



Sun StorEdge Enterprise™ 2 Gb FC Single and Dual Port Host Bus Adapter Installation Guide

Sun Microsystems, Inc.
www.sun.com

Part No. 819-2540-13
January 2007, Revision A

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

Copyright 2007 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the U.S. patents listed at <http://www.sun.com/patents> and one or more additional patents or pending patent applications in the U.S. and in other countries.

This document and the product to which it pertains are distributed under licenses restricting their use, copying, distribution, and decompilation. No part of the product or of this document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any.

Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and in other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, AnswerBook2, docs.sun.com, Sun StorEdge, Sun Fire, SunSolve Online, SunVTS, and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and in other countries.

All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and in other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

U.S. Government Rights—Commercial use. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2007 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, Californie 95054, Etats-Unis. Tous droits réservés.

Sun Microsystems, Inc. a les droits de propriété intellectuelle relatants à la technologie qui est décrit dans ce document. En particulier, et sans la limitation, ces droits de propriété intellectuelle peuvent inclure un ou plus des brevets américains énumérés à <http://www.sun.com/patents> et un ou les brevets plus supplémentaires ou les applications de brevet en attente dans les Etats-Unis et dans les autres pays.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a.

Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, AnswerBook2, docs.sun.com, Sun StorEdge, Sun Fire, SunSolve Online, SunVTS, et Solaris sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays.

Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.]

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciées de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

LA DOCUMENTATION EST FOURNIE "EN L'ÉTAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.



Contents

Preface vii

Installing, Connecting, and Testing the Host Bus Adapter 1

System Requirements 2

Installing the HBA 2

- ▼ To Verify the Packaging Contents 2
- ▼ To Install the HBA Hardware 3
- ▼ To Attach the Optical Cable 6
- ▼ To Apply Power 7
- ▼ To Verify Proper Installation in SPARC Platforms 8
- ▼ To Verify Attached Storage to the Installed HBA 10
- ▼ To Verify Proper Installation in BIOS Based Systems 10

Installing the HBA Driver 11

Sun Solaris Operating Systems for SPARC Platforms 11

- ▼ To Download the Packages and Patches for Solaris 8 and Solaris 9 11

`install_it` Script Installation 12

Manual Installation 13

Packages 13

Patches 14

▼ To Download the Packages and Patches for the Solaris 10 Operating System	15
Sun Solaris 10 Operating System for Sun Sparc Platforms	15
Packages	15
Patches	16
Sun Solaris 10 Operating System for x64/x86 Platforms	17
Known Issues	17
Diagnostic Support	18
Red Hat Enterprise Linux 3 and 4, and SuSE Linux Enterprise Server 8 and 9	18
▼ To Download and Install the SuSE and Red Hat HBA Driver and Utilities	19
Diagnostic Support	19
▼ To Verify the Installation	19
Windows 2000 or Windows Server 2003 Systems	19
▼ To Download and Install the Windows HBA Driver Kit	20
Diagnostic Support	20
▼ To Verify the Installation	20
Booting through the Host Bus Adapter for a Solaris Operating System	21
Net Install Patching Method	22
Overview of the Net Install Method	22
▼ To Set Up the Boot/Install Server	23
▼ To Modify the Boot Image	24
▼ To Set Up the Client	25
Dump and Restore Method	27
Overview of the Dump and Restore Method	27
Partitioning the New Boot Disk the Same As the Active Boot Disk	28
▼ To Prepare to Partition the New Disk	28
▼ To Record the Partition Layout	29
▼ To Change to the New Boot Disk	33

▼ To Specify Slices on the New Boot Disk	34
▼ To Label the New Boot Disk	37
To Create File Systems on the New Boot Disk	38
To Create the New Boot Files	38
▼ To Copy the Boot Block and Root File System Contents to the New Boot Disk	39
▼ To Update the <code>vfstab</code> File	40
▼ To Copy the Contents of Nonroot File Systems onto the New Boot Disk	40
▼ To Specify the New Boot Disk as the Boot Device	42
Creating a Linux Boot Disk	44
Creating a Windows Boot Disk	44
A. Declaration of Conformity, Regulatory Compliance, and Safety Statements	45
Declaration of Conformity	47
Regulatory Compliance Statements	49
Safety Agency Compliance Statements	53

Preface

This guide describes how to install the Sun StorEdge Enterprise™ 2 Gb FC Single and Dual Port host bus adapter (HBA), and how to update the driver.

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.

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. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su 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 StorEdge Enterprise 2 Gb FC Single and Dual Port Host Bus Adapter Release Notes</i>	819-2541-xx
Locating documents	<i>Accessing Documentation</i>	819-1209-xx

Accessing Sun Documentation

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

<http://www.sun.com/documentation>

Third-Party Web Sites

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

Contacting Sun Technical Support

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

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

Sun Welcomes Your Comments

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

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

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

Sun StorEdge Enterprise 2 Gb FC Single and Dual Port Host Bus Adapters Installation Guide, part number 819-2540-xx.

Installing, Connecting, and Testing the Host Bus Adapter

This guide describes how to install and configure your new Sun StorEdge Enterprise™ 2 Gb FC Single and Dual Port Host Bus Adapter (HBA) in three simple steps.



Caution – Keep the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA in the antistatic bag until installation. The Sun StorEdge Enterprise 2 Gb FC Single and Dual 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.

This chapter contains the following topics:

- [“System Requirements” on page 2](#)
- [“Installing the HBA” on page 2](#)
- [“Installing the HBA Driver” on page 11](#)
- [“Bootting through the Host Bus Adapter for a Solaris Operating System” on page 21](#)
- [“Creating a Linux Boot Disk” on page 44](#)
- [“Creating a Windows Boot Disk” on page 44](#)

System Requirements

Your system must have the following functionality to support the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA:

- PCI 32-bit or 64-bit data, and 33 MHz or 66 MHz clock frequency
 - PCI-X 64-bit data and 66 MHz, 100MHz, or 133 MHz clock frequency
 - 32-bit or 64-bit addressing, 3.3V signaling (5V tolerant)
 - 3.3V and 5V PCI power required for operation
-

Installing the HBA

Follow these steps to install the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA in your system:

- [“To Verify the Packaging Contents” on page 2](#)
- [“To Install the HBA Hardware” on page 3](#)
- [“To Attach the Optical Cable” on page 6](#)
- [“To Apply Power” on page 7](#)
- [“To Verify Proper Installation in SPARC Platforms” on page 8](#)
- [“To Verify Attached Storage to the Installed HBA” on page 10](#)
- [“To Verify Proper Installation in BIOS Based Systems” on page 10](#)

▼ To Verify the Packaging Contents

- **Verify that the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA is shipped with the following items (see [FIGURE 1](#)):**
 - Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA
 - Extra PCI bracket
 - *Accessing Documentation*, 819-1209-xx

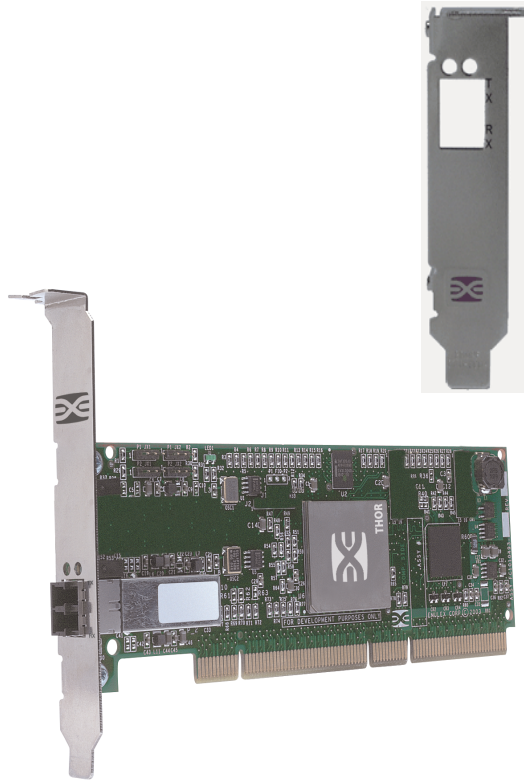
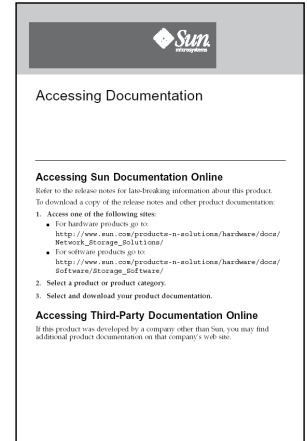


FIGURE 1 HBA Packaging Contents



▼ To Install the HBA Hardware

To install the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA, you need to open the computer and identify an empty PCI slot (32-bit or 64-bit). If necessary, consult your computer system manual for instructions to remove the computer cover.



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.

1. Record IEEE and serial numbers.

Each HBA is shipped with a unique 64-bit identifier called the *IEEE address*. The Fibre Channel industry uses a World Wide Name (WWN) derived from the IEEE address, and this number is needed for Fibre Channel connectivity. Because the SG-XPCI2FC-EM2 HBA has two ports, it has two IEEE addresses. The IEEE address is used when configuring your system. The serial number is used when communicating with Sun. All numbers are clearly marked on the board. Record these numbers before installation.

2. Shut down, power off, and unplug the computer.

3. Remove the computer case.

Note – For best I/O performance, place the adapter into an empty PCI-X slot that is running at 133 MHz. Ensure that the PCI bus is not shared with another PCI card that can lower the PCI slot clock rate.

4. Remove the blank panel from an empty PCI or PCI-X bus slot.

5. Optionally, perform the following steps to replace the PCI bracket.

Note – The HBA comes with a standard PCI bracket installed. A low-profile mounting bracket is shorter than the standard bracket, approximately 3.11 in. (7.9 cm) compared to 4.75 in. (12.06 cm) long, and is provided with each X-option.

- a. Remove the mounting bracket screws from the HBA (see [FIGURE 2](#)).

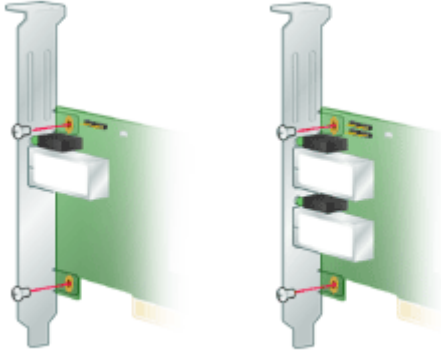


FIGURE 2 Removing the bracket

- b. Remove the bracket and store it for future use.
- c. Align the new mounting bracket tabs with the holes in the HBA.

Note – Be careful not to push the bracket past the transceiver housing's grounding tabs.

Make sure the LEDs are properly aligned with the holes in the bracket.

- d. Replace the screws that attach the HBA to the bracket.
6. Insert the HBA into the empty 32-bit or 64-bit PCI or PCI-X bus slot. Press firmly until the adapter is seated.
7. Secure the HBA's mounting bracket to the case with the panel screw or clip.
8. Replace the computer case and tighten case screws.

The HBA is now installed in the computer and is ready for the optical cable attachment.

▼ To Attach the Optical Cable

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

Use multimode fiber-optic cable, with short-wave lasers, that adheres to the following specifications:

TABLE 1 Optical Cable Specifications

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

1. Connect the fiber-optic cable to an LC connector on the HBA (see [FIGURE 3](#)).

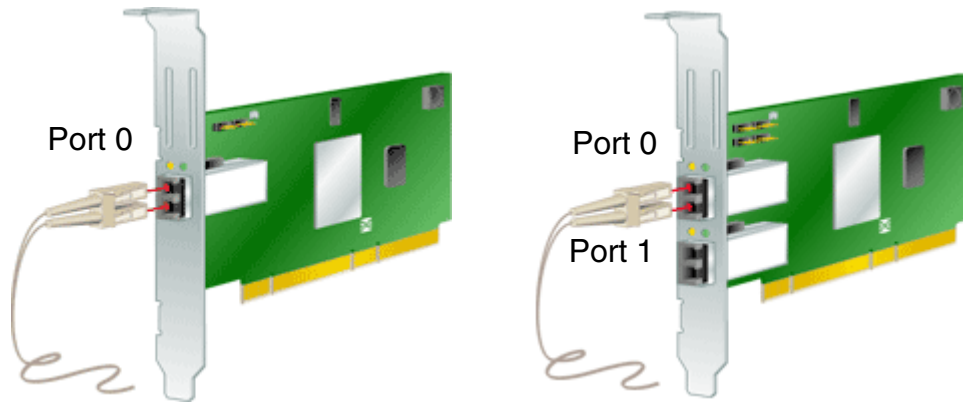


FIGURE 3 Attaching the Optical Cable

2. Connect the other end of the cable to the Fibre Channel device.

After the optical cable is connected to the HBA, you are ready to apply power to the computer.

▼ To Apply Power

1. Verify that the HBA is securely installed in the computer.
2. Verify that the correct optical cable is attached.
3. Plug in and power on the computer.
4. Observe light-emitting diodes (LEDs) for Power-On-Self Test (POST) results.

Green and amber LEDs can be seen through openings in the HBA's mounting bracket. Green indicates power and amber signifies port activity. Each port has a corresponding set of green and amber LEDs (see [FIGURE 4](#)).

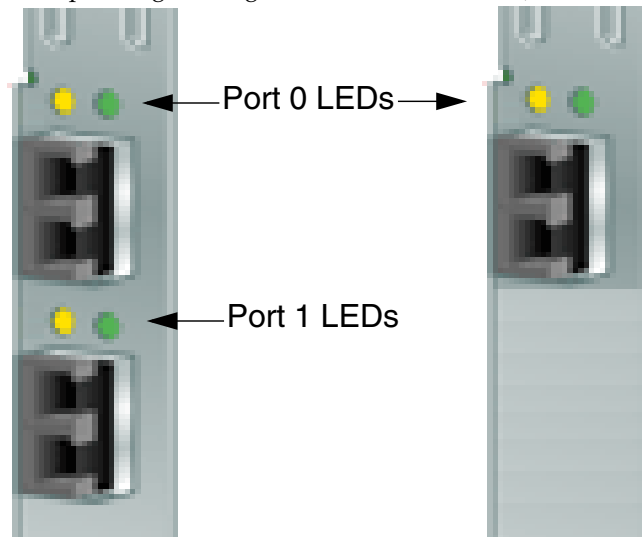


FIGURE 4 POST LEDs

POST conditions and results are summarized in [TABLE 2](#).

TABLE 2 POST Conditions

Yellow LED	Green LED	State
OFF	OFF	Wake-up failure (dead board). Check the 3.3V LED near the top edge of the HBA (component side). If this LED is lit, the slot is providing 3.3V power.
ON	OFF	POST failure (dead board)
Slow blink (1Hz)	OFF	Wake-up failure (dead board)

TABLE 2 POST Conditions *(Continued)*

Yellow LED	Green LED	State
Fast blink (4Hz)	OFF	Failure in POST (dead board)
Flashing (irregular)	OFF	POST processing in progress
OFF	ON	Failure while functioning
ON	ON	Failure while functioning
Slow blink	ON	Normal operating condition - 1-GHz link rate
Fast blink	ON	Normal operating condition - 2-GHz link rate
OFF	Slow blink	Normal - link down or not yet started
Slow blink	Slow blink	Offline for download
Fast blink	Slow blink	Restricted offline mode (waiting for restart)
Flashing	Slow blink	Restricted offline mode, test active

*An LED is located near the top edge of the board. This LED indicates 3.3V power.

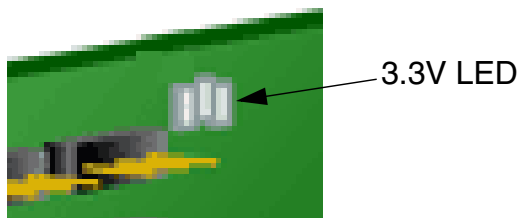


FIGURE 5 Power LED

▼ To Verify Proper Installation in SPARC Platforms

1. Enter the `show-devs` command at the `ok` prompt to list the installed devices.

The HBA can be identified in the output containing “SUNW,emlxs@N” and “SUNW,emlxs@N,1” node names, where N is usually a single digit number from 1 to 9.

In the following output sample, there are two Dual Channel SG-XPCI2FCM2 adapters installed.

```
{1} ok show-devs
/pci@9,600000
/pci@9,700000
/pci@8,600000
/pci@8,700000
/memory-controller@3,400000
/SUNW,UltraSPARC-III@3,0
/memory-controller@2,400000
/SUNW,UltraSPARC-III@2,0
/memory-controller@1,400000
/SUNW,UltraSPARC-III@1,0
/memory-controller@0,400000
/SUNW,UltraSPARC-III@0,0
/virtual-memory
/memory@m0,a0
/aliases
/options
/openprom
/chosen
/packages
/pci@9,600000/SUNW,jfca@2,1
/pci@9,600000/SUNW,jfca@2
/pci@9,600000/SUNW,emlxs@1,1
/pci@9,600000/SUNW,emlxs@1
/pci@9,600000/SUNW,jfca@2,1/fp@0,0
/pci@9,600000/SUNW,jfca@2,1/fp@0,0/disk
/pci@9,600000/SUNW,jfca@2/fp@0,0
/pci@9,600000/SUNW,jfca@2/fp@0,0/disk
/pci@9,600000/SUNW,emlxs@1,1/fp@0,0
/pci@9,600000/SUNW,emlxs@1,1/fp@0,0/disk
/pci@9,600000/SUNW,emlxs@1/fp@0,0
/pci@9,600000/SUNW,emlxs@1/fp@0,0/disk
/pci@9,700000/SUNW,emlxs@4,1
/pci@9,700000/SUNW,emlxs@4
/pci@9,700000/usb@1,3
/pci@9,700000/network@1,1
/pci@9,700000/ebus@1
/pci@9,700000/SUNW,emlxs@4,1/fp@0,0
/pci@9,700000/SUNW,emlxs@4,1/fp@0,0/disk
/pci@9,700000/SUNW,emlxs@4/fp@0,0
/pci@9,700000/SUNW,emlxs@4/fp@0,0/disk
/pci@9,700000/ebus@1/serial@1,400000
```

▼ To Verify Attached Storage to the Installed HBA

If online storage is connected to the HBA, use the `apply show-children` command to list the storage attached.

In the following example, a storage array with two LUNs is attached to one port of the dual ported HBA.

```
{3} ok apply show-children /pci@9,600000/SUNW,emlxs@1
Target none  ALPA a7  WWPN 216000c0ff802294
LUN  0      Disk      SUN      StorEdge 3510  411G
LUN  1      Disk      SUN      StorEdge 3510  411G

{3} ok
```

Note – A `reset-all` command may be required before entering the `apply show-children` command.

▼ To Verify Proper Installation in BIOS Based Systems

- Follow the instructions in the BIOS documentation provided with your system.

Installing the HBA Driver

After you have completed the hardware installation and powered on the computer, follow the instructions listed for your operating system.

This section contains the following topics:

- [“Sun Solaris Operating Systems for SPARC Platforms” on page 11](#)
- [“Sun Solaris 10 Operating System for x64/x86 Platforms” on page 17](#)
- [“Red Hat Enterprise Linux 3 and 4, and SuSE Linux Enterprise Server 8 and 9” on page 18](#)
- [“Windows 2000 or Windows Server 2003 Systems” on page 19](#)

Sun Solaris Operating Systems for SPARC Platforms

This HBA is supported by the Solaris 8, Solaris 9, and Solaris 10 Operating Systems. The drivers for this HBA are delivered as unbundled packages and patches.

For Solaris 8 and Solaris 9, these packages and patches are bundled as a script posted in the Sun Download Center (SDLC).

▼ To Download the Packages and Patches for Solaris 8 and Solaris 9

You have two choices to install packages and patches for Solaris 8 and Solaris 9. To use the `install_it` script, see [“install_it Script Installation” on page 12](#). To install the packages and patches manually, see [“Manual Installation” on page 13](#).

install_it Script Installation

The packages and patches are available in the Sun Download Center (SDLC).

1. **Go to** <http://www.sun.com/storage/san>.

The Storage Area Networks (SAN) page is displayed.

2. **Scroll to the bottom of the page and under Get the Software, click the “Sun StorEdge SAN 4.4 release Software/Firmware Upgrades and Documentation” link.**

If you are not already logged in, the Login page is displayed.

3. **Enter your Username and Password and click Login.**

If you have not already registered, click Register Now before proceeding.

4. **Accept the License Agreement.**

The Download page is now available.

5. **Locate and click the download file:**

Install_it Script, SAN 4.4.x, Readme, English, and print the instructions.

6. **Locate and click the download file:**

Install_it Script, SAN 4.4.7, English

You will be prompted for a download directory. It is suggested that you download the packages to your /tmp directory.

7. **Unzip the downloaded file.**

8. **Locate the executable file “install_it” and run it.**

The necessary packages and patches are now installed.

Consult the most recent revision of the *Sun StorEdge Enterprise 2 Gb FC Single and Dual Port Host Bus Adapter Release Notes* (part number 819-2541-11) for the latest updates.

9. **Reboot the system after installing all patches.**

This completes the driver installation.

Manual Installation

Optionally, For Solaris 8 and Solaris 9, if you do *not* want to use the `install_it` script, install the driver by adding the following packages and then patches.

Packages

The packages are available in the Sun Download Center (SDLC).

1. **Go to `http://www.sun.com/storage/san`.**
The Storage Area Networks (SAN) page is displayed.
2. **Scroll to the bottom of the page and under Get the Software, click the “Sun StorEdge SAN 4.4 release Software/Firmware Upgrades and Documentation” link.**
If you are not already logged in, the Login page is displayed.
3. **Enter your Username and Password and click Login.**
If you have not already registered, click Register Now before proceeding.
4. **Accept the License Agreement.**
The Download page is now available.
5. **Locate and click the appropriate download file:**
 - Solaris 8 SFS Base Packages, English
 - Solaris 9 SFS Base Packages, English
6. **Provide the path to a directory location for the download file.**
7. **Follow the Readme instructions to install the packages.**
The following package names are contained in both Solaris 8 and Solaris 9 downloads files and must be installed in the order given below.
 - SUNWemlxs
 - SUNWemlsx
 - SUNWemlxu
 - SUNWemlxux

Patches

Perform the following steps to download the Solaris 8 and 9 patches.

1. **Go to** <http://sunsolve.sun.com>.
The SunSolve Online license agreement page is displayed.
2. **Accept the License Agreement.**
The SunSolve Online page is displayed.
3. **Under Patches and Updates, click PatchFinder.**
4. **Download the appropriate patches for your system from TABLE 3 by typing each patch ID (one at a time, and without the dash number) in the Enter Patch ID box and click Find Patch.**

TABLE 3 SAN Foundation Software (SFS) Version 4.4.7 Patch IDs

Patch Type	Solaris 8 Patch Number	Solaris 9 Patch Number
fctl/fp/fcp	111095-25	113040-16
fcip	111096-13	113041-10
qlc	111097-20	113042-12
MPxIO	111412-18	113039-10
luxadm	111413-18	113043-12
cfgadm	111846-08	113044-05
FCSM driver	114475-05	114476-05
SUNWsan	111847-08	111847-08
FC HBA API Lib	113766-02	114477-01
SNIA FC HBA Lib	113767-08	114478-07
JNI FC HBA	114877-10	114878-10
Emulex FC HBA	119913-05	119914-05

5. **Follow the instructions to install each patch.**
6. **Reboot your system after installing all the patches.**

▼ To Download the Packages and Patches for the Solaris 10 Operating System

There is no `install_it` script available to install the drivers for Solaris 10.

Note – The packages and patches must be installed in the order given.

Sun Solaris 10 Operating System for Sun Sparc Platforms

You must first install Sun Solaris 10 OS for x64/x86 platforms.

Packages

Perform the following steps to download the Solaris 10 packages.

1. Go to <http://www.sun.com/download/products.xml?id=42c4317d>

The Products Download page is displayed.

2. Under **Platform**, click **Download**.

The Login menu is displayed.

3. **Type your Username and Password and click Login.**

The Download page is displayed with two items available in the table.

Description	File Name
Solaris 10 Sun StorEdge Enterprise 2Gb FC Single and Dual Port HBA, English	s10_emlxs_pkgs.tar.Z
Sun StorEdge Enterprise 2Gb FC Single and Dual Port Host Adapter README file, English	README_s10_emlxs_pkgs.txt

4. **Read the license agreement and accept or decline.**

5. **Click the first item and provide the path to a directory location.**

The following packages are contained in the zipped file:

- SUNWemlxs
- SUNWemlxu

6. Click the second item and print these driver README installation instructions.
7. Follow the README instructions.

Patches

Perform the following steps to download the Solaris 10 patches.

1. Go to <http://sunsolve.sun.com>.
The SunSolve Online license agreement page is displayed.
2. **Accept the License Agreement.**
The SunSolve Online page is displayed.
3. **Under Patches and Updates, click PatchFinder.**
4. **Download the following patches by typing each patch ID (one at a time, and without the dash number) in the Enter Patch ID box and click Find Patch.**
 - 119130-13 SunOS 5.10: Sun Fibre Channel Device Drivers
 - 120222-04 SunOS 5.10: Emulex-Sun Fibre LightPulse Channel Adapter driver
 - 119470-07 SunOS 5.10: Sun Enterprise Network Array firmware and utilities
 - 119715-xx S10 mpxio/scsi_vhci patch (where xx is the latest revision)
5. **Follow the instructions to install each patch.**
6. **Reboot your system after installing the patches.**

Sun Solaris 10 Operating System for x64/x86 Platforms

Install the Sun Solaris 10 x64/x86 Operating System (patches) per the documentation that is included with your system.

1. **Go to <http://sunsolve.sun.com>.**

The SunSolve Online license agreement page is displayed.

2. **Accept the License Agreement.**

The SunSolve Online page is displayed.

3. **Under Patches and Updates, click PatchFinder.**

4. **Download the following patches (drivers) by typing each patch ID (one at a time, and without the dash number) in the Enter Patch ID box and click Find Patch.**

- 119131-13 SunOS 5.10_x86: Sun Fibre Channel Device Drivers
- 120223-04 SunOS 5.10_x86: Emulex-Sun Fibre LightPulse Channel Adapter driver
- 119471-06 SunOS 5.10_x86: Sun Enterprise Network Array firmware and utilities
- 119716-xx S10 mpzio/scsi_vhci patch (where xx is the latest revision)

5. **Follow the instructions to install each patch.**

6. **Reboot your system.**

Known Issues

Booting from a disk attached to the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA is not supported in Solaris x64/x86 environments.

Diagnostic Support

Diagnostic support for the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA is available with SunVTS software, and the required patches listed in the following table.

TABLE 4 Required Patches

Patch Number	Operating System	SunVTS
120175-02	Solaris 8 SPARC	5.1
119837-03	Solaris 9 SPARC	5.1
119838-03	Solaris 10 SPARC	6.0
119839-03	Solaris 10 x64/x86	6.0

Install SunVTS 6.0 software per instructions from your Solaris distributor.

Red Hat Enterprise Linux 3 and 4, and SuSE Linux Enterprise Server 8 and 9

The Red Hat Enterprise Linux (RHEL) 3 and 4 and the SuSE Linux Enterprise Server (SLES) 8 and 9 operating systems are supported on the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA. Before installing the drivers for Linux, you must have the relevant Linux OS installed on your hard disk. The driver and utilities are available for download at the Emulex web page dedicated to Sun products, the driver as a .gz package and the utilities as a .tar file. The installation documentation is available from the same page as the driver and utilities.

▼ To Download and Install the SuSE and Red Hat HBA Driver and Utilities

1. Go to <http://www.emulex.com/ts/docoem/framsun/10k.htm>.

The download page for SG-XPCI1FC-EM2 and SG-XPCI2FC-EM2 will appear.

2. Locate the Drivers for Linux section and click the link in the Download column for the driver for Linux.

3. Download the driver and applications kits to a local drive.

Click the Driver Kit Download button. After the driver is downloaded, click the Applications Kit Download button.

4. Open the Installation manual by clicking the link to it, and locate and follow the instructions for installing the driver and utilities.

To create a Linux boot disk, see [“Creating a Linux Boot Disk” on page 44](#).

Diagnostic Support

Diagnostic support is provided by the Emulex lputil utility. It supports the following functions:

- List adapters
- Adapter information
- Firmware maintenance
- Reset adapters

Details are provided in the **View HBA Information using lputil** section of the *Emulex Driver manual*.

▼ To Verify the Installation

Follow the instructions provided in the **“View HBA Information using lputil”** section of the *Emulex Driver manual*.

Windows 2000 or Windows Server 2003 Systems

The Windows® 2000 and Windows Server 2003 operating systems are supported on the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port HBA. Before installing the drivers for Windows, you must have the relevant Windows OS installed on your

hard disk. The driver kit, which includes utilities, is available for download as a self-extracting .exe file at the Emulex web page dedicated to Sun products. The installation documentation is available from the same page as the driver kit.

SCSIport Miniport driver supports the 32bit Windows 2000 and Windows Server 2003 only. The Storport Miniport driver can run on 32bit and 64bit Windows Server 2003.

▼ To Download and Install the Windows HBA Driver Kit

1. **Go to** <http://www.emulex.com/ts/docoem/framsun/10k.htm>.

The download page for SG-XPCI1FC-EM2 and SG-XPCI2FC-EM2 will appear.

2. **Locate the Drivers for Windows section, locate the driver you want to install, and click the link in the Download column for the appropriate driver.**
3. **Download the driver kit (including utilities) to a local drive.**

Click the Download button.

4. **Open the Installation manual by clicking the link to it, and locate and follow the instructions for installing the driver and utilities.**

To create a Windows boot disk, see [“Creating a Windows Boot Disk” on page 44](#).

Diagnostic Support

Diagnostic support is provided by the Emulex lputil utility. It supports the following functions:

- List adapters
- Adapter information
- Firmware maintenance
- Reset adapters

Details are provided in the **View HBA Information using lputil** section of the *Emulex Driver manual*.

▼ To Verify the Installation

Follow the instructions provided in the **“View HBA Information using lputil”** section of the *Emulex Driver manual*.

Booting through the Host Bus Adapter for a Solaris Operating System

Note – The procedures in this section only apply to SPARC® architectures, not to x64/x86 environments. These procedures are necessary if the HBA driver is not bundled with the Solaris OS on the boot server on the network. Check your Solaris OS to determine whether the driver is bundled with it.

Booting from the network adapter requires special procedures to enable detection of installation devices. To boot from the small kernel image on the host adapter, you must use a boot/install server or a temporary directly connected boot disk. The method using a boot/install server is the Net Install Patching method. 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.

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

The two methods are explained in the following sections:

- [“Net Install Patching Method” on page 22](#)
- [“Dump and Restore Method” on page 27](#)

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, this 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.

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

Net Install Patching Method

The topics in this section include:

- [“Overview of the Net Install Method” on page 22](#)
- [“To Set Up the Boot/Install Server” on page 23](#)
- [“To Modify the Boot Image” on page 24](#)
- [“To Set Up the Client” on page 25](#)

The procedures in this section explain how to install the Solaris OS 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.

Overview of the Net Install Method

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

- A boot miniroot which is referred to here 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 booting 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 the actual procedures, see [“To Set Up the Boot/Install Server” on page 23](#).

1. The boot image is copied from a Solaris CD-ROM or from a network 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.
3. The client boots from the boot/install server, the interactive `suninstall(1M)` starts, and the system administrator provides configuration information requested at the prompts.

4. After the system administrator provides all of the configuration information requested by the installation program, the installation of the Solaris OS begins.
5. The install image is copied to the client.
6. Before a reboot, while the client is still booted from the boot image miniroot, 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 can see the host adapter after a reboot.

Note – You cannot jump start until you modify the install image.

7. The host boots from the boot disk through the host 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/Boot
# ./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 product notes.
 - b. Download the `README` file.
 - c. Remove any previously installed packages for this network adapter as instructed in the `README` file.

- d. Download the packages as described in the instructions in “Installing the HBA Driver” on page 11.
- e. Use the `uncompress(1M)` and `tar(1M)` commands to uncompress and expand the packages in the driver tar file.



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 24 to install relocatable versions of the packages.

4. Download the required patches and the accompanying README files from `sunsolve.sun.com` into the `/<export_public>` directory on the boot/install server.
 - a. Go to <http://www.sunsolve.sun.com> and locate the patches.
 - b. Download the README file.
 - c. Remove any related previously installed patches that may be specified in the README file.
 - d. Download the patches as described in the instructions.
 - e. Use the `uncompress(1M)` and `tar(1M)` commands to uncompress and expand the patches in the tar file, as instructed in the README.



Caution – Do not use the `patchadd(1M)` command line that is given in the README file to install the patches. See the following “To Modify the Boot Image” section to install relocatable versions of the patches.

▼ 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 that the driver will run.

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

2. Install any needed patches into the boot image.

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

```
# cd /<export_public>
# patchadd -C /<new_OS_copy_dir>/Tools/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.

The 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 `SUNWemlxs`, `SUNWemlxsx`, `SUNWemlxu`, `SUNWemlxux`.

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

7. Install any needed patches into the boot image.

The following example installs all patches 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
```

Dump and Restore Method

The topics in this section include:

- [“Overview of the Dump and Restore Method” on page 27](#)
- [“Partitioning the New Boot Disk the Same As the Active Boot Disk” on page 28](#)
- [“To Create File Systems on the New Boot Disk” on page 38](#)
- [“To Create the New Boot Files” on page 38](#)

Overview of the Dump and Restore Method

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

- The Solaris OS
- The HBA driver packages and any needed patches

See the [“Installing the HBA Driver” on page 11](#) for information on how to download and install the driver packages and any needed patches.

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

Note – The examples in this section show disk 2 as the active boot disk, and disk 3 as the designated new boot disk that is connected through the host adapter.

Partitioning the New Boot Disk the Same As the Active Boot Disk

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

- [“To Prepare to Partition the New Disk” on page 28](#)
- [“To Record the Partition Layout” on page 29](#)
- [“To Change to the New Boot Disk” on page 33](#)
- [“To Specify Slices on the New Boot Disk” on page 34](#)
- [“To Label the New Boot Disk” on page 37](#)

▼ 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 [“Installing the HBA Driver” on page 11](#).

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 for adding a disk and using the `format` command in the Solaris administration documentation.

Note – These examples use disk 2 as the active boot disk (`c1t2d0`) and disk 3 (`c3t0d0`) as the new boot disk.

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

AVAILABLE DISK SELECTIONS:
 0. c1t0d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1f,4000/scsi@3/sd@1,0
 1. c1t1d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@1f,4000/scsi@3/sd@2,0
 2. c1t2d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>   disk2
    /pci@1f,4000/scsi@3/sd@3,0
 3. c3t0d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>   disk 3
    /pci@8,700000/SUNW,emlxs@5/fp@0,0/ssd@w21000004cf8fe2e0,0
 4. c3t1d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,700000/SUNW,emlxs@5/fp@0,0/ssd@w21000004cf834579,0
 5. c3t2d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>   disk 59
    /pci@8,700000/SUNW,emlxs@5/fp@0,0/ssd@w21000004cf7f7b0d,0
 6. c3t3d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,700000/SUNW,emlxs@5/fp@0,0/ssd@w21000004cf64dc04,0
Specify disk (enter its number):
```

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

For example, for disk 3, the new boot disk in this example, the device path name shown is

`/pci@8,700000/SUNW,emlxs@5/fp@0,0/ssd@w21000004cf8fe2e0,0`. You use this information later in [Step 4](#) in [“To Specify the New Boot Disk as the Boot Device” on page 42](#).

Note – The `SUNW,emlxs` number changes, depending on the type of host and slot in use.

3. Specify the disk where the operating system is installed on the active 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
Volume: disk1
Current partition table (original):
Total disk cylinders available: 24620 + 2 (reserved cylinders)

Part      Tag      Flag      Size
Cylinders
Blocks
  0      root      wm      17531 - 24619
9.77GB      (7089/0/0) 20480121
  1      swap      wu      0 - 2902
4.00GB (2903/0/0) 8386767
  2      backup      wm      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 unassigned wm      0      0      (0/0/0) 0
  7      usr      wm      2903-9991
9.77GB      (7089/0/0) 20480121
```

As shown in the example, the active boot disk has four slices defined: 0 (root), 1 (swap), 2 (backup), and 7(usr) with sizes 9.77Gb, 4.00Gb, 33.92Gb, and 9.77 Gb, respectively.

6. Record the layout (sizes and numbers) assigned to the slices on the active 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 above, 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. **After the `disk` command, enter the number of the disk to be formatted.**

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

```
format> disk 3
selecting c3t0d0
[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 `c3t0d0`.

▼ 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 active boot disk. The following examples specify the root slice 0 on the new boot disk to match slice 0 on the active 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 is displayed.

```
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 9.77gb entered.

```
Enter partition size[262899b, 91c, 128.37mb, 0.13gb]: 9.77gb
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 9.77GB are assigned to slice 0.

```
partition> print
Current partition table (unnamed):
Total disk cylinders available: 14068 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders
Size      Blocks
  0                root      wm      3282-11298
9.77GB    (8017/0/0)      20491452
  1                swap      wu      0 - 3281
4.00GB    (3282/0/0)      8388792
  2      backup      wu      0 - 24619
33.92GB (24020/0/0) 71127130
  3 unassigned wm      0
                                (0/0/0) 0
  4 unassigned wm      0
                                (0/0/0) 0
  5 unassigned wm      0
                                (0/0/0) 0
  6 unassigned wm      0
                                (0/0/0) 0
  7      usr      wm      11299-19315
9.77GB    (8017/0/0)      20491452
```

8. Repeat [Step 2](#) through [Step 7](#) as needed until all slices are defined as they are in the active 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 **yes** to continue.

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

3. After the labeling is complete, enter **quit** 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 `c3t0d0` is `/dev/rdisk/c3t0d0s0`.

```
# newfs /dev/rdisk/c3t0d0s0
newfs: construct a new file system /dev/rdisk/c3t0d0s0: (y/n)? y
/dev/rdisk/c3t0d0s0:      20491452 sectors in 8017 cylinders of 6 tracks, 426
sectors
      10005.6MB in 201 cyl groups (40 c/g, 49.92MB/g, 6272 i/g)
super-block backups (for fsck -F ufs -o b=#) at:
   32, 102704, 205376, 308048, 410720, 513392, 616064, 718736, 817952, 920624,
  19530896, 19630112, 19732784, 19835456, 19938128, 20040800, 20143472,
  20246144, 20348816, 20448032,
```

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

Repeat 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 Nonroot File Systems onto the New Boot Disk”](#) on page 40.

To Create the New Boot Files

This section includes the following several subprocedures:

- [“To Copy the Boot Block and Root File System Contents to the New Boot Disk”](#) on page 39
- [“To Update the `vfstab` File”](#) on page 40
- [“To Copy the Contents of Nonroot File Systems onto the New Boot Disk”](#) on page 40
- [“To Specify the New Boot Disk as the Boot Device”](#) on page 42

▼ 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 the 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/c3t0d0s0
```

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

```
# mount /dev/dsk/c3t0d0s0 /mnt
```

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

```
# ufsdump 0f - /dev/rdisk/clt2d0s0 | ( cd /mnt; ufsrestore rf -)
DUMP: Date of this level 0 dump: Thu Apr 21 16:31:28 2005
DUMP: Date of last level 0 dump: the epoch
DUMP: Dumping /dev/rdisk/clt2d0s0 (v880:/) to standard output.
DUMP: Mapping (Pass I) [regular files]
DUMP: Mapping (Pass II) [directories]
DUMP: Writing 32 Kilobyte records
DUMP: Estimated 7487228 blocks (3655.87MB).
DUMP: Dumping (Pass III) [directories]
DUMP: Dumping (Pass IV) [regular files]
Warning: ./lost+found: File exists
../gconf/apps/panel/profiles/default/applets/volume_control/pref
s/%gconf.xml: (inode 192684) not found on volume

DUMP: 50.44% done, finished in 0:09
DUMP: 7487166 blocks (3655.84MB) on 1 volume at 4126 KB/sec
DUMP: DUMP IS DONE
```

▼ To Update the `vfstab` File

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

1. 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/c1t2d0s1      -      -      swap      -      no      -
/dev/dsk/c1t2d0s0      /dev/rdsk/c1t2d0s0    /      ufs      1      no -
```

2. 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 `c1t2` changed to `c3t0` in the mount table entries for slices 0 and 1.

```
/dev/dsk/c3t0d0s1      -      -      swap      -      no      -
/dev/dsk/c3t0d0s0      /dev/rdsk/c3t0d0s0    /
ufs      1 no      -
```

▼ To Copy the Contents of Nonroot 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/c3t0d0s7 /mnt
```

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

```
# ufsdump 0f - /dev/rdisk/clt2d0s7 | ( cd /mnt; ufsrestore rf -)
DUMP: Date of this level 0 dump: Thu Apr 21 16:31:28 2005
DUMP: Date of last level 0 dump: the epoch
DUMP: Dumping /dev/rdisk/clt2d0s0 (v880:/) to standard output.
DUMP: Mapping (Pass I) [regular files]
DUMP: Mapping (Pass II) [directories]
DUMP: Writing 32 Kilobyte records
DUMP: Estimated 7487228 blocks (3655.87MB).
DUMP: Dumping (Pass III) [directories]
DUMP: Dumping (Pass IV) [regular files]
Warning: ./lost+found: File exists
./gconf/apps/panel/profiles/default/applets/volume_control/prefs/%gconf.xml: (inode 192684) not found on volume

DUMP: 50.44% done, finished in 0:09
DUMP: 7487166 blocks (3655.84MB) on 1 volume at 4126 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 40](#).
5. Before the system is rebooted, configure the system crash dump facility.
In this example, the dump device is still pointing to the active boot disk.

```
# dumpadm
Dump content: kernel pages
Dump device: /dev/dsk/clt2d0s1 (dedicated)
Savecore directory: /var/crash/v880
Savecore enabled: yes
```

6. Optionally, use the `dumpadm -d` command to change crash dump facility.

```
# dumpadm -d /dev/dsk/c3t0d0s1
Dump content: kernel pages
Dump device: /dev/dsk/c3t0d0s1 (swap)
Savecore directory: /var/crash/v880
Savecore enabled: yes
```

7. If you used the `dumpadm -d` command, verify that the change took place.

```
# dumpadm
Dump content: kernel pages
Dump device: /dev/dsk/c3t0d0s1 (swap)
Savecore directory: /var/crash/v880
Savecore enabled: yes
```

▼ 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 create a short alias name for the device name of the disk.

The following example uses

`/pci@8,700000/SUNW,emlxs@5/fp@0,0/ssd@w21000004cf8fe2e0,0`, which was the device path name for disk 3 in [“To Record the Partition Layout” on page 29](#).

```
ok nvalias disk3
/pci@8,700000/SUNW,emlxs@5/fp@0,0/disk@w21000004cf8fe2e0,0
```

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` parameter.

Use the data gathered in [Step 2](#) on [page 29](#).

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

```
ok setenv boot-device disk3
```

- b. Enter the `reset` command.

```
ok reset
```

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

```
ok boot -r
```

Creating a Linux Boot Disk

Emulex adapters enable you to load and boot the Linux operating system from a SAN-attached drive. You can use either the Emulex driver for Linux provided on your Linux distribution CD or, if you are using a different Linux driver, by creating a driver disk (DD).

To boot from SAN directly from your distribution CD, follow the directions included with that CD. Emulex currently supports booting from SAN on SLES8 SP3 and RHEL3u3 releases.

To boot from SAN using a driver that is not included on the distribution CD, create a DD with that driver. If you do not know how to create a DD, follow the instructions available from the following links:

- Red Hat 3.0: Go to <http://people.redhat.com/dledford/>
- Novell SLES8: Go to <http://mirror.mcs.anl.gov/suse-people/hvogel/Update-Media-HOWTO/Update-Media-HOWTO.html>

Creating a Windows Boot Disk

1. **Go to** <http://www.emulex.com/ts/docoem/framsun/10k.htm>.
2. **Click either the SG-XPCI1FC-EM2 or the SG-XPCI2FC-EM2 link.**
The download page for SG-XPCI1FC-EM2 and SG-XPCI2FC-EM2S will appear.
3. **Locate the Universal Boot section, and click the link in the Download column.**
4. **Download the Universal Boot kit to a local drive.**
Click the Download button.
5. **Click the Universal Boot Manual link.**
Follow the instructions in the manual for creating a Windows boot disk.

Declaration of Conformity, Regulatory Compliance, and Safety Statements

This appendix contains the following information that applies to the Sun StorEdge Enterprise 2 Gb FC Single and Dual Port Host Bus Adapter:

- [“Declaration of Conformity” on page 47](#)
- [“Regulatory Compliance Statements” on page 49](#)
- [“Safety Agency Compliance Statements” on page 53](#)

Declaration of Conformity

Compliance Model Number: LP10000DC and LP10000
Product Family Name: Sun Enterprise 2Gb FC Single and Dual Port Host Bus Adapter (SG-XPCI1FC-EM2 and SG-XPCI2FC-EM2)

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 Directive89/336/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 A
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 A per (as applicable):

EN 55022:1994 +A1:1995 +A2:1997	Class A
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, First Edition, +A11	TÜV Rheinland Certificate No. R 72050152
IEC 60950-1:2001, 1st Edition	CB Scheme Certificate No. US/7598C/UL
Evaluated to all CB Countries	
UL 60950-1:2003, CSA C22.2 No. 60950-1-03, 1st Edition	File: E133173-A1-UL-1

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/

Dennis P. Symanski
Manager, Compliance Engineering
Sun Microsystems, Inc.
4150 Network Circle, MPK15-102
Santa Clara, CA 95054 U.S.A.
Tel: 650-786-3255
Fax: 650-786-3723

DATE

/S/

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

DATE

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.

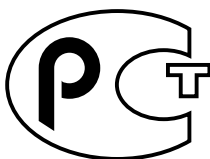
以下声明适用于运往中国且其认证标志上注有 "Class A" 字样的产品。

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.



Arrêt – Met le système hors tension alternative.



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

Modification du matériel

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

Positionnement d'un produit Sun



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

Niveau de pression acoustique

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

Conformité SELV

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

Connexion du cordon d'alimentation



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



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

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



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

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



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

Mise en garde relative aux batteries



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



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.



Aus – Unterbricht die Wechselstromzufuhr zum Gerät.



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

Modifikationen des Geräts

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

Aufstellung von Sun-Geräten



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

Lautstärke

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

SELV-Konformität

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

Anschluss des Netzkabels



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



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

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



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

Die folgende Warnung gilt nur für Geräte mit mehreren Netzkabeln:



Achtung – Bei Produkten mit mehreren 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 ausgetauscht 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.

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

CD- und DVD-Geräte

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



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

Normativas de seguridad

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

Medidas de seguridad

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

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

Símbolos

En este documento aparecen los siguientes símbolos:



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






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



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


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

	Encendido – Suministra alimentación de CA al sistema.
	Apagado – Corta la alimentación de CA del sistema.
	Espera – El interruptor de encendido/espera está en la posición de espera.

Modificaciones en el equipo

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

Colocación de un producto Sun

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


Nivel de ruido


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

Cumplimiento de la normativa para instalaciones SELV


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

Conexión del cable de alimentación

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

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

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

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

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



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

Advertencia sobre las baterías



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

Cubierta de la unidad del sistema

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



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

Advertencia sobre el sistema en bastidor

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



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



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



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



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

Aviso de cumplimiento de la normativa para la utilización de láser

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

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

Dispositivos de CD y DVD

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



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

Nordic Lithium Battery Cautions

Norge



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

Sverige



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

Danmark



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

Suomi



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