements

---

This appendix contains the following information that applies to the Sun StorageTek PCI-X Enterprise 2 Gb FC Single Port Host Bus Adapter:

- [“Declaration of Conformity” on page 39](#)
- [“Regulatory Compliance Statements” on page 41](#)
- [“Safety Agency Compliance Statements” on page 45](#)



# Declaration of Conformity

Compliance Model Number: **FC5010409**  
Product Family Name: **Sun StorageTek PCI-X Enterprise 2Gb FC Single Port HBA (SG-XPCI1FC-QL2)**

## 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 Telecommunication Network Equipment (TNE) in Both Telecom Centers and Other Than Telecom Centers per (as applicable):*

EN 300 386 V1.3.2 (2003-05) Required Limits:

EN 55022:1994 +A1:1995 +A2:1997	Class B
EN 61000-3-2:2000	Pass
EN 61000-3-3:1995 +A1:2000	Pass
IEC 61000-4-2	6 kV (Direct), 8 kV (Air)
IEC 61000-4-3	3 V/m 80-1000MHz, 10 V/m 800-960 MHz and 1400-2000 MHz
IEC 61000-4-4	1 kV AC and DC Power Lines, 0.5 kV Signal Lines
IEC 61000-4-5	2 kV AC Line-Gnd, 1 kV AC Line-Line and Outdoor Signal Lines, 0.5 kV Indoor Signal Lines > 10m
IEC 61000-4-6	3 V
IEC 61000-4-11	Pass

*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 the Low Voltage Directive 73/23/EEC:

EC Type Examination Certificates:

EN 60950-1:2001, 1st Edition	TÜV Rheinland Certificate No.
IEC 60950-1:2001, 1st Edition	CB Scheme Certificate No.
Evaluated to all CB Countries	
UL 60950:2000, 3rd Edition, CSA C22.2 No. 60950-00	File:

**Supplementary Information:** This product 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, U.S.A.  
Tel: 650-786-3255  
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/S/ \_\_\_\_\_ DATE  
Donald Cameron  
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# 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 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.

**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 B Notice - Avis NMB-003, Classe B

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。



T33012

## CCC Class A Notice

The following statement is applicable to products shipped to China and marked with "Class A" on the product's compliance label.

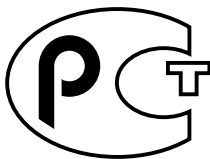
以下声明适用于运往中国且其认证标志上注有 "Class A" 字样的产品。

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。



## GOST-R Certification Mark





# 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 Laserlaitte  
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

Veillez 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.

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**Arrêt** – Met le système hors tension alternative.

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**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.



**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

## 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.

## 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

## 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.



## 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.

---



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**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

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**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.

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**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.

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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.

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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.

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## Warnung bezüglich Batterien

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**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 ausgetauscht werden.

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## 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.

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## 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.

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

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

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

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## 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:



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

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## 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:



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

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

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

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



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**Encendido** – Suministra alimentación de CA al sistema.

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**Apagado** – Corta la alimentación de CA del sistema.

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

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## 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



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**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.

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## 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



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**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.

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**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.

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



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**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.

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



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**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.

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## Advertencia sobre las baterías



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**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.

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## 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.



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**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.

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## Advertencia sobre el sistema en bastidor

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



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**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.

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

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**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.

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**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.

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## 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:



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

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## Nordic Lithium Battery Cautions

### Norge



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

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### Sverige



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

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### Danmark



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

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### Suomi



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

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