Sun Fire™ T1000 Server Installation Guide

Sun Microsystems, Inc.
www.sun.com

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Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan
- Bureau of Standards Metrology and Inspection (BSMI) — Taiwan

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

FCC Class A Notice

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

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Shielded Cables: Connections between the workstation and peripherals must be made using shielded cables to comply with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted-pair (UTP) cables.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

FCC Class B Notice

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

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Shielded Cables: Connections between the workstation and peripherals must be made using shielded cables to comply with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted-pair (UTP) cables.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

ICES-003 Class A Notice - Avis NMB-003, Classe A

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

ICES-003 Class B Notice - Avis NMB-003, Classe B

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

VCCI 基準について

クラス A VCCI 基準について

クラス A VCCI の表示があるワークステーションおよびオプション製品は、クラス A 情報技術装置です。これらの製品には、下記の項目が該当します。

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BSMI Class A Notice

The following statement is applicable to products shipped to Taiwan and marked as Class A on the product compliance label.

警告使用者：
這是甲類的資訊產品，在居住的環境中使用
時，可能會造成射頻 干擾，在這種情況下，
使用者 會被要求採取某些適當的對策。

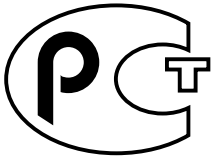
CCC Class A Notice

The following statement is applicable to products shipped to China and marked with “Class A” on the product’s compliance label.

以下声明适用于运往中国且其认证标志上注有 "Class A" 字样的产品。

声明
此为A级产品，在生活环境中，该产品可能会造成无线电干扰。
在这种情况下，可能需要用户 对其干扰采取切实可行的措施。

GOST-R Certification Mark



Declaration of Conformity

Compliance Model Number: T1000
Product Family Name: Sun Fire T1000

EMC

USA - FCC Class A

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1) This equipment may not cause harmful interference.
2) This equipment must accept any interference that may cause undesired operation.

European Union

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

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

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

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

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

Safety

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

EC Type Examination Certificates:

EN 60950:2001, 1st Edition	UL/DEMKO/GS Certificate No. *Pending*
IEC 60950:2001, 1st Edition	CB Scheme Certificate No. *Pending*
Evaluated to all CB Countries	
UL 60950:2003, 1st Edition, CSA C22.2 No. 60950-01-03	File: *Pending*

Supplementary Information: This equipment was tested and complies with all the requirements for the CE Mark.

/S/ _____ DATE

Dennis P. Symanski
Worldwide Compliance Office
Sun Microsystems, Inc.
4150 Network Circle, MPK15-102
Santa Clara, CA 95054, USA
Tel: 650-786-3255
Fax: 650-786-3723

/S/ _____ DATE

Donald Cameron
Program Manager/Quality Systems
Sun Microsystems Scotland, Limited
Blackness Road, Phase I, Main Bldg.
Springfield, EH49 7LR
Scotland, United Kingdom
Tel: +44 1 506 672 539
Fax: +44 1 506 670 011

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Preface

This guide provides instructions, background information, and reference material to help you install a Sun Fire™ T1000 server.

Instructions for installation in the document assume that a system administrator is experienced with the Solaris™ Operating System (Solaris OS).

Note – All internal components must be installed by qualified service technicians only.

How This Document Is Organized

This document is organized in the following way:

Chapter 1 provides an overview of the Sun Fire T1000 server installation process.

Chapter 2 provides instructions for installing the Sun Fire T1000 server into a rack.

Chapter 3 provides instructions for configuring and powering on the server, and for installing additional software.

Appendix A provides instructions for updating the system controller firmware and the host firmware.

Appendix B provides instructions for selecting a boot device.

Using UNIX Commands

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

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

  http://docs.sun.com

Shell Prompts

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

Typographic Conventions

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

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

Sun Fire T1000 Server Documentation

You can view and print the following manuals from the Sun™ documentation web site at http://www.sun.com/documentation

Title	Description	Part Number
Sun Fire T1000 Server Site Planning Guide	Site planning information for the Sun Fire T1000 server	819-3749
Sun Fire T1000 Server Product Notes	Late-breaking information about the server. The latest notes are posted at: http://www.sun.com/documentation	819-3246
Sun Fire T1000 Server Getting Started Guide	Information about where to find documentation to get your system installed and running quickly	819-3244
Sun Fire T1000 Server System Administration Guide	How to perform administrative tasks that are specific to the Sun Fire T1000 server	819-3249
Sun Fire T1000 Server Service Manual	How to run diagnostics to troubleshoot your server and how to remove and replace parts in the server	819-3248
Advanced Lights Out Management (ALOM) CMT v1.1 Guide	How to use the Advanced Lights Out Manager (ALOM) software on the Sun Fire T1000 server	819-3250

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/supportraining/	Obtain technical support, download patches, and learn about Sun courses

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Please include the title and part number of your document with your feedback:

Sun Fire T1000 Server Installation Guide, part number 819-3247-10

CHAPTER 1

Preparing for Installation

This chapter describes the Sun Fire T1000 server installation, and provides background information about the installation procedures that begin in Chapter 2.

FIGURE 1-1 The Sun Fire T1000 Server

This chapter contains these topics:

- "Data Port and Cabling Notes" on page 9
- "Safety Precautions" on page 10

Tools Needed

- No. 2 Phillips screwdriver
- ESD mat and grounding strap

Shipping Kit Inventory List

Standard components of Sun Fire T1000 server are installed at the factory. However, if you ordered options such as additional memory or a PCI card, these are shipped to you separately.

Note – Inspect the shipping carton for evidence of physical damage. If a shipping carton appears damaged, request that the carrier's agent be present when the carton is opened. Keep all contents and packing material for the agent's inspection.

Verify that you have received all the parts of your system:

- Sun Fire T1000 server
- Mounting rail assemblies (x2)
- Mounting rail extension brackets (x2)
- Package of mounting screws and nuts
- Cable management bracket
- Package of cable straps
- Documentation and software license
- Any optional components that were ordered with your server

Optional Components

The standard components of the Sun Fire T1000 server are installed at the factory. However, if you ordered options such as additional memory or a PCI card, these are shipped separately. Install these components prior to installing the server in a rack.

If you ordered any other options that are not factory-installed, see the *Sun Fire T1000 Server Service Manual* for installation instructions.

Note – All internal components must be installed only by qualified service technicians.

Caution – Electrostatic damage can permanently disable the system or require repair by Sun service technicians. Place components on an antistatic surface, such as an antistatic discharge mat, an antistatic bag, or a disposable antistatic mat. Wear an antistatic grounding strap connected to a metal surface on the chassis when you work on system components.

Note – The list of optional components can be updated without notice. Refer to the Sun Store web site (`http://store.sun.com`) for the most current list of components supported in the Sun Fire T1000 server.

Installation Overview

This installation guide provides procedures that must be performed in the following order.

1. Verify that you have received all of the components that ship with your server. See "Shipping Kit Inventory List" on page 2.
2. Gather configuration information for your system. See your system administrator for specific details, including these parameters:
   - Netmask
   - IP address for the system controller
   - Gateway IP address

3. Install any optional Sun components shipped with your system. If you have purchased other optional components such as additional memory, install them prior to mounting the server in a rack. See "Optional Components" on page 3.

4. Mount the server into a rack or cabinet. See "To Install the Server in the Rack" on page 19.

Note – In the rest of this document, the term *rack* means either an open rack or a closed cabinet.

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5. Connect the server to a serial terminal or a terminal emulator (PC or workstation) to display system messages. See "Powering On the System for the First Time" on page 25.

Tip – The serial terminal or a terminal emulator should be connected before you connect the power cables, or you will not see the system messages. As soon as AC power is connected to the system, the system controller immediately powers on, runs diagnostics, and initializes the ALOM-CMT firmware. ALOM-CMT times out after 60 seconds and the ALOM-CMT display disappears as it reverts to the system console. For more information, refer to the *Sun Fire T1000 Server Advanced Lights Out Manager (ALOM) Guide*.

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6. Connect the data cables to the server, but do not connect the AC power cable yet. See "Connecting the Server Cables" on page 20.

7. Connect the AC power cable to the server and examine the display for any error messages. See "Powering On the System for the First Time" on page 25.

Caution – There is a potential for electric shock if the server and related equipment are not properly grounded.

Note – The system controller (SC) runs on the 3.3v standby voltage. As soon as AC power is connected to the system, the system controller immediately powers on, runs diagnostics, and initializes the ALOM-CMT firmware.

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8. After the system controller boots, access the ALOM-CMT command-line interface through the serial management port. See "To Log Into the System Controller Using the Serial Management Port" on page 27.

9. Configure the SC network management port. See "To Configure the System Controller Network Management Port" on page 28.

Note – The SC network management port is not operational until you configure network settings for the system controller (through the SC serial management port).

10. Enable the new configuration by resetting the system controller. See "To Reset the System Controller" on page 31.

11. Power on the server from a keyboard using the ALOM-CMT software. See "To Initiate the Power On Sequence" on page 33.

12. Configure the Solaris OS. See "To Boot the Solaris Operating System" on page 36.

    The Solaris OS is preinstalled on the server. When you power on, you are automatically guided through the Solaris OS configuration procedure. See "To Boot the Solaris Operating System" on page 36.

13. Install any required patch or patches to the server.

    Refer to the *Sun Fire T1000 Server Product Notes* for a list of the required patches.

14. Load additional software from the Solaris media kit (optional).

    The Solaris media kit (sold separately) includes several CDs containing software to help you operate, configure, and administer your server. Refer to the documentation provided with the media kit for a complete listing of included software and detailed installation instructions.

Slide Rail Assembly Notes

The rackmount kit has two slide rail assemblies. Each slide rail assembly can be installed on either the right or left side of the rack.

A slide rail assembly consists of three main sections: a front section, a sliding rear section, and a removable mounting bracket (FIGURE 1-2). The rackmount kit also includes two extension brackets.

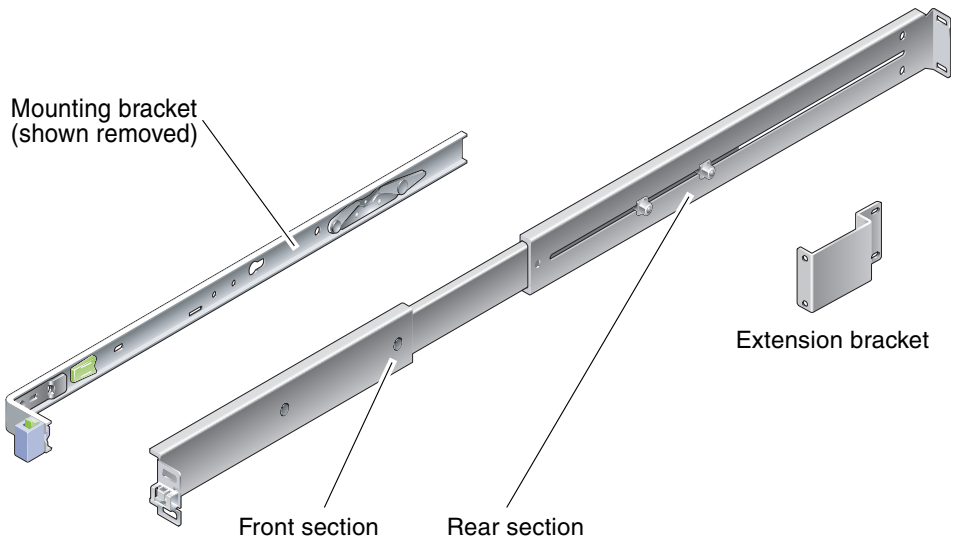

FIGURE 1-2 Features of the Slide Rail Assembly

- The front and rear sections form the slide rail. The front and rear sections expand to fit rack depths from 24 in (610 mm) to 29.0 in (737 mm).
- Extension brackets are included in the mounting rail kit. The extension brackets add 2.9 in (73 mm) to the length of each slide rail.
- The mounting bracket slides 13 in. (330 mm) out of the slide rail, then locks in place. If you unlock the mounting bracket, it slides an additional 4 in. (100 mm) before separating from the slide rail. The mounting brackets mount directly to the sides of the Sun Fire T1000 chassis.
- There are two locks on each Sun Fire T1000 mounting bracket (FIGURE 1-3). The mounting bracket lock allows the mounting bracket to slide forward. The mounting bracket release allows you to remove the mounting bracket from the slide rail. You also use the release when pushing the mounting bracket into the slide rail.

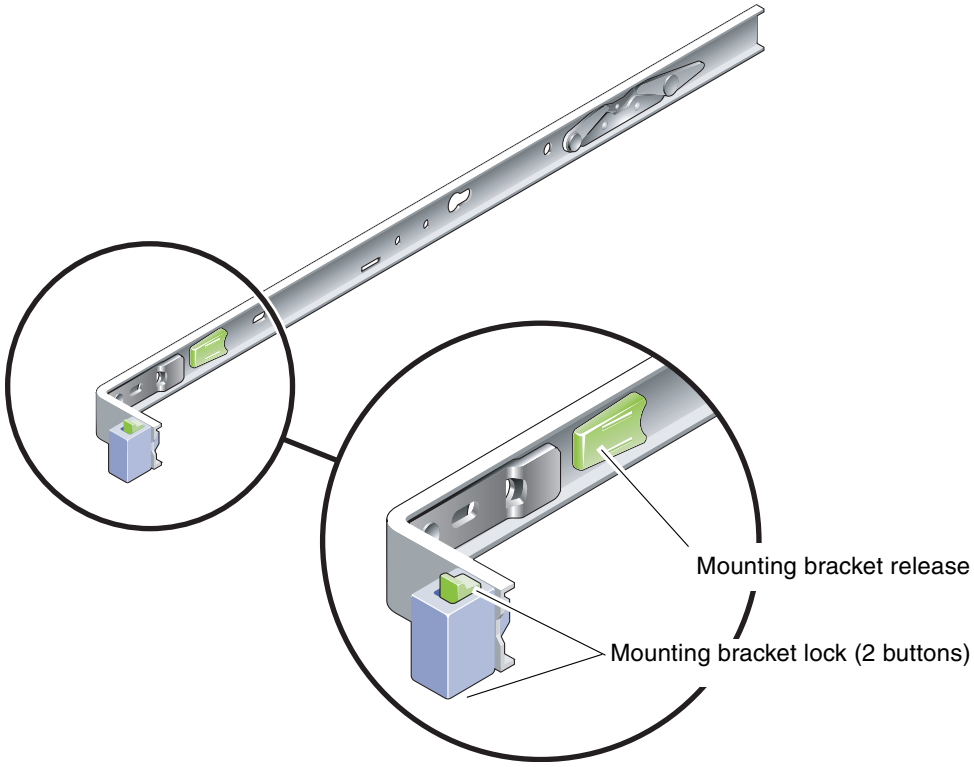

FIGURE 1-3 Mounting Bracket Locks

Cable Management Notes

A cable management bracket (FIGURE 1-4) is included in the Sun Fire T1000 slide rail kit. The cable management bracket clips onto the slide rails. Use cable ties or cable straps to attach cabling to the bracket.

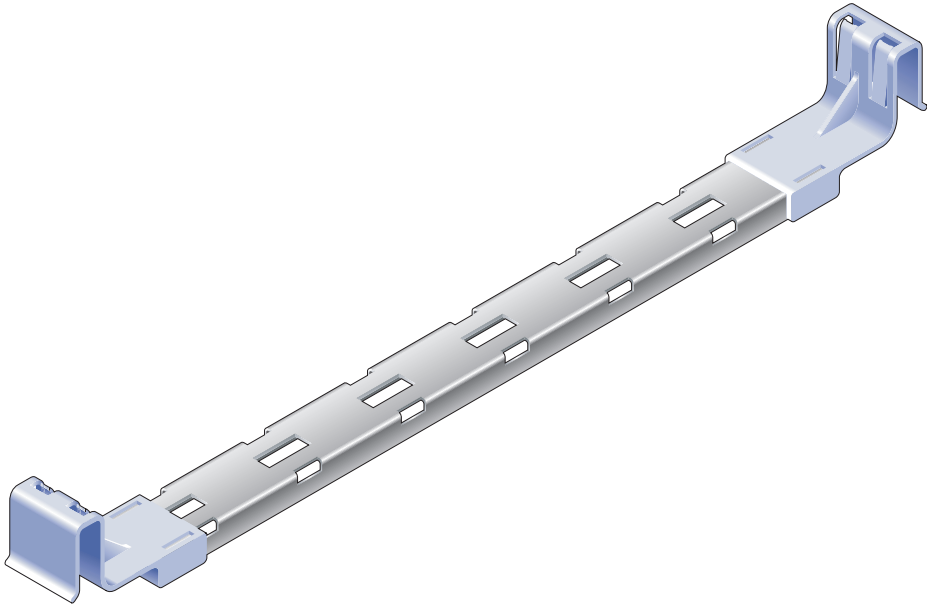

FIGURE 1-4 Cable Management Bracket

Data Port and Cabling Notes

Port Locations

FIGURE 1-5 shows the ports on the Sun Fire T1000 server.

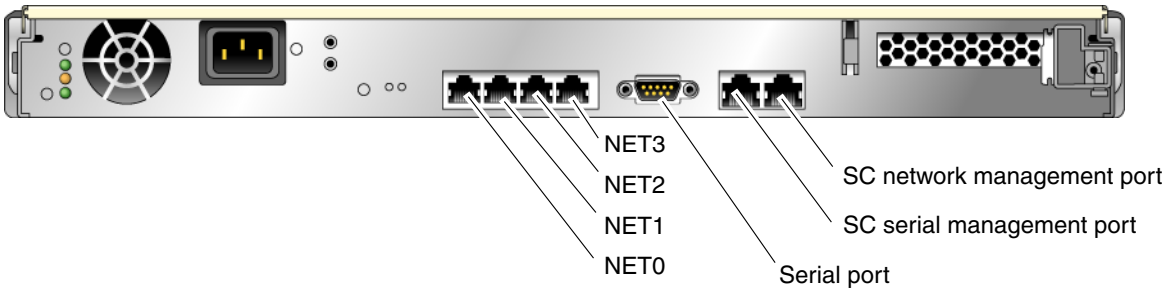

FIGURE 1-5 Locations of Ports and Connectors on the Back Panel

Cabling Notes

- **Minimum cable connections for the Sun Fire T1000 system:**
  - At least one system on-board Ethernet network connection (NET port)
  - System controller serial management port (SERIAL MGT port)
  - System controller network management port (NET MGT port)
  - Power cable
- **System controller (SC) management ports.** There are two SC management ports for use with the ALOM-CMT system controller.
  - The SC serial management port (labeled SERIAL MGT) uses an RJ-45 cable and is always available. This is the default connection to the ALOM-CMT system controller.
  - The SC network management port (labeled NET MGT) is the optional connection to the ALOM-CMT system controller. This port is not available until you have configured network settings for the system controller (through the SC serial management port). See "To Configure the System Controller Network Management Port" on page 28. The SC network management port uses an RJ-45 cable for a 10/100 BASE-T connection. This port does not support connections to Gigabit networks.

    See the *Sun Fire T1000 Server Overview* for more information.

- **Ethernet ports.** The Sun Fire T1000 server Ethernet interfaces operate at 10 Mbps, 100 Mbps, and 1000 Mbps. The transfer rates for the Ethernet ports are given in TABLE 1-1.

TABLE 1-1 Ethernet Connection Transfer Rates

Connection Type	IEEE Terminology	Transfer Rate
Ethernet	10BASE-T	10 Mbit/sec
Fast Ethernet	100BASE-TX	100 Mbits/sec
Gigabit Ethernet	1000BASE-T	1000 Mbit/sec

- **TTYA serial port.** Use the Sun Fire T1000 DB-9 connector with a null modem cable for serial devices. This port appears as `ttya` in Solaris OS and OpenBoot PROM™ messages. This port is not connected to the SC serial management port.
- **AC power cables.** The server goes into standby mode and the ALOM-CMT system controller initializes as soon as the AC power cables are connected to the power source.

Caution – System messages might be lost if the server is not connected to a terminal, PC, or workstation. If you are not logged in, ALOM-CMT times out after 60 seconds and reverts to the system console. For more information, refer to the *Sun Fire T1000 Server Advanced Lights Out Manager (ALOM) Guide*.

Safety Precautions

Caution – Deploy the antitilt bar (if installing in a cabinet) before beginning the installation.

CHAPTER 2

Installing the Sun Fire T1000 Server

This chapter provides instructions for installing the Sun Fire T1000 server in an open rack or closed cabinet. This chapter contains the following sections:

Note – Ensure that you have all of the parts before you begin the installation of the server. See "Shipping Kit Inventory List" on page 2

Note – In this guide, references to *left* and *right* are from your viewpoint as you face either the front or the back of the system.

Rackmount Kit

The Sun Fire T1000 server rackmount kit includes two mounting slides, a slide spacing tool, and a cable management bracket. The kit also includes two extension brackets for use with racks up to 39.5 in (1000 mm) in depth.

The mounting kit also includes an assortment of screws and nuts to fit various types of racks. Extra screws and nuts are included.

Installing the Server in a Rack

▼ To Install the Mounting Brackets

1. **Pull both mounting brackets completely out of their respective slide rails.**

   a. **Simultaneously press and hold the upper and lower lock buttons of the slide rail lock (FIGURE 2-1).**

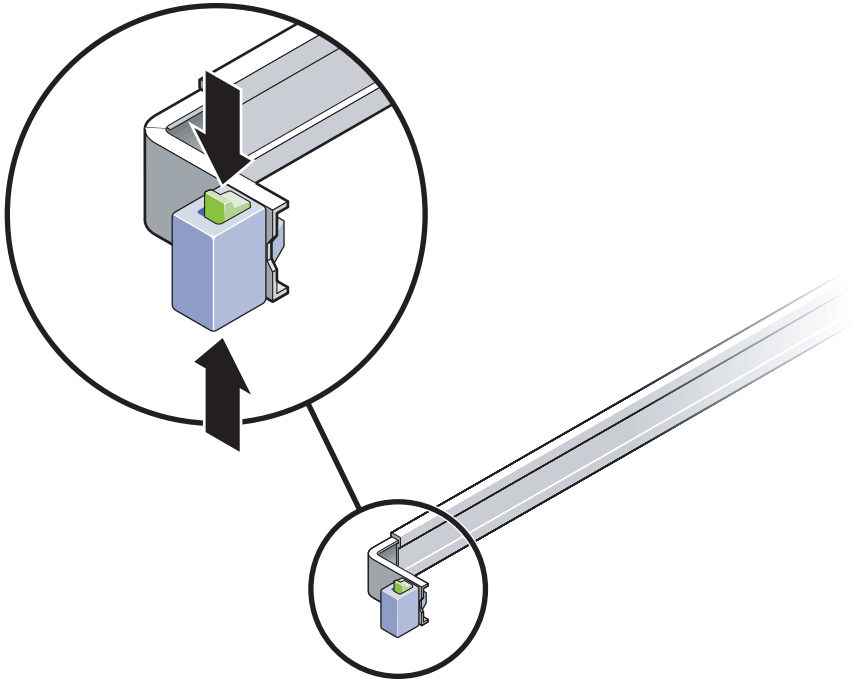

FIGURE 2-1 Unlocking the Slide Rail Assembly

   b. **Pull the mounting bracket out until it stops.**

   c. **Slide the mounting bracket release button to the left (FIGURE 2-2), then slide the mounting bracket completely out of the slide rail.**

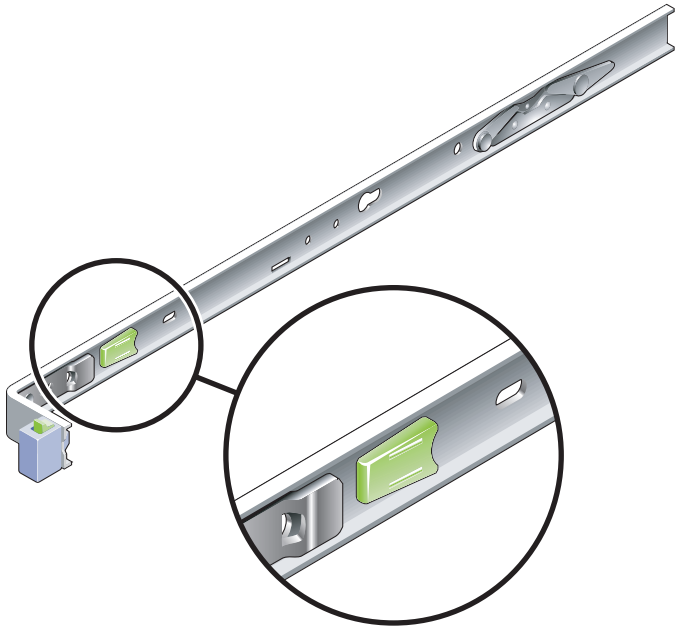

FIGURE 2-2 Mounting Bracket Release Button

2. **Attach a mounting bracket to the right side of the Sun Fire T1000 chassis.**

   a. **Position the mounting bracket against the server chassis (**FIGURE 2-3**) so that the slide rail lock is at the front and the two keyed openings on the mounting bracket are aligned with the two locating pins on the side of the chassis.**

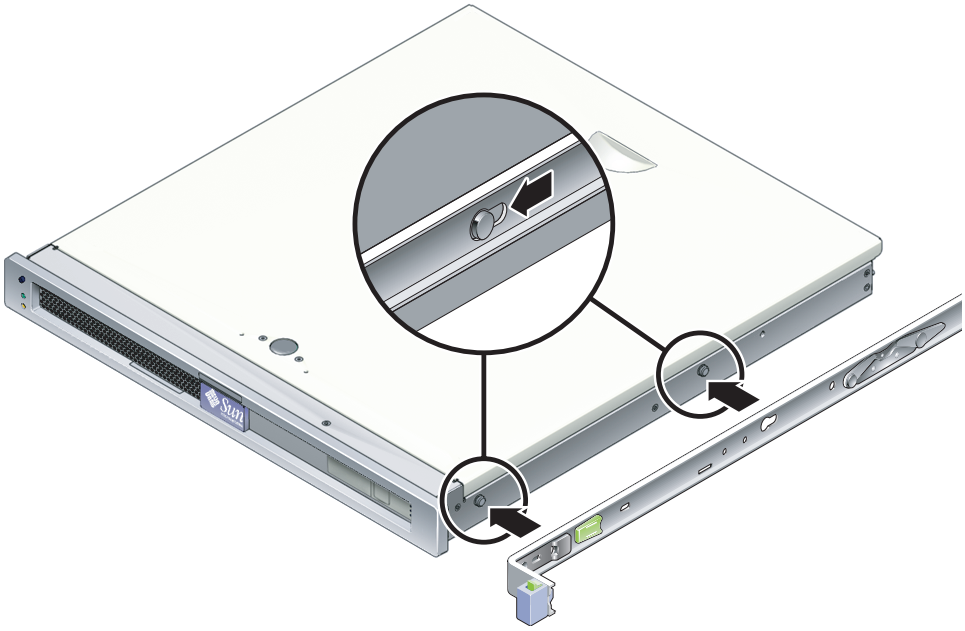

FIGURE 2-3 Attaching a Mounting Bracket to the Chassis

b. With the heads of the two locating pins protruding though the two keyed openings in the mounting bracket, slide the mounting bracket toward the front of the chassis until the bracket locks into place with an audible click.

c. Verify that both locating pins are trapped in the keyed openings and that the front locating pin has engaged the mounting bracket lock (FIGURE 2-3).

3. Attach the second mounting bracket to the left side of the Sun Fire T1000 chassis.

▼ To Install the Slide Rails

1. **Determine which rack hole numbers you will use when attaching the slide rails to the rack posts.**

   Most racks have posts that are marked off by rack units (1.75 in. or 45 mm). The Sun Fire T1000 server occupies one rack unit.

2. **Determine which screws you will use to mount the slide rails.**

   - If your rack has threaded mounting holes in the rack posts, determine whether the threads are metric or standard. Select the appropriate screws from the package included in the mounting kit.
   - If your rack does not have threaded mounting holes, the mounting screws go through bracket and rack post, and are secured with a caged nut. Select the appropriate screws and nuts from the package included in the mounting kit.

3. **Loosen the two captive screws (**FIGURE 2-4**) approximately a quarter-turn on each slide rail.**

   This action allows movement of the rear section so that you can adjust the length of each slide rail.

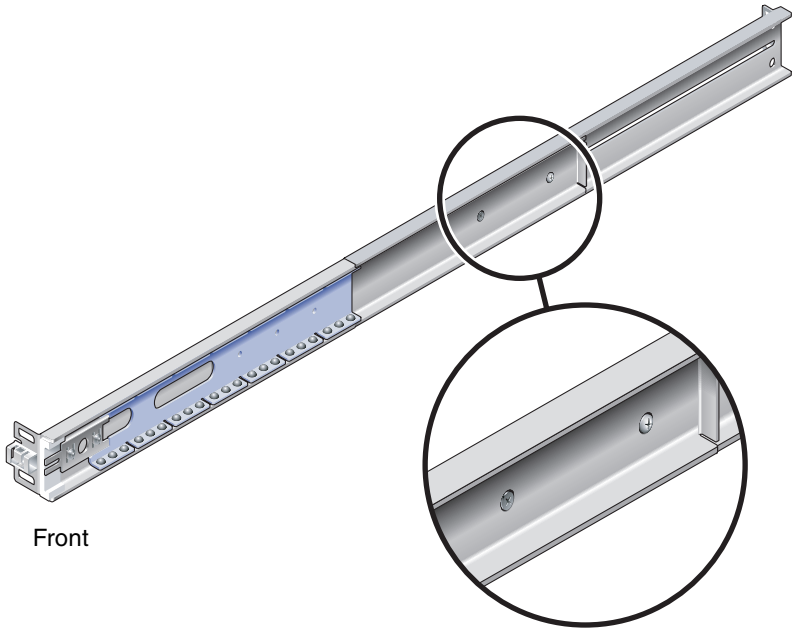

FIGURE 2-4 Captive Screws on the Slide Rail

4. **Determine if the slide rails are long enough to fit your rack.**

- If the rack is deeper than 29.0 in (737 mm), use M6 screws to attach an extension bracket to the rear of each slide rail. See the upper detail in FIGURE 2-5.
- If the slide rails are long enough, you might not need the extension brackets. You can use the extension brackets if your rack requires the ends of the slide rails to be side-mounted, as shown in the lower detail in FIGURE 2-5.

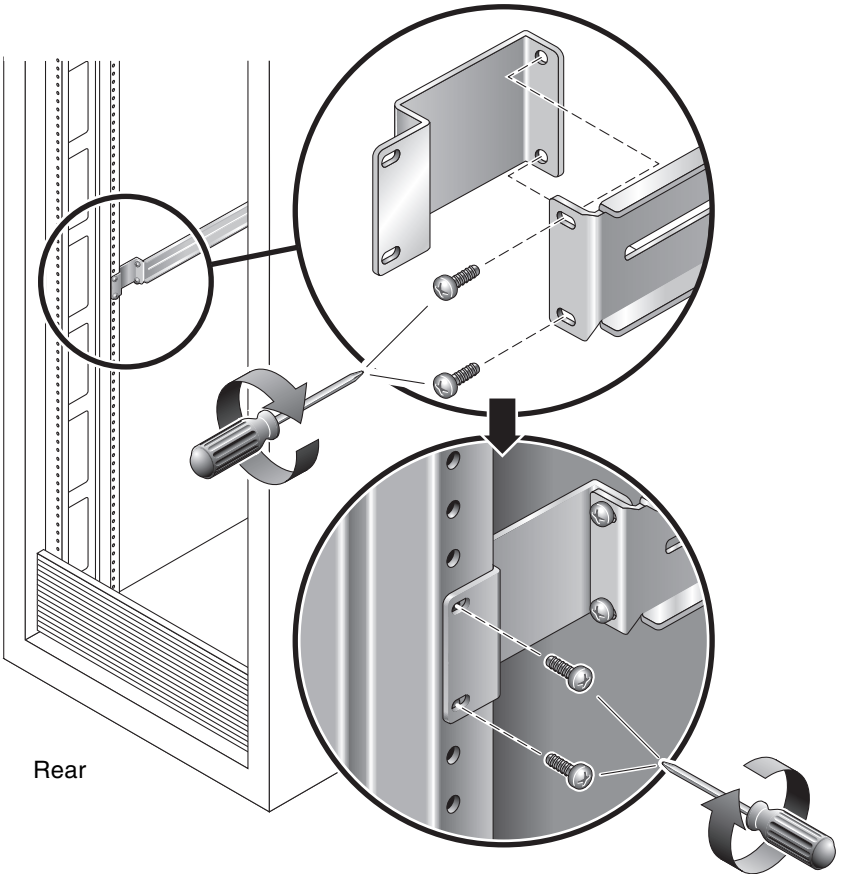

FIGURE 2-5 Using the Extension Bracket

5. **Attach a slide rail to the right front rack post (FIGURE 2-6).**

   a. **Loosely attach the front of a slide rail to the right front rack post using two screws (M5 or M6, as appropriate to the size of the screw holes on the rack post). Do not tighten the screws yet.**

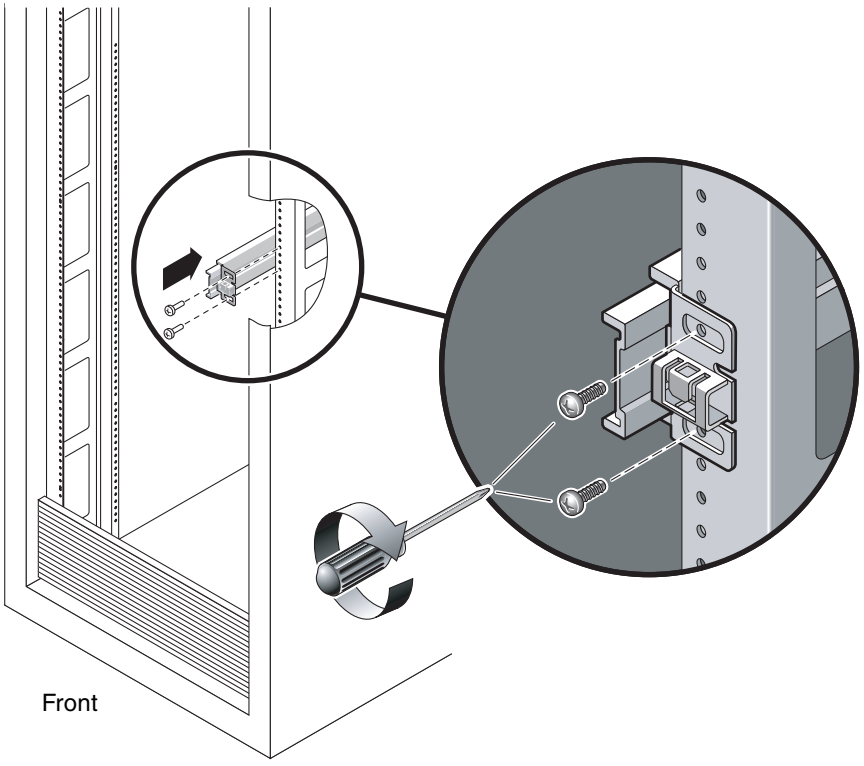

FIGURE 2-6 Mounting the Slide Rail

b. Adjust the length of the slide rail by sliding the rear section to reach the outside edge of the rear rack post, then tighten the captive screws (FIGURE 2-4) to freeze the length of the slide rail.

c. Loosely attach the rear of the slide rail to the rear rack post with screws.

6. Attach the second slide rail to the left rack posts in a similar manner. Do not tighten the attachment screws at the front or rear of the slide rail.

7. Use the slide rail spacing tool to adjust the distance between the slide rails.

a. At the rear of the rack, plug the left side of the tool into slots at the end of the middle section on the left slide rail (FIGURE 2-7).

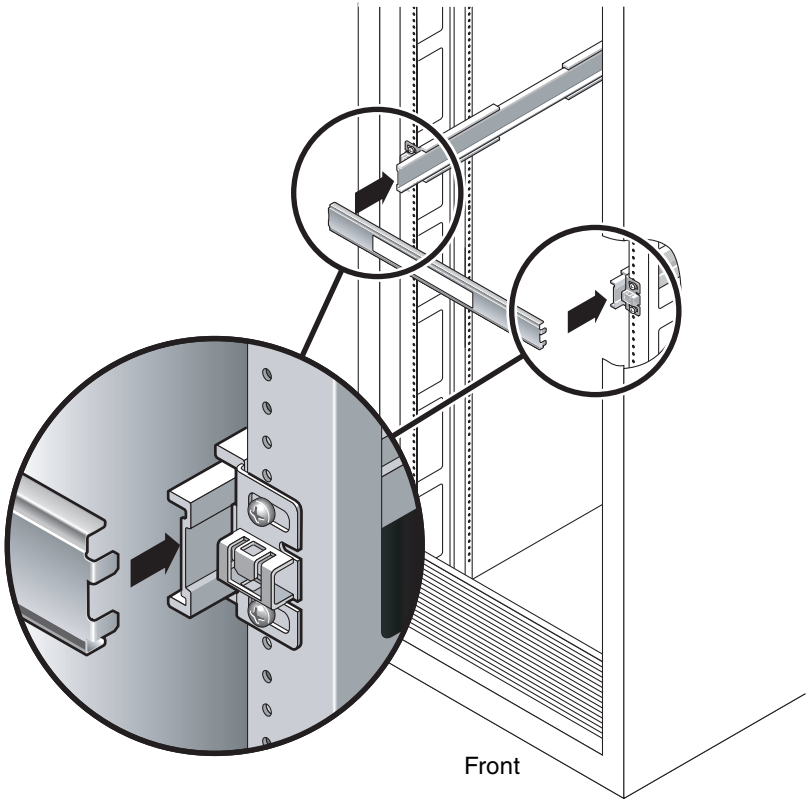

FIGURE 2-7 Using the Slide Rail Spacing Tool to Adjust the Distance Between the Slide Rails

b. Insert the right side of the tool into slots at the end of the right rail, while simultaneously sliding the end of the rail to the right or left as needed to allow the ends of the tool to enter both middle sections.

When the tool is properly inserted, the distance between the rails is 17.4 in. (442 mm).

c. Tighten the three screws to lock the ends of the slide rails in place.

d. Remove the slide rail spacing tool.

e. At the front of the rack, use the spacing tool to adjust the distance between the front ends of the rails.

The front ends of the rails do not have slots for the spacing tool. Slide the rails sideways as needed until the sides of the spacing tool touches both rails. At this point, the distance between the ends of the rails is 17.4 in (442 mm).

f. Tighten the two screws to lock the rails in place.

▼ To Install the Server in the Rack

1. **Deploy the antitilt bar, if the rack is so equipped.**

Caution – Deploy the antitilt bar on the rack before beginning an installation.

2. **Raise the server and insert the ends of the mounting brackets into the left and right slide rails (**FIGURE 2-8**).**

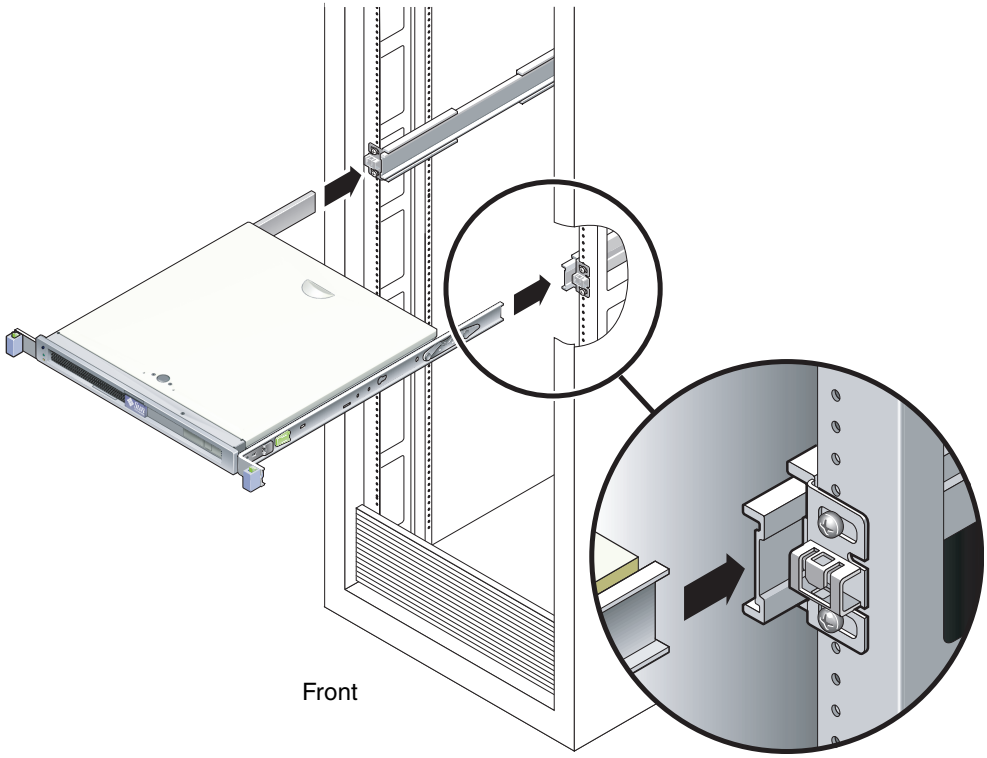

FIGURE 2-8 Mounting the Chassis on the Slide Rails

3. **Slide the chassis into the rack.**

Caution – Before continuing, verify that the server is securely mounted in the rack, and that the slide rails are locked to the mounting brackets.

▼ To Install the Cable Management Bracket

1. **Place the cable management bracket across the slide rail assemblies behind the system chassis.**
2. **Press down on each end of the cable management bracket until the ends click into place on the mounting brackets.**
3. **When you attach cables to the server, as in the following procedures, lay the cables over the cable management bracket, then use cable ties to hold each cable in place.**

Removing the Server From the Rack for Service

To install or replace internal parts in the Sun Fire T1000 server, you must first remove the server from the rack.

For the removal procedure, refer to the *Sun Fire T1000 Server Service Manual*.

Connecting the Server Cables

In order to boot the Sun Fire T1000 system, you must connect and configure the network and serial ports. The procedures are given in the following sections.

- "To Connect the SC Network Management Port" on page 22
- "To Connect the SC Serial Management Port" on page 21
- "To Connect the Ethernet Network Cables" on page 22
- "To Connect the AC Power Cables to the Server" on page 22

FIGURE 2-9 shows the connectors on the back panel of the Sun Fire T1000 server.

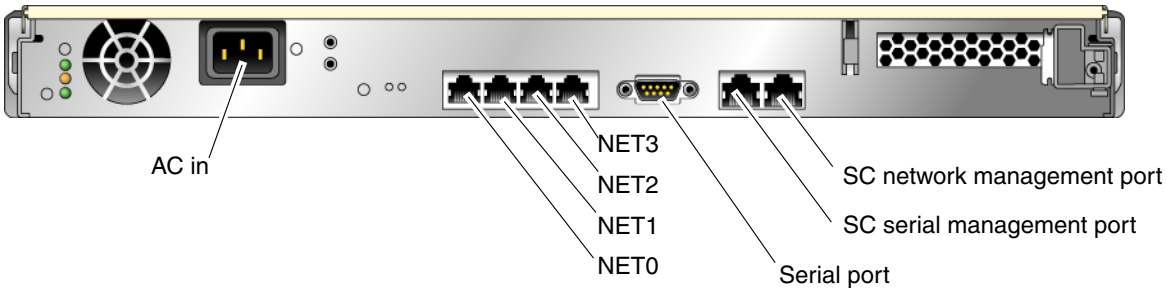

FIGURE 2-9 Rear Panel Connectors

▼ To Connect the SC Serial Management Port

The system controller serial management port is marked SER MGT (FIGURE 2-10).

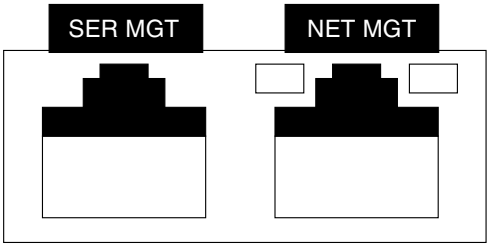

FIGURE 2-10 System Controller Serial and Network Ports (Rear of Chassis)

Note – Use the SC serial management port *only* for server management. It is the default connection between the system controller and a terminal or a computer.

Caution – Do not attach a modem to this port.

- **Connect a Category 5 cable from the SER MGT serial management port to the terminal device.**

  When connecting either a DB-9 or a DB-25 cable, use an adapter to perform the crossovers given for each connector.

  - If connecting to a serial port on a personal computer, you can use Sun Part No. 530-3100-01 or equivalent.
  - If connecting to a Sun workstation or server, you can use Sun Part No. 530-2889-03 or equivalent.

▼ To Connect the SC Network Management Port

The system controller network management port is marked NET MGT (FIGURE 2-10).

Note – This port must be configured prior to use. Instructions are given in Chapter 3.

- **Connect a Category 5 cable from the NET MGT network management port to your network switch or hub.**

▼ To Connect the Ethernet Network Cables

The Sun Fire T1000 server has four network connectors, marked NET0, NET1, NET2, and NET3 (FIGURE 2-9). These connectors are RJ-45 gigabit Ethernet.

1. **Connect a Category 5 cable from your network switch or hub to Ethernet Port 0 (NET0) on the rear of the chassis.**

   NET0 is the left most port in the 4-port network cluster in FIGURE 2-9.

2. **Connect Category 5 cables from your network switch or hub to the remaining Ethernet ports (NET1, NET2, NET3), as needed.**

Serial Port

The serial port connector (TTYA) is a DB-9 connector. Use the serial port for general purpose serial data transfers. You may use this port with a modem.

This serial port is not the SC serial management port.

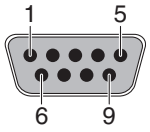

FIGURE 2-11 Serial Port (TTYA)

▼ To Connect the AC Power Cables to the Server

Powering on the system for the first time requires special preparation and procedures. For example, if you have not prepared a display before connecting the AC power cables, system messages might be lost.

1. **Finish the hardware procedures in this chapter, but do not attach the AC power cable yet.**

Caution – The server goes into standby mode and the system controller initializes as soon as the AC power cables are connected to the power source.

2. **Go to "Powering On the System for the First Time" on page 25.**

CHAPTER 3

Powering On the System

This chapter includes instructions for booting the Sun Fire T1000 system and for enabling the system controller network management port.

The following topics are discussed:

Powering On the System for the First Time

▼ To Power On the System for the First Time

Tip – The serial terminal or a terminal emulator should be connected before you connect the power cables, or you will not see the system messages. As soon as AC power is connected to the system, the system controller immediately powers on, runs diagnostics, and initializes the ALOM-CMT firmware. ALOM-CMT times out after 60 seconds and the ALOM-CMT display disappears as it reverts to the system console. For more information, refer to the *Sun Fire T1000 Server Advanced Lights Out Manager (ALOM) Guide*.

1. **Connect a terminal or a terminal emulator (PC or workstation) to the SC serial management port.**

   Configure the terminal or terminal emulator with these settings:

- 9600 baud
- 8 bits
- No parity
- 1 Stop bit
- No handshaking

2. **Turn on the terminal or the terminal emulator, if it is not already turned on.**

3. **Connect the AC power cable and watch the terminal for system messages.**

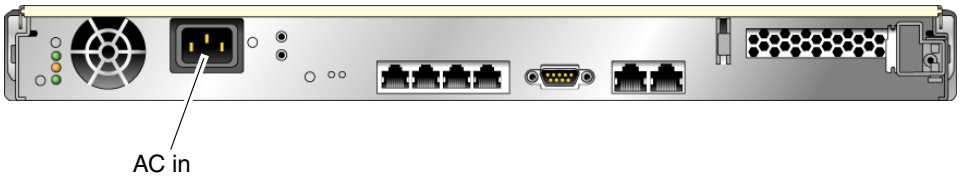

FIGURE 3-1 AC Connector

After the system controller boots, the system controller login prompt is displayed on the serial console. The following example shows a partial output from the system controller boot sequence leading to the login prompt.

CODE EXAMPLE 3-1 Excerpt of a System Controller Boot Sequence

```
Enter #. to return to ALOM
SC Alert: Host System has Reset
0:0>
0:0>@(#) ERIE Integrated POST 4.x.0.build_12-erie 2005/06/14 12:19
       /export/common-source/firmware_re/ontario-
fireball_fio/build_12/erie-build_12/post/Niagara/erie/integrated
(firmware_re)
0:0>Copyright © 2005 Sun Microsystems, Inc. All rights reserved
  SUN PROPRIETARY/CONFIDENTIAL.
  Use is subject to license terms.
0:0>VBSC selecting POST MAX Testing.
0:0>VBSC enabling L2 Cache.
0:0>VBSC enabling Full Memory Scrub.
0:0>VBSC enabling threads: f0f0f0f
0:0>Init CPU
0:0>Start Selftest.....

.....................

0:0>IO-Bridge unit 1 lpu init test
0:0>IO-Bridge unit 1 interrupt test
0:0>INFO:
```

CODE EXAMPLE 3-1 Excerpt of a System Controller Boot Sequence *(Continued)*

```
0:0>POST Passed all devices.
0:0>
0:0>DEMON: (Diagnostics Engineering MONitor)
0:0>Select one of the following functions
0:0>POST:Return to OBP.
0:0>INFO:
0:0>POST Passed all devices.
0:0>Master set ACK for vbsc runpost command and spin...

SC Alert: Host System has Reset
0:0>
```

Logging In To the System Controller

If you are powering on the system for the first time, use the system controller serial port to power on the system and run POST. See "To Log Into the System Controller Using the Serial Management Port" on page 27.

If the network management port has already been configured, you can use it instead of the serial management port. See "To Log In To the System Controller Using the Network Management Port" on page 32.

▼ To Log Into the System Controller Using the Serial Management Port

After the system controller boots you can access the ALOM-CMT command-line interface to configure and manage the system.

The `sc` prompt is displayed at the first time the system controller is booted. The default configuration provides an ALOM-CMT user account called `admin`. There is no default password, so you must create a password using the system controller `password` command.

1. **If this is the first time the system has been powered on, use the** `password` **command to set the** `admin` **password.**

```
.........................
TTYD - - PASSED
TTYC - - PASSED
MEMORY - - PASSED
MPC885 - - PASSED
sc> password
password: Changing password for admin
Setting password for admin.
New password: new-password

Re-enter new password: new-password

sc>
```

After the `admin` password has been set, on subsequent reboots, the `sc` login prompt is displayed.

2. **Enter** `admin` **for the login name followed by your password.**

```
TTYD - - PASSED
TTYC - - PASSED
MEMORY - - PASSED
MPC885 - - PASSED
Please login: admin
Please Enter password: password
       (Press Return twice)
sc>
```

▼ To Configure the System Controller Network Management Port

To access the system controller using the network for the first time, you must first configure the SC network management port through the SC serial management port.

You set these network parameters according to the specific details of your network configuration:

- `if_network` – Specified whether the SC is on the network or not
- `netsc_ipaddr` – IP address of the system controller
- `netsc_ipgateway` – IP address of the gateway for the subnet
- `netsc_ipnetmask` – Netmask for the system controller subnet

To configure these parameters you must use the `setsc` command. The usage is:

`setsc` *parameter*

1. **Set the netmask for the system controller.**

```
sc> setsc netsc_ipnetmask 255.255.255.0
```

This example uses `255.255.255.0` to set the netmask. Your network environment subnet might require a different netmask. Use a netmask number most appropriate to your environment.

2. **Set the IP address for the system controller.**

```
sc> setsc netsc_ipaddr service-processor-IPaddr
```

3. **Set the IP address for the system controller gateway.**

```
sc> setsc netsc_ipgateway gateway-IPaddr
```

4. **Set the `if_network` parameter to `true`.**

```
sc> setsc if_network true
```

5. **Use the `showsc` command to verify that the parameters were set correctly.**

The `showsc` command displays all the configuration parameters and their values, as listed in TABLE 3-1.

Note – The network addresses and parameters shown in the examples are for illustration purposes only. The four highlighted parameters must be set according to the specific details of your network configuration for the network management port to function properly.

TABLE 3-1 Typical System Controller Parameter Settings

Parameter	Value
`if_network`	`true`
`if_modem`	`false`
`if_emailalerts`	`true`

TABLE 3-1 Typical System Controller Parameter Settings *(Continued)*

Parameter	Value
netsc_tpelinktest	true
netsc_dhcp	false
netsc_ipaddr	*xxx.xxx.xx.xx*
netsc_ipnetmask	255.255.255.0
netsc_ipgateway	*xxx.xxx.xx.xx*
mgt_mailhost	*xxx.xxx.xx.xx*
mgt_mailalert(1)	*username*
sc_customerinfo	*userinfo*
sc_escapechars	#.
sc_powerondelay	false
sc_powerstatememory	true
sc_clipasswdecho	true
sc_cliprompt	sc
sc_clitimeout	0
sc_clieventlevel	3
sc_backupuserdata	true
diag_trigger	power-on-reset
diag_verbosity	max
diag_level	min
diag_mode	normal
sys_autorunonerror	false
sys_confighost	*hostname*
sys_configip	*xxx.xxx.xx.xx*
ser_baudrate	9600
ser_parity	none
ser_stopbits	1
ser_data	8
netsc_enetaddr	*xx:xx:xx:xx:xx:xx*
sys_enetaddr	*xx:xx:xx:xx:xx:xx*

▼ To Reset the System Controller

After setting the configuration parameters, you must reset the system controller for the new values to take affect.

- **Issue the** `resetsc` **command.**

You are prompted to confirm that you want to reset the system controller. Type **`y`** when prompted.

```
sc> resetsc
Are you sure you want to reset the SC [y/n]? y
User Requested SC Shutdown
```

Note – You can specify the `-y` flag to the `resetsc` command and bypass the confirmation message.

The system controller resets, runs diagnostics, and returns to the login prompt.

```
ALOM POST 1.0


Dual Port Memory Test, PASSED.

TTY External - Internal Loopback Test
          TTY External - Internal Loopback Test, PASSED.

TTYC - Internal Loopback Test
          TTYC - Internal Loopback Test, PASSED.

TTYD - Internal Loopback Test
          TTYD - Internal Loopback Test, PASSED.

.....................


Full VxDiag Tests - PASSED



    Status summary  -  Status = 7FFF

       VxDiag    -          -  PASSED
       POST      -          -  PASSED
```

```
        LOOPBACK   -          -   PASSED

        I2C        -          -   PASSED
        EPROM      -          -   PASSED
        FRU PROM   -          -   PASSED

        ETHERNET   -          -   PASSED
        MAIN CRC   -          -   PASSED
        BOOT CRC   -          -   PASSED

        TTYD       -          -   PASSED
        TTYC       -          -   PASSED
        MEMORY     -          -   PASSED
        MPC885     -          -   PASSED


Please login:
```

▼ To Log In To the System Controller Using the Network Management Port

---

Note – You must configure the system controller parameters shown in "To Configure the System Controller Network Management Port" on page 28 before you can use the network management port.

---

1. **Open a Telnet session and connect to the system controller by specifying its network address.**

```
% telnet 129.xxx.xx.xx
Trying 129.xxx.xx.xx...
Connected to 129.xxx.xx.xx.
Escape character is '^]'.
Copyright 2003 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Sun(tm) Advanced Lights Out Manager 1.0.11 ()
Please login:
```

2. **Login as** `admin` **using the password you previously set.**

```
Please login: admin
Please Enter password: password
sc>
```

Using the System Controller for Common Operations

▼ To Initiate the Power On Sequence

Powering on the system requires you to use the `poweron` command at the SC console.

- **To initiate the power-on sequence, issue the** `poweron` **command.**

  You will see an `sc>` alert message on the system console. This indicates that the system has reset.

```
sc> poweron
SC Alert: Host System has Reset
sc>
```

▼ To Connect to the System Console

Output from POST, OpenBoot, and the Solaris OS is displayed in the system console using the network console on the system controller.

- **Execute the** `console` **command, and use the** `-f` **option to force the console to be attached to your session.**

  Multiple users can be connected to the console, but only one can be attached.

```
sc> console -f
#. (Enter #. to return to ALOM)
```

Example of a Normal System Initialization

After you issue the `poweron` command, the CPU and memory controllers initialize and eventually OpenBoot initializes. After a number of system messages, the `ok` prompt appears.

The example output below is a small section of the complete output.

```
Find dropin, Copying Done, Size 0000.0000.0000.1110
Find dropin, (copied), Decompressing Done, Size
0000.0000.0006.06e0 ^Qcpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu
cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu cpu
cpu vpci mem32base, mem64base, cfgbase: e800000000 e000000000
e900000000
pci /pci@780: Device 0 pci pci
/pci@780/pci@0: Device 0 Nothing there
/pci@780/pci@0: Device 1 pci pci

.....................

/pci@7c0/pci@0: Device a Nothing there
/pci@7c0/pci@0: Device b Nothing there
/pci@7c0/pci@0: Device c Nothing there
/pci@7c0/pci@0: Device d Nothing there
/pci@7c0/pci@0: Device e Nothing there
/pci@7c0/pci@0: Device f Nothing there
Probing I/O buses

Sun Fire T1000, No Keyboard
Copyright 1998-2004 Sun Microsystems, Inc.  All rights reserved.
OpenBoot FW build_11***PROTOTYPE_BUILD***, 16376 MB memory
installed, Serial #51454515.
[firmware obp4.x #0]
Ethernet address 0:3:ba:ce:a1:3d, Host ID: 83112233.



{0} ok
```

To understand the various devices and their path names as represented in the OpenBoot device tree, refer to TABLE 3-2. The table identifies each of the devices, their full path name and their location or NAC name used to identify their physical location.

TABLE 3-2 Sun Fire T1000 Device List

Identifier	device	device path (location)
MB/CMP0/P*n*	cpu*n*	/cpu@*n*, where *n* = {0..31}
MB/CMP0/CH0/R0/D0	dimm0	(CH0/R0/D0/J0501)
MB/CMP0/CH0/R0/D1	dimm1	(CH0/R0/D1/J0601)
MB/CMP0/CH0/R1/D0	dimm2	(CH0/R1/D0/J0701)
MB/CMP0/CH0/R1/D1	dimm3	(CH0/R1/D1/J0801)
MB/CMP0/CH3/R0/D0	dimm4	(CH1/R0/D0/J1001)
MB/CMP0/CH3/R0/D1	dimm5	(CH1/R0/D1/J1101)
MB/CMP0/CH3/R1/D0	dimm6	(CH1/R1/D0/J1201)
MB/CMP0/CH3/R1/D1	dimm7	(CH1/R1/D1/J1301)
MB/PCIEb	pci0	/pci@780
MB/PCIEb	pci1	/pci@7c0
PCIE0	slot0	/pci@780/pci@0
MB/GBE0	net0 net1	/pci@7c0/pci@0/network@4 /pci@7c0/pci@0/network@4,1
MB/GBE1	net2 net3	/pci@7c0/pci@0/pci@8/network@1 /pci@7c0/pci@0/pci@8/network@1,1
MB/HBA	SCSI	/pci@7c0/pci@0/pci@8/scsi@2

Booting the Solaris Operating System

The Solaris OS is preinstalled on the disk drive (for Sun Fire T1000 configurations that include a hard drive). The Solaris OS is not configured. If you boot the system from this drive, you will be prompted to configure the Solaris OS for your environment.

▼ To Boot the Solaris Operating System

- **Type the** `boot` **command at the** `ok` **prompt.**

  You will need to append the target to the disk path.

  In the following example, the system is being booted from disk 0 (zero), so `@0,0` is appended to the disk path.

```
ok boot / /pci@7c0/pci@0/pci@8/scsi@2/disk
Boot device: / /pci@7c0/pci@0/pci@8/scsi@2/disk
File and args:
Notice: Unimplemented procedure 'encode-unit' in
/pci@7c0/pci@0/pci@2/pci@0/LSILogic,sas@4
Loading ufs-file-system package 1.4 04 Aug 1995 13:02:54.
FCode UFS Reader 1.12 00/07/17 15:48:16.
Loading: /platform/SUNW,Ontario/ufsboot
Loading: /platform/sun4v/ufsboot
SunOS Release 5.10 Version
/net/spa/export/spa2/ws/pothier/grlks10-ontario:12/01/2004 64-bit
Copyright 1983-2004 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
DEBUG enabled
misc/forthdebug (159760 bytes) loaded
/platform/sun4v/kernel/drv/sparcv9/px symbol
intr_devino_to_sysino multiply defined
...
os-tba FPU not in use
configuring IPv4 interfaces: ipge0.
Hostname: wgs94-181
The system is coming up. Please wait.
NIS domain name is Ecd.East.Sun.COM
starting rpc services: rpcbind keyserv ypbind done.
Setting netmask of lo0 to 255.0.0.0
Setting netmask of bge0 to 255.255.255.0
Setting default IPv4 interface for multicast: add net 224.0/4:
gateway wgs94-181
syslog service starting.
volume management starting.
Creating new rsa public/private host key pair
Creating new dsa public/private host key pair
The system is ready.
wgs94-181 console login:
```

▼ (Optional) To Reset the System

- **If it is necessary to reset the system, use the** `uadmin` **command.**

```
# uadmin 2 1
```

Do not power the system off and on.

▼ To Power Cycle the System

If a simple reset does not clear a system problem, you can power the system off and on with this procedure.

1. **Shut down the Solaris OS.**

   At the Solaris OS prompt, issue the `uadmin` command to halt the Solaris OS and to return to the `ok` prompt.

```
# uadmin 2 0
WARNING: proc_exit: init exited
syncing file systems... done
Program terminated
ok
```

2. **Switch from the system console prompt to the SC console prompt by typing the** `#.` **escape sequence.**

```
ok #.
sc>
```

3. **Using the SC console, type the** `poweroff` **command.**

```
sc> poweroff -fy
SC Alert: SC Request to Power Off Host Immediately.
```

4. **Type the** `poweron` **command.**

```
sc> poweron
sc> SC Alert: Host System has Reset
```

5. **Reconnect to the system console using the console command.**

```
sc> console -f
Enter #. to return to ALOM.
```

The systems displays various messages, followed by the `ok` prompt.

APPENDIX **A**

Updating the Sun Fire T1000 Firmware

The `flashupdate` command updates both the system controller firmware and the host firmware.

The flash image consists of the following components:

- System controller firmware
- OpenBoot
- POST
- Reset/Comfit
- Sequencer
- Partition description

Updating the Firmware

To use the features and fixes in subsequent firmware releases, perform this update procedure.

▼ To Update the Firmware

1. **Ensure that the SC network management port is configured.**

   This is required to access the new flash image over the network. See "To Configure the System Controller Network Management Port" on page 28.

2. **Open a Telnet session and connect to the system controller, as in the following example.**

```
% alternate xxx.xxx.xx.xx
Trying xxx.xxx.xx.xx...
Connected to xxx.xxx.xx.xx.
Escape character is'^]'.
Use is subject to license terms.
Symptom) Advanced Lights Out Manager 1.0.11 ()
Please login:
```

3. **Login as `admin`, using the password you defined during the configuration of the system controller.**

```
Please login: admin
Please Enter password: password
sc>
```

4. **Execute the `flashupdate` command.**

The `flashupdate` SC command updates the system controller flash image and the host firmware. The `flashupdate` command requires the following information:

- IP address of a system on the network that can access the flash image.
- Full path name to the flash image that the IP address can access.
- Username and password of an account registered on the system that is specified by the IP address.

The command usage is as follows:

`flashupdate [-s` *IPaddr* `-f` *pathname*`] [-v]`

where:

- `-s` *IPaddr* is the IP address of any system on the network that can access the flash image
- `-f` *pathname* is the full path name to the flash image
- `-v` is the flag to turn on verbose message output

```
sc> flashupdate -s xxx.xxx.xx.xx -f pathname
Username: username
Password: password
..............................................................
Update complete. Reset device to use new image.
sc>
```

5. **Reset the system controller.**

After the flash has been updated, you must reset the system controller for the new image to take affect. To reset the system controller, issue the `resetsc` command, as shown below.

Note – To bypass the confirmation prompt, you can use the `-y` flag with the `resetsc` command. If `resetsc` is issued from a Telnet session, upon reset the Telnet session will be terminated. The output from the reset will be displayed on the serial console on the system controller.

```
sc> resetsc
Are you sure you want to reset the SC [y/n]? y
User Requested SC Shutdown
```

The system controller resets, runs diagnostics, and returns to the login prompt (on the serial console).

CODE EXAMPLE A-1 Example System Controller Display

```
et5-sc> poweron -c
Enter #. to return to ALOM
SC Alert: Host System has Reset
0:0>
0:0>@(#) ERIE Integrated POST 4.x.0.build_12-erie 2005/06/14 12:19
       /export/common-source/firmware_re/ontario-
fireball_fio/build_12/erie-build_12/post/Niagara/erie/integrated
(firmware_re)
0:0>Copyright © 2005 Sun Microsystems, Inc. All rights reserved
  SUN PROPRIETARY/CONFIDENTIAL.
  Use is subject to license terms.
0:0>VBSC selecting POST MAX Testing.
0:0>VBSC enabling L2 Cache.
0:0>VBSC enabling Full Memory Scrub.
0:0>VBSC enabling threads: f0f0f0f
0:0>Init CPU
0:0>Start Selftest.....
0:0>CPU =: 0
0:0>DMMU Registers Access
0:0>IMMU Registers Access
0:0>Init mmu regs
0:0>D-Cache RAM
0:0>Init MMU.....
0:0>DMMU TLB DATA RAM Access
```

CODE EXAMPLE A-1 Example System Controller Display *(Continued)*

```
0:0>DMMU TLB TAGS Access
0:0>DMMU CAM
0:0>IMMU TLB DATA RAM Access
0:0>IMMU TLB TAGS Access
0:0>IMMU CAM
0:0>Setup and Enable DMMU
0:0>Setup DMMU Miss Handler
0:0>    Niagara, Version 2.0
0:0>Init JBUS Config Regs
0:0>IO-Bridge unit 1 init test
0:0>sys 166 MHz, CPU 996 MHz, mem 199 MHz.
0:0>Integrated POST Testing
0:0>Setup L2 Cache
0:0>L2 Cache Control = 00000000.00300000
0:0>Scrub and Setup L2 Cache
0:0>L2 Directory clear
0:0>L2 Scrub VD & UA
0:0>L2 Scrub Tags
0:0>Test Memory.....
0:0>Probe and Setup Memory
0:0>INFO:  2048MB at Memory Channel [0 3 ] Rank 0 Stack 0
0:0>INFO:  No memory detected at Memory Channel [0 3 ] Rank 0 Stack
1
0:0>INFO:  2048MB at Memory Channel [0 3 ] Rank 1 Stack 0
0:0>INFO:  No memory detected at Memory Channel [0 3 ] Rank 1 Stack
1
0:0>
0:0>Data Bitwalk
0:0>L2 Scrub Data
0:0>L2 Enable
0:0>    Testing Memory Channel 0 Rank 0 Stack 0
0:0>    Testing Memory Channel 3 Rank 0 Stack 0
0:0>    Testing Memory Channel 0 Rank 1 Stack 0
0:0>    Testing Memory Channel 3 Rank 1 Stack 0
0:0>L2 Directory clear
0:0>L2 Scrub VD & UA
0:0>L2 Scrub Tags
0:0>L2 Disable
0:0>Address Bitwalk
0:0>    Testing Memory Channel 0 Rank 0 Stack 0
0:0>    Testing Memory Channel 3 Rank 0 Stack 0
0:0>    Testing Memory Channel 0 Rank 1 Stack 0
0:0>    Testing Memory Channel 3 Rank 1 Stack 0
```

CODE EXAMPLE A-1 Example System Controller Display *(Continued)*

```
0:0>Set Mailbox
0:0>Setup Final DMMU Entries
0:0>Post Image Region Scrub
0:0>Run POST from Memory
0:0>Verifying checksum on copied image.
0:0>The Memory's CHECKSUM value is 9b64.
0:0>The Memory's Content Size value is 7d682.
0:0>Success...  Checksum on Memory Validated.
0:0>L2 Cache Ram Test
0:0>Enable L2 Cache
0:0>L2 Scrub Data
0:0>L2 Enable
0:0>CPU =: 0 8 16 24
2:0>DMMU Registers Access
4:0>DMMU Registers Access
6:0>DMMU Registers Access
2:0>IMMU Registers Access
4:0>IMMU Registers Access
6:0>IMMU Registers Access
2:0>Init mmu regs
4:0>Init mmu regs
6:0>Init mmu regs
2:0>D-Cache RAM
4:0>D-Cache RAM
6:0>D-Cache RAM
2:0>DMMU TLB DATA RAM Access
4:0>DMMU TLB DATA RAM Access
6:0>DMMU TLB DATA RAM Access
2:0>DMMU TLB TAGS Access
4:0>DMMU TLB TAGS Access
6:0>DMMU TLB TAGS Access
2:0>DMMU CAM
4:0>DMMU CAM
6:0>DMMU CAM
2:0>IMMU TLB DATA RAM Access
4:0>IMMU TLB DATA RAM Access
6:0>IMMU TLB DATA RAM Access
2:0>IMMU TLB TAGS Access
4:0>IMMU TLB TAGS Access
6:0>IMMU TLB TAGS Access
2:0>IMMU CAM
4:0>IMMU CAM
6:0>IMMU CAM
```

CODE EXAMPLE A-1 Example System Controller Display *(Continued)*

```
2:0>Setup Slave MMUs
4:0>Setup Slave MMUs
6:0>Setup Slave MMUs
2:0>Setup DMMU Miss Handler
4:0>Setup DMMU Miss Handler
6:0>Setup DMMU Miss Handler
0:0>CPU =: 0 1 2 3 8 9 10 11 16 17 18 19 24 25 26 27
0:0>Test slave strand registers...
2:0>Scrub Icache
2:0>Scrub Dcache
2:0>D-Cache Tags
2:0>I-Cache RAM Test
4:0>Scrub Icache
2:0>I-Cache Tag RAM
4:0>Scrub Dcache
4:0>D-Cache Tags
4:0>I-Cache RAM Test
6:0>Scrub Icache
0:0>Scrub Icache
4:0>I-Cache Tag RAM
6:0>Scrub Dcache
0:0>Scrub Dcache
6:0>D-Cache Tags
0:0>D-Cache Tags
6:0>I-Cache RAM Test
0:0>I-Cache RAM Test
6:0>I-Cache Tag RAM
0:0>I-Cache Tag RAM
2:0>FPU Registers and Data Path
4:0>FPU Registers and Data Path
6:0>FPU Registers and Data Path
0:0>FPU Registers and Data Path
2:0>Enable Icache
2:0>Enable Dcache
4:0>Enable Icache
4:0>Enable Dcache
6:0>Enable Icache
6:0>Enable Dcache
0:0>Enable Icache
0:0>Enable Dcache
0:0>Scrub Memory
0:0>Scrub 00000000.00600000->00000000.80000000 on Memory Channel
[0 3 ] Rank 0 Stack 0
```

CODE EXAMPLE A-1 Example System Controller Display *(Continued)*

```
0:0>Scrub 00000000.80000000->00000001.00000000 on Memory Channel
[0 3 ] Rank 1 Stack 0
2:0>IMMU Functional
2:0>DMMU Functional
4:0>IMMU Functional
4:0>DMMU Functional
6:0>IMMU Functional
6:0>DMMU Functional
0:0>IMMU Functional
0:0>DMMU Functional
0:0>Print Mem Config
0:0>Caches : Icache is ON, Dcache is ON.
0:0>    Bank 0 2048MB : 00000000.00000000 -> 00000000.80000000.
0:0>    Bank 2 2048MB : 00000000.80000000 -> 00000001.00000000.
0:0>Block Mem Test
0:0>Test 6291456 bytes at 00000000.00600000 Memory Channel [ 0 3
] Rank 0 Stack 0
0:0>Test 6291456 bytes at 00000000.80000000 Memory Channel [ 0 3
] Rank 1 Stack 0
0:0>.........IO-Bridge Tests.....
0:0>IO-Bridge Quick Read
0:0>
0:0>------------------------------------------------------------
--
0:0>--------- IO-Bridge Quick Read Only of CSR and ID -----------
----
0:0>------------------------------------------------------------
--
0:0>fire 1 JBUSID  00000080.0f000000 =
0:0>                                  fc000002.e03dda21
0:0>------------------------------------------------------------
--
0:0>fire 1 JBUSCSR 00000080.0f410000 =
0:0>                                 00000ff5.13cb7000
0:0>------------------------------------------------------------
--
0:0>IO-Bridge unit 1 jbus perf test
0:0>IO-Bridge unit 1 int init test
0:0>IO-Bridge unit 1 msi init test
0:0>IO-Bridge unit 1 ilu init test
0:0>IO-Bridge unit 1 tlu init test
0:0>IO-Bridge unit 1 lpu init test
0:0>IO-Bridge unit 1 interrupt test
0:0>INFO:
```

CODE EXAMPLE A-1 Example System Controller Display *(Continued)*

```
0:0>    POST Passed all devices.
0:0>
0:0>DEMON: (Diagnostics Engineering MONitor)
0:0>Select one of the following functions
0:0>POST:  Return to OBP.
0:0>INFO:
0:0>    POST Passed all devices.
0:0>Master set ACK for vbsc runpost command and spin...

SC Alert: Host System has Reset
0:0>
```

APPENDIX **B**

Selecting a Boot Device

The boot device is specified by the setting of an OpenBoot configuration variable called `boot-device`. The default setting of this variable is `disk net`. Because of this setting, the firmware first attempts to boot from the system hard drive, and if that fails, from the on-board NET0 gigabit Ethernet interface.

This procedure assumes that you are familiar with the OpenBoot firmware and that you know how to enter the OpenBoot environment. For more information, see the *Sun Fire T1000 Server Administration Guide*.

Note – The serial management port on the ALOM-CMT card is preconfigured as the default system console port. For more information, see the *Sun Fire T1000 Server Overview*.

Connecting the Network Interface to the Network

To boot from a network, you must connect the network interface to the network.

▼ To Connect the Network Interface to the Network

- **At the `ok` prompt, type:**

```
ok setenv boot-device device-specifier
```

Where the *device-specifier* is one of the following:
- `disk` – Specifies the system boot disk (internal disk 0 by default)
- `disk0` – Specifies internal drive 0
- `net`, `net0`, `net1`– Specifies the network interfaces
- *full path name* – Specifies the device or network interface by its full path name

---

Note – The Solaris OS modifies the `boot-device` variable to its full path name, not the alias name. If you choose a nondefault `boot-device` variable, the Solaris OS specifies the full device path of the boot device.

Note – You can specify the name of the program to be booted as well as the way the boot program operates. For more information, refer to the *OpenBoot 4.x Command Reference Manual* in the *OpenBoot Collection AnswerBook* for your specific Solaris OS release.

If you want to specify a network interface other than an on-board Ethernet interface as the default boot device, you can determine the full path name of each interface by typing:

```
ok show-devs
```

The `show-devs` command lists the system devices and displays the full path name of each PCI device.

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