

QLogic 12000 Series InfiniBand Switches and Directors

Hardware Installation Guide
Version 6.0

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Document Revision History	
Revision B, August 15, 2010	
Changes	Sections Affected
Add procedures for installing a management module in the 12200 switch.	"Management Module Installation" on page 1-7
Added procedures for the 12800-series management module protective label.	"12800-Series Management Module Protective Label Guidelines" on page 1-34
Added information for the 12800-series DC ON/OFF switch.	"Connecting Power" on page 1-32
Added a note in Appendix A: 12800-series management modules should be replaced one at a time.	"Management Module Replacement" on page D-12

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Preface

This manual describes the hardware installation and initial configuration tasks for the QLogic 12000 series that includes:

- The QLogic 12200 36-port fixed configuration InfiniBand switch
- The QLogic 12300 36-port configurable InfiniBand switch
- The QLogic 12800 series:
 - 12800-180
 - 12800-360

This manual is organized as follows:

[Preface](#) describes the intended audience and technical support.

[Section 1](#) describes the hardware installation and initial configuration tasks.

[Appendix A](#) provides product specification information.

[Appendix B](#) provides product safety and regulatory information.

[Appendix C](#) provides serial port pinout information.

[Appendix D](#) provides FRU replacement information.

Intended Audience

This manual is intended to provide network administrators and other qualified personnel a reference for hardware installation and initial configuration for the switches.

Documentation Conventions

This guide uses the following documentation conventions:

- **NOTE:** provides additional information.
- **CAUTION!** indicates the presence of a hazard that has the potential of causing damage to data or equipment.
- **WARNING!!** indicates the presence of a hazard that has the potential of causing personal injury.

- Text in **blue** font indicates a hyperlink (jump) to a figure, table, or section in this guide, and links to Web sites are shown in underlined blue. For example:
 - ❑ [Table 9-2](#) lists problems related to the user interface and remote agent.
 - ❑ See [“Installation Checklist” on page 3-6](#).
 - ❑ For more information, visit www.qlogic.com.
- Text in **bold** font indicates user interface elements such as a menu items, buttons, check boxes, or column headings. For example:
 - ❑ Click the **Start** button, point to **Programs**, point to **Accessories**, and then click **Command Prompt**.
 - ❑ Under **Notification Options**, select the **Warning Alarms** check box.
- Text in `Courier` font indicates a file name, directory path, or command line text. For example:
 - ❑ To return to the root directory from anywhere in the file structure:
Type `cd /root` and press ENTER.
 - ❑ Enter the following command: `sh ./install.bin`
- Key names and key strokes are indicated with UPPERCASE:
 - ❑ Press CTRL+P.
 - ❑ Press the UP ARROW key.
- Text in *italics* indicates terms, emphasis, variables, or document titles. For example:
 - ❑ For a complete listing of license agreements, refer to the *QLogic Software End User License Agreement*.
 - ❑ What are *shortcut keys*?
 - ❑ To enter the date type *mm/dd/yyyy* (where *mm* is the month, *dd* is the day, and *yyyy* is the year).
- Topic titles between quotation marks identify related topics either within this manual or in the online help, which is also referred to as *the help system* throughout this document.

License Agreements

Refer to the *QLogic Software End User License Agreement* for a complete listing of all license agreements affecting this product.

Technical Support

Customers should contact their authorized maintenance provider for technical support of their QLogic products. QLogic-direct customers may contact QLogic Technical Support; others will be redirected to their authorized maintenance provider.

Visit the QLogic support Web site listed in [Contact Information](#) for the latest firmware and software updates.

Availability

QLogic Technical Support for products under warranty is available during local standard working hours excluding QLogic Observed Holidays.

Training

QLogic offers training for technical professionals for all iSCSI, InfiniBand, and Fibre Channel products. From the main QLogic web page at www.qlogic.com, click the **Education and Resources** tab at the top, then click the **Education & Training** tab on the left. The QLogic Global Training Portal offers online courses, certification exams, and scheduling of in-person training.

Technical Certification courses include installation, maintenance and troubleshooting QLogic products. Upon demonstrating knowledge using live equipment, QLogic awards a certificate identifying the student as a Certified Professional. The training professionals at QLogic may be reached by e-mail at training@qlogic.com.

Contact Information

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

Web	http://support.qlogic.com
Email	support@qlogic.com

Knowledge Database

The QLogic knowledge database is an extensive collection of QLogic product information that you can search for specific solutions. We are constantly adding to the collection of information in our database to provide answers to your most urgent questions. Access the database from the QLogic Support Center: <http://support.qlogic.com>.

1 Installation

This section describes how to install and configure for first-time use:

- The QLogic 12000 switches in a network environment.

Planning the Installation

The 12000 is designed to be installed in an existing 19-inch equipment rack or server rack.

NOTE:

These switches are designed for a four-post server cabinet. Do not mount in a two-post telco cabinet.

Racks should conform to conventional standards. Use the American National Standards Institute (ANSI)/Electronic Industries Association (EIA) standard ANSI/EIA-310-D-92 and International Electrotechnical Commission (IEC) 297

Racks should meet the following mechanical recommendations:

- Four-post, 19" rack to facilitate easy maintenance
- Universal mounting rail hole pattern identified in IEC Standard 297
- Mounting holes flush with the rails to accommodate the chassis

NOTE:

Operation is subject to the following condition:

Use a rack grounding kit and a ground conductor that is carried back to earth or to another suitable building ground. Ground the equipment rack to earth ground.

Provide enough room to work on the equipment. Clear the work site of any unnecessary materials. Make sure the equipment will have enough clearance for front and rear access.

Cable Requirements

Cable Distances

When planning the location of the switches, consider the distance limitations for signaling, EMI, and connector compatibility. It is recommended that the user does not exceed specified transmission rate and distance limits.

Cable Guidelines

NOTE:

Building and electrical codes vary depending on the location. Comply with all code specifications when planning the site and installing cable.

When running cable to the equipment, consider the following:

- Do not run cables where they can be stepped on or rolled over.
- Be sure cables are intact with no cuts, bends, or nicks.
- If the user is making a cable, ensure that the cable is properly crimped.
- Provide proper strain relief for IB cables.
- Support cable using a cable manager mounted above connectors to avoid unnecessary weight on the cable bundles.
- Bundle cable using velcro straps to avoid injuring cables.
- Keep all ports and connectors free of dust.
- Untwisted Pair (UTP) cables can build up Electrostatic Discharge (ESD) charges when being placed into a new installation. Before installing category 5 UTP cables, discharge ESD from the cable by plugging it into a port on a system that is not powered on.
- When required for safety and fire rating requirements, plenum-rated cable can be used. Check the local building codes to determine when it is appropriate to use plenum-rated cable, or refer to IEC standard 850.

Cable Handling and Bend Radius

Provide proper strain relief by adhering to the following guidelines:

Table 1-1. IB Copper Cable Guidelines

IB Copper Cable Bend Radii	
American Wire Gauge (AWG) Size Cable	Bend Radius
26	2.43 inches
28	2.28 inches
30	1.98 inches

For copper cable, the temporary 90-degree bend can never be more than 0.5 inches tighter than the values listed above for any assembly. This is the absolute minimum sustained bend radius for each cable AWG size. This measurement is the distance from the switch panel to the point where the cable makes a 90-degree bend. In other words, this number includes the distance from the connector stand-off from the panel surface.

Figure 1-1 Copper Cable Bend Radius

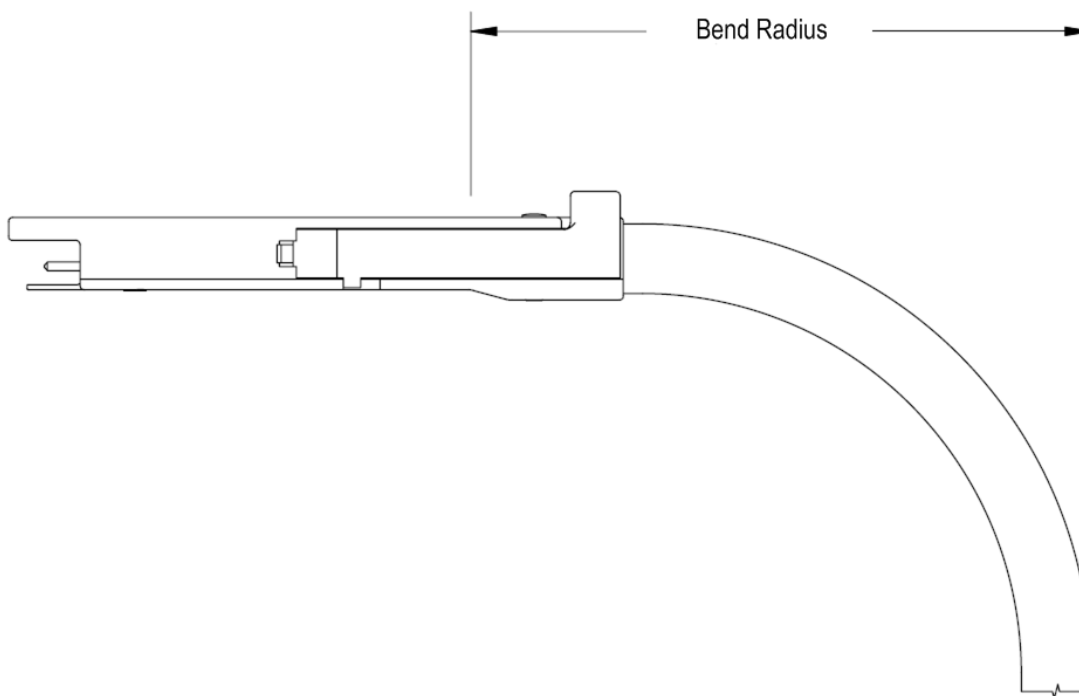
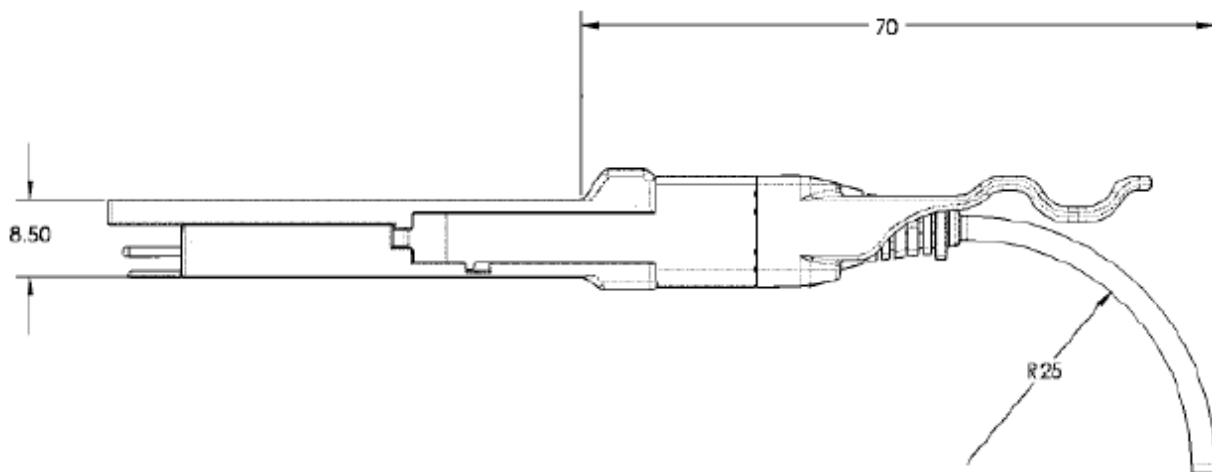


Table 1-2. IB Fiber Optic Cable Guidelines

IB Fiber Optic Cable Bend Radii	
Cable Type	Bend Radius
Fiber Optic Standard Cable	25 millimeters NOTE: A 50mm diameter is the smallest circle limit

Figure 1-2 Fiber Optic Bend Radius



Uninterruptible Power Supply

Consider the following when selecting Uninterruptible Power Supply (UPS) equipment:

- The minimum amperage requirements for a UPS:
 - Calculate VA (Volt-Amps): Locate the voltage and amperage requirements for each piece of equipment (usually located on a sticker on the back or bottom of the equipment). Multiply the numbers together to get VA.
 - Add the VA from each piece of equipment together to find the total VA requirement. Then add 30% to determine the minimum amperage requirements for the UPS.
- Transition time (the time necessary for the UPS to transfer from utility power to full-load battery power).
- The longest potential time period the UPS might be required to supply backup power.
- Whether or not the UPS unit also provides online protection.

Installation Tasks Checklist

To perform the actual switch installation, the site implementation engineer must perform the following tasks, which are detailed in this section.

CAUTION!

Be sure to review the safety information before starting the installation and during the installation process (refer to [Appendix B](#)).

1. Check the installation site to verify the installation of cabinet power feeds, rails, and grounding.
2. Unpack the equipment and inspect for any shipping damage. Any shipping damage should be reported to the shipping company.
3. Verify that the equipment shipped matches the packing list.
4. Mark the rack and install the mounting rails.
5. Physically install the switch in the rack.

Tools and Equipment Required

- An ESD wrist strap
- A #2 Phillips screwdriver
- An M6 HEX nut wrench
- Pen (felt-tip) to mark the mounting holes

Check the Installation Site

The switches are designed to be installed in an existing server cabinet (not a telco cabinet), where it can be mounted in a standard equipment rack.

Be sure of the following:

- The cabinet has a full earth ground to provide reliable grounding.
- There is enough room to work on the equipment.
- The equipment will have enough clearance for front and rear access.
- The IB cables can be accessed easily.
- Water or moisture cannot enter the switch.
- The ambient temperature stays between 50° - 113°F (5° - 40° C).
- Cabinet doors do not interfere with front-to-back air flow.

The cabinet should have its own switchable power distribution. If the switch has two power supplies, it is suggested that a cabinet with dual power distribution units is used.

It is recommended that cabinet anti-tip devices are used. This is especially true if installing or removing a switch in the upper half of the cabinet when the lower half is empty.

Mark the Rack

Allow enough vertical space in the rack for each specific switch installation.

1. Determine the location in the rack of the bottom of the switch.
2. Mark the upper (if applicable) and lower mounting positions on the vertical rails on the front of the rack.
3. Mark the upper (if applicable) and lower mounting positions on the vertical rails on the back of the rack.

12200/12300 Installation

This section describes the rack mounting instructions for the 12200 and 12300:

Management Module Installation

NOTE:

This section applies to those users who have purchased a managed version of the QLogic 12200. Users with an unmanaged 12200 can skip to the rack mounting instructions.

To install the management module in a 12200 switch, follow the steps below:

1. Remove the screw from the blank cover (see [Figure 1-3](#)). Place the screw to the side to be reused.



Figure 1-3 Insert Management Module 1

2. Remove the blank cover and discard.
3. Insert the management module assembly ([Figure 1-4](#)) into the switch at the pivot points.

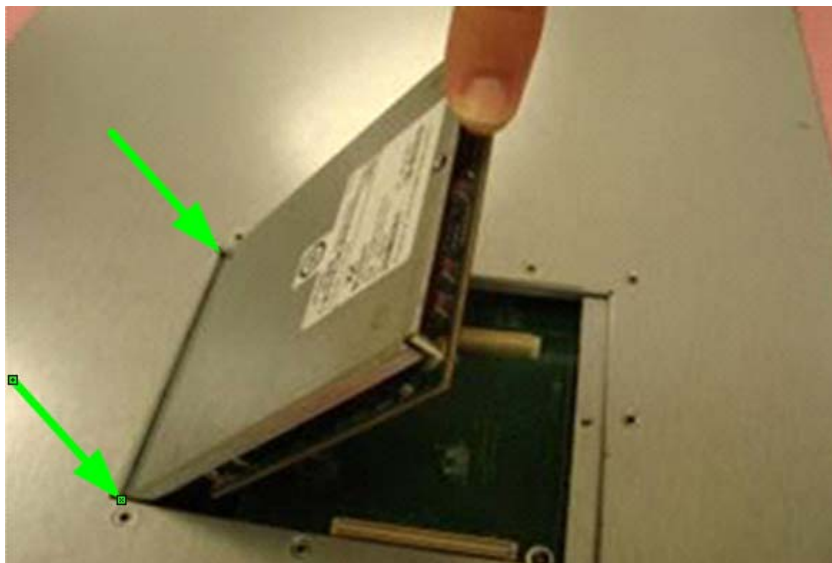


Figure 1-4 Insert Management Module 2

4. Close slowly, ensuring that the module connectors connect to the motherboard connectors ([Figure 1-5](#)).



Figure 1-5 Insert Management Module 3

5. Replace the screw that was removed in **Step 1** and tighten securely ([Figure 1-6](#)).



Figure 1-6 Insert Management Module 4

Four Post Standard-Depth Rack Installation

In a standard-depth rack, the distance between the front and back mounting posts is ~28" (700mm). Mounting rails for the 12200 and 12300 are adjustable to accommodate racks with 26"-33" between mounting posts.

Mounting Hardware Kit Contents:

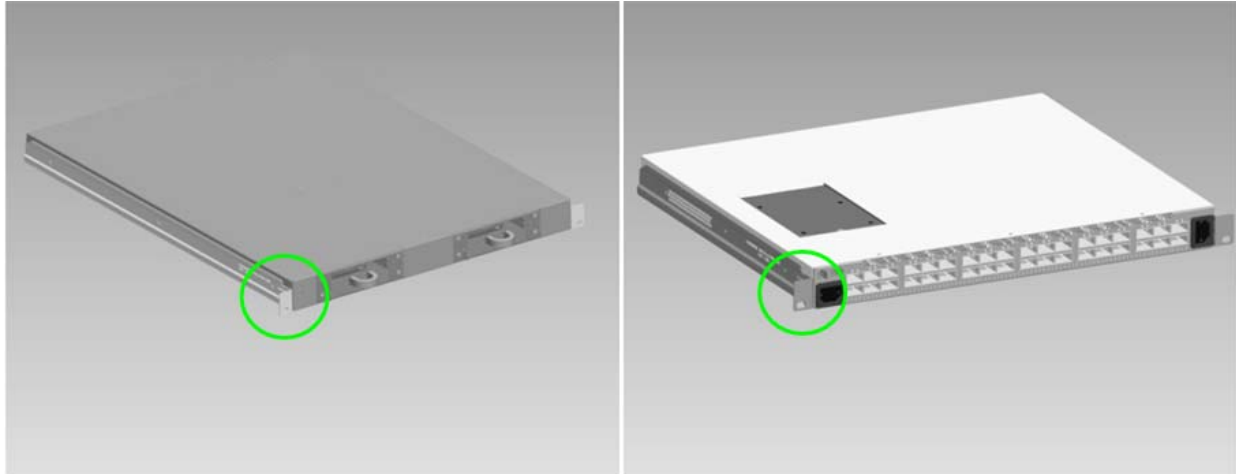
- One pair of mounting rails adjustable for 26"-33" installation range
- One pair of hat rails, left and right
- #6-32 screws
- M6 cage nuts
- M6 screws

Installation

1. Install the hat rails on each side of the switch using three (3) #6-32 screws per rail. Torque screws to 8in-lb. A typical installation is shown in Figure 1-7. On the 12300, hat rails are installed with mounting ears towards the power supply

side of the switch. On the 12200, hat rails are installed with mounting ears towards the port side of the switch.

Figure 1-7 12200 and 12300 Hat Rails



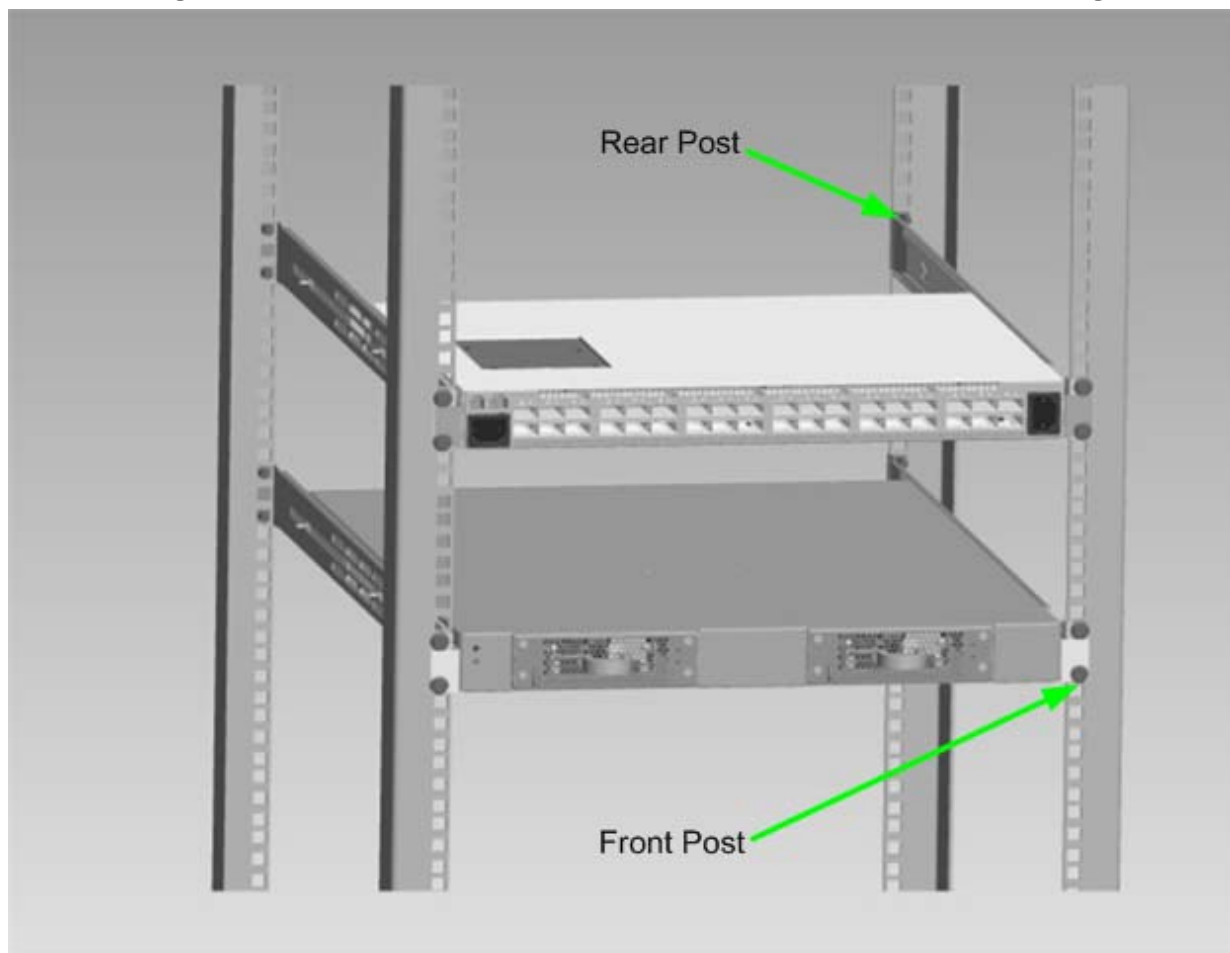
2. Install eight (8) cage nuts into rack posts, two (2) cage nuts per post. Install the mounting rails and fasten to cage nuts using six (6) M6 screws. Torque screws to 30in-lb. Do not install two (2) screws in lower locations on equipment installation side of the rack until the switch is installed in the rack. Note the orientation of mounting rails in Figure 1-8. The rails are shown from the front side of the rack for 12300 or from the port side of the rack for 12200.

Figure 1-8 Installing the Rack Rails



3. Slide the switch into the mounting rails and fasten with M6 screws, one (1) per side. Torque screws to 30in-lb.

Figure 1-9 12200 and 12300 Four Post Standard Rack Mounting



12200 Four Post Shallow-Depth Rack Installation

In a shallow-depth rack, the distance between the front and back mounting posts is ~16" (400mm). Mounting rails for the 12200 are adjustable to accommodate racks with 14"-20" between mounting posts.

Mounting Hardware Kit Contents:

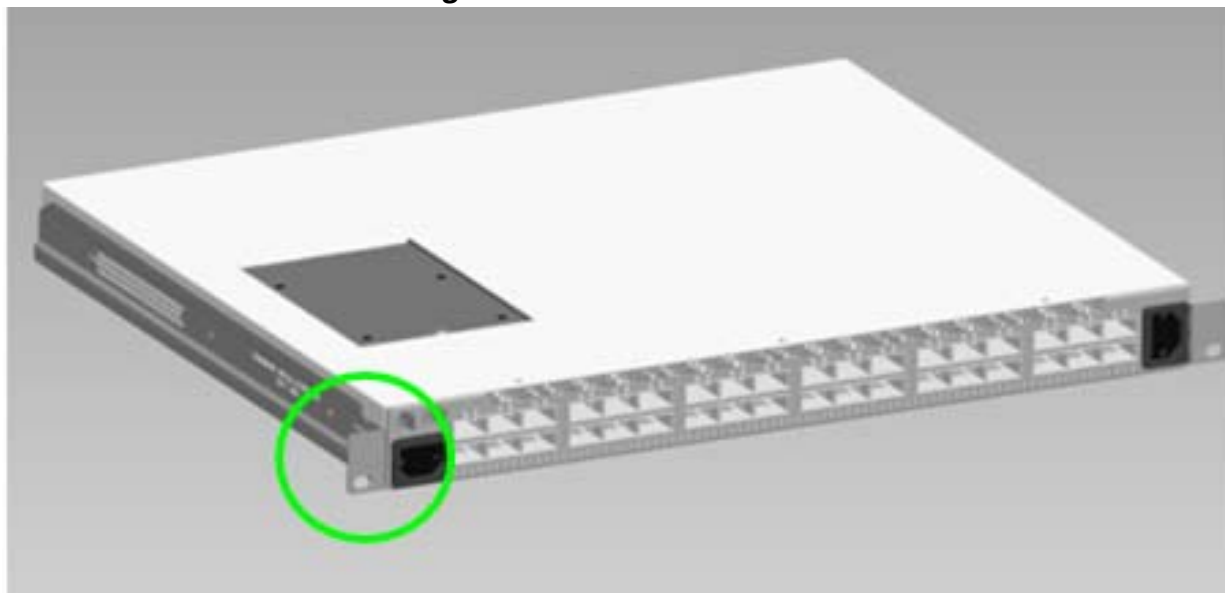
- One pair of C-brackets
- One pair of hat rails, left and right
- #6-32 screws
- M6 cage nuts

- M6 screws

Installation

1. Install the hat rails with mounting ears towards the port side of the switch. Fasten with three (3) #6-32 screws per rail. Torque screws to 8in-lb.

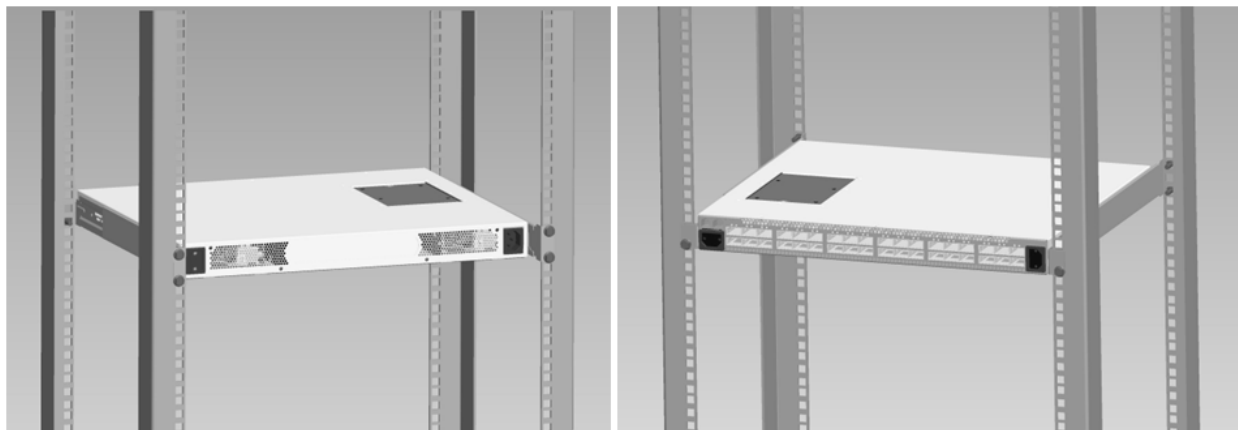
Figure 1-10 12200 Hat Rails



2. Install six (6) cage nuts into the rack posts. Two cage nuts into posts on the front side of the rack and four cage nuts into posts in the rear of the rack. Note that the front of the rack is where the switch is installed.

3. Install two C-brackets in the rear of the rack. Fasten to the rack posts with four (4) M6 screws. Slide the switch from the front of the rack into the C-brackets and fasten to the front posts with two (2) M6 screws. Torque to 30in-lb.

Figure 1-11 12200 Four Post Shallow Rack Mounting



12800-180 Installation

NOTE:

The following procedures are for installing the switch using a fixed distance between the front and rear rack posts.

Mounting Hardware Kit Contents:

NOTE:

The mounting kit contains all of the necessary parts for installing and mounting the switch into a 19" 4-post server rack with a distance between front and back posts of 719mm and 742mm.

- Support Rails
- Flat Brackets
- U-Brackets
- #8-32 Flat Head Screws
- #10-32 Flat Head Screws
- M6 Mounting Screws
- M6 Clip Nuts

Installation Tasks

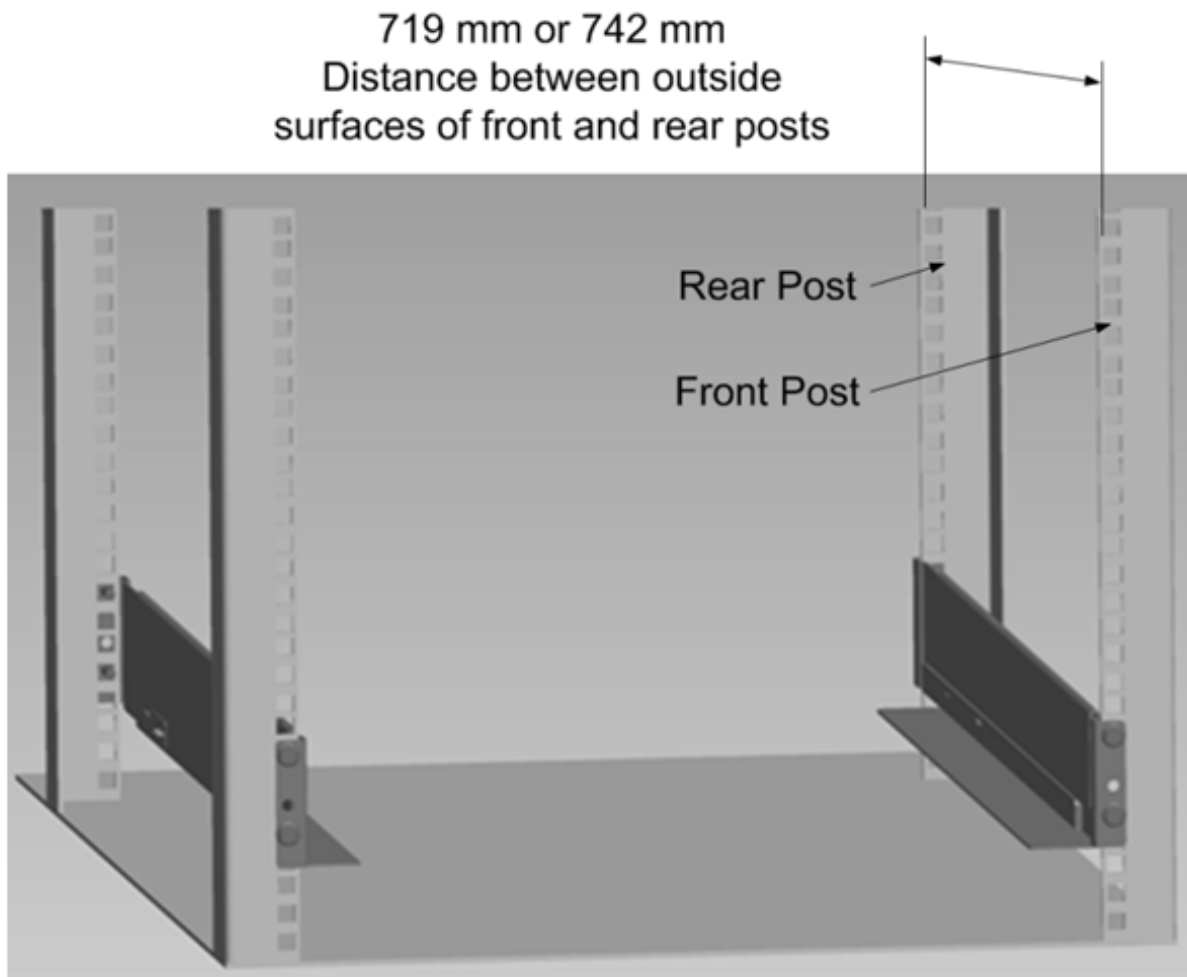
1. If applicable, remove the doors of the rack. Mark the rack and install M6 clip nuts.

NOTE:

It is recommended that 12800-180 is installed into the rack at 5U or 6U location. This locates the chassis approximately 12" from the floor and allows the chassis to be moved onto the support rails by sliding off of the pallet.

2. Install support rails in the rack and fasten with M6 screws. There are two (2) clip nuts and two (2) screws per post. Torque to 30in-lb.

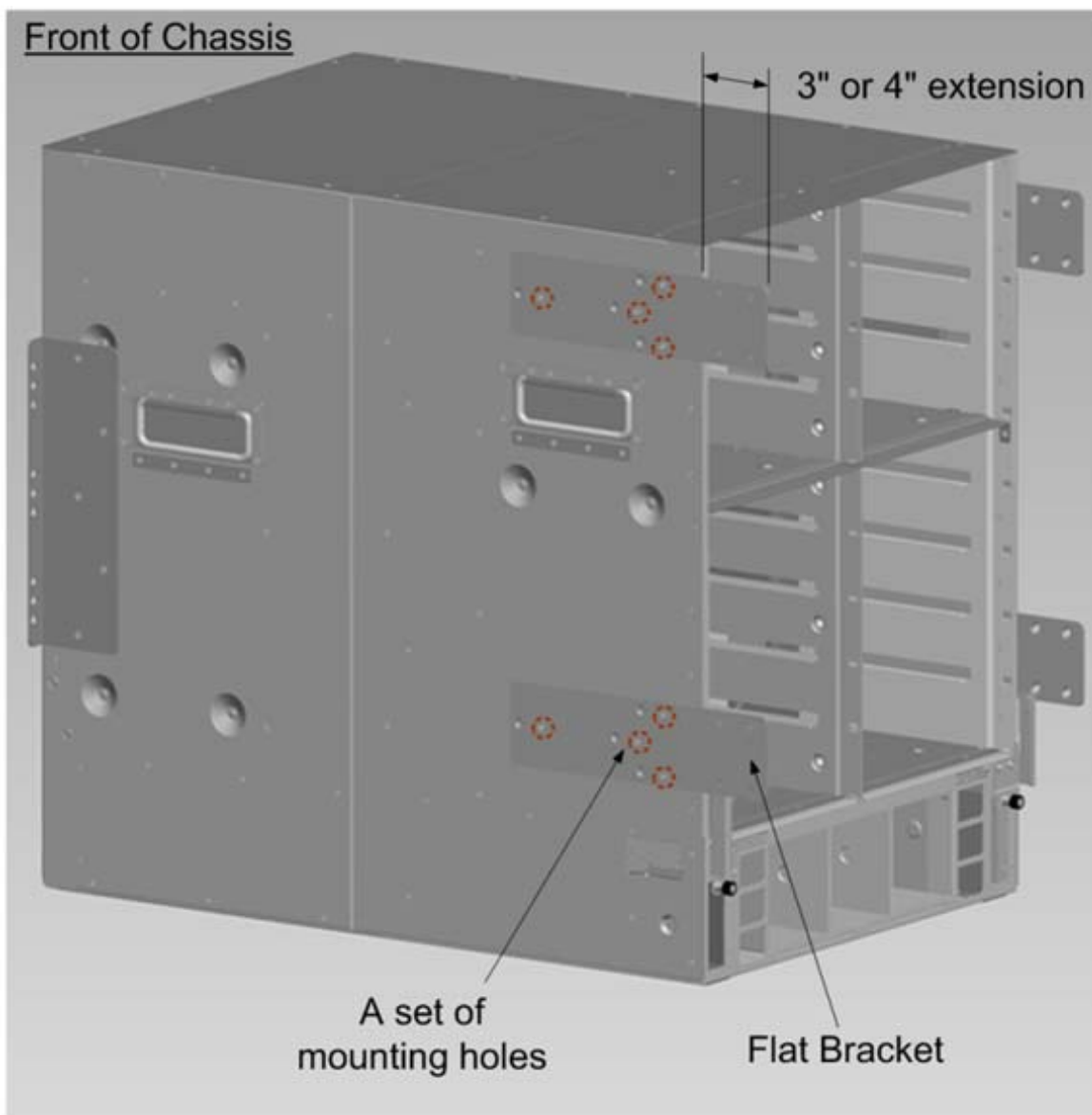
Figure 1-12 Support Rail Installation



3. Install four (4) flat brackets on the chassis. The brackets have two sets of holes, for ~3" and for ~4" extension beyond the rear of the chassis. For 719mm between rack rails, use the hole set for 3" extension. For 742mm between rack

rails, use the hole set for 4" extension. Fasten each bracket with #8 flat head screws. There are four (4) screws per bracket. Torque to 30in-lb.

Figure 1-13 Flat Bracket Installation



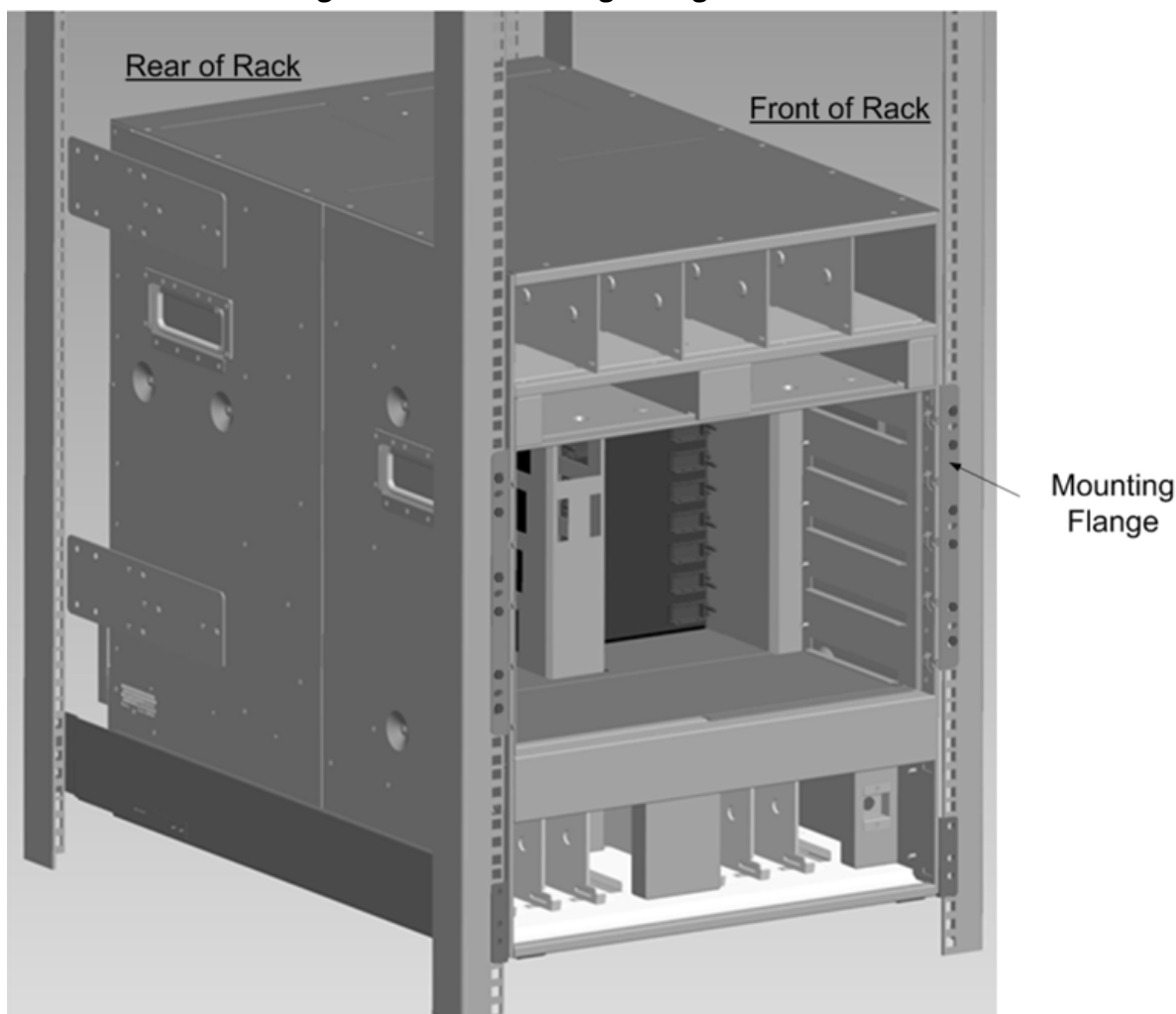
4. Orient the chassis such that mounting flanges are in the front of the rack. Install the chassis in the rack.

WARNING!!



To avoid injury, do not lift manually when fully loaded. The 12800-180, when fully-populated, weighs 270lbs (125kg). Use a mechanized lift only. For a manual lift, unload the product to minimize the weight (an empty chassis weighs 100lbs/45kg). Use a team of people appropriate to the weight of the product and in conjunction with applicable laws and guidelines.

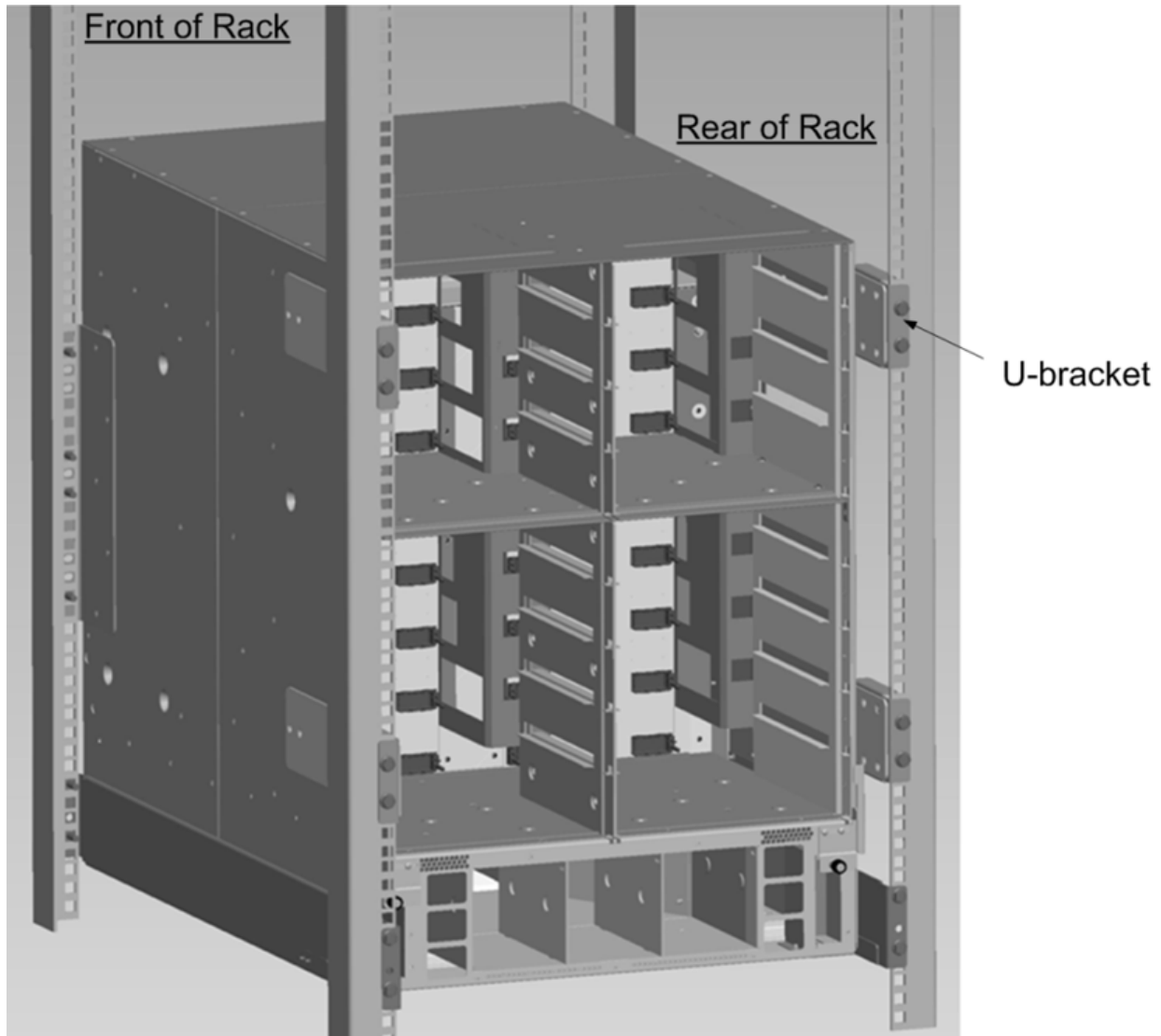
Figure 1-14 Mounting Flange Installation



5. Fasten the mounting flanges using M6 screws to the clip nuts that are pre-installed in the rack. There are six (6) screws per mounting flange. Torque to 30in-lb.

6. Install four U brackets in the rear of the chassis. Fasten each U bracket to a flat bracket with #10 flat head screws. There are four screws per bracket. Fasten the U brackets to EIA rails with M6 screws. There are two screws per bracket. Torque all screws to 30in-lb.

Figure 1-15 U Bracket Installation



7. If applicable, replace the door(s) on the rack.

12800-360 Standard Rack Installation

Mounting Hardware Kit Contents:

NOTE:

The mounting kit hardware contains all of the necessary parts for installing and mounting the switches into a rack. These kits are intended for use in cabinets with a depth ranging from 28 - 34 inches.

- **Mounting Kit** containing:
 - One support shelf assembly
 - One pair of rack rails for shelf assembly
 - One pair of top and bottom front support brackets
 - One pair of top and bottom rear support brackets
 - One pair cable management rack side panels (standard rack only)
 - One cable management trough for top of chassis (standard rack only)
 - One cable management trough for bottom of support shelf (standard rack only)
- **Kit Mounting Hardware 3/8" Square Hole** containing:
 - #10-32 rack mounting screws
 - Caged nut adapters for square-holed racks

Overview

The 12800-360 is the largest in the 12800-series of switches, capable of supporting up to 864 InfiniBand ports operating at QDR speed. It is packaged in a large, 29U (50.75 inch) chassis. As such, it is expected to utilize most of the available U-space within a rack. Additionally, in order to be able to manage such a large number of cables connected to IB ports, the 12800-360 switch was designed with cables in the front and the rear of the chassis.

Figure 1-16 12800-360 Front and Rear Cabling

Front 384 cables



Rear 480 cables



The ability to route cables in the front and rear of a rack reduces cable density and improves cable management and accessibility. Below are guidelines to prepare a rack to handle front and back routed cables.

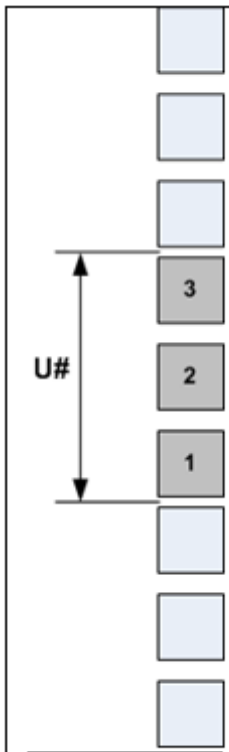
Installation tasks

NOTE:

It is recommended that 12800-360 is installed into the rack at a 5U or 6U location. This will locate the chassis approximately 12" from the floor and will allow the chassis to be moved onto the support shelf by sliding off the pallet. Mark the rack and install clip nuts in the rack holes as shown on the diagram. There are 24 M6 clip nuts.

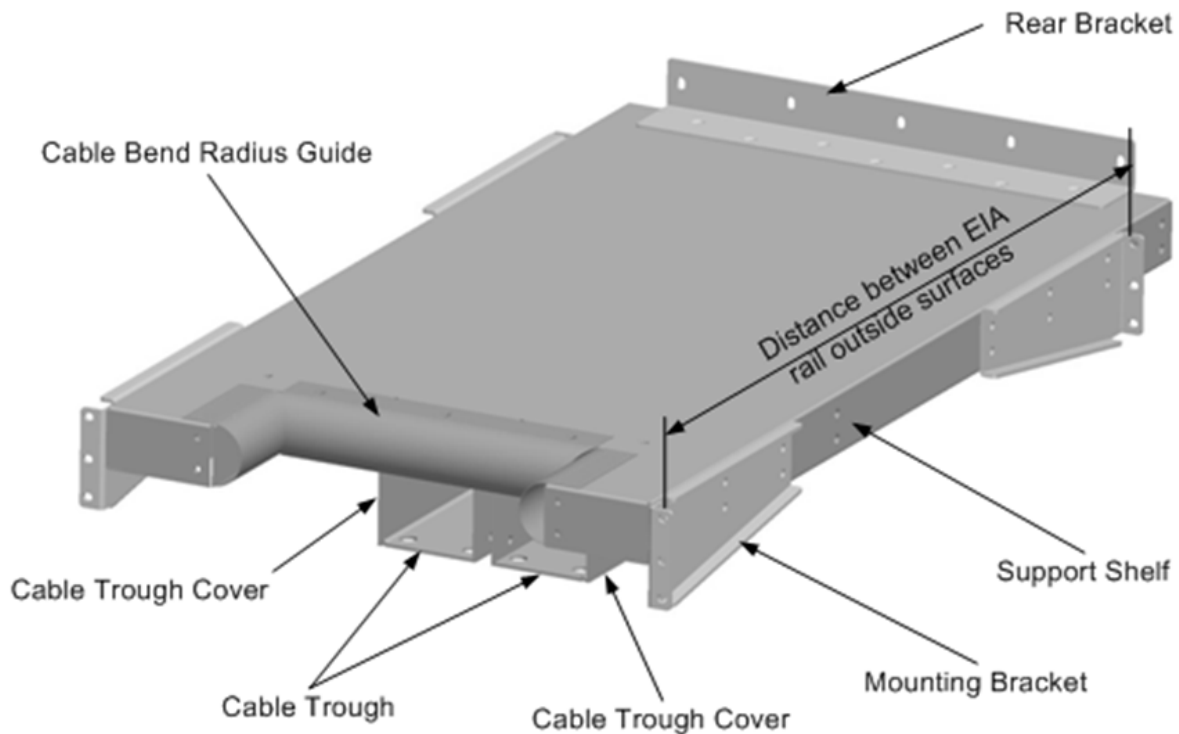
1. If applicable, remove the doors of the rack. Install M6 clip nuts in the following locations on EIA rails for U5 installation. For U6 installation, increment clip nut locations by one U (1.75").

Figure 1-17 Clip Nut Installation

Front of the Rack (left & right rail)			Rear of the Rack (left & right rail)		
U# Position#			U# Position#		
			3	2	
			4	1	
			4	3	
			28	3	
			30	1	

Assemble the Support Shelf

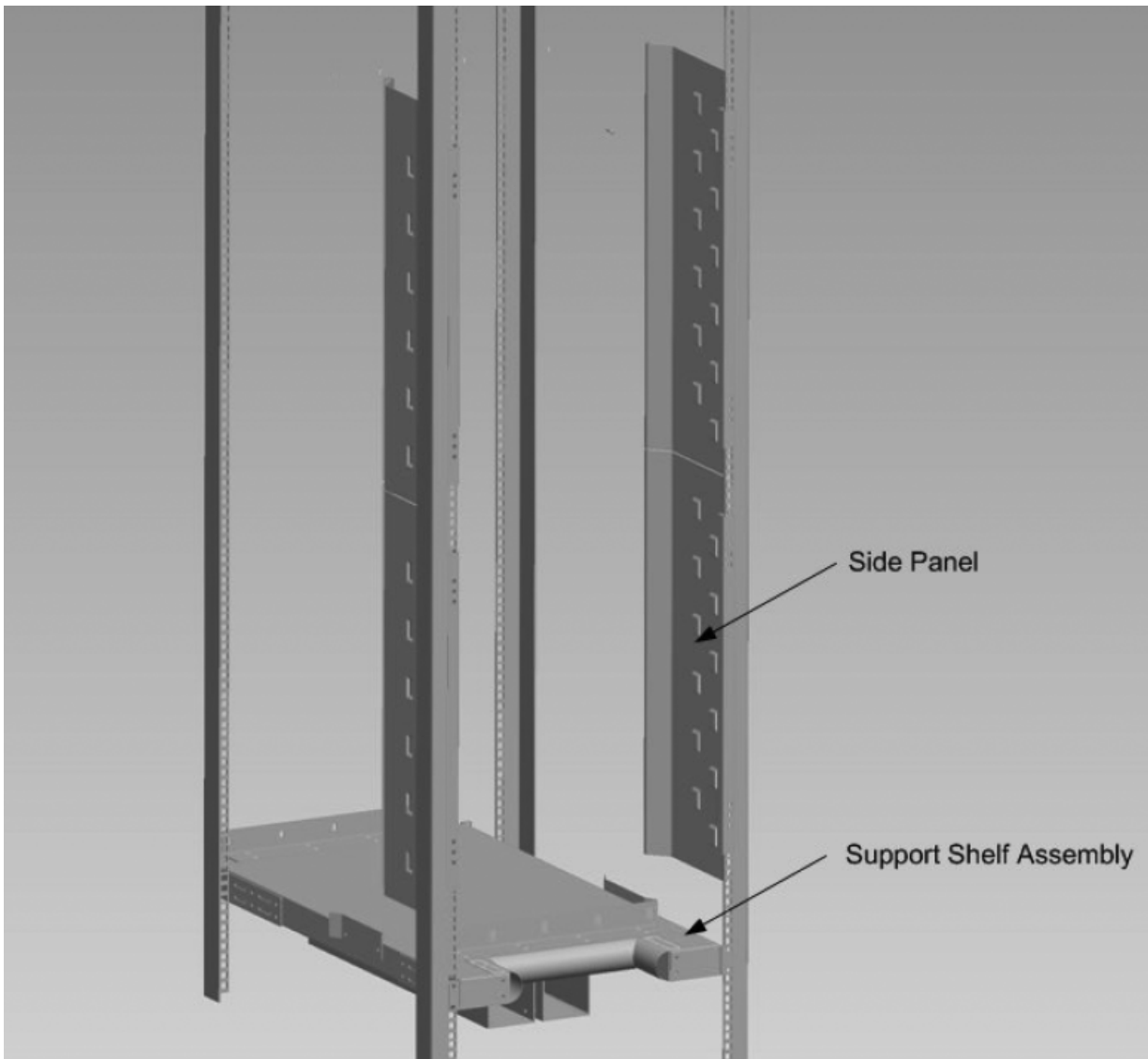
Figure 1-18 Support Shelf Assembly



1. Attach 4 mounting brackets to the support shelf with M6 HEX screws. There are 4 screws per bracket. Torque screws to 36in-lb.
2. Attach 2 guide brackets to the support shelf with #10-32 screws. There are 2 screws per bracket
3. Remove 2 cable trough covers. Attach 2 cable troughs to the bottom of the support shelf with #10-32 screws. There are 4 screws per trough. Re-install cable trough covers.
4. Attach the end bracket to the support shelf with #10-32 Flat head screws. There are 8 screws per bracket. Torque screws to 20in-lb.

5. Install the support shelf and side panels.

Figure 1-19 Support Shelf and Side Assembly



6. Install the support shelf in the rack as shown from the front of the rack. Use M6 screws to fasten to the rack rails. There are 2 screws per rack rail. Torque screws to 36in-lb.
7. Install 4 side panels in the rack as shown from the front of the rack and fasten with M6 screws to the rack rails.

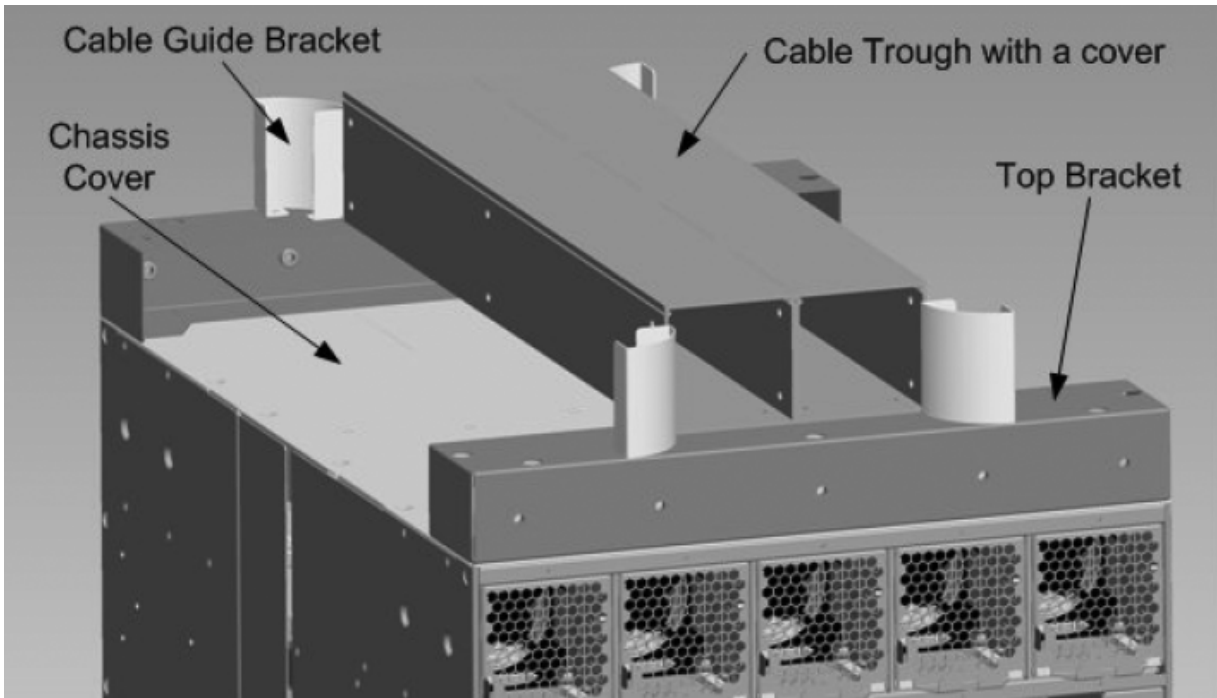
NOTE: The support shelf should be installed in a 4U or 5U space so that the

chassis is installed in a 5U or 6U space on top of the support shelf.

NOTE: *M6 nut clips should be pre-installed in corresponding locations on the rack rails before installing the support shelf and the side panels.*

8. Assemble cable management hardware on top of the chassis.

Figure 1-20 Top Chassis Cable Management Assembly



9. Attach 2 Top brackets to the top of the chassis. Use screws installed in the chassis cover. There are 5 screws per bracket.
10. Attach 4 Cable Guide brackets to Top brackets with #10-32 screws. There are 2 screws per Guide bracket.
11. Remove cable trough covers. Attach 2 cable troughs to Top brackets with #10-32 screws. There are 4 screws per trough. Re-install cable trough covers.

Install the Chassis in the Rack

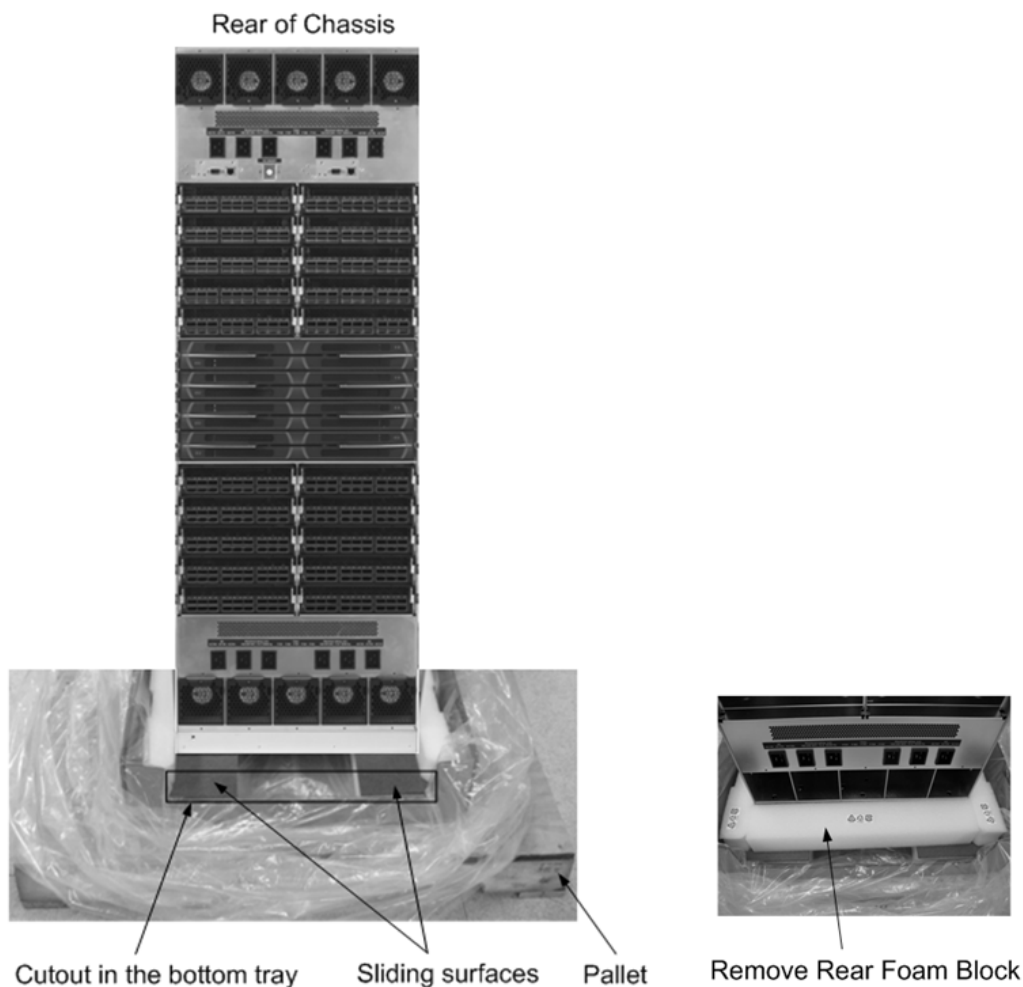
1. Orient and position the chassis for installation in the rack



To avoid injury, install the 12800-360 using a mechanized lift only. When fully-populated, the switch weighs 535lbs (244kg) (an empty chassis weighs 197lbs/90kg).

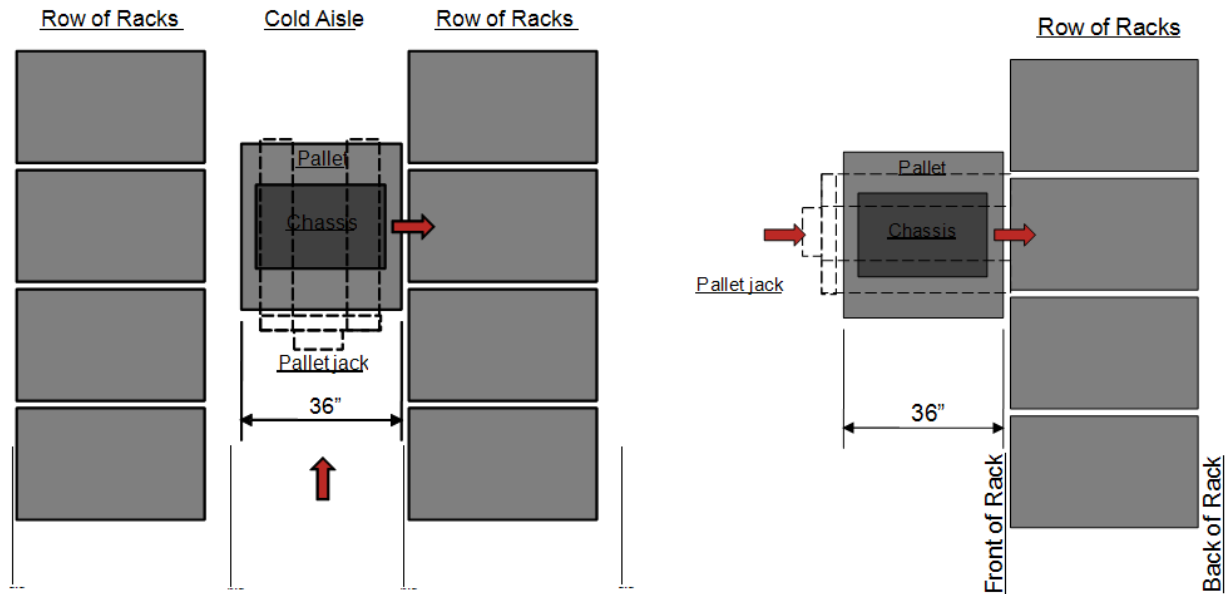
2. Orientation of the chassis on a pallet: The chassis has been packaged on sliding surfaces to facilitate installation in the rack by sliding off the pallet and onto the support shelf. Remove the rear foam block to expose sliding surfaces.

Figure 1-21 Loading from the Pallet



3. Position the chassis on front on the rack: Use a pallet jack to move the chassis. Orient the chassis on the pallet in front of the rack as shown. The chassis rear should be facing the front of the rack. For installations in racks arranged in rows, the distance between adjacent rows of racks (i.e., the width on a cold aisle) should be greater than 36" to be able to move the chassis on a pallet through a cold aisle.

Figure 1-22 Positioning the Switch



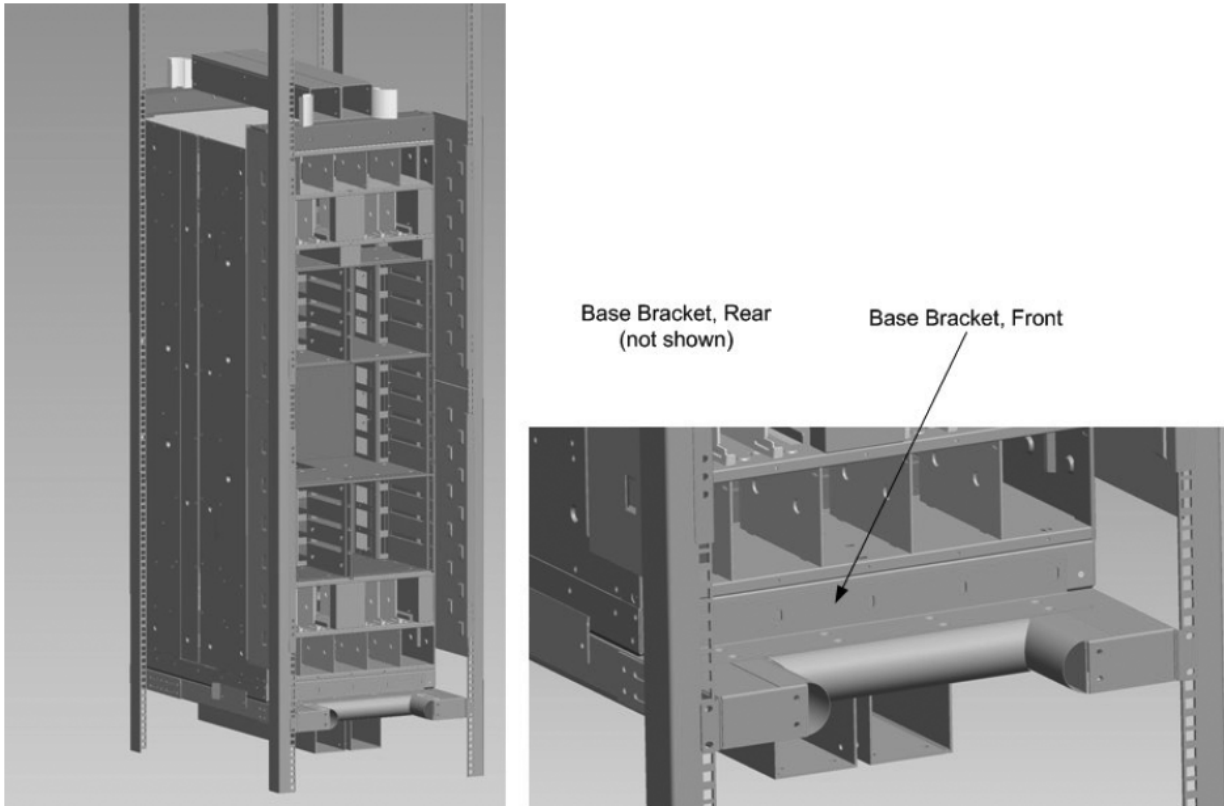
4. Installing the chassis in the rack: Align the chassis with the rack. Raise the chassis using a pallet jack such that the bottom of the chassis is at or slightly higher than the top surface of the support shelf pre-installed in the rack. Lock the pallet jack wheels. Use a group of people to push the chassis from the front to slide it off the pallet and on the support shelf. The chassis should be inserted into the rack until the rear of the chassis base is against the rear support bracket.

Figure 1-23 Sliding the Switch off the Pallet



5. Install from the front of the rack as shown. Push chassis into the rack until the rear of the chassis is against the Rear bracket.

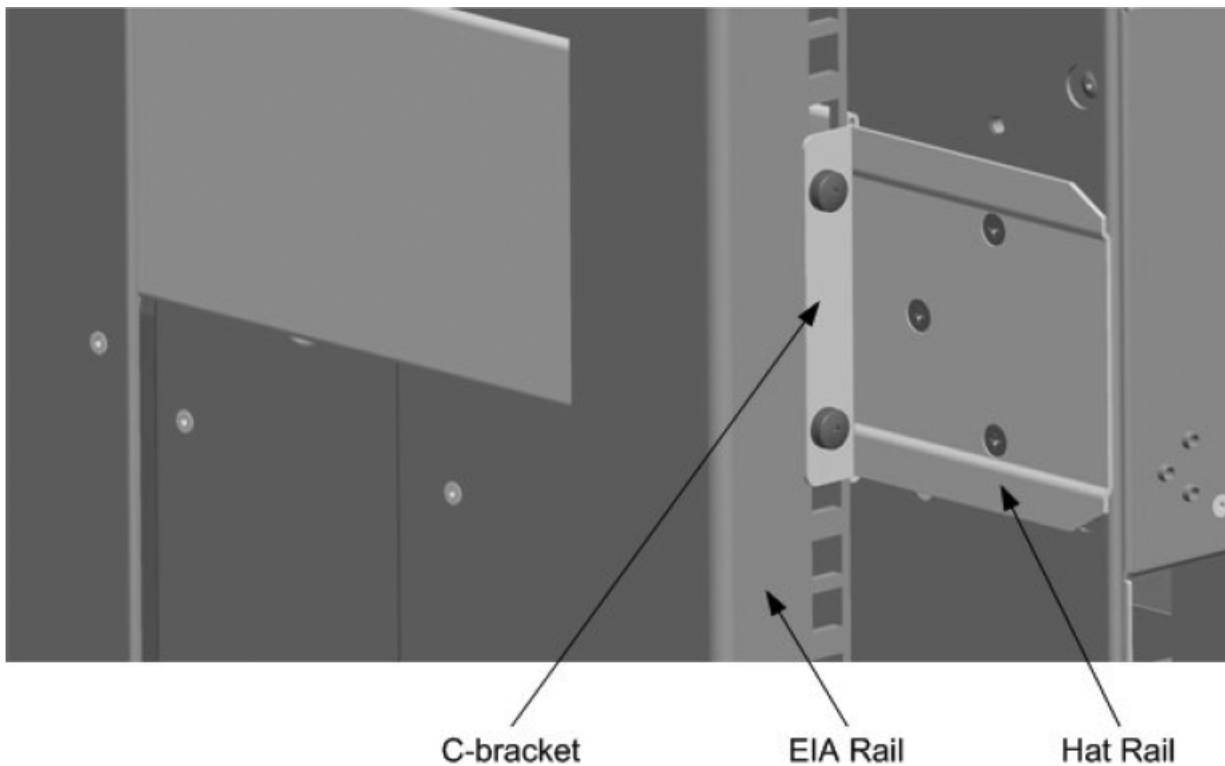
Figure 1-24 Chassis Installation



6. Install the chassis in the rack by sliding off the pallet and onto the support shelf. Install from the front of the rack as shown. Push chassis into the rack until the rear of the chassis is against the Rear bracket.
7. Fasten the rear Base bracket to the base of the chassis with M6 screws. There are 5 screws. Torque to 36in-lb.
8. Install the front Base bracket and fasten to the Support shelf with #10-32 Flat Head screws. There are 8 screws. Fasten the Front bracket to the chassis base with M6 HEX screws. There are 5 screws. Torque to 36in-lb.

Install the C-mounting brackets

Figure 1-25 Chassis Installation



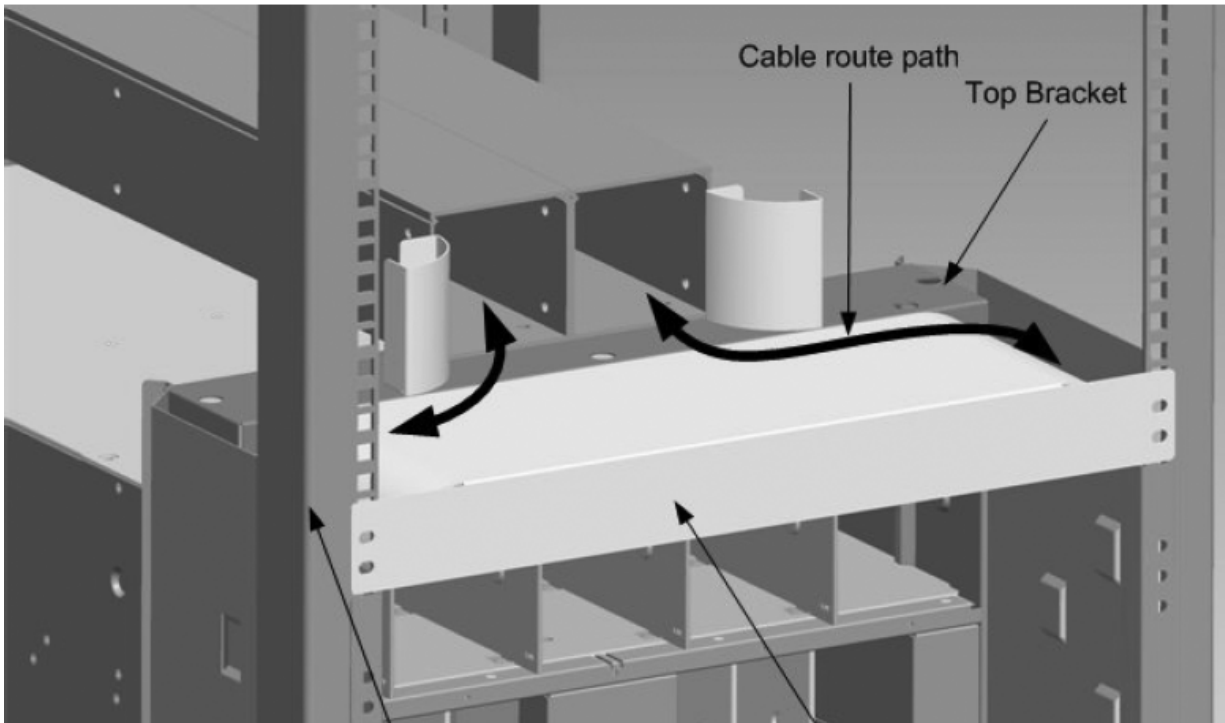
1. Install 2 C-brackets on the chassis. Slide C-brackets over Hat-rails pre-installed on the chassis. Fasten to the rack rails with M6 screws. Torque to 36in-lb.

NOTE:

M6 nut clips should be pre-installed in corresponding locations on the rack rails before installing the chassis in a rack.

Install the Front Mounting Bracket

Figure 1-26 Front Mounting Bracket



1. Install the Front bracket and fasten to the Top bracket with #10-32 screws. There are 5 screws. Fasten the Front bracket to the rack rails with M6 screws.

NOTE:

M6 nut clips should be pre-installed in corresponding locations on the rack rails before installing Front bracket.

NOTE:

Front bracket should be installed after cables on top of the chassis are routed from the back of the rack, through the top troughs, over to the sides and down to corresponding Leaf modules. Cables should be secured to the side plates. Front bracket is installed by moving up the face of the chassis until mounting holes line up with corresponding holes in the Top bracket. When installed, the Front bracket supports weight of the cables on top of it. If chassis to be shipped installed in a rack before cables are installed, Front bracket to be installed for shipment. Once at customer site, Front bracket to be removed for cable installation and then re-installed as directed.

Connect Equipment to the Ports and Power On the System

NOTE:

Before connecting equipment, it is important to understand the locations of the serial and Ethernet ports on the 12200, 12300 and 12800 series. For the 12200 and 12300, these are located on the switch IB port side. For the 12800 series, these are located on the Serial, Ethernet, Chassis EEPROM Board (SEEB) modules. Each SEEB module communicates with a Management Module (MM) on the opposite side of a 12800 chassis.

Figure 1-27 12200 and 12300 Serial and Ethernet Ports

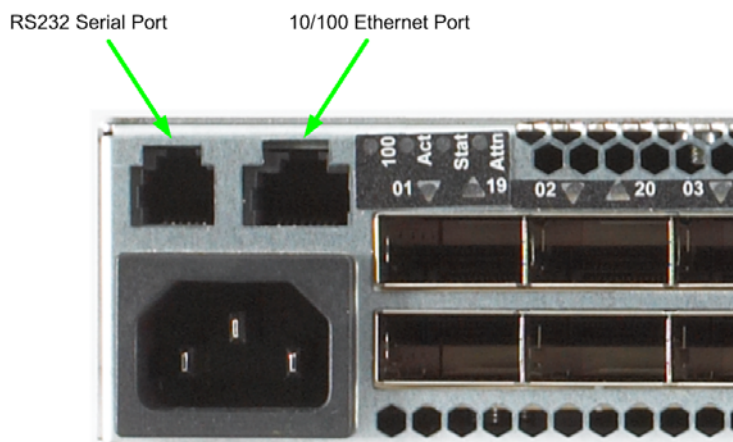
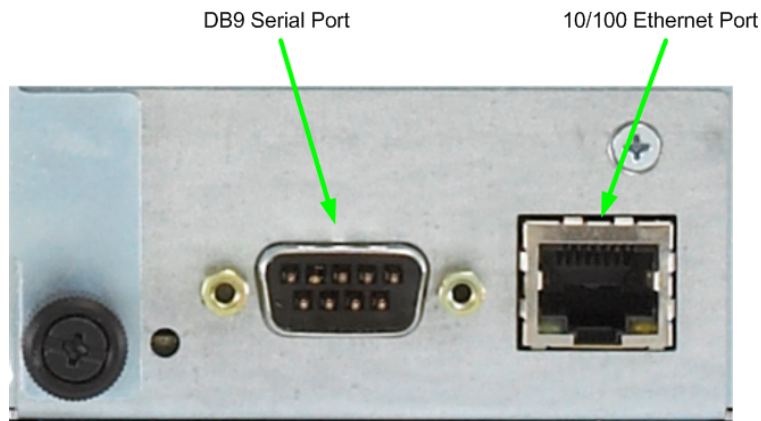


Figure 1-28 12800 Series Serial and Ethernet Ports (SEEB Module)



1. Connect a Category 5 or 6 (Cat 5/6) Ethernet cable to the RJ-45 connector(s) on the switch. Connect the other end of the Cat 5/6 to an OOB LAN workstation, another switch or a hub.
2. Connect the switch to IB-enabled host(s)/switch(es) using QDR QSFP IB cables, or to DDR host(s)/switch(es) using a QSFP-CX4 cable.

NOTE:

Make sure all cables latch securely into the corresponding port connectors. If the IB cable connector is not properly oriented to fit onto the port receptacle (i.e., while attempting to insert the cable in the port), do not twist the connector to achieve the correct orientation. Instead, reach back a few feet on the cable, and twist the bulk cable to allow the connector to rotate to the proper orientation. Doing this prevents all of the rotational forces from acting right at the connector terminations.

CAUTION!

It is important to provide strain relief for the IB cable connector.

Connecting Power

1. Provide strain relief for the power cable(s).

NOTE: For the 12800 switches, make certain the DC On switch is illuminated. If it is not, press the button to supply power.

2. If necessary, replace the fascia(s) over the switch fans.
3. Connect the power cables to an AC power outlet.
4. When the switch is plugged into an AC power outlet:
 - a. The system powers up.
 - b. The fans start.
 - c. The system performs a power-on self test (POST).

NOTE:

For the 12800 switches, make certain the DC ON/OFF switch is illuminated. If it is not, press the button to supply power. The switch is located:

- 12800-360: Next to the AC power inlets on the top of the chassis.
- 12800-180: Next to the power supplies. If applicable, the user needs to remove the fascia covering the supplies to access the DC ON/OFF switch.



Figure 1-29 DC ON/OFF Switch

5. The switch, power supply, and fan LEDs light up.

Bringing Up the System For the First Time

12800-Series Management Module Protective Label Guidelines

A management module installed in a 12800 system may have a protective label installed, as shown in [Figure 1-30](#). This label protects the mechanical release latch (MRL) switch inside the management module from shock and vibration during shipping.



Figure 1-30 MRL Protective Label 1

Staging Area Testing

If a MM requires testing prior to final installation at an end-user site (for example, testing at a staging area), do the following:

1. Disengage the thumb screw and partially rotate the lever as shown in [Figure 1-31](#).



Figure 1-31 MRL Protective Label 2

2. Fold back the label from the thumb screw hole. Re-engage the lever and tighten the thumb screw as shown in [Figure 1-32](#).



Figure 1-32 MRL Protective Label 3

3. After testing is complete at the staging area, reverse Steps 1 and 2 to prepare the system for shipment to the end-user site (see [Figure 1-33](#)).



Figure 1-33 MRL Protective Label 4

User Site Installation

After final installation of a 12800-series switch is completed at the end user site:

1. Disengage the thumb screw and partially rotate the lever as shown in [Figure 1-34](#).



Figure 1-34 MRL Protective Label 5

2. Peel off the protective label. Re-engage the lever and tighten the thumb screw as shown in [Figure 1-35](#).



Figure 1-35 MRL Protective Label 6

Start-up Procedures

1. Power up the switch.
2. From its flash image on the management module, the switch begins its boot process.

NOTE:

If the DB9 port of the SEEB module or the RS232 port on the 12200/12300 is connected to a terminal emulation program, the user will be able to view the switch boot process. Be certain to use a null-modem/crossover serial cable for the console port. For users assembling their own cable, refer to [Appendix C](#) for serial port pinout information. The settings for the terminal emulation device should be:

- 8 data bits
 - no parity bits
 - 1 stop bit
 - 57.6K baud
 - Use VT100 emulation.
 - Flow control = XON/XOFF
3. Verify the IP address with the command line interface (CLI) command **showChassisIpAddr** command. The system returns the information similar to the following:

Chassis IP Address: [192.168.100.9](#) Net mask: 255.255.240.0

Changing the Switch IP Address and Default Gateway via the CLI

The command line interface (CLI) can be accessed via Telnet, SSH, the SEEB module DB-9 or 12200/12300 RS-232 serial port(s).

1. Determine the CLI access method (i.e., Telnet, SSH, or Serial).

NOTE:

If using a serial port, skip to Step 6. Steps 2 through 5 are for those users accessing the switch via Telnet or SSH. For the 12800 series, make certain to connect to the SEEB serial port associated with the Master Management Module (MM). These are:

- 12800-040: MM 201
- 12800-180: MM 211
- 12800-360: MM 227

2. Connect applicable serial cables to the RS-232/DB-9 ports of the switch. Connect the other end to a workstation. If using a terminal emulation device, the settings should be:

- 8 data bits
- no parity bits
- 1 stop bit
- 57.6K baud
- Use VT100 emulation.
- Flow control = XON/XOFF

3. If using Telnet or SSH, access the switch with the following command:

```
open 192.168.100.9
```

4. The system prompts for a user name. In order to change the IP address and default gateway, the user must be logged in as the administrator. At the prompt enter:

```
admin
```

5. The system prompts for a password. At the prompt enter:

```
adminpass
```

The system responds with:

```
Welcome to the <SWITCH> CLI. Type 'list' for the list of  
commands.
```

6. To change the switch IP address enter:

```
setChassisIpAddr -h ipaddress -m netMask
```

where **-h ipaddress** is the new IP address in dotted decimal (i.e., xxx.xxx.xxx.xxx) format, and **-m netMask** is the new subnet mask in dotted decimal (i.e., xxx.xxx.xxx.xxx) format.

7. To change the switch default gateway IP address enter:

```
setDefaultRoute -h ipaddress
```

where **-h ipaddress** is the new default gateway IP address in dotted decimal (i.e., xxx.xxx.xxx.xxx) format.

8. To to exit the CLI enter:

```
logout
```

Updating the Management Module IP Addresses in a Redundant Management Configuration (12800-180 and 12800-360)

Each management module must have a unique IP address that is different than the chassis IP address of the switch. Therefore, a redundantly-managed switch will have multiple unique IP addresses. The default IP addresses are:

12800-180

- Chassis: 192.168.100.9
- Management Module 211: 192.168.100.10
- Management Module 212: 192.168.100.11

12800-360

- Chassis: 192.168.100.9
- Management Module 227: 192.168.100.10
- Management Module 228: 192.168.100.11

It is necessary for each management module to have a unique IP address for the following reasons:

- Unique IP addresses are used when sending syslog messages from a managed spine to a syslog server.
- Gives the user the ability to ping each management spine separately.
- If the IP addresses are not unique, collisions will occur, causing IP operations to fail.

To update the IP address on a management module, do the following:

1. Ensure that the module is connected to a COM port on a serial terminal device via the RS-232 port (12200/12300) or DB-9 port (12800 series).
2. Get to a **[boot]** : prompt by following Step a or b.
 - a. If the management module is running, enter the following command at the console:

```
reboot now
```

Then press **Enter**.

- b. If the module is not running, power on the switch.
3. When the system displays **image1** or **image2**, press the **Spacebar** to interrupt the auto load sequence before the counter expires (within 5 seconds).

4. At the **[boot]**: prompt type the following:

```
spineip <NEW IP ADDRESS>
```

Then press **Enter**.

NOTE:

This command changes the IP address for *image1* and *image2* on each module.

5. At the **[boot]**: prompt enter **reboot**, and press **Enter**. Upon reboot the IP address is changed. Repeat for the second Management Module.

Component LEDs

Management Module

Figure 1-36 Management Module LEDs



Module Status

The status LED indicates one of the following conditions:

- Steady **Green** - the module is operating normally.
- Blinking **Green** - LED test state.
- **Off** - module is in the removable state.

Module Attention

The Attention LED indicates one of the following conditions:

- **Off** - the system functioning normally.
- Steady **Amber** - the system requires some attention, which could indicate one of the following conditions:
 - The switch temperature is at a warning level on the module.
 - The switch silicon temperature is at a warning level (approximately 90 degrees C).
 - DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V and 1.8V are all monitored).
 - The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
- Blinking **Amber** (once every four seconds) - LED test state, which could indicate one of the following conditions:
 - Bulk power is stable.
 - The module DC-to-DC converter is enabled.
 - The module is not removable.

Chassis Status and Attention

The chassis status LED is **Green** when the system is functioning normally.

The chassis status LED is **Amber** when one of the following conditions exists:

- Any Fan Alarm is amber.
- Any power supply AC OK LED is off.
- Any power supply DC OK LED is off
- Any spine module Attention LED is on, or it has been determined that a spine is not functioning (even if it is unable to light the LED).
- Any leaf module Attention LED is on, or it has been determined that a leaf is not functioning (even if it is unable to light the LED).

The chassis status LED is **Amber** when the system can no longer function properly and indicates one of the following conditions:

- No functional fan trays are present.
- No functional spines are present.
- No functional leaves are present.

The chassis status LED is **off** when:

- There are no functional power supplies present.
- There are no management cards in the system
- AC power has been removed from the system.

Fault Tolerant

The Chassis Fault Tolerant (FT) LED indicates the following condition:

- Steady **Green** - the chassis is populated with a full complement of fans as well as N+1 power.

Service Required

The Chassis Service Required (SVC) LED is not currently implemented.

Master

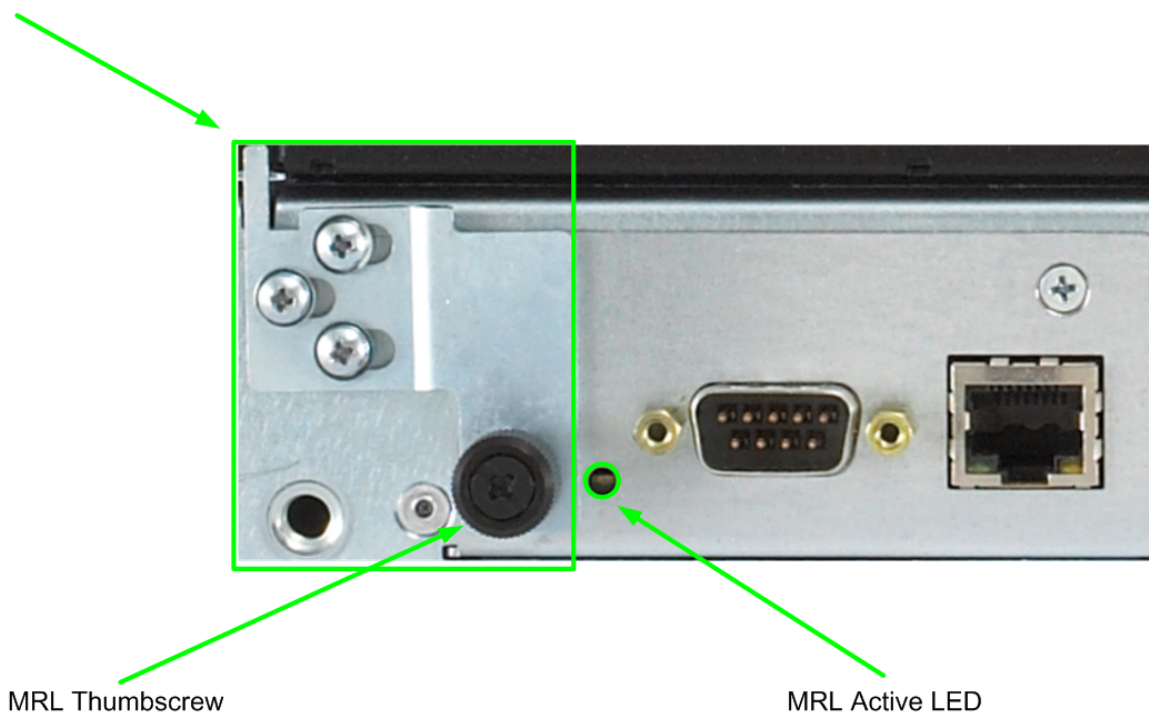
The Master LED is **Green** when module is acting as the master Management Module (i.e., it is the master MM).

MRL Active

The MRL Active LED is **Green** when mechanical release latch (MRL) thumbscrew is secured to the Serial, Ethernet, Chassis EEPROM Board (SEEB).

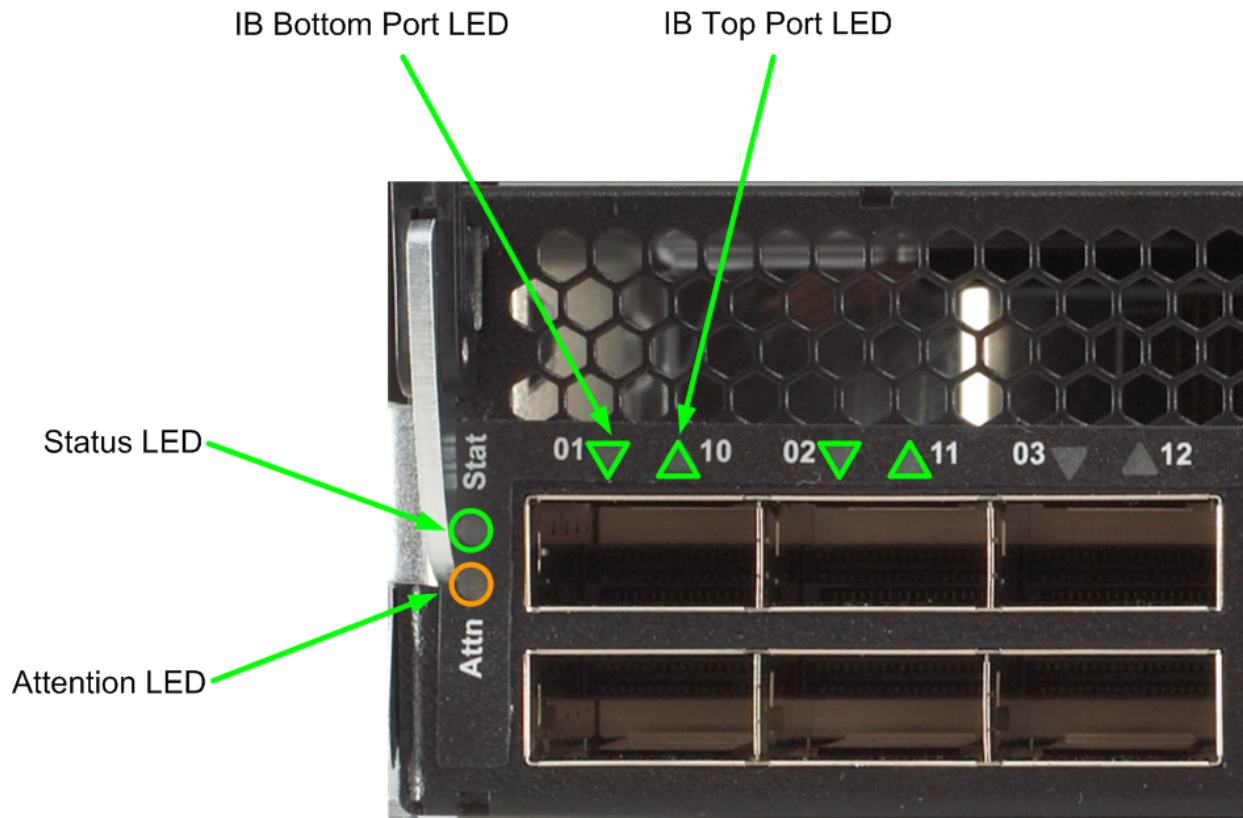
Figure 1-37 MRL Active LED

Mechanical Release Latch (MRL)



Leaf Module

Figure 1-38 Leaf Module LEDs



IB Port LEDs

Each module IB port has a **Green** IB link status LED that provide the following indications:

- **On** - the logical link is up (port is in the Active state).
- **Off** - the physical link is down (port is in the Down state).

Module Status

The status LED indicates one of the following conditions:

- Steady **Green** - the module is operating normally.
- Blinking **Green** - LED test state.
- **Off** - module is in the removable state.

Module Attention

The Attention LED indicates one of the following conditions:

- **Off** - the system functioning normally.
- Steady **Amber** - the system requires some attention, which could indicate one of the following conditions:
 - The switch temperature is at a warning level on the module.
 - The switch silicon temperature is at a warning level (approximately 90 degrees C).
 - DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V and 1.8V are all monitored).
 - The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
- Blinking **Amber** (once every four seconds) - LED test state.

Spine Module

Figure 1-39 Spine Module LEDs (Double Spine Shown)



Module Status

The status LED indicates one of the following conditions:

- Steady **Green** - the module is operating normally.
- Blinking **Green** - LED test state.
- **Off** - module is in the removable state.

Module Attention

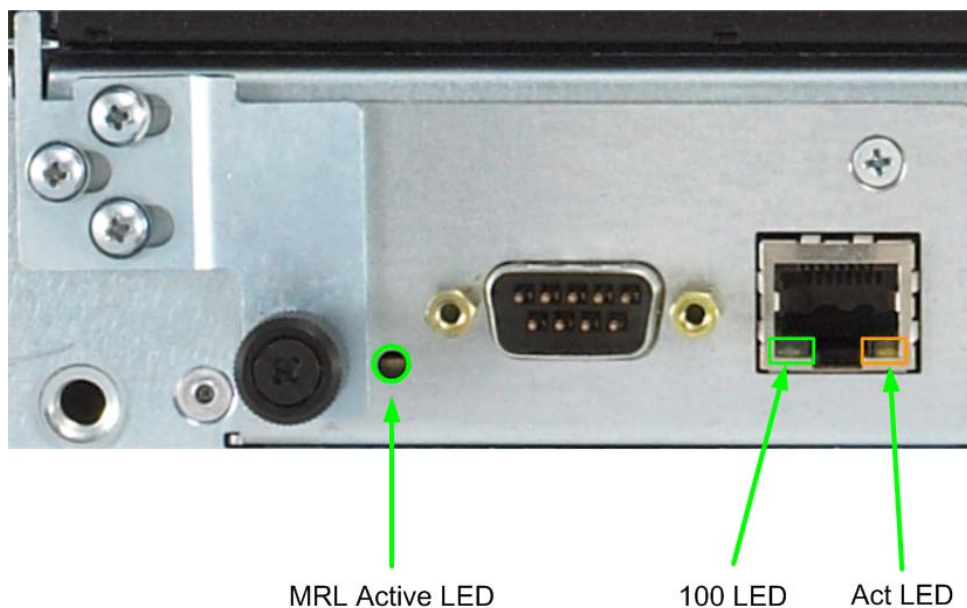
The Attention LED indicates one of the following conditions:

- **Off** - the system functioning normally.
- Steady **Amber** - the system requires some attention, which could indicate one of the following conditions:
 - The switch temperature is at a warning level on the module.

- The switch silicon temperature is at a warning level (approximately 90 degrees C).
- DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V and 1.8V are all monitored).
- The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
- Blinking **Amber** (once every four seconds) - LED test state.

SEEB Module

Figure 1-40 SEEB Module LEDs



RJ45 LEDs

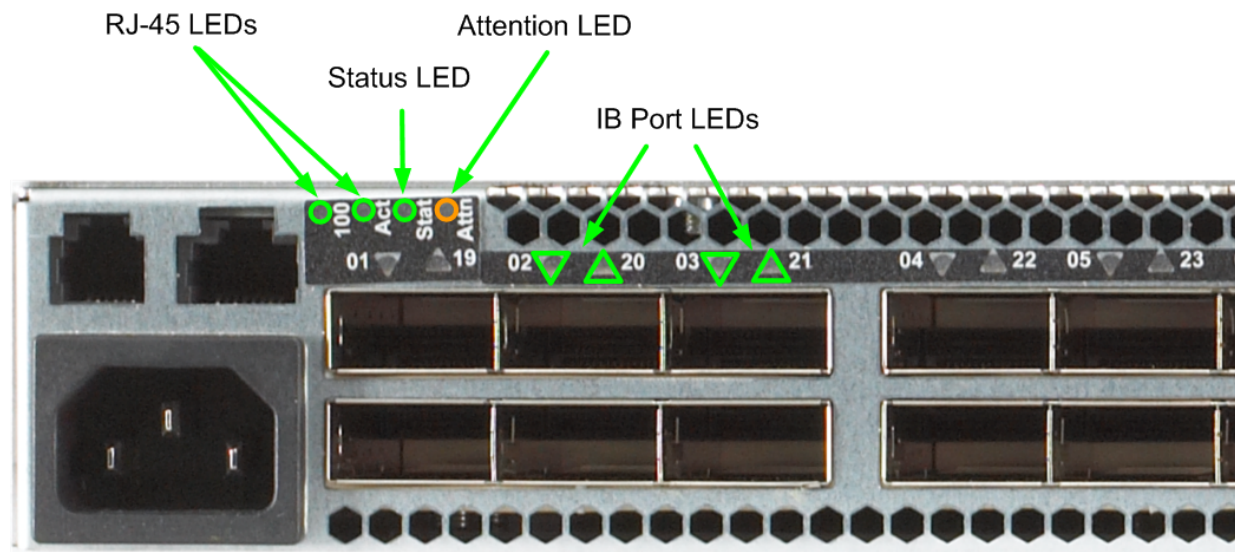
The RJ45 connectors have two LEDs, **Act** and **100**. The **100** LED is **Green** when a 100Mbps link is connected. The **Act** LED is **Amber** when an Ethernet link has been established, and blinking when the link is active.

MRL Active

The MRL Active LED is **Green** when the mechanical release latch (MRL) thumbscrew is secured to the Serial, Ethernet, Chassis EEPROM Board (SEEB) and a Management Module is installed in the front of the chassis.

12200 and 12300

Figure 1-41 12200 and 12300 LEDs



IB Port LEDs

Each module IB port has a **Green** IB link status LED that provide the following indications:

- **On** - the logical link is up (port is in the Active state).
- **Off** - the physical link is down (port is in the Down state).

Status

The status LED indicates one of the following conditions:

- Steady **Green** - the module is operating normally.
- Blinking **Green** - LED test state.
- **Off** - module is in the removable state.

Attention

The Attention LED indicates one of the following conditions:

- **Off** - the system functioning normally.
- Steady **Amber** - the system requires some attention, which could indicate one of the following conditions:
 - The switch temperature is at a warning level on the module.
 - The switch silicon temperature is at a warning level (approximately 90 degrees C).

- DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V and 1.8V are all monitored).
- The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
- Blinking **Amber** (once every four seconds) - LED test state.

RJ45 LEDs

The RJ45 connectors have two LEDs, **Act** and **100**. The **100** LED is **Green** when a 100Mbps link is connected. The **Act** LED is **Green** when an Ethernet link has been established, and blinking when the link is active.

12800 Fans and Power Supplies

Fan LEDs

Figure 1-42 12800 Fan LEDs



Status LED

Attention LED

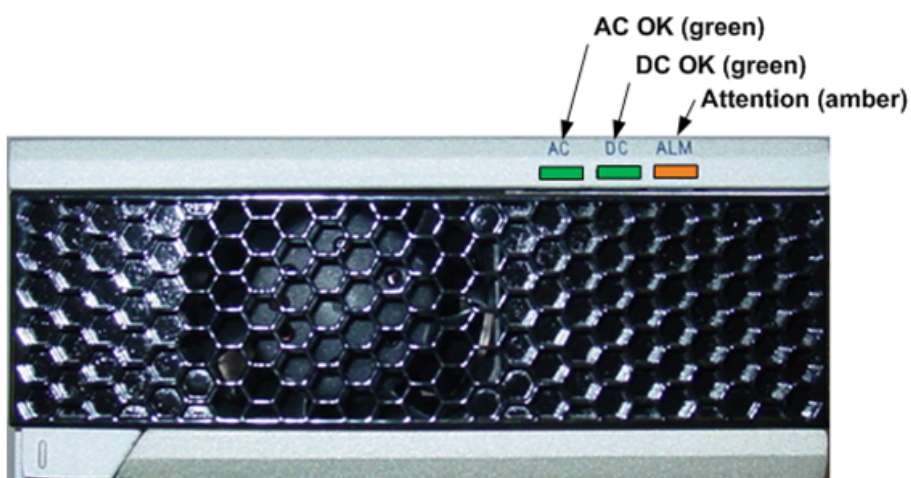
Fan LEDs indicate the following status(es):

- **Green** indicates that the fan is functioning properly.
- **Amber** indicates that the following warning condition exists:
 - A single fan failure when the rotation speed is less than 4000 RPM or greater than 10950 RPM.

- **Green** and **Amber** on indicates a possible problem, including:
 - The fan tray is not responding to commands for configuration and temperature-related operations.
 - A fan is not responding to commands for temperature and speed related operations.
 - The fan speed has fallen below the minimum allowed RPM for a fan.

Power Supply LEDs

Figure 1-43 12800 Power Supply LEDs



Each power supply has three LEDs: DC OK, AC OK and Alarm. Following are the status definitions for each.

DC OK

- **Green** indicates that DC power is normal.
- **Off** indicates a DC power failure or no DC power is present.

AC OK

- **Green** indicates that AC power is normal.
- **Off** indicates a AC power failure or no AC power is present.

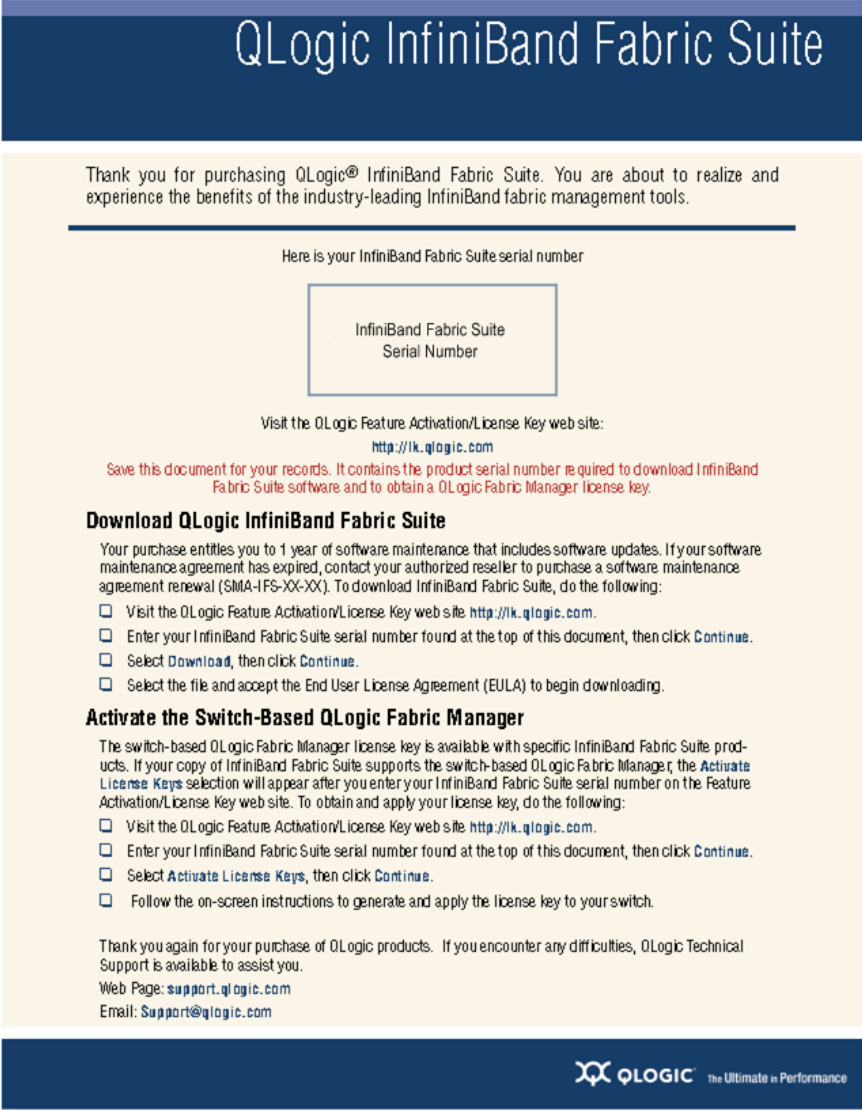
Alarm

- **Amber** indicates a fault condition, failed fan, over temperature condition.

Switch-Based QLogic Fabric Manager License Key

If purchased, certain packages of the InfiniBand Fabric Suite entitle the user to the switch-based QLogic Fabric Manager. Refer to the licensing documentation that comes with the InfiniBand Fabric Suite for instructions on generating the license key.

Figure 1-44 InfiniBand Fabric Suite Licensing Information



The screenshot shows a document titled "QLogic InfiniBand Fabric Suite". It begins with a thank-you message and provides instructions for obtaining a license key. A box labeled "InfiniBand Fabric Suite Serial Number" is shown, indicating where the user's serial number would be. The document then directs the user to visit the QLogic Feature Activation/License Key web site at <http://fk.qlogic.com>. It includes a red warning to save the document for records, as it contains the product serial number required for software download and license key generation. Two main sections follow: "Download QLogic InfiniBand Fabric Suite" and "Activate the Switch-Based QLogic Fabric Manager". Each section contains a list of steps with checkboxes. The download section includes steps for visiting the website, entering the serial number, clicking "Download", and accepting the EULA. The activation section includes steps for visiting the website, entering the serial number, clicking "Activate License Keys", and following on-screen instructions. At the bottom, contact information for QLogic Technical Support is provided, including a web page and email address. The QLogic logo and tagline "The Ultimate in Performance" are at the bottom right. A barcode and the number "51029-00 A" are at the bottom left.

QLogic InfiniBand Fabric Suite

Thank you for purchasing QLogic® InfiniBand Fabric Suite. You are about to realize and experience the benefits of the industry-leading InfiniBand fabric management tools.

Here is your InfiniBand Fabric Suite serial number

InfiniBand Fabric Suite
Serial Number

Visit the QLogic Feature Activation/License Key web site:
<http://fk.qlogic.com>

Save this document for your records. It contains the product serial number required to download InfiniBand Fabric Suite software and to obtain a QLogic Fabric Manager license key.

Download QLogic InfiniBand Fabric Suite

Your purchase entitles you to 1 year of software maintenance that includes software updates. If your software maintenance agreement has expired, contact your authorized reseller to purchase a software maintenance agreement renewal (SMA-IFS-XX-XX). To download InfiniBand Fabric Suite, do the following:

- ☐ Visit the QLogic Feature Activation/License Key web site <http://fk.qlogic.com>.
- ☐ Enter your InfiniBand Fabric Suite serial number found at the top of this document, then click **Continue**.
- ☐ Select **Download**, then click **Continue**.
- ☐ Select the file and accept the End User License Agreement (EULA) to begin downloading.

Activate the Switch-Based QLogic Fabric Manager

The switch-based QLogic Fabric Manager license key is available with specific InfiniBand Fabric Suite products. If your copy of InfiniBand Fabric Suite supports the switch-based QLogic Fabric Manager, the **Activate License Keys** selection will appear after you enter your InfiniBand Fabric Suite serial number on the Feature Activation/License Key web site. To obtain and apply your license key, do the following:

- ☐ Visit the QLogic Feature Activation/License Key web site <http://fk.qlogic.com>.
- ☐ Enter your InfiniBand Fabric Suite serial number found at the top of this document, then click **Continue**.
- ☐ Select **Activate License Keys**, then click **Continue**.
- ☐ Follow the on-screen instructions to generate and apply the license key to your switch.

Thank you again for your purchase of QLogic products. If you encounter any difficulties, QLogic Technical Support is available to assist you.

Web Page: support.qlogic.com
Email: Support@qlogic.com

51029-00 A



 QLOGIC The Ultimate in Performance

Procedures

1. Record the IFS serial number.
2. Go to the QLogic Feature Activation/License Key web site
<http://lk.qlogic.com>.

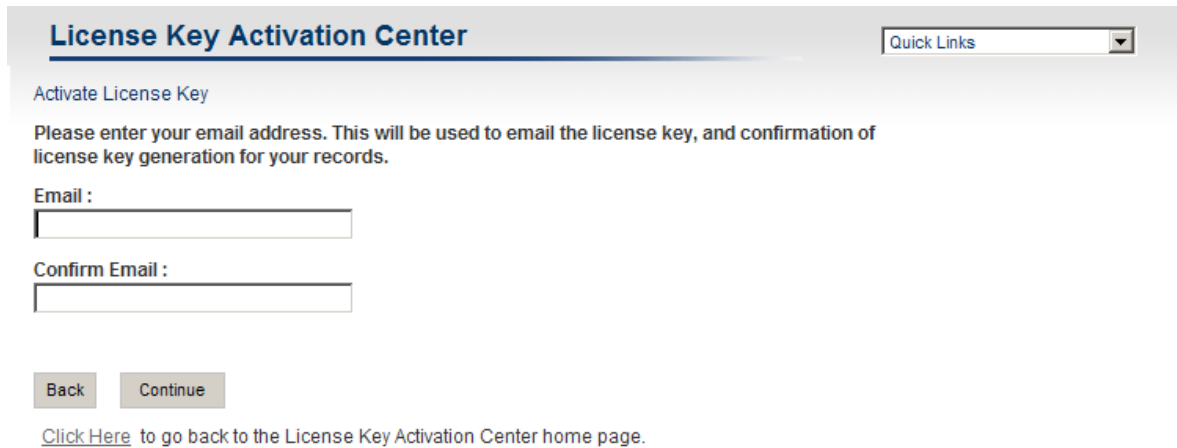
Figure 1-45 License Key Activation Center 1

3. Enter the InfiniBand Fabric Suite serial number. Click **Continue**. The system validates the serial number and displays the following screen:

Figure 1-46 License Key Activation Center 2

4. Click **Activate License Key** and click **Continue**. The following screen is displayed:

Figure 1-47 License Key Activation Center 3



The screenshot shows a web form titled "License Key Activation Center" with a "Quick Links" dropdown menu. Below the title is a section labeled "Activate License Key". The instructions state: "Please enter your email address. This will be used to email the license key, and confirmation of license key generation for your records." There are two input fields: "Email :" and "Confirm Email :". At the bottom, there are "Back" and "Continue" buttons, and a link that says "Click Here to go back to the License Key Activation Center home page."

License Key Activation Center Quick Links

Activate License Key

Please enter your email address. This will be used to email the license key, and confirmation of license key generation for your records.

Email :

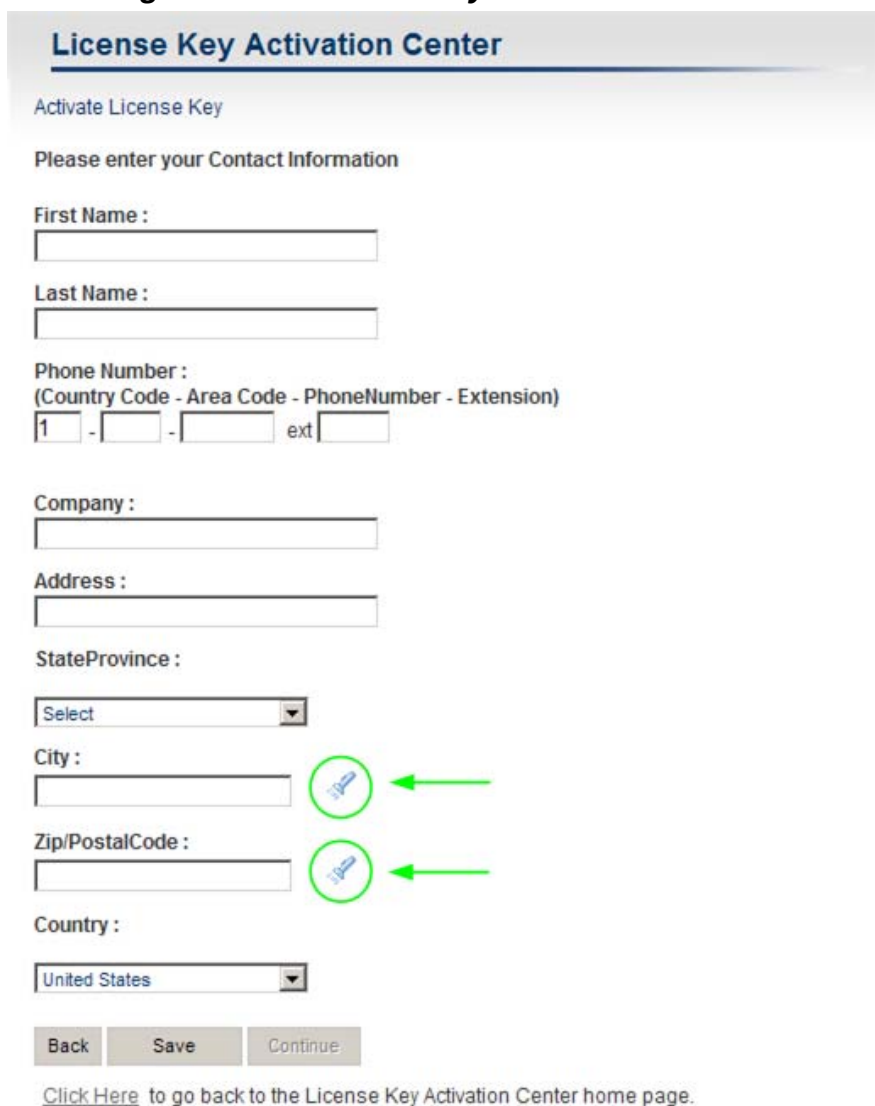
Confirm Email :

Back Continue

[Click Here](#) to go back to the License Key Activation Center home page.

5. Enter your email address in the **Email:** and **Confirm Email:** text boxes. Click **Continue**. The following screen is displayed:

Figure 1-48 License Key Activation Center 4



License Key Activation Center

Activate License Key

Please enter your Contact Information

First Name :

Last Name :

Phone Number :
(Country Code - Area Code - PhoneNumber - Extension)
1 - - ext

Company :

Address :

StateProvince :

City :

Zip/PostalCode :

Country :

[Click Here](#) to go back to the License Key Activation Center home page.

6. Enter all applicable information. For the **City:** and/or the **Zip/Postal Code** entries, click on the flashlight hyperlinks. The following is displayed:

Figure 1-49 License Key Activation Center 5

City:		Zip:		Search
--------------	----------------------	-------------	----------------------	---------------------------------------

Select	City	County	Zip
☐	Aaronsburg	Centre	16820
☐	Abbottstown	Adams	17301
☐	Abington	Montgomery	19001
☐	Academy Life	Montgomery	19489
☐	Ackermanville	Northampton	18010
☐	Acme	Westmoreland	15610
☐	Acosta	Somerset	15520
☐	Adah	Fayette	15410
☐	Adamsburg	Westmoreland	15611
☐	Adamstown	Berks	19501

[1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) ...

7. In the **City:** and **Zip:** text boxes, enter the applicable information and click **Search**. Alternatively, search through the list of cities, click the applicable radio button, then click **Search**. The following is displayed:

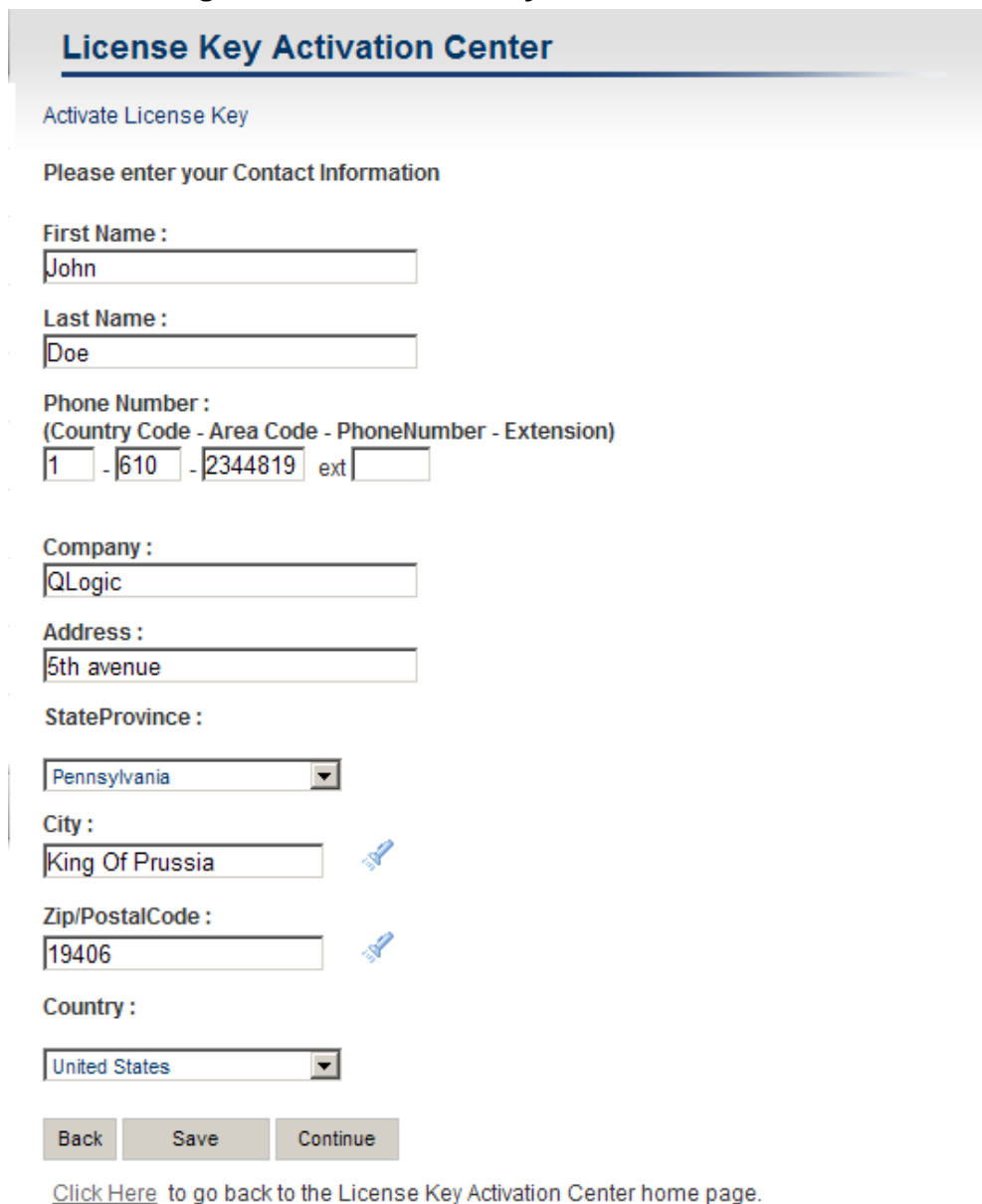
Figure 1-50 License Key Activation Center 6

City:	King of Prussia	Zip:	19406	Search
--------------	--	-------------	------------------------------------	---------------------------------------

Select	City	County	Zip
☐	King Of Prussia	Montgomery	19406

8. If the information is correct, click **Close**. The following screen is displayed:

Figure 1-51 License Key Activation Center 7



The screenshot shows a web form titled "License Key Activation Center" with a subtitle "Activate License Key". Below the title is a horizontal line. The form contains several input fields and buttons. The "First Name" field is labeled "First Name :" and contains the text "John". The "Last Name" field is labeled "Last Name :" and contains the text "Doe". The "Phone Number" section is labeled "Phone Number :" and "(Country Code - Area Code - PhoneNumber - Extension)". It consists of four input boxes: the first contains "1", the second contains "610", the third contains "2344819", and the fourth is labeled "ext" and is empty. The "Company" field is labeled "Company :" and contains the text "QLogic". The "Address" field is labeled "Address :" and contains the text "5th avenue". The "StateProvince" field is labeled "StateProvince :" and is a dropdown menu showing "Pennsylvania". The "City" field is labeled "City :" and contains the text "King Of Prussia". The "Zip/PostalCode" field is labeled "Zip/PostalCode :" and contains the text "19406". The "Country" field is labeled "Country :" and is a dropdown menu showing "United States". At the bottom of the form are three buttons: "Back", "Save", and "Continue". Below the buttons is a link that says "Click Here to go back to the License Key Activation Center home page."

License Key Activation Center

Activate License Key

Please enter your Contact Information

First Name :
John

Last Name :
Doe

Phone Number :
(Country Code - Area Code - PhoneNumber - Extension)
1 - 610 - 2344819 ext

Company :
QLogic

Address :
5th avenue

StateProvince :
Pennsylvania

City :
King Of Prussia

Zip/PostalCode :
19406

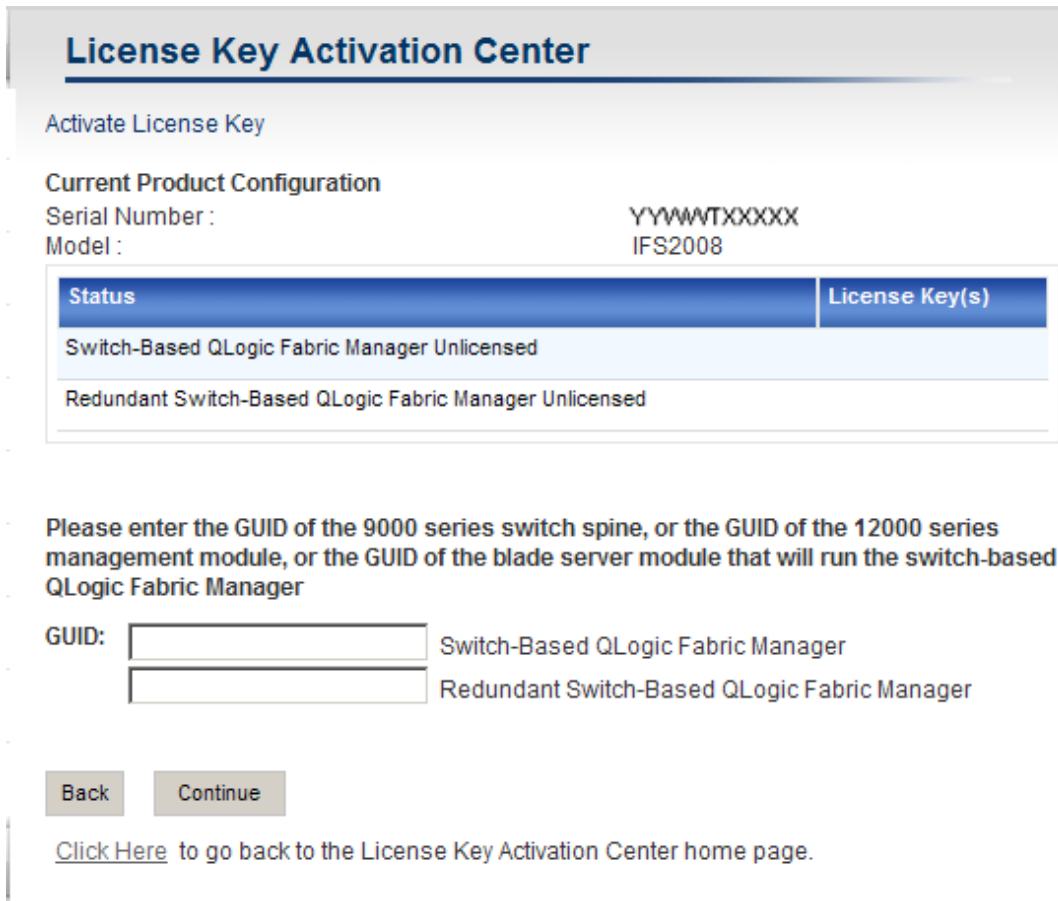
Country :
United States

Back Save Continue

[Click Here](#) to go back to the License Key Activation Center home page.

9. Click **Continue**. The following screen is displayed:

Figure 1-52 License Key Activation Center 8



The screenshot shows the 'License Key Activation Center' web interface. At the top, there's a header 'License Key Activation Center'. Below it, a section 'Activate License Key' contains 'Current Product Configuration' with 'Serial Number : YYWWVTXXXXX' and 'Model : IFS2008'. A table lists two items: 'Switch-Based QLogic Fabric Manager Unlicensed' and 'Redundant Switch-Based QLogic Fabric Manager Unlicensed'. Below the table, a prompt asks for the GUID of the 9000 series switch spine, 12000 series management module, or blade server module. There are two input boxes labeled 'GUID:' with labels 'Switch-Based QLogic Fabric Manager' and 'Redundant Switch-Based QLogic Fabric Manager' respectively. At the bottom, there are 'Back' and 'Continue' buttons, and a link 'Click Here' to go back to the home page.

Status	License Key(s)
Switch-Based QLogic Fabric Manager Unlicensed	
Redundant Switch-Based QLogic Fabric Manager Unlicensed	

Please enter the GUID of the 9000 series switch spine, or the GUID of the 12000 series management module, or the GUID of the blade server module that will run the switch-based QLogic Fabric Manager

GUID: Switch-Based QLogic Fabric Manager
GUID: Redundant Switch-Based QLogic Fabric Manager

[Click Here](#) to go back to the License Key Activation Center home page.

10. In the **GUID:** text box, enter the FRU GUID of the following applicable components:
- QLogic 12200 chassis
 - QLogic 12300 chassis
 - QLogic 12800 series Management Module to be used as the master subnet manager
 - Master and redundant switch-based QLogic Fabric Manager license keys can be generated by entering the GUID of the primary and redundant management modules in the **GUID:** text boxes.

Click **Continue**. A license key will be emailed.

NOTE:*The FRU GUID can be found:*

- On the label of each FRU.
- Using the Chassis Viewer, the **View FRU** button for each applicable chassis or module FRU.
- For the 12200/12300 via the switch Command Line Interface (CLI), using the command `showIBNodeDesc`.
- For the 12800 series via the switch Command Line Interface (CLI), using the command `fruInfo <slot#>`.

A QLogic 12000 Series Product Specifications

Physical Specifications

All products within the 12200, 12300 and 12800 Director series are designed to be installed in industry-standard 19-inch four-post server racks.

Racks should conform to conventional standards. Use the American National Standards Institute (ANSI)/Electronic Industries Association (EIA) standard ANSI/EIA-310-D-92 and International Electrotechnical Commission (IEC) 297. These racks are commercially available in various depths. It is recommended to use rack with minimum of 36" depth to facilitate cable installation and routing. Other physical attributes are shown in the table below.

NOTE: The 12000 series products should not be installed in two-post telecommunication racks.

Table A-1. 12000 Physical Attributes

Model #	12200	12300	12800-180	12800-360
Height (rack units/inches)	1U/1.75"	1U/1.75"	14U/24.5"	29U/50.7"
Depth (without cables)		25 3/4" (654mm)		
Width	17.32" (440mm)			
Max weight (lb./kg.)	15/6.8	20/9.1	285/129.3	536/243.1

Environmental Specifications

- Operating temperature:
5° - 40°C at sea level, altitude derating 1°C per 300m to 2,400m
- Non-operating temperature:
-40°C to 65°C
- Relative humidity (non-condensing):
Operating 5% - 85%; Non-operating 5% - 90%

12200 and 12300

Cooling and Thermal Management:

- Cooling:
 - Air cooled with a hot plug fan/power tray, three fans per tray, 40mm, 12VDC (12300)
 - Four fans, no fan trays (12200)
 - Front-to-back airflow

NOTE:

The 12200 also offers a reversed airflow model

Power

- Power Supply:
 - Two redundant, hot plug fan/power supplies (12300)
 - 90/264 VAC operation
 - 275W max power per supply
 - Input: 90–264V AC, 47–63Hz, 1 Phase, 3.6A max current at 100VAC
 - Inrush Current: 13A @ 115VAC, 6.5A @ 230VAC
 - Power Factor: 95% @ 230VAC, 50% load
 - Power Inlet Plug: two IEC 320-c14 connectors for independent AC inputs (12300)

12800 Series

All 12800 series switches use the same fan tray modules -- intake and exhaust -- and share the same thermal management attributes listed below. The quantity of fan tray modules used in each system is defined in the following table:

Table A-2. 12800 Product Configurations

Model #	360	180	040
Maximum InfiniBand Ports	864	432	96
Maximum Leaf Modules	36	18	4
Maximum Spine Modules	9 Double	4 Double, 1 Single	1 Double
Management Modules	2	2	2
Fan Trays (Intake/Exhaust)	10/10	5/3	4/0
Power Supplies	12	6	4

- Fan Tray:
Hot plug with one axial, brushless, 12V fans per Fan Tray
- Chassis airflow:
Front-to-back
- Power supply airflow:
Front to back

NOTE: It is recommended that the 180 and 360 be installed as follows:

- Intake fan side towards the cold aisle
- Exhaust fan side towards the hot aisle

- Thermal management:
Temperatures of all major heat producing components are continuously monitored by system management modules. Fan speed is monitored and automatically adjusted by system management modules to maintain

appropriate temperatures of major heat producing components. Monitoring is performed via a two wire I2C interface to each Fan Tray.

Power Specifications

All products within the 12800 series use a common switching power supply. System power attributes are shown in the table below. Power supplies are N+1 redundant and hot pluggable.

NOTE:

An AC power cord is required for each power supply. Refer to the table below.

Table A-3. System Power Attributes

Model #	12800-360	12800-180	12800-040
Maximum # of Power Supplies	12	6	4
Maximum output per supply	1200 Watts		
Input voltage	90-264 VAC autoranging		
Input frequency and phase	47-63 Hz		
Maximum current per supply	100Amps		
Inrush Current	30Amps Max		
Power Factor efficiency	99% @ 230V, full load		
Power Inlet connector	IEC320-C20		
# of Power Inlets	12	6	4
Power Cord connector	IEC320-C19		

Power Distribution Guidelines

The following section details power distribution guidelines and recommendations for the QLogic 12800 series.

- The power supplies for the 12800 series has a maximum inlet current of 15amps @ 110volts and 6amps @ 220volts. Please observe power outlet, power strip and extension cable ratings.
- Do not exceed 80% of the ampere rating limit of the power outlet, power strip or an extension cable that the equipment is plugged into. As such, the power delivery system must be that the power supplies do not overpower the maximum amperage of any given system. For the 12800-360 and 12800-180 it is recommended to power the systems over 220 volts.

CAUTION!

High-powered systems, such as the 12800-180 and 12800-360 can place significant loads on power distribution units (PDUs) and uninterruptable power supplies (UPSs). It is recommended to measure the total amperage and power that a PDU or UPS needs to handle.

Figure A-1 12800-Series Power Distribution

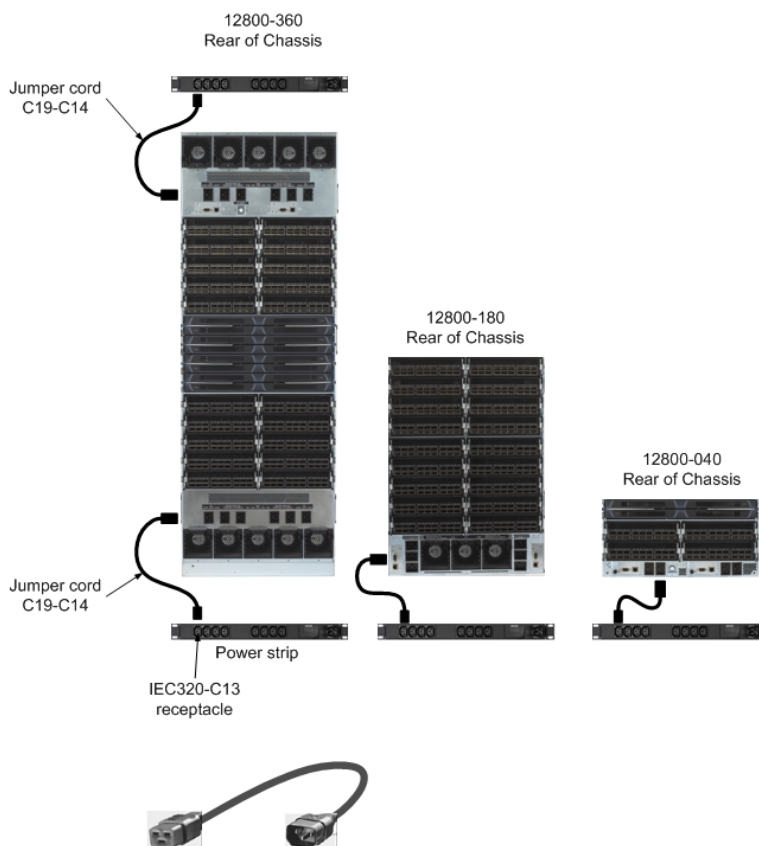


Table A-4. AC Plug Types

Region/Country	Voltage Rating	Plug Type	Misc/Notes
North America	100-127	NEMA 5-20P	
North America	200-240	NEMA L6-20P	
North America	200-240	NEMA L15-30P	Three phase AC
Europe (Schuko)	200-240	CEE 7/7	Used in Austria, Belgium, Finland, France, Germany, Greece, Hungary, Indonesia, The Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden.
International	200-240	IEC 309	3-wire (two-phase & earth). Connector size and color variations are used to indicate amperage rating. This is utilized in Switzerland for 16A applications.
International	200-240	IEC 309	4-wire (three-phase & earth). Connector size and color variations are used to indicate amperage rating.
International	200-240	IEC 309	5-wire (three-phase, earth & neutral). Connector size and color variations are used to indicate amperage rating.

Notes

B Safety and Regulatory Compliance Information

This section provides regulatory compliance, safety and electromagnetic compatibility (EMC) information for the QLogic 12000 series products.

Safety Information

Statement 1:



Disconnect Device - This unit may have more than one power cord. To reduce the risk of electrical shock, disconnect all power cords before servicing unit.

Verklaring 1:

Apparaat loskoppelen - Deze eenheid heeft mogelijk meer dan een stroomkabel. Verminder het risico op een elektrische schok door alle stroomkabels los te koppelen voordat u onderhoud pleegt aan de eenheid.

Varoitus 1:

Irrota laite. Yksikössä saattaa olla useampia kuin yksi virtajohto. Irrota kaikki virtajohdot ennen yksikön huoltamista, niin sähköiskun vaara pienenee.

Déclaration 1 :

Déconnecter l'appareil - Cette unité peut disposer de plusieurs cordons d'alimentation. Déconnectez tous les cordons d'alimentation avant son entretien pour réduire le risque d'électrocution.

Anweisung 1:

Gerät trennen - Diese Komponente verfügt möglicherweise über mehrere Netzkabel. Trennen Sie alle Netzkabel bevor Sie die Komponente warten, um die Gefahr eines elektrischen Schlags zu vermeiden.

Dichiarazione 1:

Scollegare il dispositivo - L'unità potrebbe avere più di un cavo di alimentazione. Per ridurre il rischio di scosse elettriche, scollegare tutti i cavi di alimentazione prima di intervenire sull'unità.

Erklæring 1:

Frakobling av enheten - denne enheten kan ha mer enn én strømlledning. For å redusere faren for elektrisk sjokk, må alle strømkablene trekkes ut før enheten vedlikeholdes.

Declaração 1:

Desligar dispositivo - Esta unidade pode ter mais de um cabo de alimentação. Para reduzir o risco de choque eléctrico, desligue todos os cabos de alimentação antes de fazer a manutenção da unidade.

Declaración 1:

Desconexión de dispositivo - Esta unidad puede tener más de un cable de alimentación eléctrica. Para reducir el riesgo de electrocución, desconecte todos los cables antes de realizar cualquier servicio técnico en la unidad.

Uttalande 1:

Koppla bort enhet. Den här enheten kan ha mer än en strömsladd. Reducera risken för elektrisk stöt genom att koppla bort alla strömsladdar innan enheten underhålls.

Kijelentés 1:

Szüntesse meg az eszköz tápellátását – Ez az egység egynél több tápvezetékekkel rendelkezhet. Az áramütés kockázatának csökkentése érdekében minden tápvezetéket húzzon ki az egység szervizelése előtt.

Инструкция 1:

Отключите устройство – В данном устройстве может быть более одного сетевого шнура. Во избежание поражения электрическим током отсоедините все сетевые шнуры до проведения технического обслуживания устройства.

声明 1:

断开装置 – 此装置可能有一个以上电源电缆。为了减少电击风险，请在维修该装置前断开所有电源电缆。

ステートメント 1:

デバイスを外してください – このユニットには複数の電源ユニットが接続されている可能性があります。感電のリスクを軽減するため、ユニットを修理する前にすべての電源コードを外してください。

Statement 2:



Chassis Lifting - Use safe practices when lifting.

NOTE: Use a team of people appropriate to the weight of each specified product and in conjunction with applicable guidelines. Whenever possible, use a mechanical lift.

Verklaring 2:

Chassis optillen - Volg de veiligheidsinstructies bij het optillen.

ANMERKUNG: Gebruik genoeg mensen voor het gewicht van elk gespecificeerd product en hanteer de toepasselijke richtlijnen. Gebruik waar mogelijk een mechanisch tilapparaat.

Varoitus 2:

Kotelon nostaminen. Noudata nostaussasi turvaohjeita.

HUOMAUTUS: Varaa nostamista varten laitteen painoon nähden sopiva ja sovellettavien ohjeiden mukainen määrä henkilöitä. Käytä mekaanista nosturia aina, kun se on mahdollista.

Déclaration 2 :

Soulever le châssis - Employez des mesures de sécurité pour soulever.

REMARQUE : Faites appel au nombre de personnes approprié en fonction du poids de chaque produit spécifique et en conjonction avec les directives applicables. Utilisez un relevage mécanique, si possible.

Anweisung 2:

Anheben des Gehäuses - Lassen Sie Sicherheit beim Anheben des Gehäuses walten.

ANMERKUNG: Setzen Sie jeweils dem Gewicht jedes angegebenen Produkts und den Richtlinien entsprechend genügend Leute ein. Verwenden Sie, wenn möglich, einen mechanischen Aufzug.

Dichiarazione 2:

Sollevamento del telaio - Durante il sollevamento, seguire le procedure di sicurezza.

NOTA: utilizzare un gruppo di persone adeguato al peso di ogni prodotto specifico e insieme alle indicazioni applicabili. Se possibile, usare un sollevatore meccanico.

Erklæring 2:

Løfting av kabinettet - utvis varsomhet ved løfting.

MERK: Bruk flere personer til bæring, avhengig av vekten til hvert enkelt produkt og i samsvar med gjeldende retningslinjer. Bruk mekaniske løftemekanismer når mulig.

Declaração 2:

Levantar o chassi - Utilize práticas seguras ao levantar o chassi.

AVISO: Utilize um grupo de pessoas adequado ao peso de cada produto especificado, em conjunto com as directivas aplicáveis. Sempre que possível, utilize um dispositivo mecânico de levantamento.

Declaración 2:

Elevación del chasis - Observe las prácticas de seguridad cuando quiera elevar el chasis.

NOTA: utilice un grupo de gente apropiado al peso de cada producto especificado junto con las pautas que correspondan. Siempre que sea posible, utilice un elevador mecánico.

Uttalande 2:

Lyftning av chassi. Iakttag säkerhetsanvisningar vid lyft.

OBS! Använd ett team personer lämpade för vikten på varje specificerad produkt och i samband med gällande riktlinjer. Använd en mekanisk lyftanordning närhelst det är möjligt.

Kijelentés 2:

A burkolat emelése – Biztonságos eljárásokat alkalmazzon az emelés során.

MEGJEGYZÉS: Az egyes termékek súlyának megfelelő fobol álló csoportot alkalmazzon, a vonatkozó irányelvek betartása mellett. Lehetőség szerint mindig használjon mechanikus emeloszerkezetet.

Инструкция 2:

Подъем корпуса – Соблюдайте технику безопасности при подъеме.

ПРИМЕЧАНИЕ: Подъем каждого конкретного устройства исходя из его веса должен осуществляться несколькими лицами и в соответствии с надлежащим инструкциям. Везде, где это возможно, следует применять механические грузоподъемные устройства.

声明 2:

提起机箱 – 提起机箱时请采取安全措施。

注： 请按照每个具体产品的重量来使用一定的人数，并遵照适当的说明。可能的话，使用机械起重器。

ステートメント 2：

シャーシの持ち上げ - シャーシを持ち上げる際は安全に配慮してください。

メモ： 各製品の重量に見合った人数で、適切なガイドラインに従って持ち上げてください。可能な場合は、リフト機を使用してください。

Statement 3:



Energy Hazard - To reduce risk of electric shock, keep hands and fingers out of the power supply bays and backplane areas.

Verklaring 3:

Stroomgevaar - Reduceer het risico op een elektrische schok door handen en vingers weg te houden bij de voedingscompartimenten en de gebieden rond de centrale printplaat.

Varoitus 3:

Sähköiskun vaara. Voit vähentää sähköiskuille altistumista, kun vältät koskettamasta virtalähdepaikkoja ja keskuspiirilevyä.

Déclaration 3 :

Danger électrique - Pour réduire le risque d'électrocution, gardez vos mains hors des baies d'alimentation et des zones destinées aux cartes de circuits imprimés.

Anweisung 3:

Gefahr vor elektrischem Schock - Um der Gefahr vor elektrischem Schock vorzubeugen, halten Sie Hände und Finger den Netzteilschächten und der Rückwand fern.

Dichiarazione 3:

Pericolo di scosse - Per ridurre il rischio di scosse elettriche, allontanare le mani e le dita dagli alloggiamenti degli alimentatori e dalle aree della piastra base.

Erklæring 3:

Strømfare - hold fingre og hender unna strømforsyningsrom og kretskort for å unngå elektrisk sjokk.

Declaração 3:

Risco de choque eléctrico - Para reduzir o risco de choque eléctrico, mantenha as mãos e os dedos fora dos compartimentos da fonte de alimentação e das áreas de backplane.

Declaración 3:

Peligro de energía - Para reducir el riesgo de electrocución, mantenga las manos y los dedos alejados de los compartimentos de la fuente de alimentación eléctrica y del circuito impreso central.

Uttalande 3:

Risk för elektrisk stöt. Reducera risken för elektrisk stöt genom att hålla händer och fingrar borta från strömförsörjningsfack och bakpanelsområden.

Kijelentés 3:

Áramütés veszélye – Az áramütés kockázatának csökkentése érdekében kezeit és ujjait tartsa távol a tápcsatlakozóktól és a hátsó területektől.

Инструкция 3:

Опасное напряжение – Во избежание поражения электрическим током, не прикасайтесь к клеммам электропитания и к центральной электронной плате.

声明 3:

电能危害 – 为了减少电击风险，手和指应远离电源架和印刷电路板区域。

ステートメント 3:

エネルギーの危険 – 感電のリスクを軽減するため、電源装置ベイおよびバックプレーン周辺に手や指を近づけないでください。

Statement 4:



Laser Radiation - certain optical products may emit laser radiation. Removing covers could result in exposure to hazardous laser radiation. Radiation may be emitted from connectors or fiber optic cables.

Verklaring 4:

Laserstraling - bepaalde optische producten kunnen laserstraling verspreiden. Het verwijderen van dekplaten kan resulteren in blootstelling aan schadelijke laserstraling. Straling kan worden afgegeven door connectoren of glasvezelkabels.

Varoitus 4:

Lasersäteily. Jotkut optiset laitteet saattavat päästää lasersäteilyä. Niiden suojusten poistaminen saattaa altistaa vaaralliselle lasersäteilylle. Säteily voi tulla liittimistä tai optisista kuitukaapeleista.

Déclaration 4 :

Rayonnement laser - Certains produits optiques peuvent produire un rayonnement laser. Le retrait de capots peut engendrer une exposition à un rayonnement laser dangereux. Ce rayonnement peut provenir des connecteurs ou des câbles en fibre optique.

Anweisung 4:

Laserstrahlung - manche optischen Produkte geben Laserstrahlung ab. Beim Entfernen der Abdeckungen können Sie möglicherweise gefährlicher Laserstrahlung ausgesetzt werden. Laserstrahlung kann von Anschlüssen oder Faseroptikkabeln abgegeben werden.

Dichiarazione 4:

Radiazione laser - Alcuni prodotti ottici potrebbero emettere la radiazione laser. La rimozione delle coperture potrebbe causare l'esposizione alla radiazione laser pericolosa. I connettori o i cavi in fibra ottica potrebbero emettere radiazioni.

Erklæring 4:

Laserstråling - visse optiske produkter kan gi fra seg laserstråling. Dersom dekslene tas av, kan dette medføre utsettelse for farlig laserstråling. Strålingen kan komme fra kontakter eller fiberoptiske kabler.

Declaração 4:

Radiação laser - Certos produtos ópticos podem emitir radiação laser. A remoção de tampas pode resultar na exposição a níveis perigosos de radiação laser. A radiação pode ser emitida de conectores ou de cabos de fibra óptica.

Declaración 4:

Radiación de láser - Ciertos productos ópticos pueden emitir radiación de láser. Quitar las cubiertas podría resultar en la exposición peligrosa a radiación de láser. La radiación se puede emitir de conectores o cables de fibra óptica.

Uttalande 4:

Laserstrålning. Vissa optiska produkter kan utsända laserstrålning. Borttagning av skydd kan resultera i exponering för riskfylld laserstrålning. Strålning kan utsändas från kopplingsdetaljer eller fiberoptiska kablar.

Kijelentés 4:

Lézersugárzás – Bizonyos optikai termékek lézersugárzást bocsátanak ki. A burkolatok eltávolításával veszélyes lézersugárzásnak tehetik ki magukat. Sugárzást csatlakozók vagy üvegszálas optikai kábelek bocsáthatnak ki.

Инструкция 4:

Лазерное излучение! – некоторые оптические устройства являются источником лазерного излучения. При снятии крышки существует опасность воздействия лазерного излучения на персонал. Лазерное излучение может испускаться соединительными гнездами волоконно-оптических кабелей.

声明 4:

激光辐射 – 某些光学产品会发出激光辐射。移开盖板时会使人暴露于有害激光辐射。连接器或光纤电缆都可能发出辐射。

ステートメント 4:

レーザー光線 – 特定の光学製品からレーザー光線が放射される可能性があります。カバーを取り除くと、危険なレーザー光線を被爆する場合があります。光線はコネクタまたは光ファイバーケーブルから放射されることがあります。

Statement 5:



No User Serviceable parts - Hazardous energy levels may be present inside power supplies and circuit card modules. Do not remove covers.

Verklaring 5:

Onderdelen die niet door de gebruiker mogen worden onderhouden - Er kunnen gevaarlijke energieniveaus aanwezig zijn binnen voedingen en printplaten. Verwijder in geen geval dekplaten.

Varoitus 5:

Ei osia, jotka käyttäjä voisi vaihtaa. Virtalähteiden ja piirikorttimoduulien sisällä saattaa olla vaarallisen suuri virta tai jännite. Älä poista niiden suojuksia.

Déclaration 5 :

Pièces non entretenues par l'utilisateur - Des niveaux d'électricité dangereux peuvent résider à l'intérieur des sources d'alimentation et des modules de carte de circuits imprimés. Ne retirez pas les capots.

Anweisung 5:

Wartung nur durch Fachmann möglich - Gefährlich hohe Stromstärken sind in Netzteilen und in den Modulen der Busleiterplatte vorhanden. Entfernen Sie die Abdeckungen nicht.

Dichiarazione 5:

Non sono presenti componenti riparabili dall'utente - Livelli pericolosi di energia potrebbero essere presenti all'interno degli alimentatori e dei moduli delle schede dei circuiti. Non rimuovere le coperture.

Erklæring 5:

Ingen deler som kan vedlikeholdes av brukeren - farlig strømmengde kan finnes inni strømforsynings- og kretskortmoduler. Fjern ikke dekslene.

Declaração 5:

Não há peças a serem consertadas pelo utilizador - Níveis perigosos de energia podem estar presentes em fontes de alimentação e em módulos de placas de circuito. Não remova as tampas.

Declaración 5:

No hay piezas técnicas - Niveles peligrosos de energía pueden hacerse presentes en las fuentes de alimentación eléctrica. No quite las cubiertas.

Uttalande 5:

Inga delar kan underhållas av användaren. Farliga energinivåer kan finnas i strömförsörjningsenheter kretskortmoduler. Ta inte bort skydd.

Kijelentés 5:

A berendezés nem tartalmaz felhasználó által javítható alkatrészeket – Veszélyes energiaszint lehet a tápegységeken és az áramköri kártyamodulokon belül. Ne távolítsa el a burkolatokat.

Инструкция 5:

Устройство не содержит деталей, предназначенных для обслуживания пользователем – Блоки питания и электрические платы устройства являются источником опасного электрического напряжения. Снимать крышки запрещено.

声明 5:

禁止用户维修部件 – 电源和电路卡模块内部可能存在一定水平的有害能。切勿移除盖板。

ステートメント 5 :

ユーザー修理可能部品なし – 電源装置および回路カードモジュール内のエネルギーが危険なレベルに達している場合があります。カバーを外さないでください。

Statement 6:



Equipment Installation - Only qualified personnel should be allowed to install, remove or replace chassis or modules.

Verklaring 6:

Installatie apparatuur - Voor het installeren, verwijderen of vervangen van chassis of modules mag alleen gekwalificeerd personeel worden gebruikt.

Varoitus 6:

Laitteiston asentaminen. Vain pätevä asentaja saa asentaa, poistaa ja vaihtaa kotelaita tai moduuleja.

Déclaration 6 :

Installation de l'équipement - Seul un personnel qualifié est autorisé à installer, retirer ou remplacer des châssis ou modules.

Anweisung 6:

Geräteinstallation - Die Installation, Entfernung oder Erneuerung von Gehäuse und Modulen sollte nur durch Fachpersonal erfolgen.

Dichiarazione 6:

Installazione dell'apparecchiatura - Solo il personale qualificato è autorizzato ad installare, rimuovere o ricollocare il telaio o i moduli.

Erklæring 6:

Utstyrsinstallasjon - kun kvalifisert personell kan installere, fjerne eller skifte ut kabinetter eller moduler.

Declaração 6:

Instalação do equipamento - A instalação, troca ou remoção de chassis ou módulos só deve ser feita por técnicos qualificados.

Declaración 6:

Instalación del equipo - Solamente se permite personal cualificado para realizar la instalación, quitar o sustituir módulos o chasis.

Uttalande 6:

Installation av utrustning. Enbart kvalificerad personal får installera, ta bort eller byta ut chassin eller moduler.

Kijelentés 6:

Berendezés telepítése – Kizárólag szakképzett személyzet számára megengedett a burkolat vagy a modulok telepítése, eltávolítása vagy cseréje.

Инструкция 6:

Установка оборудования – Установка, удаление и замена корпуса или модулей устройства должна производиться только квалифицированным техническим персоналом.

声明 6:

设备安装 – 只有有资格的技术人员才允许安装、卸下或装回机箱或模块。

ステートメント 6 :

装置の取り付け – シャーシまたはモジュールの取り付け、取り外しまたは取替えは、有資格者のみが行うようにしてください。

Statement 7:



Adding or Replacing Modules - These modules are intended only for installation in QLogic 12000 base units. Always install blanks when removing an active module. They prevent exposure to energy hazards inside the unit, contain EMI, and maintain cooling air balance in the chassis.

Verklaring 7:

Toevoegen of vervangen van modules - deze modules zijn alleen bedoeld voor installatie in basiseenheden uit de QLogic 12000-reeks. Installeer altijd plaatshouders wanneer u een actieve module verwijdt. Deze voorkomen blootstelling aan energierisico's binnen de eenheid, bevatten EMI en handhaven de koelluchtbalans in het chassis.

Varoitus 7:

Moduulien lisääminen ja vaihtaminen. Moduulit on tarkoitettu asennettavaksi vain QLogic 12000 -sarjan perusyksiköihin. Kun olet poistanut aktiivisen moduulin, muista aina asentaa tyhjä kappale sen paikalle. Ne estävät sähköiskuille altistumista yksikön sisällä, hillitsevät sähkömagneettisia häiriöitä (EMI) ja pitävät yllä jäähdytysilman tasaista jakautumista koteloon.

Déclaration 7 :

Ajouter ou remplacer des modules - Ces modules sont conçus exclusivement pour une installation avec des unités de base QLogic 12000 Series. Installez toujours des caches de protection lors du retrait d'un module actif. Ils protègent contre les dangers électriques à l'intérieur de l'unité, limitent l'interférence électromagnétique et maintiennent un volume d'air refroidissant approprié au sein du châssis.

Anweisung 7:

Hinzufügen oder Austauschen von Modulen - Diese Module sind für die Installation in Grundeinheiten der QLogic 12000 Serie vorgesehen. Installieren Sie stets leere Module, wenn Sie ein aktives Modul entfernen. Diese verhindern, dass Stromgefahr im Innern der Einheit entsteht, enthalten Störstrahlung und sorgen für den Kühlgasausgleich im Gehäuse.

Dichiarazione 7:

Aggiunta o sostituzione dei moduli - I moduli sono concepiti solo per l'installazione nelle unità di base QLogic 12000 Serie. Quando si rimuove un modulo attivo, installare sempre le protezioni, poiché impediscono l'esposizione ai pericoli di scosse all'interno dell'unità, contengono le IEM e mantengono un equilibrio dell'aria di raffreddamento nel telaio.

Erklæring 7:

Tillegging eller utskifting av moduler - disse modulene skal kun installeres i baseenhetene på QLogic 12000-serien. Installer alltid tomme enheter når en aktiv modul fjernes. De forhindrer utsettelse for strømfare inni enheten, inneholder EMI og opprettholder kjølebalansen i kabinettet.

Declaração 7:

Adição ou troca de módulos - Estes módulos foram projectados para serem instalados apenas nas unidades de base QLogic 12000 série. Instale sempre módulos de preenchimento ("blanks") ao remover módulos activos. Eles diminuem os riscos de choque eléctrico no interior da unidade, contêm dispositivos de protecção contra interferência eletromagnética e mantêm o equilíbrio de resfriamento por ar no interior do chassi.

Declaración 7:

Agregar o sustituir módulos - Estos módulos solamente se pueden instalar en unidades de base de la serie QLogic 12000. Siempre instale protectores al retirar un módulo activo. Los protectores previenen la exposición a peligros de energía dentro de la unidad, contienen EMI y mantienen el balance de enfriamiento de aire en el chasis.

Uttalande 7:

Lägga till eller byta ut moduler. De här modulerna är enbart avsedda för installation i QLogic 12000-seriens basenheter. Installera alltid tomenheter vid borttagning av en aktiv modul. De förhindrar exponering för energirisker på enhetens insida, hindrar EMI och upprätthåller kyluftbalansen i chassin.

Kijelentés 7:

Modulok hozzáadása vagy cseréje – Ezek a modulok kizárólag QLogic 12000-es sorozatú bázisegységekbe építhetőek be. Aktív modul cseréjekor mindig szereljen be üres helyeket. Ezek megakadályozzák az egységen belüli energiaveszélyek kialakulását, tartalmazzák EMI-t, és fenntartják a hűtőlevegő egyensúlyát a borításon belül.

Инструкция 7:

Установка и замена модулей – Модули предназначены только для установки внутрь базовых блоков QLogic серии 12000. После замены действующих модулей следует всегда устанавливать заглушки с крышками. Это обеспечивает защиту от опасного напряжения, электромагнитного излучения и надлежащий тепловой баланс внутри корпуса.

声明 7:

添加或装回模块 – 这些模块仅用于安装在 QLogic 12000 Series 基座装置。请在移除活动模块时安装空白的。它们能预防装置内部的有害能的暴露，包含 EMI，并在机箱内保持冷却空气平衡。

ステートメント 7:

モジュールの追加または取替え - これらのモジュールは QLogic 12000 シリーズ MPFD ベースユニットへの取り付け専用です。アクティブなモジュールを取り除く際は、常にダミーを取り付けてください。これはユニット内の危険なエネルギーの露出を防止し、EMI を阻止、およびシャーシ内の空冷バランスを維持します。

Notes

C Serial Port Pinouts

For those users making their own serial cables, follow the guidelines below.

Figure C-1 Serial Port Pinouts

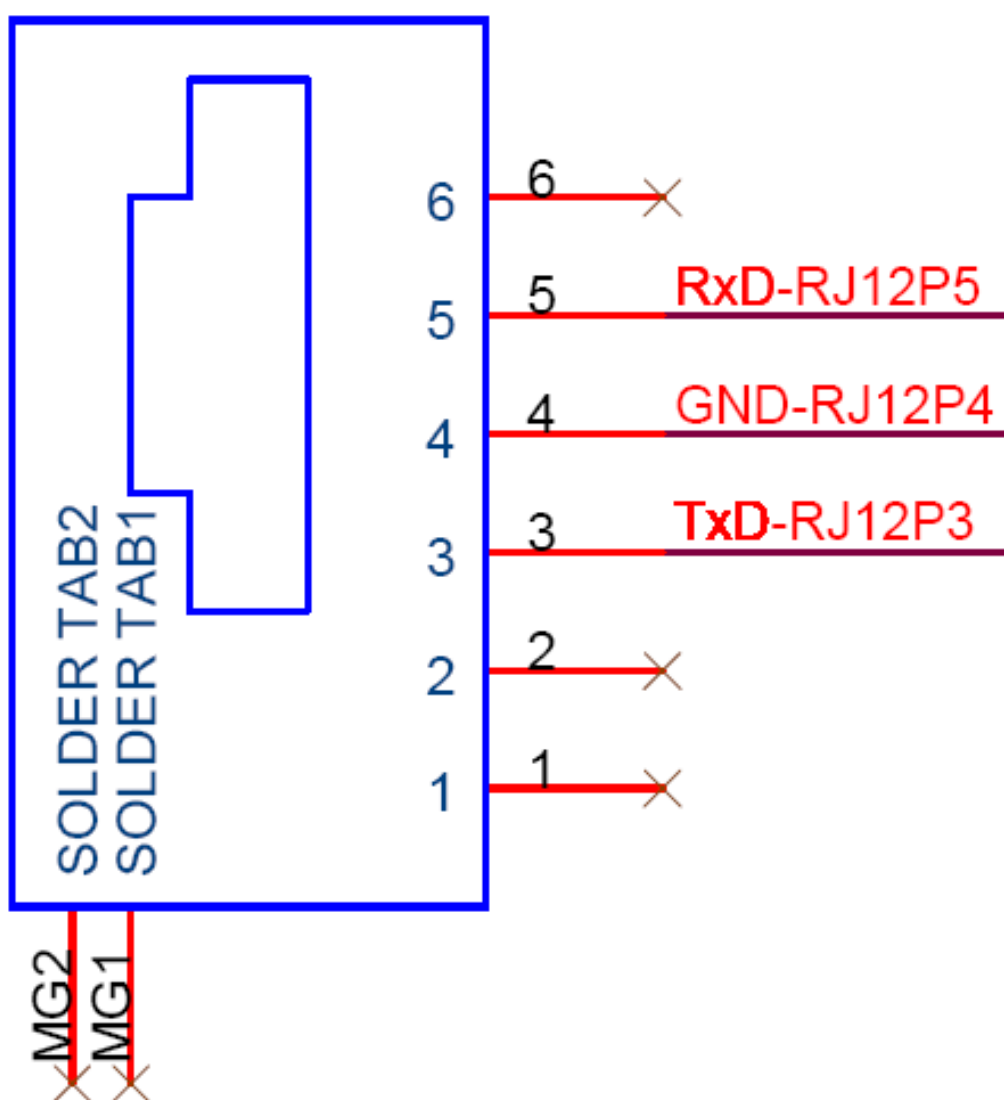


Figure C-1 represents the RJ-11 connector located on the QLogic 12200 and 12300.

- The only serial port signals required are: **Tx**, **Rx** and **Ground**. All other serial port signals are NOT used.

Please see Table C-1 for a list of RJ45 (on Digi) to RJ11 cross-references. The cable should connect the three RJ45 signals (on the Digi) to the RJ11 connector. The signals for the T3 card located inside the switch and spine are included for reference only.

Table C-1. Pinout Cross Reference

RJ45 (on Digi)	RJ11	T3 RJ45 (reference only)
P5-Rx	P5	P6-Tx
P6-Gnd	P4	P4-Gnd
P4-Tx	P3	P5-Rx

Notes

D FRU Replacement

This section details replacement information for various QLogic 12000 components. For replacement parts, contact QLogic or an approved reseller.

NOTE:

If part of a standard operating procedure, add replacement identification tags to both the rack and the FRU hardware to ensure that the warranty is transferred to the replacement part(s).

NOTE:

If the FRU being replaced is in an active chassis (i.e, hot swapping), please replace the FRU within 2 minutes.

QLogic 12200

NOTE:For an unmanaged 12200, refer to the Fast Fabric User Guide for update information.

Chassis Replacement

FRU part number:

- Standard chassis: 12200-BS01-9X
- Reversed airflow/AC power inlets: 12200-BS02-9X

Removal Procedures

1. Power down the switch by unplugging AC power.
2. Remove all applicable IB, Ethernet and Serial cables. Set these aside for reinstalling the replacement switch.
3. Remove the switch from the rack. Keep all rail hardware installed in the rack.
4. Remove the hat rails from the switch. Set these aside for reinstalling the replacement switch.

Replacement Procedures

1. Install the hat rails to the switch.
2. Rack mount the switch in the existing rails on the rack.

3. Connect Ethernet and Serial cables.
4. Connect AC power.
5. If applicable, change the switch, gateway and subnet mask addresses to a new network address.
6. Cable all applicable IB ports.

QLogic 12300

Chassis Replacement

FRU part number:12300-BS01-9X

Removal Procedures

1. Power down the switch by unplugging AC power.
2. Remove all applicable IB, Ethernet and Serial cables. Set these aside for reinstalling the replacement switch.
3. Remove the switch from the rack. Keep all rail hardware installed in the rack.
4. Remove the hat rails from the switch. Set these aside for reinstalling the replacement switch.

Replacement Procedures

1. Install the hat rails to the switch.
2. Rack mount the switch in the existing rails on the rack.
3. Connect Ethernet and Serial cables.
4. Connect AC power.
5. Change the switch, gateway and subnet mask addresses to a new network address.
6. Cable all applicable IB ports.

Fan/Power Supply Replacement

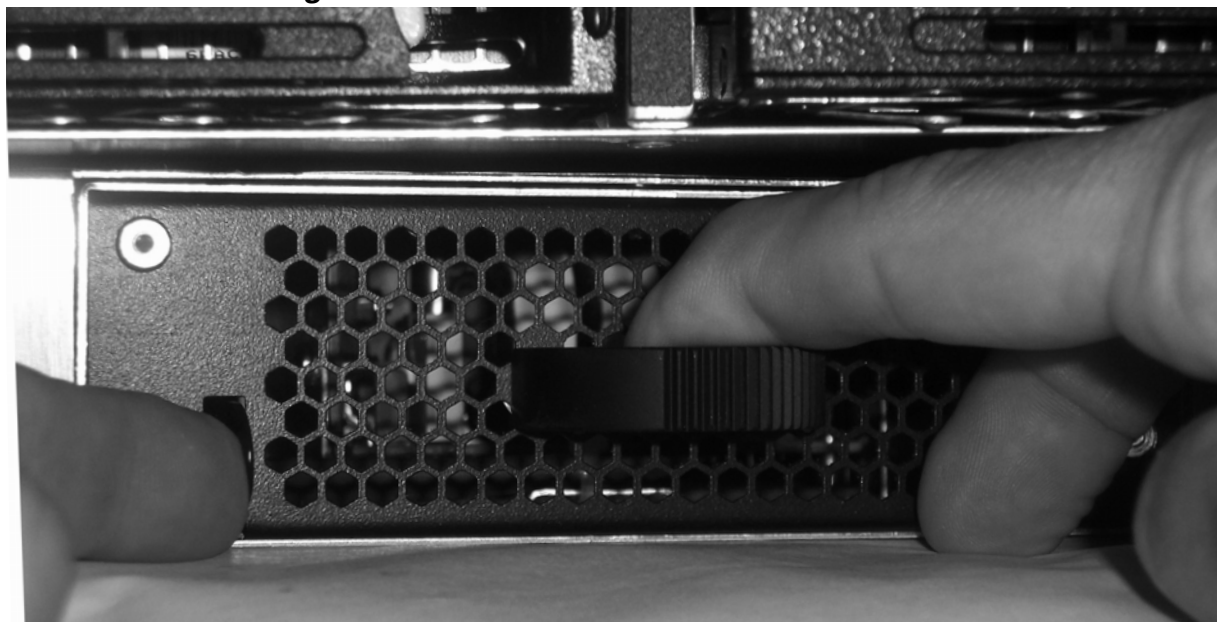
FRU part number:12300-PS01-9X

Removal Procedures

1. Push the finger tab to the right.

2. While holding the finger tab, pull the module handle to disengage the unit from the switch.

Figure D-1 .12300 Fan/Power Module Removal



Replacement Procedures

1. Hold the unit by the handle and slide into the applicable slot until the finger tab clicks into place.

QLogic 12800-180 and 12800-360

If the user needs to replace either a 12800-180 or 12800-360 chassis, the chassis will be delivered pre-installed in a standard rack.

Chassis Replacement

FRU part number:

- 12800-180: 12800-180-CH01-9X
- 12800-360: 12800-360-CH01-9X

Procedures

1. Unpack the new replacement chassis/rack and save packing material for the return shipment.
2. Prepare the cluster-installed rack to be removed from the cluster suite.

3. Identify a transfer location. This is an area, if available, where the current chassis/rack and new replacement chassis/rack can be placed side by side. This area should also have space for the original switch components (i.e., leafs, spines, management modules, fan trays and power supplies) that need to be re-installed into the new chassis.
4. Remove the front and rear rack doors. Save these for the new chassis/rack.
5. Remove the power to the rack.
6. Remove all Ethernet, InfiniBand and management cabling from the switch. Make sure that all cable bend radii precautions are observed (bend radii can be found in IBM System Cluster 1350/iDataPlex Cabling Guidelines). Place all cables, organized by type, beneath the raised floor or in the overhead cable troughs.
7. Determine the best direction for rack removal (i.e., Hot aisle or Cold aisle) based on available space.
8. Replace any floor tiles with access cutouts with tiles that have no cutouts, or place a safety cone over tile cutout.
9. Prepare the rack to be moved. Raise leveling pads. Remove all external hardware such as tilt parts that will inhibit easy movement of the rack.
REINSPECT THE RACK. MAKE SURE ALL CUSTOMER-ATTACHED CABLING HAS BEEN REMOVED.
10. Carefully push the rack out of the cluster suite and move to the transfer location.
11. Remove all covers from both racks. Save for reinstallation.
12. Remove all power components PDU, rack power supplies and cabling. Set aside all attachment hardware to be reinstalled. Pay attention to where current components are located. **DO NOT REMOVE THE POWER SUPPLIES FROM THE CHASSIS AT THIS TIME.**
13. Install all removed components from the original chassis/rack and install into the replacement chassis/rack using existing mounting hardware.
14. Attach all power cables.
15. Starting at the bottom of the original chassis remove, inspect and reinstall into replacement chassis/rack all fan modules, power supply modules, leaf, spine and management modules. **INSPECT FOR BENT PINS WITHIN NEW FRU CHASSIS AND ON ALL COMPONENTS TO BE REINSTALLED. INSPECTION OF ALL OF THE ABOVE COMPONENTS SHROUDS FOR DEFORMATIES WHERE PINS INSERT THROUGH SHROUDS, COCKED SHROUDS OBVIOUS MISSING COMPONENTS OR BROKEN COMPONENTS ON ALL ITEMS TO BE INSTALLED INTO REPLACEMENT FRU CHASSIS.**

16. Reinstall any intra-rack cabling and additional hardware, customer racked devices, components that were previously removed to facilitate component swap and FRU replacement.
17. Check ALL power connections for proper seating.
18. Move replacement FRU rack to a location that enables full power connectivity and verify all power connections and components are operational.
19. Reinstall the side covers.
20. Reinstall the access cutout floor tile if previously removed.
21. Return the replacement rack to cluster suite.
22. Carefully reinstall all previously removed cabling that had been placed beneath raised floor and or in overhead cabling troughs. Refer to IBM System Cluster 1350/iDataPlex Cabling Guidelines for assistance if needed.
23. Power the rack on and verify all power is reapplied to all components.
24. Install the new RID Tag on new replacement rack and new replacement chassis to ensure warranty data is transferred from original rack and switch chassis.
25. Pack up the rack FRU that needs to be returned using the packing materials that came with the new replacement FRU rack.

QLogic 12800 Series

Fan Replacement

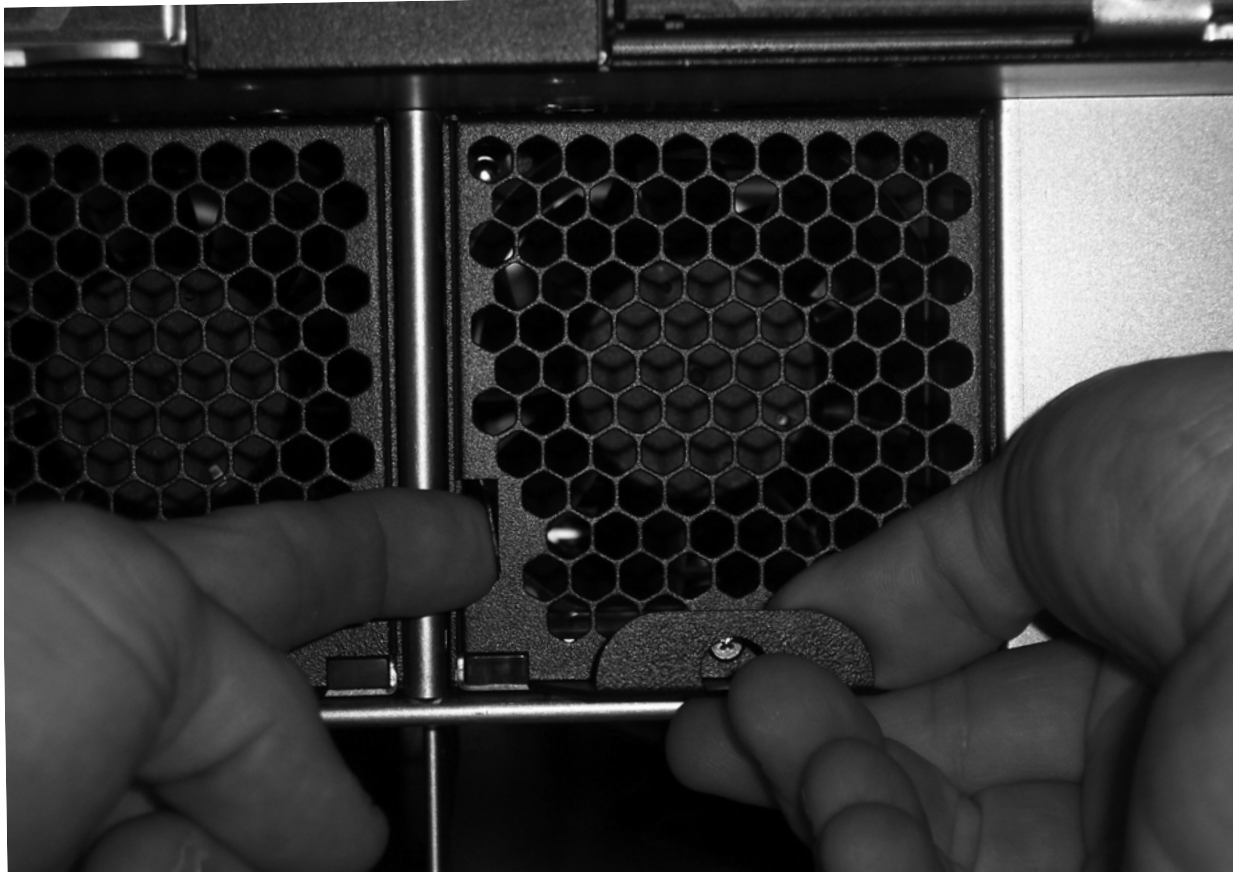
FRU part numbers:

- Intake Fan: 12800-FITK-9X
- Exhaust Fan: 12800-FEXH-9X

Removal Procedures

1. While holding the handle, push the release latch to the right

Figure D-2 .12800 Fan Removal



2. Pull the fan by the handle until disengaged from the chassis.

3. Determine whether this is an intake or exhaust fan by checking the FRU label or noting the location of the open notch.

Figure D-3 .12800 Intake and Exhaust Fans



Replacement Procedures

1. Slide the fan tray straight into the open slot until it engages with the backplane connector.
2. Make sure the fan is operating and the status LED is green.

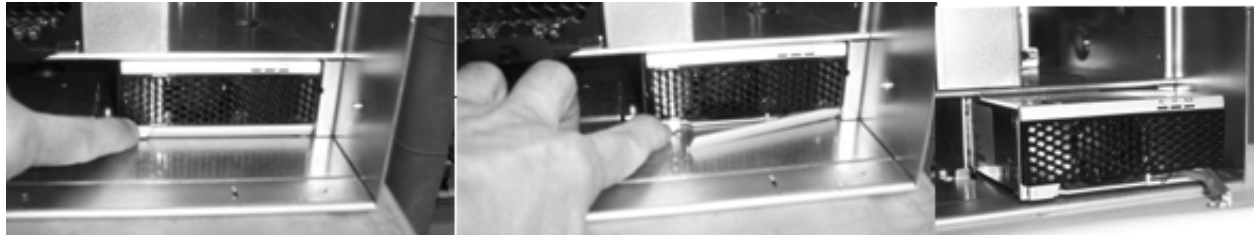
Power Supply Replacement

FRU part number:12800-PS01-9X

Removal Procedures

1. Push the release latch to release the arm.

Figure D-4 .12800 Power Removal



2. Carefully pull the supply until it is disengaged from the chassis.

Replacement Procedures

1. Slide the power supply straight into the open slot until it engages with the backplane connector.
2. Make sure the supply is operating and the AC OK and DC OK LEDs are green.

Leaf Module Replacement

FRU part number:

- 18 Port Leaf: 12800-LF18-9X
- 24 Port Leaf: 12800-LF24-9X

Removal Procedures

NOTE:

If the leaf module is in one of the chassis management slots, the mechanical release latch (MRL) must be moved in order to remove the leaf. To move the MRL, loosen the thumbscrew attached to the SEEB module, then slide the MRL to the left. This allows enough clearance for leaf release arm.

Figure D-5 .MRL



1. Pull the release arms down until the leaf module disengages from the backplane connector.

Figure D-6 .12800 Leaf Removal



2. Carefully pull the module out of the chassis.

Replacement Procedures

1. Slide the module straight into the open slot until it engages with the backplane connector.
2. Push the arm up until they lock in place.
3. Make sure the module is operating and the Status LED is green.

Spine Module Replacement

FRU part number:

- Single Spine Module: 12800-SPSG01-9X
- Double Spine Module: 12800-SPDB01-9X

Removal Procedures

1. Pull the release arms out until the spine module disengages from the backplane connector.

Figure D-7 .12800 Spine Removal



2. Carefully pull the module out of the chassis.

Replacement Procedures

1. Slide the module straight into the open slot until it engages with the backplane connector.
2. Push the arm up until they lock in place.
3. Make sure the module is operating and the Status LED(s) is green.

Management Module Replacement

FRU part number:12800-MM01-9X

Removal Procedures

1. Loosen the thumbscrew until it releases from the faceplate.
2. Pull the release arms out until the management module disengages from the backplane connector.

Figure D-8 .12800 Management Module Removal



3. Carefully pull the module out of the chassis.

Replacement Procedures

1. Slide the module straight into the open slot until it engages with the backplane connector.
2. Push the arm up until it locks in place.
3. Tighten the thumbscrew.
4. Make sure the module is operating and the Module Status, Chassis Status and MRL Active LEDs are green.

NOTE:

The standard FRU replacement process for management modules is one at a time. This allows the master module to move to a slave state, if necessary. Never replace multiple management modules simultaneously.



The Ultimate in Performance **Corporate Headquarters** QLogic Corporation 26650 Aliso Viejo Parkway Aliso Viejo, CA 92656 949.389.6000 www.qlogic.com

Europe Headquarters QLogic (UK) LTD. Quatro House Lyon Way, Frimley Camberley Surrey, GU16 7ER UK +44 (0) 1276 804 670

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