Sun Ultra™ 40 Workstation Getting Started Guide

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Contents

Preface

The *Sun Ultra™ 40 Workstation Getting Started Guide* provides the information that you need to set up, power on, and configure the workstation hardware and software. This book is intended for system administrators, network administrators, or service technicians who have knowledge of workstation hardware and software.

How This Book Is Organized

This guide is organized into the following chapters:

Chapter 1 contains instructions on unpacking, cabling, and powering on the workstation.

Chapter 2 describes the operating systems supported by the Sun Ultra 40 Workstation and the supplemental drivers included with the system.

Chapter 3 explains how to set up the preinstalled Solaris™ 10 Operating System and additional development software.

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[1]	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*.

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

Related Documentation

The documents listed in the following table are available at the following URL:

http://www.sun.com/products-n-solutions/hardware/
docs/Workstation_Products/Workstations/ultra_40/index.html

Application	Title	Part Number
System setup information	*Sun Ultra 40 Workstation Setup Guide*	819-3951
Overview and service information	*Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Guide*	819-3952
Installation information	*Sun Ultra 40 Workstation Getting Started Guide*	819-3953
Safety information	*Important Safety Information for Sun System*	816-7190
	Sun Ultra 40 Workstation Safety and Compliance Guide	819-3955
Release Notes	*Sun Ultra 40 Workstation Release Notes*	819-3954

Documentation, Support, and Training

Sun Function	URL	Description
Documentation	http://www.sun.com/documentation/	Download PDF and HTML documents, and order printed documents
Support and Training	http://www.sun.com/support/ http://www.sun.com/training/	Obtain technical support, download patches, and learn about Sun courses

Third-Party Web Sites

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CD Name Change

The Sun Ultra 40 Workstation Supplemental CD is now called Sun Ultra 40 Workstation Tools and Drivers CD.

Sun Welcomes Your Comments

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

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

Please include the title and part number of your document with your feedback: *Sun Ultra 40 Workstation Getting Started Guide*, 819-3953-12.

Setting Up the Sun Ultra 40 Workstation

This chapter includes information about the following topics:

Safety Information

Refer to the following document for safety information regarding the Sun Ultra 40 Workstation:

- *Important Safety Information for Sun Hardware Systems*, 816-7190 (hard copy document included in the Sun Ultra 40 Workstation ship kit).

- *Sun Ultra 40 Workstation Safety and Compliance Guide*, 819-2149 (available at http://www.sun.com/documentation)

Planning the Workstation Installation

Use the following flowchart as a process tool to assist you with installation of the Sun Ultra 40 Workstation.

Flowchart	Reference
START	
Unpack the workstation and familiarize yourself with the workstation features.	See "Package Contents Inventory" on page 3. Also see "Front and Back Panel Overview" on page 4.
Install optional components? — Yes → Install optional components.	To install DIMMs, graphic accelerators, PCI cards, hard drives, tape drives, or CD or DVD drives, see the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Guide* or the component documentation.
No ↓ Connect the workstation and external device cables.	See "Cabling the Workstation" on page 8.
Power on the workstation.	See "Powering On the Workstation" on page 9.
Install the operating system or configure the preinstalled operating system.	See "Installing the Operating System" on page 17 or "Setting Up the Preinstalled Software" on page 43.
Install the supplemental drivers from the Sun Ultra 40 Workstation Supplemental CD.	See "Installing Drivers and Mounting the Diagnostic Partition" on page 18.
READY TO WORK!	

FIGURE 1-1   Sun Ultra 40 Workstation Installation Process

Package Contents Inventory

Carefully unpack all workstation components from the packing cartons. The following items should be packaged with the Sun Ultra 40 Workstation:

Item Type	Item
Hardware	• DVI video adapter • DMS59 cable (if an NVS285 graphics card is installed) • SLI connector (if dual video cards with SLI support are installed)
Documentation	• *Sun Ultra 40 Workstation Setup Guide* • *Sun Ultra 40 Workstation Release Notes* • *Sun Ultra 40 Workstation Where to Find Doclette* • Additional license and safety documentation
Media	• Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD (drivers and diagnostics software) • DVD media kit containing the following software: Sun™ Studio 11, Sun Java™ Studio Creator Update 8, Sun Java™ Studio Enterprise Update 8
Additional hardware	Type 7 keyboard, mouse, and power cord (in separate country kits)

Note – The Sun Ultra 40 Workstation will be packaged with the stand deployed, as shown in the following figure. This stand must be positioned as shown when the system is upright.

Stand position for upright workstation
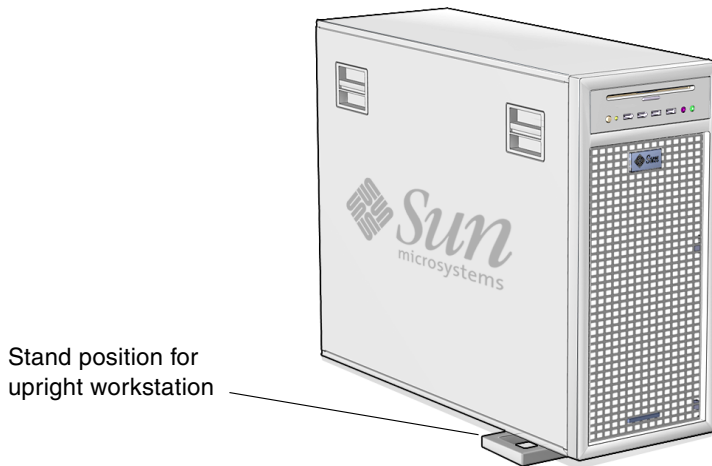
FIGURE 1-2   Sun Ultra 40 Workstation in Upright Position

Front and Back Panel Overview

The following figures and tables show the front and back panels of the Sun Ultra 40 Workstation.
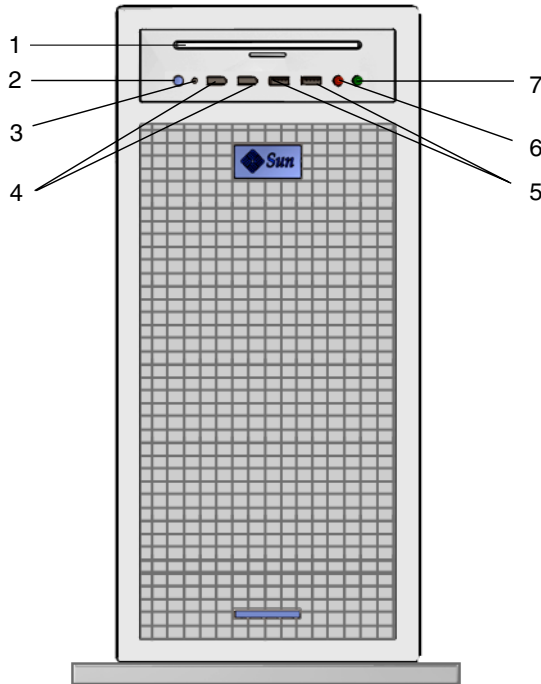
FIGURE 1-3   Front Panel of the Sun Ultra 40 Workstation

TABLE 1-1   Front Panel

Label	Button/LED/Port
1	DVD drive
2	Power button
3	Power LED
4	1394 ports (2)
5	USB ports (2)
6	Microphone-in jack
7	Headphone-out jack
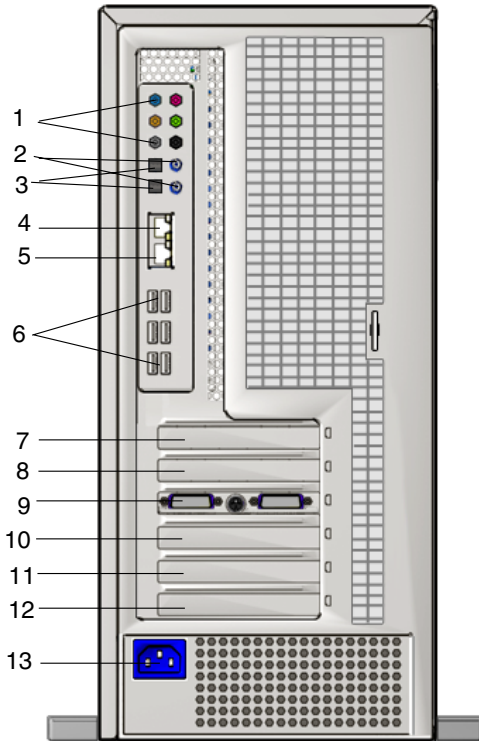
FIGURE 1-4   Sun Ultra 40 Back Panel of the Sun Ultra 40 Workstation

TABLE 1-2   Back Panel

Label	Connector/Slot	Label	Connector/Slot
1	Audio connectors (6) top left to bottom right: Blue: line in; Pink mic-in; Orange: center/LFE; Lime: line-out; Gray: side surround out; Black: back surround out	8	PCI-Express x4 (PCI-E2)
2	SPDIF coaxial (out top, in, bottom)	9	Primary PCI-Express x16 graphics (PCI-E1)
3	SPDIF optical (out top, in, bottom)	10	PCI 33 MHz/32-bit (PCI0)
4	Secondary Ethernet connector (NIC1)	11	PCI 33 MHz/32-bit - fits 66 MHz/64-bit card (PCI1)
5	Primary Ethernet connector (NIC0)	12	PCI-Express x4 slot (PCI-E0)
6	USB connectors (6)	13	Power connector
7	Secondary PCI-Express x16 graphics (PCI-E3)		

Side Cover Overview

⚠️ **Caution –** Always power off the workstation before removing the side cover. If necessary, see the *Sun Blade 1500 Service, Diagnostics, and Troubleshooting Manual* (816-7564) for powering off and side cover removal instructions.
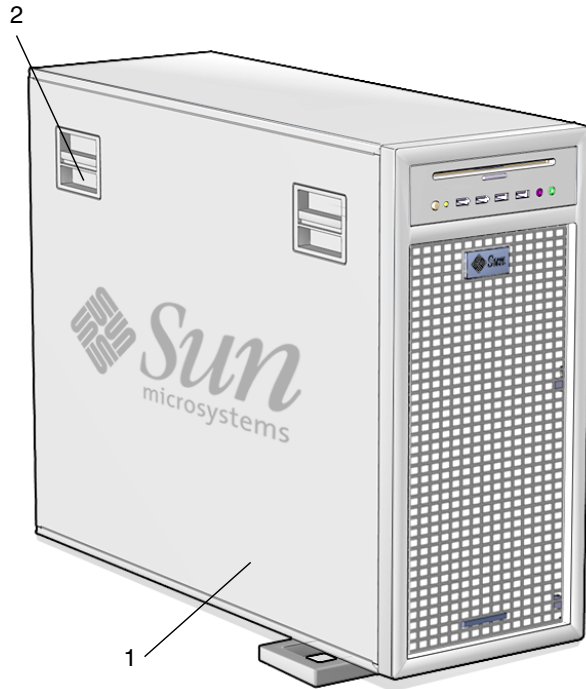
FIGURE 1-5   Side Cover Component Overview—Sun Ultra 40 Workstation

TABLE 1-3   Side Cover Component Overview

Item	Component Description
1	Side cover
2	Latch (2)

Keyboard and Mouse Overview
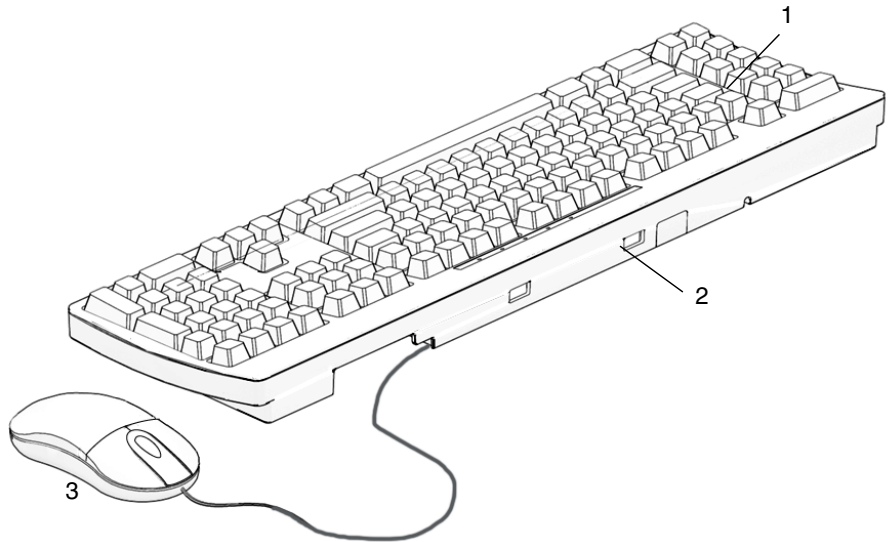
FIGURE 1-6   Keyboard and Mouse Component Overview—Sun Ultra 40 Workstation

TABLE 1-4   Keyboard and Mouse Component Overview

Item	Component Description
1	Keyboard, Type 7
2	Universal serial port (3) (third USB port located under keyboard)
3	Mouse with scroll button

Tip – For additional information about Sun keyboards and mouse devices see *Sun Type 7 Keyboard Installation Guide* (819-2907).

Cabling the Workstation

FIGURE 1-7 illustrates the cable connections for the workstation.
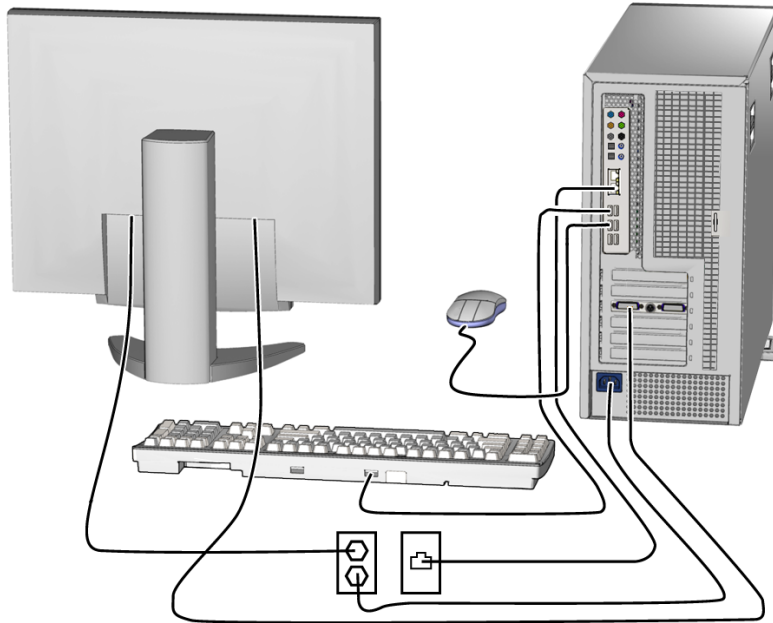
FIGURE 1-7   Cable Connections

Connect the workstation and external devices in this order (see FIGURE 1-7):

1. **Connect the workstation power cord to a grounded electrical outlet.**

2. **Connect the keyboard and mouse to the USB connectors on the back panel.**

3. **Connect the monitor cable to a graphics card video connector installed in a PCI-Express graphics slot.**

   If your workstation has a NVS285 graphics card installed, a DMS59 cable is packaged with the workstation.

4. **Connect the Ethernet cable to one of the Ethernet connector on the Sun Ultra 40 Workstation, and connect the other end of the cable to an Ethernet RJ-45 jack.**

5. **Connect any additional external devices to the workstation's other connectors.**

Powering On the Workstation

> **Tip –** If you are installing optional internal components such as additional DIMMs, PCI cards, SLI connectors, optical drives, or hard drives, install those components before you power on the workstation. See the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Manual* for instructions on installing these components. If you are not installing optional components, you are ready to power on the workstation.

1. **Turn on the power to the monitor and to all external devices.**

2. **Press and release the workstation Power button on the front panel** (see FIGURE 1-3**).**

3. **After several seconds, verify that the Power LED next to the Power button lights.**

   The Power LED next to the Power button lights after the workstation begins the internal booting process (see FIGURE 1-3).

4. **If you are powering on the workstation for the first time, install the operating system or configure the preinstalled operating system after the system is finished booting.**

   - See Chapter 2 for information about installing an operating system.
   - See Chapter 3 for information about configuring the preinstalled Solaris 10 Operating System.

Powering Off the Workstation

1. **Save your data and close any open applications.**

2. **Read all of the following power-off options before powering off the workstation:**

   - Power off the workstation by using the operating system shutdown command or menu option.

     In most cases, either action powers down the operating system and then turns off the power to the workstation.

   - If the workstation power is not shut off through the operating system command or this command is not available, press and release the power button (see FIGURE 1-3 for location).

     This action initiates an orderly shutdown of the operating system and powers off the workstation.

Caution – To avoid data loss, use the preceding two options whenever possible.

   - If the workstation is not shut off, press and hold the Power button for approximately four seconds.

     This action shuts down the power to the workstation but does *not* initiate an orderly shutdown of the system. This method could result in data loss.

   If the preceding options fail to power off the workstation, see "Troubleshooting" in the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Manual,* 819-3952, for more options.

Note – After powering off the workstation, wait at least four seconds before powering on the workstation again.

Software Installation

This chapter includes information about the following topics:

- "Planning for the Operating System Installation" on page 11
- "Setting Up the BIOS for Operating System Installation" on page 13
- "Installing the Operating System" on page 17
- "Running the up2date Utility" on page 18
- "Installing Drivers and Mounting the Diagnostic Partition" on page 18
- "Enabling RAID Support" on page 14
- "Configuring SLI Support" on page 40
- "Downloading Sun N1 Grid Engine" on page 42

This chapter includes information about installing an operating system on your workstation, if you do not want to use the preinstalled Solaris 10 Operating System.

Diagnostics software is also included on the Sun Ultra 40 Workstation Supplemental CD or Sun Ultra 40 Workstation Tools and Drivers CD. Instructions for using the diagnostics software are provided in the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Manual,* 819-3952.

Planning for the Operating System Installation

FIGURE 2-1 shows the process flow for installing an operating system on your workstation.

```
   ┌─────────────────────────┐
   │         START           │
   └─────────────────────────┘
              │
              ▼
   ┌─────────────────────────┐
   │ Power on the workstation.│        See "Powering On the Workstation" on page 9.
   └─────────────────────────┘
              │
              ▼
           ╱────╲
          ╱ Use a ╲
         ╱ preinstalled ╲   Yes    ┌─────────────┐
        ⟨  operating    ⟩ ───────▶ │ Configure the│      See "Configuring Solaris 10 Operating System
         ╲ system?    ╱            │ preinstalled │      Software" on page 43.
          ╲        ╱               │ operating    │
           ╲────╱                  │ system.      │
              │                    └─────────────┘
              │ No
              ▼
           ╱────╲
          ╱Is there╲
         ╱ space on the╲   No     ┌─────────────┐
        ⟨  hard disk for ⟩ ─────▶ │ Use the      │
         ╲ installation? ╱        │ Supplemental │      See "Erasing the Primary Boot Hard Disk" on
          ╲           ╱           │ or Tools and │      page 13.
           ╲────╱                 │ Drivers CD to│
              │                   │ erase        │
              │ Yes               └─────────────┘
              ▼
           ╱────╲
          ╱Is this a╲
         ╱ Windows XP ╲   Yes    ┌─────────────┐
        ⟨ installation? ⟩ ─────▶ │ Set up the   │      See "Setting Up the BIOS for Operating Sys-
         ╲           ╱           │ BIOS for a   │      tem Installation" on page 13.
          ╲        ╱             │ Windows XP   │
           ╲────╱                │ installation │
              │                  └─────────────┘
              │ No
              ▼
   ┌──────────────────────────────┐
   │ (Optional) Enable RAID Support.│    See "Enabling RAID Support" on page 14
   └──────────────────────────────┘
              │
              ▼
   ┌──────────────────────────────┐
   │ Install the operating system. │     See "Installing the Operating System" on page 17.
   └──────────────────────────────┘
              │
              ▼
   ┌──────────────────────────────┐
   │ If installing Red Hat Linux,  │     See "Running the up2date Utility" on page 18
   │ run the up2date utility.      │
   └──────────────────────────────┘
              │
              ▼
   ┌──────────────────────────────────┐
   │ Install the drivers from the Supplemental CD.│  See "Installing Drivers and Mounting the Diagnostic Partition"
   └──────────────────────────────────┘           on page 18.
              │
              ▼
   ┌──────────────────────────────┐
   │ Install or enable additional software.│  See "Configuring SLI Support" on page 40 or "Downloading
   └──────────────────────────────┘           Sun N1 Grid Engine" on page 42.
              │
              ▼
   ┌──────────────────────────────┐
   │        READY TO WORK!         │
   └──────────────────────────────┘
```

FIGURE 2-1   Installation Operating System Process

Erasing the Primary Boot Hard Disk

If you do not have enough space on the boot partition to install an operating system, or would like to remove the preinstalled operating system, there is an Erase Primary Boot Hard Disk option on the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD main menu, which enables you to erase other installed operating systems to make room for the new installation.

Caution – Selecting the Erase Primary Boot Hard Disk option from the Supplemental or Tools and Drivers CD erases all partitions on the hard drive, with the exception of the diagnostic partition. All user data is lost. Be sure to back up all data on the hard drive before performing this action.

To erase the primary boot hard disk:

1. **Back up all data that you want to save on the hard drive.**

2. **Insert the Supplemental or Tools and Drivers CD into the workstation.**

3. **When the main menu appears, select the following option from the Supplemental or Tools and Drivers CD main menu:**

   ```
   3. Erase Primary Boot Hard Disk
   ```

   This option erases all partitions currently located on the primary hard drive, except for the diagnostic partition. The diagnostic partition, if it is present, remains untouched.

Setting Up the BIOS for Operating System Installation

If you plan to install an operating system onto the Sun Ultra 40 Workstation, you need to make sure that the BIOS is set up correctly before installing the software. See the section below that matches the operating system you plan to install.

Setting Up the BIOS for the Windows XP Operating System

If you are installing the Windows XP operating system, you will need to change the Installed O/S option to Windows.

1. **Power on the workstation and press the F2 key at the Sun logo screen to enter the BIOS Setup menu.**

2. **Select the Advanced tab.**

3. **Change the Installed O/S option to Windows.**

4. **Press the F10 key to save your changes and exit the BIOS.**

Setting up the BIOS for a Linux Operating System or Solaris 10 Operating System

The default for the Installed O/S option is Others. If the default has not been changed, you do not need to perform this setup for a Solaris or Linux operating system.

If the BIOS Installed O/S option has been changed from the default, you will need to do the following for Linux operating systems (Red Hat Enterprise Linux 3 and 4 and SUSE Linux Enterprise Server 9) or the Solaris 10 Operating System:

1. **Power on the workstation and press the F2 key at the Sun logo screen to enter the BIOS Setup menu.**

2. **Select the Advanced tab.**

3. **Change the Installed O/S option to Others.**

4. **Press the F10 key to save your changes and exit the BIOS Setup Utility.**

Enabling RAID Support

The Sun Ultra 40 Workstation can accommodate up to four drives for the following Windows XP SP2 32-bit and Windows XP 64-bit RAID array configurations:

- Two drives with RAID 0 or 1.
- Four drives with Spanning, Stripe-mirroring, and RAID5.

To enable RAID support for the Sun Ultra 40 Workstation, you need to configure the Sun Ultra 40 Workstation BIOS and the NVRAID BIOS. This procedure also contains instructions for creating a diagnostic partition for a RAID configuration.

Configuring RAID

1. **Configure RAID in the Sun Ultra 40 Workstation BIOS.**

   a. **Reboot the workstation and press the F2 key at the Sun logo screen to enter the BIOS Setup menu.**

   b. **Select the Advanced tab from the main menu.**

c. **Select Integrated Devices.**

d. **Select NVRAID configuration.**

e. **Change the NVRAID Configuration to Enable.**

f. **Enable RAID on the channels displayed that have disks.**

g. **Press the F10 key to save your change to exit the BIOS.**

2. **Configure RAID in the NVRAID BIOS.**

   a. **Press the F10 key during POST to enter the NVRAID Setup utility.**

   b. **Select 0, 1, 0+1, Spanning, or RAID5 to create a RAID array.**

   During the configuration, a dialog box appears stating: "Would you like to clear the disk? Select Yes or No".

   c. **Choose No and press Ctrl-X to save your changes.**

Creating the Diagnostic Partition on the RAID Disk

1. **Insert the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD and reboot the workstation.**

2. **At the Supplemental or Tools and Drivers CD menu screen, select 1 to load the Pc-Check Diagnostics.**

3. **Once the diagnostics program is running, select Create a Diagnostic Partition, and click Yes.**

   If the operation is successful, the diagnostic partition for the RAID configuration is created.

   If you receive an error message stating "Unknown Partition on Disk", go to Step 4.

4. **Erase the primary boot partition.**

Caution – Selecting the Erase Primary Boot Hard Disk option from the Supplemental or Tools and Drivers CD erases all partitions on the hard drive, with the exception of the diagnostic partition. All user data is lost. Be sure to use this option before installing the operating system.

---

   a. **Exit the diagnostics program and reboot the workstation with the Supplemental or Tools and Drivers CD inserted.**

   b. **At the menu screen, select 3 to run the Erase Primary Boot Hard Disk utility.**

   This utility erases all partitions on the disk.

c. Return to Step 2 above.

Installing the Operating System

Your Sun Ultra 40 Workstation has the Solaris 10 Operating System preinstalled. You can also choose to install one of the other supported operating systems for the Sun Ultra 40 Workstation.

Note – For best results, make sure to run the latest operating system (OS) updates. Some OS installations might not run properly if the latest updates are not installed.

The following additional systems are supported for the Sun Ultra 40 Workstation:

- Red Hat Enterprise Linux (RHEL) 4 32-bit/64-bit Update 2
- RHEL 3 32-bit/64-bit Update 6
- SUSE Linux Enterprise (SLES) 32-bit/64-bit SP3
- Windows XP32 SP2
- Windows XP64

Instructions for installing these operating systems are packaged in the media sets that are provided with the operating system software.

If you are installing Windows XP software, and you plan to set up a RAID configuration on your workstation, you will need to install the RAID drivers in conjunction with installing Windows XP. See "Installing Windows XP Operating System Drivers" on page 21 and "Enabling RAID Support" on page 14.

Note – The diagnostic partition is preinstalled on the Sun Ultra 40 Workstation. If the diagnostic partition has been removed from the workstation, refer to the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Manual*, 819-3952, for information about how to reinstall the diagnostic partition from the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD.

Running the `up2date` Utility

If you are installing the Red Hat Enterprise Linux software, run the `up2date` utility *after* installing the operating system and *before* installing the video drivers from the Sun Ultra 40 Workstation Supplemental or Sun Ultra 40 Workstation Tools and Drivers CD.

Note – If you have already installed the NVIDIA drivers, you must reinstall them after running `up2date`, because the kernel is updated.

Installing Drivers and Mounting the Diagnostic Partition

After installing the operating system, run the installation script provided on the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD to install the drivers that correspond to your operating system.

The Sun Ultra 40 Workstation Supplemental or Sun Ultra 40 Workstation Tools and Drivers CD is included with your Sun Ultra 40 Workstation.

You also need to run the installation script to mount the diagnostic partition for all supported operating systems if you have created a new diagnostic partition. (See the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Manual*, 819-3952, for information about how to create a diagnostic partition.) The diagnostic partition cannot be mounted on a workstation running Windows XP software.

This section covers the following topics:

- "Installing Linux Operating System Drivers" on page 19
- "Installing Solaris Operating System Drivers" on page 20
- "Installing Windows XP Operating System Drivers" on page 21
- "Installing NVIDIA Display and Chipset Drivers for Windows XP" on page 25

Installing Linux Operating System Drivers

To install the video and chipset drivers and mount the diagnostic partition when running a Linux operating system:

1. **Log in to the Sun Ultra 40 Workstation as superuser.**

2. **Insert the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD into the DVD drive and type:**

   ```
   cd /mountpoint/drivers/linux/operating_system
   ```

   Where */mountpoint* is the directory the CD is mounted to and *operating_system* is the type of Linux installed on the workstation (red_hat or suse).

   - If the directory does not exist, the CD did not automount. You will need to mount the CD and change to the correct directory as shown in Step 3 and Step 4.
   - If you were able to access the *operating_system* directory, go to Step 5.

3. **If the CD does not automount, open a terminal window and mount the CD by typing the following command:**

   ```
   # mount -o ro /dev/cdrom /mountpoint
   ```

   Where */mountpoint* is the appropriate mount point for the OS and optical drive type.

   For example:

   ```
   # mount -o ro /dev/cdrom /mnt/dvdrom
   ```

4. **Change to the** */mountpoint*/drivers/linux/*operating_system* **directory.**

   Where */mountpoint* is the directory that the CD is mounted to and *operating_system* is the type of Linux installed on the workstation (red_hat or suse)

   For example:

   ```
   # cd /mnt/dvdrom/drivers/linux/red_hat
   ```

5. **Run the installation script by typing the following command:**

   ```
   #./install.sh
   ```

This script does not execute if the X server is running.

- If the script exits and you receive an error message, go to Step 6.
- If the script executes correctly, go to Step 7.

6. **If the script exits and you receive an error message, perform the following steps to disable the X server:**

   a. **Type the following at the system prompt:**

   ```
   % init 3
   ```

   b. **Log in as superuser.**

   c. **Repeat Step 4 and Step 5.**

7. **Eject the CD after the driver installation is complete.**

8. **Reboot the workstation.**

9. **To enable SLI support, follow the instructions in "Configuring SLI Support" on page 40.**

Installing Solaris Operating System Drivers

To install the drivers and mount the diagnostic partition when running the Solaris 10 Operating System (if the Solaris Operating System is not preinstalled):

1. **Log in to the Sun Ultra 40 Workstation as superuser.**

2. **Insert the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD into the DVD drive.**

   The CD is automounted by the Solaris 10 Operating System.

3. **Change to the** /cdrom/cdrom0/drivers/sx86 **directory by typing the following command:**

   ```
   # cd /cdrom/cdrom0/drivers/sx86
   ```

4. **Run the install script by typing the following command:**

```
#./install.sh
```

The video drivers are now installed and the diagnostic partition is now mounted.

The script prompts the user to reboot the system for changes to take effect.

5. **Eject the CD.**

6. **Reboot the server.**

7. **When prompted for networking information on your system, enter the networking information for your server.**

Installing Windows XP Operating System Drivers

The Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD contains NVRAID, NVIDIA display, and NVIDIA chipset drivers for Windows XP. If you are installing NVRAID drivers, you will need to use the XpReburn script to create a new Windows XP CD containing the necessary drivers or create a boot diskette to install the drivers *before* installing the Windows XP operating system.

The order of Windows XP driver installation is as follows:

1. If you plan to use the workstation RAID functionality, install the NVRAID drivers before installing the operating system by using one of the following methods:
   - "Installing RAID Drivers Using the XPReburn Script" on page 22.
   - "Installing RAID Drivers Using a Boot Diskette" on page 23

2. Install the operating system.

3. Using the Supplemental or Tools and Drivers CD, install the display and chipset drivers as described in "Installing NVIDIA Display and Chipset Drivers for Windows XP" on page 25.

4. If necessary, install the Atmel TPM and RealTek audio drivers as described in "Installing Atmel TPM and RealTek Audio Drivers" on page 26.

5. If necessary, enable SLI support. See "Configuring SLI Support" on page 40.

Note – The Supplemental or Tools and Drivers CD does not mount the diagnostic partition for Windows XP software.

Installing RAID Drivers Using the XPReburn Script

The Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD contains a script that enables you to create a new Windows XP CD with the needed RAID drivers. After the new CD is created, you can boot the CD and install Windows XP normally. This new CD automatically installs the drivers, making it unnecessary to use a USB diskette drive and to install the NVRAID drivers.

For specific and current information about the XpReburn script, see the description at the top of the script which is located in `/drivers/utilities/XpReburn` on the Supplemental or Tools and Drivers CD.

To install Windows XP using a RAID configuration, you need the following:

- A system running Solaris Operating System for x86 Systems, Red Hat Enterprise Linux 3 or 4, or SUSE Linux Enterprise Server (SLES 9).
- Access to a CD burner
- A blank CD-R or CD-RW
- A Windows XP Professional installation CD (retail media only—not an OEM version)
- A Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD

To create a Windows XP CD with the Sun Ultra 40 Workstation drivers:

1. **On a system Solaris x86, Solaris OS (SPARC Platform Edition), or Red Hat Enterprise Linux 3 or 4, or SLES 9 software, insert the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD.**

2. **As superuser, create a temporary directory with at least 1.2 Gbytes of space.**

   For example:

   ```
   # mkdir /files
   ```

3. **Copy the** `XpReburn_version.zip` **file to that directory.**

   Where *version* is the current version of XpReburn.

   For example:

   ```
   # cp /drivers/utilities/XpReburn_1.0.zip /files
   ```

4. **Eject the Supplemental or Tools and Drivers CD and insert your retail Windows XP 32 Professional CD.**

5. **Unzip the** `XpReburn_version.zip` **file.**

   For example:

   ```
   # unzip -q XpReburn_1.0.zip
   ```

6. **Run the XpReburn script.**

   For example:

   ```
   #./files/XpReburn
   ```

   The script displays the driver files it expects to be located in the current directory. When all four driver files have been downloaded into that directory, the script creates a new ISO image and then automatically burns that ISO image onto a CD if the system has a CD burner.

7. **After the CD has been created, install Windows XP Professional software on the Sun Ultra 40 Workstation.**

8. **After the OS installation is complete, install the NVDIA display drivers described in "Installing NVIDIA Display and Chipset Drivers for Windows XP" on page 25.**

Installing RAID Drivers Using a Boot Diskette

This section explains how to create a boot diskette for the NVIDIA RAID drivers using the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD, and how to install the drivers onto your workstation.

To install the NVIDIA RAID drivers using a boot diskette, you will need the following:

- A system running Microsoft Windows software, which has a CD and diskette drive
- A blank diskette
- A Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD
- A USB floppy drive
- A Windows XP Professional installation CD (retail media only—not an OEM version)

This section contains the following subsections:

- "Creating a Boot Diskette for NVIDIA RAID Drivers" on page 24
- "Installing Windows XP and NVIDIA RAID Drivers" on page 24

Creating a Boot Diskette for NVIDIA RAID Drivers

1. **On a system running Microsoft Windows software, insert the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD.**

2. **Change to the appropriate directory on the Supplemental or Tools and Drivers CD by typing the following:**

```
C:\> cd/D D:\drivers\windows\OS\chipset
```

   Where *OS* is XP32 or XP64.

3. **Insert a blank diskette into the workstation.**

4. **Select all files in the directory and copy them to the diskette drive (a:).**

Installing Windows XP and NVIDIA RAID Drivers

To install Windows XP with the NVIDIA RAID drivers on the Sun Ultra 40 Workstation:

1. **Ensure that the system BIOS and NVIDIA BIOS is configured for RAID operation. See "Enabling RAID Support" on page 14.**

2. **Attach a USB diskette drive to the workstation.**

3. **Insert a Windows XP 32-bit or 64-bit installation CD into the DVD drive.**

4. **Press the F6 key to install the third-party RAID driver.**

5. **Press the S key and the Enter key to specify additional drivers and insert the diskette created in "Creating a Boot Diskette for NVIDIA RAID Drivers" on page 24.**

6. **Select the NVIDIA NForce Storage Controller.**

7. **Press the S key and the Enter key to specify additional drivers.**

8. **Select the NVIDIA RAID CLASS DRIVER.**

9. **Press the Enter key to continue the Windows XP installation.**

10. **After the OS installation is complete, install the NVDIA display and chipset drivers as described in "Installing NVIDIA Display and Chipset Drivers for Windows XP" on page 25.**

Installing NVIDIA Display and Chipset Drivers for Windows XP

Note – If you have created a Windows XP CD containing NVRAID drivers using the XpReburn option, you do not need to install the chipset drivers, you need to install only the display drivers.

To install the NVIDIA display and chipset drivers after installing Windows XP, do the following:

1. **Insert the Sun Ultra 40 Workstation Supplemental or Tools and Drivers CD into the DVD drive.**

2. **(If necessary) Install the chipset drivers:**

   a. **Change to the appropriate directory on the Supplemental or Tools and Drivers CD by typing the following command:**

   ```
   C:\> cd/D D:\drivers\windows\OS\chipset
   ```

   Where *OS* is XP32 or XP64.

   b. **Double-click the executable file.**

   c. **Follow the instructions in the installation software.**

3. **Install the display drivers:**

   a. **Change to the appropriate directory on the Supplemental or Tools and Drivers CD by typing the following command:**

   ```
   C:\> cd/D D:\drivers\windows\OS\video
   ```

   Where *OS* is XP32 or XP64.

   b. **Double-click the executable file.**

   c. **Follow the instructions in the installation software.**

4. **Eject the CD from the workstation.**

5. **Reboot the workstation.**

Installing Atmel TPM and RealTek Audio Drivers

If you want for Trusted Platform Computing (TPM) 1.2 and RealTek digital audio (SPDIF) are included on the Supplemental or Tools and Drivers CD. If you want to use these features, you will need to install the drivers.

Note – If the Atmel TPM driver is not installed, a yellow bang will appear in the device manager.

Atmel Driver Installation

1. **Insert the Supplemental or Tools and Drivers CD into the DVD drive.**

2. **Change to the Supplemental or Tools and Drivers CD directory by typing the following:**

   ```
   C:\> cd/D D:\drivers\windows\OS\optional\atmel\
   ```

   Where *OS* is XP32 or XP64.

3. **Double click on the** Atmel_TPM_Driver_X.X.X.XX.msi **icon and follow the instructions in the wizard to install the driver.**

RealTek Audio Driver Installation

1. **Remove the currently installed NVIDIA sound drivers if installed**

   These drivers are installed as part of the NVIDIA chipset pack installation.

2. **Insert the Supplemental or Tools and Drivers CD into the DVD drive.**

3. **Go to the Supplemental or Tools and Drivers CD directory by typing the following**

   ```
   C:\> cd/D D:\drivers\windows\OS\optional\audio\realtek\
   ```

   Where *OS* is XP32 or XP64.

4. **Unzip the file and double click on the executable.**

5. **Follow the instructions in the wizard to install the driver.**

Creating Windows Images on a RIS Server and Installing RIS Images

This section contains the instructions for creating Sun Ultra 40 Workstation specific images on the Remote Installation Service (RIS) server for the following operating systems:

- Windows XP SP2 32-bit
- Windows XP 64-bit

Note – For best results, once created you can install the images on a client workstation.

This section covers the following topics:

- Creating a 32-bit Windows XP (Service Pack 2) RIS Image
- Creating a 64-bit Windows XP RIS Image
- Installing a RIS Image onto a Client Workstation

Creating a 32-bit Windows XP (Service Pack 2) RIS Image

This section tells you how to create a Windows XP 32-bit image on a RIS server and then add platform specific drivers to the image. All drivers for this procedure are located on the Supplemental or Tools and Drivers CD, version 1.2 or later.

Note – Before using this procedure, you must install the RIS onto a Windows 2003 server. See the following URL for complete instructions on how to install the RIS.

http://support.microsoft.com/default.aspx?scid=kb;en-us;325862

Creating the Windows XP SP2 32-bit Image on the RIS Server

To copy Windows XP SP2 32-bit onto the RIS server, do the following steps. Click Next or Finished in each screen to advance to the next screen.

1. **Insert the Windows XP SP2 32-bit CD into the RIS server's CDROM drive.**

2. **In the Start menu, select Run.**

3. **To start the RIS setup program, type the following command:**

```
c:\ risetup.exe
```

Note – In all commands, `c:\` is shown as the DOS command prompt.

---

4. **In the "Welcome to the Remote Installation Services Setup Wizard" screen, click Next.**

5. **In the "Remote Installation Services Options" screen, choose "Add a new OS image to this remote installation server".**

6. **In the Installation Source Files Location screen, choose the CDROM drive with the Windows XP SP2 32-bit CD.**

7. In the "Windows Installation Image Folder Name" screen, type a descriptive name for the Windows XP SP2 32-bit CD image you are creating. For example:

```
Ultra_40_Windows_XP_SP2_32-bit
```

8. In the "Friendly Description and Help Text" screen, type a description and help text (for future end-user reference).

9. In the "Previous Client Installation Screens Found" screen, choose "Use the old client installation screens".

10. In the "Review Settings" screen, verify your settings.

11. After the image installs to the server, click Done.

Adding the NVIDIA Ethernet Drivers to the Windows Image

To add the NVIDIA Ethernet drivers to the Windows XP SP2 32-bit CD image on the RIS server, do the following steps.

1. **Insert the Supplemental or Tools and Drivers CD into the RIS server's CDROM drive.**

2. **Type the commands below to accomplish the following actions:**
   - Copy the Windows XP SP2 32-bit RIS NVIDIA Ethernet driver zip package to the RIS server.
   - Unzip the Ethernet driver zip package.
   - Copy the files to the Windows XP image.

```
c:\ copy cdrom_drive:\drivers\windows\RIS\XP32\NVRISWXP.ZIP C:\temp\
c:\ unzip c:\temp\nvriswxp.zip -d c:\temp\nvriswxp
c:\ copy c:\temp\nvriswxp\*.* ris_partition:\RemoteInstall\Setup\English\Images\
image_dir\i386
```

Where *cdrom_drive* is the CDROM drive on the RIS server, *image_dir* is the image directory, and *ris_partition* is the drive where the RIS image is stored on the RIS server.

Adding Other Drivers and Modifying Setting Files

To modify settings files, create driver directories, and copy drivers to their directories in the Windows XP SP2 32-bit image on the RIS server, do the following steps.

The `ristndrd.sif` file is located in the following directory on the RIS server:

ris_partition`:\RemoteInstall\Setup\Englsh\Images\`*image_dir*`\i386\`
`templates`

1. **Change these entries in the** `ristndrd.sif` file **to read as follows:**

   ```
   [Unattended]
        OemPreinstall = yes
   [GuiUnattended]
        AdminPassword = "desired password"
   ```

2. **Remove the following entry from the** `ristndrd.sif` file**:**

   ```
   [Identification]
        JoinDomain = %MACHINEDOMAIN%
        DoOldStyleDomainJoin = Yes
   ```

3. **Add the following entries to the** `ristndrd.sif` **file:**

```
[Unattended]
     DriverSigningPolicy = Ignore
     OemPnPDriversPath = "\drivers\audio;\drivers\nic;\drivers\sata_ide;\
drivers\smbus"

[MassStorageDrivers]
     "Nvidia RAID CLASS DRIVER (required)"="OEM"
     "Nvidia nForce Storage Controller (required)"="OEM"

[OEMBootFiles]
     nvatabus.sys
     nvraid.cat
     nvraid.inf
     nvraid.sys
     txtsetup.oem

[UserData]
     ProductKey = XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

[Identification]
     JoinWorkgroup = WORKGROUP
```

4. **To create the** `$oem$` **directory for the RIS image, type the following command:**

```
c:\  mkdir ris_partition:\RemoteInstall\Setup\English\Images\image_dir
```

The `$oem$` directory will have a subdirectory tree structure with the following directory names:

```
textmode
$1
   drivers
      audio
      nic
      sata_ide
      smbus
$$
   OemDir
```

5. **To copy Windows XP 32-bit driver files from the Supplemental or Tools and Drivers CD to the** oem **directory tree, type the following commands.**

The drivers are located in the following directory on Supplemental or Tools and Drivers CD.

cdrom_drive:\drivers\windows\xp32\chipset\

a. **To copy the chipset zip package to the RIS server, type the following command:**

```
c:\ copy cdrom_drive:\drivers\windows\xp32\chipset\*.zip c:\temp
```

b. **To unzip the package, type the following command:**

```
c:\ unzip c:\temp\nfref_670_w2kxp.zip c:\temp\nfref_670_w2kxp
```

6. **To copy the chipset drivers to the proper directories, type the following commands:**

```
c:\ copy c:\temp\nfref_670_w2kxp\ide\winxp\sataraid\*.dll ris_partition:\remoteinstall\
setup\english\images\image_dir\$oem$\$$\OemDir

c:\ copy c:\temp\nfref_670_w2kxp\ide\winxp\sataraid\* ris_partition:\remoteinstall\
setup\english\images\image_dir\$oem$\textmode

c:\ copy c:\temp\nfref_670_w2kxp\ide\winxp\sata_ide\* ris_partition:\remoteinstall\
setup\english\images\image_dir\$oem$\$1\drivers\sata_ide

c:\ copy c:\temp\nfref_670_w2kxp\ethernet\* ris_partition:\remoteinstall\setup\english\
images\image_dir\$oem$\$1\drivers\nic

c:\ copy c:\temp\nfref_670_w2kxp\audiodrv\* ris_partition:\remoteinstall\setup\english\
images\image_dir\$oem$\$1\drivers\audio

c:\ copy c:\temp\nfref_670_w2kxp\smbus\* ris_partition:\remoteinstall\setup\english\
images\image_dir\$oem$\$1\drivers\smbus\
```

7. **The** txtsetup.oem **file is** located in the following directory.

ris_partition:\RemoteInstall\Setup\English\Images*image_dir*\oem\
textmode\

Add a semicolon to the beginning of each line for files that are of type *.dll in the [Files.scsi.RAIDClASS] **and** [Files.scsi.BUSDRV] **sections.**

8. **To enable the RIS server to distribute the RIS image you created, type the following commands:**

```
c:\ net Stop binlsvc
c:\ net Start binlsvc
```

Creating a 64-bit Windows XP RIS Image

This section tells you how to create a Windows XP 64-bit image on a RIS server and then add platform specific drivers to the image. All drivers for this procedure located on the Supplemental or Tools and Drivers CD, version 1.2 or later.

Note – Before using this procedure, you must install RIS onto a Windows 2003 server. See the following URL for complete instructions on how to install the RIS.

http://support.microsoft.com/default.aspx?scid=kb;en-us;325862

Installing Windows XP 64-bit onto the RIS Server

To copy the Windows XP 64-bit CD onto the RIS server, do the following steps. Click Next or Finished in each screen to advance to the next screen.

1. **Insert the Windows XP 64-bit CD into the RIS server's CDROM drive.**

2. **In the Start menu, select Run.**

3. **To start the RIS setup program, type the following command:**

   ```
   c:\ risetup.exe
   ```

Note – In all commands, c:\ is shown as the DOS command prompt.

4. **In the "Welcome to the Remote Installation Services Setup Wizard" screen, click Next.**

5. **In the "Remote Installation Services Options" screen, choose "Add a new OS image to this remote installation server".**

6. **In the "Installation Source Files Location" screen, choose the CDROM drive with the Windows XP 64-bit CD.**

7. **In the "Windows Installation Image Folder Name" screen, type a descriptive name for the Windows XP 64-bit CD image you are creating. For example:**

   ```
   Ultra_40_Windows_XP_64-bit
   ```

8. **In the "Friendly Description and Help Text" screen, type a description and help text (for future end-user reference).**

9. **In the "Previous Client Installation Screens Found" screen, choose "Use the new client installation screens, and overwrite the old ones".**

10. **In the "Review Settings" screen, verify your settings.**

11. **After the image installs to the server, click Done.**

Adding the NVIDA Ethernet Drivers to the Windows Image

To add the NVIDIA Ethernet drivers to the Windows XP 64-bit CD image on the RIS server, do the following steps.

1. **Insert the Supplemental or Tools and Drivers CD into the RIS server's CDROM drive.**

2. **Type the commands below to accomplish the following actions.**
   - Copy the Windows XP **64**-bit RIS NVIDIA Ethernet driver zip package to the RIS server.
   - Unzip the Ethernet driver zip package.
   - Copy the files to the RIS image.

```
c:\ copy cdrom_drive:\drivers\windows\RIS\XP64\NVRISW64.ZIP C:\temp\
c:\ unzip c:\temp\NVRISW64.zip -d c:\temp\NVRISW64
c:\ copy c:\temp\NVRISW64\*.* ris_partition:\RemoteInstall\Setup\English\Images\
image_dir\amd64
```

Where *cdrom_drive* is the CDROM drive on the RIS server, *image_dir* is the image directory, and *ris_partition* is the drive where the RIS image is stored on the RIS server.

Adding Other Drivers and Modifying Setting Files

To modify settings files, create driver directories, and copy drivers to their directories in the Windows XP 64-bit image on the RIS server, do the following steps.

The ristndrd.sif file is located in the following directory on the RIS server:

ris_partition:\RemoteInstall\Setup\Englsh\Images*image_dir*\i386\
templates

1. **Change these entries in the** ristndrd.sif file **to read as follows:**

```
[Unattended]
     OemPreinstall = yes
[GuiUnattended]
     AdminPassword = "<desired password>"
```

2. **Remove the following entry from the** ristndrd.sif file**:**

```
[Identification]
     JoinDomain = %MACHINEDOMAIN%
     DoOldStyleDomainJoin = Yes
```

3. **Add the following entries to the** ristndrd.sif file**:**

```
[Unattended]
     DriverSigningPolicy = Ignore
     OemPnPDriversPath = "\drivers\audio;\drivers\nic;\drivers\sata_ide;\
drivers\smbus"

[MassStorageDrivers]
     "Nvidia RAID CLASS DRIVER (required)"="OEM"
     "Nvidia nForce Storage Controller (required)"="OEM"

[OEMBootFiles]
     nvatax64.sys
     nvraid.cat
     nvrdx64.inf
     nvrdx64.sys
     txtsetup.oem

[UserData]
     ProductKey = XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

[Identification]
     JoinWorkgroup = WORKGROUP
```

4. **To create the** oem **directory for the RIS image, type the following command:**

```
c:\ mkdir cdrom_drive:\RemoteInstall\Setup\English\Images\image_dir
```

The `$oem$` directory will have a subdirectory tree structure with the following directory names:

```
textmode
$1
    drivers
        audio
        nic
        sata_ide
        smbus
$$
    OemDir
```

5. **To copy Windows XP 64-bit driver files into the** `$oem$` **directory tree, type the following commands.**

   The drivers are located in the following directory on the Supplemental or Tools and Drivers CD:

   cdrom_drive:\drivers\windows\xp64\chipset\

   a. **To copy the zip package to the RIS server, type the following command:**

   ```
   c:\ copy cdrom_drive:\drivers\windows\xp64\chipset\*.zip c:\temp
   ```

   b. **To unzip the package, type the following command:**

   ```
   c:\ unzip c:\temp\ck804_669_xp64.zip c:\temp\ck804_669_xp64
   ```

6. **To copy the driver files to the proper directories, type the following commands:**

```
c:\ copy c:\temp\ck804_669_xp64\ide\winxp\sataraid\*.dll ris_partition:\remoteinstall\
setup\english\images\image_dir\$oem$\$$\OemDir

c:\ copy c:\temp\ck804_669_xp64\ide\winxp\sataraid\* ris_partition:\remoteinstall\
setup\english\images\image_dir\$oem$\textmode

c:\ copy c:\temp\ck804_669_xp64\ide\winxp\sata_ide\* ris_partition:\remoteinstall\
setup\english\images\image_dir\$oem$\$1\drivers\sata_ide

c:\ copy c:\temp\ck804_669_xp64\ethernet\* ris_partition:\remoteinstall\setup\english\
images\image_dir\$oem$\$1\drivers\nic

c:\ copy c:\temp\ck804_669_xp64\audiodrv\* ris_partition:\remoteinstall\setup\english\
images\image_dir\$oem$\$1\drivers\audio

c:\ copy c:\temp\ck804_669_xp64\smbus\* ris_partition:\remoteinstall\setup\english\
images\image_dir\$oem$\$1\drivers\smbus\
```

7. **The** `txtsetup.oem` **file is** located in the following directory.

   ris_partition:\RemoteInstall\Setup\English\Images*image_dir*\oem\
   textmode\

   Add a semicolon to the beginning of each line for files that are of type *.dll in the
   `[Files.scsi.RAIDClASS]` **and** `[Files.scsi.BUSDRV]` **sections.**

8. **To enable the RIS server to distribute the RIS image you created, type the following commands:**

```
c:\ net Stop binlsvc
c:\ net Start binlsvc
```

Installing a RIS Image onto a Client Workstation

This section tells you how to install a RIS image onto a client workstation using PXE boot.

1. **Either power on or reboot the workstation.**

2. During POST, press the F12 key to enter PXE.

   The workstation looks for the RIS server on the network.

3. **Type your name and password when the Windows RIS install screen appears.**

4. **Choose the RIS image to install.**

   Once selected, the OS installation begins and automatically continues until it completes.

Configuring SLI Support

Refer to `www.slizone.com` for more information on SLI and the latest supported drivers.

NVIDIA SLI (Scalable Link Interface) is a high-performance technology that intelligently combines and scales graphics performance and visual quality by having multiple NVIDIA GPU's in a single system. SLI technology can scale both geometry and fill rate performance for two GPU's.

In order to enable SLI functionality, you need two of same cards installed. The following graphics cards are supported for Sun Ultra 40 Workstation SLI operation:

- FX1400
- FX3450
- FX4500

If these cards are already installed in your workstation, the SLI connector will be already installed. If you still need to install one or both cards, follow the instructions in the *Sun Ultra 40 Workstation Service, Diagnostics, and Troubleshooting Manual*.

Enabling SLI for Windows XP

1. **Install the NVIDIA graphics driver located on the Supplemental or Tools and Drivers CD if it is not previously installed.**

   See "Installing Windows XP Operating System Drivers" on page 21.

2. **Right click on the desktop or click on the NVIDIA setting icon located on the taskbar and select: nvidia display -> GDM-5510.**

3. **Select SLI-Multi GPU and add a checkmark next to enable SLI multi-GPU.**

   A message will appear stating SLI is enabled and that a reboot is required.

4. **Reboot the workstation.**

Enabling SLI for Linux

To enable SLI for Linux operating systems:

1. **Log in to the workstation as root (superuser).**

2. **Install the Linux display drivers, if you have not already done so.**

   See "Installing Linux Operating System Drivers" on page 19.

3. **Run the command:**

   ```
   # nvidia-xconfig --sli=on
   ```

   This will modify the X configuration file automatically

4. **Reboot the workstation.**

   Refer to the readme for more information on configuring the different operation modes in either of the following to locations:

   - On the hard drive after the display drivers are installed:

     `/usr/share/doc/NVIDIA_GLX-1.0/readme.txt` *or*

   - On the Supplemental or Tools and Drivers CD at:
     `/drivers/linux/`*OS*`/display/readme.txt`.

     Where *OS* is `red_hat` or `suse`.

Downloading Sun N1 Grid Engine

Included with the Sun Ultra 40 workstation are two fully licensed RTU's for the Sun's N1 Grid Engine. To purchase support, no additional licenses are required. These RTU's can only be used with the Sun Ultra 40 workstation that it came with. The RTU's are non-transferable and can not be used on other hardware.

By using N1 Grid Engine's market leading functionality you can increase your systems' productivity by leveraging unused compute cycles for power-hungry applications. The ability to incorporate thousands of workstations with N1 Grid Engine enables enterprises to significantly increase the utilization of compute resources for enhanced productivity, increased utilization, and to save money by stretching existing IT assets.

For more information on Sun N1 Grid Engine software, see the following web site:
http://www.sun.com/gridware

Click the Get the Software button to download the software.

Setting Up the Preinstalled Software

The Solaris 10 Operating System and additional development software are preinstalled on all Sun Ultra 40 Workstations. This chapter contains instructions on configuring the operating system and using the software installed on the system.

This chapter includes information about the following topics:

Configuring Solaris 10 Operating System Software

The following topics are covered in this section:

Licensing Information

The Solaris 10 Operating System version installed on your workstation requires no licensing fee. If you install a different version of Solaris software, you might be required to pay a licensing fee for the new software version. The Sun Ultra 40 Workstation requires the Solaris 10 HW 1/06 operating system, or a compatible version. For more information, see:

http://wwws.sun.com/software/solaris/licensing/index.html

Disk Configuration

The exact configuration that has been preinstalled is as follows:

- Hard drive root partition—14.0 Gbytes
- Hard drive swap partition—2.0 Gbytes
- Hard drive var partition—6.0 Gbytes
- Hard drive export partition—remainder of the disk
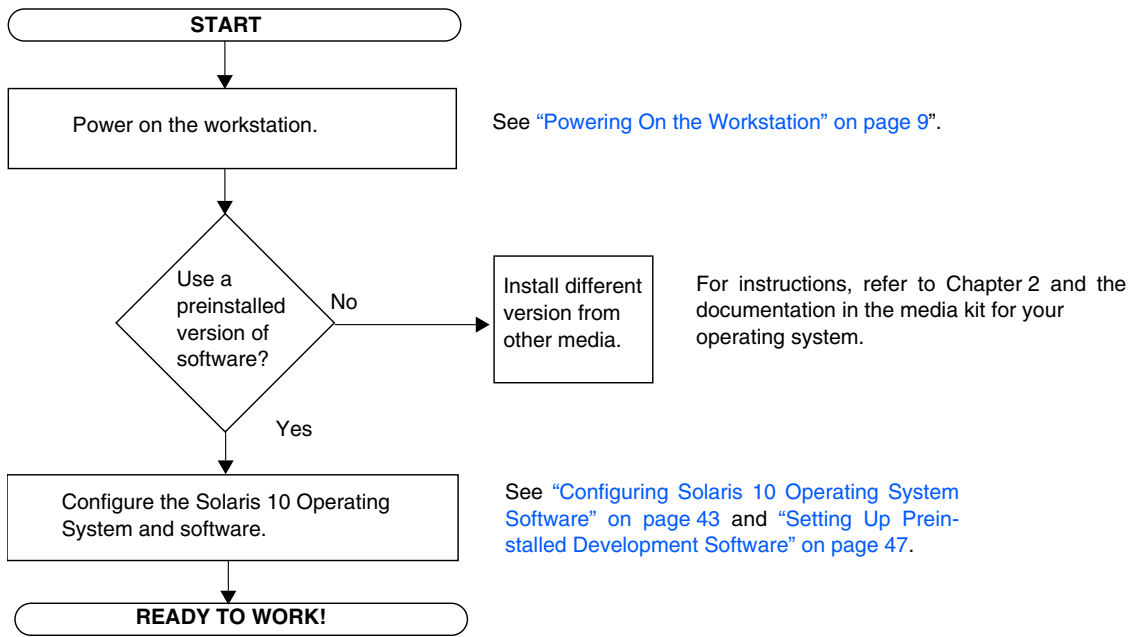
Planning the Solaris Installation

FIGURE 3-1   Solaris Software Installation Process

Configuring the Preinstalled Solaris 10 Operating System

Complete the following steps to configure the preinstalled Solaris 10 Operating System.

1. **Power on the workstation.**

   See "Powering On the Workstation" on page 9.

2. **Answer the setup prompts by following the on-screen instructions.**

   Use a copy of TABLE 3-1 to record the information that you might need to collect before setting up the Solaris 10 Operating System.

   To help you complete the information in the table, your system administrator (SA) should provide you with information that is specific to your site before you begin. Check with your SA about whether some of the information is available on your network.

3. **When you have finished with the configuration, the workstation reboots.**

   The workstation displays the login window, in which you can enter your user name and password to log in and begin using the workstation.

Note – In order to access the icons for the preinstalled development software, you will need to choose the Java Desktop System (JDS) desktop option before logging in. (See "Setting Up Preinstalled Development Software" on page 47 for more information on the development software.)

---

4. **Review the** *Solaris 10 Operating System Release Notes* **for any late-breaking information about your preinstalled software.**

   The *Solaris 10 Operating System Release Notes* documentation is available at:

   http://docs.sun.com

TABLE 3-1 Information for Preinstalled Solaris 10 Configuration

Setup Window	Explanation and Notes	Your Information
Select Language and Locale	Native language and locale to use for the workstation.	
Host Name	A name to give the workstation.	
Network Connectivity	Network or standalone workstation protocols. A system administrator might be required to complete this section.	
(IP Address)	**Note:** Depending on how you answer and what information is provided by your network, you might also be prompted for the workstation's IP address.	
Security Settings	Security settings and protocols.	
Name Service	Name service to use: NIS+, NIS, DNS, LDAP, or None. **Note:** This window is not displayed if the workstation is not connected to a network.	
Domain Name	NIS or NIS+ domain for this workstation. **Note:** This window is not displayed if the workstation is not using the NIS or NIS+ service.	
Name Server/ Subnet/ Subnet Mask	Name server (specify the server or have the workstation find one on a local subnet). **Note:** This window is not displayed if the workstation is not connected to a network. **Note:** Depending on how you answer and what information is provided by your network, you might also be prompted for: • The subnet for the workstation • The subnet mask for the workstation	
Time Zone	Local time-zone (select by geographic region, GMT offset, or a time -zone file).	
Date and Time	Current date and time (accept the default or enter the current date and time).	
Root Password	Root (superuser) password for the workstation.	

Setting Up Preinstalled Development Software

In order to launch one of the preinstalled development programs, double-click on the appropriate icon on the JDS desktop.

The following sections describe the development software that is preinstalled or preloaded on your Sun Ultra 40 Workstation:

- "Sun Studio 11 Software" on page 47
- "Sun Java Studio Creator 2004Q2 Update 8 Software" on page 48
- "Sun Java Studio Enterprise 8 Software" on page 49
- "Net Beans IDE 4.1" on page 49

Sun Studio 11 Software

Sun Studio 11 software provides a comprehensive, productive environment for developing reliable, scalable, high-performance applications using C, C++, and Fortran for the Solaris Operating System. The software package includes compilers, performance analysis tools, and a powerful debugger, as well as a integrated development environment (IDE).

The Sun Studio 11 IDE provides modules for creating, editing, building, debugging, and analyzing the performance of a C, C++, or Fortran application. It includes a set of basic Java™ language support modules that can be enabled if needed for JNI (Java Native Interface) development.

The Sun Studio 11 software consists of two major components:

- The Sun Studio component, which includes the IDE, compilers, tools, and core platform
- The Java 2 Platform, Standard Edition (J2SE) technology on which the core platform runs

More information about the Sun Studio 11 software is available at the following locations:

- Release Notes for Solaris Platforms are available on the developer portal at:
  http://developers.sun.com/prodtech/cc/documentation/ss11/index.html

  Information in the release notes updates and extends information in all readme files.

- Sun Studio documentation is available at:
  http://docs.sun.com

Sun Java Studio Creator 2004Q2 Update 8 Software

The Sun Java Studio Creator development environment is the next-generation tool for Java application development. This product combines the power of 100% Java standards with simplified visual development techniques to give developers the most effective, most productive way to build applications in the Java environment.

The Java Studio Creator environment has been designed and tested to meet the needs of skilled developers whose primary concern is rapid turnaround of business-critical applications. Java Studio Creator lets these developers leverage the power of the Java platform to solve business problems, using the highly productive visual style to which they are accustomed.

Additional information about Sun Java Studio Creator can be found in the product documentation at:

http://developers.sun.com/prodtech/javatools/jscreator/reference/docs/index.jsp

Sun Java Studio Enterprise 8 Software

Sun Java Studio Enterprise software is a complete, cost-effective, unified platform of tools, support, and services designed to fully integrate with the capabilities of the Sun Java Enterprise System. Sun Java Studio Enterprise enables you to develop applications in an environment carefully designed to improve productivity while simplifying the creation of sophisticated network applications that will be ready deployed on the Java Enterprise System.

Additional information about Sun Java Studio Enterprise 8 can be found in the product documentation at:

http://docs.sun.com

Net Beans IDE 4.1

See the following web site for more information on Net Beans IDE 4.1:

http://www.netbeans.org/kb/41/index.html

Restoring and Backing Up Preinstalled Software

Your workstation comes preconfigured with the Solaris 10 Operating System and other preinstalled software. However, if you replace your hard drive for any reason, the replacement drive does not come preconfigured with the Solaris 10 Operating System and other preinstalled software.

Restoring Preinstalled Software

Tip – All Solaris 10 and Java Desktop System (JDS) components are available through download of the Solaris 10 Operating System or through the Solaris 10 media kit. For information about obtaining Solaris 10 and JDS components see:

http://www.sun.com/software/

You should make and keep a full backup of the operating system, which can be used to restore your system if it is ever needed. Instructions for backing up your Operating System are included in the *Solaris 10 System Administration Collection*. For information about the *Solaris 10 System Administration Collection* see:

http:/docs.sun.com/

You can also restore some of the software that is preinstalled on your hard disk image (HDI) from the CD-ROMs included in the appropriate version of the Solaris Media Kit. The Solaris Media Kit contains some of the same software that is preinstalled on your workstation. To reinstall some software, you might need to download the software from the web sites provided throughout this document. Some software product companies, such as Mozilla™, offer different versions of software on their respective web sites.

Restoring Solaris Preinstalled Software

Note – You must use Solaris 10 Operating System HW 1/06 or a subsequent compatible version on the Sun Ultra 40 Workstation.

1. **Get the Solaris Media Kit for your workstation.**

   You might already have the Solaris Media Kit if you ordered it with your workstation. If you did not order the kit with your system, contact your Sun sales representative and order the Solaris Media Kit for your language and Solaris version. For more information, refer to the following web site:

   http://www.sun.com/software/

2. **Follow the installation instructions in the *Start Here* document that comes with the kit.**

   You can install the Solaris Operating System and as much of the additional software as you want.

   More patch information is available at this web site. You can also download patches from this web site:

   http://sunsolve.sun.com/

Reinstalling Other Software

If you must reinstall other software packages, be sure that you have the latest software version. For more information on the latest software versions, refer to the web sites listed throughout this guide.

Backing Up the Preinstalled Image to Another Hard Drive

Information about hard drive backups can be found in the *Solaris 10 System Administration Guide.* To obtain this guide, refer to the following web site:

http://docs.sun.com/

Hard Drive Mirroring

To perform hard drive mirroring using the Solaris 10 operating environment use Solaris Volume Manager.

For information about Solaris Volume Manager, see the *Solaris Volume Manager Administration Guide* at:

http://docs.sun.com/