Indigo^2 IMPACT Compression™ Owner's Guide

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About This Guide

This owner's guide describes how to install the Indigo^2 IMPACT Compression™ board. The guide is organized as follows:

- Chapter 1 provides an overview of the features of the Indigo^2 IMPACT Compression board.
- Chapter 2 provides instructions for preparing to install the Indigo^2 IMPACT Compression board.
- Chapter 3 describes how to install the Indigo^2 IMPACT Compression board to the graphics board set.
- Chapter 4 describes how to complete the installation.
- Appendix A provides information on identifying IMPACT graphics board sets.
- Appendix B provides regulatory information.

Chapter 1

Introduction

The Indigo^2 IMPACT Compression motion JPEG option board provides two independent channels of full-resolution, full-motion, real-time video compression and decompression for Indigo^2 IMPACT workstations. It provides everything required for most video applications: video I/O (composite or S--video) with genlock, capture, compression/decompression, and playback. The Indigo^2 IMPACT Compression is compatible with all Indigo^2 IMPACT graphics solutions.

The IMPACT Compression board works alone, or linked to the Indigo^2 IMPACT Video board for applications that require broadcast quality. The two boards are linked together by a dedicated data path, ensuring real-time passage of digital video data and allowing compressed digital video streams to be used as elements in effects such as real-time keying, blending, and video texture mapping. This digital video solution provides an ideal environment for broadcast-quality non-linear editing, spot playback, and still storage.

Table 1-1 lists the key features and specification of the IMPACT Compression video board.

Table 1-1 Indigo^2 IMPACT Compression Board Specifications

System Compatibility:		
Indigo^2 IMPACT		
Single-slot GIO		
Internal digital interface to Indigo^2 IMPACT Video		
Video Inputs:	**Video Outputs:**	**Connectors:**
Composite	Composite	RCA Phono Jack
Y/C (S-Video)* Genlock Input	Y/C (S-Video)	S-Video (mini-circular DIN)
Standards Supported:		

Table 1-1 Indigo^2 IMPACT Compression Board Specifications

System Compatibility:
NTSC square pixel (525/60)
NTSC CCIR-601 (525/60)
PAL square pixel (625/50)
PAL CCIR-601 (625/50)
Processing:
2 independent JPEG compression/decompression channels
Zoran ZR36050 and ZR36016 per channel
2 uncompressed raw channels
Real-time color space conversion between RGB and YUV
Arbitrary down scaling of all video formats
Audio/video synchronization
*Pin 6 of the S-video Input connector has a +12V supply that can be used to power a camera. There is a 0.3 Amp fuse on the line due to safety regulations.

Chapter 2

Preparing to Install the IMPACT Compression Board

This chapter lists the components included in the IMPACT Compression package and describes how to remove the graphics board set from your work station.

IMPACT Compression Package Components

Figure 2-1 shows the components included in the IMPACT Compression board package.

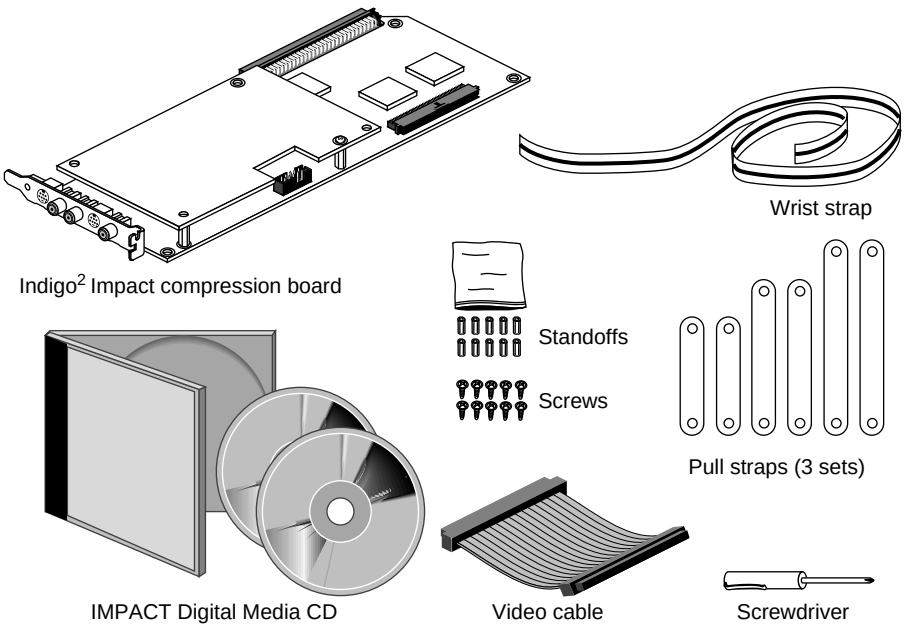

Figure 2-1 Indigo^2 IMPACT Compression Board Package Components

In addition to the components listed in Figure 2-1, the package also includes a hex wrench.

Before you can install the IMPACT Compression board, you have to install system and video software, turn off the power, remove the cover, and remove the graphics board set and any other option boards.

Installing System and Video Software

You will need to install the appropriate version of the IRIX operating system software and the video software. Refer to the instructions that are included with the IMPACT Digital Media CD.

Turning Off the Power

To turn off the system power, follow these steps:

1. Open the front cover (Figure 2-2).
2. Press and release the power button on the front of the system. The power indicator light turns off (Figure 2-2).

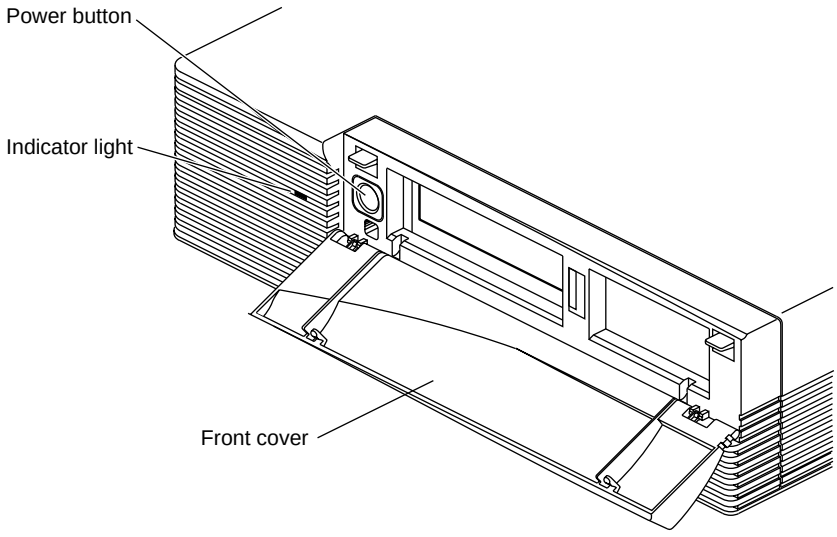

Figure 2-2 Turning Off the Power

Removing the Cover

You have to remove the bezel before you can remove the cover. Follow these steps:

1. Unplug the power cable and the cables that attach to the I/O connectors on the back of the system.
2. Press down on the tabs on each side of the bezel (Figure 2-3).

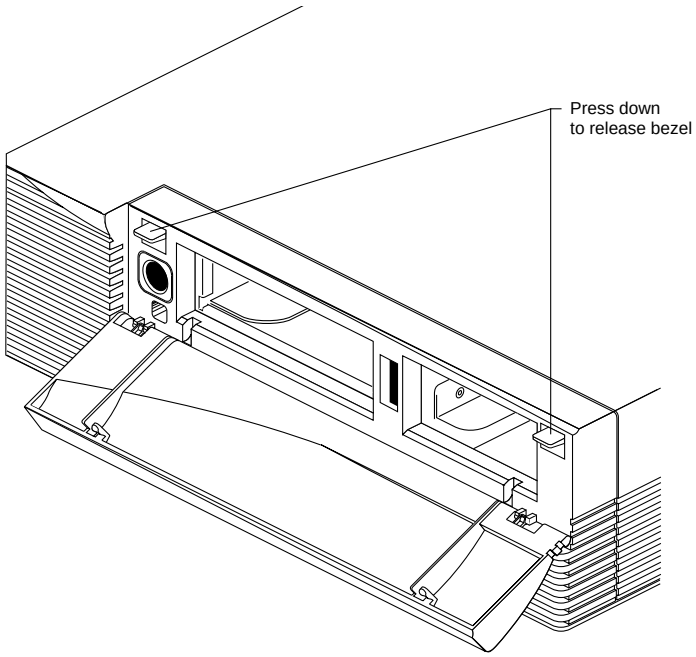

Figure 2-3 Bezel on the Indigo² IMPACT Chassis

3. Pull the bezel down and away from the chassis (Figure 2-4).

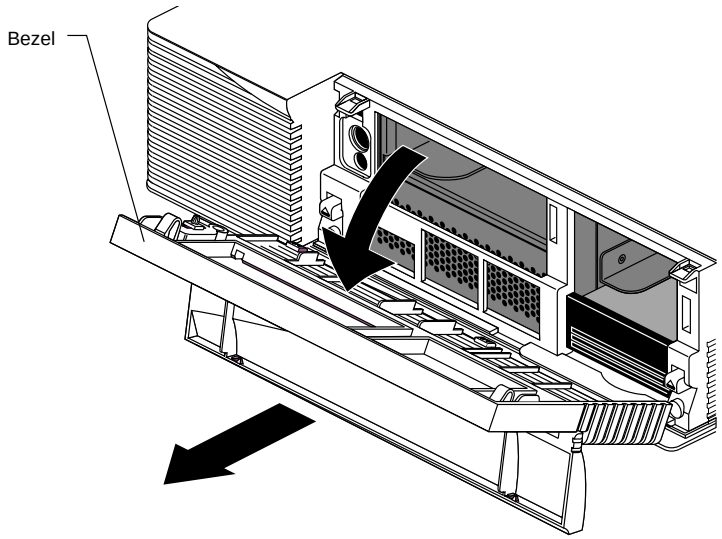

Figure 2-4 Removing the Bezel

4. Press up on the tabs on each side of the drive openings (Figure 2-5).

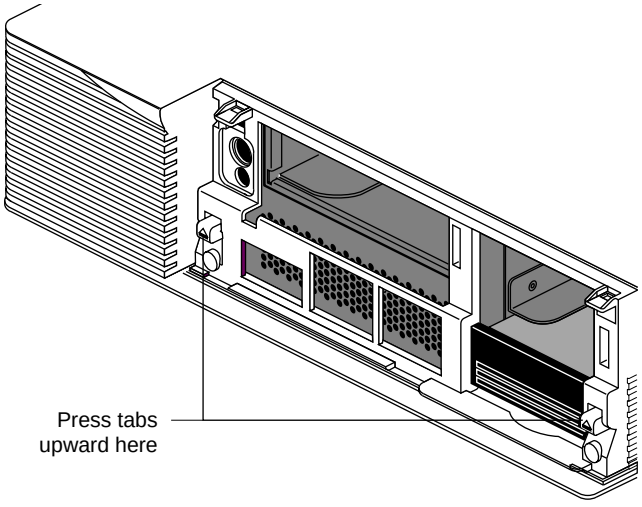

Figure 2-5 Pressing Up the Tabs

5. Pull up on the cover and rotate it back and away from the chassis (Figure 2-6).

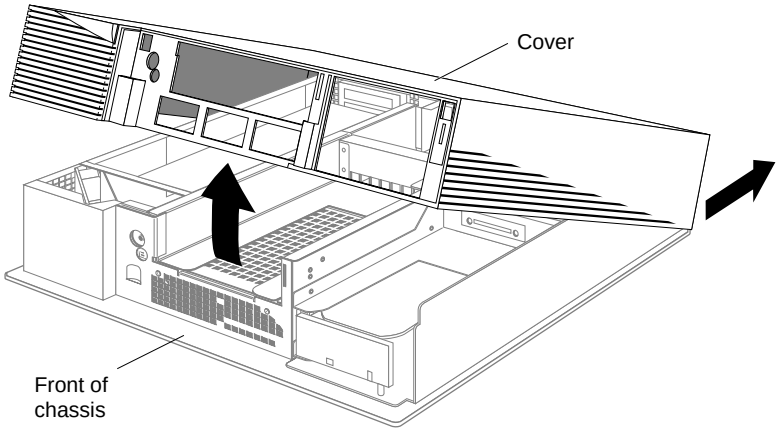

Figure 2-6 Removing the Cover

Tip: If the cover is difficult to raise, check the locking levers of the disk drives to be sure that they are completely locked. The lever should be pushed all of the way to the right.

Removing the Graphics Board Set

Before installing the IMPACT Compression board, you must remove the entire graphics board set and any option boards.

Caution: The graphics and IMPACT Compression boards are extremely sensitive to static electricity; you must wear the wrist strap while removing and installing them. The wrist strap prevents the flow of static electricity, which can damage the boards.

Caution: If your workstation has been turned on, the heat sink on the graphics board becomes hot. Wait a few minutes for the heat sink to cool before removing the graphics board set.

To remove the graphics board set, follow these steps:

1. Attach the disposable wrist strap to your wrist and the Indigo^2 IMPACT chassis, as described in the wrist strap instructions.
2. Open the metal panel by lowering it (Figure 2-7).

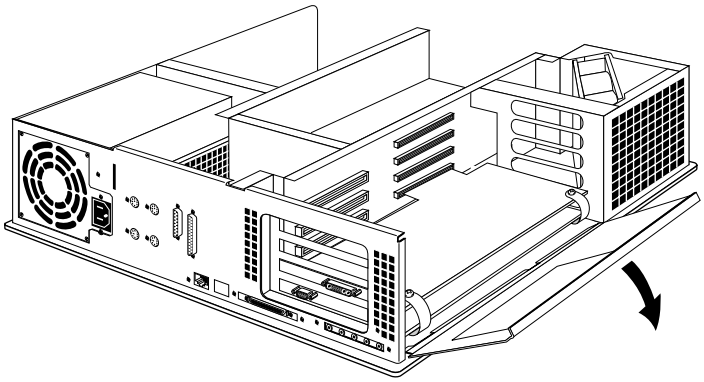

Figure 2-7 Opening the Metal Panel

3. Remove the retention pin that secures the graphics board set (Figure 2-8).

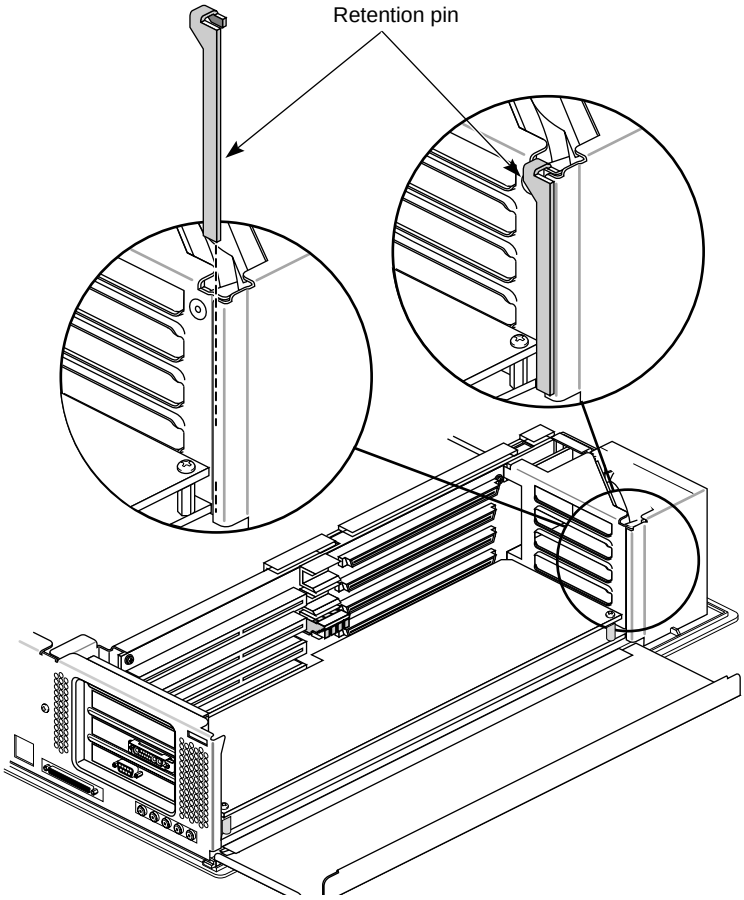

Figure 2-8 Removing the Retention Pin

Note: Take note as to how the retension pin is attached so you can easily reattach it after you reinstall the board set.

4. Remove the screws that attach the slot cover and the boards to the chassis (Figure 2-9).
5. Remove the slot cover (Figure 2-9).

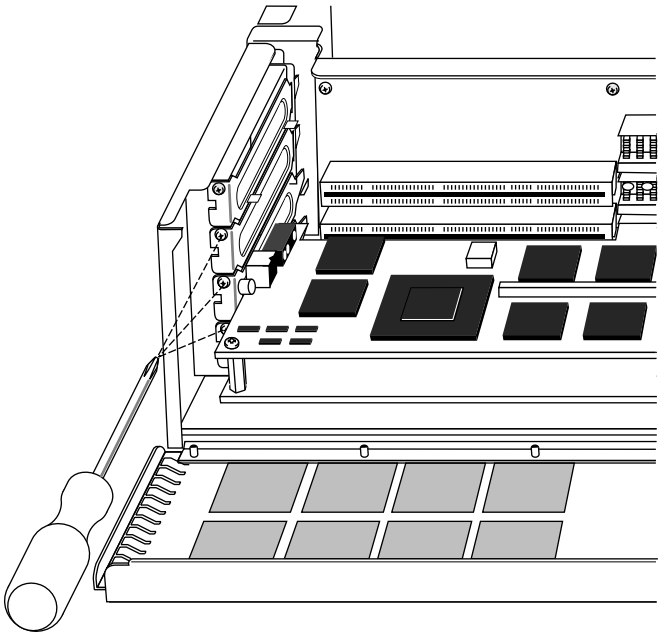

Figure 2-9 Removing the Slot Cover Screws and Slot Cover

6. Pull the straps to remove the graphics board set from the chassis (Figure 2-10).

   Tip: It may take some pressure to detach the boards from the midplane connectors. Place your thumbs against the chassis and your index finger against the standoffs for added leverage while you pull.

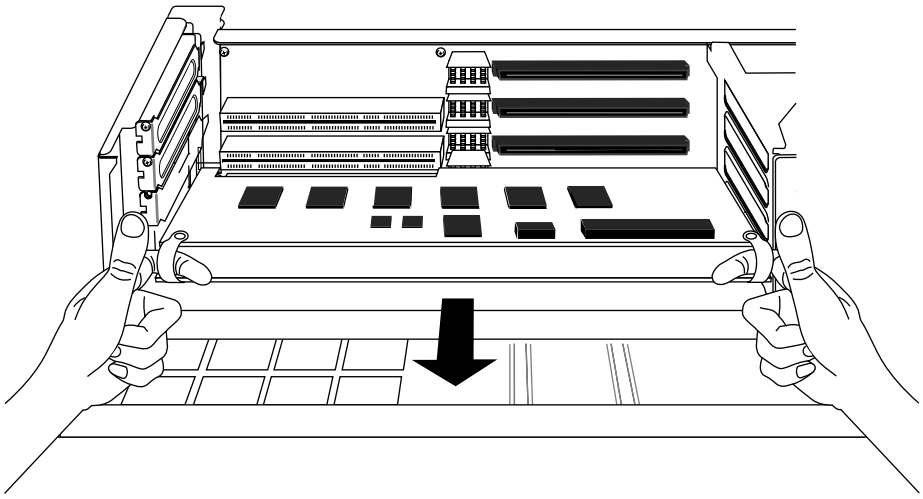

Figure 2-10 Removing the Graphics Board Set

7. After you remove the graphics board set from the chassis, refer to Chapter 3, Installing the IMPACT Compression Board on the Graphics Board Set" for instructions on installing the IMPACT Compression board.

Chapter 3

Installing the IMPACT Compression Board on the Graphics Board Set

This chapter explains how to install the IMPACT Compression board to the graphics board set. You can install the IMPACT Compression board to any of the IMPACT graphics boards (i.e., the High IMPACT, Maximum IMPACT or Solid IMPACT) and with or without the Indigo^2 IMPACT Video board. The IMPACT Compression board attaches to the graphics board(s), or to the IMPACT Video board, if you have one installed.

Note: If, after removing the board set from your workstation, you have trouble identifying which the graphics board set you have, refer to Appendix A, "Identifying Graphics Boards."

The IMPACT Compression board attaches to the board set with standoffs. The next section, "Attaching Standoffs and Pull Straps," describes the procedure for installing them. Then, depending on the configuration of graphics and video board(s) you are installing, refer to one of the following sections:

- "Installing IMPACT Compression on High IMPACT Graphics with IMPACT Video," on page 16.
- "Installing IMPACT Compression on High IMPACT Graphics," on page 17.
- "Installing IMPACT Compression on Maximum IMPACT Graphics," on page 18.
- "Installing IMPACT Compression on Solid IMPACT Graphics with IMPACT Video," on page 19.
- "Installing IMPACT Compression on Solid IMPACT Graphics." on page 20.

Attaching Standoffs and New Pull Straps

Before you can attach the IMPACT Compression board to the graphics board set and, optionally to the IMPACT Video board, you have to install standoffs and longer pullstraps. Standoffs are spacers which connect the boards by screwing into each corner of the board. When you add one or more boards, you need to add longer pull straps.

The illustrations below shows how to attach standoffs and replace pull straps on the High IMPACT graphics boards. The procedure is similar for the other models of graphics boards.

To attach the standoffs and replace the pull straps,

1. Remove the four screws from the corners of the graphics board set (Figure 3-1).

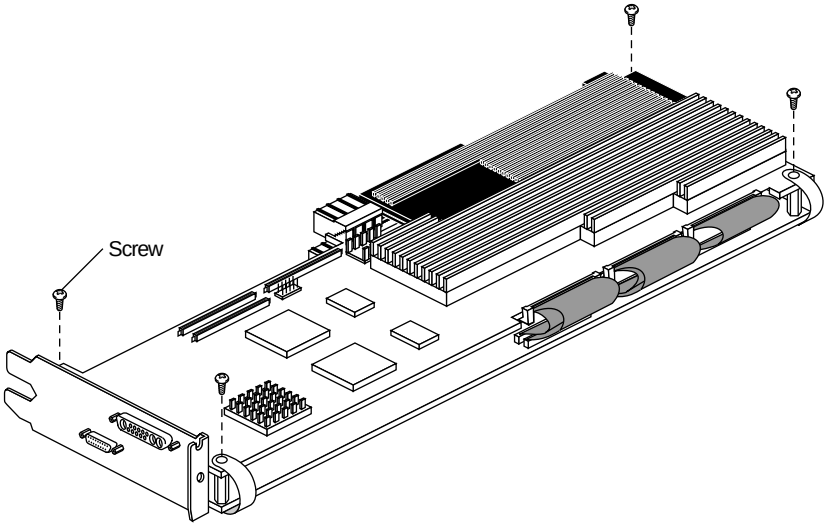

Figure 3-1 Removing Graphics Board Set Screws

2. Install the four standoffs (male-female) in the same corner screw holes from which you removed the screws (Figure 3-2).

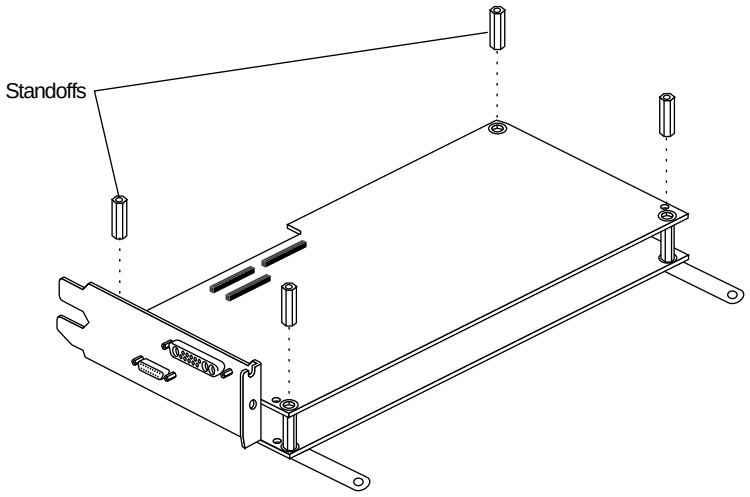

Figure 3-2 Installing the Standoffs

3. Turn the board set upside down and remove the screws that attach the pull straps to the bottom of the graphics board set (Figure 3-3). You can throw away the pull straps.

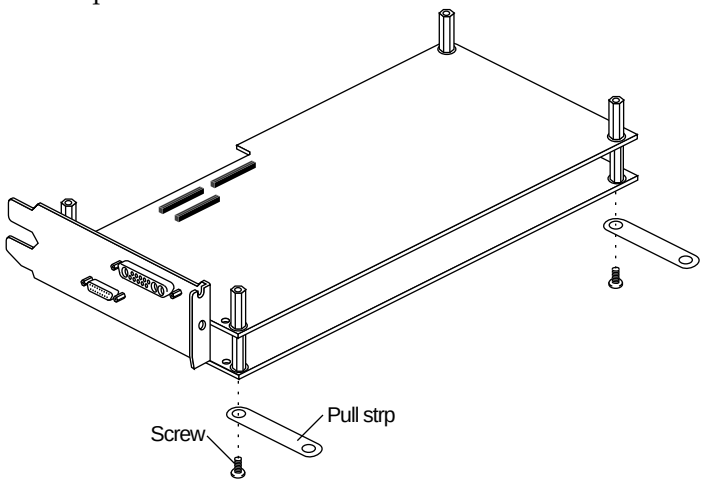

Figure 3-3 Removing the Pull Straps

4. Select the pull straps for the graphics board set:
   - If you have a board set with two boards, select the pull straps labeled 3-Board.
   - If you have a board set with three boards, select the pull straps labeled 4-Board.
5. Peel the adhesive strip covers off both ends of the pull straps.
6. Attach the pull straps to the bottom of the graphics board set using the screws provided (Figure 3-3). (You can turn the board set upside down.)

Installing IMPACT Compression on High IMPACT Graphics with IMPACT Video

These instructions assume that the IMPACT Video board is already attached to graphics board set. If not, refer to the *Indigo^2 IMPACT Video Owner's Guide* for assistance.

1. Attach the video cable to the IMPACT Video board.
2. Install four male-female standoffs in each corner screw hole of the IMPACT Video board.
3. Replace the pullstraps on the graphics boards with the longest ones.
4. Place the IMPACT Compression board on the IMPACT Video board so that the corner screw holes line up with the standoffs.
5. Align the pull straps with the screw holes on the IMPACT Compression board, and then insert and tighten the four screws on the IMPACT Compression board.
6. Attach the Video cable to the IMPACT Compression board.

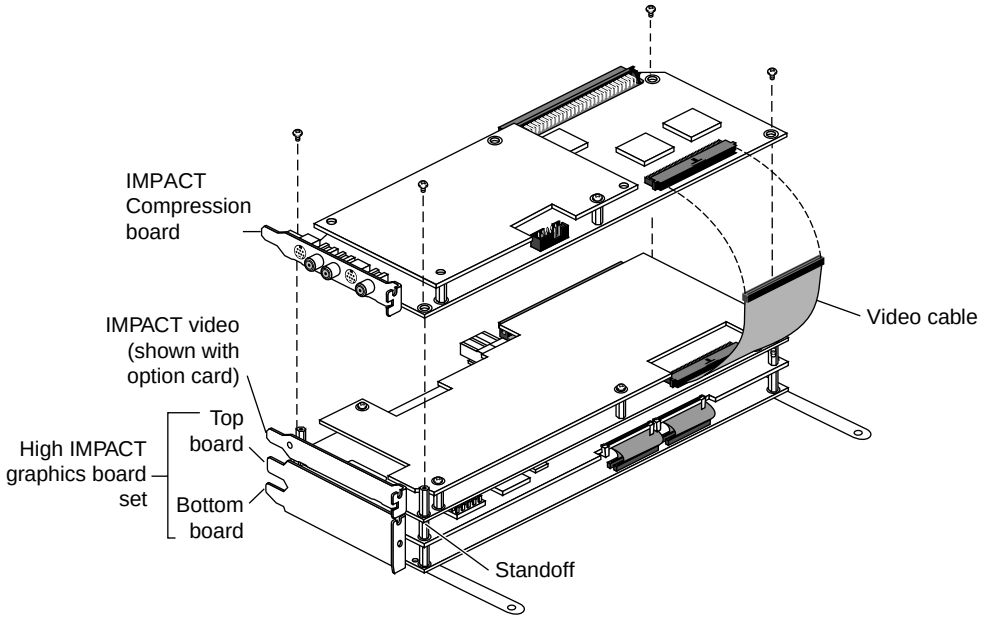

Figure 3-4 High IMPACT with IMPACT Video and IMPACT Compression

Installing IMPACT Compression on High IMPACT Graphics

1. Install a male-female standoff in each corner screw hole of the top graphics board.
2. If necessary, replace the pull straps with longer ones.
3. Place the IMPACT Compression board on the top board of the High IMPACT graphics board set so that the corner screw holes line up with the standoffs.
4. Align the pull straps with the screw holes on the IMPACT Compression board.
5. Insert and tighten the four screws that attach the IMPACT Compression board to the graphics boards.

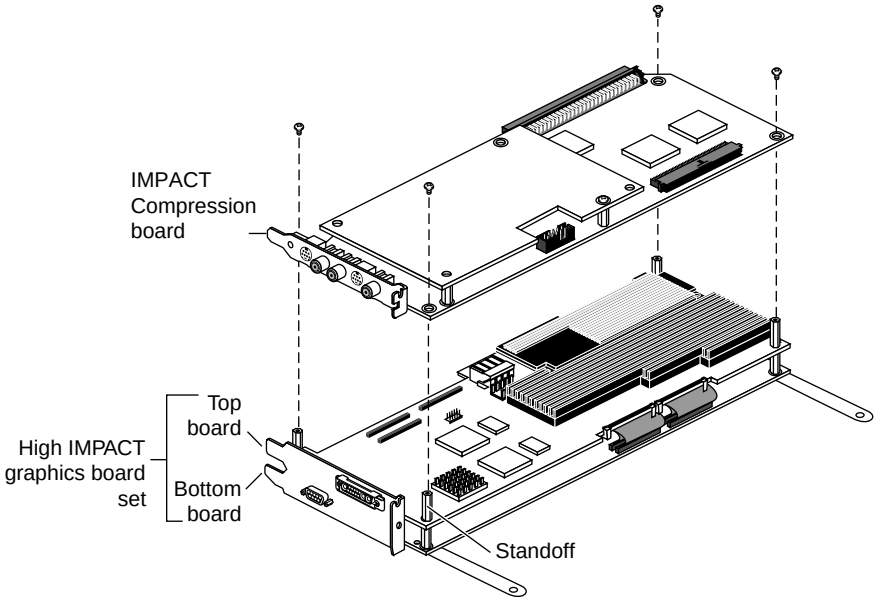

Figure 3-5 High IMPACT Graphics with IMPACT Compression

Installing IMPACT Compression on Maximum IMPACT Graphics

1. Install a male-female standoff in each corner screw hole on the top graphics board.
2. If necessary, replace the pull straps with longer ones.
3. Place the IMPACT Compression board on the top board of the Maximum IMPACT Graphics board set so that the corner screw holes line up with the standoffs.
4. Align the pull straps with the screw holes on the IMPACT Compression board.
5. Insert and tighten the four screws that attach the IMPACT Compression board to the graphics board.

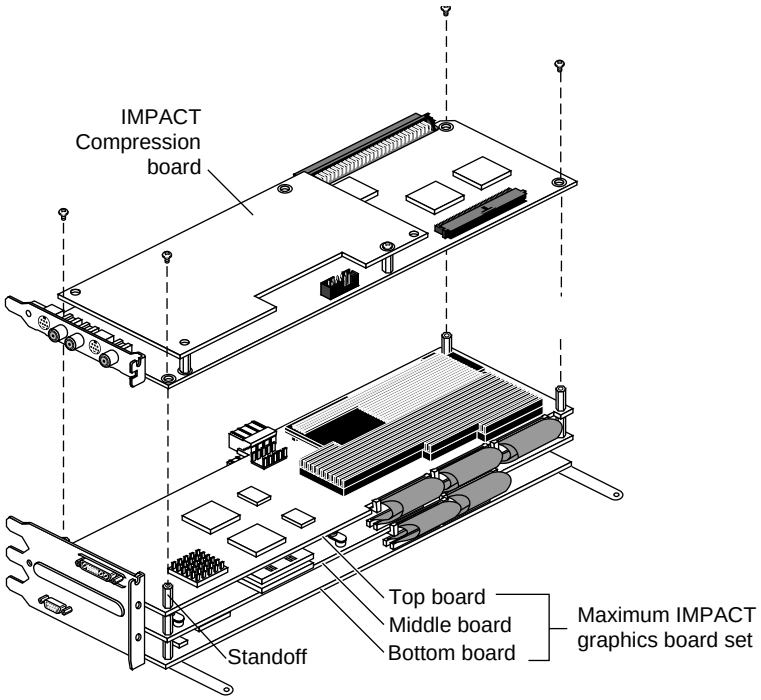

Figure 3-6 Maximum IMPACT Graphics with IMPACT Compression

Installing IMPACT Compression on Solid IMPACT Graphics with IMPACT Video

These instructions assume that the IMPACT Video board is already attached to graphics board set. If not, refer to the *Indigo*^{2} *IMPACT Video Owner's Guide* for assistance.

1. Attach the Video cable to the IMPACT Video board.
2. Install a male-female standoff in each corner screw hole of the IMPACT Video board.
3. Replace the pullstraps on the graphics boards with the longest ones.
4. Place the IMPACT Compression board on the IMPACT Video board so that the corner screw holes line up with the standoffs.
5. Align the pull straps with the screw holes on the IMPACT Compression board, insert and tighten the four screws on the IMPACT Compression board.

6. Attach the Video cable to the IMPACT Compression board.

Caution: Make sure that when you reinstall the board set in the workstation you use the top three (slots 2, 3, and 4) of the four slots on the midplane. **Failure to do this will result in damage to the graphics and video boards.**

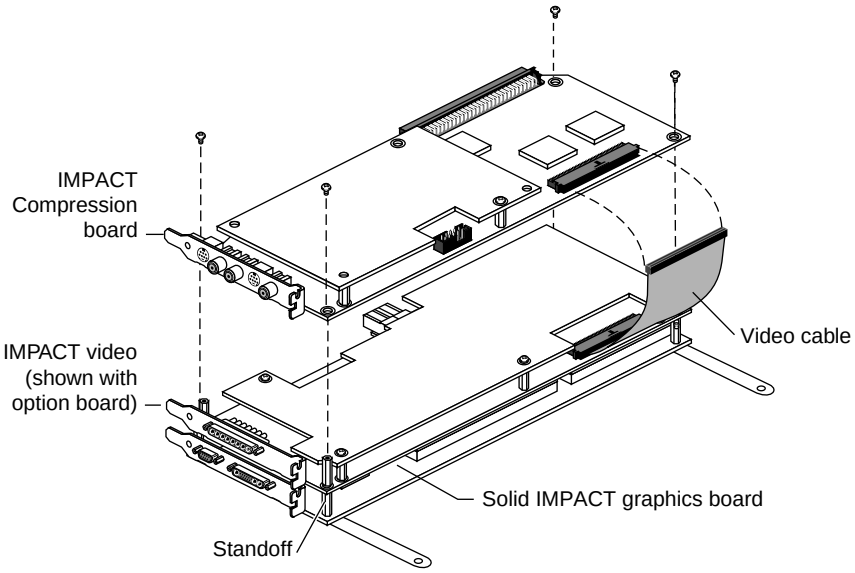

Figure 3-7 Solid IMPACT Graphics with IMPACT Video and Compression Boards

Installing IMPACT Compression on Solid IMPACT Graphics

1. Install a male-female standoff in each corner screw hole of the Solid IMPACT Graphics board.
2. Place the IMPACT Compression board on the Solid IMPACT graphics board so the screw holes align with the standoffs.
3. Align the pullstraps over the screw holes and insert and tighten the four screws.

Caution: Make sure that when you reinstall the board set in the workstation you use the middle two (slots 2 and 3) of the four slots on the midplane. **Failure to do this will result in damage to the Solid IMPACT and IMPACT Compression boards.**

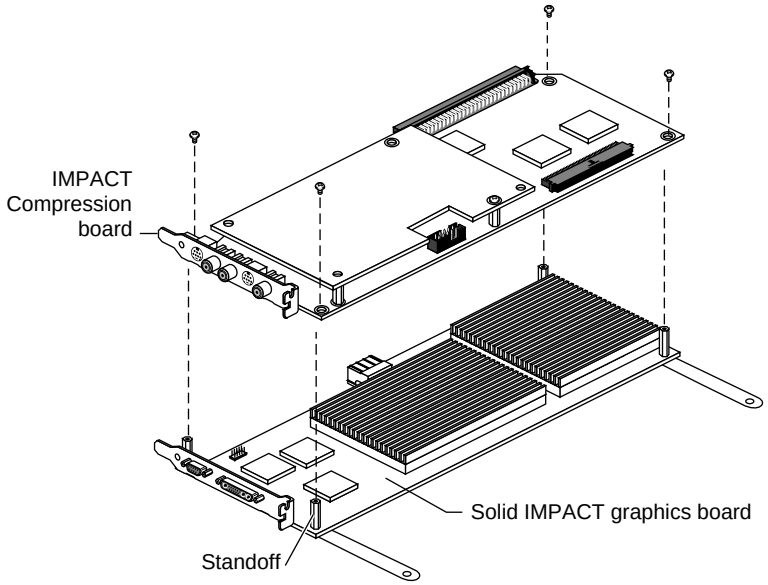

Figure 3-8 Solid IMPACT Graphics with IMPACT Compression

Chapter 4

Completing the Installation

Completing the installation consists of reinstalling the board set in the workstation, replacing the cover, connecting the cables, and checking the installation. Each of these procedures is explained in this chapter.

Reinstalling the Board Set in the Chassis

To reinstall the boards, follow these steps:

1. Align the board set with the slots on the left side of the chassis (Figure 4-1).

   Caution: If you are installing the Solid IMPACT graphics board, make sure that you install it in slot 2 (the second slot from the bottom). Slot 1 (the bottom slot) must remain vacant. Failure to do this will result in damage to the graphics and video boards.

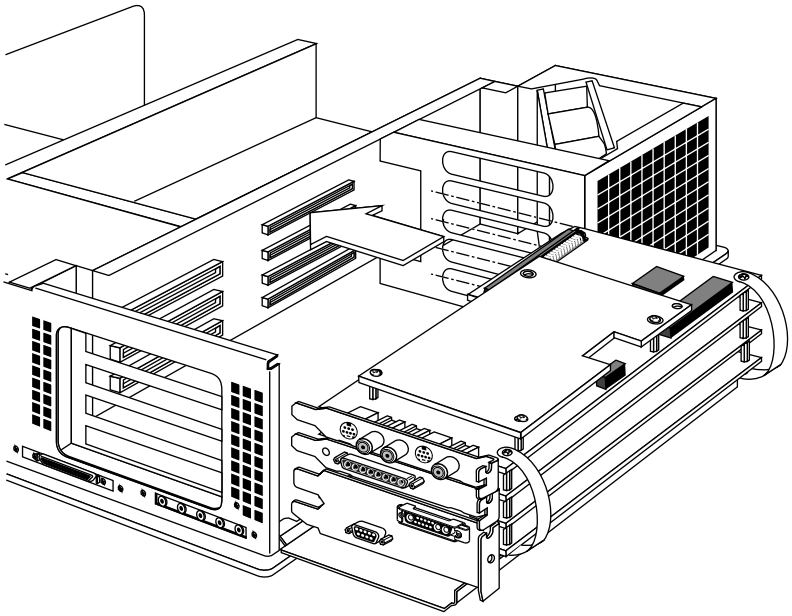

Figure 4-1 Aligning the Board Set with the Chassis

2. Slide the boards into the chassis and push the board connectors into the corresponding midplane connectors (Figure 4-2).

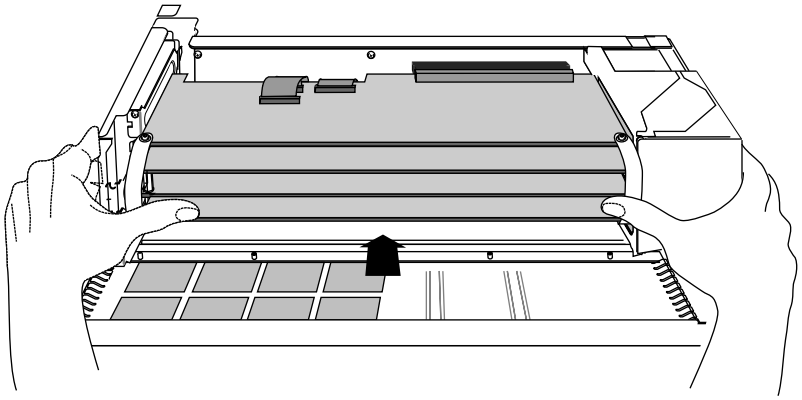

Figure 4-2 Inserting the Board Set into the Chassis

Tip: You have to use **a lot** of pressure to push the board connectors completely into the midplane connectors. When the connectors are completely seated, the metal panels on the left should be flush with the chassis. Figure 4-3 provides a top-down view of a GIO connector that is seated correctly and one that is not. A correctly seated connector has no gap between the connector on the video board and the connector on the midplane

.

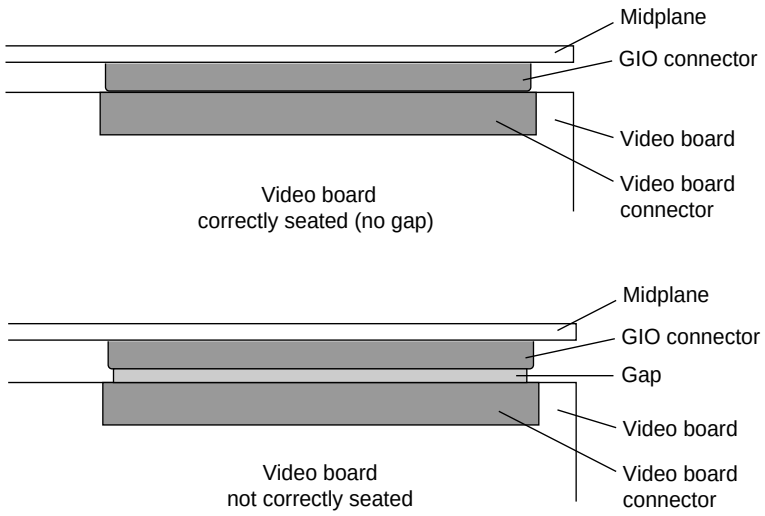

Figure 4-3 Checking the Seating of the GIO Connector

3. Install the screws that secure the boards to the chassis.

4. Insert the pin that secures the board set to the chassis (Figure 4-4).

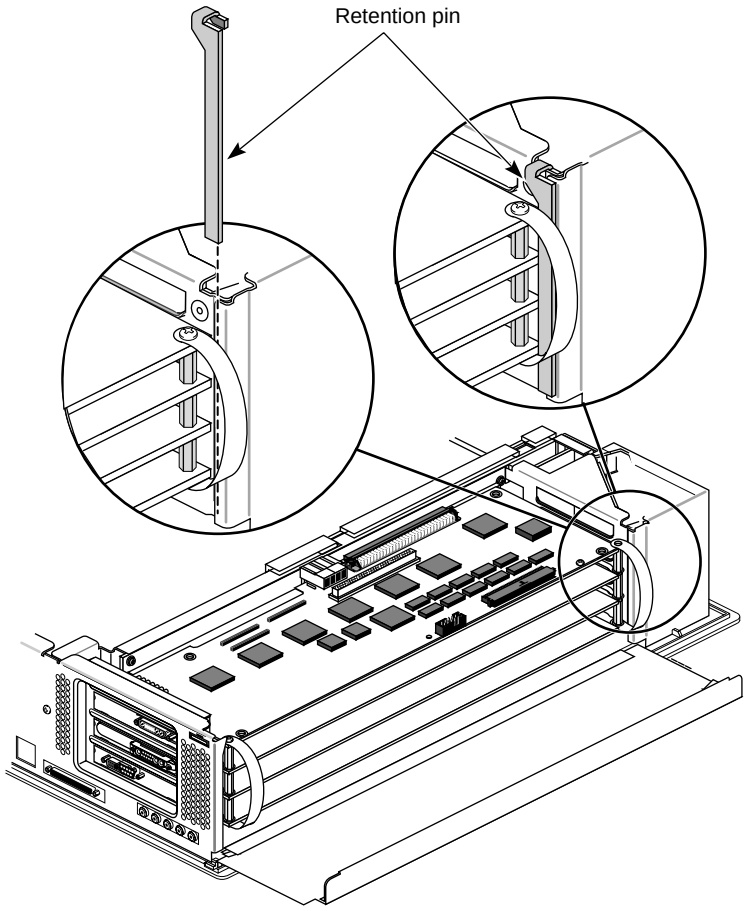

Figure 4-4 Inserting the Retaining Pin

IMPORTANT: If you cannot insert the retaining pin or close the metal panel, the boards are not completely seated in the midplane connectors.

Replacing the Cover

To replace the cover, follow these steps:

1. Lift the metal panel and snap it down into place (Figure 4-5).

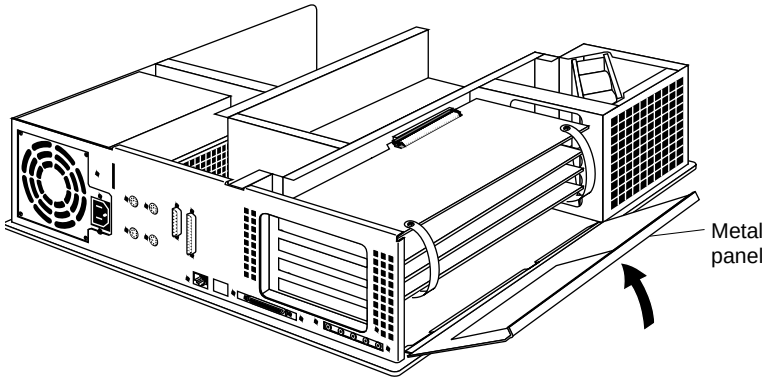

Figure 4-5 Closing the Metal Panel

2. Locate the tabs on the inside and back of the top cover and the holes on the back of the workstation (Figure 4-6).
3. Face the front of the workstation.
   - Look through the holes as you lower the cover to move the tabs into place.

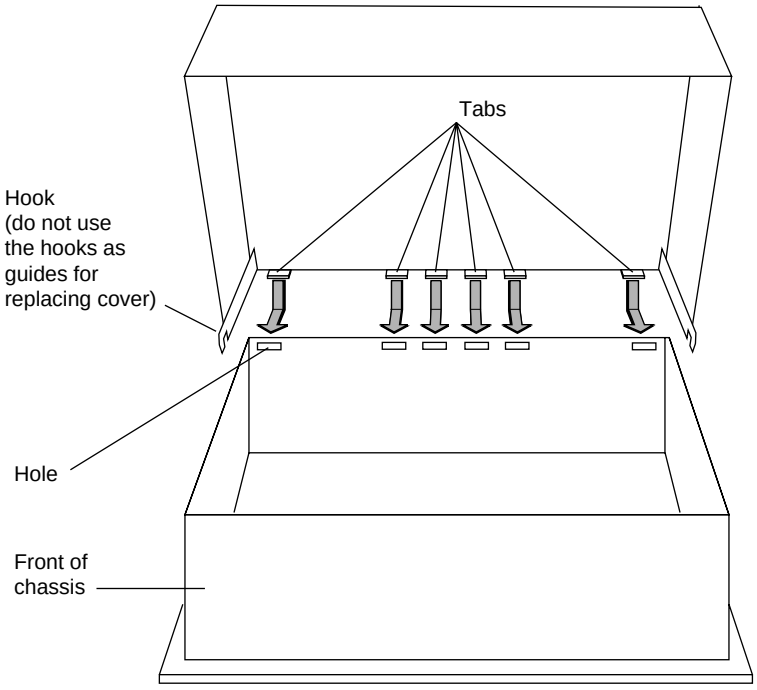

Figure 4-6 Replacing the Cover

- Slide the tabs into the holes and pull the cover down until it snaps into place. The cover fits tightly over the workstation.

4. Replace the bezel (Figure 4-7).
   - Insert the tabs on the bottom of the bezel into the grooves.
   - Pull up the bezel and snap it into place.

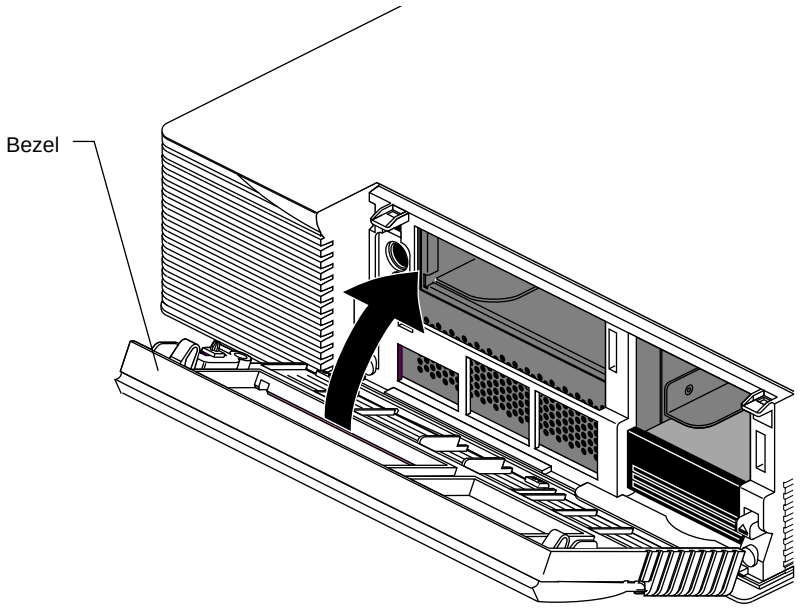

Figure 4-7 Replacing the Bezel

Connecting the Cables

To connect the cables, follow these steps:

1. Reattach the graphics monitor cable to the graphics board.
2. Reattach the power cable to the system.

3. Attach the necessary cables to the IMPACT Compression board. The connector types are shown in Figure 4-8.

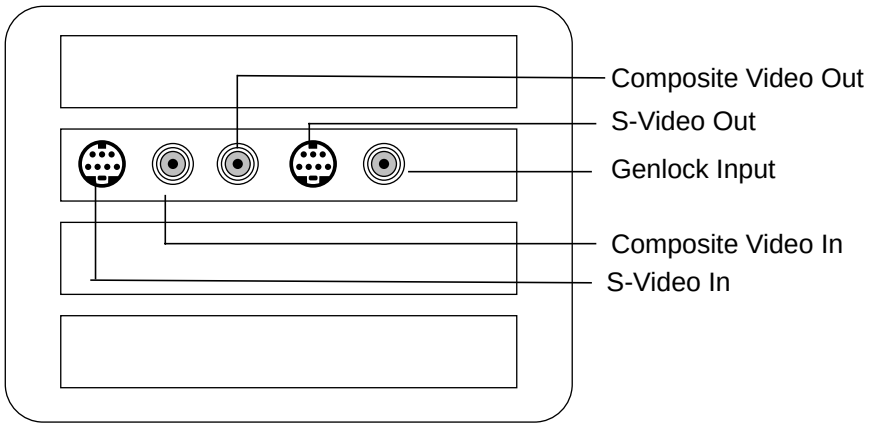

Figure 4-8 IMPACT Compression board connectors

Checking and Troubleshooting the Installation

To check that your workstation recognizes the IMPACT Compression board, first turn on the system power and log in to your system.

Before checking the installation, you must first have installed the software on the IMPACT Digital Media CD. Refer to the instructions that came with the CD.

To check the IMPACT Compression board installation, follow these steps:

1. Open a shell by clicking the Console icon or choose "Unix Shell" from the Desktop menu in the Toolchest.
2. Type at the prompt:

   `hinv`

   Then press **`<Enter>`**.

   You see a listing of your system's hardware devices.
3. Find a line that is similar to:

   ```
   IMPACT Compression: unit x, revision x:x
   ```

If you don't see a similar line indicating that your system recognizes the board, perform these checks:

- Make sure that the IMPACT Compression board and graphics boards are completely seated into the connectors on the system midplane; otherwise, the system will not start up completely and the screen will be blank.
- If you have an IMPACT Video board installed, make sure that the video cable is securely attached to the IMPACT video and Compression boards.

Removing the IMPACT Compression Board

Removing the IMPACT Compression board from your system consists of:

1. Shutting down your system.
1. Unplugging the power cable and video-graphics board cables.
2. Removing the cover.
3. Removing the video-graphics board set from the chassis.
4. Removing the IMPACT Compression board from the graphics boards.
5. Reinstalling the graphics board set.
6. Replacing the cover.
7. Plugging in the cables and starting up your system.

Refer to the first part of this chapter for detailed steps and illustrations on shutting down the system, removing the cover, and removing board sets from your Indigo^2 IMPACT workstation.

Appendix A

Identifying Graphics Boards

The instructions in this appendix provide annotated illustrations to help you identify graphics board sets in your workstation.

Identifying a Solid IMPACT Graphics Board

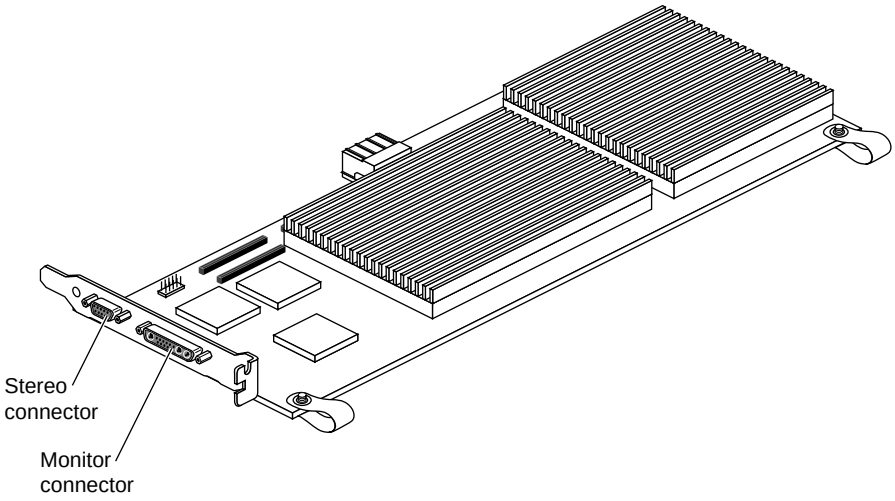

Figure A-1 Solid IMPACT Graphics Board

A Solid IMPACT graphics board is always the bottom board attached by standoffs and cables to option boards.

Note: The Solid IMPACT board has a "3 board pull strap."

Caution: The Solid IMPACT board must always be installed in slot 2 (second from the bottom) of the midplane when you attach video boards.

Identifying a High IMPACT Graphics Board

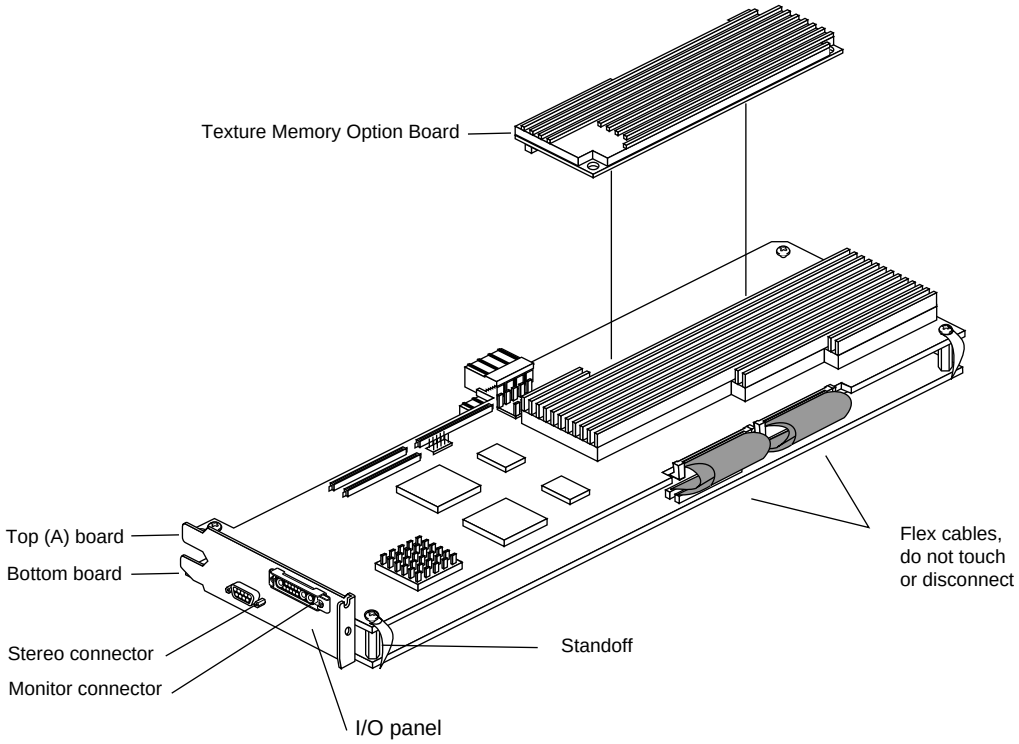

Figure A-2 High IMPACT Graphics Board Set with Texture Memory Option

The High IMPACT graphics board set consists of two boards that are connected by corner standoffs and cables. The I/O panel is a single piece. Option boards are installed on top of the High IMPACT graphics board set. See Figure A-2.

Tip: Pull straps are labeled “2 board pull strap” for the High IMPACT graphics board set, and “3 board pull strap” for the Solid IMPACT and Maximum IMPACT graphics board set. Board sets with option boards have 3 or 4 board straps.

Identifying Maximum IMPACT Graphics Boards

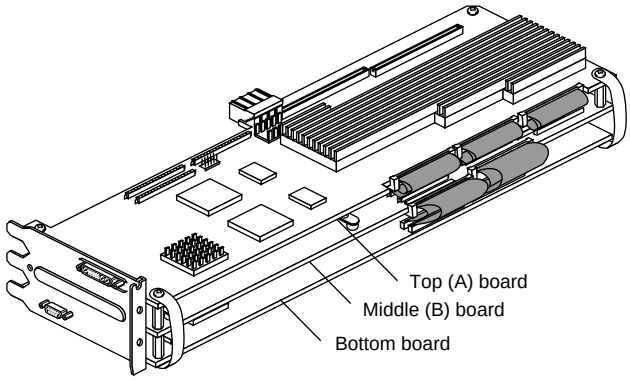

Figure A-3 Maximum IMPACT Graphics Board Set

The Maximum IMPACT Graphics board set consists of three boards that are attached by corner standoffs and cables. The texture memory is an optional board that attaches to the top board.

Tip: Pull straps are labeled "3 board pull strap" for the Maximum IMPACT graphics board set; sets with attached option boards have 4 board straps.

Appendix B

Regulatory Information

This appendix contains regulatory information for the Indigo^2 IMPACT Compression board.

Manufacturer's Regulatory Declarations for the Indigo^2 IMPACT Compression Board

Caution: Your workstation has several governmental and third-party approvals, licenses, permits. Do not modify this product in any way that is not expressly approved by Silicon Graphics. If you do, you may lose these approvals and your governmental agency authority to operate this device.

The Indigo^2 IMPACT Compression board conforms to several national and international specifications and European Directives listed on the "Manufacturer's Declaration of Conformity" which is included with each product. The CE mark insignia displayed on each device is an indication of conformity to the aforementioned European requirements.

Manufacturer's Declaration of Conformity

A "Manufacturer's Declarlation of Conformity" is available on the World Wide Web. Look on your system (regulatory) label on the rear of your workstation to determine your CMN (model) number which you will need to identify your Declaration of Conformity. See Figure B-1 (Exterior of Workstation) at the ned of this appendix for the location of your system label.

To locate the information on the World Wide Web, enter the following in your Web browser location window:

```
http://www.sgi.com/Products/compliance/index.html\
```

Locate and print or save your Declaration of Conformity. Make a note of your CMN number and the date on the Declaration of Conformity here for future reference.

Regulatory Label

If you received a regulatory label with a graphics board upgrade, place the label below the logos and over the lower portion of the regulatory label on the rear of your workstation. See Figure B-1 for placement of the upgrade regulatory label.

Electromagnetic Emissions

This device complies with the Class A limits of Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

This device complies with Class A electromagnetic emissions limits of C.I.S.P.R. Publication 22, Limits and Methods of Measurement of Radio Interferenuce Characteristics of Information Technology Equipment, Germany's BZT Class A limits for Information Technology Equipment, and with Japan's VCCI Class 1 limits.

この装置は、第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。
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取扱説明書に従って正しい取り扱いをして下さい。
VCCI-1、CISPR-22 Class A

Radio and Television Interference

The equipment described in this guide generates and uses radio frequency energy. If it is not installed and used in accordance with the instructions in this guide, it can cause radio and television interference.

This equipment has been tested and complies with the limits for a Class A computing device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in an industrial or office installation. However, there is no guarantee that the interference will not occur in a particular installation. This system is not certified for home use.

You can determine whether your system is causing interference by turning it off. If the interference stops, it was probably caused by the workstation or one of the peripherals. To tell if the interference is caused by one of the peripherals, try disconnecting one peripheral at a time to see if the interference stops. If it does, that peripheral is the cause of the interference.

If your workstation does cause interference to radio or television reception, try to correct the interference by using one or more of the following suggestions:

- Turn the television or radio antenna until the interference stops.
- Move the workstation to one side or the other of the radio or television.
- Move the workstation farther away from the radio or television.
- Plug the workstation into an outlet that is on a different circuit from the radio or television. (That is, make certain the workstation and the radio or television are on circuits controlled by different circuit breakers or fuses.)

Shielded Cables

The Indigo^2 IMPACT workstation is FCC-compliant under test conditions that include the use of shielded cables between Indigo^2 IMPACT and its peripherals. Your Indigo^2 IMPACT and any peripherals you purchase from Silicon Graphics have shielded cables. Shielded cables reduce the possibility of interference with radio, television, and other devices. If you use any cables that are not from Silicon Graphics, make sure they are shielded. Telephone cables do not need to be shielded.

In Germany, a shielded cable must be used on the Ethernet 10-BASE T port.

The monitor cable supplied with your system uses additional filtering molded into the cable jacket to reduce radio frequency interference. Always use the cable supplied with your system. If your monitor cable becomes damaged, a replacement cable should be obtained from Silicon Graphics.

Electrostatic Discharge

Silicon Graphics designs and tests its products to be immune to effects of electrostatic discharge (ESD). ESD is a source of electromagnetic interference and can cause problems ranging from data errors and lockups to permanent component damage.

It is important that while you are operating your Indigo^2 you keep all the covers and doors, including the plastics, in place. The shielded cables that came with the workstation and its peripherals should be installed correctly, with all thumbscrews fastened securely.

An ESD wrist strap is included with some products, such as memory and graphics upgrades. The wrist strap is used when installing these upgrades to prevent the flow of static electricity, and it should protect your system from ESD damage.

Exterior of Workstation

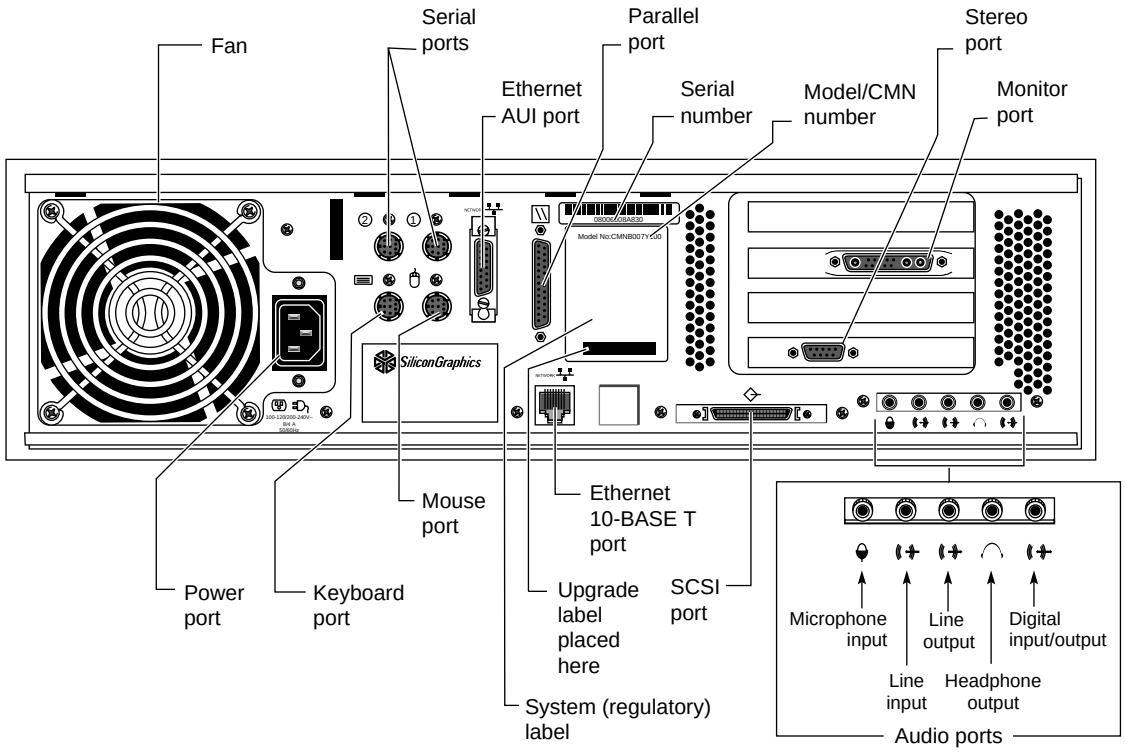

Figure B-1 Exterior of Workstation

Tell Us About This Manual

As a user of Silicon Graphics products, you can help us to better understand your needs and to improve the quality of our documentation.

Any information that you provide will be useful. Here is a list of suggested topics:

- General impression of the document
- Omission of material that you expected to find
- Technical errors
- Relevance of the material to the job you had to do
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