

Sun Datacenter InfiniBand Switch 648

Getting Started Guide

This guide describes the minimum steps you must perform to bring the Sun Datacenter InfiniBand Switch 648 from Oracle® online for the first time. Perform all of the tasks in this guide in the order provided.

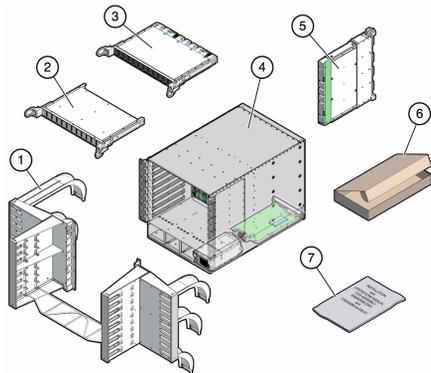
Detailed installation information about all tasks in this document can be found in the *Sun Datacenter InfiniBand Switch 648 Installation Guide*, which is available at the Sun documentation web site:

<http://docs.sun.com/app/docs/prod/ib.switch.648>

Note – You must read the *Sun Datacenter InfiniBand Switch 648 Installation Guide* before installing your switch.

See “[Product Documentation](#)” at the end of this document for a complete list of documentation for this system.

Contents



- 1 – Cable management hardware (shipped separately)
- 2 – Midplane stiffener (shipped separately)
- 3 – Line card (shipped separately)
- 4 – Switch chassis
- 5 – Fabric card (shipped separately)
- 6 – Box of tools and accessories
- 7 – Documentation

Four power cords, EMI screen, and other accessories shipped separately.

Safety and Compliance Information

Before performing an installation, refer to the following documents for safety information:

- *Important Safety Information for Sun Hardware Systems* – Printed document included in the shipping kit.
- *Sun Datacenter InfiniBand Switch 648 Safety and Compliance Guide* – Available at the Sun documentation web site.

InfiniBand Software Installation

Switch operation depends on an InfiniBand Subnet Manager and accompanying software running on a host in your InfiniBand fabric. The OpenSM software is part of the HPC software suite. It installs and runs on a Linux host. You can download the HPC 1.2 (or later) software (including installation instructions) from this URL:

<http://www.sun.com/software/products/hpcsoftware/getit.jsp>

Download of the software requires registration with the Sun Download Center.

▼ Mount the Switch Chassis In a Rack

You can mount up to 3 switches in a Sun Rack II. Mount the switches as low as possible for rack stability. Use a No. 2 Phillips screwdriver for assembly

1. **Remove the stabilizer bars from the front of the rack.**
2. **Install the rail assemblies into the rack.**
3. **Mount the cable management hardware to the rack.**
4. **Use a lift to raise and position the switch chassis into the rack.**
5. **Secure the switch chassis into the rack.**



Caution – Do not install any rail-mounted equipment in the Sun Datacenter InfiniBand Switch 648 rack. Load each Sun Datacenter InfiniBand Switch 648 into the rack from the bottom up.

▼ Inspect the Chassis Components

Inspect the fabric cards, fabric card fillers, line cards, chassis midplane, and InfiniBand cables before assembly.

1. **Remove the components from their antistatic packaging.**
2. **Inspect the exterior surfaces of the components.**
3. **Inspect the hardware and retaining bolts for smooth and proper operation.**
4. **Inspect the electrical connectors for damage, bent or missing pins, and blocked holes or receptacles.**
5. **Inspect both sides of the chassis midplane for bent or missing pins.**
6. **Inspect the InfiniBand cables for bent plates, damaged cables or connectors, or defective straps or hooks.**

▼ Install the Chassis Components

Install fabric cards and line cards after you have inspected them and secured the switch into the rack. Install fillers where there are open slots to maintain thermal management. Installation requires 10 mm and 20 mm socket drivers. Initial card installation requires a high level of insertion force due to EMI gasket compression.



Caution – Turn the retainer bolts *only* 1/4 turn each time. *Do not* turn them more than 1/4 rotation. Do not exceed 2.0 ft-lb (24 in.-lb) (0.27 kg-m) torque.

1. **Install the midplane stiffener with the 20 mm socket into slot LC 4 at the front of the switch chassis.**

-
- a. **Make only 1/4 turn each time, repeatedly alternating between the left and right retainer bolts.**
Do not exceed 2.0 ft-lb torque.
 - b. **Ensure that the stiffener squarely contacts the midplane crossbar.**
 2. **Install the fabric cards (or fabric card fillers) one at a time with the 10 mm socket into the rear of the switch chassis.**
 - a. **Seat the card into the slot so that both retainer bolts engage the threaded chassis receivers.**
 - b. **Make only 1/4 turn each time, repeatedly alternating between the top and bottom retainer bolts.**
Do not exceed 2.0 ft-lb torque.
 - c. **Once seated, loosen the retainer bolts by 3/4 turn total, making only 1/4 turn each time, repeatedly alternating between the top and bottom retainer bolts.**
 - d. **Install fabric cards into the slots in this order: 0, 1, 8, 7, 6, 2, 3, 5, 4.**
Install fillers into the vacant slots.
 3. **Remove the midplane stiffener and install the line cards one at a time with the 20 mm socket into the front of the switch chassis.**
 - a. **Seat the card into the slot so that both retainer bolts engage the threaded chassis receivers.**
 - b. **Make only 1/4 turn each time, repeatedly alternating between the left and right retainer bolts.**
Do not exceed 2.0 ft-lb torque.
 - c. **Once seated, loosen the retainer bolts by 3/4 turn total, making only 1/4 turn each time, repeatedly alternating between the left and right retainer bolts.**
 - d. **Install line cards into the slots in this order: 0, 1, 2, 3, 4, 5, 6, 7, 8.**
Slide fillers into the vacant slots.

▼ Connect the Management Cables

1. **Connect a serial cable between the CMC's SER MGT port and a terminal device.**
This connection provides your initial communication with the CMC. The terminal device must be set up to communicate using 115200 baud, 8 bit, no parity, 1 stop bit.
2. **(Optional) Connect an Ethernet cable between the server's NET MGT port and the network to which future connections to the CMC will be made.**
After the initial configuration of the switch using the SER MGT port, communication with the CMC is usually performed through this Ethernet interface.

▼ Power On the Switch



Caution – Do not power on the switch without all fans, fabric cards (or fabric card fillers), line cards (or line card fillers) installed. Severe damage to switch components can occur if the switch is operated without proper thermal management.

1. **Activate the terminal device so that you are ready to communicate with the CMC.**

2. Plug the “live” power cords into the receptacles at the rear of the switch chassis.

The OK LED on the power supplies lights green, power is supplied, and the CMCs boot. If the Attention LED lights amber, there is a problem with the power cord or the power supply.

On the serial device, you will see the CMC uboot progression.

3. After the CMCs have booted, you should see the following on the serial device:

```
shmm1500 login:
```

If you do not see any output, there is a problem with the serial communication or the CMC.

4. Type `root` for the login name followed by the `root` password:

```
shmm1500 login:root
Password: password
```

Initially, the *password* is the carriage return key (Enter or Return). You can change the *password* at a later time.

5. Check the status of the CMCs and I²C bus:

```
# clia shmstatus
# i2ctest
```

Verify that output of the `shmstatus` command is `Host: "Active"`. Use the `clia switchover` command to correct. A failure or error from the `i2ctest` command means a problem with a CMC, or the installation of a component.

6. Enable and fully power on the fabric cards and line cards:

```
# enableboard fc slot
# enableboard lc slot
```

where *slot* is 0 - 8. When fabric cards and line cards are enabled, their OK LED flashes. When fully powered, their OK LED lights solid and the fans on fabric cards spin up. If the OK LED does not light or the fans do not spin up there is a problem with that fabric card or line card.

7. Verify that all installed components are recognized:

```
# showpresent
```

If “state = OFF” appears in the output of the `showpresent` command, there is a problem with that power supply. If “not active” appears in the output of the `showpresent` command, there is a problem with that fabric card or line card.

8. Verify the fabric cards’ and line cards’ status and operation:

```
# checkvoltages
# checkfans
# checkswitches
```

Any anomaly in the output of these commands means a problem with that fabric card or line card.

▼ Connect the InfiniBand Cables

Start installing InfiniBand cables at the bottom line card first, working your way up. Attach the cables to the outside connectors of the line card first, working your way in to the middle.



Caution – Do not allow any InfiniBand cable to bend tighter than a 5 inch (127 mm) radius. Do not allow any optical InfiniBand cable to bend tighter than a 3.4 inch (85 mm) radius. Tight bends can damage the cable internally.

1. Start the Subnet Manager.

As you connect InfiniBand cables, the Subnet Manager begins establishing links within and routes through the switch.

2. Install the cable shelf for the bottom line card.

3. Bring the first cable to the line card and plug it in to connector 11B.

4. Curve the cable to the right through the main trunk and outer branch of the right cable tree.

5. Place the cable over the cable curve and move the cable in toward the rack.

6. Bring the second cable to the line card and plug it in to connector 0B.

7. Curve the cable to the left through the main trunk and outer branch of the left cable tree.

8. Place the cable over the cable curve and move the cable in toward the rack.

9. Repeat [Step 3](#) through [Step 8](#) for the next ten cables, connecting at 10B, 1B, 9B, 2B, and so on to 6B and 5B.

10. Repeat [Step 3](#) through [Step 8](#) for the twelve cables connecting at 11A, 0A, 10A, 1A, and so on to 6A and 5A.

11. Install a cable shelf for the next highest line card, and repeat [Step 3](#) through [Step 10](#) for that line card.

12. Repeat [Step 11](#) until all cables have been connected to all line cards.

13. Check that the Link LEDs for cabled links are lit green.

If the Link LED is dark, the link is down. If the Link LED flashes, there are symbol errors.

14. Check the link status of the InfiniBand cables:

```
# checklinks -c
```

If a port for a line card “is down”, there might be a problem in the InfiniBand cable, the line card, or the other end of the InfiniBand cable. Use the `checklinks -e -c` command to attempt to bring up the links.

15. Install the EMI screen.

The screen attaches at the bottom of the switch chassis and provides a shell over the front of the switch chassis, the cable management hardware, and the InfiniBand cables.

▼ Verify the InfiniBand Fabric

◆ Use the following commands on the Linux InfiniBand host to verify the operation of the InfiniBand fabric:

- `ibdiagnet` - Performs diagnostics upon the InfiniBand fabric and reports status.

- `ibnetdiscover` - Discovers and displays the InfiniBand fabric topology and connections.
- `ibcheckerrors` - Checks the entire InfiniBand fabric for errors.

Product Documentation

The following table lists the documentation in the approximate order of the tasks that you might perform when receiving a new switch. The documentation is available online at the Sun documentation web site:

<http://docs.sun.com/app/docs/prod/ib.switch.648>.

Task	Document Type	Part Number
Review the safety information.	Safety and Compliance Guide	(820-7744)
	Important Safety Information for Sun Hardware Systems	(821-1590)
Review any known issues and workarounds.	Product Notes	(820-7743)
Prepare the site. Install and power on the switch.	Installation Guide	(820-7738)
Monitor and control the switch.	Administration Guide	(820-7739)
Remote administration	ILOM Supplement	(821-0896)
Remove and install switch chassis components.	Service Manual	(820-7740)
Learn about the command set.	Command Reference	(820-7741)

Technical Support

If you have technical questions about this product that are not answered in this document, go to:

<http://www.sun.com/service/contacting>

Documentation Feedback

Submit comments about this document by clicking the Feedback [+] link at <http://docs.sun.com>. Include the title and part number of your document with your feedback:

Sun Datacenter InfiniBand Switch 648 Getting Started Guide, part number 820-7745-11.

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