Sun™ Datacenter Switch 3x24 User's Guide

Sun Microsystems, Inc.
www.sun.com

Part No. 820-3841-10
June 2008, Revision A

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Contents

Preface

The *Sun Datacenter Switch 3x24 User's Guide* provides information regarding the installation, configuration, administration, and troubleshooting of the Sun Datacenter Switch 3x24 InfiniBand switch.

This document also includes information about firmware updating. This document is written for users who have advanced system administration and network configuration experience.

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*.

Note – Characters display differently depending on browser settings. If characters do not display correctly, change the character encoding in your browser to Unicode UTF-8.

Related Documentation

The following table lists the documentation for this product. The online documentation is available at:

http://docs.sun.com/app/docs/prod/switch.3x24

Application	Title	Part Number	Format	Location
Latest information	*Sun Datacenter Switch 3x24 Product Notes*	820-3843	PDF	Online
Operation and administration	*Sun Datacenter Switch 3x24 User's Guide* (This document)	820-3841	PDF	Online
Safety	*Sun Datacenter Switch 3x24 Safety and Compliance Guide*	820-3842	PDF	Online
Pointer	*Sun Datacenter Switch 3x24 Getting Started Guide*	820-3844	PDF	Shipping kit

Documentation, Support, and Training

Sun Function	URL
Documentation	http://www.sun.com/documentation/
Support	http://www.sun.com/support/
Training	http://www.sun.com/training/

Third-Party Web Sites

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

Sun Datacenter Switch 3x24 User's Guide, part number 820-3841-10.

CHAPTER 1

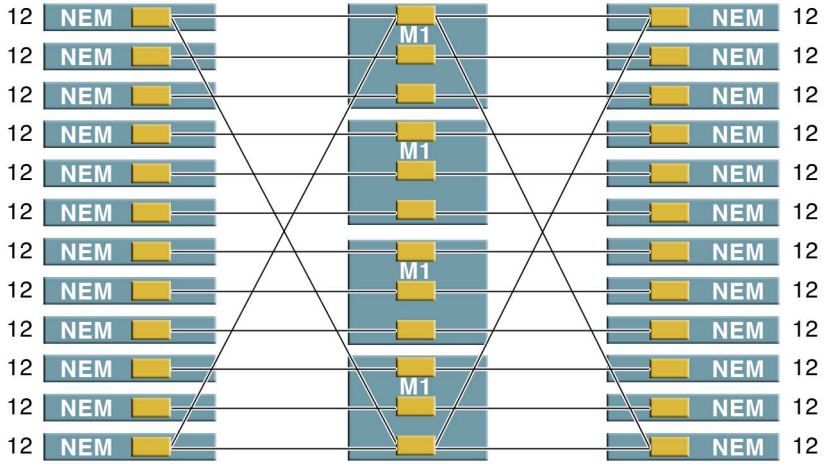
Sun Datacenter Switch 3x24 Overview

This chapter provides an overview of the Sun Datacenter Switch 3x24 and the technology it utilizes. Topics include:

Sun Datacenter Switch 3x24 Introduction

The Sun Datacenter Switch 3x24 is a 3 x 24 port 4X DDR InfiniBand switch in a 1 rack unit (1U) 19-inch enclosure. When used with the Sun Blade 6048 Switched InfiniBand Network ExpressModule (IB-NEM), the two devices form an ideal foundation for creating CLOS networks with up to 288 nodes. A CLOS network is a multistage fabric composed of smaller individual switch elements, providing full-bisectional bandwidth for all end points. FIGURE 1-1 describes a CLOS network where 4 switches are configured to 24 IB-NEMs.

FIGURE 1-1 288-Node CLOS Network



In FIGURE 1-1, each IB-NEM has 12 nodes, so this CLOS network has a total of 288 nodes available.

Architectural Overview

Sun Datacenter Switch 3x24 Features

The Sun Datacenter Switch 3x24 includes the following features:

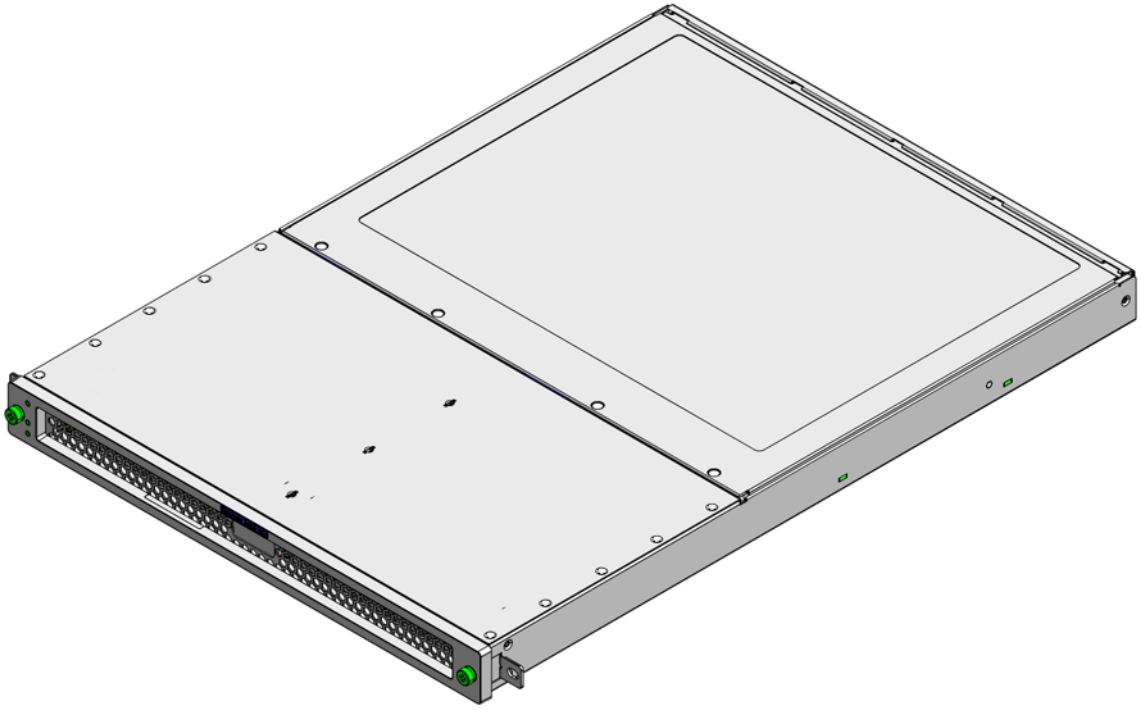
- 3 Mellanox I3 switch chips with 24 InfiniBand 4x ports each
- 12 stacked Mollex iPASS connectors providing connection for 2 InfiniBand 4x ports each
- 72 link-status LEDs for the iPASS connectors
- 1 RJ-45 network management port utilizing 10BASE-T/100BASE-T Ethernet
- Network management port status LEDs
- 1 RJ-45 serial management port utilizing RS-232 level signals, 115200 baud, 8N1
- 2 redundant 200W AC power supplies, which also provide system cooling
- Power supply status LEDs
- 2 redundant AC power connections

- Front and rear System Status LEDs

External View

FIGURE 1-2 shows the external features of the Sun Datacenter Switch 3x24.

FIGURE 1-2 External Features of the Sun Datacenter Switch 3x24



CHAPTER 2

InfiniBand Cabling Considerations

This chapter describes considerations for the InfiniBand (IB) cabling to the Sun Datacenter Switch 3x24. Topics include:

IB Cable Cautions

Caution – Do not allow any IB cable to bend through a less than 5 inch (127 mm) radius. Tight bends can break the cable internally.

Caution – Do not use zip ties to bundle or support IB cables. The sharp edges of the ties can break the cables internally

Caution – Do not allow any IB cable to experience extreme tension. Do not pull on an IB cable or allow it to drag. Unroll an IB cable for its length. Pulling on an IB cable can break the cables internally.

Caution – Do not twist an IB cable more than 1 revolution for its entire length. Twisting an IB cable can break the cable internally.

Caution – Do not route IB cables where they might be stepped upon or experience rolling loads. Such a crushing effect can break the cable internally.

IB Cable Routing

Bundling IB Cables

When bundling IB cables in groups, use hook and loop straps to keep cables organized. If possible, use color-coordinated straps to help identify cables and their routing. The IB splitter and 4X cables are fairly thick and heavy for their length. Consider the retention strength of the hook and loop straps when supporting cables. Bundle as few cables as reasonably possible. If the IB cables break free of their straps and fall free, the cables might break internally when they strike the floor or are jerked from tension.

A fully configured Sun Datacenter Switch 3x24 has 24 IB cables, so you can bundle the cables to the rack itself, using many hook and loop straps. The bundles can be 4 groups of 6 cables. Do not bundle more than 8 cables together.

Place the hook and loop straps as close together as reasonably possible. For example, every 1 ft (0.3 m). This way, should a cable break free from a strap, it will not fall far before it is retained by another strap.

Floor and Underfloor Delivery of IB Cables

The Sun Datacenter Switch 3x24 was designed to accept IB cables from floor or underfloor delivery. The cable management bracket at the rear of the switch supports the weight of the IB cables.

Floor and underfloor delivery limits the tension in the IB cable to the weight of the cable for the rack height of the Sun Datacenter Switch 3x24 switch.

Overhead Delivery of IB Cables

For overhead delivery, it is suggested that cable trays and lattices be used to support the IB cables.

If the overhead delivery has a large drop height, consider using an intermediate support for the IB cables. Use of the support can limit the tension in the IB cable to the weight of the cable for the distance between the supports and the Sun Datacenter Switch 3x24.

IB Cable Length

Ideally, cables should be as short as possible. When the length of a cable has been calculated, select the shortest cable to satisfy the length requirement. When specifying a cable, consider the following:

- Bends in the cable path increases the required length of the cable. Rarely does a cable travel in a straight line from connector to connector. Bends (of a minimum 5 in (127 mm) radius) in the cable are necessary, and with each bend, an increase in the total length.
- Bundling increases the required length of the cables. Bundling causes one or more cables to follow a common path. Yet the bend radius is different in different parts of the bundle. If the bundle is large, unorganized, and there are many bends, one cable might experience only the inner radius of bends, while another cable might experience the outer radius of bends. In this situation, the differences of the required lengths of the cables is quite substantial.
- If you are routing the IB cable under floor, consider the height of the raised floor when calculating cable length.

Cable Type and Length

TABLE 2-1 lists the cables available for the Sun Datacenter Switch 3x24, their length, and data rate.

TABLE 2-1 IB Cables for the Sun Datacenter Switch 3x24

Cable Type	Length	Data Rate
Standard Sun IB 12x to 12x	3 m	Passive DDR
Standard Sun IB 12x to 12x	5 m	Passive DDR
Standard Sun IB 12x to 12x	7 m	Passive DDR
Standard Sun IB 12x to 12x	11 m	Active DDR
Standard Sun IB 12x to 12x	15 m	Active DDR

TABLE 2-1 IB Cables for the Sun Datacenter Switch 3x24 *(Continued)*

Cable Type	Length	Data Rate
Splitter Sun IB 12x to 3 by 4x	8 m	Active DDR
Splitter Sun IB 12x to 3 by 4x	12 m	Active DDR
Splitter Sun IB 12x to 3 by 4x	16 m	Active DDR

CHAPTER 3

Sun Datacenter Switch 3x24 Installation

This chapter discusses installing the Sun Datacenter Switch 3x24, from opening the shipping box to getting the switch up and running. Topics include:

Preparing for Installation

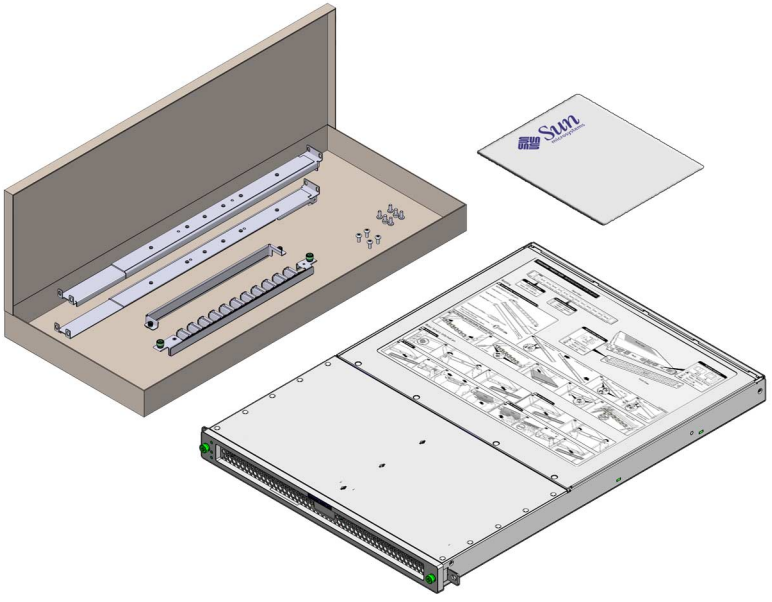
Before installing or servicing the Sun Datacenter Switch 3x24, you must prepare the following:

- The environment where the Sun Datacenter Switch 3x24 is to be installed must conform to the requirements found in "Sun Datacenter Switch 3x24 Specifications and Pinouts" on page 121
- The rack to receive the Sun Datacenter Switch 3x24 must have proper power and network cabling brought to it.
- The rack must have an available location for the Sun Datacenter Switch 3x24.
- The installer must have a No. 2 Philips screwdriver.
- There must be a clean, dry, stable work surface.

Package Contents

- Sun Datacenter Switch 3x24
- Cable bracket and rackmount kit
  - Cable management bracket
  - Two pairs of rack rails
  - Ten M6 screws to attach the rails to the rack, if necessary
  - Ten 10-32 screws to attach the rails and switch to the rack, if necessary
- *Sun Datacenter Switch 3x24 Getting Started Guide*

FIGURE 3-1 Shipping Box Contents



Installing the Sun Datacenter Switch 3x24 Into the Rack

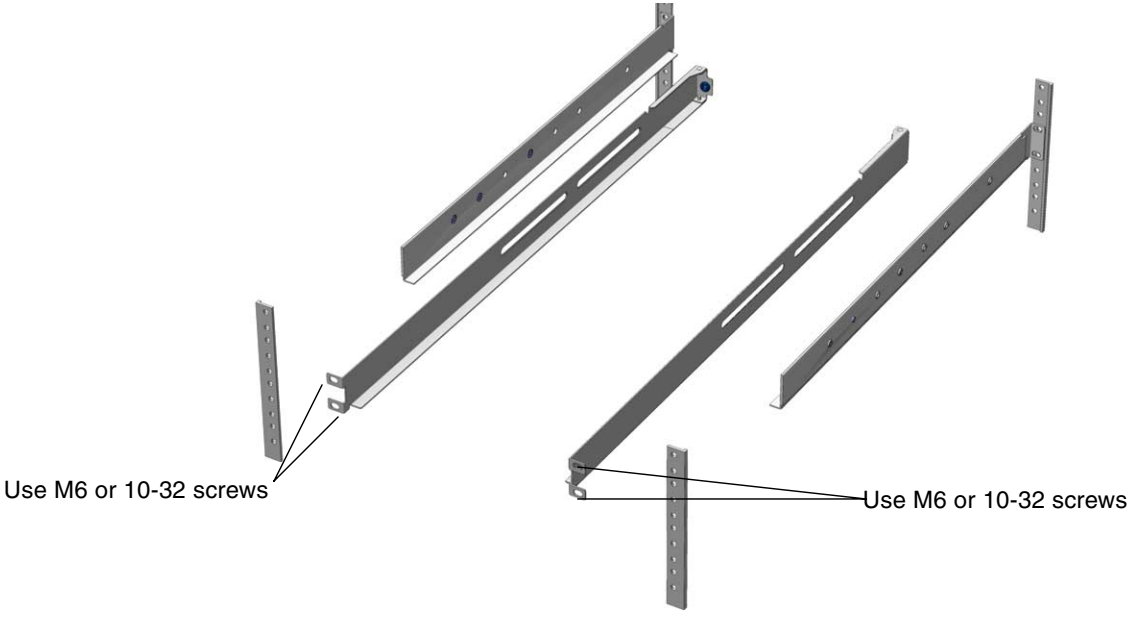
The Sun Datacenter Switch 3x24 fits into a 19-inch rack. The rack rails can be adjusted to fit into a rack depth of 560 mm (22.05 in.) to 920 mm (36.22 in.). These dimensions are measured from outside the front post to outside the rear post.

▼ To Install the Sun Datacenter Switch 3x24 Into the Rack

1. **Using a No. 2 Philips screwdriver, loosen the two screws on each rail and expand the rail to the depth of your rack.**

   See FIGURE 3-2.

FIGURE 3-2 Expanding the Rails to Fit the Rack



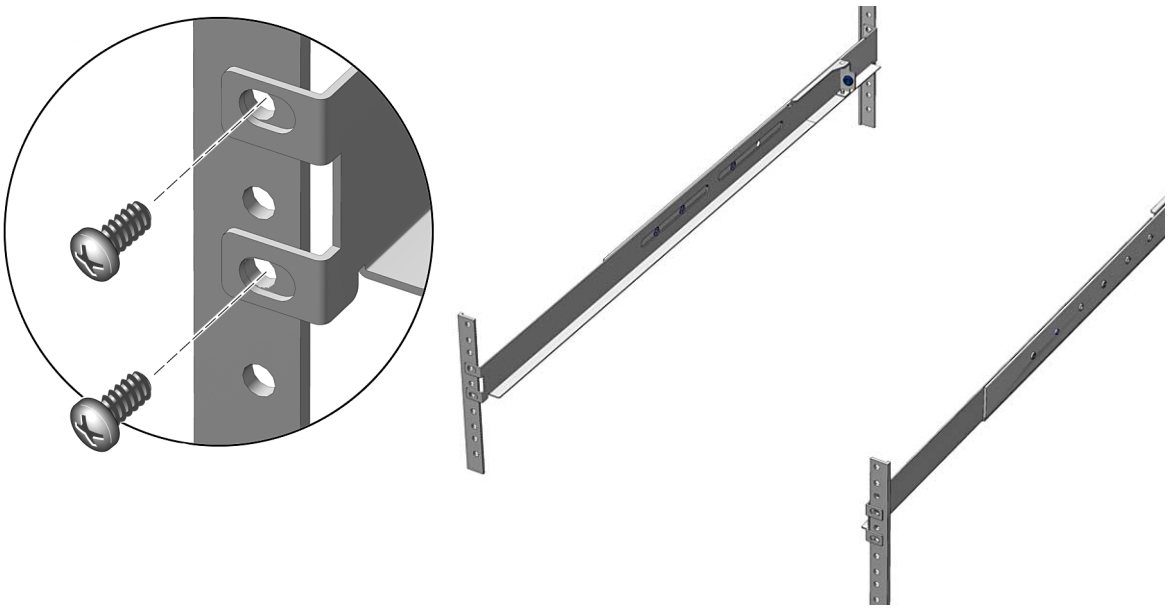
Note – The FIGURE 3-2 shows the rails being installed in a rack that requires separating the rails.

2. **Tighten the screws.**

3. **Mount the rails into the rack.**

   Install the two rear screws and two front screws, but do not tighten them. See FIGURE 3-3.

FIGURE 3-3 Mounting the Rails

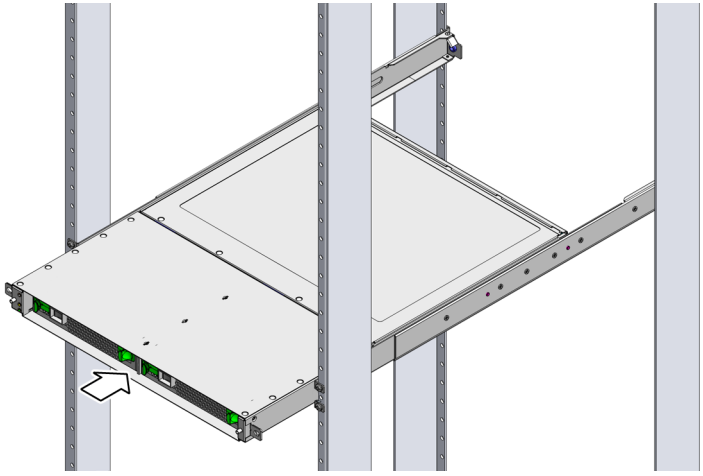


Note – The screws are left loose to adjust the width of the rails when the Sun Datacenter Switch 3x24 is installed.

4. **Carefully lift the Sun Datacenter Switch 3x24 and slide it into the rack.**

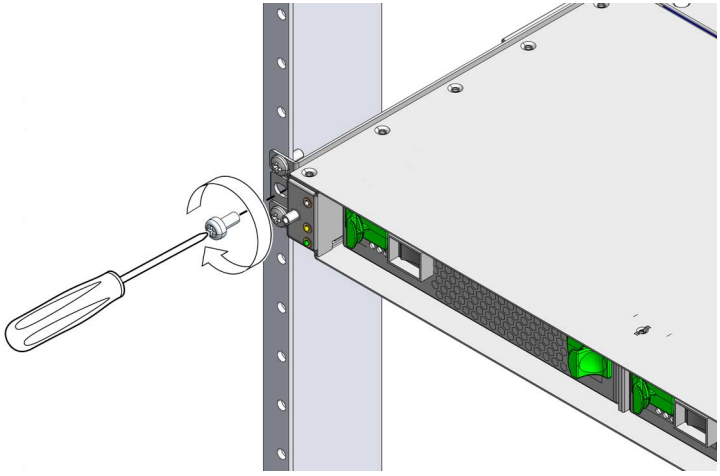
   See FIGURE 3-4.

FIGURE 3-4 Sliding the Sun Datacenter Switch 3x24 Into the Rack



5. **Squeeze the rails in toward the switch and tighten the front four screws.**
6. **Squeeze the rails in toward the switch and tighten the rear four screws.**
7. **Secure the Sun Datacenter Switch 3x24 in the rack with two screws at the front.**
   See FIGURE 3-5.

FIGURE 3-5 Securing the Sun Datacenter Switch 3x24 in the Rack

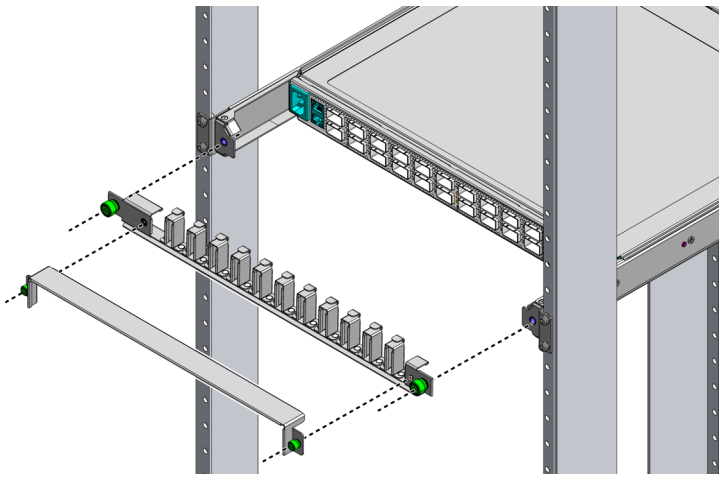


Note – Rack bracket tabs are painted black to be less visible. Chassis tabs are painted silver to identify which screws remove the Sun Datacenter Switch 3x24 from the rack.

8. **Install the cable management bracket to the rack rails, tightening the thumbscrews on each side of the cable management bracket.**

   See FIGURE 3-6.

FIGURE 3-6 Installing the Cable Management Bracket



9. **Install the cover of the cable management bracket, tightening the thumbscrews on each side of the cover.**

   See FIGURE 3-6.

Cabling the Sun Datacenter Switch 3x24

After installing the Sun Datacenter Switch 3x24 in the rack, attach the power, management, and InfiniBand cables.

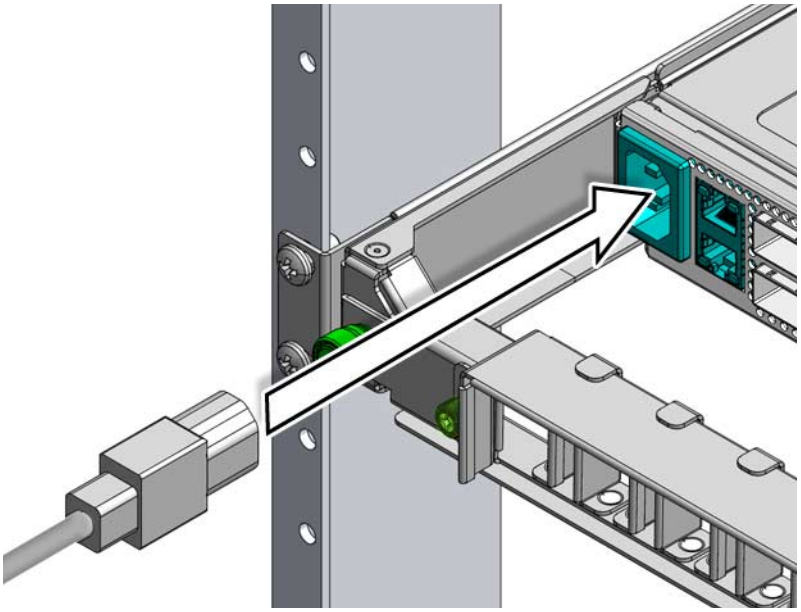
▼ To Connect the Power Cables

Your Sun Datacenter Switch 3x24 ships with two AC power cables which conform to your country's electrical connector codes.

1. **Plug each AC power cable into the sockets at the back of the Sun Datacenter Switch 3x24.**

   See FIGURE 3-7.

FIGURE 3-7 Connecting the AC Power Cable



2. **Route the AC power cables so that they do not interfere with other cables, or with servicing the Sun Datacenter Switch 3x24 or other systems.**

   Use cable ties, or hook and loop fastener straps to bundle and secure the cable.

3. **Plug the free end of the AC power cable into a facility power receptacle.**

4. **If the receptacle is not already on, power it on.**

   The Sun Datacenter Switch 3x24 enters the standby state.

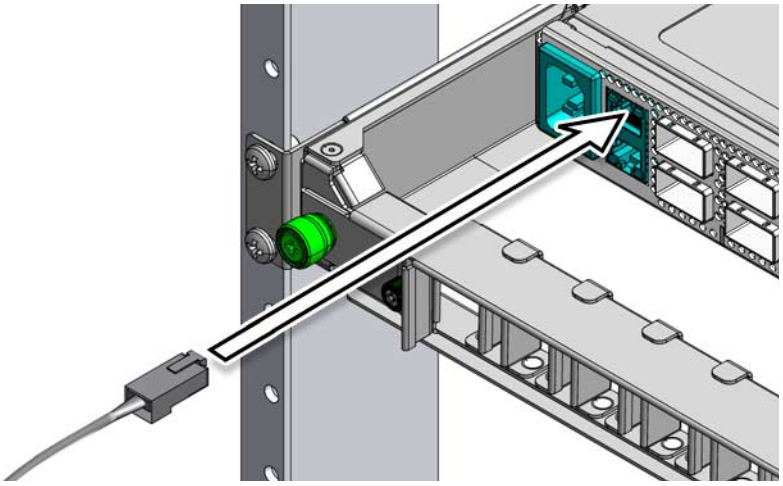
▼ To Connect the Management Cable

You can access the system controller from either the serial management port or the network management port.

- **Take one of the following actions:**
  - Connect the serial cable from the serial terminal, terminal server, or workstation running a tip connection to the serial management port.

    See FIGURE 3-8.

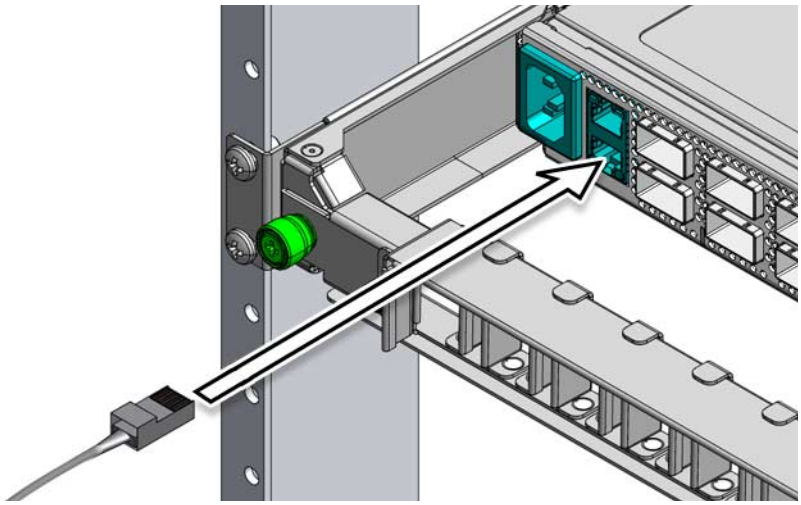
FIGURE 3-8 Connecting to the Serial Management Port



  - Connect the Ethernet cable from the 10BASE-T/100BASE-T network to the network management port.

    See FIGURE 3-9.

FIGURE 3-9 Connecting to the Network Management Port



Note – You must first configure the network management port before connecting to it. See "To Access the System Controller From the Network Management Port" on page 24.

▼ To Connect the InfiniBand Cables

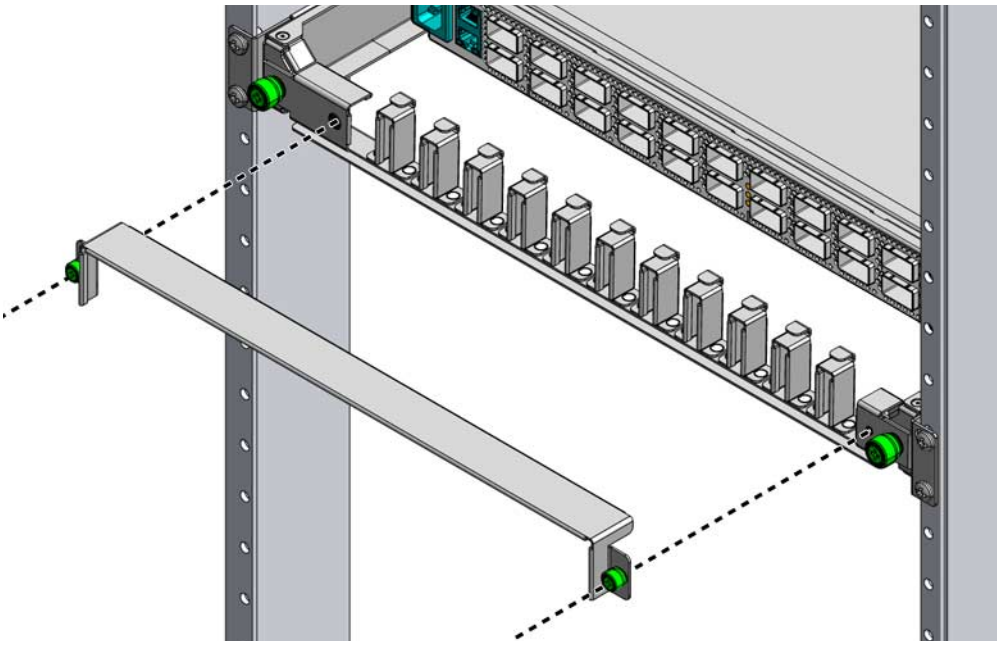
Note – When you install the InfiniBand cables, connect cables to the lower iPASS connectors first, then connect cables to the upper iPASS connectors.

Caution – InfiniBand cables must never turn tighter than a 5-inch (13-cm) radius. A tighter radius breaks the wires inside the cable.

1. **Loosen the two captive thumbscrews that secure the cover to the cable management bracket.**

   See FIGURE 3-10.

FIGURE 3-10 Removing the Cable Management Bracket Cover



2. **Lift the cover off.**

   See FIGURE 3-10.

3. **Visually inspect the cable connector.**

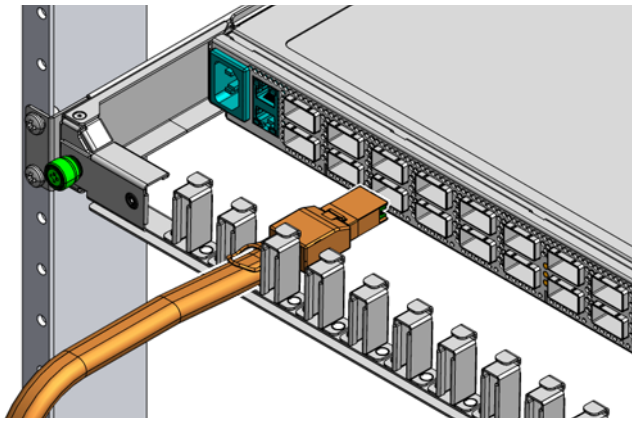
   The shell should not be bent and should be parallel to the inner boards. If the connector is bent or damaged, use a different cable.

4. **Ensure that the retraction strap is in the forward position.**

5. **Orient the cable connector to horizontal, ensuring that the upper shell just touches the underside of the top of the iPASS connector slot.**

   See FIGURE 3-11.

FIGURE 3-11 Connecting the InfiniBand Cable



6. **Slowly slide the connector into the slot.**

   As you slide the connector in, the top of the shell should scrape against the underside of the top of the iPASS connector slot.

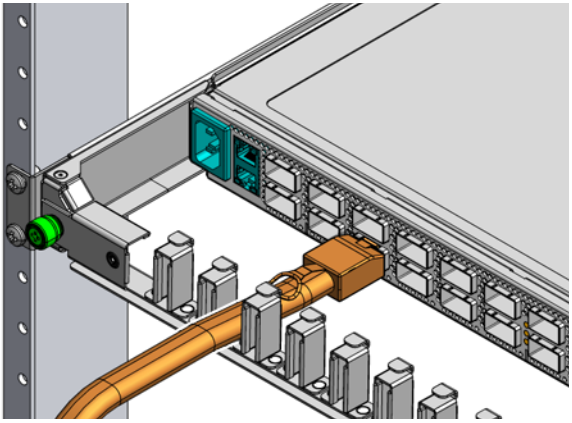
   - If the cable stops or binds after about 5 mm travel, back out and repeat from Step 5.
   - If the connector stops or binds with about 2 mm still to go, back out and repeat from Step 5.

7. **Continue to push the connector in until the hooks catch onto the top of the iPASS connector.**

8. **Place the cable into the open slot on the cable management bar.**

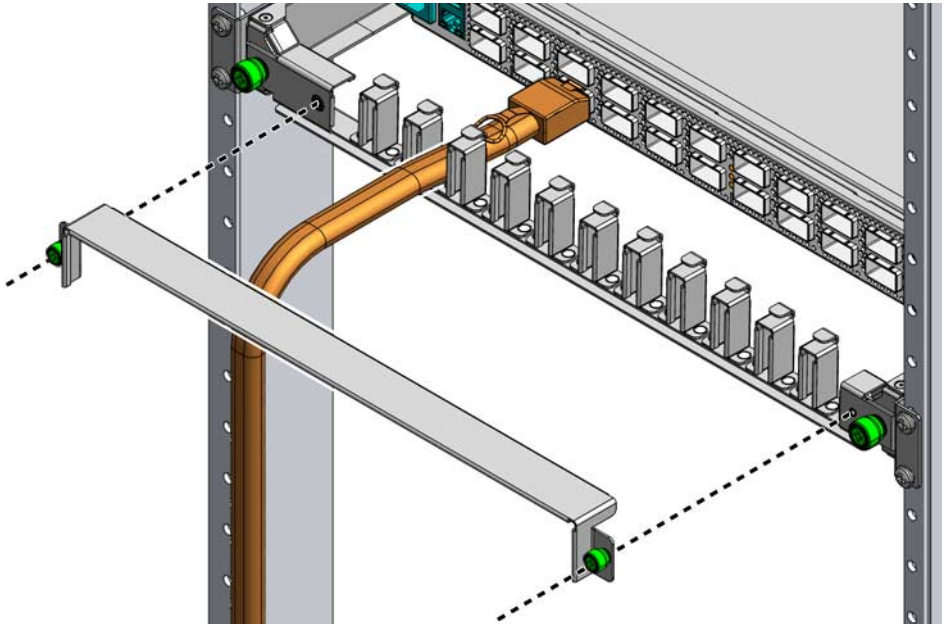
   See FIGURE 3-12.

FIGURE 3-12 Placing Cable Into Cable Management Bar



9. **Repeat** Step 3 **through** Step 8 **for all cables to be installed.**
10. **Replace the cover for the cable management bar and tighten the screws.**
    See FIGURE 3-13.

FIGURE 3-13 Replacing the Cable Management Bar Cover



11. **Route the InfiniBand cables so that they do not interfere with other cables, or with servicing the Sun Datacenter Switch 3x24 or other systems.**

    Use hook and loop fastener straps to bundle and secure the cables.

Note – Do not use cable zip ties to bundle or secure the cable, because the ties will break the wires inside the cable.

Powering On the Sun Datacenter Switch 3x24

When power cables are attached to the back of the Sun Datacenter Switch 3x24, the standby power is applied. At this time, the system controller is operational, and can be accessed from the serial management port or the network management port.

▼ To Access the System Controller From the Serial Management Port

1. **If you have not already done so, connect a serial terminal, terminal server, or workstation with a TIP connection to the serial management port.**

   Configure the terminal or terminal emulator with these settings:

   - 115200 baud
   - 8 bits
   - No parity
   - 1 Stop bit
   - No handshaking

Note – When you power on the server for the first time and you do not have a device connected to the serial management port, you will not see system messages. The opportunity for system messages ends after about 60 seconds.

---

2. **Turn on the serial terminal or other device, if it is not already turned on.**

3. **If already connected, disconnect facility power to the AC power cables.**

4. **Reconnect facility power to the AC power cables, and watch the terminal for system messages.**

   The login prompt is displayed:

```
Copyright 2003 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Pigeon Point Shelf Manager Command Line Interpreter
Please login:
```

5. **Login as the root user.**

   For example:

```
Please login: root
Please Enter password: password
#
```

   For initial power on and until changed, the root *password* is the Return or Enter key.

▼ To Access the System Controller From the Network Management Port

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

You can set network parameters according to the specific details of your network configuration using the `clia setlanconfig` command.

Note – The following procedure makes changes that do not require a reset or reboot.

---

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

```
# clia setlanconfig 1 3 xxx.yyy.zzz.www
```

   where *xxx.yyy.zzz.www* is the IP address.

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

```
# clia setlanconfig 1 6 aaa.bbb.ccc.ddd
```

where *aaa.bbb.ccc.ddd* is the netmask. Typically, the netmask is `255.255.255.0`. However, your network environment subnet might require a different netmask. Use a netmask number most appropriate to your environment.

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

```
# clia setlanconfig 1 12 eee.fff.ggg.hhh
```

where *eee.fff.ggg.hhh* is the IP address of the gateway.

4. **Open a Telnet session and connect to the system controller by specifying the controller's network address.**

For example:

```
% telnet 123.456.789.000
Trying 123.456.789.000...
Connected to 123.456.789.000.
Escape character is '^]'.
Copyright 2003 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Pigeon Point Shelf Manager Command Line Interpreter
Please login:
```

5. **Login as `root` using the password you previously set.**

```
Please login: root
Please Enter password: password
#
```

▼ To Change the `root` Password

1. **Access the system controller.**

See:

- "To Access the System Controller From the Serial Management Port" on page 23
- "To Access the System Controller From the Network Management Port" on page 24

2. **Change the `root` password:**

```
# passwd
Changing password for root
Enter the new password (minimum of 5, maximum of 8 characters)
Please use a combination of upper and lower case letters and
numbers.
Enter new password: new-password

Re-enter new password: new-password
Password changed.
#
```

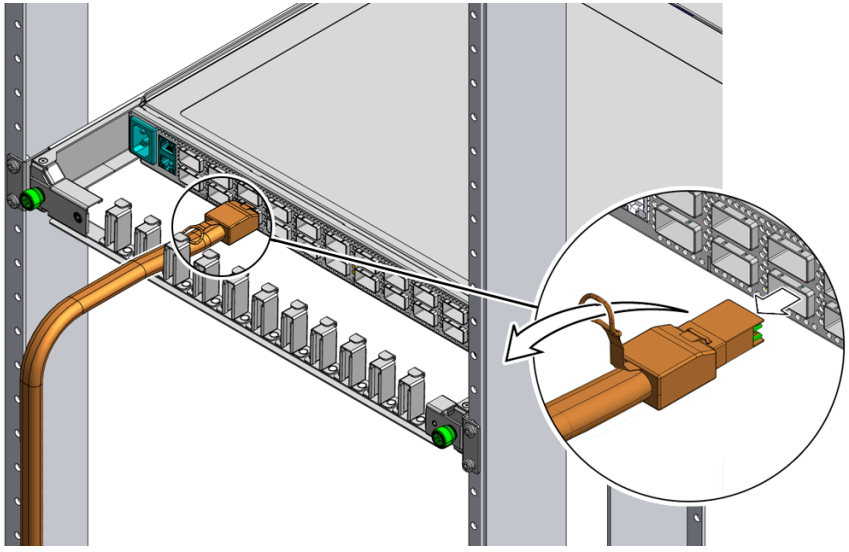
Removing the Sun Datacenter Switch 3x24 From the Rack

▼ To Remove the Sun Datacenter Switch 3x24 From the Rack

1. **Loosen the captive thumbscrews and remove the cable management bar cover from the cable management bar.**
2. **Disconnect all cables from the back of the Sun Datacenter Switch 3x24.**
3. **Remove the InfiniBand cables by pulling on the release loop, then pull the connector free from the chassis back panel.**

   See FIGURE 3-14.

FIGURE 3-14 Removing the InfiniBand Cables



Note – Do not allow the InfiniBand cables to freely fall from the Sun Datacenter Switch 3x24. The connectors are fragile and can bend easily.

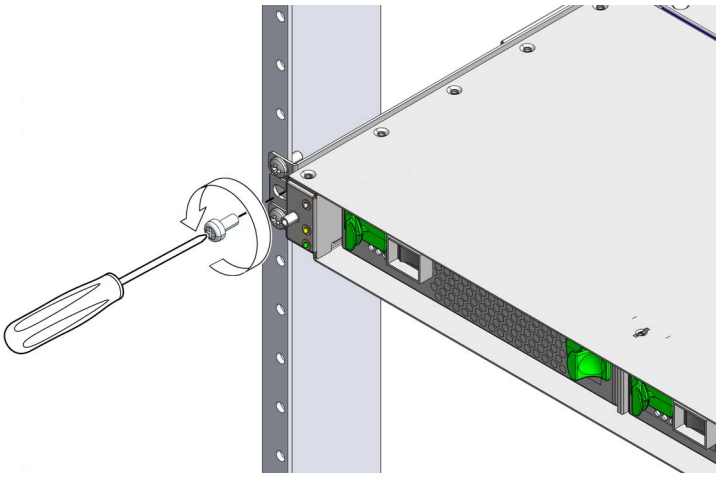
4. **Remove the front bezel.**

   See "To Remove the Bezel" on page 35.

5. **Using a No. 2 Philips screwdriver, remove the screws from both sides at the front of the Sun Datacenter Switch 3x24.**

   See FIGURE 3-15.

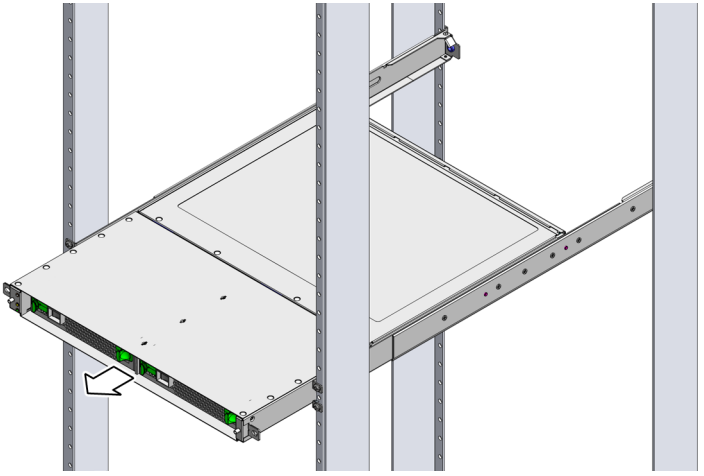
FIGURE 3-15 Removing the Screws



6. **Carefully slide the Sun Datacenter Switch 3x24 out from the rack, and set the switch flat onto an antistatic mat.**

   See FIGURE 3-16.

FIGURE 3-16 Sliding the Sun Datacenter Switch 3x24 Out of the Rack



CHAPTER 4

Diagnostics and Service

This chapter describes basic troubleshooting information and service procedures. Topics include

Status LEDs

Status LEDs are used on many components in the Sun Datacenter Switch 3x24 as a means of indicating the component's state.

Front Status LEDs

The chassis status LEDs are located at the front left edge of the Sun Datacenter Switch 3x24 chassis. See FIGURE 4-1.

FIGURE 4-1 Front Status LEDs

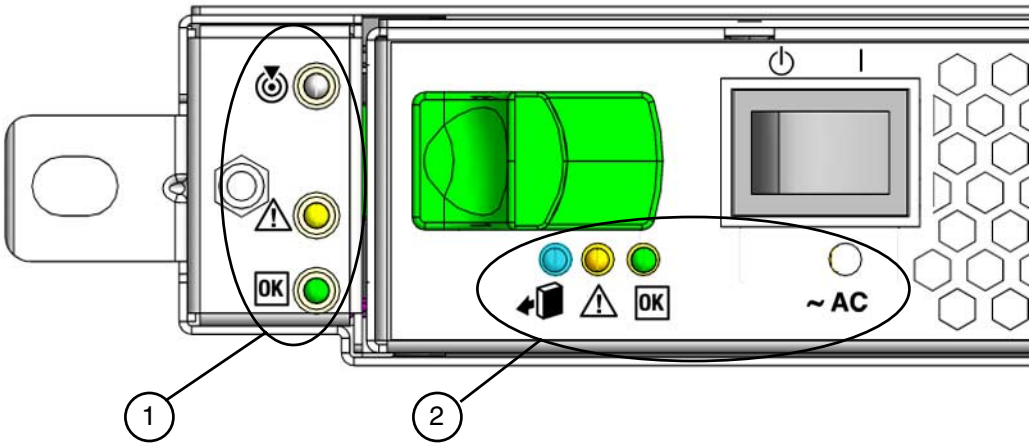


Figure Legend

1	Chassis status LEDs
2	Power supply status LEDs (Power supply PS1 not shown)

TABLE 4-1 lists a description of the chassis status LEDs and what their state means.

TABLE 4-1 Chassis Status LEDS and Their Meaning

Glyph	Name	Color	State and Meaning
	Locator	White	• On – No function • Off – disabled • Flashing – Identifying itself
	Attention	Amber	• On – Normal fault detected. • Off – No faults detected. • Flashing – Critical fault detected.
OK	OK	Green	• On – Switch is functional without fault. • Off – Switch is off or initializing. • Flashing – No function.

Each power supply has status LEDs at its front, on the left side. See FIGURE 4-1.

TABLE 4-2 lists a description of the power supply LEDs and what their state means.

TABLE 4-2 Power Supply Status LEDS and Their Meaning

Glyph	Name	Color	State and Meaning
	Ready to Remove	Blue	• On – Hot swap is possible, standby voltage present. • Off – Do not remove. • Flashing – Fault with hot swap.
	Attention	Amber	• On – Normal fault detected. • Off – No fault detected. • Flashing – Critical fault detected.
OK	OK	Green	• On – DC power present and good. • Off – DC power not present. • Flashing – Fault or over temperature.
~ AC	AC Power	Green	• On – AC power present and good. • Off – AC power not present. • Flashing – Fault or over voltage.

Rear Status LEDs

The chassis status LEDs are also located at the rear center of the Sun Datacenter Switch 3x24 chassis along with other status LEDs. See FIGURE 4-2.

FIGURE 4-2 Rear Status LEDs

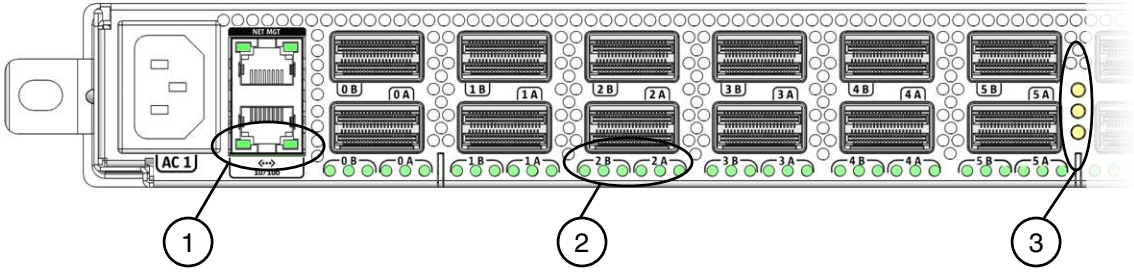


Figure Legend

1	Network Management status LEDs
2	InfiniBand link status LEDs
3	Chassis status LEDs

The network management port has two LEDs to provide status of the port. See FIGURE 4-2.

TABLE 4-3 lists a description of the LEDs and what their state means.

TABLE 4-3 Network Management Status LEDS and Their Meaning

Name	Color	State and Meaning
Link	Green	• On – 10BASE-T link. • Off – No link or link down. • Flashing – 100BASE-T link.
Activity	Amber	• On – No function. • Off – No activity. • Flashing – Packet activity.

Under each iPASS connector there are six green link LEDs, representing the 6 InfiniBand ports at each connector group. See FIGURE 4-2.

TABLE 4-3 lists a description of link LED and what its state means.

TABLE 4-4 InfiniBand Link Status LED and Its Meaning

Name	Color	State and Meaning
Link	Green	• On – Link up. • Off – No link or link down. • Flashing – Symbol errors.

TABLE 4-5 lists a description of the chassis status LEDs and what their state means.

TABLE 4-5 Chassis Status LEDS and Their Meaning

Glyph	Name	Color	State and Meaning
	Locator	White	• On – No function. • Off – disabled. • Flashing – Identifying itself.
	Attention	Amber	• On – Normal fault detected. • Off – No faults detected. • Flashing – Critical fault detected.
	OK	Green	• On – Switch is functional without fault. • Off – Switch is off or initializing. • Flashing – No function.

Antistatic Precautions

When servicing the Sun Datacenter Switch 3x24, take care to follow antistatic precautions:

- Use an antistatic mat as a work surface.
- Wear an antistatic wrist strap that is attached to either the mat or a metal portion of the Sun Datacenter Switch 3x24 chassis

Replaceable Components

FIGURE 4-3 shows the replaceable components for the Sun Datacenter Switch 3x24.

FIGURE 4-3 Replaceable Components

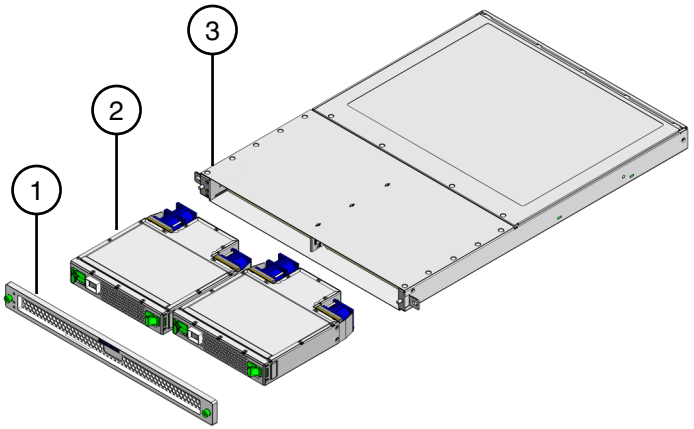


TABLE 4-6 lists the location of the replacement procedures for the respective components.

TABLE 4-6 Replaceable Components

Number	Component	Replacement Procedure
1	Bezel	"Replacing the Bezel" on page 34
2	Power supply	"Replacing the Power Supply" on page 36
3	Chassis	"Sun Datacenter Switch 3x24 Installation" on page 9

Replacement Procedures

Replacing the Bezel

The bezel is located at the front of the chassis and provides a decorative cover over the power supplies.

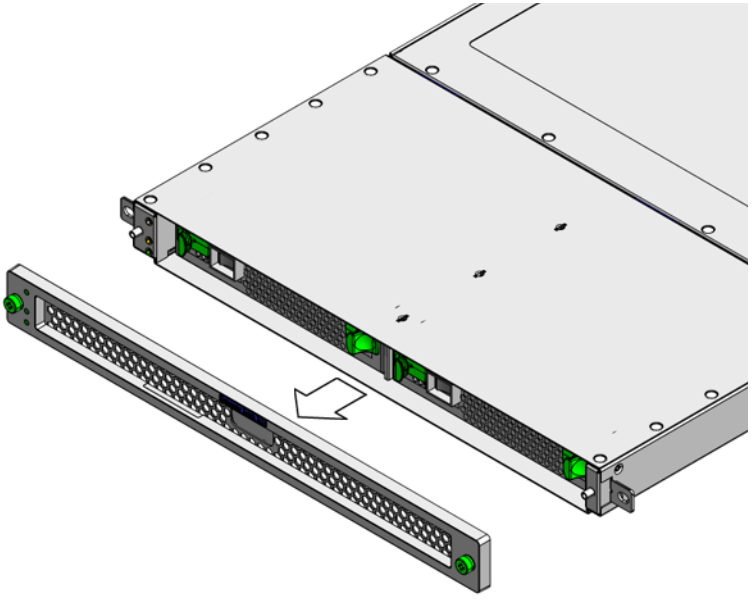
▼ To Remove the Bezel

It is not necessary to remove the Sun Datacenter Switch 3x24 from the rack to remove the bezel.

1. **Loosen the two captive thumbscrews on the left and right ends of the bezel.**

   See FIGURE 4-4.

FIGURE 4-4 Removing the Bezel



2. **Lift the bezel off and away from the chassis, and set the bezel aside.**

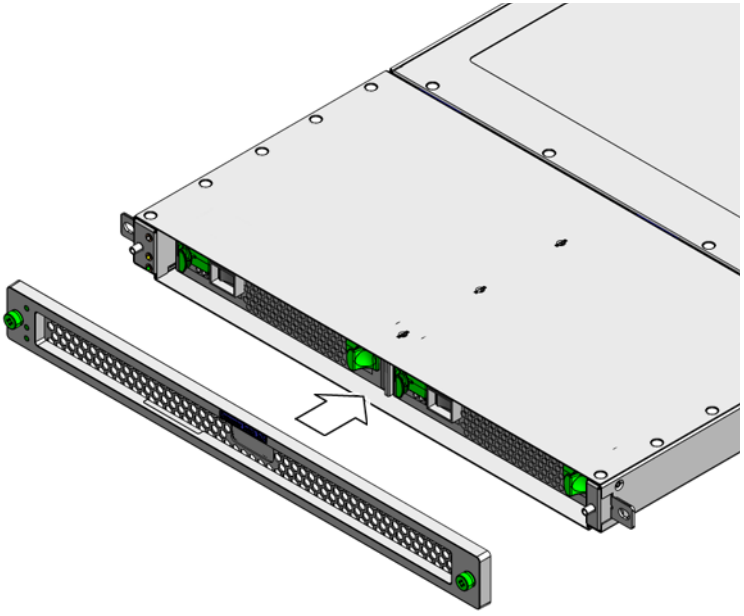
   See FIGURE 4-4.

▼ To Install the Bezel

1. **Fit the bezel over the front of the chassis.**

   See FIGURE 4-5.

FIGURE 4-5 Installing the Bezel



2. **Tighten the captive thumbscrews at the left and right ends of the bezel.**

   See FIGURE 4-5.

Replacing the Power Supply

The Sun Datacenter Switch 3x24 uses two power supplies in redundancy. The switch can operate with both power supplies installed and only one power supply functional, however prolonged single supply operation is not recommended.

Caution – The exchange of a defective power supply must be achieved within 2 minutes to maintain thermal management for a powered switch. Prepare the replacement power supply before removing the defective power supply.

▼ To Remove the Power Supply

The procedure for removing either power supply is the same.

1. **If you are replacing a defective power supply in a powered switch, perform these immediate steps. Otherwise, go to Step 2.**

   a. **Unwrap the replacement power supply from its antistatic packaging.**

   b. **Set the replacement power supply standing by.**

   c. **Continue with Step 2.**

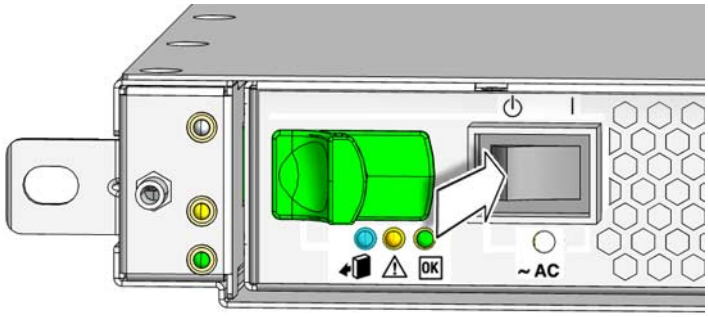
2. **If the bezel is installed, remove it.**

   See "To Remove the Bezel" on page 35.

3. **Push the rocker switch on the respective power supply to the standby position.**

   See FIGURE 4-6.

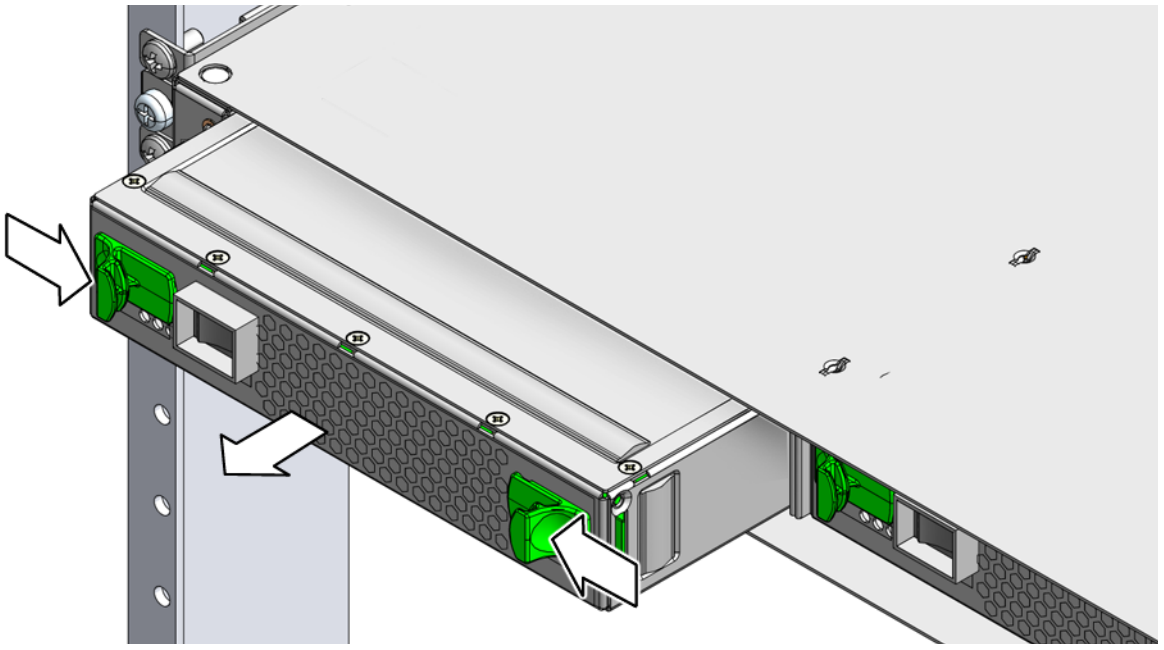
FIGURE 4-6 Pushing the Rocker Switch to the Standby Position



4. **Using both hands, move the release catches inwards and pull the power supply straight out.**

   See FIGURE 4-7.

FIGURE 4-7 Removing the Power Supply



5. **Set the power supply aside on an antistatic mat.**
6. **If you are replacing a defective power supply, immediately continue to** Step 3 **of** "To Install the Power Supply" on page 38**.**

▼ To Install the Power Supply

The procedure for installing either power supply is the same.

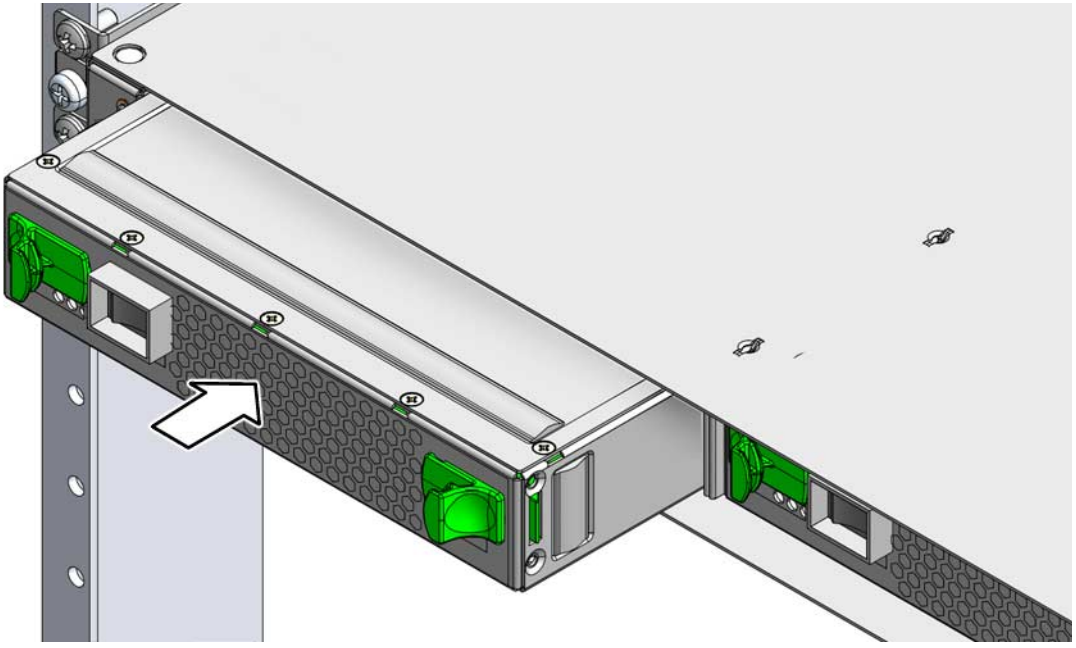
1. **If the bezel is installed, remove it.**

   See "To Remove the Bezel" on page 35.

2. **Unwrap the replacement power supply from its antistatic packaging.**
3. **Place the replacement power supply into the open slot in the chassis, with the connector end first.**

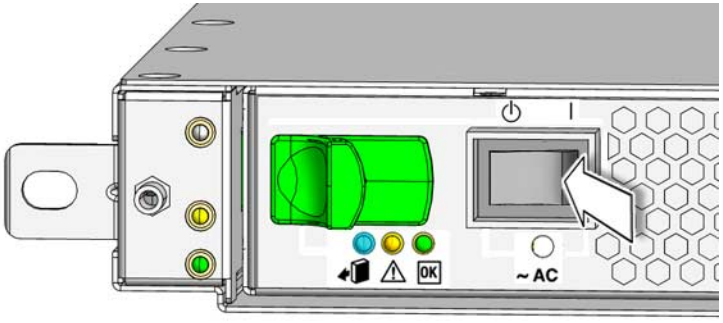
   The status LEDs are located to the left. See FIGURE 4-8.

FIGURE 4-8 Placing Power Supply Into Open Slot



4. **Slide the power supply into the slot until you hear it click in place.**
   See FIGURE 4-8.
5. **Push the rocker switch to the on position.**
   See FIGURE 4-9.

FIGURE 4-9 Turning the Power Supply On



The power supply initializes and powers on.

6. **Verify that both the AC power and OK LEDs illuminate, indicating full power on.**

7. **Install the bezel.**

   See "To Install the Bezel" on page 35.

CHAPTER 5

Administration and Commands

This chapter discusses initial configuration and administration of the Sun Datacenter Switch 3x24 through commands issued to the system controller. Topics include:

Accessing the Command-Line Interface

The Sun Datacenter Switch 3x24 uses a command-line interface (CLI).

▼ To Access the CLI

1. Log in as `root` and type the password you provided during installation:

```
Pigeon Point Shelf Manager Command Line Interpreter
username: root
password: password
```

See "Powering On the Sun Datacenter Switch 3x24" on page 22.

2. **Use the `date` command to synchronize the Sun Datacenter Switch 3x24 with the time at your site:**

```
# date [mmddHHMM[yyyy][.SS]]
```

You can use all the `date` command options or just set the time. See "To Set the Date" on page 53 for more information.

3. **Write the date synchronization to the hardware clock to survive reboots:**

```
# hwclock -w
# hwclock --systohc
```

4. **Use the `clia help` command to get a list of the valid CLIA commands.**

```
# clia help
Pigeon Point Shelf Manager Command Line Interpreter
Command Line Interface command set:
Parameters are case insensitive

   activate <addr> <fru_id>
   alarm <alarm status/action>
   amcportstate [-v] <ipmc> [ amc <N> | <fru_id> ]
   board [slot_number]
   boardreset <slot number>
   busres force <res>
   busres info [<res>]
   busres lock <res>
   busres query [-v] <res> [<target> [noupdate]]
   busres release <res>
   busres sendbusfree <res> <target>
   busres setowner <res> <target>
   busres unlock <res>
   deactivate <addr> <fru_id>
   debuglevel [<mask> [<console mask>] ]
   exit
   .
   .
   .
   user [<user id>]
   user add <user id> <user name> <flags> <privilege level> <password>
   user channel <user id> <channel number> <flags> <privilege level>
   user delete <user id>
   user enable <user id> 1|0
   user name <user id> <user name>
   user passwd <user id> <user password>
   version
#
```

Note – Many of the CLIA commands listed provide functionality that is not normally used or beyond the scope of this document. See "Command-Line Interface Agent Commands" on page 55 for a description of the supported CLI commands.

Event and Message Logs

The Sun Datacenter Switch 3x24 provides two logs:

- One log is found in the `/var/log/messages` directory of the switch itself.
- The other log is retrieved using the `clia sel` command. For example:

```
# clia sel

Pigeon Point Shelf Manager Command Line Interpreter

0x0317: Event: at Feb  7 06:54:52 2036; from:(0x10,0,0);
sensor:(0xf0,0); event:0x6f(asserted): HotSwap: FRU 0 M1->M2,
Cause=0x2
0x0318: Event: at Feb  7 06:54:52 2036; from:(0x20,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA3 0x00 0x88
0x0319: Event: at Feb  7 06:54:52 2036; from:(0x10,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA3 0x00 0x88
0x031A: Event: at Feb  7 06:54:52 2036; from:(0x20,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA2 0x00 0x8A
0x031B: Event: at Feb  7 06:54:52 2036; from:(0x10,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA2 0x00 0x8A
0x031C: Event: at Feb  7 06:54:52 2036; from:(0x20,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA0 0x00 0xAA
0x031D: Event: at Feb  7 06:54:52 2036; from:(0x10,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA0 0x00 0xAA
0x031E: Event: at Feb  7 06:54:52 2036; from:(0x20,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA3 0x00 0x88
0x031F: Event: at Feb  7 06:54:52 2036; from:(0x10,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA3 0x00 0x88
0x0320: Event: at Feb  7 06:54:52 2036; from:(0x20,0,0);
sensor:(0xf1,1); event:0x6f(asserted): 0xA2 0x00 0x8A
0x0321: Event: at Feb  7 06:54:52 2036; from:(0x10,0,0);
...
```

Command Shell Overview

The command shell is a simple command-line interface. By using the command-line interface agent (`clia`) sub commands and switch commands, you can administer your Sun Datacenter Switch 3x24.

After you log in to the `root` account, the shell prompt (`#`) appears, and you can enter shell commands. Enter the `clia` sub-commands in the following format:

```
# clia sub-command [arguments] [arguments] ...
```

Enter switch commands in the following format:

```
# command [arguments] [arguments] ...
```

The following sections provide an overview of administrative tasks and the commands to perform those tasks. More in-depth information regarding use of the `clia` sub-commands and switch commands are provided in:

- Appendix A, "Command-Line Interface Agent Commands" on page 55
- Appendix B, "Switch Commands" on page 97

Hardware Management Tasks

▼ To Display the Status of the Shelf Manager

- **At the # prompt, type the following command:**

```
# clia shmstatus -v
```

For more information about the `shmstatus` command and examples, see "`shmstatus`" on page 86.

▼ To Display Switch Sensor Data

- **At the # prompt, type the following command:**

```
# clia sensordata |grep -e LUN -e Mask -e Processed
```

For more information about the `sensordata` command and examples, see "sensordata" on page 94.

▼ To Display Switch Environmental Data

- **At the # prompt, type the following command:**

```
# mon_test
```

For more information about the `mon_test` command and examples, see "mon_test" on page 110.

▼ To Display FRU Information

- **At the # prompt, type the following command:**

```
# clia fruinfo
```

For more information about the `fruinfo` command and examples, see "fruinfo" on page 69.

▼ To Check Power to the Switch Chips

- **At the # prompt, type the following command:**

```
# checkpower
```

For more information about the `checkpower` command and examples, see "checkpower" on page 108.

▼ To Check Operation of a Power Supply

- **At the # prompt, type the following command:**

```
# clia showunhealthy
```

For more information about the `showunhealthy` command and examples, see "`showunhealthy`" on page 78.

▼ To Check the I²C Devices

- **At the # prompt, type the following command:**

```
# i2ctest
```

For more information about the `i2ctest` command and examples, see "`i2ctest`" on page 109.

▼ To Reset the Sun Datacenter Switch 3x24

Note – Resetting the Sun Datacenter Switch 3x24 effectively severs any routes that it is part of. Inform users of your actions or perform preliminary task so that they are not impacted.

- **At the # prompt, type the following command:**

```
# clia terminate -reboot
```

For more information about the `terminate` command and examples, see "`terminate`" on page 86.

▼ To Turn the Locator LED On

- **At the # prompt, type the following command:**

```
# clia setfruledstate 10 0 2 ON
```

For more information about the `setfruledstate` command and examples, see "`setfruledstate`" on page 73.

▼ To Turn the Locator LED Off

- **At the # prompt, type the following command:**

```
# clia setfruledstate 10 0 2 OFF
```

For more information about the `setfruledstate` command and examples, see "`setfruledstate`" on page 73.

▼ To Display the State of the Locator LED

- **At the # prompt, type the following command:**

```
# clia getfruledstate 10 0 2
```

For more information about the `getfruledstate` command and examples, see "`getfruledstate`" on page 71.

▼ To Display the State of All LEDs

- **At the # prompt, type the following command:**

```
# clia getfruledstate
```

For more information about the `getfruledstate` command and examples, see "`getfruledstate`" on page 71.

I3 Switch Chip Management Tasks

▼ To Disable or Enable a Switch Chip Port

- **At the # prompt, type the following command:**

```
# setport on|off switch port
```

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

For more information about the `setport` command and examples, see "`setport`" on page 102.

▼ To Display Operational Switch Chip Ports

- **At the # prompt, type the following command:**

```
# listlinkup
```

For more information about the `listlinkup` command and examples, see "`listlinkup`" on page 106.

▼ To Display Switch Chip Port Status

- **At the # prompt, type the following command:**

```
# getportstatus switch port
```

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

For more information about the `getportstatus` command and examples, see "getportstatus" on page 104.

▼ To Display Switch Chip Serdes Settings

- **At the # prompt, type the following command:**

```
# phyconfig -s switch -p port
```

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

For more information about the `phyconfig` command and examples, see "phyconfig" on page 100.

▼ To Display Switch Chip Symbol Error Counters

- **At the # prompt, type the following command:**

```
# getsymerr switch port
```

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

For more information about the `getsymerr` command and examples, see "getsymerr" on page 105.

▼ To Display All Switch Chip Port Counters

- **At the # prompt, type the following command:**

```
# getportcounters switch port
```

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

For more information about the `getportcounters` command and examples, see "`getportcounters`" on page 98.

▼ To Check the Boot Status of the Switch Chips

- **At the # prompt, type the following command:**

```
# checkboot switch
```

where *switch* is the number of the switch chip (0 - 2).

For more information about the `checkboot` command and examples, see "`checkboot`" on page 103.

▼ To Display the Switch Chip Firmware Versions

- **At the # prompt, type the following command:**

```
# geti3fwver switch port
```

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

For more information about the `geti3fwver` command and examples, see "`geti3fwver`" on page 103.

▼ To Reset the Switch Chips

- **At the # prompt, type the following command:**

```
# resetswitch state
```

where *state* is the state of the reset:

- `1` – put I3 switch chips into reset
- `0` – releases reset

For more information about the `resetswitch` command and examples, see "`resetswitch`" on page 101.

User Management Tasks

▼ To Display the User Accounts

- **At the # prompt, type the following command:**

```
# clia user -v
```

For more information about the `user` command and examples, see "`user [-v]`" on page 58.

▼ To Add a User

- **At the # prompt, type the following command:**

```
# clia user add userid "user-name" channel-access-flags privilege-level password
```

where:

- *userid* – A unique valid user ID.
- *user-name* – The user name (16 characters).
- *channel-access-flag* – The first byte of the SetUserInfo commands (only bits 4,5, and 6 are meaningful).
  - bit 6 – IPMI messaging enabled.
  - bit 5 – Link authentication enabled.
  - bit 4 – Restricted to callback.
- *privilege-level* – The user privilege level.
- *password* – The user password (16 characters).

For more information about the user add command and examples, see "`user add`" on page 59.

▼ To Change a User's Password

- **At the # prompt, type the following command:**

```
# clia user passwd userid "password"
```

where:

- *userid* – A unique valid user ID.
- *password* – The user password (16 characters).

For more information about the `user passwd` command and examples, see "`user passwd`" on page 63.

▼ To Delete a User

- **At the # prompt, type the following command:**

```
# clia user delete userid
```

where *userid* is a unique valid user ID.

For more information about the `user delete` command and examples, see "`user delete`" on page 60.

Other Management Tasks

▼ To Get Help on a Command

- **At the # prompt, type the following command:**

```
# clia help sub-command option
```

where:

- *sub-command* – A sub command to the `clia` command.
- *option* – A subordinate command or option to the sub command.

For more information about the `help` command and examples, see "`help`" on page 93.

▼ To Display the Date

- **At the # prompt, type the following command:**

```
# date
```

▼ To Set the Date

- **At the # prompt, type the following command:**

```
# date [mmddHHMM[yyyy][.SS]]
```

where:

- *mm* – Month
- *dd* – Date
- *HH* – Hour (24-hour format)
- *MM* – Minutes
- *yyyy* – Year
- *SS* – Seconds

▼ To Display the Network Configuration

- **At the # prompt, type the following command:**

```
# clia getlanconfig 1
```

For more information about the `getlanconfig` command and examples, see "`getlanconfig`" on page 87.

▼ To Display the Log

- **At the # prompt, type the following command:**

```
# clia sel
```

For more information about the `sel` command and examples, see "`sel`" on page 82.

▼ To Display the Shelf Manager Version

- **At the # prompt, type the following command:**

```
# clia version
```

For more information about the `version` command and examples, see "`version`" on page 95.

APPENDIX **A**

Command-Line Interface Agent Commands

This appendix provides a reference of command-line interface agent (CLIA) commands that can be used when administrating the Sun Datacenter Switch 3x24. Topics include:

Command Summary

The `clia` command is an intermediary interface to route directives to the Pigeon Point Shelf Manager, internal to the Sun Datacenter Switch 3x24. The shelf manager is similar to the system controller used in Sun servers. Only the `root` user of the shelf manager can run the `clia` command and its sub commands. The format of the `clia` command is as follows:

`#` **`clia`** *subcommand* `[`*arguments*`][`*arguments*`]...`

TABLE A-1 lists the sub-commands and arguments alphabetically, with cross-references to information about the commands.

TABLE A-1 Command Line Interface Agent Sub-Commands

Subcommand Syntax	Cross-reference
`activate` *IPMB-address fru-id*	"`activate`" on page 66
`alarm [clear|minor|major|critical]`	"`alarm` " on page 93
`deactivate` *IPMB-address fru-id*	"`deactivate`" on page 66
`exit`	"`exit` | `quit`" on page 93
`quit`	"`exit` | `quit`" on page 93
`fru [-v] [`*addr* `[id=`*fru-id* | `type=`*site-type*`]] | [type=`*site-type* `[/`*site-number*`]]`	"`fru`" on page 67
`frucontrol` *IPMB-address fru-id option*	"`frucontrol`" on page 68
`fruinfo [-v] [-x]` *addr fru-id*	"`fruinfo`" on page 69
`getfruledstate [-v] [`*IPMB-addr* `state [`*fru-id* `[`*LED-ID* | `ALL]]]`	"`getfruledstate`" on page 71
`getipmbstate` *IPMB-address* `[`*link*`]` (in radial IPMB-0 environment)	"`getipmbstate`" on page 79
`getlanconfig` *channel* `[`*parameter-name* `[`*additional-parameters*`]]`	"`getlanconfig`" on page 87
`help [`*command* `[`*subcommand*`]]`	"`help`" on page 93
`ipmc [-v] [`*IPMB-address*`]`	"`ipmc`" on page 80
`localaddress`	"`localaddress`" on page 81
`poll`	"`poll`" on page 82
`sel [-v] [`*IPMB-address* `[`*record-count* `[`*starting-entry*`]]]`	"`sel`" on page 82
`sensordata [`*IPMB-address* `[`*sensor-name* | `[`*lun*`:]`*sensor-number*`]]`	"`sensordata`" on page 94
`session`	"`session`" on page 83
`setextracted` *IPMB-address fru-id*	"`setextracted`" on page 73
`setfruledstate` *IPMB-address fru-id LedId*`|ALL` *LedOp* `[`*LedColor*`]` *LedOp* = `ON | OFF | LOCAL | BLINK` <*onTime*> <*offTime*> `| TEST` <*onTime*> *LedColor* = `BLUE | RED | GREEN | AMBER | ORANGE | WHITE | NONE |` *number*	"`setfruledstate`" on page 73
`setipmbstate` *IPMB-address* `A|B [`*link*`] 1|0` (in radial IPMB-0 environment)	"`setipmbstate`" on page 84
`setlanconfig` *channel parameter-name additional-parameters*	"`setlanconfig`" on page 90
`setlocked` *IPMB-address fru-id* `0 | 1`	"`setlocked`" on page 74

TABLE A-1 Command Line Interface Agent Sub-Commands

Subcommand Syntax	Cross-reference
`shelf` *subcommand* `shelf [cooling_state | fans_state | address_table | power_distribution | power_management | pci_connectivity | ha_connectivity | h110_connectivity | point-to-point_connectivity]`	"shelf" on page 75
`shelfaddress [`*up-to-20-characters-of-the-shelf-address*`]`	"shelfaddress" on page 85
`shmstatus`	"shmstatus" on page 86
`showunhealthy`	"showunhealthy" on page 78
`terminate`	"terminate" on page 86

`user [`*subcommand*`]`
`user [-v] [`*userid*`]`
`user add` *userid user-name channel-access-flags privilege-level password*
`user delete userid`
`user enable` *userid* `1 | 0`
`user name` *userid user-name*
`user passwd` *userid password*
`user channel` *userid channel-number channel-access-flags privilege-level*
	"user [-v]" on page 58
	"user add" on page 59
	"user delete" on page 60
	"user enable" on page 61
	"user name" on page 62
	"user passwd" on page 63
	"user channel" on page 64

`version`	"version" on page 95

User Management Commands

This section describes commands for user management. The commands are:

user

Syntax

`user [`*subcommand*`]`

The following subcommands are supported:

- `add`
- `delete`
- `enable`
- `name`
- `passwd`
- `channel`

Purpose

The `user` command shows information about the RMCP user accounts on the shelf manager. This command also provides a simple way to add, delete, and modify the user accounts.

The following sections describe the syntax of the `user` command for different applications of this command.

user [-v]

Syntax

`user [-v] [`*userid*`]`

Purpose

This command shows information about users. When you type the command with a `-v` option, it also shows information about disabled users. If you specify the optional user ID, only information about the user with that ID is shown.

The following items of information are shown:

- User ID
- User name
- Channel access information for each IPMI channel – The maximum privilege level of that user on that channel and channel access flags.

  If the channel access information is the same for several channels, the output is coalesced and the range of channels is shown.

Example

```
# clia user -v
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
#
```

user add

Syntax

`user add` *userid user-name channel-access-flags privilege-level password*

Purpose

This command adds a new user to the system. Command parameters have the following meaning:

- *userid* – A valid user ID.
- *user-name* – The user name (it is truncated to 16 characters without any notice).
- *channel-access-flag* – The first byte of the SetUserInfo commands (only bits 4,5, and 6 are meaningful).
  - Bit 6 – IPMI messaging enabled.
  - Bit 5 – Link authentication enabled.
  - Bit 4 – Restricted to callback.
- *privilege-level* – The user privilege level.
- *password* – The user password (it is truncated to 16 characters without any notice).

Example

Add user 3 with the name `test_user`, administrator privilege level, and password `passwurd`.

```
# clia user add 3 "test_user" 0x40 4 "passwurd"
Pigeon Point Shelf Manager Command Line Interpreter
    User 3 added successfuly
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
    3: "test_user"
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
#
```

user delete

Syntax

`user delete` *userid*

Purpose

This command deletes the user specified by the *userid*.

Example

Delete the user with userid 3.

```
# clia user delete 3
Pigeon Point Shelf Manager Command Line Interpreter
    User 3 deleted successfuly
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
#
```

user enable

Syntax

`user enable` *userid* `1 | 0`

Purpose

This command enables or disables a user by *userid*. The last command parameter specifies the requested action, as follows:

- `0` – Disables the specified user.
- nonzero – Enables the specified user.

Example

Disable and enable user with userid 3.

```
# clia user enable 3 0
Pigeon Point Shelf Manager Command Line Interpreter
    User 3 disabled successfuly
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
# clia user enable 3 1
Pigeon Point Shelf Manager Command Line Interpreter
    User 3 enabled successfuly
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
    3: "test_user"
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
#
```

user name

Syntax

`user name` *userid user-name*

Purpose

This command is used to modify the user name for the specified user. The command parameters have the following meanings:

- *userid* – The valid user ID.
- *user-name* – The user name (which is truncated to 16 characters without any notice).

Example

Change the name of user 3 to `administrator`.

```
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
    3: "test_user"
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
# clia user name 3 administrator
Pigeon Point Shelf Manager Command Line Interpreter
    User 3, name changed successfuly
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
    1: ""
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
    2: "openhpi"
        Channels 0-15 Privilege level: "OEM Proprietary"
            Flags: "IPMI Messaging"
    3: "administrator"
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
#
```

user passwd

Syntax

`user passwd` *userid password*

Purpose

This command is used to modify the password for the specified user. The command parameters have the following meanings:

- *userid* – The valid user ID.
- *password* – The user password (which is truncated to 16 characters without any notice).

Example

Change the password of user ID 3 to `root`.

```
# clia user passwd 3 root
Pigeon Point Shelf Manager Command Line Interpreter
    User 3, password changed successfuly
#
```

user channel

Syntax

`user channel` *userid channel-number channel-access-flags privilege-level*

Purpose

This command is used to modify the channel access setting for a specified channel and user. (The user is specified by the user ID.) The command parameters have the following meanings:

- *userid* – The valid user ID.
- *channel-number* – The channel number.
- *channel-access-flags* – The first byte of the SetUserInfo commands (only bits 4, 5, and 6 are meaningful).
  - Bit 6 – IPMI messaging enabled.
  - Bit 5 – Link authentication enabled.
  - Bit 4 – Restricted to callback.
- *privilege-level* – The user privilege level.

Example

Change the maximum privilege level for user 3 on channel 5 to `User`.

```
# clia user 3
Pigeon Point Shelf Manager Command Line Interpreter
    3: "administrator"
        Channels 0-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
# clia user channel 3 5 0x60 2
Pigeon Point Shelf Manager Command Line Interpreter
    User 3, channel 5 access updated successfuly
# clia user 3
Pigeon Point Shelf Manager Command Line Interpreter
    3: "administrator"
        Channels 0-4 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
        Channel 5 Privilege level: "User"
            Flags: "Link Authentication" "IPMI Messaging"
        Channels 6-15 Privilege level: "Administrator"
            Flags: "IPMI Messaging"
#
```

FRU Management Commands

This section describes the commands for FRU management.

activate

Syntax

`activate` *IPMB-address fru-id*

Purpose

This command sends the IPMI command `Set FRU Activation (Activate FRU)` to the specified FRU. The FRU is specified using the IPMB address of the owning IPM controller and the FRU device ID.

Example

Activate the IPM controller proper at address 9C.

```
# clia activate 9c 0
Pigeon Point Shelf Manager Command Line Interpreter
Command issued via IPMB, status = 0 (0x0)
Command executed successfully
#
```

deactivate

Syntax

`deactivate` *IPMB-address fru-id*

Purpose

This command sends the IPMI command `Set FRU Activation (Deactivate FRU)` to the specified FRU.

Example

Deactivate the IPM controller proper at address 9C.

```
# clia deactivate 9c 0
Pigeon Point Shelf Manager Command Line Interpreter
Command issued via IPMB, status = 0 (0x0)
    Command executed successfully
#
```

fru

Syntax

`fru [-v] [`*addr* `[id=`*fru-id* `| type=`*site-type*`]] | [type=`*site-type* `[/`*site-number*`]]`

Purpose

This command shows information about a specific FRU.

The following information is shown for the FRU in standard mode:

- IPMB address and the FRU device ID.
- Entity ID, entity instance.
- Site type and number (if known).
- Current hot-swap state, previous hot-swap state, and cause of the last state change for the FRU. The hot-swap states M0–M7 are defined in the PICMG 3.0 specification as follows:
  - M0 – Not installed
  - M1 – Inactive
  - M2 – Activation request
  - M3 – Activation in progress
  - M4 – FRU active
  - M5 – Deactivation request
  - M6 – Deactivation in progress
  - M7 – Communication lost

The following information is shown for the FRU in verbose mode only:

- The FRU device type, device type modifier (only for `FRU-device-ID != 0`). This information is taken from the FRU Sensor Data Record (SDR) and conforms to section 37.12 of the IPMI specification.
- Device ID string from the FRU SDR.
- Current FRU power level and maximum FRU power level. Current assigned power consumption in Watts.

Example

Get standard information about all FRUs at address 9C.

```
# clia fru 9c 0
Pigeon Point Shelf Manager Command Line Interpreter
9c: FRU # 0
    Entity: (0xd0, 0x0)
Hot Swap State: M4 (Active), Previous: M3 (Activation In Process),
Last State Change Cause: Normal State Change (0x0)
    Device ID String: "PPS Sentry 6"
#
```

frucontrol

Syntax

`frucontrol` *IPMB-address fru-id option*

Purpose

This command sends the FRU Control command to the specified FRU, performing the specified operation on the FRU payload.

The parameter *option* specifies the option of the FRU Control command to be used:

- `cold_reset` (abbreviated as `cr`) – Performs a cold reset of the FRU payload.
- `warm_reset` (abbreviated as `wr`) – Performs a warm reset of the FRU payload.
- `graceful_reboot` (abbreviated as `gr`) – Performs a graceful reboot of the FRU payload.
- `diagnostic_interrupt` (abbreviated as `di`) – Issues the diagnostic interrupt.

Example

Issue a cold reset command to FRU 0 at IPMB address 9C.

```
# clia frucontrol 9c 0 cr
Pigeon Point Shelf Manager Command Line Interpreter
   FRU Control: Controller 0x9c, FRU ID # 0, command 0x00, status
0(0x0)
    Command executed successfully
#
```

fruinfo

Syntax

`fruinfo [-v]` *addr fru-id*

Purpose

This command shows FRU information in a user-friendly format.

Example

Display FRU information for a particular FRU.

```
# clia fruinfo -v 10 0
Pigeon Point Shelf Manager Command Line Interpreter
10: FRU # 0, FRU Info
Common Header:    Format Version = 1
Internal Use Area:
    Version = 1
Board Info Area:
    Version     = 1
    Language Code            = 25
    Mfg Date/Time           = Mar 30 18:00:00 2003 (3809880 minutes since 1996)
    Board Manufacturer       = Pigeon Point Systems
    Board Product Name       = Pigeon Point Systems ShMM-1500
    Board Serial Number      = PPS0000000
    Board Part Number        = A
    FRU Programmer File ID   =
    Custom Board Info        =
.
.
.
Multi Record Area:
    PICMG Board Point-to-Point Connectivity Record (ID=0x14)
        Version = 0
    OEM GUID Count           = 0
    Link Descriptor:
        Link Grouping ID     = 0x00
        Link Type            = 0x01  PICMG 3.0 Base 10/100/1000 Base-T
        Link Type Extension  = 0x0 10/100/1000BASE-T Link (four-pair)
        Link Designator      = 0x101 Channel1/BaseInterface/Ports0
    Link Descriptor:
        Link Grouping ID     = 0x00
        Link Type            = 0x01  PICMG 3.0 Base 10/100/1000 Base-T
        Link Type Extension  = 0x0 10/100/1000BASE-T Link (four-pair)
        Link Designator      = 0x102 Channel2/BaseInterface/Ports0
    Record Type              = 0xc0 OEM Defined Record
        Version = 2
    PPS IPMB Topology Record (ID=0x05)
        Version = 0
        Carrier Type = 1(bused)
#
```

getfruledstate

Syntax

`getfruledstate [-v] [`*IPMB-addr* `state [`*fru-id* `[`*LED-ID*`|ALL]]]`

Purpose

This command shows the current FRU LED state on all levels of control that are enabled for the LEDs. In verbose mode, information about the colors supported by the LEDs is also shown.

Example

Show LED state for LED 1 from FRU 0 of the IPM controller at IPMB address 20h.

```
# clia getfruledstate -v
Pigeon Point Shelf Manager Command Line Interpreter
10: FRU # 0, Led # 0 ("BLUE LED"):
    Local Control LED State: LED OFF
    LED's color capabilities:
        Colors supported(0x02): BLUE
        Default LED Color in Local Control State(0x01): BLUE
        Default LED Color in Override State(0x01): BLUE
10: FRU # 0, Led # 1 ("LED 1"):
    Local Control LED State: LED OFF
    LED's color capabilities:
        Colors supported(0x0C): RED GREEN
        Default LED Color in Local Control State(0x03): GREEN
        Default LED Color in Override State(0x03): GREEN
10: FRU # 0, Led # 2 ("LED 2"):
    Local Control LED State: LED OFF
    LED's color capabilities:
        Colors supported(0x40): WHITE
        Default LED Color in Local Control State(0x06): WHITE
        Default LED Color in Override State(0x06): WHITE
10: FRU # 0, Led # 3 ("LED 3"):
    Local Control LED State: LED OFF
    LED's color capabilities:
        Colors supported(0x0C): RED GREEN
        Default LED Color in Local Control State(0x02): RED
        Default LED Color in Override State(0x02): RED
10: FRU # 0, Led # 4 ("Application Specific LED# 1"):
    Local Control LED State: LED OFF
    LED's color capabilities:
        Colors supported(0x40): WHITE
        Default LED Color in Local Control State(0x06): WHITE
        Default LED Color in Override State(0x06): WHITE
10: FRU # 0, Led # 5 ("Application Specific LED# 2"):
    Local Control LED State: LED ON, color: RED
    LED's color capabilities:
        Colors supported(0x0C): RED GREEN
        Default LED Color in Local Control State(0x02): RED
        Default LED Color in Override State(0x02): RED
#
```

setextracted

Syntax

`setextracted` *IPMB-address fru-id*

Purpose

This command notifies the shelf manager that the specified FRU has been physically extracted from the shelf.

Example

```
# clia setextracted 9c 0
Pigeon Point Shelf Manager Command Line Interpreter
Set FRU extracted state successfully
#
```

setfruledstate

Syntax

`setfruledstate` *IPMB-address fru-id LedId*|`ALL` *LedOp* [*LedColo*r]*LedOp* `=` `ON` | `OFF`|`LOCAL`|`BLINK` *onTime offTime*|`TEST` *onTime LedColor* = `BLUE`|`RED`|`GREEN`|`AMBER`|`ORANGE`|`WHITE` `NONE`| *number*

Purpose

This command enables you to set the state of a specific LED or all LEDs for the given FRU.

The first argument, *IPMB-address,* is the IPMB address of an IPM controller. The second argument, *fru-id,* is the FRU device ID. The third argument can be either an LED ID (a numerical value) or `ALL`. In the latter case, the specified operation applies to all LEDs.

The argument *LedOp* specifies the operation applied to the FRUs, based on the PICMG 3.0 specification. The operations are defined as follows:

- `ON` – Turns on the LED.
- `OFF` – Turns off the LED.
- `LOCAL` – Reverts to the local control of the LED.
- `BLINK` – Causes the LED to blink, repeatedly turning it on for *onTime* milliseconds and then turning it off for *offTime* milliseconds.

- TEST – Runs a lamp test for *onTime* milliseconds.

For the TEST operation, *onTime* must be less then 12800 ms (12.8 sec). For the BLINK operation, both *onTime* and *offTime* values must be within a 10 – 2500 ms range.

The optional parameter *LedColor* designates a color, either with a symbolic name or a decimal value. Symbolic names of colors correspond to decimal values in accordance with the PICMG 3.0 specification, as noted in the following list. (If the parameter is not specified, the default LED color is used.)

- BLUE = 1
- RED = 2
- GREEN = 3
- AMBER = 4
- ORANGE = 6
- NONE = 14 (don't change color)

Example

Enable blinking on LED 1 of FRU 0 of IPM controller at IPMB address 20h. The blinking is in the default color. The on duration is 100 ms. The off duration is 200 ms.

```
# clia setfruledstate 20 0 0 BLINK 100 200
Pigeon Point Shelf Manager Command Line Interpreter
    Setting FRU's led state completed successfully, status = 0x0
#
```

setlocked

Syntax

`setlocked` *IPMB-address fru-id* `0|1`

Purpose

This command sets the locked bit for the specified FRU to the specified state (`0` for unlock or `1` for lock).

The locked bit controls whether the FRU is allowed to autonomously progress from state M1 (inactive) to state M2 (activation request). If the locked bit is set, this transition is not allowed.

This command can be used to reactivate a previously manually deactivated FRU by clearing the locked bit for it.

Example

Clear the locked bit for the IPM controller proper at address 9C, thus allowing it to reactivate.

```
# clia setlocked 9c 0 0
Pigeon Point Shelf Manager Command Line Interpreter
Lock set successfully to 0x0
#
```

shelf

Syntax

`shelf` *subcommand*

The following subcommands are supported.

- `address_table`
- `cooling_state`
- `fans_state`
- `power_distribution`
- `power_management`
- `pci_connectivity`
- `ha_connectivity`
- `h110_connectivity`
- `point-to-point_connectivity`
- `MaxCurrent [feed]` *Amps*
- `MinVoltage [feed]` *Volts*
- `Activation` *addr fru-id* `1|0`
- `Deactivation` *addr fru-id* `1|0`
- `PwrCapability` *addr fru-id Watts*
- `PwrDelay` *addr fru-id 10ths-of-second*
- `Allowance` *seconds*
- `PwrReorder` *addr1 fru-id1* `before|after` *addr2 fru-id2*
- `info_refresh`
- `info_force_update`

Purpose

The syntax of the command `shelf` shows key Shelf FRU information, plus selected current operating data for the shelf. TABLE A-2 lists the parameters supported by the `shelf` command:

TABLE A-2 Parameter for `shelf` Command

Command Parameter	Provided Information
`cooling_state` (can be abbreviated to `cs`)	Shows the current cooling state of the shelf: • Normal – All temperature sensors show normal operating temperature. • Minor Alert – At least one temperature sensor is in minor alert state. None of the sensors is in major or critical alert state. • Major Alert – At least one temperature sensor is in major alert state. None of the sensors is in critical alert state. • Critical Alert – At least one temperature sensor is in critical alert state.
`fans_state` (can be abbreviated to `fs`)	Shows the current state of the fan tachometers in the shelf: • Normal – All fan tachometer sensors show normal operating speed. • Minor Alert – At least one fan tachometer sensor is in minor alert state. None of the sensors is in major or critical alert state. • Major Alert – At least one fan tachometer sensor is in major alert state. None of the sensors is in critical alert state. • Critical Alert – At least one fan tachometer sensor is in critical alert state.
`address_table` (can be abbreviated to `at`)	Shows the Address Table record in the Shelf FRU Info. The following information is provided: • Shelf Address (shown according to its type). • List of address table entries, showing Hardware Address, Site Number, and Site Type for each of them.
`power_distribution` (can be abbreviated to `pd`)	The following information is provided for each of the power feeds (mostly from the Shelf Power Distribution record of the Shelf FRU Information): • Maximum External Available Current. • Maximum Internal Current. • Minimum Expected Operating Voltage. • Actual Power Available. • Currently Used Power. • List of FRUs connected to the feed, showing Hardware Address and FRU Device ID for each FRU.

TABLE A-2 Parameter for `shelf` Command *(Continued)*

Command Parameter	Provided Information
`power_management` (can be abbreviated to `pm`)	The Shelf Power Management record in the Shelf FRU Info. This record contains a list of FRU Power Descriptors. For each descriptor the following information is provided: • Hardware Address. • FRU Device ID. • Maximum FRU Power Capability. • Shelf Manager Controlled Activation. • Delay Before Next Power On.
`pci_connectivity` (can be abbreviated to `pcic`)	The Shelf PCI Connectivity record in the Shelf FRU Info. The following information is provided: • PCI Slot Descriptor. • DSEL Connection. • Segment ID. • Extended PCI Slot Descriptor. • Geographic Address. • Interface Number. • System Slot Capable.
`ha_connectivity` (can be abbreviated to `ha`)	The Shelf HA Connectivity record in the Shelf FRU Info. The following information is provided: • Radial Connectivity Support.
`h110_connectivity` (can be abbreviated to `h110c`)	The Shelf H110 Connectivity record in the Shelf FRU Info. The following information is provided: • Geographic Address. • Segment ID.
`point-to-point_connectivity` (can be abbreviated to `ppc`)	The Shelf Point-to-Point Connectivity record in the Shelf FRU Info. The following information is provided: • Channel Type. • Channel Count. • Slot/ Hw Address. • Channel Descriptor.

For the command parameters `cooling_state` and `fans_state`, the verbosity option `-v` is available. Enter the option before the command parameter (for example, `clia shelf -v cooling_state`). The command displays the list of sensors (temperature or fan tachometers) that contribute to the current state. Each sensor is shown as a tuple (*IPMB-address*, *sensor-number*).

Examples

Get shelf cooling status.

```
# clia shelf cooling_state
Pigeon Point Shelf Manager Command Line Interpreter
Cooling state: "Normal"
#
```

Get shelf fan tachometer status (verbose).

```
# clia shelf -v fans_state
Pigeon Point Shelf Manager Command Line Interpreter
Fans state: "Major Alert"
 Sensor(s) at this state: (0x7e,10) (0x7e,11) (0x7e,12) (0x7e,13)
                          (0x7e,14) (0x7e,15) (0x7e,16) (0x7e,17)
#
```

showunhealthy

Syntax

```
showunhealthy
```

Purpose

This command shows the list of FRUs that appear to have a problem. The FRUs might be identified as:

- `Communication lost.`
- `Communication lost due to local failure.`
- `Unexpected deactivation.`

For each FRU, the following information is shown – IPMB address and FRU device ID, current hot-swap state, previous hot-swap state, and cause of the last state change.

Example

Show the list of unhealthy components in the system.

```
# clia showunhealthy
Pigeon Point Shelf Manager Command Line Interpreter
There are no unhealthy components in the shelf.
#
```

Shelf Manager Commands

This section describes commands used to manage the Shelf Manager:

getipmbstate

Syntax:

`getipmbstate` *IPMB-address* [*link*] (in radial IPMB-0 environment)

`getipmbstate` *IPMB-address* (in bused IPMB-0 environment)

Purpose:

This command shows the current state of IPMB-0 on the target IPM controller.

In a bused environment, or in a radial environment if the target IPMC is not an IPMB hub, the argument *link* is not used.

In the radial environment, if the target IPM controller is an IPMB hub, the command works as follows:

- If *link* is omitted, the command prints information about the state of all radial IPMB links.
- If the *link* is present, the command prints information about the specific radial IPMB link (1 to 95).

In both cases, information about the state of both IPMB-A and IPMB-B is shown.

Examples:

Show the current state of IPMB-0 on the IPMC at IPMB address 10h.

```
# clia getipmbstate 10
Pigeon Point Shelf Manager Command Line Interpreter
10: Link: 0, LUN: 0, Sensor # 1 ("IPMB LINK")
    Bus Status: 0x8  (IPMB-A Enabled, IPMB-B Enabled)
    IPMB A State: 0x08 (LocalControl, No failure)
    IPMB B State: 0x08 (LocalControl, No failure)
#
```

ipmc

Syntax

`ipmc [-v] [`*IPMB-address*`]`

Purpose

This command shows information about the IPM controller at the specified address, or about all IPM controllers known to the Shelf Manager, if *IPMB-address* is omitted.

The following information is shown for the IPM controller in standard mode:

- IPMB address of the controller, as two hexadecimal digits.
- Entity ID and entity instance for the IPM controller.
- Maximum possible FRU device ID for the IPM controller.
- PICMG extension version. This version should be 2.0 for PICMG 3.0-compliant IPM controllers.
- Current hot-swap state, previous hot-swap state, and cause of the last state change for FRU device 0 of the IPM controller (which represents the IPM controller itself). The hot-swap states M0–M7 are defined in the PICMG 3.0 specification as follows:
  - M0 – Not installed
  - M1 – Inactive
  - M2 – Activation request
  - M3 – Activation in progress
  - M4 – FRU active
  - M5 – Deactivation request
  - M6 – Deactivation in progress
  - M7 – Communication lost

Example

Get information about the IPM controller at address 10.

```
# clia ipmc -v 10
Pigeon Point Shelf Manager Command Line Interpreter
10: Entity: (0xf0, 0x60) Maximum FRU device ID: 0x08
    PICMG Version 2.2
   Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State
Change Cause: Normal State Change (0x0)
    Device ID: 0x00, Revision: 0, Firmware: 2.51, IPMI ver 1.5
    Manufacturer ID: 00400a, Product ID: 0000, Auxiliary Rev: 00000000
    Device ID String: "ShMM-1500"
    Global Initialization: 0x0, Power State Notification: 0x0, Device
Capabilities: 0x29
    Controller provides Device SDRs
    Supported features: 0x29
        "Sensor Device" "FRU Inventory Device" "IPMB Event Generator"
    10: Base Interface (0x00), Channel: 1
        Link: Disabled Ports: 1
    10: Base Interface (0x00), Channel: 2
        Link: Disabled Ports: 1
#
```

localaddress

Syntax

```
localaddress
```

Purpose

This command shows the IPMB address of the current shelf manager, based on its hardware address (as opposed to its generic BMC address 0x20).

Example

```
# clia localaddress
Pigeon Point Shelf Manager Command Line Interpreter
Local IPMB Address = 0x10
#
```

poll

Syntax

`poll`

Purpose

This command initiates rediscovery of IPM controllers on IPMB-0 by sending the `Get Device ID` command to all IPMB addresses.

Example

```
# clia poll
Pigeon Point Shelf Manager Command Line Interpreter
IPMB polling thread started
#
```

sel

Syntax

`sel [-v] [`*IPMB-address* `[`*record-count* `[`*starting-entry*`]]]`

`sel clear [`*IPMB-address*`]`

`sel info [`*IPMB-address*`]`

Purpose

This command shows the contents of the system event log (SEL) on the specified IPM controller (at IPMB address 20h by default). The optional parameter *record-count* indicates how many records from the record number *starting-entry* in the SEL are shown. The optional parameter *starting-entry* is the entry number of the first SEL record to print, relative to the beginning of the SEL.

For each SEL record, the following information fields are shown:

- Record ID
- Record type (currently only events are supported, for which the word `Event` is shown)
- Time stamp (for timestamped records)
- Source address parameters – IPMB address, LUN, and channel number
- Type and number of the sensor that generated the event
- Event or reading type code
- Three bytes of event data, in raw and processed (if available) formats

The command `sel clear` clears the SEL on the specified IPM controller (at IPMB address 20h by default).

The `-v` option makes the SEL entries output more user-friendly.

Example

Read the SEL on the shelf manager.

```
# clia sel info
Pigeon Point Shelf Manager Command Line Interpreter
20: SEL version: 1.5
    Number of log entries: 679
    Free space: 5504 bytes
    Last addition timestamp: Mar 24 06:06:52 2027
    Last erase timestamp: Jun  8 17:10:20 1903
    Supported operations: 0x0f
#
```

session

Syntax

`session`

Purpose

This command shows information about active RMCP sessions. The information includes the following items:

- The maximum possible number of sessions and the number of currently active sessions.
- For each currently active session:
  - Session handle

- The user ID and name used during session activation
- Maximum session privilege level
- The IPMI channel number and type
- For LAN sessions, peer IP address and port number

Example

```
# clia session
Pigeon Point Shelf Manager Command Line Interpreter
32 sessions possible, 2 sessions currently active
Session: 1
   User: ID 1, Name: ""; Privilege Level: "Administrator"
   Channel: 1 ("LAN_802_3"); Peer IP address: 172.16.2.203, Port:
1764
Session: 2
   User: ID 1, Name: ""; Privilege Level: "Administrator"
   Channel: 1 ("LAN_802_3"); Peer IP address: 172.16.2.203, Port:
1765
#
```

setipmbstate

Syntax

`setipmbstate` *IPMB-address* `A|B [`*link*`] 1|0` (in radial IPMB-0 environment)

`setipmbstate` *IPMB-address* `A|B 1|0` (in bused IPMB-0 environment)

Purpose

This command enables or disables an IPMB link on the target IPM controller. The second argument defines the bus (IPMB-A or IPMB-B) to be enabled or disabled. The last argument defines the operation to be performed – `1` to enable link, `0` to disable link.

In a bused environment, and in a radial environment for target IPM controllers other than an IPMB hub, argument *link* is not used. For an IPMB hub controller in a radial environment, the argument *link* is optional.

If *link* is present, the command enables or disables the specific radial IPMB link (1 to 95). If *link* is omitted, the command enables or disables all the links on the IPMB hub in the radial system.

Example

Disable IPMB-A link on the IPM controller at IPMB address 92h.

```
# clia setipmbstate 92 A 0
Pigeon Point Shelf Manager Command Line Interpreter
     Command executed successfully
#
```

shelfaddress

Syntax

`shelfaddress` [*up-to-20-characters-of-the-shelf-address*]

`shelfaddress -x` *byte1 ..... byteN*

Purpose

This command gets or sets the Shelf Address field of the Address Table within shelf FRU information.

Without the option `-x`, the new shelf address is specified by a double-quoted string that can contain any ASCII characters and can be as long as 20 characters.

If the option `-x` is specified, the new shelf address is specified as a sequence of hexadecimal bytes separated with spaces. Up to 20 bytes can be specified, each byte is represented with two hexadecimal digits (the `0x` prefix is optional).

Example

```
# clia shelfaddress
Pigeon Point Shelf Manager Command Line Interpreter
    Shelf Address Info:
# clia shelfaddress "New Shelf Address"
Pigeon Point Shelf Manager Command Line Interpreter
    Shelf Address Info set successfully
# clia shelfaddress
Pigeon Point Shelf Manager Command Line Interpreter
    Shelf Address Info: "New Shelf Address"
#
```

shmstatus

Syntax

```
shmstatus
```

Purpose

This command returns the shelf manager status in redundant configurations: `Active` or `Backup`. The ready for operation flag is a parameter that shows as `Yes`.

Example

```
# clia shmstatus -v
Pigeon Point Shelf Manager Command Line Interpreter
Host: "Active"
Ready For Operation: Yes
Detailed State Flags: "Shelf FRU Found" "RMCP Up"
#
```

terminate

Syntax

```
terminate
```

Purpose

This command terminates the Shelf Manager without rebooting the shelf management card.

Example

Terminate a Shelf Manager from either the active or backup instance.

```
# clia terminate
#
```

Network Management Commands

This section describes commands for network management. The commands are:

getlanconfig

Syntax

`getlanconfig` *channel* [*parameter-name* [*additional-parameters*]]

`getlanconfig` *channel* [*parameter-number* [*additional-parameters*]]

Purpose

This command shows the value of the specified LAN configuration parameter on the specified channel. If no configuration parameter name or number is specified, all configuration parameters for the specified channel are shown.

TABLE A-3 lists names and numbers of LAN configuration parameters supported by the `getlanconfig` command.

TABLE A-3 LAN Configuration Parameters for `getlanconfig`

Parameter Name	Number	Description
`auth_support`	1	An 8-bit value that contains authentication type support flags for the LAN channel.
`auth_enables`	2	Five 8-bit values that contain authentication type enable flags for Callback, User, Operator, Administrator, and OEM privilege levels for the LAN channel.
`ip`	3	A string value that contains the IP address assigned to the LAN channel in dotted decimal notation (for example, `192.168.0.15`).
`ip_source`	4	A value that encodes the source of the assigned IP address.
`mac`	5	A string value that contains the MAC address assigned to the LAN channel as six hexadecimal byte values delimited by `:` symbols (for example, `00:A0:24:C6:18:2F`).
`subnet_mask`	6	A string value that contains the subnet mask assigned to the LAN channel in dotted decimal notation (for example, `255.255.255.0`).

TABLE A-3 LAN Configuration Parameters for `getlanconfig` *(Continued)*

Parameter Name	Number	Description
`ipv4_hdr_param`	7	Three 8-bit values that contain various IPv4 header parameters for sending RMCP packets: • Time-to-live • IP header flags (bits [7:5]) • Precedence (bits [7:5]) and type of service (bits [4:1])
`pri_rmcp_port`	8	A 16-bit value that contains the primary RMCP port number (the port used for regular RMCP communication).
`sec_rmcp_port`	9	A 16-bit value that contains the secondary RMCP port number (the port used for secure RMCP communication).
`arp_control`	10	Two flags that control Address Resolution Protocol (ARP) behavior on the LAN channel: • Enable responding to ARP requests • Enable sending gratuitous ARPs
`arp_interval`	11	The gratuitous ARP interval in seconds, in fixed-point format (potentially including a fractional part).
`dft_gw_ip`	12	A string value that contains the IP address of the default gateway in dotted decimal notation.
`dft_gw_mac`	13	A string value that contains the MAC address of the default gateway as six hexadecimal byte values delimited by colons (`:`).
`backup_gw_ip`	14	A string value that contains the IP address of the backup gateway in dotted decimal notation.
`backup_gw_mac`	15	A string value that contains the MAC address of the backup gateway as six hexadecimal byte values delimited by colons (`:`).
`community`	16	A string value (up to 18 symbols) that is put into the `Community String` field in PET traps.

TABLE A-3 LAN Configuration Parameters for `getlanconfig` *(Continued)*

Parameter Name	Number	Description
`destination_count`	17	The maximum number of LAN alert destinations supported on the LAN channel.
`destination_type`	18	The destination type identified by the specified set selector. If no set selector is given, all destination types are shown. Each destination type entry contains the following fields: • Destination type (0–7) • Alert acknowledge flag • Alert acknowledge timeout / retry interval in seconds (1–256) • Number of retries (0–7)
`destination_address`	19	The destination addresses associated with the specified set selector. If no set selector is given, all destination addresses are shown. Each destination address entry contains the following fields: • Gateway selector: `0` – use default, `1` – use backup • IP address (string in dotted decimal format) • MAC address (string of six hexadecimal byte values delimited by colons (`:`))

Example

Get and show the LAN parameter table for channel 1.

```
# clia getlanconfig 1
Pigeon Point Shelf Manager Command Line Interpreter
Authentication Type Support: 0x15 ( None MD5 Straight Password/Key )
Authentication Type Enables:
    Callback level: 0x00
    User level: 0x15 ( "None" "MD5" "Straight Password/Key" )
    Operator level: 0x15 ( "None" "MD5" "Straight Password/Key" )
    Administrator level: 0x15 ( "None" "MD5" "Straight Password/Key" )
    OEM level: 0x00
IP Address: 129.159.145.166
IP Address Source: Static Address (Manually Configured) (0x01)
MAC Address: 00:18:49:00:2d:4a
Subnet Mask: 255.255.255.0
IPv4 Header Parameters: 0x40:0x40:0x10
Primary RMCP Port Number: 0x026f
Secondary RMCP Port Number: 0x0298
BMC-generated ARP Control: 0x02
    Enable BMC-generated ARP Response
Gratuitous ARP Interval: 2.0 seconds
Default Gateway Address: 129.159.145.5
Default Gateway MAC Address: 00:30:85:11:34:c1
Backup Gateway Address: 0.0.0.0
Backup Gateway MAC Address: N/A
Community String: "public"
Number of Destinations: 16
Destination Type:
    N/A
Destination Address:
    N/A
#
```

setlanconfig

Syntax

`setlanconfig` *channel parameter-name additional-parameters*

`setlanconfig` *channel parameter-number additional-parameters*

Purpose

This command sets the value of the specified LAN configuration parameter on the specified channel.

TABLE A-4 lists names and numbers of LAN configuration parameters supported by the `setlanconfig` command.

TABLE A-4 LAN Configuration Parameters for `setlanconfig`

Parameter Name	Number	Description
`auth_enables`	2	Five 8-bit values that contain authentication type enable flags for Callback, User, Operator, Administrator, and OEM privilege levels for the LAN channel.
`ip`	3	A string value that contains the IP address assigned to the LAN channel in dotted decimal notation.
`subnet_mask`	6	A string value that contains the subnet mask assigned to the LAN channel in dotted decimal notation.
`ipv4_hdr_param`	7	Three 8-bit values that contain various IPv4 header parameters for sending RMCP packets: • Time-to-live • IP header flags (bits [7:5]) • Precedence (bits [7:5]) and type of service (bits [4:1])
`arp_control`	10	Two flags that control ARP behavior on the LAN channel: • Enable responding to ARP requests • Enable sending Gratuitous ARPs
`arp_interval`	11	The gratuitous ARP interval in a fixed-point format (where the integral part represents seconds and the fractional part represents milliseconds).
`dft_gw_ip`	12	A string value that contains the IP address of the default gateway in dotted decimal notation.
`backup_gw_ip`	14	A string value that contains the IP address of the backup gateway in dotted decimal notation.

TABLE A-4 LAN Configuration Parameters for `setlanconfig` *(Continued)*

Parameter Name	Number	Description
`community`	16	A string value (up to 18 symbols) that is put into the `Community String` field in PET traps.
`destination_type`	18	The destination type identified by the specified set selector. Set selector must be specified for this parameter. Each destination type entry contains the following fields: • Destination type (0-7) • Alert acknowledge flag • Alert acknowledge timeout / retry interval in seconds (1-256) • Number of retries (0-7)
`destination_address`	19	The destination addresses associated with the specified set selector. Set selector must be specified for this parameter. Each destination address entry contains the following fields: • Gateway selector: 0 – use default, 1 – use backup • IP address (string in dotted decimal format) • MAC address (string of six hexadecimal-byte values delimited by colons `[:]` symbols)

Example

```
# clia setlanconfig 1 destination_address 2 0 172.16.2.100 90:93:93:93:93:93
Pigeon Point Shelf Manager Command Line Interpreter
Destination Addresses set successfully
#
```

Other Commands

This section describes other clia sub-commands. They are:

alarm

Syntax

```
alarm [clear|minor|major|critical]
```

Purpose

This command provides access to the Telco alarm outputs. Parameters `minor`, `major`, and `critical` enable you to set the corresponding alarm output. Command invocation without parameters returns the status of Telco alarm outputs.

Example

```
# clia alarm
Pigeon Point Shelf Manager Command Line Interpreter
    alarm mask: 0x10
#
```

exit | quit

Syntax

```
exit
```

```
quit
```

Purpose

The command `exit` or `quit` exits the CLI interactive mode (which is entered by issuing `clia` without parameters).

Example

```
# exit
#
```

help

Syntax

`help [`*command* `[`*subcommand*`]]`

Purpose

This command shows help information for supported commands and their syntax.

Example

Get help for a specific command.

```
# clia help help
Pigeon Point Shelf Manager Command Line Interpreter
  Provides basic help information
  help [<command>]
#
```

sensordata

Syntax

`sensordata [`*IPMB-address* `[`*sensor-name* | `[`*lun*`:]`*sensor-number*`]]`

Purpose

This command shows the actual value of the specified sensor (for a threshold-based sensor) or the currently asserted states (for a discrete sensor).

The following information is shown for each sensor:

- IPMB address of the owning IPM controller
- Sensor number, sensor name (device ID string from the SDR), and the LUN by which the sensor can be accessed
- The sensor type and event-reading type code
- The sensor value (for threshold-based sensors) or the mask of currently asserted states (for discrete sensors) in raw form
- The threshold crossing status, in hexadecimal format and with decoding

Example

Get sensor data values for a temperature sensor `Local Temp` on IPM controller 10.

```
# clia sensordata 10 0:2
Pigeon Point Shelf Manager Command Line Interpreter
10: LUN: 0, Sensor # 2 ("lm75 temp")
    Type: Threshold (0x01), "Temperature" (0x01)
    Belongs to entity (0xf0, 0x60): FRU # 0
    Status: 0xc0
        All event messages enabled from this sensor
        Sensor scanning enabled
        Initial update completed
    Raw data: 41 (0x29)
    Processed data: 41.000000 degrees C
    Status: 0x08
        At or Above Upper Non-Critical Threshold
# clia sensordata 10 "Local Temp"
Pigeon Point Shelf Manager Command Line Interpreter
10: LUN: 0, Sensor # 3 ("Local Temp")
    Type: Threshold (0x01), "Temperature" (0x01)
    Belongs to entity (0xf0, 0x60): FRU # 0
    Status: 0xc0
        All event messages enabled from this sensor
        Sensor scanning enabled
        Initial update completed
    Raw data: 27 (0x1b)
    Processed data: 27.000000 degrees C
    Status: 0x00
#
```

version

Syntax

`version`

Purpose

This command shows the version information for the shelf manager software.

Example

```
# clia version
Pigeon Point Shelf Manager Command Line Interpreter
Pigeon Point Shelf Manager ver. 2.5.1
Pigeon Point is a trademark of Pigeon Point Systems.
Copyright (c) 2002-2007 Pigeon Point Systems
All rights reserved
Build date/time: Feb 11 2008 14:34:10
Carrier: SUN_M1
Carrier subtype: 7; subversion: 5
#
```

APPENDIX **B**

Switch Commands

This appendix provides a reference of switch commands that can be used to administrate and monitor the I3 switch chips and their ports. These commands compliment the CLIA commands.

Topics in this chapter include:

Command Summary

The switch commands are a simplified way to direct the Pigeon Point Shelf Manager, internal to the Sun Datacenter Switch 3456, to perform more complex tasks. Only the `root` user of the Shelf Manager can run the switch commands. The format of the switch commands is as follows:

`#` *command* `[`*arguments*`][`*arguments*`]...`

TABLE B-1 lists the switch commands alphabetically, with cross-references to information about the commands.

TABLE B-1 Command Line Interface Agent Sub-Commands

Command Syntax	Cross-reference
`checkboot` *switch*	"`checkboot`" on page 103
`checkpower`	"`checkpower`" on page 108
`geti3fwver` *switch port*	"`geti3fwver`" on page 103

TABLE B-1 Command Line Interface Agent Sub-Commands

Command Syntax	Cross-reference
`getportcounters` *switch port* `[-c]`	"`getportcounters`" on page 98
getportstatus *switch port* `[-v]`	"`getportstatus`" on page 104
`getsymerr` *switch port*	"`getsymerr`" on page 105
`i2ctest`	"`i2ctest`" on page 109
`i3prog`	"`i3prog`" on page 99
`listlinkup`	"`listlinkup`" on page 106
`mon_test`	"`mon_test`" on page 110
`phyconfig -s` *switch* `-p` *port* `[-l enable|disable]`	"`phyconfig`" on page 100
`resetswitch` *state*	"`resetswitch`" on page 101
`setport` *switch port*	"`setport`" on page 102

I3 Switch Chip Control Commands

This section describes the commands to manage or configure the I3 switch chips.

`getportcounters`

Syntax

`getportcounters` *switch port* `[-c]`

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

Purpose

This command returns the value of all port counters for a particular *switch* and *port* on that switch. The `-c` option will clear all counters, instead of displaying them.

Example

Display the counters for switch chip 1, port 5.

```
# getportcounters 1 5
Port counters on switch 1 port 5 :
Symbol error counter                  : 0x0000
Link error recovery counter           : 0x00
Link down counter                     : 0x00
PortRcvErrors counter                 : 0x0000
PortRcvSwitchRelayErrors counter      : 0x0000
PortXmitDiscards counter              : 0x0000
PortXmitConstraintErrors counter      : 0x00
PortRcvConstraintErrors counter       : 0x00
LocalLinkIntegrityErrors counter      : 0x00
ExcessiveBufferOverrunErrors counter : 0x00
VL15Dropped counter                   : 0x0000
PortXmitData counter                  : 0x001b0000
PortRcvData counter                   : 0x001b7ae8
PortXmitPkts counter                  : 0x00007ae8
PortRcvPkts counter                   : 0x000061b5
PortXmitWait counter                  : 0x000061b5
#
```

i3prog

Syntax

`i3prog` *filename switch* `-g` *GUID*

where:

- *filename* is the firmware filename.
- *switch* – The number of the switch chip (0 - 2).
- *GUID* is the 8-byte Global Unit IDentifier of the switch.

Purpose

This command programs I3 switch chips with new firmware. This command can also program the GUID. Two binaries are sent by FTP to the shelf manager's file system. The firmware filenames have this format:

M1-*identifier-version*_52.bin

M1-*identifier-version*_53.bin

When the I3 switch chip is programmed, the _52.bin and _53.bin extensions are removed. The i3prog command looks for the extensions automatically.

Note – When you upgrade the firmware of one I3 switch chip, all switch chips should have the same firmware.

Example

Program I3 switch chip 0 with M1-Rev-A_52.bin and M1-Rev-A_53.bin:

```
 # i3prog M1-Rev2-A 0 -g 00 03 ba 7a a1 87 00 a0
```

phyconfig

Syntax

phyconfig -s *switch* -p *port* [-l enable|disable]

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

Purpose

This command configures the physical layer (phy) of the network interface within the I3 switch chip. The default use of the phyconfig command is to return the I3 switch chip configuration for the identified port. The -l option toggles enabling and disabling the serial loopback (sloop) mode within the port.

Example

Report the configuration at switch chip 1, port 5.

```
# phyconfig -s 1 -p 5
Settings for switch 1 port 5:
Equalization0: 0x06
Equalization1: 0x06
Equalization2: 0x06
Equalization3: 0x06
PreEmphPreAmp0: 0x0f
PreEmphPreAmp1: 0x0f
PreEmphPreAmp2: 0x0f
PreEmphPreAmp3: 0x0f
PreEmphAmp0: 0x01
PreEmphAmp1: 0x01
PreEmphAmp2: 0x01
PreEmphAmp3: 0x01
TXOutputPreAmp0: 0x0f
TXOutputPreAmp1: 0x0f
TXOutputPreAmp2: 0x0f
TXOutputPreAmp3: 0x0f
TXOutputAmp0: 0x08
TXOutputAmp1: 0x08
TXOutputAmp2: 0x08
TXOutputAmp3: 0x08
Sloop: disabled
#
```

resetswitch

Syntax

`resetswitch` *state*

where *state* is:

- `1` – put I3 switch chips into reset
- `0` – releases reset

Purpose

This command holds the I3 switch chips in a reset state indefinitely. Individual I3 switch ships cannot be reset.

Example

Reset the I3 switch chips:

```
# resetswitch 1
# resetswitch 0
#
```

setport

Syntax

`setport on|off` *switch* `[`*port*`]`

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

Purpose

This command enables or disables ports on particular switch chips. Setting the port to `255` in conjunction with the `on` option, enables all ports on a switch chip.

Examples

Disable switch chip 1, port 5.

```
# setport off 1 5
SW = 1, port = 5
#
```

Enable all ports on switch chip 0:

```
# setport on 0 255
SW = 0, port = 255
#
```

I3 Switch Chip Monitoring Commands

This section describes commands used to monitor the I3 switch chips:

- "checkboot" on page 103

checkboot

Syntax

`checkboot` *switch*

where *switch* is the number of the switch chip (0 - 2).

Purpose

This command checks the boot status of an I3 switch chip. Output is a simplified `OK`.

Example

Check the boot status for I3 switch chip 0:

```
# checkboot 0
Switch 0 OK
#
```

geti3fwver

Syntax

`geti3fwver` *switch port*

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

Purpose

This command displays firmware information for I3 switch chips. Output identifies firmware type and version number.

Example

Display the firmware versions for I3 switch chip 0:

```
# geti3fwver 0 0
I3 FW image version  : 1.0.0
I3 FW build ID       : 0x00002e9e
I3 INI file version  : 0x0000a002
#
```

getportstatus

Syntax

`getportstatus` *switch port* `[-v]`

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

Purpose

This command returns the status of the specified *port* of a particular *switch* chip. The `-v` option provides verbose output.

Examples

Show the status of switch chip 1, port 5.

```
# getportstatus 1 5
Port Info for switch 1 port 5 :
PortState:             0x04 Active
PortPhysicalState:     0x05 LinkUp
LinkSpeedActive:       0x02 5 Gbps
#
```

Show the verbose status of switch chip 1, port 5.

```
# getportstatus 1 5 -v
Port Info for switch 1 port 5 :
MKey:                   0x0004010000000000
GidPrefix:              0x0000000000000000
LID:                    0x0000
MasterSMLID:            0x0000
CapabilityMask:         0x00000000
DiagCode:               0x0000
M_KeyLeasePeriod:       0x0000
LocalPortNum:           0x00
LinkWidthEnabled:       0x03 1x or 4x
LinkWidthSupported:     0x03 1x or 4x
LinkWidthActive:        0x02 4x
.
.
.
```

getsymerr

Syntax

`getsymerr` *switch port* `[-c]`

where:

- *switch* – The number of the switch chip (0 - 2).
- *port* – The number of the port (1 - 24).

Purpose

This command shows the symbol error counter for the specified *port* for a particular *switch* chip. The `-c` option clears the counter.

Examples

Display the symbol error counter for switch chip 1, port 5.

```
# getsymerr 1 5
Symbol error counter switch 1 port 5 : 0x0000
#
```

listlinkup

Syntax

```
listlinkup
```

Purpose

This command lists the availability of ports on the switch chips, providing the speed type (SDR or DDR). If a port is not available, it is not listed.

Example

```
# listlinkup
Switch 00 Port 05 iPASS 5A  is up (speed = DDR)
Switch 00 Port 06 iPASS 4B  is up (speed = DDR)
Switch 00 Port 07 iPASS 9A  is up (speed = DDR)
Switch 00 Port 08 iPASS 9B  is up (speed = DDR)
Switch 00 Port 18 iPASS 7B  is up (speed = DDR)
.
.
.
```

TABLE B-2 provides a mapping of the iPASS connector and its link LEDs to the respective I3 switch chip and port. The I3 switch chip and port are given as *chip-port*, where:

- *chip* – The identifying number of the I3 switch chip (00, 01, 02).
- *port* – The identifying number of the port (01 - 24).

TABLE B-2 Connector and LED to I3 Switch Chip and Port Mapping

	iPASS Connector B			iPASS Connector A		
Connector Group	**Left LED**	**Center LED**	**Right LED**	**Left LED**	**Center LED**	**Right LED**
0	02-23	01-20	00-20	02-22	01-19	00-19
1	02-18	01-15	00-15	02-24	01-21	00-21
2	02-16	01-13	00-13	02-17	01-14	00-14
3	02-08	01-11	00-11	02-07	01-10	00-10
4	02-03	01-06	00-06	02-09	01-12	00-12
5	02-01	01-04	00-04	02-02	01-05	00-05
6	00-23	02-20	01-23	00-22	02-19	01-22
7	00-18	02-15	01-18	00-24	02-21	01-24

TABLE B-2 Connector and LED to I3 Switch Chip and Port Mapping *(Continued)*

	iPASS Connector B			iPASS Connector A		
Connector Group	**Left LED**	**Center LED**	**Right LED**	**Left LED**	**Center LED**	**Right LED**
8	00-16	02-13	01-16	00-17	02-14	01-17
9	00-08	02-11	01-08	00-07	02-10	01-07
10	00-03	02-06	01-03	00-09	02-12	01-09
11	00-01	02-04	01-01	00-02	02-05	01-02

For example, the center LED on iPASS connector 5A is I3 switch chip 01, port 05.

A reverse lookup is provided in TABLE B-3. The connector and LED are given as *connectorletter-location*, where:

- *connector* – The identifying number of the connector group (0 - 11).
- *letter* – The letter identifying the upper (B) or lower (A) connector.
- *location* – The location of the LED: left, center, or right.

TABLE B-3 I3 Switch Chip and Port Mapping to Connector and LED

Port	I3 Switch Chip 00	I3 Switch Chip 01	I3 Switch Chip 02
01	11B-left	11B-right	5B-left
02	11A-left	11A-right	5A-left
03	10B-left	10B-right	4B-left
04	5B-right	5B-center	11B-center
05	5A-right	5A-center	11A-center
06	4B-right	4B-center	10B-center
07	9A-left	9A-right	3A-left
08	9B-left	9B-right	3B-left
09	10A-left	10A-right	4A-left
10	3A-right	3A-center	9A-center
11	3B-right	3B-center	9B-center
12	4A-right	4A-center	10A-center
13	2B-right	2B-center	8B-center
14	2A-right	2A-center	8A-center
15	1B-right	1B-center	7B-center
16	8B-left	8B-right	2B-left

TABLE B-3 I3 Switch Chip and Port Mapping to Connector and LED

Port	I3 Switch Chip 00	I3 Switch Chip 01	I3 Switch Chip 02
17	8A-left	8A-right	2A-left
18	7B-left	7B-right	1B-left
19	0A-right	0A-center	6A-center
20	0B-right	0B-center	6B-center
21	1A-right	1A-center	7A-center
22	6A-left	6A-right	0A-left
23	6B-left	6B-right	0B-left
24	7A-left	7A-right	7A-left

For example, I3 switch chip 00, port 18 is the left LED on connector 7B.

Other Commands

This section describes other commands:

- "checkpower" on page 108
- "i2ctest" on page 109
- "mon_test" on page 110

checkpower

Syntax

```
checkpower
```

Purpose

This command checks the status of the power buses used by the I3 switch chips.

Example

Check the power status for the I3 switch chips:

```
# checkpower
1.8V enabled
1.6V enabled
1.2V A enabled
1.2V B enabled
1.2V C enabled
#
```

i2ctest

Syntax

```
i2ctest
```

Purpose

This command conducts a pass-fail test of the I^2C devices on the shelf manager. Output identifies device, bus, address, and result of test.

Example

Perform the I²C test:

```
# i2ctest
M1 I2C access test started
I2C test of ADM1026 at bus 0 addr 2e -PASSED
I2C test of PCA9506 at bus 0 addr 22 -PASSED
I2C test of PCA9506 at bus 0 addr 23 -PASSED
I2C test of LM75    at bus 0 addr 48 -PASSED
I2C test of PCA9501 at bus 0 addr 1a -PASSED
I2C test of PCA9547 at bus 0 addr 70 -PASSED
I2C test of PCA9547 at bus 0 addr 71 -PASSED
I2C test of PCA9548 at bus 0 addr 76 -PASSED
I2C test of I3 # 0 EPROM at bus 0 addr 52 -PASSED
I2C test of I3 # 0 EPROM at bus 0 addr 53 -PASSED
I2C test of I3 # 0 EPROM at bus 0 addr 56 -PASSED
I2C test of I3 # 0 EPROM at bus 0 addr 57 -PASSED
I2C test of I3 # 1 EPROM at bus 0 addr 52 -PASSED
I2C test of I3 # 1 EPROM at bus 0 addr 53 -PASSED
I2C test of I3 # 1 EPROM at bus 0 addr 56 -PASSED
I2C test of I3 # 1 EPROM at bus 0 addr 57 -PASSED
I2C test of I3 # 2 EPROM at bus 0 addr 52 -PASSED
I2C test of I3 # 2 EPROM at bus 0 addr 53 -PASSED
I2C test of I3 # 2 EPROM at bus 0 addr 56 -PASSED
I2C test of I3 # 2 EPROM at bus 0 addr 57 -PASSED
I2C test of PCA9506 at bus 4 addr 20 -PASSED
I2C test of PCA9506 at bus 4 addr 21 -PASSED
I2C test of 24lc64  at bus 4 addr 54 -PASSED
M1 I2C access test PASSED
#
```

mon_test

Syntax

```
mon_test
```

Purpose

This command performs an environmental test for the Sun Datacenter Switch 3x24. The output provides voltage and temperature values, and also provides error messages.

Example

Display the environmental status for the Sun Datacenter Switch 3x24:

```
# mon_test
M1 Environment test started

Measured 3.3V STBY = 3.38 V
Measured 3.3V Main = 3.36 V
Measured 5V = 5.15 V
Measured 12V = 12.19 V
Measured 1.2V A = 1.18 V
Measured 1.2V B = 1.18 V
Measured 1.2V C = 1.18 V
Measured 1.6V = 1.59 V
Measured 1.8V = 1.80 V
Warning : low VBAT, Measured VBAT = 0.55 V
I2C test of ADM1026 at bus 0 addr 2e -FAILED
Temperature at LM75 = 30 ºC
Temperature at ADM1026 = 25 ºC
Temperature at PS 1 ADM1026 = 22 ºC
Temperature at PS 1 T_AMB = 20 ºC
Temperature at PS 1 T_HS = 23 ºC
Temperature at PS 2 ADM1026 = 22 ºC
Temperature at PS 2 T_AMB = 21 ºC
Temperature at PS 2 T_HS = 22 ºC

M1 Environment test FAILED
#
```

APPENDIX C

Upgrading the Firmware and Other Tasks

This appendix provides instructions using the `rupgrade_tool` command to update the firmware in the Sun Datacenter Switch 3x24. Topics include:

Firmware Layout

The firmware inside of the shelf manager is divided into two primary sections:

- Persistent – This section of firmware is that being used. It is considered functional and not corrupt.
- Provisional – This section of firmware is that being updated. It is uncertain if it is functional or corrupt.

The shelf manager uses the persistent section for normal operations. When upgrading the firmware, the commands and routines in the persistent section are used to build their replacements in the provisional section. Once this is done, the provisional section is checked and verified, and then it becomes the persistent section. At this time, the older persistent section becomes the new provisional section. This way, a functional, uncorrupted version of the firmware is always available.

Within each section of the firmware, are three partitions:

- U-Boot – The core boot area.
- Linux Kernel – The operating system for the shelf manager.
- Root file system – The file system used by the shelf manager.

To upgrade the firmware means to upgrade any one or all of these partitions.

The `rupgrade_tool` Command

The firmware in the Sun Datacenter Switch 3x24 is upgraded using the rupgrade_tool command. The format of the command is:

`rupgrade_tool` *option* `[`*argument*`][`*argument*`] ....`

TABLE C-1 lists the options to this command.

TABLE C-1 Options for the `rupgrade_tool` Command

Option	Description
`-h [--help]`	Prints help information.

`-s [--u=`*filename*`][--k=`*filename*`] [--r=`*filename*`][--proto=`*protocol*`] [--hook=`*script*`][-v][-d]`	Starts the upgrade.
	`[--u=`*filename*`.bin]` – U-Boot firmware filename.
	`[--k=`*filename*`.kernel]` – Linux kernel firmware filename.
	`[--r=`*filename*`.rfs]` – Root file system firmware filename.
	`[--proto=`*protocol*`]` – Sets the protocol to use for upgrade. *protocol* can be in the form of:
	`no` – firmware files are already in `/tmp`
	`cp:`*path_to_files* – firmware files are already in a local directory
	`ftp:`*server_ip_address*`:`*path_to_files*`:`*username*`[:`*password*`]`
	`scp:`*server_ip_address*`:`*path_to_files*`:`*username*`[::`*port*`]`
	`[--hook=`*script*`]` – Calls a script.
	`[-v]` – Enables verbose output.
	`[-d]` – Bypasses downloading the firmware file to the `/tmp` directory.

`-c [-v]`	Checks the upgrade. `[-v]` – Enables verbose output.
`-f [--hook=`*script*`] [-v]`	Completes the upgrade procedure. This flips provisional to persistent and vice-versa. `[--hook=`*script*`]` – Calls a script. `[-v]` – Enables verbose output.

TABLE C-1 Options for the `rupgrade_tool` Command

Option	Description
`-w [-f]`	Prints out the log of the upgrade, the `/var/upgrade/status` file. `[-f]` – Deletes the `/var/upgrade/status` file.
`-S [-v]`	Strobes the upgrade WDT and validates the sanity of the upgrade. `[-v]` – Enables verbose output.
`-u`	Undoes a successful upgrade session, reverting to the previous persistent section. Also invokes a reboot.

Upgrading the Firmware

This procedure describes upgrading the firmware from a remote server, using the FTP protocol.

▼ To Download the Firmware

1. **As superuser, open a web browser and go to this URL:**

   `http://www.sun.com/site/where/firmware/is`

2. **Download the most current versions of the U-Boot, kernel and file system firmware.**

3. **In the download directory, expand the compressed files.**

   Once expanded, the firmware images have the following filename formats:

   - *U-Boot_filename*`.bin` – The U-Boot firmware image.
   - *Linux_filename*`.kernel` – The Linux kernel firmware image.
   - *RootFileSystem_filename*`.rfs` – The root file system firmware image.

4. **Copy the files to the FTP server's tftboot directory.**

Note – If you do not have an FTP server configured, see "Setting Up a TFTP Server" on page 116.

---

5. **Make the tftboot directory available to the shelf manager in the Sun Datacenter Switch 3x24.**

▼ To Upgrade the Firmware

1. **Log into the shelf manager of the Sun Datacenter Switch 3x24 as the root user.**
2. **Begin the firmware upgrade.**

   For example:

```
# rupgrade_tool -s --u=ubooter.bin --k=linux.kernel --r=rootfilesystem.rfs --
proto=ftp:123.456.789.000:/tftpboot/firmware:admin -v
```

   The upgrade begins.

   The user might be asked for the password of the admin user.

   The upgrade process calls scripts.

3. **When completed, verify the upgrade:**

```
# rupgrade_tool -w
```

Setting Up a TFTP Server

If not already configured, the following procedure describes how to set up a TFTP server on a Solaris system.

▼ To Set Up a TFTP Server

1. **On the system that you intend to set up as the TFTP server, log in as superuser.**
2. **Use a text editor to uncomment or add the following line, if it is missing, to the** `/etc/inetd.conf` **file:**

```
tftp dgram udp6 wait root /usr/sbin/in.tftpd in.tftpd -s /tftpboot
```

3. **On the same system create a TFTP home directory by typing the following at the Solaris prompt:**

```
# mkdir /tftpboot
# chown root /tftpboot
# chmod 755 /tftpboot
# cd /tftpboot
# ln -s . tftpboot
```

4. **Restart** `inetd` **by typing:**

```
# pkill -HUP inetd
```

5. **Verify that TFTP is working by getting a file from the** `/tftpboot` **directory:**

   a. **On the system that you are using as the TFTP server, copy the firmware file to the** `/tftpboot` **directory.**

      For example:

```
# cp /export/firmwarefilename /tftpboot/
```

      Where *firmwarefilename* is the firmware file you intend to make available on the TFTP server.

   b. **Make the file you have just copied read-only:**

```
# chmod 444 /tftpboot/firmwarefilename
```

   c. **Change to a temporary directory:**

```
# cd /tmp
```

   d. **Use TFTP to get the file from the** `tftpboot` **directory:**

```
# tftp localhost
tftp> get firmwarefilename
Received xxx bytes in x.x seconds
tftp>
```

      If the received bytes is approximately the same as the firmware file size, the TFTP server is functioning properly.

Note – Note that TFTP is not the same as FTP. It does not display the same error messages as FTP, and you cannot use the `cd` or `ls` commands (or indeed most other commands) that FTP allows you to use.

Re-Performing Initial Setup

▼ To Re-Perform Initial Setup

Follow this procedure if you need to configure new IP addresses. Alternatively, follow the instructions in "Powering On the Sun Datacenter Switch 3x24" on page 22.

1. **To connect to the Sun Datacenter Switch 3x24, enter the following command on the host:**

```
# tip -115200 /dev/ttya
```

2. **Power on the switch.**

   When the switch boots, press any key on the keyboard to stop the boot at the boot monitor with the > prompt.

3. **Type the following commands to set the gateway IP address and the host IP address:**

```
> setenv gatewayip 192.168.1.1
> setenv ipaddr 192.168.1.60
> setenv rc_ifconfig y
```

Note – Ensure that you use your own IP addresses instead of those shown in the example. Use only numerical IP addresses. Symbolic host names are not supported.

4. **Save the configuration:**

```
> saveenv
```

Note – If you need to get back to the boot monitor to change any addresses, connect to the serial management port and reboot the switch while pressing any key on the keyboard.

5. To continue booting the Sun Datacenter Switch 3x24, issue the boot command:

```
> boot
```

The system boots.

APPENDIX **D**

Sun Datacenter Switch 3x24 Specifications and Pinouts

This appendix provides the Sun Datacenter Switch 3x24 specifications.

Topics include:

Physical Specifications

TABLE D-1 Physical Specifications

Dimension	Measurements
Width	17.52 in. (445.0 mm)
Depth	24 in. (609.6 mm)
Height	1.75 in. (44.5 mm)
Weight	23.0 lbs (11.4 kg)

Environmental Requirements

You can operate the switch safely in the conditions detailed in TABLE D-2.

TABLE D-2 Operating and Storage Specifications

Parameter	Operating
Ambient temperature	41˚F to 89.6˚F (5˚C to 32˚C)
Relative humidity	5% to 85% noncondensing, 80˚F (27˚C) maximum wet bulb
Elevation (Sun requirement)	Maximum 9840 feet (3000 meters) at 104˚F (40˚C)

Acoustic Noise Emissions

The acoustic noise emissions for the switch are as detailed in TABLE D-3:

TABLE D-3 Acoustic Noise Emissions

Parameter	Operating	Idling
Acoustic power LWAd (1B=10dB)	7.1 B	7.2 B
Acoustic pressure LpAm	58.9 dBA	59.0 dBA

Declared noise emissions are in accordance with ISO 9296 standards.

Electrical Specifications

TABLE D-4 Electrical Specifications

Parameter	AC Version Requirement
Voltage	100 VAC to 240 VAC single phase, 47-63 Hz
Current (per input)	5.4 A maximum per input at 100 VAC
Current (total)	5.6 A maximum total for all inputs at 100 VAC
Power*	550 Watts

* Total input power is approximately equally divided among the operating power supplies.

Connectors and Pinouts

Network Management Connector

FIGURE D-1 shows the location and pins of the network management connector.

FIGURE D-1 Location and Pins of the Network Management Connector

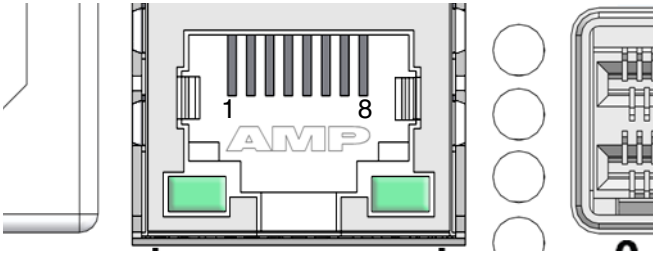


TABLE D-5 lists the pinout of the network management connector.

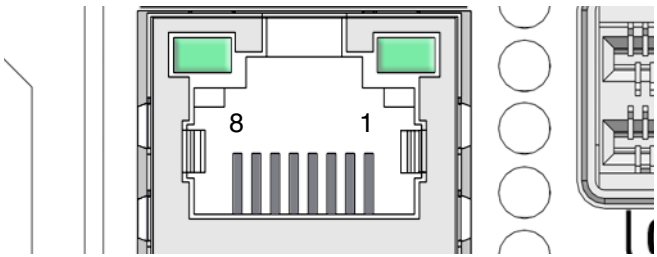
TABLE D-5 Network Management Connector Pinout

Pin	Signal
1	TXD+
2	TXD-
3	RXD+
4	Not used
5	Not used
6	RXD-
7	Not used
8	Not used

Serial Management Connector

EXAMPLE D-1 shows the location and pins of the serial management connector.

EXAMPLE D-1 Location and Pins of the Serial Management Connector



Note – The LEDs of the serial management connector are not operational.

TABLE D-6 lists the pinout of the serial management connector.

TABLE D-6 Serial Management Connector Pinout

Pin	Signal
1	RTS
2	DTR
3	TXD
4	GND
5	GND
6	RXD
7	DSR
8	CTS

iPASS Connector

The iPASS connector has two stacked InfiniBand connections. Each connection supports three InfiniBand 4X ports through 84 pins. To prevent duplication, FIGURE D-2 shows only the pins for one of the connections.

FIGURE D-2 Pins of the iPASS Connector

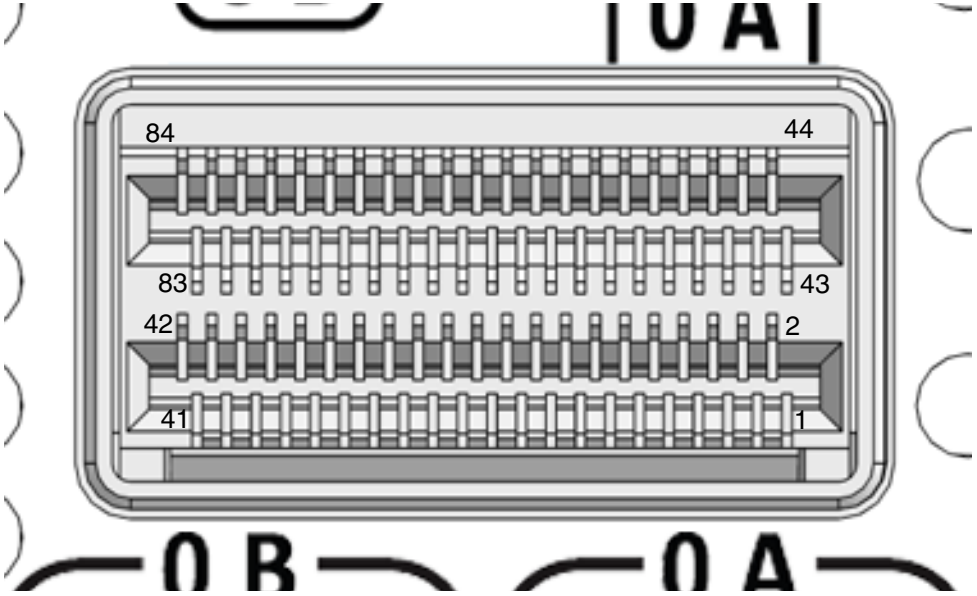


TABLE D-7 lists the pinout for each connection.

TABLE D-7 iPASS Pinout

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	3.3V	22	12V	43	3.3V	64	12V
2	P1Op(1)	23	P1Op(0)	44	P1Ip(1)	65	P1Ip(0)
3	P1On(1)	24	P1On(0)	45	P1In(1)	66	P1In(0)
4	GND	25	GND	46	GND	67	GND
5	P1Op(3)	26	P1Op(2)	47	P1Ip(3)	68	P1Ip(2)
6	P1On(3)	27	P1On(2)	48	P1In(3)	69	P1In(2)
7	GND	28	GND	49	GND	70	GND
8	P2Op(1)	29	P2Op(0)	50	P2Ip(1)	71	P2Ip(0)
9	P2On(1)	30	P2On(0)	51	P2In(1)	72	P2In(0)
10	GND	31	GND	52	GND	73	GND
11	P2Op(3)	32	P2Op(2)	53	P2Ip(3)	74	P2Ip(2)
12	P2On(3)	33	P2On(2)	54	P2In(3)	75	P2In(2)
13	GND	34	GND	55	GND	76	GND

TABLE D-7 iPASS Pinout *(Continued)*

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
14	P3Op(1)	35	P3Op(0)	56	P3Ip(1)	77	P3Ip(0)
15	P3On(1)	36	P3On(0)	57	P3In(1)	78	P3In(0)
16	GND	37	GND	58	GND	79	GND
17	P3Op(3)	38	P3Op(2)	59	P3Ip(3)	80	P3Ip(2)
18	P3On(3)	39	P3On(2)	60	P3In(3)	81	P3In(2)
19	IA2	40	IA1	61	FULL	82	HALF
20	SCL	41	CP2	62	S2	83	CP1
21	SDA	42	IA0	63	S1	84	CP0

TABLE D-8 provides descriptions of the signals listed in TABLE D-7.

TABLE D-8 iPASS Signal Descriptions

Signal	Description
GND	Ground for both signal and power return.
3.3V	3.3V standby power from the power supplies.
12V	12V power for cable export and future enhancements.
P*port*O*diff*(*bit*)	Differential InfiniBand transmit(output) signal, where: • *port* — 1, 2, or 3 • *diff* — n or p for negative or positive • *bit* — bits per lane, 0 to 3
P*port*I*diff*(*bit*)	Differential InfiniBand receive(input) signal, where: • *port* — 1, 2, or 3 • *diff* — n or p for negative or positive • *bit* — bits per lane, 0 to 3
CP*bit*	Cable performance code, where *bit* is 0, 1, or 2.
IA*bit*	I^2C address bits, where *bit* is 0, 1, or 2.
SCL	I^2C clock.
SDA	I^2C data I/O.
S*state*	Cable status, where *state* is either 1 or 2.
HALF, FULL	Hot plug signals.

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