

OCTANE™ Texture Memory Option Board Installation Guide

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St. Peter's Basilica image courtesy of ENEL SpA and InfoByte SpA. Disk Thrower image courtesy of Xavier Berenguer, Animatica.

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About this Guide

This guide tells you how to install the texture memory option board on the XIO graphics boards in the OCTANE workstation. It also provides necessary information about the XIO module and XIO graphics boards. The following topics are covered in this guide:

- Chapter 1, "About this Guide."
- Chapter 2, "Installing and Removing a Texture Memory Option Board."
- Appendix A, "Identifying Graphics Boards."
- Appendix B, "Care and Cleaning of the Compression Connector."

It's always a good idea to back up your system when you are installing a new board. If you have not backed up your system recently, take this opportunity to do so. For instructions on backing up your system, see the online *Personal System Administration Guide*.

Additional Hardware Information

OCTANE Hardware Central is an online resource that provides access to hardware movies and other information previously found only in your printed owner's guide, such as port pinout information, user tips, environmental information, and so on. A movie of the texture memory board installation process is included. To access it:

Choose Toolchest > Help > Online Books > SGI EndUser > OCTANE Hardware Central.

Or, access it through your Web browser. In the location window, type
`file:/usr/share/Insight/library/SGI_bookshelves/SGI_EndUser/books/
octane_HWCnt1/index.html` and press Enter.

Hardware Configurations

A listing of available configurations (upgrades and options) is available on the Web. In the location window, type `http://www.sgi.com/Products/hardware/desktop/products/configurator/configurator.html`.

Technical Publications Library

A copy of this manual, as well as other Silicon Graphics technical publications, is found in the Technical Publications Library. To access this library, open your Web browser and enter `http://techpubs.sgi.com/library/`.

Software and System Administration Information

For complete information on installing software, see the online *Personal System Administration Guide*. It is located on your desktop in the Toolchest > Help > Online Books. For more advanced information, see the online *IRIX Admin: Software Installation and Licensing Guide*. For system administration information, see the SGI_Admin section of the online bookshelf.

Product Support

The OCTANE workstation is designed so that you can maintain and repair the workstation without the help of a trained technician. Contact your Silicon Graphics subsidiary or authorized distributor for information about product support.

Silicon Graphics, Inc., provides a comprehensive range of product support for its products. If you are in North America and would like support for your Silicon Graphics supported products, contact the Technical Assistance Center at 1-800-800-4SGI or your authorized service provider. If you are outside North America, contact the Silicon Graphics subsidiary or authorized distributor in your country.

Installing and Removing a Texture Memory Option Board

This chapter provides instructions for installing and removing the texture memory option board on the graphics board installed in the OCTANE workstation.

Two graphics board and texture memory option board configurations are possible in the OCTANE workstation. A single texture memory option board attaches to the OCTANE/SI or SE graphics board, and two texture memory option boards attach to the OCTANE/SSI or SSE graphics board.

The following topics are covered in this chapter:

- “Checking Your Shipment” on page 5.
- “Preparing the Workstation to Install or Remove Texture Memory Option Boards” on page 6.
- “Removing the XIO Module” on page 9.
- “About the XIO Module and XIO Boards” on page 15.
- “Placing a Texture Memory Option Board on the Graphics Board” on page 17.
- “Removing a Texture Memory Option Board From the Graphics Board” on page 21.
- “Replacing the XIO Module” on page 24.
- “Verifying Texture Memory Board Installation” on page 30.
- “Placing a Regulatory Label” on page 31.

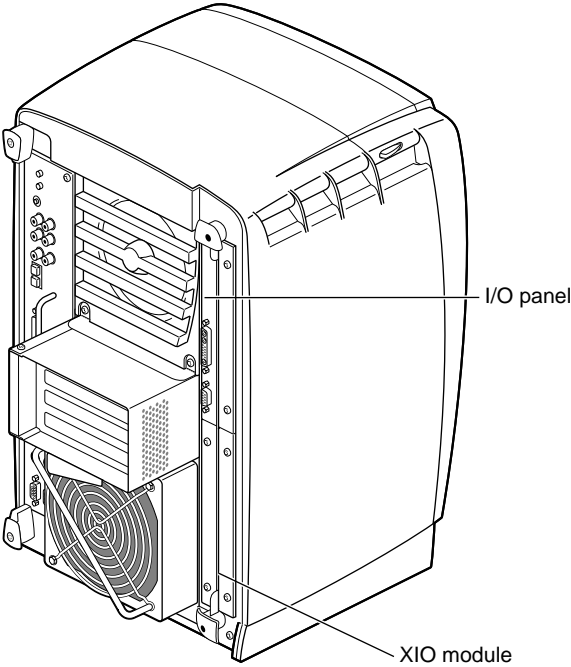


Figure 2-1 Locating the XIO Module

The texture memory option boards attach to graphics boards located on the XIO module in the OCTANE workstation.

Checking Your Shipment

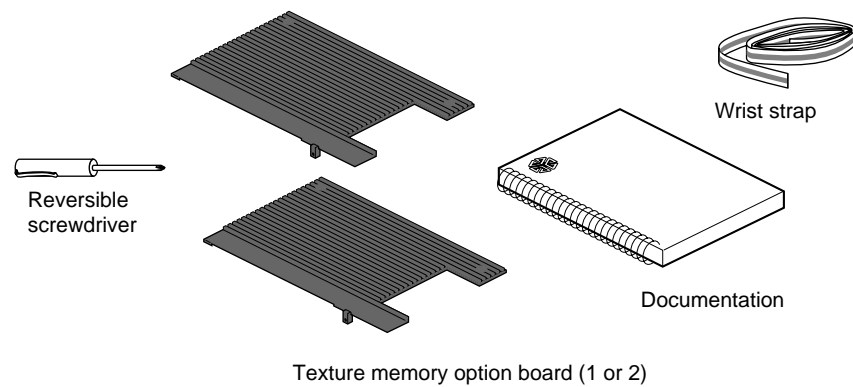


Figure 2-2 Checking Your Shipment

It is always a good idea to check your shipment. You received either one texture memory option board, if you have an SI or SE graphics board, or two texture memory option boards if you have an SSI or SSE graphics board.

Preparing the Workstation to Install or Remove Texture Memory Option Boards

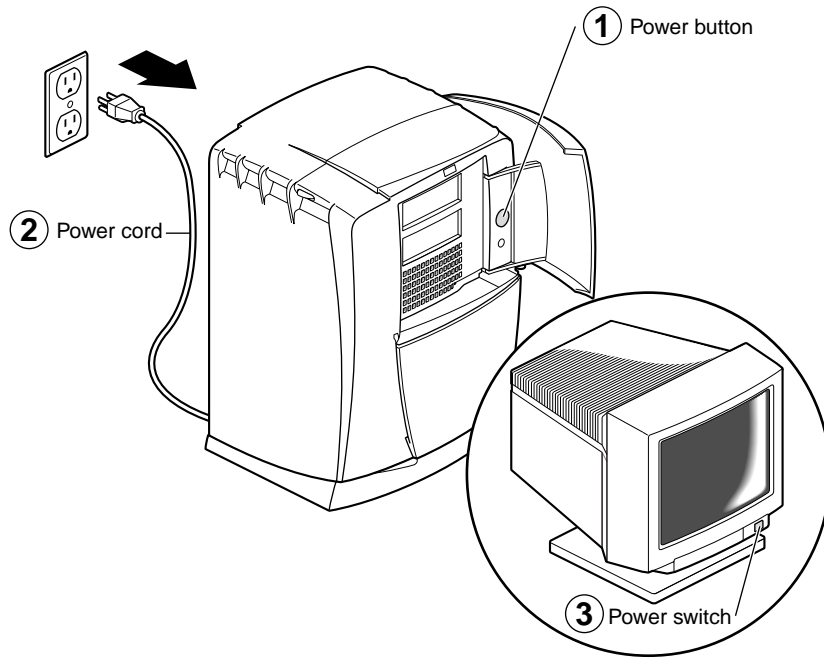


Figure 2-3 Powering Off the OCTANE Workstation

To install or remove texture memory option boards, follow the directions in this chapter to complete your task.

1. Open the cover and push the power button to power off the OCTANE workstation.
2. Unplug the power cord.
3. Power off the monitor by pressing the power switch.
4. Wait 5 minutes before removing the XIO module.



Warning: The heat sinks on the XIO boards become very hot. Wait 5 minutes after powering off the OCTANE workstation before you remove the XIO module. Test before touching any of the XIO boards.

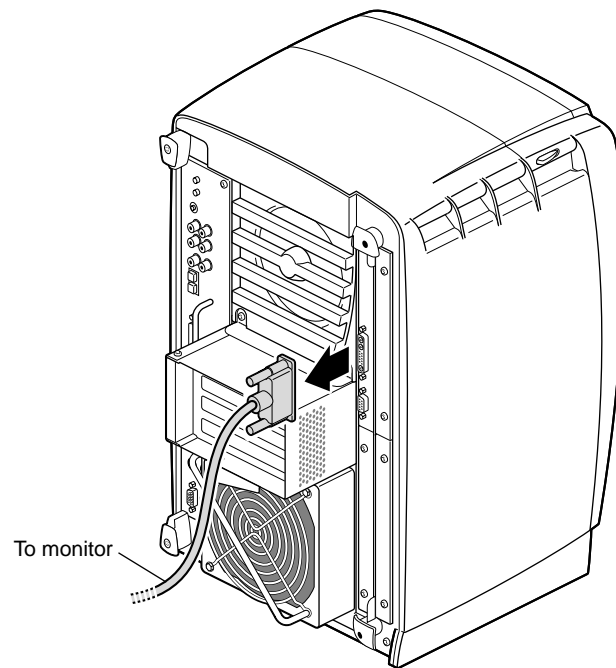


Figure 2-4 Removing the Monitor Cable

5. Remove all the cables from the XIO module (only one is shown here).

Attaching the Wrist Strap

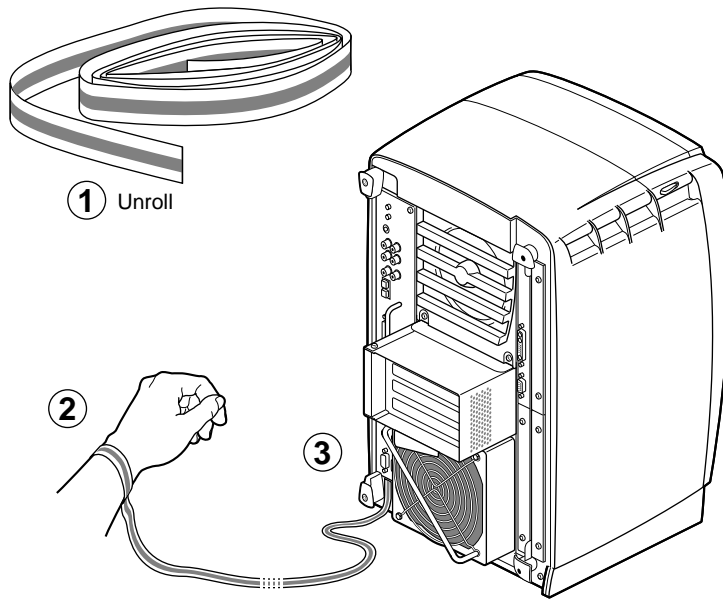


Figure 2-5 Attaching the Wrist Strap

Caution: The components inside the OCTANE workstation are extremely sensitive to static electricity; you must wear the wrist strap while replacing parts inside the workstation.

To attach the wrist strap, follow these steps:

1. Unwrap the first two folds of the band and wrap the exposed adhesive side firmly around your wrist.
2. Unroll the rest of the band and peel the liner from the copper foil at the opposite end.
3. Attach the copper foil to the XIO module. Otherwise, use any convenient and exposed electrical ground, such as a metal part of the OCTANE workstation.

Removing the XIO Module

Before removing the XIO module, you must power off the OCTANE workstation, wait 5 minutes, and attach the wriststrap. If you have not already done this, go to “Preparing the Workstation to Install or Remove Texture Memory Option Boards” on page 6 and follow the instructions through attaching the wriststrap. Then return here and follow the directions beginning with step 1 on page 10.

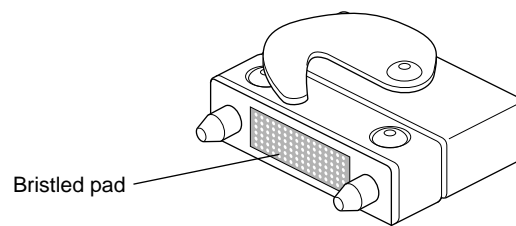


Figure 2-6 Identifying the Compression Connector

Caution: Before you remove the XIO module, be aware the compression connectors are on graphics and option boards. The connectors are on the side opposite the handles. Do not grab the back of the XIO module when you remove it, or the compression connectors may be damaged.

Appendix B, “Care and Cleaning of the Compression Connector,” provides information about the compression connector.

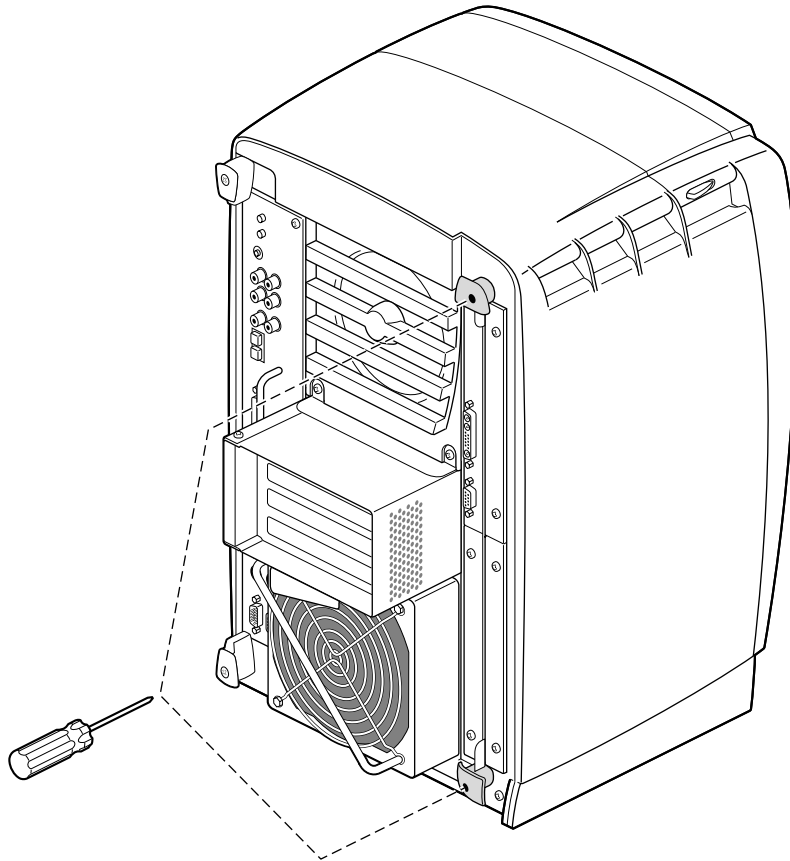


Figure 2-7 Removing the XIO Module Screws



Warning: The heat sinks on the XIO boards become very hot. Wait 5 minutes after powering off the OCTANE workstation before you remove the XIO module. Test before touching any of the XIO boards.

1. Loosen the two captive screws in the XIO module handles with the supplied Phillips screwdriver until the screws are disconnected from the chassis.

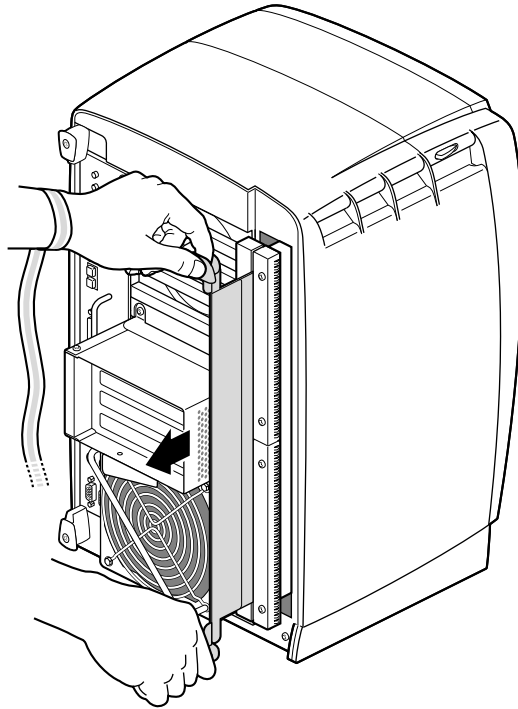


Figure 2-8 Releasing the XIO Module

2. Grasp the handles and pull until the XIO module protrudes about an inch from the chassis.
The handles and XIO module move out about one inch before the I/O panels move.
3. Pull gently on the handles until the XIO module is about three or four inches out of the workstation.

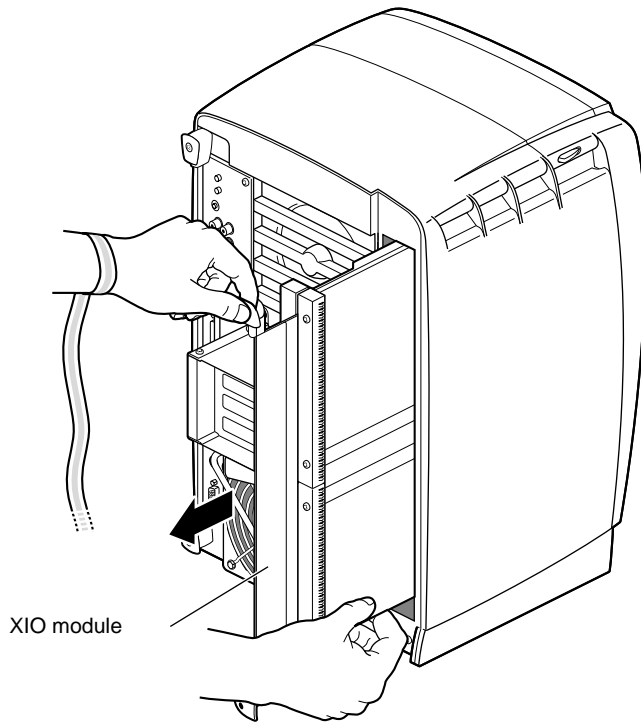


Figure 2-9 Removing the XIO Module

4. Grasp the XIO module along its length, and support the base of the module as you remove it from the chassis.

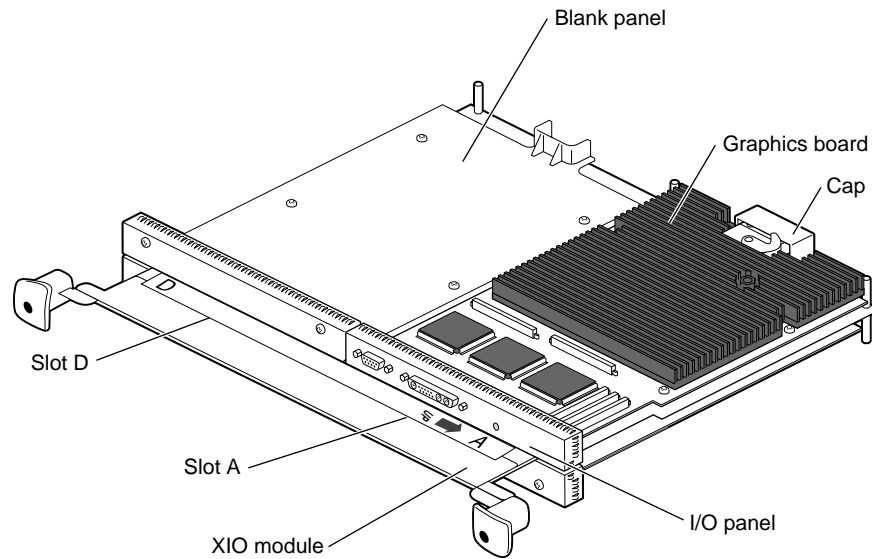


Figure 2-10 Placing the XIO Module on Its Side

The handle area protrudes when the XIO module is out of the chassis. When the handle is in this position, the identification slots for the XIO boards D and A (shown) and B and C are visible. See Figure 2-10.

Note: Do not push on the handle area after you have removed the XIO module. The XIO module locks to the workstation only if the handle area is protruding.

5. Place the XIO module on a flat, antistatic surface. An empty antistatic bag on your desk works well. Because slots B and C are on the reverse side of the XIO module from slots A and D, choose the slot in which you will place the XIO standalone board. Then turn the XIO module so that slot faces you.

Note: Protective compression connector caps come with the OCTANE workstation. The cap is placed on any compression connector as soon as the XIO module is removed from the chassis, and then removed before placing the XIO module back in the chassis.

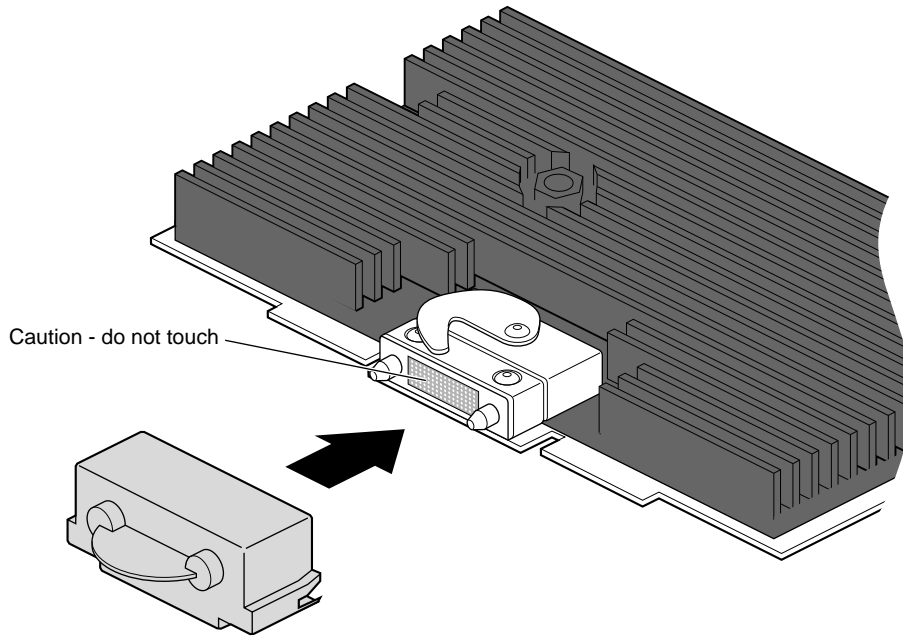


Figure 2-11 Placing a Cap on the XIO Compression Connector

6. Place a cap on the XIO graphics board compression connector. Spare caps come with the OCTANE workstation. See Figure 2-10.

Caution: Do not touch or bump the gold (front) surface of the XIO compression connector. Touching it could damage the connector. Place a protective cap on XIO compression connector to prevent damage when the XIO boards are removed from the OCTANE workstation. See Appendix B, "Care and Cleaning of the Compression Connector."

About the XIO Module and XIO Boards

The XIO module is the holding mechanism for XIO graphics or XIO option boards and hold up to four boards. It can be thought of as a tray to which boards are attached. The four quadrants of the XIO module are slots A, B, C, and D. Slots D and A are on one side, slots B and C on the other. A graphics board, option board, or blank panel attaches to each slot on the XIO module. The only exception is the OCTANE/SSI (or SSE) or OCTANE/MXI (or MXE) graphics boards, which occupy the space of slots A and D; they use one XIO connector attaching from the slot A position.

- The XIO graphics board must be placed toward the top right of the workstation or it may overheat and be damaged.
- The graphics board must be in slot A or slots A and D.
- Option boards occupy slots B and C and possibly D.
- Graphics and option boards may be linked by flex cables.
- Protective blank panels must be placed in unused slots.
- Caps for the compression connectors are part of the workstation shipment.

Before installing a texture memory option board you must power off the OCTANE workstation, wait 5 minutes for the heat sinks to cool, attach a wriststrap, and remove the XIO module. If you have not already done so, see "Preparing the Workstation to Install or Remove Texture Memory Option Boards" on page 6 and follow the instructions through removing the XIO module. Be sure to also read "About the XIO Module and XIO Boards" before beginning your task.

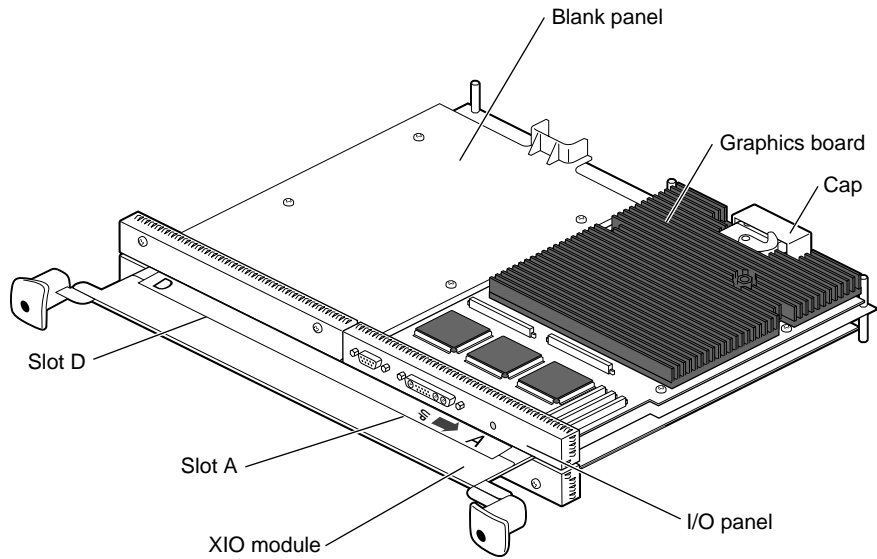


Figure 2-12 Identifying the Graphics Board



Warning: The heat sinks on the XIO boards become very hot. Wait 5 minutes after powering off the OCTANE workstation before you remove the XIO module. Test before touching any of the XIO boards.

Graphics boards may be in one slot (A) or two (D and A). Figure 2-12 shows the OCTANE/SI (or SE) graphics board in Slot A. The OCTANE/SSI (or SSE) graphics board uses slots A and D.

Placing a Texture Memory Option Board on the Graphics Board

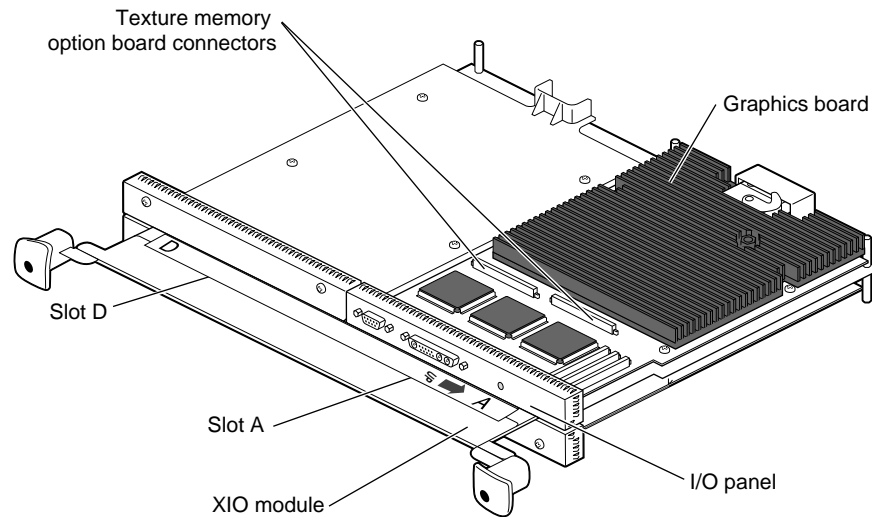


Figure 2-13 Installing the Texture Memory Option Board on the OCTANE/SI (or SE) Graphics Board

Before installing a texture memory option board you must power off the OCTANE workstation, wait 5 minutes for the heat sinks to cool, attach a wriststrap, and remove the XIO module. If you have not already done so, see "Preparing the Workstation to Install or Remove Texture Memory Option Boards" on page 6 and follow the instructions through removing the XIO module. Be sure to also read "About the XIO Module and XIO Boards" before beginning your task.

Use the same process to install texture memory option boards on the OCTANE/SI (or SE) and OCTANE/SSI (or SSE) graphics boards.

A single texture memory option board installs on the OCTANE/SI (or SE) graphics board. See Figure 2-13.

1. Locate the texture memory option board connectors on the OCTANE/SI (or SE) or OCTANE/SSI (or SSE) graphics board.

See Figure 2-14 for the location of the connectors on the OCTANE/SSI (or SSE) graphics board.

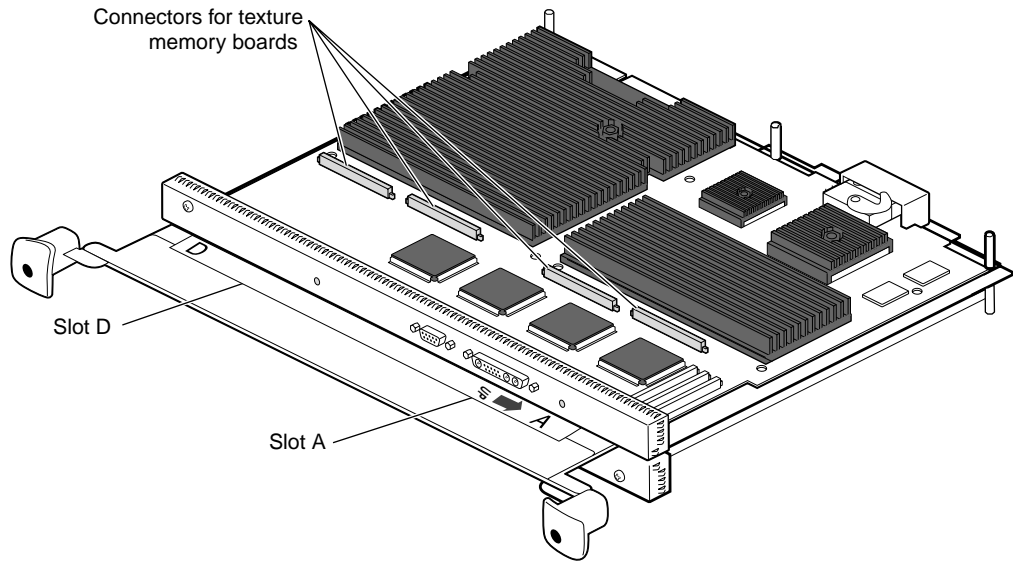


Figure 2-14 Locating the Connectors for the Texture Memory Option Board on the OCTANE/SSI (or SSE) Graphics Board

Two texture memory option boards install, side by side, on the OCTANE/SSI (or SSE) graphics board. See Figure 2-14.

If you are installing two texture memory option boards on the OCTANE/SSI (or SSE) graphics board, begin with the set of connectors near the D slot designation, as shown in Figure 2-14.

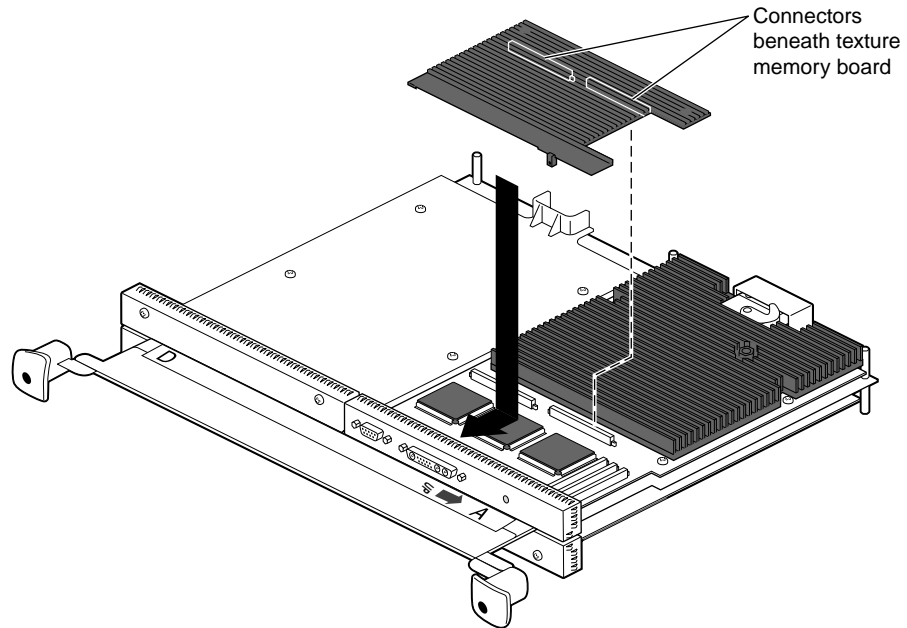


Figure 2-15 Installing the Texture Memory Option Board on the OCTANE/SI or SE Graphics Board

2. Align the texture memory option board above the graphics board as shown in Figure 2-15.
3. Lower the texture memory option board and slide the front edge under the I/O panel.
4. Align the two long connectors on the underside of the texture memory option board with the two connectors on the graphics board.
5. Press on the top of the texture memory option board above the connectors to seat the connectors.

Note: These connectors must be fully seated for the texture memory board to be recognized.

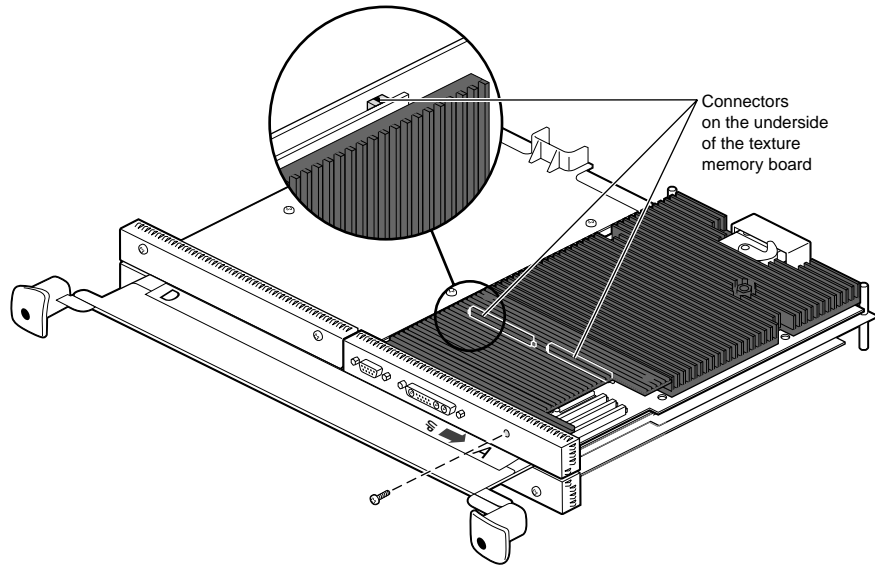


Figure 2-16 Inserting the Nylon Screw

6. Place and tighten the nylon screw that came with the texture memory board through the hole in the I/O panel and into the hole on the texture memory option board as shown in Figure 2-16.

Caution: Do not use a metal screw; your board will not perform properly. Order another nylon screw from your authorized service provider if this screw is lost or damaged.

If you are installing texture memory boards on the OCTANE/SSI (or SSE) board, repeat the above steps to install the second board. (After the texture memory boards are installed, the OCTANE/SSI [or SSE] graphics board is known as the OCTANE/MXI [or MXE] graphics board.)

You are finished installing the texture memory option board and are ready to install the XIO module. Go to “Replacing the XIO Module” on page 24.

Removing a Texture Memory Option Board From the Graphics Board

Before removing a texture memory option board you must power off the OCTANE workstation, wait 5 minutes for the heat sinks to cool, attach a wrist strap, and remove the XIO module. If you have not already done so, see “Preparing the Workstation to Install or Remove Texture Memory Option Boards” on page 6 and follow the instructions through removing the XIO module. Be sure to also read “About the XIO Module and XIO Boards” before beginning your task.

Use the same process to remove texture memory option boards on the OCTANE/SI (or SE) and OCTANE/MXI (or MXE) graphics boards.

A single texture memory option board is installed on the OCTANE/SI (or SE) graphics board. Two texture memory option boards are installed on the OCTANE/MXI (or MXE) graphics board.

If you are removing texture memory option boards from the OCTANE/MXI (or MXE) graphics board, begin with the texture memory option board closest to slot A.

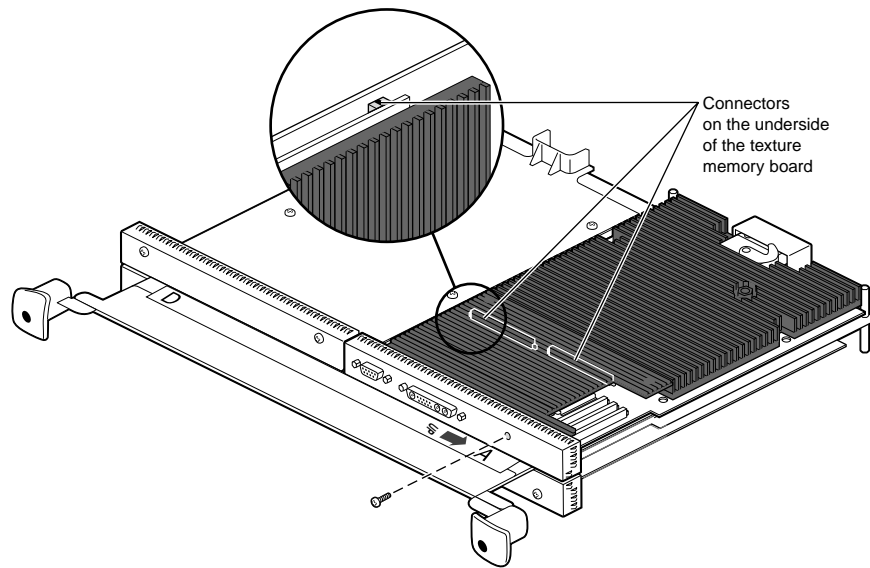


Figure 2-17 Removing the Screw Holding the Texture Memory Option Board to the I/O Panel

1. Remove the nylon screw from the I/O panel.

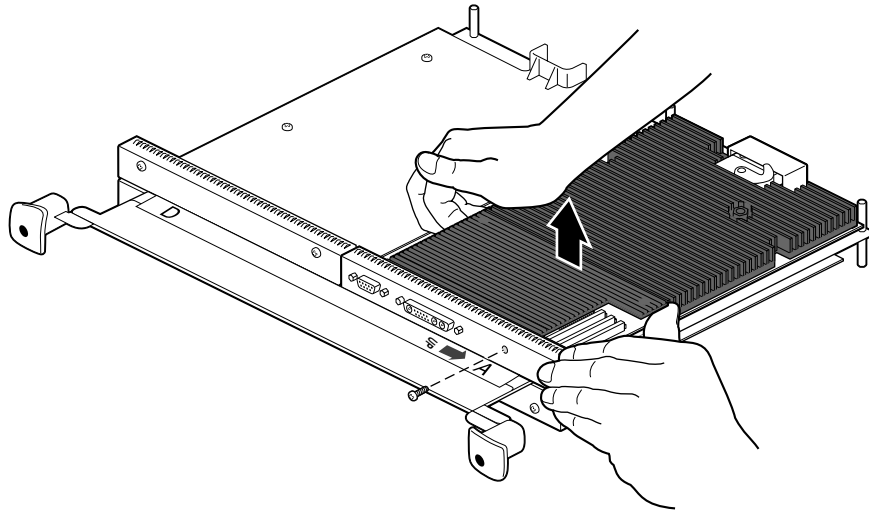


Figure 2-18 Releasing the Texture Memory Option Board From the Graphics Board

2. Push up on the ends of the texture memory option board farthest from the I/O panel to release the two connectors beneath.

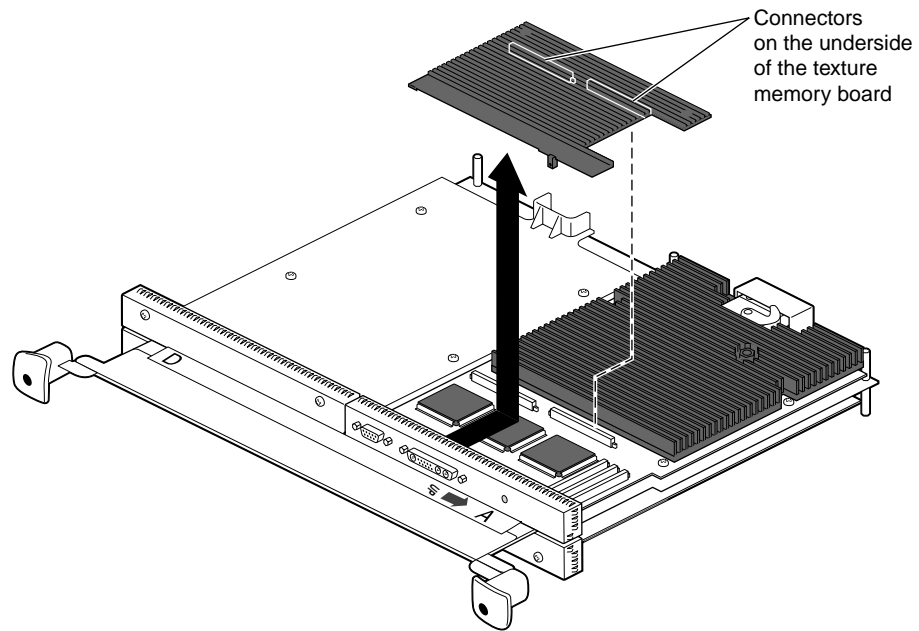


Figure 2-19 Removing the Texture Memory Option Board

3. Lift up and back to remove the texture memory option board from beneath the edge of the I/O panel.

Caution: If you are removing texture memory option boards from the OCTANE/MXI graphics board, be sure to remove both texture memory option boards. Follow the instructions in this section. Both texture memory boards must be removed for the OCTANE/MXI graphics board to work properly.

If you are finished removing texture memory option boards, go to the next section, "Replacing the XIO Module."

Replacing the XIO Module

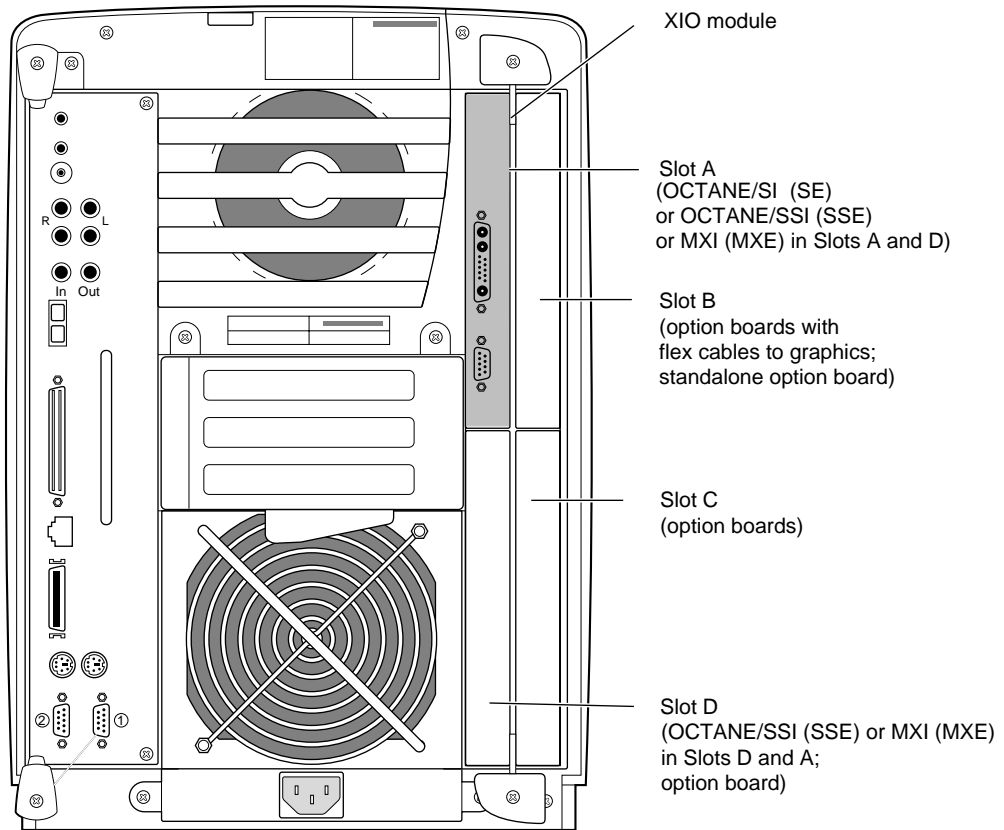


Figure 2-20 Installing the Slots A and D on the XIO Module Toward the Interior of the OCTANE Workstation

Caution: Replace XIO module with the graphics board towards the top and left of the workstation, otherwise the boards may be damaged. If the XIO module is inserted with the OCTANE/SSI (or SSE) or OCTANE/MXI (or MXE) graphics boards placed toward the top and right of the workstation, a notifier appears during power on telling you to insert the XIO module with the graphics boards toward the interior of the workstation.

Follow these instructions to install the XIO module:

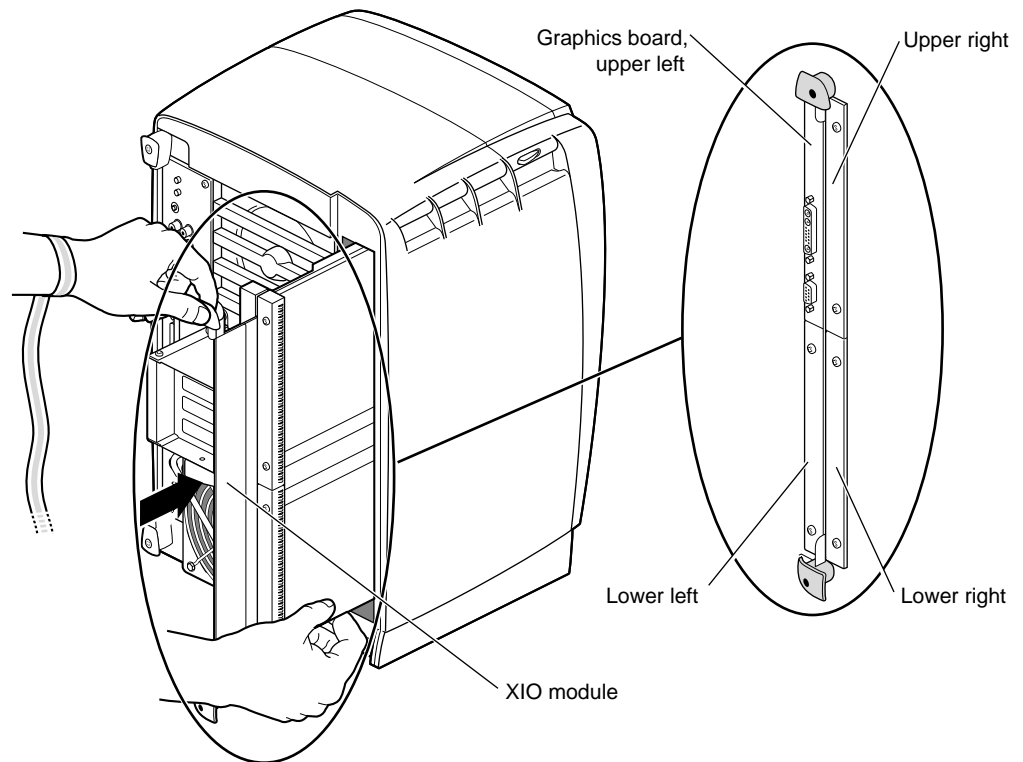


Figure 2-21 Positioning the XIO Module

1. Slide the XIO module into guides on the top and bottom of the workstation with the graphics board to the upper left.
2. Before you insert the XIO module, make sure the handle portion protrudes in a locked position from the I/O panels, as shown in Figure 2-21.

If the handles are flush with the I/O panels, the XIO module stops during insertion. Pull out the handles until the handle portion of the XIO module looks like Figure 2-21.

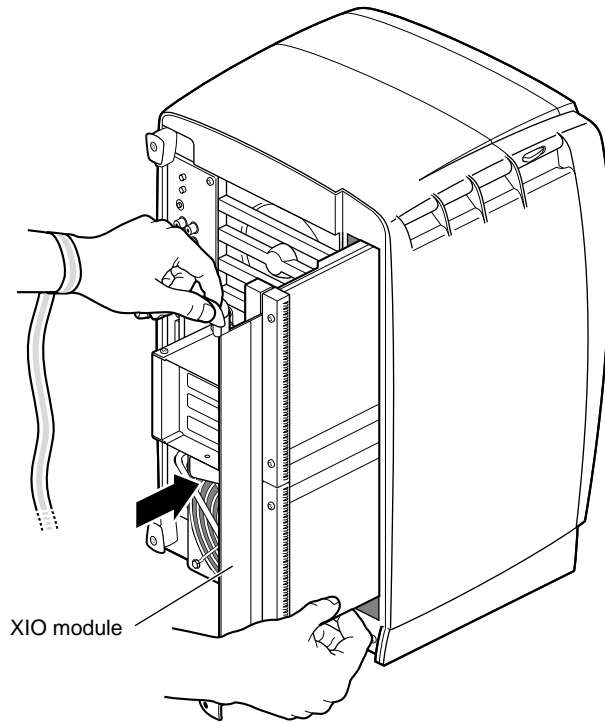


Figure 2-22 Inserting the XIO Module

3. Grasp the handle area while supporting the XIO module, and slide the module into to the chassis.
4. Use the handles to push the XIO module into a locked position. (The I/O panels are nearly flush with the workstation when properly inserted, however, there is a slight variation in the depth of the boards.)

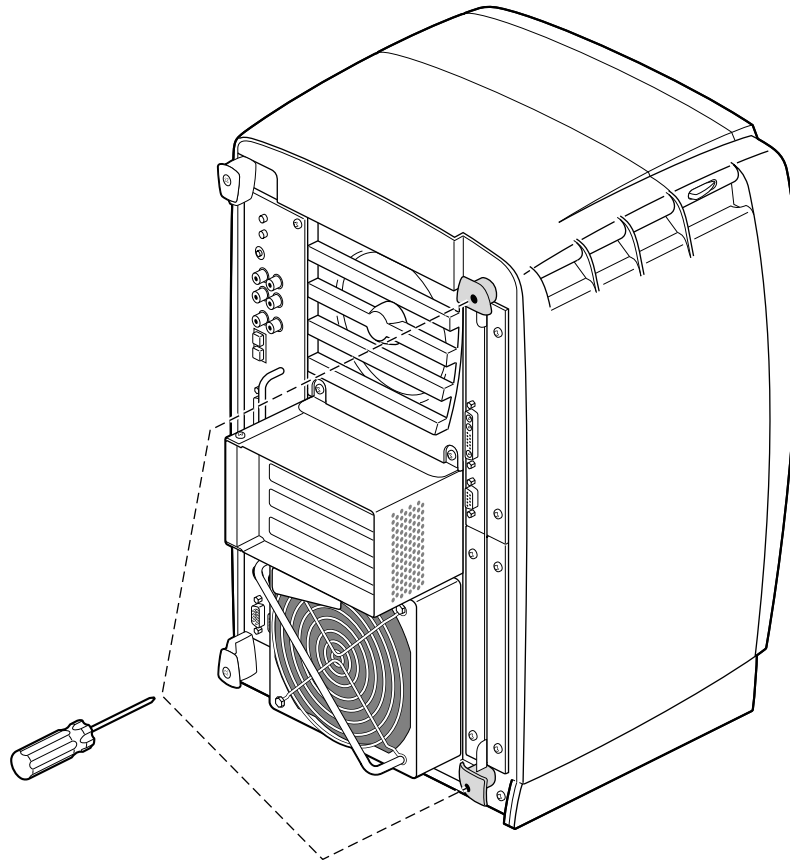


Figure 2-23 Replacing the XIO Module Screws

5. Tighten the captive screws in the handles so that the XIO module is attached to the OCTANE workstation.
6. Remove the wrist strap.

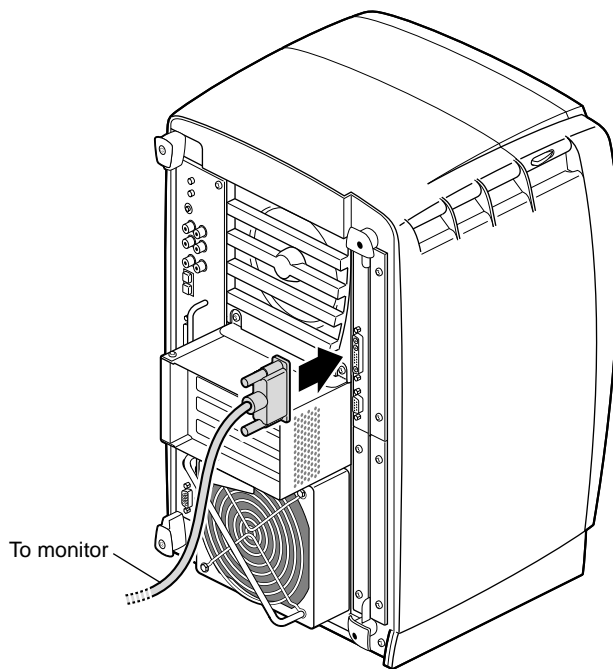


Figure 2-24 Replacing the Monitor Cable

7. Reconnect all cables to the XIO module.

You have finished replacing the XIO module.

Go to “Powering On the OCTANE Workstation” on page 29.

Powering On the OCTANE Workstation

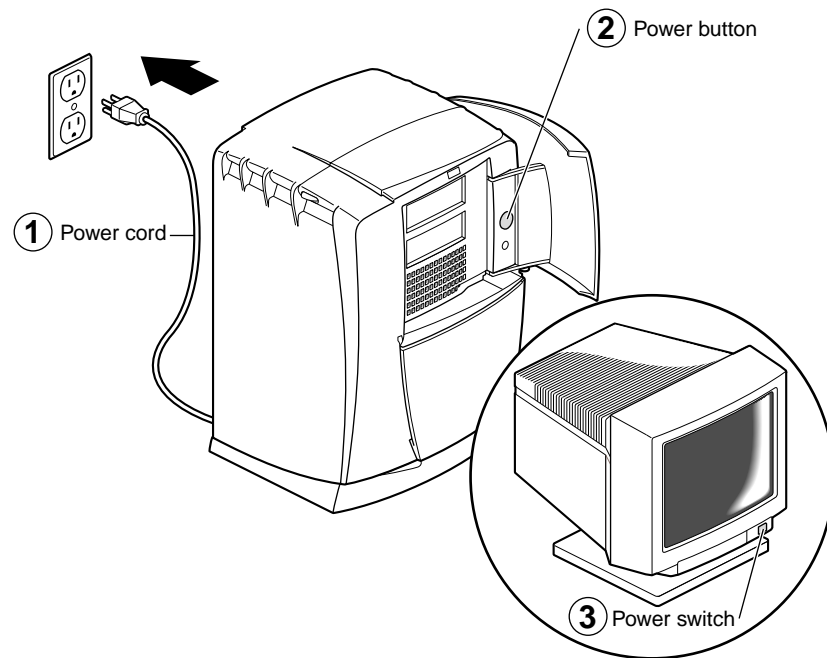


Figure 2-25 Powering On the OCTANE Workstation

Before powering on, read the next section for instructions on verifying the installation. The verification process begins during the power on sequence. During the power on sequence, at the Starting Up the System notifier, click the Stop for Maintenance button, then follow the instructions in the next section, “Verifying Texture Memory Board Installation” on page 30.

1. Plug the power cord into an electrical outlet.
2. Push the power button on the front of the OCTANE workstation.
3. Push the power switch on your monitor.

Verifying Texture Memory Board Installation

To determine if your texture memory board is properly installed, verify the installation by accessing the System Maintenance Menu.

1. During power on, at the Starting Up the System notifier, click the Stop for Maintenance button, or press **Esc** to bring up the System Maintenance Menu.
 2. Choose option 5, Enter Command Monitor.
 3. At the prompt, type **hinv**.
 4. Look for a line that begins with Graphics. Depending on the version of the graphics board, you see one of the following:
 - SI or ESI
 - SI with texture option or ESI with texture option
 - SSI or ESSI
 - MXI or EMXI
- Note:** MXI (or MXE) is an SSI (or SSE) with two texture memory boards installed.
5. If either SI (or SE) with texture option or MXI (or MXE) is reported, the texture memory option board is properly installed and recognized by the OCTANE workstation. No additional information is provided if two texture memory option boards are installed.
 6. If you do not see SI (or SE) with texture option or MXI (or MXE), power off the OCTANE workstation and repeat the installation process. Follow the instructions in this guide. Press firmly above the texture memory board connectors to ensure they are properly seated.
 7. If the texture memory option board is still not recognized when accessing *hinv*, call your authorized service representative.

Placing a Regulatory Label

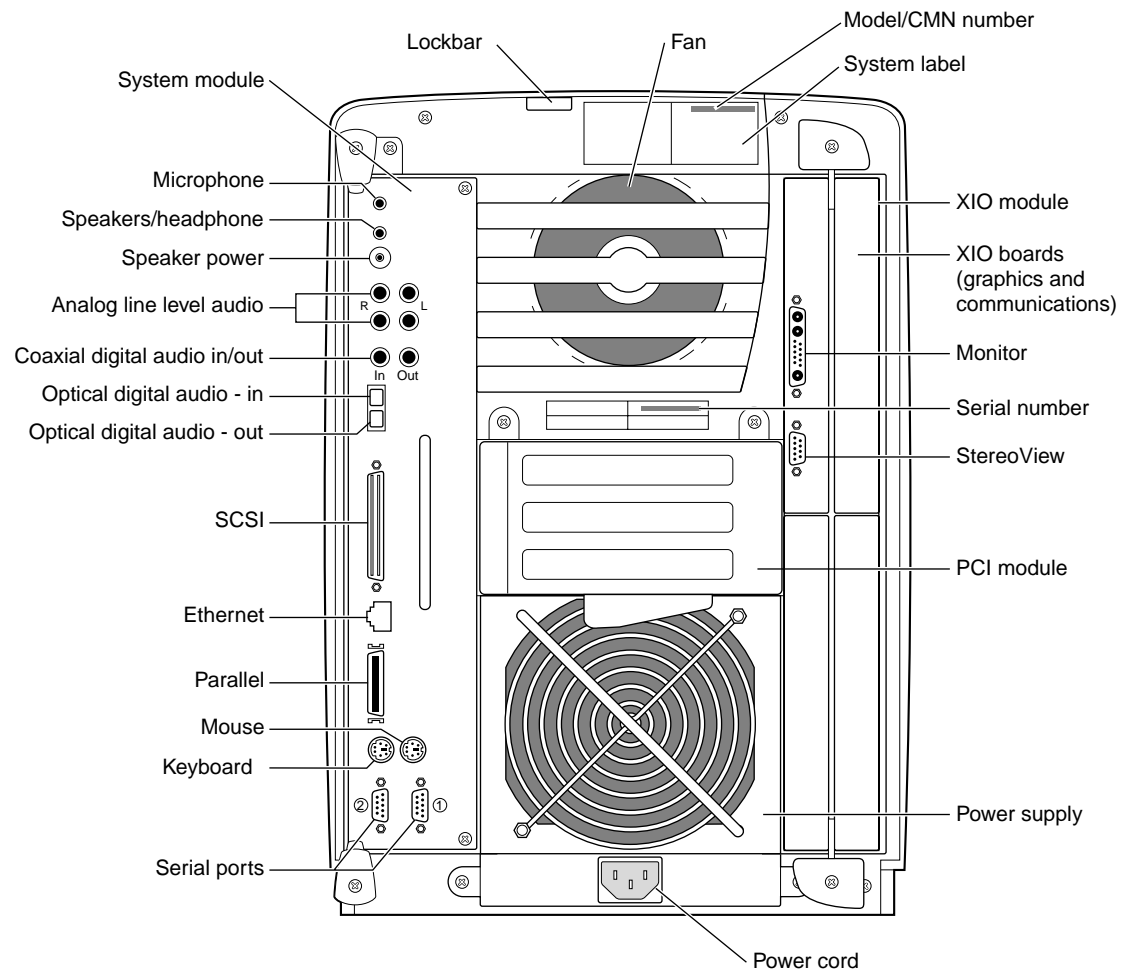


Figure 2-26 Rear View of the OCTANE Workstation

If you received a system upgrade label, place it on the system label.

1. Face the back of the OCTANE workstation. The system label (containing the model/CMN number) is located at the top center of the back of the workstation.
2. Place the label over the VCCI and SISPR 22 information.

Returning Parts

To return any part, use the packaging materials and box that came with your replacement part.

For product support information, see Chapter 1 of this guide.

Identifying Graphics Boards

This appendix provides illustrations of the graphics boards for the OCTANE workstation.

The OCTANE SI and SE graphics boards, the SSI and SSE graphics boards, and the MXI and MXE graphics boards are physically identical. They differ only in functionality. To identify which version you have, follow these instructions:

1. From the Toolchest, open a UNIX shell.
2. At the prompt, type: `hinv`
3. Look for a line that begins with Graphics.

You see one of the following:

- SI or ESI
- SI with texture option or ESI with texture option
- SSI or ESSI
- MXI or EMXI

Note: MXI (or MXE) is an SSI (or SSE) with two texture memory boards installed.

Table A-1

IF you see...	It is
ESI	An SE graphics board
ESSI	An SSE graphics board
EMXI	An MXE graphics board

OCTANE/SI or SE Graphics Board

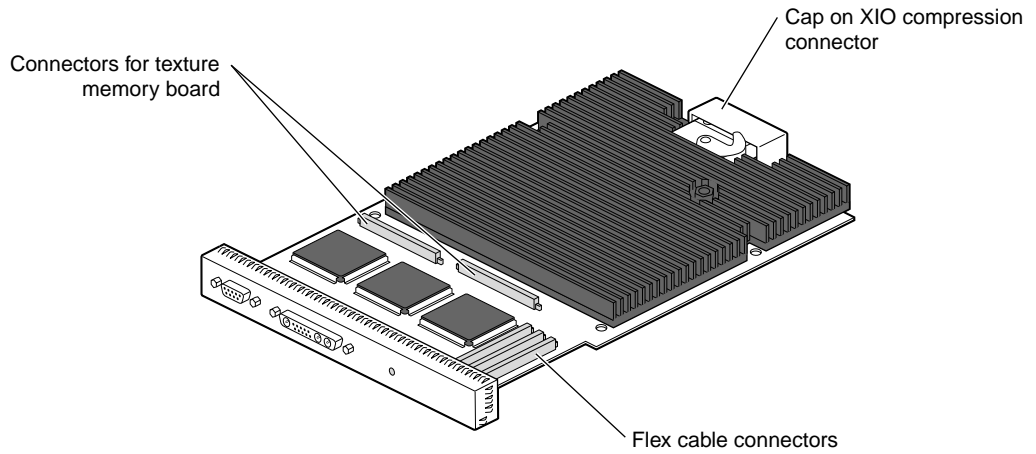


Figure A-1 OCTANE/SI or SE Graphics Board

OCTANE/SI or SE Graphics Board With the Texture Memory Option Board

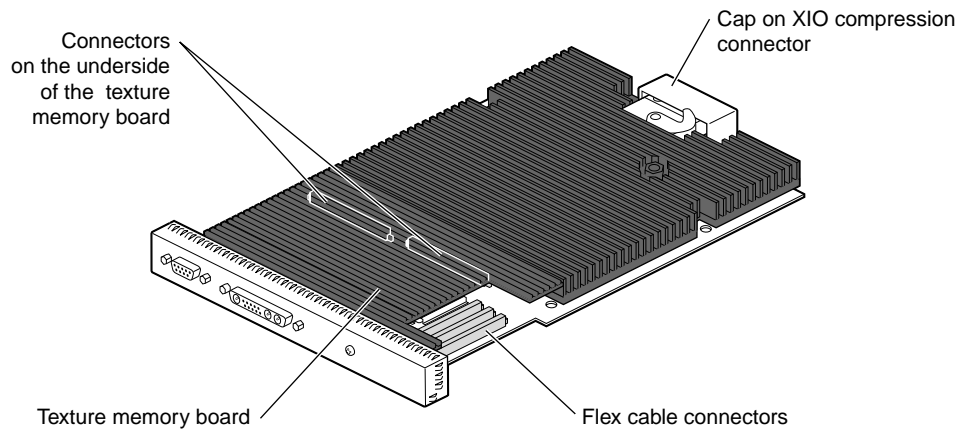


Figure A-2 OCTANE/SI or SE Board With the Texture Memory Option Board

OCTANE/SSI or SSE Graphics Board

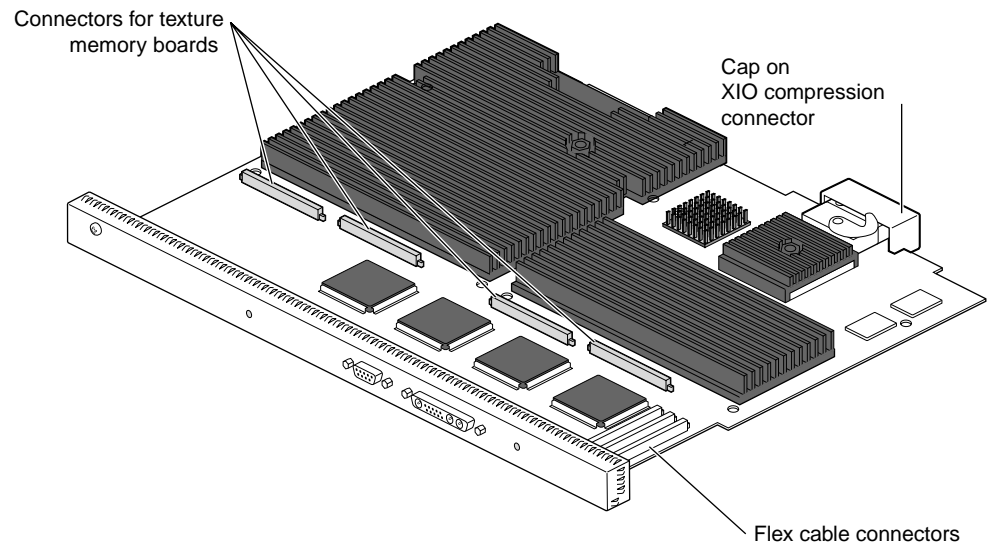


Figure A-3 OCTANE/SSI or SSE Graphics Board

OCTANE/MXI or MXE Graphics Board

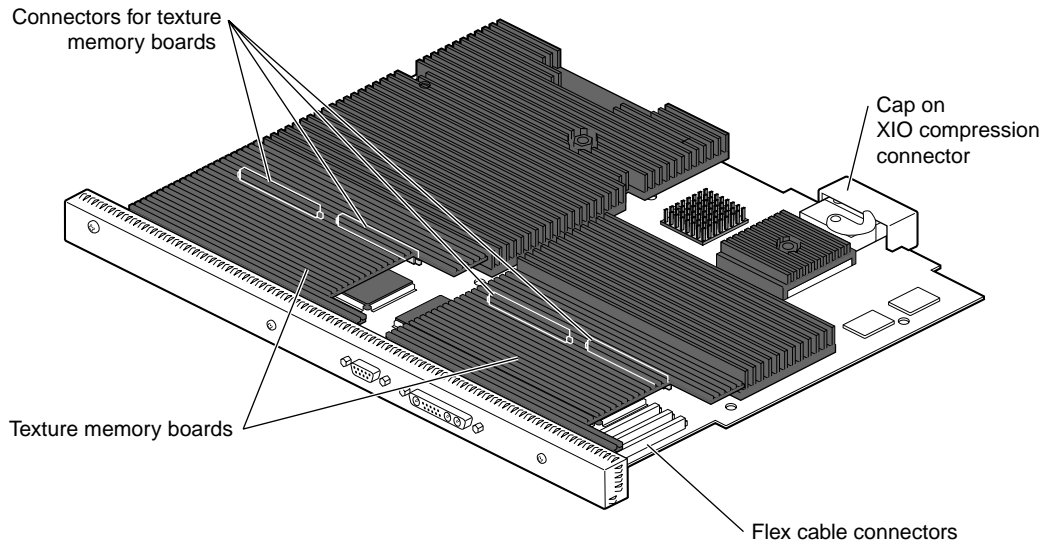


Figure A-4 OCTANE/MXI or MXE Graphics Board

Care and Cleaning of the Compression Connector

The OCTANE workstation uses compression connectors to connect several modules and boards to the frontplane.

A single compression connector is used in the OCTANE workstation:

- on the back of the PCI module
- on each XIO board on the XIO module

Two compression connectors are used on the system module.

The compression connector has 96 pads that enable signals to pass between the system (via the frontplane) and the system module, PCI module, or XIO board.

The compression connector has two halves: One half is located on the frontplane of the chassis; the other, on the system module, PCI module, or XIO board. Each pad on a frontplane connector is a flat gold-plated surface. Each pad on the system module, PCI module, or XIO board is composed of hundreds of tiny bristles (dendrites). When a bristled pad is pressed into a gold-plated pad, a connection is created for one signal.

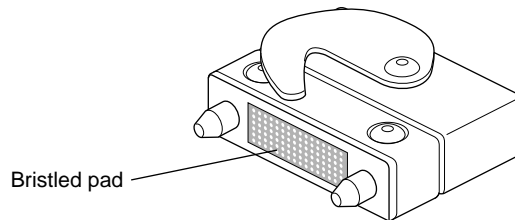


Figure B-1 Identifying the Bristled Pad of the Compression Connector

The bristled pads may attract and hold dust, lint, grease, powder, and dirt. The presence of these substances clogs or damages the bristles and prevents them from making proper contact with the gold-plated pads on the system's frontplane. It is important to prevent this.

Guidelines for Storing and Handling the Compression Connector

To avoid damaging a compression connector and to keep it in optimal working condition, follow these guidelines whenever the board is not installed.

Caution: Failure to follow these instructions can result in irreparable damage to the surface of the connector's pads, which may result in intermittent or complete failure of the product.

- Do not wipe or touch the pads of the compression connector with anything (no human fingers, no brushes, no cloth, no probes), except as specified in the cleaning instructions. The bristles might be damaged.
- Whenever the module or board is not in the chassis, put the protective cap over the compression connector and put the module or board in an antistatic bag. Make sure to close (fold over) the open end of the bag to minimize exposure to dust and atmospheric gases.
- Do not put anything (not even water) onto the pads, except as specified in the cleaning instructions.
- Before laying the board on a surface, make sure that the surface is free of dust, lint, powder, metal filings, oil, water, and so on.
- Do not blow dust, dirt, or powder anywhere near the board when it is not inside its protective bag.

Guidelines for Cleaning the Compression Connector

A compression connector should never need to be cleaned if you keep the protective cover on whenever the module or board is not in the chassis. However, if the connector becomes dirty, follow the instructions below for removing pollutants.

Note: Some pollutants can irreversibly damage (corrode or chemically alter) the pad surfaces. Although cleaning may remove the pollutant, it does not repair damage incurred by this contact.

To remove pollutants, follow these instructions:

1. Obtain a can of dry compressed air or inert gas. The Envi-ro-tech Duster 1671 product manufactured by TECHSPRAY (In the USA, telephone 806-372-8523) works extremely well for this application.

Caution: Do not use a cleaning product that contains any of the following ingredients: halogenated hydrocarbons, aromatic hydrocarbons, ethers, sulfur, ketones, or solvents of any kind. These substances cause irreparable damage to the connector's surface.

2. Prepare the can for use, as instructed on the can. For example, if a tube is provided, attach it to the can's dispensing mechanism.

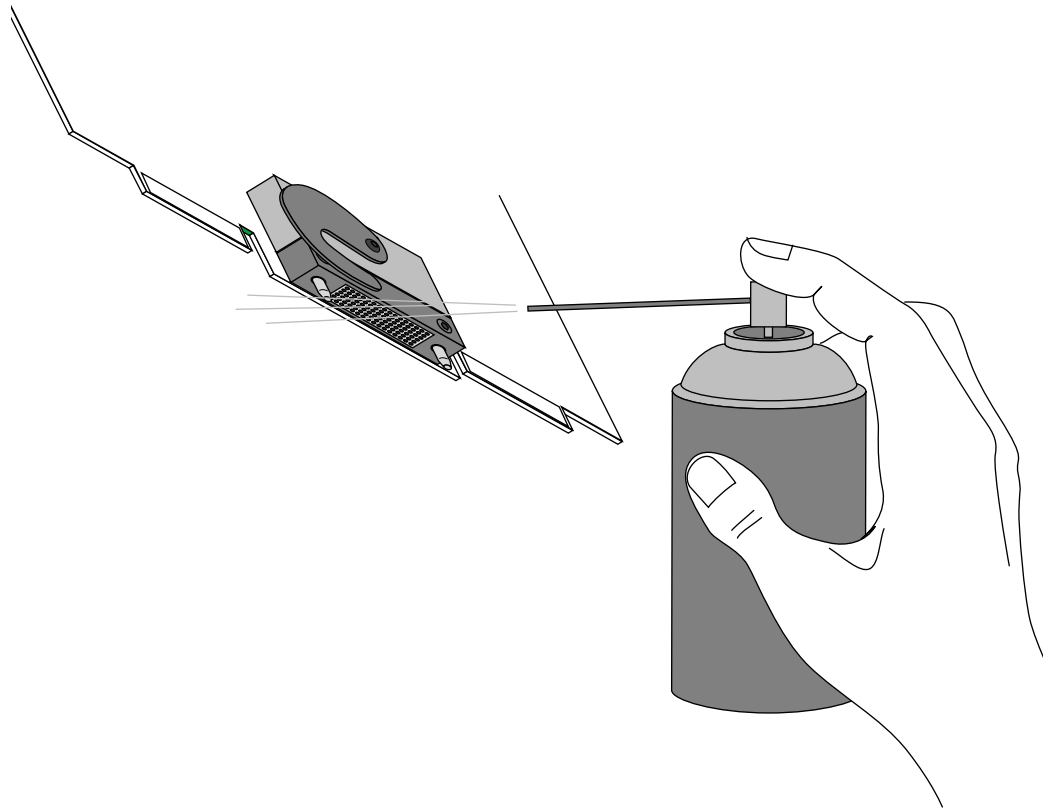


Figure B-2 Spraying the Compression Connector

3. Hold the can in a vertical position.
4. Place or hold the XIO board so that the rounded edge of the compression connector faces up. Note that the rounded edge is completely closed, so that air cannot flow into the connector, whereas the squared edge has an opening.

Caution: Spraying into the squared (open) edge of the connector can destroy it.

5. Position the XIO board at an angle to the can, so that the tip of the can's applicator is 1 to 2 inches away from the first (topmost) row of pads. Do not allow the applicator to touch the pads. When you spray, the air hits each pad and flows downward.
6. Start spraying. As you spray, move the spray along the length of the connector until the entire length has been sprayed. Move down a few rows and again spray along the entire length.

Note: Do not shake the can. Stop spraying if any visible material (for example, foam) appears. This foam will blow away once you resume spraying just air.

7. Repeat until all the pads have been sprayed.
8. When you finish, cover the compression connector with its cap or immediately install the board in an XIO slot.

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