



# Sun Blade™ 1000 and Sun Blade 2000 Product Notes

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Sun Microsystems, Inc.  
[www.sun.com](http://www.sun.com)

Part No.816-3219-16  
June 2004, Revision A

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# Sun Blade 1000 and Sun Blade 2000 Product Notes

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The *Sun Blade™ 1000 and Sun Blade 2000 Product Notes* contain late-breaking information about changes to software, hardware, and documentation that became known after the Sun Blade™ 1000 and Sun Blade 2000 products were released.

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## Software Changes

This section describes software changes, patches and related topics.

### Avoiding Colormap Flash With the Sun XVR-100 Graphics Accelerator

The Sun XVR-100 graphics accelerator ships configured to 24-bit color depth.

If you experience colormap flashing (incorrect colors or color changes), your graphics accelerator might be incorrectly configured. Perform one of the following procedures to set 24-bit or 8+24-bit color depth.

#### ▼ Setting to 24-bit Color Depth

1. Using the `fbconfig` command, set the Sun XVR-100 graphics accelerator to 24-bit color depth.

```
% fbconfig -dev pfb0 -depth 24
```

2. Log out, then log back in for the change to take effect.

---

**Note** – 24-bit mode performance might be slower than 8-bit color depth mode.

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## ▼ Setting to 8+24-bit Color Depth

If both 8-bit and 24-bit graphics are to be run simultaneously (8+24-bit color depth), the Sun XVR-100 graphics accelerator patch must first be installed.

- Solaris 8: 114537-19 or later
- Solaris 9: 114538-20 or later

1. As superuser, download and install the appropriate patch:

- a. Go to the Sun website:

```
http://sunsolve.sun.com
```

- b. Click the Patchfinder link.

- c. Enter patch id 114537 for Solaris 8, or 114538 for Solaris 9 into the field and click Find Patch.

- d. Download the patch.

- e. Unzip the patch. This example unzips the Solaris 8 version of the patch:

```
# unzip 114537-19.zip
```

- f. Install the patch. For example:

```
# patchadd 114537-19
```

- g. After the patch installation is complete, reboot the system:

```
# reboot
```

2. Using the `fbconfig` command, set the Sun XVR-100 graphics accelerator to 8+24-bit color depth.

```
% fbconfig -dev pfb0 -fake8 enable
```

---

**Note** – The command `fbconfig -dev pfb0 -fake8 disable` turns off 8+24-bit mode and returns to the previous color depth mode.

---

**3. Log out, then log back in for the change to take effect.**

---

**Note** – 8-bit color depth performance is slower in 8+24-bit mode.

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For more information on the Sun XVR-100 graphics accelerator, read the *Sun XVR-100 Graphics Accelerator Installation Guide*, 816-7560, at this web site:

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

## Verifying System Configuration With the Sun Install Check Tool

Install Check is an optional configuration verification tool. Sun Microsystems encourages its use for customer satisfaction.

The Install Check tool verifies and provides information about your Sun Blade 1500 workstation's configuration. To run Install Check, you need to download it from the web.

## Downloading Install Check

**1. As superuser of the workstation, open a web browser and go to the Install Check URL:**

<http://www.sun.com/software/installcheck/index.html>

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**Note** – Documentation on the use of Install Check is available at this URL.

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**2. Click Get the Software.**

**3. Click Download Sun Install Check Tool.**

**4. Log in with your My Sun<sup>SM</sup>, Sun Store, or SunSolve username and password.**

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**Note** – If you are not a registered user, click Register Now and register.

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**5. Read and agree to the licensing terms.**

6. Click the Sun Install Check Application, English link and save the `sunic.zip` file to a download directory.
7. Go to the download directory and unzip the `sunic.zip` file.

```
# unzip sunic.zip
```

A `sunic` sub-directory is created, containing a `README` file.

8. Read the `README` file for further instructions to install and run the Sun Install Check tool.

## New Preinstalled Software

New software and patches are available with newly shipping Sun Blade 2000 systems:

- Dual Boot Image: Your choice of Solaris 8 or Solaris 9 operating environment
- Netscape™ Communicator
- Sun™ Grid Engine
- StarOffice™
- XIR
- Patches

## Solaris Operating Environment

The Sun Blade 2000 now includes a dual-boot image. During the system set-up you can choose either a Solaris 8 or Solaris 9 operating environment. You can only choose one Solaris operating environment. After you choose an operating environment, the system automatically erases the other Solaris operating environment.

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**Note** – Some workstations with the UltraSPARC® 900 MHz, 1.015 GHz, 1.05 GHz CPU modules may not have the dual-boot image preinstalled.

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## New Netscape Communicator Installation Script

Netscape Communicator 4.x is installed on the Sun Blade 2000 hard drive image. However, Netscape Communicator 7.x is spooled on the hard drive in the following directory:

```
/opt/spool/NSinstaller
```

---

**Note** – If you install Netscape 7.x, it will not overwrite Netscape 4.x.

---

To install Netscape Communicator 7.x, type the following command in a terminal window:

```
% /opt/spool/NSinstaller/NSinstaller
```

This information updates page 24 of the *Sun Blade 1000 and Sun Blade 2000 Getting Started Guide*, 816-3216.

## Sun Grid Engine

Analogous to an electrical power grid, Sun Grid Engine is distributed resource-management software that mediates the processing demands of users and the computational resources available over a wide area network of interconnected clients and servers. Through Sun Grid Engine software, idle computing resources joined to the grid in one location become available to distant users in another, thereby increasing the productivity of both the users and the resources.

Further information regarding Sun Grid Engine software, administration and user guides, reference manuals, and release notes are available at:

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

Click the following links: Hardware Product Categories → Software → Sun Grid Engine.

## PC File Viewer Not Supported

PC File Viewer is no longer supported in the Solaris operating environment. Use StarOffice software to access PC file types.

## StarOffice

The Sun Blade 2000 workstation ships with StarOffice (StarSuite™ for Asian locales). The following information updates the “StarOffice” section in the *Sun Blade 1000 and Sun Blade 2000 Getting Started Guide*, 816-3216.

To start the preinstalled StarOffice software, click the StarOffice icon on the CDE desktop task bar.

Should the preinstalled StarOffice software become corrupted or if it is deleted, you can download a replacement software package called the OpenOffice Community Edition, which is free, at:

<http://www.openoffice.org>

The full-featured version of StarOffice known as StarOffice Enterprise Edition, is available for purchase from:

<http://www.sun.com/software/star/staroffice/>

This software is also available from StarOffice Business Development or your Sun Microsystems sales representative.

## Software-Emulated XIR

A software-emulated External Initiated Reset (XIR) has been added to the Sun Blade 2000 workstation.

By default, the XIR feature is activated by pressing the power switch three times within 1.5 seconds. When this is done, the Sun Blade 2000 system changes to the `ok` prompt. This allows you to begin troubleshooting procedures immediately upon first failure, improving time to resolution.

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**Note** – XIR causes a hard break, similar to the Stop-A key command, and an immediate change to the `ok` prompt. The file system is not synchronized and services are not systematically shut down. Therefore, XIR should be used only when there is no other way to drop to the `ok` prompt (for example, when the system has “hung”).

---

To make the software-emulated XIR possible, the `todds1287` driver has been modified to generate a level-15 interrupt whenever the power switch is pressed. Additionally, the driver makes a time interpretation of switch presses and executes the XIR according to the properties set in the `/etc/system` file.

**TABLE 1** `todds1287` Properties in the `/etc/system` File

Property	Purpose
<code>todds1287:power_button_abort_enable</code>	Toggles the software emulated XIR. Default is 1 (Enabled).
<code>todds1287:power_button_abort_presses</code>	Number of power switch presses required to initiate the XIR. Default is 3. Setting to 1 overrides the standard power-down feature.



**TABLE 1** todds1287 Properties in the /etc/system File (Continued)

Property	Purpose
todds1287:power_button_abort_interval	Time interval in nanoseconds allotted for the number of presses. Default is 1,500,000,000 nanoseconds.

## Solaris Operating Environment Patches

TABLE 2 shows a partial list of patches that are preinstalled on the Sun Blade 1000 and Sun Blade 2000 workstations. If you remove and reinstall any of these Solaris operating environments from your system, you must also reinstall the appropriate patches.

If you install one of these Solaris operating environments on a new hard drive, you must also install the appropriate patches.

“Installing Patches from SunSolve” on page 10 describes how to determine which patches are installed on your system. You can also use the automated Install Check tool described in “Verifying System Configuration With the Sun Install Check Tool” on page 3.

For smart card reader patches, see “Smart Card Reader Patches” on page 9.

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**Note** – Always install the latest version of each patch.

---

**TABLE 2** Required Patches for the Sun Blade 1000 and Sun Blade 2000 Workstations

Patch Description	Patch Number	Minimum Supported Operating Environment:		
		Solaris 8 2/02	Solaris 8 HW 12/02	Solaris 9 12/02
Kernel update	108528-29	Required	Required	N/A
Sun XVR-500 graphics *	108576-33	Required	Required	N/A
X11 6.4.1: Xsun patch	108652-65	Required	Required	N/A
/usr/lib/libthread.so.1 patch	108827-40	Required	Required	N/A
CDE 1.4: dtwm patch	108921-16	Required	Required	N/A
patchadd and patchrm (required for 108528-19)	108987-12	Required	Required	N/A
Linker patch	109147-21	Required	Required	N/A
SE (Serial Driver)	109815-15	Required	Required	N/A

**TABLE 2** Required Patches for the Sun Blade 1000 and Sun Blade 2000 Workstations (*Continued*)

<b>Patch Description</b>	<b>Patch Number</b>	<b>Minimum Supported Operating Environment: Solaris 8 2/02</b>	<b>Solaris 8 HW 12/02</b>	<b>Solaris 9 12/02</b>
Eri header files (required for 110723-05)	109882-06	Required	Included	N/A
Platform drivers patch	109888-20	Required	Required	N/A
Eri driver	110723-05	Required	Included	N/A
FRU ID PICL plug-in patch	110460-26	Required	Included	N/A
/usr/bin/nawk (required for 108528-18)	111111-03	Required	Included	N/A
/usr/bin/mail	111874-06	Required	Required	N/A
Sun GigaSwift Ethernet	111883-14	Required	Included	N/A
/usr/lib/libdevinfo.so.1 patch	111293-04	Required	Included	N/A
/usr/lib/libdhcpcagent.so.1 patch	111310-01	Required	Included	N/A
/usr/bin/mail patch	111874-06	Required	Required	N/A
/usr/bin/fgrep (required for 108987-12)	112396-02	Required	Included	N/A
XVR-1000 graphics accelerator driver *	112564-11	Required	Required	N/A
XVR-1200 graphics accelerator driver *	114554-02	Required	Required	N/A
Solaris 9 kernel patch	112233-08	N/A	N/A	Required
Solaris 9 XVR-1000 graphics accelerator driver	112565-11	N/A	N/A	Required
Solaris 9 Sun GigaSwift Ethernet	112817-06	N/A	N/A	Included
Solaris 9 XVR-1200 graphics accelerator driver*	114555-02	N/A	N/A	Included
Solaris 9 platform/sun4u/cprboot patch	114360-01	N/A	N/A	Included
Solaris 9 graphics patch	112540-07	N/A	N/A	Required

**Notes:**

**Required** = This patch is not included with the Solaris operating environment shown. If you delete your preinstalled image and reinstall this Solaris OE, you need to obtain the patch from SunSolve<sup>SM</sup>.

**Included** = This patch is included with the Solaris operating environment shown. If you re-install this Solaris OE, this patch is automatically installed for you.

**N/A** = This patch is not required for this Solaris operating environment

\* Graphics accelerator patches are only required if your workstation has that graphics accelerator installed.

# Smart Card Reader Patches

## *New Sun Blade 2000 Workstations*

Sun Blade 2000 systems that have Solaris 8 HW 12/02 operating environment or Solaris 9 12/02 operating environment do not require smart card patches.

## *Older Sun Blade 1000 and Sun Blade 2000 Workstations*

Sun Blade 1000 and Sun Blade 2000 system with the following Solaris operating environments require patches to make the smart card reader fully functional:

- Solaris 8 7/01
- Solaris 8 10/01
- Solaris 8 2/02

---

**Note** – The smart card reader only functions with Solaris operating environment 8 7/01 and subsequent releases.

---

Always install the latest version of each patch.

**TABLE 3** Required Patches According to Solaris Release Date

Patch Description	Patch Number	Solaris 8 7/01	Solaris 8 10/01	Solaris 8 2/02
Smart card administration GUI	108909-12	Required	Required	N/A
CDE dtsession updates	109354-14	Required	Required	N/A
Opencard properties file	109695-03	Required	N/A	N/A
Smart card core updates	109887-15	Required	Required	Required
Internal card reader updates	110457-05	Required	Required	Required

## *Further Assistance*

If you are unable to use the smart card reader after installing the required software, contact a Sun Service Support Center.

“Smart Card Reader Changes on Sun Blade 2000 Workstations” on page 15 describes physical changes to the smart card reader.

## Workstation Security and the Solaris 8 02/02 Operating Environment

If it becomes necessary to reinstall the Solaris 8 02/02 operating environment onto your workstation, you must also install the latest versions of software patches 109815 and 111874. These software patches provide additional security for the workstation and are available from the SunSolve Web site:

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

## Installing Patches from SunSolve

### 1. Check your Solaris release date:

```
% cat /etc/release |grep So
Solaris 8 2/02 s28s_u7wos_08a SPARC
```

In this example, the release date is 2/02.

### 2. Check your installed patches:

```
% showrev -p|nawk '{print $2}'|sort
```

This command lists all installed patches in ascending numeric order.

### 3. If any patches are outdated or missing, go to the SunSolve Web site at:

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

### 4. Click the Patchfinder link or the Patches link.

### 5. Find and download the newest versions of the patches for the Solaris operating environment installed on your workstation.

Newer patches are signified by higher dash (-) numbers.

### 6. As superuser, install the patches with the `patchadd` command.

For example:

```
# patchadd -M /download-directory 109887-13 110457-05
```

Where *download-directory* is the directory in which you will download the patches.

---

# Hardware Changes

## CPU Torque Tool

Beginning in June 2004, CPU torque tools are not shipped in the Sun Blade 2000 workstation. The torque tools are shipped with the CPU modules.

## CPU Module Options

You should verify which CPU modules are installed in your workstation before you purchase or install new CPU modules. There are two types of UltraSPARC III CPU modules: *Cu*, or copper process CPU modules, and non-*Cu* modules.

---

**Caution** – Never mix UltraSPARC III 600, 750, or 900 MHz (Non-*Cu*) CPU modules with UltraSPARC III *Cu* CPU modules. The workstation will not boot if the modules are mixed.

---

## Identifying a CPU Module

There are three ways to identify a CPU module:

- Software method: Type the correct `prtdiag` command in a terminal window.
- Inspect the CPU module for an UltraSPARC III *Cu* label.
- Check the part number label. (This method requires you to remove the module from the workstation and is not recommended unless absolutely necessary.)

### *Software Method*

In a terminal window, type one of these commands:

```
/usr/platform/SUNW,Sun-Blade-1000/sbin/prtdiag
```

```
/usr/platform/SUNW,Sun-Blade-2000/sbin/prtdiag
```

The system displays CPU information similar to CODE EXAMPLE 1.

**CODE EXAMPLE 1** Identifying a Workstation CPU Using `prtdiag`

```

% /usr/platform/SUNW,Sun-Blade-1000/sbin/prtdiag

===== CPUs =====
CPU      Freq      E$      CPU      CPU      Temperature
CPU      Freq      Size    Implementation  Mask    Die      Amb.    Location
-----  -
0      1056 MHz  8MB     SUNW,UltraSPARC-III+  2.3    76C     21C    +-board/cpu0
1      1056 MHz  8MB     SUNW,UltraSPARC-III+  2.3    78C     21C    +-board/cpu1
    
```

---

**Note** – The 1.050 GHz CPU appears as 1056 MHz. UltraSPARC-III+ indicates a Cu module.

---

### *Module Labels*

All Cu CPU modules have an UltraSPARC III Cu label on the front of the CPU module. See TABLE 4 and FIGURE 1.

A part number label is also affixed to the printed circuit board of every CPU module.

---

**Note** – Avoid removing modules just to check the part number. First use the `prtdiag` command or verify Cu modules with the UltraSPARC III Cu label.

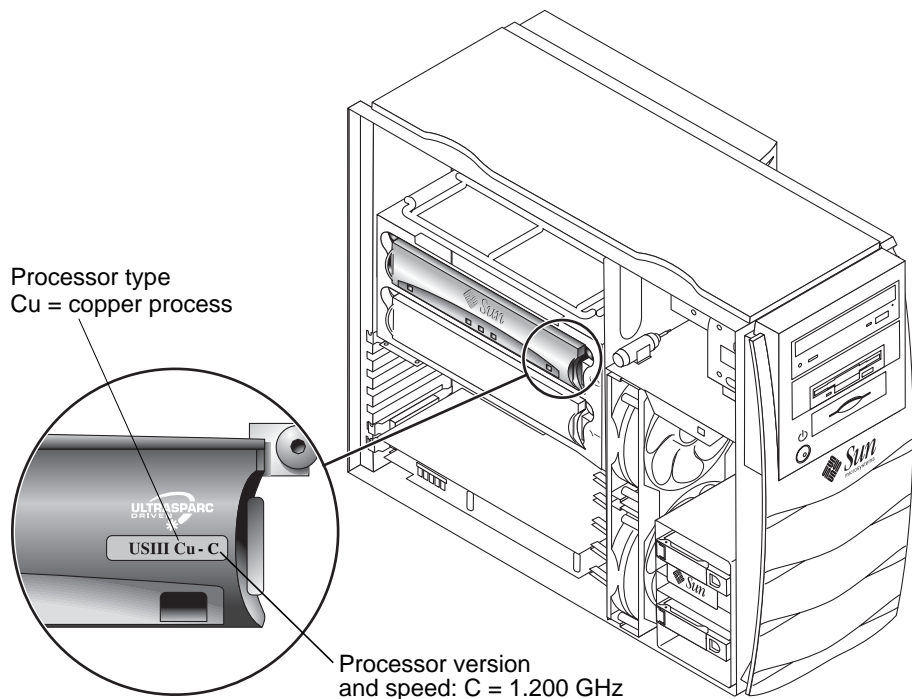
---

**TABLE 4** CPU Module Part Number, Speed, and Type

Part Number Prefix	CPU Module Speed and Type	CPU Label	System
501-4999xxxxxx	600 MHz UltraSPARC III		
501-5675xxxxxx	750 MHz UltraSPARC III		
501-5770xxxxxx	900 MHz UltraSPARC III		
501-5895xxxxxx	750 MHz UltraSPARC III		
501-5969xxxxxx	750 MHz UltraSPARC III	Non-Copper (Cu), No label	Sun Blade 1000
501-5988xxxxxx	750 MHz UltraSPARC III		
501-6169xxxxxx	750 MHz UltraSPARC III		
501-6197xxxxxx	900 MHz UltraSPARC III		
501-6286xxxxxx	900 MHz UltraSPARC III		

**TABLE 4** CPU Module Part Number, Speed, and Type (Continued)

Part Number Prefix	CPU Module Speed and Type	CPU Label	System
501-6002xxxxxx	900 MHz UltraSPARC III Cu	USIII Cu	
501-6299xxxxxx	1.015 GHz UltraSPARC III Cu	USIII Cu-A	Sun Blade 1000 Sun Blade 2000
501-6395xxxxxx	1.015 GHz UltraSPARC III Cu	USIII Cu-A	
501-6254xxxxxx	1.050 GHz UltraSPARC III Cu	USIII Cu-B	
501-6396xxxxxx	1.050 GHz UltraSPARC III Cu	USIII Cu-B	
501-6485xxxxxx	1.200 GHz UltraSPARC III Cu	USIII Cu-C	Sun Blade 2000



**FIGURE 1** UltraSPARC III Cu CPU Module Label

## Configuration Rules for CPU Module Installation

The Sun Blade 1000 and Sun Blade 2000 workstations support either one or two CPU modules. The following rules and minimum software are requirements for proper configuration.

## Rules

The following are rules for CPU module configurations. Examples are provided in parentheses.

- If the workstation has only one CPU module, the CPU module must be installed into slot 0. Slot 0 consists of connectors J0501 and J0601.
- An UltraSPARC III CPU module cannot be paired with an UltraSPARC III *Cu* CPU module, even if they run at the same speed.
- Sun Blade 1000 workstations with two UltraSPARC III CPU (non-Cu) modules can have different speeds (example: 600 MHz and 900 MHz).
- Workstations with two UltraSPARC III *Cu* CPU modules must have the same version and the same speed (example: 1.050 GHz Cu-C and 1.050 GHz Cu-C).

## Minimum Software Requirements

The following table describes the minimum Solaris operating environment release, OpenBoot PROM version, and software patches required for the Sun Blade 1000 and Sun Blade 2000 systems.

**TABLE 5** Minimum Software Requirements for Sun Blade 1000 and Sun Blade 2000 Systems

	Sun Blade 1000		Sun Blade 2000	
<b>CPU Module Type</b>	UltraSPARC III	UltraSPARC III Cu	UltraSPARC III Cu, Cu-A, Cu-B**	UltraSPARC III Cu-C**
<b>Solaris Operating Environment Release</b>	Solaris 8 10/00	Solaris 8 10/01	Solaris 8 02/02	Solaris 8 HW 12/02 Solaris 9 12/02
<b>OpenBoot PROM</b>	v4.2.2	v4.4.4	v4.5.10	v4.5.21

\* Do not install OpenBoot PROM v4.6.x.

\*\* Systems with 1.050 GHz and 1.200 GHz Cu-C CPU modules do not meet Energy Star® guidelines.

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**Note** – The latest version of patch 111292 provides the latest OpenBoot PROM version for either the Sun Blade 1000 or Sun Blade 2000 system.

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Software patches are available from the SunSolve Web site:

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



# Identifying Sun Blade Workstations

Some Sun Blade 2000 OpenBoot™ PROM banners and certain Solaris commands identify a Sun Blade 2000 system as a Sun Blade 1000 system. The following table lists distinguishing characteristics of the Sun Blade 1000 and Sun Blade 2000 workstations.

**TABLE 6** Visual Characteristics of the Sun Blade 1000 and Sun Blade 2000

Sun Blade 1000	Sun Blade 2000
Case is light grey.	Case is dark grey.
Front bezel is matte purple.	Front bezel is iridescent purple.
Sun Logo lights up on front bezel.	Sun logo on front bezel is in a lighted badge.

## Smart Card Reader Changes on Sun Blade 2000 Workstations

Sun Blade 2000 systems manufactured after May 2002 have different smart card reader characteristics:

- Bi-color LED indicator
- Double-sided insertion

**TABLE 7** Smart Card Reader LED Indicator Status

LED State	Condition
Green solid	The smart card framework has opened the smart card and the smart card is ready for communication.
Green flashing	Data read/write.
Amber solid	Smart card is not inserted correctly or there is no communication with the smart card.

The smart card can be inserted into the reader face up (gold pads up) or face down.

For information on smart card reader patches, see “Smart Card Reader Patches” on page 9.

## Sun XVR-100 Graphics Accelerator

If you install a Sun XVR-100 graphics accelerator in the workstation, be sure to read the *Sun XVR-100 Graphics Accelerator Installation Guide*, 816-7560. You can find the product notes and other documents at this web site:

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

## Shielded Twisted Pair Cables

If you use ethernet and copper fiber channel connections, the ethernet cable must be shielded twisted-pair (STP) cabling to maintain the Class B rating of the Sun Blade 2000 workstation.

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## Documentation Changes

### Maximum Power Consumption for PCI and UPA Busses

The maximum allowable power consumption for all PCI slots is 100 Watts.

The maximum allowable consumption for all PCI and UPA slots is 130 Watts.

This information updates the following sections of the *Sun Blade 1000 Service Manual*, 805-4496-10:

- Section 8.2, PCI Card
- Appendix C, Section C.8.1 PCI Bus

### CPU Module Positions in the Workstation

This section updates the information in the *Sun Blade 1000 and Sun Blade 2000 Service Getting Started Guide*, 816-3216, "CPU Module Positions in the Workstation".

When you install any CPU module, use the torque tool provided with your system. The following publications correctly describe torque tool use and CPU installation:

- To install an UltraSPARC III CPU module, see the *Sun Blade 1000 UltraSPARC III CPU Module Installation Instructions*, 816-0416.
- To install an UltraSPARC III **Cu** CPU module, see the *Sun Blade 1000 and Sun Blade 2000 UltraSPARC III Cu Module Installation Guide*, 816-3221.

## Root Partition Size

The following information updates “Setting Up the Preinstalled Solaris Operating Environment Software” in the *Sun Blade 1000 and Sun Blade 2000 Getting Started Guide*, 816-3216.

The root partition on newly shipping Sun Blade 2000 workstations is between 14 and 15 Gigabytes.

## Declaration of Conformity

The “Declaration of Conformity” on page 19 replaces the previous Declaration of Conformity for the Sun Blade 1000 and Sun Blade 2000.



# Declaration of Conformity

Compliance Model Number: 180  
Product Family Name: Sun Ultra 80 Family  
Sun Enterprise 410 Family  
Sun Blade 1000  
Sun Blade 2000  
Sun Fire V270 Family

## 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:

EN55022:1998/CISPR22:1997	Class B
EN55024:1998 Required Limits (as applicable):	
EN61000-4-2	4 kV (Direct), 8 kV (Air)
EN61000-4-3	3 V/m
EN61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
EN61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines, 2 kV AC Line-Gnd, 0.5 kV DC Power Lines 2 kV AC Line-Gnd, 0.5 kV DC Power Lines
EN61000-4-6	3 V
EN61000-4-8	1 A/m
EN61000-4-11	Pass
EN61000-3-2:1995 + A1, A2, A14	Pass
EN61000-3-3:1995	Pass

## Safety

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

EC Type Examination Certificates:

EN60950:1992, 2nd Edition, Amd A1, A2, A3, A4, A11	TÜV Rheinland Certificate No. S2179276
EN60950:1991, 2nd Edition, Amd A1, A2, A3, A4	CB Scheme Certificate No. US/3009/UL
Evaluated to all CB Countries	
UL 1950, 3rd Edition, CAN/CSA C22.2 No. 950-95*	File:E138989 Vol. 2 Sec. 13

## Supplementary Information

This product was tested and complies with all the requirements for the CE Mark.

/S/	17 December 2002	/S/	06 January 2003
Dennis P. Symanski	DATE	Pamela J. Dullaghan	DATE
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