Sun™ Enterprise 10000™ PCI Upgrade Instructions

For Use with Solaris 2.6 HW:3/98 or Later and SSP Version 3.1 or Later

Send comments about this document to: `smcc-docs@sun.com`

Adobe PostScript™

Installing PCI Components into the Enterprise 10000 System

Introduction

This document provides the service provider with the information necessary to replace SBus components with PCI components on a system board. Before you can install PCI components onto a system board, that board must belong to a domain that has Solaris 2.6 installed and the SSP must be running SSP version 3.1. For information about installing Solaris, refer to documentation that shipped with the Solaris CD, which contains procedures for installing Solaris 2.6 on a new domain or upgrading a domain to Solaris 2.6.

The board on which you wish to install the PCI components must also be physically removed from the system. If the system is up, and the domain to which the board belongs is running, you must remove the board logically before you do so physically. The Dynamic Reconfiguration User's Guide tells how to do so with the DR Detach feature.

This document contains the following sections to assist you with installing PCI components on your Enterprise 10000 system. Refer to FIGURE 1 on page 2 for component identification.

- Powering off a system board
- Removing a system board
- SBus component removal
  - Removing an SBus card
  - Removing an SBus I/O module
- Personality plate replacement
  - Removing a SBus personality plate
  - Installing a PCI personality plate
- PCI component installation
  - Installing a PCI front bracket
  - Installing a PCI riser card
  - Installing a PCI I/O module
  - Installing a PCI card
- Installing a system board
- Powering on a system board
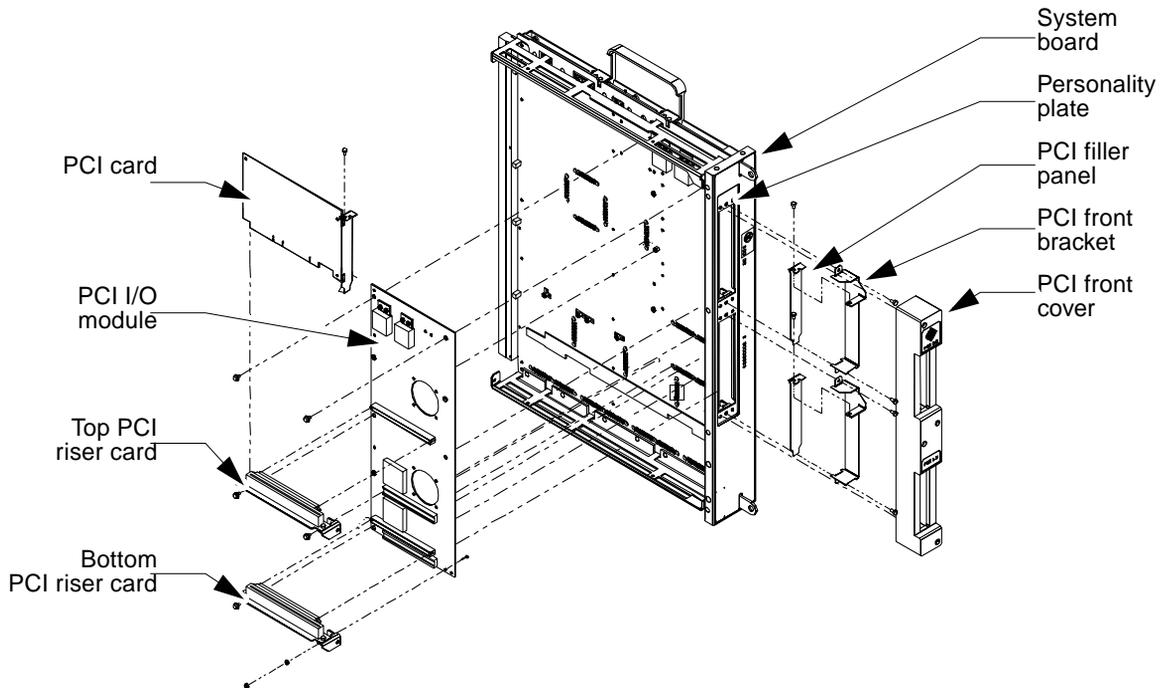
FIGURE 1 PCI Components

Powering Off a System Board

1. Use `hostview`**(1M) to verify the system board is not part of a running domain.**

2. **Turn off a system board by using** `hostview`**(1M) or by typing:**

```
ssp# power -off -sb x
```

Where x = 0-15. Refer to `power`(1M) for more information.

Removing a System Board

1. **Open the access door.**

2. **Remove all cables from the system board.**

3. **Unlock the handles by first lifting the locking levers that reside on each of the handles.**

4. **Use the handles to extract the system board and place it on a flat, sturdy, ESD-protected surface with the FRU side up.**

Caution – If the yellow LEDs are lit, do not remove the component. See "Powering Off a System Board" on page 3."

---

5. **Attach a wrist strap.**

6. **Unscrew the Phillips screws from the system board cover and remove the cover.**

SBus Component Removal

Removing an SBus Card

1. **Disengage the SBus card by pulling up the handle.**

⚠️ **Caution –** The connector housing may break if the SBus card is tilted too far.

2. **Lift the SBus card from the socket at an angle while guiding the faceplate out from the back panel opening (**FIGURE 2 **on page 4).**

3. **Place the SBus card in an antistatic bag.**

Personality plate with EMI gasket

SBUS 0 SLOT 0

SBUS 0 SLOT 1

SBUS 1 SLOT 0

SBUS 1 SLOT 1
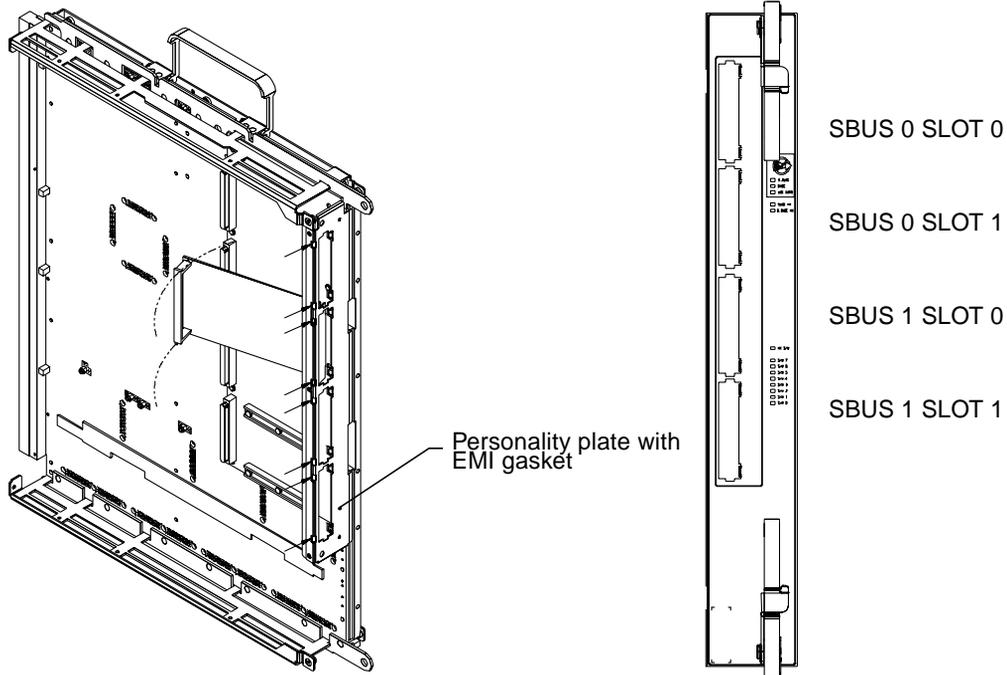
FIGURE 2   SBus Card Removal

Removing an SBus I/O Module

1. **Unscrew and remove the five Phillips screws from the I/O module.**

2. **Unscrew the six 3/32-inch hex-head screws located on the compression connectors.**

3. **Remove the SBus I/O module (**FIGURE 3 **on page 5).**

   After removal, place the Sbus I/O module into an anti-static bag.
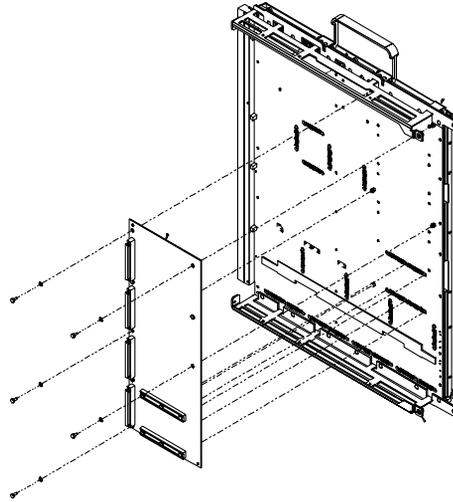
FIGURE 3   SBus I/O Module Removal

Personality Plate Replacement

Removing a SBus Personality Plate

1. Compress the personality plate to the backside of the system board face plate to relieve the stress on the screws, remove the three screws securing the personality plate (FIGURE 4 **on page 6).**

⚠

Caution – The compliant EMI gasket puts force on the three attachment screws. This force needs to be relieved while removing each screw to prevent the threads from becoming damaged and rendering the personality plate useless.

Compress
personality plate
and face plate
in this direction
while installing or removing
attachment screws

Remove/install
attachment
screws here
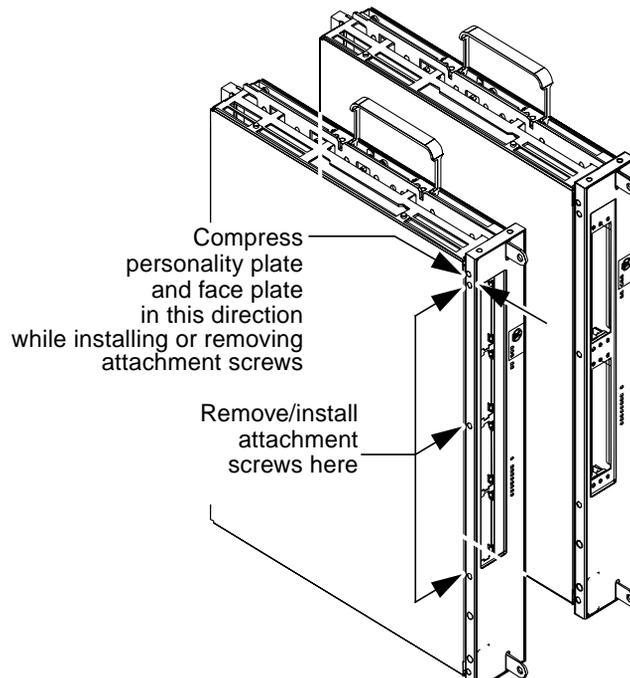
FIGURE 4   Personality Plate Removal

2. Lift plate out as noted in top view (FIGURE 5 **on page 7).**
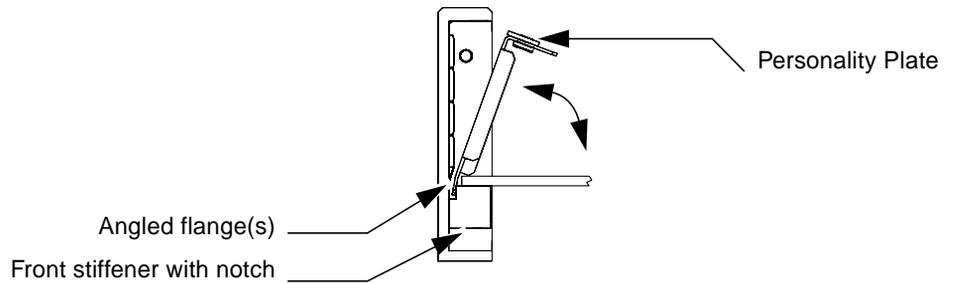
FIGURE 5   Personality Plate Removal (Top View)

Installing a PCI Personality Plate

1. Confirm that the type of personality plate that you are installing is correct for your application (FIGURE 6 **on page 8).**
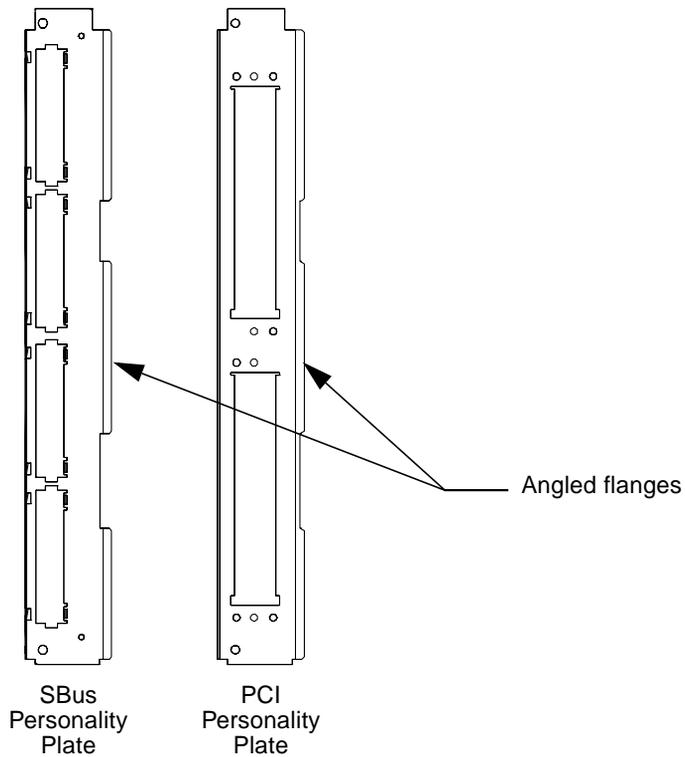
FIGURE 6   Personality Plate Identification

2. Install the personality plate by locating the angled flange to the notch of the front stiffener and swinging the personality plate into place against the EMI gasket as shown in FIGURE 7 **on page 8.**

Do not place the personality plate between the EMI gasket and face plate.
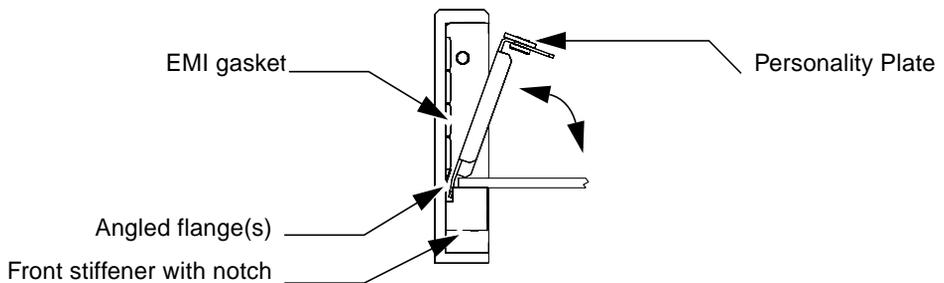
FIGURE 7   Personality Plate Installation (Top View)

3. **Compress the personality plate against the EMI gasket to align the screw hole. Sustain this force to relieve the stress on the screws threads and install the three attachment screws as noted in** FIGURE 8 **on page 9.**

Compress personality plate and face plate in this direction while installing or removing attachment screws

Remove/install attachment screws here
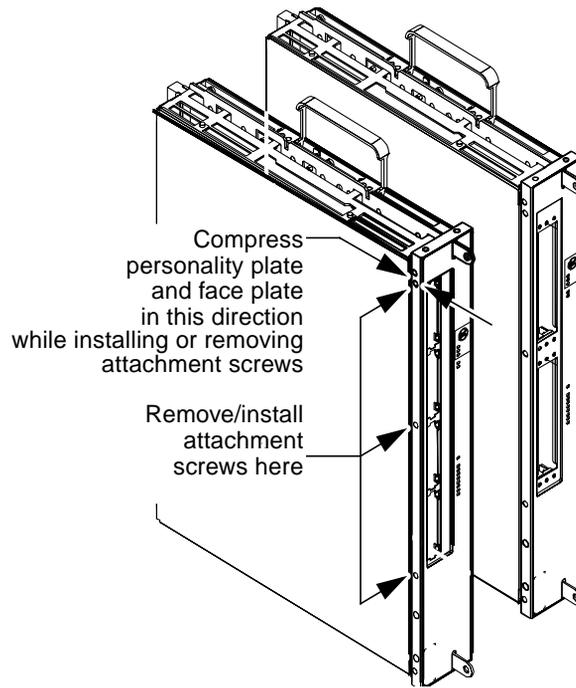
FIGURE 8   Personality Plate Installation

PCI Component Installation

PCI card

PCI I/O
module

Top PCI
riser card

Bottom
PCI riser card

System
board

Personality
plate

PCI filler
panel

PCI front
bracket
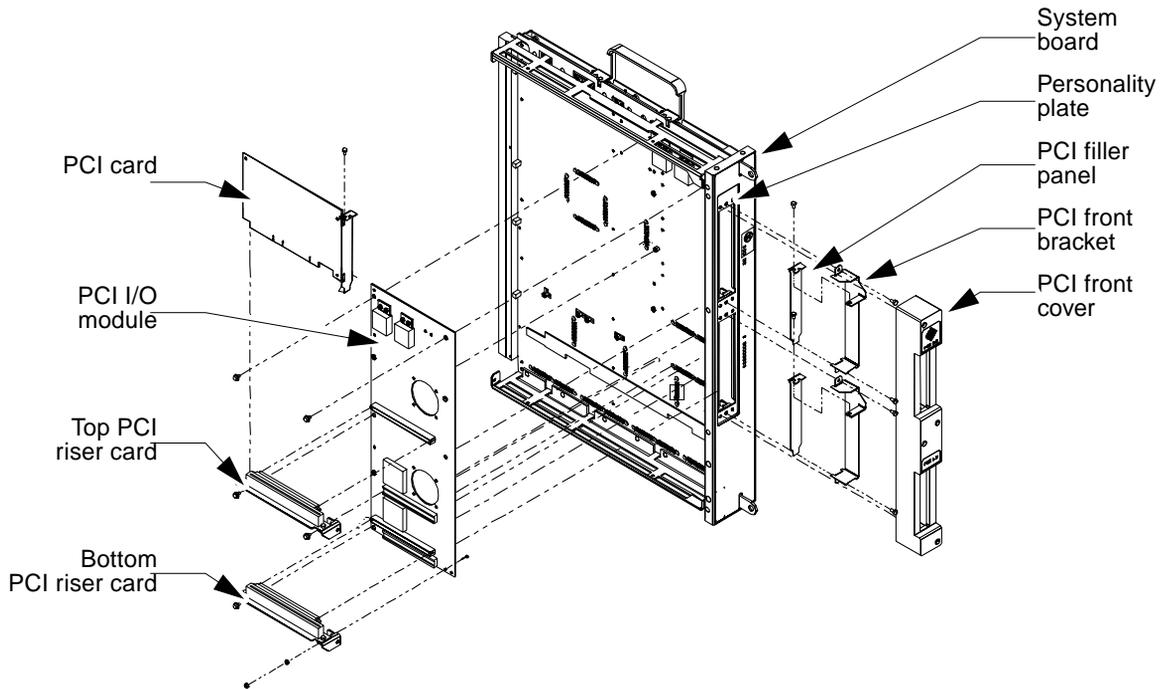
PCI front
cover

FIGURE 9   PCI Components

Installing a PCI Front Bracket

4. Install the PCI front brackets as shown in FIGURE 10**.**
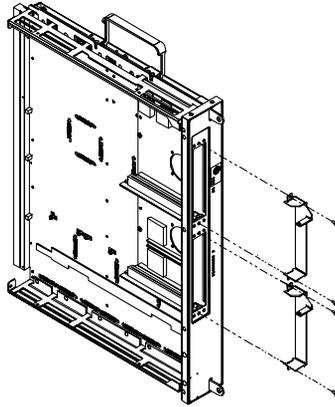
FIGURE 10   PCI Front Bracket Installation

5. **If the PCI card is not immediately replaced, install a filler panel (part number 240-2391-01) onto the PCI front bracket using the PCI retention screw (**FIGURE 11 **on page 11).**

PCI front bracket

PCI retention screw
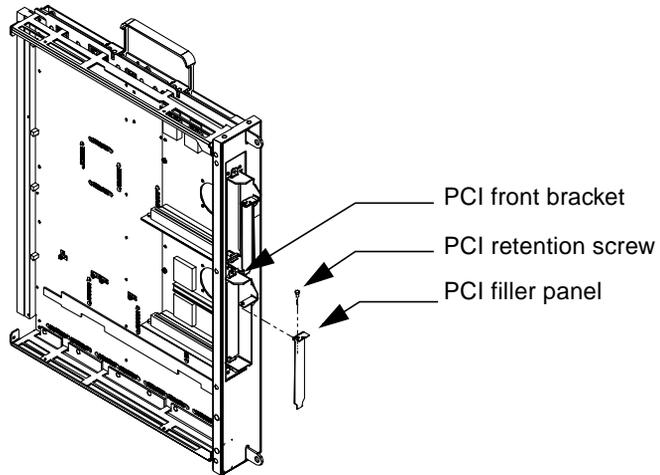
PCI filler panel

FIGURE 11   PCI Filler Panel Installation

Installing a PCI Riser Card

1. **Confirm the riser card is the correct voltage for the PCI card to be installed.**

Note – PCI cards and risers cards are available in multiple voltages. Inspect the keyed connector on the PCI card to confirm that it will properly mate with the riser connector. If not, obtain and install the correct riser card.

---

2. **Insert the riser card into the mating connector on the PCI I/O module.**

   Press firmly to seat completely into the connector.

3. **When installing the bottom riser, use the fastening hardware as shown in** FIGURE 12 **on page 12, torque to a setting of 0.6 Nm (5.3 inch pounds)**
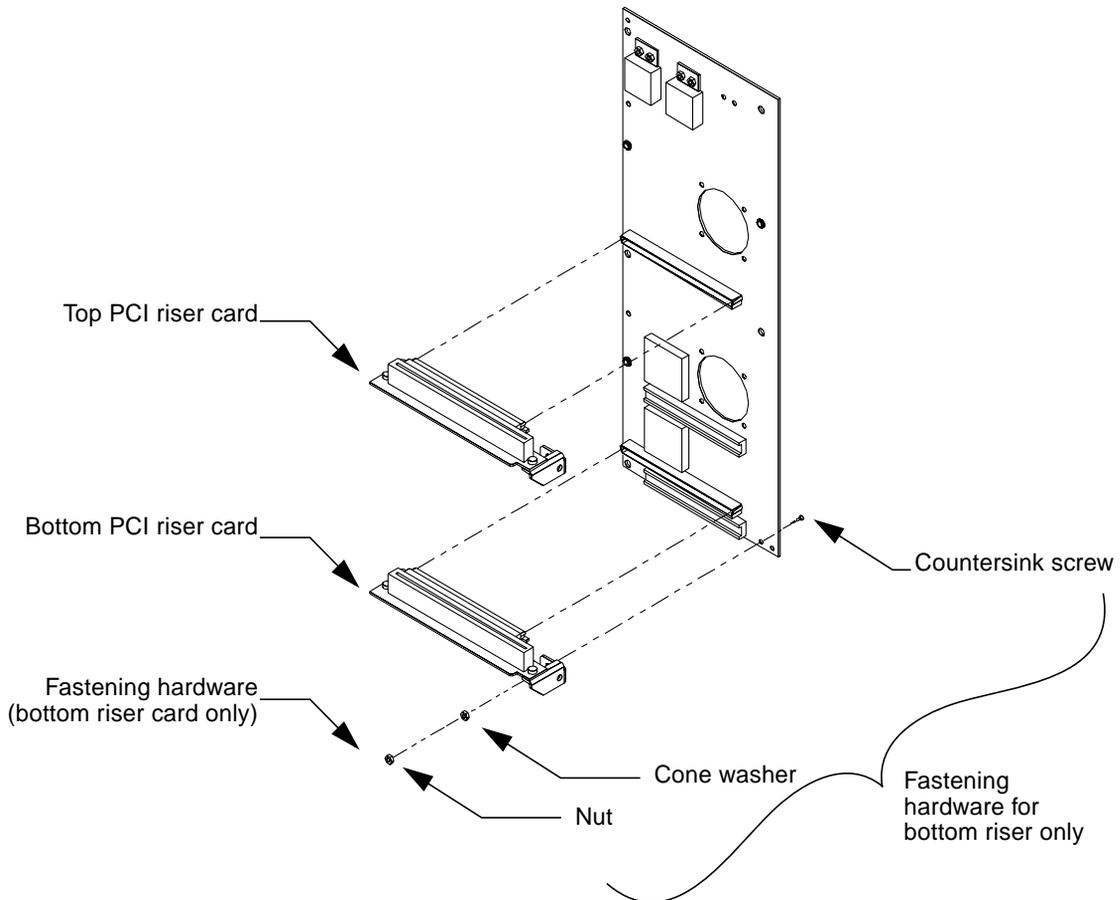
FIGURE 12   PCI Riser Card Components

Installing a PCI I/O Module

1. **Prior to installing the module, wipe the gold pads of the system board and the exposed contacts of the compression connector with a lint-free non-abrasive cloth or alcohol wipe.**

2. **Align the PCI I/O module compression connectors to the system board compression connector locations (**FIGURE 13 **on page 13).**

3. **Align the standoffs on the system board with the I/O module.**
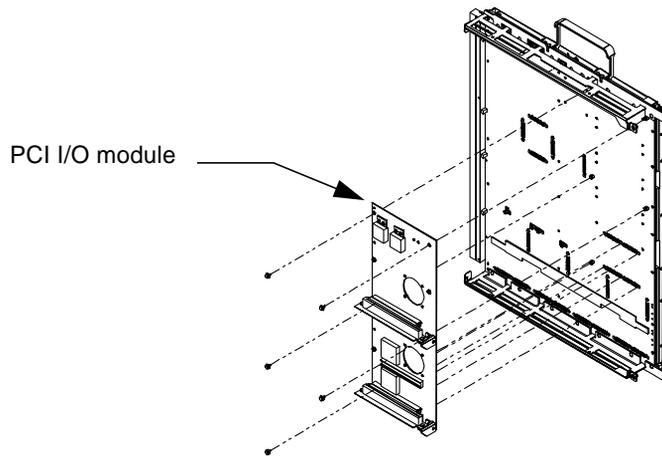
PCI I/O module

FIGURE 13   PCI I/O Module Installation

4. **Engage all captive connector screws clockwise using a 3/32-in. hex-head driver.**

5. **Tighten the captive connector screws to a low torque of 0.34 Nm (3.0 inch pounds) in the pattern noted in** FIGURE 14 **on page 14.**
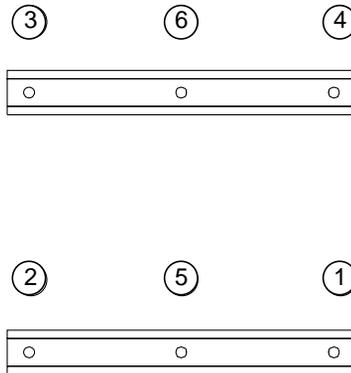
FIGURE 14 Tightening Pattern for the PCI I/O Module

6. **Tighten the captive connector screws to a final torque of 0.68 Nm (6.0 inch pounds) in the pattern noted in** FIGURE 14 **on page 14.**

7. **Install discrete attachment hardware through the board and into the threaded standoff of the system board.**

   See FIGURE 15 on page 14 for proper orientation of separate cone washer.
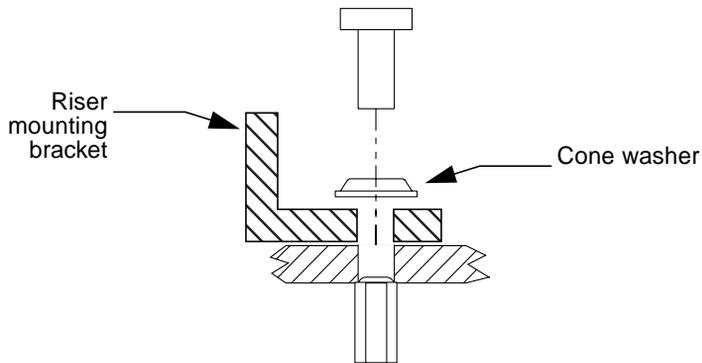
FIGURE 15 Cone Washer and Standoff

8. **Tighten discrete attachment hardware to a torque setting of 0.7 - 0.8 Nm (6.0 - 7.0 inch pounds).**

9. **Install PCI cards, if necessary. See "Installing a PCI Card" on page 15."**

Installing a PCI Card

1. Determine the slot for installing the PCI card (FIGURE 16 **on page 15).**

⚠ **Caution –** The PCI I/O module is limited to the slowest speed of the installed PCI cards. Therefore, when installing two I/O cards onto an I/O module, install like-speed PCI cards.

PCI 0.0

PCI 1.0
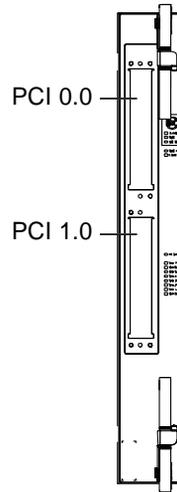
FIGURE 16   PCI Slot Numbering

2. If a filler panel covers the PCI slot, remove the PCI retention screw on the mating flange to remove the filler panel (FIGURE 11 **on page 11).**

Retain the screws to attach the PCI card.

3. Attach a wrist strap and take the PCI card out of the protective packaging. Inspect the connector to make sure it is not damaged.

4. Confirm the installed riser card is the correct voltage for the PCI card to be installed.

PCI cards and risers cards are available in multiple voltages. Inspect the keyed connector on the PCI card to confirm that it will properly mate with the riser connector. If not, obtain and install the correct riser card.

5. Guide the PCI card from behind the system board face plate, through the opening, and place the PCI card edge into the mating connector.
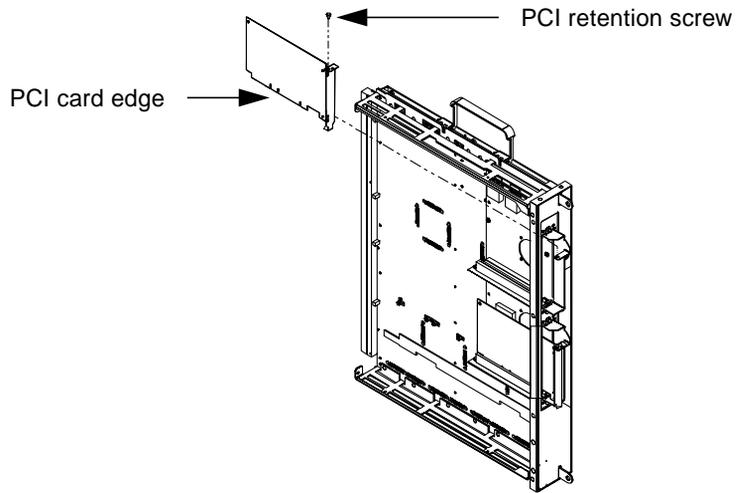
FIGURE 17   PCI Card Installation

6. **Confirm alignment of the PCI card then firmly push the card into the connector until fully seated.**

7. **Install the PCI retention screw into the top flange and tighten to a torque of 0.8 Nm (7.1 inch pounds).**

8. **Install the PCI front cover onto the front of the system board tightening to a torque setting of 0.8 Nm (7.0 inch pounds) (**FIGURE 18 **on page 16).**

FIGURE 18   PCI Front Cover Installation

9. **Replace the system board cover and secure with screws tightening to a torque setting of 0.8 Nm (7.0 inch pounds).**

Installing a System Board

1. **To confirm the event monitoring daemon is running, type:**

```
ssp% edd_cmd
```

   The returned message should show State = started-monitoring. If not, it will be necessary to restart the event monitoring daemon by typing the following:

```
ssp% edd_cmd -x start
```
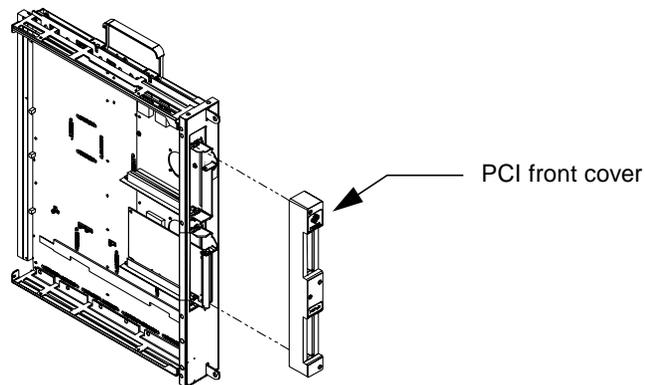
   Refer to edd(1M) and edd_cmd(1M) for additional information.

2. **To install a system board, firmly grasp the board by the handles and position it onto the card cage rail.**

3. **With the handles extended, slide the board into the slot until it begins to mate with the centerplane connector.**

4. **Apply firm pressure to the face plate to engage the board with the centerplane connector.**

5. **Use the insertion handles to fully seat the board.**

6. **Lock the handles by sliding the locking levers into position until they are fully nested with the handles.**

Powering On a System Board

1. **Determine the amount of system power available by typing** `power`.

   See TABLE 1 to confirm the amount of available power is sufficient for the amount of system boards to be installed.

   TABLE 1   Power Redundancy

Number of System Boards	Required Power Supplies for N+ 2 Power Supply or N+1 AC Input Unit Redundancy	Required 200V, 30 A single phase circuits
1	4	2
2	4	2
3	5	3
4	5	3
5	5	3
6	6	3
7	6	3
8	6	3
9	7	4
10	7	4
11	7	4
12	7	4
13	8	4
14	8	4
15	8	4
16	8[1]	4

   1. If two supplies are failing, no AC module may be removed unless the two failed supplies are under the same AC module control.

2. **Turn on a system board by using** `hostview`**(1M) or by typing:**

   ```
   ssp# power -on -sb x
   ```

   Where x = 0-15. Refer to `power`(1M) for more information.