

**Cisco SFS 3001 Multifabric Server Switch
Hardware Guide (Topspin 90 Hardware Guide)
Release 2.1.0**

Copyright © 2003 - 2004 Topspin Communications, Inc. All rights reserved.

The Topspin Switched Computing System, Topspin Host Channel Adapter, Topspin Element Manager, and collateral software programs and documentation are subject to and made available only pursuant to the license agreement signed by you and Topspin, Communications, Inc. (or if no signed license agreement exists, the license agreement included with your original media) and may only be used in accordance with the terms of that agreement. Making copies, modifications, or compilation works of the software except as specifically allowed in that agreement is prohibited by law and constitutes a punishable violation of the law. This documentation may not be copied, modified or reduced to any electronic or machine-readable form without Topspin Communication, Inc.'s prior written consent.

As defined in FAR section 2.101, DFAR section 252.227-7014(a)(1) and DFAR section 252.227-7014(a)(5) or otherwise, the collateral software programs provided to you are “commercial items,” “commercial computer software” and/or “commercial computer software documentation.” Consistent with DFAR section 227.7202, FAR section 12.212 and other sections, any use, modification, reproduction, release, performance, display, disclosure or distribution thereof by or for the U.S. Government shall be governed solely by the terms of the license agreement and shall be prohibited except to the extent expressly permitted by the terms of that agreement. Any technical data provided that is not covered by the above provisions shall be deemed “technical data-commercial items” pursuant to DFAR section 227.7015(a) or equivalent. Any use, modification, reproduction, release, performance, display or disclosure of such technical data shall be governed by the terms of DFAR section 227.7015(b) or equivalent.

This documentation may include technical inaccuracies or typographical errors and is subject to correction and other revision without notice. TOPSPIN PROVIDES THIS DOCUMENTATION “AS IS” AND WITHOUT ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states or jurisdictions do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

©Copyright 2003 - 2004, Topspin Communications, Inc. All rights reserved. Topspin is a registered trademark and the Topspin logo, TopspinOS, and Topspin Switched Computing System are trademarks of Topspin Communications, Inc. Other company, product, or service names are the property of their respective owners.

Document Version: 2.1.0

Part Number: OL-7714-01

Product ID: 140254

July, 2004

Printed in the United States of America.

1: Features Overview 1

System Architecture.....	1
InfiniBand Connectivity	2
High-Availability	2
Non-Blocking Architecture.....	3
Switch Performance	3
About the Topspin 90 Chassis	3
Dimensions	3
Fan Tray	4
Power Supplies	4
LEDs	4
Connections	4
Controller	4
Reset Button.....	4
Gateway Expansion Slot.....	4
Administrative Features	5
Real-Time Clock.....	5
Non-Volatile Memory.....	5
Vital Product Data Storage	5
Diagnostics.....	5

2: Installing the Topspin 90 System 7

Prepare the Site	7
Read the Cautionary Statements	7
Prepare the Physical Environment for the System.....	7
Mount the Topspin 90 Chassis in a Rack	8
Requirements	8
Prepare for the Installation.....	8
(Optional) Install a Gateway in a New System.....	12
Cable the Switch	13
Connect Management Ports	13
Connect InfiniBand Cables	15
Standard 4X InfiniBand cables are required to connect to hosts or switches using InfiniBand. InfiniBand cables can be used to connect any two InfiniBand devices, whether switch or host.....	15
(Optional) Connect to Ethernet Devices	15
(Optional) Connect to Fibre Channel Devices.....	15
Connect the Power Cords	16
Configure Basic Connectivity.....	17
Assigning an Address Statically	17
Assigning an Address Dynamically (DHCP)	18
Manage the System.....	19
Launch the Chassis Manager	19
(Optional) Install the Element Manager GUI	20

3: Monitoring the Topspin 90 System..... 21

The Front-Side LEDs.....	21
Diagram of the Front LEDs	21
Types of LEDs	21
System Status LED	22
Fan Tray LED	22
Power Supply LED	22
The Back (Service-Side) LEDs.....	23
Diagram of the Back LEDs.....	23
Types of LEDs	23
InfiniBand Port LEDs	24
Ethernet Management Port LEDs	24
Ethernet Gateway LEDs	24
Fibre Channel Gateway LEDs	26
System Status LEDs.....	27
Monitoring the System with Element Manager	28
Interpreting the Summary Tab	28
Interpreting the Power Supplies Tab	29
Interpreting the Fans Tab	29
Interpreting the Sensors Tab	30
Monitor the System Through the CLI.....	30

4: Maintaining Individual Components 33

Removing a Gateway	33
Upgrading an Existing System to Include a Gateway	34
Installing and Removing Power Modules.....	35
Installing a Power Supply	35
Removing a Power Supply	35
Replacing Fan Trays	35
Installing a Fan Tray	36
Removing a Fan Tray	36

5: Specifications and Compliance Certifications 37

Environmental Specifications	37
Management Interfaces.....	38
Electrical Specifications	38
EMC/Immunity	38
Safety	38
Acoustics.....	38

6: Index 39

Features Overview

The Topspin 90 Server Switch provides data center managers with a high-performance, low-latency interconnect that provides transparent connectivity to Fibre Channel and Ethernet networks.

- [“System Architecture” on page 1.](#)
- [“About the Topspin 90 Chassis” on page 3.](#)
- [“Administrative Features” on page 5.](#)



Figure 1-1: Topspin 90 with Bezel Cover

System Architecture

The Topspin 90 provides entry-level InfiniBand connectivity for up to 12 servers, as well as an optional expansion module, which can be either Ethernet or Fibre Channel.

The Topspin 90 automatically recognizes InfiniBand servers as they are connected. With the inclusion of an optional Fibre Channel or Ethernet gateway interface card, traffic is passed between connected InfiniBand servers and the Fibre Channel targets or Ethernet servers connected to the interface gateway. For redundancy, Host Channel Adapters can be dual-connected to a redundant pair of Topspin 90s.

The Topspin 90 can be used in a variety of networking environments, including database tiers, application tiers, and web tiers.

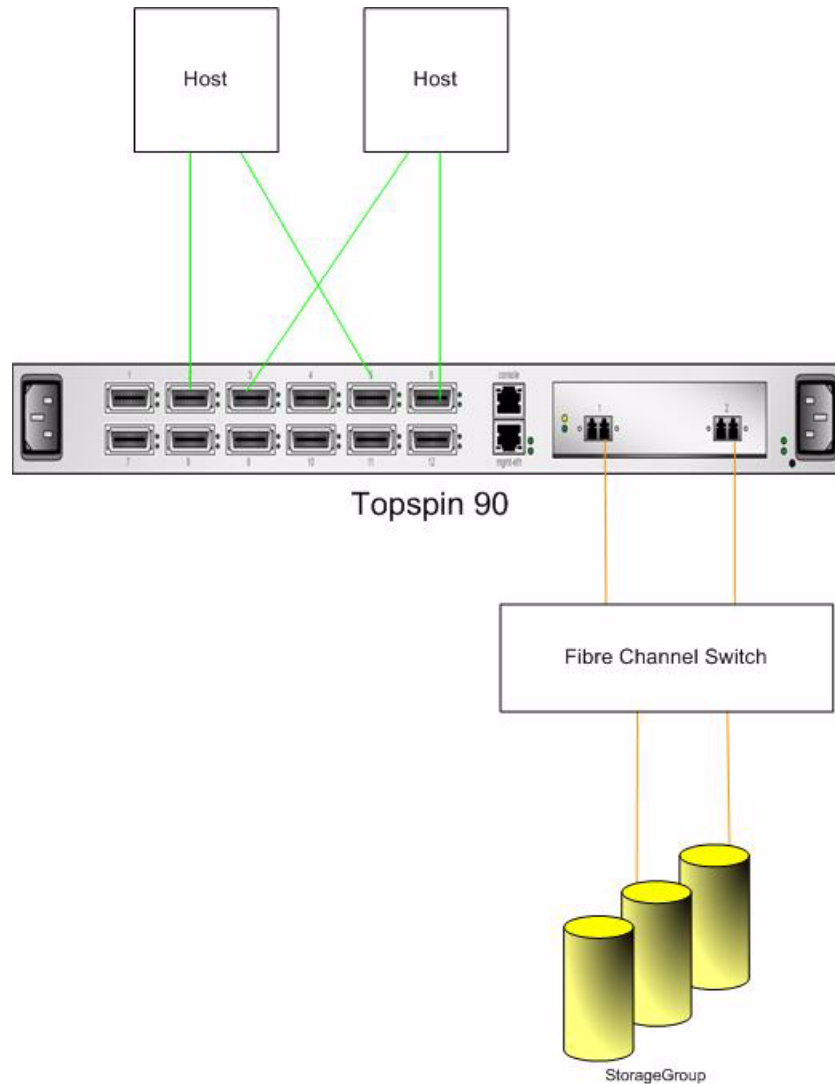


Figure 1-2: Sample Topspin 90 Topology

InfiniBand Connectivity

The Topspin 90 provides 10 Gbps connectivity to servers, 1 Gbps connectivity to Ethernet networks or 1-2 Gbps connectivity to Fibre Channel networks. You can also aggregate uplinks for greater bandwidth and redundancy.

High-Availability

Hardware

The Topspin 90 meets high-availability requirements with redundant, hot-pluggable power and cooling. The optional expansion module is also hot-swappable.

Ports

No failure on any single InfiniBand port will result in interruptions in service for any of the other ports.

Fabric

For redundancy, InfiniBand Host Channel Adapters (HCAs) can be dual-connected to a redundant pair of Topspin 90s.

In an InfiniBand fabric that includes more than one Topspin 90: if the subnet manager on the Topspin 90 that is acting as the master fails, another subnet manager will take over within seconds. All necessary state information is kept in sync.

Non-Blocking Architecture

The 12 InfiniBand ports in the Topspin 90 are non-blocking.

Switch Performance

Fabric Aggregate Bandwidth

- 192Gb/s, full-duplex

Fabric Latency

- Expected latency is less than 600 nanoseconds

About the Topspin 90 Chassis

An overview of the Topspin 90 hardware features are described in this section.

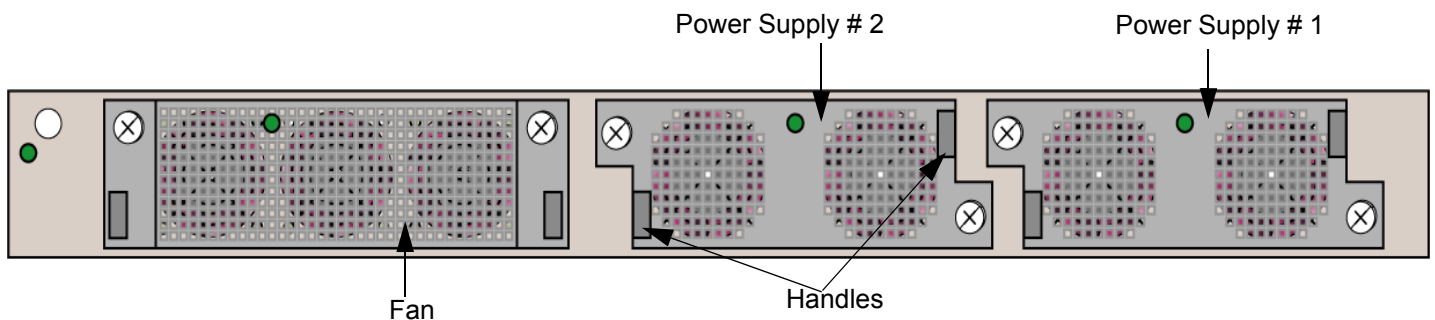


Figure 1-3: Front of Topspin 90 Chassis View without Bezel

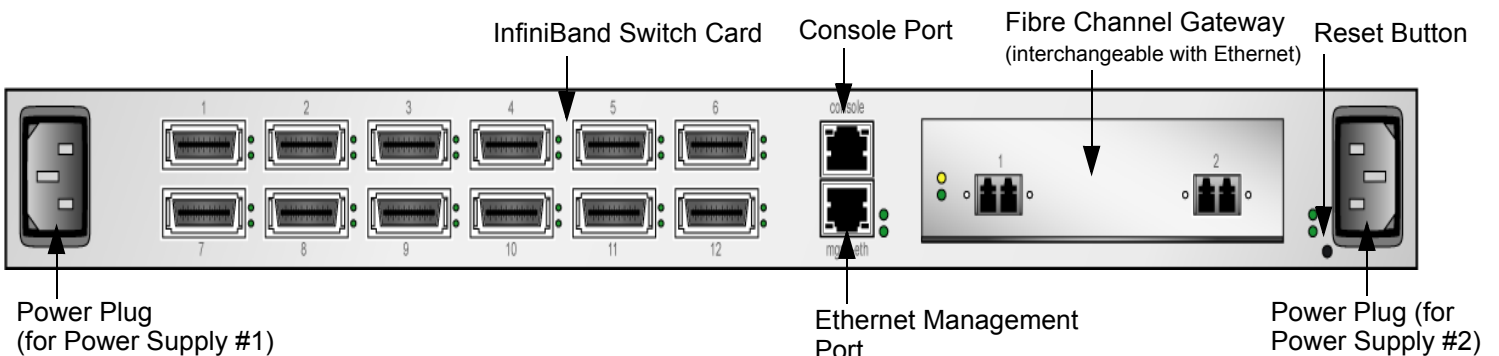


Figure 1-4: Service-Side (Back) of Topspin 90 Chassis

Dimensions

- **Height:** 1U unit

- **Size:** 17" x 1.75" x 22"

Fan Tray

The fans in the fan tray module are redundant. The unit is hot-swappable so that it can be removed and replaced. See [Figure 1-3](#).

Refer to “[Installing a Fan Tray](#)” on page 36 for instructions on removing or installing the fan tray.

- The system has a single fan tray with 3 individual fans.
- Two of the three fans in the fan module are required to cool the system.
- The fan tray is located in the front of the chassis, and forces air from front to rear.

Power Supplies

The power supply modules are redundant as well as hot-swappable, and can be removed and replaced. See [Figure 1-3](#).

Refer to “[Installing a New Power Supply Module](#)” on page 28 for installation instructions.

The Topspin 90 has two AC-DC bulk power supply modules.

- The power supplies have fans that drive air from the front to the back of the chassis.

LEDs

LEDs are located on both the front and back of the chassis. Refer to “[Monitoring the Topspin 90 System](#)” on page 21.

Connections

- 12 ports of 10 Gbps 4X Copper InfiniBand.
- One 10/100 Ethernet RJ-45 Management-Ethernet ports for out-of-band management.
- One RJ-45 Console Port used to configure and monitor the Topspin 90.
- All cabling is on the rear of the chassis.

Controller

The Topspin 90 has a single controller with an embedded subnet manager.

Reset Button

The Reset button can be used in extreme situations to hard boot the InfiniBand switch. See [Figure 1-4](#).



CAUTION: Use the Reset button only if directed by a customer support technician.

Gateway Expansion Slot

The Topspin 90 has one expansion slot for Ethernet or Fibre Channel gateway modules. The slot uses a standard single-wide, single-height InfiniBand form factor. See [Figure 1-4](#).

Refer to the *Ethernet Gateway User Guide* or the *Fibre Channel Gateway User Guide* for more information about the gateway modules.

Administrative Features

Real-Time Clock

The Topspin 90 maintains correct time regardless of power conditions or connectivity. The real-time clock in the switch automatically switches to battery backup if it detects a power failure. It consumes 1uA in backup time keeping mode. A (socked) lithium coin cell CR2032 battery provides backup power, which can provide enough charge for greater than 10 years of operation in backup time keeping mode.

Non-Volatile Memory

The memory supports up to:

- three stored system images (not including recovery image)
- one week of log files at normal verbosity; and one day of log files at maximum verbosity

Vital Product Data Storage

Vital Product Data (VPD) is stored in non-volatile memory. Some VPD info can be accessed via CLI, the Java GUI, or the Web GUI.

The following Vital Product Data can be recovered by returning a Field Replaceable Unit to the original manufacturer. Note: This requires the appropriate support contract.

- Power on hours
- Manufacturing part number
- Serial number
- Final test date
- Card ID
- Failure code
- Failure date
- Operation status
- Failure log
- OEM part number

Diagnostics

Refer to [“Hardware Diagnostic Tests” on page 29](#) for more detailed information.

The following tests are run to determine operational status:

- Power On Self Test (POST) is performed on all system components during power on to determine operational readiness.
- Redundant components' operational status is ensured periodically during normal operation. The detection of an abnormal status is reported.

Installing the Topspin 90 System

This chapter describes how to install and manage the Topspin 90 system hardware.

- [“Prepare the Site” on page 7](#)
- [“Mount the Topspin 90 Chassis in a Rack” on page 8](#)
- [“\(Optional\) Install a Gateway in a New System” on page 12](#)
- [“Cable the Switch” on page 13](#)
- [“Configure Basic Connectivity” on page 17](#)
- [“Manage the System” on page 19](#)

Prepare the Site

This section provides information that you need to safely and successfully prepare your environment for your Topspin 90. Read this section carefully before you install your device.

Read the Cautionary Statements

Refer to the [“FCC Statement” on page v](#) and the [“Safety Information” on page v](#).

Prepare the Physical Environment for the System

- Make sure you have the right cables and sufficient ventilation.
- Make sure that you have some means of grounding yourself.
- Unpack the Topspin 90 package.
- Prepare a management workstation, such as a PC running a terminal program, and a straight-through M/F DB-9 serial cable (included).

Mount the Topspin 90 Chassis in a Rack

This section describes how to install the Topspin 90 chassis in an equipment rack.

Requirements

In addition to the accessories provided with the switch, you should have:

- A Phillips screw driver
- Eight screws and any associated mounting clips to secure the brackets to your rack (2 for each rail of the rack)
- Two people are recommended to perform the install

Prepare for the Installation

1. Open the Topspin box, if you have not already done so. Remove the chassis, rack brackets, CD-ROM, parts bag, and documentation.
2. Place the chassis on a secure, clean surface.
3. Open the plastic bag containing mounting parts.
4. Check the slot in the rack for sufficient clearance.
5. Determine the direction that the switch will be installed and justified in the rack. The direction that you mount the switch will determine the direction that the brackets will need to be attached.
6. Determine the preferred rack installation procedure.
 - [“Installation Procedure #1” on page 9](#)
 - [“Installation Procedure #2” on page 11](#) (two people required)

Installation Procedure #1

There are two different ways to perform the rack installation of the Topspin 90. In procedure #1, you will attach the rails to the rack before inserting the switch. This procedure is slightly easier to perform if you only have one person.

1. Take one set of sliding brackets and separate them. Each side arrives assembled to its counterpart, but should be separated before attaching to the switch when using this method of installation.

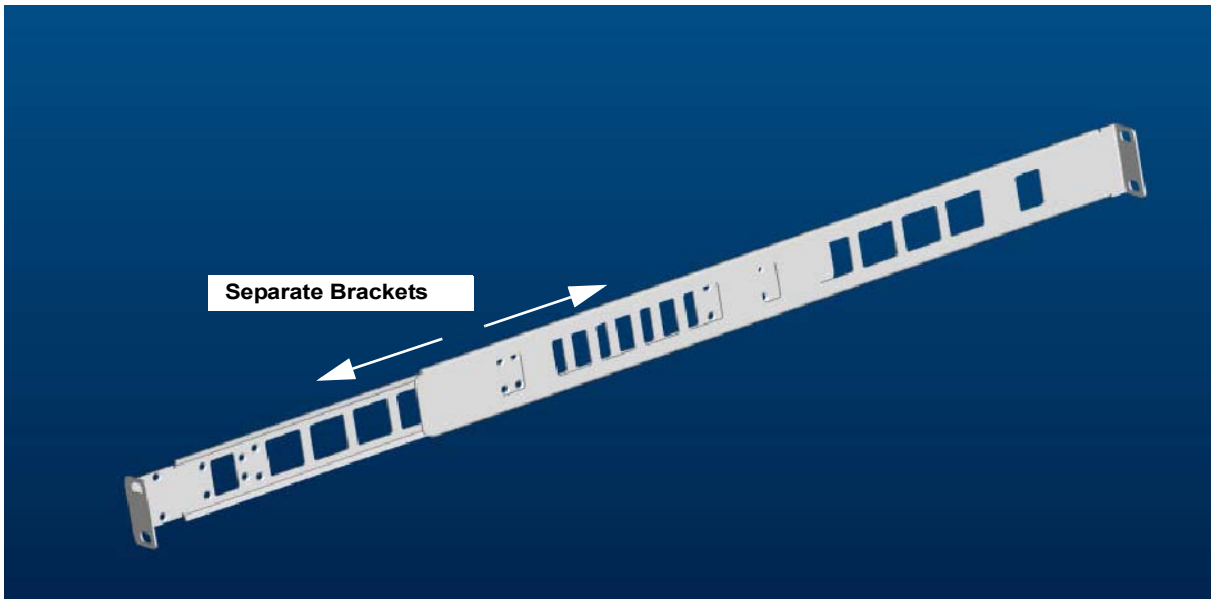


Figure 2-1: Assembled Rail Bracket Pair

2. Attach the bracket with screw holes to the side of the chassis with the flange facing away from the switch, as shown in [Figure 2-2](#).

The standard method is to face the flange toward the front of the chassis. However, you can also mount the flange toward the back if you want to mount the switch backward in the chassis (service-side forward).

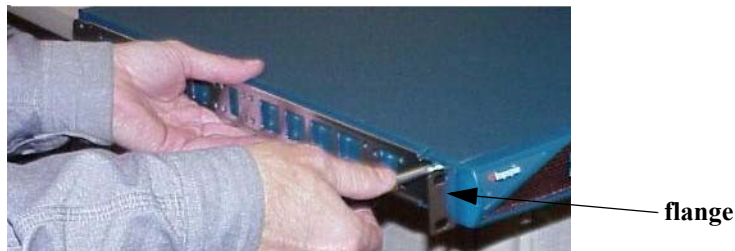


Figure 2-2: Attaching One Rail to Switch Chassis

3. Repeat steps [1](#) and [2](#) on the opposite side of the switch chassis.
The two counterparts to these sliding rails (without screw holes) should still be unattached.
4. Check the rack for clearance for the switch. The switch can be installed either directly on top of another device, or be suspended from the rack mount.

5. Attach the remaining two rail brackets to your rack.
 - a. Orient a bracket toward the back of the rack with the flange facing away from the rack. The flange should go around the outside of the rack posts, as shown in [Figure 2-3](#).
 - b. Secure the bracket with your screws through the back of the rack, as shown in [Figure 2-4](#).
 - c. Repeat on both sides of the rack.



Figure 2-3: Holding bracket against inside of rack



Figure 2-4: Secure Rail Bracket to Rack with Screws

6. Lift the switch unit and align the brackets on the switch with the brackets in the rack before sliding the brackets together.
7. Carefully push the switch unit into the rack.

If the brackets do not slide easily, the alignment may be off. Pull the switch back toward you and realign the brackets.



Figure 2-5: Sliding the Switch Into the Rack

8. Secure the switch with your screws through the front of the rack, as show in [Figure 2-6](#).



Figure 2-6: Secure Switch with Screws through the Front of the Rack

Installation Procedure #2

There are two different ways to perform the rack installation of the Topspin 90. In procedure #2, you will *not* attach the brackets to the rack posts before inserting the switch. All brackets will be attached to the switch before it is inserted into the rack.

This procedure is slightly easier to perform, but requires two people as one person holds the switch while another person secures it to the rack.

1. Separate the assembled rails.

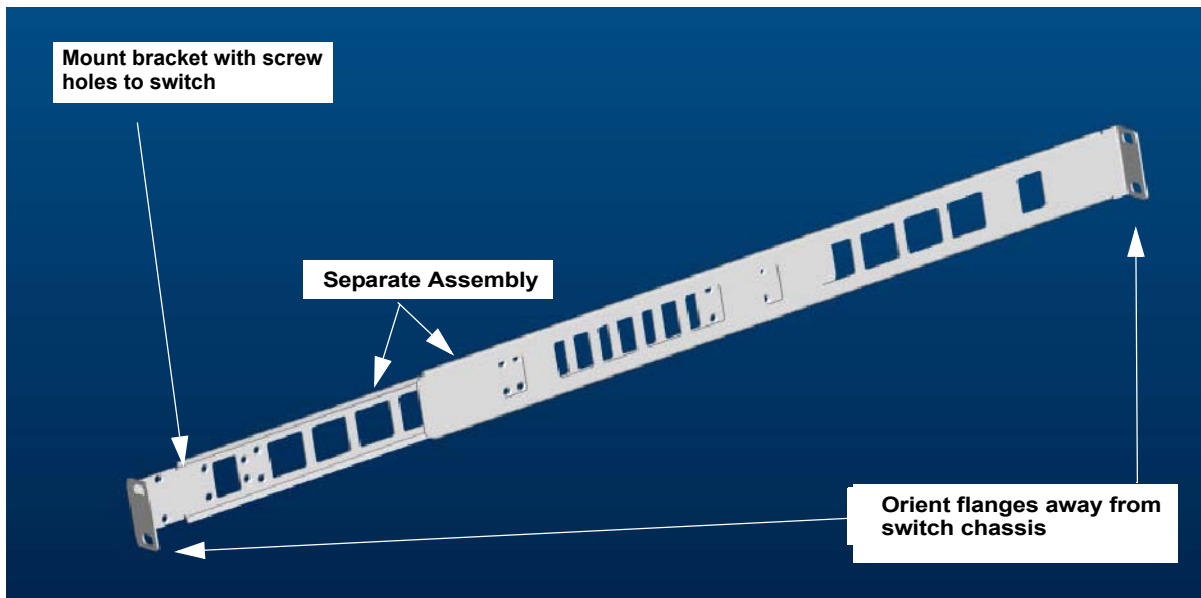


Figure 2-7: Separate Assembled Brackets before Mounting onto Switch

2. Attach the bracket with the screw holes to the sides of the switch chassis with the screws provided. When attaching the brackets, the flanges of the brackets should be facing away from the switch chassis, as shown in [Figure 2-8](#).



Figure 2-8: Fasten Bracket to Switch Chassis

3. Assemble brackets to their counterparts before inserting the switch into the rack.
4. Insert the switch into the rack with the rails attached. You will have to tilt the switch unit to one side to avoid hitting the sides of the rack with the brackets as they pass around the back rails.
Return the switch unit to a horizontal position once the switch is inside the rack. The rear bracket flanges should wrap around the outside of the back rack rails.
5. Have one person hold the switch while another person secures the switch to the rack.
6. Attach the back rails to the back of the rack with screws that fit your rack.
7. Attach the front rails to the front of the rack with screws that fit your rack, as shown in [Figure 2-9](#).



Figure 2-9: Secure the Switch Through the Front Rack Rails

(Optional) Install a Gateway in a New System



CAUTION: If you are upgrading a switch that was previously in use without a gateway, you must observe certain cautions. Refer to [“Upgrading an Existing System to Include a Gateway” on page 34](#).

Install the Ethernet or Fibre Channel gateway module(s) before installing the chassis into the rack, when possible. However, in the future, you may change modules while the chassis is still in the rack.

To install an Ethernet or Fibre Channel gateway card in the InfiniBand chassis, perform the following steps:

1. Ground yourself before touching any removable components to avoid damage from electrostatic discharge (ESD). Grounding is performed by attaching a wrist-strap to the chassis, in the manner recommended by the wrist-strap manufacturer.
2. Make sure that traffic is not running on the switch. If traffic is already running on the switch, refer to [“Upgrading an Existing System to Include a Gateway” on page 34](#).
3. If a blanking panel is already in the expansion bay, remove it.

4. Unlatch the side catch, and make sure the ejector lever is completely open.

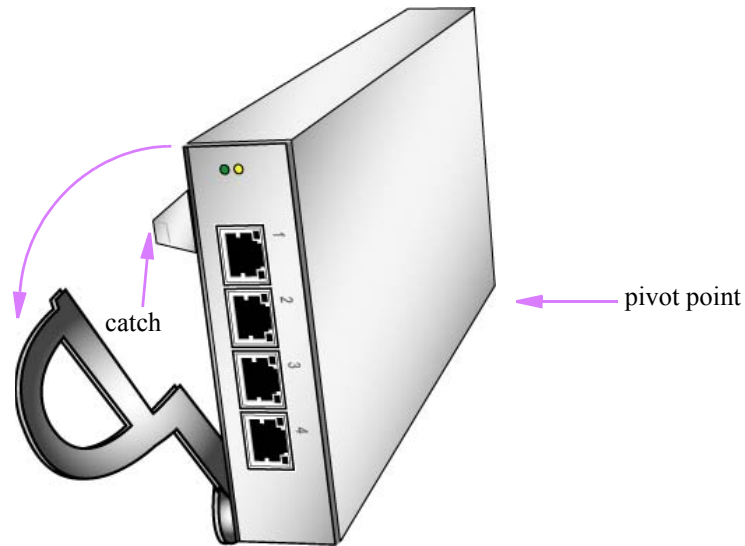


Figure 2-10: Unlatch Catch and Open Lever Completely

5. Insert the Gateway into the open slot until the card is firmly seated.
6. Close the ejector lever completely.

Cable the Switch

Connect Management Ports

To connect the management ports, use a serial cable and/or an Ethernet cable.

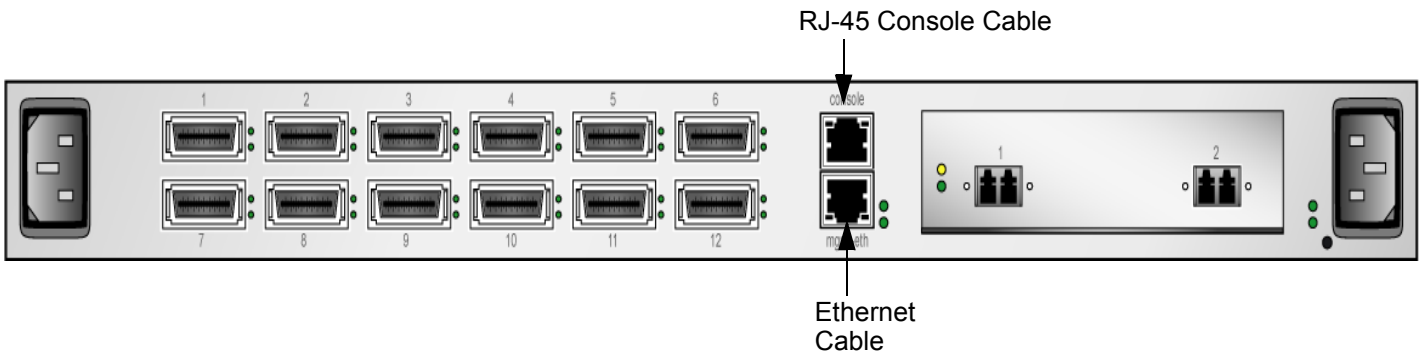


Figure 2-11: Serial and Ethernet Management Ports

Attach a Serial Console Cable to a PC or Terminal

1. Refer to [Figure 2-12](#) for the recommended management port configuration.
2. Attach the RJ-45 console cables from the cable kit that is provided. See [Figure 2-11](#).
 - a. Connect one end of the cable to the InfiniBand chassis serial console port.
 - b. Connect the other end of the serial cable to your terminal server or management workstation.
For detailed information on how to connect the serial console cable, please see the documentation included with the serial cable kit.
3. Open a terminal emulation window using a program such as HyperTerminal for Windows. Set your terminal parameters to the following:
 - Baud: **9600 bps**
 - Data Bits: **8**
 - Parity: **None**
 - Stop Bits: **1**
 - Flow control: **None**

Connect an Ethernet Cable to the Ethernet Management Port

4. Connect an Ethernet cable to the Ethernet port (bottom port). See [Figure 2-11](#).

Recommended Management Configuration

The diagram below shows the recommended management port configuration. To have constant access to the chassis remotely, connect the serial port to a terminal server.

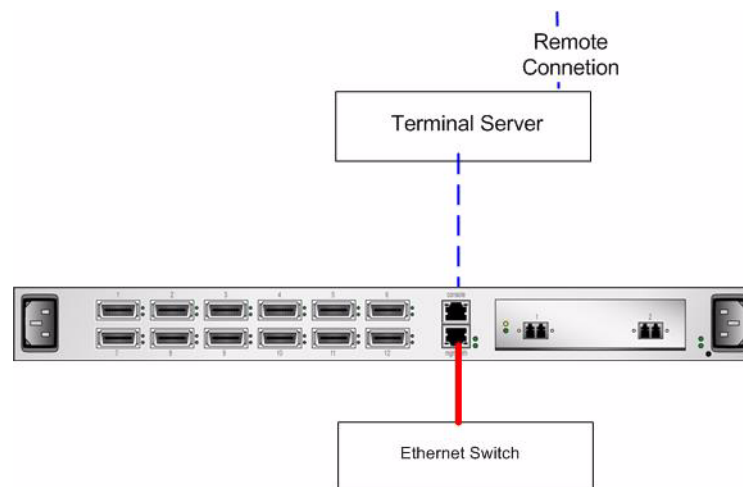


Figure 2-12: Recommended Management Configuration

Connect InfiniBand Cables

Standard 4X InfiniBand cables are required to connect to hosts or switches using InfiniBand. InfiniBand cables can be used to connect any two InfiniBand devices, whether switch or host.



NOTE: It is important to insert the cable straight on. If only one pin touches the port upon initial contact, the port could auto-negotiate as a 1x connection instead of a 4x connection.

1. Plug InfiniBand Cables from the InfiniBand-enabled host to the InfiniBand switch.
 - a. To plug in an InfiniBand cable, push the connector into the interface until you hear/feel a click.

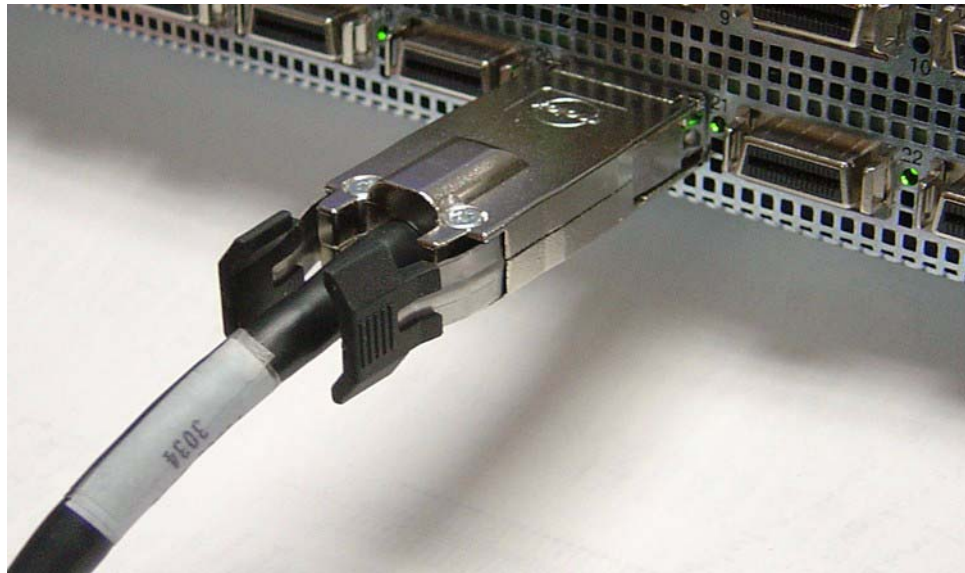


Figure 2-13: Fully Installed IB Cable with Pinch Connector

2. (Optional) After you have configured basic connectivity, you can run the **show interface ib port #** command to verify that the InfiniBand ports auto-negotiated to the correct speed.

(Optional) Connect to Ethernet Devices

1. Connect the optional Ethernet gateway to workstations, routers or switches. The Ethernet gateway auto-detects what kind of cable is connected and can use either straight-through or cross-over UTP cabling.

The Ethernet gateway has RJ-45 jacks for standard unshielded twisted pair connections.
2. Refer to the *Ethernet Gateway User Guide* for more information.

(Optional) Connect to Fibre Channel Devices

1. Connect the optional Fibre Channel gateway to Fibre Channel storage arrays or switches with fibre cabling. Standard LC pluggable connectors are required.

The Fibre Channel gateway has Small Form Factor (SFF) LC pluggable connectors.
2. Refer to the *Fibre Channel Gateway User Guide* for more information.

Connect the Power Cords

Use only the power cable provided with your Topspin system.

1. Remove the power cords from the shipping package.
There should be two power cords, UL rated 10 Amps/125 VAC or greater.
2. Inspect the power cord and determine if it provides the proper plug and is appropriately certified for use with your electrical system. Discard the cord if it is inappropriate for your national electrical system and obtain the proper cord, as required by your national electrical codes or ordinances.
Grounding is supplied by the ground-prong on the 3-prong power plug. Do not attach a separate ground cable. Do not use adapter plugs. Do not remove the ground prong from the cable. Ensure the ground connection on the power supply is correct and functioning before applying power to the chassis.
3. Insert the power cords to the power jacks on the rear of the chassis. The system will automatically boot up. You can watch the running status via the serial console, once it is connected.
Refer to [Figure 2-14](#) for power jack locations.



Figure 2-14: Power Plug Locations

4. Plug the other end of each AC power cable into a power outlet operating at 90 - 132 VAC or 180-264V AC auto-ranging, 47-63Hz.
The chassis automatically starts and boots. Use the correct external power-source. Attach the Topspin chassis only to approved power sources, as indicated by the electrical ratings label. If you are unsure of the correct power-source to use, contact your Topspin support personnel or your local power company.
5. Check the LEDs on the front of the Topspin system. When the system first powers up, it performs a power-on self test (POST). [“System Status LED” on page 22.](#)

NOTE: Because the Topspin 90 is designed to provide uninterrupted service, it does not have separate on/off switches. To turn off the system, remove the power cords.

Configure Basic Connectivity

1. Configure an IP address for the Ethernet Management port.

It is necessary to configure connectivity to the out-of-box Ethernet management port in order to use Telnet, the Web GUI, or the Java GUI. The system is not pre-configured when it ships from the factory.

IP addresses can be assigned statically (which is the default), or dynamically assigned using DHCP.

- [“Assigning an Address Statically” on page 17](#)
- [“Assigning an Address Dynamically \(DHCP\)” on page 18](#)

Assigning an Address Statically

Refer to the static example below:

- a. When the system has completed booting, press <Enter> several times to display the CLI prompt.

```
Login:
```

- b. Enter the user name and password. The default user name is **super**, and the default password is **super**.

```
Login: super
Password: super
Topspin-90>
```

- c. Enter the **enable** command.

```
Topspin-90> enable
Topspin-90#
```

- d. Enter the **configure** command.

```
Topspin-90# configure
Topspin-90 (config) #
```

- e. Enter the **interface mgmt-ethernet** command.

```
Topspin-90 (config) # interface mgmt-ethernet
```

- f. Enter the IP address of the management port followed by the netmask.

```
Topspin-90 (config-if-mgmt-ethernet) # ip address 10.10.0.22
255.255.255.0
```

- g. Set the default gateway for the management port. For example:

```
Topspin-90 (config-if-mgmt-ethernet) # gateway 10.10.0.1
```

- h. Enable the management port by entering the **no shutdown** command.

```
Topspin-90 (config-if-mgmt-ethernet) # no shutdown
```

- i. Save the configuration to preserve it between reboots.

```
Topspin-90 (config-if-mgmt-ethernet) # exit
Topspin-90 (config) # exit
Topspin-90# copy running-config startup-config
```

Assigning an Address Dynamically (DHCP)

The Topspin 90 supports dhcp to assign the IP address.

- a. When the system has completed booting, press <Enter> several times to display the CLI prompt.

```
Login:
```

- b. Enter the user name and password. The default user name is **super**, and the default password is **super**.

```
Login: super
Password: super
Topspin-90>
```

- c. Enter the **enable** command.

```
Topspin-90> enable
Topspin-90#
```

- d. Enter the **configure** command.

```
Topspin-90# configure
Topspin-90 (config)#
```

- e. Enter the **interface mgmt-ethernet** command.

```
Topspin-90 (config)# interface mgmt-ethernet
```

- f. Enter the **option dhcp** command. The chosen method will be persistent across module reboots.

```
Topspin-90 (config-if-mgmt-ethernet)# option dhcp
```

- g. Enable the management port by entering the **no shutdown** command.

```
Topspin-90 (config-if-mgmt-ethernet)# no shutdown
```

- h. Save the configuration to preserve it between reboots.

```
Topspin-90 (config-if-mgmt-ethernet)# exit
Topspin-90 (config)# exit
Topspin-90# copy running-config startup-config
```

- i. Use the **show interface mgmt-ethernet** command to view your IP address:.

```
Topspin-90# show interface mgmt-ethernet
=====
                               Mgmt-Ethernet Information
=====
      mac-address : 00:05:ad:00:15:19
 auto-negotiate  : enabled
  admin-status   : up
      ip-addr     : 10.3.102.66
      mask        : 255.255.0.0
 gateway-addr    : 10.3.0.1
  addr-option    : static
Topspin-90#
```

Manage the System

You can manage the InfiniBand server-switch system using the following methods:

- Command Line Interface (CLI) - a text-based interface accessible through a direct serial connection, Telnet over IP, or SSH over IP.
- Chassis Manager (GUI) - A web-based graphic user interface.
- Element Manager (GUI) - An optionally available graphic interface installed on a workstation, and accessible over IP.

Refer to the *InfiniBand User Guide*, the *CLI Reference Guide* or the *Chassis Manager User Guide* for more information about managing the InfiniBand systems.

Launch the Chassis Manager

In most cases, you will be able to launch Chassis Manager at this point. Skip to [“Launch Chassis Manager” on page 19](#).

However, if you have skipped any of the steps in this guide, or you are having trouble connecting to the Chassis Manager, refer to [“\(Optional\) Prepare Your Device” on page 19](#).

(Optional) Prepare Your Device

To launch Chassis Manager on your Topspin 90, you must:

- Configure an IP address on the Ethernet management port, if you have not already done so.
- Configure an IP gateway on the Ethernet management port, if you have not already done so.
- **Optional.** Enable Telnet services (should be enabled by default).
- **Optional.** Enable HTTP or HTTPs services (HTTP should be enabled by default).

If you followed the previous steps, you should already have these items configured. If your device meets these requirements, proceed to [“Launch Chassis Manager” on page 19](#). Otherwise, to prepare your device, perform the following steps:

Note: Consult your network administrator for an IP address, subnet mask, and gateway address before you begin this process.

1. If you have not yet configured an IP address for the Management port, refer to [“Configure Basic Connectivity” on page 17](#).
2. Enter the **telnet enable** command in global config mode to start telnet services on your device. You may need to use the **exit** command to return to global config mode.

Example

```
Topspin-90> enable
Topspin-90# configure
Topspin-90(config)# telnet enable
```

3. Enter the **ip http server** command to enable HTTP services on your device. HTTPs is also supported.

Example

```
Topspin-90(config)# ip http server
```

Launch Chassis Manager

To launch Chassis Manager, perform the following steps:

1. Launch your Web browser.
Chassis Manager supports the following browsers

- Microsoft Internet Explorer version 6
 - Netscape Navigator version 6
 - Mozilla version 1.4
2. Type the Management IP address of your Server Switch in the address field of your browser and press **Enter**. (You configured the IP address in [Step f](#).)



Figure 2-15: Web Browser Window

A log-in window opens.

3. Enter your Server Switch user name and password in the log-in window and click the **OK** button. Chassis Manager loads in your browser window.

(Optional) Install the Element Manager GUI

For more information regarding the Element Manager tasks, refer to the *Topspin InfiniBand User Guide*.

1. Check that you have sufficient system resources. You will need:
 - 32 MB free RAM
 - 50 MB disk space + 50MB additional temporary space during installation
 - 300 Mhz processor
 - 800x600 screen resolution, 16bit color depth
2. Insert the Topspin CD-ROM into the CD-ROM drive of a server that has network access to a Topspin management port.
3. The GUI can be found in the following location on the CD-ROM.
 - Linux/install_linux_ia64.bin
 - Linux/install_linux_x86.bin
 - Windows/install_x86.exe
 - Solaris/install_solaris_sparc.bin
4. Run the installation wizard:
 - a. On Windows, double-click install.exe.
 - b. On Solaris and Linux systems, enter `sh ./install_yourOS.bin`.
 - c. Follow the on-screen instructions.
 - d. Enter location and preference information as requested by the installation program.
6. Start the Element Manager.

Monitoring the Topspin 90 System

This chapter describes how to install and manage the Topspin system hardware.

- [“The Front-Side LEDs” on page 21](#)
- [“The Back \(Service-Side\) LEDs” on page 23](#)
- [“Monitoring the System with Element Manager” on page 28](#)
- [“Monitor the System Through the CLI” on page 30](#)

The Front-Side LEDs

Diagram of the Front LEDs

The system, fan, and power supply LEDs are located on the front of the Topspin 90 chassis.

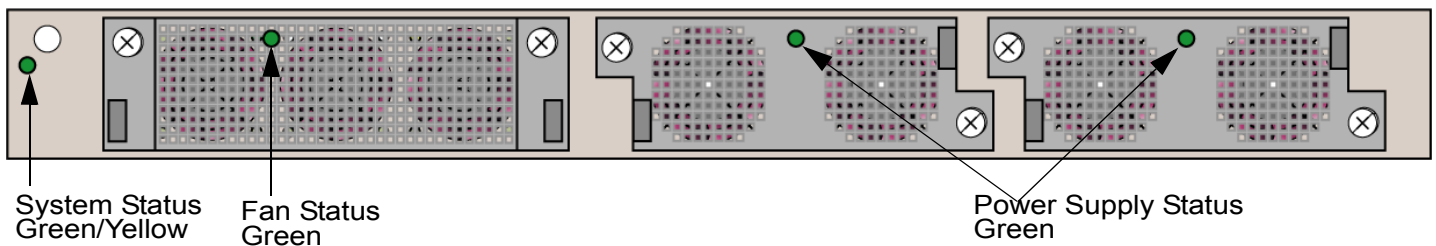


Figure 3-1: Front View of Topspin 90 LEDs (without Bezel)

Types of LEDs

The following LED indicators are located on the front (non-port side) of the Topspin 90:

- [“System Status LED” on page 22](#) (includes fan, power supply and system status)

- [“Fan Tray LED” on page 22](#)
- [“Power Supply LED” on page 22](#)

The LEDs have special significance depending on the chassis component. The LEDs for each component are described in this section.

System Status LED

The system status LEDs indicate overall system health. They indicate the overall system status for power, fans, temperature, and electronics. Check these LEDs first in the event of a suspected system fault. If the LED turns yellow, an error has occurred.

The System Status LEDs include:

- The fan LEDs ([“Interpreting the Fan Tray LED” on page 22](#))
- The overall System Status LEDs ([“Interpreting the System Status LEDs” on page 22](#))
- The power supply LEDs ([“Interpreting the Power Supply LEDs” on page 23](#))

Table 3-1: Interpreting the System Status LEDs

color	description
off	No system power or LED failure.
solid yellow	System error detected. Power, fans, or electronics may be at fault. Operator intervention required.
slow blink, alternating green/yellow (4 sec. interval)	LED test following application of power (16 seconds).
solid green	System running with no detected errors.
blinking green (1/2 sec. interval)	System is initializing after application of power or system reset.

Fan Tray LED

Refer to [Figure 3-1](#).

Table 3-2: Interpreting the Fan Tray LED

color	indication
off	No system power or fan tray failure.
green	Fan tray running with no detected errors.

Power Supply LED

Both power supply modules connect internally to the same power bus. If one power supply module fails, the other immediately takes over. A power supply module may be hot-swapped without any disruption in power.

Refer to [Figure 3-2](#) for the Power Supply to Power Cord mapping.

Each indicator is a bi-color, green/yellow LED. The behavior and meaning of this LED is described in the table below.

Table 3-3: Interpreting the Power Supply LEDs

color	description
Off	No power or indicates DC output is outside of the regulation.
green (DC OK)	On (green) indicates DC outputs from power supply within regulated limits.

Associating CLI/GUI Output to Physical Hardware

The following graphics show the Power Supplies as they are described in the CLI and the GUI (identified as power supply 1 or 2). The graphics also show the mapping between a power cord and its corresponding power supply.

Refer to [“Monitor the Power Supplies” on page 30](#) for more information.

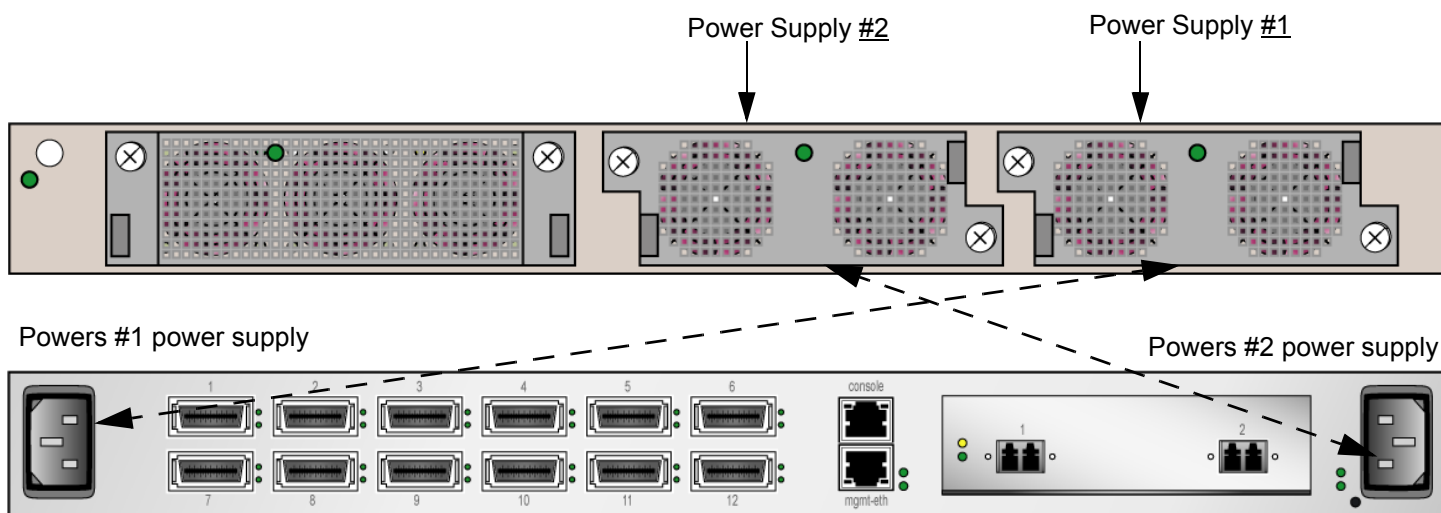


Figure 3-2: Power Supply Identification

The Back (Service-Side) LEDs

Diagram of the Back LEDs

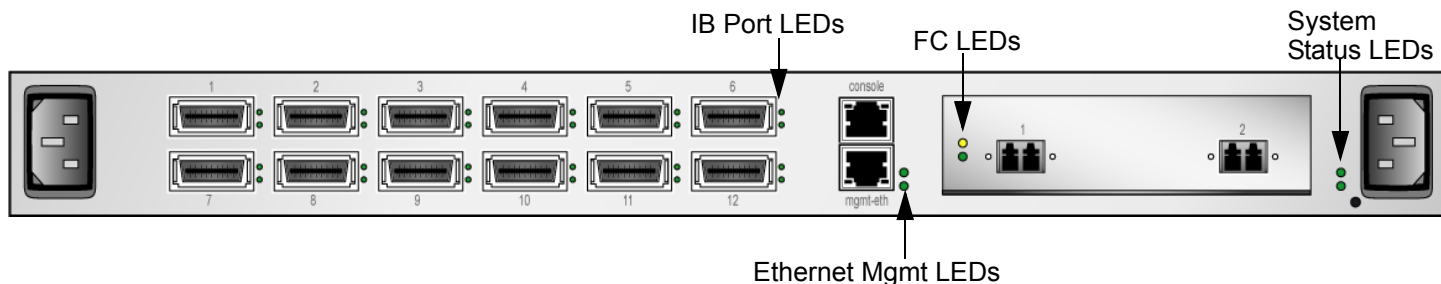


Figure 3-3: Rear View of Topspin 90 LEDs

Types of LEDs

The following LED indicators are located on the back (service side) of the Topspin 90:

- [“InfiniBand Port LEDs” on page 24](#)

- [“Ethernet Management Port LEDs” on page 24](#)
- [“Ethernet Gateway LEDs” on page 24](#)
- [“Fibre Channel Gateway LEDs” on page 26](#)
- [“System Status LEDs” on page 27](#)

The LEDs have special significance depending on the chassis component. The LEDs for each component are described in this section.

InfiniBand Port LEDs

There are two types of LEDs on the InfiniBand interface card.

- On the side of the InfiniBand interface card, indicate overall card status. These LEDs are green and yellow.
- Adjacent to each InfiniBand port and indicate port status and activity.

Both the top and bottom InfiniBand port LEDs are solid-color green. The top LED indicates a logical link has taken place. (A logical link is established when the subnet manager makes a sweep. A logical link must be established if you are to use the port.) The bottom LED indicates a physical link has occurred. (A physical link requires that the drivers on the attached InfiniBand host have been installed and are running).

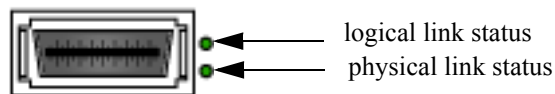


Figure 3-4: The InfiniBand Interface LEDs

Table 3-4: Interpreting the InfiniBand Port LEDs

color	indication
green	Bottom LED OFF indicates there is no physical link is detected.
green	Bottom LED ON indicates a valid physical link is detected.
green	Bottom LED ON and top LED ON indicates the logical link is established.
green	Bottom LED ON and top LED OFF indicates a logical link error.

Ethernet Management Port LEDs

The Ethernet management port LEDs are not available at this time.

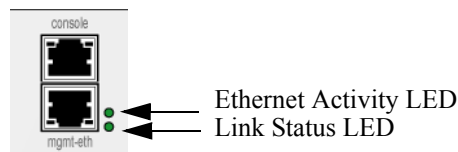


Figure 3-5: Management Port LEDs

Ethernet Gateway LEDs

The Ethernet gateway has LEDs for the gateway and for the ports.

- [“Ethernet Gateway Interface LEDs” on page 25](#)
- [“Ethernet Gateway Port LEDs” on page 25](#)

Ethernet Gateway Interface LEDs

Ethernet gateway interface LEDs appear on the Ethernet gateway. [Figure 3-6](#) displays the Ethernet interface LEDs.

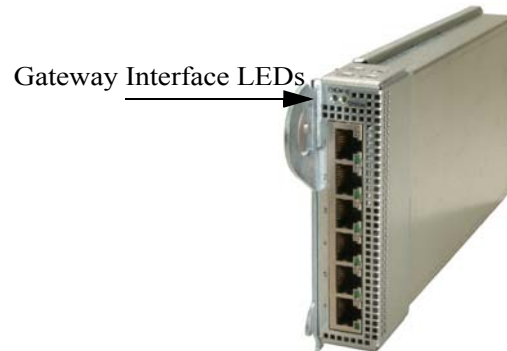


Figure 3-6: Ethernet Gateway Interface LEDs

[Table 3-5](#) explains the Ethernet gateway LED indications.

Table 3-5: Ethernet Gateway Interface LED Indications

LED State	Indication
Yellow LED ON /Green LED OFF	Auxiliary power available. Gateway is either in the process of booting up, or has been disabled.
Green LED ON /Yellow LED OFF	Gateway is enabled and running without errors.
Green LED ON /Yellow LED ON	An error has occurred.
Yellow LED OFF /Green LED OFF	Indicates an error, such as no auxiliary power to the gateway.

Ethernet Gateway Port LEDs

Ethernet port LEDs appear on the Ethernet ports. [Figure 3-7](#) displays the Ethernet port LEDs.

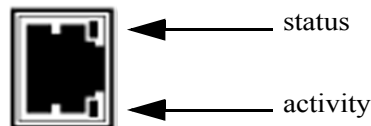


Figure 3-7: Ethernet Gateway Port LEDs

[Table 3-6](#) explains Ethernet port LED indications.

Table 3-6: Ethernet Port LED Indications

LED State	Indication
Status LED off	No physical link.
Status LED solid	Successful physical link.
Activity LED off	No logical link.
Activity LED blinking	Traffic runs over the port.
Activity LED solid	Logical link established but traffic does not yet run.

Fibre Channel Gateway LEDs

The Fibre Channel gateway has gateway interface LEDs as well as port LEDs.

- “FC Interface Gateway LEDs” on page 26
- “FC Port LEDs” on page 26

FC Interface Gateway LEDs

Fibre Channel gateway interface LEDs appear on the gateway. [Figure 3-6](#) displays the Fibre Channel interface LEDs.

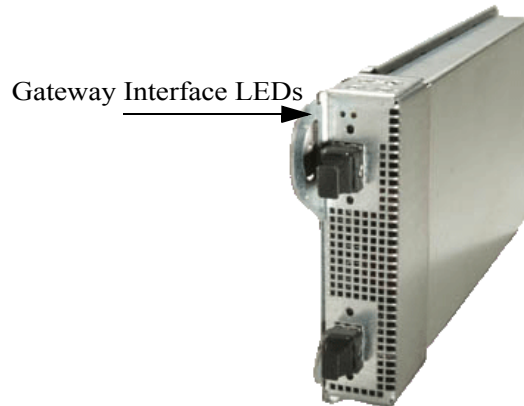


Figure 3-8: Fibre Channel Gateway Interface LEDs

[Table 3-5](#) explains the Fibre Channel gateway LED indications.

Table 3-7: FC Gateway Interface LED Indications

LED State	Indication
Yellow LED ON /Green LED OFF	Auxiliary power available. Gateway is either in the process of booting up, or has been disabled.
Green LED ON /Yellow LED OFF	Gateway is enabled and running without errors.
Green LED ON /Yellow LED ON	An error has occurred.
Yellow LED OFF /Green LED OFF	Indicates an error, such as no auxiliary power to the gateway.

FC Port LEDs

Fibre Channel Port LEDs are adjacent to each FC port. They indicate port status and activity. Each port has a one bi-color, (green/yellow) LED to indicate port status. When you enable a Fibre Channel interface card, and a Fibre Channel device is already connected, the run light (LED) of the Fibre Channel interface port changes from yellow to green, indicating that a connection has been established between the Fibre Channel device and the port.

[Figure 3-9](#) displays the FC LEDs.

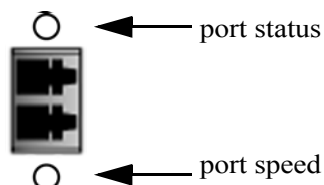


Figure 3-9: The Fibre Channel Interface LEDs

Table 3-8 explains the FC port status LED.

Table 3-8: Interpreting the Fibre Channel Port-Status LEDs

Led	Description
off	Optic module or cable is not attached.
solid yellow	A cable is attached but the port is offline.
slow pulsing yellow (2 second intervals)	Port is disabled, and fiber installed as the result of diagnostics or Fibre Channel portDisable command.
fast pulsing yellow (half-second intervals)	Signal detected but port fault is also detected.
solid green	The port is online and a signal is detected.
slow pulsing green (2 second intervals)	The port is online with a loop-back cable attached or an incompatible device.
fast pulsing green (half-second intervals)	The port is online but running some internal diagnostics.
sporadic flickering green	The port is online and packet traffic is detected.

Table 3-9 explains the FC port activity LED.

Table 3-9: Interpreting the Fibre Channel Port Activity LEDs

Color	Description
off	No system power or LED failure.
solid yellow	Fan error detected. Operator intervention required.
solid green	Fans running with no detected errors.

System Status LEDs

Refer to [Figure 3-3](#).

The system status LEDs indicate overall system health. They indicate the overall system status for power, fans, temperature, and electronics. Check these LEDs first in the event of a suspected system fault. If the LED turns yellow, an error has occurred.

The System Status LEDs include:

- The fan LEDs ([“Interpreting the Fan Tray LED” on page 22](#))
- The overall System Status LEDs ([“Interpreting the System Status LEDs” on page 22](#))
- The power supply LEDs ([“Interpreting the Power Supply LEDs” on page 23](#))

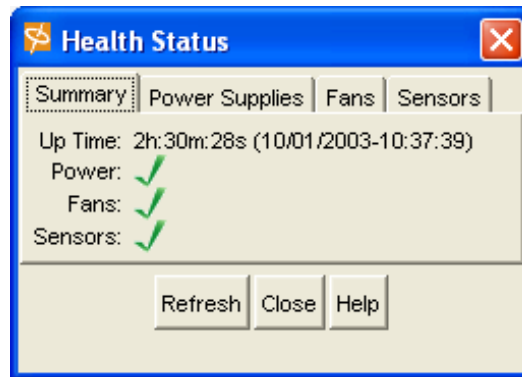
Table 3-10: Interpreting the System Status LEDs

color	description
off	No system power or LED failure.
solid yellow	System error detected. Power, fans, or electronics may be at fault. Operator intervention required.
slow blink, alternating green/yellow (4 sec. interval)	LED test following application of power (16 seconds).
solid green	System running with no detected errors.
blinking green (1/2 sec. interval)	System is initializing after application of power or system reset.

Monitoring the System with Element Manager

For information regarding installing the Element Manager, refer to the *InfiniBand User Guide*.

1. Launch the Element Manager.
2. Select **Health > Status**. The Health Status window opens.



Interpreting the Summary Tab

3. Use the **Summary** tab to view the status of the Power, Fans, and Temperature Sensors at once.
or
Click into the individual tabs for more detailed information.
4. Refer to [“Interpreting the Power Health Status” on page 28](#) to understand the Summary status.

Interpreting the Power Health Status

Refer to [“Monitoring the System with Element Manager” on page 28](#) to open the **Health Status > Summary** tab.

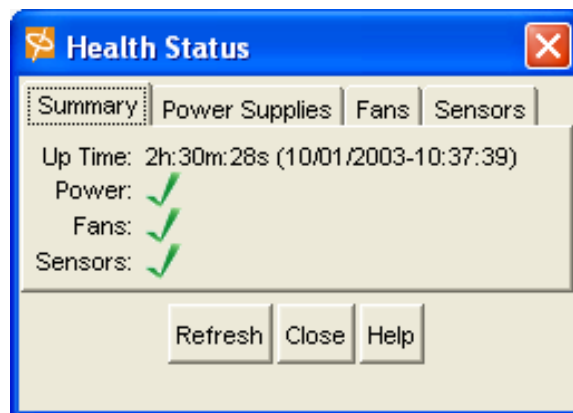


Figure 3-10: Health Status Summary Tab

Interpreting the **Power** Field:

- A green check next to the Power summary indicates that at least one power source is connected and functioning properly.
- A red check mark indicates that power supply AC is disconnected.

Interpreting the **Fans** field:

- A green check next to the Fans summary indicates at least one fan is present, and functioning properly.

- A red check indicates a fan failure.
- Interpreting the **Sensors** field:
- A green check next to the Sensors summary indicates that the system temperature is at an acceptable level.
 - A red check for Sensor is a warning of high temperature.

Interpreting the Power Supplies Tab

Use the **Health > Status > Power Supplies** tab to view the operating status of the power supplies.

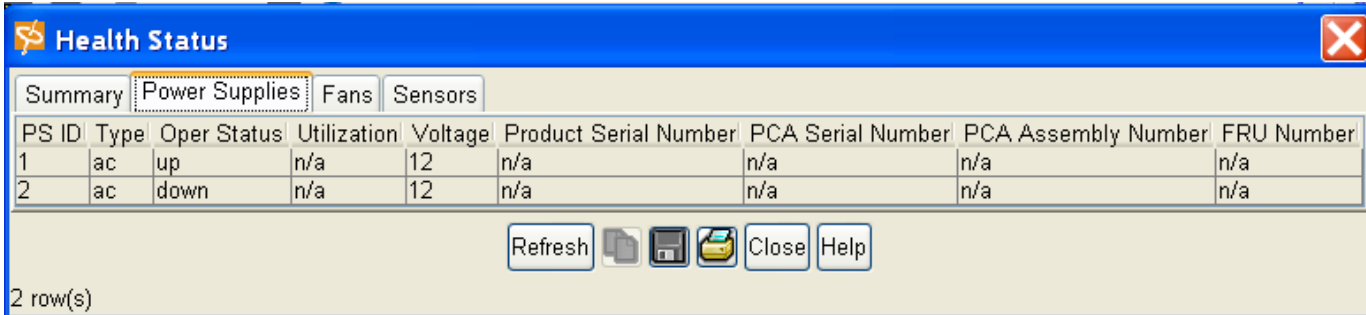


Figure 3-11: Health Status Power Supplies Tab

Interpreting the Fans Tab

Use the **Health > Status > Fans** tab to view the operating status of the fans.

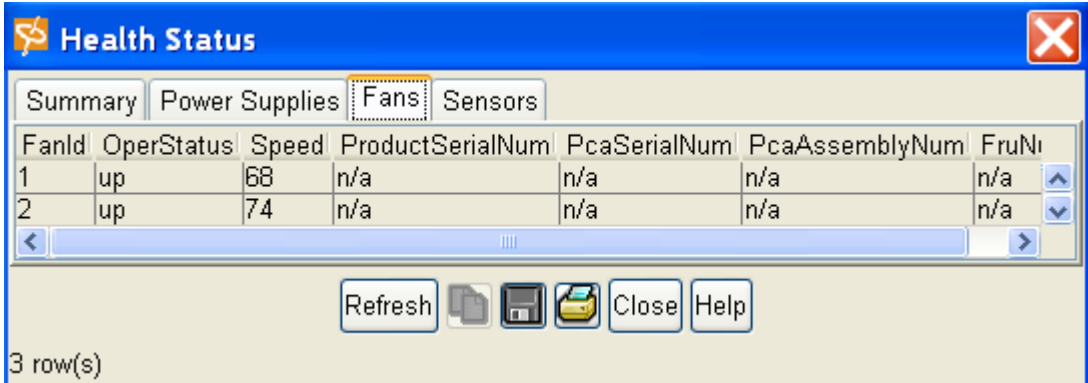
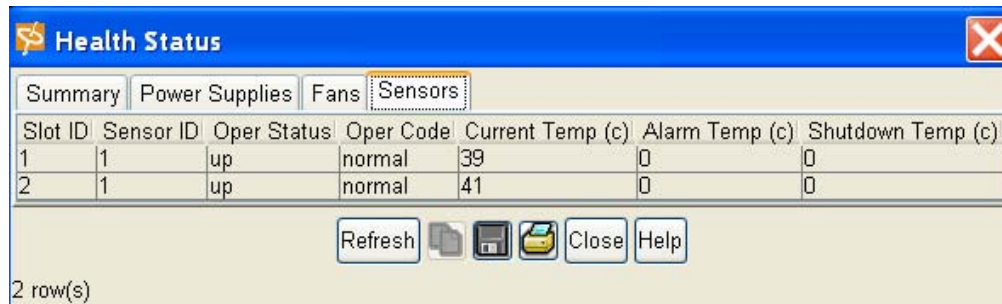


Figure 3-12: Health Status Fans Tab

5. Note the **OperStatus** field. A status of “up” means that the blower is operating correctly within the power/blower unit.
6. Note the **Speed** field. The integer in this field represents a percentage. The percentage changes based on the ambient temperature of the unit, and will increase as the temperature rises.

Interpreting the Sensors Tab

- Use the **Health > Status > Sensors** tab to view the operating status of the temperature sensor of the system.



The screenshot shows a window titled "Health Status" with a tabbed interface. The "Sensors" tab is selected. Below the tabs is a table with the following data:

Slot ID	Sensor ID	Oper Status	Oper Code	Current Temp (c)	Alarm Temp (c)	Shutdown Temp (c)
1	1	up	normal	39	0	0
2	1	up	normal	41	0	0

Below the table are buttons for "Refresh", "Close", and "Help". The status "up" indicates the sensor is functioning properly. The "Current Temp (c)" field shows the internal system temperature in Celsius.

Figure 3-13: Health Status Sensors Tab

- Note the **OperStatus** field. A status of “up” indicates that the sensor is functioning properly.
- Note the **Current Temp** field. The internal system temperature is displayed in Celsius. The system’s maximum external ambient temperature is 40 degrees C (0 – 10,000 ft). Acceptable internal temperature ranges are 30 degrees C above external ambient, plus 1 degree for every 1,000 ft above sea-level. The system reboots at an internal temperature of 75 degrees C.
A warning will appear if the temperature reaches 75 degrees C (at sea level).
The system reboots at an internal temperature of 85 degrees C (at sea level).
- Click the **Close** button.

Monitor the System Through the CLI

Use the following CLI commands to monitor the power supplies, the fans, and the sensors:

Monitor the Power Supplies

- show power-supply**
[Figure 3-2](#) shows the physical power supply that is #1, and the physical power supply that is #2.

Example

```

Topspin-90> enable
Topspin-90# show power
=====
Power-supply Information
=====
ps      type      oper-status  utilization  voltage
-----
1       AC        up           55           12
2       AC        up           na           12
=====
Power-supply Seeprom
=====
ps      product  pca          pca          fru
serial-number  serial-number  number        number
-----
1       200000   820000      820000      1
2       200000   820000      820000      1
Topspin-90#

```

Monitor the Fans• **show fan**

The percentage changes based on the ambient temperature of the unit, and will increase as the temperature rises.

Example

```

Topspin-90> enable
Topspin-90# show fan
=====
Fan Information
=====
fan     oper-status  speed(%)
-----
1       up           68
2       up           74
=====
Fan Seeprom
=====
fan     product  pca          pca          fru
serial-number  serial-number  number        number
-----
1       1234     1234         95-00007-01  1234
2       1234     1234         95-00008-01  1234
Topspin-90#

```

Monitor the Sensors

- `show sensor`

Example

```

Topspin-90> enable
Topspin-90# show sensor
=====
                          Sensor Information
=====
sensor   oper-status  oper-code  temperature (c)
-----
1/1      up           normal     40
2/1      up           normal     43
Topspin-90#

```

- Note the **Temperature** field. The internal system temperature is displayed in Celsius. The system's maximum external ambient temperature is 30 degrees C (0 – 10,000 ft). Acceptable internal temperature ranges are 30 degrees C above external ambient, plus 1 degree for every 1,000 ft above sea-level.

A warning will appear if the temperature reaches 65 degrees C (at sea level).

The system reboots at an internal temperature of 75 degrees C (at sea level).

Maintaining Individual Components

This chapter describes how to install the following Field Replaceable Units (FRUs) in the Topspin 90 system.

- [“Removing a Gateway” on page 33](#)
- [“Upgrading an Existing System to Include a Gateway” on page 34](#)
- [“Installing and Removing Power Modules” on page 35](#)
- [“Replacing Fan Trays” on page 35](#)

Removing a Gateway

The movement of gateways in and out of the Topspin 90 chassis may be performed without bringing the Topspin 90 chassis down or disrupting other network configurations.

However, if you are adding a gateway to an previously installed system for the first time, refer to [“Upgrading an Existing System to Include a Gateway” on page 34](#).

To remove an expansion module from the chassis:

1. Make sure the Topspin 90 chassis is secure.
2. Properly ground yourself to avoid potential electrostatic discharge and damage to the card.
3. Facing the back of the Topspin 90 chassis, place one or more fingers in the ejector lever to the left of the card you wish to remove.
4. Slowly pull the lever out and down.

The lever pivot point is on the bottom of the card. As you pull the lever down the card should start to come out of the chassis bay.

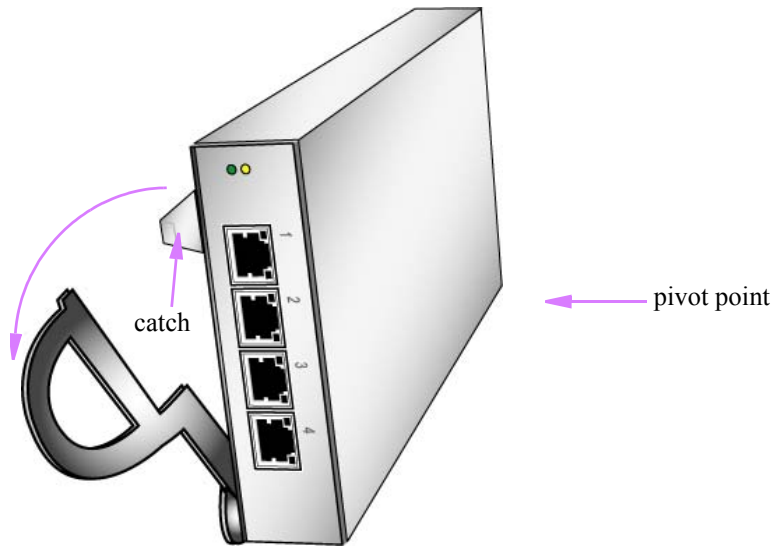


Figure 4-1: Unlatch Catch and Open Lever to Release

5. When the lever is all the way down, pull the lever towards you to pull the card out of the chassis bay.
6. Install a new gateway. Refer to [“Upgrading an Existing System to Include a Gateway” on page 34](#).
or

Install blanking panel into the empty chassis bay to ensure appropriate cooling. Refer to [“Upgrading an Existing System to Include a Gateway” on page 34](#) if you decide to add a gateway later.

The system should never be run for any extended period without a blanking panel or a gateway in the option slot, as system overheating may occur.

Upgrading an Existing System to Include a Gateway

The Topspin 90 can be used with or without the optional Ethernet or Fibre Channel gateway. If you decide to upgrade an existing system to include a gateway, observe the following caution when removing the blanking panel:

NOTE: Be advised that removing a blanking panel is equivalent to removing an external cable. Network traffic may be momentarily affected, but the fabric and all connections will be restored automatically.

If you currently have a Topspin 90 system in use that has a blanking panel in place of an optional gateway, perform the following steps:

1. Observe the cautionary note above.
2. Ground yourself before touching any removable components to avoid damage from electrostatic discharge (ESD). Grounding is performed by attaching a wrist-strap to the chassis, in the manner recommended by the wrist-strap manufacturer.
3. If a blanking panel is already in the expansion bay, remove it.
4. Unlatch the side catch, and make sure the ejector lever is completely open.
5. Close the ejector lever completely.

Installing and Removing Power Modules

Topspin 90 power supplies are hot-swappable. You can add a second power supply without powering off the chassis. If you have two power supplies installed, you can remove one of them without removing power from the chassis.

The power supplies are located on the front of the chassis. When facing the front, the power modules are located on right and center of the Topspin 90 chassis.

Caution: Never place your hand inside an empty card or module bay. You should never have cause to place a hand anywhere inside the Topspin 90 chassis. Unused card and module bays should always have a Topspin 90 blanking panel over the bay to ensure proper safety, ventilation, and cooling.

Installing a Power Supply

To insert a power supply:

1. Remove the blanking panel from the switch card bay, if it is still in place.
2. Insert the power supply into an open slot until it is fully seated.
Note: the power supplies should be inserted in opposite directions of each other.
3. Tighten the two captive panel screws on the front panel to secure the card to the chassis.
4. Tighten the retaining screws.

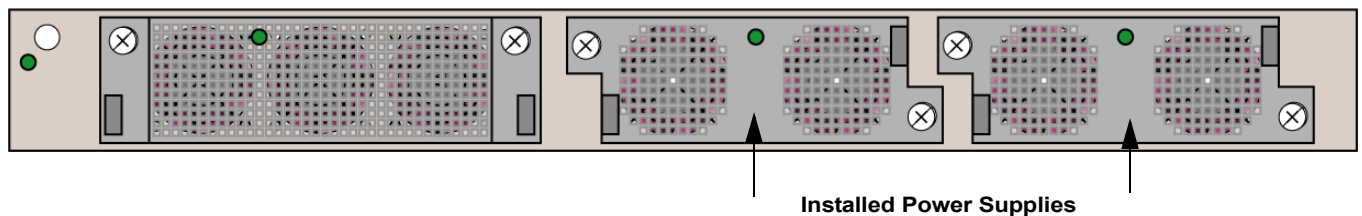


Figure 4-2: Installed Power Supplies

Removing a Power Supply

To remove the power supply

1. Remove the power cord from the power supply.
2. Unscrew the power supply using a #1 Phillips-head screwdriver.
3. Disengage the power supply by pulling it toward you.
4. Slide the power supply out of the chassis.
5. Fasten a blanking panel to the empty chassis bay to ensure appropriate cooling.

The blanking panel is a flat sheet of metal with the same dimensions as the power module faceplate. It is fastened in the same way as a power module.

Replacing Fan Trays

The Topspin 90 fan tray is hot-swappable. You do not need to turn off power to the chassis to replace the fan tray. Access the fan tray from the front of the Topspin 90 chassis.

Installing a Fan Tray

To insert a fan tray:

1. If a blanking panel is already attached to the module bay, remove it.
2. Insert the fan tray into an open slot until it is fully seated.
3. Tighten the two captive panel screws on the front panel to secure the card to the chassis.
4. Fasten the fan tray to the chassis.

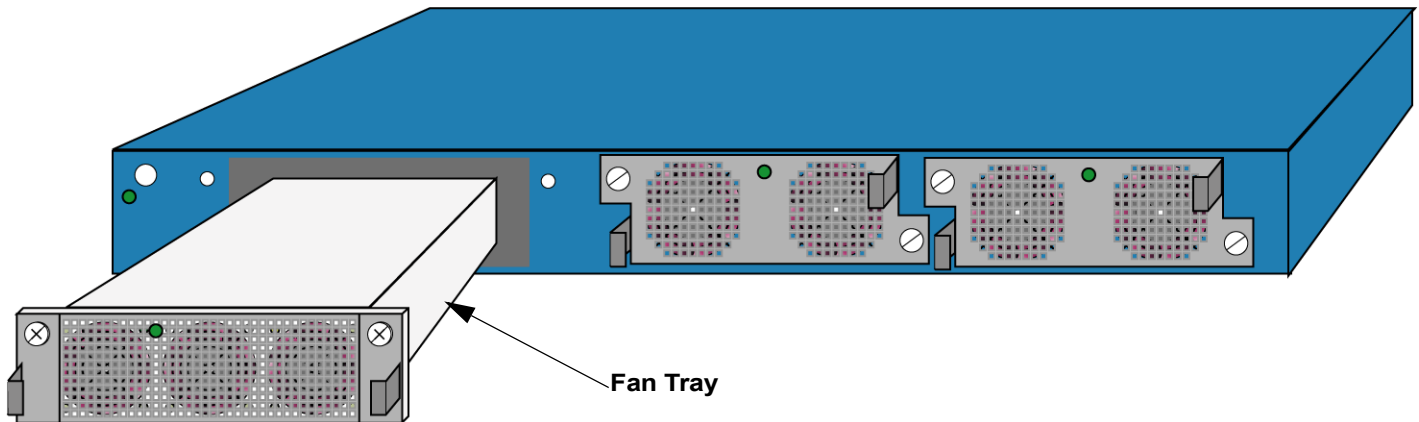


Figure 4-3: Adding/Removing Fan Tray

Removing a Fan Tray

To remove a fan tray:

1. Unfasten the fan tray screws.
2. Pull the fan toward you until it completely disengages from the chassis.
3. Fasten a blanking panel to the empty chassis bay to ensure appropriate cooling.

The blanking panel is a flat sheet of metal with the same dimensions as the fan tray faceplate. It is fastened in the same way as a fan module.

NOTE: The fan module contains three fans. The system requires at least two fans to remain operational. In the event that more than one fans fails, or you want to hot-swap the fan tray, it must be replaced within three minutes after it is removed.

Specifications and Compliance Certifications

This chapter details the Topspin 90 specifications and compliance certifications.

Environmental Specifications

Table 5-1: Environmental Specifications

Operating Temperature Ranges	0 to 40C
Operating Temperature	0 to 40C
Non-Operating Temperature	-25 to 70C
Operating Temperature Gradient	20C maximum per 60 minutes
Operating Altitude	0-10,000 ft.
Non-Operating Altitude	0-35,000ft
Operating Humidity Range	20 to 80%, Non-condensing 5 to 90% RH at 65C for 24 hours
Non-Operating Humidity Ranges	Non-condensing
Operating Humidity Gradient	10% maximum per 60 minutes
Operating Shock	5G maximum, 11 ms half-sine wave
Non-Operating Shock	10G maximum, 11ms half-sine wave
Operating Vibration, Sinusoidal	0.25G maximum, 3-200 Hz 15 minutes
Non-Operating Vibration, Sinusoidal	0.50G maximum, 3-200 Hz 15 minutes

Management Interfaces

Table 5-2: Management Interfaces

Category	Specification
Serial Console	Console RS-232, DB-9 connector
Management Interface	Management: 10/100 Ethernet RJ-45

Electrical Specifications

Table 5-3: Electrical Specifications

Category	Specification
AC Input	90 - 132 VAC, 180-264V AC auto-ranging, 47-63Hz
Power Dissipation	< 85W without gateway.
	< 120W with gateway.

EMC/Immunity

Table 5-4: EMC/Immunity

FCC: CFP 47 Part 15, Subpart B Class A
ICES-003 Issue 2
EN 61000-3-2 (Harmonics), EN EN 61000-3-3 (Flicker), EN 55022:1998, EN 55024:1998; EN61000-4-1,2,3,4,5,6,8,11
VCCI-V3/02.04, Class A

Safety

Table 5-5: Safety

Country Deployment	Description
The Topspin 90 is CE certified.	
Europe:	IEC60950, EN60950, EN60825-1 and EN60825-2
Japan:	IEC60950

Acoustics

Table 5-6: Acoustics

Sound Pressure	30dB at 25C ambient ISO 7779 and section 8.5 of ISO 3744:1994(E)
Sound Power	40dB at 25C ambient ISO 7779, section 8.6 of ISO 3744:1994(E)

Index

A

about system status22, 27

B

bandwidth3

C

chassis manager

 launching19

command

 show fan31

 show power-supply30

 show sensor32

connectors

 InfiniBand cables15

E

ethernet gateway

 LEDs25

ethernet interface

 LEDs25

expansion module

 installing12

F

fan LEDs22

fan trays

 installing35

 removing35

fans

 element manager tab29

figure

 LEDs on back of chassis22, 27

 power supply identification23

G

gateway LEDs25

H

health status

 monitor with the GUI28

I

InfiniBand cables

 connecting15

Installing

 Power Supply35

Installing and Removing InfiniBand Switch Cards 35

L

latency3

launching Chassis Manager19

LEDs21, 22, 27

 about21

 available types21

 back view22, 27

 ethernet gateway25

 ethernet meanings24

 fan meanings22

 fibre channel meanings26

 IB port meanings24

 locating21

 power supply meanings23

M

monitor the temperature30, 32

P

power cord

 which cord goes to which power supply23

power off the chassis16

power supplies

 element manager tab29

 monitor with GUI29

power supply LEDs23

power supply to power cord mapping23

power-on self test16

prepare your switch19

prerequisites19

R

redundancy1

Removing

 Power Supply35

Replacing

 Fan Trays35

S

sensors

element manager tab	30
sensors tab	30
setup	19
show fan	31
show power-supply	30
show sensor	32
starting Chassis Manager	19
summary tab	28
switch configuration	19
system status LEDs	
about	22, 27

T

temperature

monitor with the CLI	32
monitor with the GUI	30