

## Locating Installed PCI Cards

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You can use the OpenBoot PROM `show-devs` command to verify that your host system recognizes each of the PCI cards installed in your Netra E1 PCI system expander. The system expander itself is transparent to the host system.

This chapter describes how to locate specific PCI cards using the `show-devs` command (this stands for show devices, which in this case are PCI cards).

### ▼ To Locate PCI Cards Installed in the System Expander

Use the `show-devs` command at the host system OpenBoot PROM prompt to locate specific PCI cards installed in the system expander.

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**Note** – Follow the procedures outlined in your host system service manual or user’s guide for detailed instructions about the following steps.

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1. **Bring up the OpenBoot (ok) prompt on the host system.**
  - **If the host system is not powered on**, power on and boot the system. After the system has booted, get to the `ok` system prompt as described in your host system documentation.
  - **If the host system is already powered on**, notify any users, and then get to the `ok` system prompt as described in your host system documentation.

**2. At the ok prompt, use the show-devs command to list the system devices.**

The output displays the logical device numbers of PCI cards that are installed in the system expander, using the following form:

*/host-system/pci-slot[/bridge[/bridge]/card-in-slot]*

For example:

```
ok show-devs
. . .
/pci@1f,4000/pci@2/pci@8
/pci@1f,4000/pci@2/pci@8/SUNW,hme@f,1
/pci@1f,4000/pci@2/pci@8/pci108e,1000@f
/pci@1f,4000/pci@2/pci@8/pci@e
/pci@1f,4000/pci@2/pci@8/pci@d
/pci@1f,4000/pci@2/pci@8/pci@c
/pci@1f,4000/pci@2/pci@8/pci@e/SUNW,isptwo@4
/pci@1f,4000/pci@2/pci@8/pci@e/SUNW,hme@0,1
/pci@1f,4000/pci@2/pci@8/pci@e/pci108e,1000@0
/pci@1f,4000/pci@2/pci@8/pci@e/SUNW,isptwo@4/st
/pci@1f,4000/pci@2/pci@8/pci@e/SUNW,isptwo@4/sd
/pci@1f,4000/pci@2/pci@8/pci@d/SUNW,isptwo@4
/pci@1f,4000/pci@2/pci@8/pci@d/SUNW,hme@0,1
/pci@1f,4000/pci@2/pci@8/pci@d/pci108e,1000@0
/pci@1f,4000/pci@2/pci@8/pci@d/SUNW,isptwo@4/st
/pci@1f,4000/pci@2/pci@8/pci@d/SUNW,isptwo@4/sd
/pci@1f,4000/pci@2/pci@8/pci@c/SUNW,qfe@3,1
/pci@1f,4000/pci@2/pci@8/pci@c/pci108e,1000@3
/pci@1f,4000/pci@2/pci@8/pci@c/SUNW,qfe@2,1
/pci@1f,4000/pci@2/pci@8/pci@c/pci108e,1000@2
/pci@1f,4000/pci@2/pci@8/pci@c/SUNW,qfe@1,1
/pci@1f,4000/pci@2/pci@8/pci@c/pci108e,1000@1
/pci@1f,4000/pci@2/pci@8/pci@c/SUNW,qfe@0,1
/pci@1f,4000/pci@2/pci@8/pci@c/pci108e,1000@0
```

# Logical and Physical Device Numbers

When reading the `show-devs` output for system expander slots, note that the *logical* device numbers displayed are not the same as the *physical* slot numbers marked on the system expander. The `show-devs` command displays the logical slot numbers on the bridge chip that controls a given slot. Bridge chips are necessary because PCI buses can operate only within a limited distance. Software in the bridge chips extends this distance.

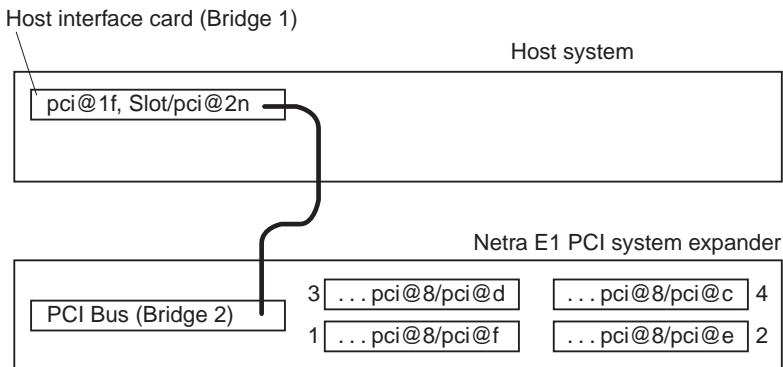
The logical slot numbers vary according to the host system being used, as well as the quantity and position of the PCI cards installed.

TABLE 3-1 shows how the logical and physical device numbers correspond.

**TABLE 3-1** Logical and Physical Device Numbers

| Physical Slot Numbers | Logical Device Numbers |
|-----------------------|------------------------|
| Slot 1                | ... pci@8/pci@f        |
| Slot 2                | ... /pci@8/pci@e       |
| Slot 3                | ... /pci@8/pci@d       |
| Slot 4                | ... /pci@8/pci@c       |

FIGURE 3-1 illustrates an example of the logical device numbers used when one Netra E1 PCI system expander is connected. The host system slot names vary according to the host system you are using.



**FIGURE 3-1** Logical and Physical Device Numbers With One System Expander



# Removing or Replacing Cards in the Netra E1 PCI System Expander

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Before replacing PCI cards, read the additional procedures for specific cards and the PCI Card power supply restrictions described in “PCI Card Power Ratings” on page 21.

This chapter is organized as follows:

- “To Shut Down the System Expander” on page 53
- “To Remove the Cover” on page 54
- “To Remove the PCI Card Cage” on page 55
- “To Replace PCI Cards” on page 57
- “To Replace the PCI Card Cage” on page 58

## ▼ To Shut Down the System Expander

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**Caution** – Halt the host system before disconnecting the host system connector cable. Doing so while there is activity can result in damage to hardware and loss of data.

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1. **Attach an antistatic wrist strap to your wrist and to the exposed metal back panel of the system expander.**

2. **Disconnect the system expander from the host system connection cable.**



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**Caution** – Do *not* switch off the system expander or disconnect the connector cable while the host system is running. This will result in the loss of data transmission.

If the host system to system expander connection has been interrupted, you must reboot the host system. The startup sequence enables the host system to establish connection with the PCI cards installed in the system expander.

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3. **Disconnect the AC power cable or DC input cables from the system expander.**

4. **Remove the system expander from the rack.**

Do not attempt to replace the PCI cards without first removing the system expander from the rack.

## ▼ To Remove the Cover

1. **Using a #1 Phillips screwdriver, loosen the one screw that holds the top access cover, indicated by an arrow.**

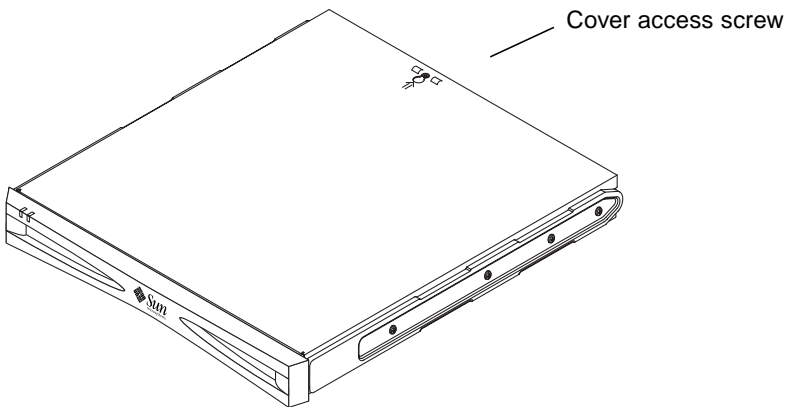


FIGURE 4-1 Netra E1 PCI System Expander Top Cover

2. **Slide the top cover slightly toward the back of the system expander to allow the screw to fall through the keyhole slot.**

You do not have to remove the screw from the chassis.

3. **Lift the cover off the system expander and set it aside.**

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**Note** – You must remove the PCI card cage assembly from the system expander chassis to remove or replace PCI cards.

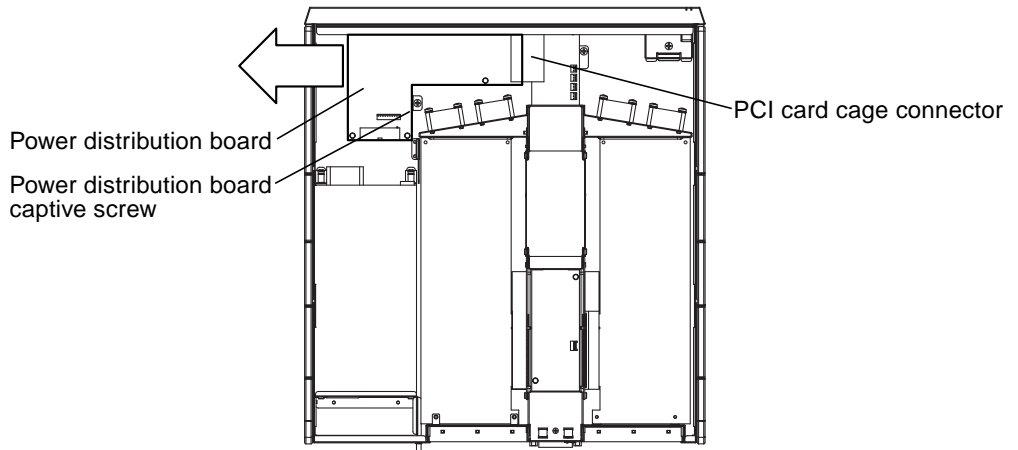
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## ▼ To Remove the PCI Card Cage

1. Using a #1 Phillips screwdriver, loosen the one captive screw that holds the power distribution board in position.

You do not have to disconnect any of the power cables.

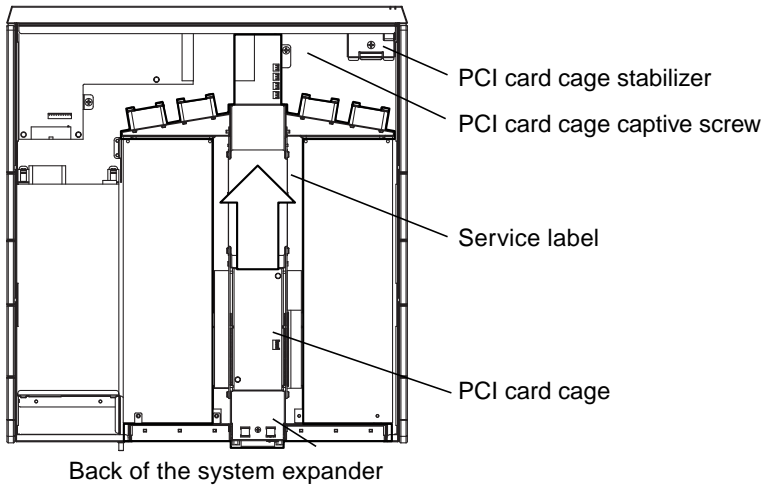
2. Slide the power distribution board toward the side wall of the system expander, disconnecting the PCI card cage connector.



**FIGURE 4-2** Disconnecting the Power Distribution Board from the PCI Card Cage

3. Loosen the PCI card cage captive screw shown in FIGURE 4-3.

4. Use the gripping area on the service label to push the PCI card cage toward the front of the chassis, then lift the card cage out of the back of the chassis.



**FIGURE 4-3** Removing the PCI Card Cage



## ▼ To Replace PCI Cards

1. Rotate the PCI card cage so that you can place the PCI card slot side under the lip of the PCI card cage stabilizer, as shown in FIGURE 4-4.

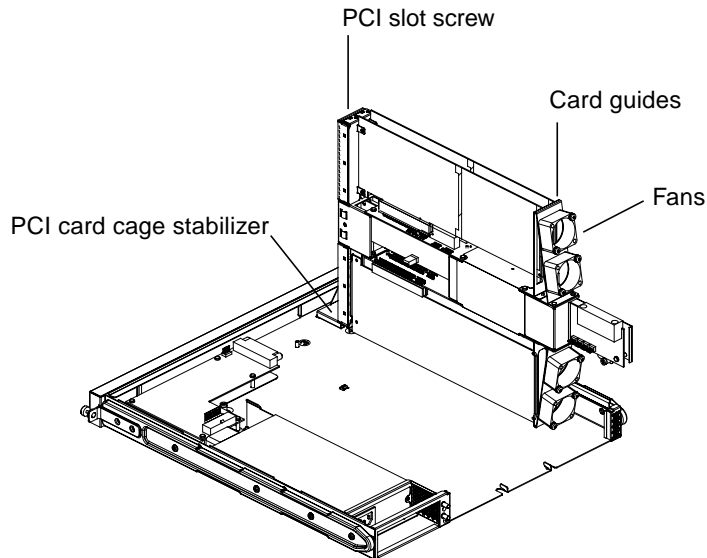


FIGURE 4-4 PCI Cards Installed in the PCI Card Cage Slots

2. Remove as many PCI cards as necessary.
3. Seat each replacement PCI card firmly into any empty PCI slot.

You can place PCI cards in any of the four PCI slots. However, some cards may require placement in a specific slot because they need to cable to another card, so refer to your PCI documentation.

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**Note** – A maximum of two Sun Quad Fast Ethernet PCI cards are supported for installation in the system expander. Supported PCI slot assignments for two QFE cards are the slots marked 1 and 2, or slots 3 and 4. Do not install two QFE cards in slots that are on top of each other, such as 1 and 3, or slots 2 and 4.

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**Note** – If you are installing long cards, it is helpful to insert the left edge into the card guide located near the fans first. Align the connectors on the side, and then push down firmly to seat the card.

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4. **Fasten each card into the PCI slot with the screw you removed from the previously installed PCI card.**

## ▼ **To Replace the PCI Card Cage**

1. **Using the gripping area indicated on the service label, lift the PCI card cage from the PCI card cage stabilizer and slide it into its original position in the system expander chassis.**
2. **Align the captive screw with the screw hole built into the bottom of the chassis.**
3. **Using a #1 Phillips screwdriver, tighten the captive screw to hold the PCI card cage in place.**
4. **Slide the power distribution board toward the PCI card cage connector until they connect.**
5. **Align and tighten the power distribution board captive screw to hold the board in place.**
6. **Replace the top cover by sliding it into position. Tighten the top cover screw.**
7. **Refer to “Rackmounting the System Expander” on page 29 for rack mounting instructions.**

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