



Quad-Core CPU Upgrade Kit Installation Guide

for the Sun Fire™ X2200 M2 Server

Sun Microsystems, Inc.
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Quad-Core CPU Upgrade Kit Installation Guide

The instructions provided in this document describe how to use the Quad-Core CPU Upgrade Kits to upgrade your Sun Fire X2200 M2 server from a dual-core CPU configuration to a quad-core CPU configuration.

This document includes the following sections:

- [“Upgrade Overview” on page 2](#)
- [“Required Tools and Supplies” on page 5](#)
- [“Upgrading a Dual-Core CPU Server” on page 6](#)
- [“Safety Information and ESD Prevention” on page 7](#)
- [“Preparing for the Upgrade” on page 9](#)
- [“Removals and Replacements” on page 14](#)
- [“Preparing for Operation” on page 27](#)
- [“Returning Parts to Sun Microsystems” on page 31](#)

Note – This kit is available as a customer replaceable unit (CRU). If you need assistance, contact your Sun Microsystems service representative.

Upgrade Overview

The procedures in this document describe how to use the quad-core upgrade kits to upgrade a Sun Fire X2200 M2 server from an AMD Opteron™ Dual-Core CPU configuration to an AMD Opteron Quad-Core *or* Enhanced Quad-Core CPU configuration. To perform the procedures in this document, you must have the correct kit for your type of upgrade. There are two kits.

The kits are designated as:

- Quad-Core CPU Upgrade Kit
- Enhanced Quad-Core CPU Upgrade Kit

The following table lists the CPU upgrade options that are available using the upgrade kits and this document. To use the table, locate your current configuration and match it to the new configuration. The hardware required is listed in the last column.

You can upgrade this CPU Configuration	To This CPU Configuration	Using this Hardware
2 Dual-Core	2 Quad-Core	1-Quad-Core CPU Upgrade Kit
2 Dual-Core	2 Enhanced Quad-Core	1-Enhanced Quad-Core CPU Upgrade Kit
2 Dual-Core	1 Enhanced Quad-Core	1-Enhanced Quad-Core CPU Upgrade Kit

Note - Kit contains two CPUs. Use one CPU in socket CPU0 *only*.



Caution – Do not mix CPU types on the same motherboard.

The kits are available as dual CPU server configurations *only*. See the next section, [Upgrade Kit Contents](#), for the kit contents.

Upgrade Kit Contents

Kit Name	Contents
Quad-Core CPU Upgrade Kit	<ul style="list-style-type: none">• 2 quad-core or enhanced quad-core CPUs
–or– Enhanced Quad-Core CPU Upgrade Kit	<ul style="list-style-type: none">• 2 heatsinks with pre-applied thermal compound• Pre-flashed 1MB firmware PROM• Anti-static wrist strap• PLCC extraction tool• Where to Find Document

To order, contact your Sun Account Manager or your Sun authorized reseller.

Required Time

The time required to complete this upgrade: 45 - 60 minutes.

Enhanced Quad-Core CPU X-Option

In addition to the two quad-core upgrade kits, an Enhanced Quad-Core CPU X-option is also available. The X-option contains *one* AMD Opteron Enhanced Quad-Core CPU and one heatsink and is used for upgrading *from a quad-core CPU to an enhanced quad-core CPU*. The X-option provides the following quad-core-to-enhanced quad-core upgrade paths:

You can upgrade this Quad-Core CPU Configuration	To This Enhanced Quad-Core CPU Configuration	Using this X-Option Quantity
2 Quad-Core	2 Enhanced Quad-Core	2-Enhanced Quad-Core CPU X-Options Note - Update to enhanced quad-core BIOS <i>before</i> upgrading.
1 or 2 Quad-Core	1 Enhanced Quad-Core	1-Enhanced Quad-Core CPU X-Option Note - Use one CPU in socket CPU0 <i>only</i> . Update to enhanced quad-core BIOS <i>before</i> upgrading.

Note – The Enhanced Quad-Core CPU X-Option does *not* contain a firmware PROM.

The X-Option does *not* contain a firmware PROM. Therefore, it does *not* contain the necessary hardware to upgrade a dual-core CPU server to an enhanced quad-core CPU server. For this upgrade path, you must use the Enhanced Quad-Core CPU Upgrade Kit.

For CPU replacement procedures using the Enhanced Quad-Core CPU X-option, see the *Sun Fire X2200 M2 Server Service Manual*.

Quad-Core Upgrade-Related Issues

This section lists software, hardware, and firmware issues related to upgrading your server from dual-core processors to quad-core processors.

4 GB DIMM and Quad-Core CPU Compatibility Issue

Some Micron 4 GB DIMMs supplied for use with dual-core CPU servers can have single-bit or multiple bit errors *after* the servers are upgraded to *quad-core CPUs*. Symptoms include system crash and boot failure. Not all existing Micron 4 GB DIMMs are affected.

Before you upgrade your server to quad-core CPUs, you should inspect the label on any 4 GB DIMMs installed in your server. Affected DIMMs have the following three identifiers on the label:

- A Micron product logo
- A vendor part number of MT36HTF51272PY-667E
- A manufacture date before the 32nd week of 2008 (200832)

For more information, see the *Sun Fire X2200 M2 Server Product Notes*.

Required Tools and Supplies

- Quad-Core or Enhanced Quad-Core CPU Upgrade Kit
- Sun Fire X2200 M2 Tools and Drivers CD v2.0 (or later version)
(see “[Downloading the Tools and Drivers CD](#)” on page 9)
- #1 Phillips screwdriver (small size)
- #2 Phillips screwdriver (standard size)
- KVM access to the server
- PLCC extraction tool (included in kit)
- ESD wrist strap (included in kit)
- Sun Fire X2200 M2 server product documentation:
 - Sun Fire X2200 M2 Server Product Notes*
 - Sun Fire X2200 M2 Server Service Manual*
 - Sun Fire X2200 M2 Server Installation Guide*
 - Embedded Lights Out Manager Administration Guide for the Sun Fire X2200 M2 and X2100 M2 Servers*

Sun Fire X2200 M2 server product documentation is available at:
<http://docs.sun.com/app/docs/prod/sf.x2200m2#hic>

Upgrading a Dual-Core CPU Server

Upgrading a dual-core CPU server to a quad-core CPU server involves performing the following steps:

Preparing for the Upgrade:

1. [“Safety Information and ESD Prevention” on page 7](#)
2. [“Reviewing Product Note Documentation” on page 9](#)
3. [“Downloading the Tools and Drivers CD” on page 9](#)
4. [“Recording Your Current BIOS settings” on page 10](#)
5. [“Preparing the Server for the Upgrade” on page 11](#)
6. [“Identifying Components” on page 12](#)

Removal and Replacement:

1. [“Removing the Air Duct and Heatsinks” on page 14](#)
2. [“Removing the CPUs” on page 16](#)
3. [“Installing the Quad-Core CPUs” on page 18](#)
4. [“Installing the New Heatsink” on page 20](#)
5. [“Replacing the Firmware PROM” on page 22](#)
6. [“Installing the New Firmware PROM” on page 24](#)
7. [“Clearing CMOS” on page 25](#)

Preparing for Operation:

1. [“Preparing the Server for Operation” on page 27](#)
2. [“Updating the SP Firmware” on page 28](#)
3. [“Updating BIOS Firmware” on page 29](#)
4. [“Performing Power On and BIOS Setup Procedures” on page 30](#)

Returning Parts

1. [“Returning Parts to Sun Microsystems” on page 31](#)

Safety Information and ESD Prevention

Before you begin the upgrade procedure, you must understand the safety information and electrostatic discharge and antistatic prevention measures.

Safety Information

This section describes important safety information that you need to know prior to removing or installing parts in your Sun Fire X2200 M2 server.



Caution – Hazardous voltage present. Never attempt to run the server with the covers removed.



Caution – Equipment damage possible. The covers must be in place for proper air flow.

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all Sun cautions, warnings, and instructions marked on the equipment and described in *Important Safety Information for Sun Hardware Systems* (816-7190).
- Follow all cautions, warnings, and instructions marked on the equipment and described in the *Sun Fire X2200 M2 Safety and Compliance Guide*.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Follow the electrostatic discharge safety practices as described in this document.

Performing Electrostatic Discharge and Antistatic Prevention Measures

Electrostatic Discharge Safety Measures

Electrostatic discharge (ESD) sensitive devices, such as the motherboards, PCI cards, hard drives, and memory modules, require special handling.



Caution – Circuit boards and hard drives contain electronic components that are extremely sensitive to static electricity. Ordinary amounts of static electricity from clothing or the work environment can destroy the components located on these devices. Do not touch the components without antistatic precautions, especially along the connector edges.



Caution – You must disconnect the power supply before servicing any of the components documented in this chapter.

Using an Antistatic Wrist Strap

Wear an antistatic wrist strap and use an antistatic mat when handling components such as hard drive assemblies, circuit boards, or PCI cards. When servicing or removing server components, attach an antistatic strap to your wrist and then to a bare metal area on the chassis. Following this practice equalizes the electrical potentials between you and the server.

Note – An antistatic wrist strap is included in the upgrade kit.

Using an Antistatic Mat

Place static-sensitive components such as motherboards, memory, and other PCBs on an antistatic mat.

Antistatic Handling Procedure

1. Prepare an antistatic surface to set parts on during the removal, installation, or replacement process.

Place static-sensitive components such as the printed circuit boards, memory modules, and CPUs on the antistatic mat. The following items can be used as an antistatic mat:

- Antistatic bag used to wrap a Sun replacement part
- Sun antistatic mat, part number 250-1088
- A disposable antistatic mat (shipped with some replacement parts or optional system components)

2. Attach an antistatic wrist strap.

When servicing or removing server components, attach an antistatic strap to your wrist and then to a bare metal area on the chassis. Proceed to the next section, [Preparing for the Upgrade](#).

Preparing for the Upgrade

Perform the following steps:

Step	Task	Procedure
1	Review the <i>Sun Fire X2200 M2 Server Product Notes</i> .	“Reviewing Product Note Documentation” on page 9
2	Record your current BIOS settings.	“Recording Your Current BIOS settings” on page 10
3	Prepare the server for the upgrade.	“Preparing the Server for the Upgrade” on page 11

Reviewing Product Note Documentation

The *Sun Fire X2200 M2 Server Product Notes* contains updated information about issues and developments for your server. Before you begin the quad-core CPU upgrade, review this document.

▼ To Review Product Note Documentation

- **View or download the latest revision of the *Sun Fire X2200 M2 Server Product Notes* at:**

<http://docs.sun.com/app/docs/prod/sf.x2200m2>

Downloading the Tools and Drivers CD

To upgrade the server to quad-core CPUs you must update the firmware using the firmware available on the *Sun Fire X2200 M2 Server Tools and Drivers CD v2.0* (or later). The CD is available online as an ISO image. You need to download the ISO image and burn a CD to use after you perform the hardware upgrade of your server.

Note – For the quad-core upgrade, the server’s service processor (SP) firmware *must* be upgraded to the firmware level v3.15.

▼ To Download the Tools and Drivers CD

1. **Download the *Sun Fire X2200 M2 Server Tools and Drivers CD v2.0 (or later) ISO image* at:**
<http://www.sun.com/servers/x64/x2200/downloads.jsp>
2. **From the description of the contents of the Tools and Drivers CD, make note of the BIOS firmware version number.**
3. **Burn a CD using the ISO image.**
4. **Retain the CD for use after the server hardware upgrade.**

Recording Your Current BIOS settings

To upgrade your dual-core server to quad-core or enhanced quad-core CPUs, you need to replace the firmware PROM, which contains the default BIOS settings. If you had previously customized the BIOS by changing the default settings, then you need to access the BIOS Setup Utility and record those changes before you begin this upgrade procedure. After the upgrade is finished, you must enter the BIOS Setup Utility again to customize the BIOS settings.

Accessing the BIOS Setup Utility

The method described here for accessing the BIOS Setup Utility involves attaching a keyboard, video, and mouse (KVM) to the server. You can also use the Remote Console application in the Embedded Lights Out Manager’s (ELOM) web GUI and the Remote Power Control submenu to boot directly to the BIOS Setup Utility. For information about the Remote Console application, see the *Sun Fire X2200 M2 Installation Guide* and the *Embedded Lights Out Manager Administration Guide*.

▼ To Record Your Current BIOS Settings

1. **Attach a KVM to the server, so that you can view the power-on self test (POST) messages.**

2. **Boot the server, and watch the POST messages as they appear on the display.**
3. **When prompted, press the F2 key to enter the BIOS Setup Utility screens.**
The BIOS Setup Utility screen appears.
4. **Use the arrow keys to scroll through the BIOS Setup Utility screens and record your customized settings.**
5. **To exit the BIOS Setup Utility press the Esc key or the F10 key.**

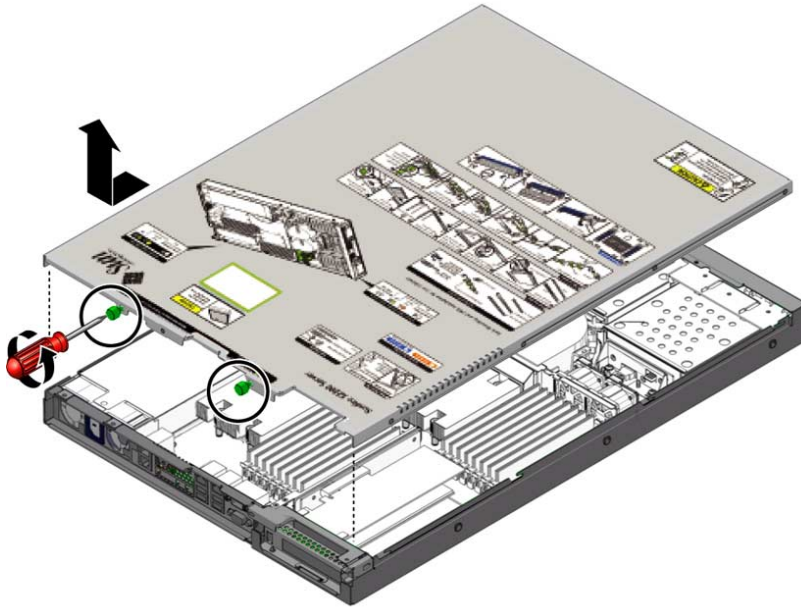
Preparing the Server for the Upgrade

Preparing the server for the upgrade involves placing the server in an area that provides enough space and light to allow you to perform the steps in each procedure safely and easily.

▼ To Prepare the Server for the Upgrade

1. **Perform a clean shutdown of the operating system.**
Use the OS-specific shutdown procedure.
2. **Power off the server.**
3. **Remove the power cable.**
4. **Power off and remove all peripheral devices connected to the server.**
5. **Label and disconnect all cables connected to the server.**
Use tape, color-coding, or some other scheme that will assist you in cabling the system at the end of the upgrade.
6. **Remove the server from the rack.**
For more information, see the *Sun Fire X2200 M2 Server Service Manual*.
7. **Place the server on a flat surface.**
Choose a surface with an ample amount of surrounding work space.
8. **To remove the server cover, use a #2 Phillips screwdriver to loosen the two captive screws located on the rear of the server (see [FIGURE 1](#)).**
9. **Remove the cover and set aside.**

FIGURE 1 Removing the Server Cover



- 10. Put the anti-static wrist strap on your wrist. If necessary, connect the grounding cord to the wrist strap, and connect the other end (clip end) of the cord to bare metal on the server chassis.**

The strap should fit snugly enough on your wrist so that the metal contact point constantly touches bare skin.

- 11. Inspect the interior of the server, and, if necessary, use compressed air to remove dust from the server.**

Identifying Components

Use the figure to identify and familiarize yourself with the components referenced in these procedures.

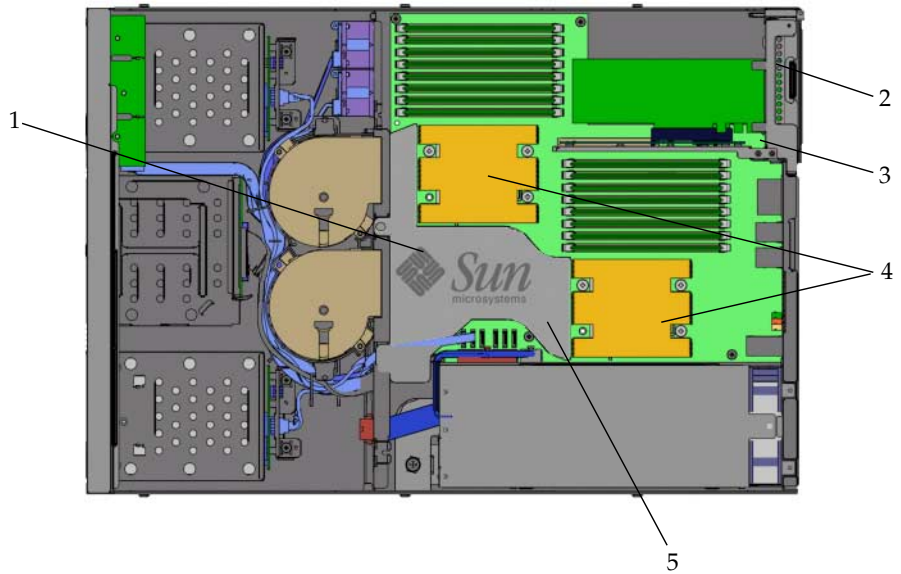


Figure Legend Component Locations

-
- | | |
|---|---------------------------------|
| 1 | Air duct |
| 2 | PCI riser assembly |
| 3 | Firmware PROM (obscured) |
| 4 | Heatsinks/CPU |
| 5 | System Battery (under air duct) |
-

Proceed to the next section, [Removals and Replacements](#).

Removals and Replacements

Perform the following steps:

Step	Task	Procedure
1	Remove the Air Duct and Heatsinks.	“Removing the Air Duct and Heatsinks” on page 14
2	Remove the CPU.	“Removing the CPUs” on page 16
3	Install the Quad-Core CPU.	“Installing the Quad-Core CPUs” on page 18
4	Install the New Heatsink.	“Installing the New Heatsink” on page 20
5	Remove the Firmware PROM.	“Replacing the Firmware PROM” on page 22
6	Install the New Firmware PROM.	“Installing the New Firmware PROM” on page 24
7	Clear the CMOS	“Clearing CMOS” on page 25

Note – Retain all packaging materials and old heatsinks and CPUs for return to Sun Microsystems, Inc.

Removing the Air Duct and Heatsinks

Before you can upgrade the CPUs, you must first remove the air duct and the heatsinks. The Sun Fire X2200 M2 heatsink is a passive thermal dissipation device that helps to move heat away from the CPU. The air duct provides a concentrated flow of air from the system fans to the heatsinks. The heatsinks sit atop the CPUs, and are secured to the motherboard with four screws. A thin layer of thermal compound is between the top of the CPU and the bottom of the heatsink. In addition to facilitating the transfer of heat away from the CPU to the heatsink, this compound also acts as an mild adhesive.

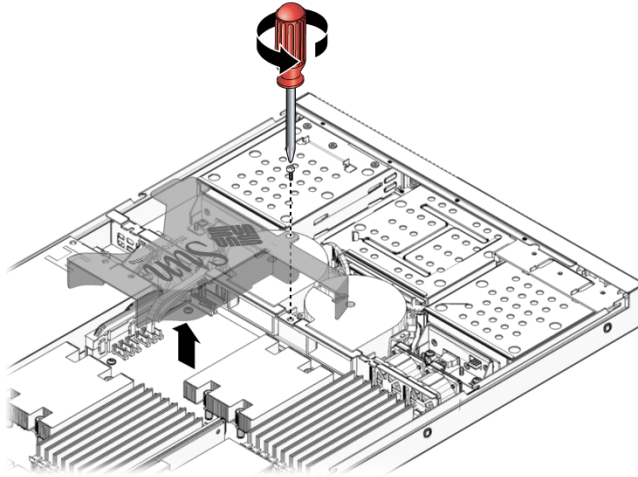


Caution – The heatsink can become hot. Allow sufficient time for cooling before handling.

▼ To Remove the Air Duct and Heatsinks

1. Use a #1 Phillips screwdriver to remove the air duct retaining screw (see [FIGURE 2](#)).

FIGURE 2 Removing the Air Duct Retaining Screw



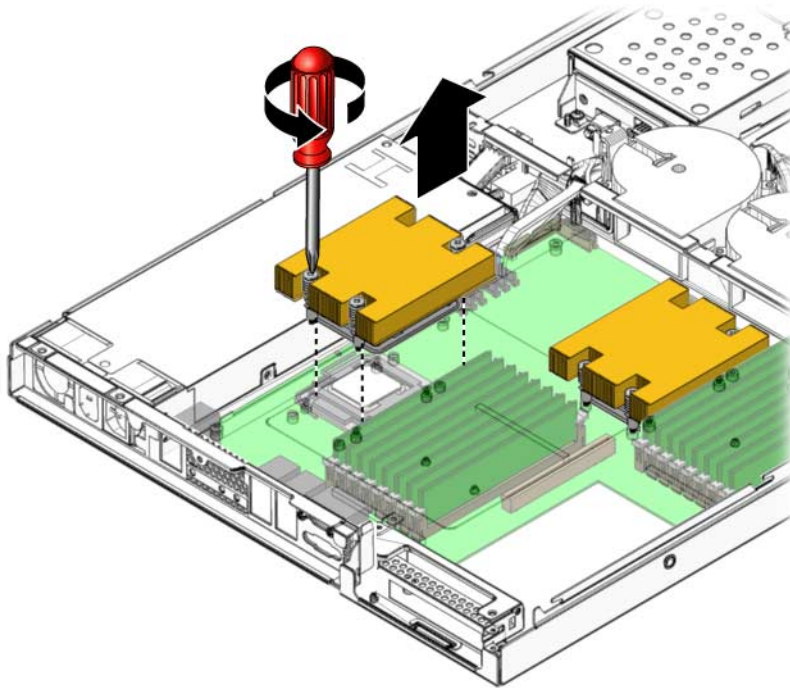
2. Remove the air duct.

Set the air duct and retaining screw aside.

3. To remove the heatsink, gently press down on the center of the heatsink, and use a #2 Phillips screwdriver to loosen the four captive screws that secure the heatsink to the motherboard (see [FIGURE 3](#)).

The four captive screws are spring-loaded. Pressing down slightly on the center of the heatsink relieves the spring tension.

FIGURE 3 Removing the Heatsink



The heatsink assembly is also secured to the top surface of the CPU by a layer of thermal compound, which acts as an adhesive.

4. Grip the sides of the heatsink, and while pulling slightly upward, wiggle the heatsink right and left to break the adhesive seal created by the thermal compound.
5. Place the heatsink upside-down on a flat surface to prevent the thermal compound from contaminating the work area and other components.
6. Repeat [Step 1](#) through [Step 5](#) to remove the other heatsink.
7. Proceed to the next section, [Removing the CPUs](#).

Removing the CPUs

The CPUs are secured in the socket by a CPU retaining cover. To open the CPU retaining cover, you must unlock the retaining cover release lever. The release lever is located on one side of the socket and is held in place by a clip.

▼ To Remove the CPUs

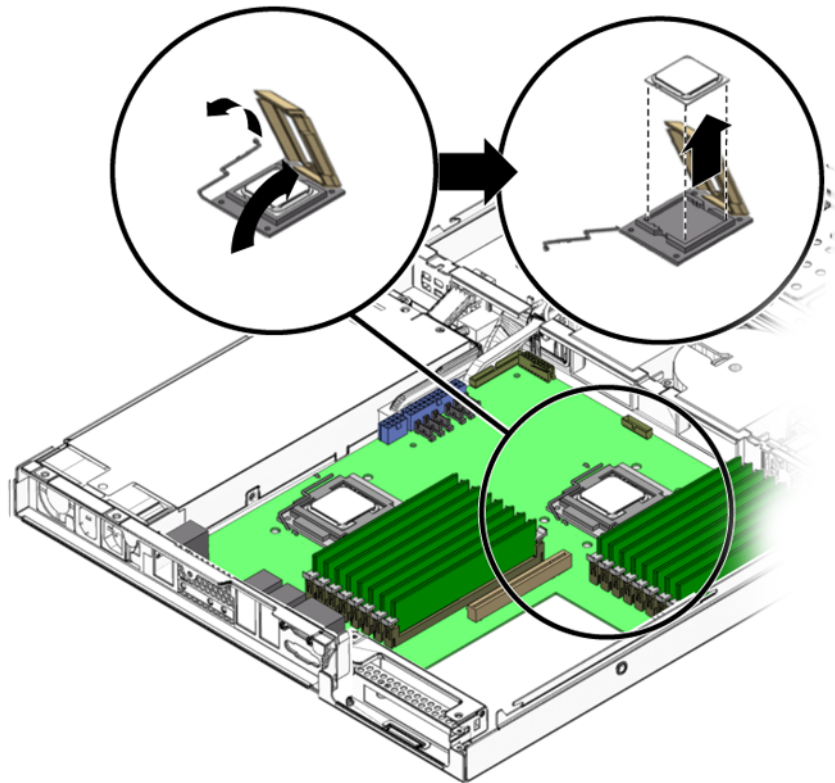
1. Gently push down on the socket release lever, and move the lever slightly away from the CPU.

This action frees the lever, which is held in place by a clip.

2. Lift the lever to the fully open position (see [FIGURE 4](#)).
3. Lift the hinged CPU retaining cover to the fully open position (see [FIGURE 4](#)).

Note – The top of the CPU might have a residual layer of thermal compound.

FIGURE 4 Removing the CPU



4. **Lift the CPU out of the socket** (see [FIGURE 4](#)).
Leave the release lever and the CPU retaining cover in the fully open position.
5. **Set the CPU aside, taking care to prevent the thermal compound from contaminating the work area and other components**
6. **Repeat Step 1 through Step 5 for the other CPU.**
7. **Proceed to the next section, [Installing the Quad-Core CPUs](#).**

Installing the Quad-Core CPUs

The CPU and CPU socket are keyed to assist you in proper installation. Both the CPU and the CPU socket are marked with a small triangle in one corner. Some CPU sockets might have a corner that is trimmed instead of marked with a triangle. This trimmed corner also acts as the key. When installing the CPU, align the triangle on the CPU with the triangle or trimmed corner on the CPU socket.



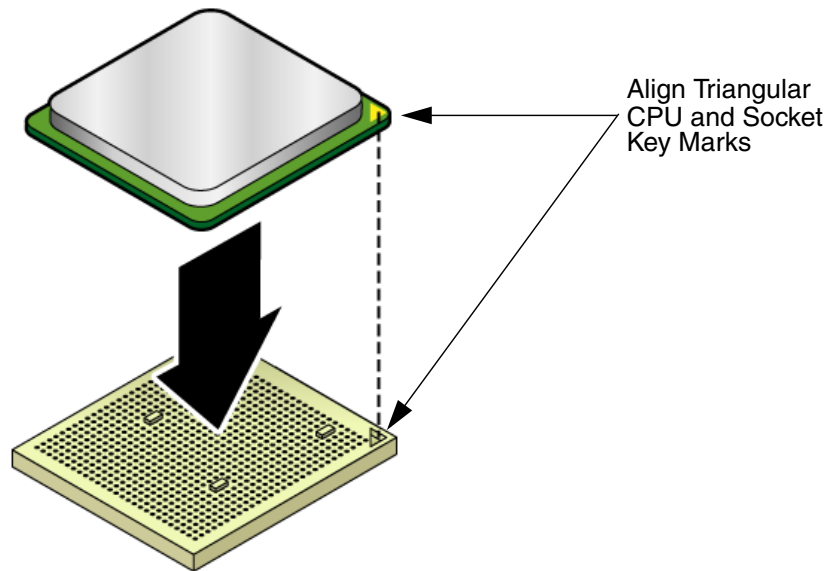
Caution – Irreparable damage to the CPU can occur through improper handling. Observe the ESD precautions when handling the CPU. Wear a securely grounded ESD wrist strap. Hold the CPU by the edges only. Do not touch the metal contacts.

▼ To Install the Quad-Core CPUs

Note – If you are installing a single CPU only, the CPU *must* be installed in socket CPU0.

1. **Unpack the new quad-core CPUs from the upgrade kit.**
Handle the CPU with care. Do not touch the metal contacts.
2. **Ensure that the socket release lever and the CPU retaining cover are in the fully open position** (see [FIGURE 4](#)).
3. **Align the keyed CPU corner with the keyed CPU socket corner.**
The CPU has a small triangle mark on one corner. The CPU socket has a similar mark on one corner. This mark is the key, indicating proper positioning of the CPU in the CPU socket (see [FIGURE 5](#)).

FIGURE 5 Installing CPU Using Triangular Key Marks

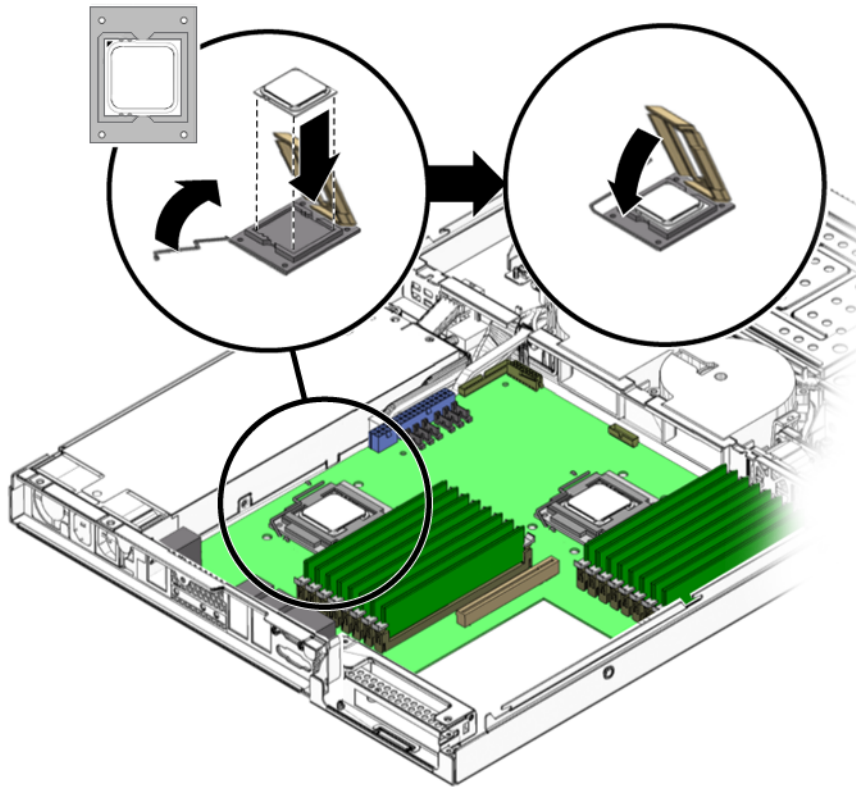


Caution – Irreparable damage to the motherboard can occur if the CPU is dropped onto the socket, if the CPU is skewed or sitting unevenly on the socket, or if the CPU is forced into the socket. Handle the CPU with care and gently place the CPU onto socket. The CPU does not need to be forcibly seated or inserted.

4. Gently place the CPU onto the CPU socket (see [FIGURE 6](#)). Do *not* press down on the CPU. The CPU does *not* need to be forcibly seated or inserted.

The CPU should be lying flat on the socket. It should not be skewed or sitting unevenly. When properly positioned the CPU fits snugly in the CPU socket.

FIGURE 6 Installing the CPU



5. Close the CPU retaining cover (see [FIGURE 6](#)).
6. To secure the CPU in the socket, rotate the socket release lever down until it snaps into place under the lever retaining clip.
The CPU is now installed.
7. To install the other quad-core CPU, repeat [Step 1](#) through [Step 6](#).
8. Proceed to the next section, [Installing the New Heatsink](#).

Installing the New Heatsink

The new heatsink has the thermal compound pre-applied. This compound is protected by a thin plastic cover, which you must remove before installing the heatsink onto the CPU.

▼ To Install the New Heatsink

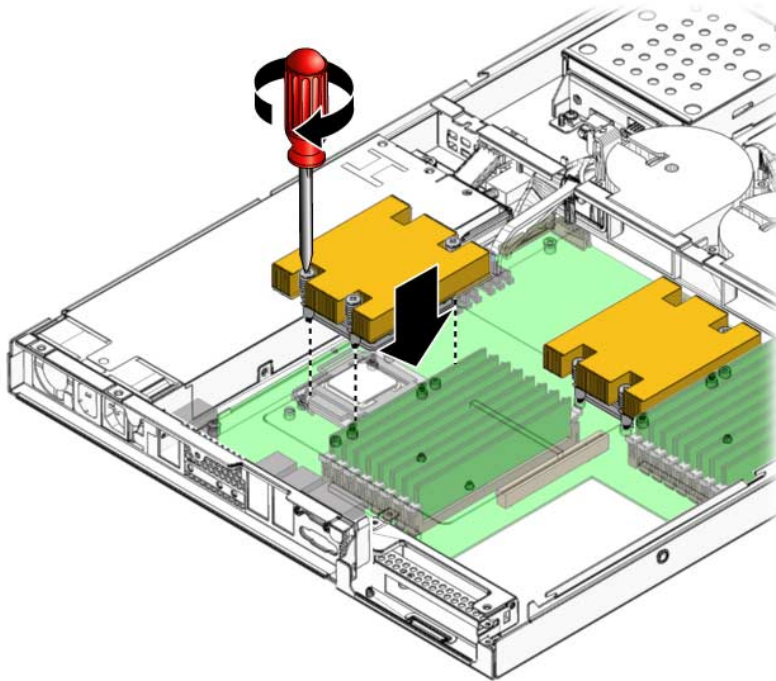
1. Remove the heatsink from the upgrade kit.
2. Remove the plastic cover that protects the thermal compound.
3. Position the heatsink over the CPU. Allow the captive screws in the heatsink to dangle, and align the screws with the screw holes on the motherboard.



Caution – Thermal damage to the CPU can occur if the heatsink is moved too much during installation. The layer of thermal grease might become uneven, leading to component damage.

4. Gently lower the heatsink onto the CPU.
5. To attach the heatsink to the motherboard, alternately tighten the four screws by turning each screw approximately 180 degrees (see [FIGURE 7](#)).
The captive heatsink screws are spring-loaded. To counteract the springs, you might need to gently press down on the center of the heatsink while tightening the screws.
6. Continue alternately tightening the screws until all four screws are tight.

FIGURE 7 Installing the Heatsink



7. To install the other heatsink, repeat [Step 1](#) through [Step 6](#).
8. Proceed to the next section, [Replacing the Firmware PROM](#).

Replacing the Firmware PROM

To complete the hardware portion of the CPU upgrade, you need to replace the server's firmware PROM with the new firmware PROM that is included with the kit.



Caution – Irreparable damage can occur to the motherboard if you do not use a PLCC extraction tool to remove the firmware PROM. A PLCC extraction tool is included in the upgrade kit.

▼ To Remove the Firmware PROM

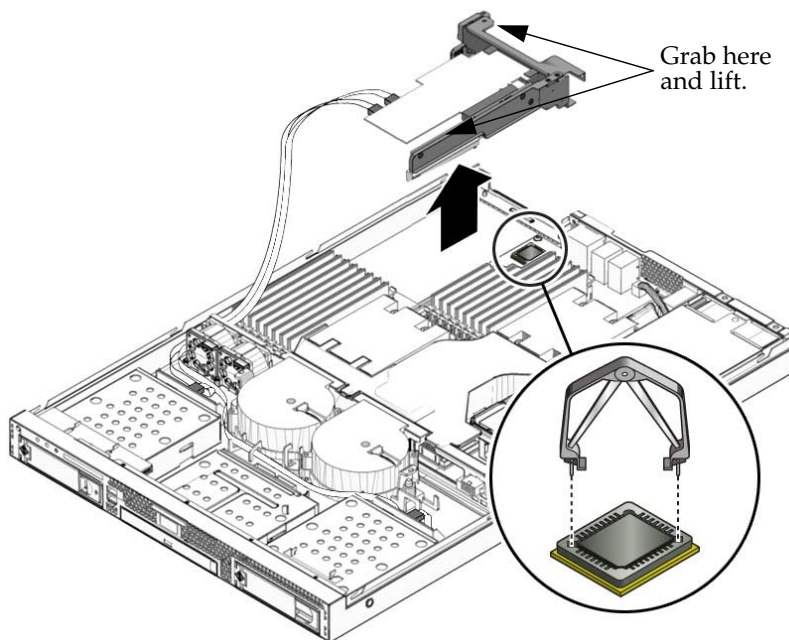
Note – The firmware PROM is located at the rear of the server. Access to the PROM is obstructed by the PCI riser assembly. To replace the firmware PROM, you must first remove the PCI riser assembly.

1. First, remove PCI riser assembly by gripping the ends of the assembly and lifting it straight up out of the PCI slot on the motherboard (see [FIGURE 8](#)).

Note – If a PCI card is installed in the riser assembly, you do not need to remove the card.

The firmware PROM is located toward the rear of the server (see [FIGURE 8](#)).

FIGURE 8 Removing the PCI Riser and Extracting the Firmware PROM



2. Set the PCI riser assembly next to the server.
3. Insert the ends of the PLCC extraction tool into the elongated corner slots on the firmware PROM socket (see [FIGURE 8](#)).

4. **To remove the firmware PROM, gently squeeze the extraction tool.**

This action pulls the PROM from the socket.

5. **Remove the PROM from the server, and proceed to the next section.**

Installing the New Firmware PROM

The firmware PROM chip is keyed for proper installation in the PROM socket. The PROM chip has three right-angle corners. The fourth corner, on the beveled edge side of the firmware PROM chip, is trimmed at 45 degrees. One of the outer-edge corners of the PROM socket is trimmed the same way, and the same interior corner of the PROM socket has a semi-circular protrusion. This is the key to proper installation (see [FIGURE 9](#)). To install the firmware PROM chip properly, the trimmed corner of the chip must align with the corner of the PROM socket with the semi-circular protrusion.



Caution – Irreparable damage to the firmware PROM chip can occur through improper handling. Observe the ESD precautions when handling the firmware PROM chip. Wear a securely grounded ESD wrist strap. Hold the firmware PROM chip by the edges only. Do not touch the metal contacts.

▼ To Install the New Firmware PROM

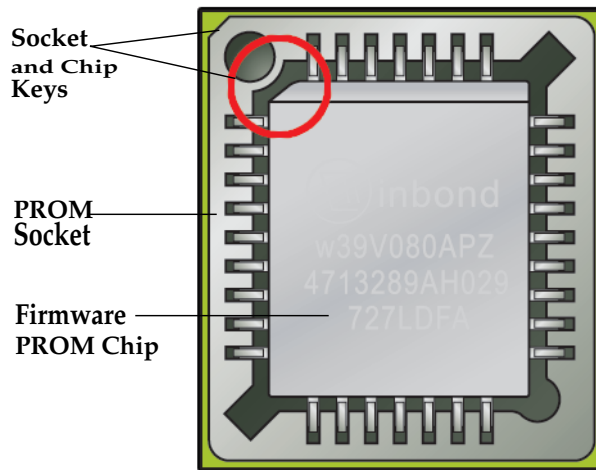
1. **Remove the new 1 Mbyte firmware PROM chip from the upgrade kit.**

Handle the chip carefully. Avoid touching the metal contacts.

2. **Align the trimmed corner of the PROM chip with the keyed corner of the socket.**

The trimmed corner of the chip, when properly seated in the socket, must align with the socket corner that has the rounded protrusion (see [FIGURE 9](#)).

FIGURE 9 Socket and PROM Chip Alignment Key



3. When properly aligned, place the PROM chip on top of the socket.
The chip should lie flat.
4. Using your finger or thumb, gently push the firmware PROM chip downward into the socket until the top of the chip is flush with the top of the socket.
The new firmware PROM chip is now installed.
5. Proceed to the next section, [Clearing CMOS](#).

Clearing CMOS

After replacing the firmware PROM, you need to clear the CMOS before you update the firmware. You clear the CMOS by removing the system battery and shorting the battery terminals for 60 seconds.

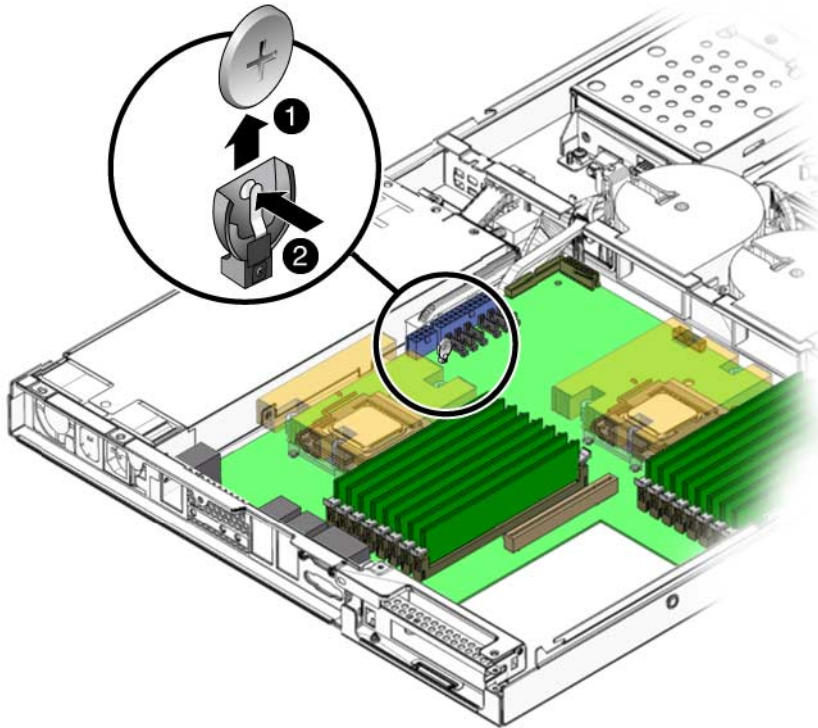
▼ To Clear CMOS

1. Remove the system battery by pulling it up and out of the holder (see [FIGURE 10](#)).

The battery is secured in the battery holder by a metal clip that contacts the positive ('+') side of the battery. The opposite side of the battery, the negative side, presses against a metal contact point in the base of the battery holder. When

the battery is removed the metal clip and the contact point do not touch. To clear CMOS, you must make the clip and the contact point in the battery holder touch (short) for a period of 60 seconds.

FIGURE 10 Removing System Battery and Clearing CMOS



- 2. Press the metal clip on the battery holder inward until it touches (shorts) the metal contact point in the base of the battery holder (see [FIGURE 10](#)).**
You can use your thumb and finger to press (squeeze) the clip against the contact point.
- 3. Continue shorting the clip and the contact point for a period of 60 seconds.**
The two points must touch (short) for 60 seconds.
- 4. After 60 seconds, install the battery, making certain that the positive ('+') side of the battery faces outward (see [FIGURE 10](#)) and contacts the metal clip.**
- 5. Install the PCI riser assembly.**

6. Install the air duct, and secure it with the air duct retaining screw.
7. Proceed to the next section, [Preparing for Operation](#).

Preparing for Operation

Perform the following steps:

Step	Task	Procedure
1	Prepare the server for operation.	“Preparing the Server for Operation” on page 27
2	Update SP firmware.	“Updating the SP Firmware” on page 28
3	Update BIOS firmware	“Updating BIOS Firmware” on page 29
4	Perform power-on and BIOS setup procedures.	“Performing Power On and BIOS Setup Procedures” on page 30

Preparing the Server for Operation

Perform the following procedures to prepare the upgraded server for operation.

▼ To Prepare the Server for Operation

1. **Inspect the interior of the server, ensuring that all cables are properly routed and all components are properly seated.**
2. **Remove any tools.**
3. **Install the server top cover.**
4. **Retain the kit packaging material, old heatsinks, and old CPUs.**
You can return these items to Sun Microsystems.
5. **Install the server in the rack, and plug in the power cable.**

Updating the SP Firmware

Before you can use the server, you must upgrade the SP and BIOS firmware. You upgrade the server firmware using the *Sun Fire X2200 M2 Server Tools and Drivers CD* that you created at the beginning of the upgrade procedure.

▼ To Update the SP Firmware

1. **Attach a KVM to the server, so that you can view the Tools and Drivers boot menu.**
2. **Power on the server and insert the Tools and Drivers CD v2.0 (or later) into the server's CD/DVD drive.**

The system boots from the CD and the Tools and Drivers CD main menu appears.

- If error 410E occurs and the system stops booting, do the following:

- a. **Press F1**

A Load Defaults prompt message appears.

- b. **When prompted, press F2 to load defaults.**

The defaults load, the server reboots, and the Tools and Drivers main menu appears.

3. **From the Tools and Drivers main menu, select option #4, Exit to DOS.**

The DOS prompt appears:

```
C:\>
```

4. **At the DOS prompt navigate to the `\flash\sp\latest` directory by entering the following command:**

```
C:\> cd \flash\sp\latest
```

The DOS Prompt appears:

```
C:\flash\sp\latest>
```

5. **At the prompt list the contents of the `\flash\sp\latest` directory by executing the `dir` command:**

```
C:\flash\sp\latest> dir
```

The contents of the directory appears.

6. Review the contents of the directory, and make note of the name of the `s39uversion.bin` file.

Where *version* is the version number of the SP firmware.

For example:

```
s39u315.bin
```

7. To update the firmware enter the following command:

```
C:\flash\sp\latest> download.exe -f s39uversion.bin
```

For example:

```
C:\flash\sp\latest> download.exe -f s39u315.bin
```

The update script verifies the PROM size before starting the update. The following warning message might appear:

Warning: The system contains 512k BIOS flash ROM. The BIOS only supports AMD Dual-Core processors.

If the above message appears, you do *not* have the 1 Mbyte PROM installed in the server. To complete the quad-core upgrade you *must* install the 1 Mbyte PROM that came with the Quad-Core Upgrade Kit. To replace the PROM, see [“Replacing the Firmware PROM” on page 22](#).

The SP update process takes about two minutes to finish.

8. When the firmware update process ends, the server reboots.

9. Do the following depending upon the type of upgrade you are performing:

For a dual-core CPU to quad-core CPU upgrade:

- Go to the next section, [“Updating BIOS Firmware” on page 29](#).

For a quad-core CPU to enhanced quad-core CPU upgrade:

- Go to the section, [“Performing Power On and BIOS Setup Procedures” on page 30](#).

Updating BIOS Firmware

The firmware version preflashed onto the upgrade kit PROM chip might not be the latest version. When the server is operational verify the firmware version, and if necessary, update the PROM. During the update process the following error message appears if you are attempting to update the PROM with the *wrong* file:

ERROR: File size does not match ROM size! Use the correct file or upgrade ROM.

If this message occurs during the update process, update the PROM with the *correct* file.

▼ To Update BIOS Firmware

1. **Use the ELOM web GUI or the command-line interface (CLI) to check the server's BIOS version.**

See the *Sun Fire X2200 M2 Server Embedded Lights Out Manager Administrative Guide* for instructions about using the web GUI or the CLI to view BIOS and SP version numbers.

2. **Compare the BIOS version number of the server to the version number, that you noted in [“Downloading the Tools and Drivers CD”](#) on page 9.**
3. **If the server BIOS firmware does not match the version on the Tools and Drivers CD, use the ELOM web GUI or the CLI to update the firmware PROM.**

If the version numbers match, then proceed to the next section, [“Performing Power On and BIOS Setup Procedures”](#) on page 30.

See the *Sun Fire X2200 M2 Server Embedded Lights Out Manager Administrative Guide* for instructions on updating the BIOS and SP firmware.

4. **Proceed to the next section, [“Performing Power On and BIOS Setup Procedures”](#) on page 30.**

Performing Power On and BIOS Setup Procedures

You must access the BIOS Setup Utility and load default settings. You can then customize the BIOS settings, returning the server to the settings you retained in [“Recording Your Current BIOS settings”](#) on page 10.

▼ To Perform Power On and BIOS Setup Procedures

1. **Attach a KVM to the server, so that you can view the power-on self test (POST) messages.**
2. **Boot the server, and watch the POST messages as they appear on the display.**
3. **When prompted, press the F2 key to enter the BIOS Setup Utility.**

The BIOS Setup Utility screen appears.

4. Load default settings, and Save and Exit the BIOS.
5. If you need to customize the BIOS settings, repeat Step 1 through Step 3 and enter the settings you saved in “Recording Your Current BIOS settings” on page 10.
6. After customizing the BIOS settings, Save and Exit the BIOS Setup Utility.
The server boots and is ready for operation.
7. Proceed to the next section, [Returning Parts to Sun Microsystems](#).

Returning Parts to Sun Microsystems

The final step in the quad-core upgrade procedure is to return the old heatsinks and CPUs to Sun Microsystems using the SunReturns trade-in program. For information on SunReturns and trade-ins, go to:

<http://www.sun.com/tradeins/sunreturns/index.jsp>

