Sun StorEdge™ PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter Installation Guide

Sun Microsystems, Inc.
www.sun.com

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Contents

Preface

This guide describes how to install the Sun StorEdge™ PCI/PCI-X Single Ultra320 SCSI host bus adapter (HBA) and how to update the driver.

How This Book Is Organized

- The single chapter describes the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA and explains how to install it on your system, connect it to a storage device, and test it. It also includes instructions on booting from a hard disk connected to the host bus adapter.
- Appendix A provides general information and configuration rules about the host bus adapter.
- Appendix B contains the specifications for the low-voltage differential (LVD) host bus adapter.
- Appendix C contains the Declaration of Conformity, regulatory, and essential safety information.

Using UNIX Commands

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

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

  `http://docs.sun.com`

Shell Prompts

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

Typographic Conventions

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

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

Related Documentation

Application	Title	Part Number
Latest information	*Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter Release Notes*	819-2539-xx
Locating documents	*Accessing Documentation*	819-1209-12
Diagnostics	*SunVTS 6.0 User Guide* *SunVTS 6.0 Reference Manual*	817-7664-10 817-7665-10

Accessing Sun Documentation

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

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Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA Installation Guide, part number 819-2538

Installing, Connecting, and Testing the Host Bus Adapter

This single chapter describes how to install and configure your new Sun StorEdge™ PCI/PCI-X Single Ultra320 SCSI host bus adapter (HBA) in three simple steps. This guide also describes how to update the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA drivers.

Caution – Keep the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA in the antistatic bag until installation. The Sun StorEdge PCI/PCI-X Single Ultra320 SCSI 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

Your system must have the following components to support the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA:

- One of the following 3.3 volt and 5 volt capable PCI/PCI-X slots:
  - PCI 32/64-bit data bus at 33 or 66 MHz clock frequency
  - PCI-X 32/64-bit data bus at 66, 100 or 133 MHz clock frequency
- Universal 3.3V/5V PCI and PCI-X connection interface.
- In order to maintain Ultra320 SCSI performance, all cables used and all connected storage devices must be Ultra320 SCSI compliant.

Note – For a list of systems that meet this requirement, see Host Platform Support in the *Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter Release Notes* (part number 819-2539)

Features

The Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA is a single-channel Ultra320 SCSI to PCI/PCI-X host bus adapter that provides one Ultra320 SCSI channel.

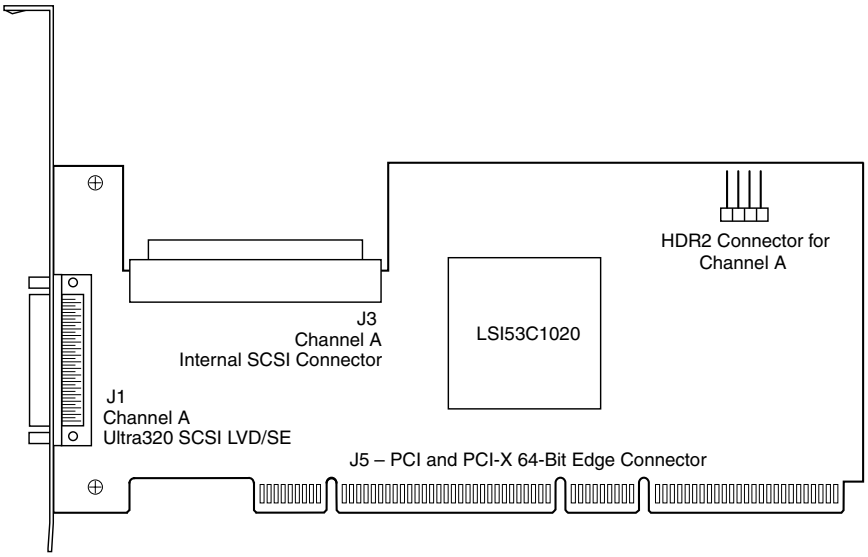

FIGURE 1 Sun StorEdge PCI/PCI-X Single Ultra320 Host Bus Adapter

The host bus adapter includes the following features:

- An Ultra320 SCSI channel with support for SCSI speeds of up to 320 Mbyte/sec with 16-bit data transfer
- Two SCSI connectors:
  - One external 68-pin very high density cable interconnect (VHDCI) connector
  - One internal 68-pin high density right-angle connector (reserved feature)
- LVD SCSI support for disk arrays, tape libraries, and tape drives:
  - 16-bit LVD interface with support for up to 15 targets per SCSI bus
  - Active LVD termination
  - Self-resetting TERMPWR short circuit protection device
- Devices that are backward-compatible with SCSI-2 and SCSI-3 (Ultra1, Ultra2, and Ultra3). For a list of Sun StorEdge systems qualified and supported with this host bus adapter, see *Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter Release Notes*,819-2539
- 512K bytes of Flash ROM to support booting Sun Solaris x64/x86, Red Hat Enterprise Linux, SuSE Linux Enterprise Server, Windows Server 2000, Windows Server 2003 and Windows XP Professional (WHQL-certified)
- A 64-bit universal type board edge connector that provides:

- 32-bit/64-bit PCI-X interface compatibility
- 32-bit/64-bit PCI interface backwards compatibility
- 3.3-volt signaling compatibility

Installing the HBA

Follow these steps to install the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA in your system.

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.

▼ To Verify the Packaging Contents

- **Verify that the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA is shipped with the following items:**
  - Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA
  - Extra PCI bracket
  - *Accessing Documentation*, 819-1209

▼ To Install the HBA Hardware

To install the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA hardware, you must open the computer and identify an empty PCI or PCI-X slot (32 or 64 bit).

It is extremely important that you consult the system manual regarding which PCI/PCI-X slot you can use to add the SCSI HBA, as well as for instructions to remove the computer cover. You can also refer to "System Requirements" on page 2 for information on choosing the correct PCI/PCI-X slot.

Caution – This host bus adapter is only for connection to a single-ended (SE) SCSI or low-voltage differential (LVD) SCSI device, and it does not work if connected to a high-voltage differential (HVD) SCSI device.

1. **Power off the computer, then disconnect the power cable.**
2. **Remove the computer cover.**
3. **Choose a PCI-X (or PCI) slot for installing the host bus adapter.**

   To maximize performance, use the host system's 64-bit, 133-MHz PCI/PCI-X slot for installing the host bus adapter.

   Note – You can insert the host bus adapter into a 32-bit PCI slot if no 64-bit PCI-X slots are available. However, if you do this, the data transmission rate is limited to standard PCI speed.

4. **Pull out the slot cover (if any) by removing the screw or releasing the lever.**
5. **Optionally, perform the following steps to replace the PCI bracket.**
   a. **Remove the two screws that attach the current bracket to the HBA using a #2 cross-head screwdriver. Save the screws.**
   b. **Remove the existing bracket.**
   c. **Position the new bracket over the external VHDCI SCSI connector.**
   d. **Align the screw holes of the HBA and the bracket, and then insert and tighten the screws to a torque of 3.6 in-lbs.**
6. **Grasp the HBA by the top edge and seat it firmly into the PCI or PCI-X slot.**
7. **Refasten the retaining bracket of the HBA by using the existing screw or lever.**
8. **Close the computer cover.**

9. **Connect the host bus adapter to the storage device using the appropriate cable.**

   Before you connect the host bus adapter to the storage device(s), do the following:

   a. **Refer to the release notes for the list of supported storage devices.**

   b. **Refer to Appendix A for the list of supported cables at the time of product release.**

   c. **Refer to your system documentation and the storage device installation manual for specific cabling instructions.**

10. **Plug in the power cable and turn on the computer.**

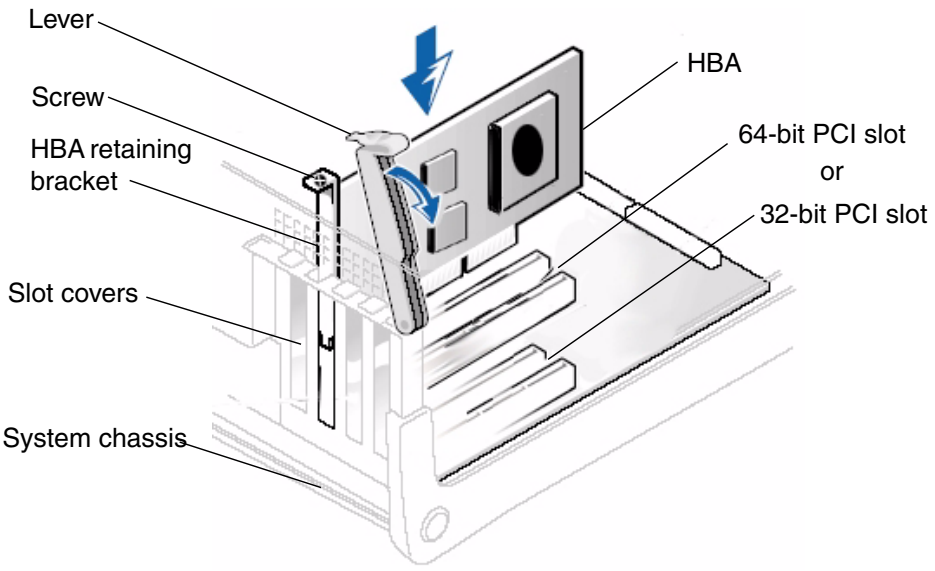

FIGURE 2 Installing the HBA

Note – FIGURE 2 is a typical illustration, which might be different from the actual installation.

Installing the HBA Driver

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

Note – Refer to the *Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA Release Notes*, 819-2539, for the latest information on software requirements, operating systems, and storage devices.

This section contains the following topics:

Sun Solaris 9 Operating System for x64/x86 Platforms

You must install Sun Solaris 9 4/04 (minimum required version) Operating System (OS) for x64/x86 Platforms and then download and install x86 mpt driver patch 119431-01 or later, and 116667-02 or later for the raidctl(1M) utility.

▼ To Install the Sun Solaris 9 x64/x86 OS

- **Install Sun Solaris 9 4/04 OS for x64/x86 using the documentation that is included with your system.**

Note – Refer to the *Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA Release Notes*, 819-2539, for the latest driver, patch, and utility information. The information in this section is from the time of the initial release.

TABLE 1 shows the Solaris 9 x64/x86 required patches.

TABLE 1 Patches for Solaris 9 x64/x86 Operating System (Task Map)

Description	Patch ID	Installation Procedure
The appropriate Solaris Recommended Patch Cluster for the version being used	various	"To Download and Install the Solaris OS Recommended Patch Cluster" on page 8
• The latest Solaris 9 x64/x86 MPT driver patch	• 119431-01 or later	• "To Download and Install Solaris 9 x64/x86 Driver Patch" on page 8
• The latest Solaris 9 x64/x86 `raidctl` utility patch	• 116667-02 or later	• Same

▼ To Download and Install the Solaris OS Recommended Patch Cluster

1. **Log into the host that has the HBA installed.**
2. **In a browser, go to** `www.sun.com/sunsolve`**.**
3. **Click "Patches and Updates" on the left hand side of the web page.**
4. **Under Downloads and under Recommended and Security Patches, click Recommended and Security Patches.**
5. **Read the SOFTWARE LICENSE AGREEMENT and click the Agree button.**
6. **In the Recommended & Security Patch Clusters for Solaris table, find Solaris 9 x64/x86 or Solaris 10 x64/x86 in the OS column, and click the appropriate View Readme in the Clusters column.**
7. **Print or save the** `# CLUSTER_README` **from the browser window.**
8. **Click the browser's Back button to return to the previous page.**
9. **In the Solaris 9 x64/x86 or Solaris 10 x64/x86 OS row, click HTTP or FTP (as desired) in the Clusters column.**
10. **In the Save As dialog box, enter a destination directory for the patch cluster, and click the OK button.**
11. **Follow the procedure in the** `# CLUSTER_README` **to install the patches.**

▼ To Download and Install Solaris 9 x64/x86 Driver Patch

1. **Log into the host that has the HBA installed.**
2. **In a browser, go to** `www.sun.com/sunsolve`**.**

3. **Under SunSolve Patch Contents, click Patch Portal.**
4. **Under PatchFinder, enter one of the patch numbers given below, and press the Find Patch button.**
   - **116667-xx and 119431-xx for Solaris 9 x64/x86 OS**
5. **Print or save the patch instructions from the browser window.**
6. **Click either the HTTP or FTP link in [Download Patch (*nnn,nnn* bytes) HTTP FTP].**
7. **In the Save As dialog box, enter a destination directory for the patch, and click the OK button.**
8. **Follow the 'Patch Installation Instructions' in the README file to install the patch.**

Sun Solaris 10 Operating System for x64/x86 Platforms

You must install the Sun Solaris 10 Operating System for x64/x86 platforms. No Solaris 10 OS x64/x86 driver patch or utility patch is required.

▼ To Install the Sun Solaris 10 x64/x86 OS

- **Install Sun Solaris 10 3/05 OS for x64/x86 using the documentation that is included with your system.**

Red Hat Enterprise Linux 3 and SuSE Linux Enterprise Server 8 Systems

The Red Hat Enterprise Server 3 and the SuSE Linux Enterprise Server 8 operating systems are supported on the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA. Before installing the drivers for Linux you must have the relevant Linux OS installed on the hard disk. You can download the driver as a `.tgz` package from the LSI Logic web page dedicated for Sun products.

Instructions to install such drivers, and to create a bootable device connected to this HBA, are also given in the Readme document associated with this driver at the LSI Logic download page.

Windows Server 2000, Windows Server 2003 and Windows XP Professional

Make sure that the following preliminaries are in effect before proceeding:

- These instructions install an HBA driver for a Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA connected to an external (non-boot) SCSI device.
- Make sure that your system is configured with the latest Service Pack and Windows Update.
- The driver is only installed once, even if you have multiple Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBAs in the system.

TABLE 2 shows the utility programs and drivers for Windows Server 2000/2003 and Linux operating systems

TABLE 2 Windows and Linux utility programs and drivers

Operating System	Utility Program	Driver
Windows Server 2000 (32-bit/x86)	`LSIUtil.exe`	SYMMPI.SYS
Windows Server 2003 (32-bit/x86)	`LSIUtil.exe`	SYMMPI.SYS
Windows XP Professional (32-bit/x86)	`LSIUtil.exe`	SYMMPI.SYS
Red Hat Enterprise Linux 3/SuSE Linux Enterprise Server 8	`lsiutil.linux`	mptlinux

▼ To Download and Install the Driver (Red Hat Enterprise Linux 3 and SuSE Linux Enterprise Server 8 users)

1. **Log into the host that has the HBA installed.**
2. **In a browser, go to** `www.lsilogic.com/support/sun`**.**

   SG-(X)PCI1SCSI-LM320 is displayed at the top of the page as a link.
3. **Click on the link, which will jump to the SG-(X)PCI1SCSI-LM320 section, or scroll down to the section titled "Sun Marketing PN: SG-(X)PCI1SCSI-LM320.**
4. **In the list of OS names click the following link, "Red Hat Enterprise Linux (RHEL) 3, IA32 (for 32-bit/x86) or SuSE SLES 8, IA32 (for 32-bit/x86).**
5. **In the Download Dialog box, choose "Save" to begin downloading the gzipped file to a temporary directory like '/var/tmp'.**

6. **Change directory to the temporary directory and unzip the file with "gunzip FILE". Replace FILE with the name of the saved file.**

7. **Untar the file.**

   For example:

   ```
   [root@hba2-69 root]# tar xf mptlinux_2.05.23-3_package.tar
   [root@hba2-69 root]#
   ```

8. **Go to rpms-3 directory.**

   ```
   [root@hba2-69 root]# cd rpms-3
   ```

9. **List the driver for each operating system and hardware.**

```
[root@hba2-69 rpms-3]# For example, ls -l
total 16484
-rw-r--r-- 1 6188 taxsvr 3193544 Jul 13  2004 mptlinux-redhat-2.05.23-3.athlon.rpm
-rw-r--r-- 1 6188 taxsvr 3200985 Jul 13 2004 mptlinux-redhat-2.05.23-3.i686.rpm
-rw-r--r-- 1 6188 taxsvr 421358 Jul 13  2004 mptlinux-redhat-2.05.23-3.ia32e.rpm
-rw-r--r-- 1 6188 taxsvr 1877915 Jul 13 2004 mptlinux-redhat-2.05.23-3.ia64.rpm
-rw-r--r-- 1 6188 taxsvr 753474 Jul 13 2004 mptlinux-redhat-2.05.23-3.x86_64.rpm
-rw-r--r-- 1 root root 3907369 Jul 13  2004 mptlinux-suse-2.05.23-3.i386.rpm
-rw-r--r-- 1 root root 1161679 Jul 13  2004 mptlinux-suse-2.05.23-3.ia64.rpm
-rw-r--r-- 1 root root 2321191 Jul 13  2004 mptlinux-suse-2.05.23-3.x86_64.rpm
```

10. **Use rpm command to install a driver.**

    For example, to install a Red Hat Enterprise Linux 3 driver in Sun Fire V20z (See LinuxMPT_Rel_Notes_2.05.23-3.doc for detail:

```
root@hba2-69 rpms-3]# rpm -ivh mptlinux-redhat-2.05.23-3.x86_64.rpm
reparing...                ########################################### [100%]
1:mptlinux-redhat          ########################################### [100%]
Copying mptlinux source to /usr/src/redhat/SOURCES
Existing mptlinux binaries archived in /tmp/mptlinux-redhat-2.05.23-3/lib
Detected MPT Fusion driver is used for boot. Updating initrd.

INFO: /boot  has been modified!
If LILO is your boot loader, please re-run /sbin/lilo.
You must reboot for the change to take effect.
[root@hba2-69 rpms-3]#
```

11. **Reboot the system to take the change effect.**

    For example:

    ```
    [root@hba2-69 rpms-3]# shutdown -r now
    ```

12. **After system reboot, check the mpt driver version.**

    For example:

```
[root@hba2-69 root]# cat /proc/mpt/version
mptlinux-2.05.23
Fusion MPT base driver
Fusion MPT SCSI host driver
Fusion MPT ioctl driver
[root@hba2-69 root]#
```

▼ To Download and Install the Driver (Windows Server 2000, Windows Server 2003, Windows XP Professional users)

1. **Log into the host which has the HBA installed.**
2. **In a browser, go to** www.lsilogic.com/support/sun**.**

   SG-(X)PCI1SCSI-LM320 is displayed at the top of the page as a link.
3. **Click on the link, which will jump to the SG-(X)PCI1SCSI-LM320 section or scroll down to the section titled "Sun Marketing PN: SG-(X)PCI1SCSI-LM320".**
4. **In the list of OS names, click the link for the specific Windows release that is applicable to your environment.**
5. **In the Download dialog box, select a temporary location to save the file and choose 'Save' to begin downloading the file.**
6. **Download the Driver for the system Operating System.**
7. **Unzip the file.**

   For example: Use winzip to unzip the downloaded file for Windows Server 2000. It contains the following files:

   ```
   cocpyinf.dll
   lsipseud.inf
   MPT_LEGAL.txt
   symmpi.inf
   symmpi.sys
   symmpi.tag
   symmpi2k.cat
   symmpi2k_11002.txt
   txtsetup.oem
   ```
8. **Follow the instructions in the driver readme file to load the driver.**

   The following is the name of the readme for each Windows release:
   Windows Server 2000 – `symmpi2k_11002.txt`
   Windows Server 2003 – `symmpi2003_11002.txt`
   Windows XP Professional – `symmpixp_11002.txt`

Diagnostic Support

Diagnostic support for the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA is available beginning with SunVTS 6.0 software. SunVTS 6.0 only runs on S10 x64/x86 or later release.

Solaris 9 x64/x86

Diagnostic support under Solaris 9 x64/86 environment is not available via SunVTS.

You must use the `format` command to verify the installation of the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter before attempting to use it in a Solaris 9 x64/x86 environment.

▼ To Verify the Installation of the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter under Solaris 9 x64/x86 environment

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

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

2. **On the same screen, type the number of the disk drive that is attached to the host bus adapter card you just installed and press Enter.**

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

The Format menu is displayed.

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

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

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

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

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

5. **Verify that no error occurred (**`Total of 0 defective blocks repaired`**).**
6. **Issue two** `quit` **commands to exit the test and the Format menu.**

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

Your Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter is ready for use.

Solaris 10 x64/x86

Install SunVTS 6.0 software using instructions from your Solaris 10 distribution. The latest SunVTS patch (119882-01) is required to support the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA.

▼ To Install Patch 119882.

1. **Access SunSolve at:** `http://sunsolve.sun.com`**.**
2. **Click the Patchfinder link under Patch Portal.**
3. **Enter the patch number (including revision) in the "Find Patch" box.**
4. **Follow the install instructions in the patch description.**

Testing the Solaris Installation With SunVTS Software

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

For details about running the SunVTS software, refer to the *SunVTS 6.0 User Guide* and the *SunVTS 6.0 Test Reference Manual*. The following procedure is relevant for S10 installations.

▼ To Test the Installation With the SunVTS Software

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

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

2. **From the System Map, select a disk drive that is connected to the host bus adapter.**
3. **Start the disk test.**

Caution – SunVTS/disktest can overwrite existing data on the selected disk drive connected to the HBA under test.

---

4. **Verify that no errors have occured by checking the SunVTS status window.**
5. **If no problems occur, stop the SunVTS software.**

   Your host bus adapter is now ready to run applications.

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

Booting From Storage Connected to PCI/PCI-X Single Ultra320 Host Bus Adapter

The Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA uses the `mpt` driver, which is included with the Solaris 9 4/04 x64/x86 OS release. This enables you to "warm" boot directly from a hard disk connected to the host bus adapter if that disk has at least the Solaris 9 4/04 x64/x86 OS release installed.

Note – A "warm" boot requires that the hard disk attached to the host bus adapter is powered on and available at the time the server is powered up. A "cold" boot, where both the server and hard disk are powered up at the same time, is not supported by the `mpt` driver.

Note – The ability to boot from a disk connected to the HBA has dependency on the system BIOS of the platform. Please refer to the release notes of the hardware platform for any limitations of booting from a disk connected to the HBA.

Known Limitations

Caution – Upgrading some older disk drive firmware in a Sun StorEdge 3120 SCSI Array connected to a Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter might fail if the older disk firmware does not correctly handle the Ultra320 SCSI protocol. If this happens, create a `/kernel/drv/mpt.conf` configuration file and insert the following line into it. This limits the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA to the Ultra160 SCSI protocol.

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

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

Caution – The Sun StorEdge 3310 SCSI array is only capable of running at the Ultra160 SCSI speed. To limit the 3310 SCSI array to the Ultra160 SCSI speed and to support up to 32 LUNS, create a `/kernel/drv/mpt.conf` configuration file and insert the following lines into it:

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

Then reboot the system.

Caution – The Sun StorEdge S1 array is only capable of running at the Ultra160 SCSI speed. During system boot, the driver will print a warning message on the console during the speed negotiation between the S1 and the HBA because the S1 is slower. To prevent this warning message, create a `/kernel/drv/mpt.conf` configuration file and insert the following line into it. This limits the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA to the Ultra160 SCSI speed.

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

Then reboot the system.

Bugs

x86: BIOS does not see more than eight SE3310 LUNs

5053348

If more than eight LUNs are created in an array during system booting, the BIOS only displays eight LUNs (LUN 0 through 7).

Workaround: Do not create a boot volume with a LUN number greater than seven.

Connecting the Host Bus Adapter

Before you connect the host bus adapter to the storage device(s), do the following:

- Refer to the *Sun StorEdge PCI/PCI-X Single Ultra320 SCSI HBA Release Notes*, 819-2539, for the latest on storage devices.
- Refer to Appendix A for the list of supported cables at the time of product release
- Refer to your system documentation and the storage device installation manual for specific cabling instructions

▼ To Connect the SCSI Cable from the Host Bus Adapter to the Storage device

- **Connect the host bus adapter to the storage device using the appropriate cable.**

APPENDIX **A**

Ultra320 SCSI Configuration

Appendix A provides general information about Ultra320 SCSI configuration rules. This appendix includes the following topics:

Target Devices

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

The available target addresses (SCSI IDs) for the SCSI port are 0x0 - 0x6 and 0x8 - 0xF. By default, SCSI ID 0x7 is reserved for the host bus adapter.

Bus Length

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

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

TABLE A-1 Bus Restrictions

SCSI Type	Peak MBytes /sec	Single-Ended		LVD	
		Max Length[a]	No. of Devices	Max Length[a]	No. of Devices
SCSI-2					
Narrow	10	3	8	25	2
				12	8
Wide	20	3	16	25	2
				12	16
SCSI-3 Ultra1					
Narrow	20	1.5	8	25	2
		3	4	12	8
Wide	40	1.5	8	25	2
		3	4	12	16
SCSI-3 Ultra2					
Narrow	40	N/S[b]	N/S	25	2
				12	8
Wide	80	N/S	N/S	25	2
				12	16
SCSI-3 Ultra3					
Narrow	80	N/S	N/S	25	2
				12	8
Wide	160	N/S	N/S	25	2
				12	16
SCSI-3 Ultra320					
Narrow	160	N/S	N/S	25	2
				12	8
Wide	320	N/S	N/S	25	2
				12	16

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

b N/S = not supported

Cabling and Termination

Use the following cabling guidelines to ensure proper device cabling and termination.

Cabling

In order to maintain Ultra320 SCSI performance, all cables used must be Ultra320 SCSI compliant. Table A-2 lists the qualified cables for connecting the Sun StorEdge 3310 SCSI array, Sun StorEdge 3120 SCSI array, and Sun StorEdge D2 Array. Table A-3 lists the qualified cables for connecting the Sun StorEdge S1 array to the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Adapter.

You can order cables using the *marketing* part numbers shown in the tables. You can use the *manufacturing* part numbers in the table to determine whether any already-purchased cables are supported. Do this by comparing the provided numbers against the manufacturing part numbers that are stamped on the cables.

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

Cable Type and Length	Marketing Part Number	Manufacturing Part Number
SCSI, VHDCI/VHDCI, 0.8 m	X1136A	530-2982-01 or later
SCSI, VHDCI/VHDCI, 1.2 m	X1137A	530-2983-01 or later
SCSI, VHDCI/VHDCI, 2 m	X1138A	530-2538-01 or later
SCSI, VHDCI/VHDCI, 4 m	X3830B	530-2984-01 or later
SCSI, VHDCI/VHDCI, 10 m	X3831B	530-2985-01 or later[a]

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

TABLE A-3 Qualified Cables for the Sun StorEdge S1 Array

Cable Type and Length	Marketing Part Number	Manufacturing Part Number[a]
SCSI, HD-68/VHDCI, 0.8 m	X1132A	530-2452-02
SCSI, HD-68/VHDCI, 2 m	X3832A	530-2453-02
SCSI, HD-68/VHDCI, 4 m	X3830A	530-2454-02
SCSI, HD-68/VHDCI, 10 m	X3831A	530-2455-02

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

Termination

- The SCSI bus must be correctly terminated at the end of the bus. Most Sun devices use auto-termination. See the documentation that came with the device.
- This host bus adapter has active terminators with an automatic means of enabling and disabling the termination. The termination circuit derives its power from the PCI or SCSI bus. When the PCI bus power is removed, active SCSI termination is maintained if the other SCSI device supplies power to the Term Pwr pins of the SCSI bus.

SCSI Symbols

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

Acronym	Meaning
SE	single-ended
LVD	low-voltage differential
MSE	multi-mode single ended
HVD	high-voltage differential

APPENDIX **B**

Specifications

Appendix B contains the specifications for the low-voltage differential (LVD) Sun StorEdge PCI/PCI-X Single Ultra320 SCSI host bus adapter. This appendix includes the following topics:

Physical Dimensions

TABLE B-1 Physical Dimensions

Dimension	Measurement	
	Board With Bracket	**Board Without Bracket**
Length	7.0 inches (178 millimeters)	6.6 inches (167.6 millimeters)
Width	3.33 inches (84.6 millimeters)	2.53 inches (64.3 millimeters)
Height	0.85 inches (21.6 millimeters)	0.5 inches (12.7 millimeters)
Weight	6.0 oz (43.42 g)	N/A

Power Requirements

TABLE B-2 Power Requirements

Voltage	Maximum Current	Typical/Nominal
5V ±5%	1.5A	0.2A Term Pwr disabled
3.3V ±9%	1.9A	1.9A

Performance Specifications

TABLE B-3 Performance Specifications

Feature	Specification
PCI/PCI-X bus clock frequency	33 MHz, 66 MHz, and 133 MHz
PCI data burst rate	264 MBps* @33 MHz 528 MBps @66 MHz 1064 MBps @133 MHz
SCSI synchronous maximum transfer rate	320 MBps (wide)
PCI data/address lines	AD63-0
PCI modes	Master/slave
SCSI interface	Low-voltage differential
SCSI bus parity	Yes
SCSI cyclic redundancy check (CRC)	Yes
SCSI 8-bit bus devices	Yes
SCSI 16-bit bus devices	Yes

* MBps = megabytes per second

PCI Edge Connector Pin Definitions

TABLE B-4 PCI Edge Connector Pin Definitions J1B (Top)

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	-12V	25	+3.3V	49	GND	73	GND
2	TCK	26	C_BE3	50	KEYWAY	74	AD[55]
3	GND	27	AD23	51	KEYWAY	75	AD[53]
4	TDO	28	GND	52	AD08	76	GND
5	+5V	29	AD21	53	AD07	77	AD[51]
6	+5V	30	AD19	54	+3.3V	78	AD[49]
7	INTB	31	+3.3V	55	AD05	79	+5V/+3.3V
8	INTD	32	AD17	56	AD03	80	AD[47]
9	GND (PRSNT1)	33	C_BE2	57	GND	81	AD[45]
10	RESERVED	34	GND	58	AD01	82	GND
11	GND (PRSNT2)	35	IRDY	59	3V/5V	83	AD[43]
12	KEYWAY	36	+3.3V	60	ACK64	84	AD[41]
13	KEYWAY	37	DEVSEL	61	+5V	85	GND
14	RESERVED	38	GND	62	+5V	86	AD[39]
15	GND	39	LOCK	63	RESERVED	87	AD[37]
16	CLK	40	PERR	64	GND	88	+5V/+3.3V
17	GND	41	+3.3V	65	C/BE[6]#	89	AD[35]
18	REQ	42	SERR	66	C/BE[4]#	90	AD[33]
19	3V/5V	43	+3.3V	67	GND	91	GND
20	AD31	44	C_BE1	68	AD[63]	92	RESERVED
21	AD29	45	AD14	69	AD[61]	93	RESERVED
22	GND	46	GND	70	+5V/+3.3V	94	GND
23	AD27	47	AD12	71	AD[59]		
24	AD25	48	AD10	72	AD[57]		

TABLE B-5 PCI Edge Connector Pin Definitions J1A (Bottom)

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	TRST	25	AD24	49	AD09	73	AD[56]
2	+12V	26	IDSEL	50	KEYWAY	74	AD[54]
3	TMS	27	+3.3V	51	KEYWAY	75	+5V/+3.3V
4	TDI	28	AD22	52	C_BE0	76	AD[52]
5	+5V	29	AD20	53	+3.3V	77	AD[50]
6	INTA	30	GND	54	AD06	78	GND
7	INTC	31	AD18	55	AD04	79	AD[48]
8	+5V	32	AD16	56	GND	80	AD[46]
9	RESERVED	33	+3.3V	57	AD02	81	GND
10	3V/5V	34	FRAME	58	AD00	82	AD[44]
11	RESERVED	35	GND	59	3V/5V	83	AD[42]
12	KEYWAY	36	TRDY	60	REQ64	84	+5V/+3.3V
13	KEYWAY	37	GND	61	+5V	85	AD[40]
14	RESERVED	38	STOP	62	+5V	86	AD[38]
15	RST	39	+3.3V	63	GND	87	GND
16	3V/5V	40	SDONE	64	C/BE[7]#	88	AD[36]
17	GNT	41	SBO	65	C/BE[5]#	89	AD[34]
18	GND	42	GND	66	+5V/+3.3V	90	GND
19	RESERVED	43	PAR	67	PAR64	91	AD[32]
20	AD30	44	AD15	68	AD[62]	92	RESERVED
21	+3.3V	45	+3.3V	69	GND	93	GND
22	AD28	46	AD13	70	AD[60]	94	RESERVED
23	AD26	47	AD11	71	AD[58]		
24	GND	48	GND	72	GND		

SCSI Connector Pin Definitions

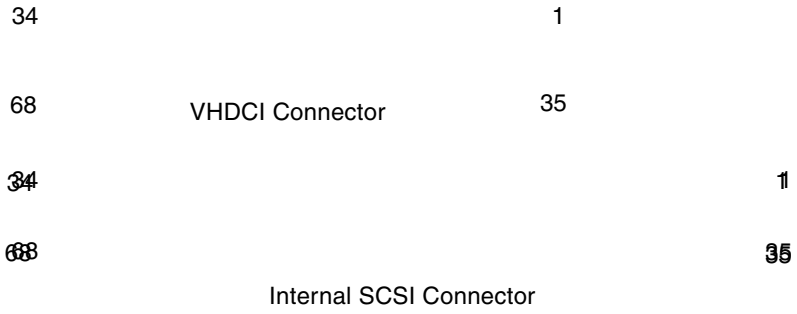

FIGURE B-1 VHDCI and Internal SCSI Connectors

TABLE B-6 SCSI Connector Pin Definitions

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

TABLE B-6 SCSI Connector Pin Definitions *(Continued)*

Pin	Description	Pin	Description	Pin	Description
18	TERMPWR	41	SD(0)-	64	GND
19	OPEN	42	SD(1)-	65	SD(8)-
20	+ATN	43	SD(2)-	66	SD(9)-
21	GND	44	SD(3)-	67	SD(10)-
22	+BSY	45	SD(4)-	68	SD(11)-
23	+ACK	46	SD(5)-		

APPENDIX **C**

Declaration of Conformity, Regulatory Compliance, and Safety Statements

Appendix C contains the following information that applies to the Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Bus Adapter:

Declaration of Conformity

Compliance Model Number: **LSI20320**
Product Family Name: **Sun StorEdge PCI/PCI-X Single Ultra320 SCSI Host Adapter (SGXPCI1SCSILM320-Z)**

EMC

USA - FCC Class B

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

1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.

European Union

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

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

EN 300 386 V1.3.2 (2003-05) Required Limits:	
EN 55022:1994 +A1:1995 +A2:1997	Class B
EN 61000-3-2:2000	Pass
EN 61000-3-3:1995 +A1:2000	Pass
IEC 61000-4-2	6 kV (Direct), 8 kV (Air)
IEC 61000-4-3	3 V/m 80-1000MHz, 10 V/m 800-960 MHz and 1400-2000 MHz
IEC 61000-4-4	1 kV AC and DC Power Lines, 0.5 kV Signal Lines
IEC 61000-4-5	2 kV AC Line-Gnd, 1 kV AC Line-Line and Outdoor Signal Lines, 0.5 kV Indoor Signal Lines > 10m
IEC 61000-4-6	3 V
IEC 61000-4-11	Pass

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

EN 55022:1994 +A1:1995 +A2:1997	Class B
EN 61000-3-2:2000	Pass
EN 61000-3-3:1995 +A1:2000	Pass
EN 55024:1998 +A1: 2001 +A2:2003 Required Limits:	
IEC 61000-4-2	4 kV (Direct), 8 kV (Air)
IEC 61000-4-3	3 V/m
IEC 61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
IEC 61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines, 2 kV AC Line-Gnd, 0.5 kV DC Power Lines
IEC 61000-4-6	3 V
IEC 61000-4-8	1 A/m
IEC 61000-4-11	Pass

Safety

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

EC Type Examination Certificates:

EN 60950-1:2001, 1st Edition	Compatible Electronics Test Report: D11115S1 Rev.A
IIEC 60950-1:2001, 1st Edition	CB Scheme Certificate No.
Evaluated to all CB Countries	
UL 60950-1:2003, 1st Edition, CSA C22.2 No. 60950-1-03	File:

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

/S/
DATE

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

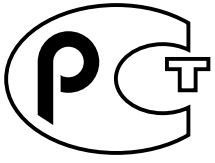
CCC Class A Notice

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.

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CD and DVD Devices

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

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

Conformité aux normes de sécurité

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

Mesures de sécurité

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

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

Symboles

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

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

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

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

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

Marche – Met le système sous tension alternative.

Arret – Met le système hors tension alternative.

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

Modification du matériel

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

Positionnement d'un produit Sun

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

Niveau de pression acoustique

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

Conformité SELV

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

Connexion du cordon d'alimentation

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

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

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

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

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

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

Mise en garde relative aux batteries

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

Couvercle de l'unité

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

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

Mise en garde relative au système en rack

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

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

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

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

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

Avis de conformité des appareils laser

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

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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 ausgewechselt werden.

Gehäuseabdeckung

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

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

Warnungen bezüglich in Racks eingebauter Systeme

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

Achtung – Aus Sicherheitsgründen sollten sämtliche Geräte von unten nach oben in Racks eingebaut werden. Installieren Sie also zuerst die Geräte, die an der untersten Position im Rack eingebaut werden, gefolgt von den Systemen, die an nächsthöherer Stelle eingebaut werden, usw.

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

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

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

Hinweis zur Laser-Konformität

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

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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.

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Dispositivos de CD y DVD

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

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

Nordic Lithium Battery Cautions

Norge

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

Sverige

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

Danmark

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

Suomi

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