Indigo^2 Video™ for Indigo^2 IMPACT™ Owner's Guide

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Contents

List of Figures v

About This Guide vii

1. Introduction 1

2. Installing the Indigo² Video Board 3

Indigo² Video Board Package Components 4

Preparing to Install the Indigo² Video Board 5

Turning Off the Power 5

Removing the Cover 6

Removing the Graphics Board Set 8

Installing the Indigo² Video Board 12

Attaching the Indigo² Video Board to the Graphics Board Set 12

Installing the Video-graphics Cables 17

Installing the Indigo² Video Board and the IMPACT Graphics Board Set 22

Replacing the Cover 29

Connecting the Cables and IndyCam Camera 31

Checking and Troubleshooting the Installation 33

Checking the Indigo² Video Board Installation 33

Checking the IndyCam Installation 34

Removing the Indigo² Video Board 35

3. Video Conferencing 37

Overview of Video Conferencing 38

Setting Up Indigo² Video Conferencing 41

Adjusting the IndyCam 42

4. Recording on Video and Saving to Your Hard Disk 45
What You Need 45
Using the Video and Audio Panels 46
Framelocking 47
Recording Indigo² Sessions on Videotape 48
Recording Video on the Indigo² IMPACT Hard Disk 52

5. Regulatory Information 57
Manufacturer's Regulatory Declarations for the Indigo² and Indigo² IMPACT Graphics Boards 57
Manufacturer's Declaration of Conformity 57
Regulatory Label 58
Electromagnetic Emissions 58
Radio and Television Interference 59
Shielded Cables 60
Electrostatic Discharge 60
Exterior of Workstation 61

Glossary 63

List of Figures

Figure 1-1 The Indigo² Video Package 1

Figure 2-1 Indigo² Video Board Package Components 4

Figure 2-2 Turning Off the Power 5

Figure 2-3 Bezel on the Indigo² IMPACT Chassis 6

Figure 2-4 Removing the Bezel 6

Figure 2-5 Pressing Up the Tabs 7

Figure 2-6 Removing the Cover 7

Figure 2-7 Opening the Metal Panel 8

Figure 2-8 Removing the Retention Pin 9

Figure 2-9 Removing the Slot Cover Screws 10

Figure 2-10 Removing the Graphics Board Set 11

Figure 2-11 Removing Graphics Board Set Screws 12

Figure 2-12 Installing the Standoffs 13

Figure 2-13 Removing the Screws That Attach the Pull Straps 14

Figure 2-14 Removing the Nuts From the Solid IMPACT Graphics Board 15

Figure 2-15 Attaching the Pull Straps 16

Figure 2-16 Attaching the Video-Graphics Cables to the Graphics Board 17

Figure 2-17 Squeezing the Video-Graphics Cables into the Connectors 18

Figure 2-18 Side Views of the Video-Graphics Connector 18

Figure 2-19 Attaching the Video-Graphics Cables to the Graphics Board Connectors 19

Figure 2-20 Aligning and Attaching the Video Board to the Graphics Board Set 20

Figure 2-21 Attaching the Video-Graphics Cables to the Video Board 21

Figure 2-22 Locating Graphics and Option Board Slots 23
Figure 2-23 Aligning the Board Set With the Chassis 24
Figure 2-24 Inserting the Board Set into the Chassis 24
Figure 2-25 Checking the Seating of the GIO Connector 25
Figure 2-26 Attaching the Graphics Board Set to the Chassis 26
Figure 2-27 Replacing the Retention Pin 27
Figure 2-28 Closing the Metal Panel 28
Figure 2-29 Replacing the Cover 29
Figure 2-30 Replacing the Bezel 30
Figure 2-31 Attaching the Indigo² Video Cable and the IndyCam Camera 31
Figure 2-32 Opening the IndyCam Lens Cover 32
Figure 2-33 The Video Panel 34
Figure 3-1 Conferencing with Indigo² Video 37
Figure 3-2 The Whiteboard 38
Figure 3-3 The Shelf 39
Figure 3-4 Placing the Call 39
Figure 3-5 Desktop During an InPerson Call 40
Figure 3-6 The Microphone Port 41
Figure 3-7 The InPerson Icon 42
Figure 3-8 The Phone Icon 42
Figure 3-9 The Calling Window 43
Figure 3-10 The IndyCam Signal Window 44
Figure 4-1 Connecting the VCR and Microphone 48
Figure 4-2 The Video Panel 50
Figure 4-3 Live Video Output Button 50
Figure 4-4 Audio Control Panel 51
Figure 4-5 Connecting the VCR 53
Figure 4-6 The Video Panel 54
Figure 5-1 Exterior of Workstation 61

About This Guide

This owner's guide describes how to install the Indigo² Video™ board into an Indigo² IMPACT™ workstation, set up video conferencing, save video into your hard disk, and record graphics to video. It contains the following chapters:

- Chapter 1 provides an overview of the Indigo² Video package and describes the contents of each chapter in this guide.
- Chapter 2 describes how to install the Indigo² Video board and the IndyCam camera in an Indigo² IMPACT workstation.
- Chapter 3 provides an overview of video conferencing and describes how to set up your system for video conferencing.
- Chapter 4 describes how to record Indigo² IMPACT graphics to video and how to save video into your Indigo² IMPACT hard disk.
- Chapter 5 provides regulatory information and instructions for installing a regulatory label.
- The glossary defines the terms used in this guide.

Chapter 1

Introduction

The Indigo² Video package for the Indigo² IMPACT workstation enables you to conduct video conferences, output graphics to videotape, display video in a graphics window, and save (capture) video to the hard disk.

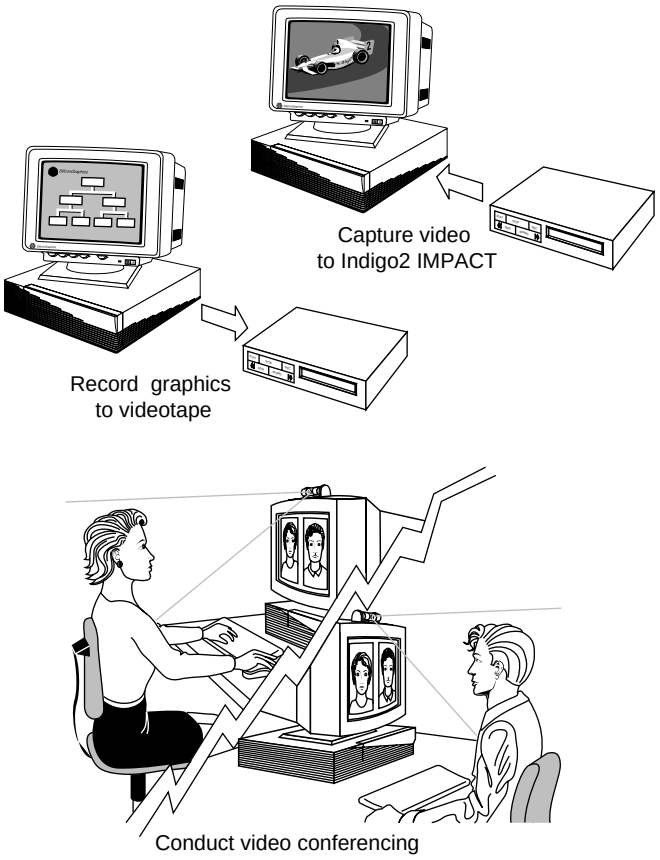

Figure 1-1 The Indigo² Video Package

The Indigo² Video package includes the following features:

- Composite or S-Video input. These are common formats used in consumer video cameras and VCRs.
- Composite and S-Video output with Genlock. You can genlock to video input or external black burst. Genlocking synchronizes the output timing of the video signals.
- National Television Systems Committee (NTSC) and Phase Alternated by Line (PAL) television standards.
- High-quality output. The translation from graphics to video sometimes creates imperfections in the image called artifacts. The Indigo² Video board uses a filtering technique to reduce these artifacts.
- IndyCam™ camera and InPerson™ video conferencing software.
- Compositing video with graphics. Compositing lets you use special effects when mixing graphics with video, using third-party applications.

  Note: You can write your own application using Silicon Graphics developer software (the Video Library in the IDO product). Sample applications are available in the *~4Dgifts/examples/video* directory and the *Indigo² Video Programming Guide*.

Chapter 2

Installing the Indigo² Video Board

This chapter lists the components included in the Indigo² Video package and describes how to install the Indigo² Video board and IndyCam camera in your Indigo² IMPACT workstation. It also describes how to remove the Indigo² Video board.

Installing the Indigo² Video board consists of:

1. Preparing to install the Indigo² Video board.
2. Installing the Indigo² Video board.
3. Connecting the cables.
4. Checking the installation.

Each of these procedures is described in this chapter.

Before shutting down your system and installing the video board, install the appropriate version of the IRIX™ operating system software. For information, see the release notes labeled *impactI2v.man.relnotes* that came with the software CD.

Indigo² Video Board Package Components

Figure 2-1 shows the components included in the Indigo² Video board package.

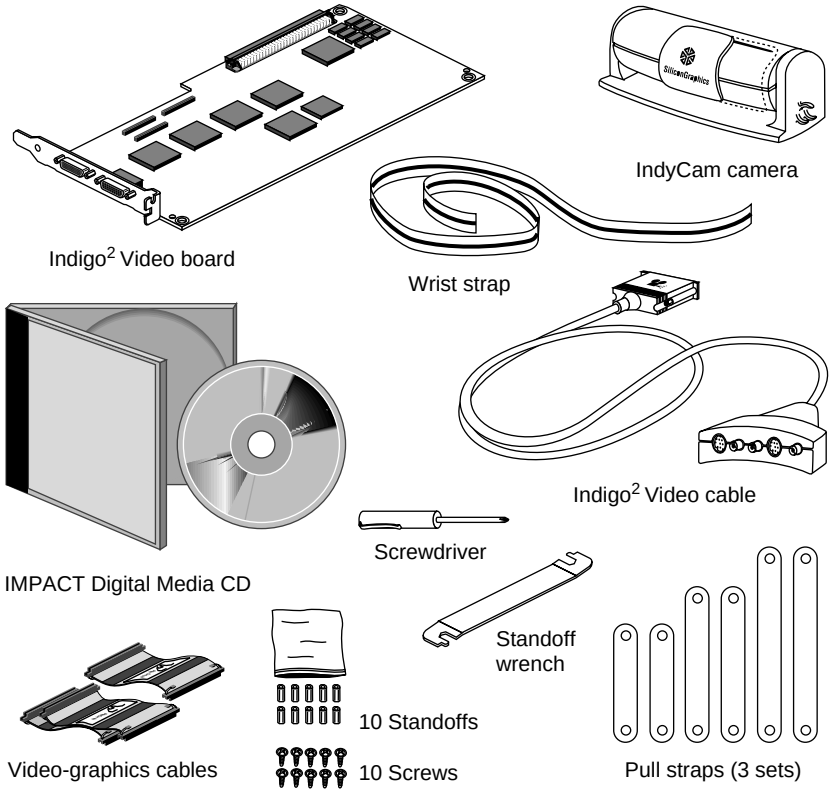

Figure 2-1 Indigo² Video Board Package Components

Preparing to Install the Indigo² Video Board

Before you can install the Indigo² Video board, you have to turn off the power, remove the cover, and remove the graphics board set and any other option boards. You will attach the video board to the graphics board set. Depending on your system, the graphics board set in your workstation may consist of a Solid IMPACT (single), High IMPACT (double) or Maximum IMPACT (triple) board set. The installation procedure is the same regardless of whether you have a graphics board set with one, two, or three boards.

Turning Off the Power

To turn off the system power, follow these steps:

1. Save your current work and then shut down the system by choosing System Shutdown from the System menu in the Toolchest.
2. Open the front cover as shown in Figure 2-2.
3. Press and release the power button on the front of the system to turn off the power. The power indicator light turns off. (Figure 2-2.)
4. If you have a lockbar installed, remove it.

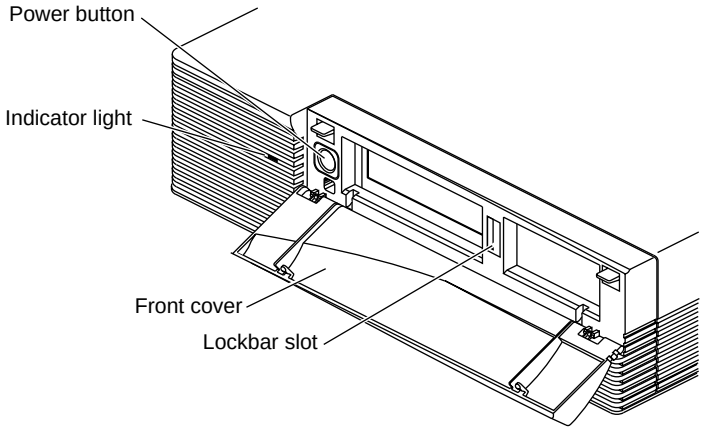

Figure 2-2 Turning Off the Power

Removing the Cover

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

1. Disconnect the cables connected to EISA boards and the graphics boards on the back of the workstation. Unplug the power cable.
2. Remove the bezel.
   - Press down on the tabs on each side of the bezel (Figure 2-3).

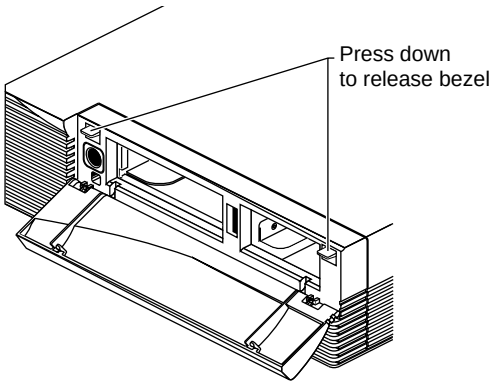

Figure 2-3 Bezel on the Indigo² IMPACT Chassis

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

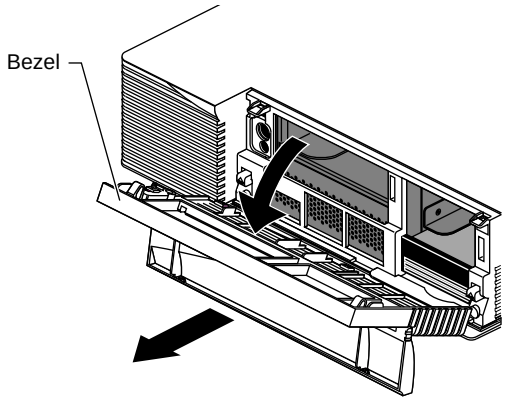

Figure 2-4 Removing the Bezel

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

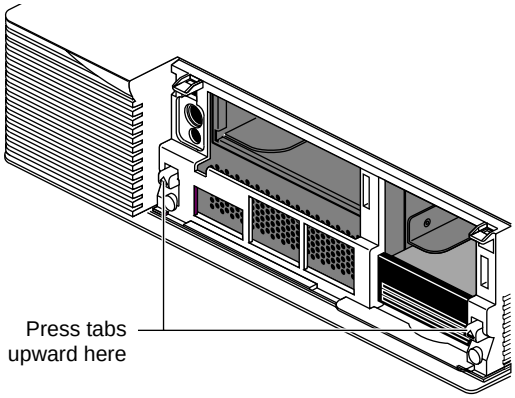

Figure 2-5 Pressing Up the Tabs

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

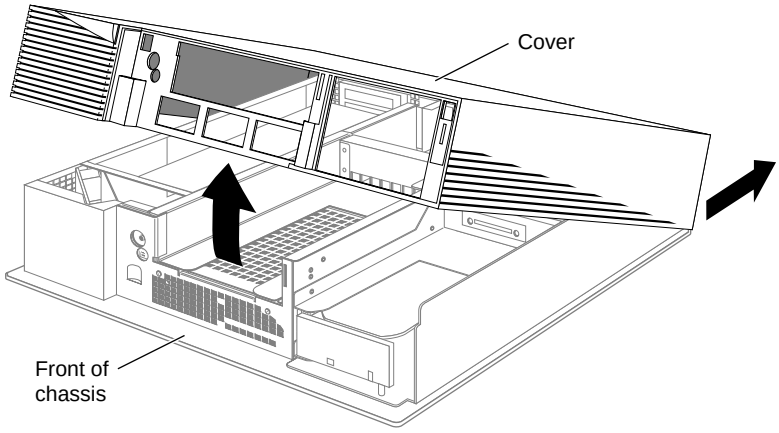

Figure 2-6 Removing the Cover

Tip: If the cover is difficult to raise, check the locking levers of the 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 Indigo² Video board, you must remove the graphics board set and any option 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 Indigo² IMPACT chassis, as described in the wrist strap instructions.

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

2. Open the metal panel by pulling up and then lowering it (Figure 2-7).

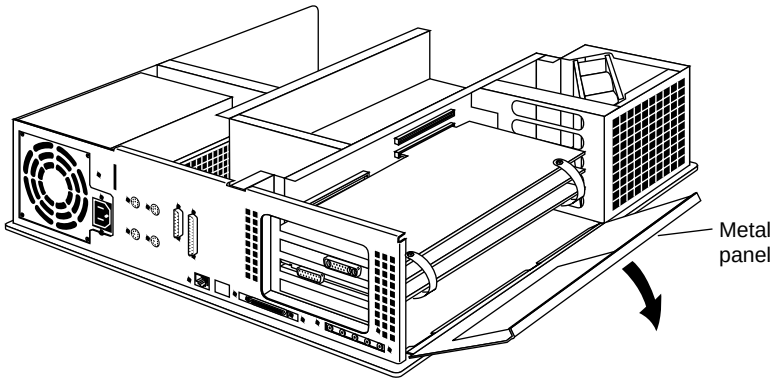

Figure 2-7 Opening the Metal Panel

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

Tip: Note the position of the retention pin. It sits in front of the board, not beside it.

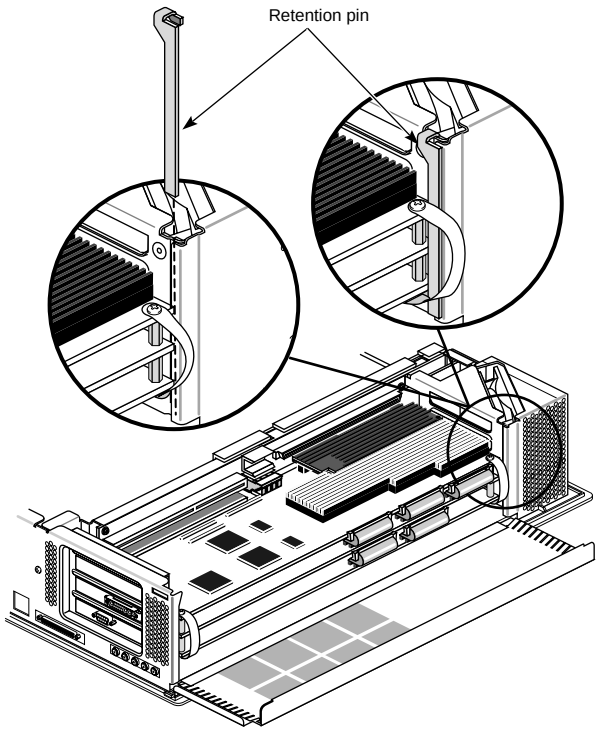

Figure 2-8 Removing the Retention Pin

4. Locate the slot directly above the top graphics board slot currently being used. This is the slot you will use to install the Indigo² Video board.
5. Remove the screws that attach the slot cover and the graphics boards to the chassis (Figure 2-9).

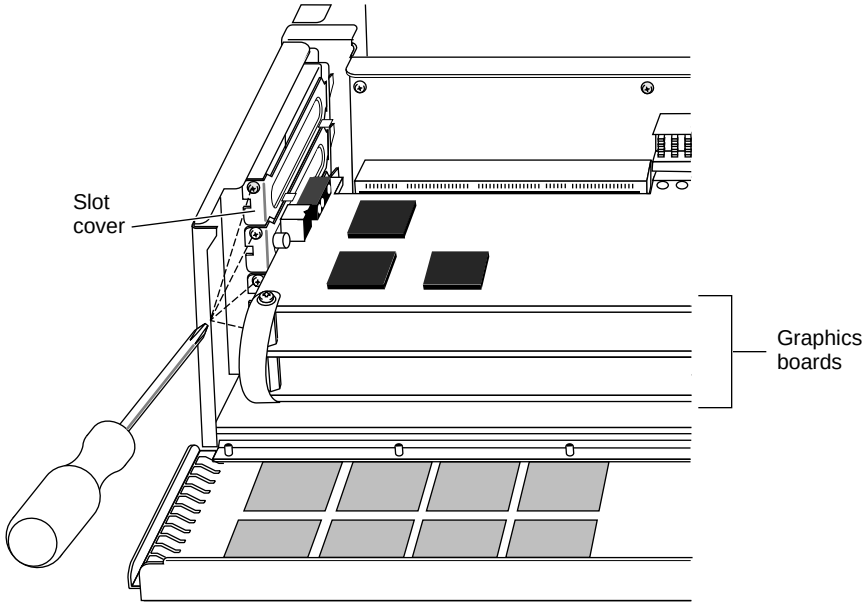

Figure 2-9 Removing the Slot Cover Screws

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 for added leverage while you pull.

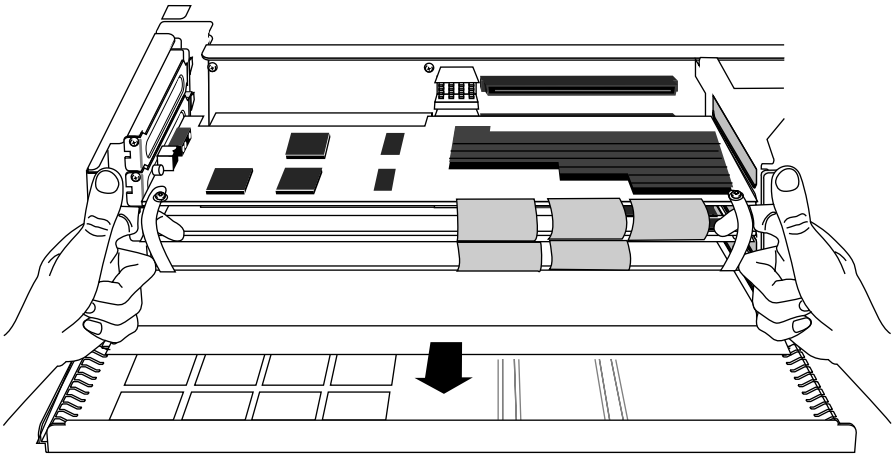

Figure 2-10 Removing the Graphics Board Set

7. Place the board set on a flat, antistatic surface. An empty antistatic bag or a clean, dry desktop works well.

Installing the Indigo² Video Board

Installing the Indigo² Video board consists of:

1. Attaching the Indigo² Video board to the graphics board set.
2. Replacing the pull straps.
3. Reinstalling the board set into the system.
4. Replacing the cover.

Attaching the Indigo² Video Board to the Graphics Board Set

1. To attach the Indigo² Video board to the graphics board set and install the boards, follow these steps:
   - If you have a Solid IMPACT graphics board, got to step 7.
   - If you have a High IMPACT or Maximum IMPACT graphics board set, go to step 2.
2. If you have a high IMPACT or Maximum IMPACT graphics board set, remove the four screws from the corners. See Figure 2-11.

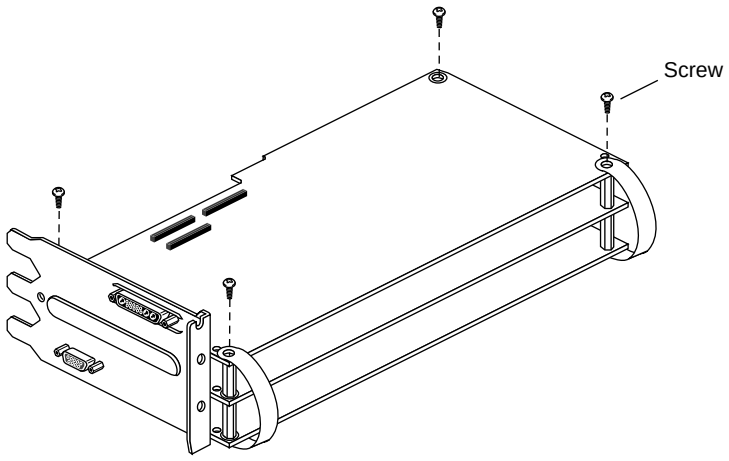

Figure 2-11 Removing Graphics Board Set Screws

3. Install the four standoffs in the same corner screw holes from which you removed the screws. (Figure 2-12).

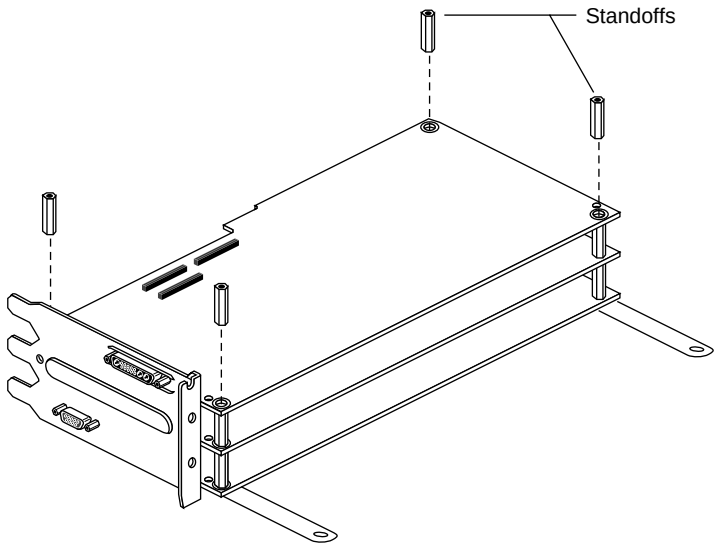

Figure 2-12 Installing the Standoffs

4. Remove the screws that attach the pull straps to the bottom of the graphics board set (Figure 2-13). You can turn the board set up-side down and rest the board on the standoffs to replace the pull straps. You can throw away the old pull straps.

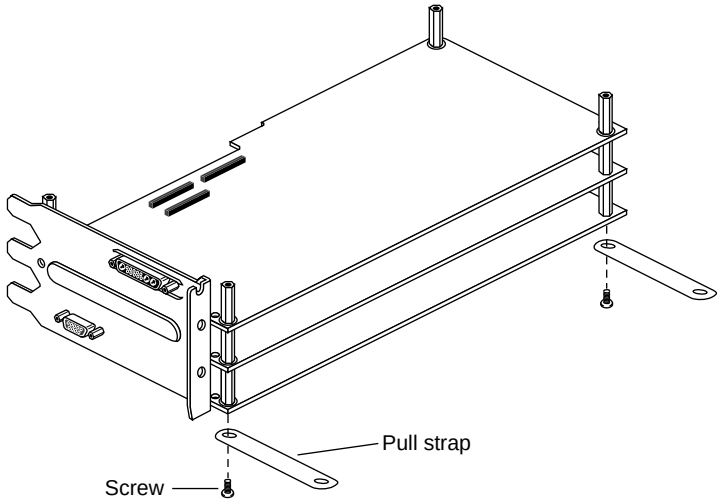

Figure 2-13 Removing the Screws That Attach the Pull Straps

5. Select the pull straps for the graphics board set:
   - If you have a High IMPACT graphics board set with two boards, select the 3-Board pull straps.
   - If you have a Maximum IMPACT graphics board set with three boards, select the 4-Board pull straps.
6. Attach the pull straps to the bottom of the graphics board set.
   - Pull the plastic strip off the adhesive.
   - Line up the hole in the pull strap and the hole in the board and attach the pull strap to the bottom of the board.
   - Replace the screws. See Figure 2-13.

7. If you have a Solid IMPACT graphics board, follow these steps to remove the pull straps. You will need a Phillips screwdriver and tool to remove the hex nut.
   - Remove the two screws that pass through the pull straps. You can turn the board over. See Figure 2-14.
   - Detach the pull strap from the top of the board.
   - Detach the pull strap from the bottom of the board. You can throw away the pull straps.

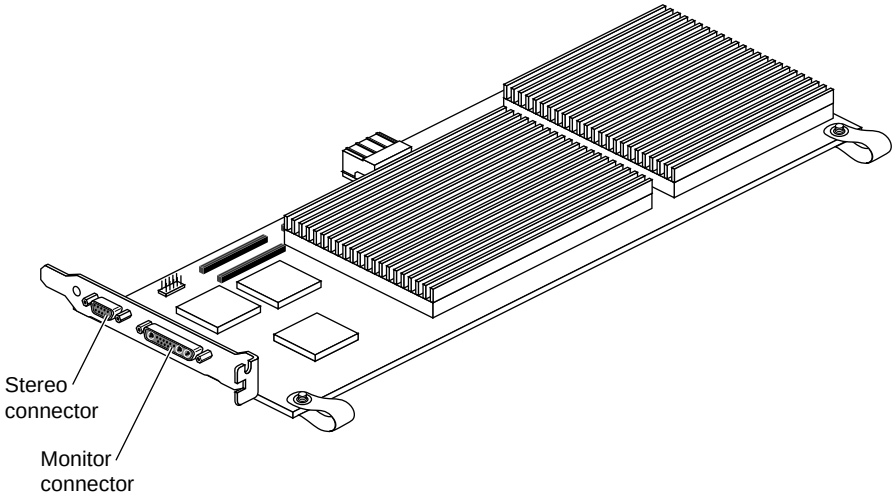

Figure 2-14 Removing the Nuts From the Solid IMPACT Graphics Board

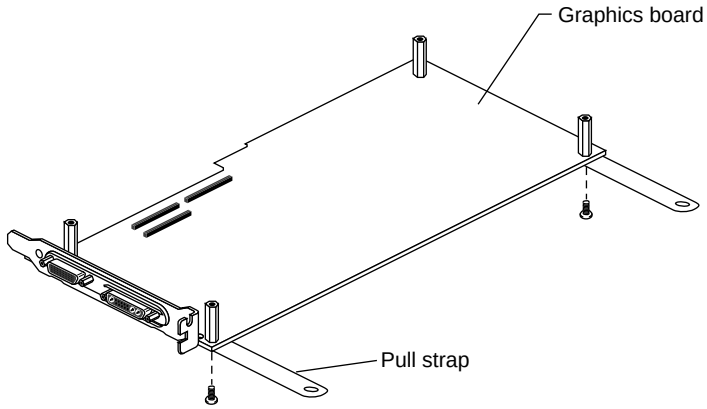

Figure 2-15 Attaching the Pull Straps

8. Select the 3-Board pull straps from the set you were sent.
9. Attach the pull straps to the bottom of the graphics board set.
   - Pull the plastic strip off the adhesive.
   - Line up the hole in the pull strap and the hole in the board and attach the pull strap to the bottom of the board.
   - Replace the screws. See Figure 2-15.
10. Install two standoffs (female/female) onto the screws in the same corners from which you removed the nuts.
11. Locate holes on the rear two corners of the board and insert a screw from beneath the board through each hole.
12. Install two standoffs (female/female) onto the screws you just placed through the holes.

Installing the Video-graphics Cables

The following instruction apply to the Solid IMPACT, High IMPACT and Maximum IMPACT graphics board sets.

1. Attach the two video-graphics cables to the graphics board connectors (Figure 2-16 and Figure 2-17).

Tip: Attach the cables sticker-side down for easier removal.

- Attach one end of the two-connector cable to the single connector on the graphics board.
- Attach the two connectors from one end of the four-connector cable to the pair of connectors on the graphics board.

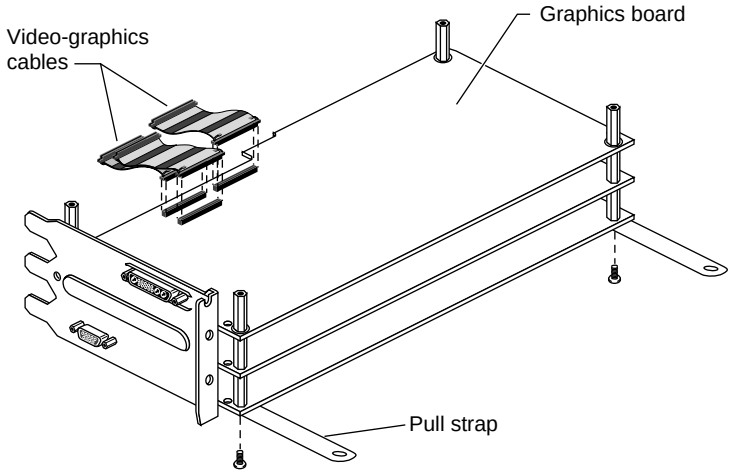

Figure 2-16 Attaching the Video-Graphics Cables to the Graphics Board

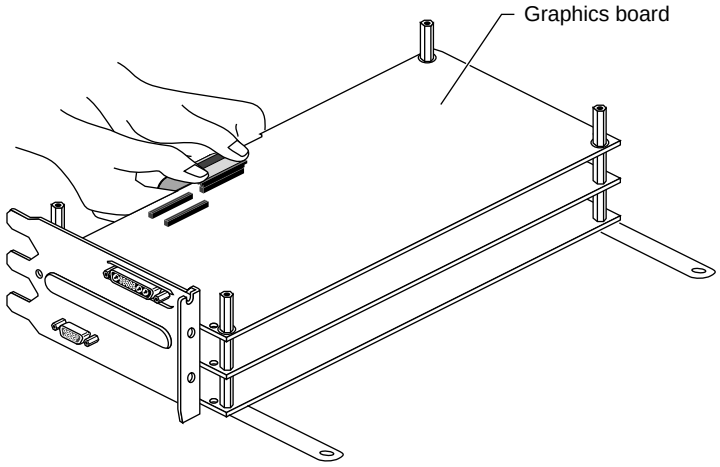

Figure 2-17 Squeezing the Video-Graphics Cables into the Connectors

Tip: Use your thumb and fingers to squeeze the cable connectors into the connectors on the board. (Figure 2-17).

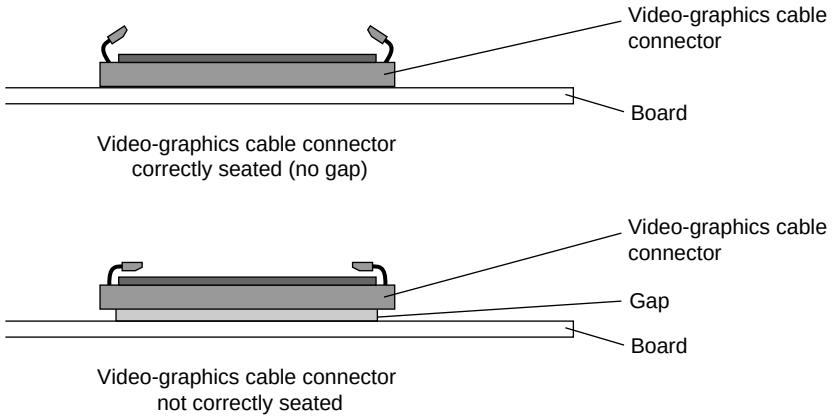

Figure 2-18 Side Views of the Video-Graphics Connector

Tip: Attach the connectors one at a time. Figure 2-18 provides a side view of a correctly and incorrectly seated cable connector.

2. Slip the innermost cable through the levers of the outermost cable of the two-cable set. See Figure 2-19.

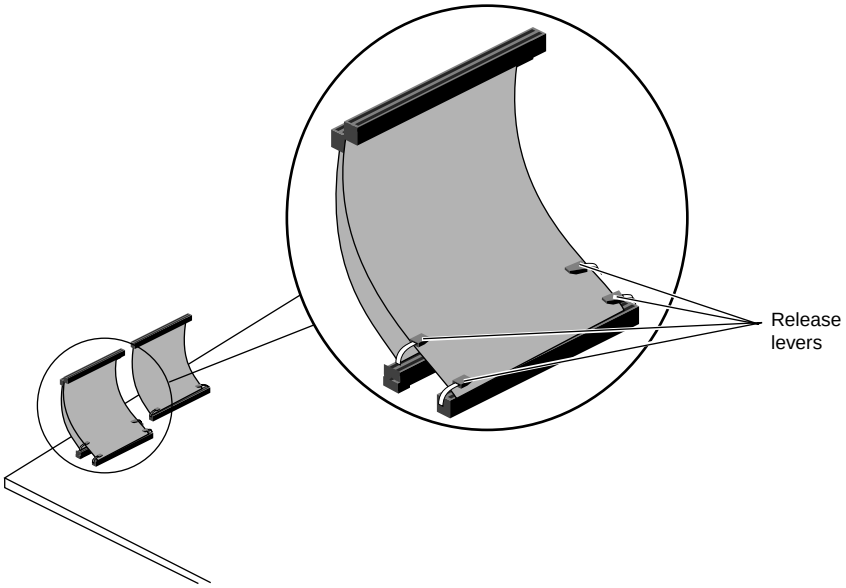

Figure 2-19 Attaching the Video-Graphics Cables to the Graphics Board Connectors

3. Align the Indigo² Video board with the graphics board set and place it on the standoffs. (Figure 2-20).
4. Insert two screws through the Indigo² Video board into the rear standoffs.
5. Attach the pull straps to the top of the Indigo² Video board.
   - Remove the plastic strip from the adhesive at the end of the pull strap.
   - Align the holes of the pull strap with the holes in the board and press firmly to attach
6. Insert the remaining two screws through the pull straps and into the standoffs.

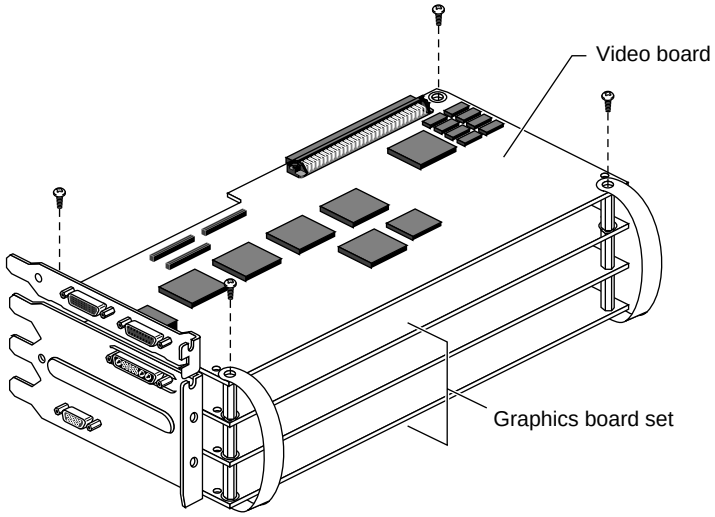

Figure 2-20 Aligning and Attaching the Video Board to the Graphics Board Set

7. Attach the two video-graphics cables to the corresponding connectors on the video board (Figure 2-21).
   - Attach the other end of the two-connector cable to the single connector on the video board.
   - Attach the two connectors from the other end of the four-connector cable to the pair of connectors on the video board.
8. Slip the innermost cable through the outermost cable levers of the two-cable set. See Figure 2-21.

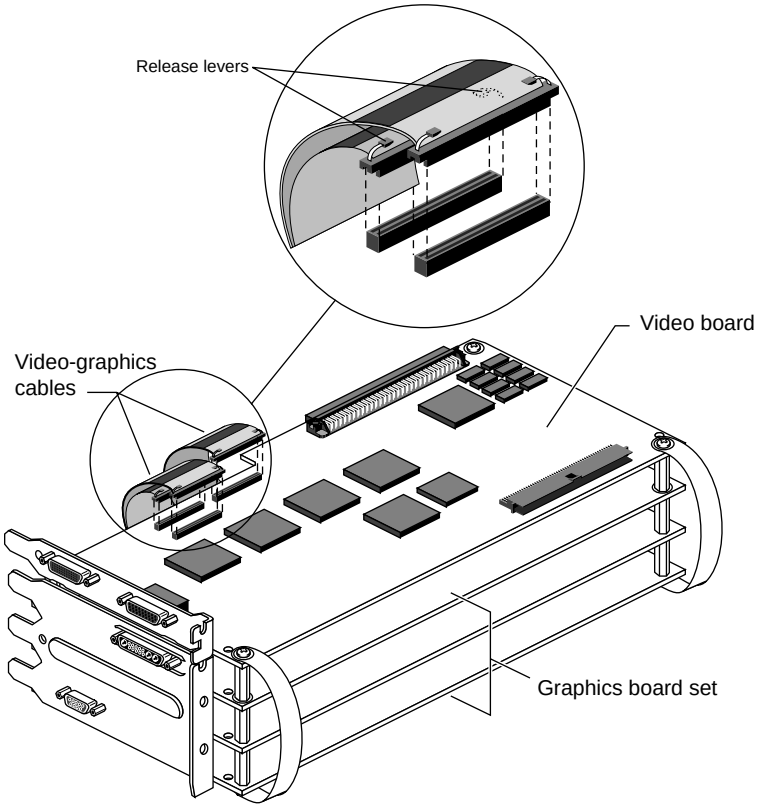

Figure 2-21 Attaching the Video-Graphics Cables to the Video Board

Installing the Indigo² Video Board and the IMPACT Graphics Board Set

Install the graphics and video board set in the same slot from which you removed the graphics board. If you need help determining which slots to use, see the following tables. Otherwise, skip to step 1.

See Figure 2-22 for the locations of the slots. Check your option board manual for any additional information.

Table 2-1 Placement of Indigo² Solid IMPACT/Indigo² Video Boards

If you have this combination of Indigo² Solid IMPACT/Indigo² Video & Option Boards:	Use these slots:
Solid IMPACT/Indigo² Video	Graphics/Video boards in Slots B and C *or* C and D
Solid IMPACT/Indigo² Video and 1 EISA option board	Graphics/Video board in Slots B and C, and the EISA board in Slot A
Solid IMPACT/Indigo² Video and 2 EISA option boards	Graphics/Video boards in Slots C and D, and the EISA boards in Slots A and B

Table 2-2 Placement of Indigo² High IMPACT/Indigo² Video Boards

If you have this combination of Indigo² High IMPACT/Indigo² Video and Option Boards:	Use these slots:
High IMPACT/Indigo² Video	Slots A, B and C, *or* B, C, and D
High IMPACT/Indigo² Video and 1 EISA board	Slots B, C, and D and the EISA board in Slot A

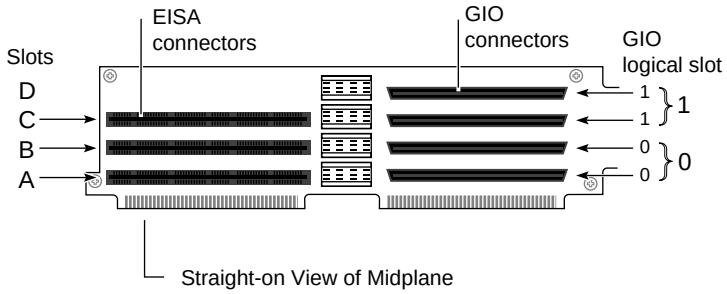

Figure 2-22 Locating Graphics and Option Board Slots

1. Align the board set with the slots on the left side of the chassis (Figure 2-23).

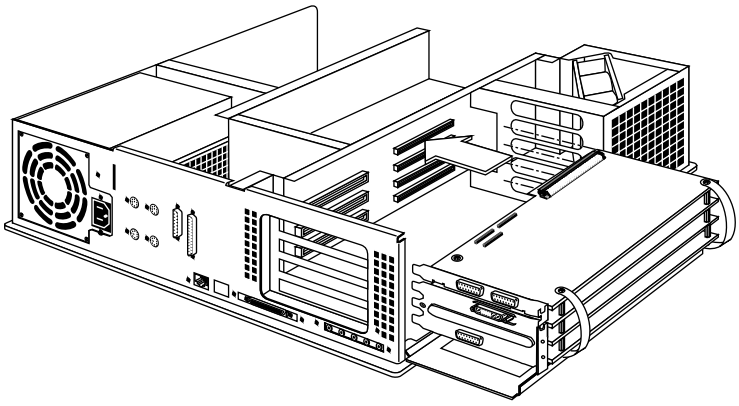

Figure 2-23 Aligning the Board Set With the Chassis

2. Slide the boards into the chassis and push the board connectors into the corresponding midplane connectors (Figure 2-24). Putting pressure on the topmost board of the set helps to seat the boards completely.

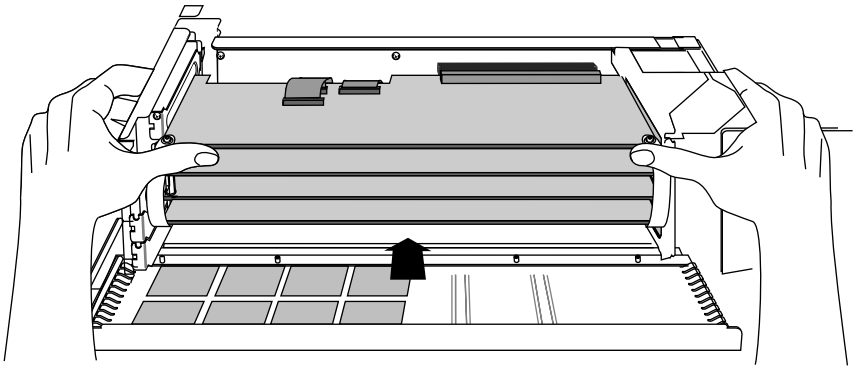

Figure 2-24 Inserting the Board Set into the Chassis

Tip: You will have to use a great deal 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.

Tip: Figure 2-25 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.

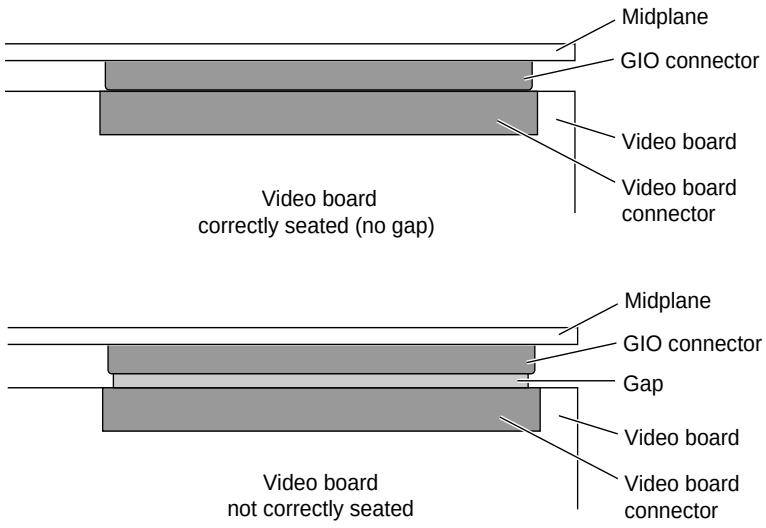

Figure 2-25 Checking the Seating of the GIO Connector

3. Install the screws that secure the graphics boards and video board to the chassis.

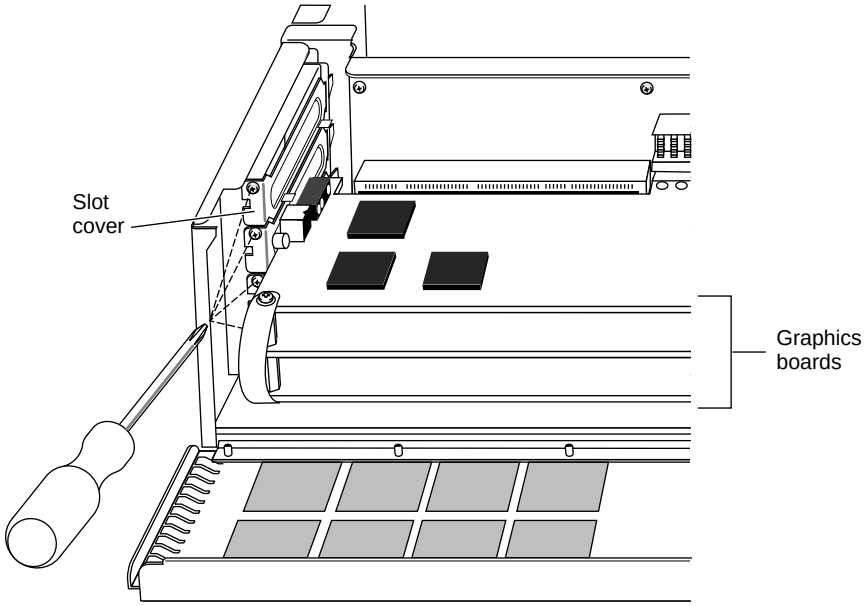

Figure 2-26 Attaching the Graphics Board Set to the Chassis

4. Replace the retention pin.

Tip: Use the retention pin as a plumb line to determine if the board set is properly seated. If the pin is tilted, push on the board set until it is properly connected.

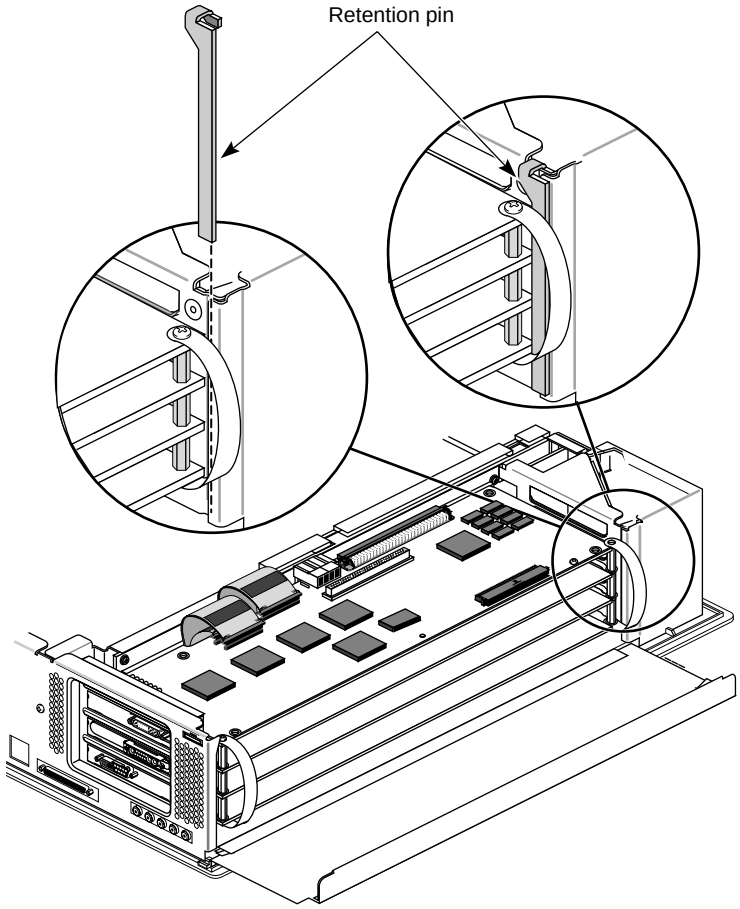

Figure 2-27 Replacing the Retention Pin

5. Lift the metal panel and snap it down into place (Figure 2-28).

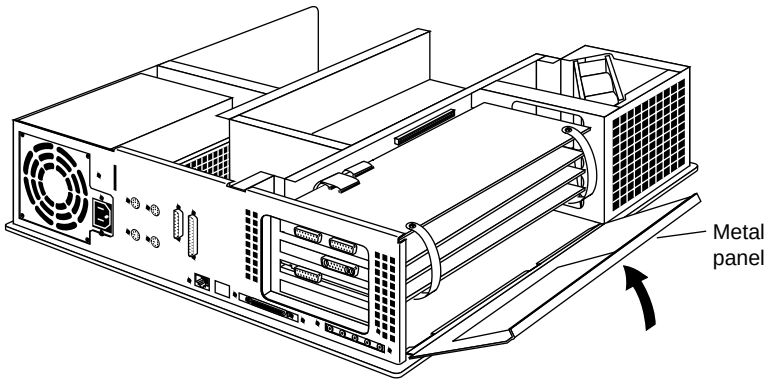

Figure 2-28 Closing the Metal Panel

6. Remove the antistatic wrist strap.

Congratulations! You are finished installing your Indigo^2 Video board.

To replace the cover, see the next section.

Replacing the Cover

To replace the top cover, follow these steps:

1. Locate the tabs on the inside and back of the top cover and the slots on the back of the workstation. See Figure 2-29.
2. Face the front of the workstation.
   - Look through the slots as you lower the cover and move the tabs into place.
3. Insert the locator tabs into the holes. Rotate the cover forward and push it down until it snaps into place (Figure 2-29).

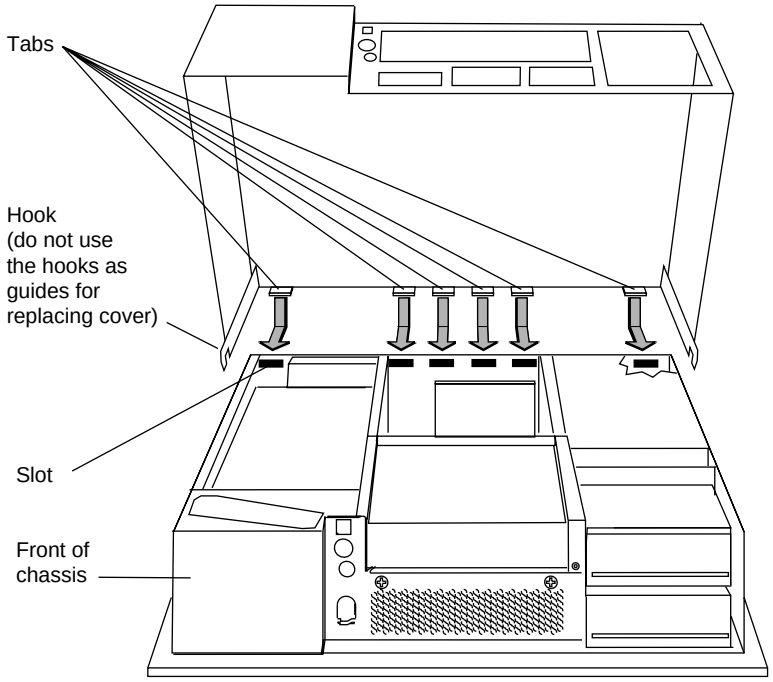

Figure 2-29 Replacing the Cover

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

4. Replace the bezel (Figure 2-30).
   - Insert the tabs on the bottom of the bezel into the grooves.
   - Pull up the bezel and snap it into place.
5. Replace the lockbar if you removed it.
6. Close the front cover of the bezel.

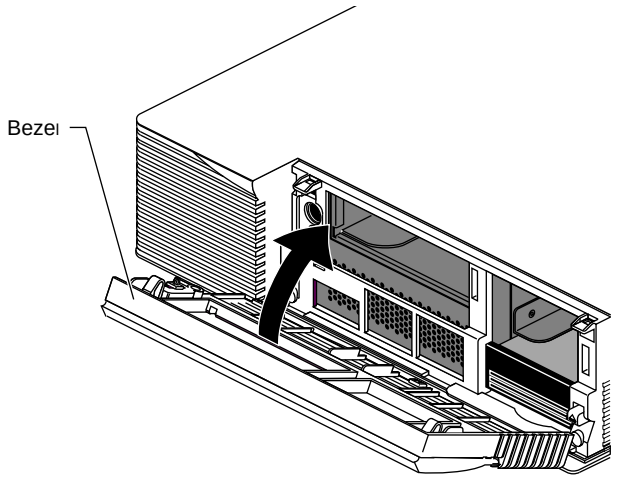

Figure 2-30 Replacing the Bezel

Go to “Connecting the Cables and IndyCam Camera” on page 31.

Connecting the Cables and IndyCam Camera

To connect the cables and IndyCam camera, follow these steps:

1. Reattach the graphics monitor cable to the graphics board.
2. Reattach the power cable to the system.
3. Attach the Indigo² Video cable and the IndyCam camera to the two connectors on the video board, as shown in Figure 2-31.

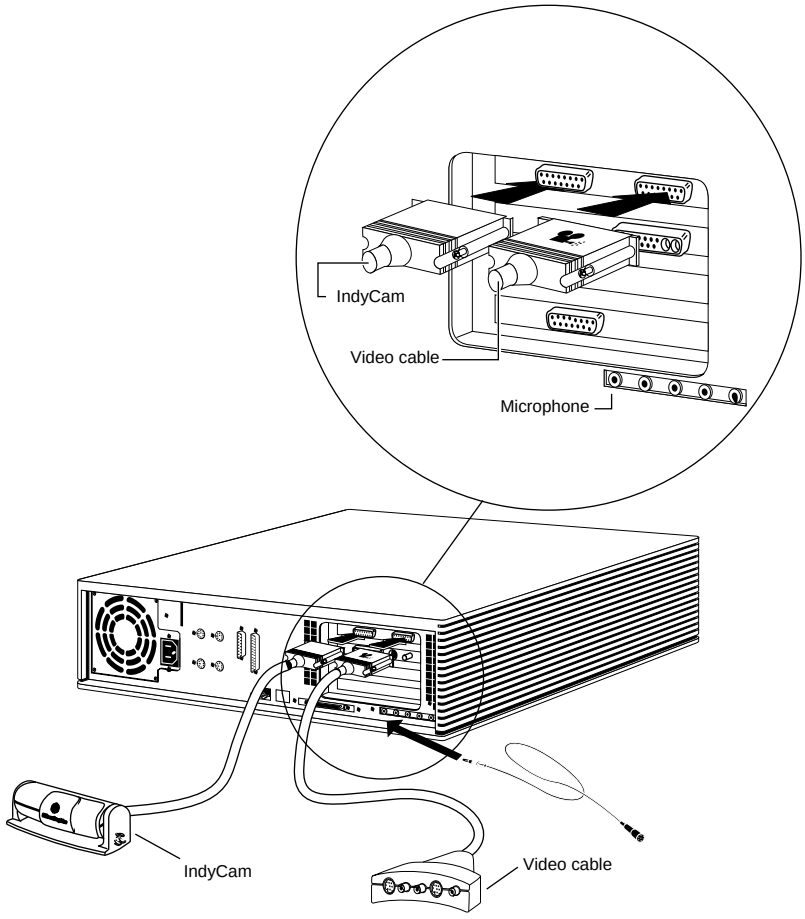

Figure 2-31 Attaching the Indigo² Video Cable and the IndyCam Camera

4. Connect your microphone, if it is disconnected. See Figure 2-31. You can attach the microphone to the side of the camera, if you choose to do so.
5. Place the camera on top of the monitor.

If your workstation is on the floor, the IndyCam cable will not be long enough to reach the top of your monitor.

6. Slide open the plastic lens cover to expose the lens (Figure 2-32).

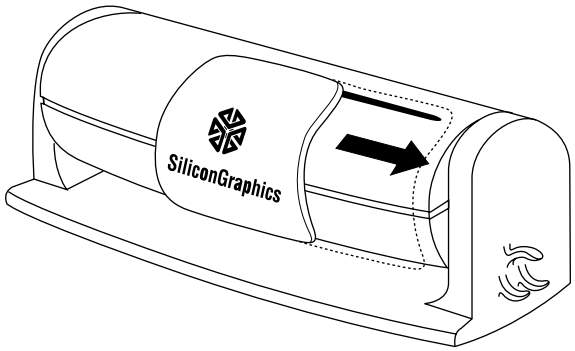

Figure 2-32 Opening the IndyCam Lens Cover

7. Remove the small lens cap covering the lens.

You are ready to power on your Indigo² IMPACT workstation.

Checking and Troubleshooting the Installation

To check that your workstation recognizes the video board and the IndyCam camera, first turn on the system power and log in to your system.

Checking the Indigo² Video Board Installation

Before checking the video board 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 Indigo² Video 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:

   ```
   Indigo2 Video (ev1):  unit 0, revision 4
   ```

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

   - Make sure that the video board and graphics boards are completely seated into the connectors on the system midplane.
   - Make sure that the graphics-video cables that attach to the video and graphics boards are correctly attached.

Checking the IndyCam Installation

To make sure that the system recognizes the IndyCam camera, follow these steps:

1. Go to the Toolchest and the Find menu.
2. Choose “Control Panels” from the Find menu.
3. Double-click the videopanel icon.

   The Video Panel appears (Figure 2-33).

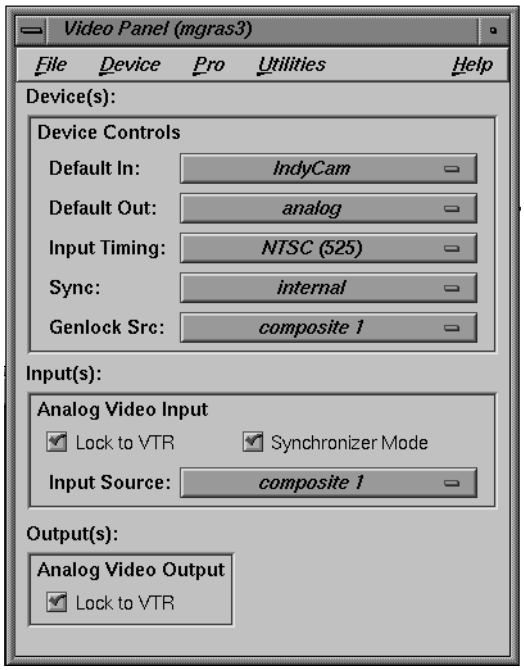

Figure 2-33 The Video Panel

4. Click the Default Input field and choose “IndyCam” from the list.
5. Make sure that the Synchronizer Mode option is on (checked).
6. Make sure that “Internal” is selected from the Sync option.

7. Make sure that "NTSC (525)" is selected from the Input Timing option.

   Your system will recognize the IndyCam camera.

8. Launch either the camera tool or the capture tool by double-clicking on either icon.

If IndyCam does not appear as an option in the Default Input list, check the following:

- Shut down the system and reconnect the IndyCam camera, as shown in Figure 2-31. Make sure that the IndyCam connector is completely seated in the video board connector. Start up and log in to your workstation.
- Make sure that you've installed the software on the CD that came with the Indigo² Video package.

You only need to restart the workstation the first time you plug in the IndyCam camera. After that, you can unplug and plug the IndyCam without restarting your system. However, you will need to readjust the colors. See the section "Adjusting the IndyCam" in Chapter 3.

Removing the Indigo² Video Board

Removing the Indigo² Video board from your system consists of:

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

Refer to the first part of this chapter for detailed steps and illustrations about removing and installing option boards in the Indigo² IMPACT workstation.

Chapter 3

Video Conferencing

The Indigo² Video package includes the IndyCam camera and InPerson video conferencing software. With InPerson, you can use your Indigo² IMPACT workstation to conduct live, face-to-face meetings with two or more people. You can present ideas and information graphically by sharing an on-screen whiteboard for sketching, typing notes, and creating images. You can also share documents with conference participants.

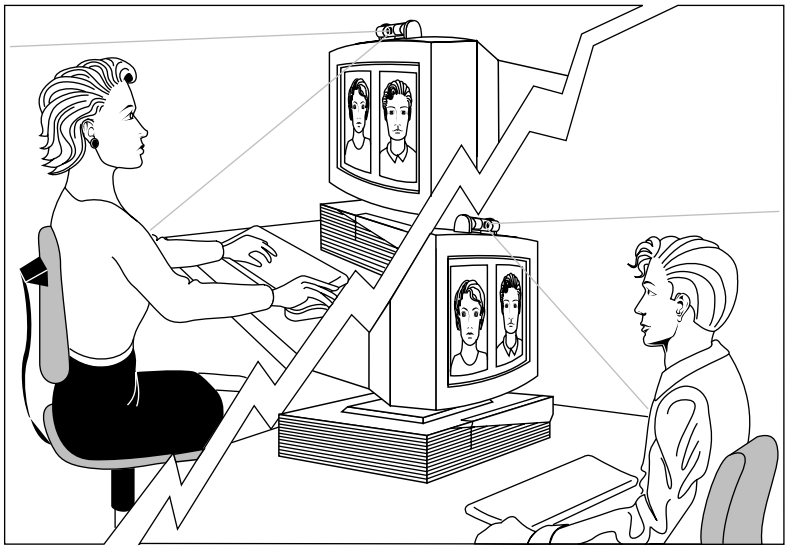

Figure 3-1 Conferencing with Indigo² Video

This chapter provides an overview of how you might use video conferencing and gives instructions for setting up your system for video conferencing.

Overview of Video Conferencing

Video conferencing means that you do not have to be in the same room, building, or country as the other participants to hold a meeting—you only need to be logged into a networked workstation equipped with the Indigo² Video package components. With Indigo² Video, you can record the conference on videotape or save it to your hard drive.

For example, suppose you need to confer with two other people. The advantages of a conventional, in-person meeting (versus a telephone conference call) are that you can distribute meeting agendas and other documents, present ideas and brainstorm using a whiteboard or projector, and, of course, see each other. Video conferencing with InPerson enables you to do all of these things too.

Before you make the video conference call, use the Whiteboard tool to prepare the documents (such as agendas, schedules, and so on) that you want to distribute during the meeting. (See Figure 3-2.)

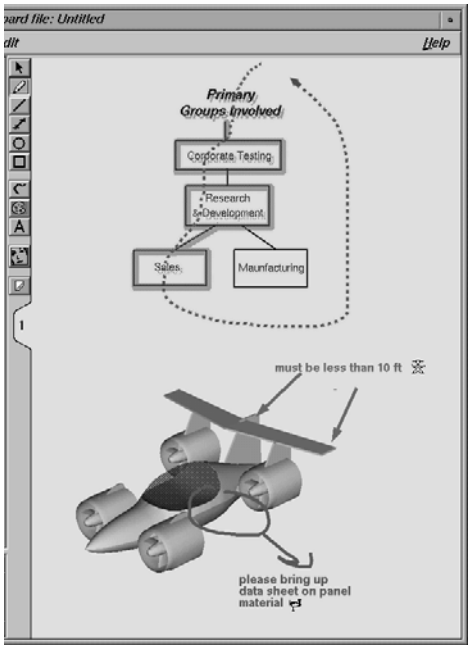

Figure 3-2 The Whiteboard

If you have other documents that you want to distribute during the meeting, you drag those file icons to the Shelf (Figure 3-3). Meeting participants can drag the file to their desktops to view later or during the conference.

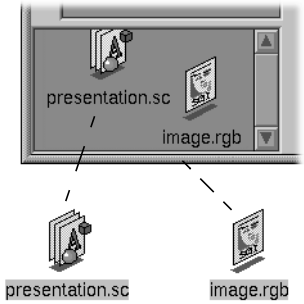

Figure 3-3 The Shelf

When you are ready to start the meeting, place calls to the other meeting participants (Figure 3-4).

Figure 3-4 Placing the Call

The participants, the Whiteboard, and the Shelf appear on screen, ready for you and the other participants to start collaborating.

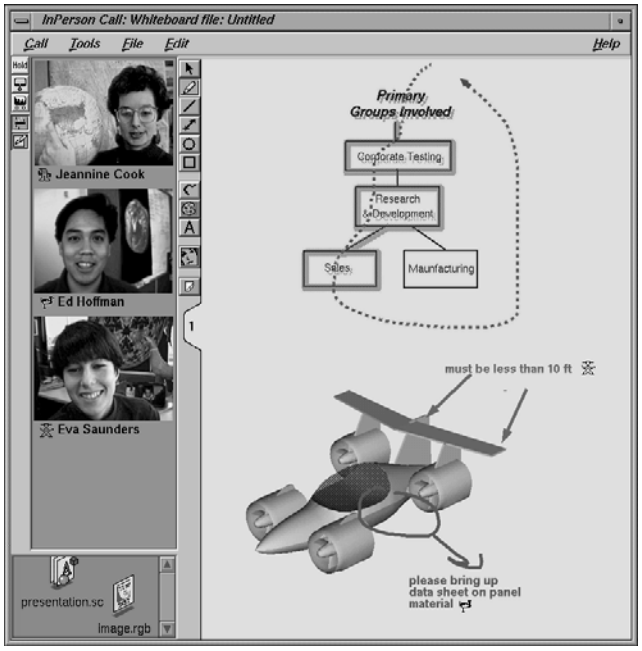

Figure 3-5 Desktop During an InPerson Call

Setting Up Indigo² Video Conferencing

Before you set up video conferencing, make sure you have installed the Indigo² Video board and IndyCam to your system (refer to Chapter 2, "Installing the Indigo2 Video Board").

To set up video conferencing, follow these steps:

1. Install the Indigo² Video board in your Indigo² IMPACT workstation.
2. Connect the microphone that came with your Indigo² IMPACT workstation to the microphone port on the back of the workstation (Figure 3-6).

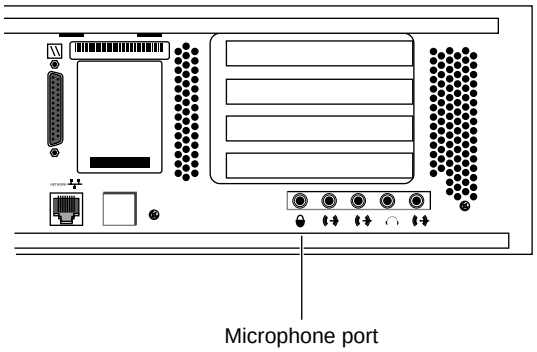

Figure 3-6 The Microphone Port

3. Install the InPerson software included on the IMPACT Digital Media CD.

4. To start up InPerson, double-click the InPerson icon, or type in the UNIX shell:

   ```
   inperson
   ```

   and press **<Enter>**.

   The InPerson icon appears on your desktop (Figure 3-7).

Figure 3-7 The InPerson Icon

Adjusting the IndyCam

You can adjust IndyCam screen images using the Capture tool or InPerson software. To use the Capture tool, choose "Media Tools" from the Find menu in the Toolchest, and then double-click the capture icon. Use the online help for information about adjusting the image with the Capture tool.

To view and adjust the IndyCam image using InPerson, follow these steps:

1. Double-click the InPerson icon.

   The Phone icon appears (Figure 3-8).

Figure 3-8 The Phone Icon

2. Double-click the Phone icon and the Calling Window appears. Click the Authoring button (Figure 3-9).

Figure 3-9 The Calling Window

3. Point the camera lens at yourself. Your image appears in the upper left corner of the InPerson window. If the image is out of focus, slowly twist the lens in either direction until the focus improves.

   The color of the image is affected by the amount of light in your environment. If the color isn't right, use the controls in the Signal Controls panel to adjust the colors, described in steps 4 through 6.

4. Choose "Control Panels" from the Find menu in the Toolchest. Double-click the videopanel icon.

   The Video Panel appears.

5. Choose “IndyCam” from the Pro menu and then choose “Signal Controls.”

   The IndyCam Signal window appears (Figure 3-10).

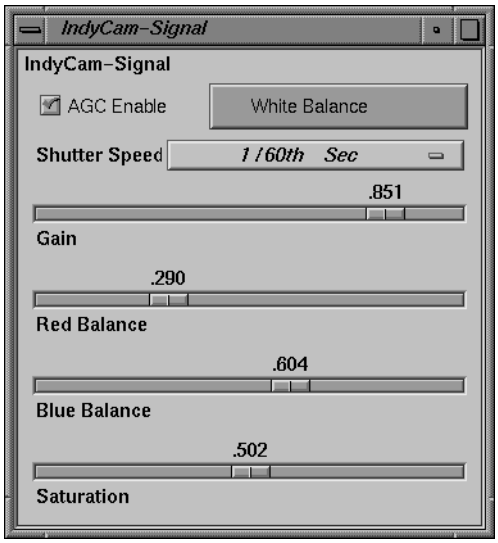

Figure 3-10 The IndyCam Signal Window

6. Slide the Gain button to the right or left to increase or decrease the image brightness, respectively.
7. Slide the Red and Blue Balance buttons to the right or left to increase or decrease the amount of red or blue tinting in the image.
8. Slide the Saturation button to the right or left to decrease or increase the color saturation. (Saturation is the color intensity.)

After the IndyCam image is adjusted, you are ready to set up an InPerson conference. Refer to the *InPerson QuickCard* or the online help for information about using InPerson.

Chapter 4

Recording on Video and Saving to Your Hard Disk

With Indigo² Video you can record Indigo² IMPACT graphics on videotape.

You can also save reduced-resolution video on your Indigo² IMPACT hard disk and display live video on your workstation screen. After you save video on your workstation, you can use some of the desktop tools like MovieMaker or MoviePlayer, or third-party applications to manipulate the images and then output them to video.

This chapter describes how to record video and save to your hard disk. If you haven't already installed the Indigo² Video board in your workstation, refer to Chapter 2, "Installing the Indigo² Video Board." If you want to set up and record a video conference, you must have InPerson installed. Refer to Chapter 3, "Video Conferencing," and online help for instructions about using InPerson.

What You Need

To record Indigo² sessions on video tape or to save to your hard disk from video, you'll need a few additional items that are not included in your Indigo² Video package. These items are found in most electronics stores:

- a consumer- or professional-quality VCR
- one or two audio cables with an RCA connector on each end. If you are using an S-VHS or Hi 8 mm VCR or camcorder, use an S-Video cable instead of an RCA-to-RCA cable.
- one or two audio cables with a mini stereo jack on one end and double RCA connectors on the other end

Note: If you plan to record on videotape and save to your hard disk, you may want to have two of each type of cable listed above to avoid having to reconfigure the cable connections.

Using the Video and Audio Panels

Use the Video and Audio Panels to adjust video and audio parameters when you record on videotape and save to your hard disk.

The Video Panel application allows you to select which video input is active, adjust levels and timing characteristics of the incoming and outgoing video signals, select filtering and processing options, and in the case of the Indy Cam camera, adjust gain and white balance. It also contains online documentation that describes the application and how to use it.

Access the Video Panel by typing **`videopanel`** in a shell window, or by double-clicking the videopanel icon on the Control Panels page of the Icon Catalog.

The Audio Panel lets you adjust the audio parameters, such as volume and sampling rates, of audio coming into your system. You use it to control and set up microphones or other audio devices that you connect to your workstation.

Access the Audio Panel by typing **`audiopanel`** in a shell window, or by double-clicking the audiopanel icon on the Control Panels page of the Icon Catalog.

See *IRIS Essentials* for information on how to open a shell window or locate an icon.

Framelocking

In order to record graphics or display video on a graphics monitor, the video and graphics signals must be generated at the same rate. When you synchronize the signals you *framelock* the video and the graphics. Framelocking eliminates tearing and motion artifacts that occur if the video and graphics signals aren't synchronized. Choosing the NTSC setting from the Input Timing option doesn't automatically lock graphics to video.

Type the command for the video standard you are using.

- For PAL type the command **`setmon -Fl 50`**
- For NTSC type the command **`setmon - Fl 60`**

Now you are ready to record graphics and video to tape.

Recording Indigo² Sessions on Videotape

To record on videotape Indigo² sessions, first connect the VCR and microphone to your workstation. Then use the Video Panel to set up the video.

To connect the VCR and microphone to your Indigo² IMPACT workstation, follow the steps below and refer to Figure 4-1.

Note: The step numbers correspond to the numbers in Figure 4-1.

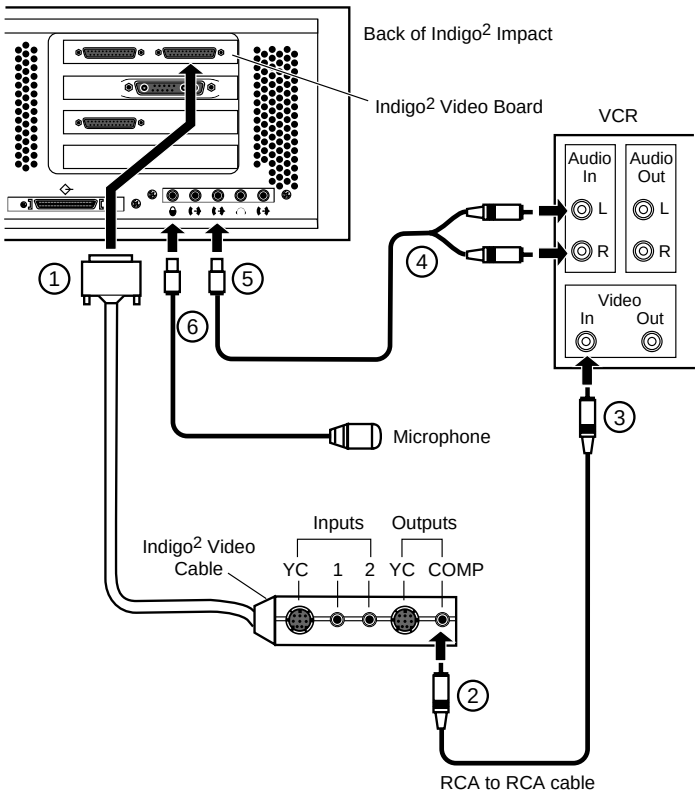

Figure 4-1 Connecting the VCR and Microphone

1. Attach the Indigo^2 Video cable to the video connector on the back of the workstation.
2. Connect one end of the RCA-to-RCA cable to the Output Comp connector on the Indigo^2 Video cable.

   Note: If you are using an S-VHS or Hi 8 mm VCR or camcorder, use an S-Video cable instead of an RCA-to-RCA cable.
3. Attach the other end of the RCA-to-RCA cable to the Video In connector on the VCR.
4. Connect the two RCA connectors on the RCA-to-jack cable to the left and right Audio In connectors on the VCR.
5. Connect the other end of the RCA-to-jack cable to the Line Out connector on the back of the workstation.
6. Connect the microphone to the microphone connector on the back of the workstation.

To set up the video, follow these steps:

1. Choose “Control Panels” from the Find menu in the Toolchest. Double-click the videopanel icon.

   The Video Panel appears (Figure 4-2).

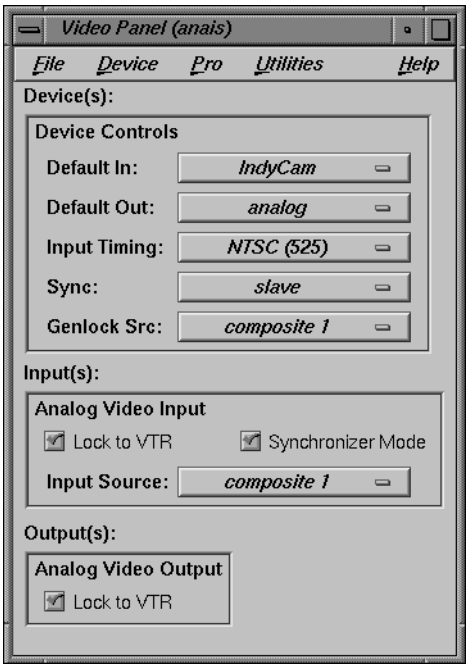

Figure 4-2 The Video Panel

2. Choose “Live Video Output” from the Utilities menu.

   A Live Video Output button appears (Figure 4-3). You can drag this button anywhere on the screen.

Figure 4-3 Live Video Output Button

After you position the button, a rectangle-shaped border appears in the upper left corner of the screen. Everything inside this rectangle is live video output.

3. Select the part of the screen you want to record on videotape.
   - Use the left or middle mouse button to click and drag the window to select the part of the screen that you want to record on videotape.
   - With the right mouse button, click the Live Video Output button to record the entire screen to video, and then choose the Send Full Screen option.

   Note: On 1280 x 1024 resolution screens, only 960 of the 1024 horizontal lines are converted to video, so the bottom 64 lines will not be converted to video.
4. Click the Live Video Output button with the right mouse button and then choose (check) the Flicker Filter option to improve the quality of the video.

Note: Live video out put can also be accessed through the shell. See the videout man page for more options.

To set up the audio, follow these steps:

1. Choose “Control Panels” from the Find menu in the Toolchest. Double-click the audiopanel icon. The Audio Control panel appears (Figure 4-4).

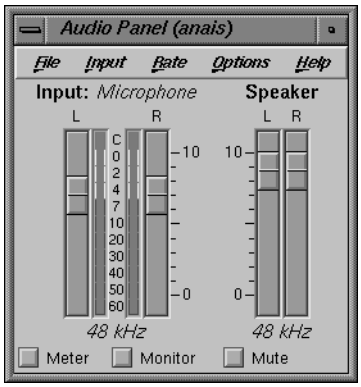

Figure 4-4 Audio Control Panel

2. Choose “Microphone” from the Input menu and adjust the Input and Speaker levels.
3. Click to activate (check) the Monitor button.

   This sends the microphone input from Line Out on the workstation to Line In on the VCR.
4. To record on videotape, insert a videotape into the VCR and push the Record button when you are ready to record. To add narration, speak into the microphone.

Recording Video on the Indigo² IMPACT Hard Disk

You can use Indigo² Video features to record video on your hard disk and to display live video on your Indigo² IMPACT monitor.

To set up the VCR and the Indigo² IMPACT so that you can save video on disk or display live video, follow the steps below and refer to Figure 4-5. You can also use a camcorder in place of a VCR.

Note: The numbers in the figure correspond to the step numbers.

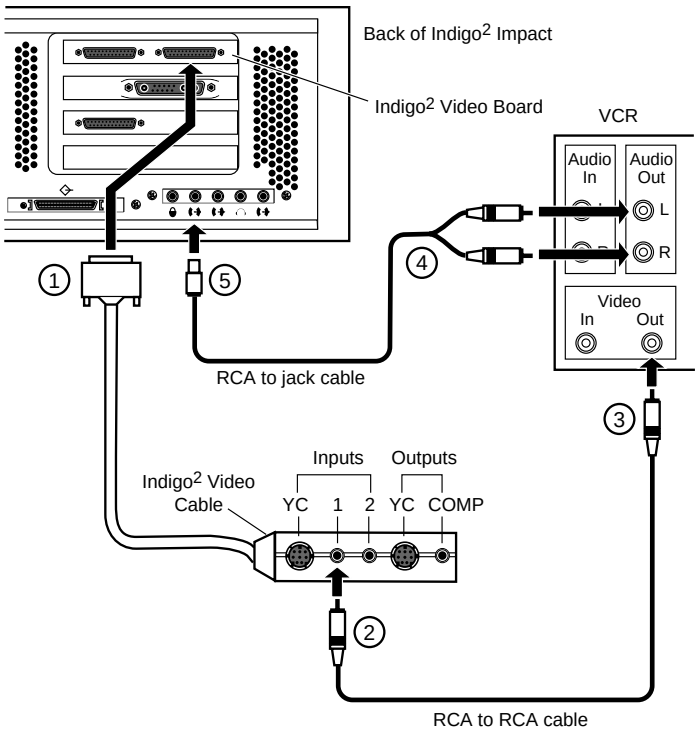

Figure 4-5 Connecting the VCR

1. Attach the Indigo² Video cable to the video connector on the back of the workstation.
2. Attach one end of the RCA-to-RCA cable to Inputs Comp 1 connector on the Indigo² Video Cable.

   Note: If you are using an S-VHS or Hi 8 mm VCR or camcorder, use an S-Video cable instead of an RCA-to-RCA cable.
3. Attach the other end of the RCA-to-RCA cable to the Video Out connector on the VCR.
4. Attach the two RCA connectors on the stereo jack-to-double RCA cable to the left and right Audio Out connectors on the VCR.
5. Attach the other end of the stereo jack-to-double RCA cable into the Line In connector on the Indigo² IMPACT workstation.

To save to the Indigo² IMPACT hard disk and display live video, follow these steps:

1. Choose “Control Panels” from the Find menu in the Toolchest. Double-click the videopanel icon.

   The Video Panel appears (Figure 4-6).

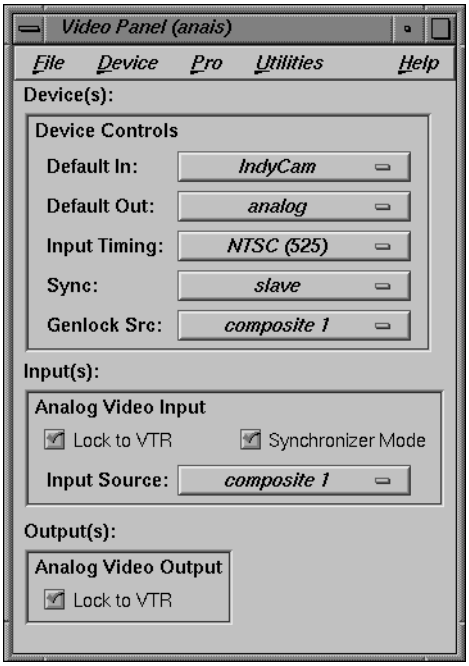

Figure 4-6 The Video Panel

2. Choose the Composite 1 option as the Input Source.
3. If you are using a consumer-quality VCR, click to activate the “Lock to VTR” setting under Inputs.
4. Choose “Media Tools” from the Find menu in the Toolchest. The Media Tools window appears. Double-click the Capture icon to start the Capture application.
5. Use Capture to save video to disk. For information about using Capture, refer to the Capture online help.

6. Insert a videotape in the VCR and press the Play button.

   If both the live video input and output windows are active, move them so they don't overlap. Note that saving video to your workstation will use a lot of hard disk space.

Chapter 5

Regulatory Information

Manufacturer's Regulatory Declarations for the Indigo² and Indigo² IMPACT Graphics Boards

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 Indigo² and Indigo² IMPACT graphics boards conform to several national and international specifications and European Directives listed on the "Manufacturer's Declaration of Conformity." 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 Declaration of Conformity" is available on the World Wide Web. Look on the 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 5-1 (Exterior of Workstation) at the end of this chapter 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:

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

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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 5-1 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 Interference Characteristics of Information Technology Equipment, Germany's BZT Class A limits for Information Technology Equipment, and with Japan's VCCI Class 1 limits.

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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。

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 Indigo² IMPACT workstation is FCC-compliant under test conditions that include the use of shielded cables between Indigo² IMPACT workstation and its peripherals. Your Indigo² IMPACT workstation 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 Indigo² 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

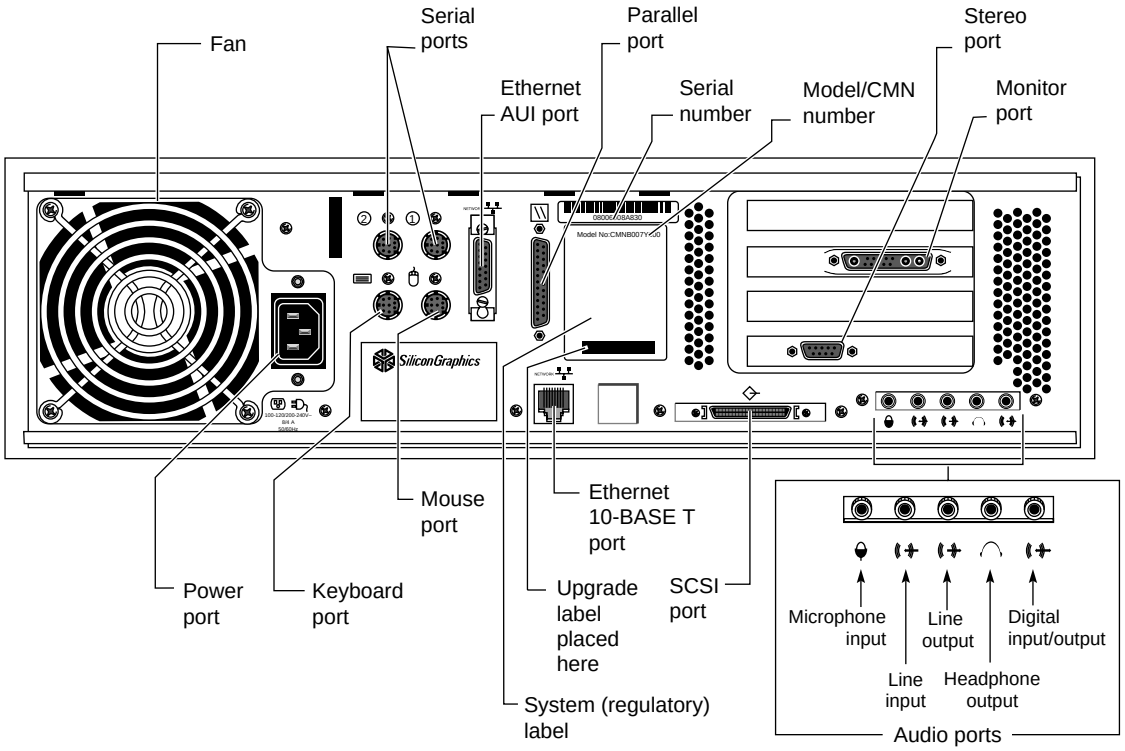

Figure 5-1 Exterior of Workstation

Glossary

artifact

In video systems, an unnatural or artificial effect when the system reproduces an image.

Audio Panel

A software control panel in the Find toolchest that allows you to set audio parameters such as the volume and sampling rate.

bezel

The frame that holds the front cover and attaches to the front of the chassis.

black burst

Active video signal that has only black in it.

chassis

The metal framework of the workstation that contains its working parts.

choose

The action of pressing the left mouse button to bring up a popup menu, then moving the cursor to highlight the command that you want to run, and releasing the button.

composite video

A color encoding method or a video signal that contains all of the color, brightness, and synchronizing information in one signal. The chief composite television standard signals are NTSC, PAL, and SECAM. The Indigo^2 Video board uses the NTSC and PAL standards.

connector

The hardware at the end of a cable that fastens the cable to an outlet, port, or other connector.

console

The window that appears as a stowed icon each time you log in; IRIX reports all status and error messages to this window.

cover

The molded plastic piece that fits over the chassis. The bezel and front cover attach to the cover.

front cover

The pulldown door that allows you to access the power button and drives.

genlock

Synchronizing with another video signal serving as a master timing source. The master timing source can be a composite video signal, a video signal with no active video (only sync information), or, for video studio, a device called a house sync.

midplane

In Indigo^2 IMPACT workstations, a connector board that is located near the middle of the chassis. It is used to connect the graphics board set and GIO and EISA option boards.

NTSC

National Television Systems Committee. A color television standard used in North America and parts of South America and Asia for timing format encoding all color, brightness, and synchronizing information in one signal. The NTSC format uses 525 horizontal lines per frame, with two fields per frame of 262.5 lines each. Each field refreshes at 60 Hz.

PAL

Phase Alternated by Line. A color television timing standard used by most countries in Europe, Australia, and parts of Asia. The PAL standard uses a total of 625 lines per frame, with two fields per frame of 312.5 lines per frame. Each field refreshes at 50 Hz.

pull straps

The straps you pull to remove the graphics board set from the chassis.

RCA-to-RCA cable

A cable with an RCA connector on both end. You use this cable to connect the VCR and Indigo² Video cable for capturing Indigo² IMPACT graphics sessions to video and capturing video to your Indigo² IMPACT hard disk.

slot cover

The part of an option board that slides into the chassis I/O slots. The slot cover on the Indigo² Video board has two connectors that attach to the Indigo² Video cable and the Indy Cam camera.

standoffs

Spacers that are used to stack and attach the graphics and video boards to each other.

stereo jack-to-RCA cable

A cable with two RCA connectors on one end and a 3.5-mm stereo jack on the other end. You use this cable to connect the back of the workstation to the VCR for capturing Indigo² IMPACT graphics sessions to video and capturing video to your Indigo² IMPACT hard disk.

Video Panel

A software control panel used for selecting video input; adjusting video signal levels and timing characteristics; selecting filtering, processing, and other options

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