



Sun Enterprise™ 10000 PCI Upgrade Instructions

For Use with Solaris 2.6 HW:3/98 or Subsequent
Compatible Versions and
SSP Version 3.1 or Subsequent Compatible Versions

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Part No. 805-3831-12
March 2002, [Revision A](#)

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Contents

Preface ix

1. Installing PCI Components on the Sun Enterprise 10000 System 1

Introduction 1

Powering Off a System Board 2

Removing a System Board 2

SBus Component Removal 3

 Removing an SBus Card 3

 Removing an SBus I/O Module 4

Personality Plate Replacement 5

 Removing the SBus Personality Plate 5

 Installing a PCI Personality Plate 6

PCI Component Installation 8

 Installing a PCI Front Bracket 8

 Installing a PCI Riser Card 9

 Installing a PCI I/O Module 11

 Installing a PCI Card 13

Installing a System Board 15

Powering On a System Board 16

Figures

FIGURE 1	SBus Card Removal	3
FIGURE 2	SBus I/O Module Removal	4
FIGURE 3	SBus Personality Plate Removal	5
FIGURE 4	Personality Plate Removal (Top View)	6
FIGURE 5	Personality Plate Identification	7
FIGURE 6	Personality Plate Installation (Top View)	7
FIGURE 7	PCI Personality Plate Installation	8
FIGURE 8	PCI Front Bracket Installation	9
FIGURE 9	PCI Filler Panel Installation	9
FIGURE 10	PCI Riser Card Installation	10
FIGURE 11	PCI I/O Module Installation	11
FIGURE 12	Tightening Pattern for the PCI I/O Module	12
FIGURE 13	Cone Washer and Standoff	12
FIGURE 14	PCI Slot Numbering	13
FIGURE 15	PCI Card Installation	14
FIGURE 16	PCI Front Cover Installation	15

Tables

TABLE 1	Power Redundancy	16
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Preface

This document supplies the service provider with the information necessary to replace SBus components with PCI components on a system board. The procedures described here will require a senior service person with experience in major component disassembly and assembly. Read the procedures thoroughly before attempting to perform them. If you do not feel that you can do this, contact your account management and request help.

Using UNIX Commands

This document may not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- AnswerBook2™ online documentation for the Solaris™ operating environment
- Other software documentation that you received with your system

Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

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Installing PCI Components on the Sun Enterprise 10000 System

Introduction

This document provides you with the information necessary to replace SBus components with PCI components on a system board. Before you can install PCI components on a system board, that board must belong to a domain that has Solaris 2.6 or subsequent compatible version installed and the System Service Processor (SSP) must be running SSP version 3.1 or subsequent compatible version. 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 be physically removed from the system. However, 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.

This document contains the following sections to assist you with installing PCI components on your Sun Enterprise 10000 system.

- Powering off a system board
- Removing a system board
- SBus component removal
- Personality plate replacement
- PCI component installation
- Installing a system board
- Powering on a system board

Powering Off a System Board

1. Use `hostview(1M)` to verify that 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. Attach a wrist strap.



Caution – If the yellow LEDs are lit, do not remove the component. See “Powering Off a System Board” on page 2.

3. Remove all cables from the system board.
4. Unlock the handles by first lifting the locking levers that reside on each of the handles.
5. Use the handles to extract the system board and place it on a flat, sturdy, grounded mat with the component side up.
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 the handle up.



Caution – The connector housing could break if the SBus card is tilted too far.

2. Lift the SBus card from the socket at an angle while guiding the card out from the personality plate opening (FIGURE 1).
3. Place the SBus card in an antistatic bag.

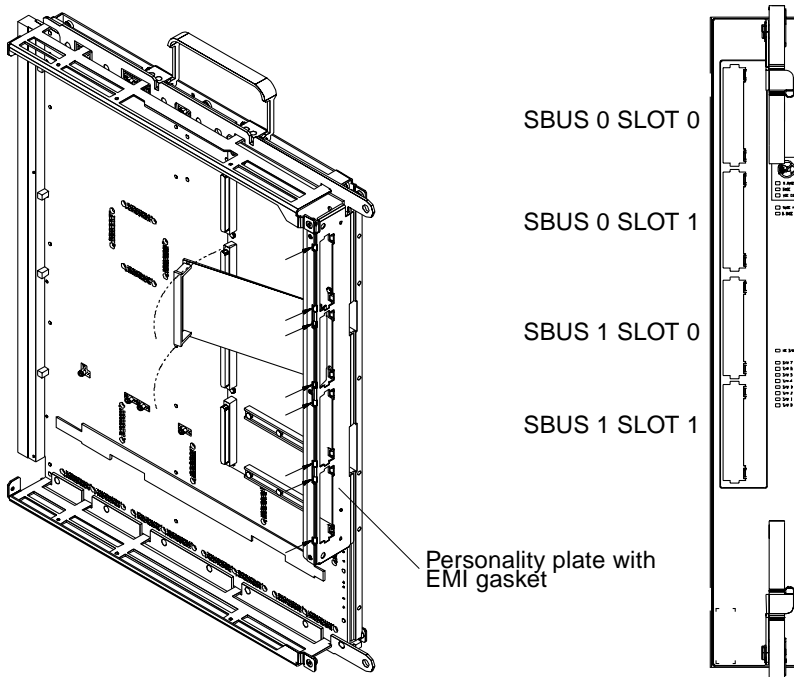


FIGURE 1 SBus Card Removal

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 2).

After removal, place the Sbus I/O module into an antistatic bag.

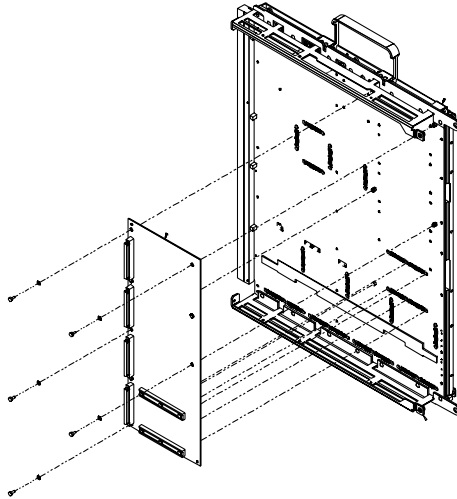


FIGURE 2 SBus I/O Module Removal

Personality Plate Replacement

Removing the SBus Personality Plate

1. Press the personality plate against the backside of the system board faceplate to relieve the stress on the screws and remove the three screws securing the personality plate (FIGURE 3).



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

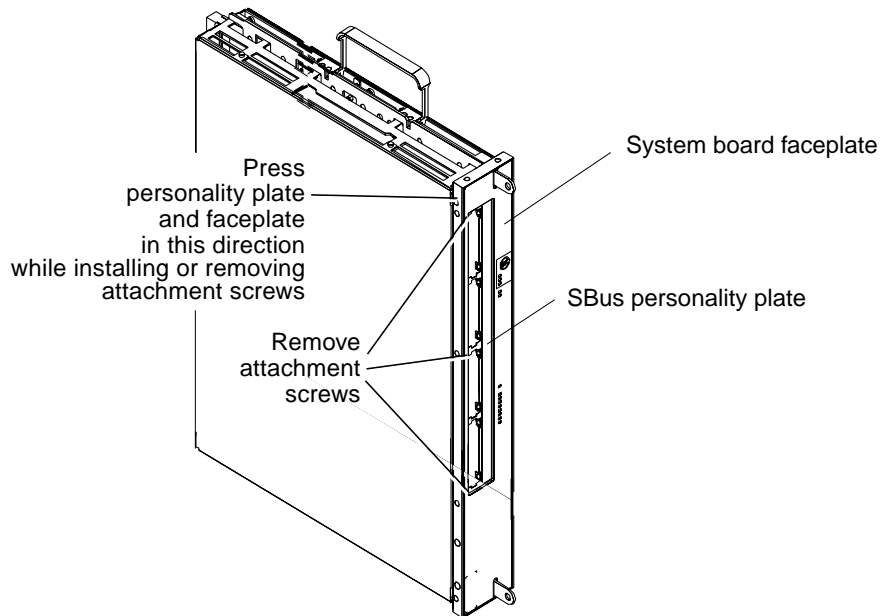


FIGURE 3 SBus Personality Plate Removal

2. **Lift personality plate out as noted in FIGURE 4.**

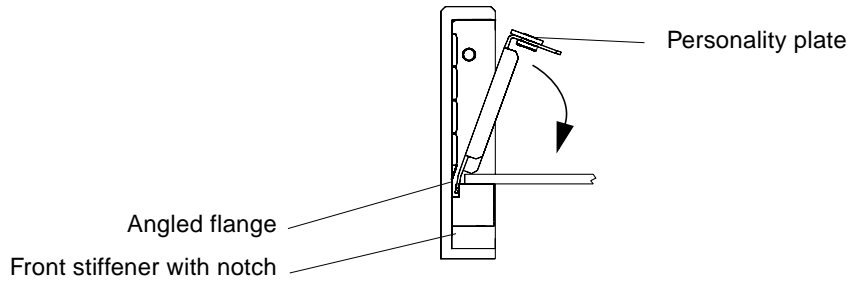


FIGURE 4 Personality Plate Removal (Top View)

Installing a PCI Personality Plate

1. **Confirm that the type of personality plate that you are installing is correct for your application. See FIGURE 5.**

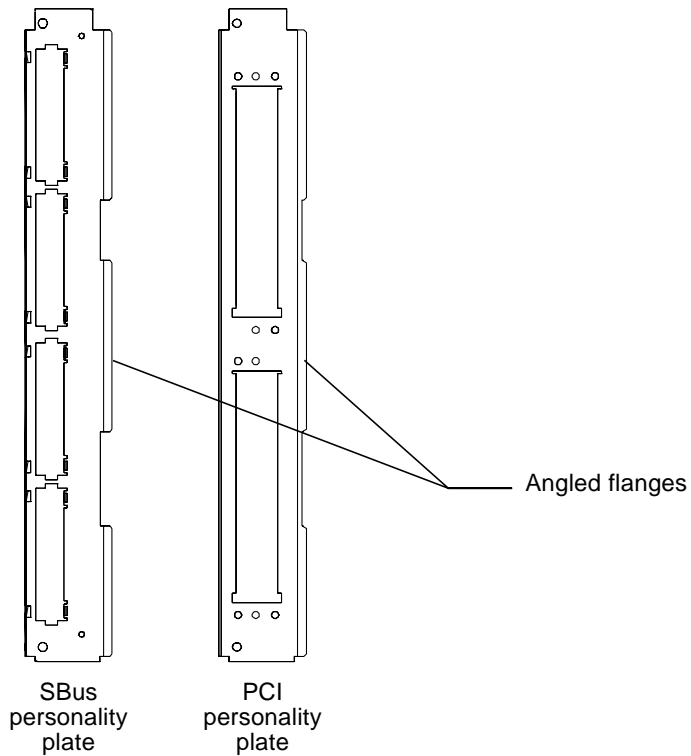


FIGURE 5 Personality Plate Identification

2. **Install the personality plate by placing the angled flange into the notch of the front stiffener and swinging the personality plate into place against the gasket.** See FIGURE 6.

Do not place the personality plate between the EMI gasket and face plate.

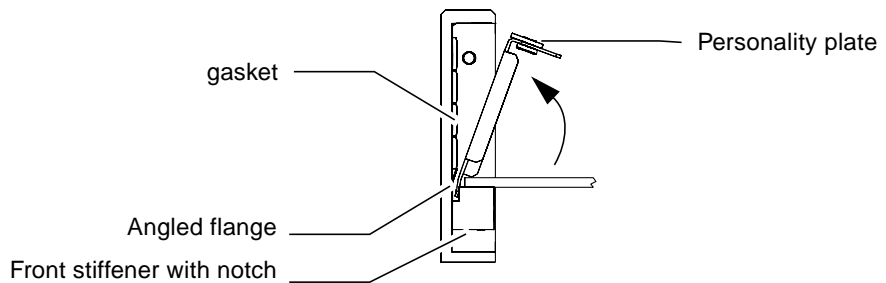


FIGURE 6 Personality Plate Installation (Top View)

3. Press the personality plate against the gasket to align the screw holes. Sustain this force to relieve the stress on the screw threads and install the three attachment screws. See FIGURE 7.

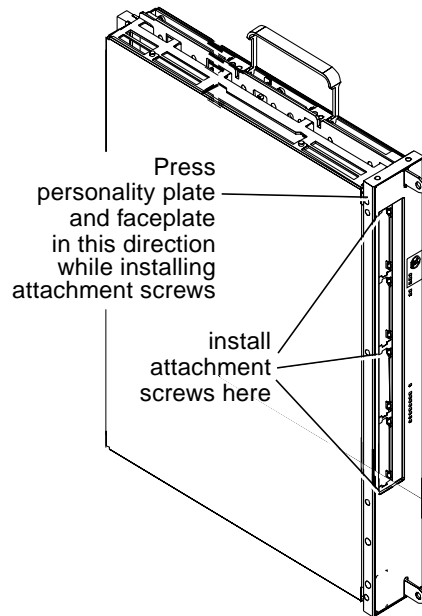


FIGURE 7 PCI Personality Plate Installation

PCI Component Installation

Installing a PCI Front Bracket

1. Install the PCI front brackets. See FIGURE 8.

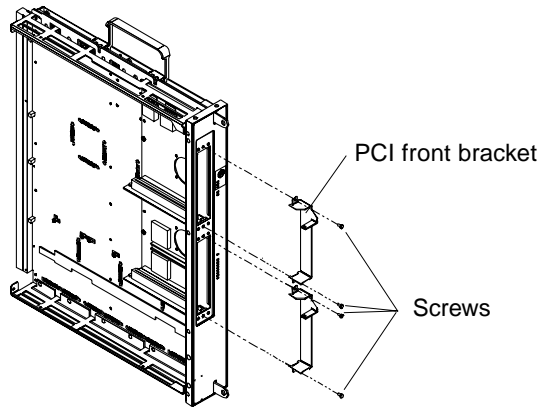


FIGURE 8 PCI Front Bracket Installation

- 2. If the PCI card is not immediately installed, install a filler panel (part number 240-2391-01) to the PCI front bracket using the PCI retention screw. See FIGURE 9.**

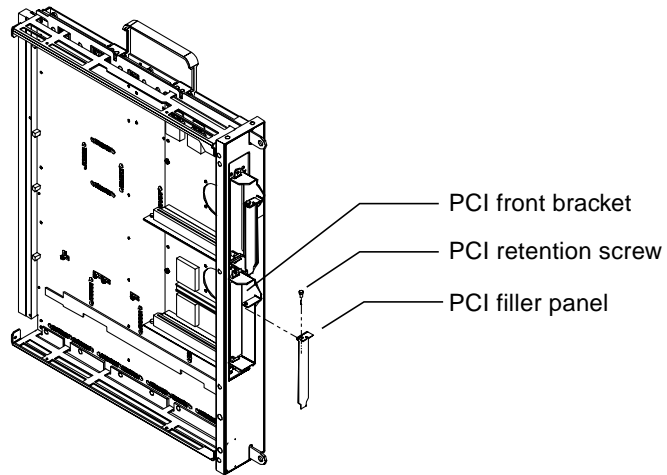


FIGURE 9 PCI Filler Panel Installation

Installing a PCI Riser Card

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

Note – PCI cards and riser 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 the riser card completely into the connector.
- 3. When installing the bottom riser, use the fastening hardware as shown in FIGURE 10, and torque to a setting of 0.6 Nm (5.3 inch-pounds).**

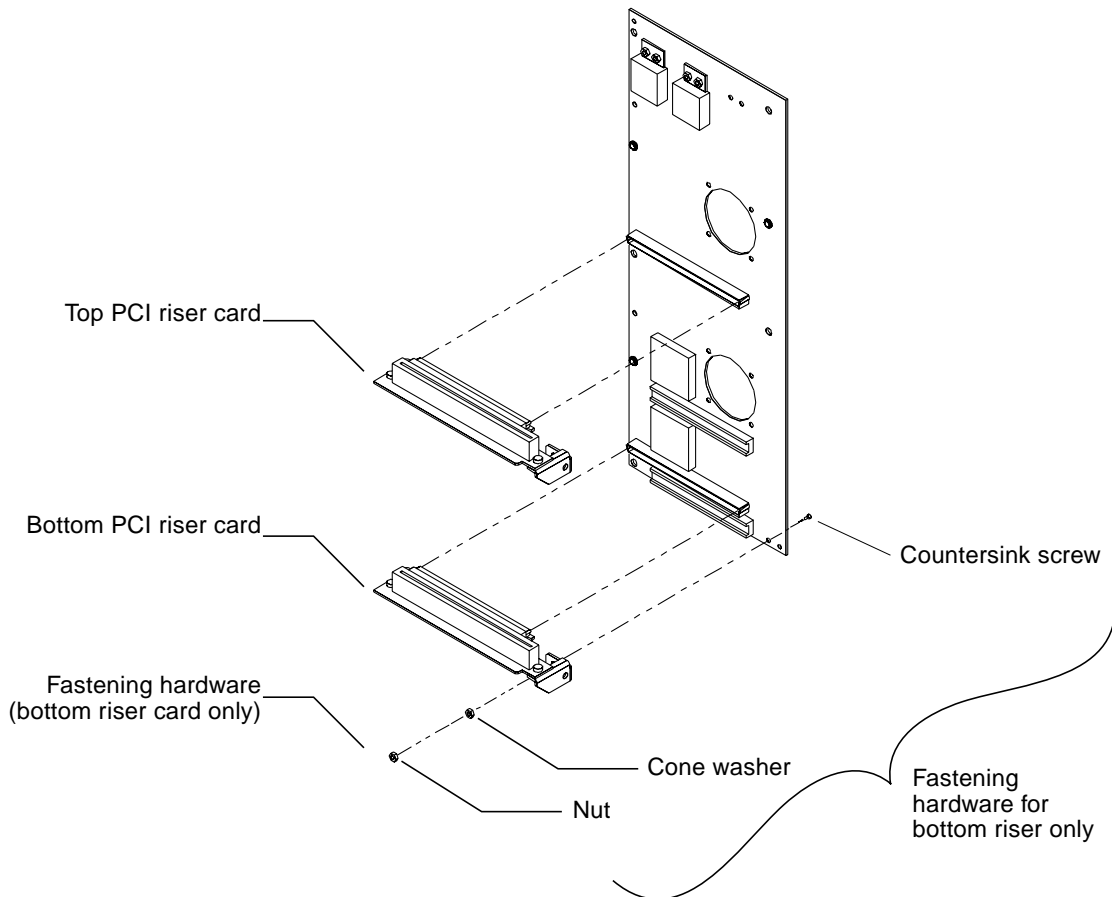


FIGURE 10 PCI Riser Card Installation

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 an alcohol wipe.
2. Align the PCI I/O module with the system board compression connector locations. See FIGURE 11.
3. Align the standoffs on the system board with the PCI I/O module.

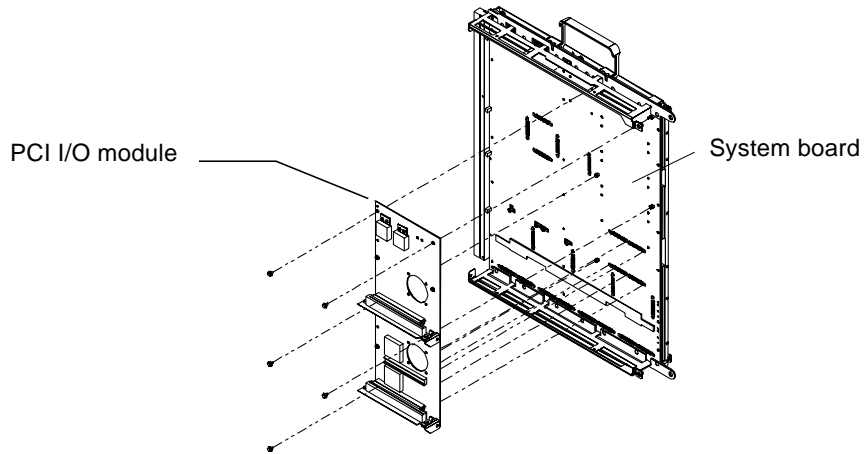


FIGURE 11 PCI I/O Module Installation

4. Engage all captive connector screws clockwise with a 3/32-inch hex-head driver:
 - a. Tighten the captive connector screws in the sequence shown in FIGURE 12 until they touch the metal plate.
 - b. Tighten each captive connector screw in the sequence shown in FIGURE 12 an additional half turn.
 - c. Tighten the captive connector screws to a final torque of 0.68 Nm (6.0 inch pounds) in the pattern shown in FIGURE 12.

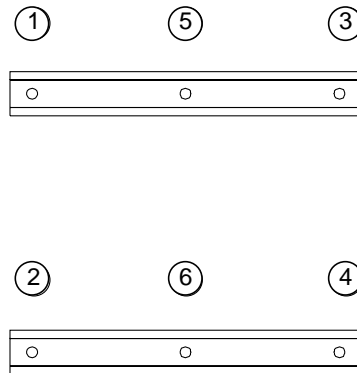


FIGURE 12 Tightening Pattern for the PCI I/O Module

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

See FIGURE 13 for the proper orientation of the separate cone washer.

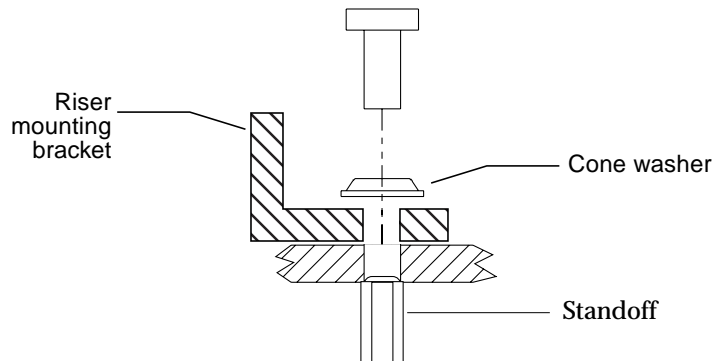


FIGURE 13 Cone Washer and Standoff

6. Tighten discrete attachment hardware to a torque setting of 0.7–0.8 Nm (6.1–6.9 inch-pounds).

Installing a PCI Card

1. Determine the slot for installing the PCI card. See FIGURE 14.



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

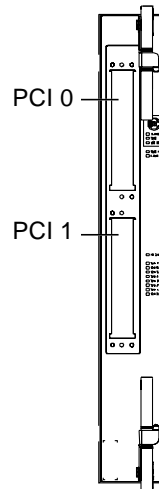


FIGURE 14 PCI Slot Numbering

2. If a filler panel covers the PCI slot, remove the PCI retention screw on the mating flange to remove the filler panel (FIGURE 9).
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 that it is not damaged.
4. Confirm that the installed riser card is the correct voltage for the PCI card to be installed.

Note – PCI cards and riser 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 faceplate, through the opening, and place the PCI card edge into the mating connector. See FIGURE 15.

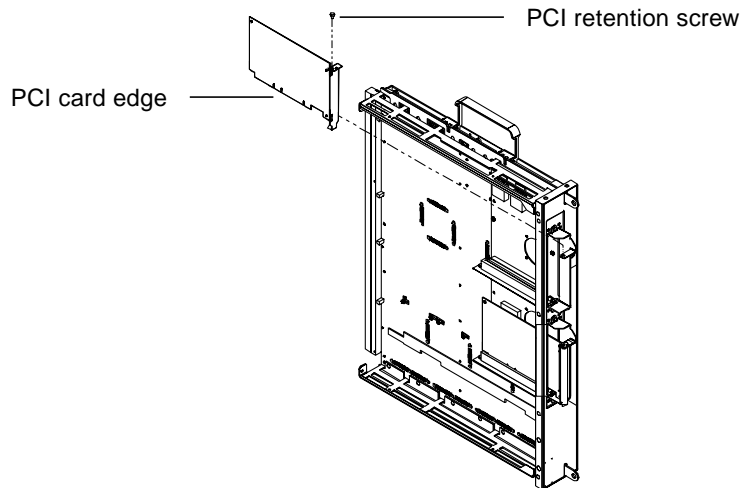


FIGURE 15 PCI Card Installation

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 setting of 0.8 Nm (7.1 inch-pounds). See FIGURE 15.
8. Install the PCI front cover onto the front of the system board tightening to a torque setting of 0.8 Nm (7.1 inch-pounds). See FIGURE 16.

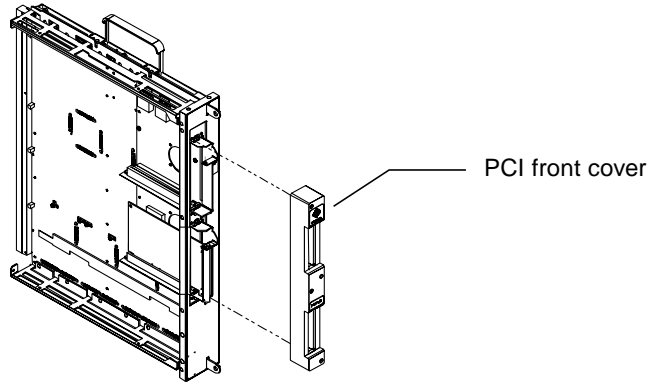


FIGURE 16 PCI Front Cover Installation

9. Replace the system board cover and secure with screws by tightening to a torque setting of 0.8 Nm (7.1 inch-pounds).

Installing a System Board

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

```
ssp% edd_cmd
```

The returned message should show `State = started-monitoring`. If it does not, you must 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 insertion 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 faceplate 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 that the amount of available power is sufficient for the number 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 ¹	Required 200V, 30A 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	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.

