



Osprey-50 User's Guide

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Windows NT 4.0

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Osprey Technologies Division
ViewCast.com

Osprey-50 User's Guide

Windows NT Version
Releases 1.40 and later.

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ViewCast.com
Osprey Technologies Division
600 Airport Boulevard, Suite 900
Morrisville, NC 27560 USA

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FCC Notice

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- ◆ Reorient or relocate the receiving antenna.
- ◆ Increase the separation between the computer and the receiver.
- ◆ Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- ◆ Consult the dealer or an experienced radio/TV technician for help.

Shielded Cables

Connections between this device and peripherals must be made using shielded cables in order to maintain compliance with FCC radio emission limits.

Modifications

Modifications to this device, not approved by Osprey Technologies, Inc., could void the authority granted to the user by the FCC to operate the device.

Note to CATV Installer

This reminder is provided to call to the CATV installer's attention Section 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Table of Contents

Table of Contents.....	5
Chapter 1 — Getting to Know the Osprey-50	9
Introduction.....	9
Symbols.....	10
Osprey-50 Features	10
Frame Rates.....	11
Osprey-50 Software	11
Compatible Third Party Applications.....	11
Inter/Intranet video servers	12
Intranet broadcast.....	12
Video conferencing.....	12
Video Editing	12
Getting Help.....	12
Chapter 2 — Osprey-50 Hardware.....	15
System Requirements	15
Configuring the Card.....	16
Installing the Card.....	17
Connecting Cables.....	18
Connecting a Composite Source	18
Connecting an S-Video Source	19
The Osprey-101 Video Camera	19
Chapter 3 — Installing the Software.....	21
Installing from CD	21
Downloading and Installing Updated Drivers	22
Setup Program: Details.....	23
Testing the Installation	24
Uninstalling the Software.....	25
Deactivate Versus Uninstall.....	25
Chapter 4 — The Control Dialog	27
Accessing the Dialog	27
General Features of the Dialog.....	28
The Source Page	30
The Format Page.....	31

The Closed Caption Page	35
The Configuration Page	38
Chapter 5 — Using the Osprey-50 with Popular Applications	41
VidCap32	41
<i>Preview</i>	41
<i>Overlay</i>	42
<i>Configuring the Video Capture Driver</i>	42
<i>Compression</i>	42
<i>Setting the Capture File – Preallocating and Defragmenting</i>	43
<i>Capturing Video</i>	43
<i>Playback</i>	44
Intel Indeo	45
CU-SeeMe.....	47
Precept’s IP/TV	47
NetMeeting.....	48
NetShow.....	48
Progressive Networks Real Video.....	48
Adobe Premiere	48
Asymetrix Digital Video Producer.....	48
Chapter 6 — Troubleshooting	49
Blue Video Screen	49
Black Preview Video Screen.....	49
Scrambled Video Image	49
Grainy, Dithered Image.....	50
Slow Overlay Drawing.....	50
Problems using Direct Draw	50
Poor Video Quality at Large Frame Sizes.....	50
Wrong Capture Driver Being Accessed	51
Unwanted Closed Caption Text	51
Interrupt Conflicts	52
Appendix A — Osprey-50 Specifications.....	55
Appendix B — Color Modes.....	57
Appendix C — Video Sizes	59
Appendix D —Using the Osprey-50 with other Video Capture Drivers	61
To “Add...” a driver, proceed as follows:.....	62
To “Remove” a driver, proceed as follows:.....	62

Appendix E — Direct Draw	65
Appendix F — Multiboard Installations.....	67
Multiple Processes to Multiple Boards.....	67
Single Application to Multiple Boards	68
Appendix G — Files and Registry Usage	69
Appendix H — Developer Support	71

Chapter 1 — Getting to Know the Osprey-50

The User's Guide provides helpful information about installing and configuring the Osprey-50 hardware and software. This book has been designed with the particular needs of Osprey-50 end users in mind, particularly first-timers and those working with existing applications.



If you already have a working knowledge of the Osprey-50 and its capabilities, you may want to skip ahead to Chapter 2, Osprey-50 Hardware, and proceed with the installation process. However, if you'd like to learn more about the Osprey-50 and the opportunities it can make possible, continue on with the following introductory section.



Note: This manual is written with the Osprey-50 in mind, but it also covers the Osprey-100, Osprey-101, and Osprey-150. There will be occasional references to these other devices that will not be applicable to the product you have.

Introduction

The Osprey-50 provides an economical solution for capturing video images in an uncompressed digital format. All formatting and scaling of images are processed within the hardware, allowing for maximum system efficiency and speed.

The Osprey-50 package consists of a PCI board (based on the Rockwell Bt878 single-chip video capture device) and Video for Windows compliant software drivers for Windows NT 4.0 and Windows 95/98 platforms.

The driver for Windows 95/98 is a separate driver with its own User's Guide. All information in this User's Guide refers to the Windows NT driver.

A driver for Windows NT 4.0 Compaq Alpha platforms is available from our web site, **<http://www.viewcast.com>**.

This User's Guide covers both the X86 and Alpha versions of the driver. The two versions offer identical functionality, differing only in the performance level that can be achieved.

The driver is not tested under Windows NT 3.51, but it may be usable under 3.51 for many purposes. NT 3.51 does not have Direct Draw for high-speed video display.

This driver will not install correctly under Windows 2000. There is a beta driver for Windows 2000 on ViewCast.com's ftp site. The Windows 2000 beta driver is provided "as-is". Osprey does not recommend it for production uses and does not commit to providing support for Windows 2000 beta installations.

The Osprey-50 and Osprey-100 are related products. Whereas the Osprey-50 has a single composite video input and is primarily a one-board-per-system product, the Osprey-100 has additional video inputs and full support for multiple boards per system.

The Osprey-101 is a version of the Osprey-100 that includes a video camera powered from the Osprey board. This manual is for the Osprey-101 as well as the Osprey-100. All references to the Osprey-100 are valid for the Osprey-101 as well, except where specifically noted.

Another related product, the Osprey-150, is available for Sun PCI workstations. Please refer to our web site (<http://www.viewcast.com>) for further information. The Osprey NT driver can be used with Osprey-150 cards. Osprey-150 drivers do not work with Osprey-50 / 100 / 101 cards.

Symbols



This symbol denotes an important note or warning.



The chapters that describe how to use an Osprey-50 application contain step-by-step instructions. The "Shortcut" icon identifies a section that summarizes the detailed steps.

Osprey-50 Features

The Osprey-50 package supports all Video for Windows capture driver capabilities that are available to the Bt848 / Bt878 hardware device. It is compatible with software video compressors, sound boards, video editing applications, and videoconferencing applications. Features include:

- ◆ Connectors – Osprey-50: One Composite Video In, one S-Video In.
- ◆ Connectors – Osprey-50: Three Composite Video In, one S-Video In.
- ◆ Connectors – Osprey-101: One Composite Video In, one S-Video In; power out for camera.

- ◆ Input formats: NTSC (M, J); PAL (B, D, G, H, I, M); SECAM
- ◆ Display formats: RGB32, RGB24, RGB15, Grey8, 4:2:2 packed, YUV12, YVU9
- ◆ Standard frame sizes: full, half, 3/8, 1/4.
- ◆ Square pixel and CCIR601 aspect ratios.
- ◆ Custom frame sizes.
- ◆ Interactive control of brightness, hue, contrast, and saturation.
- ◆ Closed captioning.
- ◆ Osprey-100 and 101 only: Multiple boards per system. Multiple applications can each access different boards, or a single application can access multiple boards. The Osprey-50 is primarily a one-board-per system product; however, you can install one Osprey-50 with one or more Osprey-100s or Osprey-101s.

Frame Rates

Depending on the system's load and display window size, the Osprey-50 can display and capture video at rates of up to 30 frames per second for NTSC formats, 25 frames per second for PAL/SECAM formats. Keep in mind, though, that video frame rates for display, videoconferencing, and capture are application-dependent. The package supports Direct Draw for drawing video overlays with minimal load on the system processor.

Osprey-50 Software

The Osprey-50 Windows NT 4.0 software package consists of:

- ◆ A Video for Windows compatible video capture driver.
- ◆ A kernel-mode device driver.
- ◆ VidCap32 — a capture applet and test/demo program.

Compatible Third Party Applications

The driver is designed to be compatible with all Video for Windows applications. It is tested for compatibility with the following applications, either by us or by third parties:

Inter/Intranet video servers

- ◆ Microsoft NetShow
- ◆ Progressive Networks RealVideo

Intranet broadcast

- ◆ Precept IP/TV

Video conferencing

- ◆ Microsoft NetMeeting
- ◆ White Pines CU-SeeMe

Video Editing

- ◆ Adobe Premiere
- ◆ Asymetrix Digital Video Producer

Other Video for Windows applications are being added to this list. Refer to the ViewCast.com web site for the current list - <http://www.viewcast.com>.

Getting Help

Before calling for help, first do the following:

- ◆ Work through the section of Chapter 3 entitled *Testing the Installation*.
- ◆ Read through Chapter 6, *Troubleshooting*.

If you've done that and you're still having problems, please contact the Osprey-50 Support Group at:

(888) 684-6622	(voice, toll-free)
(919) 319-9200	(voice)
(919) 319-9814	(FAX)
support@osprey.viewcast.com	(email)

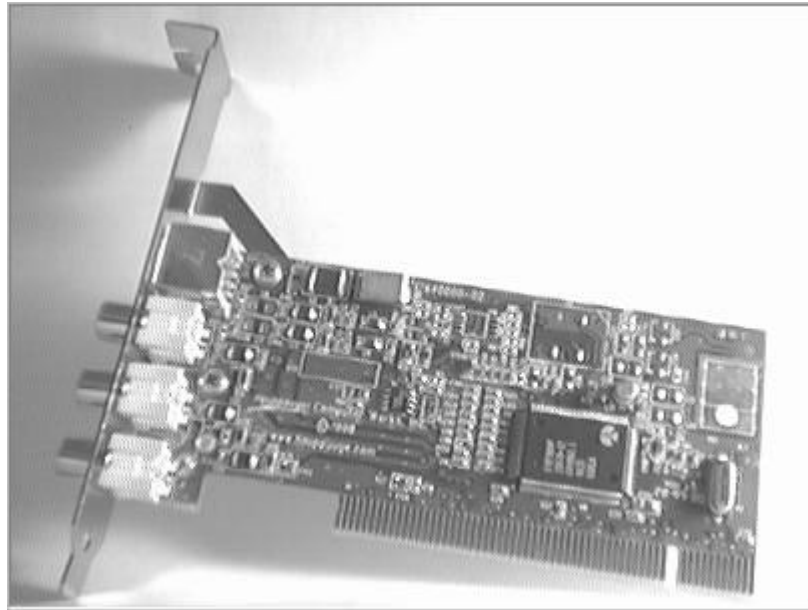
When you contact us, especially if it is by email, include the following information:

- ◆ What product you have – Osprey-50, 100, 101. As well as the Osprey-50 series, we also have an Osprey-1000 series of products.
- ◆ What operating system you are using. The Osprey-50 drivers for Windows NT 4.0 and Windows 95/98 are separate products.
- ◆ Whether your machine has an X86-compatible or Alpha processor.
- ◆ What version of the Osprey-50 driver you are using. The version information is on the title bar of the driver's Control Dialog, as well as in the first message of the installation program.
- ◆ A description of the problem. If possible, get the problem to appear with the VidCap32 application, and tell us whether it appears in Preview, Overlay, and/or Capture mode. If the problem appears only with a third party application, tell us what the application is and what version of it you are using.
- ◆ Any additional details about your system configuration would be helpful – for example, the system speed, processor type, whether you have a SCSI or IDE hard drive, whether you have a network adapter card, and the type of display adapter card.

Chapter 2 — Osprey-50 Hardware

The Osprey-50 card (Figure 2-1) is a 32-bit, 5-volt variable height short PCI card. It is compliant with version 2.1 of the PCI hardware specification.

Figure 2-1
Osprey Video Capture Card



NOTE: The exact card options and appearance are different for different Osprey-50, 100, and 101 products and are subject to change. The Osprey-50 has a single composite video input. The Osprey-101 has one composite video input and one power connector.

System Requirements

For X86 PCs, the minimum system requirements are as follows:

- ◆ 90 MHz Pentium processor or higher.
- ◆ One available PCI slot.
- ◆ Windows NT 4.0.
- ◆ Approximately 1 megabyte of storage for system files.

For optimum performance, we recommend at least the following additional features:

- ◆ 200 MHz Pentium processor or higher.
- ◆ Video display adapter with:
 - 2MBytes memory minimum (4 Mbytes recommended).
 - Direct Draw capability.
 - An up-to-date device driver with Direct Draw capability.
- ◆ Substantial free hard disk space (100 Mbytes or more) if you will be capturing video to disk (not required for video conferencing).

NOTE: Disk space needed to capture one minute of video at a resolution of 320x240 is as follows for three representative formats:

- ◆ 24-bit uncompressed capture, 30 frames per second: 396 Mbytes.
- ◆ YVU9 uncompressed capture, 30 frames per second: 148 Mbytes.
- ◆ 24-bit compressed capture, 30 frames per second: approximately 16 Mbytes.

Although the Osprey-50 does not have any built-in audio capability, it will work with any Windows NT-compatible sound card. If you use the Osprey-50 for videoconferencing, you will need to use a sound card.

Configuring the Card

The Osprey-50 card does not have any switches or jumper settings that are configurable by the user.

Installing the Card

CAUTION!

All computer cards are sensitive to electrostatic discharge. Slight discharges from clothing or even from the normal work environment can adversely affect these cards. By following these simple guidelines, however, you can minimize the chance of damaging your Osprey-50 card.

- ◆ Handle cards only by the non-conducting edges.
- ◆ Do not touch the card components or any other metal parts.
- ◆ Wear a grounding strap while handling the cards (if in a high static area).
- ◆ Provide a continuous ground path by leaving the power cord plugged into a grounded power outlet.
- ◆ Ensure that the workstation is powered OFF before installing any components.



CAUTION: If you are not familiar with how to install a PCI bus card, refer to your system's documentation for more complete, step-by-step instructions.

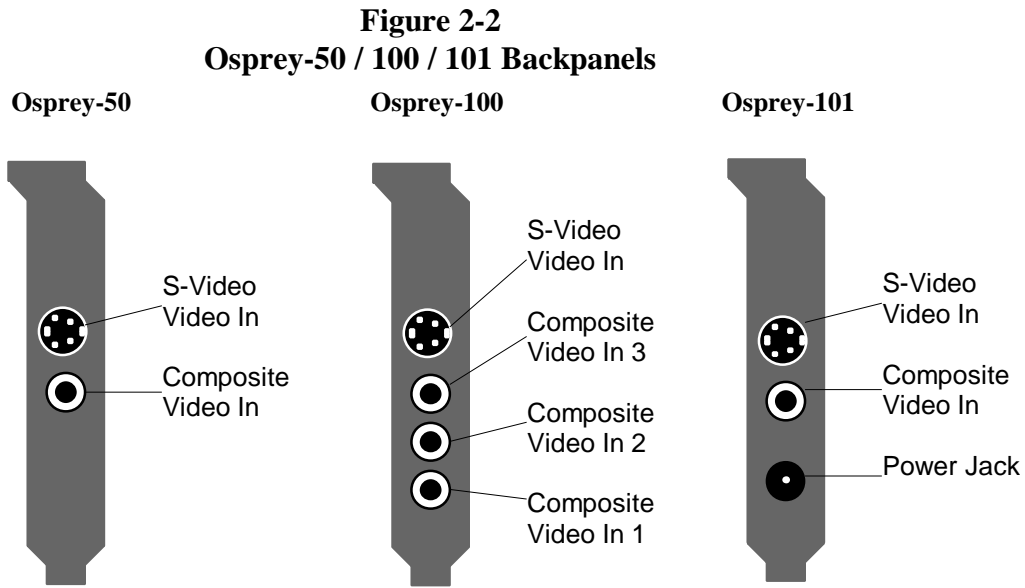
You should install the Osprey-50 card before installing the software driver.

Use the following steps to install the Osprey-50 card.

1. Power down the computer. Make sure that the computer's power switch is turned OFF. Read caution note above for grounding precautions.
2. Remove the computer's cover.
3. Locate an empty PCI slot.
4. Remove the slot-cover screw from the empty PCI slot's cover, set the screw aside, and remove the slot cover.
5. Remove the card from its anti-static bag.
6. Install the Osprey-50 card into the empty slot. **Note:** Be sure that the card is seated evenly into the slot.
7. Secure the backpanel of the card with the slot's cover screw.
8. Replace the computer cover.

9. Connect any video cables to the Osprey-50 card. Figure 2-2 shows details of the card's backpanel connectors.
10. Turn the computer on.

Connecting Cables



NOTE: Exact connector layouts are subject to change

Connecting a Composite Source

If your video source provides only composite video, connect the source's output cable to an RCA-type Composite Video In connector. On the Osprey-100 with three connectors, the connector furthest from the S-Video connector is designated "Composite 1", and the one nearest it is "Composite 3."

Connecting an S-Video Source

If your video source supports S-Video, connect the source's output cable to the S-Video In connector on the Osprey-50 card. Compared to composite signals, S-Video provides a sharper image with better color separation. S-Video uses a four-pin mini-DIN connector that provides separate Y (luminance) and C (chrominance) signals. Chapter 4, *The Control Dialog*, explains how to configure the driver for S-Video.

The Osprey-101 Video Camera

The Osprey-101 video camera has an attached cable with two connectors. One is a composite video connector that plugs into the Composite input connector of the Osprey-101 board. The other is a power plug that connects to the power connector on the board.

Chapter 3 — Installing the Software

The Osprey-50 product contains a single CD for Windows NT 4.0 and Windows 95/98. The Windows 95/98 driver is an entirely separate driver and is not compatible with Windows NT.

After you've installed the software, you can test the card and software by running the included application program, VidCap32.



NOTE: If you already have another kind of video capture driver installed, please refer to *Appendix D: The Osprey-50 and Other Video Capture Drivers*. It explains how to set up your system so that two or more video capture drivers can co-exist.



NOTE: If you already have the Osprey-50 software installed on your system and are updating it, you do not have to remove the old version before installing the new version. The installation program will remove or replace any files or registry settings that are outdated.

Installing from CD

1. If necessary, follow the directions in the previous Chapter to install the Osprey-50 card. The software installation procedure will not work properly unless the card is already installed. Turn on the machine and start Windows NT.
2. If you are updating from a previous version of the driver, it is not necessary to uninstall the old driver before installing the new driver.
3. Insert the Osprey-50 CD into your CDROM drive. The installation instructions will assume this is the "D:" drive. Substitute the proper drive name as it appears on your system where appropriate.
4. Run the installation program:
 - a. Click the **Start** button.
 - b. Click **Run...**
 - c. Enter **D:\WinNT\x86\Setup** in the dialog box (or **...\alpha\Setup**).
 - d. Click **OK**.

5. The installation program will guide you through the installation steps. For many users it will be self-explanatory. If anything is unclear, refer to the section below entitled *Installation Program: Details*.
6. The driver and demo program are ready for use as soon as the installation program completes. We suggest you test the driver immediately. Refer to the section below entitled *Testing the Driver*.

Downloading and Installing Updated Drivers

1. Install the Osprey-50 board in the PC, if you have not already done so. Turn on the machine and start Windows NT.
2. The latest software drivers for the Osprey-50 are available via FTP (file transfer protocol), at the following location:

<ftp://ftp.viewcast.com/pub/OSP-100/winnt/latest>

There are also links to the drivers from our web site,

<http://www.viewcast.com>

There will be versions for X86 and for Alpha – their names will clearly distinguish them. The download image will also contain a copy of the latest version of this *User's Guide* in Adobe .pdf format.

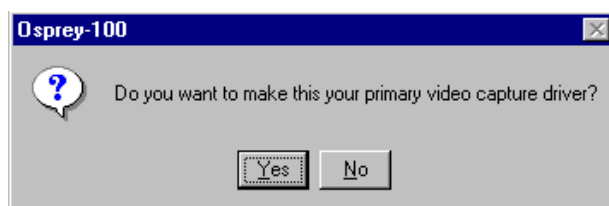
3. Use your web browser, such as Netscape Navigator or Microsoft Internet Explorer, to find our FTP site and download the file. Type the FTP address shown above into the address box at the top of your browser window. You may find it simpler to type just the first part of the address - **ftp://ftp.viewcast.com** - and then click on the list of directories that will appear until you have reached the **...winnt/latest** location. Refer to your browser's help files for more specific and detailed assistance.
4. Download the setup file in **...winnt/latest** to your hard disk
5. Run the setup program:
 - a. Click the **Start** button.
 - b. Click **Run...**
 - c. Enter <pathname> in the dialog box, where <pathname> is the location and name of the file that you have downloaded. Click **OK**.

6. The setup program will guide you through the installation steps. For many users it will be self-explanatory. If anything is unclear, refer to the section below entitled *Installation Program: Details*.
7. The driver and demo program are ready for use as soon as the installation program completes. We suggest you test the driver immediately. Refer to the section below entitled *Testing the Driver*.

Setup Program: Details

1. The setup program presents a sequence of screens and dialogs that guide you through the setup process. In general, click the **Next >** button to continue to the next screen. At any point you can click **< Back** to return to a previous screen, or **Cancel** to exit the installation immediately.
2. You will first see a “Welcome” message confirming that the setup program will install the Osprey-50 Video Capture Driver for Windows NT. It will confirm the target machine (X86 or Alpha) and the version of the driver.
3. The next window, entitled “Information”, displays the ReadMe file accompanying this version of the driver. The ReadMe contains information too recent or specific to this version of the driver to be included in this Users’ Guide. The ReadMe will be placed in the Osprey-50 directory and a shortcut icon to it will be placed in the Osprey-50 Start Menu folder.
4. The next window is entitled “Software License Agreement”. Look through this and make sure that the licensing terms are acceptable. Click **Yes** to proceed.
5. Next: “Choose Destination Location”. The destination location is the folder where the demo applet, VidCap32, the ReadMe, and other auxiliary files will be placed. (The core video capture driver files will be placed in Windows NT system directories regardless of the destination location chosen here.)
6. The default location, in the Program Files folder, should be appropriate for most systems. Click the **Browse...** button near the bottom of the dialog if you want to change the location.
7. If you install both the Windows NT and Windows 95/98 versions, you can place them both in the same directory, and you will save a small amount of disk space by doing so.

8. “Select Program Folder”: The setup program will suggest placing the Osprey-50 icons in a new program folder entitled “Osprey-50”. You can change this name by editing the Program Folders field; or you can add the icons to an existing folder by highlighting its name in the Existing Folders window.
9. The next screen, “Start Copying Files”, confirms your choices of Destination Directory and Program Folder. You can click < **Back** to modify your choices.
10. The installation program will now copy the files to their destinations, set up the Osprey-50’s registry entries, and start the driver.
11. If another kind of video capture driver is already installed on your system, you will see the message below. Click **Yes** to make the Osprey-50 your primary video capture driver, unless you have a particular reason for doing otherwise.



Refer to *Appendix D: Using the Osprey-50 with other Video Capture Drivers* for more detailed information about this message.

12. You will now see the “Setup Complete” screen. Click **Finish**. The driver is ready to test and to use. You do not have to restart Windows NT.
13. If you are updating from driver version 1.33 or earlier to driver version 1.34 or later, you will have to restart Windows NT after the installation. Normally the installation program will detect this condition and perform the restart if it is needed.

Testing the Installation

1. Ensure that the hardware installation is complete, in accordance with the directions in Chapter 2.
2. Connect a camera, VCR, or other video signal source to the Osprey-50 backpanel.
3. Open the Osprey-50 group in the Start menu.
4. Click the **VidCap32** icon.

5. Verify that the screen displays a still video frame from the Osprey-50 board. Click the **Preview** or **Overlay** button. The screen should display moving video frames.
6. If the video area is a plain blue field, it could be for one of the following reasons:
 - a. The driver is looking for video on the wrong input connector. You can either move the video cable to the other connector, or reconfigure the driver using its Control Dialog (see Chapter 4).
 - b. The video source is not turned on or activated.
7. If the video area is scrambled or has bad color, the signal format of your video source may be different from the signal format selected in the driver software. Since the driver defaults to NTSC-M signal format, users of PAL and SECAM equipment will always had to change the driver's signal format the first time they run the driver. Chapter 4 explains how to do this.

Uninstalling the Software

If you ever need to remove the Osprey-50 driver from your system, proceed as follows:

1. Open the **Control Panel**.
2. Double click on the **Add/Remove Programs** icon.
3. With the *Install/Uninstall* tab selected, click on *Osprey-50* in the list of programs.
4. Click the **Add/Remove...** button.
5. The uninstaller will run. In the initial dialog, click **YES** to proceed. Click OK when the process is complete.

Deactivate Versus Uninstall

Note that you have the option of deactivating the Osprey-50 driver without permanently uninstalling it. This allows you, for example, to temporarily use another package as your primary video capture driver. Refer to *Appendix D - Using the Osprey-50 with other Video Capture Drivers* for more information.

Chapter 4 — The Control Dialog

The Osprey-50 video capture driver has a unified tabbed dialog for setting up all driver parameters.

There are four pages within the dialog: *Source*, *Format*, *Closed Caption*, and *Configuration*.

Accessing the Dialog

The normal way to access the dialog is through a menu entry or control button belonging to the application program. For example, VidCap32, has three menu entries - **Options/Source...**, **Options/Format...**, and **Options/Display...** that access respectively the Source, Format, and Closed Caption pages of the dialog. Once you are in the dialog, you can move to any other page by clicking on its tab.

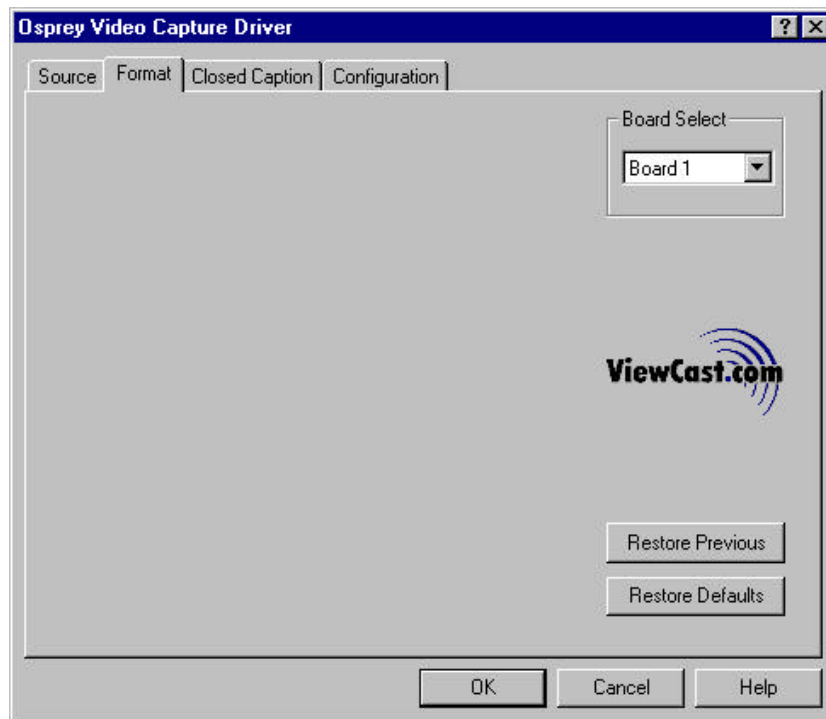
To access the Configuration page from an application, open the Source, Format, or “Display” (Closed Caption) page and click the Configuration tab.

Another way to access the Configuration page is through the Control Panel. (This method can access only the Configuration page, not the Source, Format, or Closed Caption pages.) Use the following command sequence:

1. Open **My Computer/Control Panel/Multimedia**.
2. Select the **Devices** tab.
3. Open **Video Capture Devices**.
4. Highlight **Osprey-100 Video Capture Driver**.
5. Click the **Properties** button.
6. Click the **Settings...** button.

General Features of the Dialog

These are the common elements found on all four pages of the dialog:



Source, Format, Closed Caption, Configuration

These are the four “Tabs” of the dialog that access different controls. Click on the tab to access that portion of the dialog. The contents of each tab are described in the following sections.

By default, the Format tab is only shown when you access the Format page directly from the application. This is to ensure maximum compatibility with Video for Windows applications. You can make the Format tab available from any other page by a button on the Configuration page, as explained below.

OK

The **OK** button exits the dialog, saving the settings you have currently chosen. If you have made changes on two or more pages of the dialog, or for two or more boards, all of these changes will be saved.

Cancel

This button exits the dialog box without saving any changes. If you have made changes on two or more pages of the dialog, or for two or more boards, all of these changes will be discarded.

Restore Defaults

This button restores the settings on the current page, for the currently selected board only, to the way they were when the Osprey-50 software was installed.

Restore Previous

This button restores the settings on the current page, for the currently selected board only, to the way they were at the start of the *previous* dialog session.

Board Select

The driver permits two or more Osprey-100 boards to be installed in the same system. If you have a single board in the system, the driver will recognize this fact and gray out this field of the dialog.

The Osprey-50 is primarily a one-board-per-system product. You cannot install more than one Osprey-50 at a time. You can, however, install a single Osprey-50 with one or more Osprey-100 boards, and the driver will recognize all these boards.

If you have two or more boards in the system, the Board Select field will always be enabled in the Format page. By default, however, it is always grayed out in the Source and Closed Caption pages. You can enable it on these pages by a button in the Configuration tab, as explained below.

If you have two or more boards in your system, use the board select control to switch to the controls for different boards. You can configure multiple boards in one dialog session. The settings for all the boards will be saved when you click **OK**; or will all be discarded if you click **Cancel**.

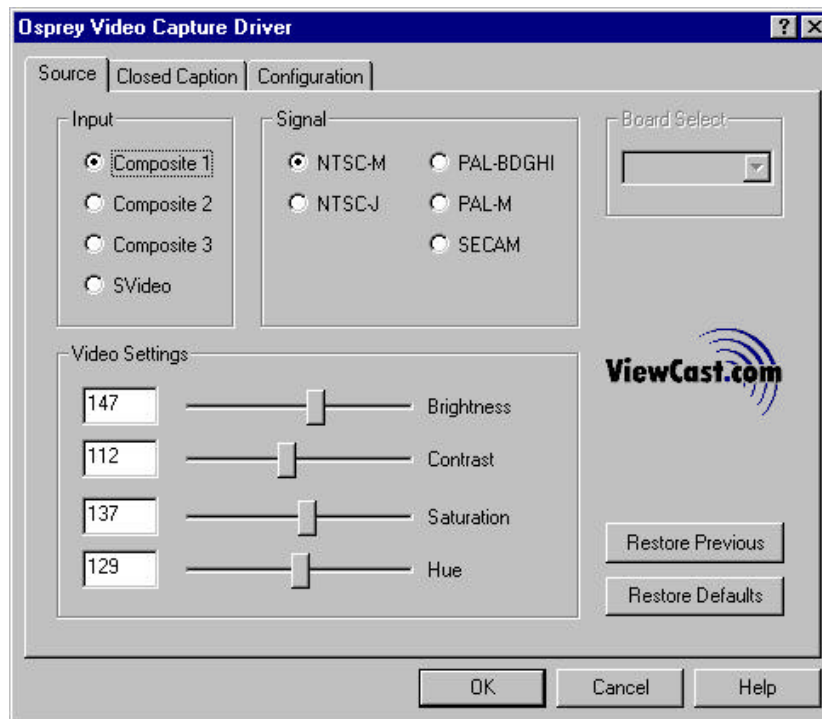
Multiple board installations are a specialized subject, and are discussed in the section entitled *Appendix F: Multiboard Installations*.

Help

The **Help** button brings up a brief explanation of the controls for currently selected page of the dialog.

The Source Page

Use the Source page to set the characteristics of the input video.



Input

The Input field has buttons for the card's Composite and S-Video input connectors.

If Preview or Overlay mode is enabled in your application, you will usually be able to see the results of your selection immediately, without exiting the dialog. However, if you switch between inputs that have two different signal formats, such as NTSC or PAL, the video will not display correctly until you exit the dialog.

Signal

“Signal” refers to whether the video signal format is NTSC, PAL, or SECAM. Depending on what version of the Osprey-50 driver you have, you will see buttons for some or all of the following formats:

- ◆ NTSC-M – North America
- ◆ NTSC-J – Japan
- ◆ PAL-B, D, G, H, I – many countries in Europe and elsewhere. B, D, G, H, and I refer to five nearly identical subformats.
- ◆ PAL-M – Brazil
- ◆ PAL-N, NC – Argentina, Paraguay, Uruguay
- ◆ SECAM – France and some other countries

Full-sized NTSC-M, NTSC-J, and PAL-M have 525 lines total, 480 lines visible, per frame and a display rate of 60 fields per second, or 30 interlaced frames per second.

Full-sized PAL (other than PAL-M), and SECAM, have 625 lines total, 576 lines visible, per frame and a display rate of 50 fields per second, or 25 interlaced frames per second.

The standard frame sizes are different for NTSC and PAL. For example, the half-frame size in pixels is 320x240 for NTSC, and 384x288 for PAL. If you have selected a standard frame size (Full, 1/2, 3/8, or 1/4), the driver will automatically adjust the frame size to correspond to the standard. If you have created a custom size, it does not change when you switch between NTSC and PAL/SECAM.

Changes to the signal controls do not take effect until you exit the dialog.

Video Settings

These four slide controls set Brightness, Contrast, Hue, and Saturation. These settings are stored separately for each video source. **NOTE: When using these controls, be sure that the preview mode or overlay mode is enabled, so that you can immediately see the effects of your changes.**

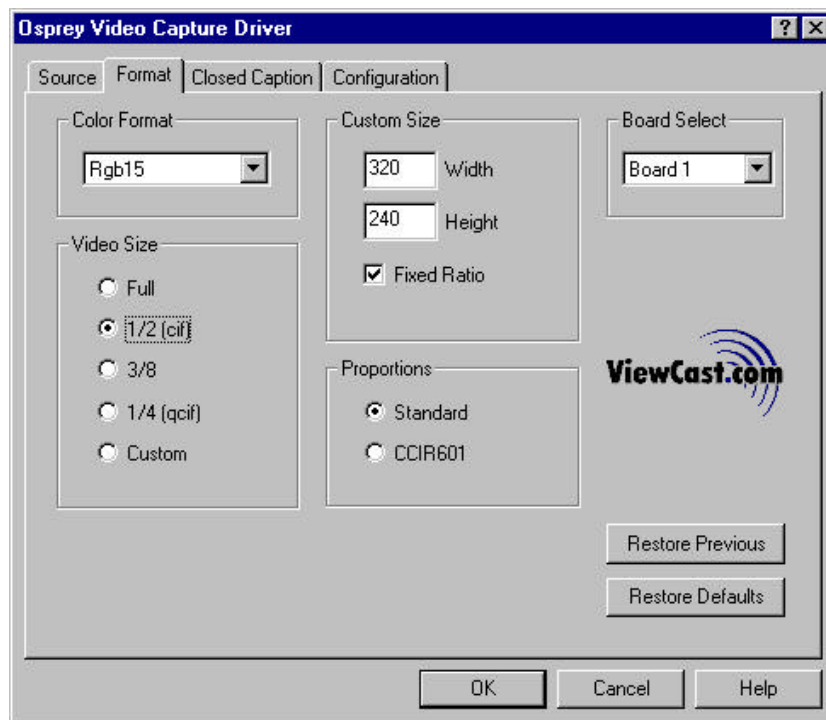
When a video source with PAL or SECAM signal format is used, the Hue setting is not adjustable and the Hue control is grayed out.

The **Restore Previous** or **Restore Defaults** button can be used to restore the previous video settings.

The Format Page

Use the Format page to set the color format and size of the image.

Color Format



The Color Format is the arrangement of data bits representing the colors of each pixel. For example, in the Rgb15 format, each pixel of data is stored as 5 bits of red, 5 bits of green, and 5 bits of blue color information.

Video delivered by the Osprey-50 board to the system is in uncompressed format. It is possible to compress the video as a subsequent stage of processing. However, this dialog field refers specifically to the uncompressed raw video that the board delivers to the system.

The color format you choose applies to Capture video and to Preview video. It does not apply to Overlay video. Overlay video is always matched to the display adapter's current screen format - except when grayscale mode is selected. Overlay video is therefore as fast and efficient as possible, but the color rendering may differ very slightly from what you will capture. Preview mode renders colors exactly, but it is slower and consumes more system resources.

Changes to Color Format take effect only after you exit the dialog.

For a more detailed description of the color modes available, refer to *Appendix B: Color Modes*.

Video Size

The Video Size field allows you to select between the various sizes given below. Changes made to Video Size take effect only after you exit the dialog.

Size	Width x Height	Also known as:
Full	640 x 480	
1/2	320 x 240	CIF
3/8	240 x 180	
1/4	160 x 120	QCIF

The width and height shown are in pixels for the North American NTSC-M video format. For further details, refer to *Appendix C: Video Sizes*.

There is a fifth button, **Custom**, that becomes selected whenever a non-standard size is entered in the **Custom Size** field, described below.

Custom Size

The Custom Size field allows you to set widths and height different from the standard preset values of full, 1/2, 3/8, and 1/4.

There is a checkbox marked **Fixed Ratio**. If this box is checked, when you enter a size in the height box, the width is automatically adjusted to maintain the normal screen proportions; and vice versa. If this box is unchecked, the height and width may be entered independently. If the dimensions are different from normal screen proportions, the image will be stretched horizontally or vertically.

The Osprey-50 hardware is not capable of drawing all possible widths. Depending on the color mode selected, it may require a width that is an even number of pixels, or (for YVU9 and YVU12) a width that is a multiple of 16. The dialog will let you enter numbers that the hardware cannot utilize, but will adjust them as soon as you click on another field or button of the dialog.

Proportions (Pixel Aspect Ratio)

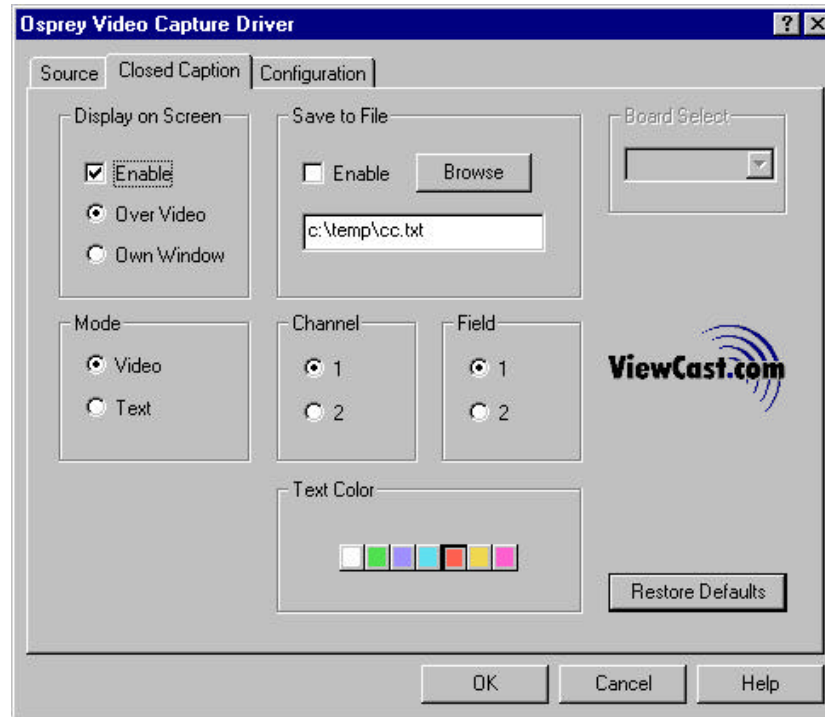
This dialog allows you to select between “Standard” and “CCIR601” proportions.

The Standard setting results delivers square pixels on a standard dedicated monitor that has a normal aspect ratio (ratio of height to width).

CCIR601 results in a full-screen line length of 720 pixels in both NTSC and PAL/SECAM modes. In the NTSC format, the video when viewed on a standard monitor will have narrower than square pixels. In PAL/SECAM format, it will have wider than square pixels. When viewed in a video window on your main screen, the pixels will be square, but the aspect ratio of the frame as a whole will be different from the standard – wider for NTSC, narrower for PAL/SECAM.

The Closed Caption Page

Use the Closed Caption page to enable or disable Closed Captioning, and to control its characteristics.



Closed Captioning is a method of encoding and displaying text such as movie dialog captions and stock quotes as part of NTSC video. The text is similar to movie subtitles in appearance. Closed Captioning is widely available on broadcast video, videotapes, and videodisks.

The Osprey-50 for Windows NT provides a complete implementation of the Closed Captioning standard, and also provides special extensions that are made possible by the special capabilities of a PC.

You can use Closed Captioning whenever you can meet the following conditions:

- ◆ You must be viewing a videotape, videodisk, or broadcast material that has Closed Captioning content. There will be a small "CC" logo on the packaging or in the program listing.

- ◆ Closed Captioning is for North American NTSC video only, not for PAL or SECAM video.
- ◆ Closed Captioning must be enabled in the Osprey-50 driver, using the Closed Caption dialog page as explained below.
- ◆ **Video Mode**, and **Channel 1** must normally be selected, as explained below. You might use **Text Mode** or **Channel 2** in specialized instances.
- ◆ You must be in Overlay mode or Capture mode - Overlay mode to view the captioned video directly, or Capture mode to save it to file. Closed Captioning does not work in Preview mode.

In addition to the normal options of viewing or capturing Closed Captioning, you have the following special capabilities:

- ◆ You can save the text to file as you view it or capture it.
- ◆ If you are a software developer you can write a Video for Windows application that receives decoded Closed Captioning text from the Osprey-50 driver and searches it or processes it in any way you see fit. Contact support@osprey.viewcast.com for more information about this capability.

Here are descriptions of the controls on the Closed Caption dialog page:

Display on Screen

The **Enable** checkbox enables display of Closed Captioning on the screen if it is checked and disables it if it is unchecked.

If you check or uncheck the **Enable** checkbox while Overlay or Capture mode is in effect, the change will not take effect until Overlay or Capture is stopped and restarted.

It is recommended that you disable Closed Captioning when using non-Closed Captioned video. If you leave Closed Captioning enabled, the software will attempt to interpret regular video as Closed Captioning character codes, and may sometimes display spurious characters. It will also slightly increase the driver's CPU usage.

The normal display mode is **Over Video**. In this mode the Closed Captioning is superimposed on the video field.

The **Own Window** option is a special proprietary mode for Closed Caption display. A separate window appears, and the text scrolls up in this window instead of appearing on the video field. This mode may be useful for some kinds of material, as the lines of text are not erased as quickly. The **Own Window** option, however, does not fully conform to Closed Caption standards, especially with regard to line placement. It may therefore give undesirable results with some kinds of highly formatted captions.

Save to File

A nice feature of Closed Captioning on a PC is that you can save the captions to a file for later review. The Save to File field contains three controls:

- ◆ The **Enable** checkbox if checked enables saving to a file.
- ◆ The **Edit Box** allows you to type in the name of the file that you want to save the captions to.
- ◆ The **Browse...** button accesses a standard system dialog for searching for a directory and file to save to. When you choose a file that already exists (either by the **Browse...** button or by specifying it directly), new captions will be appended to whatever was previously in the file.

You can enable saving to a file without enabling display of Closed Captioning on the screen – the two checkboxes are independent.

Mode

Video is the normal Closed Captioning display mode used with almost all videos and broadcast TV. **Text** is a specialized mode in which the entire 32 character by 15 row Closed Captioning area of the screen is blanked and used to display text. Use **Video** mode unless you know specifically that the material is **Text** mode.

Channel

Channel 1 is the channel normally used in almost all Closed Captioning. Some specialized material may use **Channel 2**. Note that if you select **Channel 2** you won't see any Closed Captions with most material.

Field

Field 1 is the even field of interlaced video, Field 2 the odd field. Field 1 is usually the only field that contains Closed Captions.

The Configuration Page

The Configuration page controls several miscellaneous settings.



Overlays

Direct Draw is a fast drawing method that moves video directly from the Osprey-50 to the display adapter. If Use Direct Draw is selected, the driver use Direct Draw for Overlay drawing. If for some reason it cannot use Direct Draw, it will automatically fall back to the default drawing mode (known as “DibDraw”).

Direct Draw works with the vast majority of display adapters and software driver. We recommend running with Direct Draw enabled unless you are having a problem viewing overlay video, or want to use the “doubled lines” option discussed below. For more details on Direct Draw, refer to *Appendix E: Direct Draw*.

DibDraw is the default drawing method. Video is moved first into system memory, then copied to the display adapter. It is useful in the following cases:

1. For systems where Direct Draw does not work correctly.

2. *If you want to enable “line doubling”.* When DibDraw is selected, two radio buttons are enabled that let you choose between interlaced and line-doubled video. Normally, video larger than ½-height (240 lines NTSC, 288 lines PAL) is interlaced. NTSC and PAL video both consist of alternating odd and even fields of data. Odd numbered lines come from the odd fields, even numbered lines come from the even fields.

Interlaced video offers maximum resolution but suffers from a “comb” effect: When there is rapid motion in the video, it appears blurred. It is recommended for still or slow-motion video, but may not look good with high-motion content.

Line-doubled video uses video data from only one field. Each video line is copied to two lines of your display. Line-doubling reduces the still-picture resolution by half; however, it eliminates the “comb” effect of interlaced video and is therefore useful for viewing rapid-motion video.

3. *If you want to stretch the video on your screen beyond full size (640x480 NTSC, 768x576 PAL).* You would need a special application to do this. DibDraw video can be stretched but Direct Draw video cannot be.

Access to Format Tab

The two options are

- ◆ Prevent access to a dialog’s format tab via source dialog
- ◆ Allow this access

Video for Windows applications access the Source and Format pages as separate commands and do not assume that the driver allows you to switch from one to the other.

Some applications, when they access the Source page, do not check to see if you also made changes to items in the Format page. The result is that the application and the driver may assume different settings and not work properly together.

This control in its default “prevent access” setting prevents you from entering the Source page or Closed Caption page, switching to the Format page, and inadvertently making changes that the application will not pick up. It also disables the Board Select control on the Source and Closed Caption pages – since the driver maintains separate format information for different boards. The “prevent access” setting is recommended for maximum compatibility with all applications.

The “prevent access” settings is, however, inconvenient. The alternative setting to “allow this access” allows you to switch between pages without restriction. This will work with many applications; however, the responsibility lies with you to make sure no problems arise.

Chapter 5 — Using the Osprey-50 with Popular Applications

VidCap32



VidCap32 is a video capture application that is included with the Osprey-50 package. It is useful for testing the installation, for general purpose viewing of video, and for capturing video to file.

The following instructions take you through the basic scenarios for using this applet. VidCap32 has additional capabilities and settings that are beyond the scope of a brief introduction. They are described in the applet's online help.

Preview

The **Preview** button (third button from the left on the toolbar) toggles preview on and off. When preview is enabled, the video you see is updated constantly. What you see has the exact format and appearance that uncompressed video captured to file will have. If you are using a software compressor to compress the video before writing it to file, the compressor's output will be slightly different.

Overlay

The **Overlay** button (fourth button from the left on the toolbar) toggles Overlay mode on and off. When Overlay is enabled, the video you see is updated constantly. The difference from Preview is that the Osprey-50 driver will use the fastest and most efficient drawing method it can. Normally, with Direct Draw enabled and working, it will draw at the full frame rate (30 per second) with minimal processor overhead.

Note that the Preview and Overlay buttons behave like radio buttons that cancel each other - you do not have to shut off preview in order to start overlay.

Configuring the Video Capture Driver

You can go through VidCap32 to access the Osprey-50 driver's Control Dialog (described in Chapter 4). The menu selections **Options/Video Source...** and **Options/Video Format...** access the Control Dialog's Source and Format pages respectively. The selection **Options/Video Display...** accesses the Closed Caption page.

Compression

It is possible to compress video as it is captured to disk. Neither VidCap32 nor the Osprey-50 driver perform video compression themselves. However, VidCap32 may be connected to external software-based compression modules. Compression results in a much smaller capture file. The downside is that many types of compression are slower: you may have to reduce your frame rate in order to avoid dropping an excessive number of frames. With a "quick-compression" methods, running on a fast machine, however, the extra processing time is slight enough that it is fully compensated for by the reduced time needed to write the more compact data to disk.

When a compressor is enabled, video is passed from the Osprey-50 capture driver to the compressor, which then writes it to file. The compression dialog, accessed by the **Options/Compression** menu item, allow you to select a compressor, or select no compression. The information below for Intel's Indeo compressor gives a detailed example of how to perform this task.

Note that the list of available compressors is different for each video Color Format, as selected in the Osprey-50. You should therefore select the Color Format you will be using first, then select the compressor. Otherwise, you may get an error message when you try to begin video capture.

Setting the Capture File – Preallocating and Defragmenting

The leftmost button on the toolbar (or the menu item **File/Set Capture File**) opens the Capture File dialog box.

Depending on a number of factors, you may experience a significant percentage of frames dropped. The percentage of frames dropped is a function of frame size, use of a compressor, and the speed of your system. Performance can be substantially improved by preallocating a capture file and defragmenting it.

“Preallocating” a file means that space has been reserved for it on your hard disk. The menu item **File/Allocate Disk Space** brings up a dialog by which you can preallocate a file and reserve space large enough to hold the largest video clip that you are likely to want to capture. You can preallocate multiple files to hold multiple video clips.

For preallocation to be useful, the hard drive should be defragmented afterwards. “Defragmenting” a drive reorganizes its physical sectors so that each file occupies contiguous sectors, rather than having different parts of it scattered about the disk.

VidCap32 does not perform defragmentation; a third-party program is required. Various defragmentation programs are available commercially, and if you have Windows 95/98 on the system you can use its built-in defragmenter. Use VidCap32 to preallocate the files, then exit to run the defragmentation program. **Note: Defragment *after* you allocate and size the capture files.**

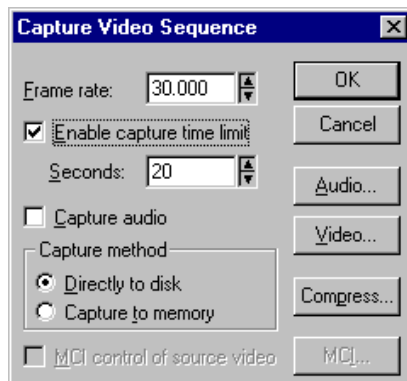
After the disk is defragmented, return to VidCap32. The files you preallocated will now be located on contiguous areas of the hard drive. Their physical layout will remain the same until the file is resized or deleted.

An alternate technique that avoids the need for defragmenting is to set up a separate disk partition dedicated to video capture, containing a single capture file.

Defragmenting is a time-consuming procedure, but is worth the trouble if you will have an ongoing need to capture high-quality video, particularly uncompressed video. Be sure to plan the number and size of files you will need. Once you have the defragmented files, be sure not to accidentally delete them - think of them as your permanent working space for time-critical operations, not as containers of specific video clips. Copy your clips to other files for storage and editing.

Capturing Video

The second button from the right opens the Video Capture Dialog. This can also be accessed by the **Capture/Video** menu item.



The dialog includes controls to set the number of frames per second, as well as an optional time limit (in seconds) for the sequence. Buttons are provided to access both the video capture driver's configuration dialog and the compression dialog. You can also access and configure audio, assuming that it is installed and enabled. The dialog allows a choice between capturing video directly to disk, or capturing via memory. Note that capturing to memory *may* result in fewer dropped frames - but not necessarily.

For best quality video capture, use a capture rate (frames per second) that is slow enough so that there are no dropped frames. Also, the following capture rates work best:

- ◆ **NTSC:** 30, 15, 10, 7.5, 6, 5, 3, 2, 1.5, 1.0
- ◆ **PAL:** 25, 12.5, 8.33, 6.25, 4.16, 3.125, 1.0

At these rates, the driver can exactly match the desired capture rate by dropping no frames, or every second frame, or every third frame, and so forth. The resulting video is smoother. At other rates, the driver has to skip varying numbers of frames to approximate the target capture rate.

Once the proper configuration is confirmed, click **OK** to capture the video. To end capture, click the mouse anywhere in the VidCap32 window.

Playback

The simplest way to play back a video clip is to find its icon in "My Computer" and double-click on it. For more flexible viewing, run Media Player (**Start/Programs/Accessories/Multimedia/Media Player**). Use Media Player's **File/Open** dialog to select the file to play. The applet contains standard start, stop, and rewind buttons and is largely self-explanatory. Refer to Media Player's online help for more information.

Intel Indeo

Intel's Indeo is a software video compressor that works with the Osprey-50. It allows you to capture video to disk using much less disk space, at the cost of only a slight loss of picture clarity. On a 300 MHz Pentium II system you can capture 320x240 NTSC video at a full 30 frames per second with a 25:1 compression ratio. Indeo is available for X86 machines for free on Intel's web site. As of this writing, the location is as follows:

<http://developer.intel.com/ial/indeo/video/driver.htm>

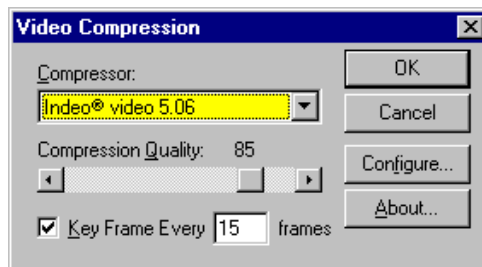
The file to download currently is **iv5devl.exe**. You need a version that will compress video as well as decompress it.

Indeo Video compressor version 5.06 works with RGB24 and RGB15. It does not work with YUV12 or YVU9. However, the Indeo package does include a component you can use to capture uncompressed YVU9 video.

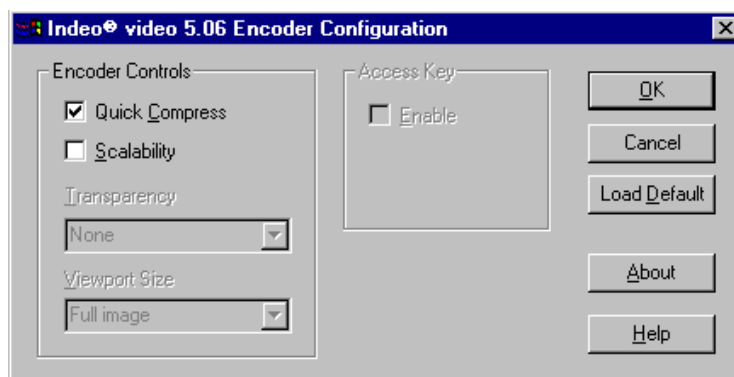
Use the following steps to demo Indeo with the Osprey-50:

1. Connect and adjust your video source. Start **VidCap32**.
2. Use the **Options/Format...** menu entry to bring up the Osprey-50 Control Dialog's Format page. In the drop-down list in the Color Format field, select **RGB24** (or **RGB15**). Select ½ sized (cif) video. Click **OK**.

- Use the **Options/Compression...** menu entry to bring up the compression dialog. In the Compressor: field, select **Indeo video 5.06**.



- Before leaving the compression dialog, click the **Configure...** button. Enable **Quick Compress** in the Encoder Controls field, and click **OK**. **NOTE: If you do not enable Quick Compress, compression will be much slower.** Click **OK** again to close the Video Compression dialog box.



- Select **Set Capture File..** under the File menu. Set the name that you want for the file that will contain the captured video. Click **Open**.
- Select **Capture/Video**. Select 30 frames per second for NTSC or 25 for PAL/SECAM. Click **OK**. A confirmation dialog appears. Click **OK** again to start capturing video.
- Click anywhere on VidCap32 when you want to end capture
- Open **My Computer** and navigate to the icon of the file that you just captured. Click on it and it will play back.

If you experience more than one or two dropped frames, use a lower frames per second capture rate. Useful rates for NTSC video are 30, 15, 10, and 7.5; for PAL/SECAM, 25, 12.5, 8.33, and 6.25.

Indeo has numerous options. You can obtain higher quality video and more compression options by capturing uncompressed video and then compressing it off-line. You can access Indeo and other codecs from applications such as Adobe Premiere and Asymetrix Digital Video Producer.

CU-SeeMe

We have verified compatibility with CU-SeeMe Version 3.1.1.

If CU-SeeMe does not work as installed, it might be because the Osprey-50 needs configuring. Proceed as follows:

1. Connect a camera to the Osprey-50 and turn it ON.
2. In the Enhanced CU-SeeMe main application window, select **Edit/Test Setup**.
3. Click the **Test Video** tab.
4. In the Video Capture box, click the **Format...** button. The Osprey-50's Control Dialog will open.
5. In the Video Size field, click the **1/4** button.
6. In the Color Format selection box, select **RGB24**.
7. Click **OK**.
8. Click **OK** in CU-SeeMe's **Test Setup** box.
9. You should now see a window with active video from your camera.

Once the Osprey-50 driver is configured correctly, you should find that CU-SeeMe will work with the Osprey-50 according to White Pine's specifications and instructions.

Precept's IP/TV

We have verified that the Osprey-50 is compatible with Precept Software's IP/TV Server Version 1.6.

A sample checkout scenario is as follows:

1. Start IP/TV Server.
2. Select **File/Open...** This will list files of type "Live Video Session (*.cap)".

3. Select a file such as “sample.cap” which is in your WinNT directory. Select **Video/Show Preview**. You should see a window that has video from the Osprey-50 card.
4. You can configure the Osprey-50 driver via the **Configure...** button and the **Video Format** menu selection.
5. Click the green **Play** button to start video broadcasting.
6. On another PC, launch IP/TV Viewer.
7. Double click on **Sample Channel (Local)**. After a fairly long delay you should see video from the other computer.

Note that the exact commands may differ depending on the specifics of your installation.

NetMeeting

Microsoft’s NetMeeting is compatible with the Osprey-50 with no special considerations.

NetShow

Microsoft’s NetShow Intranet/Internet video server is compatible with the Osprey-50.

Progressive Networks Real Video

Progressive Networks Real Video Intranet/Internet video server is compatible with the Osprey-50. The most efficient video color format with the current versions is RGB24.

Adobe Premiere

Version 4.2 of this video editing package works without problems or special considerations. If you are using the Intel Indeo compressor, read the notes about it above.

Asymetrix Digital Video Producer

We have used this package without any problems or special considerations. If you are using the Intel Indeo compressor, be sure to read the note about it above.

Chapter 6 — Troubleshooting

Blue Video Screen

The currently selected video input is not receiving an active video signal.

1. Check that the camera, VCR, or other video source is powered and that its output is connected to the Osprey-50's input.
2. Check that the correct video input is selected in the Control Dialog's Source page.

Black Preview Video Screen

If you select a Color Format other than one of the RGBs or Grey8, you may get a black preview screen. You may also get a message such as VidCap32's "Error: Unable to draw this data format". The problem is that Video for Windows does not know how to decode these more specialized formats. It must be able to locate a software video compressor on your system that works with this format.

If you encounter this situation with a Color Format that you need or want to use, you have to obtain a suitable compressor. For example, if you install Intel's Indeo compressor (available on Intel's web site – see Chapter 5 for notes and download instructions) you will be able to preview and capture YVU9 format.

Scrambled Video Image

You may have set the wrong video signal format for the signal input you are using – for example, you may have told the driver to look for NTSC-M video but are using a PAL-BDGI video source. First, make sure you know what signal format your video source is generating. Then, go into the Signal field of the Control Dialog's Source page, and click the button for that signal format.

Grainy, Dithered Image

Check that you are using a display format with greater than 256 colors. If a 256 color format is used, the system can only approximate the actual colors, and does so with a loss of resolution and precision. You can determine (and if necessary adjust) the display depth from the field titled **Color Palette** under the **Settings** tab of the **Control Panel ...**

Display.

Slow Overlay Drawing

You should be able to obtain 30 frame per second with minimal processor loading by enabling Direct Draw. System requirements for realizing this speed are:

- ◆ a video display card that supports Direct Draw,
- ◆ a video display device driver for the card that supports Direct Draw,

Either or both of the two checkboxes in the Direct Draw field of the Control Dialog's Configuration page must be checked.

Refer also to Appendix E, *Direct Draw*.

Problems using Direct Draw

Direct Draw is a recent technology and it is possible that you may have problems using it with your particular combination of display adapter, display driver, and machine. Any problems should arise only when Overlay mode screen drawing is in use; the Osprey-50 does not use Direct Draw at other times. If you do have problems, disable either or both Direct Draw methods by unchecking their boxes in the "Direct Draw" field of the Control Dialog's Configuration page. We have seen problems with Secondary Direct Draw on a few older display adapters. Refer also to Appendix E, *Direct Draw*, for more details.

Poor Video Quality at Large Frame Sizes

Large frame sizes with the deep pixel depth (24- or 32-bit), or complex format (YVU9 or YUV12 planar), impose heavy demands on the PCI bus's data transfer capacity. Our experience is that some systems cannot handle these formats at full frame sizes.

Systems vary in their data transfer limits. The characteristics of the PCI bridge are often more important than processor speed.

If you are having problems, we recommend that you:

- ◆ Use a smaller frame size (480 x 320 or less).
- ◆ Use a shallower color format (RGB15 or RGB24 instead of RGB32).
- ◆ Try an RGB format instead of a YVU format, and a packed format instead of a planar format.
- ◆ If you have a choice of PCs for video capture, try using another system with a different system board chipset.

Wrong Capture Driver Being Accessed

This might happen if you already had another capture board/capture driver on your system when you installed the Osprey-50. The Osprey-50 installation procedure allows you to set the Osprey-50 as either the primary or secondary video capture driver. The section *Appendix D: Using the Osprey-50 with Other Video Capture Drivers* gives a full description of how to set the Osprey-50 as the primary driver.

Some applications, including VidCap32, allow you to select which video capture driver to use. In VidCap32, a list of installed video capture drivers is appended to the bottom of the **Options...** menu.

Unwanted Closed Caption Text

Closed Caption text consists of white or colored characters drawn on black character cells.

In video that contains Closed Captioning information, the first active line of video in each field contains encoded Closed Caption text. In video that does not have Closed Captioning information, that line is simply ordinary video.

If you leave Closed Captioning enabled and view non-Closed Caption video, the Osprey-50 will attempt to interpret the first line of each field of video as Closed Caption character codes. Some video may appear sufficiently similar to Closed Caption data that the software thinks it is Closed Caption text. The result will be occasional randomly drawn text appearing on the screen.

The solution is to turn off Closed Captioning when you are viewing sources that are not Closed Captioned. To do so, open the Control Dialog's Closed Caption page and uncheck the **Enable** box in the Display field. The change takes effect when video is restarted after exiting the dialog.

For more information about Closed Captioning, refer to the section of Chapter 4 entitled *The Closed Caption Page*.

Interrupt Conflicts

Failed network connections, failure of a device drive to initialize during start-up, or failure of the Osprey-50 to operate properly are often be traced to interrupt (IRQ) conflicts. In our experience, IRQ conflicts are most commonly seen when a PCI SCSI adapter, or possibly a PCI network adapter, is present in the system.

Conflicts Between PCI Cards

PCI cards and drivers do not choose which IRQs they use; rather, the operating system assigns IRQ lines to PCI cards. The Osprey-50 driver finds out the IRQ configuration for its card or cards from Windows NT, and it cannot change this configuration. You can, however, cause the operating system to assign IRQs differently, by rearranging cards or changing BIOS settings.

Multiple PCI cards are supposed to be able to share the same IRQ line. In practice, occasionally you may encounter a device driver that is not implemented correctly for interrupt sharing. If this problem arises, you have to rearrange the PCI cards so that the non-compliant card does not share its IRQ line with any other device.

Another problem is that some PCI device drivers expect to use a particular IRQ line. When a new card is added, it causes the system to assign IRQs differently. If the IRQ assignment for a particular card is changed and its device driver does not detect the change, this will cause the system to work incorrectly.

The simple answer to this problem is it can sometimes be solved by physically rearranging the PCI cards such that their arrangement in the PCI slots is different. When doing this keep careful notes of the arrangements you have tried.

Another approach to PCI card conflicts is at the BIOS level. Depending on what kind of system BIOS you have, you may be able to change which IRQ lines are allocated to PCI devices versus ISA devices. You may be able to allocate more IRQ lines for PCI devices and thereby solve a PCI conflict.

If these approaches do not work, it is probably time for you to email us or call our technical support line. We have a diagnostic tool that may be helpful.

Conflicts of PCI Cards with ISA Cards

A PCI card and an older-style ISA card can never share IRQ lines. Windows NT cannot detect with certainty what IRQ line an ISA card is using, and hence cannot always prevent the conflict.

You can view the system's IRQ assignments by running the Windows NT Diagnostics program in the Administrative Tools menu or program group. Select the Resources tab and click the IRQ button at the bottom of the field. If the list of cards shows an ISA card using the same IRQ as another device, the conflict should be resolved by changing the IRQ of the ISA card.

Unfortunately, if a device driver for an ISA card has failed to initialize because of an IRQ conflict, the card's IRQ will not appear in the list. To find the conflict, you have to examine all your ISA cards with the Control Panel to find out what IRQs they are trying to use.

Appendix A — Osprey-50 Specifications

The following tables provide specifications for the Osprey-50 card.

Table A-1
Physical Dimensions

Length	133 mm
Width	22 mm
Height	121 mm
Weight	63 grams

Table A-2
Environmental Specifications

Operating temperature range	0° to 40° C
Non-operating temperature range	-40° to +75° C (RH)
Operating humidity range	Between 5% and 80% (non-condensing) @ 40° C
Non-operating humidity range	95% RH (non-condensing); gradient 30% per hour
Operating altitude range	0 to 3,048 meters (10,000 feet)
Non-operating altitude range	0 to 15,240 meters (50,000 feet)

Appendix B — Color Modes

The Color Format field of the Control Dialog's Format page allows you to select the following video formats.

Format	Description
RGB32	Each pixel has four bytes (32 bits) of data - one each for red, green, and blue, plus one byte of padding. The pixel has 256 shades of each of the three colors, for a total of 16.7 million colors. This is a "true color" mode.
RGB24	Each pixel has three bytes (24 bits) of data - one each for red, green, and blue. This is another "true color" mode with 16.7 million colors, and is a recommended format for capturing images with the highest possible color accuracy.
RGB15	Each pixel has two bytes (16 bits) of data. There are 5 bits each of red, green, and blue data; the sixteenth bit is unused. This is a "high color" mode, also known as a "5:5:5."
Grey8	Each pixel has one byte of data, representing one of 256 grayscale levels.
4:2:2 packed	This modes represent each pixel with a total of 2 bytes (16 bits) of data. The data is encoded as separate data for luminance (intensity) and chrominance (color). These modes are mainly useful as inputs to software compressors
YUV12 planar	This is a complex format in which there are 12 bits of data per pixel. Each pixel has 8 bits of luminance data. Each group of 4 adjacent pixels shares two bytes of chrominance data. The luminance, U-chrominance, and V-chrominance data are organized into separate blocks.
YVU9 planar	Similar to YUV12 planar, except that there are 9 bits of data per pixel, and each byte pair of chrominance data is shared by 16 adjacent pixels.

Appendix C — Video Sizes

The table below gives the standard video sizes available through the Control Dialog's Format page.

The 525-line video formats are NTSC-M, NTSC-J, and PAL-M.

The 625-line video formats are PAL-BDGH, PAL-N, PAL-NC, and SECAM.

CCIR601 is a video proportioning standard that can be selected on the Control Dialog's Format page.

**Available Video Sizes
(Width x Height:)**

	525-line (Sqr Pixels)	525-line (CCIR601)	625-line (Sqr Pixels)	625-line (CCIR601)
Full	640 x 480	720 x 480	768 x 576	720 x 576
1/2 (CIF)	320 x 240	360 x 240	384 x 288	360 x 288
3/8	240 x 180	270 x 180	288 x 216	270 x 216
1/4 (QCIF)	160 x 120	180 x 120	192 x 144	180 x 144

Appendix D —Using the Osprey-50 with other Video Capture Drivers

If you already have a video capture driver installed in your system, the Osprey-50 installation software gives you the option of installing the Osprey-50 as your primary video capture driver. A dialog box giving you a choice comes up near the end of the installation sequence.

If you install it as your primary video capture driver, it will automatically connect to Video for Windows applications as the default driver. If you install it as a secondary or auxiliary video capture driver, it will not be accessible to Video for Windows programs and utilities that lack a control for selecting a specific capture driver; your other driver, however, will remain immediately accessible as the default driver.

What if you have a need to change drivers and capture cards, once or repeatedly? The most safe-and-certain way is to run the old driver's uninstall program and then run the new driver's install or setup program. You may find it easier, however, to use the system Control Panel to remove and install drivers.

The Control Panel's "Remove" does not actually remove a driver permanently from your system. Its files are still in the same locations on your hard disk. Rather, it alters the registry settings so that the driver does not appear on the list of active drivers. When you later "Add..." a driver that is removed in this way, you have the choice of using the existing files, or copying in new ones.

Use the Control Panel's Multimedia **Add...** function to activate the primary driver you want. The **Add...** function replaces the previous primary driver with the new one. This is usually in fact what you want to do. There is no way to designate a driver as secondary or auxiliary using the Control Panel.

Because the NT 4.0 **Add...** function acts more like a "Replace..." function if a driver is already there, the **Remove** function is not really needed. This is fortunate, because it does not work for all video capture drivers. It appears to, but the registry does not actually get updated. (For the Osprey-50, the **Remove** function does work.) If both a primary and a secondary driver are installed, and you **Remove** the primary driver, and the function works correctly, the secondary driver becomes the primary driver.

To “Add...” a driver, proceed as follows:

1. Open **My Computer** and double click on the **Control Panel** icon. The Control Panel window will come up.
2. Double click on the **Multimedia** icon. The **Multimedia Properties** window will come up.
3. Click on the **Devices** tab. A list of multimedia devices will appear.
4. Click on the **Video Capture Devices** selection; it should become highlighted.
5. Click the **Add...** button at the bottom of the window. A window titled **Add** appears, with a list of drivers.
6. If the driver you want to add is in the list, highlight it and click **OK**. Follow whatever further directions come up that are specific to the driver.
7. If the driver you want is not on the list, highlight the first item, **Unlisted or Updated Driver**, and click **OK**.
8. You now get a dialog that prompts for a pathname. You have to provide the location of an “INF” file for the driver. This is a file belonging to the driver of interest entitled “oemsetup.inf”. You can either type in the path or click the **Browse...** button to select the path. For the Osprey-50 software, this file will be in the directory where the software was installed, by default C:\Program Files\Osp50. When you have the correct path in the dialog, click **OK**.
9. A dialog entitled **Add Unlisted or Updated Driver** will now come up. There could be several choices of drivers; if so, select the one for a video capture driver and click **OK**.
10. Follow any further directions specific to the particular driver that come up.

To “Remove” a driver, proceed as follows:

1. Open **My Computer** and double click on **Control Panel**. The Control Panel window will come up.
2. Double click on the **Multimedia** icon. The **Multimedia Properties** window will come up.
3. Click on the **Devices** tab. A list of multimedia devices will appear.
4. Click on the plus sign to the left of small icon marked **Video Capture Devices**.

5. Click on the video capture device you want to remove; it should become highlighted.
6. Click on the **Remove** button at the bottom of the window.
7. A confirmation dialog will come up. Click **Yes** to deactivate the driver.
8. Verify that the driver was actually removed by closing the **Multimedia** window, restarting it, and seeing if the driver is in fact gone from the **Video Capture Device** list.

Appendix E — Direct Draw

Direct Draw is a fast on-screen drawing method.

The Osprey-50 driver utilizes Direct Draw for drawing video overlays. Video overlay is a display mode available in most video capture applications, including VidCap32. It is enabled by clicking an Overlay button, or by selecting an Overlay menu entry. It is distinct from Preview mode. Preview mode does not utilize Direct Draw.

Direct Draw is enabled by the Direct Draw Enable checkbox on the Control Dialog's Configuration page. When Direct Draw is enabled, the Osprey-50 will attempt to use it for overlays. If it cannot (e.g. the display driver does not support Direct Draw) then it will fall back to the default drawing method, DibDraw.

When Direct Draw is used, video is copied by direct memory access (DMA) directly from the Osprey-50 board to the visible screen memory, and video is overlaid at 30 frames per second with very low main processor utilization. When Direct Draw is not used, video is copied by DMA into system memory, and then copied again into display memory. Frame rate without Direct Draw is 30 per second for smaller frame sizes, but less for larger sizes; and processor loading is substantial.

In order to utilize Direct Draw, the following conditions must be met:

1. You have to enable Direct Draw by checking the Enable button on the Control Dialog's Configuration page.
2. Your video display card must support Direct Draw.
3. The software device driver for your video display card must support Direct Draw. It is recommended that you use the most recent driver available. The drivers on the Windows NT 4.0 CD-ROM do not in all cases support Direct Draw. You can obtain the most recent version from your video card manufacturer's FTP site.
4. You must be using a video format other than Grey8. The Osprey-50 driver does not support Direct Draw of grayscale video.

You can tell whether the system is using Direct Draw as follows: When Direct Draw is in use, the display near the video capture window will flicker when either the video capture window or an overlapping menu or window is moved. When DibDraw is being used, there will be no flicker.

You can also measure CPU utilization using the Task Manager's performance meter. When measuring CPU utilization, first shut down any applications that might be actively consuming significant CPU time. CPU utilization will be just a few percent when Direct Draw is running. If DibDraw is running, CPU utilization will be substantial, especially if the image is large.

Appendix F — Multiboard Installations

The Osprey-50 is primarily a single-board-per-computer product. The Osprey-100 and Osprey-101 have full support for multiple boards in the system. It is possible, however, to use one Osprey-50 in the same system with one or more Osprey-100s or -101s.

The multiboard capability of the Osprey-50 allows both single and multiple applications to simultaneously access multiple boards. However, the driver does not allow multiple applications or processes to access a single board.

First, some background on the logic by which the Osprey-50 driver determines connection or startup order for multiple boards:

The numbering of the boards is determined by the order in which Windows NT recognizes their presence in the slots in which they are installed. The arrangement of logical PCI slots is different for different machines, and you will have to experiment to determine which physical board is Board 1.

If two or more boards are installed, the **Board Select** field of the Control Dialog contains a list of entries: “Board 1”, “Board 2”, etc. Whenever you access the Osprey-50, it will first connect you to the default board. Normally, the “default” board is whichever board was most recently selected in the Control Dialog’s **Board Select** field. To change the default board, open any page of the Control Dialog, that has this field, select the board that you want to be the default, and click the **OK** button.

After the first board is connected to, whether it is Board 1 or some other board, subsequent boards are always access in ascending numerical order. If there are four boards, and Board 3 is connected to first, the connect order for the remaining boards will be 1, 2, 4.

Multiple Processes to Multiple Boards

Start two standard applications - or two copies of one application - such as VidCap32. The first copy will come up connected to the default board and will start normally. The second copy will automatically hunt for the next available board in ascending numerical order.

Single Application to Multiple Boards

A single custom application can access two or more different boards. It is recommended that developers of multiple board applications obtain our Video for Windows developers' kit. Please inquire at support@osprey.viewcast.com for more information.

Appendix G — Files and Registry Usage

The following are the files that are written and registry entries that are set when the Osprey-50 software is installed. This information would allow a technically proficient user to remove the Osprey-50 installation, even if the uninstaller is deleted or damaged.



Warning: These instructions are for advanced users only! Normally you will want to use the uninstall procedure in Chapter 3 to remove the software. Be careful not to delete or alter any items other than the ones described here!

1. Entries are added in the multimedia and system portions of the registry. When manually removing the software, use the Control Panel to “Remove” the driver (and delete these entries) *before* deleting *o100vc.dll*. The procedure is given in *Appendix C: Using the Osprey-50 with Other Video Capture Drivers*.
2. In the main Windows ..\System32 directory, this file can be removed:
 - ◆ *o100vc.dll*
3. In the main Windows ..\System32\drivers directory, this file can be removed:
 - ◆ *o100drv.sys*
4. The Osprey-50 directory, its subdirectories, and its files can be removed. Typically this directory is *c:\Program Files\Osp50*. The installation procedure puts the following files that are common to both Windows NT and Windows 95/98 in that directory:
 - ◆ *VidCap32.exe*
 - ◆ *VidCap.hlp*

The installation program also creates a directory called NT within the Osprey-50 directory, which contains the following files:

- ◆ *ReadMe.txt*
 - ◆ *oemsetup.inf*
 - ◆ *Uninst.isu*
5. In the registry, the following branches are added, and can be deleted without affecting the rest of the system. Use RegEdit to delete them.
 - ◆ *HKEY_USERS\DEFAULT\Software\Osprey\Osprey100*
 - ◆ *HKEY_CURRENT_USER\Software\Osprey\Osprey100*

- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\Osprey 100
 - ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Osprey\Osprey100
 - ◆ HKEY_LOCAL_MACHINE\HARDWARE\RESOURCEMAP\OtherDrivers\o100drv
6. You can delete the Taskbar entry using the **Taskbar Properties ... Start Menu Programs ...Remove...** function.

Appendix H — Developer Support

The Osprey Technologies group has a developers' kit to assist development of specialized Video for Windows applications. The kit provides capabilities that the Video for Windows API does not provide. It uses a proprietary interface that bypasses Video for Windows and connects your application directly to the Osprey-50 driver.

The developers' kit at present has the following modules:

- ◆ Methods by which a single application can access multiple boards - see also Appendix F.
- ◆ Interactive control of video source, brightness, contrast, hue, and saturation.
- ◆ A Closed Captioning API, by which the application can control Closed Captioning and capture Closed Caption text for specialized processing and display.
- ◆ Direct access to the Bt878 registers.

Please inquire at info@osprey.viewcast.com for further information.