



Osprey-2000 MPEG/Capture Driver User's Guide

Osprey-2000

Osprey-2000 Pro

Osprey-2000 DV Pro

Osprey-2000 D DV

Osprey-2000 D Pro

Osprey-2000 D DV Pro

For Windows 2000 and Windows NT 4.0

Releases 2.2.0 and later.

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FCC Notice

This equipment 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 equipment 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, which can be determined by turning the equipment off and on, 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

Chapter 1 - Getting to Know the Osprey-2000 Capture Cards . 11

Symbols	11
Introduction	11
Three Operating Modes.....	12
Capture/Preview	12
MPEG Encode	12
MPEG Decode	13
Six Models of the Osprey-2000	13
Codec Models	14
Decode Models	15
Model Breakdown by Feature and Input Type	16
Overview of the Basic Data Flow	16
Features	17
Inputs	17
Video Inputs.....	17
Audio Inputs.....	18
Outputs	18
Audio/Video Processing.....	18
Audio.....	18
Video.....	19
MPEG Encoding.....	19
MPEG Decoding	19
MPEG Encoding/Decoding	20
Computing Platforms.....	20
Hardware System	20
Connections	21
Video Frame Rates and Performance	21
Software Included.....	22
MPEG Software	22
Audio/Video Capture Software.....	22
SDKs and API Software.....	23
Compatible Third-Party Applications.....	23
Getting Help.....	23

Chapter 2- Osprey-2000 Hardware..... 25

System Requirements	26
Configuring the Audio Capture Driver in AmCap.....	26
Installing the Osprey Card	28

Connecting Cables	29
Osprey-2000 Backplate	29
Breakout Connector	30
Rack Mount Unit	32
Connecting a Composite Source.....	32
Connecting an S-Video Source.....	32
Connecting an SDI Source	33
Connecting an IEEE-1394 Source.....	33
Connecting Audio with the Osprey-2000	33
Chapter 3 - Installing the Software - Windows 2000	35
Basics: Installing from CD.....	36
Basics: Downloading and Installing Updated Drivers	37
Canceling Out of the Found New Hardware Wizard	38
Installation Options.....	40
Installation Scenario: Osprey Card(s) Physically Installed, but Osprey Software not Installed.....	41
Option A: Run the Installation Program (Recommended).....	41
Option B: Use the Found New Hardware Wizard (Not Recommended)	58
Testing the Installation for Windows 2000	66
Indeo	66
Uninstalling the Software - Windows 2000	67
To Remove the Osprey Driver	67
To Deactivate the Driver under Windows 2000.....	67
Chapter 4 - Installing the Software - Windows NT 4.0.....	69
Installing from CD	70
Downloading and Installing Updated Drivers	71
Setup Program: Details	72
Testing the Installation for Windows NT.....	84
DXMedia.....	84
Indeo	84
Uninstalling the Software - Windows NT	85
Chapter 5 - MPEG Encoding	87
DirectShow Encoding Demo	88
Preview Video Size.....	89
Video Format.....	89
Encoder Control Dialog	90
Advanced tab	91

Chapter 6 - MPEG Decoding 93

Decoding Through DirectShow.....	93
Decode_demo	94
Load.....	95
Play	95
Pause	95
Stop.....	96
Exit	96
Output Options – Video Out or Application Capture	96
Board Number	97
Video Output	97
Video Destination	97
About Tab	97
Output Options - Window	98
Audio Tab	99
Board Number	99
Video Standard	99
Audio	99
Video Tab.....	100
Output Video Size.....	100
Video Format	100
About Tab	100
MPEG Decode Configuration Applet	101
Decoding Through OPI.....	101

Chapter 7 - MPEG Transcode..... 103

Two Pass Transcoding	103
Transparent Transcoding	104
Video for Windows Capture of Decoded Video.....	104
Transcoding with RealProducer	106
Transcoding with Windows Media Encoder.....	107

Chapter 8 - Osprey-2000 Video Control Dialog 111

Accessing the Dialog	111
General Features of the Dialog	113
OK	113
Cancel	113
Restore Defaults	114
Restore Previous.....	114
Apply to All Boards.....	114
Help	114
The Source Page.....	115

Input.....	115
Video Standard.....	116
Video Settings	116
Bypass Color Correction.....	117
The Format Page	118
Color Format	119
Video Size.....	119
Custom Size.....	120
Proportion (Pixel Aspect Ratio)	120
Cropping and Scaling.....	121
The Closed Caption Page	121
Display on Screen	122
Save to File.....	123
Mode.....	123
Channel	124
Text Color.....	124
Field.....	124
Apply to All Boards.....	124
The Configuration Page	125
Overlays	125
Access to the Format Tab.....	126
Multiple Opens.....	127
Default Capture Device	127
The Logo Page.....	128
Capabilities	129
Step 0 - Before You Start.....	130
Step 1 - Creating and Enabling the Logo	131
Step 2 - Selecting the Logo File	132
Step 3 - Setting Key Color and Style	133
Step 4 - Positioning the Logo.....	134
Step 5 - Reviewing and Saving the Changes.....	135
Notes on Logos.....	135
The Advanced Features Page.....	137
Field Order	137
De-Interlacing	138
The Transfer Mode	140
The SimulStream Page	143
Cropping and Scaling	143
Chapter 9 - Capturing Audio	145
Selecting the Audio Source and Input Volume	145

Registry Settings Controlling other Audio Parameters	149
Rate Conversion Method	149
Gain Selection	150
Audio Formats.....	150
Missing Digital Audio Sources	151
Audio Playback	151

Chapter 10 - VidCap32, AmCap, and Included Demo Programs155

VidCap32.....	156
VidCap32 Preview	156
Overlay	157
Single Frame Capture.....	157
Configuring the Video Capture Driver in VidCap32.....	157
Compression	158
Setting the Capture File in VidCap32 - Preallocating and Defragmenting	158
Capturing Video with VidCap32.....	159
AmCap	160
Selecting the AmCap Device.....	161
AmCap Preview	162
Configuring the Video Capture Driver in AmCap	162
Setting the Capture File in AmCap - Preallocating and Defragmenting.....	163
Capturing Video with AmCap	164
Playback	165
Cropping and Scaling	166
Decode (Screen).....	166
Decode (Video Out)	166
MpegVCR Application	166
Encode_demo	166
DXMedia.....	167
DirectX Media Details	167
Ligos Technology's Indeo.....	168
Demo Indeo	168

Chapter 11 - Troubleshooting 171

Blue/Pink/Black/Orange/Green Video Screen.....	171
Black Preview Video Screen	172
Scrambled Video Image.....	172
Grainy, Dithered Image	172
Slow Overlay Drawing	172

Problems Using Direct Draw	173
Poor Video Quality at Large Frame Sizes.....	173
Wrong Capture Driver Being Accessed	173
Unwanted Closed Caption Text	174
No Closed Captions on Digital Video	174
Interrupt Conflicts.....	174
Conflicts Between PCI Cards.....	175
Conflicts of PCI Cards with ISA Cards	175
Multiple Horizontal Lines Across Video Image	176
Appendix A - Hardware Specifications	177
Appendix B - Color Modes	179
YUV Format Details	179
Appendix C - Video Sizes	181
Appendix D - Using the Osprey Video Capture Driver with Other Drivers.....	183
Appendix E - Direct Draw.....	185
Appendix F - Multiboard Installations.....	187
The Recommended Multi-Board Selection Approach	187
The Legacy Multi-Board Selection Approach	188
Appendix G - File and Registry Usage	189
Instructions for Windows NT 4.0	190
Instructions for Windows 2000	192
Appendix H - Adding/Moving Boards in Windows 2000	195

Chapter 1 - Getting to Know the Osprey-2000 Capture Cards

The Osprey-2000 Driver User's Guide provides practical information for installing and configuring the hardware and software for the Osprey-2000 family of cards. This guide has been designed with the needs of the end user in mind, particularly novices and those working with existing applications.

Symbols

Introduction

Overview of the Basic Data Flow

Features

Software Included

Compatible Third-Party Applications

Getting Help

Symbols



This symbol denotes an important note or warning.



This shortcut icon points more experienced users to sections or chapters that summarize step-by-step instructions.

Introduction

The Osprey-2000 family of products is designed for the growing sector of professional media creators, broadcasters and providers seeking solutions for MPEG encoding, streaming, transcoding and digital archiving. Osprey-2000 is a complete MPEG-1 and MPEG-2 codec that can handle all network video communication needs. Osprey-2000 delivers the ability to multicast broadband video streams from both analog and digital sources, archive professional quality MPEG streams, and transcode DV to MPEG or MPEG to a streaming media format.

Ranging from an analog MPEG-1 and MPEG-2 codec to a complete analog and digital capture card with MPEG encode, decode and transcoding capabilities, this family of cards brings everything together:

[Three Operating Modes Available with Osprey-2000](#)

[Six Models of the Osprey-2000](#)

[Model Breakdown by Feature and Input Type](#)

[Overview of the Basic Data Flow](#)

Three Operating Modes

Three independent operating modes are available with the Osprey-2000:

- ◆ [Capture/Preview](#)
- ◆ [MPEG Encode](#)
- ◆ [MPEG Decode](#)

Capture/Preview

Preview is defined as viewing video in a window on the computer monitor and listening to audio via the audio output jack. Preview can be utilized by itself or during audio/video capture, encode and decode.

Capture is defined by the providing of audio/video data to a host application. This application could save the data to disk (i.e., AVI based capture), further process the data (i.e., encode into the Real or Windows Media format), or other such tasks. The capture feature is also possible during decoding, which makes MPEG transcoding possible.

Starting with Software Release 2.1, the Osprey-2000 is SimulStream capable. SimulStreaming is an added-cost upgrade that allows the driver to capture and display video and audio to multiple destinations from a single card. Please see the SimulStreaming User's Guide which is installed in the Osprey 2000 Program group for details about this feature.

Also see [Chapter 7 - MPEG Transcode](#)

MPEG Encode

MPEG-based encoding serves the streaming space for both live and video-on-demand purposes. It is ideally suited for enterprise networked video applications where quality is paramount. MPEG encoding is available from any of the input sources, including DV, which makes DV to MPEG transcoding possible.

Encoded MPEG streams are moved to a host application where the data can be archived to disk for later on-demand retrieval or further processing (such as transcoding into another streaming format), streamed over a network, or authored onto a DVD. Optionally, the material being encoded may be previewed by using the audio/video preview feature.

Also see [Chapter 5 - MPEG Encoding](#)

MPEG Decode

The MPEG decoding feature allows hardware decoding of high quality MPEG content. The decoding of an MPEG source can be either viewed using the preview feature or recaptured using the capture feature. The video during decode may be previewed either on the computer monitor or on an externally NTSC/PAL monitor using the composite/S-Video output jacks. Using the capture feature with MPEG decode, it is possible to transcode MPEG to another streaming media format such as Real or Windows Media.

Also see [Chapter 6 - MPEG Decoding](#)

Six Models of the Osprey-2000

Codec Models

Decode Models

Within the three modes of operation (capture/preview, MPEG encode, and MPEG decode), six versions of the Osprey-2000 are available. All six models have capture/preview functionality.

Codec Models

Three MPEG codec models act as audio/video capture cards and differ only by input types. Three models have **both** MPEG encode and MPEG decode capabilities:

Board Type	Description
Osprey-2000	<p>Full MPEG-2 codec with analog inputs.</p> <p>The Osprey-2000 model is the base MPEG encoder and decoder card coupled with capture card capabilities. All inputs/output are analog. These include analog composite and S-Video, and unbalanced and balanced audio.</p>
Osprey-2000 Pro	<p>Full MPEG-2 codec with SDI, AES/EBU and analog inputs.</p> <p>The Osprey-2000 Pro includes all of the features of the Osprey-2000 plus professional digital video and audio inputs. These inputs are SDI video (SMPTE-259M) with embedded audio and an external AES/EBU audio input.</p>
Osprey-2000 DV Pro	<p>Full MPEG-2 codec with SDI, AES/EBU, DV and analog inputs.</p> <p>The Osprey-2000 DV Pro includes everything found in the Osprey-2000 Pro model plus an IEEE-1394 port for a DV input. The DV input provides for real time decoding of DV in hardware. The result of this decode is a digital uncompressed audio and video stream. Audio and video can be selected just like the other inputs for capture or for MPEG encoding, facilitating DV to MPEG transcoding as well as capture of decompressed DV in real time.</p>

Decode Models

The three MPEG decode models also act as audio/video capture cards with analog inputs, and differ only in their digital input options. All models provide for decoding of MPEG in real time. The decoded stream can be viewed (i.e., playback) and can also be captured back to the host. This recapture effectively enables transcoding of MPEG content into other formats (for instance, .mpg to .rm or .asf).

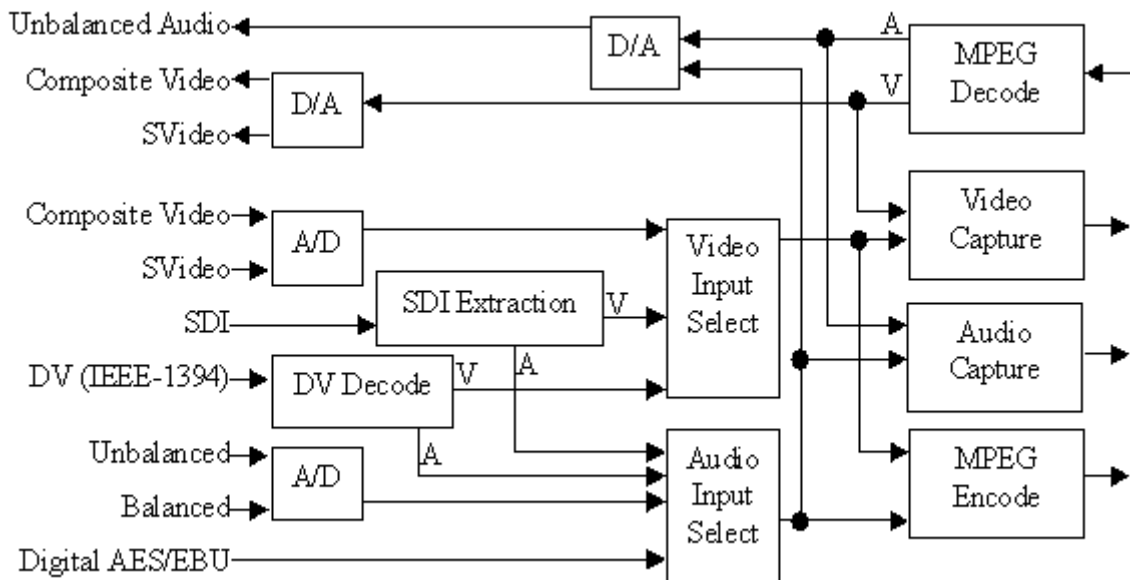
Board Type	Description
Osprey-2000 D DV	<p>MPEG-2 decoder/transcoder with DV and analog inputs.</p> <p>The Osprey-2000 D DV model is the base MPEG decoder with an IEEE-1394 port for a DV input. The DV input provides for real time decoding of DV in hardware. The result of this decode is a digital uncompressed audio and video stream that can be selected as any other input for capture. This feature makes possible the capture of decompressed DV in real time.</p>
Osprey-2000 D Pro	<p>MPEG-2 decoder/transcoder with DV and analog inputs.</p> <p>The Osprey-2000 D Pro model is similar to the Osprey-2000 D DV, except that it has an SDI input and an AES/EBU input for capture of digital audio and video. There is no DV capture on this board.</p>
Osprey-2000 D DV Pro	<p>MPEG-2 decoder/transcoder with SDI, AES/EBU, DV and analog inputs.</p> <p>The Osprey-2000 D DV Pro model combines all the capture capabilities of the Osprey-2000 D DV and the Osprey-2000 D Pro models.</p>

Also see [Model Breakdown by Feature and Input Type](#) and [Overview of the Basic Data Flow](#).

Model Breakdown by Feature and Input Type

Model	MPEG Encode	MPEG Decode	Analog composite, S-Video, unbalanced and balanced audio	DV (IEEE 1394) input (video and audio)	SDI video, SDI embedded audio, external AES/EBU	Outputs: Composite, S-Video, unbalanced audio
Codec Models						
2000	X	X	X			X
2000 Pro	X	X	X		X	X
2000 DV Pro	X	X	X	X	X	X
Decode Models						
2000 D DV		X	X	X		X
2000 D-Pro		X	X	x	X	X
2000 D-DV Pro		X	X	X	X	X

Overview of the Basic Data Flow



Features

Inputs

Outputs

Audio/Video Processing

MPEG Encoding

MPEG Decoding

MPEG Encoding/Decoding

Computing Platforms

Hardware System

Connections

Video Frame Rates and Performance

Inputs

The inputs feed both the MPEG encoder and audio/video capture nature of the device. Inputs are either on the back plate of the card or on one of the three breakout options (breakout cable, breakout box, 1u rack-mount dual-card input unit).

Video Inputs

Audio Inputs

Video Inputs

- ◆ NTSC and PAL
- ◆ Composite (BNC, a BNC to RCA converter is supplied)
- ◆ S-Video (mini-DIN)
- ◆ DV (via IEEE-1394 4-pin connector)
- ◆ SDI (SMPTE-259M)

Audio Inputs

- ◆ Unbalanced stereo (two RCA connectors)
- ◆ Balanced stereo (two XLR connectors)
- ◆ DV (IEEE 1394 4-pin connector)
- ◆ SDI (SMPTE-259M) embedded 2 channel audio
- ◆ External AES/EBU digital audio (single XLR connector)

Outputs

The video output is applicable only to the result of decoded MPEG video.

The audio output can be either a loopback (i.e., monitor) output from one of the various audio inputs or the audio from a decoded MPEG stream.

Video Outputs

- ◆ Composite (BNC)
- ◆ S-Video (mini-DIN)

Audio Outputs

- ◆ Unbalanced audio (two RCA connectors)

Audio/Video Processing

A variety of processing options can be applied to audio and video data as it flows through the hardware and to the host. Some options are applicable only for certain inputs; others may be applicable only for capture, encode or decode. Some processing options may be handled in software instead of in hardware.

Audio

Video

Audio

- ◆ **Multiple Sample Rates** are provided in hardware for analog audio sources (32 KHz, 44.1KHz and 48 KHz). Audio sample rate down conversion can be applied in software for capture applications.
- ◆ **Gain and Attenuation** can be controlled in hardware for analog inputs. For digital inputs a software gain or attenuation can be applied for capture applications.
- ◆ **External Monitoring of Audio** is provided for any of the audio input sources as well for the decoded MPEG audio. The audio output is a stereo unbalanced output. There is no additional gain or attenuation applied in the audio output path.

Video

- ◆ **Cropping** can be applied in hardware to any video source before capture.
- ◆ **Scaling** can be applied in hardware to any video source before capture. The MPEG encoding processing can also scale input video sources providing for a range of MPEG encoding resolutions.
- ◆ **Color-Space Conversion** can be applied in hardware before video is captured to the host. Supported color formats are:
 - ◆ RGB (32/24/16/15)
 - ◆ YUV (4:2:2 packed or planar YVU9/YUV12)
 - ◆ Grayscale (Y)
- ◆ **Brightness/Contrast/Saturation/Hue** adjustments can be applied to the analog inputs prior to capture or encoding (hue not applicable to PAL signals). For digital inputs, only the first three can be adjusted and only prior to capture.
- ◆ **DV Decoding** in hardware produces a decompressed video and uncompressed audio stream that can be MPEG encoded or captured. This allows for DV->MPEG transcoding or decompressed DV capture to feed host applications (such as RealProducer or the Windows Media Encoder).

MPEG Encoding

Any of the audio or video inputs can be encoded into MPEG including the DV input which makes possible DV->MPEG real time transcoding.

- ◆ MPEG-1 System Streams
- ◆ MPEG-2 Program and Transport streams
- ◆ Resolutions up to and including 704x480 NTSC, 704x576 PAL
- ◆ Variable and Constant bitrate encoding
- ◆ MPEG-1 Layer-I or II audio
- ◆ Up to 8Mbits/sec
- ◆ Audio optionally monitored via external connection
- ◆ Video optionally previewed in a window on host

MPEG Decoding

The Osprey-2000 handles streaming decode of MPEG content. The decoded audio and video can be viewed externally (speakers/video-monitor), viewed on the computer monitor, or recaptured to feed the audio/video needs of a host application. The recapture nature allows for real time transcoding of MPEG into other formats such as the Real or Windows Media formats. When recapturing, the capture processing options described under MPEG Encoding can be applied.

- ◆ MPEG-1 System Streams
- ◆ MPEG-2 Program Streams
- ◆ MPEG-2 Transport streams via software Transport->Program stream conversion*
- ◆ MPEG-1 Layer-I or II audio
- ◆ Up to 8Mbits/sec
- ◆ Audio optionally monitored via external connection
- ◆ Video optionally monitored externally via composite/S-Video outputs
- ◆ Video optionally previewed in a window on host
- ◆ Video and/or Audio optionally recaptured to the host for saving to disk or recompression into another host application dependent format

*Not available in Release 1.0.1

MPEG Encoding/Decoding

Both MPEG encoding and decoding can be processed at the same time using digital inputs.

- ◆ Audio monitored on speakers
- ◆ Video in a window or on external monitor (decoded MPEG video only)
- ◆ Audio can be dynamically switched between encode and decode
- ◆ Video view on host monitor can be dynamically switched between encode and decode
- ◆ Encode and Decode are physically separate units. They can, for example, encode MPEG-2 and decode MPEG-1, or encode NTSC and decode PAL streams.

Computing Platforms

- ◆ Windows 2000 Professional
- ◆ Windows NT 4.0 (DirectShow software is not supported under Windows NT)

Hardware System

- ◆ 32-bit/5-volt PCI card
- ◆ Full PCI Rev. 2.2 compliance
- ◆ Multiple board support

Connections

- ◆ BNC for SDI input on back-plate
- ◆ 4Pin IEEE-1394 for DV input on back-plate
- ◆ A Mini-DIN provides for all outputs: composite, S-Video, unbalanced audio (8mm)
- ◆ A DB-15 provides for all other inputs: composite (BNC), S-Video, unbalanced audio (2xRCA), balanced audio (2xXLR) and AES/EBU digital audio (1xXLR)
- ◆ DB-15 can be used to connect to:
 - ◆ Breakout box
 - ◆ Breakout cable
 - ◆ Optional 1U Osprey Breakout Panel

Video Frame Rates and Performance

The Osprey-2000 can deliver to the host 29.97 frames per second (fps) full resolution NTSC (720x480) as well as 25 fps full resolution PAL (720x576). The Osprey-2000 uses Direct Memory Access (DMA) to efficiently perform this delivery of both video and audio data to the host.

Once the data is in host memory, performance is directly affected by how the data is processed. The different encoding options of various streaming encoding applications have varying CPU requirements and are outside the scope of this manual.

The Osprey-2000 also supports DirectDraw for displaying video with minimal load on the system processor.



It should be noted that uncompressed video bandwidth is very large. Video at 640x480 with a 16bit color format at 30fps results in more than 18Mbytes/sec of data transfer across the PCI bus. PCI bandwidth issues, which may result due to other high bandwidth demanding devices on the PCI bus, can limit performance.

For example, having PCI based SCSI controllers on the same bus as the Osprey-2000 may consume large amounts of PCI bandwidth if there is a significant amount of SCSI disk activity (such as capturing uncompressed video to disk). The most optimal configuration is to use a 64bit SCSI controller that is physically on a separate PCI bus than the Osprey-2000.

Software Included

The products for Windows 2000 and Windows NT 4.0 include:

MPEG Software

Audio/Video Capture Software

Software Development Kits (SDK) and Application Programming Interfaces (API)

MPEG Software

- ◆ DirectShow Filters for MPEG encode and decode (for Windows 2000 only)
- ◆ OPI Drivers
- ◆ MPEG encode demo (applicable for encode models only) (for Windows 2000 only)
- ◆ MPEG decode demo for external audio/video and transcoding use (for Windows 2000 only)
- ◆ MPEG transcode demo for converting MPEG files to uncompressed AVI files (for Windows 2000 only)
- ◆ MpegVCR, a digital VCR application

Audio/Video Capture Software

- ◆ A Video for Windows compatible video capture driver (capable of being upgraded to SimulStream)
- ◆ An audio Mixer and an audio Wave capture driver (capable of being upgraded to SimulStream)
- ◆ VidCap32 - a simple capture application and testing and demo program
- ◆ AmCap - a simple capture application (and testing and demo program) using the DirectX/DirectShow API (same API used by Windows Media Encoder)
- ◆ CropApp - an application to control cropping the input video source
- ◆ Indeo codec (provides YVU9 color format and software for AVI compression)

Beginning with Version 2.1, the driver is SimulStream capable. SimulStreaming is an added-cost upgrade that allows the driver to capture and display video and audio to multiple destinations from a single card. Please see the SimulStreaming User's Guide which is installed in the Osprey 2000 Program group for details about this feature.

SDKs and API Software

- ◆ DirectShow Runtime (includes MPEG decode and MPEG encode applets; for Windows 2000 only)
- ◆ OPI Runtime (includes MpegVCR, a digital VCR application)
- ◆ DirectShow SDK (for Windows 2000 only)
- ◆ Video For Windows SDK
- ◆ OPI (Osprey Programming Interface) SDK
- ◆ DXMedia (Microsoft runtime for DirectShow, only needed for Windows NT 4.0)

The three software development kits (Video for Windows, DirectShow, and OPI) and the two Runtimes are packaged as optional components that the user may install. These components are not required, but they provide beneficial features. For instance, the OPI Runtime provides a digital VCR application, and the DirectShow Runtime provides MPEG encode/decode applications, and DirectShow filters.

The DirectShow features are available only under Windows 2000.

Compatible Third-Party Applications

RealNetworks' RealProducer and Microsoft's Windows Media Encoder are compatible with the Osprey-2000 family.

Other compatible applications are being determined at this time. For the latest product news, please continue to visit our web site <http://www.ospreyvideo.com/>.

Getting Help

Before contacting Osprey support, please do the following:

- ◆ Work through **Testing the Installation for Windows 2000** in Chapter 3 or **Testing the Installation for Windows NT** in Chapter 4.
- ◆ Read through **Chapter 11 - Troubleshooting**.
- ◆ Visit our web site at <http://www.ospreyvideo.com/> and read the Osprey-2000 FAQs by selecting **FAQ** -> **Osprey-2000**.

If you have done that and you're still having problems, contact the Osprey Support Group at:

Voice, toll free	(888) 684-6622
Voice	(919) 319-9200
Fax	(919) 319-9814
Email	mailto:Support@viewcast.com

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

1. Which product you have:

Osprey-2000	Osprey-2000 D DV
Osprey-2000 Pro	Osprey-2000 D Pro
Osprey-2000 DV Pro	Osprey-2000 D DV Pro

2. Which operating system you are using. Certain minor aspects of the Osprey-2000 drivers are different between Windows 2000 and Windows NT 4.
3. Which version of the Osprey-2000 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 and in the ReadMe.txt file in the Osprey-2000 Program group. The version number is also in a file named ReadMe.txt in the top-level folder of the CD that contains the driver and software.
4. Which optional components of the Osprey-2000 software you have installed. The optional components are OPI Runtime, DirectShow Runtime, VFW Software Developers' Kit (SDK), OPI SDK, and DirectShow SDK.
5. The type of audio and video source being used (for example: SDI video and AES/EBU audio) and the type of equipment being used as the source (for example: a Sony A500 Digital Betacam Deck).
6. Any additional details about your system configuration would be helpful – for example, the system speed, processor type, motherboard chipset, whether you have a SCSI or IDE hard drive, whether you have a network adapter card, and the type of display adapter card.
7. A detailed description of the problem.

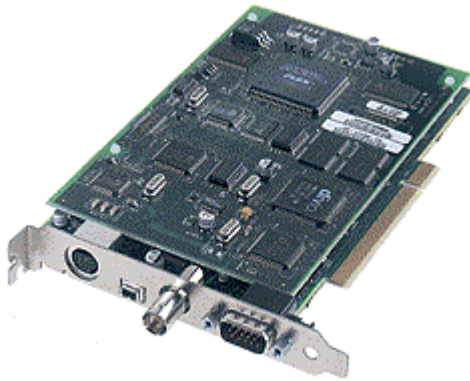
Chapter 2- Osprey-2000 Hardware

The Osprey-2000 MPEG cards are 32-bit, 5-Volt PCI cards. They are compliant with version 2.2 of the PCI hardware specification.

The DV option of the Osprey-2000 is a daughter card. The following models have both the base card and a daughter card.

- ◆ Osprey-2000 DV Pro
- ◆ Osprey-2000 D DV
- ◆ Osprey-2000 D DV Pro

Below is a picture of the Osprey-2000 DV Pro (actual hardware may differ in minor ways).



To determine the model of any Osprey-2000 product, check the sticker on the back side of the board. The model name (for instance, Osprey-2000 D DV Pro) appears on the edge opposite the back plate.

System Requirements

Configuring the Video Capture Driver

Installing the Osprey Card

Connecting Cables

System Requirements

For x86 PCs, the minimum system requirements are as follows:

- ◆ A Pentium III processor or higher for the hardware
- ◆ One available PCI slot
- ◆ Windows NT 4.0 or Windows 2000
- ◆ DirectX 8 or higher for Windows 2000
- ◆ Approximately 27 megabytes of storage for system files

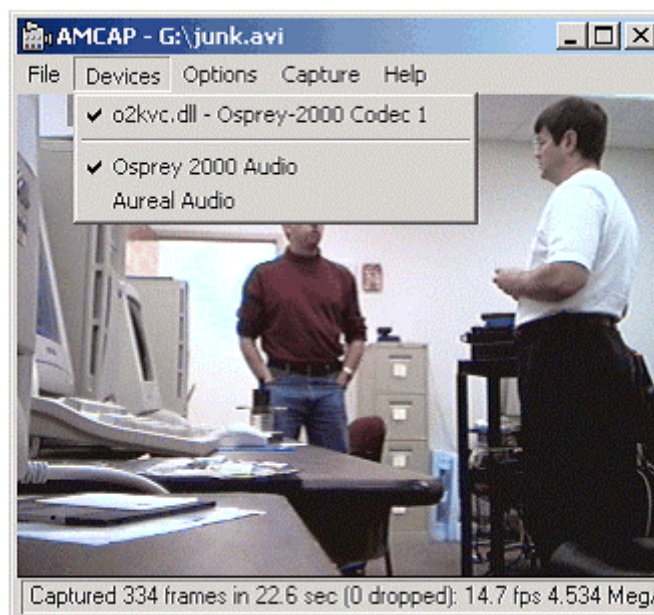
For optimum performance, we recommend a video display adapter with the following additional features:

- ◆ 8MBytes memory minimum
- ◆ Direct Draw capability
- ◆ An up-to-date display device driver with Direct Draw capability



With the Osprey-2000 you can use on-board audio capture capability to capture sound and multiple cards to capture multiple audio streams. However, you still need a sound card to monitor or play back audio since the Osprey-2000 is a capture/codec device and not an audio playback device. The Osprey-2000 will only provide audio-out while the card is capturing or encoding/decoding MPEG.

Configuring the Audio Capture Driver in AmCap



AmCap requires configuring the audio device before you can capture audio.

1. Use menu item **Devices** to show a dropdown list of the audio devices present.
2. If there is only one Osprey-2000 card present, the audio device will appear as **Osprey-2000 Audio** in the list. For only one Osprey-2000 card present, see step 4.
3. If there are multiple Osprey-2000 cards present, they will appear as **Osprey-2000 Audio Board 1**, **Osprey-2000 Audio Board 2**, etc.

Do not use menu item **Options** -> **Audio Format** to set the individual audio input for multiple cards. You must use the mixer applet to select among Balanced Audio, SDI, etc. Please see [Selecting the Audio Source and Input Volume](#) for information on using the mixer applet.



4. You must enable audio capture in AmCap before starting capture by clicking on menu item **Capture** -> **Capture Audio**. Until you do this, the menu items **Capture** -> **Master Stream** and **Options** -> **Audio Format** will appear grayed out.

Multiple board installations are a specialized subject discussed in [Appendix F: Multiboard Installations](#).

Installing the Osprey Card

You should install the Osprey card **before** installing the software driver!

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 card.

To be used only with UL Listed computers that include instructions for user installed accessories.



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 (especially when located 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.

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 card:

1. Power down the computer. Make sure that the computer power switch is turned OFF. Read caution note in the box above for grounding precautions.
2. Remove the computer cover.
3. Locate an empty PCI slot.
4. Remove the slot-cover screw from the empty PCI slot cover, set the screw aside, and remove the slot cover.
5. Remove the card from its anti-static bag.
6. Install the Osprey card into the empty slot, and make sure that it is seated evenly in the slot.
7. Secure the backpanel of the card with the slot cover screw.
8. Replace the computer cover.
9. Connect video and audio cables to the Osprey card. Refer to [Connecting Cables](#) for details of the card's backplate connector.
10. Turn the computer on.

Connecting Cables

Osprey-2000 Backplate

Breakout Connector

Rack Mount Unit

Connecting a Composite Source

Connecting an S-Video Source

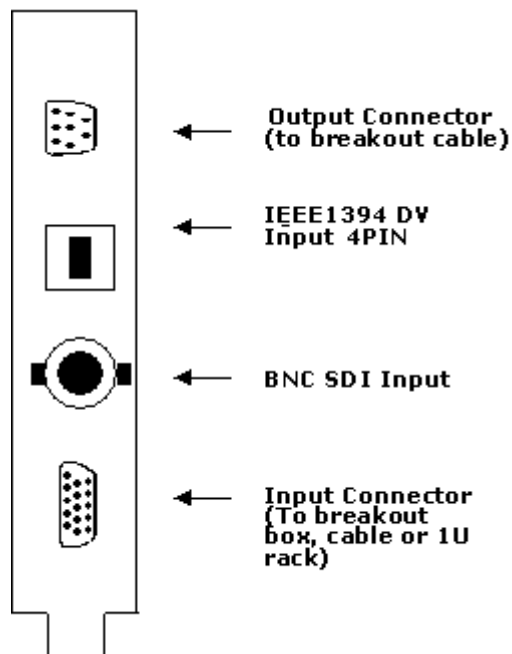
Connecting an SDI Source

Connecting an IEEE-1394 Source

Connecting Audio with the Osprey-2000

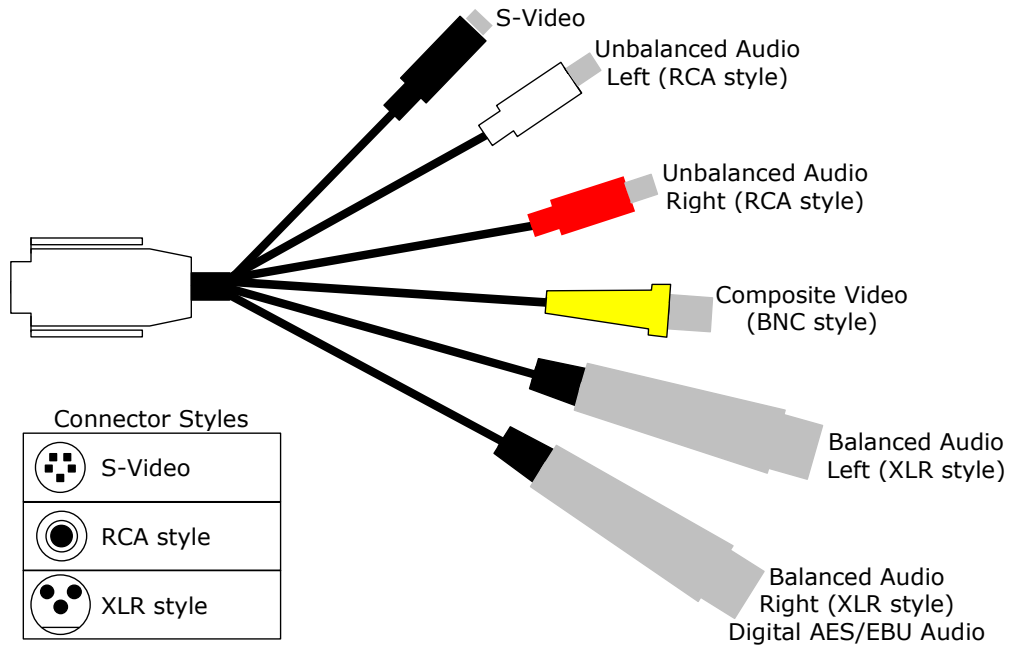
Osprey-2000 Backplate

The Osprey-2000 DV Pro board has four connectors on the backplate for audio and video.



- ◆ The Osprey-2000 backplate does not include the SDI or the IEEE-1394 DC input.
- ◆ The Osprey-2000 D Pro and Osprey-2000 Pro do not have the IEEE-1394 connector.
- ◆ The Osprey-2000 D DV does not have the SDI connector.

Osprey-2000 Input Breakout Cable

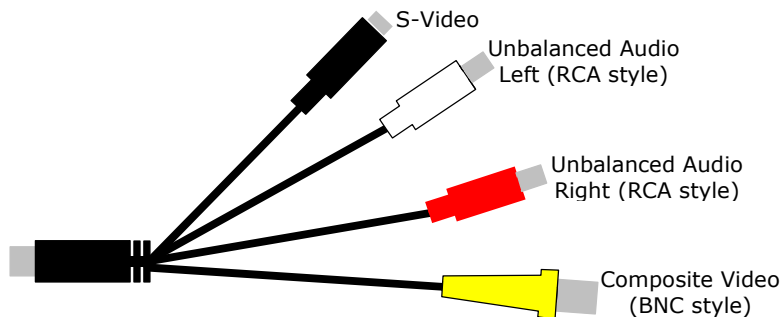


The breakout connector has inputs for composite video, S-Video, balanced and unbalanced audio, and professional digital audio. The breakout cable has a set (L/R) of unbalanced RCA style audio connectors and a set (L/R) of balanced (XLR) audio connectors. Additionally, the right XLR balanced input also is used as the professional digital audio input.



The input breakout cable is ViewCast Part Number 34-05009-01.

Osprey-2000 Output Breakout Cable



The output breakout cable has a set (L/R) of unbalanced RCA style audio connectors, a S-video connector, and a BNC style video connector.

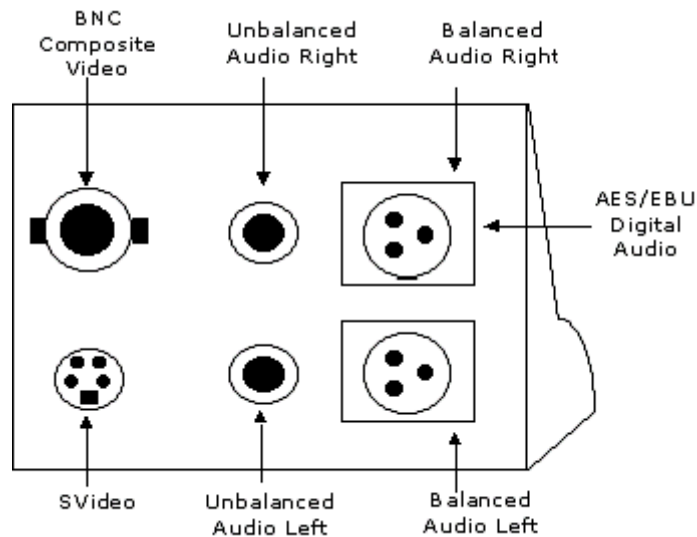


The output breakout cable is ViewCast Part Number 34-05008-01.

Osprey-2000 Input Breakout Box

The breakout connector has inputs for composite video, S-Video, balanced and unbalanced audio, and professional digital audio. The breakout cable/box has a set (L/R) of unbalanced RCA style audio connectors and a set (L/R) of balanced (XLR) audio connectors. Additionally, the right XLR balanced input also is used as the professional digital audio input (AES/EBU) for:

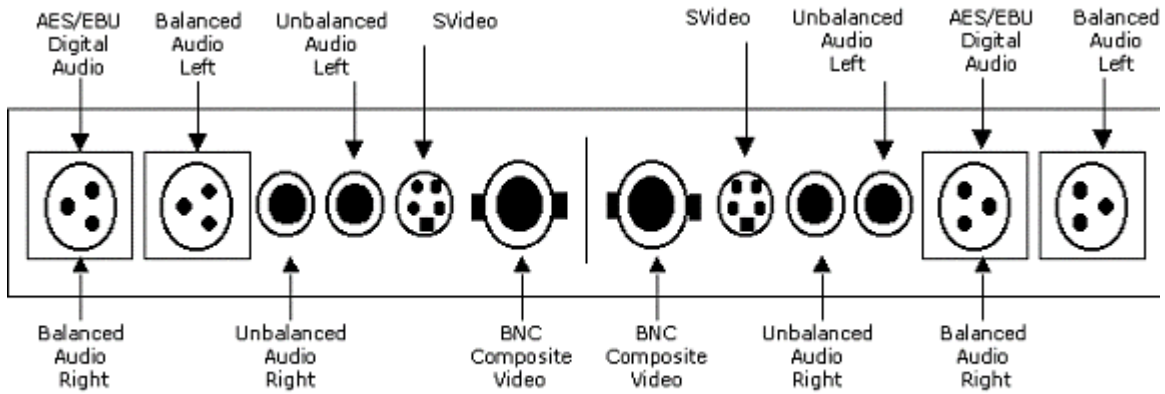
- ◆ Osprey-2000 Pro
- ◆ Osprey-2000 DV Pro
- ◆ Osprey-2000 D Pro
- ◆ Osprey-2000 D DV Pro



The input breakout box is ViewCast Part Number 95-00157-01.

Osprey-2000 Input Rack-mount Panel

A rack mount version of the breakout box is also available. The 1 unit high rack mount input box has the same inputs as the breakout box but includes two sets of inputs. A single rack mount input unit provides for two Osprey-2000 cards.



The rack-mount breakout box is ViewCast Part Number 95-00151-02.



Exact connector layouts are subject to change.

Connecting a Composite Source

If your video source provides only composite video, connect the source output cable to the Composite Video In connector. This is a BNC connector on the breakout box. A BNC to RCA adapter is provided if you don't have a BNC composite cable.

Connecting an S-Video Source

If your video source supports S-Video, connect the source output cable to the S-Video In connector on the breakout box. 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. Refer to [Chapter 8 - Osprey-2000 Video Control Dialog](#) for instructions on configuring the driver for S-Video.

Connecting an SDI Source

Four of the Osprey-2000 cards support SDI input:

- ◆ Osprey-2000 Pro
- ◆ Osprey-2000 DV Pro
- ◆ Osprey-2000 D Pro
- ◆ Osprey-2000 D DV Pro

These cards have a BNC connector for SDI (SMPTE-259M) video. A high quality SDI-qualified cable should be used when utilizing this connection, especially when the cable length is long. SDI carries both digital video and embedded digital audio. If your video or audio source supports SDI, connect the source output to the SDI input connector on the card backplate.

Connecting an IEEE-1394 Source

Three of the Osprey-2000 cards support a DV input:

- ◆ Osprey-2000 DV Pro
- ◆ Osprey-2000 D DV
- ◆ Osprey-2000 D DV Pro

DV carries digital audio and video, and both can be independently used by the Osprey-2000. The DV input is a 4 pin IEEE-1394 connection. If your video or audio source supports DV, connect a 4 pin IEEE-1394 cable between your source and the DV connector on the Osprey-2000 backplate.

Connecting Audio with the Osprey-2000

The Osprey-2000 has a variety of audio inputs, both analog and digital. Typically, the unbalanced analog RCA audio inputs should be the most versatile. Balanced audio inputs (via XLR connectors) provide cleaner audio, especially if the cable length is very long.

The prosumer may have a DV camera source and choose to use the audio embedded in the IEEE-1394 DV stream.

A choice of two digital audio inputs is available for professional and broadcast users. Embedded SDI and DV audio inputs are located on the card backplate. The breakout box contains a single professional AES/EBU stereo digital audio input. This input is shared with the right balanced analog input to prevent having both balanced audio and professional digital audio connected at the same time.

The selection of audio input to capture is independent of the video input selection. For example, even if you choose to use DV video as a source, you can still opt to use the analog balanced inputs instead of audio embedded in the DV stream. Refer to [Chapter 9 - Capturing Audio](#) for information about how to select the audio input for software applications.

Chapter 3 - Installing the Software - Windows 2000

The Windows NT 4.0 Osprey drivers do not work with Windows 2000. If your Osprey card(s) were installed under the Windows NT 4.0 operating system and the PC has now been upgraded to Windows 2000, you need to install the Windows 2000 drivers.

Please note:

Administrative privileges are required for installation.



Before installing software, check the ViewCast.com support website or the ftp site for the any driver update releases subsequent to the software shipped on your CD. For the ViewCast.com support website, go to **<http://www.ospreyvideo.com/>** -> **Osprey-2000** -> **MPEG Codec** -> **2000** -> **Get Software**. To reach the ViewCast.com ftp site, go to <ftp://ftp.viewcast.com/pub/OSP-2000/win2000/latest>. It's a good idea to check these sites periodically for update releases.

The screens used to illustrate the installation steps may not be exactly what appear on your computer screen. In some cases, version numbers and other minor differences may appear in the installation you are running.

The Osprey-2000 software is packaged as a base driver (required) and five optional components.

- ◆ OPI Runtime
- ◆ DirectShow Runtime
- ◆ OPI Software Developer Kit
- ◆ DirectShow Software Developer Kit
- ◆ VFW Software Developer Kit

The installation program installs the base driver first, then provides the choice of installing the optional components.

Basics: Installing from CD

Basics: Downloading and Installing Updated Drivers

- ◆ **Canceling Out the Found New Hardware Wizard**

Installation Options

- ◆ **Installation Scenario: Osprey Card(s) Physically Installed, but Osprey Software not Installed**
 - ◆ **Option A: Run the Installation Program (Recommended)**
 - ◆ **Option B: Use the Found New Hardware Wizard (Not Recommended)**

Testing the Installation

Ligos Technology's Indeo

Uninstalling the Software

Basics: Installing from CD

If necessary, follow the directions in **Chapter 2 - Osprey-2000 Hardware** to install the Osprey card. This software installation procedure works properly only if the card is already installed.

1. Turn on the machine and start Windows 2000.
2. **Cancel** out of the Found New Hardware wizard.
3. 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. The instructions for uninstalling the driver are documented in Uninstalling the Software.
4. Insert the Osprey-2000 driver CD into your CDRom drive. The installation instructions assume this is the (D:) drive. Substitute the proper drive as it appears on your system, if necessary.
5. Run the installation program
 - a. Click the **Start** button
 - b. Click **Run**
 - c. Enter **D:\Win2000\Setup** in the dialog box
 - d. Click **OK**
6. The installation program steps are self-explanatory for many users. If you need additional information, please refer to the section entitled **Option A: Run the Installation Program (Recommended)**.
7. The driver and demo programs are ready for use as soon as the installation program completes and you have rebooted the system. We suggest that you test the driver immediately. Please refer to **Testing the Installation for Windows 2000**.

Basics: Downloading and Installing Updated Drivers

1. The latest software drivers for Osprey-2000 MPEG cards are available via FTP (file transfer protocol) at the following locations:

<ftp://ftp.viewcast.com/pub/OSP-2000/win2000/latest>

The same driver is used for the six models of the Osprey card, so these links point to the same download file. There are also links to the drivers from our web site at <http://www.ospreyvideo.com/>.

2. It is not necessary to uninstall your existing Osprey-2000 driver before installing a newer version of the driver. The instructions for uninstalling the driver are documented in Uninstalling the Software.
3. Use your web browser, such as Microsoft Internet Explorer or Netscape Navigator, to find our FTP site and download the file. Type the FTP address <ftp://ftp.viewcast.com/pub/OSP-2000/win2000/latest> 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 appear until you reach the **win2000/latest** location. Refer to your browser's help files for more specific and detailed assistance.
4. There are two different methods for downloading the Osprey-2000 driver:
 - ◆ **MasterInstallation** - large, all-inclusive download package. Approximately 13MB, includes base driver and all five optional components
 - ◆ **IndividualComponentInstallation** - collection of individual component download packages. Download the base driver (1.8MB) and only the desired optional components (0.9 - 1.6MB each)

Both are on the ftp site. Download the web package file(s) in **win2000/latest** to your hard disk.

5. The *Found New Hardware* wizard will appear detecting each Osprey-2000 card in the computer. Follow the directions for Canceling Out of the Found New Hardware Wizard at each prompt.
6. Run the web package program:
 1. Click the **Start** button.
 2. Click **Run**.
 3. Enter *<pathname>* in the dialog box, where *<pathname>* is the location and name of the file that you have downloaded.
 4. Click **OK**.
 5. The program prompts for a temporary location for unpacking the install files.
 6. See **Option A: Run the Installation Program (Recommended)** for a full description of the Installation Program steps.

7. The MasterInstallation option looks almost exactly like the instructions in Option A: Run the Installation Program (Recommended). Simply double-click on file **Osprey-2000MasterInstallationforW2k.exe** to run the installation. If you selected the IndividualComponentInstallation, run the package **02k_100_w00.exe**, restart your computer, and then install the other package components by double-clicking on each one.

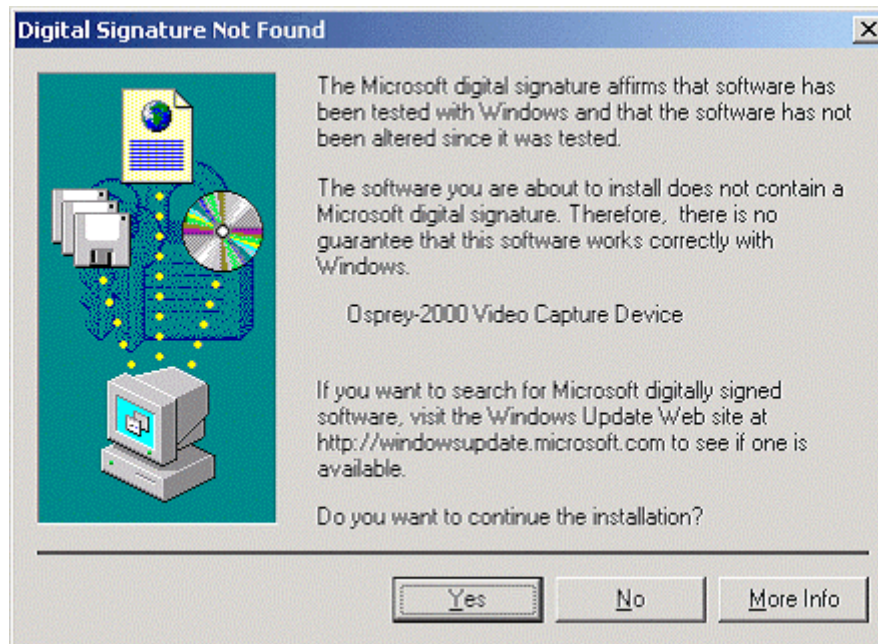


These files are not automatically deleted after setup has run. This feature exists to offer the option of performing the manual Plug and Play install later. If you want to conserve disk space, make a note of where these files are being unpacked, and delete them after the install.

Canceling Out of the Found New Hardware Wizard

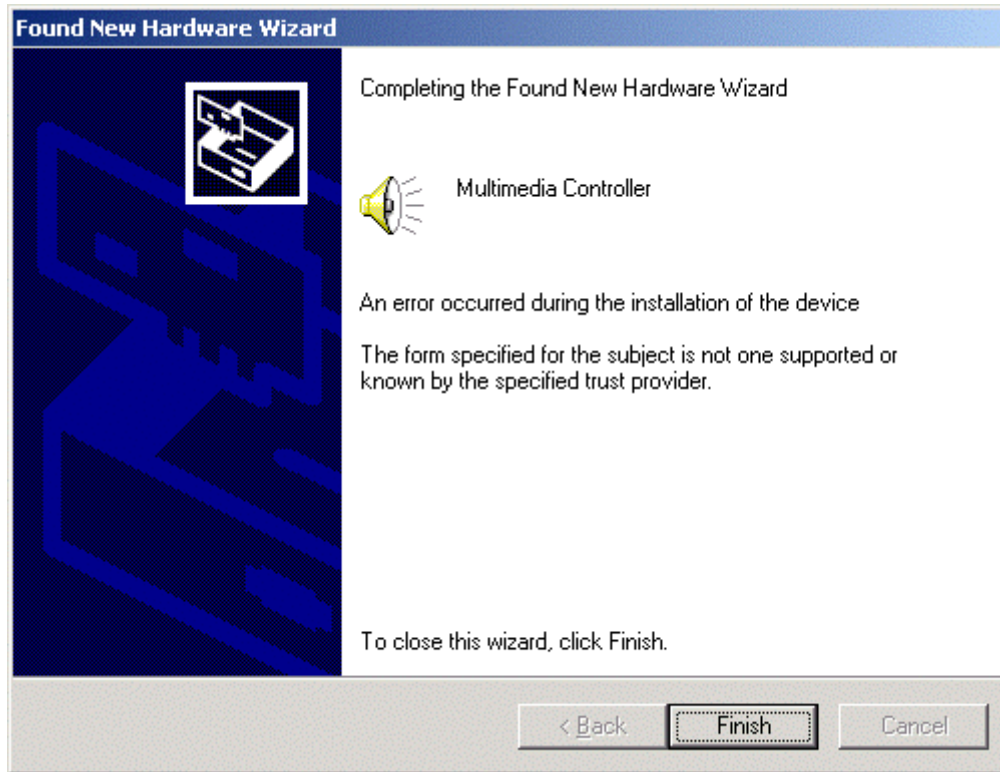
You can install an updated Osprey-2000 driver on top of an existing driver; there is no need to uninstall the existing driver first. The Found New Hardware wizard will run after this reboot. To cancel out of the Found New Hardware wizard:

The Digital Signature Not Found window displays for the Osprey-2000 video capture device.



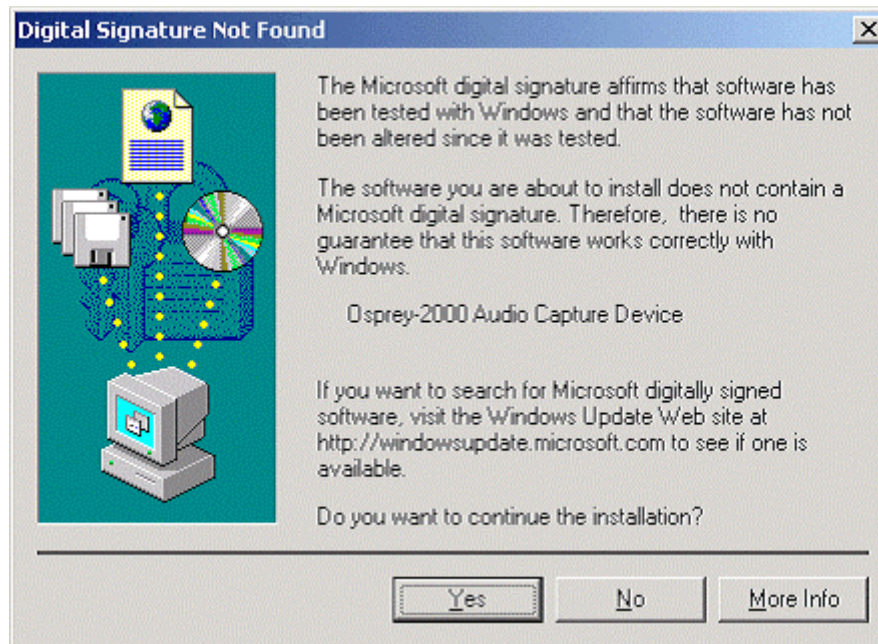
1. Click **No**.

The Completing Found New Hardware wizard window displays.



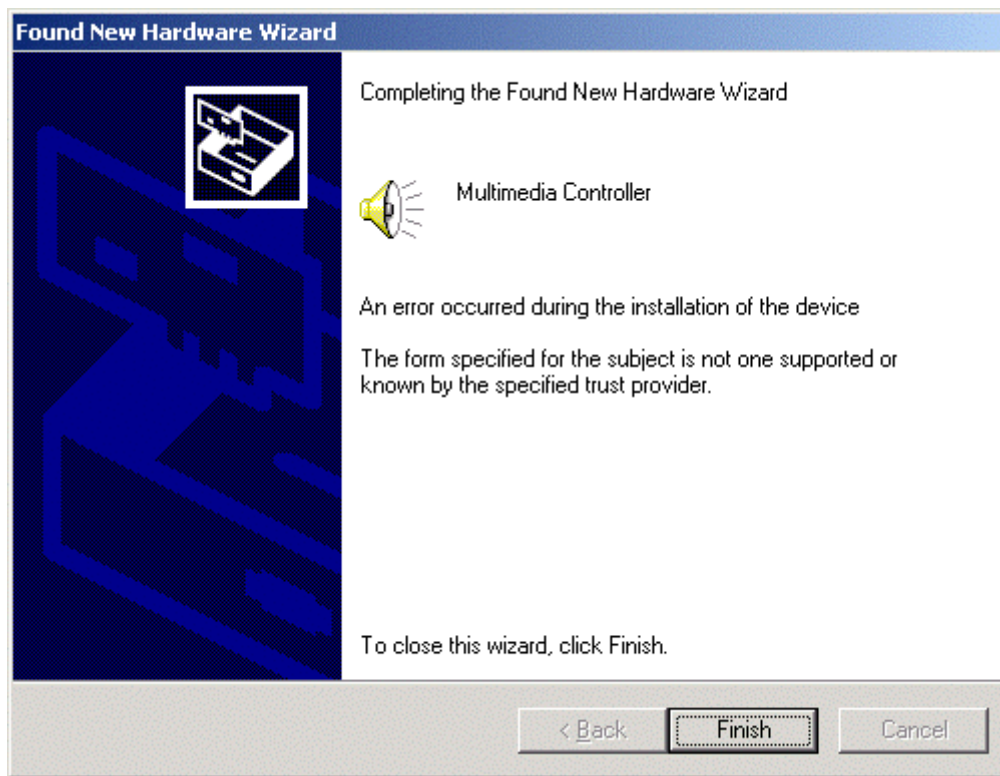
2. Click **Finish**.

The Digital Signature Not Found window displays for the Osprey-2000 audio capture device.



3. Click **No**.

The Completing Found New Hardware wizard window displays.



4. Click **Finish**.

Installation Options

In all cases, the most efficient and complete installation method is to run the **setup.exe** program on the product CD or in the web package that you downloaded. The setup program automates the Plug and Play steps required to install the drivers and ensures that they are performed correctly. It also installs the bundled applets and User's Guide. If you have multiple Osprey capture cards in the system, it configures all of the boards at the same time.

Installation Scenario: Osprey Card(s) Physically Installed, but Osprey Software Not Installed

- ◆ **Option A: Run the Installation Program (Recommended)**
- ◆ **Option B: Use the Found New Hardware Wizard (Not Recommended)**



You can skip the detailed instructions if you are upgrading from one Osprey driver version to another. Just run the setup.exe file to install all the updated components. You will be prompted to install the optional components after the base driver update has been installed.

Installation Scenario: Osprey Card(s) Physically Installed, but Osprey Software not Installed

In this case you have two options:

- ◆ **Option A: Run the Installation Program (Recommended)**
- ◆ **Option B: Use the New Hardware Found Wizard (Not Recommended)**

Option A: Run the Installation Program (Recommended)

When windows 2000 is started for the first time after the Osprey card is installed, the *Found New Hardware* wizard appears one or more times. Cancel out of these wizards. After Windows 2000 has finished starting, do the following:

To install the Osprey drivers:

1. Using Windows Explorer, locate and access the CD-ROM drive containing the Osprey Installation CD-ROM.
2. Navigate to the **WIN2000** directory.
3. Double-click **SETUP.EXE**. This executes the Osprey-2000 Master Installation Program, which will install the base driver and then prompt the user through installing the optional components.

The Osprey-2000 Master Installation Program window displays



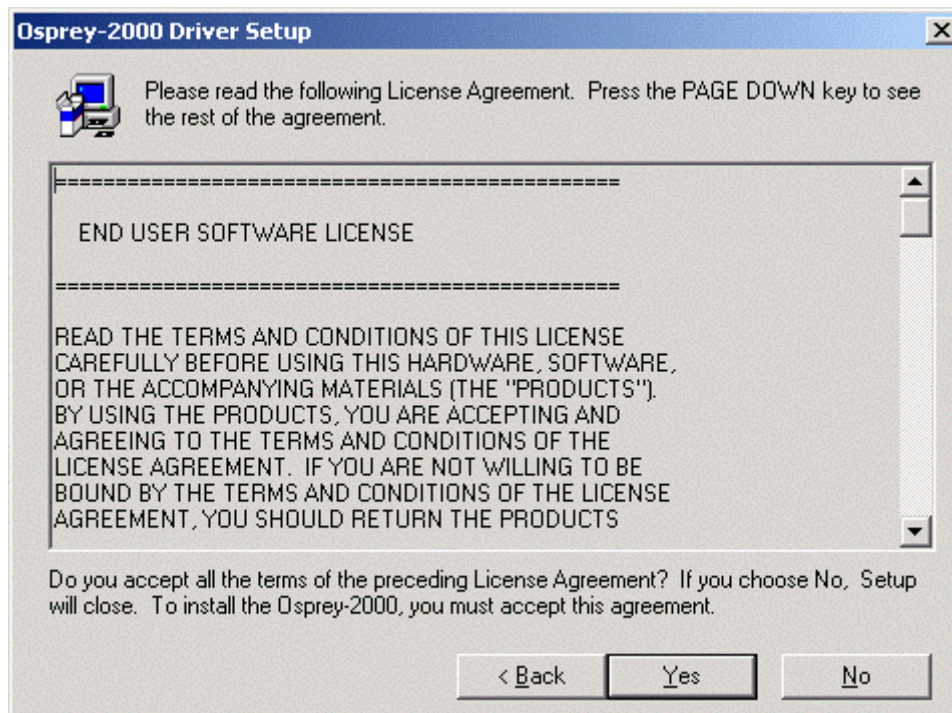
4. Click **Next**.

The Osprey-2000 Driver Installation Information window displays.

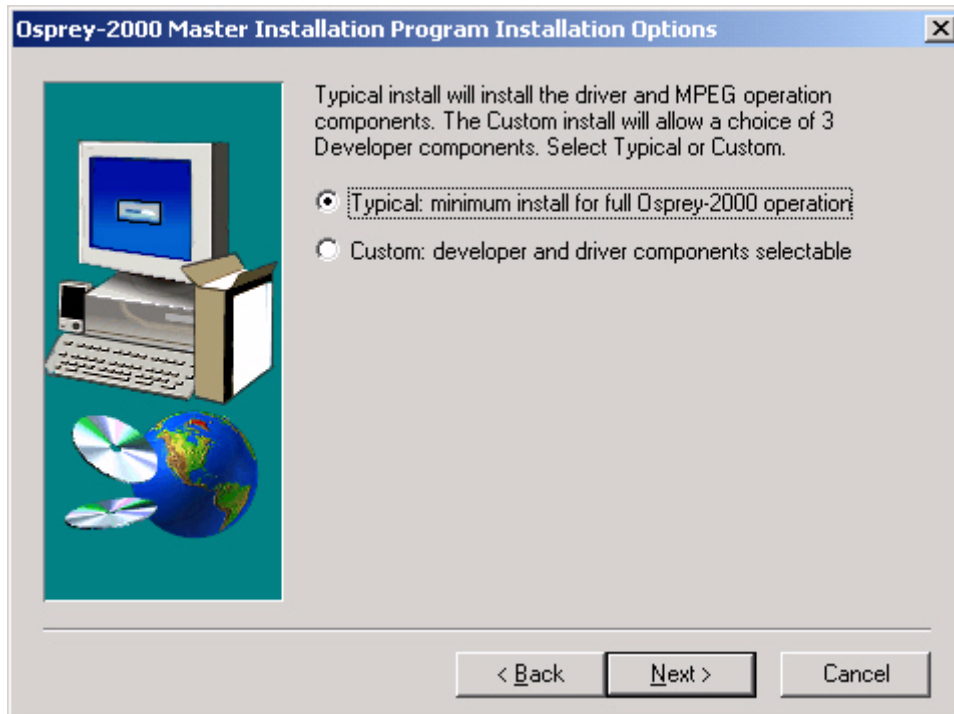


5. Click **Next**.

The Software License Agreement window displays.



6. Click **Yes** to accept the End User Software License Agreement. If you do not wish to accept the agreement, click **No** to terminate the installation routine. *The Master Installation Program Installation Options window displays.*



7. Select **Typical** (to install the Main Driver Software and the Runtime components necessary for full MPEG operation) or select **Custom** (and be prompted to choose among all the typical and developer components).
8. Click **Next** to continue or **Cancel** to abort the installation.

9. If you select the **Typical** installation, skip Step 10. Your next step will be to choose the Destination Folder. If you select the **Custom** installation, continue with Step 10.

The Master Installation Program Component Selection window displays.



The Osprey-2000 software consists of the **Main Driver Software** (required) and five optional components:

Video For Windows Software Development Kit supplements the Windows Video For Windows (VFW) control interface with Osprey-specific routines for selecting video port, decoding closed captions, and cropping, among other features. This component contains source code for several sample applications, documentation, and the software components necessary for users to write their own VFW applications using C++.

OPI Runtime Driver Component contains a digital VCR application (MpegVCR) and the software components necessary to use it.

DirectShow Runtime Driver Component contains DirectShow filters, MPEG encode, and MPEG decode applications along with the necessary libraries and DLL's for these applications. Adding these DirectShow filters allows Windows Media Player, RealEncoder, and other DirectShow enabled applications to work with MPEG2 bitstreams.

OPI Software Development Kit contains source for the MpegVCR application and all software and documentation components necessary for users to write their own applications using the Osprey Programming Interface.

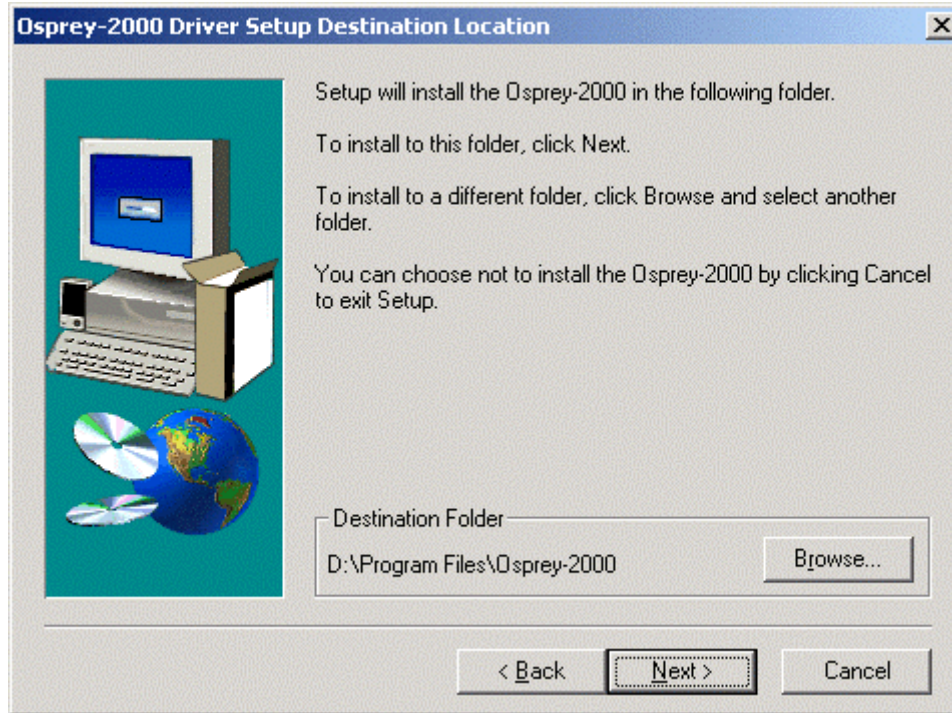
DirectShow Software Development Kit contains source code for the sample applications and the ViewCast.com components necessary to write user applications in Visual Basic and C++.

10. Check the box for **Main Driver Software** (required) and choose the checkboxes for any other components that you wish to install. Click **Next** to continue.



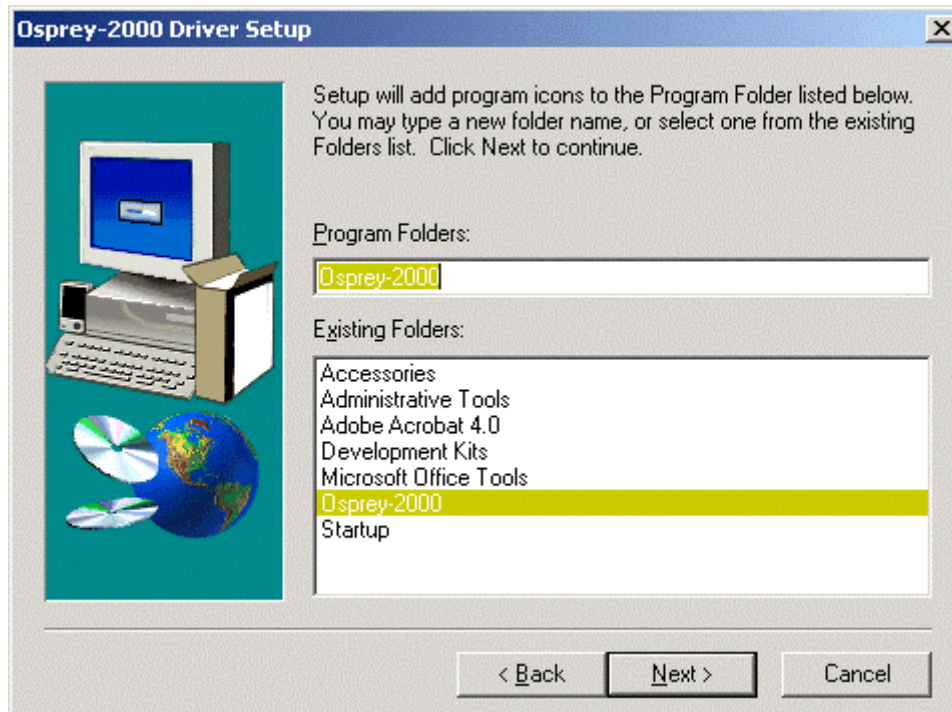
If you decide to install one of the optional components later, you can always install it from the CD.

The choose Destination Location window displays.



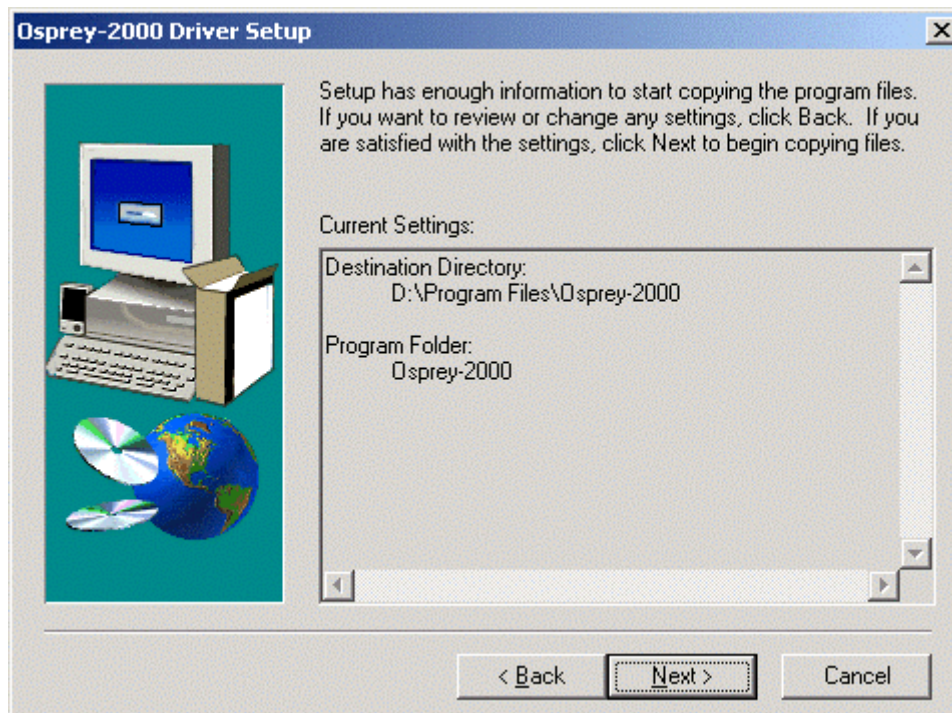
11. If you wish to change the destination location for the files, click **Browse**. Click **Next**.

The window to select a Program Folder displays.



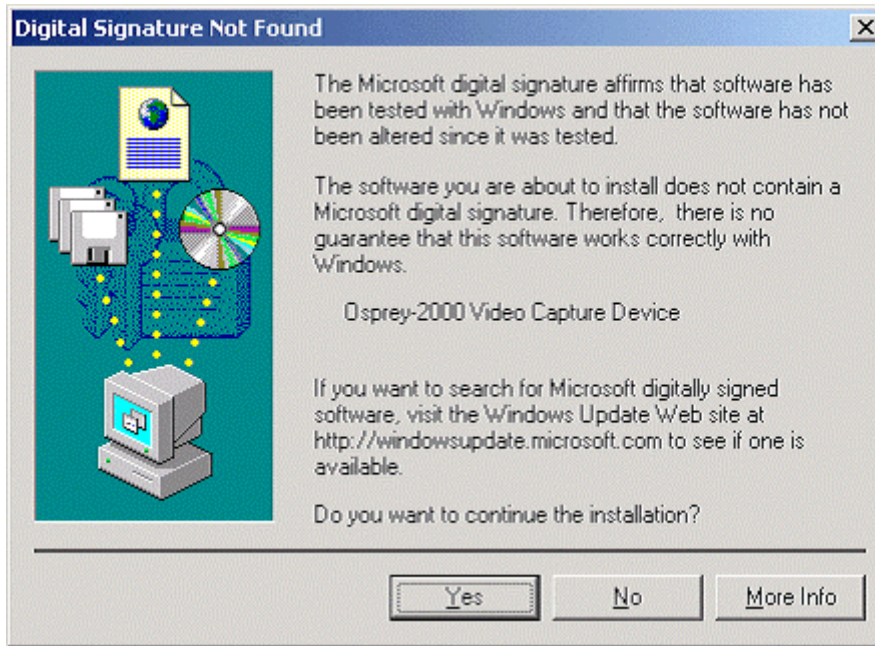
12. If you wish to change the program folder, type the new name in the Program Folders field. Click **Next**.

The Start Copying Files window displays.



13. If there are any settings to be changed prior to installation, click **Back** to return to the previous windows. Click **Next**.

The Digital Signature Not Found window for the Osprey-2000 Video Capture Device displays.

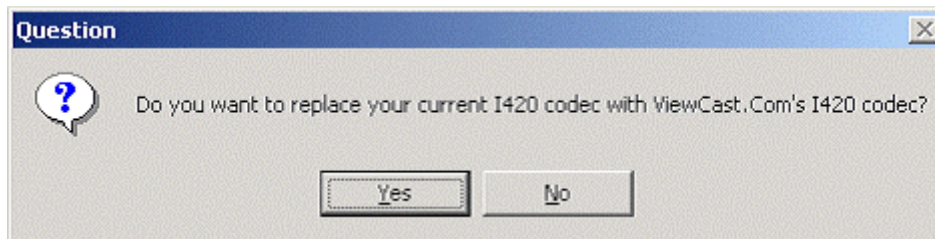


The Digital Signature Not Found window displays twice for each Osprey-2000 card in the computer. Windows 2000 recognizes the audio and video portions of the Osprey cards as separate items.

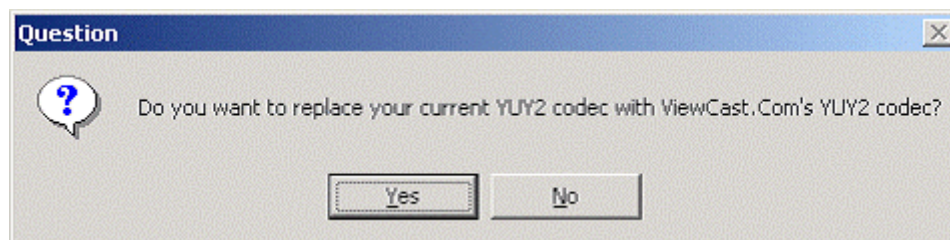
14. Click **Yes** to continue with the installation process.
The Digital Signature Not Found window for the Osprey-2000 Audio Capture Device displays.



15. Click **Yes** to continue with the installation process.
16. If you have installed a program or device driver which installed an I420 or YUY2 codec, you may also see the following two dialog windows.
The Question Dialog window for the I420 codec displays.



17. Click **Yes** to use ViewCast.com's I420 codec.
The Question Dialog window for the YUY2 codec displays.



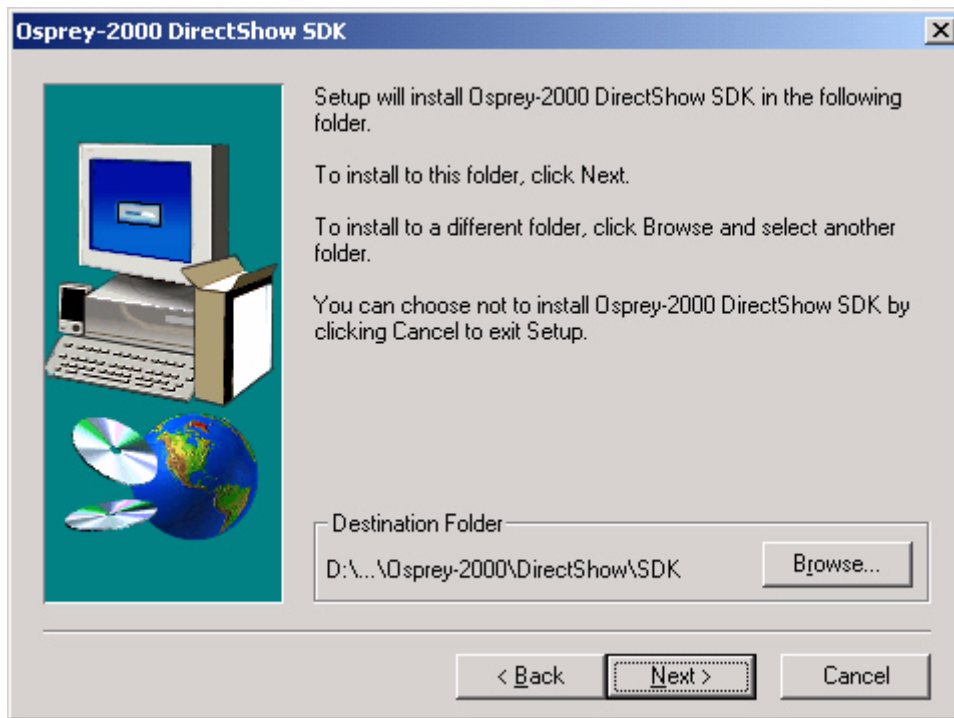
18. Click **Yes** to use ViewCast.com's YUY2 codec.

If you do not have the Runtime portion of Microsoft's DirectX 8 installed, the following window displays.



19. If this window is displayed, click **OK**. The DirectX 8 Runtime is on the Osprey-2000 CD (in **\DirectX8_redist**). The URL to download this from Microsoft is listed in DirectXMedia Details.
20. If you selected the **Typical** install option, the next window prompts you to restart your computer. Please skip to the final step in this series.
21. If you selected the **Custom** install option, please complete all the remaining steps.

The Osprey-2000 DirectShow SDK Choose Destination window displays.



If you plan to use the Osprey DirectShow Software Developer's Kit (SDK), you should read the Configuration of the Development Environment section of the Osprey DirectShow SDK document for special instructions on installing the software. In particular, the Microsoft DirectX 8 SDK is required. The installation program for Osprey DirectShow SDK generates a warning message if this component is not present.

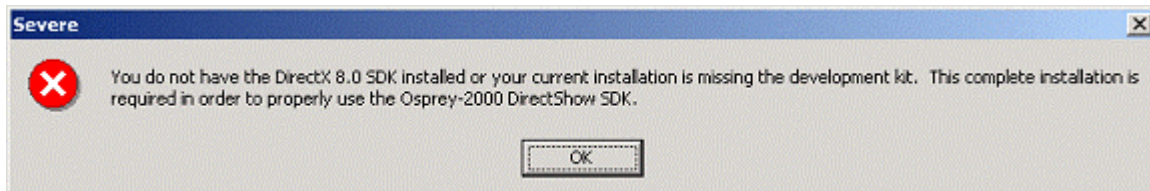
22. If you want to install this optional component, click **Next**. Click **Cancel** to skip installation of this component.

The Osprey-2000 DirectShow SDK Choose Destination window displays.



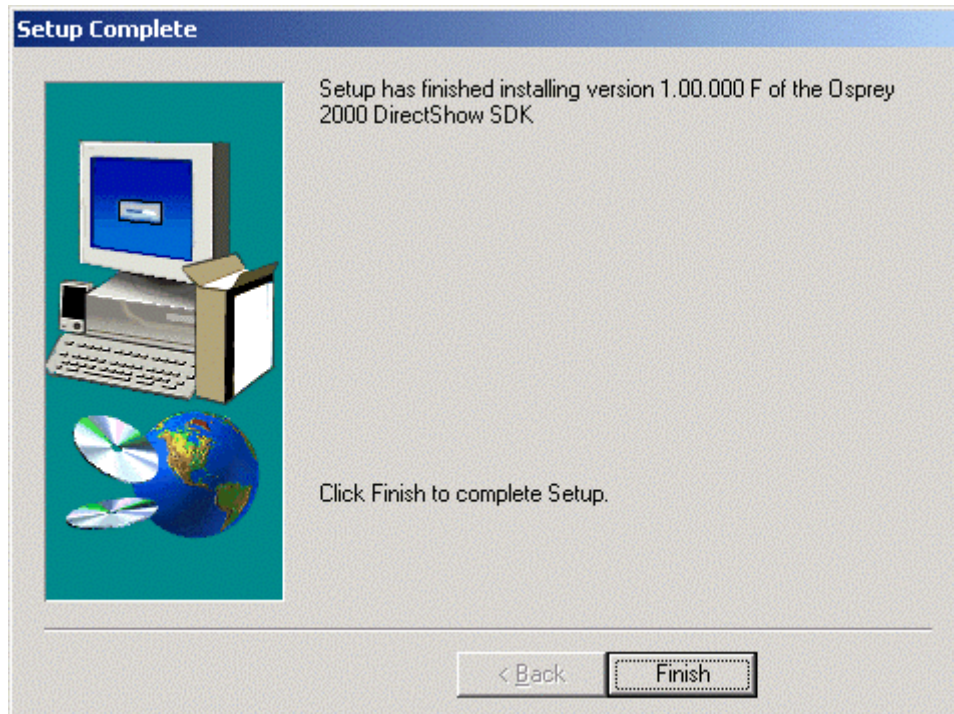
23. If you wish to change the destination location for the files, click **Browse**. Otherwise, click **Next**.

If you do not have the DirectX 8 SDK installed, the following window displays.



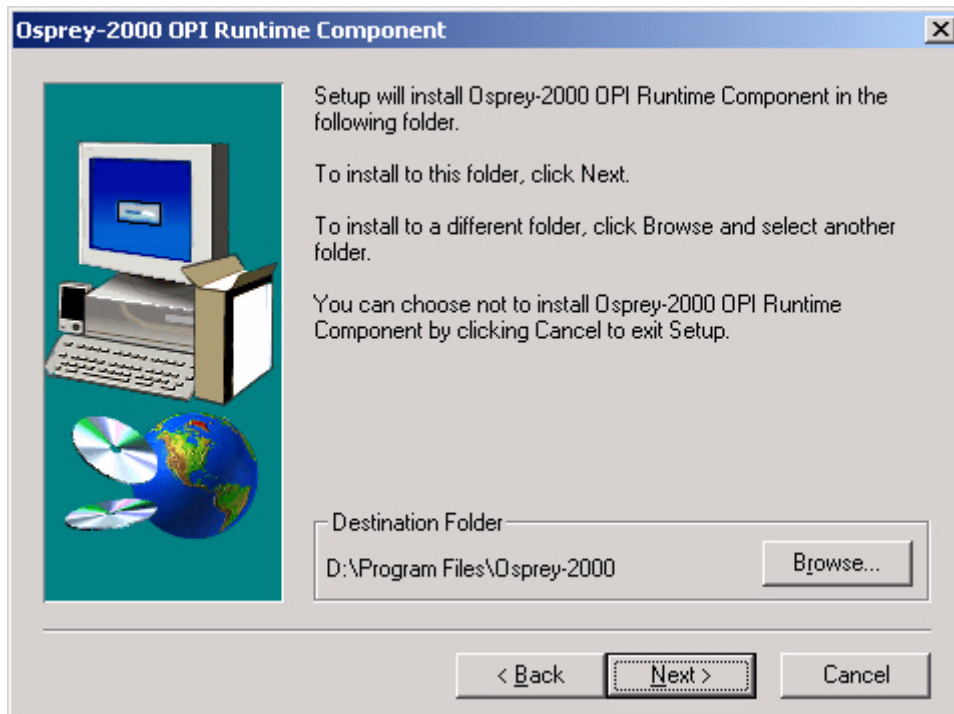
24. Click **OK**, and refer to the DirectShow SDK documentation for further information.

The Osprey-2000 DirectShow SDK Setup Complete window displays.

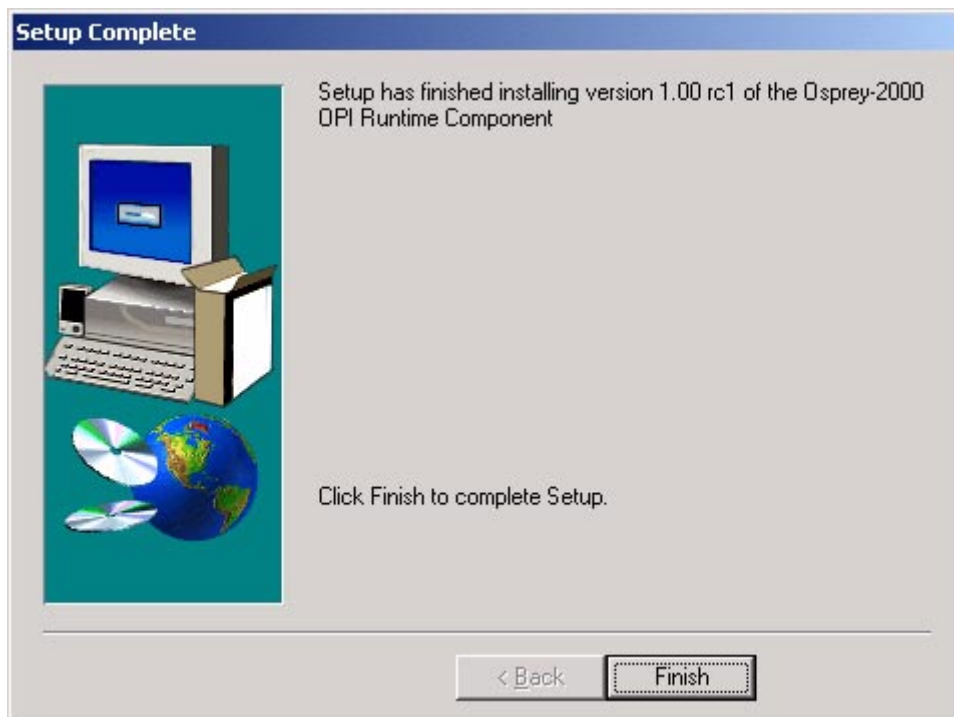


25. Click **Finish**.

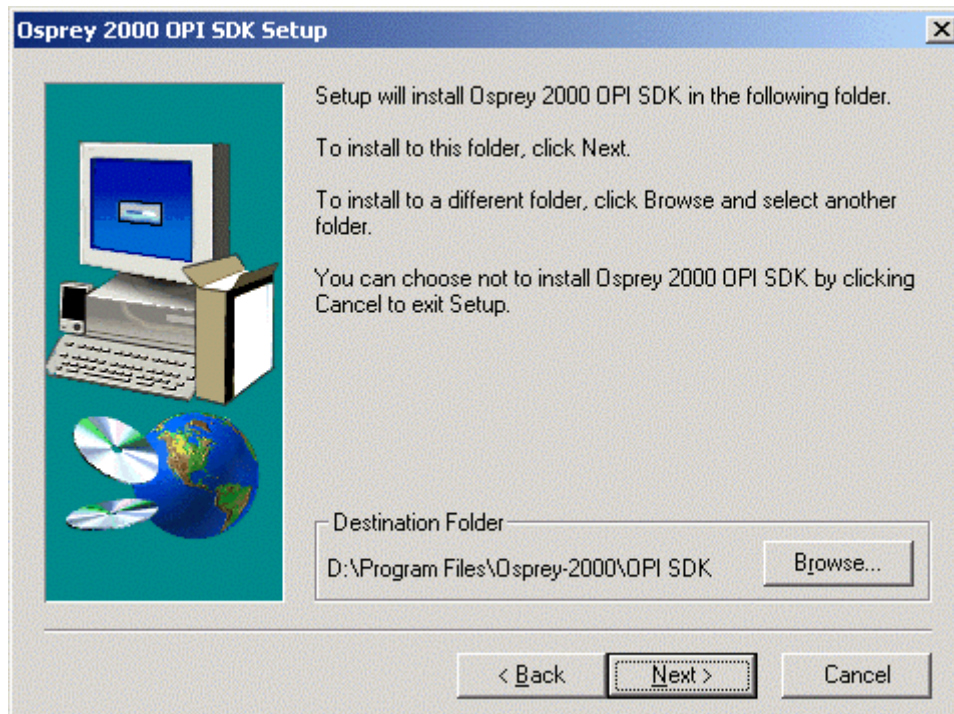
The Osprey-2000 OPI Runtime Component Choose Destination window displays.



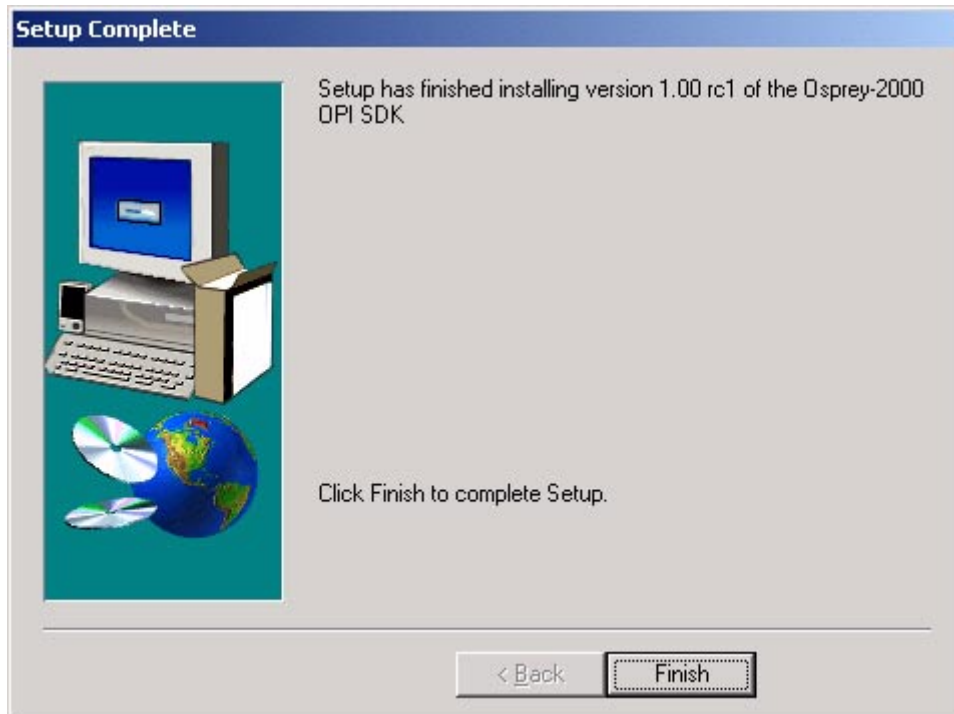
26. If you want to change the destination location for the files, click **Browse**. Otherwise, click **Next**. Click **Cancel** to skip the installation of this component. *The Osprey-2000 OPI Runtime Component Setup Complete window displays.*



27. Click **Finish**. *The Osprey-2000 OPI SDK Setup Choose Destination window displays.*



28. If you wish to change the destination location for the files, click **Browse**. Otherwise, click **Next**. Click **Cancel** to skip the installation this component. *The Osprey-2000 OPI SDK Setup Complete window displays.*

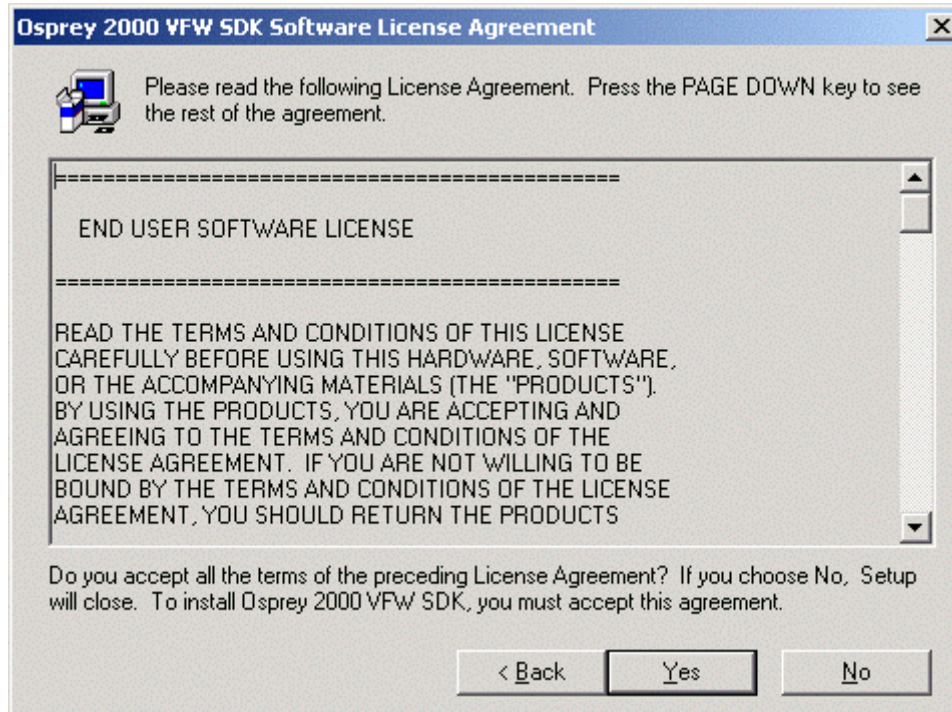


29. Click **Finish**. *The Osprey-2000 VFW SDK Install window displays.*



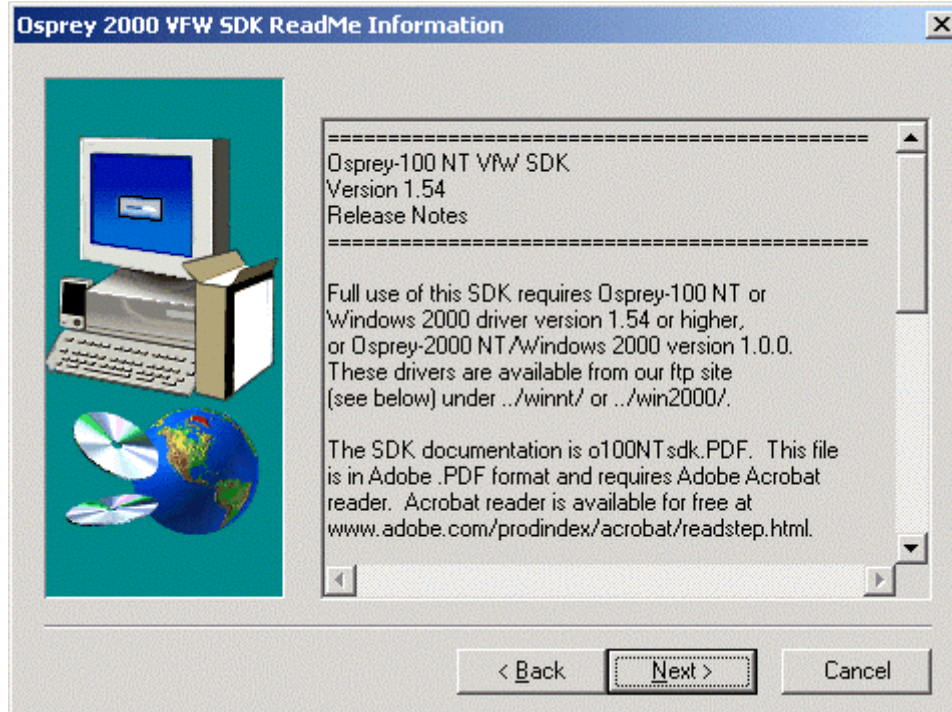
30. If you want to install this optional component, click **Next**. Click **Cancel** to skip the installation component.

The Osprey-2000 VFW SDK Software License Agreement window displays.



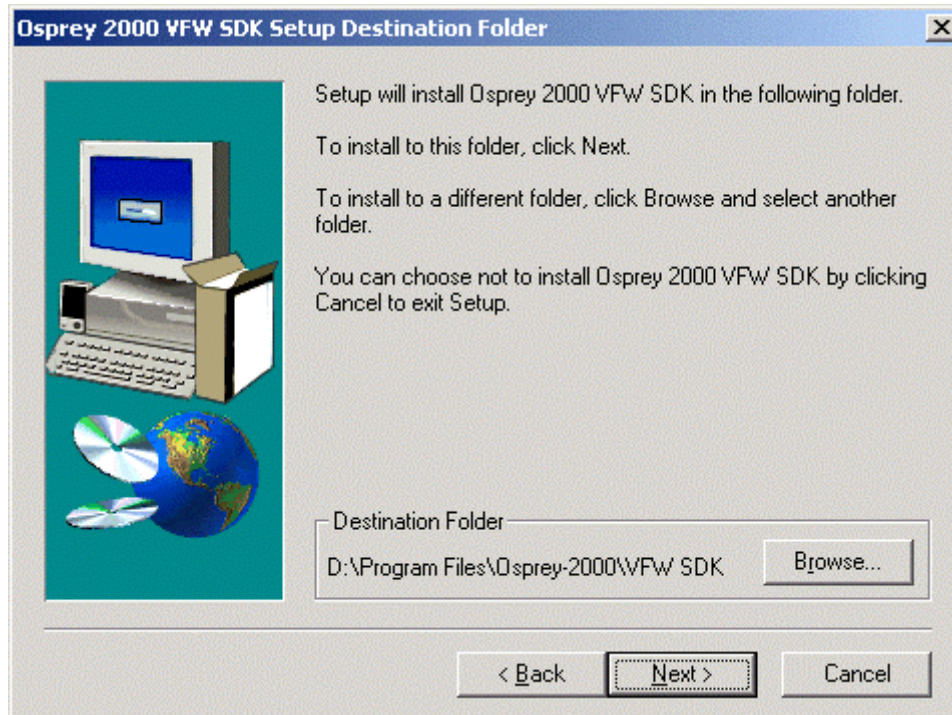
31. Review this message and make sure that the licensing terms are acceptable. Click **Yes** to accept the agreement. Click **No** to terminate installation of this component.

If you clicked Yes, the Osprey-2000 VFW SDK ReadMe Information window displays.



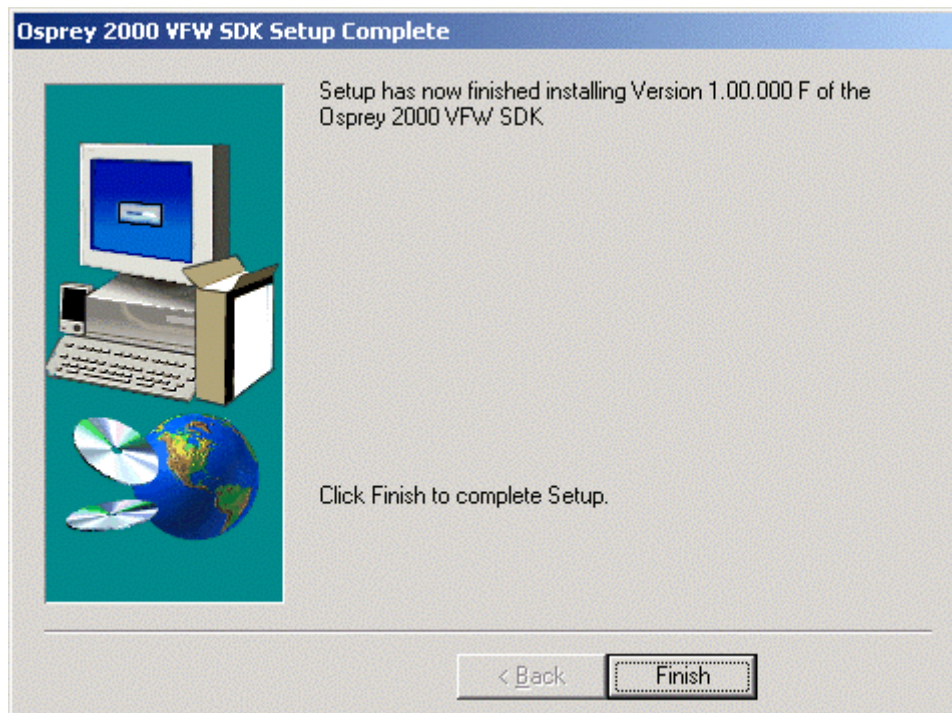
32. Read this file and click **Next**.

The Osprey-2000 VFW SDK Setup Destination Folder window displays.



33. Click **Browse** to change the destination location for the files. Click **Next**.

The Osprey-2000 VFW Setup Complete window displays.



34. Click **Finish**.

The Osprey-2000 Master Installation Setup Complete window displays.



35. Click **Finish** to complete the installation. You must restart your computer before you can use the Osprey-2000 card.

Option B: Use the Found New Hardware Wizard (Not Recommended)

This method is more complicated than Option A. It is particularly inconvenient if you are installing multiple cards at once, since each card has to be set up separately. This process installs only the driver and is useful only for updating the driver component. Furthermore, to get the sample applications and other required items, you must still run the setup.exe program.



The following windows and instructions assume that you are working with a computer on which the Osprey-2000 software has never previously been installed.

When Windows 2000 starts, it detects the new card(s) and starts the Found New Hardware Wizard.

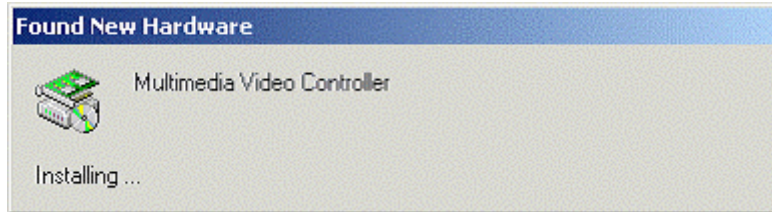


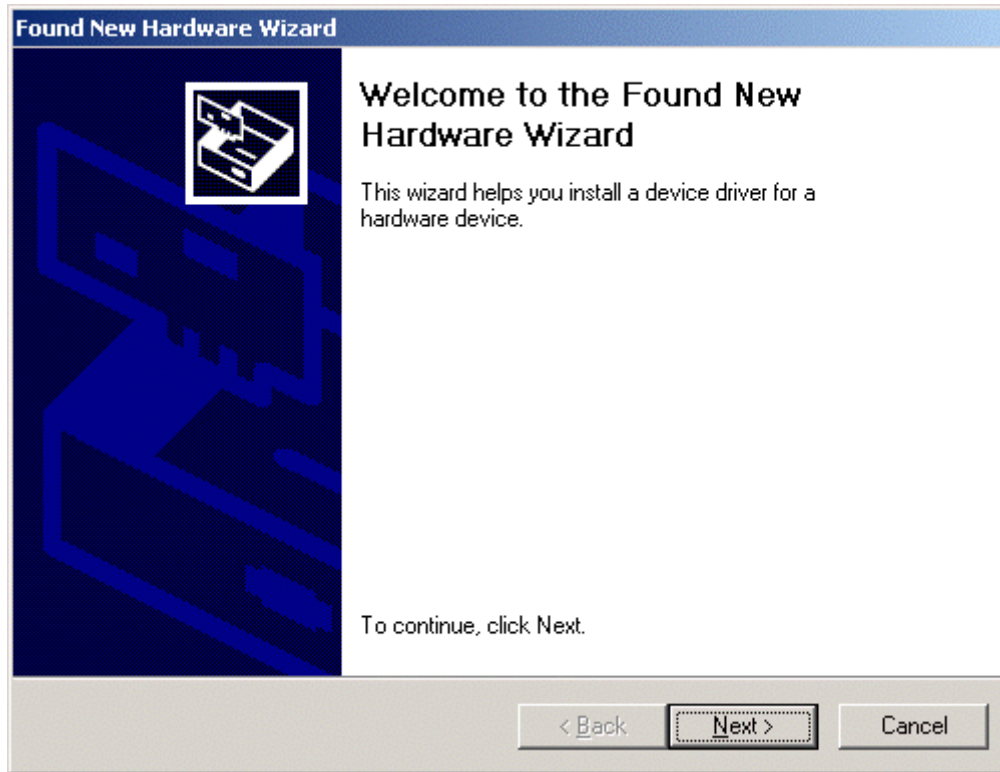
Please carefully note the terminology in the Found New Hardware Wizard.

For all Bt/Ct878-based Osprey cards, the Wizard detects two logical devices for each card - a Multimedia Video Controller device and a Multimedia Controller device.

The Multimedia Video Controller corresponds to the Osprey-2000 video device. The Multimedia Controller corresponds to the Osprey-2000 audio device.

The Found New Hardware window displays first, and is quickly obscured by the Welcome window.



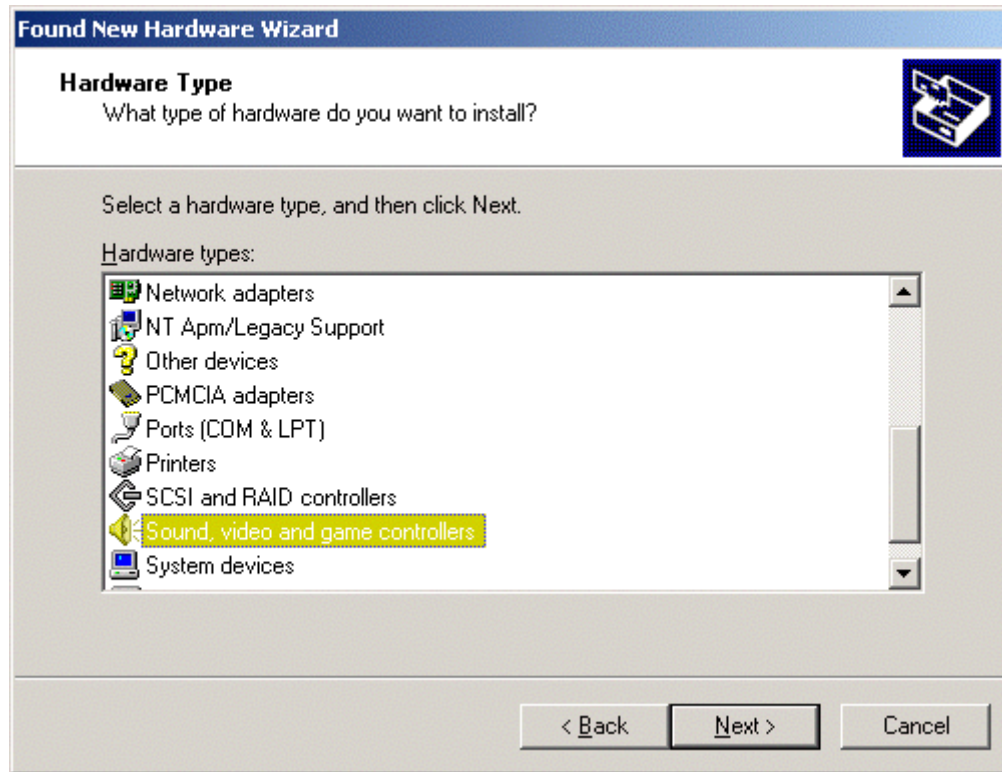


1. Click **Next**.
The Install Hardware Device Drivers window displays.



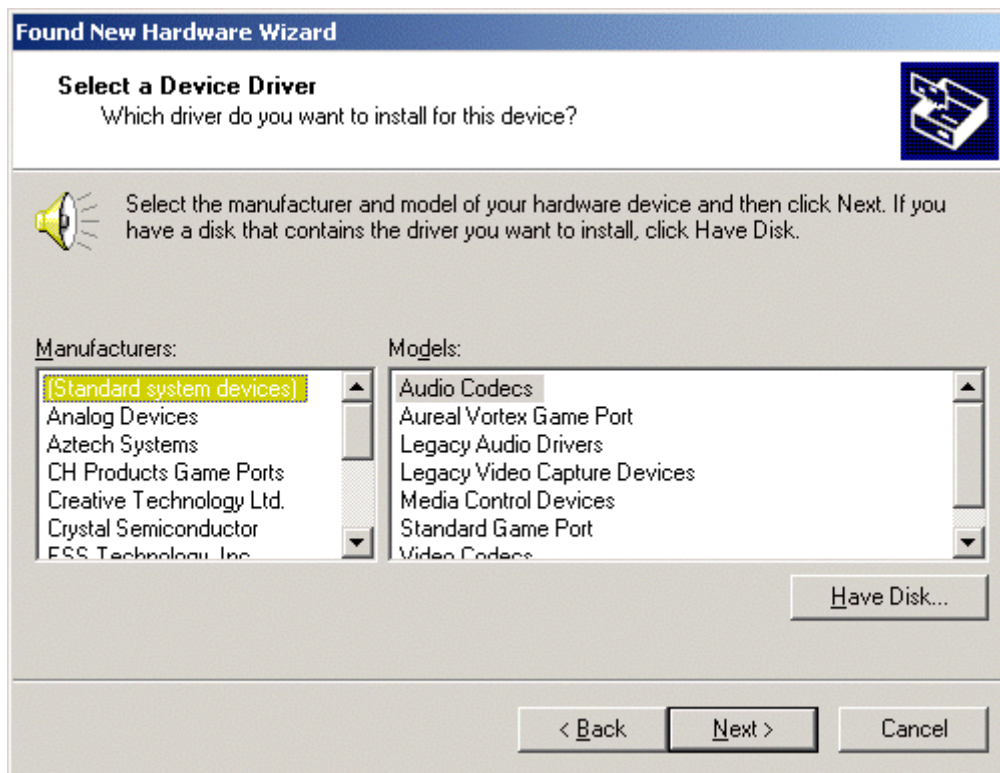
2. Select the option to **Display a list of the known drivers for this device** and click **Next** to continue.

The Install Hardware Type window displays.



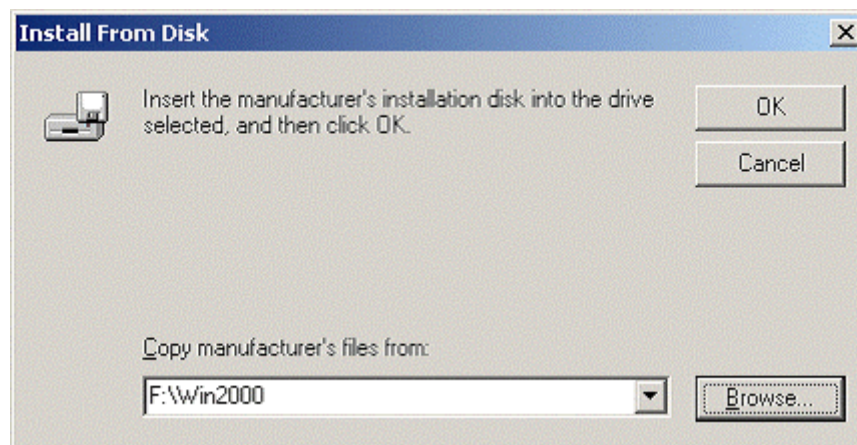
3. Scroll down to **Sound, video and game controllers**, click to select, and click **Next** to continue.

The Select a Device Driver window displays.



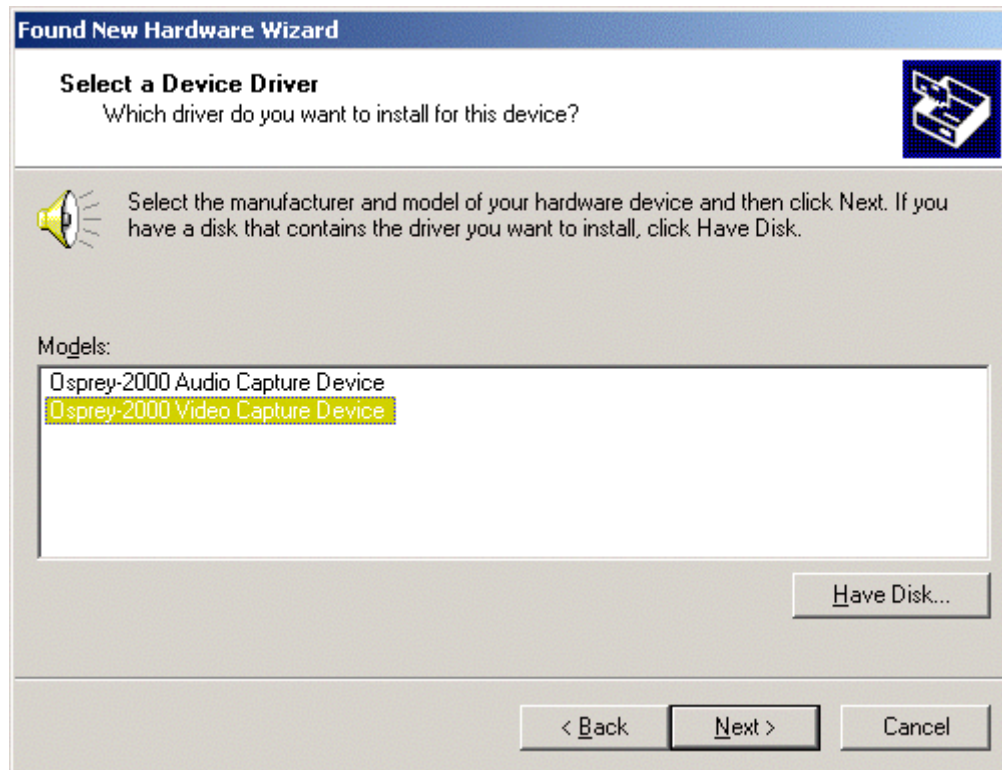
4. Click **Have Disk**.

The Install from Disk window displays.



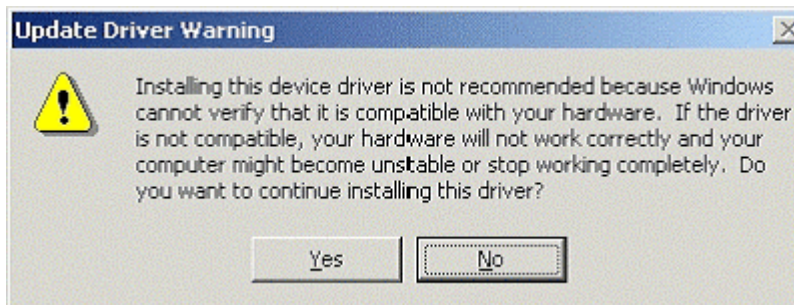
5. The default path is usually A:\. Reset the path to the directory containing the Osprey-2000 install files. In this example, they are on the CD in **F:\WIN2000**. Click **OK** once the path has been set.

The Select a Device Driver window displays.



6. Select the Osprey-2000 Video Capture Device and click Next.

A warning message displays.



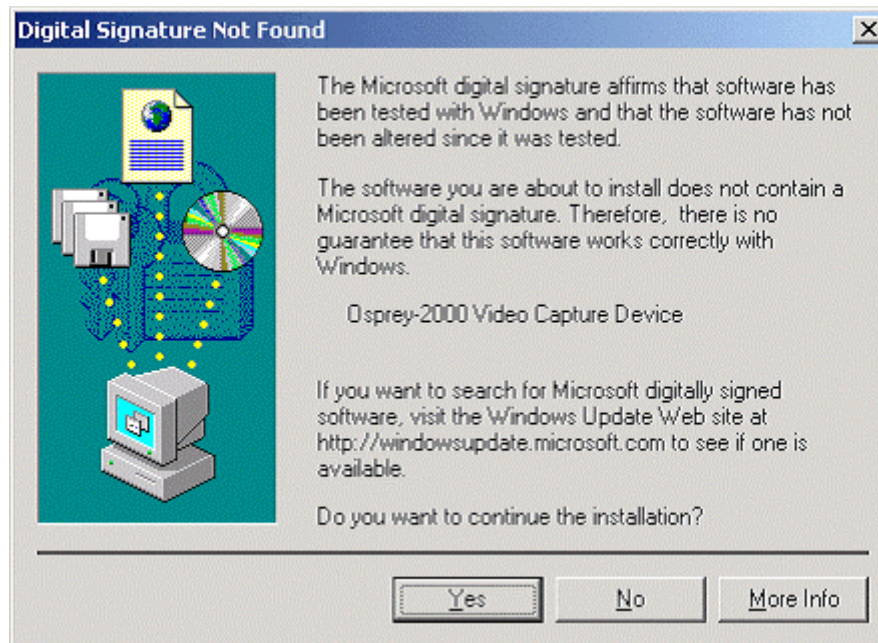
7. Click **Yes**.

The Start Device Driver Installation window displays.

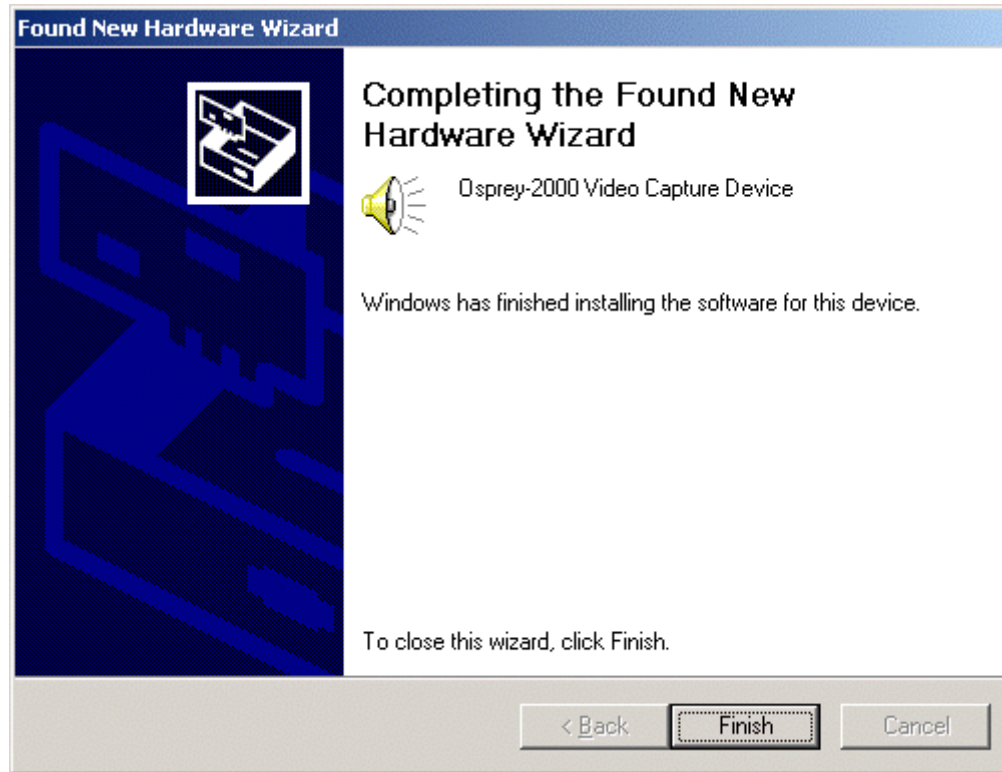


8. Click **Next**.

The Digital Signature Not Found window displays.



9. Click **Yes**.
The Completion window displays.

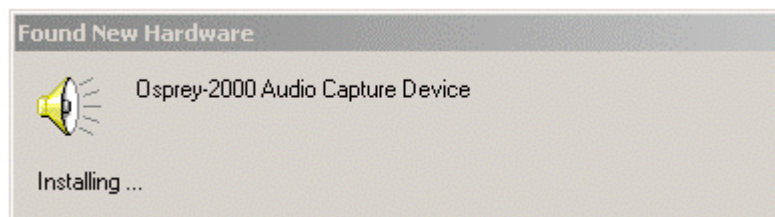


10. Click **Finish**.



At this point, the Osprey-2000 video driver has been installed.

The second Found New Hardware Wizard window displays and is quickly obscured by the second Digital Signature Not Found Window.





11. Click **Yes** to complete the driver installation process.
12. You must restart your computer before you can use the Osprey-2000 card.



The Digital Signature Not Found window displays twice. Windows 2000 recognizes the audio and video portions of the Osprey cards as separate items. You will not see these messages if you've disabled signature requirement under Windows 2000.



This process installs only the driver and is useful only for updating the driver component. To get the sample applications and other required items, you must still run the setup.exe program. See **Option A** in Chapter 3 for those instructions.

Testing the Installation for Windows 2000

1. Verify that the hardware installation is complete according to the directions in [Chapter 2 - Osprey-2000 Hardware](#).
2. Connect a video signal source to one of the Osprey-2000 connectors (Composite/S-video/SDI/DV). See [Connecting Cables](#).
3. Open the Osprey-2000 group in the Start menu.
4. Click the VidCap32 icon. Refer to [Chapter 10 - VidCap32, AmCap, and Included Demo Programs](#) for more information on this application.
5. If your input is composite video, the screen displays a still video frame from the Osprey-2000 board. Click the **Overlay** button. The screen should display moving video frames. If your input choice is not composite video (the default), select the **Video Source** option under the **Options** menu to bring up the Osprey-2000 video capture driver configuration box where you can select your video input.
6. If the video area does not contain video, it could be for one of the following reasons:
7. The driver is looking for video on the wrong input connector. You can either move the video cable to another connector or reconfigure the driver using its Control Dialog. Refer to [Chapter 8 - Osprey-2000 Video Control Dialog](#).
8. The video source is not turned on or activated.
9. 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 equipment always need to change the driver's signal format the first time they run the driver. Refer to [Chapter 8 - Osprey-2000 Video Control Dialog](#) for more information.

Indeo

Ligos Technology's Indeo codec is provided on the Osprey-2000 CD. Double-click on file **Indeo\Disk1\Setup.exe** to install this package containing compression and color formats.

Please see [Ligos Technology's Indeo](#) in Chapter 10 - VidCap32, AmCap, and Included Demo Programs for a description of this package.

Uninstalling the Software - Windows 2000

If necessary, you may remove the Osprey Driver from your system or deactivate the driver under Windows 2000.

To Remove the Osprey Driver

To Deactivate the Driver under Windows 2000

To Remove the Osprey Driver

1. If you have installed one of the DirectShow optional components, the first step in the uninstall process is to remove DirectShow filter entries from the registry. Double-click on the file
\Program Files\Osprey-2000\DirectShow\Filters\unregister.bat
2. Open the Control Panel.
3. Double-click **Add/Remove Programs**.
4. Click to select **Change or Remove Programs**.
5. Highlight the **Osprey-2000** entry.
6. Click the **Change/Remove in the Osprey** entry.
The uninstall program begins.
7. Click **Yes** to proceed.
8. Click **OK** when the process is complete.
9. Repeat this for each optional component that you have installed:
Osprey-2000 DirectShow SDK
Osprey-2000 OPI SDK
Osprey-2000 DirectShow Runtime
Osprey-2000 OPI Runtime Component
Osprey-2000 VFW SDK
10. Reboot your computer to complete removing the driver.

To Deactivate the Driver under Windows 2000

1. Open the Control Panel.
2. Double-click **System** to open the System Properties applet.
3. Click the **Hardware** tab.
4. Click on the **Device Manager** button.
5. Open Sound, video and game controllers.
6. Select **Osprey-2000 Audio Capture Device**. Right-click it and select **disable**.
7. Select **Osprey-2000 Video Capture Device**. Right-click it and select **disable**.



You have disabled the Osprey-2000 driver. To enable it again, either reboot the machine, or right-click the audio and video portions of the device and select enable.

Chapter 4 - Installing the Software - Windows NT 4.0

The Osprey-2000 MPEG/Capture card product contains a single CD for Windows 2000 and Windows NT 4.0. The software consists of the base driver and three optional components. The installation program requires you to install the base driver, and then prompts to install each of the optional components:

- ◆ OPI Runtime (contains MpegVCR application)
- ◆ OPI SDK (contains source code for MpegVCR)
- ◆ VFW SDK (contains source code for control panel applet and closed caption decoding software)

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

Please note:

Administrative privileges are required for installation.

Before installing software, check the ViewCast.com support website or the ftp site for any driver update releases subsequent to the software shipped on your CD.

The screens used to illustrate the installation steps may differ slightly from those that appear on your computer. In some cases, version numbers and other minor differences may appear in the installation you are running.



If you already have the Osprey driver 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 removes or replaces any files or registry settings that are outdated.

For the ViewCast.com support website, go to <http://www.ospreyvideo.com/> -> **Osprey-2000** -> **MPEG Codec** -> **2000** -> **Get Software**.

To reach the ViewCast.com ftp site, go to <ftp://ftp.viewcast.com/pub/OSP-2000/winnt/latest>. It is a good idea to check these sites periodically for update releases.

For more information, see [Getting Help](#) in Chapter 1.

Installing from CD

Downloading and Installing Updated Drivers

Setup Program: Details

Testing the Installation for Windows NT

DXMedia

Indeo

Uninstalling the Software

Installing from CD

If necessary, follow the directions in [Chapter 2 - Osprey-2000 Hardware](#) to install the Osprey card. This software installation procedure works properly only if the card is already installed.

1. 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. The instructions for uninstalling the driver are documented in Uninstalling the Software.
3. Insert the Osprey-2000 driver CD into your CDROM drive. The installation instructions assume this is the (D:) drive. Substitute the proper drive as it appears on your system, if necessary.
4. Run the installation program
 - a. Click the **Start** button
 - b. Click **Run**
 - c. Enter **D:\WinNT\Setup** in the dialog box
 - d. Click **OK**
5. The installation program steps are self-explanatory for many users. If you need additional information, please refer to [Setup Program: Details](#).
6. The driver and demo program are ready for use as soon as the installation program completes and you have rebooted the system. We suggest you test the driver immediately. Refer to [Testing the Installation for Windows NT](#).

Downloading and Installing Updated Drivers

1. Install the Osprey 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 Osprey-2000 cards are available via FTP (file transfer protocol) at the following location:
`ftp://ftp.viewcast.com/pub/OSP-2000/winnt/latest`
There are also links to the drivers from our web site at:
`http://www.ospreyvideo.com/`
3. Use your web browser, such as Microsoft Internet Explorer or Netscape Navigator, 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 appear until you have reached the **winnt/latest** location. Refer to your browser help files for more detailed assistance.
4. There are two different methods for downloading the Osprey-2000 driver:
 - ◆ **MasterInstallation** - large, all-inclusive download package. Approximately 13MB, includes base driver and all five optional components
 - ◆ **IndividualComponentInstallation** - collection of individual component download packages. Download the base driver (1.8MB) and only the desired optional components (0.9 - 1.6MB each)

Both are on the ftp site. Download the web package file(s) in **win2000/latest** to your hard disk.

5. It is not necessary to uninstall your existing Osprey-2000 driver before installing a newer version of the driver. The instructions for uninstalling the driver are documented in Uninstalling the Software.
6. Run the web package program.
 1. Click the **Start** button.
 2. Click **Run**.
 3. Enter *<pathname>* in the dialog box, where *<pathname>* is the location and name of the file that you have downloaded.
 4. Click **OK**.
 5. The MasterInstallation option looks almost exactly like the instructions in Option A: Run the Installation Program (Recommended). Simply double-click on file **Osprey-2000MasterInstallationforNT.exe** to run the installation. If you selected the IndividualComponentInstallation, run the package **02k_100_nt4.exe**, restart your computer, and then install the other package components by double-clicking on each one.

7. The program prompts for a temporary location in which to unpack the installation files and starts the setup program. The setup program guides you through the installation steps. For many users this process is self-explanatory. If you need additional information, refer to [Setup Program: Details](#).



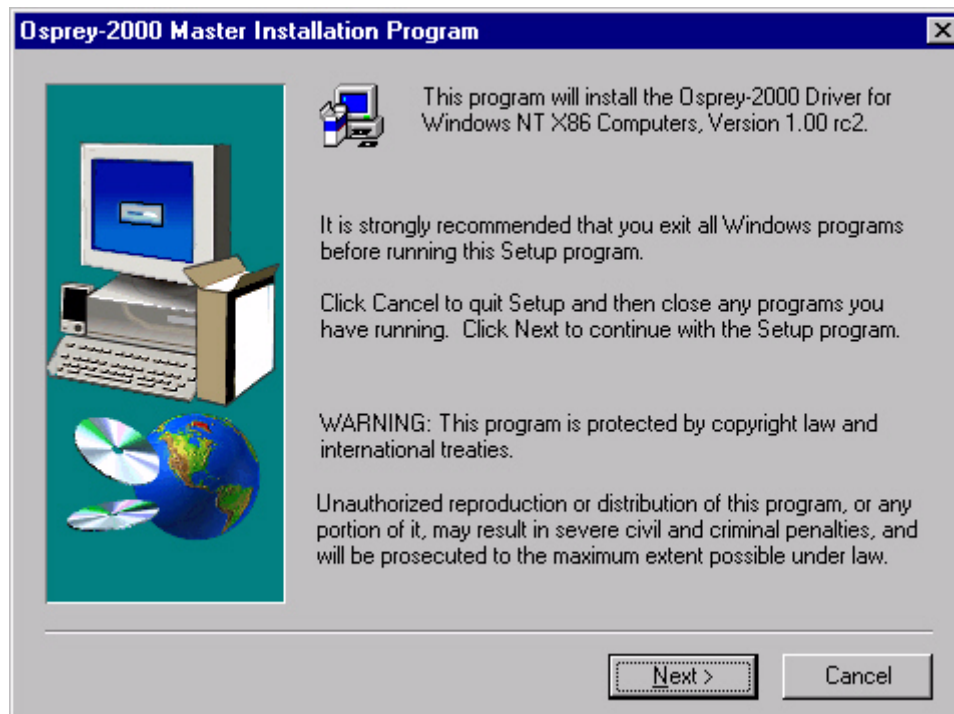
The installation files are not automatically deleted after setup has run. If you want to conserve disk space, make a note of the temporary location where these files are being unpacked and delete them after the installation.

8. You must restart the computer before the driver and sample applications will be ready for use. We recommend that you test the driver immediately after restarting your computer.

Setup Program: Details

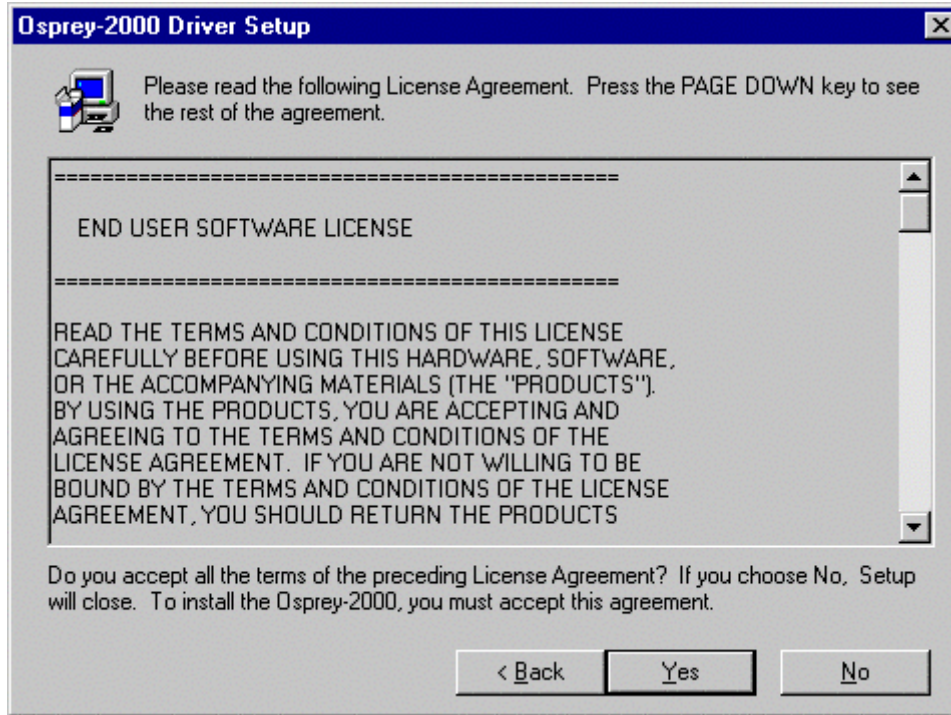
The setup program presents a sequence of windows and dialogs to guide you through the setup process. In general, click the **Next** button to continue to the next screen. At any point you can click **Back** to return to a previous screen or **Cancel** to exit the installation.

1. Using Windows NT Explorer, locate and access the CD-ROM drive containing the Osprey-2000 software CD.
2. Navigate to the **WinNT** directory.
3. Double-click **SETUP.EXE**. The installation of the Osprey-2000 driver for Windows NT begins with a confirmation that the setup program is beginning. *The Osprey-2000 Master Installation Program window displays.*



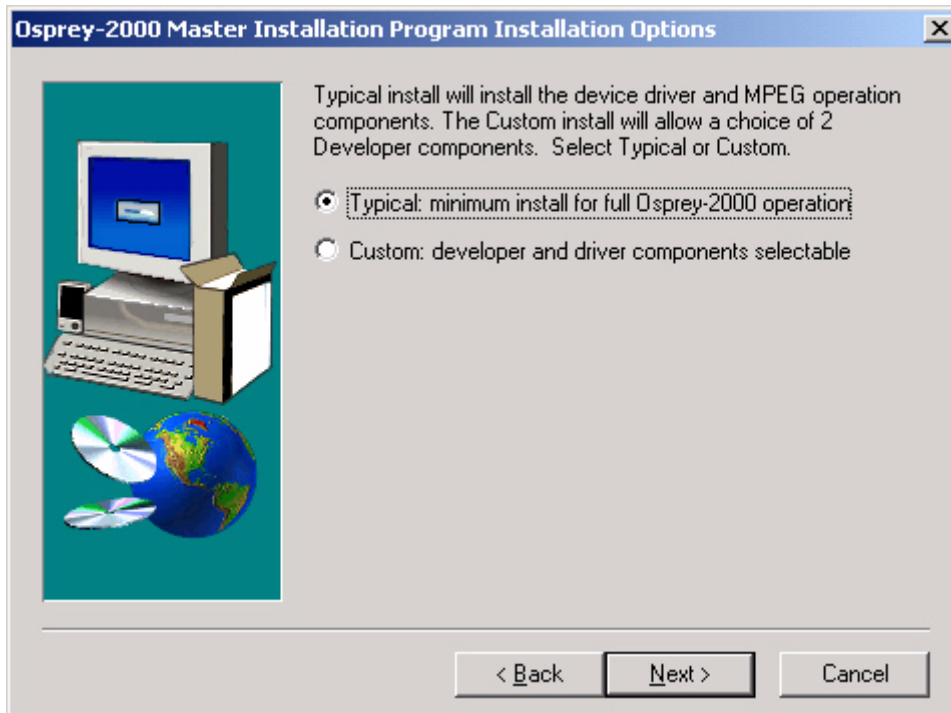
4. Click **Next**.

The Software License Agreement window displays.



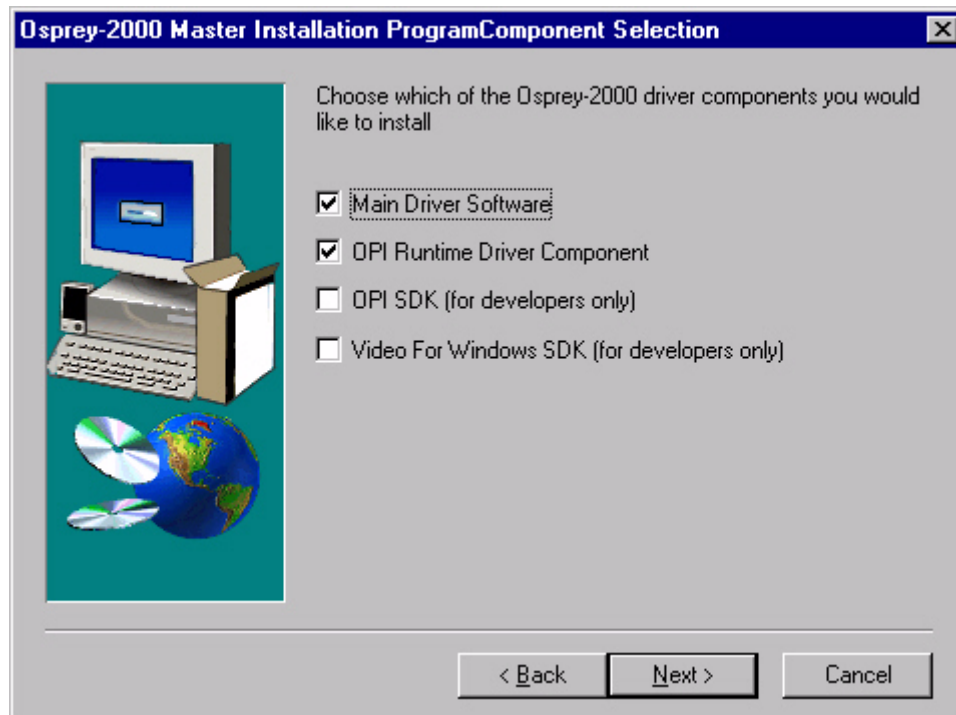
5. Review this message and make sure that the licensing terms are acceptable. Click **Yes** to accept the agreement or **No** to terminate the installation routine.

The Osprey-2000 Master Installation Program Installation Options window displays.



6. Select **Typical** (to install the Main Driver Software and the Runtime components necessary for full MPEG operation) or select **Custom** (and be prompted to choose among all the typical and developer components).
7. Click **Next** to continue or **Cancel** to abort the installation.
8. If you select the **Typical** installation, skip Step 9. Your next step will be to choose the Destination Folder. If you select the **Custom** installation, continue with Step 9.

The Osprey-2000 Master Installation Program Component window displays.



The Osprey-2000 software consists of the **Main Driver Software** (required) and three optional components:

Video For Windows Software Development Kit supplements the Windows Video For Windows (VFW) control interface with Osprey-specific routines for selecting video port, decoding closed captions, and cropping, among other features. This component contains source code for several sample applications, documentation, and the software components necessary for users to write their own VFW applications using C++.

OPI Runtime Driver Component contains a digital VCR application (MpegVCR) and the software components necessary to use it.

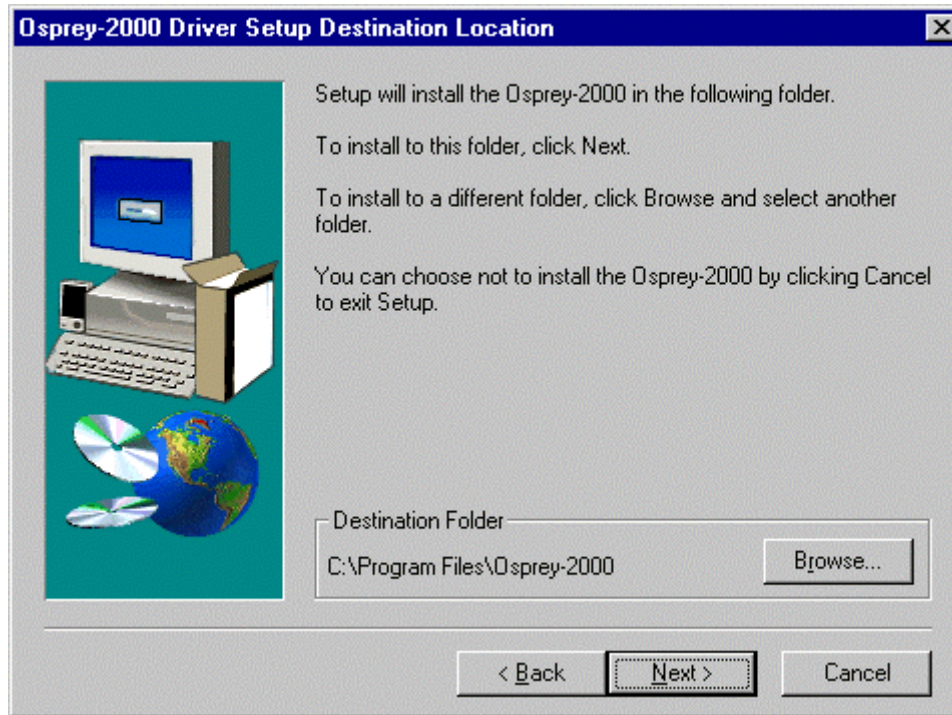
OPI Software Development Kit contains source for the MpegVCR application and all software and documentation components necessary for users to write their own applications using the Osprey Programming Interface.

9. Check the box for **Main Driver Software** (required) and choose the checkboxes for any other components that you wish to install. Click **Next** to continue.



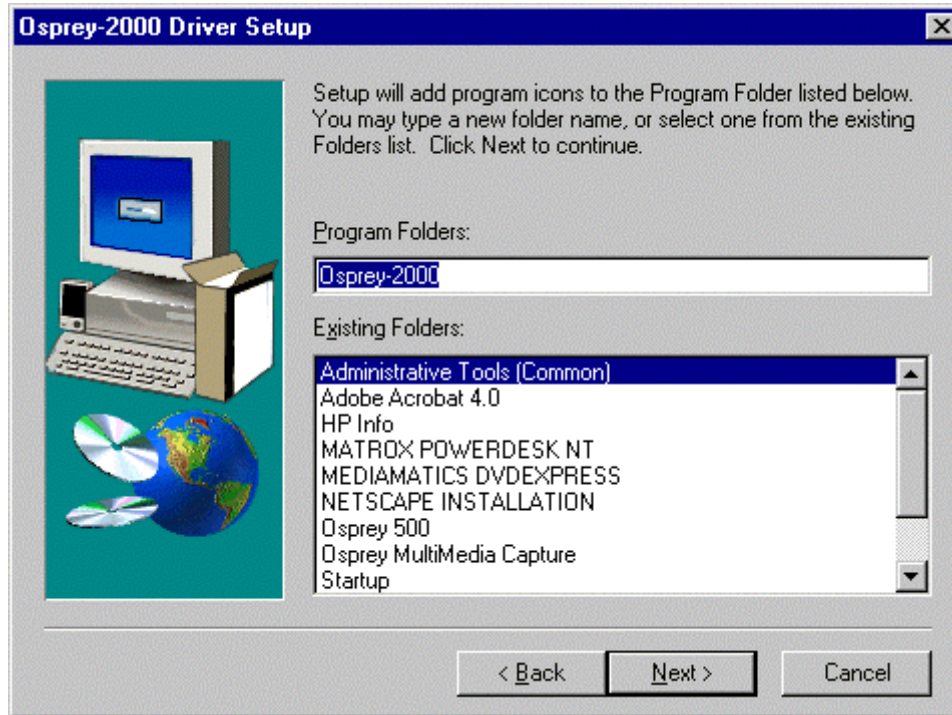
If you decide to install one of the optional components later, you can always install it from the CD.

The Osprey-2000 Driver Setup Destination Location window displays.



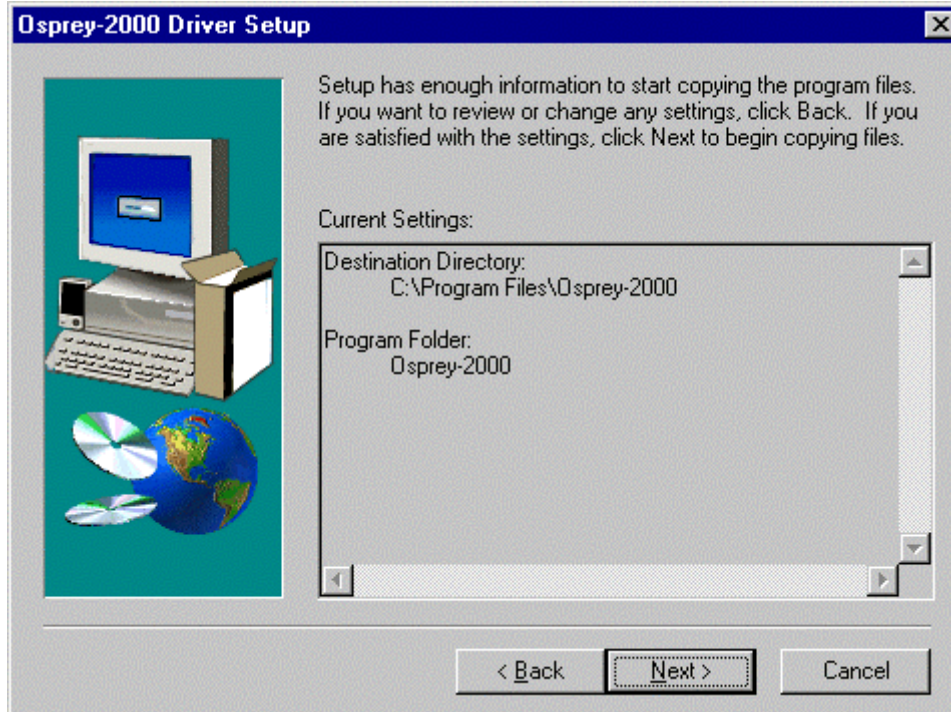
10. The destination location is the folder where VidCap32 (the demo applet), ReadMe, and other auxiliary files are located. (The core video capture driver files are located in Windows NT system directories regardless of the destination location chosen here.) The default location, in the Program Files folder, should be appropriate for most systems. Click the **Browse** button near the bottom of the dialog if you want to change the location.

The Osprey-2000 Driver Setup window displays.



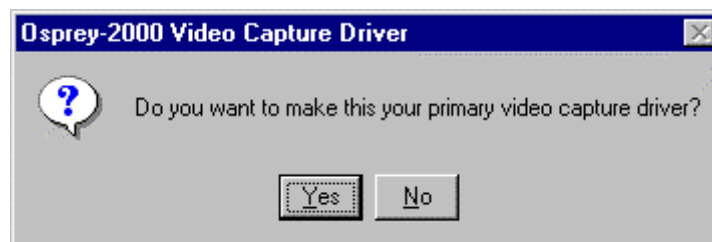
11. The setup program suggests placing the Osprey icons in a new program folder entitled Osprey-2000. You may change this name by editing the Program Folders field, or you can add the icons to an existing folder by highlighting it in the Existing Folders window. Click **Next** to continue.

The Start Copying Files window displays.



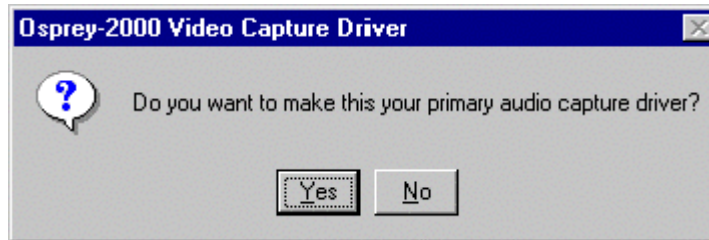
12. Click **Back** to modify the directory and program folder destinations or click **Next** to continue. The installation program copies the files to their destinations, sets up the Osprey driver registry entries, and starts the driver.

If another kind of video capture driver is already installed on your system, this question appears.



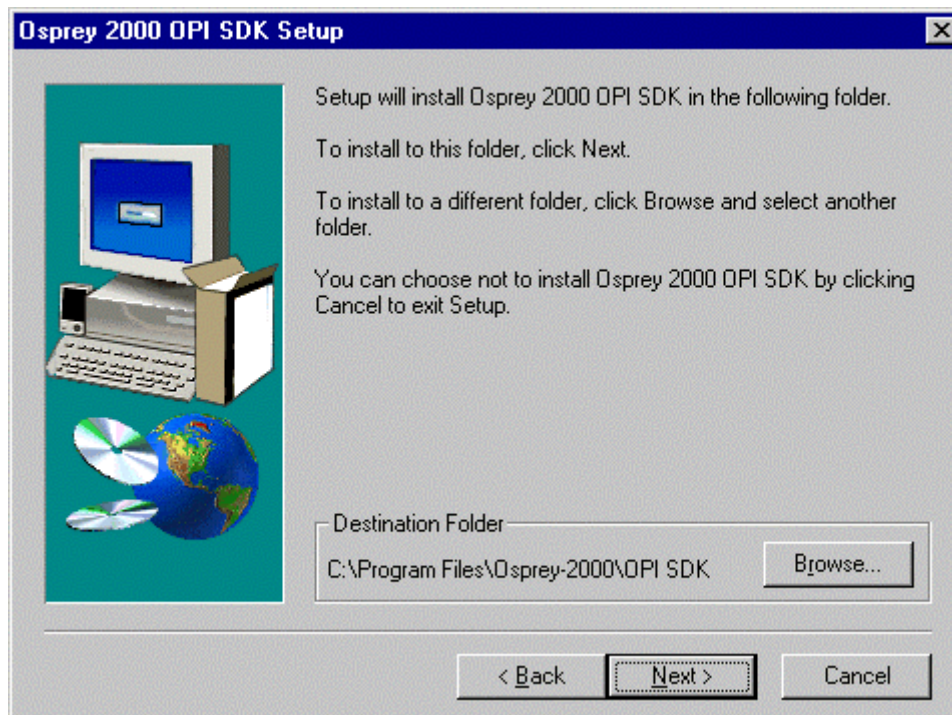
13. Click **Yes** to make the Osprey driver your primary video capture driver, unless you have a particular reason for doing otherwise. Refer to [Appendix D - Using the Osprey Video Capture Driver with Other Drivers](#) for more detailed information about this message.

If another kind of audio capture device such as a soundcard is already installed on your system, a message similar to the one above displays asking, "Do you want to make this your primary audio capture driver?"



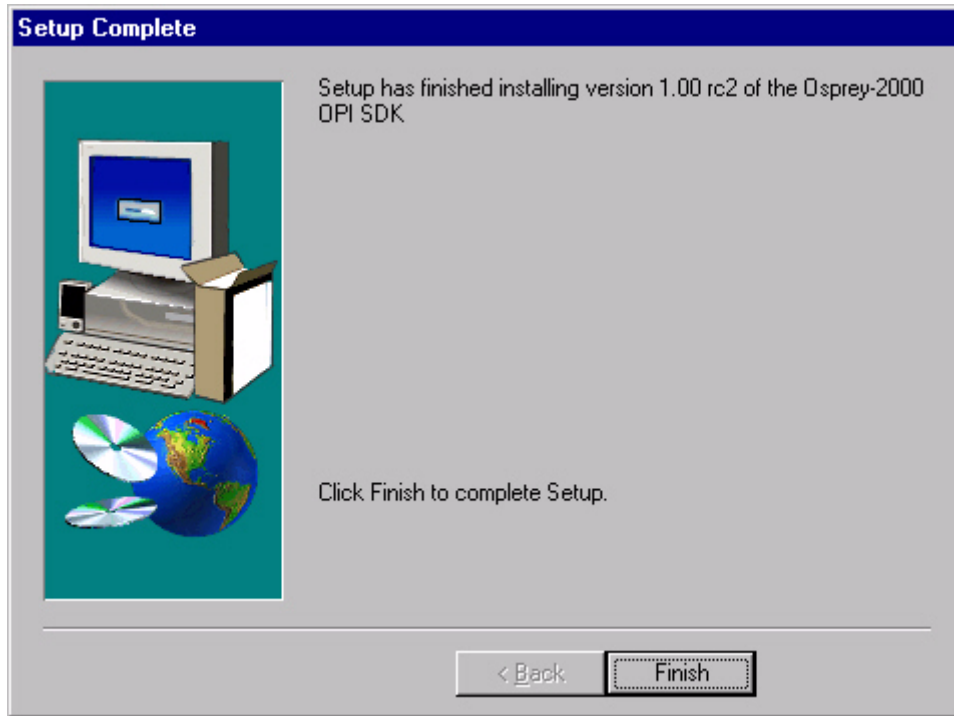
14. Click **No** to continue using your soundcard as your primary audio recording device.
Although this question asks about audio capture, you do not want to choose Yes, because that would set the Osprey-2000 as the default audio Playback Device. **Chapter 9 - Capturing Audio** contains instructions for setting the Osprey-2000 as the default audio capture device.
15. If you selected the **Typical** install option, the next window prompts you to restart your computer. Please skip to the final step in this series.
16. If you selected the **Custom** install option, please complete all the remaining steps.

The OPI SDK Setup Choose Destination window displays.



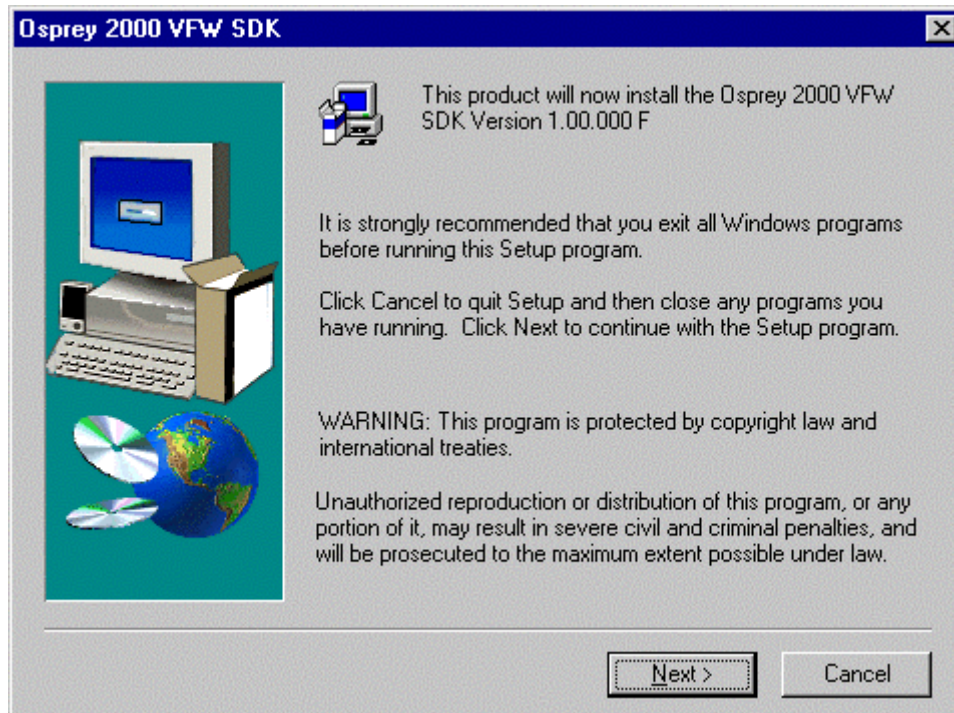
17. If you wish to change the destination location for the files, click **Browse**. Click **Next** to install the OPI SDK or **Cancel** to skip the installation of this component.

The Setup Complete window for the OPI SDK installation displays.



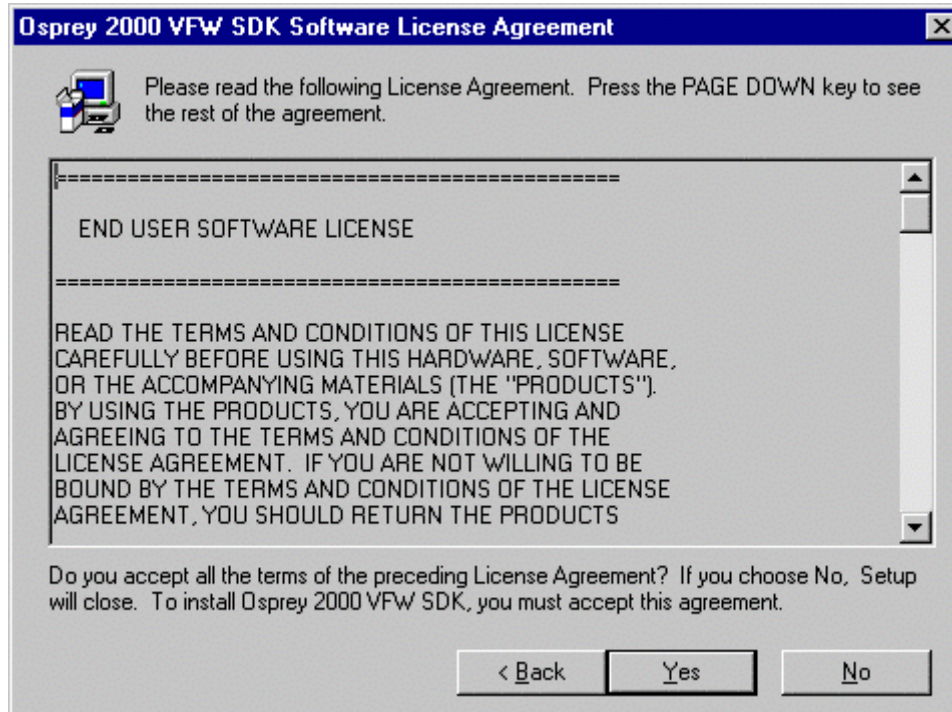
18. Click **Finish**.

The Osprey-2000 VFW SDK Install window displays.



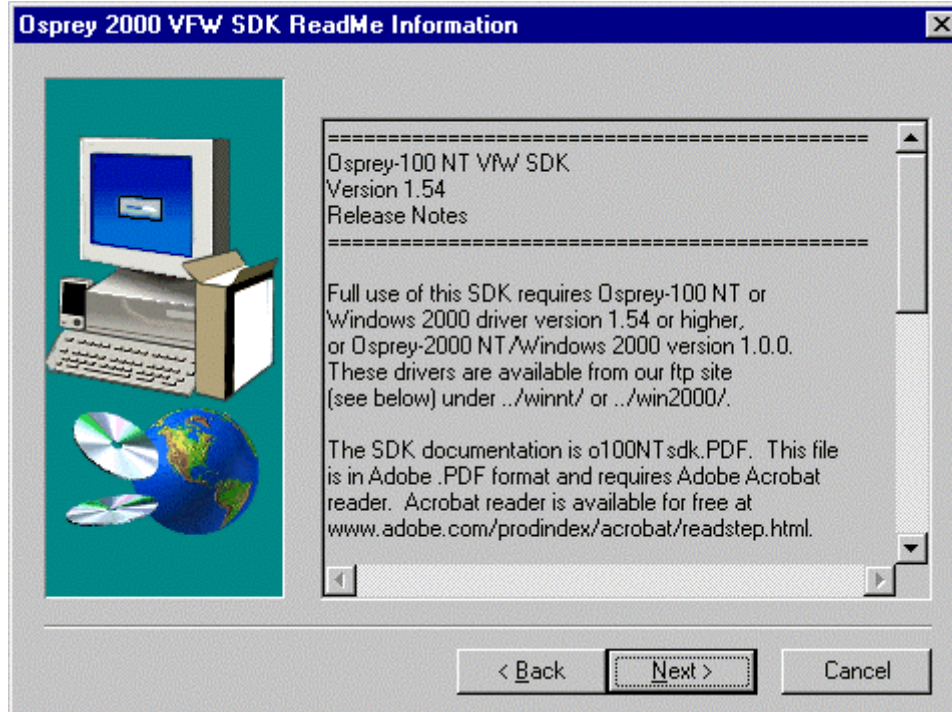
19. Click **Next** to install the VFW SDK or **Cancel** to skip the installation of this component.

The VFW SDK Software License Agreement window displays.



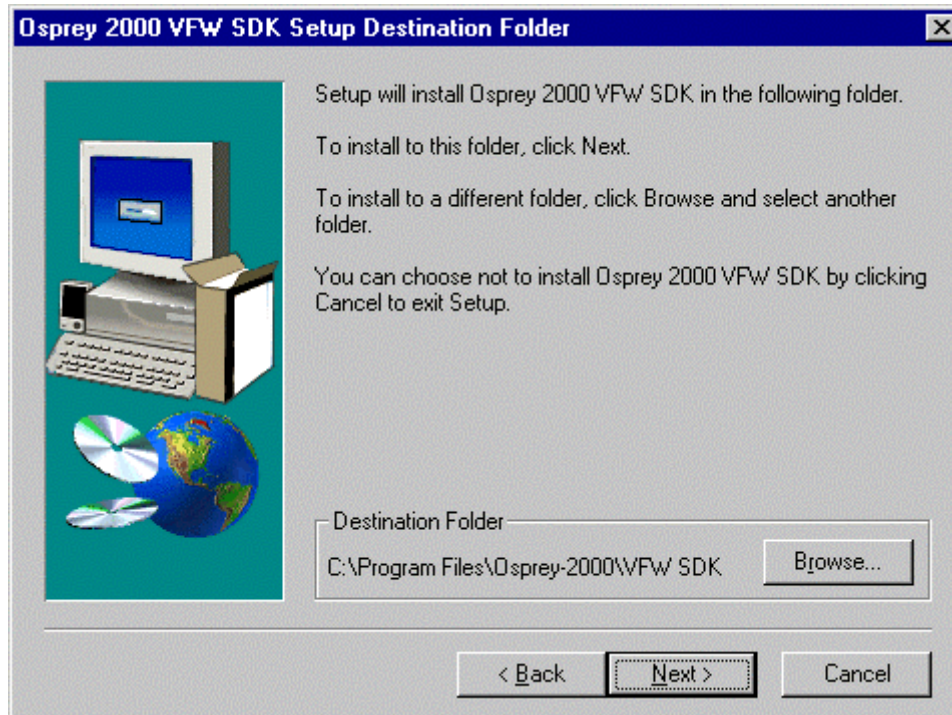
20. Review this message and make sure that the licensing terms are acceptable. Click **Yes** to accept the agreement or **No** to terminate installation of this component.

If you clicked Yes, the Osprey-2000 VFW SDK ReadMe Information window displays.



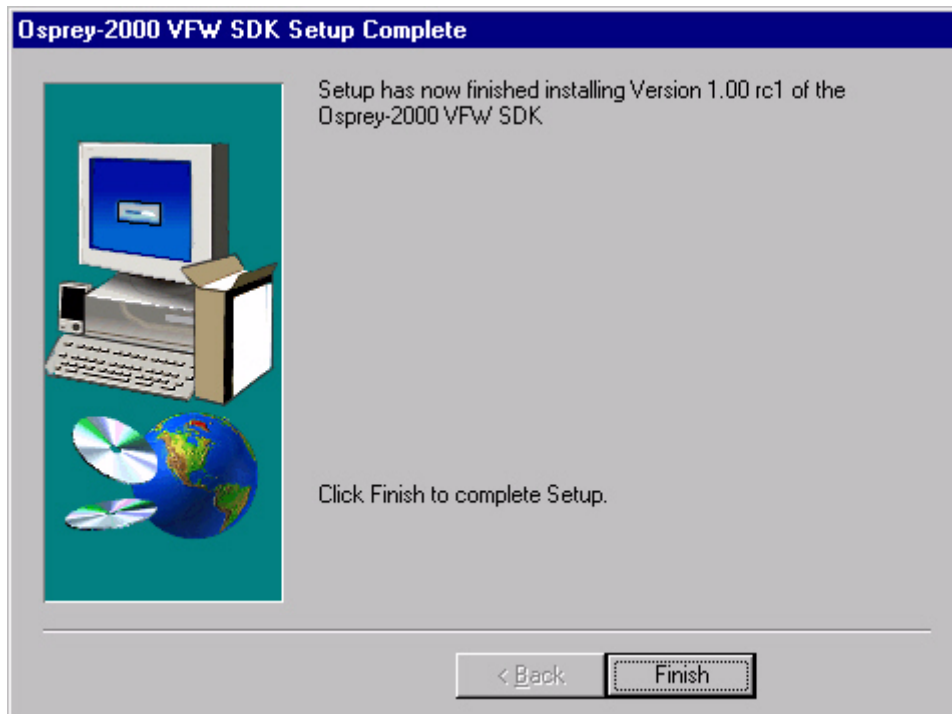
21. Read this file and click **Next**.

The Osprey-2000 VFW SDK Setup Destination Folder window displays.



22. If you wish to change the destination location for the files, click **Browse**. Click **Next**.

The Osprey-2000 VFW Setup Complete window displays.



23. Click **Finish**.

The Osprey-2000 Master Installation Setup Complete window displays.



24. Click **Finish** to complete the installation. You must restart Windows NT before you can use the Osprey-2000 card.



To change your setup at a later time, see [Chapter 9 - Capturing Audio](#).

Testing the Installation for Windows NT

1. Verify that the hardware installation is complete according to the directions in [Chapter 2 - Osprey-2000 Hardware](#).
2. Connect a video signal source to one of the Osprey-2000 connectors (Composite/S-Video/SDI/DV). Refer to [Connecting Cables](#).
3. Open the Osprey-2000 group in the Start menu.
4. Click the **VidCap32** icon.
5. If your input is composite video, the screen displays a preview mode window with live video. Click the **Overlay** button. The screen should display moving video frames. If your input choice is not composite video, select the **Video Source** option under the **Options** menu to bring up the Osprey-2000 video capture driver configuration box where you select your video input.
6. If the video area does not contain video, it could be for one of the following reasons:
7. The driver is looking for video on the wrong input connector. You can either move the video cable to another connector or reconfigure the driver using its Control Dialog. See [Chapter 8 - Osprey-2000 Video Control Dialog](#).
8. The video source is not turned on or activated.
9. 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 equipment always need to change the driver's signal format the first time they run the driver. See [Chapter 8 - Osprey-2000 Video Control Dialog](#).

DXMedia

Under Windows NT 4.0, the included program AmCap cannot be run unless Microsoft's DirectX Media package (also known as DirectShow) has been installed. This package is included on the Osprey-2000 Driver CD, and it can also be downloaded from Microsoft's website.

DirectX Media Details

Indeo

Ligos Technology's Indeo codec is provided on the Osprey-2000 CD. To install this package containing compression and color formats, double-click file **Indeo\Disk1\Setup.exe**.

Please see [Ligos Technology's Indeo](#) in Chapter 10 - VidCap32, AmCap, and Included Demo Programs for a description of this package.

Uninstalling the Software - Windows NT

If you need to remove the Osprey driver from your system:

1. Open Control Panel.
2. Double-click **Add/Remove Programs**.
3. Click the **Install/Uninstall** tab.
4. Click to select the **Osprey-2000 Driver** in the list of programs.
5. Click **Add/Remove**.
The uninstall program begins.
6. Click **Yes** to proceed.
7. Click **OK** when the process is complete.
8. Repeat this for each optional component that you have installed:
Osprey-2000 OPI SDK
Osprey-2000 OPI Runtime
Osprey-2000 VFW SDK
9. Reboot your computer to complete removing the driver.



You have the option of deactivating the Osprey drivers without permanently uninstalling them. For example, this option allows you to use another device as your primary video capture device. Refer to [Appendix D - Using the Osprey Video Capture Driver with Other Drivers](#) for more information.

Chapter 5 - MPEG Encoding

DirectShow Encoding Demo

Uncompressed video and audio consume a significant amount of bandwidth. For example, a 704x480 YUV4:2:2 video stream consumes over 154Mbits/sec or 19MBytes/sec. Saving uncompressed data to disk would consume over a Gigabyte a minute, which is impractical for many users. Such consumption far exceeds the bandwidth available on most networks today.

With the Osprey-2000, encoding/compression techniques are used to reduce the bandwidth of uncompressed audio and video. Three of the six models of the Osprey-2000 card provide MPEG encoding:

- ◆ Osprey-2000
- ◆ Osprey-2000 Pro
- ◆ Osprey-2000 DV Pro

The MPEG-1 and MPEG-2 encoding of these models provides from VHS to DVD quality encoding in hardware, thereby minimizing the computational load on a computer main processor.

Any of the audio or video inputs can be used as the source for MPEG encoding, including the DV input which makes possible DV->MPEG real time transcoding.

The Osprey-2000 provides for:

- ◆ MPEG-1 System Streams
- ◆ MPEG-2 Program and Transport streams
- ◆ Resolutions up to and including 704x480 NTSC, 704x576 PAL
- ◆ Variable and Constant bitrate encoding**
- ◆ MPEG-1 Layer-I or II audio
- ◆ Up to 8Mbits/sec

** For Variable bitrate encoding (VBR), specify a target bitrate. Bitrate achieved will vary by 30% + or - from the target bitrate setting.

The primary end user encoding experience is intended to be through third-party encoding applications. Please see our web site at <http://www.viewcast.com/> for an updated list of supported third-party ISV encoding solutions.

Some DirectShow based applications may run unmodified on the card. Other developers may use either the OPI SDK or the DirectShow SDK for developing applications that work with the Osprey-2000. Note that DirectShow support for the Osprey-2000 is limited to Windows 2000; therefore, some third-party applications may be supported only under Windows 2000.

The MpegVCR mini-application can be used for encoding MPEG files. This application is installed as part of the optional OPI Runtime component. Source code, in Visual C++, is included in the Osprey-2000 OPI SDK distributed with the Osprey-2000. The intent of this demo is to allow for basic MPEG content creation and playback. It does not represent the full capabilities of the SDK nor the underlying options for the encoder.

DirectShow Encoding Demo

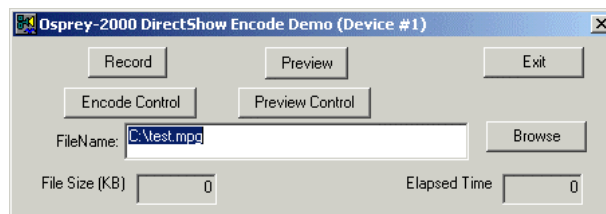
Preview Video Size

Video Format

Encoder Control Dialog

For Windows 2000 users only, a very simple encoding demo program is provided in executable form in the Osprey DirectShow runtime package. Source code, in Visual C++, is included in the Osprey DirectShow software development kit (SDK) distributed with the Osprey-2000. The intent of this demo is to allow for basic MPEG content creation. It does not represent the full capabilities of the SDK nor the underlying options for the encoder.

When started, the DirectShow Encode Demo application displays a dialog box to announce the application and accept user input.



Record button is a toggle; press it once to start encoding, and press it again to stop.

Encode Control button brings up the encoder control dialog box, where users can configure the attributes of the encoded stream.

The audio selections include the input port, bit rate, sample rate, and the type of MPEG1 audio encoding.



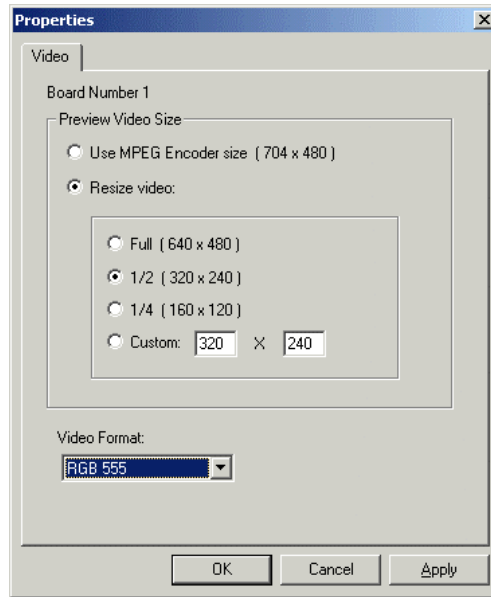
Note that the sample rate for digital sources (SDI, DV and AES/EBU) is set by the source itself and is not changeable on the Osprey-2000.

To produce valid encoded material, the sample rate set for digital sources must match the sample rate of the source. In a future software release the drivers will auto detect the digital audio input sample rate and set the encoding sample rate automatically.

Preview button allows the user to view video being received on the selected video input in real time without having to start the encoder. This control is a toggle; press it once to open the preview window, and press it again to close the preview window. By default, the preview size is a small (QCIF) window.

Preview Control button lets the user change the preview size. Note that using a large preview window increases PCI bus traffic, which may overload your CPU during precoding.

Browse button is the standard function for locating where you want to store the encoded stream.



Preview Video Size

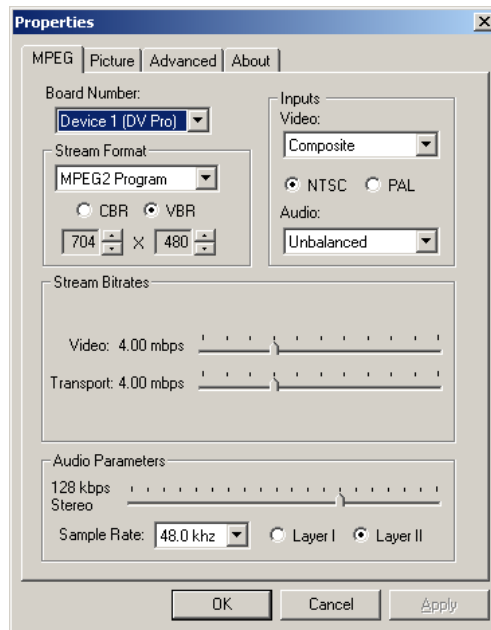
To make previewed video the same size as the video encoded, select **Use MPEG Encoder Size**. To choose an output size for previewed video, select **Resize Video**.

Video Format

Instructs the capture filter to produce the selected format on its preview pin. Normally, it is best to leave this format RGB 555.

Encoder Control Dialog

While the encoder is running, the file size (in Kilobytes), the bit rate (in Kilobits) and the elapsed time (in seconds) is displayed in the Encoder Control Dialog box.



In the Encode Control dialog box the user has control over the:

- ◆ Selected board (if multiple Osprey-2000s are installed in your system)
- ◆ Source of the video and audio from the Osprey-2000 inputs
- ◆ Video format (either NTSC or PAL)
- ◆ Stream format to produce
- ◆ Selection of constant bit rate (CBR) or variable bit rate (VBR) encoding
- ◆ Size of the video image to capture
- ◆ Target bit rates for the stream
- ◆ Audio parameters

In addition, the Picture tab controls video settings such as Brightness, Contrast, Saturation and Hue. The Advanced tab allows control of some video frame parameters which are specific to the Osprey-2000, and control of a number of advanced MPEG-1 and MPEG-2 parameters. The Advanced tab contains the Video Encoding, Stream Settings, and Filter Coefficients property pages. Again, these represent only a small number of the configurable options for the Osprey-2000 MPEG encoding feature.

Advanced tab

On the Video Encoding page, the following parameters control features which are specific to the Osprey-2000 and outside the MPEG specifications:

Frame Skip: Allows decimation of video frames. Value of 2 divides frame rate in half. Should be set to 1. Changing this parameter is not recommended.

Threshold: Inverse Telecine threshold. Ignored.

The following 3 parameters are for adjusting the vertical horizontal start positions in the image. Use care when modifying these parameters.

- ◆ Top Field: line number to use as first line of "top" field.
- ◆ Bottom Field: line number to use as first line of "bottom" field.
- ◆ Horizontal: pixel number for start of line

All of the other parameters and property pages available in the Advanced tab affect MPEG parameters which are explained in the MPEG-1 and MPEG-2 specifications. Changing the values of the parameters exposed through these property pages may affect the performance of the Osprey-2000 product. Only advanced users who are thoroughly familiar with the MPEG specifications should modify these MPEG settings. MPEG is a group of ISO/IEC standards. Please see <http://mpeg.telecomitalia.com/> to get a copy of these international standards.

Chapter 6 - MPEG Decoding

While MPEG-1 content is not CPU intensive and is easily decoded on most platforms, decoding MPEG-2 content is extremely CPU intensive. Although many computers shipping today have DVD drives and are capable of playing back DVD movies, the configuration of these machines with respect to how they decode DVD does not enable general purpose MPEG-2 decode. Even if a user's machine can playback DVD movies with ease (DVDs are encoded in MPEG-2), the machine probably cannot playback an MPEG-2 file. And even when a machine is capable of playing back MPEG-2 files, it generally does so in a window on the machine and does not provide the decoded audio and video back to a host application for further processing. These deficiencies are the main reasons why all six models of the Osprey-2000 provide for MPEG decoding (the last usage is important to transcoding and is discussed in [Chapter 7- MPEG Transcode](#)).

MPEG decoding is primarily provided through the DirectShow interface on Windows-2000. This interface requires at least DirectX8 and thus is not provided for on WinNT. The cross-platform API OPI also provides for MPEG decoding and does so on WinNT as well as on Win2000.

[Decoding through DirectShow](#)

[Decode_Demo](#)

[MPEG Decode Configuration Applet](#)

[Decoding through OPI](#)

Decoding Through DirectShow

Since MPEG-1 content is not CPU intensive, the DirectShow filters for the Osprey-2000 usually allow installed software decoders to handle MPEG-1. In any case, to play back a MPEG-1 or MPEG-2 file simply open it and it will play in a Windows Media Player, Real Player, or whatever player you have file-extension associated to play MPEG files. In the MPEG-1 case video will be displayed in a window in the host application and audio will be directed to your soundcard and can be heard on external speakers. In the case of MPEG-2, video will also be displayed in a window in the host application and audio will be both directed to your soundcard to be heard on external speakers as well as sent out the audio output on the Osprey-2000. That is, you can use either the Osprey-2000 or your soundcard for listening to the audio decoded from the Osprey-2000.

Note that if your Windows 2000 interface is set up to preview MPEG files when they are opened, it's possible that the hardware decoder will be busy decoding the preview and unable to display it in full size.

To change this behavior:

1. Open the Windows Explorer
2. Select Tools -> Folder Options
3. Select the **General tab**
4. Use Windows **Classic** folders
5. Click on the **View** tab
6. Select the **Remember each folder's view** settings option,
7. Select **Apply** button
8. Select the **Like Current Folder** button

The Osprey-2000 handles streaming decode of MPEG content for playback or transcoding purposes. The word streaming here is used to distinguish between frame-based decoding requests (seeks, random access, frame accurate decode, etc.) and playback of an entire file in a sequential manner. The Osprey-2000 can process:

- ◆ MPEG-1 system streams
- ◆ MPEG-2 program streams
- ◆ MPEG-1 layer-I or II audio
- ◆ Up to 8Mbits/sec

The primary end user decoding experience is intended to be through third-party applications (Windows Media Player, Real Player, etc) where either the MPEG content is decoded in software (MPEG-1) or hardware (MPEG-2). However, a very simple decoding demo program is provided in executable form in the Osprey DirectShow runtime package distributed with the Osprey-2000 [Windows 2000 only]. Source code, in Visual C++, is included in the Osprey DirectShow software development kit (SDK) distributed with the Osprey-2000. Installation of the Osprey-2000 DirectShow runtime places the Osprey DirectShow filters on your system.

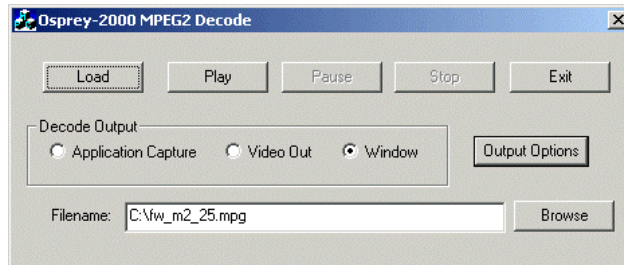
Decode_demo

The program group name for the decoding demo is Decode_demo, and the purpose of Decode_demo is to utilize the Osprey-2000 to decode MPEG content.

Decode_demo can direct (decode output) the resulting decoded audio and video to three different locations:

- ◆ Selecting **Video Out** directs decoded data to the external ports on the Osprey-2000. With this demo you could use an external NTSC/PAL monitor to view the decoded video and speakers to hear the decoded audio. You could also connect the external outputs to a VCR and record the decoded MPEG content.
- ◆ The **Window** option directs decoded video to a window on the PC and decoded audio to the PC audio device. This use of the application is similar (although much more limited) to playing back an MPEG file through Windows Media Player.

- ◆ The **Application Capture** option directs decoded audio and video data to the capture inputs of the Osprey-2000. Refer to [Video for Windows Capture of Decoded Video](#) for more details.



Select a file to decode by either typing in the file name or using the **Browse** button in the dialog box. Click a button on the screen or one of the links below for information about these options:

[Load](#)

[Play](#)

[Pause](#)

[Stop](#)

[Exit](#)

Load

Prepares the Osprey-2000 to play back the current file.

Play

Plays the file. Note that while you can select **Play** without selecting **Load** first, it will take longer to start playing the first frame. Therefore, if you are trying to use Decode_demo to coordinate with another application, it's better to pre-load.

Pause

While playing an MPEG file, selecting **Pause** will temporarily stop playing back the file until **Play** is selected again.

Stop

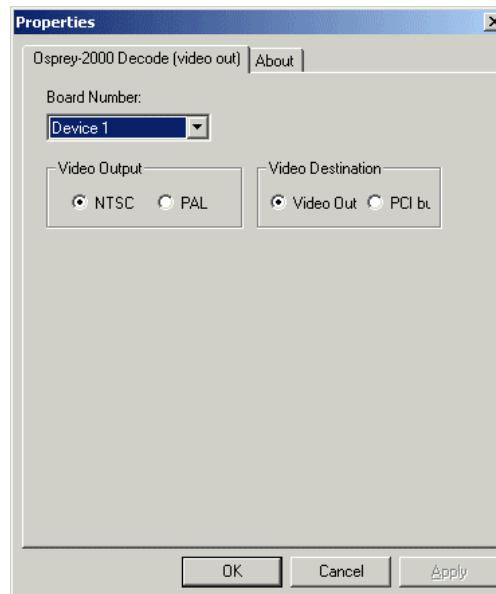
Selecting **Stop** while playing an MPEG file will stop playing the file. Unlike Pause, selecting **Play** again will restart the file from the beginning.

Exit

Exits the Program.

Output Options – Video Out or Application Capture

Depending upon the selection made in the Decode Output field, different Properties screens display with additional options. When either **Video Out** or **Application Capture** is selected, the following menu appears. Click the area of the window for which you need an explanation.



Board Number

Video Output

Video Destination

About Tab

Board Number

When there are multiple Osprey-2000 boards in your system and you have selected either **Window** in the Decode Output field, use this drop-down menu to determine which board is active.



This field does not affect which board is used if you change the location in the Decode Output field to either **Application Capture** or **Video Out**.

Video Output

Select NTSC or PAL video output.

Video Destination

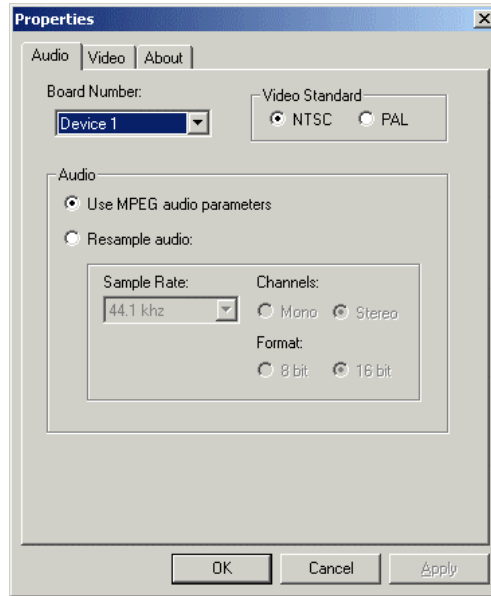
This option can also be set on the main Decode_demo dialog. **PCI Bus** here is equivalent to **Application Capture** in the main dialog.

About Tab

Provides information version numbers for the various filters.

Output Options - Window

When **Window** is selected in the Decode Output field, the following menu appears. Click the area of the window for which you need an explanation.

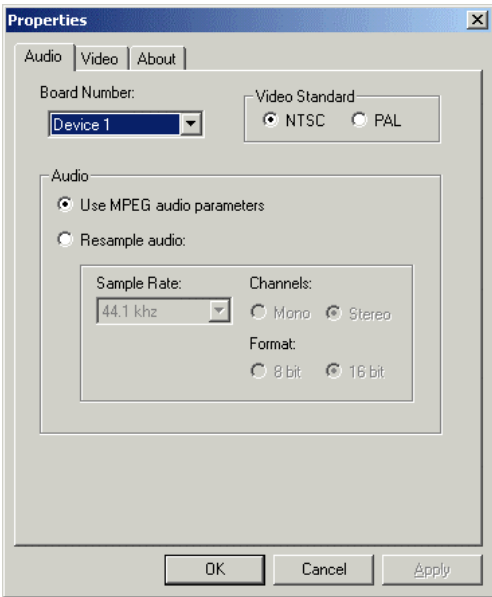


[Audio Tab](#)

[Video Tab](#)

[About Tab](#)

Audio Tab



Board Number

Video Standard

Audio

Board Number

When there are multiple Osprey-2000 boards in your system, and you have selected either **Application Capture** or **Video Out** in the Decode Output field, use this drop-down menu to determine which board is active.



Note that this field does not affect which board is used if you change the location in the Decode Output field to **Window**.

Video Standard

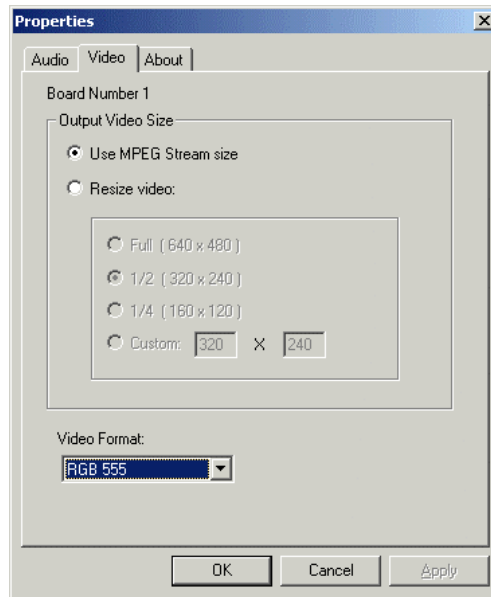
Select either **NTSC** or **PAL** video output. An incorrect selection here will negatively impact the appearance of the decoded video.

Audio

Use MPEG audio parameters is normally the recommended setting. If you select to resample the audio, once audio is decoded it has to be changed to match the target format. Resampling may result in degradation of audio quality. For this release, audio upsampling is not supported.

Video Tab

Selecting the **Video Tab** brings up another Properties page. Click the area of the window for which you need an explanation.



Output Video Size

Video Format

Output Video Size

- ◆ To make decoded video the same size as the video encoded, select **Use MPEG Stream Size**
- ◆ To choose an output size for decoded video, select **Resize Video**

Video Format

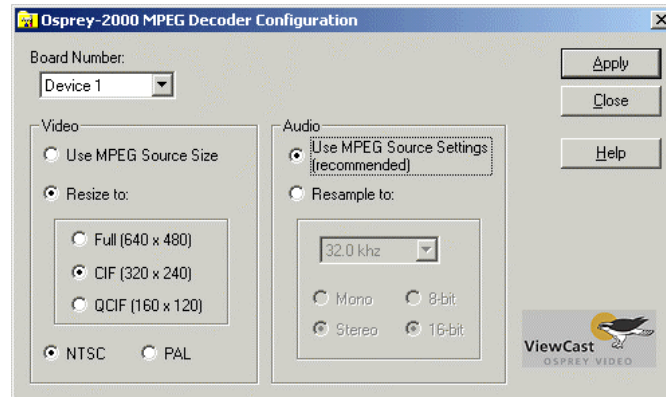
Instructs the capture filter to produce the selected format on its preview pin. Normally, it is best to leave this format RGB 555.

About Tab

Provides information version numbers for the various filters.

MPEG Decode Configuration Applet

Many applications that use DirectShow interfaces for decoding MPEG do not expose to the end-user a method for configuring the decoder options. This configuration applet sets the defaults for some Osprey-2000 MPEG decoding options. Unless the user application overrides these defaults, the settings in this configuration applet will take effect.



Options that can be set with this applet are:

- ◆ MPEG decoding size: By default, the Osprey-2000 decode filter decodes to the resolution of the MPEG content. You can change this option to scale the decoded video to a few different sizes.
- ◆ MPEG decoded audio sample rate: By default, the Osprey-2000 decode filter presents decoded audio to the host at the same sample rate as the audio in the MPEG content. You can change this option to present a different decoded audio sample rate to the host application.

In release 1.0 of the Osprey DirectShow filters, upsampling is not available. For example, if the MPEG content was created with a 32.0 KHz sample rate, you can only select sample rates of 32.0 KHz and lower. Selecting a higher rate will result in silent audio.

Decoding Through OPI

The OPI interface also provides decoding of MPEG bitstreams. The MpegVCR mini-application (written to use the OPI drivers) may be used for decoding MPEG files. This application is installed as part of the optional OPI Runtime component. Source code, in Visual C++, is included in the Osprey-2000 OPI SDK distributed with the Osprey-2000. The intent of this demo is to allow for basic MPEG content creation and playback and it does not represent the full capabilities of the SDK nor the underlying options for the encoder.

Chapter 7 - MPEG Transcode

All six models of the Osprey-2000 card provide hardware assist for MPEG transcoding. The function of a transcoder is to convert from one data format to another data format.

The Osprey-2000 can be used to decode the MPEG bitstreams and then allow software compressors to re-encode the video and audio to new formats. Because the Osprey-2000 decoder works in parallel with the computer's main CPU, the computational load on the main processor is reduced. Note that [Chapter 5 - MPEG Encoding](#) details transcoding from DV to MPEG.

Depending on the application doing the software encoding portion of the transcode, three different transcoding techniques may be used with the Osprey-2000:

- ◆ **Two pass transcoding**, using an AVI file as an intermediate step.
- ◆ **Transparent transcoding**, where the only user interaction is telling the encoder to use an MPEG file as an input.
- ◆ **Video for Windows (VFW)** capture of decoded MPEG, where two applications are run. One application thinks it is doing live capture, while another application sends decoded video to the video capture portion of the Osprey-2000 as if it were live video.
- ◆ **Transcoding with RealProducer**
- ◆ **Transcoding with Windows Media Encoder**



Each of these techniques relies on DirectShow filters and requires both Windows 2000 and the installation of the Osprey-2000 DirectShow Runtime optional component.

Two Pass Transcoding

The two pass transcoding technique works with any application that can accept uncompressed AVI files. The primary disadvantage of two pass transcoding is that it requires enough disk space to support decoding and storing the entire decompressed output.

The Decode to AVI demo program is provided in executable form in the Osprey DirectShow runtime package distributed with the Osprey-2000. Source code, in Visual C++, is included in the Osprey DirectShow software development kit (SDK) distributed with the Osprey-2000.

The Decode to AVI demo starts in a DOS window. The DOS window displays a file open dialog box, which obtains the path to the file for decoding. Alternatively, you can specify the filename on the command line. If preferred, a second filename can be provided for the resulting decompressed file. Once a filename has been selected, the file is decoded to an application. If no output file is selected on the command line, the output file is given the same name and location as the input file, with the extension changed from .mpg to .avi.

Once an AVI file is created it may be passed to any encoding application, including RealProducer or Windows Media.

Use the decode configuration applet to modify the resulting video size and audio sample rates of the AVI file. Refer to [MPEG Decode Configuration Applet](#) in Chapter 6.

Transparent Transcoding

Transparent transcoding is enabled by applications which use DirectShow filters to provide uncompressed video to their internal compression. For transparent transcoding, all that is necessary is to select the **MPEG file** as the input of the compression, and the DirectShow filters will decode the file and provide uncompressed bitstreams to the application. RealProducer uses this technique, discussed in more detail in Transcoding with RealProducer.



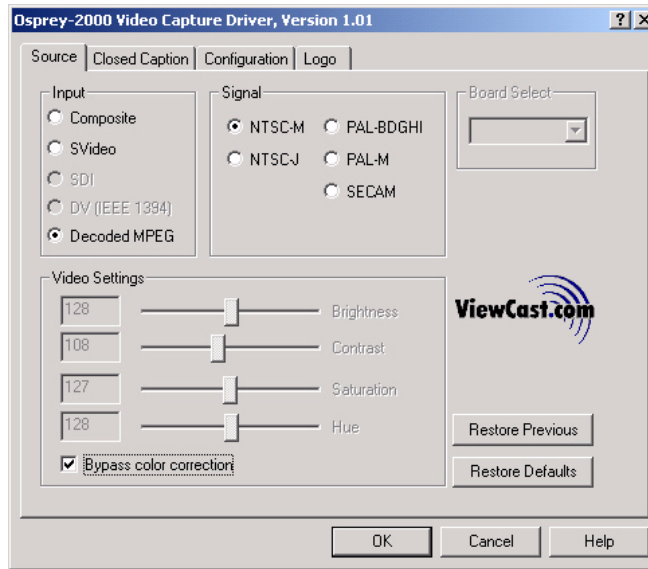
Current versions of RealProducer have some issues using this technique. Our recommendation is to use the VFW capture method of transcoding, instead.

Video for Windows Capture of Decoded Video

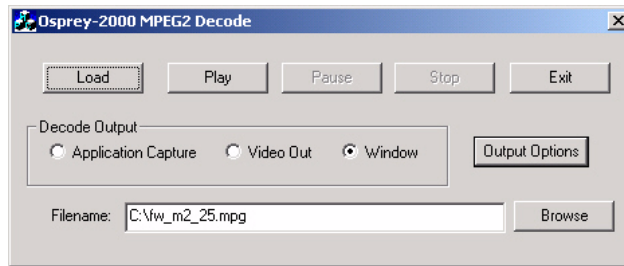
In order to transcode using VFW capture, the Osprey-2000 takes advantage of the fact that the encoder, decoder, and video capture components of the card operate fairly independently. This technique allows any application which can accept live audio/video capture from the Osprey-2000 to accept decoded MPEG bitstreams, instead. All the normal capabilities of the Osprey-2000 video capture (such as cropping, etc) are available in this mode.

For this technique, first prepare your video capture application to capture video from the Osprey-2000.

1. Bring up the Video Format dialog (usually available from your VFW application via a Video Format menu).



2. Click on the **Source** tab, and set the Input to **Decoded MPEG**. The Decode_demo is used to decode an MPEG file. This demo can be started from the **Start/Programs** interface.



3. Use either the **Filename** box or **Browse** to select the file to decode.
4. Select **Application Capture** in the Decode Output field.
5. Click **Load** to prepare the Osprey-2000 to start decoding.
6. Select **Play** to decode the file.

Now, start encoding in your Video for Windows encoder program.

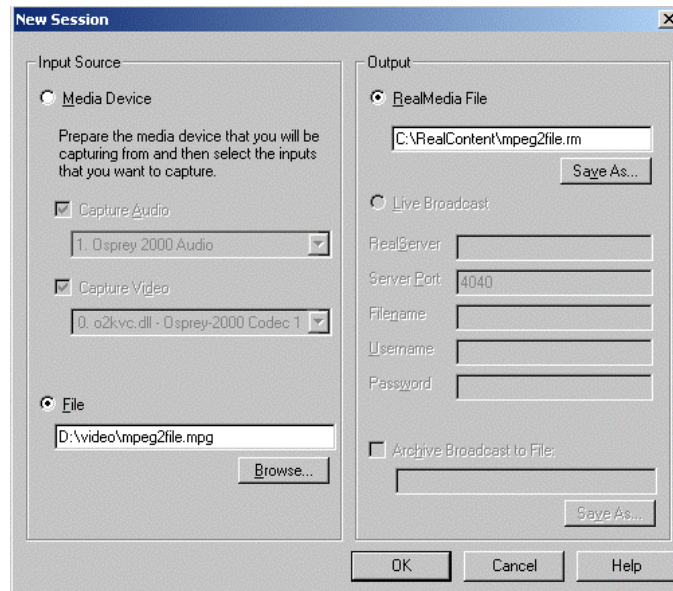
This technique can be used by virtually any video capture enabled application. It is discussed further in Transcoding with Windows Media Encoder.

Transcoding with RealProducer



Current versions of RealProducer have some issues using this technique. Our recommendation is to use the VFW capture method of transcoding, instead.

1. Open RealProducer and set the Input Source to **File**.



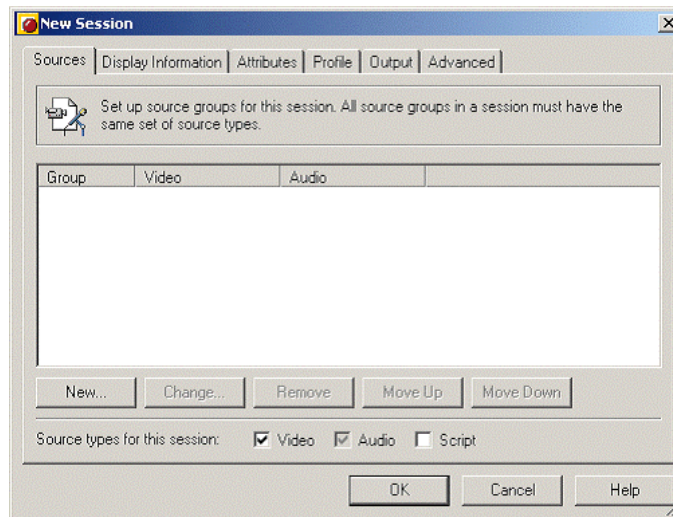
2. Select an **MPEG2 file** as the input source, and set the output source to the desired **RealMedia File**. Click **OK**.
3. If you need to configure other aspects of RealProducer, such as **Target Audience** settings, setting **Two-Pass Encoding**, or entering **Clip Information**, do so at this time.
4. Once RealProducer is configured and ready to start streaming, click **Start** on RealProducer to begin encoding. The Osprey-2000 will decode the file on board automatically.

Transcoding with Windows Media Encoder

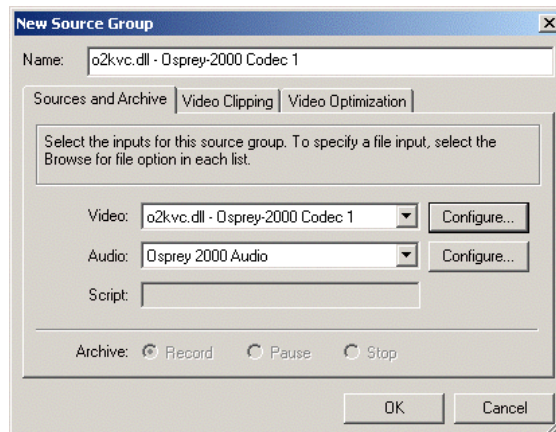
1. Open the Windows Media Encoder. The encoder offers three startup options:
 - ◆ Using the Wizard
 - ◆ Creating a custom encoding session
 - ◆ Opening an existing session

For this example, select **Create a custom encoding session** and click **OK**.

The New Session window appears.



2. Click **New** to create a New Source Group.
The New Source Group window displays.

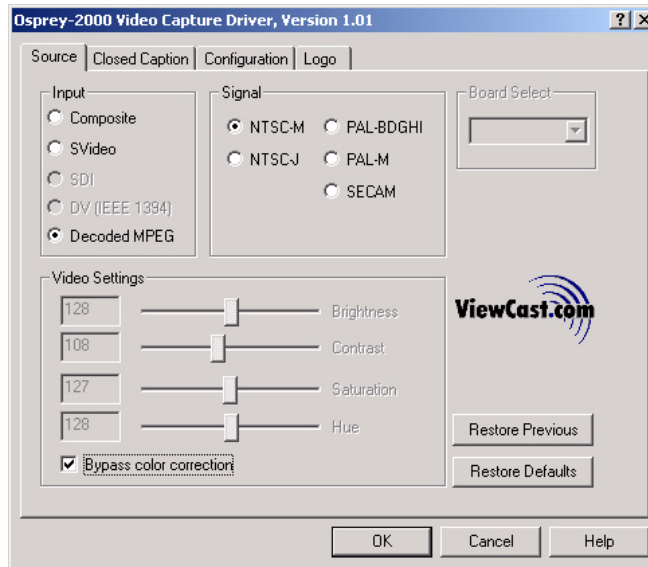


3. Select **Osprey-2000 codec** for Video, and **Osprey-2000 Audio** for Audio.
4. Click the **Configure** button to the right of the Video selection window. The Audio device will not be configured from this page.

The Osprey Device Property Page windows displays.

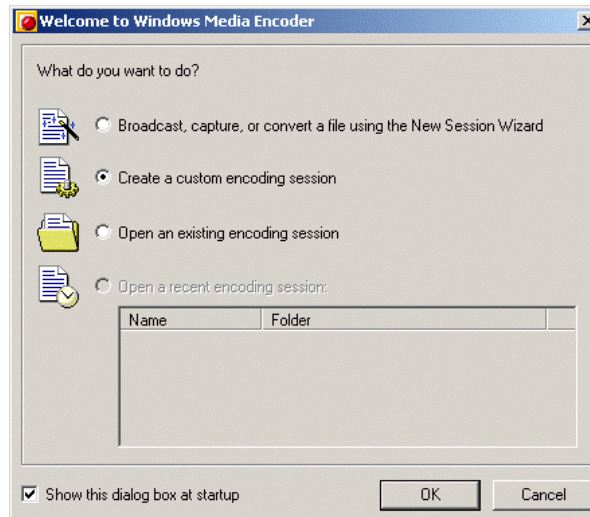
5. The Osprey Device Property page will display selections for the Osprey-500 board. Select **Driver Format Dialog**.

The Osprey-2000 Video Capture Driver window displays.



6. Click the **Source tab** and set the Input to **Decoded MPEG**.
7. Click **OK** to exit the Osprey-2000 Video Capture Driver.
8. Click **OK** to exit the Codec Properties.
9. Click **OK** to exit the New Source Group window.
10. Set the Profile and Output as desired, and click **OK** to exit the New Session window.

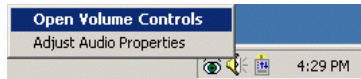
The Windows Media Encoder window displays.



Before encoding, the audio device must be configured.

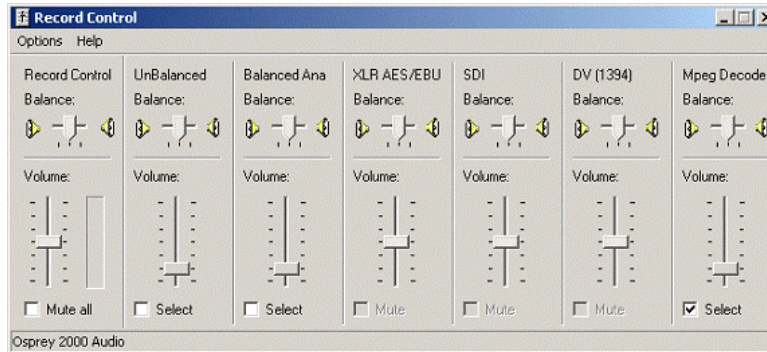
- To set the audio properties, right click the **Speaker Icon** in the taskbar, and select **Open Volume Controls**.

The Volume Control window displays.



- Go to **Options** -> **Properties**, and set the audio device to **Osprey-2000**.
- In the box for adjusting volume, select **Recording** and click **OK**.

The Record Control window appears.

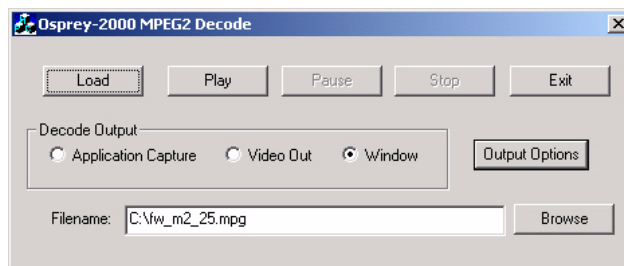


- Click in the checkbox to select the **Mpeg Decode** device, go to **Options** and select **Exit**.

The Windows Media Encoder and the Osprey-2000 are now configured for transcoding. The next step is to run the Decode_demo application.

To start the Decode_demo application:

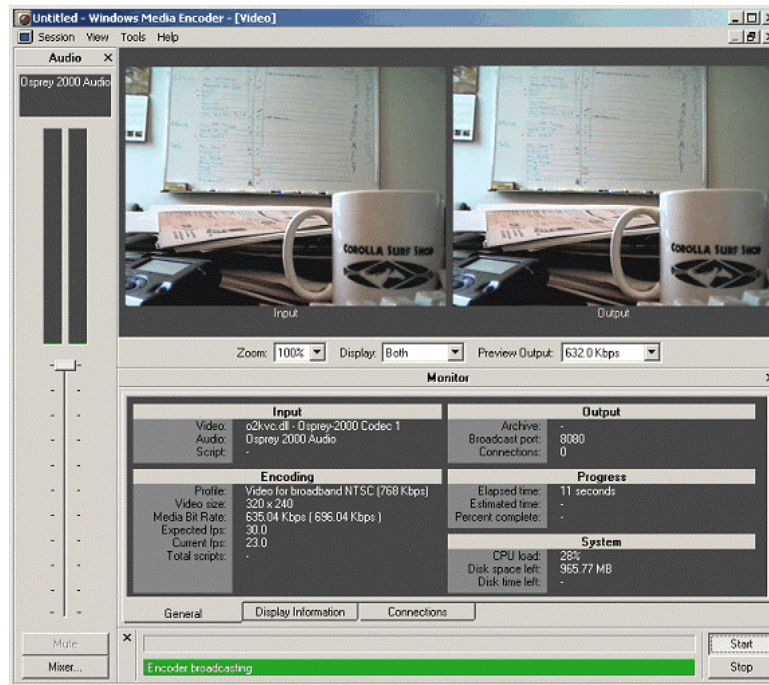
- At the system Start Menu, go to **Programs** -> **Osprey-2000** -> **DirectShow** -> **Decode_demo**.



- Select an **MPEG2** file for decoding.
- Select **Application Capture** in the Decode Output field.
- Select **Load**.

5. As soon as you click **Play**, Decode_demo will start decoding, so be ready to click **Start** on the Windows Media Encoder to start encoding.

The Windows Media Encoder window displays.



The Windows Media Encoder receives the decoded audio and video from the Osprey-2000 board and encodes it to Windows Media format (WMV).

6. When the Decode_demo application has completed decoding the file, click **Stop** to close the application.

Chapter 8 - Osprey-2000 Video Control Dialog

Accessing the Dialog

General Features of the Dialog

The easiest way to become familiar with the video capabilities of the Osprey-2000 cards is to run the included video viewing application VidCap32 and look at its menus and dialogs. **Chapter 10 - VidCap32, AmCap, and Included Demo Programs** focuses on the underlying video capture driver and the control dialogs that can be accessed from VidCap32.

For information about controlling the MPEG features of the Osprey-2000, please see **Chapter 5 - MPEG Encoding** and **Chapter 6 - MPEG Decoding**.

The Osprey-2000 video capture driver has a unified tabbed dialog for setting up all driver parameters. There are five pages within the dialog:

The Source Page

The Format Page

The Closed Caption Page

The Logo Page

The Configuration Page

The Advanced Features Page

The SimulStream Page

 (described in detail in the SimulStreaming User's Guide)

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.

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 offers the following three menu entries for accessing the dialog: **Options -> Source**, **Options -> Format**, and **Options -> Display**. Once you are in the dialog, you can move to any other page by clicking on its tab. For instance, to access the Configuration page from an application, open the **Source**, **Format**, or **Display (Closed Caption)** page and click the **Configuration tab**.

For Windows NT, another way to access the Configuration page is through the **Control Panel**.

Use the following command sequence:

1. Open the system control panel and **Multimedia**.
2. Click the **Devices tab**.
3. Open Video Capture Devices.
4. Highlight Osprey-2000 Video Capture Driver.
5. Click **Properties**.
6. Click **Settings**.

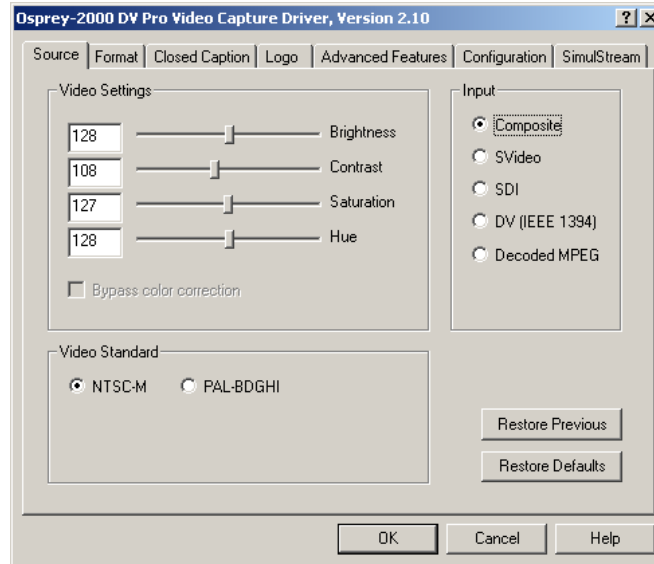
For Windows 2000 (only), another way to access the Configuration page is through the **Control Panel**.

Use the following command sequence:

1. Open the Control Panel and double-click on **System** to open the **System Properties** applet.
2. Click the **Hardware** tab.
3. Click the **Device Manager** button.
4. Open Sound, video and game controllers.
5. Double-click **Legacy Video Capture Devices**. Click the **Properties** tab.
6. Double-click Osprey-2000 Video Capture Driver.
7. Click the **Settings** button.

General Features of the Dialog

These are the common elements found on all pages of the dialog.



OK

Cancel

Restore Defaults

Restore Previous

Apply to All Boards

Help

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 are 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 are 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 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.

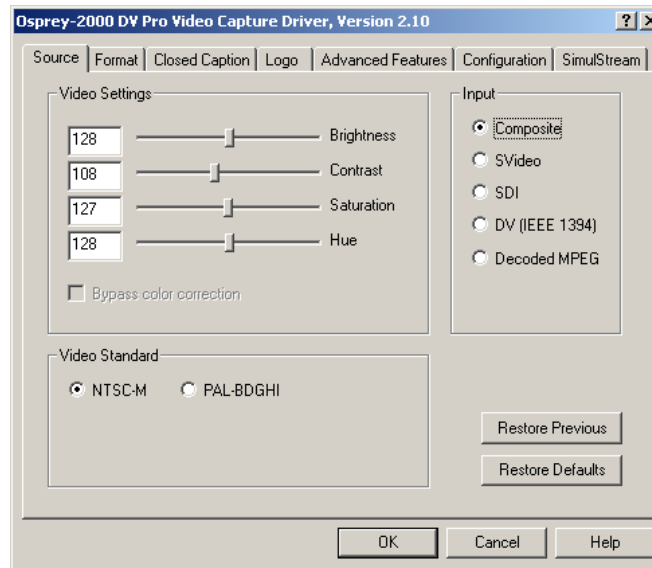
Apply to All Boards

This option displays on relevant dialog windows when more than 1 Osprey card is installed in a system. The only dialog window tabs that can apply an operation to multiple boards are Closed Caption and Logo. The settings for all the boards are saved when you click **OK**; or all are discarded if you click **Cancel**.

Help

Clicking **Help** accesses the pages of this manual covering the currently selected tab.

The Source Page



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

Input

Video Standard

Video Settings

Bypass Color Correction

Input

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

If Preview or Overlay mode is enabled in your application, you can usually 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 does not display correctly until you exit the dialog.

DV Decoding in hardware produces a decompressed video and uncompressed audio stream that can be MPEG encoded or captured. This allows for DV->MPEG transcoding or decompressed DV capture to feed applications. The Osprey-2000 does not capture the DV compressed data stream to the host.

Video Standard

Video Standard refers to whether the video signal format is NTSC or PAL. Depending on the exact product version you have, buttons for some or all of the following formats are displayed:

NTSC-M – North America

PAL-B, D, G, H, I – many countries in Europe and elsewhere. B, D, G, H, and I refer to five nearly identical sub formats.

Full-sized NTSC-M 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 (modes B, D, G, H, and I) has 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 automatically adjusts 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.

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.

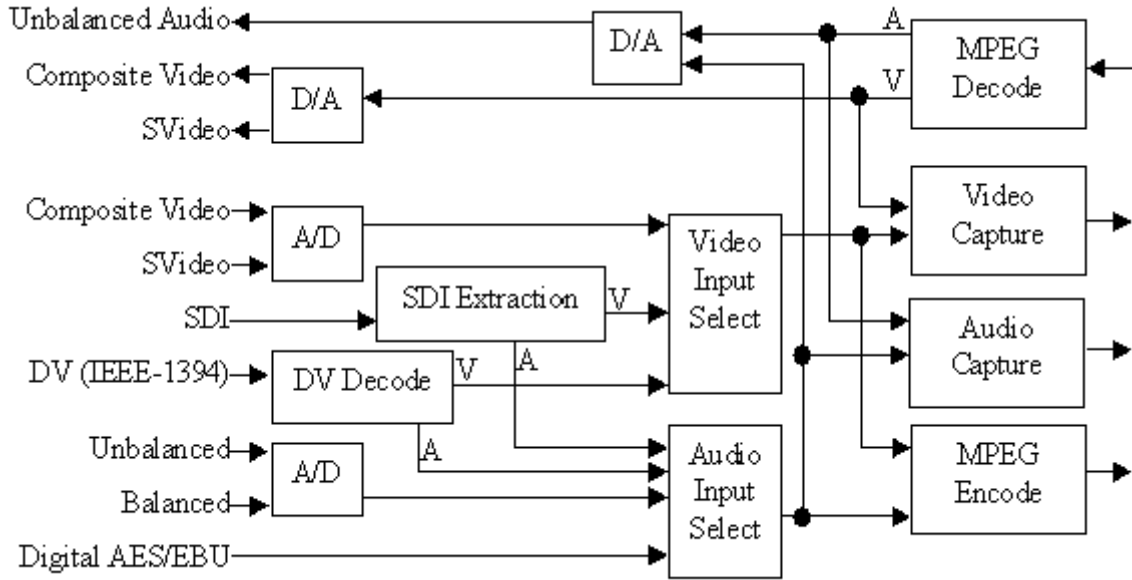
When a video source with PAL signal format is used, the Hue setting is not adjustable and the Hue control is grayed out.

When using a digital source (SDI or DV), the Brightness, Contrast, and Saturation settings do not affect encoded video. The Hue setting is not adjustable on SDI and DV video sources.

Brightness/Contrast/Saturation/Hue adjustments can be applied to the analog inputs prior to capture or encoding (hue not applicable to PAL signals). For digital inputs, only the first three can be adjusted and only prior to capture.

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

The circuit paths affect which of the sliders work, and whether they apply to video before it is encoded. This drawing shows which features can be applied at what stages in capture or encoding:

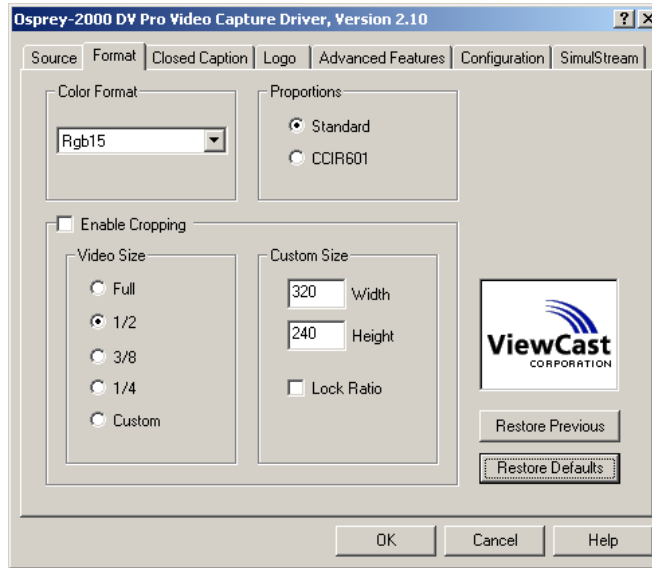


Bypass Color Correction

This checkbox applies to digital video sources, only.

Check **Bypass color correction** to turn off all saturation, contrast, and brightness conversion in hardware and pass digital video data directly to the host. This is most useful for the SDI, DV and decoded MPEG input sources.

The Format Page



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

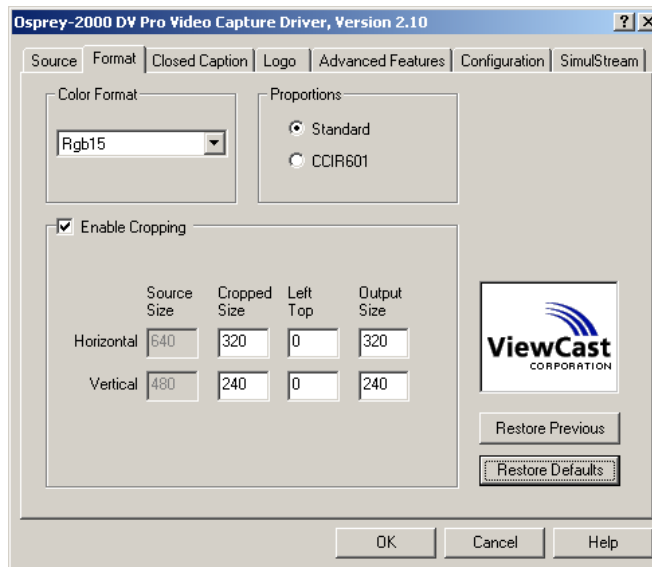
Color Format

Video Size

Custom Size

Proportions (Pixel Aspect Ratio)

Cropping and Scaling (please see the **CropApp Manual** for detailed instructions on using this feature)



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 board to the system is in uncompressed format. It is possible to compress the video at 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 Captured 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 capture. Preview mode renders colors exactly, but it is slower and consumes more system resources.

Color-Space Conversion can be applied in hardware before video is captured to the host. Supported color formats are RGB (32/24/16/15) YUV (4:2:2 packed or planar YVU9/YUV12) and grayscale (Y).

The Osprey-2000 supports both 4:2:0 and 4:2:2 color formats. YUV12 and I420 are examples of 4:2:0 color formats. 422packed is an example of 4:2:2 color format.

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 in the following chart. Changes made to Video Size take effect only after you exit the dialog.

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

The width and height shown are in pixels for the North American NTSC-M video format in the square (standard) aspect ratio. 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. See [Proportion \(Pixel Aspect Ratio\)](#) for more detailed information.

Custom Size

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

If the **Fixed Ratio** box is checked, when you enter a new size in either the height or width box, both dimensions are adjusted proportionately. If this box is unchecked, the height and width may be entered independently. If the dimensions are different from normal screen proportions, the image may appear stretched horizontally or vertically.

The Osprey video 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 YUV12, a width that is a multiple of 16. The dialog lets you enter numbers that the hardware cannot utilize, but adjusts them as soon as you click on another field or button of the dialog.

See [Proportion \(Pixel/Aspect Ratio\)](#) for more detailed information.

Proportion (Pixel Aspect Ratio)

This dialog allows you to select between Standard (also called a Square aspect ratio) and the CCIR601 aspect ratio.

The maximum resolution of the CCIR601 mode is 720 pixels for both NTSC and PAL. The Standard/Square aspect ratio mode has a maximum resolution of 640 pixels for NTSC and 768 pixels for PAL. However, the inputs to the Osprey-2000 all operate in the CCIR601 mode. The Osprey-2000 can scale down to the square aspect ratio for NTSC but not scale up to the square aspect ratio for PAL.

Since the sources are processed in a CCIR601 format, the full 768 pixels of the standard/square aspect ratio mode of PAL is not available. Only 720 maximum pixels are available. If the standard/square aspect ratio mode is selected for PAL, the Osprey-2000 drivers will limit the maximum resolution to only 720 pixels.

Also, many digital sources provide only 704 true pixels and not 720 pixels per line. Because of this, the Osprey-2000 scales down from 704 pixels (i.e., a crop of 720 to 704) to the desired size. If 720 pixels are desired, for example, the result is an unscaled 720 pixels in width. If 704 pixels are desired, the result is an unscaled 704 pixels in width. If 352 pixels are desired, the result is a scaling from 704 down to 352 pixels in width (and not 720 down to 352).

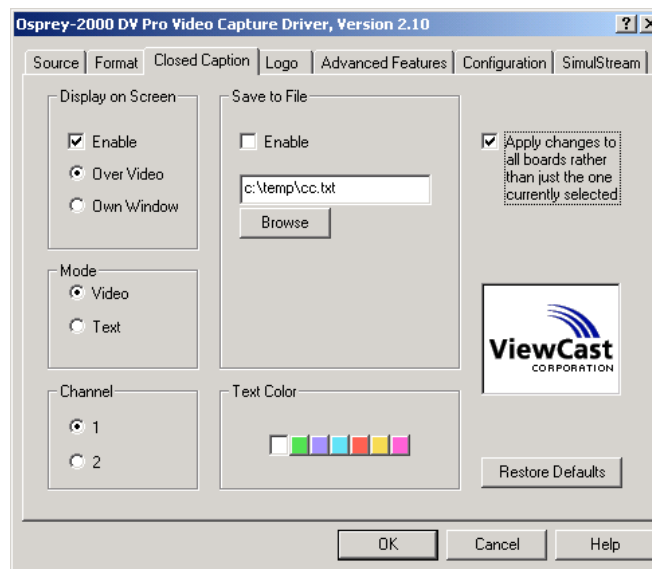
Cropping and Scaling

The Osprey-2000 driver package includes the capability to crop the incoming video signal in hardware before it is encoded or captured. Cropping is done by the Osprey card and imposes no extra load on the host computer. Use any of the following methods to crop the incoming video signal:

- ◆ Video Format dialog box
- ◆ CropApp, the cropping application
- ◆ SDK

Please see the CropApp Manual which is installed in the Osprey-2000 Program group for details on using this feature. Note that scaling down can be applied in hardware to any video source before capture. The MPEG encoding processing can also scale input video sources providing for a range of MPEG encoding resolutions.

The Closed Caption Page



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

Display on Screen

Save to File

Mode

Channel

Text Color

Field

Apply to All Boards

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

The Osprey-2000 video driver provides a complete implementation of the Closed Captioning standard and special extensions that are made possible by the capabilities of a PC. At the moment, the Osprey-2000 only provides support for Closed Captioning on the analog video inputs. (For more information, see **No Closed Captions on Digital Video** in Chapter 11.)

You can use Closed Captioning whenever the following conditions are met:

- ◆ You must be viewing a videotape, videodisc, or broadcast material that has Closed Captioning content. Look for a small CC logo on the packaging or in the program listing.
- ◆ Closed Captioning is for North American NTSC video only, not for PAL video.
- ◆ Closed Captioning must be enabled in the Osprey driver, using the Closed Caption dialog page.
- ◆ **Video Mode** and **1** must normally be selected. You might use **Text Mode** or **Channel 2** in specialized instances.
- ◆ In addition to the normal options of viewing or capturing Closed Captioning, you have the special capabilities to save the text to file as you view or capture it.

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. Closed Captioning currently only is enabled for analog (Composite/S-Video inputs).

If you check or uncheck the **Enable** checkbox while Overlay or Capture mode is in effect, the change does 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 attempts to interpret regular video as Closed Captioning character codes, and may sometimes display spurious characters. It also slightly increases 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 window disappears while you are capturing video and reappears after capturing video. 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:

1. If checked, the **Enable** checkbox enables saving to a file.
2. The **Edit Box** allows you to designate a file in which the captions will be saved.
3. The **Browse** button accesses a standard system dialog for locating a directory and file in which the captions will be saved. When you choose a file that already exists (either by entering the file name or using the **Browse** button), new captions are appended to whatever was previously in the file.

You may 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 with most material, if you select Channel 2, you won't see any Closed Captions.

Text Color

Select the color in which you want the closed captioned text to display.

Field

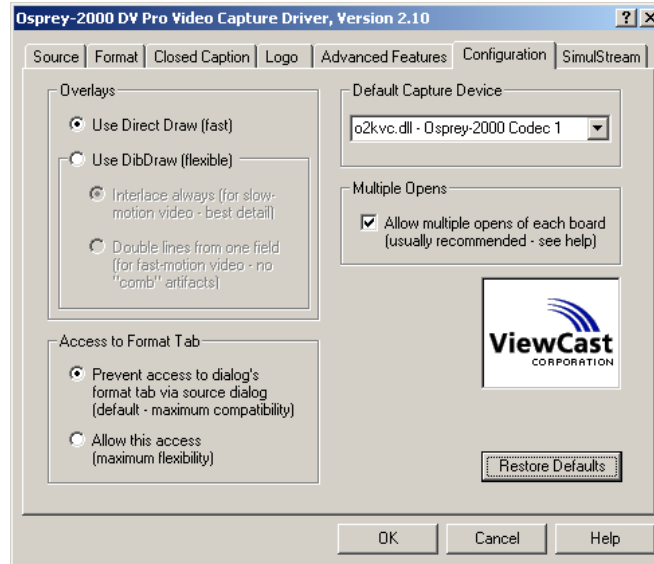
Field 1 is the even field of interlaced video, Field 2 the odd field. Field 1 is usually the only field that contains Closed Captioning.

Apply to All Boards

This option displays on relevant dialog windows when more than 1 Osprey card is installed in a system. The only dialog window tabs that can apply an operation to multiple boards are Closed Caption and Logo. The settings for all the boards are saved when you click **OK**; or all are discarded if you click **Cancel**.

The Configuration Page

The Configuration page controls several miscellaneous settings.



Overlays

Access to Format Tab

Multiple Opens

Default Capture Device

Overlays

Direct Draw is a fast drawing method that moves video directly from the Osprey capture card to the display adapter. If Use Direct Draw is selected, the driver uses Direct Draw for Overlay drawing. If for some reason it cannot use Direct Draw, it automatically defaults to 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 and 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 the 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 cannot 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 setting is, however, inconvenient. The alternative setting to allow this access allows you to switch between pages without restriction. This works with many applications; however, the responsibility lies with you to make sure no problems arise.

Multiple Opens

We recommend keeping this box checked unless you have a reason not to. This ensures compatibility with the greatest number of present and future applications that you might want to use.

If Multiple Opens is checked, a particular board can be opened for access from multiple places, either within a single process or by multiple processes. However, the features available through subsequent opens are limited. This mode is needed by certain complex applications that, for example, use separate processes for capture and overlay.

If Multiple Opens is unchecked (hunt mode), a particular board can be opened for access from only one place in one process. If there are multiple boards in the system, and an application tries to access a board that is already in use, the driver hunts for the next available board. This is the easiest way to start multiple copies of Windows Media Encoder or VidCap32, for example, to view multiple video inputs.

Changes you make take effect when you click **OK** to close the dialog. Applications such as VidCap32 do not pick up changes until you restart them.

Review [Appendix F - Multiboard Installations](#) for more information.

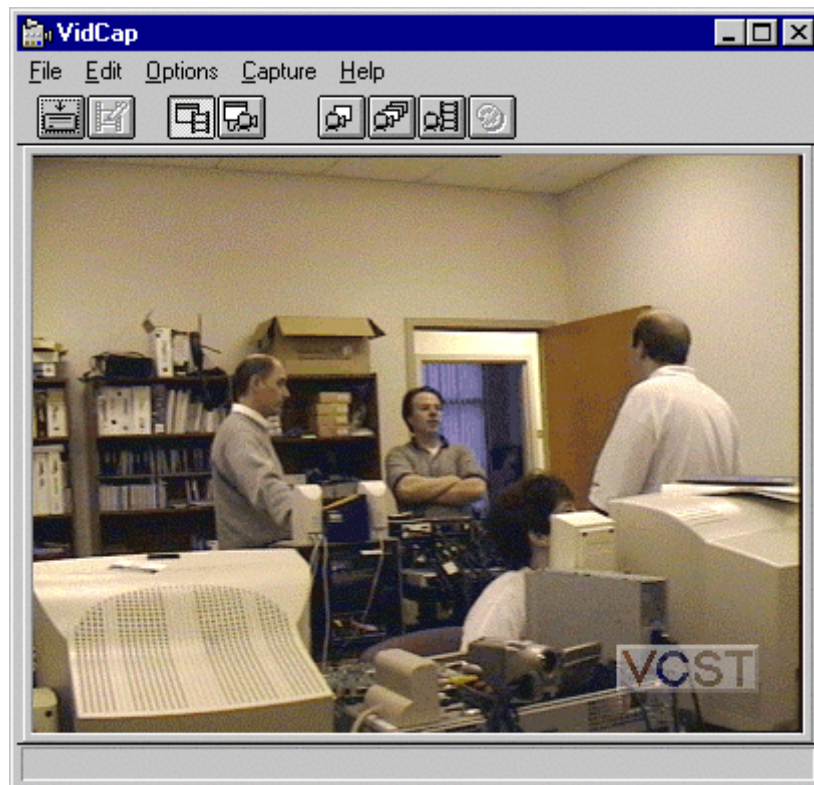
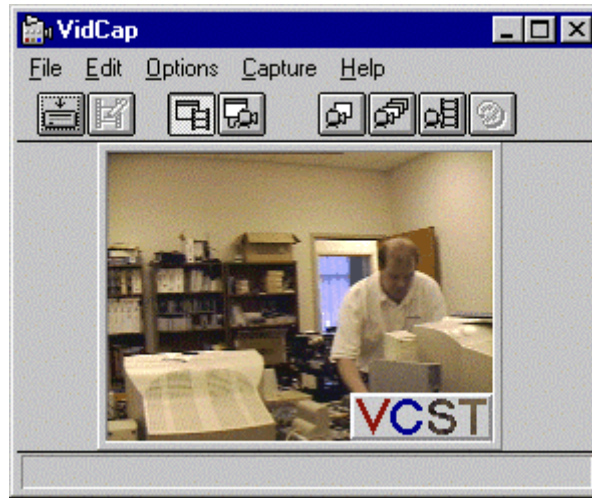
Default Capture Device

This control is useful if you have multiple video capture devices of different kinds. These could include cards from other vendors or different kinds of capture cards from Osprey. In this context, the Osprey-50, -100, -101, and -200 are considered one single device type. The Osprey-500, the Osprey-1000, and the Osprey-2000 are each separate device types.

Some applications are capable of accessing only the primary or default device. With this control, you can select which device will be the default device such an application will use.

Changes you make are written to the registry when you click **OK** to close the dialog. Applications such as VidCap32 will not pick up changes until you restart them. Some DirectX-based applications may not detect changes until you restart the system.

The Logo Page



The Osprey Video Capture Driver allows you to superimpose a logo on captured video, as in the images above. The VCST logos shown illustrate some of the features for color keying and translucency that are described in this section.

Use the setup dialog's Logo page to set up a logo. The logo page is actually a sequence of five pages that guide you through the steps of creating a logo and placing it on the video.

You cannot access the Logo page directly from most applications. Instead, open the Source or Format page of the dialog, then click on the **Logo tab**.

Capabilities

Step 0 - Before You Start

Step 1 - Creating and Enabling the Logo

Step 2 - Selecting the Logo File

Step 3 - Setting Key Color and Style

Step 4 - Positioning the Logo

Step 5 - Reviewing and Saving the Changes

Notes on Logos

Capabilities

A logo can be any artwork that is formatted as a 24-bit BMP file. Typically, a logo is a small graphic that is placed at the lower left of the image. In a technical application, however, a logo could be a crosshair pattern placed at the center of the image. The logo can theoretically be any size. However, the CPU must actively draw the image on every frame of video, and drawing a very large image, even if it is mostly transparent, degrades overall performance in high-throughput applications.

The driver can draw a logo on captured or streaming video, on preview video, or on DibDraw overlays. However, the driver cannot draw a logo on DirectDraw overlays. If you attempt to draw a logo on DirectDraw overlays, everything appears to work fine, except that the logo is not visible.

A logo's rectangle can be partially transparent so that the underlying video is visible. The transparent areas are defined by a Key Color – a particular (red, green, blue) value that is specially interpreted by the driver. For example, the sample logos use cyan with red, green and blue values of (0, 128, 128) as the key color.

A logo displays in either of two styles – normal and embossed. In normal style, the logo's non-transparent pixels simply replace whatever video underlies it. In embossed or translucent style, the logo's non-transparent pixels are averaged with the underlying video pixels, resulting in a more subtle effect.

For detailed instructions on setting up a logo, review the following steps:

Step 0 - Before You Start

Step 1 - Creating and Enabling the Logo

Step 2 - Selecting the Logo File

Step 3 - Setting Key Color and Style

Step 4 - Positioning the Logo

Step 5 - Reviewing and Saving the Changes

Notes on Logos

Step 0 - Before You Start

Create your artwork with the Windows Paint application or any other paint program that you like to use. Save it in 24-bit BMP format.

Before creating your own logo, however, you may want to experiment with the samples supplied with the driver. They are located in the Osprey program directory, by default **\Program Files\ Osprey-2000\Nt** on the default drive.

Have Preview or DibDraw Overlay mode running when you enter the dialog to see immediately the results of interactively defining and placing the logo. DirectDraw Overlay mode does not work for this purpose. To change from DirectDraw to DibDraw, – or to find out which one you are currently using – go to the dialog's **Configuration tab**, then stop and restart **Overlay mode**.

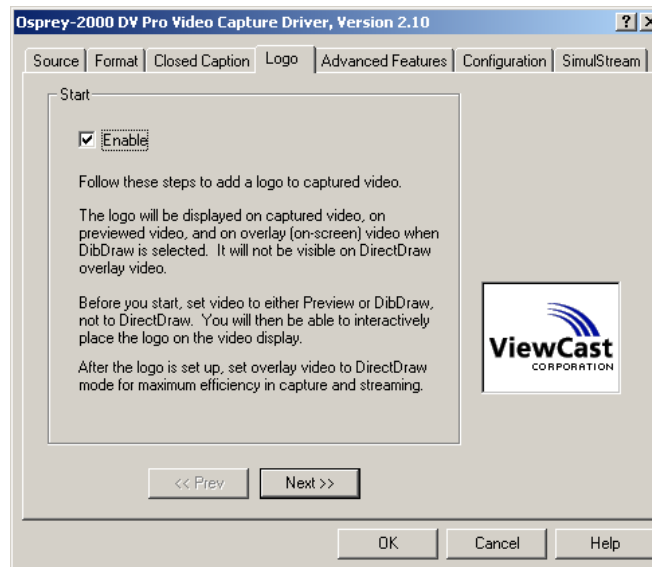
Step 1 - Creating and Enabling the Logo

Additional links:

[The Logo Page](#)

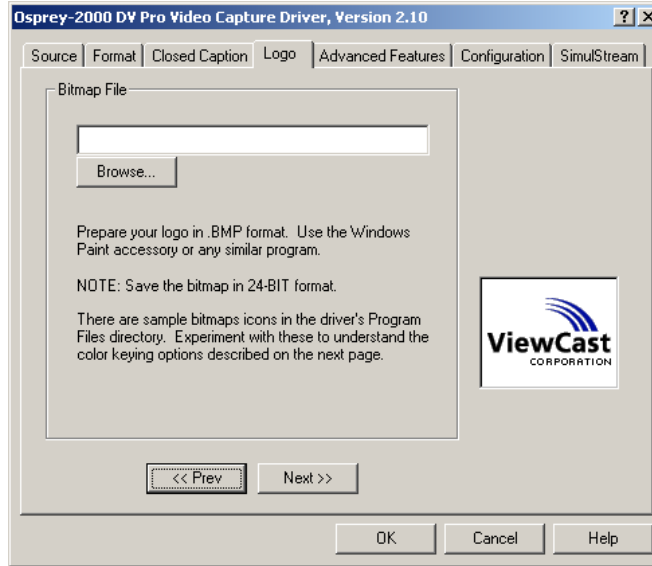
[Capabilities](#)

The logo setup pages include detailed explanations at each step. The first page handles only one consideration – whether or not logo drawing is enabled.



By default, the **Enable** box is not checked and therefore no logo displays. In this case, when you click **Next>>** you go directly to the last page (Page 5 - Reviewing and Saving the Changes) of the logo setup sequence.

If the **Enable** box is checked, you can click **Next>>** to step through all of the pages of the setup sequence.



Step 2 - Selecting the Logo File

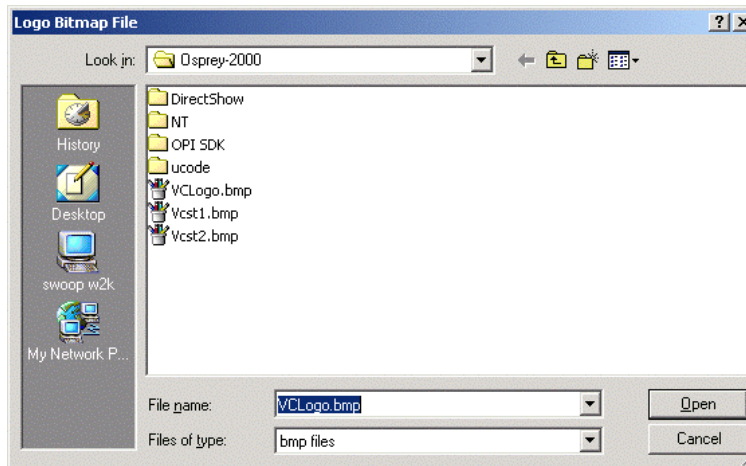
Additional links:

[The Logo Page](#)

[Capabilities](#)

This screen should be self-explanatory. You are selecting a BMP file, either your own artwork or one of the samples. You can type in the full pathname to the file or browse for it. When you have selected the file, click **Next>>**.

The sample logos are located in the Osprey program directory, by default **\Program Files\Osprey-2000\Nt** on the default drive.

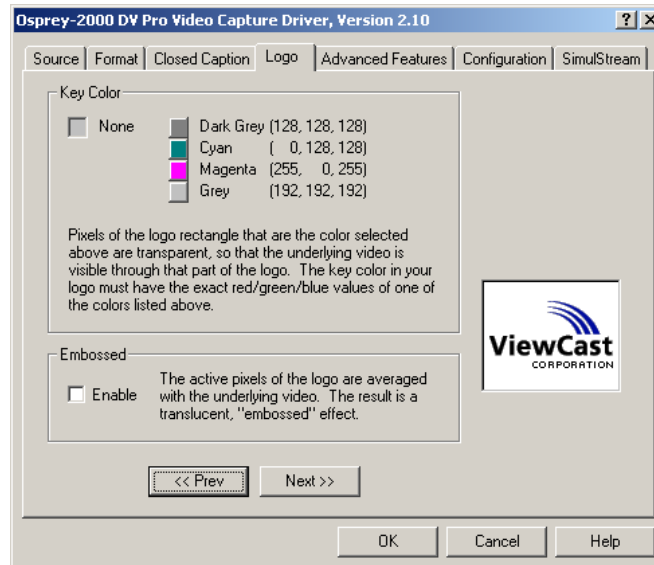


Step 3 - Setting Key Color and Style

Additional links:

[The Logo Page](#)

[Capabilities](#)



As previously noted, a key color is a (red, green, blue) color value that the driver treats specially. Logo pixels in that color do not display; the underlying video appears instead. This dialog sheet lets you choose one of four fixed key colors, or no key color. If you select **None** for the key color, all pixels from the logo display including all pixels in any of the key colors.

A key color must be a precise (red, green, blue) value. For example, if cyan is selected as a key color the pixel values must be exactly (0, 128, 128). A pixel of value (0, 127, 127) does not display transparent – it displays as cyan.

All four key colors are standard stock colors in Windows Paint.

If the **Embossed** box is checked, each pixel color value displayed is the average of the pixel value of the logo and the pixel value of the underlying video. If **Embossed** is not checked, the pixel color value is simply the value from the logo.

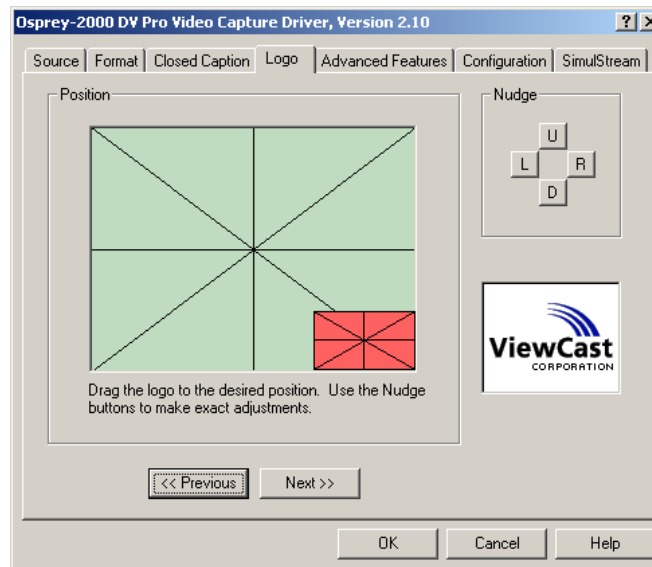
The key color setting takes precedence over the **Embossed** setting; that is, logo pixels in the key color are transparent, not averaged, even in **Embossed** style.

Step 4 - Positioning the Logo

Additional links:

[The Logo Page](#)

[Capabilities](#)



The **Position** control allows you to position the logo by dragging it with the mouse. The **Nudge** controls move the logo up, down, left or right one pixel at a time. They permit more precise adjustments than the **Position** control can achieve.

If Preview or DibDraw Overlay video is running, the logo moves on the video as you move it in the dialog.

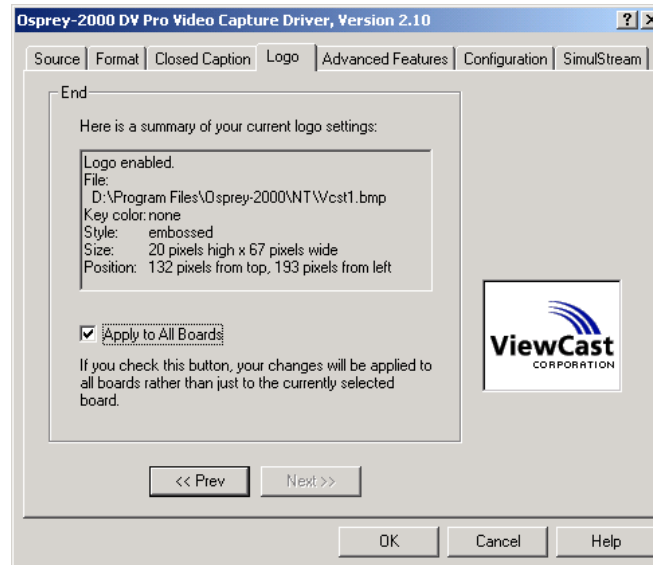
If you position the logo in a certain way and then change the video size, the driver stretches the logo to maintain the same relative size, and places it in the same relative position. The stretched artwork may have jagged diagonal edges and not look as good as the previous artwork prepared with the intended video size in mind.

Step 5 - Reviewing and Saving the Changes

Additional links:

[The Logo Page](#)

[Capabilities](#)



This page shows a text summary of the current logo configuration.

If you have multiple boards in the system, a checkbox entitled **Apply to All Boards** is shown. If you check this box, the logo changes you make to the current board are made to all the boards in the system.

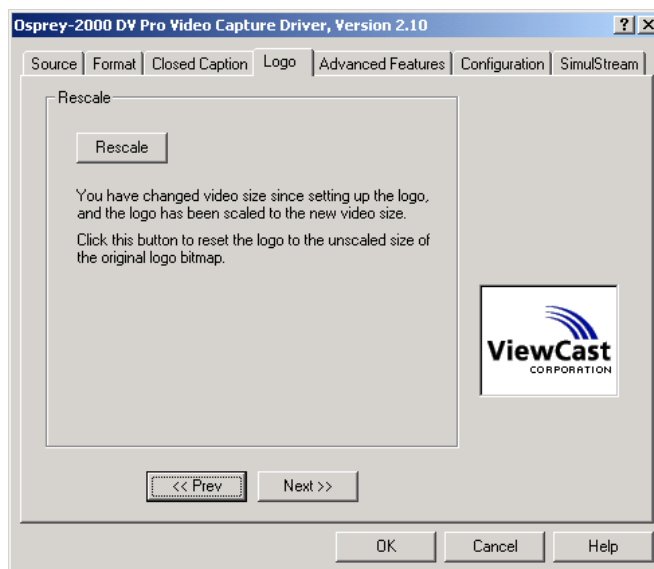


If you have multiple boards in the system and the only change you make is to enable or disable logos, clicking OK with Apply to All Boards checked changes the enable/disable status of all boards but doesn't change any of the other settings. If, however, you make any logo changes other than enable or disable, Apply to All Boards copies the entire current configuration to all boards.

Notes on Logos

If you set up a logo with video set to one size, then resize video, the logo is scaled correspondingly. For example, if the logo is originally set up for 320x 240 video, and you change to 640 x 480 video, the logo displays at twice the size of the original bitmap.

1. If you edit the logo settings while the logo is scaled up or down, an additional option entitled **Rescale** displays after **Enable**.



If you click the **Rescale** button on this page, the logo is resized to the same size as the original source bitmap.

If you do not click the **Rescale** button, you can edit the logo settings using the scaled logo. Even if you change to another bitmap image, the old scaling is maintained.

2. The driver can display color logos on YUV video – 4:2:2 packed, YUV12 planar, and YVU9 planar. The appearance may not be quite the same as the RGB version, however.
3. Detail of colored features may not be as crisp, because in the YUV modes color is not sampled at full pixel resolution.

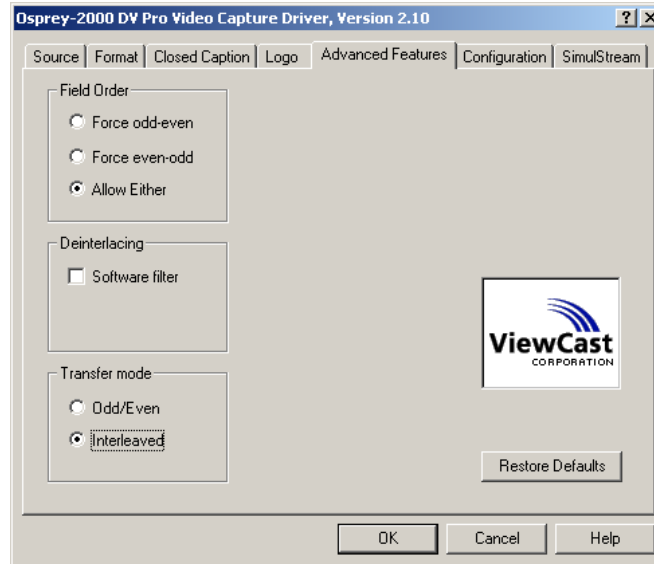


DibDraw Overlay video is always RGB even when you have selected a YUV color format in the dialog. Preview video is always in the exact YUV or RGB format you have selected. Therefore, when using a YUV mode be sure to check the appearance of the logo in Preview mode before putting it to use.

4. When Grey8 video format is selected, all logos including color logos are displayed in gray scale.

The Advanced Features Page

Select a link below the screen for more information.



[Field Order](#)

[De-Interlacing](#)

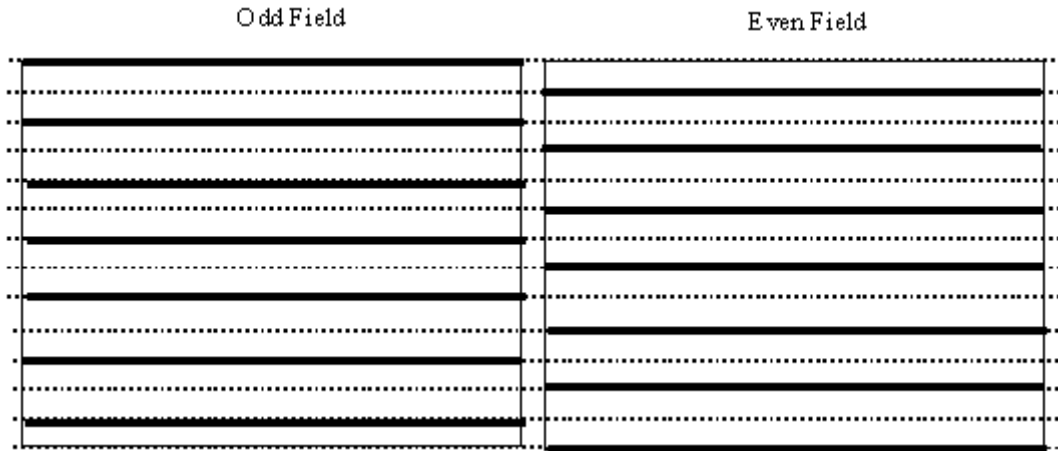
[The Transfer Mode](#)

Field Order

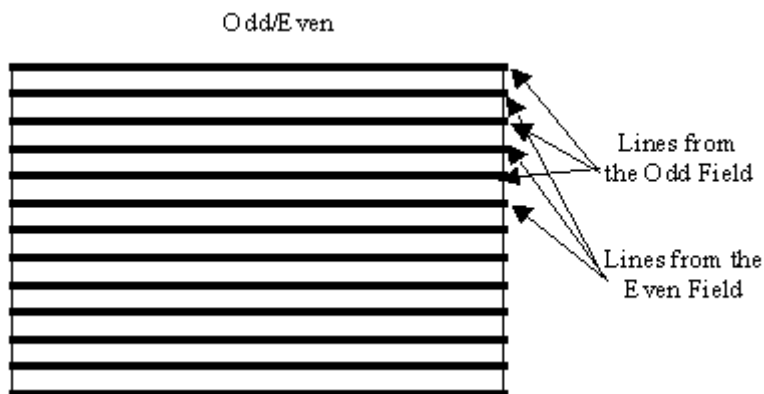
The Osprey-2000 allows you to configure which pairing of fields will be used to construct a frame. For interlaced capture devices (most current video cameras) the field order does not matter and the 'Allow Either' setting will provide better performance in VFW preview mode. The default setting for this feature is 'Allow Either'. Use the force odd-even or force even-odd settings with a progressive scan camera. Consult your camera's technical documentation for the correct setting to use. Using the correct setting with a progressive scan camera will eliminate comb-like interlacing artifacts.

De-Interlacing

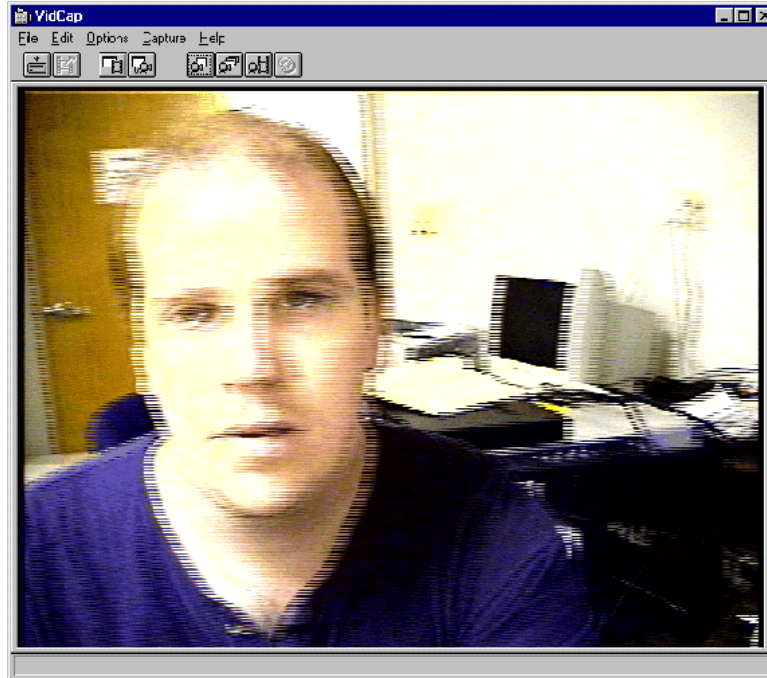
Most video is provided for viewing in an interlaced format. For simplicity, NTSC is used in the following explanation of an interlaced format. NTSC video is basically composed of images taken 60 times a second. Each image is called a field, and there are odd and even fields. While these odd and even fields are temporarily adjacent to each other in time, the horizontal lines that make up these fields are spatially different.



The figure above is a simplistic view of interlaced video and fields. The two fields are taken 1/60th of a second apart, and the lines of each field are not aligned, but staggered. Most televisions are interlace display devices, where the 60 fields are displayed individually and the viewer sees only one field at a time. However, most computer monitors are progressive and not interlaced display devices. On a computer monitor where video is viewed at its full resolution, viewers see both the odd and even fields at once:

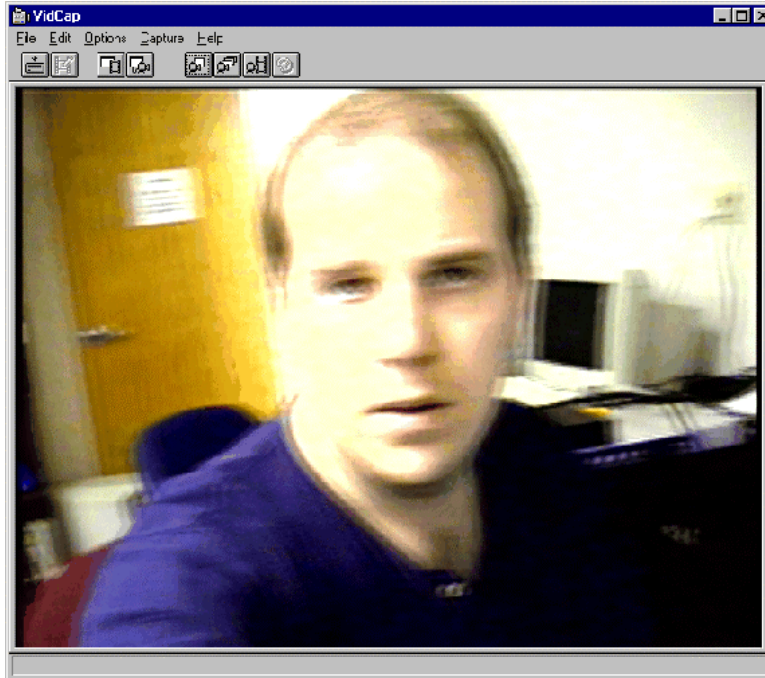


The problem with progressive display devices is that if an object is moving, its position is not the same in both the odd and even fields. When odd and even fields are merged together, interlaced artifacts occurs. The artifacts are seen and commonly described as streaking or feathering.



The screen above illustrates the streaking or feathering problem that occurred when the interlaced odd and even fields in this video were captured. Only a slight amount of motion took place, yet streaking is obvious in the overall result. Note the prominent horizontal lines outlining all the objects on this screen.

When feeding such images to an encoder, the encoder has a significantly harder time processing and compressing such interlaced video. The result is loss of overall quality and perhaps a loss of frame rate as well. While the encoding process may smooth out some of these artifacts, the resultant compressed video may still display somewhat streaked or feathered and may not play back smoothly.



The Osprey-2000's software de-interlacing motion filter can be applied to any video source after the optional scale and color-convert phases of processing to eliminate streaking or feathering and maintain motion content. In the screen above, where the Osprey-2000's de-interlace motion filter has been turned on, note that the strong horizontal streaking or feathering around the subject's head have been smoothed to a slight blur. While the blur is noticeable in a single screen snapshot, the human eye perceives only natural motion when the video is played back at normal frame rates.

Feeding the de-interlaced image in the screen above to an encoder significantly improves output of the encoder in terms of overall quality and smoothness. The encoder has an easier time compressing the de-interlaced video and thus can expend saved bits and CPU cycles to produce higher quality streams.

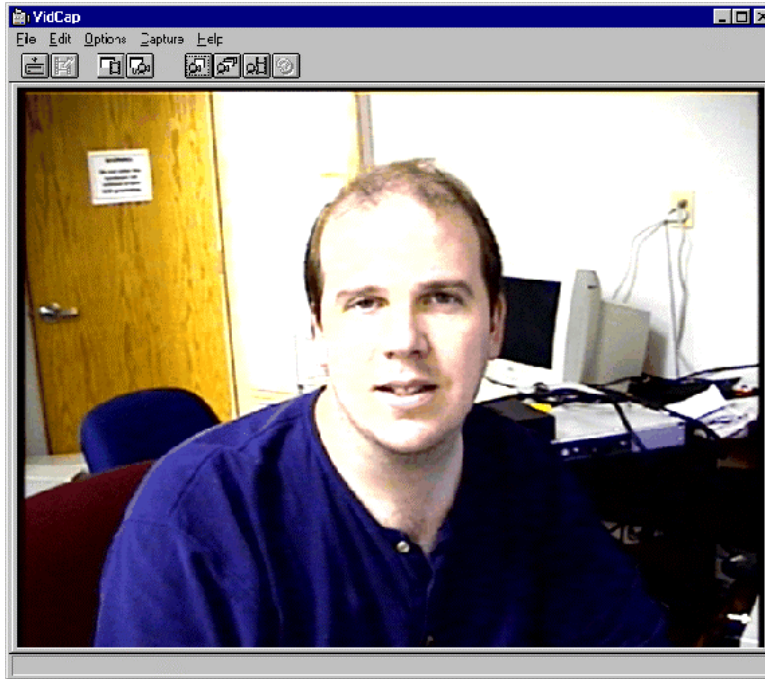
De-interlacing is optimized for Windows 2000 and above; it will consume fractionally more CPU cycles when enabled under Windows NT.

The Transfer Mode

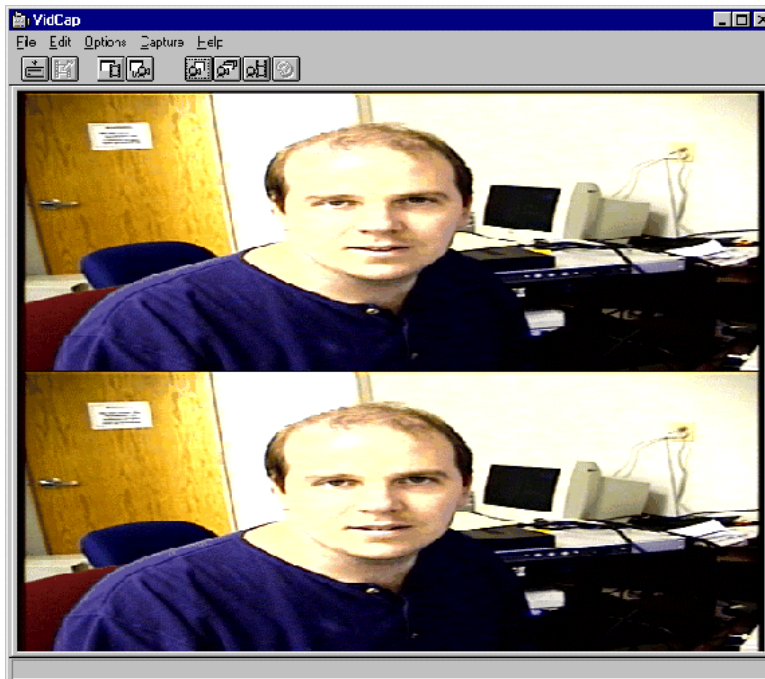
The Osprey-2000 captures video data to the host or to the display device via two different transfer modes. The first mode, *Odd/Even*, transfers video such that the odd lines of video are grouped together before the even lines. If the video source was interlaced to start with and the hardware de-interlacing filter was not applied, the *Odd/Even* mode basically places the odd field on top of the even field. If the de-interlacing filter was applied (see description further down), this mode places the odd lines of the resultant de-interlaced frame before the even ones. The *Odd/Even* transfer mode only occurs when the resolution is greater than half the maximum resolution (>240 for NTSC and >288 for PAL).

The second mode, *Interleaved*, transfers video vertically in line order. For example, line 1, line 2, line 3, etc. Basically, this is an interlaced mode. However, since the video source may have been progressive to start with, or because the de-interlacing filter may have been applied, the term 'interlaced' transfer mode is inappropriate.

The following images further describe the *Odd/Even* and *Interleaved* transfer modes:



The first image is a snapshot of video captured using the *Interleaved* transfer mode. The source is an interlaced DV camera, and the image size is 640x480.



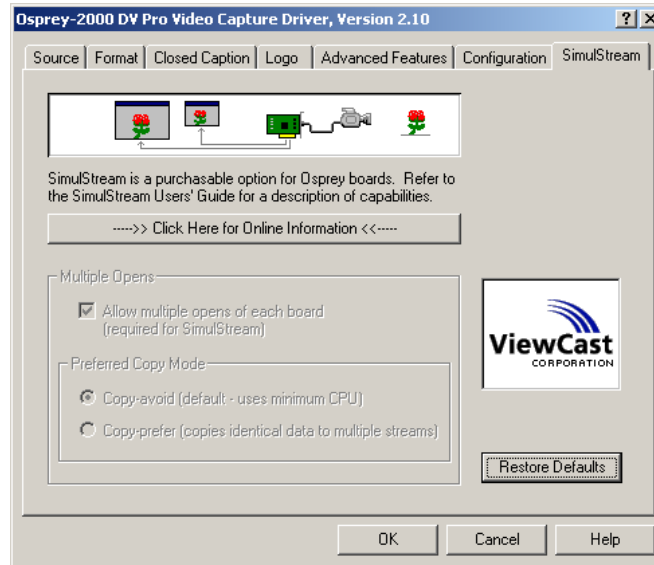
The second image is a snapshot of video captured using the *Odd/Even* transfer mode. The source is an interlaced DV camera, and the image size is 640x480.



The third image is a snapshot of video captured using the *Odd/Even* transfer mode. The source is an interlaced DV camera, and the image size is 320x480. This mode of capture can be used to acquire video at 60 fields/sec. The Osprey-2000 already horizontally scaled the video down to 320 pixels in width in hardware. Having the 60 fields/sec delivered 30 times a second in the format given here offers the advantage of keeping the odd/even pairing of video consistent in the case of capture loss due to performance of the application.

The SimulStream Page

SimulStream is an added-cost upgrade option described in detail in the SimulStreaming User's Guide – Revision 1.1.



Cropping and Scaling

The Osprey video capture driver package includes the capability to crop the incoming video signal in hardware before it is encoded or captured. Cropping is done by the Osprey card and imposes no extra load on the host computer. Use any of the following methods to crop the incoming video signal:

- ◆ Video Format dialog box
- ◆ CropApp, the cropping application
- ◆ SDK

Please see the CropApp Manual which is installed in the Osprey 2000 Program group for details on using this feature.

Chapter 9 - Capturing Audio

Setup and control for audio are much simpler than for video. The basic steps are covered in the following topics:

Selecting the Audio Source and Input Volume

Registry Settings Controlling Other Audio Parameters

Audio Formats

Missing Digital Audio Sources

Audio Playback

Note for DV users:

The Osprey-2000 is capable of converting sampling rates from a higher sampling rate to a lower sampling rate. For instance, if you set your DV audio to 48 KHz, the card can provide all common sampling rates (48 KHz, 44.1 KHz, 32 KHz, 22 KHz, 16 KHz, 11 KHz, 8 KHz).

However, if your DV audio is set to 32 KHz, the card can only convert to lower sampling rates. Therefore, 48 KHz and 44.1 KHz are not supported if the DV audio is set to 32 KHz.

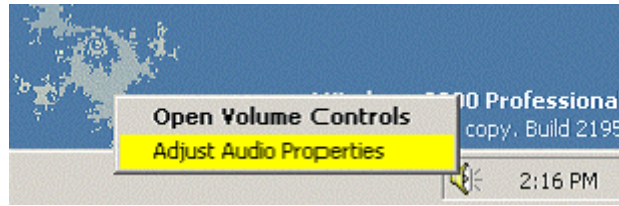
Note for DVD users playing CD audio:

If you are playing a CD in a DVD player, the Osprey-2000 will be able to capture at all sampling rates except 48 KHz. This is because the Osprey-2000 cannot convert audio from a lower sampling rate to a higher sampling rate. The Osprey-2000 converts stereo audio to mono audio by summing the left and right channels and dividing by 2 (conversion is $(L+R)/2$).

The Osprey-2000 converts stereo audio to mono audio by summing the left and right channels and dividing by 2 (conversion is $(L+R)/2$).

Selecting the Audio Source and Input Volume

The audio source is set using the Osprey-2000's mixer driver interface. Most applications, including the Windows Media Encoder applications, interface to the mixer driver directly and expose the look and feel specific to that application. However, the default Windows interface to the mixer driver can also be used. There are two simple methods for getting to the mixer source and volume control dialog box.

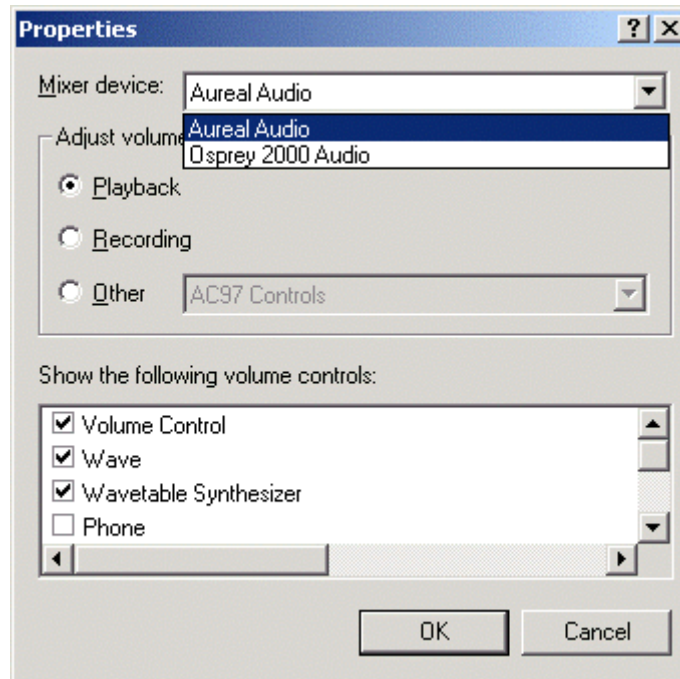


An easy method for accessing this interface is to right click the **speaker symbol** on your taskbar (typically on the bottom right-hand side of your screen) and select the **Open Volume Controls** option.

If you do not see the speaker symbol, click the **Start** button on the Start Menu, select **Programs->Accessories->Entertainment(or Multimedia)** and select **Volume Control**.

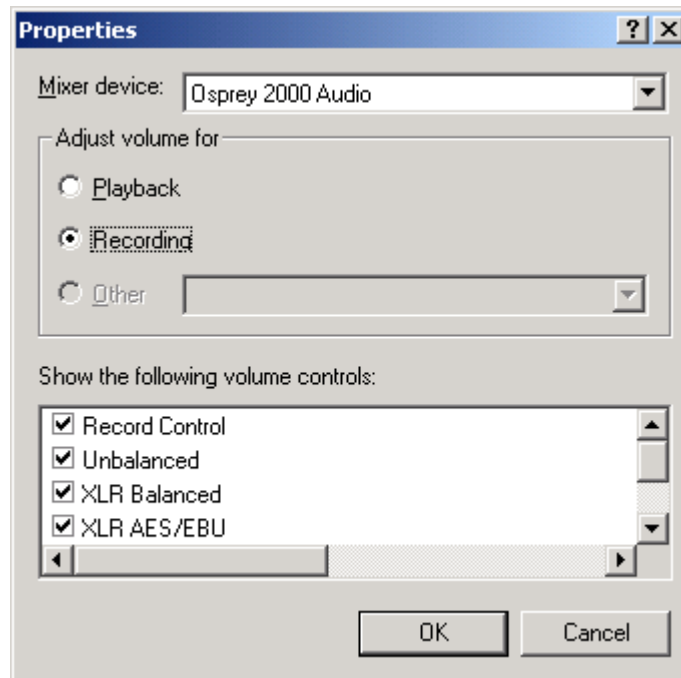
Either action brings forth the audio mixer interface for the audio play back device.

To locate the Osprey-2000 audio capture (recording) device, select **Properties** under the **Options menu**. This pops up a dialog to select the **Mixer device**.

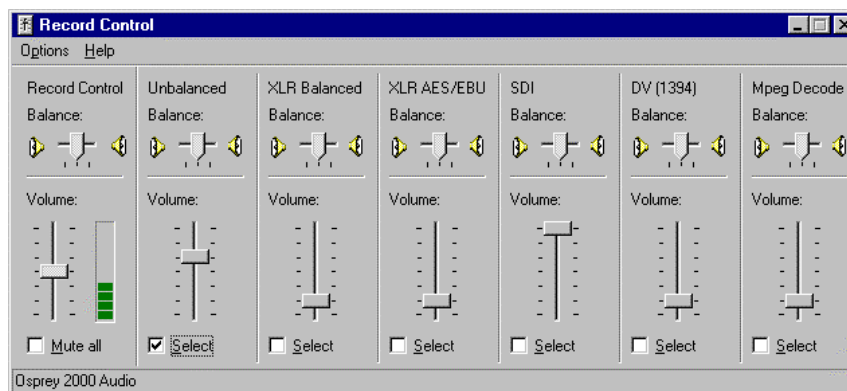


Do not select the **Recording** option within the **Adjust Volume for** section. Click the dropdown list for **Mixer device** to see the list of audio input and output devices, including the Osprey-2000.

If more than one Osprey-2000 card is in the system, each Osprey-2000 card is enumerated individually. Once an Osprey-2000 device has been chosen, select **OK** in the *Properties* dialog box. Then, select **Properties** on the Options menu again. A dialog displays. Select **Recording** and click **OK**.



The Osprey-2000 Record Control panel appears.



The **Select** checkbox at the bottom of each source sets which source is actually being used. DV audio signals are embedded in DV video signals. If you select SDI or DV audio, the video Signal selection for PAL/NTSC must match the type of the SDI or DV source.



The Osprey-2000 device is not a mixer in that it does not allow for mixing the various audio sources. Therefore, when one audio input is selected, any previously selected input is unselected.

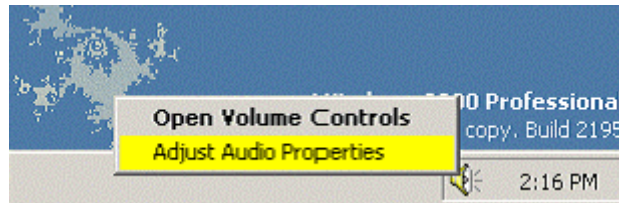
When you are capturing audio, the vertical field in the Record Control Volume section will light up with green, yellow, and red bars (like sound meters on home audio equipment).

The Osprey-2000 card has a **hardware gain** on the analog audio inputs. To control the hardware gain for the card, use the volume slider in the mixer applet. The Osprey-2000 card has a **software gain** control on the digital audio inputs. For instructions on changing the software gain (for digital sources only), refer to [Gain Selection](#). Gain does not apply to MPEG encoding for the digital audio inputs.

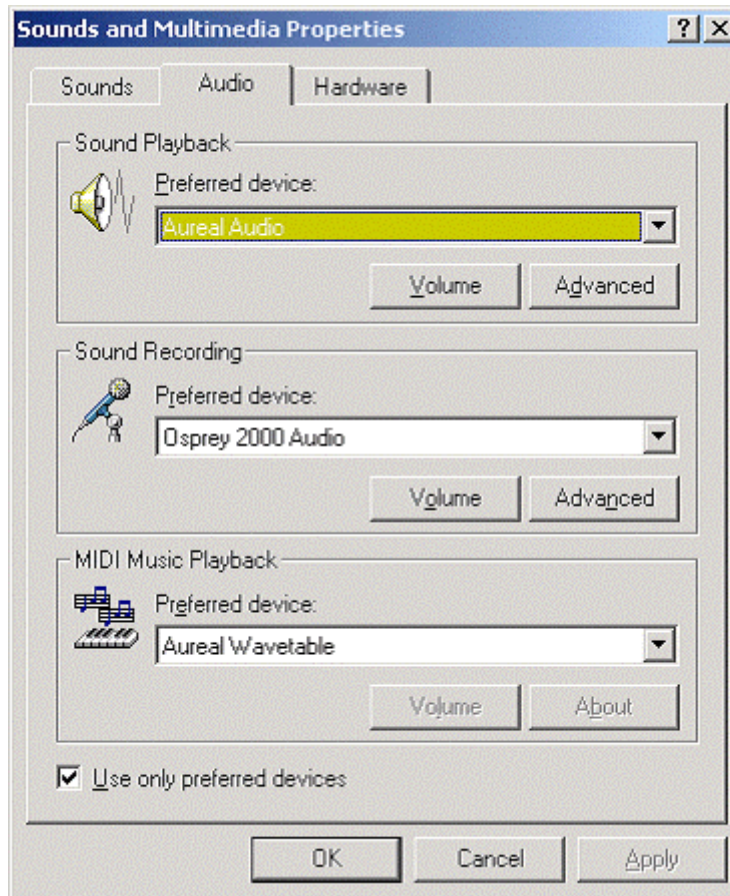


The quick-access volume control on the task bar (left click on the speaker symbol) controls playback volume and recording volume. To change record levels, go to **Options -> Properties -> Recording**.

It is necessary to set the Osprey-2000 as the preferred recording device before you capture or encode audio.



Right-click the **speaker symbol** on your taskbar (typically on the bottom right-hand side of your screen) and select the **Adjust Audio Properties** option.



If you are using Windows 2000, click the **Audio** tab. If you are using Windows NT you do not need to choose among tabs in this applet.

Use the dropdown lists to select the **Osprey-2000** card as the preferred Recording device, and your sound card as the preferred Playback device.

Click in the **Use preferred devices only** checkbox to select it.



You must set the Use preferred devices only option in Step 8.

When you decode (or play) MPEG, the Osprey-2000's audio input port is set to 'MPEG Decode'. If you want to later capture audio from another audio source, be sure to remember to bring up the Record Control mixer and select the desired audio input port. If 'MPEG Decode' is selected while you are trying to capture audio or audio/video, and you are not currently decoding MPEG, you will not get any captured audio data and this can have various side effects in capture applications (such as the application stopping with a complaint about no audio data present, or very slow video frame rates)." See **My video/audio capture has a very low frame rate and no audio** for more details.

Registry Settings Controlling other Audio Parameters

The Osprey-2000 mixer applet does not provide a mechanism for setting all of the audio capabilities. Entries in the registry control include:

Rate Conversion Method

Gain Selection

Rate Conversion Method

This feature selects the method Osprey-2000 uses to convert audio from one sampling rate to another. For example, audio from a DV source is typically 48 KHz stereo audio. For various reasons, you may want to capture audio at only 8 KHz. For most purposes, the default setting of Filter Converter works well.

The registry values which control Rate Conversion are listed below. The X stands for the device number of the Osprey-2000 card. Numbering starts at 0, so the first Osprey-2000 card is Device 0.

HKEY_CURRENT_USER\Software\Osprey\Osprey2000\DeviceX\Audio\RateConversion

When Rate Conversion is:

- ◆ 1 - use filter converter (default)
- ◆ 2 - use skip converter (skips samples)
- ◆ 3 - use Microsoft PCM method

Gain Selection

Gain Selection allows you to boost the audio level in software. This applies only to digital audio sources (AES/EBU, DV, and embedded SDI). Analog audio sources (unbalanced and balanced audio) have hardware gain, controlled by the volume slider on the mixer applet).

The default value of 2 is sufficient for recording from most sources including camcorders, CD players, and Walkman radios. If you have audio sources that are at lower levels, increase the Gain value. The registry values which control this are below. The X stands for the device number of the Osprey-2000 card. Numbering starts at 0, so the first Osprey-2000 card is Device 0.

HKEY_CURRENT_USER\Software\Osprey\Osprey2000\DeviceX\Audio\Gain

The default value of Gain is 2. Set it higher for increased software audio gain. Set it below 2 to decrease gain.

Audio Formats

The only format that the Osprey-2000 audio capture driver supports is PCM. The driver supports the following data rates:

- ◆ 8 KHz
- ◆ 11.025 KHz
- ◆ 16 KHz
- ◆ 22.05 KHz
- ◆ 32 KHz
- ◆ 44.1 KHz
- ◆ 48 KHz

These data rates are supported in 8-bit and 16-bit, mono and stereo formats. The actual Osprey-2000 hardware supports sampling of analog audio at 32, 44.1 and 48 KHz. Depending on the requested audio format, the Osprey-2000 driver automatically selects the most appropriate hardware sampling rate. For example, if 22.05 KHz audio is desired, the audio driver selects the 44.1 KHz audio rate and down samples it to 22.05 KHz.

The Osprey-2000 driver provides for optimal rate conversion from these base sampling rates. For digital sources, the sample rate has already been determined. The Osprey-2000 automatically determines the digital audio sample rate and converts this as required by the application's requested sample rate.

It should be noted that the Osprey-2000 does not currently dynamically readjust sampling rates while audio capture is in progress. Audio capture should be stopped and restarted whenever the audio input port changes.

For mono sources, the Osprey-2000 uses only the left audio channel. Optionally, this can be configured to be the left channel or a mix of the left and right channels.

Also note that the Osprey-2000 does not currently up sample audio. Thus, if a digital audio source (SDI, AES/EB4, DV or decoded MPEG) is providing audio data at 44.1 KHz, you will not be able to capture or encode at 48 KHz.

Missing Digital Audio Sources



Be sure to start the audio source before attempting capture.

When a digital audio source (such as DV, AES/EBU, or SDI) is selected before the audio is turned on, the Osprey-2000 is unable to determine the sampling rate. The sampling rate is a measure of the amount of binary data needed to reproduce the audio being capture. If the audio source is not available, the Osprey-2000 cannot determine the format of the incoming audio.

When a capture is started before the audio source is selected, the audio may not be sampled at the correct rate. Audio sampled at an incorrect rate will sound slower or faster than normal when it is played back. Should this occur, stop and restart capturing audio.

The default digital audio sampling rate is 48 KHz. Some common sampling rates are:

- ◆ 48 KHz for DVD audio through AES/EBU
- ◆ 44.1 KHz for CD audio through embedded SDI
- ◆ 48 KHz for audio from many SDI or AES/EBU sources
- ◆ 32 KHz or 48 KHz for DV recordings

Audio Playback

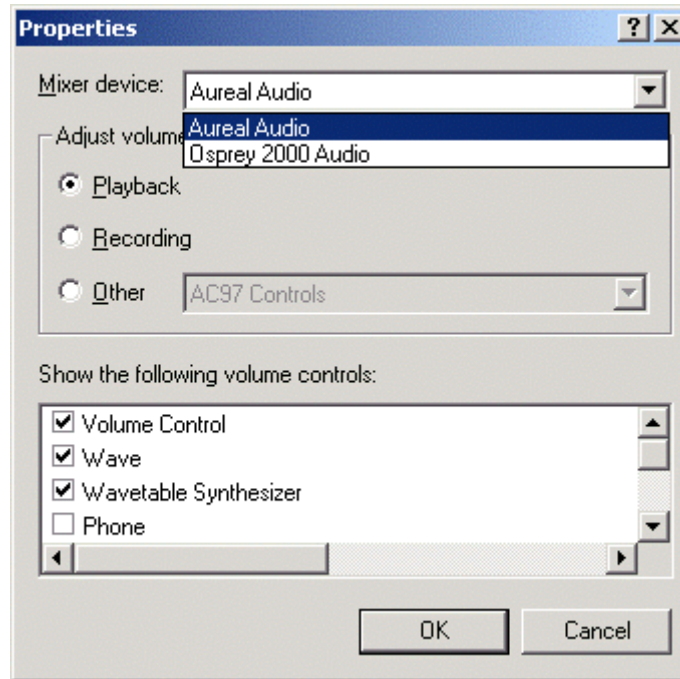
The Osprey-2000 provides audio capture only. It is not a general audio playback device (like a system soundcard). Continue to play back captured audio using your system soundcard.

The Osprey-2000 does provide external monitoring of any of the audio inputs during MPEG encoding and file capture/streaming, as well as for audio of decoded MPEG. The audio output is a stereo unbalanced RCA connector. There is no additional gain or attenuation applied in the audio output path. You cannot change the balance or volume controls on the Osprey-2000 playback device in the mixer applet.

It is necessary to enable the MPEG Decode portion of the Osprey-2000 playback device in the mixer applet before you will be able to hear audio from the Osprey-2000's audio-out jacks while playing an MPEG file.

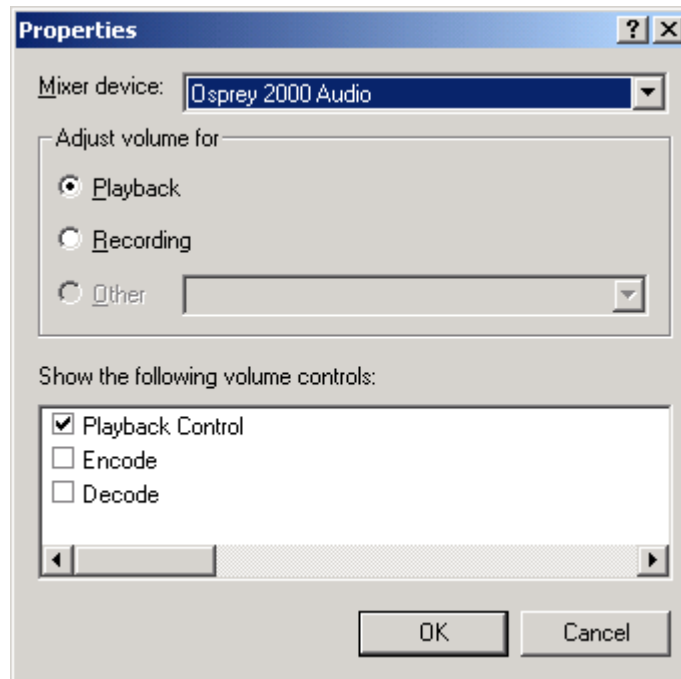
To get to the Osprey-2000 audio playback device:

1. Bring up the audio mixer interface
2. Select **Properties** under the **Options menu** to pop up a dialog to select the **Mixer device**
3. Do not select the Playback option within the Adjust Volume field. Click on the dropdown list for **Mixer device** to see the list of audio input and output devices, including the Osprey-2000

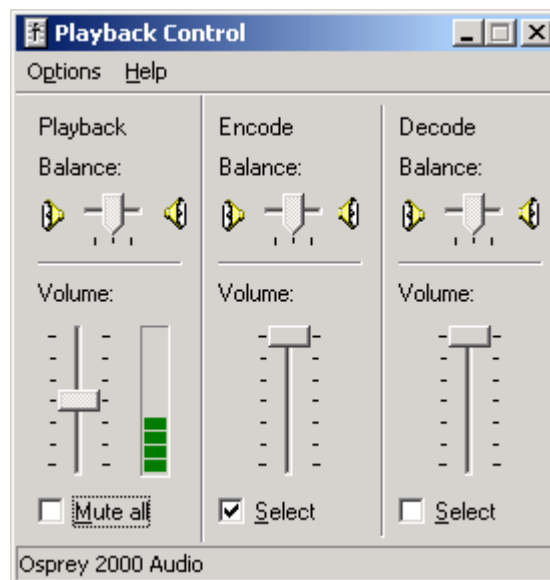


4. If more than one Osprey-2000 card is in the system, each Osprey-2000 card is individually listed.
5. Once an Osprey-2000 device has been chosen, click the **Playback** radio button.

6. Click to select the Encode and Decode check boxes.



7. Click **OK** in the Properties dialog box.



There are two options for audio out: Encode (the audio selected as an input) or Decode (the audio from the MPEG decoder). Note that volume sliders are not adjustable since the Osprey-2000 does not provide gain control for audio outputs.



Note that you must select Decode in order to hear the audio produced by your MPEG file from the Osprey-2000's audio-out plugs while decoding (playing) MPEG. If you select Encode while decoding, you will hear whatever audio is coming from the audio input source last selected in the Record Control mixer applet.

Chapter 10 - VidCap32, AmCap, and Included Demo Programs

The Osprey-2000 Driver includes the following applications:

VidCap32

AmCap

Cropping and Scaling

DXMedia

Ligos Technology's Indeo

Installed by the DirectShow Runtime optional components:

Decode (Screen)

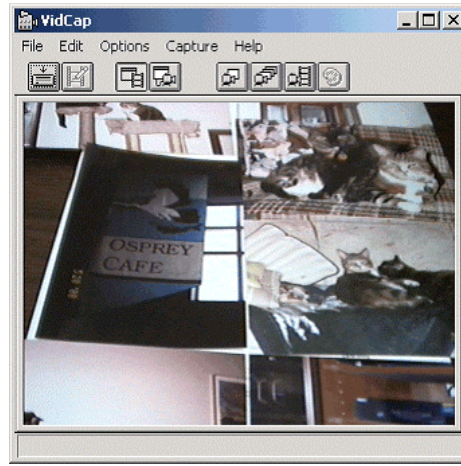
Decode (Video Out)

Encode_demo

Installed by the OPI Runtime optional component:

MpegVCR Application

VidCap32



VidCap32 is a video capture application included with the Osprey package. It is useful for testing the installation and for general purpose capture of video. Instructions for using this applet are provided in the following sections. For instructions about encoding an MPEG file, please see [Chapter 5 – MPEG Encode](#).

[VidCap32 Preview](#)

[Overlay](#)

[Single Frame Capture](#)

[Configuring the Video Capture Driver in VidCap32](#)

[Compression](#)

[Setting the Capture File in VidCap32 - Preallocating and Defragmenting](#)

[Capturing Video with VidCap32](#)

VidCap32 Preview

The **Preview** button (first button on the left on the toolbar) toggles Preview mode on and off. When Preview is enabled, the video you see is constantly updated. This video 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 (second button from the left on the toolbar) toggles Overlay mode on and off. When Overlay is enabled, the video you see is also updated constantly. However, the difference between Overlay and Preview is that Overlay video does not have the exact appearance of the video that you are capturing because the Osprey driver uses the fastest and most efficient drawing method it can. In Overlay mode, Direct Draw trades speed for accuracy. Normally, with Direct Draw enabled and working, it draws 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. Starting either one of them shuts the other one off.

Single Frame Capture

The rightmost button on the toolbar (or the menu item **File -> Save Single Frame**) is used to capture a single frame. Every time this function is selected, a single frame is captured and displayed in the window. You can copy this image and paste it into other applications.

Configuring the Video Capture Driver in VidCap32

Use the video capture application VidCap32 to access the Osprey driver Control Dialog described in [Chapter 8 - Osprey-2000 Video Control Dialog](#). The menu selections **Options -> Video Source** and **Options -> Video Access** accesses the Control Dialog's Source and Format pages, respectively. The selections **Options -> Video Display** access the Closed Caption page.

VidCap32 is included with the Osprey package. VidCap32 is useful for testing the installation and for general purpose viewing and capture of video. Refer to [Chapter 10 - VidCap32, AmCap and Included Demo Programs](#) for instructions on using this applet.

Compression

It is possible to compress video as it is captured to disk. Neither VidCap32 nor the Osprey video capture driver performs video compression, although VidCap32 may be connected to external software-based compression modules. While compression results in a much smaller capture file, the downside is that many types of compression are slower. With compression, you may have to reduce your frame rate to avoid dropping an excessive number of frames. With a quick-compression method running on a fast machine, however, the extra processing time is slight enough to be fully compensated for by the reduced time required to write the compressed data to disk.

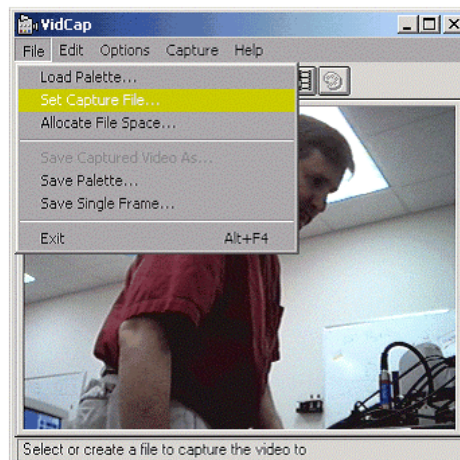
When a compressor is enabled, video is passed from the Osprey capture driver to the compressor, which then writes it to file. The compression dialog, accessed by selecting **Options->Compression**, allows you to select a compressor, or to select no compression. Refer to [Ligos Technology's Indeo](#) for detailed instructions for performing this task.



Note that the list of available compressors is different for each video Color Format selected in the Osprey video capture driver's control dialog. 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 in VidCap32 - Preallocating and Defragmenting

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



Depending upon 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.

If you do not know the size of file that you are going to capture, it's best to allocate a 1MB file and allow VidCap32 to dynamically allocate more space on the fly.

Preallocating a file means that space has been reserved for it on your hard disk. The menu item **File -> Allocate File Space** brings up a dialog in AmCap or VidCap32 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 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.

AmCap and VidCap32 do not perform defragmentation; a third-party program is required. Various defragmentation programs are available commercially, and Windows 2000 contains a built-in defragmenter. Use AmCap and VidCap32 to preallocate the files, then exit to run the defragmentation program.



NOTE: Always defragment after you allocate and size the capture files.

After the disk is defragmented, return to AmCap/VidCap32. The files you preallocated will now be located on contiguous areas of the hard drive and 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 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 these files 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 with VidCap32

The second button from the right (or the menu item **Capture -> Video**) opens the Video Capture Dialog.

This 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.

For best quality video capture, use a capture rate (frames per second) that is slow enough so that there are no dropped frames. Note that capturing via memory may result in fewer frames dropped than capturing video directly to disk.

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

AmCap



AmCap is a video capture application included with the Osprey-2000 package. It is useful for testing the installation, for general purpose viewing of video, and for capturing video to a file. For instructions about encoding an MPEG file, please see [Chapter 5 - MPEG Encode](#). AmCap differs from the other general purpose capture application, VidCap32, included with the Osprey package in that:

- ◆ Because AmCap captures AVI 2.0 files, AmCap can handle captured file sizes that exceed VidCap32's 2GB limit.
- ◆ AmCap is written using the DirectShow API; VidCap32 is written using the VFW API. Another application that uses DirectShow is Windows Media Encoder.
- ◆ AmCap does not support software compression modules.
- ◆ AmCap's Preview mode is equivalent to VidCap32's Overlay mode.
- ◆ AmCap does not have an equivalent to VidCap32's Preview mode.

AmCap requires the DirectX Media runtime version 6.0 or later in order to run. This runtime is included on this CD, and can be installed by the Osprey installation program. More information about DirectX Media is available at [DirectX Media Details](#).

Instructions for using AmCap are provided in the following sections. Note that this applet has additional capabilities and settings that are beyond the scope of this brief introduction. Refer to AmCap's Help menu for a description of those capabilities and settings.

[Selecting the AmCap Device](#)

[AmCap Preview](#)

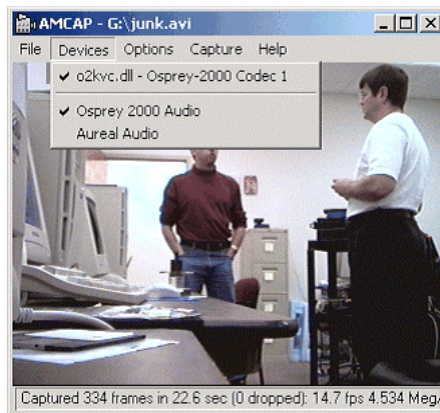
[Configuring the Video Capture Driver in AmCap](#)

[Setting the Capture File in AmCap - Preallocating and Defragmenting](#)

[Capturing Video with AmCap](#)

[Playback](#)

Selecting the AmCap Device

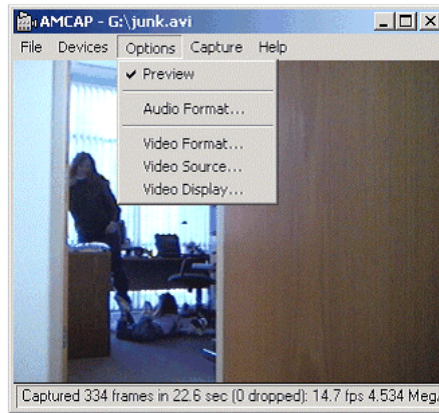


AmCap requires selecting the input device(s) before you can preview or capture video. Use menu item **Devices** to show a dropdown list of the audio and video capture devices present. In this list, the video device portion of Osprey-2000 cards appears as **Osprey-2000 Codec** and the audio device on the Osprey-2000 appears as **Osprey-2000 Audio**.

If you have multiple Osprey-2000 cards present, you can select the audio device from this list. For instructions on selecting among multiple video sources, please see [The Format Page](#).

Multiple board installations are a specialized subject discussed in [Appendix F: Multiboard Installations](#).

AmCap Preview



When you first start AmCap, there is nothing in the video field display. To see video, you must enable **Preview** mode by clicking on the menu item **Options -> Preview**.

When preview is enabled, the video you see is updated constantly. What you see is a close approximation to the appearance that uncompressed video captured to file will have. However, with the AmCap applet preview video is optimized for fast screen drawing rather than the exact capture format, possibly resulting in slight differences in the appearance of the video.

Configuring the Video Capture Driver in AmCap

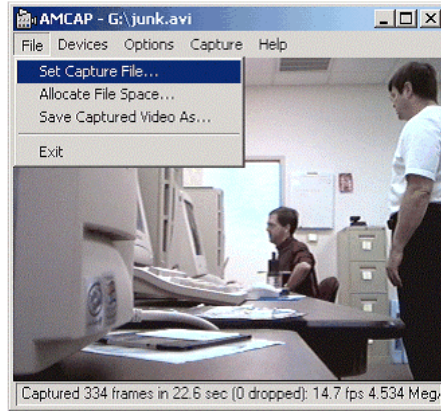
You can go through VidCap32 or AmCap to access the Osprey driver's Control Dialog. The menu selections **Options-> Video Source** and **Options-> Video Format** access the Control Dialog's Source and Format pages, respectively. The selection **Options-> Video Display** accesses the Closed Caption page.

The recommended color format when capturing AmCap is "4:2:2packed". This is set in the Format Page of the Osprey driver's Control Dialog.

For more information about Control Dialog, refer to [Chapter 8 - Osprey-2000 Video Control Dialog](#).

Setting the Capture File in AmCap - Preallocating and Defragmenting

The menu item **File** -> **Set Capture File** opens the Capture File dialog box.



Since several variables can affect the percentage of frames dropped, performance may be substantially improved by preallocating a capture file and defragmenting it. The percentage of frames dropped is a function of frame size, use of a compressor, and the speed of your system.

If you do not know the size of file that you are going to capture, it's best to allocate a 1MB file and allow VidCap32 to dynamically allocate more space on the fly.

Preallocating a file means that space has been reserved for it on your hard disk. The menu item **File** -> **Allocate File Space** brings up a dialog in AmCap or VidCap32 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 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.

AmCap and VidCap32 do not perform defragmentation; a third-party program is required. Various defragmentation programs are available commercially, and Windows 2000 contains a built-in defragmenter. Use AmCap and VidCap32 to preallocate the files, then exit to run the defragmentation program.



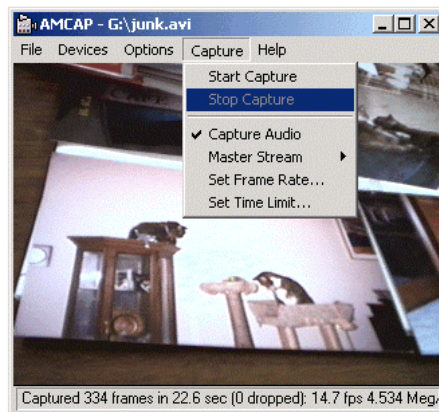
NOTE: Always defragment after you allocate and size the capture files.

After the disk is defragmented, return to AmCap/VidCap32. The files you preallocated will now be located on contiguous areas of the hard drive and 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.

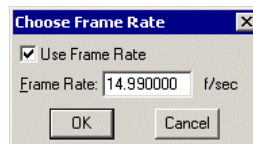
Defragmenting is a time-consuming procedure, but is worth the trouble if you have an ongoing need to capture high-quality video, particularly uncompressed video. Be sure to plan the number and size of files you will need. Once you have the defragmented files, be sure not to accidentally delete them. Think of these files 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 with AmCap



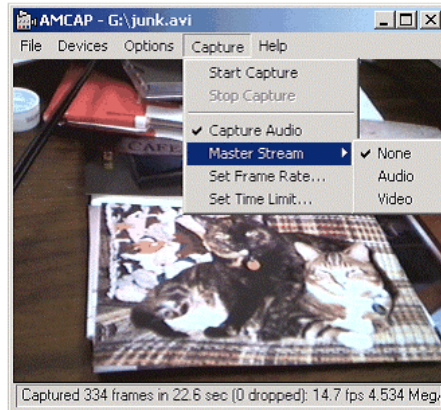
AmCap requires setting a few options before starting Video Capture.

1. First, set the Frame Rate by selecting menu item **Capture -> Set Frame Rate**

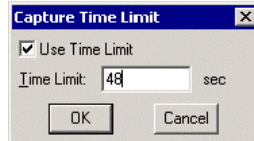


2. Note that the maximum NTSC frame rate is 29.97 frames/sec and not 30 frames/sec. The maximum PAL frame rate is 25 frames/sec. If you want to capture at the full NTSC frame rate, **set the rate to 29.97 in this menu.**
3. Capturing uncompressed video to disk is limited by disk throughput. You may find that your system is not capable of capturing to disk, for example, at full resolution full frame rate. In this case, you may be best served by reducing either the frame rate, the resolution, or both.

- If you are capturing audio, use menu item **Capture -> Capture Audio** to turn on the checkmark for audio capture.



- Set the master stream for audio/video synchronization by using the control dialog brought up by **Capture -> Master Stream** to select whether **Audio**, **Video**, or **None** is the master stream for synchronization.



- You can optionally set a time limit on this capture through the **Capture -> Set Time Limit** dialog.
- Once the proper configuration is confirmed, click the **Capture -> Start Capture** menu item, and click **OK** on the confirmation dialog to begin capture.
- If you did not set a time limit, use the menu item **Capture -> Stop Capture** or press the **Esc** button to end your capture.

Playback

The simplest way to play back a video clip is to find its icon in My Computer and double-click on it. This will start Windows Media Player, which will automatically play the clip.

Windows Media Player contains standard start, stop, and pause buttons and is self-explanatory. Refer to Windows Media Player's help for more information.

Cropping and Scaling

The Osprey-2000 driver package includes the capability to crop the incoming video signal in hardware before it is encoded or captured. Cropping is done by the Osprey card and imposes no extra load on the host computer. Use any of the following methods to crop the incoming video signal:

- ◆ Video Format dialog box
- ◆ CropApp, the cropping application
- ◆ VFW Software Developer Kit

Please see the CropApp Manual which is installed in the Osprey-2000 Program group for details on using this feature. Note that scaling down can be applied in hardware to any video source before capture. The MPEG encoding processing can also scale input video sources, providing for a range of MPEG encoding resolutions.

Decode (Screen)

The included decode (screen) demo is a DirectShow program which will decode an MPEG file to the screen. Please see [Chapter 6 - MPEG Decoding](#) for details. This program works under Windows 2000, only.

Decode (Video Out)

The included decode (video out) demo is a DirectShow program which will decode an MPEG file to the screen. Please see [Chapter 6 - MPEG Decoding](#) for details. This program works under Windows 2000, only.

MpegVCR Application

A digital VCR application, MpegVCR, is included with the OPI Runtime optional component. See the application's Help for information about using it. This application can record and play MPEG files, and can loopback MPEG video.

Encode_demo

The included encode_demo is a DirectShow program which will encode MPEG files. Please see [Chapter 5 - MPEG Encoding](#) for details. This program works under Windows 2000, only.

DXMedia

Under Windows NT 4.0, the included program AmCap cannot be run unless Microsoft's DirectX Media package (also known as DirectShow) has been installed. This package is included on the Osprey-2000 Driver CD, and it can also be downloaded from Microsoft's website.

DirectX Media Details

DirectX Media Details

Microsoft DirectX Media is the media layer of the Microsoft Windows multimedia system, providing multimedia playback and capture support, image transformations, media integration, and animation for the Web and desktop.

Information Specific to Windows 2000

Windows 2000 installs version 6 of DirectX Media and version 7 of DirectX. Version 8 of DirectX is available for Windows 2000, and includes the DirectX Media/DirectShow layer.

More information about DirectX version 8 is available at:

<http://www.microsoft.com/presspass/press/2000/Nov00/DirectXLaunchPR.asp>

This version of DirectX® is not available for Windows NT.

Information Specific to Windows NT

The DirectX Media runtime is included on this CD, and can be installed by executing **DXMedia\dxmedia.bat** on the Osprey-2000 CD. See the Readme.txt file for details. DirectX Media requires that Microsoft DirectX 3.0 or later be installed. Windows Service Packs 4 and later contain DirectX 3.0.

More information about DirectX and Windows NT is available at:

<http://www.microsoft.com/directx/homeuser/faq.asp - dx4>

More information about DirectX Media

<http://www.microsoft.com/directx/homeuser/information/dx4nt.asp>

<http://www.microsoft.com/directx/homeuser/downloads/default.asp-DirectX>

The DirectX Foundation Layer consists of Microsoft DirectDraw, Microsoft Direct3D, Microsoft DirectInput, Microsoft DirectSound, Microsoft DirectPlay, and Microsoft DirectMusic. DirectDraw is part of DirectX, and is another reason that a video display adapter which supports DirectDraw is desirable.

For more information about DirectX

<http://www.microsoft.com/directx/homeuser/faq.asp>

<http://www.microsoft.com/directx/homeuser/aboutdx.asp>

The latest version of all DirectX downloads can always be found at:

<http://www.microsoft.com/directx/homeuser/downloads/default.asp>

Ligos Technology's Indeo

Demo Indeo

Ligos Technology's Indeo is a software video compressor that works with the Osprey Video Capture Driver. 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 included on Osprey-2000 Driver CDs. Refer to [Chapter 3 - Installing the Software - Windows 2000](#) or [Chapter 4 - Installing the Software - Windows NT 4.0](#) for installation information.

You can also download the most up-to-date version for free on Ligos web site:

<http://www.ligos.com/indeo/downloads/>

The file to download is currently **iv5setup.exe**. Download a version that compresses as well as decompresses video.

Indeo Video compressor version 5.11 works with RGB24 and RGB15. It does not work with YUV12 or YVU9. However, the Indeo package does include components you can use to capture uncompressed YVU9 and 4:2:2 packed video.

Demo Indeo

Use the following steps to demo Indeo with the Osprey card:

1. Connect and adjust your video source. Start VidCap32.
2. Use the **Options->Format** menu entry to bring up the Osprey driver's Control Dialog Format page.
3. In the drop-down list in the Color Format field, select **RGB24** (or RGB15). Select **1/2 sized (CIF) video**. Click **OK**.
4. Use the **Options->Compression** menu entry to bring up the compression dialog. In the Compressor: field, select **Indeo video 5.11**.

5. 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.

6. Under the file menu, Select **Set Capture File**. Set the name that you want for the file that will contain the captured video and click **Open**.
7. Select **Capture->Video**. Select 30 frames per second for NTSC or 25 for PAL. Click **OK**.
8. When the confirmation dialog appears, click **OK** again to start capturing video. Click anywhere on VidCap32 to stop capture.
9. To play back the file you just captured, open My Computer, navigate to the icon of the file you want to play, and click on it.

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

Useful rates for PAL are 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.

Chapter 11 - Troubleshooting

Blue/Pink/Black/Orange/Green Video Screen

Black Preview Video Screen

Scrambled Video Image

Grainy, Dithered Image

Slow Overlay Drawing

Problems Using Direct Draw

Poor Video Quality at Large Frame Sizes

Wrong Capture Driver Being Accessed

Unwanted Closed Caption Text

No Closed Captions on Digital Video

Interrupt Conflicts

Multiple Horizontal Lines Across Video Image

Blue/Pink/Black/Orange/Green Video Screen

The currently selected video input is not receiving an active video signal. Different inputs may provide a different symptom when a video source is not supplied. For example, with the Osprey-2000 DV Pro, Osprey-2000 D DV, or Osprey-2000 D DV Pro, if no DV source is connected to the card, the DV video may appear as a solid pink field. While playing a tape in a DV camcorder, you may see an orange screen at end-of-tape. Video from composite/S-Video may appear as a black field (maybe with a single horizontal line in it) or as a blue field. If no SDI source is connected, the video will appear as a solid green field.

1. Check that the camera, VCR, or other video source is powered and that its output is connected to the Osprey card'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 **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 decompressor 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 Ligos Technology's Indeo compressor you can preview the YVU9 format. To download from Ligos Technology's web site:

<http://www.ligos.com/indeo/downloads/>

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. Make sure you know what signal format your video source is generating. 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.

Slow Overlay Drawing

You should be able to obtain 30 frames 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. For video capture, any problems should arise only when Overlay mode screen drawing is in use; the Osprey video capture subsection does not use Direct Draw at other times. Using DirectShow filters, or OPI applications, video preview will use DirectDraw unless the Video Capture driver is configured to use DibDraw. If you do have problems, disable either or both Direct Draw methods by deselecting 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 card. The Osprey installation procedure allows you to set the Osprey driver as either the primary or secondary video capture driver. [Appendix D - Using the Osprey Video Capture Driver with Other Video Capture Drivers](#) gives a full description of how to set the Osprey driver 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 video capture driver attempts 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 is 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 Closed Caption Page](#).

No Closed Captions on Digital Video

The Osprey-2000 is capable of decoding closed captions on NTSC video inputs. This feature is supported on analog video sources - the composite and S-video inputs only. It is not supported on the digital video inputs - SDI and DV.

Interrupt Conflicts

Failed network connections, failure of a device drive to initialize during start-up, or failure of the Osprey card and driver to operate properly are often 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](#)

[Conflicts of PCI Cards with ISA Cards](#)

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 IRQ configuration for the Osprey card or cards is determined by the operating system, and the Osprey driver cannot change this configuration. However, you can 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 causes 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, see [Getting Help](#) in Chapter 1.

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 cannot always prevent the conflict.

You can view the system's IRQ assignments under Windows NT 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. Under Windows 2000, open **Administrative Tools** -> **Computer Management**, and click on **Computer Management**. Then double-click on **Hardware Resources**, and open **IRQs**. 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 does 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.

Multiple Horizontal Lines Across Video Image

If there are multiple, regularly spaced, horizontal lines across your video image and your source material is copyrighted and copy-protected, you are seeing Macrovision™ copy protection. It looks like this:



The lines can vary in color from yellow to blue to green. These lines are not present in every frame of video. There may also be a black band at the top of the frame.

The Osprey-2000 cannot eliminate these video artifacts. These artifacts will only be present when you are using a copy-protected source, such as a high-quality DVD, for testing a card.

Appendix A - Hardware Specifications

The physical specifications for the Osprey-2000 Capture cards are as follows.

Table A-1 Physical Dimensions

Length	175 mm
Width	22 mm
Height	106 mm
Weight	68 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.

YUV Format Details

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 "5:5:5."

Grey8 - Each pixel has one byte of data, representing one of 256 grayscale levels.

4:2:2 packed - Also known as **YUY2**. This mode represents 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). This mode is mainly used as an input to software compressors. See [YUV Format Details](#).

YUV12 planar - Also known as **I420**. This is a complex format in which there are in the aggregate 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. See [YUV Format Details](#).

YVU9 planar - Similar to YUV12 planar, except that there are in the aggregate 9 bits of data per pixel, and each byte pair of chrominance data is shared by 16 adjacent pixels. See [YUV Format Details](#).

YUV Format Details

4:2:2, YVU9, and YUV12 are YUV formats. In these formats, each pixel is defined by an intensity or luminance component, Y, and two-color or chrominance components, U and V. Since the human eye is less sensitive to color information than to intensity information, many video formats save storage space by having one luminance byte per pixel while sharing the chrominance byte among two or more pixels. YUV is also very similar to the color encoding used for analog color television broadcast signals.

4:2:2 packed mode consists of a single array of mixed Y, U, and V data. Each pixel has one Y (intensity) byte. Each pixels shares its U and V bytes with one of the pixels horizontally next to it:

Appendix B - Color Modes

Pixels 1 and 2:

byte 1 = y1	byte 1 intensity
byte 2 = u1/2	shared U color information for bytes 1 and 2
byte 3 = y2	byte 2 intensity
byte 4 = v1/2	shared V color information for bytes 1 and 2

Pixels 3 and 4:

byte 5 = y3
byte 6 = u3/4
byte 7 = y4
byte 8 = v3/4

4:2:2 packed mode uses the same number of aggregate bytes per pixel as RGB15, which is two. However, 4:2:2 is more efficient than RGB15 because it stores relatively more of the intensity information to which that the human eye is most sensitive.

YVU9 and **YUV12** are planar modes - the Y, U, and V components are in three separate arrays. It is easiest to explain the format with an example. Let's say you have a 320x240 YVU9 format. The buffer has 320x240 bytes of Y data, followed by 80x60 bytes of V data, followed by 80x60 bytes of U data. So each U and each V byte together contain the color information for a 4x4 block of pixels.

Similarly, a 320x240 YUV12 format has a 320x240 Y array, followed by a 160x120 U array, and then a 160x120 V array.



Note that in the I420 format used by Osprey, the order of the U and V arrays is reversed from the order in the YVU9 format.

Appendix C - Video Sizes

The following table 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-BDGI**, **PAL-N**, and **PAL-NC**.

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

Available Video Sizes (Width x Height:)

x	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 Video Capture Driver with Other Drivers

If you already have a video capture driver installed in your system, the Osprey installation software offers the option of installing the Osprey driver as your primary video capture driver. A dialog box with that option displays near the end of the installation sequence.

The Windows 2000 installer does not offer this option.

After installation, you can change the primary video capture driver by going to the Configuration Page of the driver's setup dialog and then to the Default Capture Device option.

If the Osprey driver is set 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, remains immediately accessible as the default driver.

Appendix E - Direct Draw

Direct Draw is a fast on-screen drawing method. The Osprey video capture 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 driver attempts to use it for overlays. If it cannot (e.g., the display driver does not support Direct Draw), the Osprey driver defaults to DibDraw.

When Direct Draw is used, video is copied by direct memory access (DMA) directly from the Osprey 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.

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 support Direct Draw in all cases. You can obtain the most recent version from your video card manufacturer's web site.
4. You must be using a video format other than Grey8. The Osprey driver does not support Direct Draw of grayscale video.
5. 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 flickers when either the video capture window or an overlapping menu or window is moved. When DibDraw is being used, there is no flicker.
6. 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 multiboard capability of the Osprey-2000 Capture Driver 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 unless the added-cost SimulStreaming option has been enabled for the board, or another special circumstance exists.

First, some background on the logic by which the Osprey-2000 driver determines connection or startup order for multiple boards. The numbering of the boards is determined by the order in which the operating system recognizes their presence in the slots in which they are installed. The arrangement of logical PCI slots is different for different machines, and you should experiment to determine which physical board is Board 1. Also, the numbering under Windows 2000 may differ from the numbering under Windows NT 4.0.

Every time the system is rebooted, the Osprey-2000 drivers re-enumerate the boards in the system and make unique video capture entries for each board. If the **Multiple Opens** box is not checked under Access for Multiple Boards on the Configuration Page of the Osprey-2000 Video Control Dialog, a "default" registry entry is made that represents the legacy method of opening multiple devices, as well as registry entries for individual boards. If the box is not checked (selecting the check box is recommended), only entries for specific cards are created.

[The Recommended Multi-Board Selection Approach](#)

[The Legacy Multi-Board Selection Approach](#)

The Recommended Multi-Board Selection Approach

The recommended method is to check the **Multiple Opens** box on the Configuration Page of the Osprey-500 Video Control Dialog. Checking this box should result in the generation of only individual device names as video capture device entries. For example, the following msvideo entries display for two Osprey-500 devices in the system:

- ◆ o2kvc.dll - Osprey-2000 Card 1
- ◆ o2kvc.dll - Osprey-2000 Card 2

These "Card 1" / "Card 2" names should be used when opening the Osprey-2000. In the event that you see a "Card Default" entry (see the legacy approach below), this is for legacy applications that did not allow for specific device selection.

The Legacy Multi-Board Selection Approach

The non-recommended method is to not check the **Multiple Opens** box on the Configuration Page of the Osprey-2000 Video Control Dialog. Not checking this box should result in the generation of individual device names as well as Card Default name as video capture device entries. For example, the following msvideo entries display for two Osprey-500 devices in the system:

- ◆ o2kvc.dll - Osprey-2000 Card Default
- ◆ o2kvc.dll - Osprey-2000 Codec 1
- ◆ o2kvc.dll - Osprey-2000 Codec 2

If two or more boards are installed and you use the default device name to access the Osprey driver, it first connects to the default board. Normally, the default board is whichever board was most recently selected in the Control Dialog's Board Select field. If this default board is in use (and the MultiOpen option is turned off), the next available board is automatically selected. Once any board is selected, you can change it to a different board by selecting the desired board in the application you are using (often under a menu titled **Options** or **Board Select**).

Multiple boards may be accessed according to two main scenarios:

- ◆ *Multiple processes accessing multiple boards:* Start two standard applications - or two copies of one application - such as VidCap32. The first copy comes up connected to the default board and starts normally. The second copy automatically hunts for the next available board in ascending numerical order.
- ◆ *A single application accessing multiple boards:* A single custom application can access two or more different boards. If the standard Video for Windows interface is used, the access order is the same as described above.
- ◆ *Multiple applications accessing single board:* If you have the added-cost SimulStream upgrade, then multiple applications can access a single board. This option is described in detail in the SimulStreaming User's Guide.

Multiple Opens is much more precise and flexible for custom applications that use the Osprey Video For Windows NT/2000 Software Developers' Kit (VFW SDK). This kit allows you to override the default board in order to access any board at any time. Please inquire at <mailto:info@ospreyvideo.com> for more information.

Appendix G - File and Registry Usage

The following are files that are written and registry entries that are set when Osprey drivers are installed. This information allows a technically proficient user to remove the Osprey-2000 installation if the uninstaller is deleted or damaged. Not all of these files will be present on your computer. The files and registry branches for all of the optional software components for the Osprey-2000 Runtimes and SDKs, and the driver are listed here. The files belonging to the individual components which you did not choose to install will not be present on your computer.

[Instructions for Windows NT 4.0](#)

[Instructions for Windows 2000](#)

These instructions are for advanced users only!



Refer to [Chapter 3 - Installing the Software - Windows 2000](#) or [Chapter 4 - Installing the Software - Windows NT 4.0](#) to remove the software. Be careful not to delete or alter any items other than the ones described here!

Instructions for Windows NT 4.0

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 individual files and registry entries.
2. In the main Windows NT\System32 directory, these files can be removed:
 - o2kboard.dll
 - o2kvc.dll
 - o2k_mix.dll
 - o2keusr.dll
 - o2k_wav.dll
 - o2komc.dll
 - opio2ka.dll
 - opio2kd.dll
 - opio2ke.dll
 - opio2kp.dll
 - oti.dll
 - otiopi.dll
 - otiyuv.dll
 - han.rbf
 - han2.rbf
 - hutt_merge.rbf
 - o2komc_transcoder.dll
 - SimulKey2.dll
3. In the main Windows NT\System32\drivers directory, these files can be removed:
 - o2kdrv.sys
 - o2ke.sys
4. The Osprey-2000 install driver directory, its subdirectories, and its files can be removed. Typically, this directory is **\Program Files\ Osprey-2000** on the default drive. The installation procedure puts the following files common to Windows NT in that directory:
 - AmCap.exe
 - CropApp.exe
 - CroppingManual.pdf
 - MpegVCR.exe
 - Readme.txt
 - UsersGuide.htm
 - VidCap32.exe
 - Vidcap.hlp
 - Osprey-2000UsersGuide.pdf
 - SimulStreaming_Users_Guide.pdf

The subdirectory *ucode* and all its contents
The subdirectory *DirectShow* and all its contents
The subdirectory *OPI SDK* and all its contents
The subdirectory *VFW SDK* and all its contents

5. The installation program also creates a directory called NT within the Osprey-2000 install directory which contains the following files:

Files Uninst*.isu
Files*.bmp
Oemsetup.inf

The subdirectory *Help* and all its contents The subdirectory *Osprey Help* and all its contents

6. 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_CURRENT_USER\Software\Microsoft\Windows NT\CurrentVersion\Drivers32 entries:
"vidc.i420"="otiyuv.dll" "vidc.yuy2"="otiyuv.dll"
- ◆ HKEY_CURRENT_USER\Software\Osprey\OPI\Devices
- ◆ HKEY_CURRENT_USER\Software\Osprey\Osprey2000
- ◆ HKEY_LOCAL_MACHINE\HARDWARE\RESOURCEMAP\OtherDrivers\o2kdrv
- ◆ HKEY_LOCAL_MACHINE\HARDWARE\RESOURCEMAP\OtherDrivers\o2ke
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\App Paths\vidcap32.exe
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\ Osprey-2000
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\drivers.desc entries:
"o2k_mix.dll"="Osprey-2000 Audio Mixer Driver"
"o2k_wav.dll"="Osprey-2000 Audio Wave Driver"
"o2kvc.dll"="Osprey-2000 Video Capture Driver"
"otiyuv.dll"="Osprey Software Decoder"



In this branch of the registry, the 1 on wave, mixer, and msvideo may be a different numeral, or may not be present.

-
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Drivers32 entries:
"msvideo"="o2kvc.dll - Osprey-2000Codec 1" "mixer1"="o2k_mix.dll"
"wave1"="o2k_wav.dll"
 - ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Osprey\Osprey2000
 - ◆ HKEY_LOCAL_MACHINE\SOFTWARE\ViewCast.com / Osprey Technologies, Inc.\ Osprey-2000
 - ◆ HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\o2kdrv
 - ◆ HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\o2ke
 - ◆ HKEY_USERS/.DEFAULT\Software\Osprey\Osprey2000

Note: You can delete the Taskbar entry by selecting **Taskbar Properties-> Start Menu Programs -> Remove**.

Instructions for Windows 2000

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 individual files and registry entries.

In the main Windows 2000 \System32 directory, these files can be removed:

o2kvc.dll
o2k_wav.dll
o2k_mix.dll
o2keusr.dll
o2kboard.dll
o2komc.dll
o2kun.dll
opio2ka.dll
opio2kd.dll
opio2ke.dll
opio2kp.dll
oti.dll
otiopi.dll
otipnp.dll
otiyuv.dll
hutt_merge.rbf
o2komc_transcoder.dll
SimulKey2.dll

2. In the main Windows 2000 \System32\drivers directory, these files can be removed:

o2kdrv.sys
o2ke.sys

3. The Osprey-2000 install driver directory, its subdirectories, and its files can be removed. Typically, this directory is \Program Files\ Osprey-2000 on the default drive. The installation procedure puts the following files common to Windows 2000 in that directory:

AmCap.exe
CropApp.exe
CroppingManual.pdf
MpegVCR.exe
Readme.txt
Uninst.isu
VidCap32.exe
VidCap.hlp
Osprey-2000UsersGuide.pdf
SimulStreaming_Users_Guide.pdf

The subdirectory *DirectShow* and all its contents
The subdirectory *OPI SDK* and all its contents
The subdirectory *ucode* and all its contents
The subdirectory *VFW SDK* and all its contents

4. The installation program also creates a directory called NT within the Osprey-2000 install directory which contains the following files:

files DeIs*.isu
Files*.bmp

The subdirectory *Help* and all its contents
The subdirectory *w2000* and all its contents
The subdirectory *Osprey Help* and all its contents

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.



In this branch of the registry, the 1 on wave, mixer, and msvideo may be a different numeral, or may not be present.

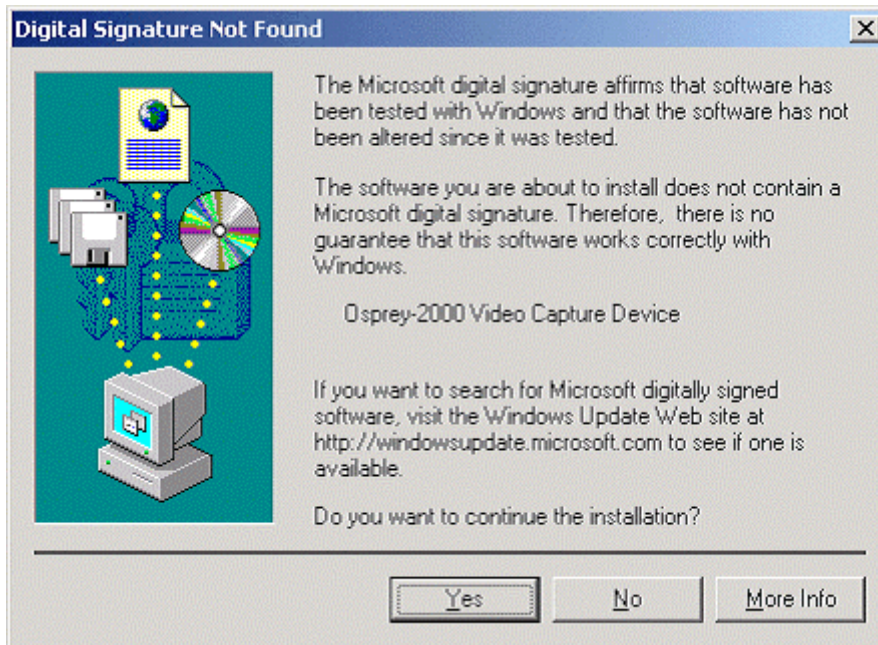
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Drivers32 entries:
"wave1"="o2k_wav.dll"
"mixer1"="o2k_mix.dll"
"msvideo1"="o2kvc.dll - Osprey-2000Codec 1"
- ◆ HKEY_CURRENT_USER\Software\Microsoft\Windows NT\CurrentVersion\Drivers32 entries:
"vidc.i420"="otiyuv.dll"
"vidc.yuy2"="otiyuv.dll"
- ◆ HKEY_CURRENT_USER\Software\Osprey\Osprey2000
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\drivers.desc entries:
"o2kvc.dll"="Osprey-2000 Video Capture Driver"
"o2ke.dll"="Osprey-2000 Audio Driver"
"o2k_wav.dll"="Osprey-2000 Audio Wave Driver"
"o2k_mix.dll"="Osprey-2000 Audio Mixer Driver"
"o2kboard.dll"="Osprey-2000 Audio Board Driver"
- ◆ HKEY_CURRENT_USER\Software\Osprey\OPI\Devices
- ◆ HKEY_CURRENT_USER\Software\Microsoft\Windows NT\CurrentVersion\Drivers32 entries:
"vidc.i420"="otiyuv.dll"
"vidc.yuy2"="otiyuv.dll"
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Osprey\Osprey2000
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\ViewCast.com / Osprey Technologies, Inc.\Osprey-2000
- ◆ HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\Osprey-2000
- ◆ HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\MediaResources\msvideo\!default entry: "Driver" = "o2kvc.dll - Osprey-2000Codec 1"
- ◆ HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\o2kdrv
- ◆ HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\o2ke
- ◆ HKEY_USERS\DEFAULT\Software\Osprey\Osprey2000

Note: You can delete the Taskbar entry by selecting **Taskbar Properties** -> **Start Menu Programs** -> **Remove**.

Appendix H - Adding/Moving Boards in Windows 2000

Under Windows 2000, when the driver has been installed and another Osprey-2000 board is put into a slot that has not previously contained a board, the following sequence of windows is initiated. This can happen because an Osprey-2000 board has been moved to a different PCI slot or when a board is added to the machine. It occurs because of the manner in which Windows 2000 enumerates devices.

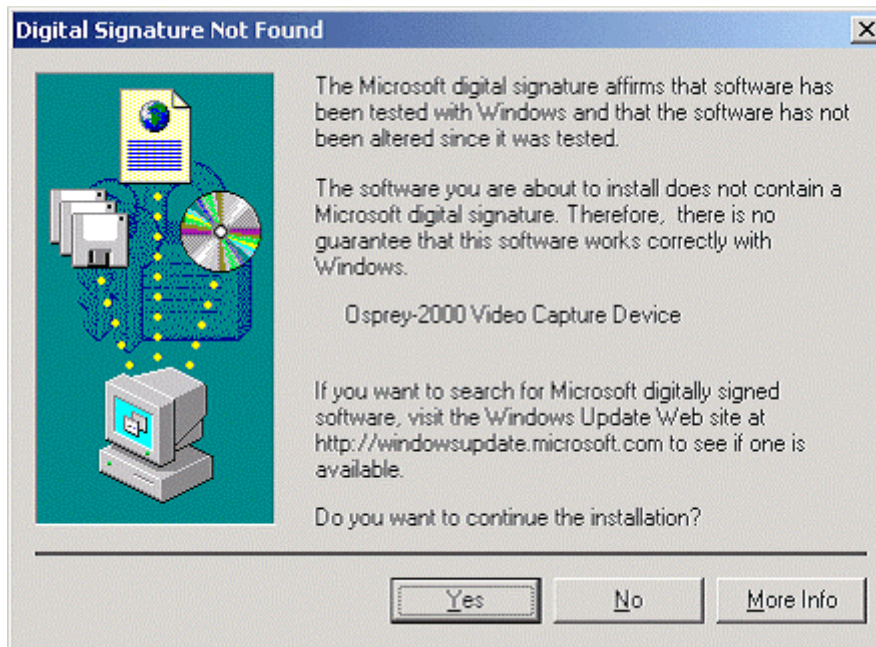
The New Hardware Wizard runs and displays two windows. A smaller window with the text *Found New Hardware, Osprey-2000 Video Capture Device, Installing* (not shown here) may be obscured by the larger *Digital Signature Not Found* window.



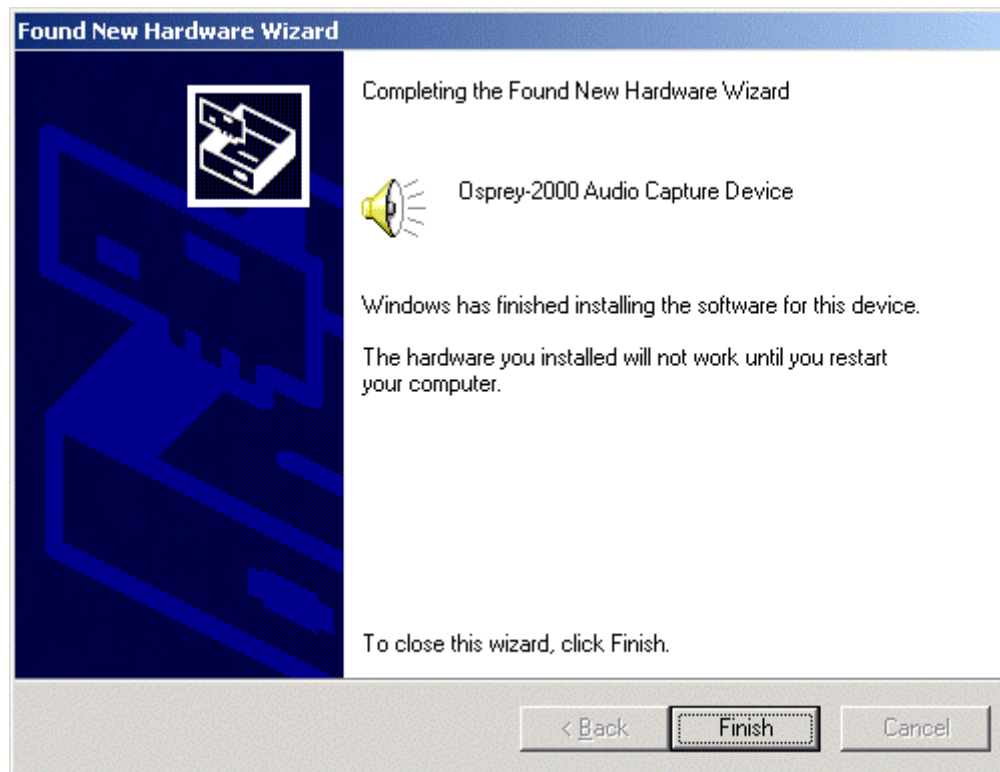
1. Click **Yes**.

The Multimedia Video Controller installing window displays.

The text inside this window will change to *Osprey-2000 Audio Capture Device, Installing* (not shown here) and the following *Digital Signature Not Found* window will appear on top of it.



2. Click **Yes**.



3. When the *Completing the Found New Hardware* window displays, click **Finish**.
4. Note that you will see two *Digital Signature Not Found* windows for each Osprey-2000 board that you have added or removed.
5. When the *Systems Settings Change* window displays indicating that you must restart your computer before the new settings will take effect, click **Yes** to restart your computer.