



Osprey-200 User's Guide

Release 1.35 and later

Windows 95/98

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Osprey Technologies Division
ViewCast.com

Osprey-200 User's Guide

Windows 95/98 Version

Release 1.35 and Later

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ViewCast.com

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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, 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.

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Chapter 1 — Getting to Know the Osprey-200

The User's Guide provides helpful information about installing and configuring the Osprey-200 hardware and software. This book has been designed with the particular needs of Osprey-200 end users in mind, particularly first-timers and those working with existing applications.



If you already have a working knowledge of the Osprey-200 and its capabilities, you may want to skip ahead to Chapter 2, Osprey-200 Hardware, and proceed with the installation process. However, if you'd like to learn more about the Osprey-200 and the opportunities it can make possible, continue on with the following introductory section.



Note: This manual is written with the Osprey-200 in mind, but it also covers the Osprey-201. There will be occasional references to the Osprey-201 that will not be applicable to the Osprey-200, and vice-versa.

Introduction

The Osprey-200 provides an economical solution for capturing audio and 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-200 package consists of a PCI board (based on the Rockwell/BrookTree Bt878 single-chip video capture device) and a Video for Windows compliant software driver. The board provides one (1) Composite video inputs, stereo audio inputs (red=right / left=white), and one (1) S-Video input. It supports both the NTSC (North American) and PAL (European) video standards.

The Osprey-201 package is similar except that it includes an NTSC video camera. The board has a power jack for the camera, one (1) Composite video input, one (1) mini stereo input, and one (1) S-Video input. Hereafter "Osprey-200" refers to both the Osprey-200 and Osprey-201 unless specifically noted.

This Osprey-200 software package specifically supports Windows 95/98. A separate software driver and users' guide are available for Windows NT 4.0 and are located on the same cd-rom as the Windows 95/98 drivers.

Symbols



This symbol denotes an important note or warning.



The chapters that describe how to use an Osprey-200 application contain step-by-step instructions. The “Shortcut” icon identifies a section that summarizes the essential steps.

The Osprey-200 Package

The software package for the Osprey-200 consists of:

- ◆ A Video for Windows compatible video capture driver for Windows 95 and 98.
- ◆ Supporting libraries and device driver.
- ◆ VidCap32 — a capture applet and test/demo program.

General Features

The video input to the Osprey-200 card can be either NTSC or PAL; composite or S-Video. The board and software support the following video pixel formats:

- ◆ 32-bit RGB
- ◆ 24-bit RGB
- ◆ 15-bit RGB
- ◆ YUV12
- ◆ YUV9
- ◆ YUY2
- ◆ BTYUV
- ◆ Raw ADC data

Video inputs:

- ◆ Composite
- ◆ S-Video.

Audio inputs:

- ◆ Stereo composite inputs (red=right / left=white). Mono inputs can also be used – see the notation in Chapter Two under “Connecting Audio Cables”.

Other display characteristics:

- ◆ Standard frame sizes (1/4 (QCIF), 1/2 (CIF), and Full).
- ◆ User-settable custom frame sizes.
- ◆ Interactively controlled brightness, hue, contrast, and saturation.

Compatibility

The driver is designed to be compatible with all Video for Windows applications.

The Osprey-200 package supports all Video for Windows capture driver capabilities that are available to the Bt878 hardware device. It is compatible with software video compressors, sound boards, video editing applications, and videoconferencing applications.

The Windows 95/98 driver works with only one board at a time installed in the system. It ignores any additional Bt848 or Bt878-based boards, such as an Osprey-50 or Osprey-100. The Osprey-200 driver for Windows NT supports multiple Osprey-200s.

Performance

The Osprey-200 package uses DirectDraw for drawing video overlays with minimal load on the system processor. The overlay drawing rate is 30 frames per second, regardless of video frame size or format.

The frame rate for video capture to disk is highly dependent on video size, video format, and machine characteristics. On a typical Pentium system with an EIDE disk subsystem, capturing to a defragmented disk file, NTSC CIF (320x240 pixel) video in uncompressed YVU9 format can be captured at 30 frames per second with less than 1 percent dropped frames. If a software compressor of any kind is used, performance will be somewhat slower, and is highly dependent on overall system speed.

The frame rate for videoconferencing is so dependent on software, compressor, system, and network characteristics that meaningful estimates cannot be readily given.

Contacts

As any computer guru will tell you, if things aren't working properly, first, check to make sure it's all plugged in correctly. That'll correct the problem about 50% of the time. Then verify that you have a "live" video signal connected to video input of the card. Finally, check the application and system requirements to ensure that your system is properly configured for running the Osprey-200.

If you're still having problems, please contact the Osprey-200 Support Group, at:

(888) 684-6622	(voice, toll-free)
(919) 319-9200	(voice)
(919) 319-0034	(FAX)
support@viewcast.com	(email)
ftp:	ftp://ftp.viewcast.com/pub/OSP-200/win95/latest

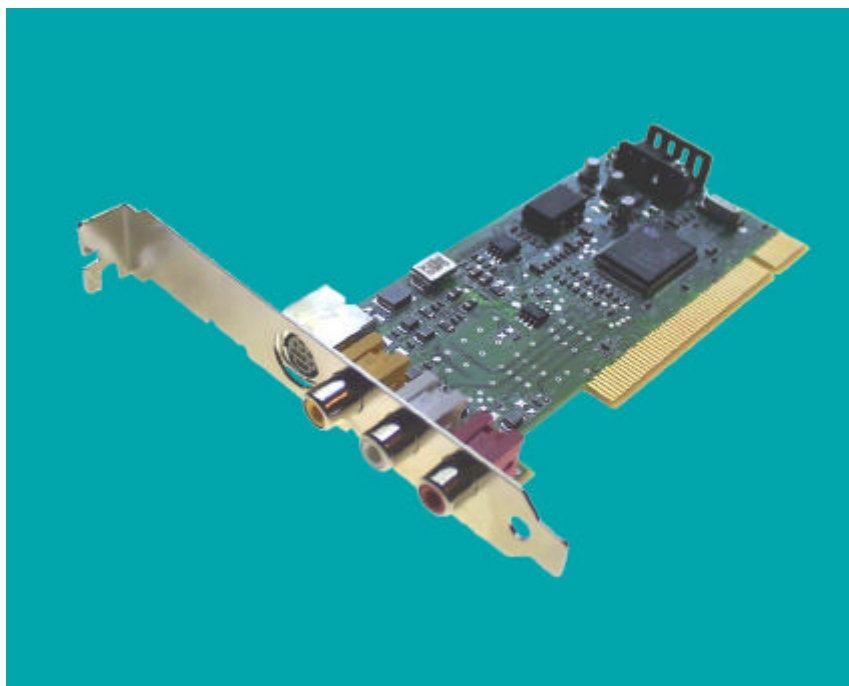




Chapter 2 — Osprey-200 Hardware

The Osprey-200 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
The Osprey-200 Card



NOTE: The exact card size and layout are subject to change.
The Osprey-201 has a power connector and a mini-stereo input in place of the two audio input connectors.

System Requirements

The minimum system requirements are as follows:

- ◆ 90 MHz Pentium processor or higher.
- ◆ One available PCI slot.
- ◆ Windows 95/98.
- ◆ Approximately 1MB storage for system files.

For optimum performance, we recommend at least the following system:

- ◆ 120 MHz Pentium processor or higher.
- ◆ Video display adapter with:
 - ◆ 2MBytes memory minimum (4MBytes recommended).
 - ◆ Direct Draw capability.
 - ◆ An up-to-date device driver with Direct Draw capability.
- ◆ Substantial free hard disk space (for capturing video to disk only; not required for video conferencing).

Although the Osprey-200 does not have any capability for audio out (speaker connections), it will work with any Windows 95/98-compatible sound card. If you use the Osprey-200 for videoconferencing, you will need to use a sound card.

Configuring the Card

The Osprey-200 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 capture 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.

Use the following steps to install the Osprey capture 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 capture 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.

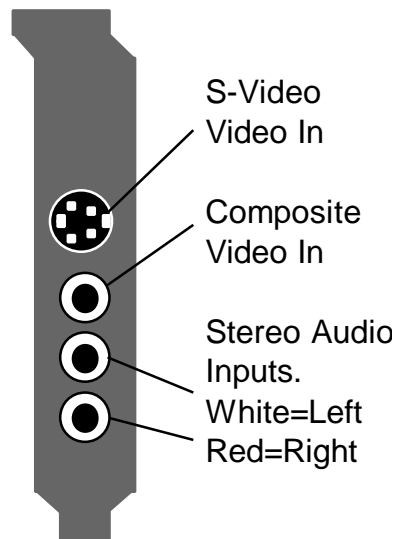
9. Connect any audio/video cables to the Osprey-200 card. Figure 2-2 shows details of the card's backpanel connectors.
10. Turn the computer on.



Connecting Cables

Figure 2-2 illustrates the Osprey-200's backpanel connectors

Figure 2-2
The Osprey-200's Backpanel



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 the Osprey-200 card's RCA Video In connector.

Connecting a 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-200 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.

Connecting an Audio Source

The Osprey-200's audio connectors are made for regular audio stereo equipment, such as VCR or DVD outputs and can also take headphone level outputs when the volume is adjusted midway between high and low settings. It should be noted that if you are using a camcorder or VCR with only a single audio output, that a mono input to the Osprey-200 will record at approximately ½ volume and a single stereo input to the Osprey-200 will result in capture of only one channel.

Although the Osprey-200 will accept mic inputs, a standard mic shipped with most soundcards is not compatible. You will need to use a powered microphone with 1 volt peak to peak output. Alternatively, you can use the Osprey-200 in conjunction with a standard soundcard using the soundcard's microphone inputs.

The Osprey-201 Video Camera

The Osprey-201 video camera has an attached cable with two connectors. One is a composite video connector that plugs into the composite video input of the Osprey-201 board. The other is a power plug that connects to the power connector on the board.

Chapter 3 — Osprey-200 Software

The Osprey-200 package comes with two separate software drivers on a single CD, for Windows 95/98 and Windows NT. Only the Windows 95/98 driver will work on a Windows 95/98 system. You can also obtain and install the latest software drivers from ViewCast.com's Internet FTP site. The Osprey-200 software driver is Windows Plug and Play compatible.

Installing from CD



NOTE: These instructions assume you are installing the Osprey-200 driver for the first time. If you are re-installing it, follow instruction #5 in the next section (*Downloading and Installing Updated Drivers*). Then follow these instructions.

1. Follow the directions in the previous section to install the Osprey-200 board.
2. Turn on the machine and start Windows 95/98.
3. The system will say “*New Hardware Found - PCI Multimedia Video Device*” and will prompt you for a driver diskette. Insert the Osprey-200 CD into your CDROM drive. You may have to browse to point it to the file "otio200.inf", which is in the "Win95-98" directory on the CD. For example, if your CDROM drive is drive D:, then you would point it to "D:\Win95-98", where it should find the file "otio200.inf".
4. Follow the instructions given by the system for installing the driver. The exact instructions vary depending on which version of Windows 95/98 you are using. The system will copy the driver files to your hard disk and will add items to your system registry.
5. After the driver is installed, a setup program will run and install the VidCap32 test and demo applet.
6. A setup banner will appear with the software's version number. Then a *Welcome!* dialog will appear, explaining the steps the setup program is about to take. Click **Next>**.

7. A dialog entitled *Select Destination Directory* will appear, asking where to install the Osprey 200 files. Click **Next>** to select the current choice. Click the **Browse** button if you want to install to a different directory, then click **Next>** to accept your choice.
8. The *Ready to Install!* confirmation dialog box will appear. To return to any earlier dialog boxes, use the < **Back** button. Click on **Cancel** to halt installation without making any permanent changes to your system. To continue the installation process, click **Next>**.
9. A dialog box appears which shows the progress of the program installation.
10. A ReadMe file is now displayed with any last minute instructions specific to your package.
11. At the end of the installation process, a dialog appears entitled *Installation Completed!* Click the **Finish** button to exit the installation program.
12. It is *not* necessary to restart the machine before using the Osprey-200.

Downloading and Installing Updated Drivers

1. The latest software drivers for the Osprey-200 are available via FTP (file transfer protocol), at the following location:
ftp://ftp.viewcast.com/pub/OSP-200/win95/latest
2. Use your web browser, such as Netscape Navigator or Microsoft Internet Explorer, to navigate to our site and download the file. Type the ftp address 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 **...win95/latest** location. Refer to your browser's help files for more specific and detailed assistance.
3. Download the file to your hard disk. Place it in a separate directory or folder. This is a compressed file that will expand into about 14 installable files when you execute it. These files will be placed in the same directory or folder where you have placed the original compressed file.



4. To execute the file, click the Start button, then click Run... . Enter the pathname of the file in the dialog box, and click OK. (Or, click on the file's icon in your Windows desktop explorer.)
5. Now you are almost ready to install the new driver. However, if you already have a previous version of the Osprey-200 driver installed on your system, you first need to deactivate that driver. Follow these steps:
 - a) Open the *Control Panel* (From the Start Menu, click on **Start -> Settings -> Control Panel**).
 - b) In the *Control Panel* window, click the **System** icon.
 - c) Click the **Device Manager** tab at the top of the window.
 - d) Click on the [+] next to *Sound, video and game controllers*.
 - e) Click the first Osprey-200 entry.
 - f) Click the **Remove** button. Click **OK** in the confirmation message.
 - g) If there is more than one Osprey-200 entry, repeat steps (d), (e) and (f) until they are all removed.
 - h) Click the **Close** button.
 - i) Close the *Control Panel*.
6. Now you can actually install the new driver. Shut down and restart your computer.
7. The system will say that it has detected new hardware and will prompt you for a driver diskette. Click the **Other Locations...** and/or **Browse...** buttons and navigate to the directory where you placed the driver files in step 4. The exact directions vary depending on which version of Windows 95/98 you have.
8. From this point onwards the instructions are the same as for installing from a CD. Follow steps 5 - 11 in the previous section, *Installing from CD*.
9. After setup is complete you can delete the files created in step 4 of this section. All of these files have been copied to working directories. We recommend that you keep the original setup file that you downloaded in case you ever need to reinstall the driver.

Testing the Installation

1. Connect a camera, VCR, or other audio/video signal source to the Osprey-200 backpanel.
2. Open the Osprey-200 group in the Start menu and click on **VidCap32**.
3. Verify that the screen displays a still video frame from the Osprey capture card. If you click the **Preview** or **Overlay** buttons, you should see moving video frames.

If you initially see just a blue field where the video frame should be, it could be because

- ◆ No video source is plugged in.
- ◆ A video source is plugged in but is not outputting active video.
- ◆ The software is set to a different source connector than the one connected to your video source. Either move the video source to the correct connector, or change the software setting in the video source dialog, accessed by the **Options -> Video Source...** menu entry.

If you are using PAL format equipment instead of North American-style NTSC equipment, you will need to click the PAL button in the Setup Dialog in order for correct video to appear.

You might see the following error message: *Bt848/878 Capture Driver - Bt848/878: No suitable DirectDraw provider - Overlay channel is disabled*. VidCap32's Overlay button will be grayed. This error indicates that your video display adapter does not support Direct Draw, or that the display adapter's device driver does not support Direct Draw.

Video display drivers supplied with Windows 95/98 do not necessarily support Direct Draw, even if the display adapter hardware does support it. Consult the display adapter manufacturer's website to obtain an updated driver, or at least determine if the display adapter supports Direct Draw. If you are not able to use Direct Draw overlays, you will still be able to see video sequences in Preview mode, and will still be able to use the Osprey-200 for video capture and video conferencing applications.

There is a control in the Setup Dialog that will inhibit the *Overlay channel is disabled* message - see Chapter 4.

Uninstalling the Software

If you ever need to remove the Osprey-200 driver from your system, proceed as follows:

1. Open the *Control Panel* (From the Start Menu, click on **Start -> Settings -> Control Panel**).
2. In the *Control Panel* window, double click the **Add/Remove Programs** icon. The *Add/Remove Programs Properties* window will come up.
3. Made sure the **Install/Uninstall** tab at the top of the window is selected.
4. In the scrollable list, click *Osprey-200* to highlight it.
5. Click the **Add/Remove...** button at the bottom of the window.
6. In the *Osprey-200 Uninstaller* initial dialog, click **OK**.
7. When it is finished a confirming dialog saying will appear saying that the Osprey-200 software is been removed from the system. Click **OK**.
8. In the *Add/Remove Programs* window, click **OK**. Close the Control Panel.



Chapter 4 — Setup Dialog

The Osprey-200 video capture driver for Windows 95/98 contains a setup dialog that can be accessed from any Video for Windows application. Most Video for Windows applications have a menu selection called **Format...**, or **Video Format...**, and another called **Source...** or **Video Source...**. Both of these menu items bring up the following combined format/source dialog:



Video Connector

The Video Connector buttons allow selection of one of the board's Composite or the S-Video inputs. If Preview or Overlay mode is enabled in your application, you will be able to see the results of your selection immediately, without exiting the dialog. Otherwise, changes take effect after you exit the dialog.

Standard

You can select either NTSC- or PAL-standard video. If you are a North American user, select NTSC, the North American broadcast standard, unless you are specifically working with PAL equipment. PAL is used in Europe and in many countries elsewhere in the world.

When you switch between NTSC and PAL, the frame size changes. The half-frame size for NTSC is 320x240, whereas for PAL it is 384x288.

The NTSC/PAL setting is visible immediately if preview or overlay video is running.

Color

Four scroll bars control Brightness, Contrast, Hue, and Saturation. The four edit boxes beside the scroll bars can be used to enter specific numeric values, though the effects of these changes will not take place until exiting the dialog. **NOTE: When using these controls, be sure that Preview mode or Overlay mode is enabled, so that you can immediately see your changes.**

When PAL video is used, the Hue setting is not adjustable and the Hue control is grayed out.



Image Size

The drop list allows you to select from three standard image sizes, or to select a custom size. The two custom edit boxes allow you to specify a custom height and width for the image (some color formats, such as YUV9, are not compatible with custom sizes – with this in mind you will need to experiment to see which color format works best with the desired image size).

Standard image sizes vary depending on whether the video source is NTSC or PAL – for example, half-sized NTSC video is 320 x 240 pixels, while half-sized PAL video is 384 x 288.

If you have selected a standard size in the drop list, when you switch between NTSC and PAL your image size will automatically adjust – for example from 320 x 240 to 384 x 288. If you want to keep the current image size, set the drop list to “custom” before making the switch between NTSC and PAL.

For example, if you want PAL video at 320 x 240, first click the NTSC button, then select “320 x 240” from the drop list. At this point the custom width and height boxes will say 320 and 240. Then select “custom” from the drop list. Then click the PAL button.

You do not have to select “custom” in the drop list before setting a custom size. The drop list will change as soon as you complete your change to the custom height or width box.

The custom width edit box rounds off the width to the nearest smaller four-pixel boundary. The custom height edit box rounds off the height to the nearest smaller two-pixel boundary.

You can see the effects of your changes to the image size only after you exit the dialog.

Image Format

Image format refers to the way the image’s color and intensity information is encoded. The image format drop list contains eight possible selections.

Note that the preferred format depends upon the application, and upon whether image quality or maximum compression rate is most important. The following information may aid in selection of the best format to use for a particular application.

- ◆ For maximum quality, at the expense of larger storage requirements, use 24 bit RGB.
- ◆ For general purpose uncompressed video capture, use 15 bit RGB.
- ◆ For maximum compactness, at a slight cost in image quality, try YUV9. To use YUV9 you have to have installed on your system a video codec that understands this format. The Intel Indeo Video Interactive package, available for free from Intel's website, is an example of a suitable codec and is described in detail below.

Refer to *Appendix B: Color Modes* for more detailed information on these video formats.

Changes to image format take effect when you exit the dialog.

OK

This button closes the dialog and implements the settings you have chosen. The settings you have chosen will remain in effect for the current application session and for future sessions.

Cancel

This button closes the dialog and restores the settings to the way they were previously.

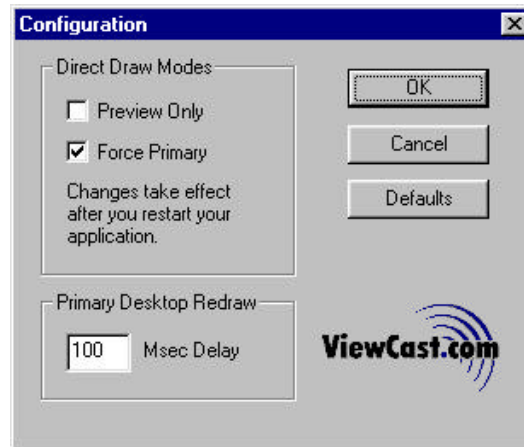
Defaults

The **Defaults** button restores brightness, contrast, hue, and saturation to convenient default. It does not affect any of the other dialog controls.



The Config... Subdialog

The **Config...** button in the main setup dialog brings up a small subdialog that allows you to control the details of how Direct Draw and video overlays work:



If you check the **Preview Only** checkbox, Overlay mode will be disabled. In VidCap32, the Overlay button will be grayed and will not work, and similar effects will be seen with other applications. Use the **Preview Only** option if you are repeatedly getting the message *Bt848/878: No suitable DirectDraw provider - Overlay channel is disabled* every time the driver starts - it will prevent this message from appearing.

Check the **Force Primary** checkbox if you cannot see Overlay video or the video is incorrect. The “Force Primary” option makes the driver use an alternate DirectDraw method that works better with some display cards and display drivers.

Changes you make to **Preview Only** and **Force Primary** are actually registered when you click the **OK** button on the sub-dialog. They are ignored if you click the **Cancel** button on the sub-dialog. You have to restart the application in order for these changes to take effect.

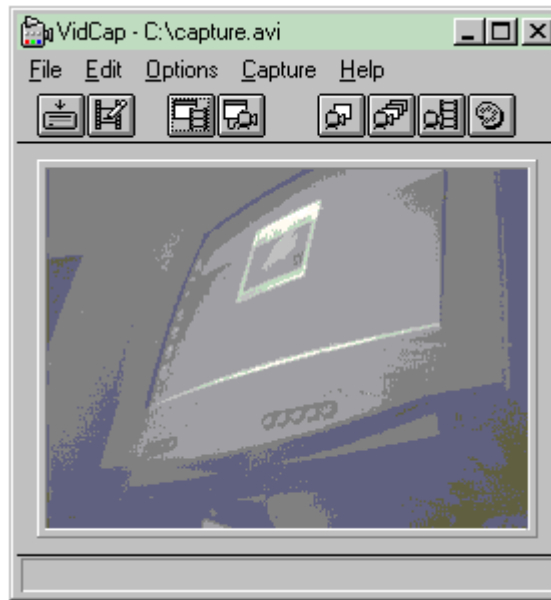
The **Primary Desktop Redraw** field allows you to enter a millisecond delay factor that is used in Primary Direct Draw. The default value is 100 milliseconds, which should work well for most systems. If you enter a value less than 40 milliseconds the driver will use a value of 40 milliseconds. If the delay is too short, there may be video artifacts left on the screen after the window layout changes. If the delay is long, there will be a delay between when the screen layout changes and when the desktop is redrawn that you may find visually disruptive. Changes you make to **Primary Desktop Redraw** take effect immediately after you click the **OK** button on the sub-dialog.

The **Defaults** button restores the defaults for this dialog – **Preview Only** unchecked, **Force Primary** checked, and redraw delay factor 100.



Chapter 5 — Using the Osprey-200 with Popular Applications

VidCap32



VidCap32 is a standard video capture applet that is included with the Osprey capture card. It is useful for testing the installation 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 will be captured to file (an uncompressed video capture). If you are capturing compressed video, though the format and appearance are the same, the output that the compressor will write to file will be slightly different.

Overlay

The **Overlay** button (fourth button from the left on the toolbar) toggles overlay on and off. When overlay is enabled, the video you see is updated constantly. The difference from Preview is that the Osprey capture card's driver will use the fastest and most efficient drawing method it can. Performance varies greatly, but in the best case - with Direct Draw enabled and working - it can draw at the full frame rate (30 per second) without using much processor overhead. The downside of Overlay mode is that for quick drawing, the hardware has to match the format of your display adapter - which may not be the same as the format you are using for capturing video to file. You can see the difference if you select YUV9 as your capture format: Preview and Overlay appear distinctly different, because the Overlay mechanism is not using YUV9 format, which display adapters cannot display directly. The Preview function, on the other hand, is decoding and translating the YUV9 format before writing it to the screen.

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 capture card's configuration dialog, which is described in detail earlier in this document. The two menu selections: **Options/Video Format** and **Options/Video Source** both access the configuration dialog.



Compression

It is possible to compress video as it is captured to disk. Neither VidCap32 nor the Osprey capture card perform video compression themselves. However, VidCap32 may be connected to external compression modules.

When a compressor is enabled, video is passed from the Osprey capture card's 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 to select no compression. The information below for Intel's Indeo Video Interactive 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-200. 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

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 capture. You can also 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 the files scattered about the disk.

VidCap32 does not perform defragmentation. Windows 95/98 has a built-in defragmenter, located under *Start .../Programs/Accessories/System Tool/Disk Defragmenter*. Use VidCap32 to preallocate the files, then exit to run the defragmentation utility. **Note: Defragment after you allocate and size the capture files.**

After the hard disk has been defragmented, return to VidCap32. The file (or files) you preallocated will still exist, but will be located on contiguous areas of the hard drive. This arrangement will remain until the file is resized or deleted.

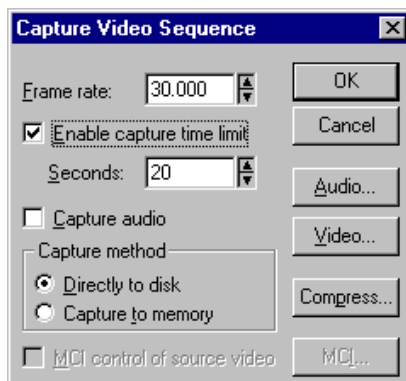
Plan accurately for the number and size of files you will need. Once a file has been defragmented, take care to not accidentally delete it. Also, don't overflow the file - the file will enlarge automatically but the added sectors may not be contiguous. Use defragmented files as work space rather than as permanent storage space - move your video clips to storage files after you have captured them.

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 well worth the trouble if you will have an ongoing need to capture high-quality video.

Capturing Audio and 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 the Osprey-200 to capture audio by selecting "Capture audio" and clicking the Audio button. The dialog allows a choice between capturing data directly to disk, or capturing via memory. Note that capturing to memory may result in fewer dropped frames.

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 double-click on the Playback icon in My Computer. 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 Video Interactive

Intel's Indeo Video Interactive is a software video compressor that works with the Osprey capture card. It allows you to capture video to disk using substantially less disk space, at the cost of only a slight lost of picture clarity. Indeo is available for free at Intel's website:

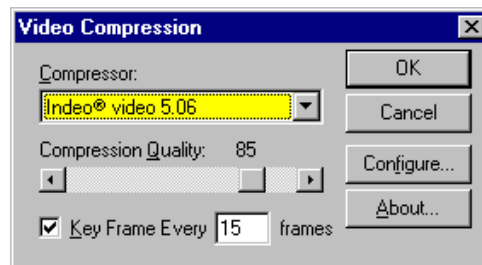
<http://developer.intel.com/pc-suppl/multimed/indeo/codec.htm>

At the present time, the Indeo Video Interactive video compressor, version 4.1, works with only one video color format: RGB24. It does not work with YUV9. However, it is possible to capture uncompressed YUV9 video to a file and use the Indeo compressor to compress the file afterwards, off line, as a separate operation.

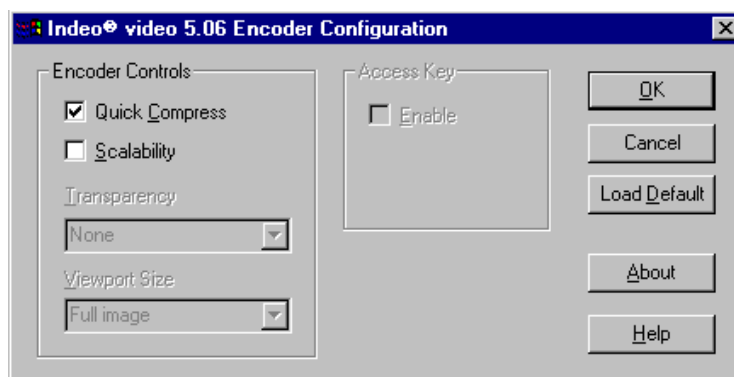
To test Indeo with the Osprey capture card, use the follows steps:

1. Connect and adjust your video source.
2. Start VidCap32.

3. Use the **Options/Format...** menu entry to bring up the Osprey capture card's configuration dialog. In the drop-down list in the Color Format field, select **RGB24**. Click **OK**.
4. Use the **Options/Compression...** menu entry to bring up the compression dialog. In the Compressor: field, select **Intel Indeo Video Interactive**.



5. Before leaving the compression dialog, click the **Configure...** button. Enable Quick Compress in the Encoder Controls field, and click **OK**. Click **OK** again to close the Video Compression dialog box.



6. 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**.
7. Select **Capture/Video** and click **OK**. A confirmation dialog appears. Click **OK** again to start capturing video.
8. Click anywhere on VidCap32 to end capture. For test purposes, you'll want only a few seconds of video.

9. Double-click on **My Computer** and navigate to the icon of the file that you just captured. Double click on it and it will play back.



Chapter 6 — Troubleshooting

Blue Video Screen

If 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 capture card's input.
2. Check that the correct video source is selected by the "Source" settings of the configuration dialog.

Black Preview Screen

If you select an Image Format other than one of the RGB formats, 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 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 website) you will be able to preview and capture YUV9 format.

Poor Video Quality at Large Frame Sizes

Large frame sizes with a deep pixel depth (24- or 32-bit), or a complex format (YUV9 or YUV12 planar), impose heavy demands on the PCI bus data transfer capacity. Some systems cannot capture full-frame video in these formats without streaks or other flaws in the images. The limitation resides not as much in processor speed as in the characteristics of the PCI bridge implemented in the system board chipset.

If you are having problems, try the following:

- ◆ Use ¼ or ½ frame size (QCIF or CIF) instead of Full size.

- ◆ Use a shallower color format (15-bit or 24-bit RGB, rather than 32-bit RGB).
- ◆ Use an RGB format instead of a YUV format. Although the YUV formats are more compact than the RGB formats, they place more demands on the PCI bridge data transfer mechanism

If you have a choice of PCs for video capture, use a fast, up-to-date system with a recent chipset. We have seen no problems like this with the newer systems.

Direct Draw Video Overwrites Menus and Windows

This is a known problem on some systems with version 1.35 and earlier drivers. Overlay video will obscure dropdown menus and windows that are supposed to be on top of it. To solve this, open the setup dialog, and click **Config...** to open the Configuration subdialog. Put a check in the **Force Primary** checkbox and restart the application.

“Unable to Initialize Direct Draw” Message

The DirectDraw system files `ddraw.dll`, `ddraw16.dll`, and `ddhelp.exe` must be installed in the Windows 95/98 system. Furthermore, the file version as shown in the file properties data must have 4.03 or higher in its first three digits. The software will work even with this problem, except that Overlay drawing will not be available. Obtain and install a service pack from Microsoft if you do not have these files.

Wrong Capture Driver Being Accessed

This might happen if you already had another capture board/capture driver in your system when you installed the Osprey-200.

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.

Unable to Plug and Play

We have seen this problem only with the earlier version of Windows 95, often referred to as “Windows 95A”.

When you plug in a new piece of hardware, such as the Osprey-200, the system is supposed to recognize the hardware and request that you install a software driver for it when the system next starts. The Windows 95A Plug and Play *New Hardware Found...* dialog box has a button that says “Do not install a driver. Windows will not prompt you again.” If for any reason you select this option with the Osprey-200, you will have the problem of how to get the system to recognize the card again when you actually do want to install the software driver.

The recommended procedure with the Osprey-200 is as follows:

1. Find the installation file, either on the setup CD or in the updated driver that you downloaded via FTP. It should be version 1.2 or later, as indicated by the label on the setup CD or by the title of the driver update file. Run this file. It will ensure that the uninstaller needed for step 2 is correctly installed.
2. Run the Osprey-200 uninstaller. To do this, follow the directions in the section of Chapter 3 entitled *Uninstalling the Software*. The uninstaller changes Windows 95’s registry settings so that it will again recognize that an Osprey-200 card is present with no software driver for it installed.
3. Restart Windows 95. You will see the Plug and Play message *New Hardware Found - PCI Multimedia Device*. From this point follow the instructions in Chapter 3 for installing the software.

If you are still having problems we may be able to supply a non-plug and play version of the driver. Contact www.viewcast.com for further information.



Appendix A — Osprey-200 Specifications

The following tables provide specifications for the Osprey-200 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 configuration dialog allows you to select the following video formats.

Format	Description
32 bit RGBA	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.
24 bit RGB	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.
15 bit RGB	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."
YUY2	This mode represents each pixel with a total of 2 bytes (16 bits) of data. Each pixel has one byte of luminance (intensity) data, and two half-bytes of the two chrominance (color) data components. It is mainly useful as input to software compressors.
BTYUV	This mode represents each pixel with a total of 12 bits of data, encoded by luminance (one byte) and chrominance (two 1/4 bytes).
YUV12 planar	This is a complex format in which each pixel is represented by 12 bits of data. It is normally used as input to a software compressor.



Format	Description
YUV9 planar	This is a complex format in which each pixel is represented by 9 bits of data. It is normally used as input to a software compressor. It is recommended as a tradeoff of moderate to high quality with very good storage and processing efficiency.
Raw ADC data	This is raw data captured by the Bt848 device's analog to digital converter.

Appendix C — Files and Registry Usage

Certain files are written and registry entries set when the Osprey-200 software is installed. Normally, to remove these components from the system you will want to use the uninstall procedure described in Chapter 3.

The information that follows concerning these files and registry entries will allow a technically proficient user to remove the Osprey-200 installation, even if the Uninstaller is deleted or damaged.

The information under Registry Variables describes registry settings that an advanced user might want to edit.

Deactivating the Driver

Entries are added in the multimedia and system portions of the registry. When manually removing the software, use the Control Panel to remove the Osprey-200 driver *before* deleting any files, as follows.

1. Open the Control Panel (From the Start Menu, click on Start -> Settings -> Control Panel).
2. In the *Control Panel* window, double click the System icon. The *System Properties* window will come up
3. Click the Device Manager tab at the top of the window..
4. If there is a [+] sign to the left of *Sound, video and game controllers*, click on it.
5. Click on *Osprey 200 Video Capture Device* to highlight it.
6. Click the Remove button at the bottom of the window.
7. In the *Confirm Device Removal* window, click OK.
8. Click Close at the bottom of the *System Properties* window.
9. Close the *Control Panel* window.

Manually Deleting Osprey-200 Files and Registry Entries



Use caution in carrying out the following steps! These instructions are for advanced users only! Be careful not to delete or alter any items other than the ones described here!

In the main *Windows\System* directory, the following files are used only by the Osprey-200 driver and may be deleted:

- ◆ bt848.driv
- ◆ bt848_16.dll
- ◆ btvvc32.driv
- ◆ bt848_32.dll
- ◆ bt848.vxd
- ◆ bt84xcc.dll
- ◆ bt848ddi.dll
- ◆ o200un.exe
- ◆ bt848dlg.dll
- ◆ bt848xcc.dll
- ◆ btaud.dll
- ◆ bt878dma.exe
- ◆ btaud16.dll
- ◆ btpciaud.vxd
- ◆ otio200.inf
- ◆ btwavein.driv
- ◆ o200inst.exe

The Osprey-200 directory and its contents may also be deleted. By default, this directory is *c:\Program Files\Osp200*, and contains the following files:

- ◆ VidCap32.exe
- ◆ VidCap.hlp

The installer creates a subdirectory named *95* within the Osprey-200 directory. This subdirectory, and the included files below, may be deleted.

- ◆ ReadMe.txt
- ◆ O200inst.dll

The installer creates an Osprey-200 Taskbar entry. You can delete it using the **Taskbar Properties ... Start Menu Programs** function.

During installation, the following branches are added to the registry. These branches can be deleted using the system application RegEdit without affecting the rest of the system.

- ◆ HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\
- ◆ Uninstall\Osprey 200

- ◆ HKEY_LOCAL_MACHINE\Software\Osprey\Osprey200
- ◆ HKEY_CLASSES_ROOT\Bt848

Editing Registry Variables

HKEY_CLASSES_ROOT\Bt848 contains most of the driver's working variables. There are cases where an advanced user may want to change certain of these variables using RegEdit. Note that three of these variables can be changed through the **Config...** button of the setup dialog as well as with RegEdit: *Force Primary*, *PreviewOnly*, and *RedrawDelay*.

HKEY_LOCAL_MACHINE\Software\Osprey\Osprey 200\DsoundOut controls whether you can listen to audio at the same time as recording it. If this key has a value of 1, you will hear the audio input. If the value is 0, then you will not hear the audio input.

