

# HP Installation Guide, HP PCIe 2 port (CN1100E) FlexFabric Adapter

## Abstract

This document provides information about installing, configuring, and troubleshooting the HP Integrity Emulex Converged Network Adapter (CNA). In this document, CNA refers to HP model CN1100E.

HP Part Number: AT111-90002  
Published: February 2012  
Edition: 2



© Copyright 2010, 2011, 2012 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

#### Acknowledgments

Intel, Pentium, Itanium, Intel Inside, and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. UNIX is a registered trademark of The Open Group. Microsoft and Windows are U.S. registered trademarks of Microsoft Corporation.

#### Warranty

To get a copy of the warranty for this product see the warranty information website:

<http://bizsupport2.austin.hp.com/bc/docs/support/SupportManual/c01865770/c01865770.pdf>

#### Revision history

| Document manufacturing part number | Operating systems supported | Supported product versions                  | Edition number | Publication Date |
|------------------------------------|-----------------------------|---|----------------|------------------|
| AT111-90001                        | HP-UX                       | HP PCIe 2 port (CN1100E) FlexFabric Adapter | First          | November 2011    |
| AT111-90002                        | HP-UX                       | HP PCIe 2 port (CN1100E) FlexFabric Adapter | Second         | February 2012    |

---

# Contents

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>Introduction</b>                                     | <b>5</b>  |
|          | Overview  | 5         |
|          | CNA LED states  | 5         |
| <b>2</b> | <b>Installing the adapter</b>                           | <b>6</b>  |
|          | Installation prerequisites                              | 6         |
|          | Recording reference numbers                             | 6         |
|          | Installing the Emulex CNA                               | 7         |
| <b>3</b> | <b>Installing the HP-UX operating system components</b> | <b>11</b> |
|          | HP-UX operating system                                  | 11        |
|          | Prerequisites   | 11        |
|          | Important Ethernet patches and updates                  | 12        |
|          | Fibre Channel Release Notes                             | 12        |
|          | Update the adapter firmware                             | 12        |
|          | Installing driver software                              | 12        |
|          | Installing OnlineDiag                                   | 14        |
|          | Verify the Ethernet adapter installation                | 14        |
|          | Verify Ethernet connectivity                            | 14        |
|          | Verify the Fibre Channel Adapter Installation           | 14        |
|          | Verify Fibre Channel Connectivity                       | 15        |
|          | Interpreting hardware paths                             | 15        |
|          | Alternate website for downloading files                 | 16        |
| <b>4</b> | <b>Specifications</b>                                   | <b>17</b> |
|          | Environmental specifications                            | 17        |
|          | Physical specifications                                 | 17        |
|          | Emulex CNA media specifications                         | 18        |
| <b>5</b> | <b>Regulatory compliance notices</b>                    | <b>19</b> |
|          | Declaration of Similarity (DOS) for product families    | 19        |
|          | Laser device  | 20        |
|          | Laser safety warning                                    | 20        |
|          | Certification and classification information            | 20        |
|          | Laser product label                                     | 20        |
|          | Notice for North America (FCC & IC)                     | 20        |
|          | FCC Compliance Information Statement                    | 20        |
|          | International notices and statements                    | 21        |
|          | Canadian notice (avis Canadien)                         | 21        |
|          | Class A equipment                                       | 21        |
|          | European Union Regulatory Notice                        | 21        |
|          | Japanese notice   | 22        |
|          | Korean notice   | 22        |
| <b>6</b> | <b>Electrostatic discharge</b>                          | <b>23</b> |
|          | Electrostatic discharge                                 | 23        |
|          | Grounding methods                                       | 23        |
| <b>7</b> | <b>HP contact information</b>                           | <b>24</b> |
|          | Contacting HP   | 24        |
|          | Before you contact HP                                   | 24        |
|          | HP contact information                                  | 24        |
|          | Subscription service                                    | 24        |
|          | Documentation feedback                                  | 24        |

|   |    |
|---|----|
| HP Insight Remote Support Software..... | 25 |
| Acronyms and abbreviations.....         | 26 |
| Index.....                              | 27 |

# 1 Introduction

## Overview

The HP PCIe 2 port (CN1100E) FlexFabric Adapter is a dual port 10GbE adapter for HP Integrity systems. The HP Product number is AT111A. The CN1100E provides Ethernet and Fibre Channel (FC) connectivity over 10GbE using both Fibre Channel over Ethernet (FCoE) and Converged Enhanced Ethernet (CEE) standards. For more information about the HP PCIe 2 port (CN1100E) FlexFabric Adapter, see the following HP website: [http://h18000.www1.hp.com/products/quickspecs/13554\\_na/13554\\_na.pdf](http://h18000.www1.hp.com/products/quickspecs/13554_na/13554_na.pdf)

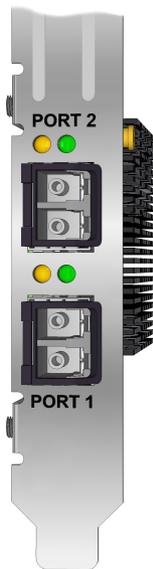
**NOTE:** Not all operating systems support all protocols.

## CNA LED states

You can observe green and amber LEDs through openings in the CNA mounting bracket. See Figure 1 (page 5). Table 1 (page 5) describes the CNA LED link states.

**NOTE:** When power is applied to the CNA, both LEDs on both ports light for approximately 10 seconds.

**Figure 1 CNA LED indicators**



**Table 1 CNA LED descriptions**

| LED                   | Meaning                               |
|-----------------------|---------------------------------------|
| Link activity (Green) | Flash = activity<br>Off = no activity |
| Link state (Amber)    | On = link up<br>Off = link down       |

## 2 Installing the adapter

This chapter describes the following topics for installing the CNA:

- “Installation prerequisites” (page 6)
- “Installing the Emulex CNA” (page 7)

See the server documentation for additional information about installing the CNA.

---

**⚠ WARNING!** Disconnect the host from the power source before installing the CNA. To reduce the risk of personal injury from hot surfaces, allow the internal server or workstation components to cool before touching.

---

**⚠ CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Be sure you are properly grounded before beginning this procedure, as described in “Electrostatic discharge” (page 23).

---

### Installation prerequisites

Before you begin, make sure you have the following items available:

- An optical multimode cable with an LC-style duplex connector and approved SFP+ module or copper cable
- A server with an empty PCIe bus slot with an x8 or x16 connector

### Recording reference numbers

Each CNA is shipped with the following two numbers clearly marked on the board:

- IEEE address (Port 1 MAC address)
- Serial number

The MAC address is a unique 48-bit identifier used when configuring the system. The Fibre Channel industry uses the World Wide Name (WWN) derived from the MAC address for Fibre Channel connectivity. The adapter has two ports. Therefore, it has two MAC addresses and two WWNs, one for each port. Use the serial number when communicating with HP.

**NOTE:** The factory default MAC addresses are permanent identifiers that cannot be changed. The MAC address for Port 1 is listed on the CNA. The MAC address for Port 2 and the WWNs are calculated based on the Port 1 address as follows:

---

| MAC address/WWN    | Calculation   | Example                 |
|--------------------|---|-------------------------|
| Port 1 MAC address | Assigned at the factory and printed on the CNA IEEE address label | F4-CE-46-FD-9C-68       |
| Port 1 WWN         | 10:00:[Port 1 MAC address]  | 10:00:F4:CE:46-FD-9C-68 |
| Port 2 MAC address | Port 1 MAC address + 4  | F4-CE-46-FD-9C-6C       |
| Port 2 WWN         | 10:00:[Port 1 MAC address + 4]                                    | 10:00:F4:CE:46-FD-9C-6C |

Record the serial number and MAC addresses and WWNs for your CNA before installation.

Serial number (on CNA): \_\_\_\_\_

Port 1 MAC address: \_\_\_\_\_

Port 1 WWN: \_\_\_\_\_

Port 2 MAC address: \_\_\_\_\_

## Installing the Emulex CNA

The CNA uses removable optical transceivers or copper interface cables.

**⚠ CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Be sure you are properly grounded before beginning this procedure, as described in [“Electrostatic discharge” \(page 23\)](#).

**ⓘ IMPORTANT:** The CNA is only supported in PCI Express 8 lane and larger PCIe slots. This may require optional PCIe riser cards or cages. For instructions on installing the riser card or cage, see the server documentation.

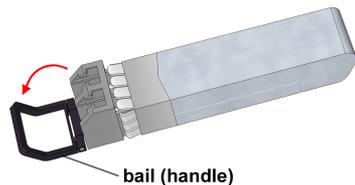
To install the CNA into a server:

1. Be sure the server is powered off.
2. Remove the access panel.
3. Wearing an anti-static wrist strap, remove the blank panel from an empty x8 or larger PCIe bus slot.

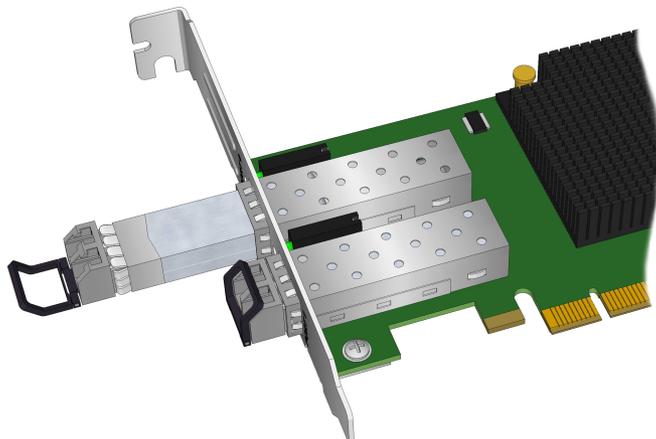
**NOTE:** The CNA comes with a standard PCIe bracket installed. A low-profile bracket is included in the box with the CNA. The low-profile mounting bracket is shorter than the standard bracket: approximately 7.90 cm (3.11 inches) compared to 12.06 cm (4.75 inches) long.

4. If you require a different mounting bracket, change the bracket as follows. Otherwise, go to [Step 5](#).
  - a. Remove any transceivers or cables from the CNA transceiver cage assembly by pulling the bail (handle) out and down to release the latch, and then gently pull the transceiver out. Do not force it. After the latch is released, the transceiver/cable slides out easily.

**Figure 2 A typical optical transceiver**



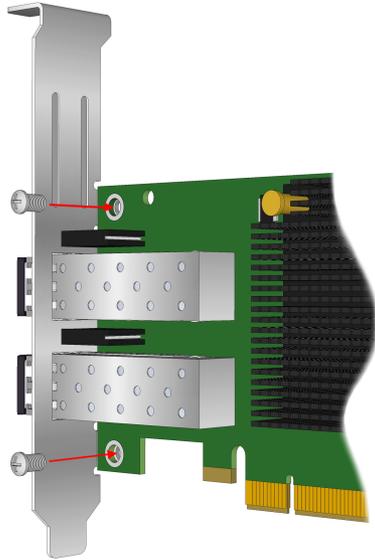
**Figure 3 Removing a transceiver**



- b. Observing ESD precautions, store the transceiver in an ESD-safe place.

- c. Remove the mounting bracket screws from the top of the CNA.

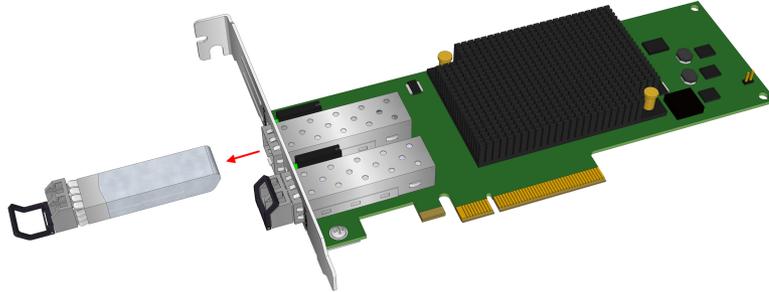
#### Figure 4 Removing the bracket



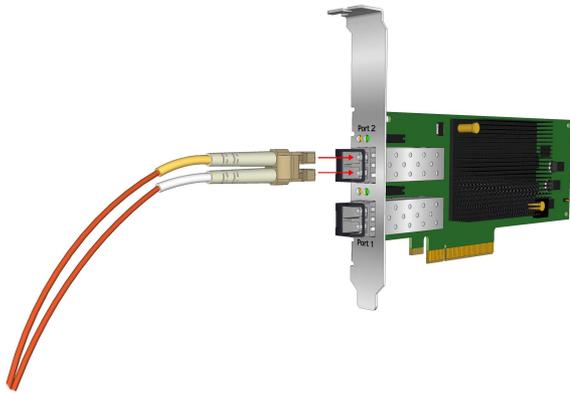
- d. Remove the bracket and store it for future use.
  - e. Align the new mounting bracket tabs with the holes in the CNA.
- 
- ⓘ **IMPORTANT:** Be careful not to push the bracket past the grounding tabs on the transceiver housing. Make sure the LEDs are properly aligned with the holes in the bracket.
- 
- f. Install the screws that attach the CNA to the bracket.
  - g. Slide the transceiver into the housing. When the latch engages, it clicks.
  - h. Push the bail back into place.
5. Insert the CNA into the empty PCIe slot. Press firmly until the CNA is seated.
  6. Secure the CNA mounting bracket to the case with the panel clip.
  7. Replace the server case, and then tighten the screws on the case.
- The CNA is now installed in the server and ready for media attachment.

8. Attach the media:
  - a. For fiber optic cable connections:
    1. Insert the SFP transceiver module into the cage.
    2. Connect one end of the fiber optic cable to the LC connector on the CNA.
    3. Connect the other end of the cable to the Converged Network switch.

**Figure 5 Emulex CNA with optical transceivers**

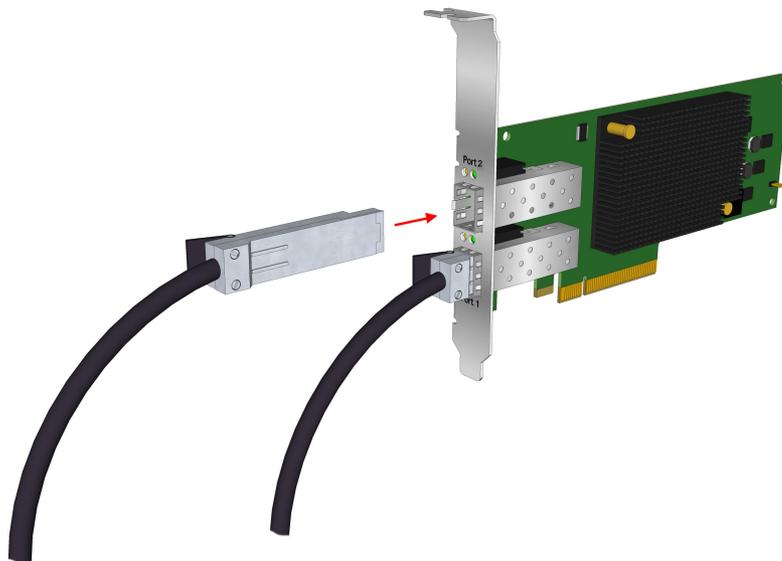


**Figure 6 Connecting fiber optic cable**



- b. For Direct Attach cable connections:
  1. Connect one end of the Direct Attach cable to the CNA.
  2. Connect the other end of the cable to the Converged Network switch.

**Figure 7 Connecting the direct attach copper cable**



9. Apply the power:
  - a. Verify that the CNA is installed securely in the server.
  - b. Verify that the correct media is attached.
  - c. Plug in and power on the server.
  - d. Observe the Link and Activity LEDs to be sure the CNA connects to the switch.

---

# 3 Installing the HP-UX operating system components

## HP-UX operating system

The HP PCIe 2 port (CN1100E) FlexFabric Adapter is supported through the HP-UX 11i v3 operating system.

## Prerequisites

Before installing the adapter, follow these steps:

1. Verify compliance with supported configurations using the *HP-UX Ethernet Card Support Matrix* and the *HP-UX Fibre Channel (fcd, fclp) and FlexFabric FCoE (fcoc) Host Bus Adapter Support Matrix* at the following website:

<http://www.hp.com/go/hpux-iocards-docs>

2. Ensure that your system meets the following minimum software and firmware requirements:
  - HP-UX 11i v3 Fusion 1109 or later
  - HP Integrity rx2800 i2 — Recipe S26.21
  - HP Superdome2 — Minimum Firmware Bundle Required 2.51.102

- ① **IMPORTANT:** This document contains minimum firmware requirements; HP strongly advises that you check for the latest versions of firmware that are available for your systems.

1. Go to <http://www.hp.com>.
2. Locate and click the Support & Drivers link on the main page.
3. Click the button next to Download drivers and software (and firmware).
4. Enter your product name (for example, Superdome 2) or number and click >>.
5. After selecting the correct product, choose the OS or Cross operating system (BIOS, Firmware, Diagnostics, etc.)
6. Refer to the Release Notes or Installation Instructions to verify the firmware version.

---

Confirm that the server model and operating system are supported with the HP PCIe 2 port (CN1100E) FlexFabric Adapter. Also, determine the required versions for the system firmware, adapter firmware, and UEFI driver.

For more information, see the *HP-UX Ethernet Card Support Matrix* at:

[www.hp.com/go/10-gigabit-ethernet-docs](http://www.hp.com/go/10-gigabit-ethernet-docs)

and the *HP-UX Fibre Channel (fcd, fclp) and FlexFabric FCoE (fcoc) Host Bus Adapter Support Matrix* at: [www.hp.com/go/fibre-channel-HBA-docs](http://www.hp.com/go/fibre-channel-HBA-docs)

Support Matrix documents are listed alphabetically in the “General reference” sections.

3. Check the following conditions:

- Verify that the `/usr/bin`, `/usr/sbin`, and `/sbin` directories are in the `PATH` by entering the following command:  

```
echo $PATH
```
- Verify you have the Ethernet driver software (included with the OS or application CD or downloaded).
- Verify you have the Fibre Channel driver software media (included with the OS or application CD or DVD)
- Fiber optic cable terminated with a duplex LC connector or copper cable.
- Cable map (optional)

## Important Ethernet patches and updates

Review the *10GigEthr-03 (iocxgbe) Ethernet Driver for HP-UX Release Notes* located at:

<http://www.hp.com/go/hpux-11iv3-iocards-manuals> . Search for the latest patch and dependency requirements.

Install all driver software and dependency patches before you install the adapter.

---

**NOTE:** Patches are available from the Software Depot website:

<https://h20392.www2.hp.com/portal/swdepot/index.do>

---

## Fibre Channel Release Notes

Review the latest version of *FibrChanl-03 (fcoc) Fibre Channel Mass Storage Driver for HP-UX 11i v3 Release Notes* located at <http://www.hp.com/go/hpux-11iv3-iocards-manuals>. Address all compatibility and installation requirements before installing the adapter.

## Update the adapter firmware

---

- △ CAUTION:** Updating the adapter firmware is **REQUIRED**. Ensure that you follow the instructions detailed in the *README.TXT* file included with the update package. If you do not update the adapter firmware, hardware failure will result.
- 

To obtain and install the latest firmware for the adapter, follow these steps:

1. See the following website: [www.hp.com/go/hpux-iocards-docs](http://www.hp.com/go/hpux-iocards-docs), and select **HP-UX 11i v3 I/O Cards**
2. Using the HP adapter model # as your guide, select your NIC.
3. In the support section, select the **Software & Drivers** link.
4. Select **Cross operating system (BIOS, Firmware, Diagnostics, etc.)**.
5. Select **EFI and FWs for use on Integrity**.
6. Review the installation instructions and release notes on the download page.
7. Download the firmware.
8. Follow the procedures supplied with the update package to install the firmware update.

## Installing driver software

Use the following instructions if the driver is provided on a CD-ROM. If the driver software is downloaded, follow the instructions provided with that file.

## Ethernet

Install all driver software and dependency patches before you install the adapter. See the *10GigEthr-03 (iocxgbe) Ethernet Driver for HP-UX Release Notes* for further details, available at:

<http://www.hp.com/go/hpux-11iv3-iocards-manuals>

## Ethernet

The following table lists the Ethernet adapter software bundles:

**Table 2 Ethernet Adapter Bundle and Product Names**

| Adapter | OS version  | Software bundle | Software name | Driver  |
|---------|-------------|-----------------|---------------|---------|
| AT111A  | 11i v3 only | 10GigEthr-03    | IOCXGBE-DRV   | iocxgbe |

## Fibre Channel

The following table lists the Fibre Channel adapter software bundles:

**Table 3 Fibre Channel Adapter Bundle and Product Names**

| Adapter | OS version  | Software bundle | Software name | Driver |
|---------|-------------|-----------------|---------------|--------|
| AT111A  | 11i v3 only | FibrChanl-03    | FC-FCOC       | fcoc   |

Use the following procedure to load the drivers from a CD-ROM:

1. Log in to the system as `root`.
2. Insert the CD into the CD drive.
3. Mount the CD using the following command:  

```
mount /dev/dsk/<cd_rom_dev_file> /<tmp_mnt>
```
4. Run `swinstall` to install the software. Enter the following command:  

```
/usr/sbin/swinstall
```

The **Software Selection** window and the **Specify Source** window open.
5. In the **Specify Source** window, change the **Source Host Name** if necessary. Enter the mount point of the drive in the **Source Depot Path** field and click **OK** to return to the **Software Selection Window**.  
Click **Help** to get more information.
6. Select the appropriate software bundles for your adapter.
7. Select **Mark for Install** from the **Actions** menu.
8. Select **Install** from the **Actions** menu. Installation begins and the **Install Analysis** window opens.
9. Click **OK** in the **Install Analysis** window to confirm that you want to install the software. The **Install** window opens.  
View the **Install** window to read processing data while the software installs. When the **Status** field indicates **Ready**, the **Confirmation** window opens
10. Click **OK**. A second **Confirmation** window opens.
11. Click **OK** again. The **Install** window opens.
12. Click **Done**. The **Note** window opens.
13. Click **OK** in the **Note** window to reboot. The user interface disappears and the system reboots.
14. Once the system returns to a login, log in as `root` and open the following files to see any error or warning messages that may have occurred during the installation:

```
/var/adm/sw/swagent.log
```

```
/var/adm/sw/swinstall.log
```

## Installing OnlineDiag

Failure to properly complete the steps in this procedure may result in erratic system behavior or system failure and may void the warranty. For assistance with this procedure, contact your local HP Authorized Service Provider.

Install OnlineDiag, which is available at the Software Depot website:

<https://h20392.www2.hp.com/portal/swdepot/index.do>

OnlineDiag is also available from the IPF CD for Itanium®-based systems.

## Verify the Ethernet adapter installation

1. To verify that the system recognizes the NIC, view the output listing from the following command:

```
# ioscan -kfnC lan
```

2. Verify the following drivers appear for each installed adapter. If all the drivers are listed, proceed to “Verify Ethernet connectivity” (page 14).

An output similar to the following will be displayed:

```
ioscan -kfnC lan
Class  I  H/W Path          Driver  S/W State  H/W Type  Description
-----
lan    6  40/0/0/2/0/0/0  iocxgbe CLAIMED   INTERFACE HP AT111-60001 10Gb PCIe 2-port FlexFabric
(NIC) Adapter
lan    7  40/0/0/2/0/0/1  iocxgbe CLAIMED   INTERFACE HP AT111-60001 10Gb PCIe 2-port FlexFabric
(NIC) Adapter
```

The third pathing column represents the hardware path of the slot in which the adapter is installed. This path will be different for each installed adapter port.

3. Observe whether the `ioscan` output reports the following:

```
lan 0/3/0/0/0/0 UNCLAIMED UNKNOWN
```

If reported, HP-UX detected the adapter but the `iocxgbe` driver is not recognized.

4. If the correct driver is installed and the adapter is not listed in the `ioscan` output, contact HP for assistance.

## Verify Ethernet connectivity

Once the HP Ethernet software and hardware are installed and running, use the following steps to verify connectivity:

1. Check the state of all Ethernet hardware and interfaces. Enter the `ioscan` command and verify that the `S/W State` is `CLAIMED`.

If the Ethernet device file has not been created, enter the following commands:

```
# insf -e
# ioscan -f
```

2. Verify link-level connectivity with a remote system on the network you have attached to the Ethernet adapter by using the `nwmgr` command in the following format.

```
nwmgr --diag -A dest=destination_MAC_address -c lanppa
```

---

**NOTE:** When you use `nwmgr --diag` to check connectivity, ensure that the remote system is on the same subnet and is an HP-UX-based system.

---

## Verify the Fibre Channel Adapter Installation

To verify that your Fibre Channel Adapter has been correctly installed, follow these steps:

1. Enter the following command:

```
ioscan -kfnC fc
```

2. Verify that the correct drivers appear for each installed adapter. If all drivers display, proceed to the next section,

```
ioscan -kfnC fc
Class      I  H/W Path          Driver  S/W State  H/W Type  Description
=====
fc         0  40/0/0/2/0/0/2  fcoc    CLAIMED    INTERFACE  HP AT111-60001 10Gb PCIe 2-port FlexFabric
(FCoE) Adapter
fc         1  40/0/0/2/0/0/3  fcoc    CLAIMED    INTERFACE  HP AT111-60001 10Gb PCIe 2-port FlexFabric
(FCoE) Adapter
```

**NOTE:** The third column represents the hardware path of the slot in which the adapter is installed. The hardware path is different for each installed adapter.

If an installed Fibre Channel adapter requires the `fcoc` driver and the appropriate driver does not appear as shown above, the driver is not installed.

If the `ioscan` output is similar to the following:

```
fc 0/0/2/1/0 UNCLAIMED UNKNOWN
```

HP-UX detected the adapter, but the drivers are not properly loaded.

If the correct driver is installed, but the adapter does not show in the `ioscan` output, the driver is not recognizing the adapter.

3. If the `ioscan` output indicates a problem, contact HP for assistance.

## Verify Fibre Channel Connectivity

Once your HP Fibre Channel Mass Storage software and hardware are installed and running, follow these steps to verify connectivity:

1. Check the state of all Fibre Channel hardware and interfaces. Enter the `ioscan` command from above and verify that the `S/W State` is `CLAIMED`.

If the Fibre Channel device file has not been created, enter the following commands:

```
# insf -e
```

```
# ioscan -kfnC fc
```

2. Verify that all devices you attached to the Fibre Channel adapter are listed in the `ioscan` output. For example, the `ioscan` output may look like the following:

```
disk      1203    64000/0xfa00/0x178          esdisk    CLAIMED    DEVICE
          DEVICE MSA2324fc VOLUME
          /dev/disk/disk1203 /dev/rdisk/disk1203
```

If all attached devices are not listed, or appear as `UNCLAIMED`, contact HP for assistance.

## Interpreting hardware paths

The following example illustrates the Fibre Channel hardware path format:

0/0/0/9/0/0/2

└── Port  
Number

0/0/0/9/0/0/2.0x500508b30091e9c1.0x400100000000

└── Target WWN

└── LUN ID

## Alternate website for downloading files

1. See the following HP website:  
<http://www.hp.com/#Support>
2. You can click open the **Support & Drivers** link or enter your adapter product number in the **SEARCH HP.COM** field, then click **go**. For example, type CN1100E.
3. At the next web page, either locate the **Software & driver downloads** link to continue search or view the returned listing for your selected product.
4. Download the drivers, firmware, or documentation as needed.

# 4 Specifications

This chapter contains the following CNA specifications:

- “Environmental specifications” (page 17)
- “Physical specifications” (page 17)
- “Emulex CNA media specifications” (page 18)

## Environmental specifications

Table 4 (page 17) lists the CNA environmental specifications.

**Table 4 Environmental specifications**

| Environment                        | Minimum              | Maximum      |
|------------------------------------|----------------------|--------------|
| Operating temperature              | 0°C (32°F)           | 55°C (131°F) |
| Storage temperature                | -40°C (-40°F)        | 70°C (158°F) |
| Relative humidity (non-condensing) | 5%                   | 85%          |
| Airflow                            | 150 lf/min (minimum) | N/A          |

## Physical specifications

Table 5 (page 17) lists the physical specifications.

**Table 5 Physical specifications**

| Parameter              | Range   |
|------------------------|---|
| PCIe slot requirements | Minimum eight-lane PCI Express slot   |
| Form factor            | Low profile. Card is available with standard height and low profile brackets.   |
| Dimensions             | With standard height bracket: 10.7 cm x 16.7 cm x 6.8 cm (4.2 in x 6.6 in x 2.7 in)<br>With low profile bracket: 6.9 cm x 16.7 cm x 6.8 cm (2.7 in x 6.6 in x 2.7 in) |

**Table 5 Physical specifications (continued)**

| Parameter          | Range  |
|--------------------|--|
| Power requirements | 14.5 Watts typical   |
| Agency approvals   | <ul style="list-style-type: none"> <li>• Class 1 Laser Product per DHHS 21CFR (J) &amp; EN60825-1</li> <li>• UL recognized to UL60950-1 2nd Edition</li> <li>• CUR recognized to CSA 22.2, No. 60950-1-07</li> <li>• TUV certified by to EN60950-1</li> <li>• FCC Rules, Part 15, Class A</li> <li>• Industry Canada, ICES-003, Class A</li> <li>• EMC Directives 2004/108/EEC (CE Mark)<br/>EN55022, Class A<br/>EN55024</li> <li>• Australian EMC Framework (C-Tick Mark)<br/>AS/NZS CISPR22:2006 Class A</li> <li>• Japan VCCI, Class A</li> <li>• Taiwan BSMI, Class A</li> <li>• Korea KCC, Class A</li> <li>• RoHS Compliant (Directive 2002/95/EC)</li> <li>• China RoHS compliant</li> </ul> |

## Emulex CNA media specifications

The CNA does not ship with cable media. Select either the fiber optic or copper cabling option, and purchase the parts separately (see [Table 6 \(page 18\)](#)).

**Table 6 Fiber optic and copper cabling parts**

| Media type  | Supported media   |
|---|---|
| Supported SFP+ optical media  | <ul style="list-style-type: none"> <li>• HP Blc 10Gb SR SFP+ (part number 455883-B21)</li> </ul>  |
| Supported copper media for connection to B-series switches            | <ul style="list-style-type: none"> <li>• HP 1m B-series Active Copper SFP+ Cable (part number AP818A)</li> <li>• HP 3m B-series Active Copper SFP+ Cable (part number AP819A)</li> <li>• HP 5m B-series Active Copper SFP+ Cable (part number AP820A)</li> </ul>  |
| Supported copper media for connection to C-series switches            | <ul style="list-style-type: none"> <li>• HP 3m C-series Passive Copper SFP+ Cable (part number AP784A)</li> <li>• HP 5m C-series Passive Copper SFP+ Cable (part number AP785A)</li> <li>• HP 7m C-series Active Copper SFP+ Cable (part number QK701A)</li> <li>• HP 10m C-series Active Copper SFP+ Cable (part number QK702A)</li> </ul> |
| Supported copper media for connection to HP A5820X-14XG-SFP+ switches | <ul style="list-style-type: none"> <li>• HP X240 SFP+ SFP+ 0.65 m Direct Attach Cable (part number JD095B)</li> <li>• HP X240 SFP+ SFP+ 1.2 m Direct Attach Cable (part number JD096B)</li> <li>• HP X240 SFP+ SFP+ 3 m Direct Attach Cable (part number JD097B)</li> </ul>   |

**CAUTION:** Take care not to plug optical cables into cages without transceivers in them.

**NOTE:** A CNA does not allow data transmission on either 10 Gb optical or copper link unless it is connected to a compatible optical or copper interface connection (that is, multimode to multimode). See the appropriate CN switch QuickSpec for the appropriate media supported by your switch.

# 5 Regulatory compliance notices

## Declaration of Similarity (DOS) for product families



Hewlett-Packard Company  
3000 Hanover Street  
Palo Alto, CA 94304 USA  
www.hp.com

To: Certification Body July 22, 2011

From: Hewlett-Packard Company  
11445 Compaq Center Drive West  
Houston, TX 77070  
USA

### Declaration of Similarity (DoS) for Product Families

We, the undersigned manufacturer, confirm hereby that the following appliances are identical in all electrical safety and electromagnetic aspects from the regulatory point of view.

| REGULATORY MODEL NO. | DESCRIPTION                                 | HP P/N                   |
|----------------------|---|--------------------------|
| HSTNS-BN62           | NC552SFP 10Gb 2 Port Flex-10 Server Adapter | 614201-001<br>614203-B21 |
|                      | HP BLc NC552m Flex-10GbE Dual Port Adptr    | 610609-B21               |
|                      | HP Integrity CN1100E PCIe 2-port CNA        | AT111A                   |
|                      | HP Integrity NC552SFP 2P 10GbE Adapter      | AT118A                   |

Steve Ortmann  
Manager, Houston Product Compliance Center

## Laser device

All HP systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light.

## Laser safety warning

- 
- ⚠ WARNING!** To reduce the risk of exposure to hazardous radiation:
- Do not try to open the laser device enclosure. There are no user-serviceable components inside.
  - Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified in this document.
  - Allow only HP-authorized service technicians to repair the laser device.
- 

## Certification and classification information

This product contains a laser internal to the fiber optic (FO) transceiver for connection to the Fibre Channel communications port.

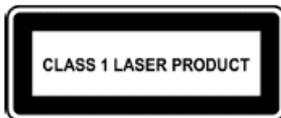
In the USA, the FO transceiver is certified as a Class 1 laser product conforming to the requirements contained in 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

Outside the USA, the FO transceiver is certified as a Class 1 laser product conforming to the requirements contained in IEC 825-1:1993 and EN 60825-1:1994, including Amendment 11:1996 and Amendment 2:2001.

## Laser product label

The optional label in [Figure 8 \(page 20\)](#) or equivalent may be located on the surface of the HP-supplied laser device.

**Figure 8 Class 1 laser product label**



This optional label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label may appear on the laser device installed in your product.

## Notice for North America (FCC & IC)

### FCC Compliance Information Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

---

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Shielded cables must be used between this equipment and attached peripheral devices. The reader is cautioned that changes or modifications made to the equipment not expressly approved by Emulex could void the user's authority to operate this equipment. The above statement applies to products marketed in the USA.

---

## International notices and statements

### Canadian notice (avis Canadien)

#### Class A equipment

This class A digital apparatus meets all requirements of the Industry Canada (IC) Interference - Causing Equipment Standard (ICES- 003).

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. This statement applies to products marketed in Canada.

### European Union Regulatory Notice

#### European Union Regulatory Notice

Products bearing the CE marking comply with the following EU Directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- Ecodesign Directive 2009/125/EC, where applicable

CE compliance of this product is valid if powered with the correct CE-marked AC adapter provided by HP.

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by HP for this product or product family and available (in English only) either within the product documentation or at the following web site: [www.hp.eu/certificates](http://www.hp.eu/certificates) (type the product number in the search field).

The compliance is indicated by one of the following conformity markings placed on the product:



For non-telecommunications products and for EU harmonized telecommunications products, such as Bluetooth® within power class below 10mW.



For EU non-harmonized telecommunications products (If applicable, a 4-digit notified body number is inserted between CE and !).

Please refer to the regulatory label provided on the product.

The point of contact for regulatory matters is:

Hewlett-Packard GmbH, Dept./MS: HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, GERMANY.

## Japanese notice

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者は適切な対策を講ずるよう要求されることがあります。

VCCI-A

## Korean notice

|                       |   |
|-----------------------|---|
| A급 기기<br>(업무용 방송통신기기) | 이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다. |
|-----------------------|---|

---

# 6 Electrostatic discharge

## Electrostatic discharge

To prevent damage to the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly (see “Grounding methods” (page 23)).

## Grounding methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ( $\pm 10$  percent) resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an HP-authorized reseller install the part.

---

**NOTE:** For more information on static electricity, or assistance with product installation, contact your HP-authorized reseller.

---

---

# 7 HP contact information

## Contacting HP

### Before you contact HP

Be sure to have the following information available before you call contact HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error message
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

### HP contact information

For the name of the nearest HP authorized reseller:

- In the United States, see the HP US service locator webpage (<http://welcome.hp.com/country/us/en/wwcontact.html>.)
- In other locations, see the Contact HP worldwide (in English) webpage: <http://welcome.hp.com/country/us/en/wwcontact.html>.

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage: ([http://welcome.hp.com/country/us/en/contact\\_us.html](http://welcome.hp.com/country/us/en/contact_us.html))

To contact HP by phone:

- Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website: (<http://www.hp.com/hps>).
- In other locations, see the Contact HP worldwide (in English) webpage (<http://welcome.hp.com/country/us/en/wwcontact.html>)

### Subscription service

HP recommends that you register your product at the Subscriber's Choice for Business website:

[http://www.hp.com/country/us/en/contact\\_us.html](http://www.hp.com/country/us/en/contact_us.html).

### Documentation feedback

HP welcomes your feedback. To make comments and suggestions about product documentation, send a message to [docsfeedback@hp.com](mailto:docsfeedback@hp.com).

Include the document title and manufacturing part number. All submissions become the property of HP

## HP Insight Remote Support Software

HP strongly recommends that you install HP Insight Remote Support software to complete the installation or upgrade of your product and to enable improved delivery of your HP Warranty, HP Care Pack Service or HP contractual support agreement. HP Insight Remote Support supplements your monitoring, 24x7 to ensure maximum system availability by providing intelligent event diagnosis, and automatic, secure submission of hardware event notifications to HP, which will initiate a fast and accurate resolution, based on your product's service level. Notifications may be sent to your authorized HP Channel Partner for on-site service, if configured and available in your country. The software is available in two variants:

- **HP Insight Remote Support Standard:** This software supports server and storage devices and is optimized for environments with 1-50 servers. Ideal for customers who can benefit from proactive notification, but do not need proactive service delivery and integration with a management platform.
- **HP Insight Remote Support Advanced:** This software provides comprehensive remote monitoring and proactive service support for nearly all HP servers, storage, network, and SAN environments, plus selected non-HP servers that have a support obligation with HP. It is integrated with HP Systems Insight Manager. A dedicated server is recommended to host both HP Systems Insight Manager and HP Insight Remote Support Advanced.

Details for both versions are available at:

<http://www.hp.com/go/insightremotesupport>

To download the software, go to Software Depot:

<http://www.software.hp.com>

Select **Insight Remote Support** from the menu on the right.

---

# Acronyms and abbreviations

This glossary defines acronyms and terms used in this guide and is not a comprehensive glossary of computer terms.

## C

- CN** Converged Network.  
**CNA** Converged Network Adapter.

## E

- ESD** Electrostatic discharge.

## F

- FC** Fibre Channel. A comprehensive set of standards for concurrent communication among servers, storage systems, and peripheral devices.  
**FCoE** Fibre Channel over Ethernet protocol.  
**Fibre Channel** A serial data transport infrastructure and protocol used to implement SANs. See also <http://www.fibrechannel.org/> and <http://www.t11.org/>.

## L

- LC** Lucent connector. An industry-standard connector for fiber optic cable connections.

## S

- SFP** Small form-factor pluggable transceiver.

## W

- WWN** World Wide Name. A unique identifier assigned to a Fibre Channel device.

---

# Index

## C

- calculations
  - MAC address and WWN, 6
- certification and classification information, laser, 20
- Class A equipment, Canadian compliance statement, 21
- CNA
  - installing, 6, 7
  - LED states, 5
  - media specifications, 18
  - specifications, 17
- contacting HP, 24
- copper cable option, 18
- copper cables, 18

## D

- downloading files, 16

## E

- electrostatic discharge, 6, 7, 23
- environmental
  - specifications, 17

## F

- FCC compliance, 20
- fiber optic cable option, 18
- fiber optic cables, 18

## G

- grounding methods, 23

## H

- help
  - obtaining, 24
- HP
  - technical support, 24

## I

- installation
  - prerequisites, 6
- installing
  - CNA, 6, 7
- international notices, 21

## J

- Japan, regulatory compliance notice, 22

## K

- Korean, regulatory compliance notice, 22

## L

- label, laser, 20
- laser
  - international certification and classification information, 20
  - product label, 20
  - radiation, warning, 20
  - laser device, 20

## M

- MAC address
  - calculations, 6
- MAC addresses
  - recording, 6

## P

- physical
  - specifications, 17
- prerequisites
  - installation, 6

## R

- reference numbers
  - MAC address, 6
  - recording, 6
- regulatory compliance, 20
  - notices
    - Japan, 22
    - Korean, 22

## S

- safety, 20
- specifications
  - CNA, 17
  - CNA media, 18
  - environmental, 17
  - physical, 17

## T

- technical support
  - HP, 24

## W

- warnings, lasers, radiation, 20
- WWN
  - calculations, 6
  - recording, 6