

# IRISVISION Owner's Guide



**SiliconGraphics**  
Computer Systems

# IRISVISION Owner's Guide

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**IRISVISION Owner's Guide  
Document Number 007-5000-020**

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# Contents

|    |  |      |
|----|--|------|
| 1. | Getting Started.....                       | 1-1  |
|    | System Requirements .....                  | 1-2  |
|    | The IRISVISION Package .....               | 1-3  |
| 2. | Setting Up the Hardware.....               | 2-1  |
|    | Installing the Boardset.....               | 2-2  |
|    | AT Systems .....                           | 2-3  |
|    | Microchannel Systems .....                 | 2-5  |
|    | Connecting the Boards to One Another ..... | 2-7  |
|    | Connecting Monitors .....                  | 2-8  |
|    | Connecting One Monitor.....                | 2-8  |
|    | Connecting Two Monitors .....              | 2-10 |
| 3. | Installing the IRISVISION Software.....    | 3-1  |
|    | Preparing the Computer .....               | 3-2  |
|    | AT Systems .....                           | 3-2  |
|    | Microchannel Systems .....                 | 3-2  |
|    | Installing the Software .....              | 3-3  |
|    | Configuring the Software .....             | 3-4  |
|    | Installing the Mouse Driver .....          | 3-6  |
|    | Installing 24-bit Demos .....              | 3-6  |
|    | Testing the Installation .....             | 3-7  |
|    | AT Systems .....                           | 3-7  |
|    | Microchannel Systems .....                 | 3-7  |

|    |   |     |
|----|---|-----|
| 4. | Running the Demo Programs.....                      | 4-1 |
|    | Using Buttonfly.....                                | 4-1 |
|    | Using the Mouse.....                                | 4-2 |
|    | Right Mouse Button .....                            | 4-2 |
|    | Left Mouse Button .....                             | 4-2 |
|    | Running a Sample Demo.....                          | 4-3 |
| 5. | Troubleshooting and Diagnostics .....               | 5-1 |
|    | Quick Test.....                                     | 5-1 |
|    | AT Systems .....                                    | 5-1 |
|    | Microchannel Systems.....                           | 5-2 |
|    | Quick Test Results .....                            | 5-2 |
|    | Diagnostics .....                                   | 5-2 |
|    | AT Systems .....                                    | 5-2 |
|    | Microchannel Systems .....                          | 5-3 |
|    | Diagnostic Results .....                            | 5-3 |
|    | Troubleshooting Checklist.....                      | 5-4 |
|    | Common Problems and Workarounds .....               | 5-4 |
| A. | Changing the DIP Switch Settings (AT Systems) ..... | A-1 |
|    | I/O Port Address .....                              | A-1 |
|    | Interrupt Channel Settings.....                     | A-3 |
|    | Memory Map Address.....                             | A-3 |
| B. | Operating Specifications .....                      | B-1 |
|    | Product Specifications .....                        | B-1 |
|    | Hardware Configuration .....                        | B-2 |
|    | System Requirements .....                           | B-2 |
|    | Performance .....                                   | B-2 |
|    | Video Timing Parameters.....                        | B-3 |

## Index

# Figures

|                   |   |      |
|-------------------|---|------|
| <b>Figure 1-1</b> | The IRISVISION hardware. ....   | 1-3  |
| <b>Figure 1-2</b> | VGA pass-through cable. ....  | 1-4  |
| <b>Figure 2-1</b> | Installing IRISVISION into an AT system .....                                 | 2-3  |
| <b>Figure 2-2</b> | Tighten the screws that secure the boards in an AT system. ....               | 2-4  |
| <b>Figure 2-3</b> | Installing IRISVISION in a Microchannel system. ....                          | 2-5  |
| <b>Figure 2-4</b> | Tighten the thumbscrews that secure IRISVISION in a Microchannel system. .... | 2-6  |
| <b>Figure 2-5</b> | Connect the boards to one another using the ribbon cables. ....               | 2-7  |
| <b>Figure 2-6</b> | Connect the RV board to the VGA outlet on the motherboard. ....               | 2-9  |
| <b>Figure 2-7</b> | Connect the monitor cable to the video-out connector on the RV board. ....    | 2-10 |
| <b>Figure 2-8</b> | Plug the IRISVISION monitor cable into video out. ....                        | 2-11 |
| <b>Figure A-1</b> | I/O address port DIP switch settings. ....                                    | A-2  |
| <b>Figure A-2</b> | 16-bit memory map address DIP switch settings. ....                           | A-2  |
| <b>Figure A-3</b> | Interrupt channel DIP switch settings. ....                                   | A-3  |

# Welcome

With your purchase of IRISVISION™ from Silicon Graphics, Inc. you've gone a long way in upgrading the power of your personal computer.

IRISVISION is a high-resolution graphics boardset for IBM PC® compatible computers. Once you plug these boards into your 386- or 486-based PC you'll have the power and color of a CAD workstation costing thousands of dollars more.

IRISVISION and the IRISVIEW™ software let you view your CAD files in 3D, complete with color, lighting, and real-time movement. IRISVISION gives you the power to see your ideas on your PC as you see them in your mind.



## *Chapter 1*

# **Getting Started**

Here's what you'll find in this manual.

Chapter 1, "Getting Started," lists the equipment you need to run IRISVISION and the items included in your IRISVISION package.

Chapter 2, "Setting Up the Hardware" describes how to install the IRISVISION boards into a 386/486-based AT or Microchannel computer and tells you how to set up monitors.

Chapter 3, "Installing the IRISVISION Software," tells you how to install the mouse driver and the software that runs IRISVISION.

Chapter 4, "Running the Demo Programs," tells you how to use the two-button mouse to run the demos that show off the power of IRISVISION.

Chapter 5, "Troubleshooting and Diagnostics," describes how to run diagnostic programs to make sure the boards are installed and working correctly.

Appendix A, "Changing the DIP Switch Settings," describes how to change the I/O port address, interrupt channel selection, and memory map switches.

Appendix B, "Operating Specifications," contains a list of system and performance specifications.

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## System Requirements

The IRISVISION AT product is designed to work with 386/486-based IBM PC/ATs and fully-compatible systems. A 387 math coprocessor is required for 386-based systems. The product also works with EISA-based systems.

The IRISVISION Microchannel product is designed to work with IBM PS/2 models 70, 80, 90, and 95 and fully compatible systems.

You need a two-button mouse to run the IRISVISION demonstration programs. (You can install IRISVISION using your keyboard, but you need a mouse for the demos.)

**Note:** Regardless of the type of system you're using, it must have at least 4 megabytes of RAM. IRISVISION applications typically require a moderately large amount of real memory within the 640K memory limitation. If your system is configured with many drivers and/or TSR (Terminate and Stay Resident) programs, you may experience difficulties running some IRISVISION applications. The solution is to reduce the number of drivers and TSR programs while using IRISVISION.

IRISVISION is designed to work with these monitor types:

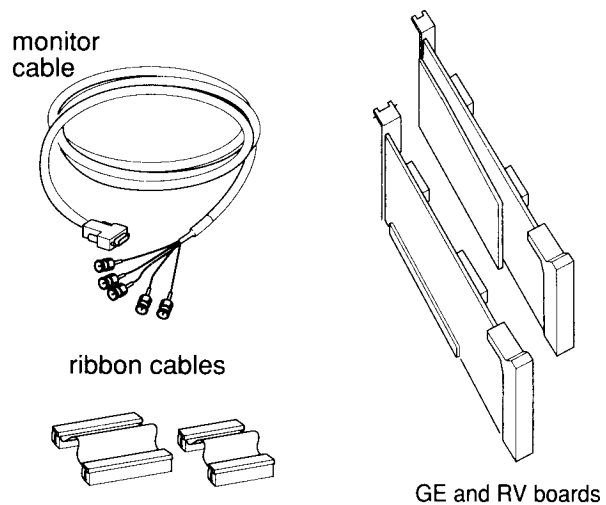
- 1280 x 1024 noninterlaced, high-resolution monitors.
- 1024 x 768 noninterlaced, medium-resolution monitors.
- NTSC monitors.
- PAL monitors.

---

## The IRISVISION Package

You'll find these parts included in your IRISVISION package:

- This guide.
- Two plug-in boards — A Geometry Engine™ (GE) board and a Raster Video (RV) board with a daughterboard attached.
- One high-resolution monitor cable with five BNC connectors on one end and a 15-pin connector on the other.
- Two ribbon cables to connect the GE and RV boards to one another.

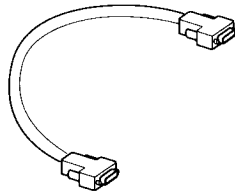


**Figure 1-1** The IRISVISION hardware.

You also received the following software on both 3.5-inch and 5.25-inch disks:

- IRISVISION Installation Software.
- IRISVISION 24-Bit Color Demos. (This is shipped as part of the 24-bit option.)

If you are only using one monitor, you also need an optional VGA pass-through cable. See Figure 1-2.



**Figure 1-2** VGA pass-through cable.

## **Setting Up the Hardware**

IRISVISION is as easy to install as any other add-on board for a personal computer. All you need is a small screwdriver to remove the cover of your computer and to screw in the boards. If you have a Microchannel computer, you don't even need a screwdriver.

This chapter contains these sections:

- "Installing the Boardset"
- "Connecting the Boards to One Another"
- "Connecting Monitors"

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---

## Installing the Boardset

These instructions tell you how to install IRISVISION in a desktop computer that meets the system requirements outlined in Chapter 1. With a few small adaptations, these instructions will also work for any floor-standing models.

Follow these steps to install the boardset:



1. Make sure the computer is turned off.
2. Unplug the AC power cord.
3. Ground yourself periodically during the installation. Periodically touch the metal part of the computer during the installation.

IRISVISION boards aren't any more sensitive to damage from electrostatic discharge (ESD) than any other boards you install in your computer. It is a good idea, however, to take practical precautions to avoid ESD damage.

4. Remove the computer cover.

Separate sections describe how to install the boardset in an AT or Microchannel system. Follow the directions for the kind of computer you are using.

## AT Systems

In an AT system:

1. As you face the front of the computer, locate two adjacent 16-bit slots. See Figure 2-1.

Remove any screws or metal plates in the slots.

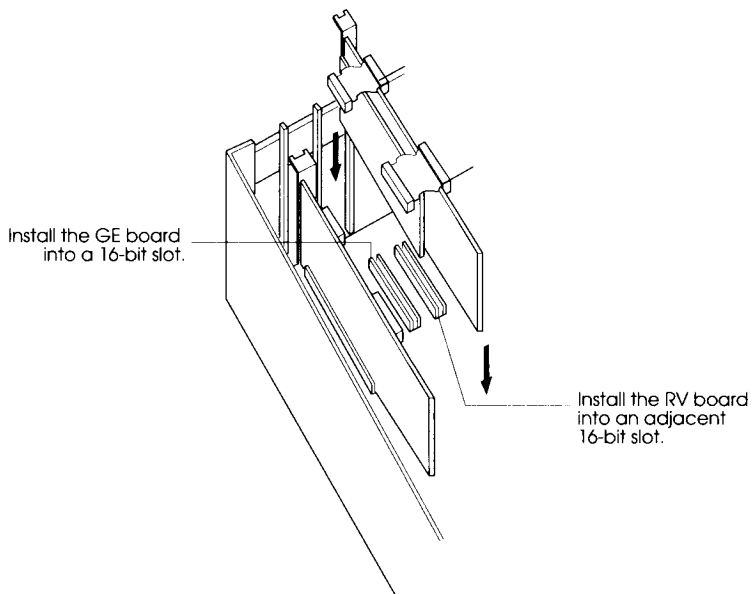
2. Line up the GE board in the guide rails (shown with the arrows in Figure 2-1) and plug the board into the slot.

The GE board doesn't have any other boards attached to it.

3. Line up the RV board in the guide rails for the next slot and plug the board into the slot.

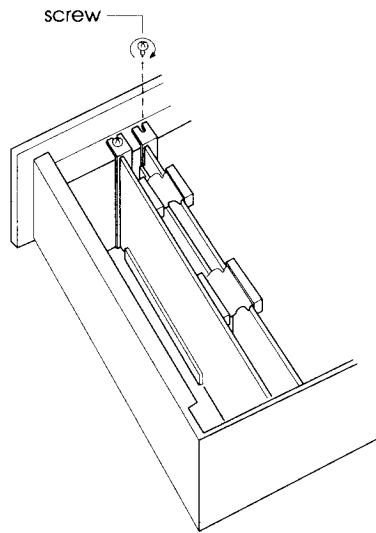
You can identify the RV board because it has one or two other boards attached to it.

**Note:** In some AT buses you may be able to install the boards into 32-bit slots. See the documentation that came with your computer for details.



**Figure 2-1** Installing IRISVISION into an AT system.

4. A screw on the end of each board holds it in place. Insert and tighten each screw. See Figure 2-2.



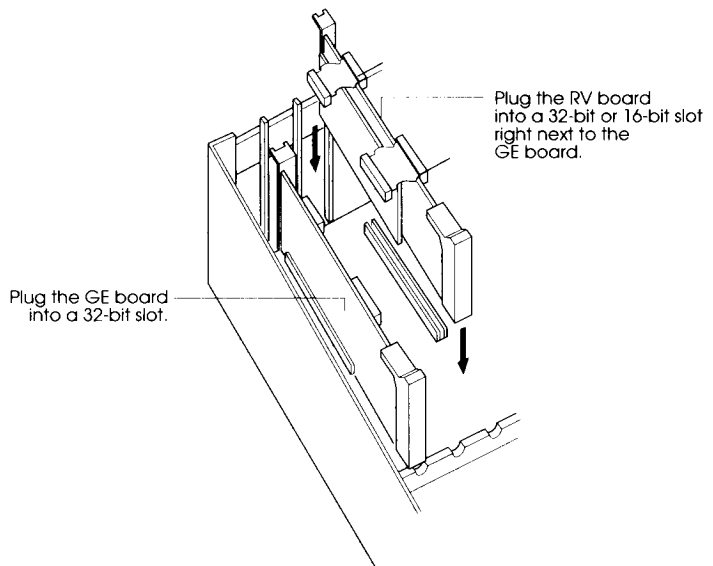
**Figure 2-2** Tighten the screws that secure the boards in an AT system.  
Go on to “Connecting the Boards to One Another,” in this chapter.



## Microchannel Systems

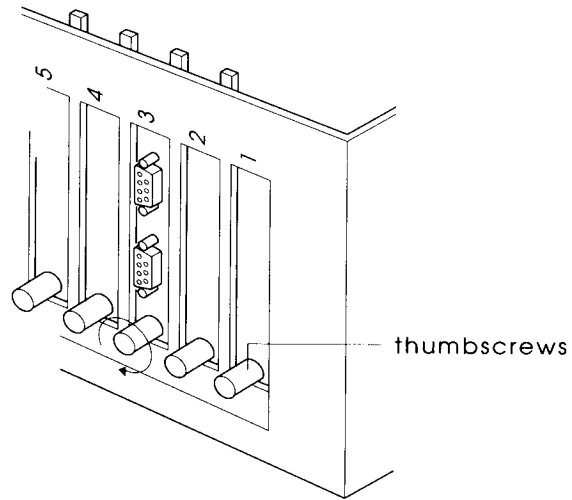
In a Microchannel system:

1. Facing the front of the computer, locate two adjacent 32-bit slots. See Figure 2-3.  
(The GE board always goes into a 32-bit slot, but the RV board can go into an adjacent 32-bit or 16-bit slot.)
2. Line up the GE board in the guide rails (shown with arrows in Figure 2-3) and plug the board into the slot.  
The GE board doesn't have any other boards attached to it.
3. Line up the RV board in the guide rails for the next slot and plug the board into the slot. See Figure 2-3.  
You can identify the RV board because it has one or two other boards attached to it.



**Figure 2-3** Installing IRISVISION in a Microchannel system.

4. Tighten the thumbscrews that secure the boards. See Figure 2-4.



**Figure 2-4** Tighten the thumbscrews that secure IRISVISION in a Microchannel system.

Go on to the next section.

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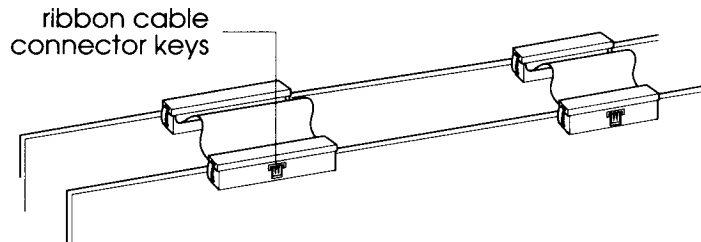
## Connecting the Boards to One Another

Once you install the boards, use the ribbon cables to connect them.

Follow these steps:

1. Locate the connectors on the top edge of each board.  
Each ribbon cable is keyed to fit into the connector housing. See Figure 2-5.
2. Plug the ribbon cables into the connector housing.  
There is a metal tab on each end of each ribbon cable. Squeeze the tabs as you insert the cable so they fit inside the connector housing. Make sure the keyed parts fit together.

**Note:** Be careful not to bend the pins in the connector. IRISVISION won't work if all the pins don't fit into the connector.



**Figure 2-5** Connect the boards to one another using the ribbon cables.

---

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## Connecting Monitors

There are two sets of directions in this section, one for setting up one monitor and a second describing how to set up two monitors.

If you are using one monitor, you'll connect the computer's VGA output directly to IRISVISION and allow a high-resolution, multi-frequency monitor to display both graphics and text.

**Note:** Any monitor you plan to use in VGA mode must have either five BNC connectors or a 15-pin, D-shell connector on the back.

If you are using two monitors (a standard monitor and a high-resolution monitor), set up the standard monitor according to the instructions in the owner's manual that came with your computer. You'll connect the second monitor to IRISVISION, and that one will display graphics.

---

## Connecting One Monitor

When you run IRISVISION using only one monitor, the screen automatically switches from text display to graphics when you boot up a supported application. When you end the session, the screen automatically goes back to text display.

If you are going to use only one monitor, you need:

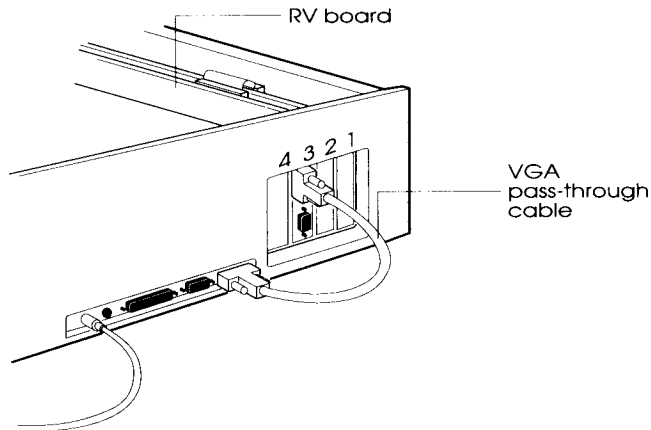
- A VGA graphics board. Follow the directions that came with the board to install it in your computer, or use the VGA provided on the motherboard.
- A high-resolution, multi-frequency (1280 x 1024 or 1024 x 768) monitor that supports VGA mode.
- An IRISVISION monitor cable with a 15-pin connector on one end and five BNC connectors on the other.
- The optional VGA pass-through cable.

**Note:** The cables included with your IRISVISION package are shielded cables. To reduce interference to radio, television, and other electronic equipment, use shielded cables to connect any computer peripherals.

Follow these steps to install the monitor:

1. Set up the monitor and the computer in the spot where you'll use them.
2. Plug one end of the VGA pass-through cable into the VGA board.

Some computers have VGA capabilities built into the motherboard. In this case, plug the VGA pass-through cable into the VGA connector on the motherboard. See Figure 2-6.

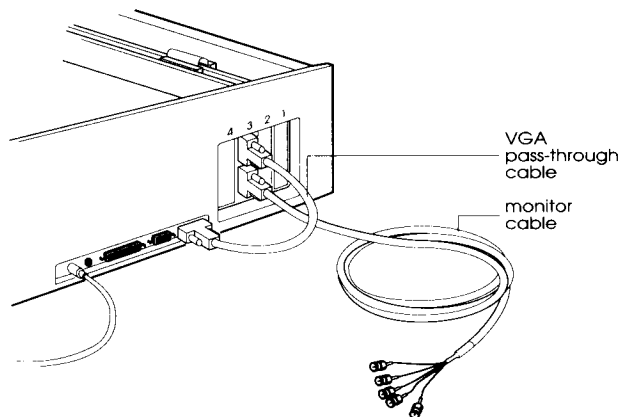


**Figure 2-6** Connect the RV board to the VGA outlet on the motherboard.

3. Plug the other end of the VGA cable into the video in (top) connector on the RV board. See Figure 2-6.
4. Plug the monitor cable into the video out (bottom) connector. See Figure 2-7.

Plug the BNC connectors into the posts on the back of the monitor. Each connector is labeled with a letter and a color-coded wire.

**Note:** If your monitor doesn't have individual BNC posts, use the cable supplied with the monitor instead of the IRISVISION cable. Plug it into the video out (bottom) connector on the RV board. (You'll need a 15-pin adapter if the cable has a 9-pin connector.)



**Figure 2-7** Connect the monitor cable to the video-out connector on the RV board.

- Connect the red, green, and blue segments of the RGB cable to the posts labeled red, green, and blue on the back of the monitor.
- Connect the black wire labeled H to the BNC labeled Horizontal/Composite Sync.
- Connect the yellow wire labeled V to the BNC labeled Vertical Sync.

---

## Connecting Two Monitors

If you plan to use two monitors you'll need:

- A standard monitor and cable.
- A high-resolution (1280 x 1024 or 1024 x 768) monitor.
- An IRISVISION monitor cable with a 15-pin connector on one end and five BNC connectors on the other.

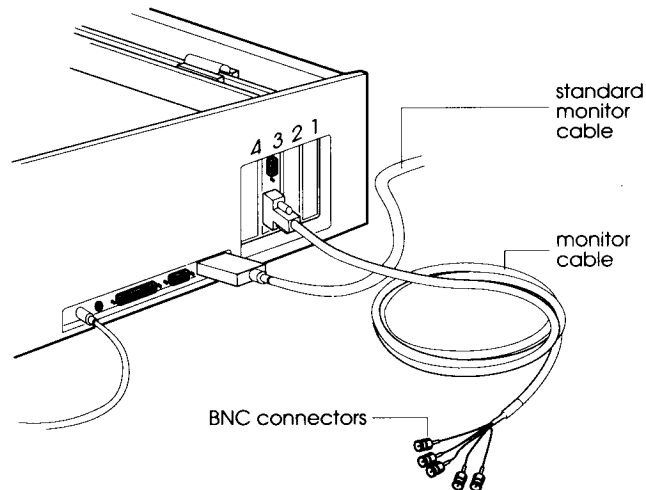
**Note:** The cables included with your IRISVISION package are shielded cables. To reduce interference to radio, television, and other electronic equipment, use shielded cables to connect any computer peripherals.

Follow these steps to install the monitor:

1. Plug in the standard monitor according to the directions in the manual that came with your computer.
2. Plug in the monitor cable.

There are two connectors on the back of the RV board. The top one is video in and the bottom one is video out.

Plug the 15-pin end of the IRISVISION cable into the video out (bottom) connector on the RV board. See Figure 2-8.



**Figure 2-8** Plug the IRISVISION monitor cable into video out.

3. Plug the BNC connectors into the posts on the back of the monitor. Each BNC connector is labeled with a letter and a color-coded wire.

**Note:** If your monitor doesn't have individual BNC posts, use the cable supplied with the monitor instead of the IRISVISION cable. Plug it into the video out (bottom) connector on the RV board. (You'll need a 15-pin adapter if the cable has a 9-pin connector.)

- Connect the red, green, and blue segments of the RGB cable to the posts labeled red, green, and blue on the back of the monitor.

If your monitor has posts for Horizontal/Composite and Vertical Sync, plug in the H and V connectors described below. If not, simply leave one or both connectors unplugged.

- Connect the black wire labeled H to the BNC labeled Horizontal/Composite Sync.
- Connect the yellow wire labeled V to the BNC labeled Vertical Sync.



## Installing the IRISVISION Software

You received diskettes that contain the IRISVISION installation software, diagnostics, and some demo programs. Have these diskettes handy before you begin.

If you purchased the 24-bit product, you also received diskettes that contain 24-bit color demos.

If you are installing IRISVISION in a Microchannel computer, make sure you also have the reference diskette that came with your computer.

For those of you who purchased the Unix option, follow the software installation directions in the IRISVISION Unix Supplement.

This chapter contains these sections:

- "Preparing the Computer"
- "Installing the Software"
- "Configuring the Software"
- "Installing the Mouse Driver"
- "Installing 24-Bit Demos"
- "Testing the Installation"

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## Preparing the Computer

### AT Systems

If you are installing IRISVISION in an AT system, continue on to the next section, "Installing the Software."

### Microchannel Systems

If you're installing IRISVISION in a Microchannel system, follow the directions below to boot up from your reference diskette, and copy the IRISVISION set-up information (.adf file) onto the diskette. See the documentation that came with your computer for details on using the reference diskette.

Follow these steps to prepare the computer:

1. Boot up your system from your reference diskette.  
Press <Enter> when you see the IBM start-up screen.
2. When the computer asks you if you want to do automatic configuration, type <N> for no.
3. Choose "Copy Option Diskette" from the menu that appears.
4. When the system asks you for the Option Diskette, insert IRISVISION Disk 1.  
Follow the on-screen directions to update the reference diskette.
5. Leave the reference diskette in the drive and choose "Exit" from the menu.
6. Restart the computer.  
Press <Enter> when you see the IBM start-up screen.
7. This time when the computer asks if you want to configure automatically, press <Y> for yes.
8. Remove the reference diskette when the update is finished and press <Enter>.

Continue on to the next section to install the software.

---

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## Installing the Software

These directions tell you how to install the IRISVISION software in a DOS-based computer. If you are installing software in a Unix computer, see the IRISVISION supplement included with the Unix option.

1. Insert IRISVISION Disk 1.
2. Type:

**a:install**

(where *A* is the floppy drive), and press <Enter>.

After a moment the first in a series of menus appears on screen. Use the up and down arrow keys to highlight the desired menu option and press <Enter> to make the selection.

3. Select the fixed drive where you'd like the software installed. Remember where you installed the software so you can return to that directory when you configure the monitor and run the demos.

Type the name of the directory where you'd like the software installed, or simply press <Enter> to accept the default directory, \SGL. Follow the on-screen instructions.

4. Select "Install Software."  
It takes a few minutes to load the necessary files.
5. Follow the on-screen instructions.
6. When the installation is complete, press any key to continue.
7. Select "Quit" to exit the installation program.

Turn to the next section to give IRISVISION information about the type of monitor you're using.

---

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## Configuring the Software

The software needs information about your monitor and how it is connected to IRISVISION. The list below explains each of the fields in the configuration program. Make sure you have this information handy when you begin:

|                                 |  |               |              |
|---------------------------------|--|---------------|--------------|
| Resolution                      | You have one of four different monitors: 1280 x 1024, 1024 x 768, NTSC, or PAL.  |               |              |
| Sync                            | Find the monitor type you are using and the number of BNCs connected on the back from the table below. This will help you determine what sync setting to use.  |               |              |
|                                 | 3 BNC  | 4 BNC         | 5 BNC/15-pin |
| High-Res<br>(1280 x 1024)       | sync on green  | sync on green | separate     |
| Medium-Res<br>(1024 x 768)      | sync on green  | composite     | separate     |
| NTSC and PAL                    | See the manual supplied with your video encoder.   |               |              |
| Gamma                           | Select the appropriate gamma correction value for your monitor. Consult the manual that came with your monitor or use the default setting of 2.2.  |               |              |
| Horizontal and<br>Vertical Size | This is the horizontal and vertical size of the display area on the screen. An on-screen table lists some common monitor sizes and estimated measurements. If you want exact measurements, measure the display area of your screen and enter that number in the field. |               |              |
| VGA<br>Pass-Through             | <b>Enable</b> VGA pass-through if you are using one monitor, and <b>Disable</b> it if you are using two monitors.  |               |              |

Once you have the information you need, follow these steps to configure your monitor:

1. Go to the directory where you installed IRISVISION.
2. Type:  
`iv_conf`  
and press <Enter>.
3. The following screen appears:

```
Silicon Graphics IRISVISION
Monitor Configuration

Resolution:          1280x1024
Sync:                Composite Sync
Gamma:               2.2
Horizontal size:     340mm (13 3/8")
Vertical size:       272mm (10 11/16)

VGA Pass-through:   Enabled

Action:              Exit and Set
```

Use the up and down arrow keys to move between fields and the left and right arrow keys to change the value in the highlighted field. The box at the bottom of the screen changes to describe the highlighted field.

4. Enter the correct information for each setting starting with Resolution.
5. When you finish selecting your settings, highlight "Exit and Set" and press <Enter>.

---

---

## Installing the Mouse Driver

To run the demonstration programs, you must be using a mouse driver. Install the driver as a device in your *config.sys* file by adding a line similar to this:

```
device=mouse.sys
```

For information on exactly how to install your mouse as a device, consult the manual that came with your mouse.

**Note:** Loading the driver as a command file, such as *mouse.com*, may cause problems with some software.

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## Installing 24-Bit Demos

If you purchased the standard 8-bit configuration, your demos were installed as part of the standard installation and you can continue on to "Testing the Installation" in this chapter. If you purchased the 24-bit product you also received diskettes that contain the 24-bit color demos.

Follow these steps to install the 24-bit demos:

1. Insert the 24-Bit Color Demo Disk 1.
2. Type:

```
a:install
```

(where *A* is the floppy drive), and press <Enter>.

After a moment, the first in a series of menus appears on screen. Use the up and down arrow keys to highlight the desired menu option and press <Enter> to make the selection.

3. Select the drive where you installed IRISVISION.  
Type the name of the directory where you'd like the software installed, or press <Enter> to accept the default directory, *\SGI*.

(Install the demos in the same directory where you installed the IRISVISION software.)

4. Select "Install 24-Bit Demos."  
It takes a few minutes to load the necessary files.
5. Follow the on-screen directions.
6. Select "Quit" from the menu when the installation is complete.

---

---

## Testing the Installation

Separate tests for AT and Microchannel computers check the installation. The tests take about 10 seconds and when finished, display a message telling you the system passed. Once the message appears, go ahead and put the top back on your computer.

If your system doesn't pass, or if you see a failure message, go on to Chapter 5, "Diagnostics and Troubleshooting."

### AT Systems

1. Go to the directory where you installed IRISVISION.
2. Type:  

```
iv_atest
```

and press <Enter>.

### Microchannel Systems

1. Go to the directory where you installed IRISVISION.
2. Type:  

```
iv_mtest
```

and press <Enter>

Once the tests pass, run some of the demonstration programs described in Chapter 4.

## Running the Demo Programs

This chapter tells you how to use the two-button mouse to run demo programs on your new equipment.

Here's what you'll find in this chapter:

- "Using Buttonfly"
- "Using the Mouse"
- "Running a Sample Demo"

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### Using Buttonfly

When you installed the software you also installed a program called Buttonfly, which contains the demo programs. Follow these steps to start Buttonfly:

1. Go to the directory where you installed IRISVISION.
2. At the prompt type:  
`iv_demos`  
and press <Enter>.

Each demo has a Help and a Quit button. In general, the Buttonfly program works like this:

- Click once on a box with the left mouse button to see what it contains.
- Click once on the background to go back to the previous box.
- Press down the right mouse button on the background to quit Buttonfly.



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## Using the Mouse

Use the right mouse button to call up the pop-up menus and the left mouse button to manipulate objects.

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### Right Mouse Button

Press and hold down the right mouse button. A pop-up menu appears on screen at the location of the cursor.

Each demo has a pop-up menu that contains commands for that demo, as well as the commands Help and Quit. You may also quit a demo by pressing <Escape>.

Some of the pop-up menu commands have submenus, indicated by an arrow to the right of the command name. To display a submenu, simply drag the cursor slightly to the right while the command is highlighted.

---

### Left Mouse Button

The left mouse button is generally used to manipulate objects on the screen. With the left mouse button, you can drag, spin, rotate, and zoom in on objects.

Some of the Butterfly demos run automatically after you select a command from its pop-up menu. Other demos require the use of the left mouse button to determine, for example, the direction of rotation, zoom, or spin.

**Note:** Flight differs from the rest of the demos. Refer to the on-screen instructions.

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## Running a Sample Demo

To run the Cube demo, follow these steps:

1. Make sure Buttonfly is up on your screen.
2. Click once on the IRISVISION button.
3. Click once on the Creative Arts box.
4. Click once on the Cube box.
5. The cube appears on your screen spinning and rotating.
6. To end this demo, choose "Quit" from the menu, or press <Escape>.

The other Buttonfly demos work in a similar manner. Experiment with each one to discover how much fun it is to work with IRISVISION.

# Troubleshooting and Diagnostics

This chapter contains information that will help you pinpoint any problems you may have with the IRISVISION boardset.

It contains these sections:

- “Quick Test”
- “Diagnostics”
- “Troubleshooting Checklist”
- “Common Problems and Workarounds”

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## Quick Test

The quick test runs IRISVISION through a series of short programs to find any obvious and recurring problems. (This is the same test you ran to test the software installation.)

### AT Systems

1. Go to the directory where you installed IRISVISION.

Type:

**iv\_atest**

and press <Enter>.

## Microchannel Systems

1. Go to the directory where you installed IRISVISION.
2. Type:  
`iv_mtest`  
and press <Enter>.

## Quick Test Results

If you see this message:

```
IRISVISION Quick-Test PASSED.
```

IRISVISION should be running properly. If you still run into problems, run the diagnostics for more thorough testing.

If at the end of the test you see this message:

```
Error: Failure detected in IRISVISION graphics  
subsystem.
```

go ahead and run the diagnostics.

---

---

## Diagnostics

To test the boardset for problems that may not show up in the quick test, run the full diagnostic program. Follow the directions below for the kind of computer you are using. The full program takes about 5 minutes.

### AT Systems

1. Go to the directory where you installed IRISVISION.
2. Type:  
`iv_adiag`  
and press <Enter>.

## Microchannel Systems

1. Go to the directory where you installed IRISVISION.
2. Type:  
`iv_mdiag`  
and press <Enter>.

---

## Diagnostic Results

If you see this message:

```
IRISVISION graphics subsystems diagnostics PASSED.
```

IRISVISION is not likely to be the source of your problems. See the owner's manual that came with your computer for information on how to test that equipment.

If you see one of these messages:

```
Check cable and board connector
```

or

```
Error: Failure detected in IRISVISION graphics  
subsystems. (number)
```

there is a problem with the hardware installation or possibly the boardset itself. Consult the Troubleshooting Checklist in this chapter to make sure all the hardware connections are solid and then run the diagnostics again.

If the error message appears after you run the diagnostics again, write down the number at the end of the message and call your dealer or service representative for assistance.

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## Troubleshooting Checklist

The most common problems occur because the hardware isn't installed properly. If your system seems to run irregularly, check all the hardware connections using the list below. After you check each item, run the quick test or the diagnostics. If after you have gone through each item the system still doesn't work, contact your dealer or service representative for assistance.

- Check the boards to make sure they are firmly seated in their slots.
- Check the ribbon cables that connect the GE and RV boards. Make sure none of the pins are broken.
- If the system won't boot up at all, you may have another add-on board with the same I/O address. See Appendix A, "Changing the DIP Switch Settings."
- Check the monitor cables. Make sure they are connected to the correct ports on both the monitor and the back of your computer.
- Check the keyboard and mouse connections. See the owner's manual that came with your computer for a troubleshooting checklist.

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## Common Problems and Workarounds

IRISVISION is designed to be compatible with all AT- and Microchannel-compatible computers. There are some requirements that must be met in order for it to work properly. This section contains a list of problems that occur when those requirements aren't met.

- The computer won't boot when IRISVISION is installed or won't recognize that it is installed.

### AT Systems

IRISVISION uses one of four possible I/O address ranges. If all four I/O locations are occupied, change the I/O port address on one of the other add-on boards to allow space

for IRISVISION. See Appendix A, "Changing the DIP Switch Settings."

### **Microchannel Systems**

See the manual that came with your computer for information on using the reference diskette to make sure add-on boards don't conflict.

- The diagnostics detect a failure in IRISVISION.

#### **AT Systems only**

There may be a memory address or interrupt channel conflict. Reconfigure switches 1 and 2 and 6, 7, and 8 and reboot. See Appendix A, "Changing the DIP Switch Settings."

- The diagnostics lock up the computer.

#### **AT Systems**

The ribbon cables that connect the boards to one another are not fully seated. Try connecting the cables again and make sure they "click" into place.

#### **Microchannel Systems**

Check the ribbon cables to make sure they are seated in their connectors. See the manual that came with your computer for information on using the reference diskette to make sure add-on boards don't conflict.

- The computer won't warm boot.

The system must not shadow the VGA BIOS while the IRISVISION boardset is in use, otherwise the system may not warm boot properly. When VGA BIOS shadowing is enabled, the system BIOS will attempt to read the entire memory block from 0C0000h to 0DFFFFh (the area in which IRISVISION is designated to operate) during a warm boot <Ctrl-Alt-Delete> sequence.

Disable the BIOS ROM shadow memory with the system setup utility.

- The image on the monitor is too dark or appears washed out.  
Change the gamma setting in *iv\_config*. See “Configuring the Software” in Chapter 3. Making the value larger will increase brightness. Making it smaller will darken the image.

- A message appears saying there is no memory available, or the computer starts to operate erratically, stopping unpredictably when you access other add-on boards.

You may have too many add-on boards in your computer. Turn off the computer and remove one of the other add-on boards.

In addition to 16-bit mode, IRISVISION operates in 8-bit mode. This means that the boardset appears to the host AT as an 8-bit card (with respect to the bus state machine in the AT). The boardset must be plugged into two 16-bit slots in the AT for power and transfer rate considerations. Select 8-bit mode by setting switch 8 to On. You’ll see a slight (10—15 percent) performance decrease when using 8-bit transfer mode.

- You are running the demos and the system locks up, but the quick tests and diagnostics don’t show any errors.

IRISVISION uses one of three available interrupt lines in an AT system. The default interrupt selected is channel 10. If another add-on board uses channel 10, change the DIP switches on the top edge of the GE board. See Appendix A for instructions.

- The mouse doesn’t move, but the buttons work.

If you’re using QEMM386, EMM386, or any other expanded memory manager for 386 machines, amend the entry in your *config.sys* file that looks like this:

```
device = qemm386.sys
```

to add an “exclude” parameter.



The entry should look like this:

```
device = qemm386.sys exclude=D000-DFFF
```

Try running the demos again. If the mouse still doesn't move, change the entry to look like this:

```
device = qemm386.sys exclude=C000-CFFF
```

## **Changing the DIP Switch Settings (AT Systems)**

If your computer lock ups while you are running the demos or one of the supported programs, you may have one of three system address problems. To avoid possible conflicts with other add-on boards, IRISVISION allows you to change:

- the I/O port address.
- the channel interrupt address.
- the memory map address.

Follow the directions below to change the DIP switches that determine these different addresses. If you still have problems after trying the different settings, call your dealer or service representative for assistance.

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### **I/O Port Address**

If you are running one of the IRISVISION demos or a supporting application and the system locks up, you may have two add-on boardsets with conflicting I/O port addresses. The best way to solve this problem is to change the DIP switches that determine the I/O address for IRISVISION.

Follow these steps to change the I/O port address:

1. Locate the DIP switches on the GE board.

A bank of eight DIP switches is mounted on the top of the GE board. Switches 3 and 4 denote I/O port address.

2. Try one of the three other possible combinations for DIP switches 3 and 4 listed in Figure A-1.
3. Start the computer.
 

If the computer starts without a problem, refer to Chapter 3 to install the software.

If the computer still won't start, try another combination for DIP Switches 3 and 4.

If you've tried all the settings and the computer still won't start, go back to the default switch setting and try changing the memory map switches (switches 6 and 7). Try the three other possible combinations for 16-bit mode. See Figure A-2.

| SW 3 | SW 4 | Definition               |
|------|------|--------------------------|
| off  | off  | <b>I/O Map 150h-15Fh</b> |
| off  | on   | I/O Map 3E0h-3EFh        |
| on   | off  | I/O Map 3B0h-3BFh        |
| on   | on   | I/O Map 3D0h-3DFh        |

**Figure A-1** I/O port address DIP switch settings.

| SW 6 | SW 7 | SW 8 | Definition                            |
|------|------|------|---------------------------------------|
| off  | off  | off  | <b>16-bit Mem Map 0C8000h-0CFFFFh</b> |
| off  | on   | off  | 16-bit Mem Map 0C0000h-0C7FFFh        |
| on   | off  | off  | 16-bit Mem Map 0D0000h-0D7FFFh        |
| on   | on   | off  | 16-bit Mem Map 0D8000h-0DFFFFh        |

**Figure A-2** 16-bit memory map address DIP switch settings.

---

---

## Interrupt Channel Settings

You may have an interrupt channel conflict if the system locks up when you run the demos or a supported application, but the diagnostics pass without returning any error messages.

There are three possible switch combinations for the channel interrupt. See Figure A-3.

| SW 1 | SW 2 | Definition                  |
|------|------|-----------------------------|
| off  | off  | <b>Interrupt Channel 10</b> |
| on   | off  | Interrupt Channel 12        |
| on   | on   | Interrupt Channel 15        |

**Figure A-3** Interrupt channel DIP switch settings.

Follow these steps to change the channel interrupt settings:

1. Locate the DIP switches on the GE board.  
A bank of eight DIP switches is mounted on the top of the GE board. Switches 1 and 2 denote interrupt channel.
2. Change the board interrupt channel address. Try one of the two other possible combinations for DIP switches 1 and 2.
3. Start the computer and run the demos again.  
If the demos still don't run, try another combination.

---

---

## Memory Map Address

You may have a memory mapping conflict if when you turn on the system, a message appears telling you that no memory address is available. In this case, there are probably too many add-on boards in the computer. The best way to solve this is to remove one of the other add-on boards to open up memory for IRISVISION.

# Operating Specifications

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---

## Product Specifications

|                         |  |
|-------------------------|--|
| 3-Color Hardware Cursor | Allows flicker-free cursor operation   |
| Bus Compatibility       | AT, Microchannel   |
| Display Resolution      | 1024 x 768 or 1280 x 1024 Noninterlaced, NTSC, PAL   |
| Colors                  | IRISVISION/8 - 256 colors from 16.7 million color palette<br>IRISVISION/24 - 16.7 million colors |
| Slots                   | Two 16-bit slots (AT) or<br>One 32-bit slot and one 16- or 32-bit slot (Microchannel)            |
| Auxiliary Planes        | IRISVISION/8 - Four<br>IRISVISION/24 - Eight   |
| Horizontal Scan         | 48 KHz @ 1024 x 768 / 64 KHz @ 1280x1024   |
| Vertical Refresh        | 60 Hz Noninterlaced / 30 Hz Interlaced<br>NTSC/PAL   |
| Maximum Bandwidth       | 107 MHz  |
| Power Consumption       | IRISVISION/8 - 2.5 A at +5V average<br>IRISVISION/24 - 4.5 A at +5V average                      |
| Certifications          | FCC A  |

---

---

## Hardware Configuration

|                  |  |
|------------------|--|
| VGA Pass-through | Offers a single-screen option                          |
| 24-Bit Z-Buffer  | Enables hidden-surface removal for real-time rendering |
| Double Buffering | Allows flicker-free, real-time animation               |
| Gouraud Shading  | Realistic "smooth" shading capabilities                |
| Anti-Aliasing    | Eliminates jagged lines and edges in designs           |
| Depth-Cueing     | Improves depth perception                              |
| Dithering        | Improves color palette at low cost                     |

---

---

## System Requirements

|                        |   |
|------------------------|---|
| CPU                    | Intel 80386 or 80486  |
| Math Coprocessor       | Intel 80387 (for 386 systems only)  |
| Monitor Configurations | Single monitor:<br>Multiscanning monitor (30-48/64 KHz)<br>Two monitors:<br>Mono/Herc, CGA, EGA, or std. VGA and single frequency 1024 x 768 or 1280 x 1024 noninterlaced monitor |
| Recommended RAM        | 4 MB minimum, 6 MB recommended  |
| Cables                 | High-resolution 15-pin to BNC included<br>VGA pass-through optional   |

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---

## Performance

|                            |        |
|----------------------------|--------|
| 3D Vectors/Second          | 90,000 |
| Triangles/Second           | 14,100 |
| Four-Sided Polygons/Second | 9,000  |

---

---

## Video Timing Parameters

These are the video timing parameters that the IRISVISION board generates. Make sure these values are within acceptable ranges for your monitor. See the manual that came with your monitor.

### 1280 x 1024

|                        |        |
|------------------------|--------|
| Pixel Clock (MHz)      | 107.35 |
| Horizontal Freq. (KHz) | 63.9   |
| Frame Rate (Hz)        | 60.0   |

### 1024 x 768

|                        |      |
|------------------------|------|
| Pixel Clock (MHz)      | 64.0 |
| Horizontal Freq. (KHz) | 48.8 |
| Frame Rate (Hz)        | 60.0 |

# Index

## A

### addresses

- I/O port A-1-A-2
- memory map A-3

### .adf file

- Microchannel systems and 3-2

### AT systems

- changing DIP switch settings and A-1-A-3
- diagnostics and 5-2
- installing boards and 2-3-2-4
- preparing 3-2
- quick test and 5-1
- requirements 1-2
- testing installation and 3-7
- troubleshooting and 5-4-5-7

## B

### BNC connectors

- illustrated 2-11

### boards

- connecting 2-7
- GE board 1-3
- installing 2-2-2-7
- RV board 1-3, 2-9
- troubleshooting 5-6

### booting

- troubleshooting 5-4
- warm 5-5

### Buttongfly

- using 4-1

## C

### cables

- monitor cable 1-3, 2-9, 2-11
- ribbon 1-3, 2-7
- standard monitor cable 2-11
- VGA pass-through cable 1-4, 2-9

### changing

- DIP switch settings A-1-A-3

### channel settings. *See* interrupt channel settings

### color demo programs. *See* 24-bit demo programs

### computer. *See* AT systems; Microchannel systems

### config.sys file

- installing mouse drivers and 3-6

### configuring

- IRISVISION 3-4-3-5

### connecting

- boards 2-7
- monitors 2-8-2-12

### connectors

- BNC 2-11

## D

### dark images

- troubleshooting 5-6

### demo programs

- running 4-1-4-3
- sample demo program 4-3
- troubleshooting 5-6
- 24-bit 3-6-3-7

### diagnostics 5-1-5-7

- results of 5-3
- troubleshooting 5-5

### DIP switch settings

- changing A-1-A-3

### drivers. *See* mouse drivers



## E

8-bit demo programs. *See* demo programs  
error messages. *See* troubleshooting

## F

files

*.adf* file 3-2  
*config.sys* file 3-6  
*mouse.com* file 3-6

Flight demo program

left mouse button and 4-2

486-based PC. *See* AT systems

## G

Gamma

described 3-4

GE board

illustrated 1-3

*See also* boards

## H

hardware

illustrated 1-3

setting up 2-1-2-12

*See also* specific hardware

hardware configuration B-2

Horizontal size

described 3-4

## I

I/O port addresses

changing DIP switch settings and A-1-A-2

IBM PC/AT. *See* AT systems

IBM PS/2. *See* Microchannel systems

images

troubleshooting 5-6

installation

testing 3-7

installing

boards 2-2-2-7

IRISVISION 3-1-3-7

monitors 2-9, 2-11

mouse drivers 3-6

24-bit demo programs 3-6-3-7

interrupt channel settings

changing DIP switch settings and A-3

IRISVISION

configuring 3-4-3-5

installing 3-1-3-7

troubleshooting 5-5

IRISVISION Owner's Guide

described 1-1

IRISVISION package 1-3-1-4

## L

left mouse button

using mouse and 4-2

## M

memory

troubleshooting 5-6

memory map addresses

changing DIP switch settings and A-3

menus

pop-up 4-2

messages. *See* troubleshooting

Microchannel systems

diagnostics and 5-3

- installing boards and 2-5–2-6
- preparing 3-2
- quick test and 5-2
- testing installation and 3-7
- troubleshooting and 5-4–5-7

- monitor cable
  - illustrated 1-3, 2-9, 2-11

- monitors
  - configuring 3-5
  - configuring software and 3-4
  - connecting 2-8–2-12
  - requirements 1-2, 2-8, 2-10
  - troubleshooting 5-6

- mouse
  - requirements 1-2
  - troubleshooting 5-7
  - using 4-2

- mouse drivers
  - installing 3-6

- mouse.com* file
  - installing mouse driver and 3-6

## O

- objects
  - left mouse button and 4-2
- operating specifications B-1–B-3

## P

- PC/AT *See* AT systems
- performance B-2
- pop-up menus
  - right mouse button and 4-2
- port addresses. *See* I/O port addresses
- problems. *See* troubleshooting
- product specifications B-1
- programs. *See* demo programs; IRISVISION

- PS/2. *See* Microchannel systems

## Q

- quick test 5-1–5-2
  - results of 5-2

## R

- RAM
  - requirements 1-2
- requirements
  - system 1-2–1-4, B-2

- Resolution
  - described 3-4

- ribbon cable connector keys
  - illustrated 2-7

- ribbon cables
  - connecting boards and 2-7
  - illustrated 1-3

- right mouse button
  - using mouse and 4-2

- Rubik's Cube demo program
  - running 4-3

- RV board
  - illustrated 1-3, 2-9
  - See also* boards

## S

- sample demo program
  - running 4-3
- screws
  - illustrated 2-4
- setting up
  - hardware 2-1–2-12
- software. *See* demo programs; IRISVISION
- specifications

- operating B-1–B-3
- product B-1
- standard monitor cable
  - illustrated 2-11
- starting
  - Buttonfly 4-1
- switch settings. *See* DIP switch settings
- Sync
  - described 3-4
- system requirements 1-2–1-4, B-2

- warm booting
  - troubleshooting 5-5
- washed out images
  - troubleshooting 5-6
- workarounds. *See* troubleshooting

## T

- testing
  - installation 3-7
- 386-based PC. *See* AT systems
- thumbscrews
  - illustrated 2-6
- timing parameters. *See* video timing parameters
- troubleshooting 5-1–5-7
  - checklist for 5-4–5-7
- 24-bit demo programs
  - installing 3-6–3-7

## V

- Vertical size
  - described 3-4
- VGA pass-through
  - in configuration program 3-4
- VGA pass-through cable
  - illustrated 1-4, 2-9
- video timing parameters B-3

## W

007-5000-020



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