



Sun Fire™ X2100 M2 Server Operating System Installation Guide

Sun Microsystems, Inc.
www.sun.com

Part No. 819-6592-13
December 2006, Revision A

Copyright 2006 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

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

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

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

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

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

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

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

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

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

Copyright 2006 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, Californie 95054, Etats-Unis. Tous droits réservés.

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

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

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

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

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

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

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

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



Please
Recycle



Adobe PostScript

Contents

Preface	vii
1. Operating System Installation Overview	1
Supported Operating Systems	2
Operating System Installation Tasks	3
Preparing for OS Installation	4
Accessing the Server Output During Installation	4
Erasing the Primary Boot Hard Disk	4
Setting up the BIOS for Operating System Installation	5
Configure Your System for RAID	6
Choosing an Operating System Installation Method	7
CD-ROM or DVD	7
Network Installation (PXE/Jumpstart/RIS)	7
Remote KVMS Over IP With Virtual CD-ROM	8
Serial Redirection	9
2. Solaris Operating System Installation	11
Installing the Operating System	12
Operating System Installation Overview	12
Configuring Your System for RAID	13

Operating System Installation Methods	14
Installing System-Specific Drivers	24
Installing the Drivers Using a KVMs Over IP	24
Installing Drivers Directly Onto the Sun Fire X2100 M2 Server	25
3. Linux Operating System Installation	27
Installing the Operating System	28
Operating System Installation Overview	28
Configuring Your System for RAID	29
Operating System Installation Methods	30
Installing the System-Specific Drivers	33
Installing the Drivers Using KVMs Over IP	33
Installing Drivers Directly Onto the Sun Fire X2100 M2 Server	34
Running Update Utilities	35
Running the <code>up2date</code> Utility for the RHEL OS	36
Running the <code>SuSEWatcher</code> Utility for the SLES OS	36
4. Windows Server 2003 Operating System Installation	37
Installing the Operating System	38
Operating System Installation Overview	38
Operating System Installation Methods	39
Running Windows Update	41
Installing Windows Server 2003 in a RAID Configuration	42
Installing Windows Server 2003 Server With NVRAID Drivers	42
Installing Windows Server 2003 Server With LSI RAID Drivers	46
Installing the Ethernet and Chipset Drivers	50
A. Redirecting Solaris Output to the Serial Port	53
B. Performing a Windows RIS Installation	55

C. Network Interface Configuration 67

Preface

The *Sun Fire X2100 M2 Server Operating System Installation Guide* provides the information that you need to set up, power on, and configure the workstation hardware and software.

How This Book Is Organized

This guide is organized into the following chapters:

[Chapter 1](#) contains instructions for preparing to install an operating system onto your Sun Fire X2100 M2 server.

[Chapter 2](#) contains the instructions for installing the Solaris 10 operating system.

[Chapter 3](#) contains the instructions for installing a supported Linux operating system.

[Chapter 4](#) contains the instructions for installing Windows Server 2003.

[Appendix A](#) contains information on redirecting Solaris output to the serial console.

[Appendix B](#) contains information on performing a Windows Remote Installation Services (RIS) installation.

[Appendix C](#) contains information on the network interface configuration for supported Solaris and Linux operating systems.

Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

Typographic Conventions

Typeface ¹	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>% You have mail.</code>
AaBbCc123	What you type, when contrasted with onscreen computer output	<code>% su</code> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

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

Related Documentation

For a description of the document set for the Sun Fire X2400 server, see the *Where To Find Documentation* sheet that is packed with your system and also posted at the product's documentation site. Navigate to the product document site from the following URL:

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

Translated versions of some of these documents are available on the web site described above in French, German, Simplified Chinese, Traditional Chinese, Korean, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

For all Sun hardware documentation, go to the following URL:

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

For Solaris and other software documentation, go to the following URL:

<http://docs.sun.com>

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

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

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 Fire X2100 M2 Server Operating System Installation Guide*, 819-6592-13.

Operating System Installation Overview

This chapter contains information on what you need to do if you plan to install a new operating system on your Sun Fire X2100 M2 server.

This chapter contains the following topics:

- [“Supported Operating Systems” on page 2](#)
- [“Operating System Installation Tasks” on page 3](#)
- [“Preparing for OS Installation” on page 4](#)
- [“Choosing an Operating System Installation Method” on page 7](#)

Note – If you plan to use the Solaris™ 10 Operating System (OS) that is preinstalled on the Sun Fire X2100 M2 server, see the *Sun Fire X2100 M2 Server Installation Guide*, 819-6589, for information on configuring the operating system.

Supported Operating Systems

The Solaris 10 6/06 operating system, or later version, might be preinstalled on your server, depending on your hard drive configuration. If you do not plan to use the Solaris 10 OS preinstalled on your Sun Fire X2100 M2 server, you can install an operating system of your choosing.

The following minimum operating system versions are supported for the Sun Fire X2100 M2 server:

- Solaris 10 Operating System (6/06 or later)
- Red Hat Enterprise Linux 3 (Update 7 or later) 32- and 64-bit (ES and AS)
- Red Hat Enterprise Linux 4, (Update 3 or later) 32- and 64-bit (ES and AS)
- SUSE Linux Enterprise System 9 (SP 3 or later), 32- and 64-bit
- SUSE Linux Enterprise System 10, 32- and 64-bit
- Windows Server 2003 Standard and Enterprise 32-bit (SP 1 or later) and 64-bit (SP 0 or later)

You can order supported versions of Red Hat and SUSE operating systems from Sun at the following web site:

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

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

Support for additional operating systems will be available after the initial release of the Sun Fire X2100 M2 server. The most recent supported operating systems and certifications can be found at the following URL:

<http://www.sun.com/servers/entry/x2100/os.jsp>

The diagnostic partition is preinstalled on the Sun Fire X2100 M2 server. If, for some reason, the diagnostic partition has been removed from the server, refer to the *Sun Fire X2100 M2 Server Service Manual*, 819-6591, for information on how to reinstall the diagnostic partition from the Sun Fire X2100 M2 Server Tools and Drivers CD.

Operating System Installation Tasks

The following is an overview of the procedures that are needed to install a new operating system (OS).

1. Set up the display environment.

If you are not using the optional DVD drive for preparing the system for OS installation and installing the OS, see [“Accessing the Server Output During Installation” on page 4](#)

2. Erase the primary boot disk.

If you have an operating system preinstalled on the server, you will need to remove it before installing a new operating system. See [“Erasing the Primary Boot Hard Disk” on page 4](#).

3. Set up the BIOS.

You need to make sure that the BIOS is set up for the operating system that you plan to install. See [“Setting up the BIOS for Operating System Installation” on page 5](#).

4. Install the operating system.

See the chapter in this document that corresponds to the operating system that you plan to install.

5. Configure your server for RAID.

If you plan to configure your server for RAID operation, you will need to perform some setup tasks before installing the operating system. See [“Configure Your System for RAID” on page 6](#).

6. Install the operating system, update the drivers, and run operating system updates, as necessary. See [“Choosing an Operating System Installation Method” on page 7](#) and the chapter that corresponds to the operating system that you want to install.

- [“Solaris Operating System Installation” on page 11](#)
- [“Linux Operating System Installation” on page 27](#)
- [“Windows Server 2003 Operating System Installation” on page 37](#).

Preparing for OS Installation

The topics in this section describe how to prepare your server for operating system installation:

- [“Setting up the BIOS for Operating System Installation” on page 5](#)
- [“Erasing the Primary Boot Hard Disk” on page 4](#)
- [“Setting up the BIOS for Operating System Installation” on page 5](#)

Accessing the Server Output During Installation

If you are not using the local DVD drive and monitor for the Tools and Drivers CD or OS installation CD, you have two options for your display environment:

- View system output serially, through the Embedded Lights Out Manager (LOM) service processor (SP) SSH or through the physical port.

See the *Sun Fire X2100 M2 Server Installation Guide*, 819-6589, for instructions on viewing system output through the serial console, using the Embedded LOM SP.

- Use the remote KVMs Over IP feature of the Embedded LOM

See the *Embedded Lights Out Manager Administration Guide*, 819-6588, for instructions on setting up the remote KVMs Over IP for virtual CD operation.

Erasing the Primary Boot Hard Disk

By default, the Sun Fire X2100 M2 servers have Solaris 10 installed on the hard drive. If you want to install a different operating system or reinstall the Solaris 10 operating system, use the Erase Primary Boot Hard Disk option on the Sun Fire X2100 M2 Server Tools and Drivers CD main menu, which enables you to erase previously installed operating systems to make room for the new installation.



Caution – Selecting the Erase Primary Boot Hard Disk option from the 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 Tools and Drivers CD into the server's optional DVD drive.**
3. **Boot the server from the CD.**
4. **When the main menu appears, select the following option from the 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. If the diagnostic partition is present, it remains untouched.

Setting up the BIOS for Operating System Installation

If you plan to install an operating system on the Sun Fire X2100 M2 server, you need to make sure that the BIOS is set up correctly before you install the software. See the procedure that matches the operating system you plan to install.

- [“Setting up the BIOS for a Solaris 10 or a Linux OS” on page 5](#)
- [“Setting up the BIOS for Windows Server 2003 OS” on page 6](#)

Setting up the BIOS for a Solaris 10 or a Linux OS

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 the for a Solaris or Linux operating system.

If the BIOS Installed O/S option has been changed from the default, do the following for Solaris 10, Red Hat Enterprise Linux 3 and 4 and SUSE Linux Enterprise System.

To set up the BIOS for Solaris or Linux installation:

1. **Power on the server and press the F2 key at the Sun logo screen to enter the BIOS Setup menu.**
2. **Select the Advanced tab, then select ACPI Configuration.**
3. **Change the Installed O/S option to Others.**
4. **Press the F10 key to save your changes and exit the BIOS.**

Setting up the BIOS for Windows Server 2003 OS

To set up the BIOS for Windows Server 2003 installation:

1. **Power on the server and press the F2 key at the Sun logo screen to enter the BIOS Setup menu.**
2. **Select the Advanced tab, then select ACPI Configuration.**
3. **Change the Installed O/S option to Windows.**
4. **Press the F10 key to save your changes and exit the BIOS.**

Configure Your System for RAID

See the following sections for Sun Fire X2100 M2 Server RAID options:

- [“RAID Support Using the NVIDIA NVRAID” on page 6](#)
- [“RAID Support Using LSI SAS3041E-R PCIe Card” on page 6](#)

RAID Support Using the NVIDIA NVRAID

The onboard NVIDIA NVRAID only supports the Windows OS for a true hardware RAID. Refer to [Chapter 4](#) for information on configuring a Windows server to use NVIDIA RAID.

RAID Support Using LSI SAS3041E-R PCIe Card

You can purchase an optional LSI PCIe card to enable RAID 0 and RAID 1, which is supported for all operating systems for the SAS and SATA hard disks. Refer to the *Sun Fire X2100 M2 Server Service Manual* for instructions on installing and cabling the LSI PCIe card. The following is needed for LSI RAID support:

- LSI SAS3041E-R card and cables installed
- 2 SATA or SAS hard disks

Refer to the chapter that corresponds to the operating system that you want to install for further details on configuring RAID:

- [“Solaris Operating System Installation” on page 11](#)
- [“Linux Operating System Installation” on page 27](#)
- [“Windows Server 2003 Operating System Installation” on page 37](#)

Choosing an Operating System Installation Method

The following is an overview of the possible methods of installation for the operating system that you plan to install. See the specific operating system section for further details.

- [“CD-ROM or DVD” on page 7](#)
- [“Network Installation \(PXE/Jumpstart/RIS\)” on page 7](#)
- [“Remote KVMs Over IP With Virtual CD-ROM” on page 8](#)
- [“Serial Redirection” on page 9](#)

CD-ROM or DVD

This method includes installing the operating system directly onto the server, using the server’s onboard DVD, a USB connected drive, and a VGA monitor attached the the system.

For more details on CD/DVD installation for your specific operating system, refer to the instructions included in your installation software or the online documentation referenced in the specific operating system chapters in this document.

Network Installation (PXE/Jumpstart/RIS)

This method includes setting up an installation on a host server, and then installing the operating system over the network. Network installation methods include AutoYast for SUS, Kickstart for RedHat, Jumpstart for Solaris, and Remote Installation Services (RIS) for Windows.

For more details on network installation for your specific operating system, refer to the instructions included in your installation software or the online documentation referenced in the specific operating system chapters in this document.

Due to missing network interface card (NIC) drivers in some operating systems, the following is recommended for network installations:

- Solaris - Use the Broadcom NICs connectors labelled 0 and 1
- Red Hat Enterprise Linux - Use the Broadcom NIC connectors labelled 0 and 1
- SUSE Linux Enterprise Server - Use either NVIDIA NIC connector labelled 2 and 3

- Windows - Any of the Broadcom or NVIDIA NIC connectors.

For specific instructions on RIS installation for the Sun Fire X2100 M2 server, see [Appendix B](#).

Remote KVMS Over IP With Virtual CD-ROM

This method includes using a remote networked system to install the operating system onto the Sun Fire X2100 M2 server. The CD or DVD drive of the remote system (virtual cdrom) is used to access the operating system media and all output of the Sun Fire X2100 M2 server is displayed on the remote system (remote console). Specific details on the using keyboard, mouse, video, storage (KMVS) over IP in the Embedded Lights Out Manager (LOM) can be found in the *Embedded Lights Out Manager Administration Guide*, 819-6588.

For more details on remote KVMS over IP installation, refer to the *Embedded Lights Out Manager Administration Guide* or to the instructions included in your installation software or the specific operating system chapters in this document.

Note – This procedure assumes that you are familiar with the Embedded LOM WebGUI administration. More information can be found in the *Embedded Lights Out Manager Administration Guide*, 819-6588.

Requirements for Remote KMVS Over IP installation include:

- Remote system connected to the network
 - One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox
 - CD/DVD drive connected to the remote system
 - Media for installing the operating system of your choice
 - SP of the Sun Fire X2100 M2 server set up as instructed in the *Sun Fire X2100 M2 Server Installation Guide*, 819-6589.
1. **On a remote system, open a browser and type the IP address of the Embedded LOM service processor for the Sun Fire X2100 M2 server on which you want to install the operating system.**
 2. **Enter your user name and password at the login screen.**
 3. **In the main Embedded LOM window, click Launch to open a remote console window.**
 4. **Insert the Operating System CD/DVD to be installed on the Sun Fire X2100 M2 server into the local CD/DVD drive.**

5. **In the remote console window, select Storage -> Mount devices.**

The Device Configuration windows appears.

6. **In the Storage 1 Source field, from the drop down arrow menu, select the DVD/CD drive to be used for installing the operating system.**

7. **Click Submit.**

8. **Configure the BIOS to boot from the remote (virtual) CDROM.**

- a. **Go to the Embedded LOM main page, and select Control -> Power Control -> Reset.**

The Sun Fire X2100 M2 system will be restarted and you can view the POST process from the Remote Console screen.

- b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**

The BIOS setup utility displays.

- c. **Select Boot -> Boot Device priority and change the first boot driver to Virtual CD/DVD.**

Note – Make sure that the hard disk is still listed in the boot order.

- d. **Press F10 to save your changes and exit the BIOS.**

Now when the server is rebooted, it will boot from the virtual CDROM. The instructions for installing the operating system will be the exactly same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

Serial Redirection

This method includes directing the server output to a terminal over the serial port.

For detailed instructions for other operating systems, refer to the installation instructions for your operating system or specific operating system chapters in this document.

Solaris Operating System Installation

This chapter includes information on installing the Solaris 10 OS and system-specific drivers onto your server.

Note – If you have created a new diagnostic partition, you also need to run this script to mount the diagnostic partition. (See the *Sun Fire X2100 M2 Server Service Manual*, 819-6591, for information about how to create a diagnostic partition.)

The driver installation script is available on the Sun Fire X2100 M2 Server Tools and Drivers CD included with your Sun Fire X2100 M2 server. You can also download the Tools and Drivers CD .iso image from the downloads link at:

<http://www.sun.com/servers/entry/x2100/downloads.jsp>

This chapter includes the following topics:

- “Installing the Operating System” on page 12
- “Installing System-Specific Drivers” on page 24

Installing the Operating System

This document does not provide comprehensive instructions for installing the Solaris 10 operating system, but this section provides guidelines for the tasks involved in the OS installation and the installation methods available.

This section contains the following topics:

- [“Operating System Installation Overview” on page 12](#)
- [“Operating System Installation Methods” on page 14](#)

Operating System Installation Overview

The following procedures are for installing drivers if you are performing a fresh installation of the Solaris 10 operating system. You do not need to reinstall the drivers if you are using the preinstalled version of the operating system.

See [TABLE 2-1](#) for the task map for operating system installation.

TABLE 2-1 Task Map for Initial Solaris OS Installation

Task	Description	Instructions
Set up your server.	Install your server hardware and configure the service processor.	<i>Sun Fire X2100 M2 Server Installation Guide</i> (819-6589)
Prepare your system for operating system installation.	If necessary, erase the primary boot disk, set up the BIOS, and set up the LSI RAID configuration if the LSI RAID card is installed.	Chapter 1 and “Configuring Your System for RAID” on page 13
Review the Sun Fire X2100 M2 Server Product Notes.	The product notes contain late-breaking news about the Solaris OS software and patches.	<i>Sun Fire X2100 M2 Server Product Notes</i> (819-6601)
Install the Solaris OS.	Choose an installation method and locate the installation instructions.	“Operating System Installation Methods” on page 14
Install the system specific drivers from the Tools and Drivers CD.	Install the system-specific drivers needed to run the Solaris 10 operating system on the Sun Fire X2100 M2 server.	“Installing System-Specific Drivers” on page 24
Install patches, if necessary.	Patches are available from the SunSolve Patch Portal at: http://www.sunsolve.sun.com	<i>Sun Fire X2100 M2 Server Product Notes</i> (819-6601)

Configuring Your System for RAID

If you don't have the LSI Logic SAS3041E-R card installed in your system, and you don't plan to install it, you can skip this section.

Note – The Sun Fire X2100 M2 Server supported versions of Solaris all have the LSI boot driver included in the operating system software. The operating system will automatically recognize the LSI boot drivers.

To configure RAID for the Solaris Operating System if you have the LSI Logic SAS3041E-R card installed, follow the procedure below:

1. Install the optional LSI Logic SAS3041E-R card (Sun part number SG-PCIE4SAS-Z).

See the *Sun Fire X2100 M2 Server Service Manual* for instructions on installing and cabling the card.

2. Power on the server.

3. During the boot process, press Ctrl-C to enter the LSI utility when the LSI SAS card is recognized.

4. Create your RAID.

See the LSI Integrated RAID User's Guide at

http://www.lsillogic.com/files/docs/techdocs/storage_stand_prod/PCISCSICont/Software/ir_ug.pdf

5. Save your work and exit the utility.

6. Install the Solaris Operating System.

See "Operating System Installation Methods" on page 14.

7. Download the LSI utilities for managing RAID from the following site:

http://lsi.com/storage_home/products_home/host_bus_adapters/sas_hbas/lasisas3041er/index.html

Operating System Installation Methods

See the following list of installation methods to determine the type of installation that you want to do and the information source for the installation. See “[Choosing an Operating System Installation Method](#)” on page 7 for a description of each method. If you wish to use the preinstalled Solaris 10 Operating System, see the instructions for configuring the preinstalled image in the *Sun Fire X2100 M2 Server Installation Guide*.

The following methods can be used:

- “[Direct Installation Using DVD or CD-ROM Media](#)” on page 14
- “[Network Installation Using Jumpstart](#)” on page 15
- “[Remote KVMs over IP with Virtual CD-ROM](#)” on page 22

Note – The Solaris OS provides additional programs for installation, such as booting over a wide area network (WAN), but the Sun Fire X2100 M2 server supports only those methods listed in this document

Additional Solaris 10 documentation is available at <http://docs.sun.com/>

Direct Installation Using DVD or CD-ROM Media

To install Solaris 10 06/06 (or earlier version) from DVD/CD-ROM media, you will need to do one of the following to view system output and interact with the installation process:

- Connect to the console of the server via remote KVMs through the Embedded LOM service processor.

Refer to the *Embedded Lights Out Manager Administration Guide* for more information.

- Use a local keyboard, monitor and mouse.
- Connect to the console via the serial port.

For a serial port console installation, do the following:

- a. **Connect a terminal to the serial port on the service processor.**

A terminal can be a VT100, a PC running terminal emulation, or a terminal server. Set the terminal to receive at 9600 baud.

b. Do one of the following:

- Set the "External COM port" to "system" in the BIOS.
- Change the SP ConsoleMux value as follows:

i. Log in to the service processor as an Administrator.

ii. Type the following commands to set the `ConsoleMux` value.

```
cd /SP/AgentInfo
set ConsoleMux=system
```

For basic instructions on how to install Solaris 10 06/06 refer to:

<http://docs.sun.com/app/docs/doc/817-0544>

Network Installation Using Jumpstart

For basic instructions on setup and configuration for network installations go to:

<http://docs.sun.com/app/docs/doc/817-5504>

- If you are using the Broadcom NICS (LAN-0 and LAN-1) for Jumpstart installation, see the following sections for further details on specific installation types:
 - [“Serial Console” on page 19](#)
 - [“Local Console or Remote KVM” on page 22](#)
- If you are using the NVIDIA NICs (LAN-2 or LAN-3) for Jumpstart installation, follow the procedure in [“Apply a Patch for Solaris Jumpstart Installation” on page 15](#) to apply a patch to update the NVIDIA drivers in the miniroot of the install image.

Apply a Patch for Solaris Jumpstart Installation

If you choose to use NVIDIA NICs (LAN-2 and LAN-3) for performing a Solaris Jumpstart installation, you will need to apply a patch. If you are using Broadcom NICs for the Jumpstart Installation, go to [“Serial Console” on page 19](#) or [“Local Console or Remote KVM” on page 22](#).

The patch number is 122530-02 and you can download it from:

<http://sunsolve.sun.com>

Note – This procedure is not needed unless you want to use the NVIDIA NICs to perform a Solaris Jumpstart installation.

The system that you use as an installation server must include a CD-ROM drive and be part of the site's network and name service. If you use a name service, the system must already be in a name service, such as NIS, NIS+, DNS, or LDAP. If you do not use a name service, you must distribute information about this system by following your site's policies.

1. On the system that is to become the installation server, log in as root (superuser).
2. Insert the Solaris 10 1/06 (or later version) media in the system's drive.
3. Create a directory for the CD image.

```
# mkdir -p install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

4. Change to the Tools directory on the mounted disc.

```
# cd /cdrom/cdrom0/Solaris_10/Tools
```

5. Copy the image in the drive to the install server's hard disk.

```
# ./setup_install_server install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

Note – The `setup_install_server` command indicates whether you have enough disk space available for the Solaris 10 Software disc images. To determine available disk space, use the `df -k1` command.

6. Change directories to root (/).

```
# cd /
```

7. Eject the Solaris 10 media.
8. Patch the files that are located in the miniroot on the net install image that was created by `setup_install_server`.



Caution – Read the `patchadd -C` command README or contact your local Sun support office before running the `patchadd -C` command as instructed in this procedure.

To patch a Solaris 10 1/06 for x86 miniroot, your system must be running the Solaris 10 1/06 (or later) for x86 release.

a. If the installation server is not running the Solaris 10 1/06 for x86 release, log in as superuser to another system on the network that is running the Solaris 10 1/06 for x86 release.

- If your installation server is running the Solaris 10 1/06 for x86 release, continue to Step b.
- If you need to use a new server running the Solaris 10 1/06 for x86 release, complete the following steps:

i. Change to the Tools directory of the installation image that you created in Step 5.

```
# cd install_server_path/install_dir_path/Solaris_10/Tools
```

install_server_path specifies the path to the install server system on your network, for example, `/net/installserver-1`.

install_dir_path specifies the directory where the CD image was copied.

ii. Create a new installation image, and place that image on the system that is running the Solaris 10 1/06 for x86 release.

```
# ./setup_install_server remote_install_dir_path
```

remote_install_dir_path specifies the path on the Solaris 10 1/06 for x86 system in which to create the new installation image.

This command creates a temporary installation image on the Solaris 10 1/06 for x86 system to enable you to patch this image.

b. Unpack the network installation boot archive.

```
# /boot/solaris/bin/root_archive unpackmedia \  
install_dir_path destination_dir
```

install_dir_path specifies the path to the x86 network installation image. If you created a new installation image in Step a, specify the path to the new image on the Solaris 10 1/06 x86 system.

destination_dir specifies the path to the directory to contain the unpacked boot archive.

c. Patch the unpacked boot archive.

```
# patchadd -C destination_dir path_to_patch/122530-02
```

destination_dir specifies the path to the directory that contains the unpacked boot archive.

path_to_patch specifies the path to the patch that you want to add, for example, `/var/sadm/spool`.

122530-02 is the patch ID that you want to apply.

You can specify multiple patches with the `patchadd -M` option. For more information, see `patchadd(1M)`.



Caution – Do not use the `patchadd -C` command unless you have read the Patch README instructions or have contacted your local Sun support office.

d. Pack the x86 boot archive.

```
# /boot/solaris/bin/root_archive packmedia \  
install_dir_path destination_dir
```

install_dir_path specifies the path to the x86 network installation image.

destination_dir specifies the path to the directory that contains the unpacked boot archive.

e. If necessary, copy the patched miniroot to the installation image on the install server.

If you patched the miniroot on a remote Solaris 10 1/06 for x86 system, you must copy the patched miniroot to the install server.

```
# cp remote_install_dir_path/boot/x86.miniroot \  
install_server_path/install_dir_path/boot/x86.miniroot
```

install_server_path specifies the path to the install server system on your network.

install_dir_path specifies the path to the x86 network installation image.

9. Proceed with the instructions in [“Serial Console” on page 19](#) or [“Local Console or Remote KVM” on page 22](#).

Serial Console

Please note the following before performing this procedure:

- This procedure is not needed unless you want to force the installation output to the serial port.
- These steps are only for the installation output. If you want the system output to be forced out the serial port after installation, you will then need to either manually follow the steps in [Appendix A](#) or create a finish script that will perform the steps.
- If you are using NVIDIA NICs for the installation, you need to first apply a patch as instructed in [“Apply a Patch for Solaris Jumpstart Installation” on page 15](#).

The system that you use as an installation server must include a CD-ROM drive and be part of the site's network and name service. If you use a name service, the system must already be in a name service, such as NIS, NIS+, DNS, or LDAP. If you do not use a name service, you must distribute information about this system by following your site's policies.

1. On the system that is to become the installation server, log in as root (superuser).
2. Insert the Solaris 10 1/06 (or later version) media in the system's drive.
3. Create a directory for the CD image.

```
# mkdir -p install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

4. Change to the Tools directory on the mounted disc.

```
# cd /cdrom/cdrom0/Solaris_10/Tools
```

5. Copy the image in the drive to the install server's hard disk.

```
# ./setup_install_server install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

Note – The `setup_install_server` command indicates whether you have enough disk space available for the Solaris 10 Software disc images. To determine available disk space, use the `df -k1` command.

6. Change directories to root (/).

```
# cd /
```

7. Eject the Solaris 10 media.

8. Edit the files that are located in the miniroot on the net install image that was created by `setup_install_server`.

To edit a Solaris 10 1/06 for x86 miniroot, your system must be running the Solaris 10 1/06 (or later) for x86 release.

a. If the installation server is not running the Solaris 10 1/06 for x86 release, log in as superuser to another system on the network that is running the Solaris 10 1/06 for x86 release.

- If your installation server is running the Solaris 10 1/06 for x86 release, continue to Step b.
- If you need to use a new server running the Solaris 10 1/06 for x86 release, complete the following steps:

i. Change to the Tools directory of the installation image that you created in Step 5.

```
# cd install_server_path/install_dir_path/Solaris_10/Tools
```

install_server_path specifies the path to the install server system on your network, for example, `/net/installserver-1`.

install_dir_path specifies the directory where the CD image was copied.

ii. Create a new installation image, and place that image on the system that is running the Solaris 10 1/06 for x86 release.

```
# ./setup_install_server remote_install_dir_path
```

remote_install_dir_path specifies the path on the Solaris 10 1/06 for x86 system in which to create the new installation image.

This command creates a temporary installation image on the Solaris 10 1/06 for x86 system to enable you to patch this image.

b. Unpack the network installation boot archive.

```
# /boot/solaris/bin/root_archive unpackmedia \  
install_dir_path destination_dir
```

install_dir_path specifies the path to the x86 network installation image. If you created a new installation image in Step a, specify the path to the new image on the Solaris 10 1/06 x86 system.

destination_dir specifies the path to the directory to contain the unpacked boot archive.

c. Modify the System files to enable serial console redirection.

Make edits to the following files:

- Edit the following lines in the `/destination_dir/boot/solaris/bootenv.rc` file to read as follows:

```
setprop input-device ttyb
setprop output-device ttyb
setprop console ttyb
setprop ttyb-mode 115200,8,n,1,-
```

- Add the following line to the end of the `/destination_dir/kernel/drv/asy.conf` file:

```
name="asy" parent="isa" reg=1,0x2f8,8 interrupts=3;
```

destination_dir specifies the path to the directory to contain the unpacked boot archive.

d. Pack the x86 boot archive.

```
# /boot/solaris/bin/root_archive packmedia \  
install_dir_path destination_dir
```

install_dir_path specifies the path to the x86 network installation image.

destination_dir specifies the path to the directory that contains the unpacked boot archive.

- e. If necessary, copy the patched miniroot to the installation image on the install server.

If you patched the miniroot on a remote Solaris 10 1/06 for x86 system, you must copy the patched miniroot to the install server.

```
# cp remote_install_dir_path/boot/x86.miniroot \  
install_server_path/install_dir_path/boot/x86.miniroot
```

install_server_path specifies the path to the install server system on your network.

install_dir_path specifies the path to the x86 network installation image.

9. Run the following command

```
# add_install_client -B console=ttyb, input-device=ttyb, \ output-  
device=ttyb
```

The output of the installation will push to the serial port.

10. Install the Solaris 10 operating system.

Local Console or Remote KVM

This method includes directing the server output to the local console or to a remote console (RVKM) when the local CD/DVD drive is used. See the following instructions at:

<http://docs.sun.com/app/docs/doc/817-5504>

Remote KVMS over IP with Virtual CD-ROM

This method includes using a remote networked system to install the operating system onto the Sun Fire X2100 M2 server. The CD or DVD drive of the remote system (virtual cdrom) is used to access the operating system media, and all output of the Sun Fire X2100 M2 server is displayed on the remote system (remote console).

Specific details on the using keyboard, mouse, video, storage (KVMS) over IP in the Embedded Lights Out Manager (LOM) can be found in the *Embedded Lights Out Manager Administration Guide*.

Note – This procedure assumes that you are familiar with the Embedded LOM WebGUI administration. More information can be found in the *Embedded Lights Out Manager Administration Guide*.

Requirements for Remote KMVS Over IP installation include:

- Remote system connected to the network
 - One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox
 - CD/DVD drive connected to the remote system
 - Media for installing the operating system of your choice
 - SP of the Sun Fire X2100 M2 server set up as instructed in the *Sun Fire X2100 M2 Server Installation Guide*.
 - User must be logged into the remote system as **root**.
1. **On a remote system, open a browser and type the IP address of the Embedded LOM service processor for the Sun Fire X2100 M2 server on which you want to install the operating system.**
 2. **Type your user name and password at the login screen.**
 3. **In the main Embedded LOM window, click Launch to open a remote console window.**
 4. **Insert the Operating System CD/DVD to be installed on the Sun Fire X2100 M2 server into the local CD/DVD drive.**
 5. **In the remote console window, select Storage -> Mount devices.**
The Device Configuration windows appears.
 6. **In the Storage 1 Source field, from the drop down arrow menu, select the CD/DVD drive to be used for installing the operating system.**
 7. **Click Submit.**
 8. **Configure the BIOS to boot from the remote (virtual) CD or DVD.**
 - a. **Go to the Embedded LOM main page, and select Control -> Power Control -> Reset.**
The Sun Fire X210 M2 system will be restarted and you can view the POST process from the Remote Console screen.
 - b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**
The BIOS setup utility displays.

- c. Select **Boot -> Boot Device** priority and change the first boot driver to **Virtual CD/DVD**.

Note – Make sure that the hard disk is still listed in the boot order.

- d. Press **F10** to save your changes and exit the BIOS.

When the server is rebooted, it will boot from the virtual CD-ROM. The instructions for installing the operating system will be the exactly same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

Installing System-Specific Drivers

The following methods can be used to install system-specific drivers onto your Solaris 10 Sun Fire X2100 M2 server:

- Use [“Installing the Drivers Using a KVMs Over IP” on page 24](#) for a system without a DVD/CD or monitor attached.
- Use [“Installing Drivers Directly Onto the Sun Fire X2100 M2 Server” on page 25](#) if your server has a DVD/CD drive and monitor attached.

Installing the Drivers Using a KVMs Over IP

This method is for installing the drivers on a system without a DVD/CD or monitor attached.

See [“Remote KVMs Over IP With Virtual CD-ROM” on page 8](#) or the *Embedded Lights Out Manager Administration Guide*, 819-6588, for specific details.

Installing Drivers Directly Onto the Sun Fire X2100 M2 Server

If your server has an onboard DVD drive or attached CD drive, you can install the drivers directly, using the Sun Fire X2100 M2 Server Tools and Drivers CD.

To install the drivers and mount the diagnostic partition directly onto the Sun Fire X2100 M2 server running the Solaris 10 Operating System:

1. **Log in to the Sun Fire X2100 M2 server as root (superuser).**
2. **Insert the Sun Fire X2100 M2 Server 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:**

```
# sh install.sh
```

The networking and sound drivers are now installed.

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

5. **Reboot the server.**
6. **When Xserver choices are displayed, select the default `Xorg`.**
7. **When prompted for networking information on your system, enter the networking information for your server.**

Linux Operating System Installation

This chapter includes information on installing the Red Hat Enterprise Linux (RHEL) and SUSE Enterprise Linux System (SLES) operating systems and system-specific drivers onto your server.

Note – If you have created a new diagnostic partition, you also need to run this script to mount the diagnostic partition. (See the *Sun Fire X2100 M2 Server Service Manual*, 819-6591, for information about how to create a diagnostic partition.)

The driver installation script is available on the Sun Fire X2100 M2 Server Tools and Drivers CD. The Tools and Drivers CD is included with your Sun Fire X2100 M2 server. You can also download the Tools and Drivers CD `.iso` image from the downloads link at:

<http://www.sun.com/servers/entry/x2100/downloads.jsp>

This chapter includes the following topics:

- “Installing the Operating System” on page 28
- “Installing the System-Specific Drivers” on page 33
- “Running Update Utilities” on page 35

Installing the Operating System

This document does not provide comprehensive instructions for installing a Linux operating system, but this section provides guidelines for the tasks involved in the OS installation and the installation methods available.

This section contains the following topics:

- [“Operating System Installation Overview” on page 28](#)
- [“Operating System Installation Methods” on page 30](#)

Operating System Installation Overview

The following procedures are for installing drivers if you are performing a fresh installation of a Linux operating system. You do not need to reinstall the drivers if you are using the preinstalled version of the operating system.

See [TABLE 3-1](#) for the task map for operating system installation.

TABLE 3-1 Operating System Installation Task Map

Task	Installation Task	Instructions
Set up your server.	Install your server hardware and configure the service processor.	<i>Sun Fire X2100 M2 Server Installation Guide</i> (819-6589)
Prepare your system for operating system installation.	If necessary, erase the primary boot disk, set up the BIOS, and set up the LSI RAID configuration if the LSI RAID card is installed.	Chapter 1 and “Configuring Your System for RAID” on page 29 .
Review the Sun Fire X2100 M2 Server Product Notes.	The product notes contain late-breaking news about the Solaris OS software and patches.	<i>Sun Fire X2100 M2 Server Product Notes</i> (819-6601)
Install the Linux OS.	Choose an installation method and locate the installation instructions.	“Operating System Installation Methods” on page 30
Install the system-specific drivers from the Tools and Drivers CD.	Install the system-specific drivers needed to run the Linux operating system on the Sun Fire X2100 M2 server.	“Installing the System-Specific Drivers” on page 33
Run the up2date or SUSEWatcher utility.	Patches are available from the SunSolve Patch Portal at: http://www.sunsolve.sun.com	“Running the up2date Utility for the RHEL OS” on page 36 or “Running the SuSEWatcher Utility for the SLES OS” on page 36

Configuring Your System for RAID

If you don't have the LSI Logic SAS3041E-R card installed in your system, and you don't plan to install it, you can skip this section.

Note – The Sun Fire X2100 M2 Server supported versions of Linux all have the LSI boot driver included in the operating system software. The operating system will automatically recognize the LSI boot drivers.

To configure RAID for the Solaris Operating System if you have the LSI Logic SAS3041E-R card installed, follow the procedure below:

To configure RAID for the Linux Operating System, follow the procedure below:

1. Install the optional LSI Logic SAS3041E-R card (Sun part number SG-PCIE4SAS-Z).

See the *Sun Fire X2100 M2 Server Service Manual* for instructions on installing and cabling the card.

2. Power on the server.

3. During the boot process, press Ctrl-C to enter the LSI utility when the LSI SAS card is recognized.

4. Create your RAID.

See the LSI Integrated RAID User's Guide at:

http://www.lsilogic.com/files/docs/techdocs/storage_stand_prod/PCISCSICont/Software/ir_ug.pdf

5. Save your work and exit the utility.

6. Install the Linux Operating System.

See "Operating System Installation Methods" on page 30.

7. Download the LSI utilities for managing RAID from the following site:

http://lsi.com/storage_home/products_home/host_bus_adapters/sas_hbas/lasisas3041er/index.html

Operating System Installation Methods

See the following list of installation methods to determine the type of installation that you want to do and the information source for the installation. See “[Choosing an Operating System Installation Method](#)” on page 7 for a description of each method.

The following methods can be used:

- “[Direct Installation Using DVD or CD-ROM Media](#)” on page 30
- “[Network Installation Using PXE](#)” on page 30
- “[Remote KVMs over IP With Virtual CD-ROM](#)” on page 31
- “[Serial Redirection](#)” on page 32

Direct Installation Using DVD or CD-ROM Media

See the instructions for basic installation in the document that corresponds to the operating system you are installing:

- *Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures* at:
<http://www.redhat.com/docs/manuals/enterprise/>
- *SUSE Linux Enterprise Server 9 Administration and Installation* at:
http://www.novell.com/documentation/sles9/pdfdoc/sles_9_admin_guide/sles_9_admin_guide.pdf

Network Installation Using PXE

See the instructions for network installation in the document that corresponds to the operating system you are installing:

- *Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures* at:
<http://www.redhat.com/docs/manuals/enterprise/>
- *SUSE Linux Enterprise Server 9 Administration and Installation* at:
http://www.novell.com/documentation/sles9/pdfdoc/sles_9_admin_guide/sles_9_admin_guide.pdf

See the following guidelines for NIC ports available for PXE installation:

- For RHEL 3 Update 7, only the Broadcom NICs (LAN-0 and LAN-1) are available for PXE installation.
- For SLES 9 SP 3, only the NVIDIA NICs (LAN-2 and LAN-3) are available for PXE installation.

- Later versions of the RHEL and SLES operating systems have support for all NICs, so PXE can be performed with any of the Ethernet ports with these versions.

For RHEL 3 Update 7 and SLES 9 SP 3 operating systems, you need to install the drivers from the Tools and Drivers CD after installing the operating system to obtain the full functionality of the NICs. See [Appendix C](#) for more information.

Remote KVMS over IP With Virtual CD-ROM

This method includes using a remote networked system to install the operating system onto the Sun Fire X2100 M2 server. The CD or DVD drive of the remote system (virtual cdrom) is used to access the operating system media, and all output of the Sun Fire X2100 M2 server is displayed on the remote system (remote console).

Specific details on the using keyboard, mouse, video, storage (KVMS) over IP in the Embedded Lights Out Manager (LOM) can be found in the *Embedded Lights Out Manager Administration Guide*.

Note – This procedure assumes that you are familiar with the Embedded LOM WebGUI administration. More information can be found in the *Embedded Lights Out Manager Administration Guide*.

Requirements for Remote KMVS Over IP installation include:

- Remote system connected to the network
 - One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox
 - CD/DVD drive connected to the remote system
 - Media for installing the operating system of your choice
 - SP of the Sun Fire X2100 M2 server set up as instructed in the *Sun Fire X2100 M2 Server Installation Guide*
 - User must be logged into the remote system as **root**.
1. **On a remote system, open a browser and type the IP address of the Embedded LOM service processor for the Sun Fire X2100 M2 server on which you want to install the operating system.**
 2. **Type your user name and password at the login screen.**
 3. **In the main Embedded LOM window, click Launch to open a remote console window.**
 4. **Insert the Operating System CD/DVD to be installed on the Sun Fire X2100 M2 server into the local CD/DVD drive.**

5. **In the remote console window, select Storage -> Mount devices.**

The Device Configuration windows appears.

6. **In the Storage 1 Source field, from the drop down arrow menu, select the CD/DVD drive to be used for installing the operating system.**

7. **Click Submit.**

8. **Configure the BIOS to boot from the remote (virtual) CD or DVD.**

- a. **Go to the Embedded LOM main page, and select Control -> Power Control -> Reset.**

The Sun Fire X2100 M2 system will be restarted and you can view the POST process from the Remote Console screen.

- b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**

The BIOS setup utility displays.

- c. **Select Boot -> Boot Device priority and change the first boot driver to Virtual CD/DVD.**

Note – Make sure that the hard disk is still listed in the boot order.

- d. **Press F10 to save your changes and exit the BIOS.**

When the server is rebooted, it will boot from the virtual CD-ROM. The instructions for installing the operating system will be the exactly same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

Serial Redirection

To use a serial console to install the operating system:

1. **Connect a terminal to the serial port on the service processor.**

A terminal can be a VT100, a PC running terminal emulation, or a terminal server.

2. **Set the terminal to receive at 9600 baud.**

3. Set up your operating system to boot from an installation server.

See the instructions for serial redirection in the document that corresponds to the operating system you are installing. There are OS specific changes that will need to be performed in order for console redirection to work:

Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures at:

<http://www.redhat.com/docs/manuals/enterprise/>

SUSE Linux Enterprise Server 9 Administration and Installation at:

http://www.novell.com/documentation/sles9/pdfdoc/sles_9_admin_guide/sles_9_admin_guide.pdf

4. Login to the service processor as an Administrator.

5. Type the following:

```
start /SP/AgentInfo/console
```

6. Boot the Sun Fire X2100 M2 server.

To boot via PXE, press F12 at the BIOS prompt.

7. After the operating system is installed, log into the server.

Installing the System-Specific Drivers

The following methods can be used to install system-specific drivers onto your Sun Fire X2100 M2 server:

- Use “[Installing the Drivers Using KVMs Over IP](#)” on page 33 for a system without a DVD/CD or monitor attached.
- Use “[Installing Drivers Directly Onto the Sun Fire X2100 M2 Server](#)” on page 34 if your server has a DVD/CD drive and monitor attached.

Installing the Drivers Using KVMs Over IP

See the instructions in “[Remote KVMs over IP With Virtual CD-ROM](#)” on page 31 or the *Embedded Lights Out Manager Administration Guide*, 819-6588, for specific details.

Installing Drivers Directly Onto the Sun Fire X2100 M2 Server

If your server has an onboard DVD drive, you can install the drivers directly onto the server, using the Sun Fire X2100 M2 Server Tools and Drivers CD.

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

1. **Log in to the Sun Fire X2100 M2 server as root (superuser).**
2. **Insert the Sun Fire X2100 M2 Server 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 server (*red_hat* or *suse*).

- If the directory does not exist, the CD did not automount. You 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 server.

For example:

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

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

```
# sh install.sh
```

This script is not executed if the X server is running.

- If the script exits and you receive an error message, go to [Step 6](#).
 - If the script is executed 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 root (superuser).
 - c. Repeat [Step 4](#) and [Step 5](#).
7. Eject the CD after the driver installation is complete.
 8. Reboot the server.

Running Update Utilities

Choose the section that corresponds to the Linux operating system that you have installed:

- [“Running the up2date Utility for the RHEL OS” on page 36](#)
- [“Running the SuSEWatcher Utility for the SLES OS” on page 36](#)

Running the up2date Utility for the RHEL OS

Run the `up2date` utility *after* installing the operating system and drivers from the Sun Fire X2100 M2 Server Tools and Drivers CD.

To run the `up2date` utility.

- 1. Set up the `up2date` utility on the server.**

Refer to the documentation included with your Red Hat Enterprise Linux media kit for details.

- 2. Run the `up2date` program.**

Select the kernel packages in the available `package updates` section.

Running the SuSEWatcher Utility for the SLES OS

Run the `SuSEWatcher` utility *after* installing the operating system and drivers from the Sun Fire X2100 M2 Server Tools and Drivers CD.

To run the `SuSEWatcher` utility.

- 1. Set up the `SuSEWatcher` utility on the server.**

Refer to the documentation included with your SLES 9 media kit for details.

- 2. Run the `SuSEWatcher` program.**

Select the kernel packages in the available `package updates` section.

Windows Server 2003 Operating System Installation

This chapter includes information on installing the Windows Server 2003 drivers on your server.

Note – If you plan to install Windows RAID drivers, you will need to install the RAID drivers with the `2003Reburn` script before installing the operating system. See “[Installing Windows Server 2003 in a RAID Configuration](#)” on page 42.

The driver installation scripts are available on the Sun Fire X2100 M2 Server Tools and Drivers CD. The Tools and Drivers CD is included with your Sun Fire X2100 M2 server. You can also download the Tools and Drivers CD from the downloads link at:

<http://www.sun.com/servers/entry/x2100/downloads.jsp>

This chapter includes the following topics:

- “[Installing the Operating System](#)” on page 38
- “[Running Windows Update](#)” on page 41
- “[Installing Windows Server 2003 in a RAID Configuration](#)” on page 42
- “[Installing the Ethernet and Chipset Drivers](#)” on page 50

Installing the Operating System

This document does not provide comprehensive instructions for installing the Windows operating system, but this section provides guidelines for the tasks involved in the OS installation and the installation methods available.

This section contains the following topics:

- [“Operating System Installation Overview” on page 38](#)
- [“Operating System Installation Methods” on page 39](#)

Operating System Installation Overview

See [TABLE 4-1](#) for the task map for operating system installation.

TABLE 4-1 Task Map for Initial Solaris OS Installation

Task	Description	Instructions
Set up your server.	Install your server hardware and configure the service processor.	<i>Sun Fire X2100 M2 Server Installation Guide (819-6589)</i>
Prepare your system for operating system installation.	If necessary, erase the primary boot disk, set up the BIOS, and configure RAID.	Chapter 1 and “Installing Windows Server 2003 in a RAID Configuration” on page 42
Review the Sun Fire X2100 M2 Server Product Notes.	The product notes contain late-breaking news about the Windows OS software and patches.	<i>Sun Fire X2100 M2 Server Product Notes (819-6601)</i>
Install the Windows OS.	Choose an installation method and locate the installation instructions.	“Operating System Installation Methods” on page 39
Install the system-specific drivers from the Tools and Drivers CD.	Install the system-specific drivers needed to run the Windows operating system on the Sun Fire X2100 M2 server.	“Installing Windows Server 2003 in a RAID Configuration” on page 42
Run Windows Update.	Run Windows Update to make sure that you have the latest Microsoft Windows features.	http://update.microsoft.com/microsoftupdate/

Operating System Installation Methods

See the following list of installation methods to determine the type of installation that you want to do and the information source for the installation. See “[Choosing an Operating System Installation Method](#)” on page 7 for a description of each method.

The following methods can be used:

- “[Direct Installation Using DVD or CD-ROM Media](#)” on page 39
- “[Network Installation Using RIS](#)” on page 39
- “[Remote KVMS Over IP With Virtual CD-ROM](#)” on page 39
- “[Serial Redirection](#)” on page 41

Direct Installation Using DVD or CD-ROM Media

See the instructions for basic installation in *Installing Windows Server 2003 R2* at: <http://technet2.microsoft.com/WindowsServer/en/Library/>

Network Installation Using RIS

See the instructions for RIS installation in *Installing Windows Server 2003 R2* in [Appendix B](#).

Remote KVMS Over IP With Virtual CD-ROM

This method includes using a remote networked system to install the operating system onto the Sun Fire X2100 M2 server. The CD or DVD drive of the remote system (virtual cdrom) is used to access the operating system media, and all output of the Sun Fire X2100 M2 server is displayed on the remote system (remote console).

Specific details on the using keyboard, mouse, video, storage (KVMS) over IP in the Embedded Lights Out Manager (LOM) can be found in the *Embedded Lights Out Manager Administration Guide*.

Note – This procedure assumes that you are familiar with the Embedded LOM WebGUI administration. More information can be found in the *Embedded Lights Out Manager Administration Guide*.

Requirements for Remote KMVS Over IP installation include:

- Remote system connected to the network
- One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox
- CD/DVD drive connected to the remote system
- Media for installing the operating system of your choice
- SP of the Sun Fire X2100 M2 server set up as instructed in the *Sun Fire X2100 M2 Server Installation Guide*.

To use remote KVMS over IP to install the operating system:

1. **On a remote system, open a browser and type the IP address of the Embedded LOM service processor for the Sun Fire X2100 M2 server on which you want to install the operating system.**
2. **Type your user name and password at the login screen.**
3. **In the main Embedded LOM window, click Launch to open a remote console window.**
4. **Insert the Operating System CD/DVD to be installed on the Sun Fire X2100 M2 server into the local CD/DVD drive.**
5. **In the remote console window, select Storage -> Mount devices.**
The Device Configuration windows appears.
6. **In the Storage 1 Source field, from the drop down arrow menu, select the CD/DVD drive to be used for installing the operating system.**
7. **Click Submit.**
8. **Configure the BIOS to boot from the remote (virtual) CD or DVD.**
 - a. **Go to the Embedded LOM main page, and select Control -> Power Control -> Restart.**
The Sun Fire X2100 M2 system will be restarted and you can view the POST process from the Remote Console screen.
 - b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**
The BIOS setup utility displays.
 - c. **Select Boot -> Boot Device priority and change the first boot driver to Virtual CD/DVD.**

Note – Make sure that the hard disk is still listed in the boot order.

d. Press F10 to save your changes and exit the BIOS.

When the server is rebooted, it will boot from the virtual CD-ROM. The instructions for installing the operating system will be the exactly same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

Serial Redirection

To use a serial console to install the operating system:

1. Connect a terminal to the serial port on the service processor.

A terminal can be a VT100, a PC running terminal emulation, or a terminal server.

2. Set the terminal to receive at 9600 baud.

3. Set up your operating system to boot from an installation server.

See the instructions for serial redirection in Installing Windows Server 2003 R2 at:

<http://technet2.microsoft.com/WindowsServer/en/Library>

4. Login to the service processor as an Administrator.

5. Type the following:

```
start /SP/AgentInfo/console
```

6. Boot the Sun Fire X2100 M2 server.

To boot via PXE, press F12 at the BIOS prompt.

7. After the operating system is installed, log into the server.

Running Windows Update

To run Windows update, follow the instructions at the Windows Update download site:

<http://update.microsoft.com/microsoftupdate/>

Installing Windows Server 2003 in a RAID Configuration

The Sun Fire X2100 M2 Server Tools and Drivers CD V1.2 or later contains Broadcom NIC, AST2000 display, NVIDIA chipset (SATA and NIC), NVRAID, and LSI RAID drivers for Windows 2003.

If you are installing RAID drivers, you need to use the 2003Reburn script to create a new Windows 2003 CD containing the necessary drivers, or create a boot diskette to install the drivers *before* installing the Windows 2003 operating system.

Choose one of the procedures for installing RAID drivers. If you have the LSI SAS3041E-R PCIe installed in the Sun Fire X2100 M2 Server, use the procedure for installing LSI RAID. Otherwise, use the procedure for NVIDIA RAID.

- [“Installing Windows Server 2003 Server With NVRAID Drivers” on page 42.](#)
- [“Installing Windows Server 2003 Server With LSI RAID Drivers” on page 46.](#)

Installing Windows Server 2003 Server With NVRAID Drivers

Before installing Windows Server 2003 with NVRAID drivers, you will need to configure the BIOS as shown in [“Configuring the BIOS for NVRAID” on page 42.](#)

After the BIOS is configured, use one of the following methods to install Windows Server 2003 with NVRAID drivers:

- Install Windows Server 2003 using CD media by creating a special Windows Server 2003 installation CD from the official Windows Server 2003 CD. See [“Configuring the BIOS for NVRAID” on page 42.](#)
- Create a boot diskette containing the NVRAID drivers to use during Windows installation. See [“Installing RAID Drivers With Windows Using a Boot Diskette” on page 45.](#)

Configuring the BIOS for NVRAID

- 1. Reboot the server and press the F2 key when you see the Sun logo screen.**
The BIOS Setup screen is displayed.
- 2. Select Advanced -> ACPI settings.**

3. Change the OS version to Windows.
4. Select Advanced -> IDE Configuration -> RAID setup.
5. Enable all selections for RAID.
6. Press the F10 key to save your changes and exit.
7. While the system is rebooting, press the F10 key to enter the NVRAID BIOS.
8. Select 0 or 1 to create a RAID array.
9. Exit the BIOS.
10. Continue with the appropriate procedure:
 - [“Creating a 2003Reburn CD Using Solaris or Linux” on page 43.](#)
 - [“Installing RAID Drivers With Windows Using a Boot Diskette” on page 45.](#)

Creating a 2003Reburn CD Using Solaris or Linux

The Sun Fire X2100 M2 Server Tools and Drivers CD contains a script that allows you to create a new Windows Server 2003 CD with the necessary RAID drivers. After creating the new CD, you can boot it and install Windows Server 2003 in the usual way. This new CD automatically installs the drivers, making it unnecessary to use a USB diskette drive to install the NVRAID drivers.

For specific and current information on the 2003Reburn script, see the description at the top of the script, which is located in `/utilities/reburn` on the Tools and Drivers CD.

To create the 2003Reburn CD, the following is needed:

- A system running Solaris Operating System for x86 Platforms, Solaris Operating System (SPARC® Platform Edition), Red Hat Enterprise Linux 3 or 4, or SUSE Linux Enterprise System (SLES) 9
- Access to a CD burner
- A blank CD-R or CD-RW
- A Windows Server 2003 CD (retail media only—not an OEM version)
- A Sun Fire X2100 M2 Server Tools and Drivers CD

To create a Windows Server 2003 CD with the Sun Fire X2100 M2 server drivers:

1. On a Solaris x86, Solaris OS (SPARC Platform Edition), Red Hat Enterprise Linux 3 or 4, or SLES 9 system, insert the Sun Fire X2100 M2 Server Tools and Drivers CD into a CD or DVD drive.
2. Log in as root (superuser).

3. Create a temporary directory with at least 1.2 GB of space.

For example:

```
# mkdir /files
```

4. Copy the 2003REBURN_*version*.zip file to that directory.

Where *version* is the current version of 2003Reburn.

For example:

```
# cp /utilities/reburn/2003reburn_1.0.zip /files
```

5. Eject the Tools and Drivers CD and insert your retail Windows Server 2003 (32- or 64-bit) CD.

6. Unzip the 2003Reburn_*version*.zip file.

For example:

```
# unzip -q 2003Reburn_1.0.zip
```

7. Run the 2003Reburn script.

For example:

```
#!/files/2003Reburn -b
```

Note – If your system does not have the ability to burn CDs, run the command *without* the `-b` option. An `.iso` image will be created which can be saved to a system with a CD burner.

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.

8. After the CD has been created, install Windows Server 2003 the Sun Fire X2100 M2 server, using the newly created CD.

Installing RAID Drivers With Windows Using a Boot Diskette

This section explains how to create a boot diskette for the NVIDIA RAID drivers using the Sun Fire X2100 M2 Server Tools and Drivers CD and how to install the drivers onto your server.

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

- A Windows system with a CD and diskette drive
- A blank diskette
- A Sun Fire X2100 M2 Server Tools and Drivers CD
- A USB floppy drive
- A Windows 2003 CD (retail media only—not an OEM version)

Use the following procedures in order to install RAID drivers with a boot diskette:

1. [“Creating a RAID Drivers Boot Diskette” on page 45.](#)
2. [“Installing the Windows Operating System Using the Boot Diskette” on page 45.](#)

Creating a RAID Drivers Boot Diskette

1. On a Windows system, insert the Sun Fire X2100 M2 Server Tools and Drivers CD.
2. Insert a blank diskette into the Windows system.
3. Copy the contents of the `sataraid` directory on the Tools and Drivers CD to the floppy diskette:

```
> Copy d: \drivers\windows\OS\chipset\IDE\xinxp\SATARAID a:  
Where OS is 2003_32 or 2003_64.
```

Installing the Windows Operating System Using the Boot Diskette

1. Attach a USB diskette drive to the Sun Fire X2100 M2 server.
2. Insert a Windows 2003 32-bit or 64-bit installation CD into the DVD drive.
3. Press the F6 key to install the third-party RAID driver.
4. Press the S key, then Enter, to specify additional drivers and insert the diskette.
5. Select the NVIDIA NForce Storage Controller.
6. Press the S key, then Enter, to specify additional drivers.
7. Select the NVIDIA RAID CLASS DRIVER.

8. Press the Enter key to continue the Windows 2003 installation.
9. When the OS installation is complete, install the NVIDIA display and chipset drivers as explained in [“Installing the Ethernet and Chipset Drivers” on page 50.](#)

Installing Windows Server 2003 Server With LSI RAID Drivers

This section describes how to install Windows 2003 Server if you have the SAS3041E-R PCIe card installed in your Sun Fire X2100 M2 server.

Before installing Windows Server 2003 with LSI drivers, you will need to configure the BIOS as shown in [“Configuring the LSI RAID card for RAID” on page 46.](#)

Use one of the following procedures:

- Install Windows Server 2003 using CD media by creating a special Windows Server 2003 installation CD from the official Windows Server 2003 CD. [“Creating a 2003Reburn CD using Solaris or Linux” on page 47.](#)
- [“Installing LSI RAID Drivers With Windows Using a Boot Diskette” on page 48.](#)

Configuring the LSI RAID card for RAID

1. Reboot the server and press Ctrl-C when prompted.
2. Follow the LSI users guide on how to build a RAID.
See the LSI Integrated RAID User’s Guide at http://www.lsilogic.com/files/docs/techdocs/storage_stand_prod/PCISCSICont/Software/ir_ug.pdf
3. Save your changes and exit the utility.
4. Continue with the appropriate procedure:
 - [“Creating a 2003Reburn CD using Solaris or Linux” on page 47](#)
 - [“Installing LSI RAID Drivers With Windows Using a Boot Diskette” on page 48](#)

Creating a 2003Reburn CD using Solaris or Linux

The Sun Fire X2100 M2 Server Tools and Drivers CD V1.2 and later contains a script that allows you to create a new Windows Server 2003 CD with the necessary LSI RAID drivers. After creating the new CD, you can boot from the CD and install Windows Server 2003 in the usual way. This new CD automatically installs the drivers, making it unnecessary to use a USB diskette drive to install the LSI RAID drivers.

For specific and current information on the 2003Reburn script, see the description at the top of the script, which is located in `/utilities/reburn` on the Tools and Drivers CD.

To create the 2003Reburn CD, the following is needed:

- A system running Solaris Operating System for x86 Platforms, Solaris Operating System (SPARC® Platform Edition), Red Hat Enterprise Linux 3 or 4, or SUSE Linux Enterprise System (SLES) 9
- CD burner
- A blank CD-R or CD-RW
- A Windows Server 2003 CD (retail media only—not an OEM version)
- A Sun Fire X2100 M2 Server Tools and Drivers CD V1.2 or later

To create a Windows 2003 CD with the Sun Fire X2100 M2 server drivers:

1. **On a Solaris x86, Solaris OS (SPARC Platform Edition), Red Hat Enterprise Linux 3 or 4, or SLES 9 system, insert the Sun Fire X2100 M2 Server Tools and Drivers CD into a CD or DVD drive.**
2. **Log in as root (superuser).**
3. **Create a temporary directory with at least 1.2 GB of space.**

For example:

```
# mkdir /files
```

4. **Copy the `2003REBURN_version.zip` file to that directory.**

Where *version* is the current version of 2003Reburn.

For example:

```
# cp /utilities/reburn/2003reburn_1.1.zip /files
```

5. **Eject the Tools and Drivers CD and insert your retail Windows 2003 32-bit CD.**

6. **Unzip the 2003Reburn_version.zip file.**

For example:

```
# unzip -q 2003Reburn_1.1.zip
```

7. **Run the 2003Reburn script.**

For example:

```
#./files/2003Reburn -b
```

Note – If your system does not have the ability to burn CDs, run the command *without* the `-b` option. An `.iso` image will be created which can be saved to a system with a CD burner.

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.

8. **After the CD has been created, install Windows Server 2003 the Sun Fire X2100 M2 server, using the newly created CD.**

Installing LSI RAID Drivers With Windows Using a Boot Diskette

This section explains how to create a boot diskette for the LSI RAID drivers using the Sun Fire X2100 M2 Server Tools and Drivers CD and how to install the drivers onto your server.

Note – LSI RAID boot drivers are only needed for Windows 2003. All other supported Operating Systems have LSI RAID boot drivers included.

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

- A Windows system with a CD and diskette drive
- A blank diskette
- A Sun Fire X2100 M2 Server Tools and Drivers CD
- A USB floppy drive
- A Windows 2003 CD (retail media only—not an OEM version)

Use the following procedures in order to install RAID drivers with a boot diskette:

1. [“Creating a RAID Drivers Boot Diskette” on page 49.](#)
2. [“Installing the Windows Operating System Using the Boot Diskette” on page 49.](#)

Creating a RAID Drivers Boot Diskette

1. On a Windows system, insert the Sun Fire X2100 M2 Server Tools and Drivers CD.
2. Insert a blank diskette into the Windows system.
3. Copy the contents of the LSI_RAID directory on the Tools and Drivers CD to the floppy diskette:

```
> Copy d: \drivers\windows\LSI_RAID\OS\ a:
```

Where OS is 32bit or 64bit.

Installing the Windows Operating System Using the Boot Diskette

1. Attach a USB diskette drive to the Sun Fire X2100 M2 server.
2. Insert a Windows 2003 32-bit or 64-bit installation CD into the DVD drive.
3. Press the F6 key to install the third-party RAID driver.
4. Press the S key, then Enter, to specify additional drivers and insert the diskette.
5. Select the LSI Logic Fusion-MPT SAS Driver (Server 2003 OS).
Where OS is the version of the OS that you are installing (32-bit or 64-bit).
6. Press the Enter key to continue the Windows 2003 installation.
7. When the OS installation is complete, install the NVIDIA display and chipset drivers as explained in [“Installing the Ethernet and Chipset Drivers” on page 50.](#)

Installing the Ethernet and Chipset Drivers

The following procedures describe how to install the Windows Ethernet and chipset drivers from the Sun Fire X2100 M2 Server Tools and Drivers CD. Choose one of the following procedures to install the drivers:

- [“Installing the Drivers Using KVMS Over IP” on page 50](#)
- [“Installing Drivers Directly Onto the Sun Fire X2100 M2 Server” on page 50](#)

Note – If you have used the 2003Reburn option to create a Windows 2003 CD that contains the drivers, you do not need to install these drivers.

Installing the Drivers Using KVMS Over IP

See the instructions in [“Remote KVMS Over IP With Virtual CD-ROM” on page 39](#) or the *Embedded Lights Out Manager Administration Guide*, 819-5688, for specific details.

Installing Drivers Directly Onto the Sun Fire X2100 M2 Server

If your server has an onboard DVD drive, you can install the drivers directly onto the server, using the Sun Fire X2100 M2 Server Tools and Drivers CD.

To install the Windows Server 2003 drivers directly from the Tools and Drivers CD:

1. **Insert the Sun Fire X2100 M2 Server Tools and Drivers CD into the DVD drive.**
2. **Install the chipset drivers:**
 - a. **Use Windows Explorer to navigate to the following directory on the Tools and Drivers CD:**

```
D:\drivers\windows\OS\chipset
```

Where OS is 2003_32 or 2003_64.

- b. **Double-click on the .exe file and install the drivers using the installation wizard.**

3. Install the Broadcom Ethernet drivers.

- a. Use Windows Explorer to navigate to the following directory on the Tools and Drivers CD:**

D:\drivers\windows\broadcomNIC

- b. Double-click the `Launch.exe` file.**
- c. Click the install driver button.**
- d. Install the drivers using the installation wizard.**

4. Install the AST2000 VGA drivers.

- a. Open the Windows Device Manager.**
- b. Update the device driver as follows:**
- i. Right-click on the display driver and select update.**
The Hardware Update Wizard displays.
 - ii. Select No, not at this time and click Next.**
 - iii. In the next dialog box, select Install from a list or specific location and click Next.**
 - iv. Select browse and point to the following directory on the Tools and Drivers CD:**

D:\drivers\windows\OS\video

- v. Click OK, then Next in the dialog box and the AST2000 driver will be installed.**

5. Reboot the server.

Redirecting Solaris Output to the Serial Port

The following procedure shows how to redirect Solaris operating system output from the Sun Fire X2100 M2 server to a serial console. Use these instructions to redirect OS output after the software is installed.

Note – To redirect the server output to the console during OS installation, see the instructions in [Chapter 2](#).

1. After Solaris is installed, log into the server as root (superuser).
2. Make edits to the following files:

Edit the following lines in the `/boot/solaris/bootenv.rc` file to read as follows:

```
setprop console 'ttyb'  
setprop ttyb-mode 115200,8,n,1,-
```

Edit the following line in the `/boot/grub/menu.lst` file to read as follows:

```
kernel /platform/i86pc/multiboot -B console=ttyb
```

Add the following line to the end of the `/kernel/drv/asy.conf` file:

```
name="asy" parent="isa" reg=1,0x2f8,8 interrupts=3;
```

Edit the following line in the `/var/svc/manifest/system/console-login.xml` file as follows:

```
<propval name='label' type='astring' value='115200' />
```

3. Reboot the system with the following command:

```
reboot -- -r
```

You should then be sent back to the `/SP` prompt.

4. Run the following command:

```
start /SP/AgentInfo/console
```

You should now begin to see console output of the system starting up.

Performing a Windows RIS Installation

This appendix contains instructions for performing a Remote Installation Services (RIS) network installation for the Windows Server 2003 operating system onto the Sun Fire X2100 M2 server. Choose the section that corresponds to the version of Windows Server 2003 that you wish to install:

- “Installing Windows Server 2003 SP1 32-bit” on page 55.
- “Installing Windows Server 2003 64-bit” on page 60.

B.1 Installing Windows Server 2003 SP1 32-bit

1. Install RIS support on a Windows Server 2003 system. For a complete set of instructions on how to install RIS on Windows Server 2003 go to:
<http://support.microsoft.com/default.aspx?scid=kb;en-us;325862>
2. Install Windows Server 2003 SP1 32-bit on the RIS server by doing the following:
 - a. Insert Windows Server 2003 SP1 32-bit CD into the RIS server's CD-ROM drive.
 - b. Select Start -> Run.
 - c. Type **risetup.exe** into the Run field.
The Welcome to the Remote Installation Services Setup Wizard window displays.
 - d. Click Next.
 - e. Select Add a new OS image to this remote installation server, then click Next.

- f. Select the drive location that has the Windows 2003 SP1 32-bit CD in it, then click Next.
 - g. Type a descriptive name for the stored Windows 2003 SP1 32-bit CD, then click Next.
For example: **Sun Fire X2100 M2_Windows_2003_SP1_32bit**
 - h. Enter a Friendly description and Help text for the end user, then click Next to continue.
 - i. Select Use the old client installation screens, then click Next.
 - j. Review the settings, then click Finish to install the image.
 - k. Click Done when the image is installed to the server.
3. Update the RIS image created in [Step 2](#) with the RIS Broadcom Ethernet drivers for Windows 2003 SP1 32-bit.

The RIS Broadcom Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

- a. Insert the Tools and Drivers CD into the RIS server.
- b. Copy the Windows 2003 SP1 32-bit RIS Broadcom Ethernet driver files locally to the RIS server as follows:

```
> copy cdrom_drive:\drivers\windows\RIS\2003_32\broadcom\*  
C:\temp\broadcom
```

cdrom_drive specifies the media drive that contains the Tools and Drivers CD.

- c. Copy all the files in `c:\temp\broadcom` directory to the RIS image on the RIS server. For example:

```
> copy C:\temp\broadcom\*.* D:\RemoteInstall\Setup\English\  
Images\image_dir\i386
```

image_dir specifies the directory on the RIS server that contains the RIS image.

4. Update the RIS image created in [Step 2](#) with the RIS NVIDIA Ethernet drivers for Windows 2003 SP1 32-bit.

The RIS NVIDIA Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

- a. Insert the Tools and Drivers CD into the RIS server and copy the Windows 2003 SP1 32-bit RIS NVIDIA Ethernet driver files locally to the RIS server by typing the following:

```
> copy cdrom_drive:\drivers\windows\RIS\2003_32\nvidia\*  
C:\temp\nvidia
```

cdrom_drive specifies the media drive that contains the Tools and Drivers CD.

- b. Copy all the files in `c:\temp\nvidia` to the RIS image on the RIS server.
For example:

```
> copy C:\temp\nvidia\*.* D:\RemoteInstall\Setup\English\Images\  
image_dir\i386
```

image_dir specifies the directory on the RIS server that contains the RIS image.

5. Modify the `ristndrd.sif` file with the following additions.

The `ristndrd.sif` file can be found at `D:\RemoteInstall\Setup\English\Images\image_dir\i386\templates`.

image_dir specifies the directory on the RIS server that contains the RIS image.

- a. Change the following entries:

```
[Unattended]  
OemPreinstall = yes  
  
[GuiUnattended]  
AdminPassword = "desired_password"
```

- b. Remove the following entries:

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

c. Add the following entries

```
[Unattended]
DriverSigningPolicy = Ignore
OemPnPDriversPath = "\drivers\nic\nvidia;\drivers\nic\broadcom; /
\drivers\sata_ide;\drivers\smbus;\drivers\video"

[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
```

6. Add the `oem` directory and its subdirectories to the RIS image.

a. Add the `oem` subdirectory to the RIS image located at

`d:\RemoteInstall\Setup\English\Images\image_dir`

`image_dir` specifies the directory on the RIS server that contains the RIS image.

b. Create the following subdirectories under the `oem` directory.:

`$1`

`$$`

`textmode`

c. Create the following subdirectory under the `$1` directory:

`drivers`

d. Create the following subdirectories under the `drivers` directory:

`nic`

`sata_ide`

`smbus`

`video`

e. Create the following subdirectories under the `nic` directory:

`broadcom`
`nvidia`

f. Create the following subdirectories under the `$$` directory:

`OemDir`

7. Copy driver files into the `oem` directory tree as follows:

The Tools and Drivers CD has the Windows 2003 SP1 32-bit drivers located at
`cdrom_drive:\drivers\windows\2003_32`

```
> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ide\winxp\
sataraid\*.dll D:\remoteinstall\setup\english\images\image_dir\
$oem$\$$\OemDir

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ide\winxp\
sataraid\* D:\remoteinstall\setup\english\images\image_dir\
$oem$\textmode

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ide\winxp\
sata_ide\* D:\remoteinstall\setup\english\images\image_dir\
$oem$\$1\drivers\sata_ide

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ethernet\*
D:\remoteinstall\setup\english\images\image_dir\
$oem$\$1\drivers\nic\nvidia

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\smbus\* D:\
remoteinstall\setup\english\images\image_dir\
$oem$\$1\drivers\smbus

> Copy cdrom_drive:\drivers\windows\2003_32\broadcom\nic\win2003\
ia32\* D:\remoteinstall\setup\english\images\image_dir\
$oem$\$1\drivers\nic\broadcom

> Copy cdrom_drive:\drivers\windows\2003_32\video\* D:\
remoteinstall\setup\english\images\image_dir\
$oem$\$1\drivers\video
```

8. Modify the `txtsetup.oem` file

a. In a text editor, open the `D:\RemoteInstall\Setup\English\Images\image_dir\
oem\textmode\txtsetup.oem` file.

`image_dir` specifies the directory on the RIS server that contains the RIS image.

- b. Comment out the `dll` files in the `[Files.scsi.RAIDCLASS]` and `[Files.scsi.BUSDRV]` sections by adding a semicolon at the beginning of each line.
 - c. Save and exit the file.
9. Start and stop the Remote Installation Service (BINLSVC) on the RIS server by typing the following at a command prompt:
 - > `net Stop binlsvc`
 - > `net Start binlsvc`
10. Install the image onto the Sun Fire X2100 M2 server.

B.2 Installing Windows Server 2003 64-bit

1. Install RIS support on a Windows Server 2003 system. For a complete set of instructions on how to install the RIS on Windows Server 2003 go to:
<http://support.microsoft.com/default.aspx?scid=kb;en-us;325862>
2. Install Windows Server 2003 64-bit on the RIS server by doing the following:
 - a. Insert Windows Server 2003 64-bit CD into the RIS server's CD-ROM drive.
 - b. Select Start -> Run.
 - c. Type `risetup.exe` into the Run field.
The Welcome to the Remote Installation Services Setup Wizard window displays.
 - d. Click Next.
 - e. Select Add a new OS image to this remote installation server, then click Next.
 - f. Select the drive location that has the Windows 2003 64-bit CD in it, then click Next.
 - g. Type a descriptive name for the stored Windows 2003 SP1 32-bit CD, then click Next.
For example: `SunFire_X2100_M2_Windows_2003_64bit`
 - h. Enter a Friendly description and Help text for the end user, then click Next.
 - i. Select Use the old client installation screens, and overwrite the old ones, then click Next.
 - j. Review the settings in the Review Settings window, then click Finish.

- k. Click Done when the image is installed to the server.
3. Update the RIS image created in [Step 2](#) with the RIS Broadcom Ethernet drivers for Windows 2003 64-bit.

The RIS Broadcom Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

 - a. Insert the Tools and Drivers CD into the RIS server.
 - b. Copy the Windows 2003 64-bit RIS Broadcom Ethernet driver files locally to the RIS server as follows:

```
> copy cdrom-drive:\drivers\windows\RIS\2003_64\broadcom\*  
C:\temp\broadcom
```

cdrom_drive specifies the media drive which contains the Tools and Drivers CD.

- c. Copy all the files in `c:\temp\broadcom` directory to the RIS image on the RIS server. For example:

```
> copy C:\temp\broadcom\*.* D:\RemoteInstall\Setup\English\  
Images\image_dir\amd64
```

image_dir specifies the directory on the RIS server that contains the RIS image.

4. Update the RIS image created in [Step 2](#) with the RIS NVIDIA Ethernet drivers for Windows 2003 64-bit.

The RIS NVIDIA Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

 - d. Insert the Tools and Drivers CD into the RIS server and copy the Windows 2003 64-bit RIS NVIDIA Ethernet driver files locally to the RIS server by doing the following:

```
> copy cdrom drive:\drivers\windows\RIS\2003_64\nvidia\*  
C:\temp\nvidia
```

cdrom_drive specifies the media drive which contains the Tools and Drivers CD.

- e. Copy all the files in `c:\temp\nvidia` to the RIS image on the RIS server.
For example:

```
> copy C:\temp\nvidia\*.* D:\RemoteInstall\Setup\English\Images\  
image_dir\amd64
```

image_dir specifies the directory on the RIS server that contains the RIS image.

5. Modify the `ristndrd.sif` file with the following additions.

The `ristndrd.sif` file can be found at `D:\RemoteInstall\Setup\English\Images\image_dir\amd64\templates`.

image_dir specifies the directory on the RIS server that contains the RIS image.

- a. Change the following entries:

```
[Unattended]  
OemPreinstall = yes  
  
[GuiUnattended]  
AdminPassword = "desired_password"
```

- b. Remove the following entries:

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


c. Add the following entries

```
[Unattended]
DriverSigningPolicy = Ignore
OemPnPDriversPath = "\drivers\nic\nvidia;\drivers\nic\broadcom; /
\drivers\sata_ide;\drivers\smbus;\drivers\video"

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

[OEMBootFiles]
nvatax64.sys
nvraid.cat
nvr dx64.inf
nvr dx64.sys
txtsetup.oem

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

[Identification]
JoinWorkgroup = WORKGROUP
```

6. Add the `oem` directory and its subdirectories to the RIS image.

a. Add the `oem` subdirectory to RIS image located at

`d:\RemoteInstall\Setup\English\Images\image_dir`

`image_dir` specifies the directory on the RIS server that contains the RIS image.

b. Create the following subdirectories under the `oem` directory.:

`$1`

`$$`

`textmode`

c. Create the following subdirectory under the `$1` directory:

`drivers`

d. Create the following subdirectories under the `drivers` directory:

`nic`

`sata_ide`

`smbus`

`video`

e. Create the following subdirectories under the `nic` directory:

`broadcom`

`nvidia`

f. Create the following subdirectories under the `$$` directory:

`OemDir`

7. Copy driver files into the `oem` directory tree as follows:

The Tools and Drivers CD has the Windows 2003 64-bit drivers located at `cdrom_drive:\drivers\windows\2003_64`

`cdrom_drive` specifies the media drive which contains the Tools and Drivers CD.

```
> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ide\win64\
sataraid\*.dll D:\remoteinstall\setup\english\images\image_dir\
$oem$$\OemDir

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ide\win64\
sataraid\* D:\remoteinstall\setup\english\images\image_dir\oem$\
textmode

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ide\win64\
sata_ide\* D:\remoteinstall\setup\english\images\image_dir\oem$\
$1\drivers\sata_ide

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ethernet\*
D:\remoteinstall\setup\english\images\image_dir\oem$\$1\drivers\
nic\nvidia

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\smbus\* D:\
remoteinstall\setup\english\images\image_dir\oem$\$1\drivers\
smbus

> Copy cdrom_drive:\drivers\windows\2003_64\broadcom\win2003\x64\
* D:\remoteinstall\setup\english\images\image_dir\oem$\$1\drivers\
nic\broadcom

> Copy cdrom_drive:\drivers\windows\2003_64\video\* D:\
remoteinstall\setup\english\images\image_dir\oem$\$1\drivers\
video
```

8. Modify the `txtsetup.oem` file.

a. In a text editor, open the `D:\RemoteInstall\Setup\English\Images\image_dir\oem$\textmode\txtsetup.oem` file.

`image_dir` specifies the directory on the RIS server that contains the RIS image.

Network Interface Configuration

The network interface card (NIC) connectors are labeled physically on the server as follows:

TABLE C-1 NIC Connector Label

NIC Connector Label	Interface Type
net0	First Broadcom interface
net1	Second Broadcom interface
net2	Second NVIDIA interface
net3	First NVIDIA interface

Some NICs will not be detected by the OS until the `install.sh` script from the Sun Fire X2100 M2 Server Tools and Drivers CD is run. Also, the `ifconfig` interface that is assigned to the NIC according to the operating system that you have installed might change after the drivers from the Sun Fire X2100 M2 Server Tools and Drivers CD are installed.

See the following sections for `ifconfig` assignments for each supported Linux or Solaris operating system. Later versions of the operating systems listed in the following sections have built-in support for both Broadcom and NVIDIA NICs.

Red Hat Enterprise Linux (RHEL) 4 Update 3

Before the Tools and Drivers CD drivers are installed, the NVIDIA interfaces are not detected for RHEL 4 Update 3, and cannot be used for PXE installation. Later versions of RHEL 4 contain support for both NVIDIA and Broadcom.

After installing the drivers from the Tools and Drivers CD, the NVIDIA NICs are detected and the interface order remains the same for the Broadcom NICs. The order of the ifconfig interfaces is shown in [TABLE C-2](#).

TABLE C-2 Red Hat Enterprise Linux 4 Update 3

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
eth2	net0
eth3	net1
After Tools and Drivers CD update	
eth0	net3
eth1	net2
eth2	net0
eth3	net1

Red Hat Enterprise Linux 3 Update 7

Before the Tools and Drivers CD drivers are installed, the NVIDIA interfaces are not detected in RHEL 3 Update 7 and cannot be used for PXE installation. Later versions of RHEL 3 contain support for both NVIDIA and Broadcom.

After installing the drivers from the Tools and Drivers CD, the NVIDIA NICs are detected and configured. The order of the ifconfig interface changed as shown in [TABLE C-3](#).

TABLE C-3 Red Hat Enterprise Linux 3 Update 7

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
eth0	net0
eth1	net1
After Tools and Drivers CD update	
eth0	net3

TABLE C-3 Red Hat Enterprise Linux 3 Update 7 (Continued)

ifconfig interface	Physical interface
eth1	net2
eth2	net0
eth3	net1

Solaris 10 6/06 (Build 9a)

Before the Tools and Drivers CD drivers are installed, the NVIDIA interfaces are not detected. The Broadcom interfaces are bge0 and bge1. After installing the drivers from the Tools and Drivers CD, the NVIDIA NICs (nge0 and nge1) are detected and configured. The order of the ifconfig interface changed as shown in [TABLE C-4](#).

TABLE C-4 Solaris 10 6/06 (Build 9)

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
bge0	net0
bge1	net1
After Tools and Drivers CD update	
nge0	net3
nge1	net2
bge0	net0
bge1	net1

SUSE Linux Enterprise Server (SLES) 9 SP 3

Before the Tools and Drivers CD drivers are installed, the Broadcom interfaces are not detected for SLES 9 SP3 and cannot be used for PXE installation. Later versions of SLES contain support for both NVIDIA and Broadcom.

After installing the drivers from the Tools and Drivers CD, the Broadcom NICs are detected. No change is seen on the NVIDIA interface order. The order of the ifconfig interface changed as shown in [TABLE C-5](#).

TABLE C-5 SLES 9 SP 3

ifconfig interface	physical interface
Before Tools and Drivers CD update	
eth0	net3
eth1	net2
After Tools and Drivers CD update	
eth0	net3
eth1	net2
eth2	net0
eth3	net1

Index

B

BIOS

- setting up for a Linux OS, 5
- setting up for a Windows Server 2003, 6
- setting up for Solaris 10 OS, 5

boot hard disk

- erasing the primary boot hard disk, 4

C

chipset drivers

- installing for Windows Server 2003, 50

D

direct driver installation

- Red Hat Enterprise Linux, 34
- Solaris 10, 25
- SUSE Linux Enterprise Server, 34
- Windows Server 2003, 50

documentation

- feedback, x
- related, ix
- Solaris, ix
- Sun Fire X2100 M2 server, ix

drivers

- Red Hat Enterprise Linux
 - direct driver installation, 34
 - KVMS over IP installation, 33
- Solaris 10
 - direct installation, 25
 - KVMS over IP installation, 24
- SUSE Linux Enterprise Server
 - direct driver installation, 34

- KVMS over IP installation, 33
- Windows Server 2003
 - direct installation, 50
 - installing RAID drivers, 42
 - KVMS over IP installation, 50

E

erasing primary boot hard disk, 4

Ethernet drivers

- installing for Windows Server 2003, 50

I

installing an operating system

- CD or DVD installation, 7
- choosing an operating system method, 7
- erasing the primary boot hard disk, 4
- installation tasks, 3
- network installation, 7
- overview, 1
- Red Hat Enterprise Linux, 27
- serial redirection, 9
- setting up the BIOS, 5
- Solaris 10, 11
- supported operating systems, 2
- SUSE Linux Enterprise Server, 27
- using Jumpstart, 7
- using PXE, 7
- using remote KVMS over IP, 8
- using RIS, 7
- Windows Server 2003, 37

J

Jumpstart installation

overview, 7

K

KVMS over IP

- Linux driver installation, 33
- operating system installation, 8
- Solaris driver installation, 24
- Windows Server 2003 installation, 50

L

Linux

- driver installation, 33
- operating system installation, 27
- operating system installation methods, 30

N

network interface configuration

- overview, 67
- Red Hat Enterprise Linux 3 Update 7, 68
- SLES 9 SP3, 70
- Solaris 10, 69

O

operating system installation

- methods, 7
- tasks, 3
- using a network, 7
- using CD/DVD, 7
- using remote KVMS over IP, 8

operating system supported, 2

P

PXE installation overview, 7

R

RAID driver installation for Windows Server
2003, 42

Red Hat Enterprise Linux

- KVMS over IP installation, 33
- setting up BIOS, 5
- supported versions, 2

RIS installation

- detailed instructions
 - 32-bit Windows 2003 Server, 55
 - 64-bit Windows 2003 Server, 60
- overview, 7

S

serial redirected operating system installation, 9

Solaris

- setting up the BIOS, 5

Solaris 10

- documentaion, ix
- installing drivers directly, 25
- KVMS over IP installation, 24
- network interface configuration, 69
- supported versions, 2

support contact URL, ix

supported operating systems, 2

SUSE Linux Enterprise Server

- KVMS over IP installation, 33
- setting up the BIOS, 5
- supported versions, 2

T

tasks for operating system installation, 3

training contact URL, ix

W

Windows Server 2003

- installing chipset and Ethernet drivers, 50
- installing drivers directly, 50
- installing RAID drivers, 42
- KVMS over IP installation, 50
- supported versions, 2