![Sun Microsystems logo] *Sun* microsystems

Sun Fire™ Cabinet
Installation and Reference Manual

Adobe PostScript™

Contents

Figures

Tables

Preface

The *Sun Fire Cabinet Installation and Reference Manual* provides installation instructions and reference information for the Sun Fire™ cabinet.

These instructions are for an experienced systems or field engineer with networking knowledge.

Typographic Conventions

Typeface or Symbol	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.
AaBbCc123	What you type, when contrasted with on-screen computer output.	% **su** Password:
AaBbCc123	Book titles, new words or terms, words to be emphasized. Command-line variable; replace with a real name or value.	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*.

Related Documentation

Application	Title	Part Number
	Sun Fire 4810/4800/3800 System Getting Started	805-7374
	Sun Fire 6800/4810/4800/3800 Systems Overview Manual	805-7362
Hardware	*Sun Fire 4810/4800/3800 System Installation Guide*	805-7375
	Sun Fire 4810/4800/3800 System Cabinet Mounting Guide	806-6781
	Sun Fire 6800/4810/4800/3800 Systems Service Manual	805-7363
Software	*Sun Fire 6800/4810/4800/3800 System Controller Command Reference Manual*	805-7372
	Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual	805-7373

Accessing Sun Documentation Online

A broad selection of Sun system documentation is located at:

`http://www.sun.com/products-n-solutions/hardware/docs`

A complete set of Solaris documentation and many other titles are located at:

`http://docs.sun.com`

Ordering Sun Documentation

Fatbrain.com, an Internet professional bookstore, stocks select product documentation from Sun Microsystems, Inc.

For a list of documents and how to order them, visit the Sun Documentation Center on Fatbrain.com at:

`http://www.fatbrain.com/documentation/sun`

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can email your comments to Sun at:

```
docfeedback@sun.com
```

Please include the part number (806-2942-11) of your document in the subject line of your email.

Safety Requirements

This chapter describes the safety precautions that should be taken when servicing a Sun Fire cabinet.

1.1 Safety Precautions

For your protection, observe the following safety precautions:

- Follow all cautions, warnings, and instructions in Table 1-1.
- Never push objects of any kind through openings in the equipment as they may touch dangerous voltage points or short out components that could result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

TABLE 1-1   Safety Precautions

Item	Problem	Precaution
Wrist or foot strap	ESD	Wear a conductive wrist strap or foot strap when handling printed circuit boards.
ESD mat	ESD	An approved ESD mat provides protection from static damage when used with a wrist strap or foot strap. The mat also cushions and protects small parts that are attached to printed circuit boards.
Cover panels	System damage and overheating	Re-install all cabinet cover panels after performing any service work on the system.
Card cage slot filler panels and load boards	System damage and overheating	Make sure all empty board slots have a filler panel installed.

1.2 Symbols

TABLE 1-2 Standardized Symbols

Symbol	Description	Meaning
	CAUTION	Hazardous voltages are present. To reduce the risk of electrical shock and danger, follow the instructions.
	CAUTION	Risk of personal injury. To reduce the risk, follow the instructions.
	CAUTION	Risk of equipment damage. To reduce the risk, follow the instructions.
	SURFACE	CAUTION: Hot surfaces. Avoid contact. Surfaces are hot and may cause personal injury if touched.
	AC	A terminal to which alternating current or voltage may be applied.
	SYSTEM POWER	System is receiving DC power. When the power LED is lit the system is operating normally.
	COMPONENT ACTIVATED	Component is activated when the green activated LED on the system component is lit.
	FAULT	System has detected a hardware failure. When the fault LED (amber) is lit, the system has detected a hardware failure.
	SERVICE	You can safely remove a board or component from a powered on system when the service LED (amber) is lit.

TABLE 1-2 Standardized Symbols *(Continued)*

Symbol	Description	Meaning
	PROTECTIVE EARTH	Earth ground.
	CHASSIS	Frame or chassis ground.
	FUSE REPLACEMENT MARKING	For continued protection against risk of fire and electric shock, replace ONLY with fuse of the same type and rating.

1.3   Caution and Notes

Caution – This equipment contains lethal voltage. Accidental contact with centerplane, card cage, and drive areas of a preconfigured system can result in serious injury or death.

Caution – Improper handling by unqualified personnel can cause serious damage to this equipment. Unqualified personnel who tamper with this equipment may be held liable for any resultant damage to the equipment.

Individuals who remove any outer panels or open covers to access this equipment must observe all safety precautions and ensure compliance with skill level requirements, certification, and all applicable local and national laws.

Caution – DO NOT make mechanical or electrical modifications to the cabinet. Sun Microsystems™ is not responsible for regulatory compliance of modified cabinets.

Caution – The cabinet AC power cables must remain connected to ensure a proper ground. Use only properly grounded power outlets. See chapter 2 "Preparing For Installation".

Ensure that the voltage and frequency of the power outlet to be used matches the electrical rating labels on the equipment.

Wear antistatic wrist straps when handling any magnetic storage devices, CPU/Memory boards, or other printed circuit boards.

Note – Before you begin, carefully read each of the procedures in this manual. If you have not performed similar operations on comparable equipment, *do not attempt* to perform these procedures.

1.4 Anti-Tilt Bar

The anti-tilt bar is a safety feature that prevents the Sun Fire cabinet from tipping forward. The ant-tilt bar is not required when a Sun Fire cabinet has been secured to the ground with brackets. For your protection always extend the anti-tilt bar whenever adding, removing, or extending anything that might unbalance the Sun Fire cabinet.

1. **Release the catches and extend the anti-tilt bar** (FIGURE 1-1)**.**

2. **Lower the leveling pads on the anti-tilt bar so that they contact the floor.**

Catches
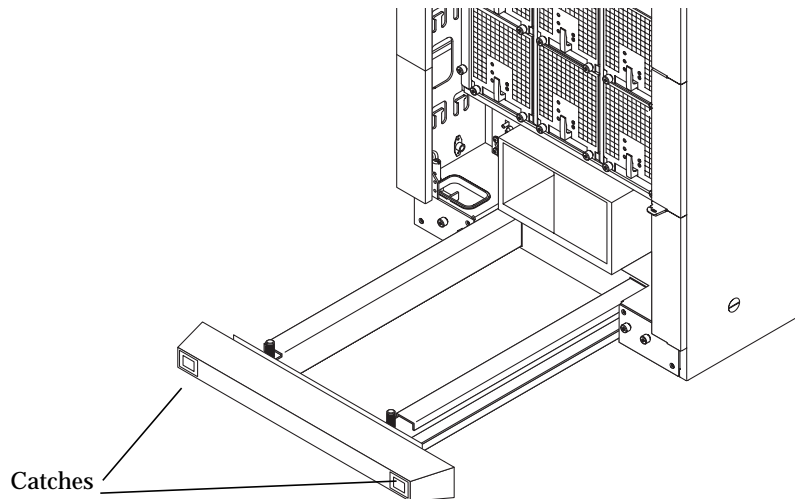
FIGURE 1-1   Anti-Tilt Bar Extended

Preparing for Installation

This chapter describes how to prepare the operating site for the Sun Fire cabinet. The following sections are included in this chapter:

- Verifying the Electrical Circuits—page 2-1
- Verifying the Air Conditioning—page 2-2
- Verifying the Floor Area—page 2-3

2.1 Verifying the Electrical Circuits

Because large AC currents may be needed, each of the following items requires a separate power circuit:

- Each RTS module in the Sun Fire cabinet
- External peripherals
- Monitor used for diagnostics

The Sun Fire cabinet requires two dedicated 200–240 VAC, 30A circuit breakers. If the optional RTS modules were installed, four dedicated 200–220 VAC, 30A circuit breakers are required.

Caution – Do not attach other electrical equipment to the AC circuit for the Sun Fire cabinet; the system reliability may be affected.

Note – If the appropriate electrical receptacle is not available in your country, the connector may be removed from the cable. The cable can then be permanently connected to a dedicated branch circuit by a qualified electrician. Check local electrical codes for proper installation requirements.

Caution – Strictly observe the following instructions to reduce the risk of electric shock.

The Sun Fire cabinet requires an electrical circuit that is grounded to earth. The UL1950, CSA950, and EN60950 specify:

> An insulated earthing conductor that is identical in size, insulation material, and thickness to the earthed and unearthed branch-circuit supply conductors, except that it is green with or without one or more yellow stripes, is to be installed as part of the branch circuit that supplies the unit or system. The earthing conductor described is to be connected to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor-generator set.

> The attachment-plug receptacles in the vicinity of the unit or system are all to be of an earthing type, and the earthing conductors serving these receptacles are to be connected to earth at the service equipment.[1]

The power cable provides a ground path that will protect the drives and boards in the cabinet from static electricity damage.

Caution – Do not make mechanical or electrical modifications to the Sun Fire cabinet. Sun Microsystems is not responsible for the regulatory compliance if the cabinet is modified.

Note – If two separate AC power sources (primary and secondary) are not available, and a single AC power source is used, connect ONLY RTS0 to that power source. Connecting RTS0 and RTS1 to a single AC power source (even if separate circuit breakers are used) is not supported and will adversely affect reliability.

2.2 Verifying the Air Conditioning

For the most reliable system operation:

- The room should have sufficient air-conditioning capacity to support the cooling needs of the entire system.
- The air-conditioning system should have controls that prevent excessive temperature changes.

---

1. Information Technology Equipment — UL 1950, copyright 1989, 1991 by Underwriters Laboratories, Inc.

- Refer to the *Sun Fire* 6800/4810/4800/3800 *Systems Site Planning Guide* for exact cooling requirements.

2.3 Verifying the Floor Area

- The Sun Fire cabinet requires approximately 48 inches (120 centimeters) of space in the front and 36 inches (90 centimeters) in the rear (FIGURE 2-1) for access by service personnel.
- Expansion cabinets can be placed next to each other since there are no side clearance requirements during operation.
- Keep power and interface cables out of the way. Cables can be routed inside walls, floors, ceilings, or in protective channels. Interface cables should be routed away from motors and other sources of electric, magnetic or radio frequency interference.
- For cable routing, the Sun Fire cabinet has openings at the top rear corners in addition to the openings at the bottom of the cabinet.

36 inches (90 centimeters) access in the rear

| Expansion cabinet | Expansion cabinet | Expansion cabinet | Sun Fire System Cabinet | Expansion cabinet | Expansion cabinet | Expansion cabinet |

48 inches (120 centimeters) access in the front
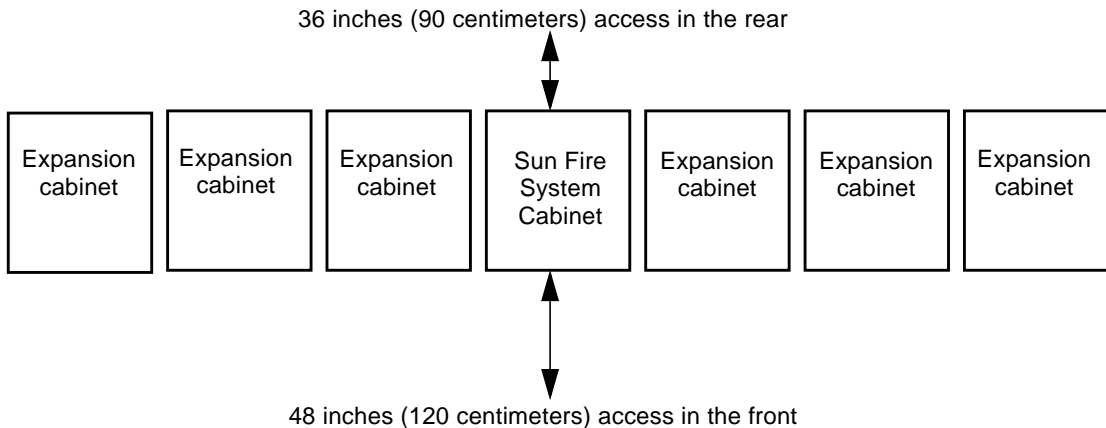
FIGURE 2-1 Sun Fire Cabinet Access Areas—Top View

Installing the Sun Fire Cabinet

This chapter contains procedures for moving the Sun Fire cabinet and connecting the power cables.

- Tools—page 3-1
- Unpacking the Sun Fire Cabinet—page 3-2
- Moving and Securing the Sun Fire Cabinet—page 3-8
- Connecting the Sun Fire Cabinet Power Cables—page 3-8

Note – When you receive your system, leave it in the shipping crate *for 24 hours* to prevent thermal shock and condensation.

3.1 Tools

- Leveling wrench (combination 1/2-inch and 9/16-inch wrench located in the upper rear of the cabinet)
- System keys (one in the front door and the second in the shipping kit.)

3.2 Unpacking the Sun Fire Cabinet

1. Remove the bands and cap from the shipping carton (FIGURE 3-1).
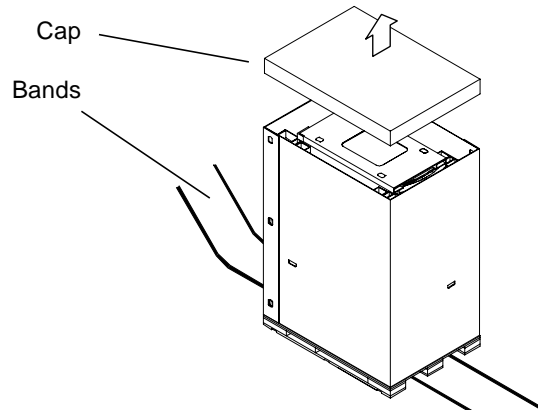
FIGURE 3-1 Unpacking the Sun Fire Cabinet—Step 1

2. Remove the plastic clips that keep the two main sections of the shipping carton together (FIGURE 3-2).
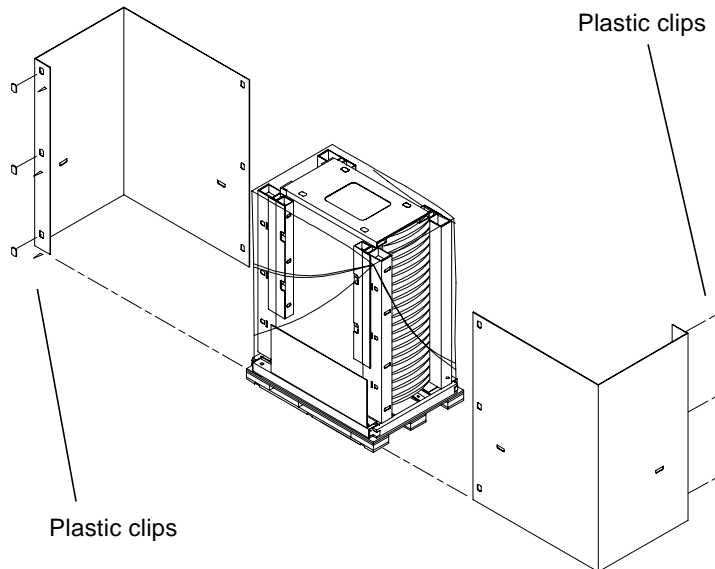
FIGURE 3-2 Unpacking the Sun Fire Cabinet—Step 2

3. **Remove the plastic bag that covers the system and remove the ramps.**

4. **Unlock the rear door of the cabinet with the system keys and remove the leveling wrench that is attached to the upper-rear of the cabinet frame.**

   System keys should be attached to the front door. The wrench is attached by a reusable plastic strap. Do not cut the strap.

   a. **Press the plastic tab to unlock the strap.**

   b. **Loosen the strap to remove the wrench.**

3.3 Moving and Securing the Sun Fire Cabinet

1. **Remove the front wheel stop.**

2. **Use the leveling wrench to remove the front brackets. Save the brackets for Step 11** (FIGURE 3-3).

Front wheel stop
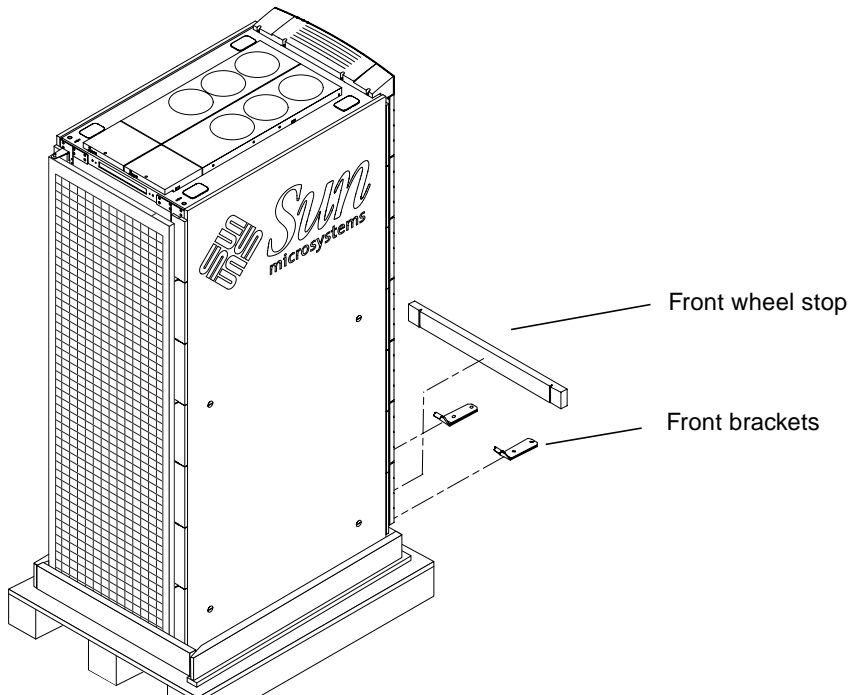
Front brackets

FIGURE 3-3   Front Brackets and Front Wheel Stop

3. **Reinstall the front wheel stop.**

   The front wheel stop prevents the cabinet from inadvertently rolling off the front of the shipping pallet.

4. **Remove the rear wheel stop** (FIGURE 3-4)**.**

5. **Position the ramps so the metal tab connects to the holes on the rear of the shipping pallet.**

6. **Use the leveling wrench to remove the rear brackets. Save the brackets for Step 11.**

Rear wheel stop

Rear brackets
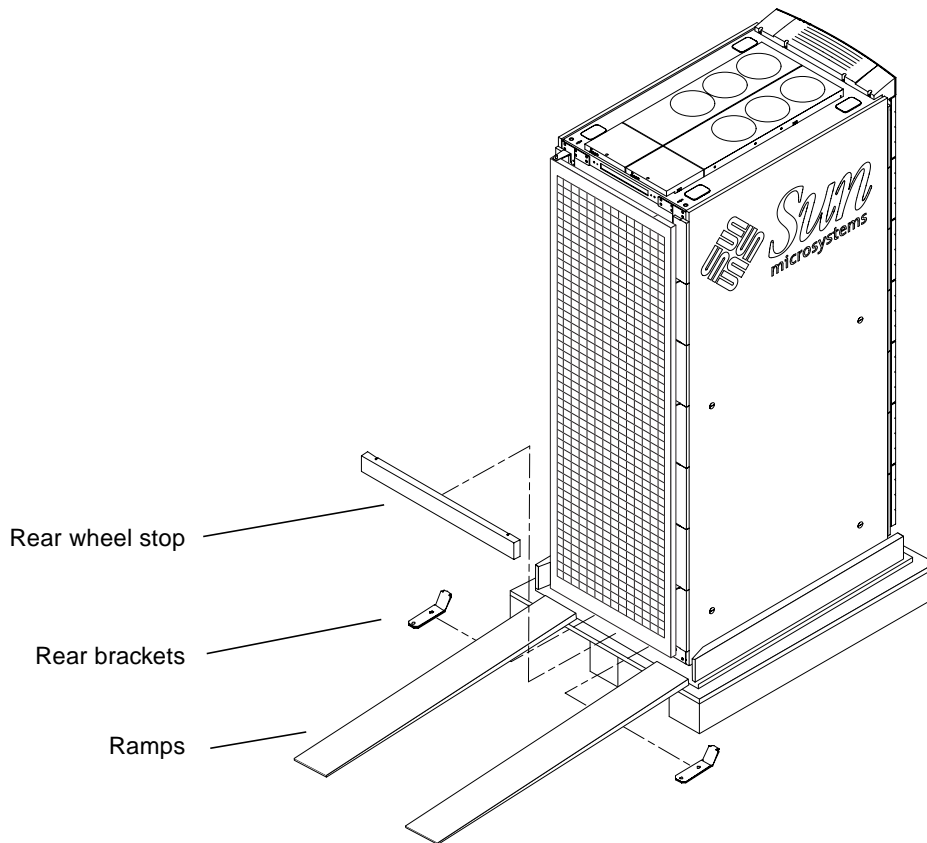
Ramps

FIGURE 3-4   Removing the Rear Brackets and Rear Wheel Stop and Positioning Ramps

7. **Use the leveling wrench to raise the leveling pads as high as they will go so the cabinet is free to move.**

8. **Secure the leveling wrench back in the cabinet with the plastic strap and close the front and rear doors.**

> **Caution –** A preconfigured Sun Fire cabinet is very heavy. Three or more people are needed to move the cabinet safely. Two people must control the movement of the system from the sides while the third pushes slowly from the front. To prevent the cabinet from tipping over, push or pull only along the middle of the system.

9. **Move the cabinet carefully down the ramps** (FIGURE 3-5)**.**

10. **Move the cabinet to the operating location.**

   Always push from the front of the cabinet to prevent tipping the system over.
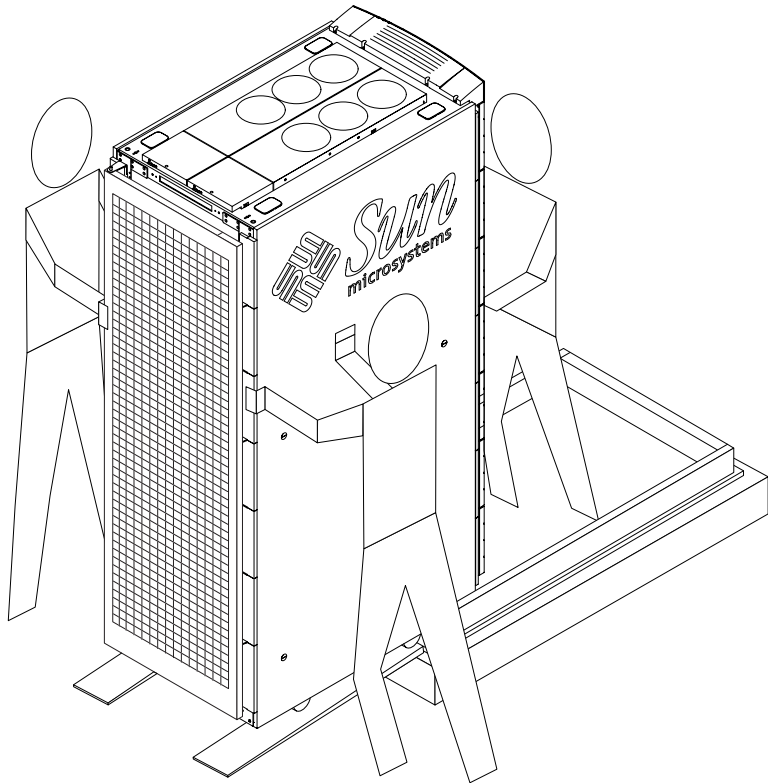
FIGURE 3-5   Moving the Sun Fire Cabinet Off the Shipping Pallet

11. **Secure the cabinet to the operating location using the front and rear brackets saved in Step 2 and Step 6** (FIGURE 3-6).
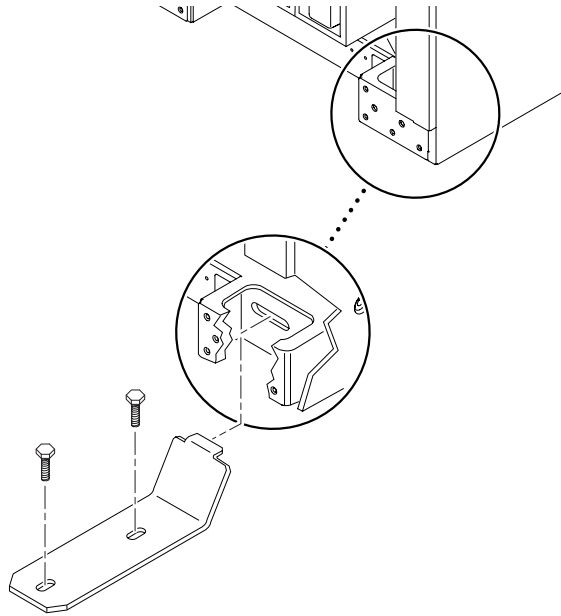
FIGURE 3-6   Bracketing the Sun Fire Cabinet to the floor

Note – Because each operating location is unique, the bolts that secure the brackets to the floor must be supplied by personnel at the site. The hole is large enough to accommodate a 3/8 inch or 10 mm. bolt using a flat and split washer. See FIGURE 3-7 for bracket dimensions.
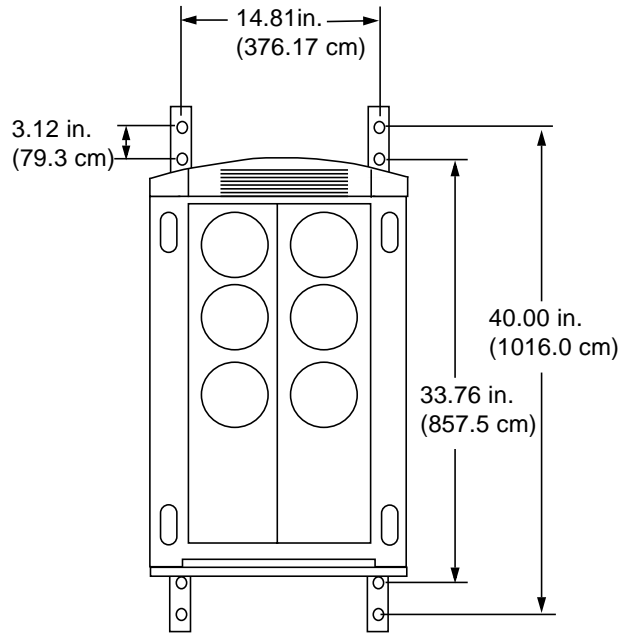
FIGURE 3-7   Sun Fire Cabinet Bracket Dimensions

3.3.1   Adjusting the Leveling Pads

If the cabinet will not be bracketed to the floor of the operating location you must raise it off of its wheels to prevent movement.

1. **Remove the leveling wrench from inside the cabinet.**

2. **Use the leveling wrench to lower the leveling pads at the four corners of the cabinet so the cabinet cannot move, then adjust the leveling pads to make the cabinet level.**

3. **Secure the leveling wrench inside the cabinet with the plastic strap.**

3.3.2 Shipping and Storing the Cabinet

Save the original shipping container and packing materials in case you need to store or ship your cabinet.

If you cannot store the shipping materials, recycle or dispose of the materials properly. Consult your local recycling authority for information.

3.4 Connecting Power Cables to the Sun Fire Cabinet

1. **Turn off each redundant transfer switch (RTS)** (FIGURE 3-8)**.**

Note – In a dual RTU configuration there will be power switches in both the front and rear of the cabinet. All power switches should be turned off.
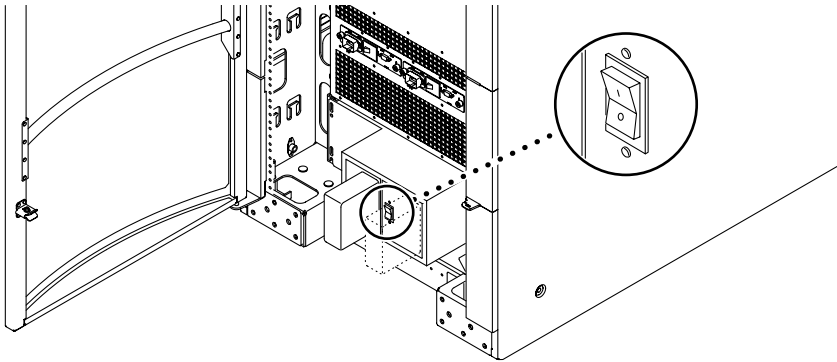
FIGURE 3-8   RTS Power Switch on the Sun Fire Cabinet

2. **Remove the power cables from the shipping carton.**

3. **Remove the socket covers on each RTS module.**

4. **Release the catches and remove the kick-panel.**
   The kick-panel snaps off.

5. **Release the catches and extend the anti-tilt bar at the front of the cabinet.**
   This step applies only to two RTU assembly configurations.

6. Determine which power cables and RTS modules to use.

⚠️

Caution – Two totally independent AC power sources are needed for input power redundancy. The AC power sources must be derived from independent power company utility feeds and Sun recommends that each be backed up with an on-line UPS. The power sources are not independent if they are only distinguished by having separate circuit breakers. One RTS hooked to an AC power source and the second RTS hooked to a UPS that is connected to the same AC power source is not supported because when the UPS is by-passed for maintenance both RTSs will be hooked up to the same source. If both RTSs are hooked to one utility feed then both lines must be backed up with on-line UPSs to ensure input power redundancy.

■ In configurations with two RTU assemblies and two independent AC power sources there will be four cables to connect, two on the front, and two on the rear of the system (FIGURE 3-9).
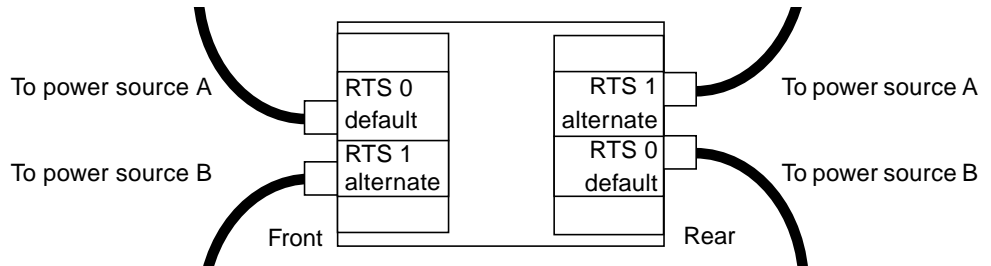
FIGURE 3-9 Two RTU Assemblies and Two Independent AC Power Sources

■ In configurations with one RTU assembly and two independent AC power sources there will be two cables to connect, both in the rear of the system (FIGURE 3-10).
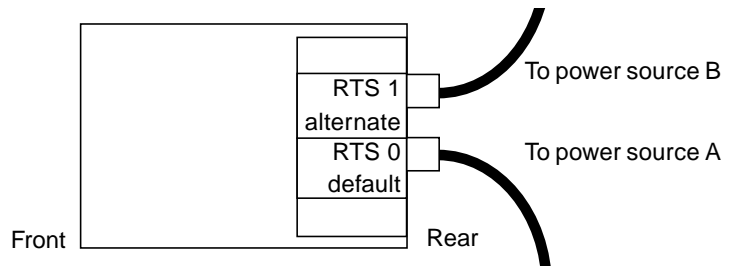
FIGURE 3-10 One RTU Assembly and Two Independent AC Power Sources

■ In configurations with two RTU assemblies and one AC power source there will be two cables to connect, one in the front (on the left), and one in the rear of the system (on the left) (FIGURE 3-11). **Connecting the alternate RTS units to outlets that use the same power source as the default RTS units is not supported and will adversely affect reliability.**
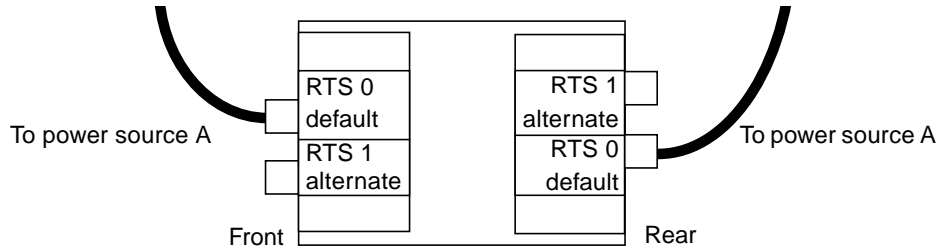
FIGURE 3-11 Two RTU Assemblies and One AC Power Sources

■ In configurations with one RTU assembly and one AC power source there will be only one cable to connect (in the rear of the system on the left) (FIGURE 3-12). **Connecting the alternate RTS unit to an outlet that uses the same power source as the default RTS unit is not supported and will adversely affect reliability.**
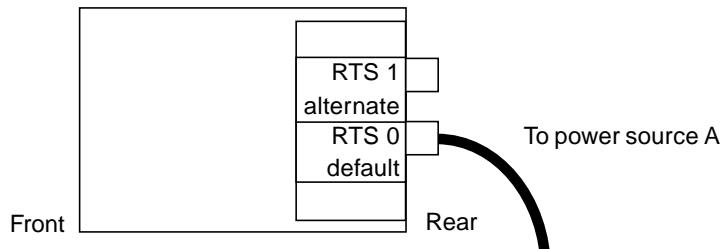
FIGURE 3-12 One RTU Assembly and One AC Power Sources

7. **Connect the power cable to the RTS module and lock the connector with the lock lever (**FIGURE 3-13**).**
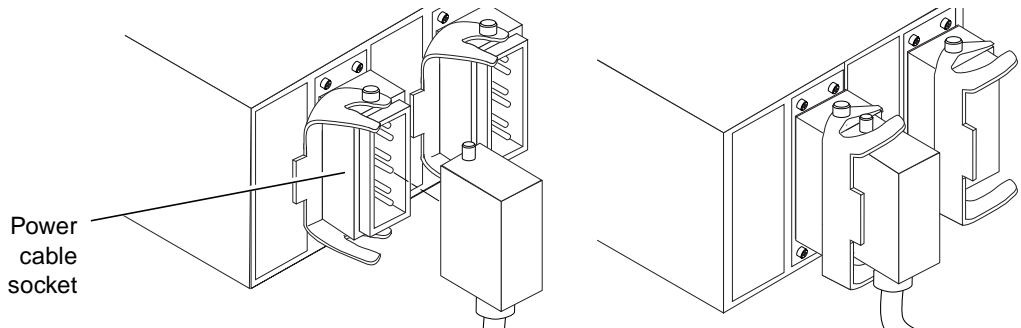
Power cable socket

FIGURE 3-13 Connecting Power Cables to the RTU Assembly

8. **Route the power cables from the front of the cabinet beneath or through the cabinet.**

Note – If the power source is overhead, do not route the cables beneath the cabinet. Instead turn the cables 180˚ degrees and route them back into the cabinet through the small holes in the bottom of the cabinet (to the left and right of the RTU assembly). Remove the plastic pop out covers on the top of the cabinet and route the power cables though the top of the cabinet.

9. **Push the kick-panel and anti-tilt bar back into place.**

The retainers on both parts will retract and snap into place.

10. **Connect the other end of each power cable to a dedicated outlet.**

Caution – Each outlet must be a 200–240 VAC, 30A circuit solely for use by that power cable. The electrical receptacles must be grounded, and the grounding conductors serving these receptacles must be connected to the earth ground at the service equipment.

11. **To continue this installation process (connecting network and interface cables to the system and connecting console interface devices to the system), refer to the Sun Fire 4810/4800/3800** *Systems Installation Guide.*

Note – The Sun Fire cabinet is 42.86 rack units (RU) in height. The RTU assembly is 3 RUs in height.

Powering on the Sun Fire Cabinet

This chapter contains information about powering on the Sun Fire cabinet.

■ Powering On the Sun Fire Cabinet—page 4-1

4.1 Powering On the Sun Fire Cabinet

Note – It is advisable to connect an administration console to the system during installation. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual,* for terminal settings and connections.

1. **Begin with a safety inspection of the system.**

   ■ Verify that the system AC power cables are properly connected.

   ■ Turn the AC power switches to off at the rear of the system.

Caution – Do not disconnect the AC power cable from the wall socket when you work on or in the server cabinet. This connection provides a ground path that prevents damage from electrostatic discharge.

2. **Power on the wall circuit breakers.**

3. **Power on any expansion cabinets.**

   Read the documentation supplied with each type of expansion cabinet for specific instructions.

4. **Power on each redundant transfer switch (RTS)** (FIGURE 4-1).

Note – In a dual RTU configuration there will be power switches in both the front and rear of the cabinet. All power switches should be turned off.
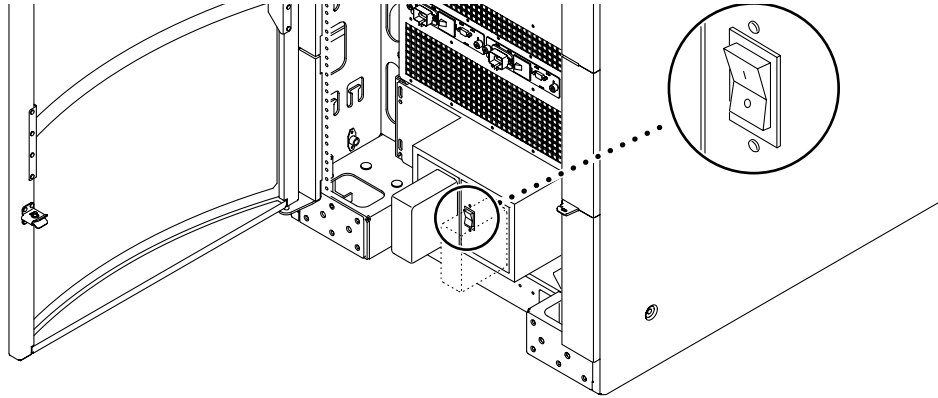

FIGURE 4-1   RTS Power Switch Location

⚠️ **Caution –** Never move the system or expansion cabinets when system power is on. Excessive movement can cause catastrophic disk drive failure. Always power off the system before moving it.

---

5. **Power on the power supplies (or AC input boxes) for each preconfigured system.**

6. **Turn the FrameManager key to the on position**

   The FrameManager key can be found in the shipping carton. If the FrameManager key cannot be located a system key can be used.
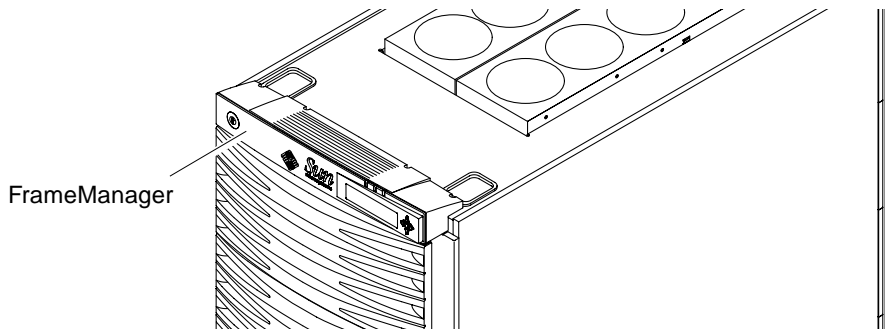
FIGURE 4-2   FrameManager Location

!

Caution – Never move the Sun Fire cabinet when power is on. Excessive movement can cause failures. Always power off the Sun Fire cabinet before moving it.

7. **For instructions on adding additional hardware, refer to the documenation that came with the additional hardware.**

   For instructions on powering on a Sun Fire 4810, Sun Fire 4800, or Sun Fire 3800 system, refer to the *Sun Fire 4810/4800/3800 Systems Installation Guide.*

Replacing the FrameManager

This chapter provides procedures for field-replaceable FrameManager units within a Sun Fire cabinet. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Service Manual* for replaceable parts within a Sun Fire system chassis.

The following sections are included in this chapter:

- FrameManager—page 5-1
- FrameManager LEDs—page 5-2
- Replacing the FrameManager—page 5-2

5.1 FrameManager

The FrameManager is a set of hardware and software embedded into the Sun Fire cabinet that allows concurrent monitoring and control of the fan trays, RTS modules, and RTU assemblies. The FrameManager is located on the top front of the cabinet (FIGURE 5-1).
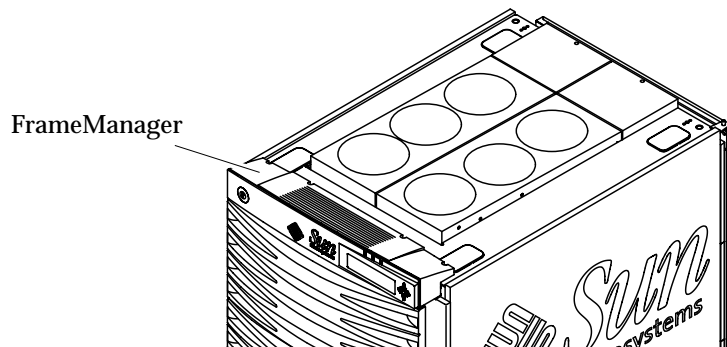
FrameManager

FIGURE 5-1 FrameManager at Top Front of Sun Fire Cabinet

5.2　FrameManager LEDs

The LEDs indicate the status of the individual device. The FrameManager has three LEDs: power, fault, and service (TABLE 5-1).

TABLE 5-1　Frame Manager LED Major Functions

LED		Function	Operation
Green LED	⊙	Power	On when the RTS has been commanded to enable switched power.
Amber LED	⌒▬	Fault	On when a fault condition exists in the FrameManager, fan trays, RTS module or RTU assemblies.
Amber LED	◁▯	Service	FrameManager, fan trays, RTS module or RTU assembly can safely be removed from a powered-on system when the service LED (amber) is lit.

5.3　Replacing the FrameManager

1. Loosen the screws at the back of the assembly (FIGURE 5-2**).**

Note – Note the current position of the keyswitch before removing the FrameManager. The replacement FrameManager keyswitch must be in the same position.

Note – You may have to remove the two middle screws and reinstall them in order to remove the FrameManager assembly.
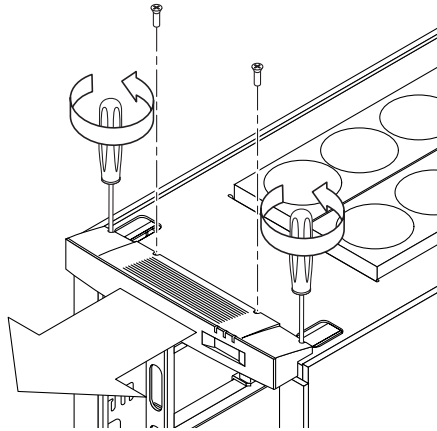
FIGURE 5-2   FrameManager Removal—Step 1

2. **Slide the assembly forward and carefully flip it onto the top of the Sun Fire cabinet to access the cable connector on the rear of the assembly (**FIGURE 5-3**).**
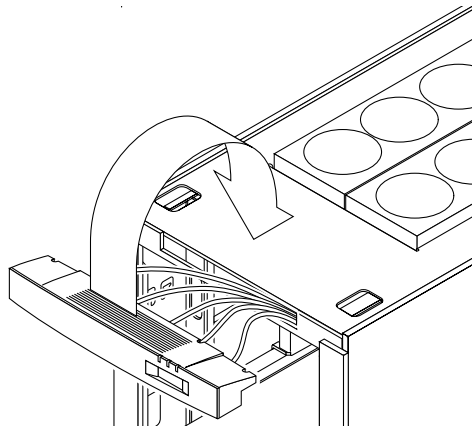
FIGURE 5-3   FrameManager Removal—Step 2

3. Disconnect the five cables from the assembly (FIGURE 5-4**).**
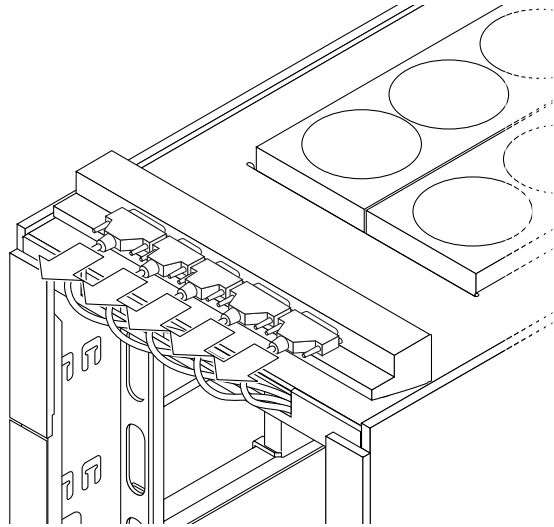
FIGURE 5-4   FrameManager Cable Location

4. Remove the assembly from the top of the cabinet.

Caution – Make sure that the keyswitch of the replacement FrameManager is in the same position as the keyswitch of the removed FrameManager. Not doing so could cause the system to be powered off when the replacement FrameManager is re-connected to the five cables.

---

5. Install the replacement assembly by reversing Step 1 through Step 4.

Replacing Fan Trays

This chapter provides procedures for field-replaceable fan trays within a Sun Fire cabinet. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Service Manual* for replaceable parts within a Sun Fire system chassis. The following sections are included in this chapter:

■ Fan Tray(s)—page 6-1
■ Fan Tray LEDs—page 6-2
■ Replacing the Fan Trays—page 6-3

6.1 Fan Tray(s)

There can be one or two fan trays to provide additional cooling for the Sun Fire cabinet. Both are located on the cabinet top immediately behind the FrameManager (FIGURE 6-1).
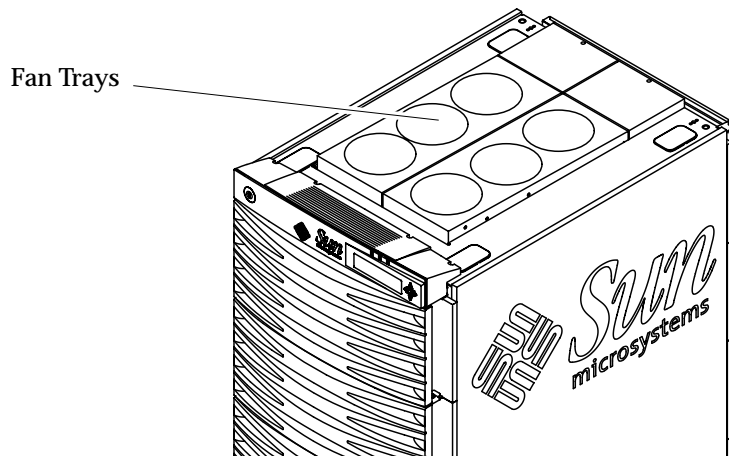
Fan Trays

FIGURE 6-1 Fan Trays on the Sun Fire Cabinet

6.2 Fan Tray LEDs

There are three LEDS on each of the cabinet fan trays (TABLE 6-1).

TABLE 6-1   Fan Tray LEDs

LED		On	Off
Power (green)	⊙	Power is on; you cannot remove the fan tray.	Power is off; you can remove the fan tray.
Fault (amber)	⌐	Internal fault.	No internal fault.
Service (amber)	◁	It is safe to remove the fan tray from a powered-on system.	It is not safe to remove the fan tray from a powered-on system.

Note – Each RTU has two "unswitched" power outlets (see FIGURE 7-1). These unswitched power outlets only receive power when the corresponding RTS is installed and functioning. If a cabinet has only one RTS installed, then only the associated unswitched outlet will have power and the remaining fan tray must be connected to one of the "switched" power outlets.

6.3 Replacing the Fan Trays

1. **Ensure that the power switch is set to off** (FIGURE 6-2).

Fan trays (2)

Connectors (2)
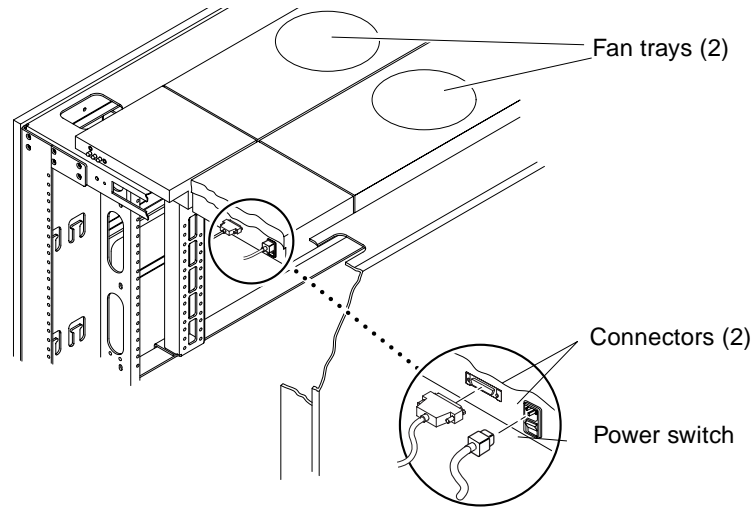
Power switch

FIGURE 6-2 Fan Tray Power Switch and Connectors

2. **Open the rear door for easier access.**

3. **Disconnect and then remove the two connectors from the rear of the fan tray** (FIGURE 6-2).

4. Loosen and then remove two screws from fan assembly top plate (FIGURE 6-3**).**
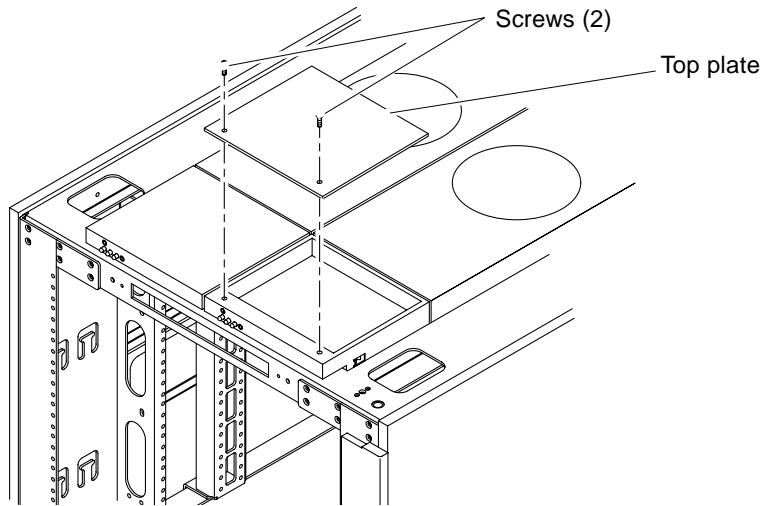
Screws (2)

Top plate

FIGURE 6-3 Fan Tray Top Plate

5. Remove fan assembly top plate.

This will reveal two captive screws.

6. Loosen the two captive screws.

7. Remove the fan tray assembly by supporting the fan tray with one hand while raising the end containing the connectors and then pulling slightly forward.

8. Install the replacement unit by reversing Step 1 through Step 7.

Replacing RTU and RTS Modules

This chapter provides procedures for field-replaceable redundant transfer units (RTUs) and redundant transfer switch (RTS) modules within a Sun Fire cabinet. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Service Manual* for replaceable parts within a Sun Fire system chassis. The following sections are included in this chapter:

- RTU and RTS—page 7-1
- RTS LEDs—page 7-2
- Replacing the RTS Modules—page 7-4
- Replacing the RTU Assembly—page 7-5

7.1   RTU and RTS

The Sun Fire cabinet contains one or two RTU assemblies. Each RTU assembly contains one or two RTS modules. The first module (on the left by default) in an RTU is required, the second is an optional backup. Each RTS module within an RTU is connected to a separate power source (TABLE 7-1).

TABLE 7-1   RTU/RTS

RTU Assembles	RTS Modules
RTU (Rear)	RTS0 (connected to Power Source A)
	RTS1 (connected to Power Source B)
RTU (Front)	RTS0 (connected to Power Source A)
	RTS1 (connected to Power Source B)

Note – For more cabling information see chapter 3 of this manual.

Note – Each RTU has two "unswitched" power outlets (FIGURE 7-1). These unswitched power outlets only receive power when the corresponding RTS is installed and functioning. If a cabinet has only one RTS installed, then only the associated unswitched outlet will have power and the remaining fan tray must be connected to one of the "switched" power outlets.

7.2   RTS LEDs

The LEDs indicate the status of the individual device. You can safely remove an RTS module whenever the module indicates a fault. There is no service LED. In a single RTS system, the system should be safely powered off first.

The LEDs indicate the status of the individual device. Each RTS has three LEDs (FIGURE 7-1).
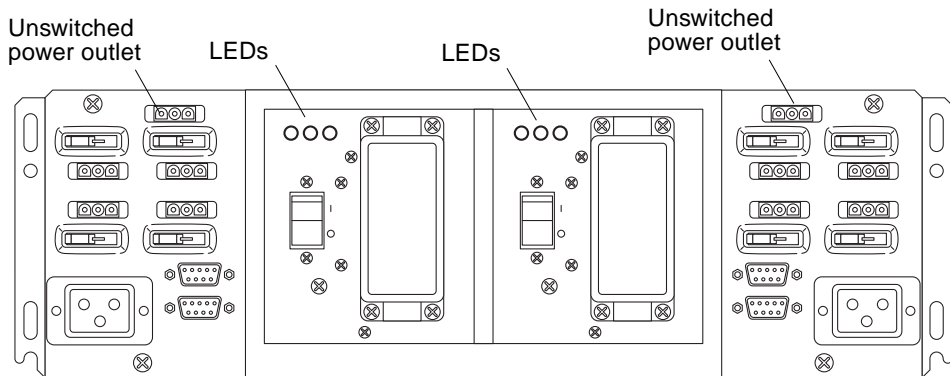
FIGURE 7-1   RTS LEDs and Unswitched Power Outlets

These LEDS may be off, on, or flashing (TABLE 7-2).

TABLE 7-2   RTS LED Functions

LED Position	Color	Status	Meaning
Left	Green	On	The source is present and is within specifications.
		Off	The source either is not present or is below specifications.
		Flashing	The source is above specifications.
Middle	Green	On	The module relay is energized and the module is connected to the outlets.
		Off	The module relay is de-energized and the module is seated.
		Flashing	The module relay is de-energized and the module is not properly seated.
Right	Amber	On	The module has a fault.
		Off	The module does not have a fault.

Additionally, during self test at power up, the LEDs will perform as follows (TABLE 7-3):

TABLE 7-3   RTS Self Test LED Functions

Leds Flashing	Pattern	Meaning
All	Three times	Self test is complete.
All	Right, middle, left	LED test is complete.
Middle	Flashing for three seconds.	Seating test in progress.

7.3 Replacing the RTS Module

1. **Power off the wall circuit breaker for the RTS module to be replaced.**

2. **Power off the RTS module that is to be replaced (**FIGURE 7-2**).**

3. **Remove the power cable from the RTS module that is to be replaced.**

4. **Loosen the screw on the bottom of the RTS module.**

Power switch (each module)   RTS module (2 each RTU)
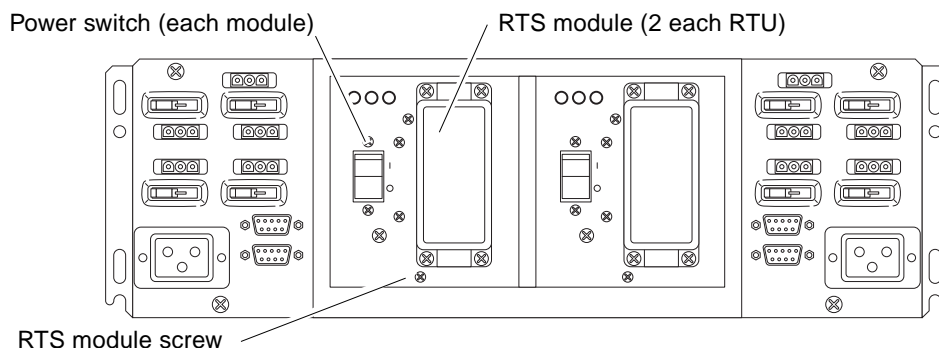
RTS module screw

FIGURE 7-2   RTS Module in the RTU Assembly

5. **Pull the module straight out.**

Note – For single RTS installations, install an RTS module in the left-hand slot and place a filler panel on the right-hand slot.

6. **Install the replacement module by reversing Step 1 through Step 5.**

   Ensure proper engagement of the connector in the rear of the module when inserting the replacement into the RTU.

7.4 Replacing the RTU Assembly

1. **Notify users that the system will be powered off.**

2. **Power off the system.**

   For instructions on powering off a Sun Fire 6800/4810/4800/3800 system, refer to the *Sun Fire* 6800/4810/4800/3800 *Systems Platform Administration Manual.*

3. **Label and remove all cabling.**

4. **Remove the RTS module(s), see previous section.**

   Note – Do not attempt to remove the RTU without first removing the RTS modules.

   ---

5. **Remove the four screws holding the RTU to the cabinet (**FIGURE 7-2**).**

6. **Firmly pull out the RTU.**

7. **Install the replacement RTU assembly by reversing Step 1 through Step 6.**

   The assembly is self-aligning.

Product Specifications

A.1 Physical Specifications

TABLE A-1   Sun Fire Cabinet Physical Specifications

	U.S.	Metric
Height	75 in.	190.5 cm
Width	23.9 in.	60.7 cm
Depth (without front door)	35.5 in.	90.2 cm
(With both front and rear doors)	37 in.	94.9 cm
Weight	325 lb, approx	147 kg, approx
Power cord	13.13 feet	4 meters

TABLE A-2   Sun Fire Cabinet Clearance and Service Access

	U.S.	Metric
Front	4 ft	122 cm
Rear	3 ft	92 cm
Left	1 ft*	31 cm*
Right	1 ft*	31 cm*

*Access only. There are no side clearance requirements.

The Sun Fire cabinet requires a dedicated 200–240 VAC, 30A circuit breaker for each installed RTS module.

A.2 Electrical Specifications

TABLE A-3 Sun Fire Cabinet Electrical Specifications

Parameter		Value
Input current	Voltage range	200–240 VAC
	Current, maximum	24A rms at 208 VAC for each power cable
	Current frequency range	47–63 Hz
Volt-Ampere rating		4,992 VA
Connector type	North American	NEMA L6–30P for 200–240 VAC[1]
	International	32A, single phase IEC 309 for 220–240 VAC
Receptacle type	North American	NEMA L6–30R for 200–240 VAC

1. One power cable for each RTS installed. Minimum of one maximum of four.

A.3 Environmental Requirements

TABLE A-4 Sun Fire Cabinet Operating Environment

Environmental Factor	Temperature Range	Relative Humidity	Altitude
Operating	41˚F to 95˚F (5˚C to 35˚C) derate 2˚C for every 1 km up to 3 km	20% to 80%, 27˚C maximum wet bulb (noncondensing)	sea level to 9,843 ft. (3 km)
Non-operating	-4˚F to 140˚F (-20˚C to 60˚C)	93%, 38˚C max wet bulb (noncondensing)	39,370 ft. (12 km)

Illustrated Parts Breakdown

The following is a list of field-replaceable units for Sun Fire cabinet. These items are replaceable at the customer site by a qualified field service engineer.

■ FrameManager
■ RTU assemblies and RTS modules
■ Fan trays

For field-replaceable parts within a system chassis, refer to the *Sun Fire 6800/4810/ 4800/3800 Systems Service Manual*.

Use the sections that follow to locate cabinet field-replacable units (FRUs).

B.1   Sun Fire Cabinet Replacement Parts

Front view

Rear view
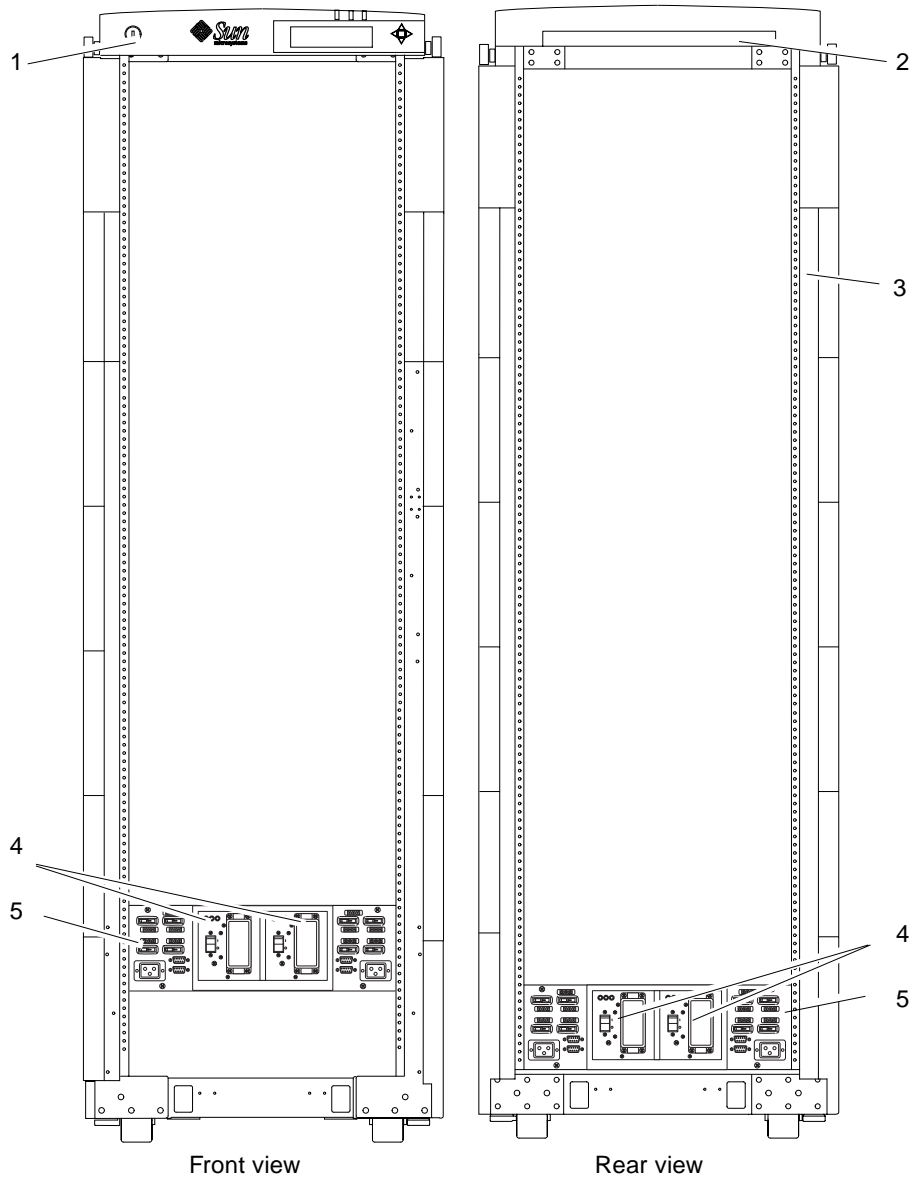
FIGURE B-1   Sun Fire Cabinet

TABLE B-1 Sun Fire Cabinet Field-Replaceable Parts

Key	Description	Part Number
1	FrameManager	F540-3883
2	Fan trays	F540-3662
3	Sun Fire Cabinet Part Number	
4	RTS module	F300-1396
5	RTU assembly	F300-1335

B.1.1   Other Replacement Parts

TABLE B-2 Other Sun Fire Cabinet Replaceable Parts

	Cable	Part Number
	Filler Panel for RTU assembly	F240-3580
	Cable, Fan Tray	F530-2713
	Cable, FrameManager	F530-2720
	Cable, AC input power (domestic)	F180-1943
	Cable, AC input power (international)	F180-1944
	Cable, universal power cord	F180-1945
	Cable, power, RTS to AC input box (.61 meters)	F180-1946
	Cable, power, RTS to AC input box (1.5 meters)	F180-1947
	Cable, universal power cord Y-splitter, 300 cm	F180-1949
	Cable, ID box/Sequencer	F530-2565
	Cable, Keyswitch	F530-2704

CHAPTER **C**

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.

C.1 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.

C.2 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 in order to maintain compliance 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.

C.3 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.

C.4 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。

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

クラス B VCCI 基準について

クラス B VCCI の表示 $\boxed{\text{VCI}}$ 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 B 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。

> この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをしてください。

C.5 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。