Sun Blade™ 6048 InfiniBand QDR Switched Network Express Module User's Guide

Sun Microsystems, Inc.
www.sun.com

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Contents

Preface

This guide provides an overview, installation instructions, and related information for the Sun Blade™ 6048 InfiniBand QDR Switched Network Express Module (IB-QNEM). These instructions are designed for system administrators with InfiniBand network experience.

Related Documentation

The documents listed as online are available at:

`http://docs.sun.com/app/prod/blade.6048`

Document	Part Number	Available
Sun Blade 6048 InfiniBand QDR Switched Network Express Module Product Notes	820-6706	Online
Where to Find Sun Blade 6048 Modular System Documentation	820-2311	Printed and online
Sun Blade 6048 Modular System Site Planning Guide	820-0426	Online
Sun Blade 6048 Modular System Unpacking Guide	820-2987	Printed and online
Sun Blade 6048 Modular System Setup Poster	820-2310	Printed and online
Sun Blade 6048 Modular System Installation Guide	820-2312	Printed and online
Sun Blade 6048 Modular System Service Manual	820-2863	Online

Document	Part Number	Available
Sun Blade 6048 Modular System Safety and Compliance Guide	820-0053	Online
Sun Blade 6048 Modular System Product Notes	820-2309	Online
Sun Integrated Lights Out Manager (ILOM) 2.0 User's Guide	820-1188	Online

Documentation, Support, and Training

Sun Function	URL
Documentation	`http://docs.sun.com/`
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Sun Blade 6048 InfiniBand QDR Switched Network Express Module User's Guide, Sun part number: 820-6705-10.

CHAPTER 1

Sun Blade 6048 InfiniBand QDR Switched Network Express Module Introduction

This chapter provides an overview of the Sun Blade 6048 InfiniBand QDR Switched Network Express Module (IB-QNEM).

This chapter includes the following sections:

You can order additional Sun Blade 6048 InfiniBand QDR Switched Network Express Modules from Sun Microsystems using the following Marketing part number: X5500A-Z.

Product Features

The Sun Blade 6048 InfiniBand QDR Switched Network Express Module (FIGURE 1-1) has the following features:

- 30 InfiniBand ports for external connectivity
- 2 I4 on-board switches, both providing 2 Infiniband ports for each slot in a Sun Blade™ 6048 modular system shelf

- 9 intraswitch links between two switches within IB-QNEM
- 2 passthrough Gigabit Ethernet ports for each slot of IB-QNEM's respective a Sun Blade 6048 modular system shelf
- Each IB-QNEM InfiniBand port can provide full-duplex data transfers of up to 40 Gbps (QDR)
- Each InfiniBand port is backward compatible with 20-Gbps (DDR) and 10-Gbps (SDR) devices
- The IB-QNEM logically installs inthe NEM-1 slot of a Sun Blade 6048 modular system shelf, but occupies both NEM slots due to physical form factor
- Up to 12 blade servers can connect to a single IB-QNEM. Each blade server is connected to the IB-QNEM through two 4x QDR IB interfaces and two 1 GbE interface

FIGURE 1-1 Sun Blade 6048 InfiniBand QDR Switched Network Express Module

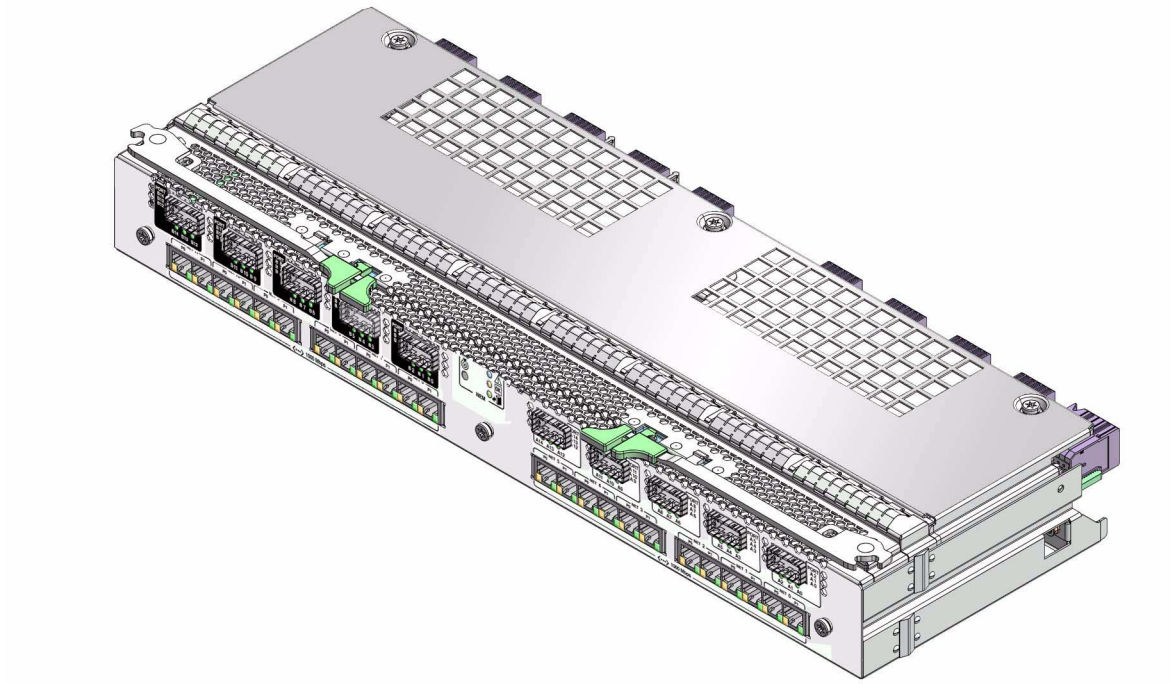


TABLE 1-1 lists additional features of the Sun IB-QNEM.

TABLE 1-1 Sun IB-QNEM Features

Feature	Description
Hot-plug operations supported	Enables system administrators to easily add or remove IB-QNEMs, as needed, without powering down the system
IB transfer rate (maximum)	• 40 Gbps (QDR) per 4x IB port for the Sun Blade X6275 server module and 20 Gbps (DDR) per 4x IB port for the Sun Blade X6270 server module. There are two 4x IB ports per server module. • 1,536 Gbps aggregate throughput
InfiniBand Trade Association (IBTA) interoperability	Version 1.2
IB uplink interface	10 CXP connectors, three 4x QDR/DDR/SDR IB ports per connector
Blade server interface	24 4x IB links
Ethernet interface	24 1-Gbps passthrough ports **Note -** Two 1-Gbps ports are available on the Sun Blade X6275 server module and one 1-Gbps port is available on the Sun Blade X6270 server module.
IB switch chip	2 Mellanox Infiniscale IV (I4) 36-port IB switches
IB QDR cables	See "IB-QNEM Cables" on page 29
LED indicators	• One green LED per 4x port showing IB physical link state • Locate button and LED (white), OK LED (green), Service Action Required LED (amber), Ready-to-Remove LED (blue)
Form factor	Sun proprietary form factor
RoHS	5 of 6 compliant
Power consumption	240 watts maximum
Protection	Protected from electrostatic discharge (ESD) and handling damage

Sun Blade 6048 Platform Support

TABLE 1-2 lists supported platforms for the IB-QNEM in the Sun Blade 6048 Series Modular System.

TABLE 1-2 Hardware Requirements for the IB-QNEM

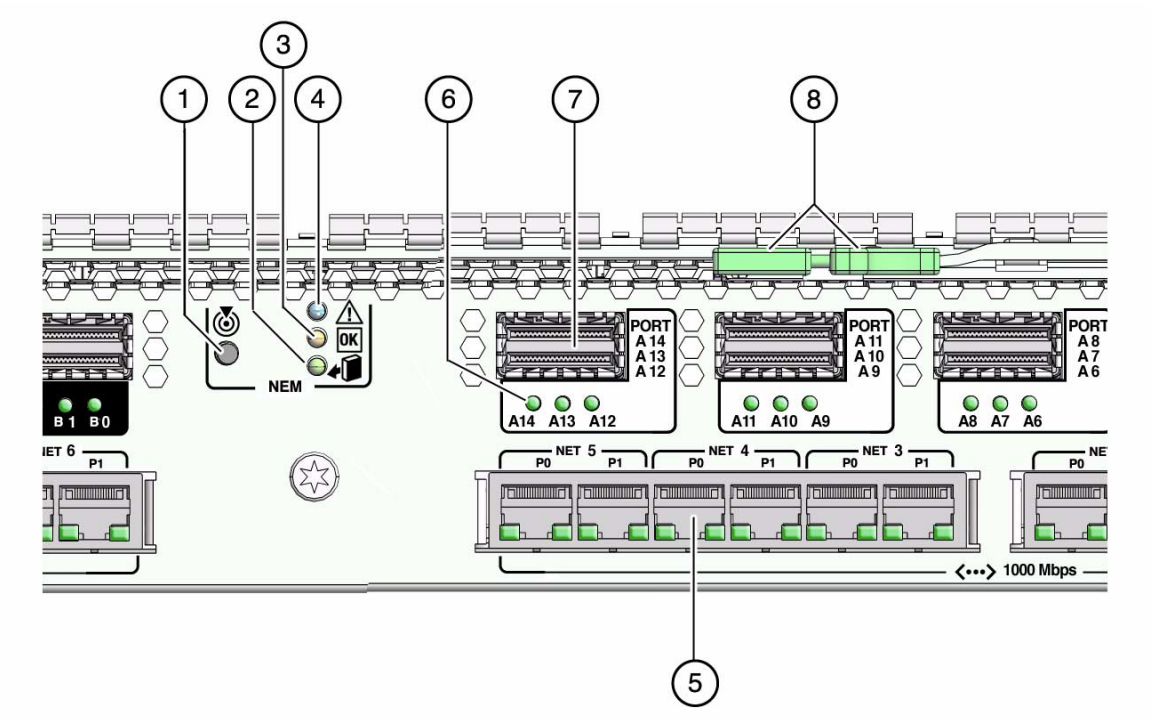
Requirements	Hardware
Sun Blade Server Module	• Sun Blade 6275 Server Module • Sun Blade 6270 Server Module with Sun InfiniBand Dual Port 4x DDR PCIe Fabric Expansion Modules

For information about the supported operating systems for a server module, go to:
`http://www.sun.com/servers/blades/os.jsp`

IB-QNEM Indicators, Buttons, and Ports

The IB-QNEM provides a standard set of status indicators, buttons, and ports on the back panel. FIGURE 1-2 shows the back panel.

FIGURE 1-2 IB-QNEM Back Panel Indicators, Buttons, and Ports



See TABLE 1-3 for a description of the components.

TABLE 1-3 Sun Blade 6048 IB-QNEM Back Panel Components and Functions

Number	Component Name	Color	Description
1	Locate button/ indicator	White	The Locate indicator is a white button with an associated indicator that blinks (4 Hz) when initiated (remotely) from the ILOM web interface. The Locate indicator enables a system operator to easily locate an IB-QNEM in a system within a large data center. Once activated, this indicator times out after 30 minutes. When pressed, the Locate button lights the Locate indicator. The Locate indicator provides these indications: • Fast blink – Identifies a specific IB-QNEM in the chassis. Lights when the LED is initiated from the web interface remotely or from a press of the Locate button locally. • Off – IB-QNEM locator function has not been selected.
2	OK indicator	Green	Displays the different states of module initialization. Provides the following indications: • Steady on – Lights steadily when IB-QNEM is operating normally. • Slow blink – Blinks slowly when IB-QNEM is transitioning from one state to the next. • Off – IB-QNEM has no power or one of the other LEDs is lit.
3	Service Action Required indicator	Amber	Provides the following indications: • Steady on – Lights when there is a fault associated with the IB-QNEM. • Off – The IB-QNEM has no fault condition.
4	Ready-to-Remove indicator	Blue	This indicator is not used on the IB-QNEM.
5	Ethernet ports		RJ-45 Ethernet passthrough ports that connect to the server blades through the midplane. **Note -** Both P0 and P1 Ethernet ports are available for the Sun Blade X6275 server module and only the P1 Ethernet port is available for the Sun Blade X6270 server module.

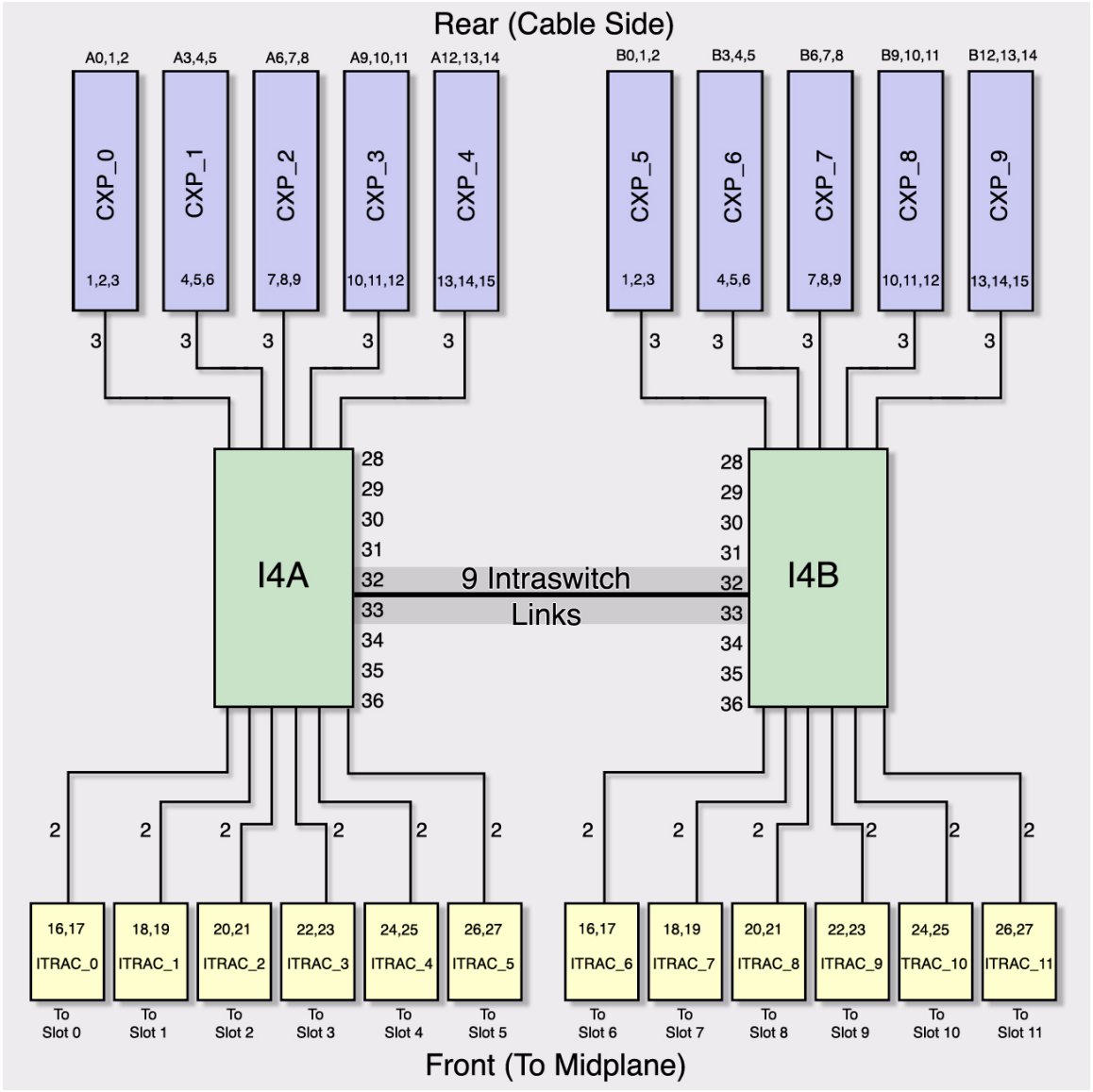
TABLE 1-3 Sun Blade 6048 IB-QNEM Back Panel Components and Functions *(Continued)*

Number	Component Name	Color	Description
6	Physical Link indicator (InfiniBand)	Green	Illuminates when the port is electrically active, that is, when a driver is attached and a physical link to a remote switch (or, possibly an HCA) has been established. Each InfiniBand port has one LED indicator.
7	CXP connectors		CXP connectors combine three 4x IB links per connector.
8	Ejector levers		To remove the IB-QNEM, open the ejector levers.

IB-QNEM Port Mapping

The IB-QNEM has two 36-port InfiniBand switches, I4A and I4B. Each port is capable of negotiating with a peer node up to 4x QDR speed. Each switch I4 device has 15 ports connected to 5 CXP external IB connectors. I4A has 12 ports connected to the two 4x ports from iTRAC 0 through 5 and I4B has 12 ports connected from iTRAC 6 through 11. The remaining nine ports are intralink connections between the two I4 devices.

FIGURE 1-3 IB-QNEM InfiniBand Port Mapping



Specifications

TABLE 1-4 and TABLE 1-5 list the specifications for the IB-QNEM in the Sun Blade 6048 Series Modular System.

TABLE 1-4 Operating Environment

Voltage	12V
Maximum power:	240 watts
Temperature	15° to 32° C (ASHRAE Environmental Class1)
Altitude:	3,000m (derate 1 degree C/300m above 900m)
Humidity:	20 - 80%

TABLE 1-5 Physical Characteristics

Height	155mm (6.1 in.)
Width	509mm (20 in.)
Depth	108.6mm (4.28 in.)
Weight	5.73 kg (12.7 lbs)

Regulatory Compliance

The regulatory compliance certifications of the Sun Blade 6048 Modular System cover the Sun Blade 6048 InfiniBand QDR Switched Network Express Module as an installed component.

To comply with legal EMI emissions regulations, the Sun Blade 6048 Modular Server must be provided with either the standard door or cooling rear door assembly when used with the Sun Blade 6048 InfiniBand QDR Switched Network Express Module. The rear door should remain closed during normal operation and opened only during product servicing or when power is removed from the product.

Commonly Used Terms

TABLE 1-6 identifies some terms commonly used in this guide.

TABLE 1-6 Common Terms

Term	Definition
Chassis	Sun Blade 6048 modular system hardware. For additional information about the Sun Blade 6048 Modular System, go to: `http://docs.sun.com/app/docs/coll/blade6048`
CMM	Chassis Monitoring Module (CMM) hardware
IB	InfiniBand
I4	Mellanox Infiniscale IV (I4) 36-port IB switch. There are two I4s switches on the IB-QMEN, I4A and I4B.
ILOM	Sun Integrated Lights Out Manager (ILOM) is the embedded management software on the server module SP and CCM SP that enables you to manage your system. For additional information about ILOM, refer to the *Sun Integrated Lights Out Manager 2.0 User's Guide*.
IB-QNEM	Sun Blade 6048 InfiniBand QDR Switched Network Express Module
Server module	Sun Blade X6*xxx* server module hardware
SP	Embedded Service Processor (SP) on server module and Chassis Monitoring Module (CMM)
SDR	Single data rate
DDR	Double data rate
QDR	Quad data rate

CHAPTER 2

Replacing the Sun Blade 6048 InfiniBand QDR Switched Network Express Module

This chapter describes how to replace a Sun Blade 6048 InfiniBand QDR Switched Network Express Module (IB-QNEM) in a powered-on Sun Blade 6048 Series Chassis. This chapter also includes instructions to verify that the IB-QNEM has been installed correctly.

This chapter contains the following sections:

Caution – Damage to the IB-QNEM can occur as the result of careless handling or electrostatic discharge (ESD). Always handle an IB-QNEM with care to avoid damage to electrostatic sensitive components. To minimize the possibility of ESD-related damage, Sun strongly recommends using both a workstation antistatic mat and an ESD wrist strap. You can get an ESD wrist strap from any reputable electronics store or from Sun as part number 250-1007.

Replacing IB-QNEM Hardware

If an IB-QNEM fails or if you choose to change the I/O configuration, you must replace the IB-QNEM. You can replace an IB-QNEM in a powered-on Sun Blade 6048 Series Chassis using a hot-plug operation.

If you are removing but not replacing the IB-QNEM, you must install both NEM slot filler panels to meet FCC limits for electromagnetic interference (EMI) and to ensure proper airflow and cooling.

If you encounter a problem replacing the IB-QNEM, see "Managing the IB-QNEM" on page 18.

Note – If you are installing a IB-QNEM in a Sun Blade 6048 Series Chassis that has not been powered on, see the *Sun Blade 6048 Series Installation Guide* (820-2312).

The IB-QNEMs are customer-replaceable units (CRUs).

▼ To Remove the IB-QNEM in a Powered-On Chassis

1. **Identify which IB-QNEM to replace.**

   If the amber Service Action Required indicator is lit on a specific IB-QNEM, there is a problem with that IB-QNEM. Otherwise, you can choose any IB-QNEM to replace if, for example, you want to change the I/O configuration.

2. **Remove all cables from the IB-QNEM.**

3. **Squeeze the two tabs on both ejector levers to unlatch the levers from the IB-QNEM rear panel.**

4. **Pull both ejector levers simultaneously out to the sides until the IB-QNEM disengages from the chassis midplane.**

Caution – Be careful not to over rotate the ejector levers and damage the chassis.

Once the IB-QNEM is disconnected from the midplane, the green OK led will turn off.

5. **Pull both ejector levers away from the NEM slot to slide the IB-QNEM out until you can comfortably remove the assembly with both hands.**

Caution – Do not support the IB-QNEM by the two ejector levers.

▼ To Install the IB-QNEM in a Powered-On Chassis

1. **Inspect the midplane connectors in the chassis NEM slots for bent or damaged pins before installing the IB-QNEM.**

   Do not install the IB-QNEM if you find any bent or damaged pins.

2. **Align the IB-QNEM with the top NEM slot and the chassis guidance system.**

   Ensure that the IB-QNEM aligns with the chassis guidance system. Failure to align the IB-QNEM correctly can result in damage to the IB-QNEM's connections to the chassis midplane.

3. **Slide the IB-QNEM into the NEM guide rails until the ejector levers touch the guide rails.**

4. **Pull both ejector levers out to the sides and position them into their latch on the rails.**

   The levers can be closed slightly to ensure that they are aligned correctly.

5. **With both hands on the rear panel, push the IB-QNEM firmly into the midplane connectors.**

Caution – Do not push the IB-QNEM in at an angle or slam it into the midplane connectors. Such actions might result in bent or damaged connector pins.

6. **Push both ejector levers simultaneously toward the center so that the IB-QNEM engages fully with the connectors on the midplane**

   The levers should eventually lock into their latch openings on the IB-QNEM rear panel.

Caution – Locking one lever at a time might result in seating problems that can lead to symbol errors.

   The IB-QNEM will automatic power on once the IB-QNEM is fully seated in the chassis. The green OK LED will blink during power up and eventually remain lit once the power on completes successfully.

   If the amber Service Action Required indicator is on, try re-installing the IB-QNEM. If the problem persists, initiate a service call.

7. **Connect the InfiniBand cables to the IB-QNEM port connectors.**

   Ensure that the connectors are properly engaged. The connectors click when locked.

Caution – Avoid putting unnecessary stress on the connection. Do not bend or twist the cable near the connectors, and avoid sharp cable bends of more than 90 degrees.

8. **Verify that the IB-QNEM is working properly.**

   See "To Verify Hardware Installation" on page 14.

Note – If you are replacing an IB-QNEM, you might not need to install the InfiniBand software packages on the server modules. The appropriate software package will have been installed and configured as part of the initial IB-QNEM installation. Refer to the server module's documentation for more information.

Verifying Installation

If you have not installed the IB-QNEM in the chassis and connected it to an operational InfiniBand switch or HCA, do so before you attempt to verify the installation. The InfiniBand switch should automatically recognize InfiniBand servers when the servers are connected to the fabric.

▼ To Verify Hardware Installation

1. **Once you have physically installed the IB-QNEM and ensured that the cables are connected to the IB-QNEM and other IB devices (switches or HCA), ensure that an IB Subnet Manager is running on the connected InfiniBand fabric (network).**

   If the green Physical Link indicator is illuminated, you have successfully completed the hardware installation and you can proceed to verification through the ILOM interfaces (Step 2). The green Physical Link indicator lights to show that the port is enabled. That is, a physical link to a remote switch (or, possibly an HCA) has been established. There might be a short delay before the indicator lights.

   If the port LEDs are *not* illuminated, one possible cause might be that the InfiniBand drivers are not installed. You cannot verify a complete installation on Linux until you install these drivers.

2. **Examine hardware status through one of the ILOM (Integrated Lights Out Manager) interfaces.**

   Use one of the following procedures:

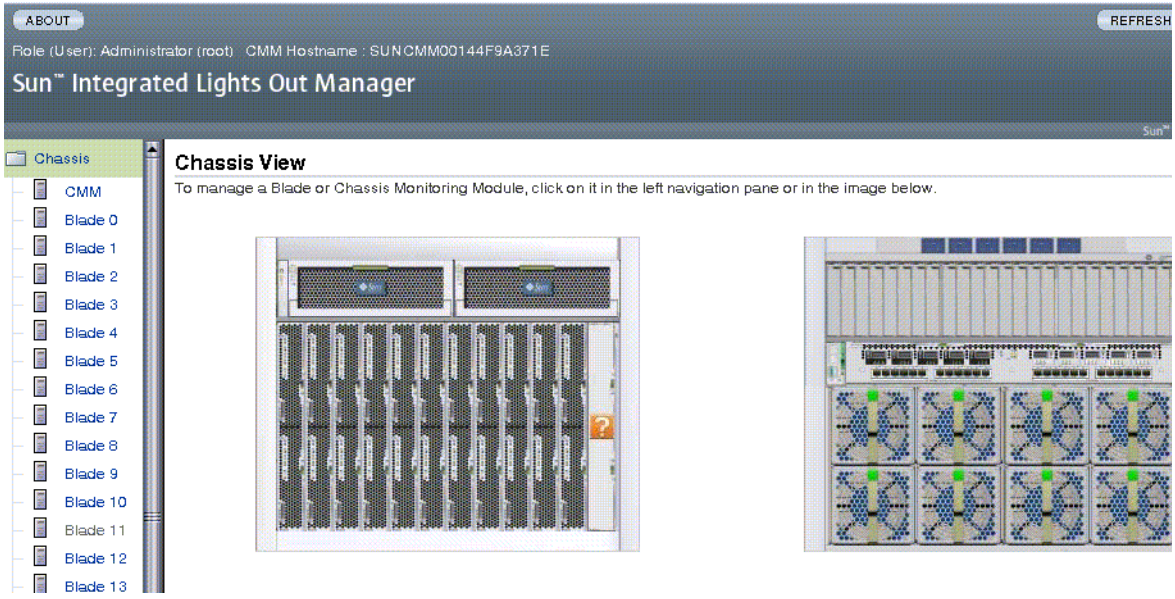
   - "To Verify Installation Using the ILOM Web Interface" on page 15
   - "To Verify Installation Using the ILOM CLI" on page 17

   For a description of the possible states of the IB-QNEM LEDs, see "To Verify Component Status Using the LEDs" on page 18.

▼ To Verify Installation Using the ILOM Web Interface

1. **Log in to the ILOM web interface using the IP address of the CMM.**

   The initial page of the ILOM web interface appears, providing visual verification of successful hardware installation. Note the image of the installed IB-QNEM in the view of the back of the chassis.

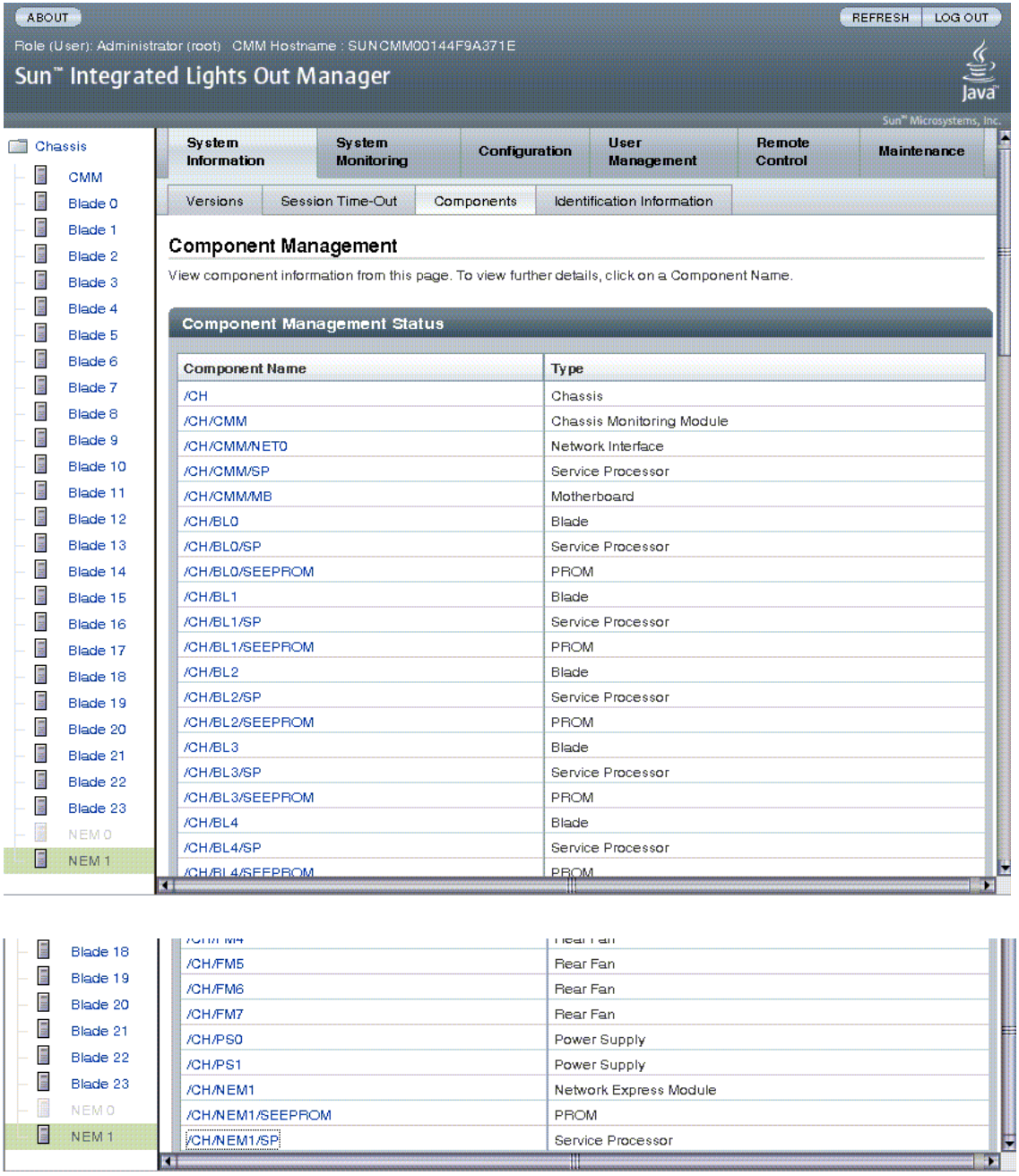


2. **In the left navigation pane, select CMM.**

   The ILOM Version Information page appears.

3. **Select the System Information tab and then select the Components tab.**

   The Component Management page appears.



4. **Scroll down to /CH/NEM1 and select the NEM1 component name.**

   The ILOM page showing the IB-QNEM status details appears.

5. **If you are physically near the IB-QNEM, you can examine its LEDs to verify that it has returned the expected feedback.**

   See "To Verify Component Status Using the LEDs" on page 18.

▼ To Verify Installation Using the ILOM CLI

1. **Log in to the ILOM CLI.**
2. **Find the NEM1 in your system. type:**

```
> show /CH
```

3. **To verify that the NEM1 is installed, type:**

```
> show /CH/NEM1
 /CH/NEM1
    Targets:
        SEEPROM
        SP
        SAS

    Properties:
        type = Network Express Module
        fru_name = ASSY,SB6048 QDR NEM
```

```
        fru_part_number = 541-3378-01
        fru_serial_number = 0110SJC-0904CA0037

    Commands:
        cd
        show
->
```

4. **If you are physically near the IB-QNEM, examine its LEDs to verify that it has returned the expected feedback.**

   See "To Verify Component Status Using the LEDs" on page 18.

▼ To Verify Component Status Using the LEDs

- **Use the LED combinations to determine the status of the IB-QNEM.**

Blue LED (Top)	Amber LED (Middle)	Green LED (Bottom)	IB QNEM Status
Off	Off	Off	Ready to remove
Off	On	Off	Service attention required
Off	Off	Slow blink	Standby
Off	Off	On	Links connected to blades

Managing the IB-QNEM

Because the IB-QNEMs are shared resources, all Sun Blade server modules must respond favorably to the PCI hot-remove request. However, a blade might not relinquish the link to a IB-QNEM if, for instance, there are busy NFS mounted volumes, file transfers, and so on.

Note – The IB-QNEM does not need any user-level configurations. IB-QNEM functionality is predefined by the switches firmware. Advance network and InfiniBand configurations can be performed using the Subnet Manager on a supported server module.

To determine the state of the NEM-to-blade connections, you can use the ILOM command-line interface, as described in the following procedure.

▼ To Manage IB-QNEM Using the ILOM CLI

1. Log in to the ILOM CMM CLI interface. For example:.

```
# ssh root@cmm-ip-address
The authenticity of host 'xx.xx.xx.xxx (xx.xx.xx.xxx)' can't be
established. RSA key fingerprint is
a2:71:bd:bc:ce:74:4c:24:50:5f:fb:c5:c3:01:e6:58.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.60.32.197' (RSA) to the list of
known hosts.
Password:
Sun(TM) Integrated Lights Out Manager
Version 2.0.3.13
Copyright 2008 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.

Warning: password is set to factory default.
->
```

2. Start the CLI by typing the command shown in the example.

```
> start /CH/NEM1/SP/cli
Are you sure you want to start /CH/NEM1/SP/cli (y/n)? y

Sun Blade 6048 QDR InfiniBand Network Express Module

-> help

Special characters used in the help command are
[]   encloses optional keywords or options
<>   encloses a description of the keyword
     (If <> is not present, an actual keyword is indicated)
|    indicates a choice of keywords or options

Valid proxy CLI commands are:
        show [<property> ... ]
        set <property>=<value>
        reset
        resetswitch { A | B | all }
        version
        help [<command>]
```

```
          exit

 ->
```

3. **Type the** `show` **command to display the IB-QNEM hardware and software information:**

```
-> show

NEM1
  Targets:

  Properties:
    fpga_version        = 03
    cpld_version        = 08
    cpld_id             = 5C
    full_serial_no      = 0110SJC-0904
    S/N                 = CA0037
    P/N                 = 5413378
    HW_rev              = 01
    FRUID_specno        = 885-1445-01
    ENG_change_tag      =
    mfg_time            = Mon Jan 19 19:12:59 2009

    cable_present       =
          0  1  2  3  4  5  6  7  8  9
          1  1  1  1  1  1  1  1  1  1

    ports_A             =
      External 4x IB ports on switch A:
      ---------------------------------
        A0   A1   A2   A3   A4   A5   A6   A7   A8   A9   A10  A11  A12  A13  A14
        Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up

      ports belonging to server blades on switch A:
      ---------------------------------------------
        BL0#0  BL0#1  BL1#0  BL1#1  BL2#0  BL2#1  BL3#0  BL3#1  BL4#0  BL4#1
BL5#0  BL5#1
      down   down   down   down   down   down   down   down   Up    Up    Up    down

      ports on switch A connected to the peer switch:
      -----------------------------------------------
        #28  #29  #30  #31  #32  #33  #34  #35  #36
        Up   Up   Up   Up   Up   Up   Up   Up   Up


      Logical p#   Phys p#   State
      ----------   -------   -----
```

```
              1        ( 1)      Up
              2        ( 2)      Up
              3        ( 3)      Up
              4        ( 4)      Up
              5        ( 5)      Up
              6        ( 6)      Up
              7        ( 7)      Up
              8        ( 8)      Up
              9        ( 9)      Up
             10        (10)      Up
             11        (11)      Up
             12        (12)      Up
             13        (18)      Up
             14        (17)      Up
             15        (16)      Up
             16        (19)      down
             17        (20)      down
             18        (21)      down
             19        (22)      down
             20        (23)      down
             21        (24)      down
             22        (25)      down
             23        (26)      down
             24        (27)      Up
             25        (28)      Up
             26        (29)      Up
             27        (30)      down
             28        (15)      Up
             29        (14)      Up
             30        (13)      Up
             31        (31)      Up
             32        (32)      Up
             33        (33)      Up
             34        (34)      Up
             35        (35)      Up
             36        (36)      Up


    ports_B             =
      External 4x IB ports on switch B:
      ---------------------------------
        B0   B1   B2   B3   B4   B5   B6   B7   B8   B9   B10  B11  B12  B13  B14
        Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up   Up

      ports belonging to server blades on switch B:
      ---------------------------------------------
        BL6#0  BL6#1  BL7#0  BL7#1  BL8#0  BL8#1  BL9#0  BL9#1  BL10#0 BL10#1
BL11#0 BL11#1
```

```
        down   down   down   down   down   down   down   down   down   down   down
down

       ports on switch B connected to the peer switch:
       ------------------------------------------------
         #28  #29  #30  #31  #32  #33  #34  #35  #36
         Up   Up   Up   Up   Up   Up   Up   Up   Up


       Logical p#   Phys p#   State
       ----------   -------   -----
              1       ( 4)     Up
              2       ( 5)     Up
              3       ( 6)     Up
              4       ( 7)     Up
              5       ( 8)     Up
              6       ( 9)     Up
              7       (10)     Up
              8       (11)     Up
              9       (12)     Up
             10       (18)     Up
             11       (17)     Up
             12       (16)     Up
             13       (15)     Up
             14       (14)     Up
             15       (13)     Up
             16       (25)     down
             17       (26)     down
             18       (27)     down
             19       (28)     down
             20       (29)     down
             21       (30)     down
             22       (36)     down
             23       (35)     down
             24       (34)     down
             25       (33)     down
             26       (32)     down
             27       (31)     down
             28       ( 3)     Up
             29       ( 2)     Up
             30       ( 1)     Up
             31       (19)     Up
             32       (20)     Up
             33       (21)     Up
             34       (22)     Up
             35       (23)     Up
             36       (24)     Up
```

```
    temperature          = 34 degrees
    leds                 =
        Locate : Off
        OK     : On
        Service: Off
        R2R    : Off
    ipass0             = 2612BER-0904XB0006    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass1             = 2612BER-0905XA0011    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass2             = 2612BER-0905XB0003    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass3             = 2612BER-0905XB0004    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass4             = 2612BER-0904XB0025    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass5             = 2612BER-0904XA0006    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass6             = 2612BER-0905XB0011    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass7             = 2612BER-0905XA0003    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass8             = 2612BER-0905XA0004    10m,  84  Circuit iPass  Stacked
Active  Optical Cable
    ipass9             = 2612BER-0904XA0025    10m,  84  Circuit iPass  Stacked
Active  Optical Cable

  Commands:
    show
    set
    reset
    resetswitch
    version
    help
    exit
->
```

CHAPTER 3

Updating the Sun Blade 6048 InfiniBand QDR Switched Network Express Module Firmware

This chapter provides information on updating the IB-QNEM firmware on Linux.

Consult the *Sun Blade 6048 Series Product Notes* for the most recent information about the availability of firmware updates.

This chapter contains the following sections:

Downloading the IB-QNEM Firmware

The firmware version on your IB-QNEM should be ready to use and should not require updating. However, if you want to update the firmware for any reason, you must use vendor-specific and (generally) OS-specific firmware updating tools.

The IB-QNEM firmware for this release and any future firmware releases, can be downloaded from the Sun Download Center (SDLC) at:

```
http://www.sun.com/download
```

Updating IB-QNEM Firmware Using Linux Host

The IB-QNEM switch firmware can be updated in-band from any node in the fabric. The node or blade server must have the following software installed:

- Supported Linux operating system
- OpenFabrics Enterprise Distribution (OFED)
- Mellanox Firmware Tools (MFT)

▼ To Update the IB-QNEM Integrated Switch Firmware

The IB-QNEM switch firmware can be updated in-band from any node in the fabric.

Note – Always use the instructions provided with the downloaded firmware bundle. These instruction are provided as an example.

---

1. **Download the firmware from the Sun Download Ceneter (SDLC).**
2. **Obtain the LIDs from the fabric for the Infiniscale-IV devices.**

```
# ibswitches
Switch  : 0x002128183ea40050 ports 36 "Sun Blade 6048 InfiniBand
QDR Switched NEM I4B" base port 0 lid 4 lmc 0
Switch  : 0x002128183ea40040 ports 36 "Sun Blade 6048 InfiniBand
QDR Switched NEM I4A" base port 0 lid 3 lmc 0
```

Example shows that I4B's LID is 4 and I4A's LID is 3.

3. **Use `flint` tool to update the switch firmware on both switches.**

```
# flint -d lid-3 -i ./QNEM-04-I4A-1.9.BIN b

Current FW version on flash: 7.1.8
New FW version: 7.1.80
Note: The new FW version is not newer than the current FW version
on flash.
Do you want to continue ? (y/n) [n] : y
```

```
Burning first FW image without signatures - OK
Restoring first signature - OK
- Burning primary image         - OK
- Verifying primary image       - OK
#
# flint -d lid-4 -i ./QNEM-04-I4B-1.9.BIN b

Current FW version on flash: 7.1.8
New FW version: 7.1.80
Note: The new FW version is not newer than the current FW version
on flash.
Do you want to continue ? (y/n) [n] : y

Burning first FW image without signatures - OK
Restoring first signature - OK
- Burning primary image         - OK
- Verifying primary image       - OK
#
```

4. Reset the switches.

If the node board is installed in the shelf slots 0-5, reset the I4B switch before resetting the I4A switch. If the node board is installed in the shelf slots 6-11, reset the I4A switch before resetting the I4B switch. Ensure that the reset completes before resetting the other switch. A switch reset could take up to 90 seconds to complete.

```
# flint -d lid-4 swreset
Resetting device lid-4

# flint -d lid-3 swreset
Resetting device lid-3
#
```

▼ To Verify the IB-QNEM Switch Firmware

Check that the `FW Version` and `PSID` are consistent with the downloaded firmware.

- **Use `flint` tool to query the switch firmware on both switches.**

```
# flint -d lid-3 -q
Image type:      FS2
FW Version:      7.1.948
Device ID:       48438
Chip Revision:   A0
Description:     Node             Sys image
```

```
GUIDs:            002128183ea40040 002128183ea40043
Board ID:         n/a (QNEM-04-I4A-1.9)
SD:              n/a
PSID:             QNEM-04-I4A-1.9
#
# flint -d lid-4 -q
Image type:       FS2
FW Version:       7.1.948
Device ID:        48438
Chip Revision:    A0
Description:      Node             Sys image
GUIDs:            002128183ea40050 002128183ea40053
Board ID:         n/a (QNEM-04-I4B-1.9)
SD:              n/a
PSID:             QNEM-04-I4B-1.9
#
```

APPENDIX **A**

InfiniBand QDR Cables

This appenix provides information on the InfiniBand QDR cables.

This appendix includes the following section:

IB-QNEM Cables

TABLE A-1 contains the list of the IB-QNEM cables available at the time of release. Contact your Sun representative for availability of additional cables.

Caution – Ensure that the IB QDR cables are being used. The IB DDR cables are similar and can be mistaken for IB QDR cables. Always check that the keying on the cable connector matches the keying on the IB-QNEM connector before installing a new cable.

TABLE A-1 IB-QNEM Cables

Length and Type	Part #
Sun IB QDR 12x Optical Cable, 10 meters	X2880-10m
Sun IB QDR 12x Optical Cable, 20 meters	X2880-20m
Sun IB QDR 12x Optical Splitter Cable, 20 meters	X2881-20m
Sun IB QDR 12x Copper Jumper Cable, 0.4 meters	X2882-0.4m

APPENDIX **B**

InfiniBand Command Examples

This section provide some commands and typical outputs used to verify an InfiniBand (IB) network and the presence of each component in a Sun Blade 6048 Series Modular System shelf.

This appendix includes the following section:

Configuration Scenario Used for Command Examples

The IB-QNEM is installed in a Sun Blade 6048 Series Modular System shelf. The node or blade server has the following software installed:

- Supported Linux operating system
- OpenFabrics Enterprise Distribution (OFED)
- Mellanox Firmware Tools (MFT)

▼ To Display the Local Host's IB Device Status

- **Use any of the three commands in the example to display the local Host's IB device status.**

```
# ibstat
CA 'mlx4_0'
      CA type: MT26428
      Number of ports: 1
      Firmware version: 2.6.0
```

```
      Hardware version: a0
      Node GUID: 0x50800200008e4d38
      System image GUID: 0x50800200008e4d3b
      Port 1:
              State: Active
              Physical state: LinkUp
              Base lid: 7
              Rate: 40
              LMC: 0
              SM lid: 13
              Capability mask: 0x02510868
              Port GUID: 0x50800200008e4d39
```

```
# ibv_devinfo
hca_id: mlx4_0
      fw_ver:                         2.6.000
      node_guid:                      5080:0200:008e:4d38
      sys_image_guid:                 5080:0200:008e:4d3b
      vendor_id:                      0x02c9
      vendor_part_id:                 26428
      hw_ver:                         0xA0
      board_id:                       X6275_QDR_IB_1.8
      phys_port_cnt:                  1
              port:   1
                      state:                  PORT_ACTIVE (4)
                      max_mtu:                2048 (4)
                      active_mtu:             2048 (4)
                      sm_lid:                 13
                      port_lid:               7
                      port_lmc:               0x00
```

```
# ibstatus
Infiniband device 'mlx4_0' port 1 status:
      default gid:     fe80:0000:0000:0000:5080:0200:008e:4d39
      base lid:        0x7
      sm lid:          0xd
      state:           4: ACTIVE
      phys state:      5: LinkUp
      rate:            40 Gb/sec (4X QDR)
```

▼ To Check the Presence of an IB-QNEM

- **Use the** `ibswitch` **command to verify that an IB-QNEM is installed in the shelf.**

```
# ibswitch
Switch  : 0x002128183ea40050 ports 36 "Sun Blade 6048 InfiniBand
QDR Switched NEM I4B" base port 0 lid 4 lmc 0CA 'mlx4_0'
Switch  : 0x002128183ea40040 ports 36 "Sun Blade 6048 InfiniBand
QDR Switched NEM I4A" base port 0 lid 3 lmc 0 CA type: MT26428
```

▼ To List All IB Hosts in the IB Network

- **Use the** `ibhosts` **command to list all hosts in the IB network.**

```
# ibhosts
Ca      : 0x50800200008e4974 ports 1 "ib-110 HCA-1"
Ca      : 0x50800200008e4970 ports 1 "ib-111 HCA-1"
Ca      : 0x50800200008e4954 ports 1 "ib-121 HCA-1"
Ca      : 0x50800200008e4950 ports 1 "ib-120 HCA-1"
Ca      : 0x50800200008e4ccc ports 1 "ib-107 HCA-1"
Ca      : 0x50800200008e48f4 ports 1 "ib-115 HCA-1"
Ca      : 0x50800200008e48f0 ports 1 "ib-114 HCA-1"
Ca      : 0x50800200008e4934 ports 1 "ib-119 HCA-1"
Ca      : 0x50800200008e4930 ports 1 "ib-118 HCA-1"
Ca      : 0x50800200008e4924 ports 1 "ib-123 HCA-1"
Ca      : 0x50800200008e4920 ports 1 "ib-122 HCA-1"
Ca      : 0x50800200008e4a7c ports 1 "ib-117 HCA-1"
Ca      : 0x50800200008e4a78 ports 1 "ib-116 HCA-1"
Ca      : 0x50800200008e4964 ports 1 "ib-108 HCA-1"
Ca      : 0x50800200008e4960 ports 1 "ib-109 HCA-1"
Ca      : 0x50800200008e5424 ports 1 "ib-101 HCA-1"
Ca      : 0x50800200008e5420 ports 1 "ib-100 HCA-1"
Ca      : 0x50800200008e4914 ports 1 "ib-105 HCA-1"
Ca      : 0x50800200008e4910 ports 1 "ib-104 HCA-1"
Ca      : 0x50800200008e4d3c ports 1 "ib-103 HCA-1"
Ca      : 0x50800200008e48e4 ports 1 "ib-113 HCA-1"
Ca      : 0x50800200008e48e0 ports 1 "ib-112 HCA-1"
Ca      : 0x50800200008e4d38 ports 1 "ib-102 HCA-1
```

▼ To Display the Network Topology for the Shelf

- **Use the** `iblinkinfo` **command to list the network topology for the shelf.**

```
# iblinkinfo.pl -R
Switch 0x002128183ea40040 Sun Blade 6048 InfiniBand QDR Switched NEM I4A:
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    1[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    1[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    2[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    2[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    3[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    3[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    4[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    4[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    5[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    5[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    6[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    6[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    7[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    7[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    8[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    8[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3    9[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4    9[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   10[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   10[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   11[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   11[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   12[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   12[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   13[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   13[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   14[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   14[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   15[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   15[  ] "Sun Blade 6048
(  Could be 5.0 Gbps)    3   16[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
13    1[  ] "ib-122 HCA-1"
(  Could be 5.0 Gbps)    3   17[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
14    1[  ] "ib-123 HCA-1"
(  Could be 5.0 Gbps)    3   18[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
5    1[  ] "ib-118 HCA-1"
(  Could be 5.0 Gbps)    3   19[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
8    1[  ] "ib-119 HCA-1"
(  Could be 5.0 Gbps)    3   20[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
16    1[  ] "ib-114 HCA-1"
(  Could be 5.0 Gbps)    3   21[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
10    1[  ] "ib-115 HCA-1"
```

```
(  Could be 5.0 Gbps)    3   22[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
67    1[  ] "ib-222 HCA-1"
(  Could be 5.0 Gbps)    3   23[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
98    1[  ] "ib-107 HCA-1"
(  Could be 5.0 Gbps)    3   24[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
1     1[  ] "ib-120 HCA-1"
(  Could be 5.0 Gbps)    3   25[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
15    1[  ] "ib-121 HCA-1"
(  Could be 5.0 Gbps)    3   26[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
6     1[  ] "ib-111 HCA-1"
(  Could be 5.0 Gbps)    3   27[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
19    1[  ] "ib-110 HCA-1"
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   28[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   28[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   29[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   29[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   30[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   30[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   31[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   31[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   32[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   32[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   33[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   33[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   34[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   34[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   35[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   35[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4B" (  Could be 5.0 Gbps)    3   36[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       4   36[  ] "Sun Blade 6048
I4B:Switch 0x002128183ea40050 Sun Blade 6048 InfiniBand QDR Switched NEM
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    1[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    1[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    2[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    2[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    3[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    3[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    4[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    4[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    5[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    5[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    6[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    6[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    7[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    7[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    8[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    8[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4    9[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3    9[  ] "Sun Blade 6048
```

```
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   10[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   10[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   11[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   11[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   12[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   12[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   13[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   13[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   14[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   14[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   15[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   15[  ] "Sun Blade 6048
(  Could be 5.0 Gbps)    4   16[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
20    1[  ] "ib-112 HCA-1"
(  Could be 5.0 Gbps)    4   17[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
21    1[  ] "ib-113 HCA-1"
(  Could be 5.0 Gbps)    4   18[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
7    1[  ] "ib-102 HCA-1"
(  Could be 5.0 Gbps)    4   19[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
84    1[  ] "ib-103 HCA-1"
(  Could be 5.0 Gbps)    4   20[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
24    1[  ] "ib-104 HCA-1"
(  Could be 5.0 Gbps)    4   21[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
28    1[  ] "ib-105 HCA-1"
(  Could be 5.0 Gbps)    4   22[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
9    1[  ] "ib-100 HCA-1"
(  Could be 5.0 Gbps)    4   23[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
82    1[  ] "ib-101 HCA-1"
(  Could be 5.0 Gbps)    4   24[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
17    1[  ] "ib-109 HCA-1"
(  Could be 5.0 Gbps)    4   25[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
18    1[  ] "ib-108 HCA-1"
(  Could be 5.0 Gbps)    4   26[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
2    1[  ] "ib-116 HCA-1"
(  Could be 5.0 Gbps)    4   27[  ]  ==( 4X 10.0 Gbps Active /   LinkUp)==>
22    1[  ] "ib-117 HCA-1"
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   28[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   28[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   29[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   29[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   30[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   30[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   31[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   31[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   32[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   32[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   33[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   33[  ] "Sun Blade 6048
```

```
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   34[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   34[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)    4   35[  ]  ==( 4X 10.0
Gbps Active /   LinkUp)==>       3   35[  ] "Sun Blade 6048
InfiniBand QDR Switched NEM I4A" (  Could be 5.0 Gbps)     4   36[  ]  ==( 4X
10.0 Gbps Active /   LinkUp)==>       3   36[  ] "Sun Blade 6048
```

▼ To Query the Local Host's IB Firmware

- **Use the** `mst` **and** `flint` **commands display the host's firmware information.**

```
# mst status
MST modules:
------------
  MST PCI module loaded
  MST PCI configuration module loaded
  MST Calibre (I2C) module is not loaded

MST devices:
------------
/dev/mst/mt26428_pciconf0       - PCI configuration cycles access.
                                  bus:dev.fn=07:00.0 addr.reg=88
data.reg=92
                                  Chip revision is: A0
/dev/mst/mt26428_pci_cr0          - PCI direct access.
                                bus:dev.fn=07:00.0 bar=0xfaf00000
size=0x100000
                                  Chip revision is: A0
/dev/mst/mt26428_pci_msix0        - PCI direct access.
                                bus:dev.fn=07:00.0 bar=0x00000000
size=0x0
/dev/mst/mt26428_pci_uar0         - PCI direct access.
                                bus:dev.fn=07:00.0 bar=0xf3800000
size=0x800000
#
```

```
# flint -d /dev/mst/mt26428_pci_cr0 q
Image type:      ConnectX
FW Version:      2.6.0
Rom Info:        type=GPXE version=1.9.972 devid=26428
Device ID:       26428
Chip Revision:   A0
Description:    Node            Port1           Port2           Sys
image
50800200008e4d3bGUIDs:          50800200008e4d38 50800200008e4d39
50800200008e4d3a
```

```
MACs:                                 00144fca3806     00144fca3807
Board ID:          n/a (X6275_QDR_IB_1.8)
VSD:               n/a
PSID:              X6275_QDR_IB_1.8
```

▼ To Check the Status of the Subnet Manager

- **Use the** `sminfo` **command to display the status of the Subnet Manager.**

```
# swinfo
sminfo: sm lid 13 sm guid 0x50800200008e4921, activity count 194341
priority 0 state 3 SMINFO_MASTER
```

▼ To Verify IPoIB

- **Use the** `ifconfig` **and** `ping` **commands in the example to verify IPoIB.**

```
# ifconfig
ib0        Link encap:InfiniBand  HWaddr
80:00:00:48:FE:80:00:00:00:00:00:00:00:00:00:00:00:00:00:00
      inet addr:100.1.1.102  Bcast:100.1.1.255  Mask:255.255.255.0
        inet6 addr: fe80::5280:200:8e:4d39/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:65520  Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:51 errors:0 dropped:9 overruns:0 carrier:0
        collisions:0 txqueuelen:256
        RX bytes:0 (0.0 b)  TX bytes:8823 (8.6 KiB)

lo        Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:16436  Metric:1
        RX packets:8 errors:0 dropped:0 overruns:0 frame:0
        TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:560 (560.0 b)  TX bytes:560 (560.0 b)

# ping 100.1.1.100
PING 100.1.1.100 (100.1.1.100) 56(84) bytes of data.
64 bytes from 100.1.1.100: icmp_seq=1 ttl=64 time=2.64 ms
64 bytes from 100.1.1.100: icmp_seq=2 ttl=64 time=0.093 ms
64 bytes from 100.1.1.100: icmp_seq=3 ttl=64 time=0.105 ms

--- 100.1.1.100 ping statistics ---
```

```
3 packets transmitted, 3 received, 0% packet loss, time 2000ms
rtt min/avg/max/mdev = 0.093/0.948/2.648/1.202 ms
[root@ib-102 ~]#
```

Index

Q

R

S