Galileo Video™, Indigo^2 Video™, and Indy Video™ Owner's Guide

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Chapter 1

Introduction

The video options available from Silicon Graphics, Inc. let you input video, manipulate images, and then output a combination of graphics and video to videotape. The Galileo Video™, Indigo^2 Video™, and Indy Video™ options support common and professional video input and output formats. The table below shows you the options and the different formats they support.

Table 1-1 Video Formats supported by Galileo, Indigo2, and Indy Video options.

	Composite	S-Video (Y/C)	YUV	RGB out	Optional CCIR 601 Digital Video
Galileo Video	X	X	X	X	X
Indigo2 Video	X	X			
Indy Video	X	X			

Composite and S-Video are common video formats you find on everyday cameras and VCRs. YUV, RGB out, and CCIR are professional-quality formats available only on special equipment.

The functionality is the same on all three of the video options available for Indigo^2 workstations. The key features include:

- NTSC and PAL television formats.
- Genlock to video input or external blackburst. Genlocking lets you synchronize different composite video signals.
- Compositing video with graphics. Compositing lets you use special effects when mixing graphics with video input. Special effects applications are available through third party developers or you can write your own application using Silicon Graphics, Inc. developer

software (the video library in the dmdev product). Sample applications are available in the *4dgifts* directory.

- Artifact-free output. See Chapter 4, " Sending Graphics to Video."
- Shaping your video to sizes that suit your application. See "Shaping the Size of Your Video". Use the *videout* tool to do real-time scanning for nearly full screen output. Use the *videoin* tool to zoom video input and pan within the zoomed stream, and to antialias and filter to smaller resolutions.

Using The Video Panel

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 Indycam, adjust gain and white balance. It also contains on-line 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. See *IRIS Essentials* for information on how to open a shell window or locate an icon.

What This Book Contains

This book describes how to install optional video products into three different Silicon Graphics workstations. It contains these chapters:

Chapter 2 describes how to install the Galileo Video board into an IRIS Indigo.

Chapter 3 describes how to install both the Galileo Video and Indigo^2 Video options into an Indigo^2 workstation.

Chapter 4 describes how to install an Indy Video Board into an Indy.

Chapter 5 describes how to framelock the graphics and video signals in order to record to videotape.

Chapter 6 describes how to record video or graphics one frame at a time.

See the on-line help and IRIS InSight for information on how to use the video tools and the Video Panel to control your new video hardware.

Chapter 2

Installing a Galileo Video or Indigo^2 Video Board in an IRIS Indigo

This chapter tells you how to install the Galileo Video board in an IRIS Indigo and how to check to make sure the system recognizes the option.

Before shutting down your system and installing the video board, install the 5.1 software, then install the Galileo software. See the release notes labeled *vl_eoe* that came with the software CD for additional information.

Installing a Galileo Video board in an IRIS Indigo consists of these steps:

- Checking option components
- Shutting down the system and powering off
- Removing the graphics board set
- Installing the VB1.2 board
- Installing the standoffs or the blank ZB4 board
- Installing the Galileo Video board
- Inserting the graphics board set and closing the chassis
- Connecting the cables
- Checking to make sure the system recognizes the new board

Checking Option Components

Figure 2-1 shows the parts contained in the Galileo Video package for an Indigo. If you purchased an Indigo^2 Video Board you did not receive a breakout box. Instead, you received an Indigo^2 Video cable

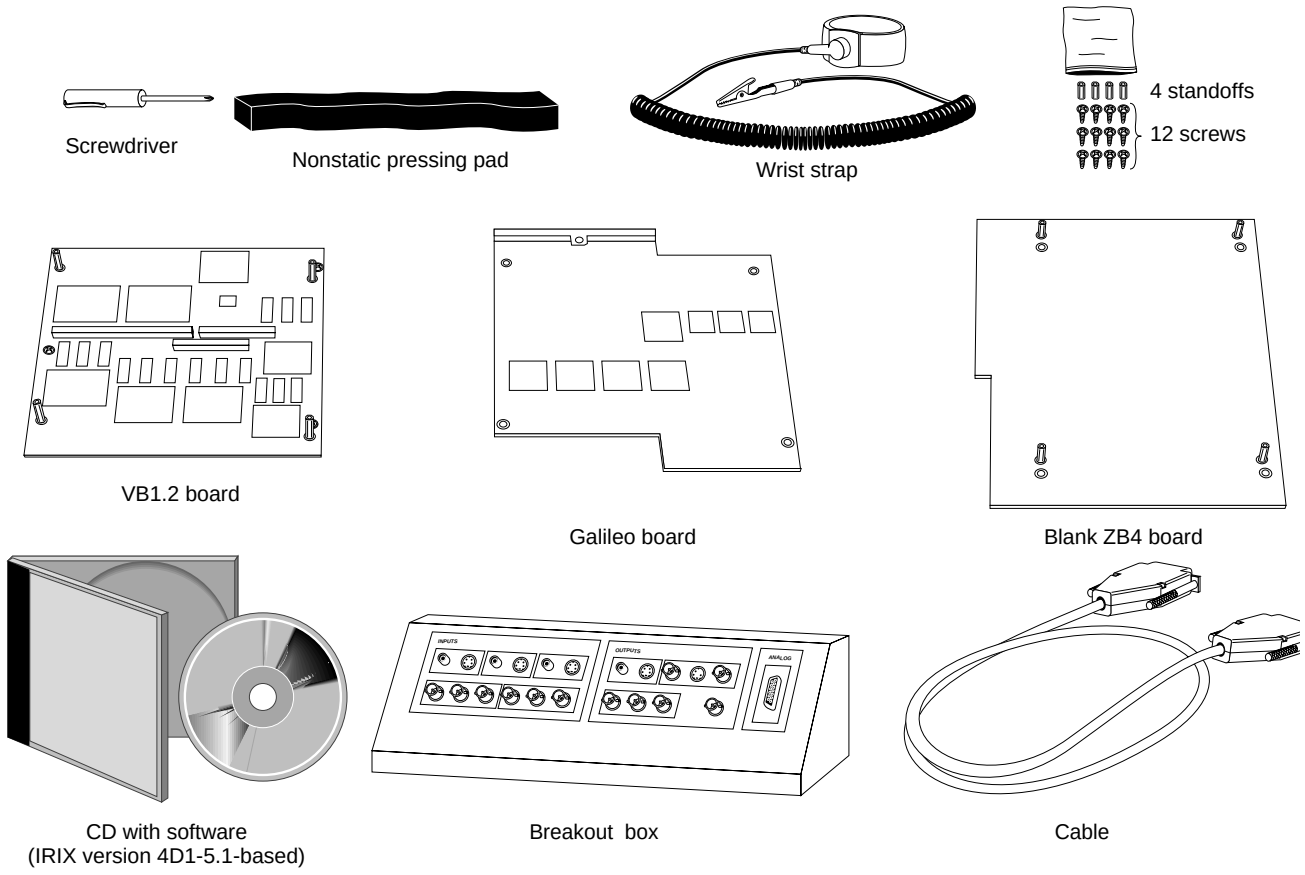

Figure 2-1 Galileo Video components for an Indigo

Shutting Down the System and Powering Off

To shut down the system and power off, follow these steps:

1. Use “System Shutdown” in the toolbox System menu to shut down the software.
2. Press the power switch on the back of the system to power off the system.
3. Open the front cover.

Removing the Graphics Board Set

To remove the graphics board set, follow these steps:

1. Disconnect the monitor cable from the back of the graphics board set.
2. Remove the chassis’s front cover.
   - Press down on the tabs on each side of the front bezel, as shown in Figure 2-2.
   - Pull the bezel down and away from the chassis.

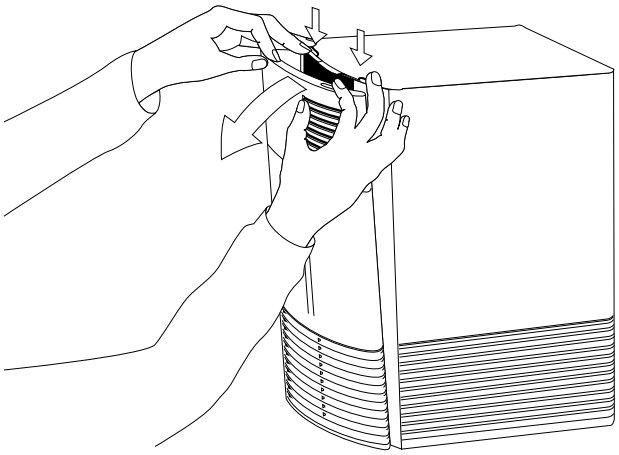

Figure 2-2 Removing the front bezel

3. Open the card cage by twisting the screw at the top of the sheet metal card cage cover to the right, as shown in Figure 2-3.

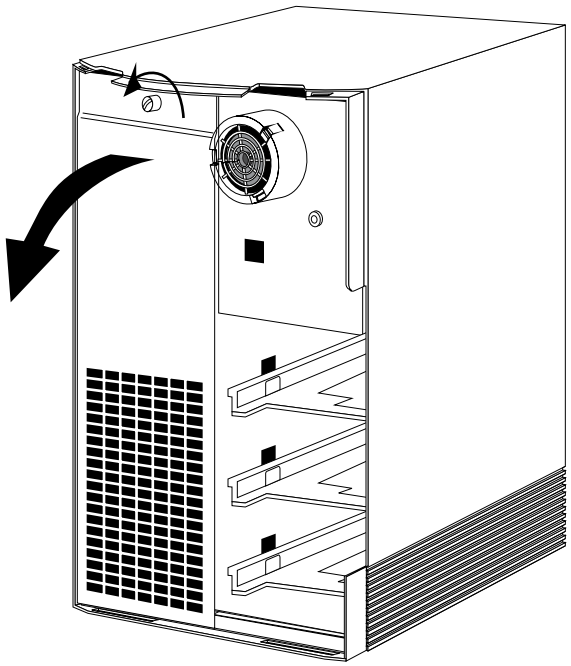

Figure 2-3 Opening the card cage

4. Slide out the graphics board set.
   - Pull the ejector tabs out (the top one is labeled **GRAPHICS PULL**).
   - Put the board set on an anti-static work surface, if possible, with the VB1.1 card on the left and the ZB4 board on the right, as shown in Figure 2-4.

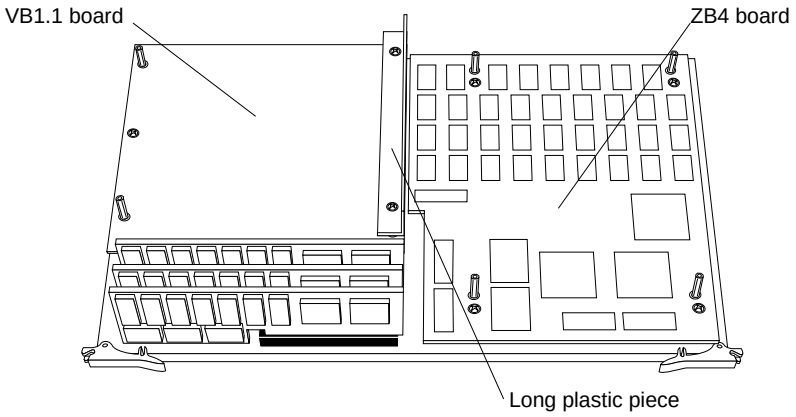

Figure 2-4 Graphics board set removed

Installing the VB1.2 Board

The VB1.1 board in the Indigo must be replaced with the VB1.2 board included in the Galileo Video package. Follow these steps:

1. Ground yourself to a metal part of the Indigo chassis.
   - Put the wrist strap over your wrist, making sure it is tight against your arm.
   - Attach its alligator clip to a metal part of the Indigo chassis.

   Caution: The Galileo Video board is extremely sensitive to static electricity; you must wear the wrist strap while installing it. The wrist strap prevents the flow of static electricity, which could damage the board.

2. Because the VB1.1 standoff screws are under the long plastic piece, usually gray or clear, along the edge of the VB1.1 card, you must remove this plastic piece. Unscrew the two screws that attach it to the VB1.1, as shown in Figure 2-5.

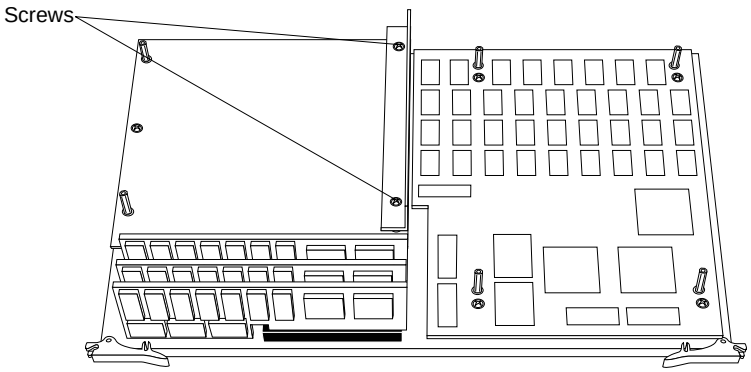

Figure 2-5 Removing the long plastic piece

Discard the long plastic piece; it is not needed in the graphics board set.

3. Unscrew the three screws holding the VB1.1 card to the graphics board set. Discard the VB1.1.

   Retain the three screws for use with the VB1.2.

4. Using the nonstatic pad provided, firmly push the VB1.2 board from the Galileo Video package onto the five connectors on the top graphics board in the set.

   To make sure all five connectors are seated properly, look through the sides of the board set. No gaps should be visible between the upper and lower connectors in each pair.

5. When you are satisfied that the connectors are properly seated, screw the VB1.2 board to the graphics board set using the three screws from the VB1.1. Figure 2-6 shows the VB1.2 board installed.

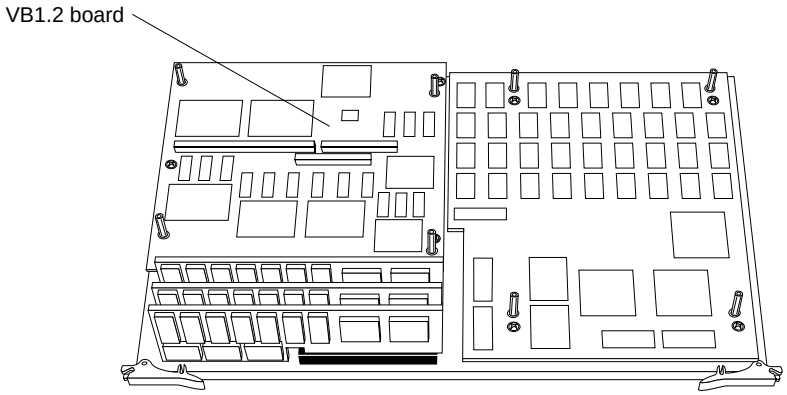

Figure 2-6 VB1.2 board installed

Installing the Standoffs or the Blank ZB4 Board

Because the Galileo Video board is attached to the top of the graphics board set, standoffs are required. Depending on whether a ZB4 board is installed in the chassis or not, you'll pursue one of two actions:

If there is a ZB4 board in the chassis, you'll remove it, remove the standoffs on it, replace them with the shorter standoffs included in the Galileo Video package, and replace the ZB4. Follow these steps:

1. Unscrew the four screws (one at each corner) that attach the ZB4 board to the graphics board set.
2. Remove and discard the four standoffs on the ZB4 board. Retain the standoff screws.

   Note: If the ZB4 board has no standoffs installed, ignore this step; sufficient screws are provided in the Galileo Video package for the next step.

3. Using the standoff screws from the previous step, screw the shorter standoffs provided in the Galileo Video package into the right-hand hole of each pair of holes in the corners of the ZB4 board. The shorter standoffs are offset from the longer ones between the ZB4 board and the board below it. Figure 2-7 shows the standoffs installed.

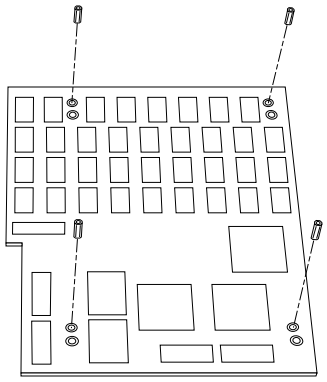

Figure 2-7 Attaching standoffs

4. Replace the ZB4 board onto the graphics board set, using its four screws.

If there is no ZB4 board in the chassis, you'll insert the blank ZB4 board included in the Galileo Video package; this blank has standoffs attached. Follow these steps:

1. Position the blank ZB4 board from the Galileo Video package over the graphics board set, as shown in Figure 2-8.

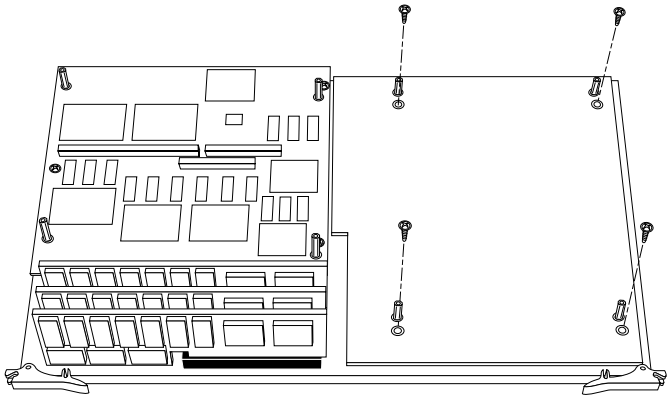

Figure 2-8 Attaching the blank ZB4 board

2. Screw the blank ZB4 to the graphics board set, using screws included in the Galileo Video package.

Installing the Galileo Video Board

To attach the Galileo Video board to the graphics board set, follow these steps:

1. Remove the blank back panel from the graphics board; discard the blanking panel. Reserve the screws.
2. Position the Galileo Video board over the graphics board set, as shown in Figure 2-9.

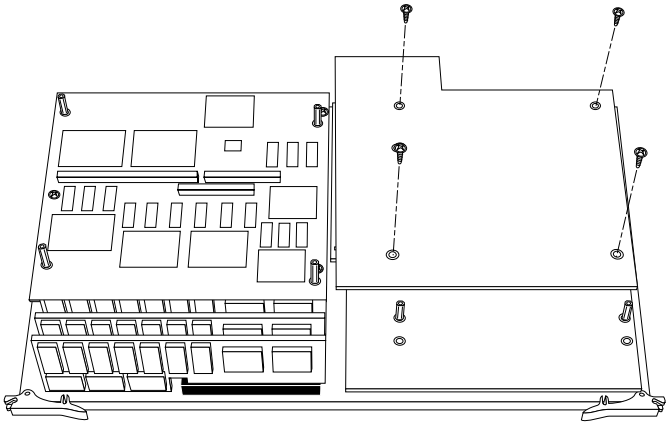

Figure 2-9 Positioning the Galileo Video board over the graphics board set

3. Using the nonstatic pad provided, firmly push the Galileo Video board connectors onto the VB1.2 connectors.

   To make sure all three connectors are seated properly, look through the sides of the board set. No gaps should be visible between the upper and lower connectors in each pair.

4. When you are satisfied that the connectors are properly seated, screw the Galileo Video board to the graphics board set using eight of the screws provided in the Galileo Video package. See Figure 2-9.

Inserting the Graphics Board Set and Closing the Chassis

When the Galileo Video board is installed on the graphics board set, reinsert the graphics board set into the chassis and close it. Follow these steps:

1. With the ejector tabs pulled out, slide the graphics board set back into the graphics slot in the chassis.
2. When the board set is all the way into the chassis, release the ejector tabs so that they snap into place flush with the board set.
3. Swing the card cage door back into place; screw down its retaining screw.
4. Replace the chassis's front cover.

Connecting the Cables

When the chassis is closed, follow these steps:

1. Reattach the graphics monitor cable to the graphics board.
2. Connect the gray analog cable to the system connector on the Galileo Video breakout box. Connect the other end of the analog cable to the Galileo Video board.
3. Attach video cables (composite, S-VHS, etc.) to the breakout box as appropriate.

You are finished installing the Galileo Video board and are ready to start up the system and test the board installation.

Checking the Installation

Follow these steps to check if the system recognizes the new board:

1. Press and release the power button to turn on the power.
2. After the power-on diagnostics run, the system boots up and brings you to the login screen.
3. Log in to your account.

4. Check that the board you installed is shown correctly.
   - Open the console window by placing the cursor on the Console icon and clicking the left or right mouse button.
   - At the prompt, type:

     ```
     hinv
     ```

     Then press **<Enter>**.

You'll see a listing of your system's hardware devices. Included is a line for your option; for example:

```
Galileo video:  unit 0, revision 2
```

or

```
Indy Video:  unit 0, revision 0
```

If the board you installed is not shown, it may not be seated correctly. Go to the portion of this chapter with instructions for installing the board and check that you have completed all the steps.

Chapter 3

Installing a Galileo Video or Indigo^2 Video Board in an Indigo^2

This chapter tells you how to install a Galileo Video or Indigo^2 Video board in an Indigo^2 workstation.

Before shutting down your system and installing the video board, install the 5.1 software, then install the Galileo software. See the release notes labeled *vl_eoe* that came with the software CD for additional information.

Installing Galileo Video or Indigo^2 Video in an Indigo^2 consists of these steps:

- Checking option components
- Shutting down the system and powering off
- Opening the chassis
- Removing the graphics board set
- Attaching the standoffs and the option board
- Installing the graphics board set and closing the chassis
- Connecting the cables
- Checking the installation

Checking Option Components

Figure 3-1 shows the parts included with the Galileo Video option.

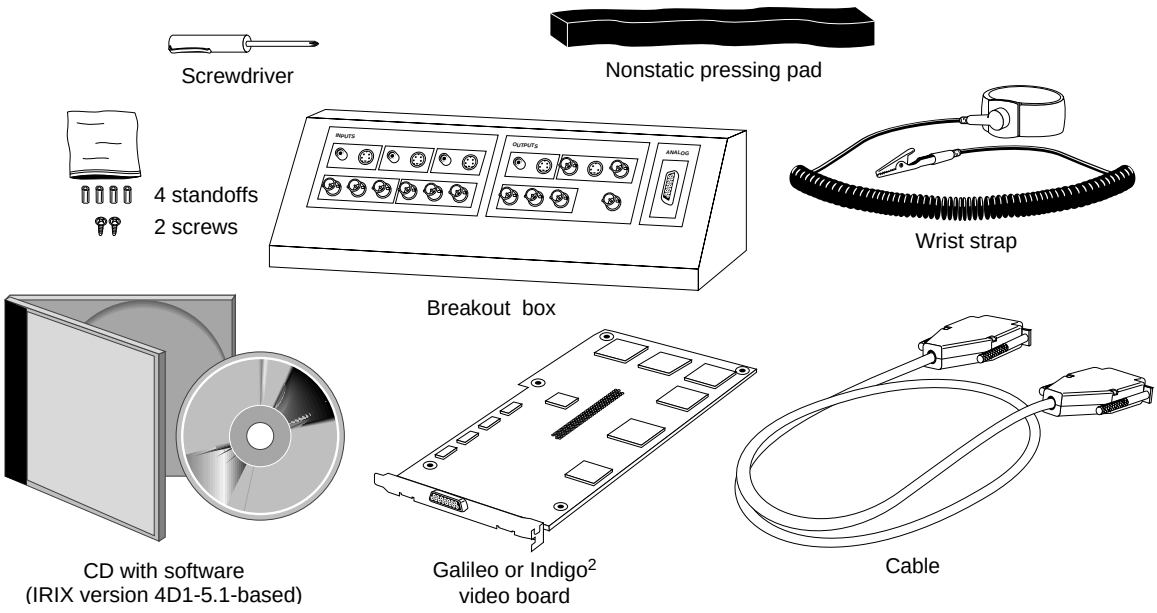

Figure 3-1 Galileo Video components for an Indigo^2 workstation

Note: If you purchased the Indigo^2 Video option you received an Indigo^2 Video cable. You did not receive a breakout box. The breakout box is included with the Galileo Video option only.

Install the Indigo^2 video board into the workstation chassis as described in the following sections, and then attach the Indigo^2 video cable. See “Connecting the Cables”.

Shutting Down the System and Powering Off

To shut down and power off the system, follow these steps:

1. Open the front cover.
2. Press and release the power switch on the front of the system to shut down the software and power off the system.

   The system powers off automatically.

Opening the Chassis

To remove the cover, follow these steps:

1. Disconnect the monitor cable from the back of the graphics board set.
2. Remove the front bezel.
   - Press down on the tabs on each side of the bezel, as shown in Figure 3-2.
   - Pull the bezel down and away from the chassis, as shown in Figure 3-2.

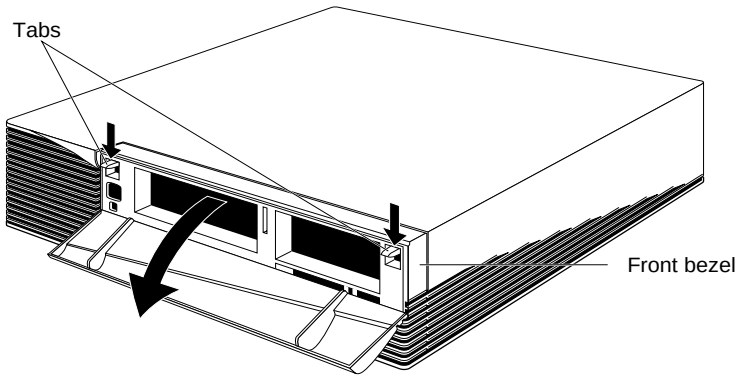

Figure 3-2 Removing the front bezel from the Indigo^2 chassis

3. To remove the top cover, press up on the tabs on each side of the drive openings and pull up on the cover.

4. Rotate the cover back and away from the chassis, as shown in Figure 3-3.

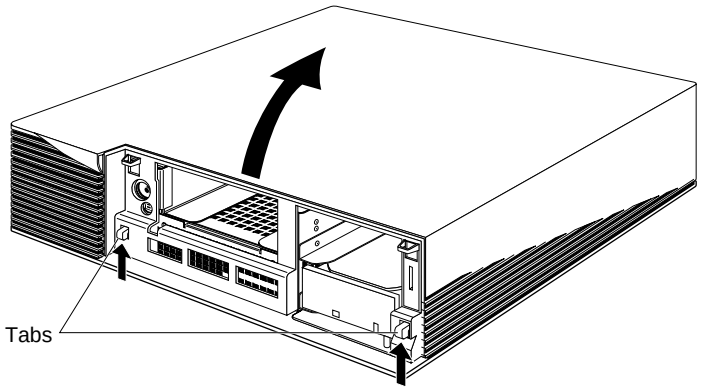

Figure 3-3 Removing the top cover from the Indigo^2 chassis

Removing the Graphics Board Set

Before you can install the Galileo Video or Indigo^2 Video board in the Indigo chassis, you must prepare the graphics board set. Follow these steps:

1. Ground yourself to a metal part of the Indigo^2 chassis.
   - Put the wrist strap over your wrist, making sure it is tight against your arm.
   - Attach its alligator clip to a metal part of the Indigo^2 chassis.

   Caution: The option board is extremely sensitive to static electricity; you must wear the wrist strap while installing it. The wrist strap prevents the flow of static electricity, which could damage the board.

2. Open the metal panel in front of the slots by pulling up on it and lowering it, as shown in Figure 3-4.

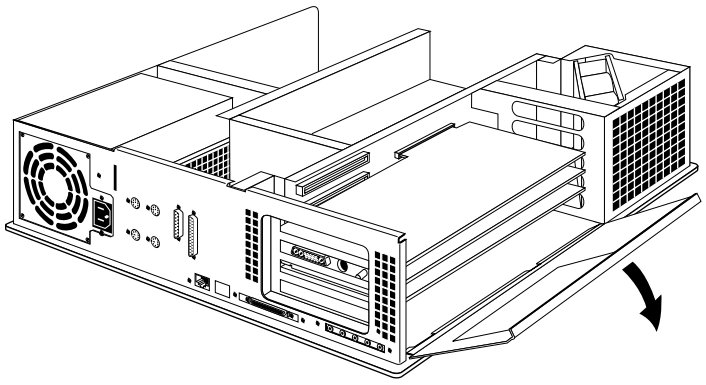

Figure 3-4 Opening the metal panel in front of the slots

3. Select a back-panel cover to remove from one of the slots in the back of the chassis.

   The back-panel cover you remove depends on whether there are one, two, or three graphics boards in the Indigo^2.

   Remove the cover over the slot above the topmost graphics board, that is, the Galileo Video or Indigo^2 Video board when it is installed.

4. Remove the screw that attaches the slot cover to the chassis. The screw is located inside the chassis on the outer end of the cover, as shown in Figure 3-5.

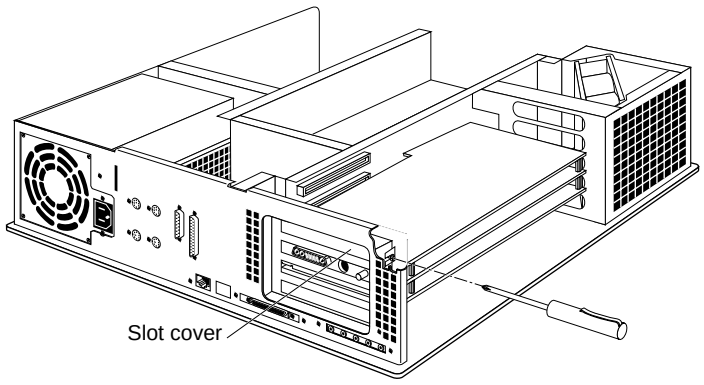

Figure 3-5 Removing the back-panel cover

5. Remove the screws (one, two, or three, depending on the number of boards in the graphics board set) that attach the graphics back panel to the chassis, as shown in Figure 3-6.

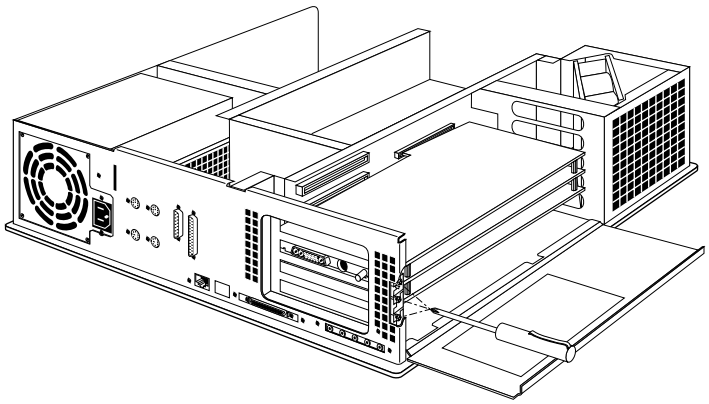

Figure 3-6 Removing the graphics board set screws

6. Slide the graphics board set out of the chassis, as shown in Figure 3-7.

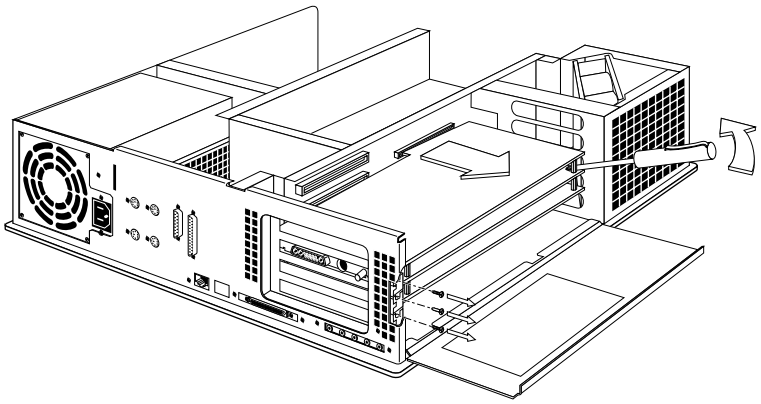

Figure 3-7 Sliding the graphics board set out of the chassis

Installing the Standoffs and the Option Board

Standoffs and screws are included in the Galileo Video or Indigo^2 Video package to act as spacers between the option board and the topmost graphics board of the set. Installation varies, depending on which graphics board set is in the machine (Extreme, XZ, or XL).

If You Have an Extreme Graphics Board Set

To install standoffs and the option board if you have an Extreme graphics board set, follow these steps:

1. Remove the four screws from the corners of the graphics board set; see Figure 3-8.

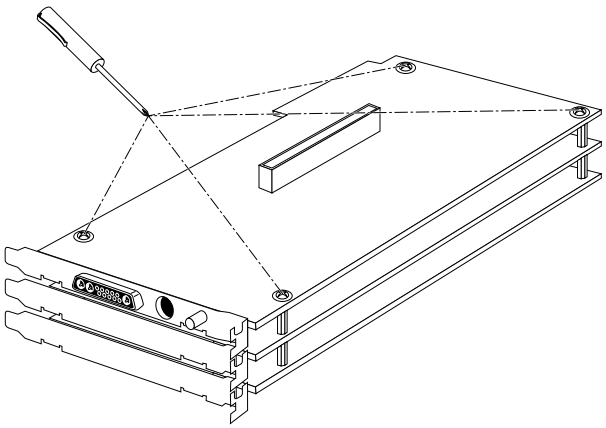

Figure 3-8 Removing graphics board set screws

2. Screw four male-to-female standoffs into the topmost graphics board, one in each corner.

3. Align the Galileo Video or Indigo^2 Video board over the graphics board set, as shown in Figure 3-9.

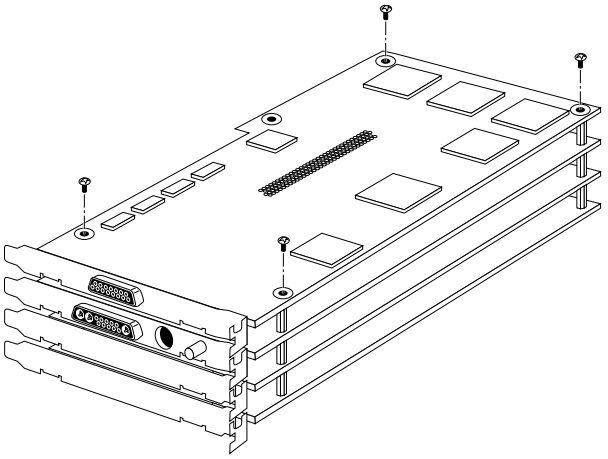

Figure 3-9 Aligning the option board

4. Using the nonstatic pad provided, firmly push the connector in the middle of the Galileo Video or Indigo^2 Video board onto the connector on the top of the graphics board set.
5. To make sure the connector is seated properly, look through the sides of the board set. No gap should be visible at the bottom of the connector.

   When you are satisfied that the connector is properly seated, you are ready to insert the screws for the standoffs.
6. From the top, insert a screw through the Galileo Video or Indigo^2 Video board into each of the four standoffs; screw in the screws.

If You Have an XZ Graphics Board Set

Note: For this procedure, you'll need a small crescent wrench. ♦

To install standoffs and the option board if you have an XZ graphics board set, follow these steps:

1. Remove the two screws with the screwdriver included in the option. Use a small crescent wrench to remove the two hex nuts from the corners of the graphics board set; see Figure 3-8.
2. Where screws were removed from the corners of the topmost graphics board, screw in two male-to-female standoffs.
3. Where hex nuts were removed from the corners of the topmost graphics board, screw in two female-to-female standoffs.
4. Plug the Galileo Video or Indigo^2 Video board into the topmost graphics board, following steps 3 through 5 in the section on Extreme graphics, above.
5. From the top, insert a screw through the Galileo Video or Indigo^2 Video board into each of the four standoffs; screw in the screws.

If You Have an XL Graphics Board Set

To install standoffs and the option board if you have an XL graphics board set, follow these steps:

1. Insert a screw into the female-to-female standoff at each corner of the topmost graphics board.
2. Plug the Galileo Video or Indigo^2 Video board into the graphics board, following steps 3 through 5 in the section on Extreme graphics, above.
3. From the top, insert a screw through the Galileo Video or Indigo^2 Video board into each of the four standoffs; screw in the screws.

Installing the Graphics Board Set and Closing the Chassis

When the Galileo Video or Indigo^2 Video board is installed on the graphics board set, follow these steps:

1. Align the right side of the Galileo Video or Indigo^2 Video board with the metal grooves on the right of the chassis, as shown in Figure 3-10.

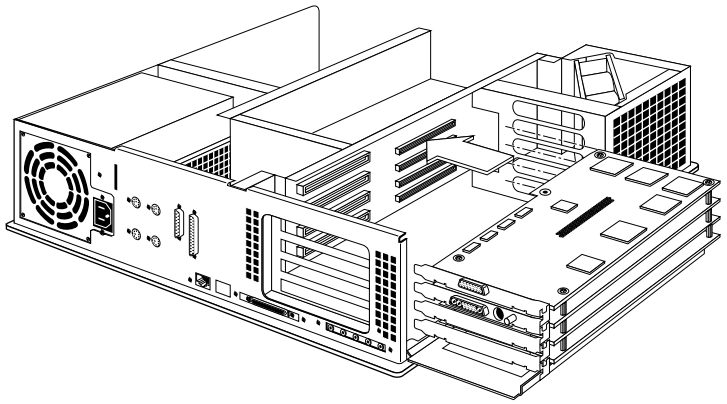

Figure 3-10 Aligning the graphics board set with the chassis

2. Slide the graphics board set back into the card slots in the chassis. Push the board into the slot until the connector on the back of the board is securely connected to the connector on the backplane.

   The metal panels on the left should be flush with the chassis, as shown in Figure 3-11.

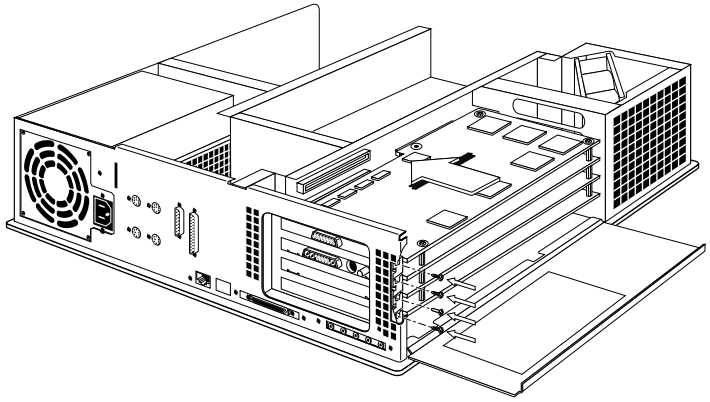

Figure 3-11 Inserting the graphics board set into the chassis

3. Screw down the metal panels to attach the graphics board set to the chassis, as shown in Figure 3-11.

4. Tip the metal panel in front of the slots up until it snaps into place, as shown in Figure 3-12.

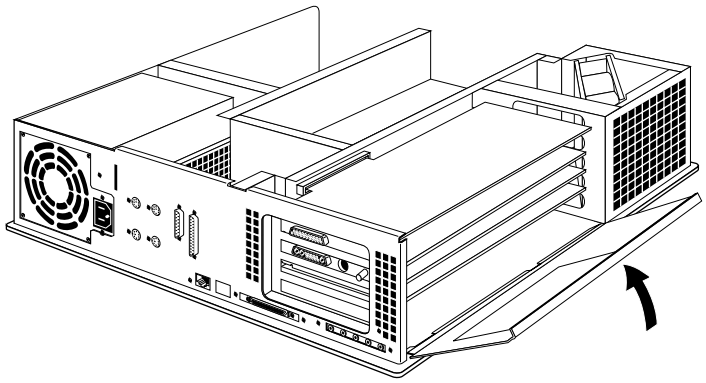

Figure 3-12 Closing the metal panel in front of the slots

5. Place the back of the chassis cover into the grooves in the back of the chassis, as shown in Figure 3-13. Rotate it down into place.

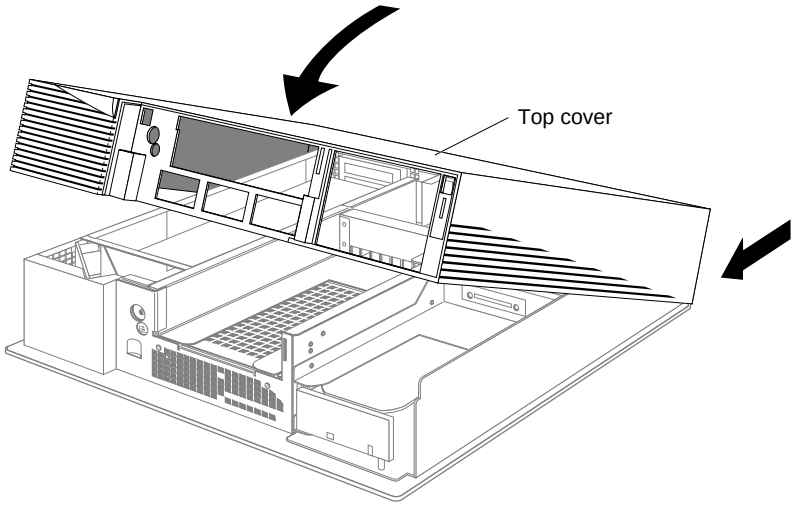

Figure 3-13 Replacing the top cover of the Indigo^2 chassis

6. Replace the front bezel, place the tabs on the bottom of the bezel in the grooves in the front of the chassis, as shown in Figure 3-14.

   Tilt the bezel up until it snaps into place.

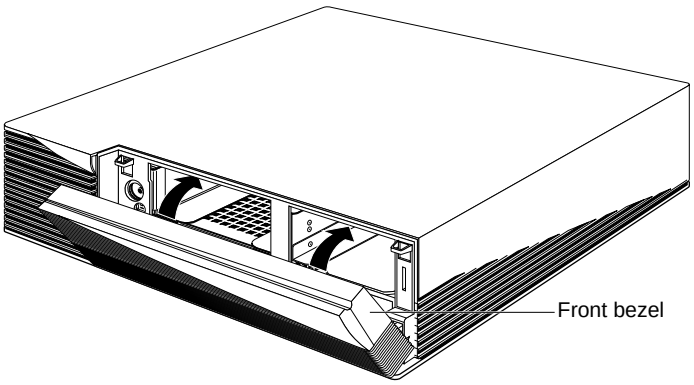

Figure 3-14 Replacing the front bezel on the Indigo^2 chassis

Connecting the Cables

When the chassis is closed, follow these steps:

1. Reattach the graphics monitor cable to the graphics board.
2. Connect the analog cable to the analog connector on the Galileo Video box; connect its other end to the Galileo Video board, as shown in Figure 3-15.
3. Attach video cables (composite, S-VHS, and so on) to the breakout box as appropriate.

   If you purchased Indigo^2 Video, attach the Indigo^2 video cable then attach your video omponents directly to the connectors on the video cable. See Figure 3-17.

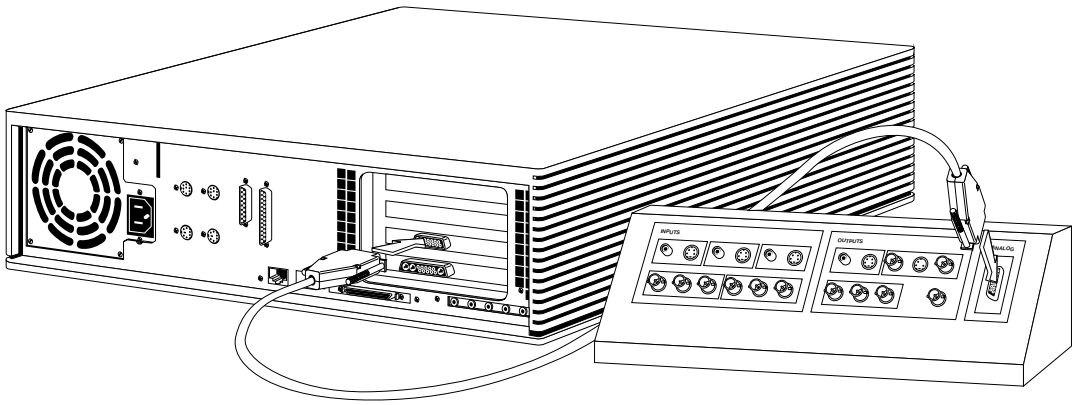

Figure 3-15 Cabling the Galileo Video breakout box

Analog Breakout Box Connectors for Galileo Video

Figure 3-16 diagrams the Galileo Video breakout box.

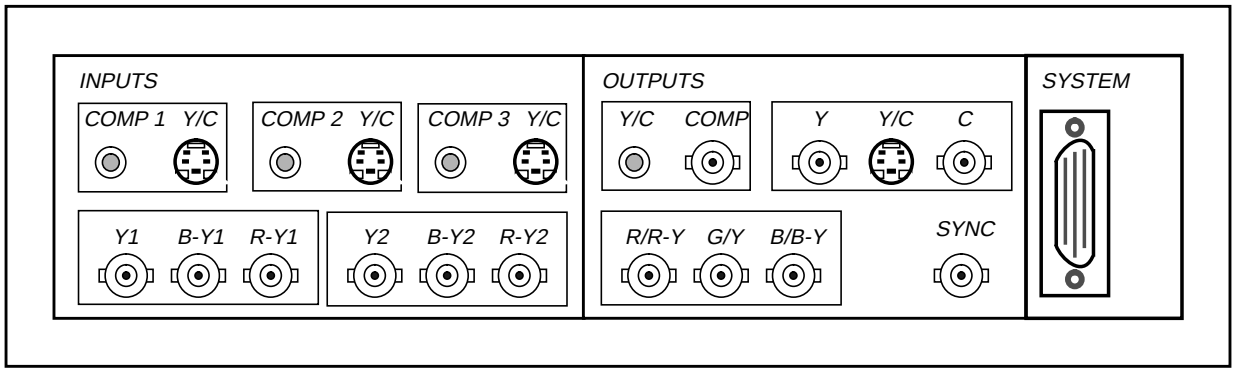

Figure 3-16 Galileo Video breakout box

The lines drawn between ports on the breakout box indicate ports that are hardwired together. (The lines are not shown in the figure above.) You can only connect input devices to one port in each set of hardwired ports.

Table 3-1 lists the connector types you need for each selectable input or output.

	Source	Connector Type
Inputs		
	Composite	1 RCA
	Y / C (S-video)	1 S-video (4-pin DIN)
	Y / R-Y / B-Y	2 BNC connectors
Outputs		
	Composite	1BNC
	Y / C (S-video)	2 BNCs or 1 S-video (4-pin DIN)
	Y / R-Y / B-Y or RGB	3 BNCs
	Sync	1 BNC
System	D26-pin	

Table 3-1 Galileo Video input and output connector types

Indigo^2 Video Cable

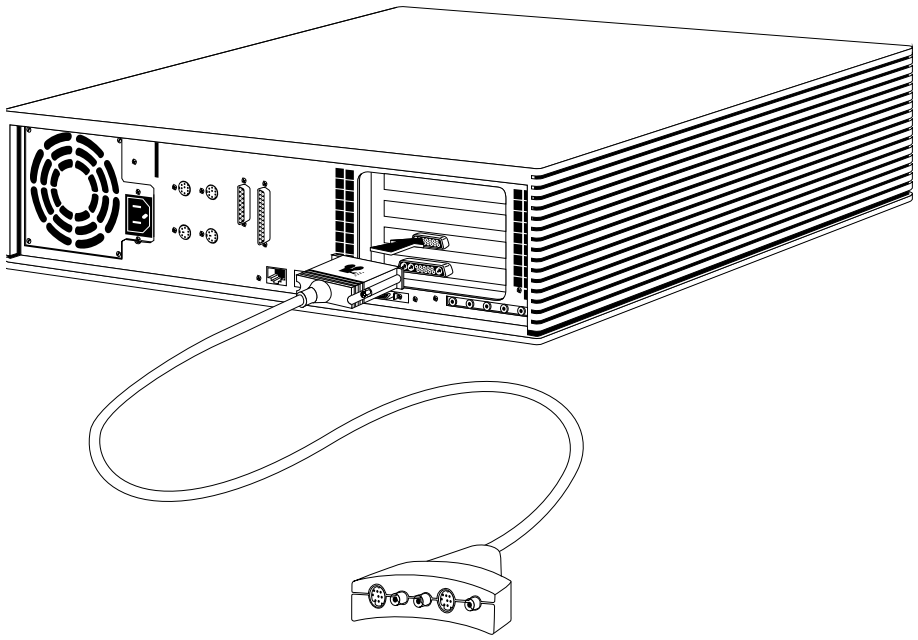

Figure 3-17 Attaching video components directly to the connectors on the Indigo^2 Video cable

You are finished installing and are ready to test the board installation.

Checking the Installation

Follow these steps to check if the system recognizes the new board:

1. Press and release the power button to turn on the power.
2. After the power-on diagnostics run, the system boots up and brings you to the login screen.
3. Log in to your account.
4. Check that the board you installed is shown correctly.
   - Open the console window by placing the cursor on the Console icon and clicking the left or right mouse button.
   - At the prompt, type:

     ```
     hinv
     ```

     Then press **<Enter>**.

You'll see a listing of your system's hardware devices. Included is a line for your option; for example:

```
Galileo video:  unit 0, revision 2
```

or

```
Indy Video:  unit 0, revision 0
```

If the board you installed is not shown, it may not be seated correctly. Go to the portion of this chapter with instructions for installing the board and check that you have completed all the steps.

Chapter 4

Installing an Indy Video Board in an Indy

This chapter tells you how to install an Indy Video board in an Indy and how to check to make sure the system recognizes the new board.

Before shutting down your system and installing the video board, install the software from the software CD.

Installing Indy Video consists of these steps:

- Checking option components
- Powering off the system and opening the chassis
- Installing the Indy Video board
- Closing the chassis and attaching cables

Checking Option Components

Figure 4-1 shows the parts contained in the Indy Video package. You also received three O-rings although they aren't shown in the figure.

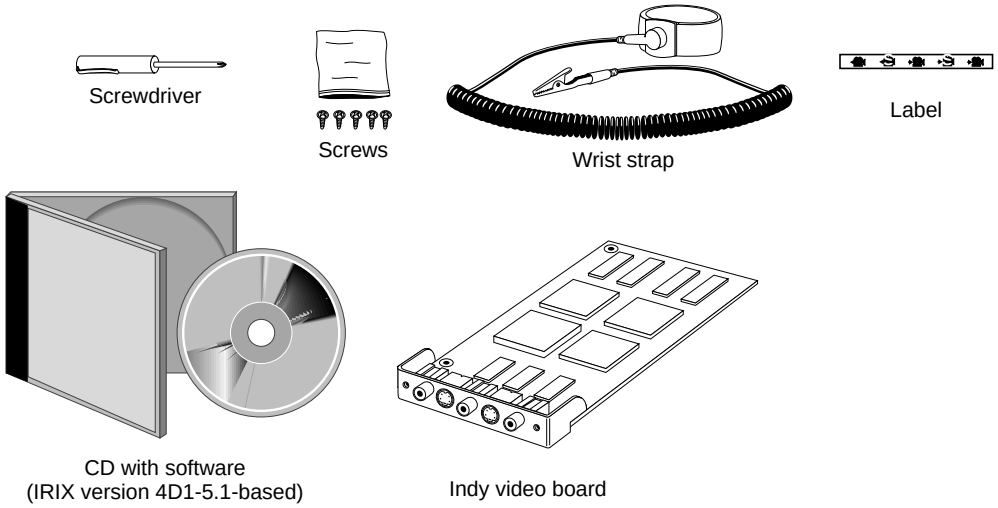

Figure 4-1 Indy Video components

Powering Off the System and Opening the Chassis

To shut down the system and power off, follow these steps:

1. If the system is powered on, press and release the power button on the front of the system to shut down the software and power off the system.

   The system powers off automatically after about a minute.

2. Facing the front of the Indy workstation, place your right thumb on the small channel at the back of the cover, and your second and third fingers under the finger ledge, as shown in Figure 4-2.

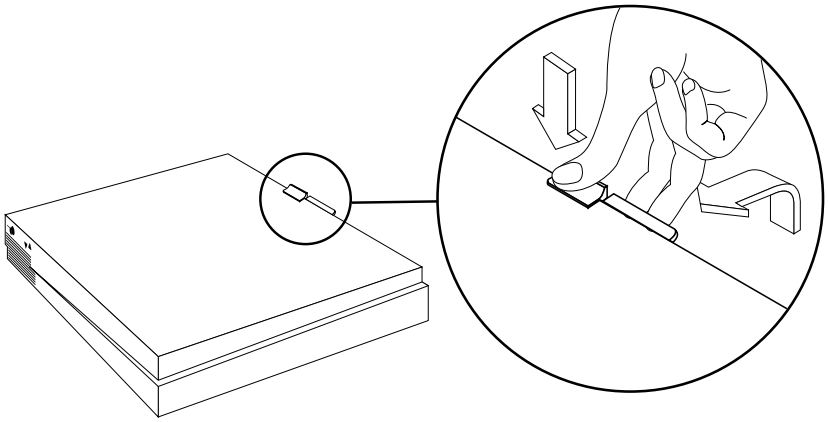

Figure 4-2 Removing the Indy chassis top cover

3. Snap the cover loose by bracing your thumb against the lip and pushing up the finger ledge with the second and third fingers, followed by a small push toward the front.
4. Slide the cover forward about one inch. Lift the front of the cover about six inches; pull it up and toward yourself to remove it.

Installing the Indy Video Board

To attach the Indy Video board to the graphics board in the Indy chassis, follow these steps:

1. Move the system or position yourself so that you are facing the back of the system, as shown in Figure 4-3.

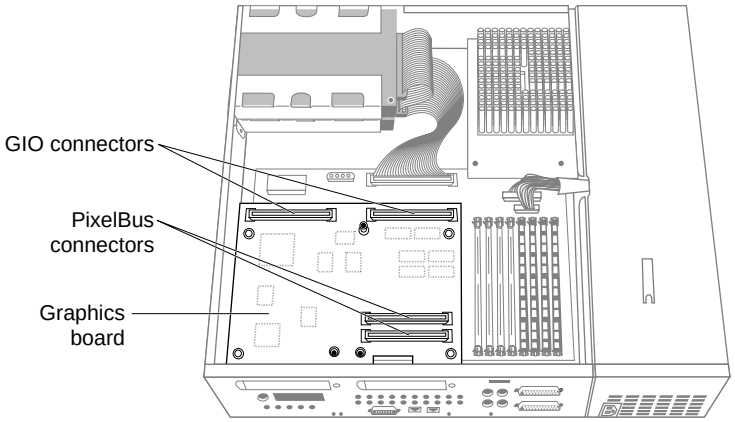

Figure 4-3 Locating the connectors on the graphics board

The graphics board has four connectors, as shown in Figure 4-3.

You'll install the Indy Video board on the side close to the SIMM sockets (the right side of the graphics board as you look at the machine from the back).

Note: If another option board is occupying this space, remove it and insert it into the other slot. The Indy Video board must occupy the expansion slot closest to the SIMM sockets. This slot has two pixel bus connectors, as shown in Figure 4-3.

2. Ground yourself to a metal part of the Indy chassis.
   - Put the wrist strap (included in the package) over your wrist, making sure it is tight against your arm.
   - Attach its alligator clip to a metal part of the Indy chassis.

   Caution: The Indy Video option board is extremely sensitive to static electricity; you must wear the wrist strap while installing it. The wrist strap prevents the discharge of static electricity, which could damage the board.

3. Using the screwdriver included in the option, remove and discard the screw from the face plate covering the GIO option port on the rear of the chassis where you are installing the board, as shown in Figure 4-4. Save the face plate in case you remove the board in the future.

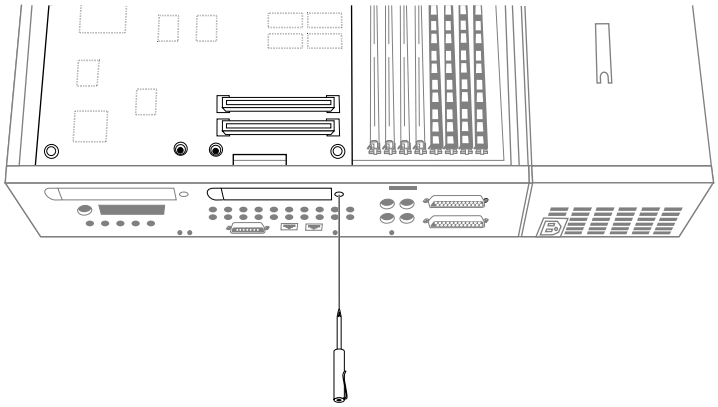

Figure 4-4 Removing the screws from the I/O port face plate

4. Lower the Indy Video board over the graphics board, inserting the board's I/O connector through the open slot on the rear of the chassis, as shown in Figure 4-5.

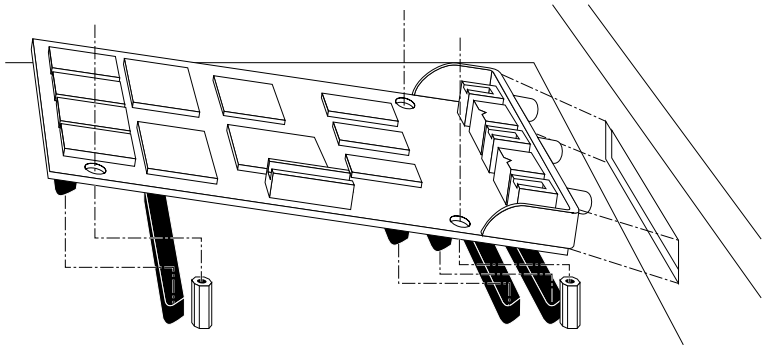

Figure 4-5 Inserting the Indy Video board's I/O connector through the slot

5. Connect the Indy Video board to the graphics board
   - Align the three screw holes on the Indy Video board over the vacant standoffs (tall, hexagonal posts) on the graphics board, as shown in Figure 4-6.
   - Seat the connector located on the bottom of the Indy Video board over the sockets on the graphics board and press down firmly on all four corners of the board until the connectors are securely seated on the graphics board.
   - Make sure all three connectors are securely seated; there should be no play when you press firmly on the board.

6. Using the screwdriver provided, insert and tighten the three screws of the screws provided to connect the Indy Video board to the graphics board, as shown in Figure 4-6. As you tighten the screws, alternate among them so that the board seats evenly.

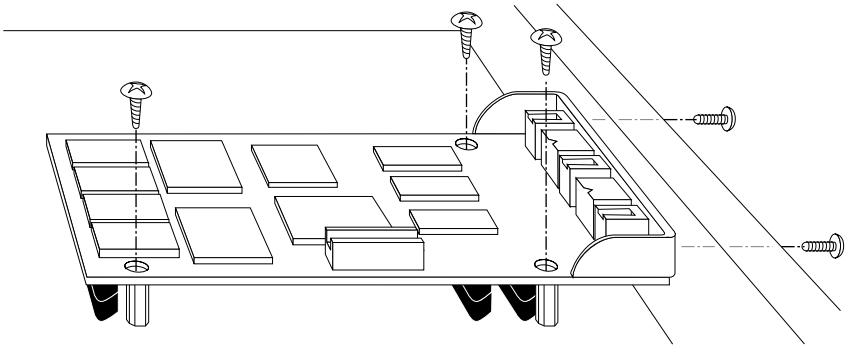

Figure 4-6 Installing the Indy Video board

7. Insert and tighten the remaining two screws provided with the option through the rear of the chassis to connect the Indy Video board to the chassis.

   If the screw holes do not line up, the board may not be seated all the way, or one of the screws may be screwed down too tightly. Press the four corners of the board to make sure the connectors are inserted all the way into the sockets on the graphics board.

Closing the Chassis and Attaching Cables

To close the chassis and attach the cables, follow these steps:

1. If you have no more options to install, replace the top cover: facing the front of the system, lower the cover about one inch from its fully closed position, as shown in Figure 4-7.

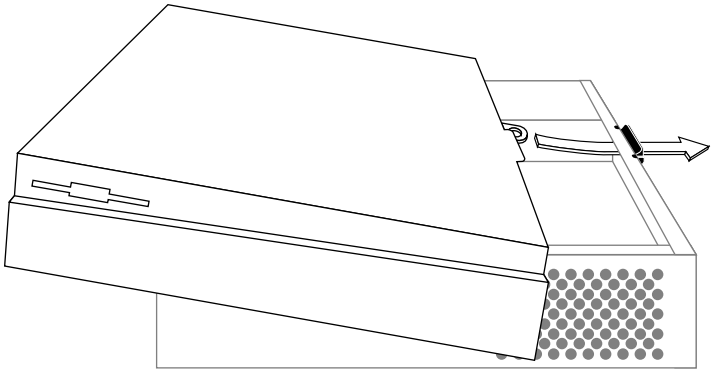

Figure 4-7 Replacing the Indy chassis cover

2. Tilt the cover and insert the tab through the hole in the rear of the chassis.
3. Slide the cover toward the back of the chassis until it snaps into place.
4. Apply the label for the connectors onto the system panel, below the Indy Video connectors, as shown in Figure 4-8.
5. Slide the O-rings onto the three composite connectors.

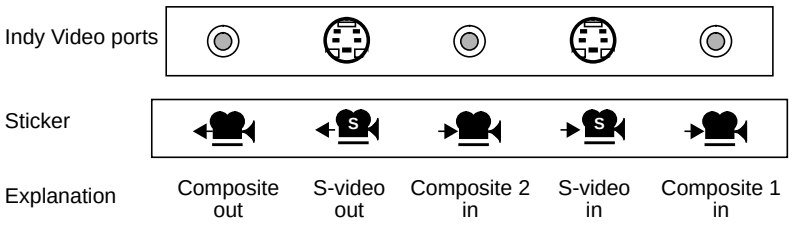

Figure 4-8 Indy Video connectors and label

6. Connect video cables to the Indy Video board's I/O connectors as appropriate. If you are using coaxial cables with BNC connectors, use BNC-RCA adapters. You can use standard Y/C (S-Video) cables to connect to the Y/C input and output ports.

   Note: You can access a second Y/C input by connecting the Y signal to composite 1 and the C signal to composite 2.

You are finished installing the Indy Video board and are ready to power up the system and check that the board installation was successful, as explained in the next section.

Checking the Installation

Use a high-resolution (1280 x 1024) graphics monitor when you are using video options. These ship standard with most workstations.

Note: If you start the system without a graphics monitor, the graphics resolution will default to low resolution (1024 x 768). Refer to the Unix command *setmon* for setting the graphics resolution.

Follow these steps to check if the system recognizes the new board:

1. Press and release the power button to turn on the power.
2. After the power-on diagnostics run, the system boots up and brings you to the login screen.
3. Log in to your account.
4. Check that the board you installed is shown correctly.
   - Open the console window by placing the cursor on the Console icon and clicking the left or right mouse button.
   - At the prompt, type:

     ```
     hinv
     ```

     Then press **<Enter>**.

You'll see a listing of your system's hardware devices. Included is a line for your option; for example:

```
Galileo video:  unit 0, revision 2
```

or

```
Indy Video:  unit 0, revision 0
```

If the board you installed is not shown, it may not be seated correctly. Go to the portion of this chapter with instructions for installing the board and check that you have completed all the steps.

Videotaping Graphics (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 NTSC from the Input Timing field doesn't automatically lock graphics to video. Once you framelock the signals, consult the online documentation for information on how to record video and graphics to videotape.

Framelock the graphics and video signals using these commands in the Unix shell:

On Indy and Indigo^2 XL systems:

- For PAL video type **`setmon -Fg 50`**
- For the NTSC video standard type **`setmon -Fg 60`**

On Indigo and all Indigo^2 graphics except XL:

1. Connect the video source to the graphics board.
    - On Indigo there is a BNC connector provided on the back of the graphics board.
    - On Indigo^2 (except XL) you'll need a miniBNC to BNC adapter. Connect the miniBNC end of the adapter to the back of the graphics board. The adapter is included with your video board option. If you didn't recieve an adapter, contact your local sales representative.
    - On Galileo Video connect the BNC end of the adapter to the sync output connector on the breakout box. On all other systems connect the BNC end of the adapter to the video source.

2. Type the command for the video standard you are using.
   - For PAL type the command **`setmon -Fi 50`**
   - For NTSC type the command **`setmon - Fi 60`**

Now you are ready to record graphics and video to tape. See the Video Panel online documentation for information.

Recording Single Frames

To record individual video or graphics frames a trigger input mechanism is included with the Galileo and Indigo^2 video boards. Access to the trigger mechanism is provided through a line on the digital port. There are two ways to connect to the port:

- Using the trigger-in BNC connector on the Galileo 601 digital video option box.
- Using a trigger adapter cable to connect directly to the digital port without using the 601 option box. This cable is included with your video board option. If you didn't recieve the trigger adapter cable, contact your sales representative for a free one.

Connect the trigger BNC connecter to an interface box, such as the ALIX box from Videomedia, or an equivalent VLAN or IVAS interface box, or to a suitable edit controller. The output connecter is usually labelled "GPIO". Consult the documentation that came with the edit controller for information on how to use that product.

Use the Device Control ProPanel in the Video Panel to select the controls for pulse polarity, external trigger line number, and the dominance field for the record.

If you aren't using a third-party application, use the shell command **`vidtomem -t`** to record the frames when the board gets the trigger signal from the edit controller.

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