

# DVRexRT Professional

## Installation Manual

*Just Edit.*



Canopus Corporation  
711 Charcot Ave.  
San Jose, CA 95131

Canopus Part No. 000-10048-001  
Printed in the USA  
Copyright©2000 CANOPUS Co., Ltd. All Rights Reserved.  
First Edition<sup>a</sup> - November 2000



---

## Notice to Reader

Canopus Corporation makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Canopus shall not be liable for errors contained herein or for incidental consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information which is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Canopus Corporation.

The information in this document is subject to change without notice.

---

## FCC Notice

This equipment has been tested and found to comply with the limits for the class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against 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 equipment 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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment 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.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

---

## Warranty

Your DVRexRT Professional hardware options are covered by a limited warranty when you register your Canopus product. This warranty is for a period of three years from the date of purchase from Canopus or an authorized Canopus agent. This warranty applies only to the original purchaser of the Canopus product and is not transferable. Canopus Corporation warrants that for this period the product will be in good working order. Should our product fail to be in good working order, Canopus will, at its option, repair or replace it at no additional charge, provided that the product has not been subjected to misuse, abuse or non-Canopus authorized alterations, modifications and/or repair. Proof of purchase is required to validate your warranty.

Canopus Corporation has gone to considerable effort to make the users manual as accurate as possible at the time of printing. Canopus cannot assume, however, any responsibility for any inaccuracies that may be contained in the manual. In no event will Canopus Corporation be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in the manual, even if advised of the possibility of such damages.

As part of their ongoing process of continued product development, Canopus Corporation reserves the right to make improvements in the manual and the products it describes at any time, without notice or obligation.

CANOPUS CORPORATION IS NOT RESPONSIBLE FOR ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF, OR INABILITY TO USE, THIS PRODUCT. THIS INCLUDES DAMAGE TO PROPERTY AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This warranty will be governed by the laws of the State of California.

---

## **Declaration of Conformity**

According to FCC Part 15

Responsible Party Name: Canopus Corporation

Address: 711 Charcot Avenue  
San Jose, CA 95131-2208

Telephone: (408) 954-4500

Declares that product: Model: DVRexRT Professional

Complies with Part 15 of the FCC Rules.

Responsible Person's Name: Hiro Yamada

Notice to Reader .....	ii
FCC Notice.....	ii
Warranty.....	iii
Declaration of Conformity.....	iv

---

## CHAPTER 1: Introduction

Thank you.....	1-1
About this manual.....	1-2
Manual summary .....	1-2
Manual conventions .....	1-3
Trademarks .....	1-4

---

## CHAPTER 2: Installation

Package Contents .....	2-1
System Requirements .....	2-3
Detailed Requirements .....	2-3
IRQ requirements .....	2-3
PCI slot requirements .....	2-3
Graphics Board .....	2-4
Hard Disk requirements.....	2-4
Testing your Hardware with Rex Test .....	2-4
Overlay.....	2-5
PCI Info .....	2-6
Hard Disk Performance .....	2-7
Special note for IDE hard drive users .....	2-7
Special note for Windows NT users with IDE hard drives ..	2-8
Hardware Installation .....	2-9
Before installing DVRExRT Professional software .....	2-18

Windows 2000 Driver Installation . . . . .	2-18
Windows NT 4.0 Driver Installation . . . . .	2-19
Applications Installation . . . . .	2-19
Bundled Applications Installation . . . . .	2-19
Boris Graffiti LTD . . . . .	2-19
Canopus Web Video Wizard . . . . .	2-20
Sonic Foundry ACID . . . . .	2-20
Spruce Technologies SpruceUp . . . . .	2-20

---

## **CHAPTER 3: Connecting Devices**

About this Chapter . . . . .	3-1
Connecting a DV camera or deck for Capture/Output . . . . .	3-1
Connecting to DV1 (rear) . . . . .	3-2
Connecting to DV2 (front) . . . . .	3-3
Connecting an Analog camera or deck for Capture . . . . .	3-4
Connecting an Analog camera or deck for Output . . . . .	3-11
Connecting to a Video Monitor for Preview . . . . .	3-17
Selecting the Proper Input Channel . . . . .	3-22

---

## **CHAPTER 4: Hardware Features**

About this Chapter . . . . .	4-1
Breakout Box . . . . .	4-1
Headphone Output . . . . .	4-1
DV I/O Status . . . . .	4-2
Video In Status . . . . .	4-2
Audio In Status . . . . .	4-2
Analog Audio Level Meter . . . . .	4-3
Analog Audio Level Status . . . . .	4-3
Analog Audio Input Gain Controls . . . . .	4-4

Reference Input . . . . .	4-4
---------------------------	-----

---

## CHAPTER 5: Properties

About this Chapter . . . . .	5-1
Accessing the DVRexRT Professional Properties . . . . .	5-1
Rex Edit . . . . .	5-1
Rex Video . . . . .	5-2
Rex Audio . . . . .	5-2
Rex Navi . . . . .	5-2
DVRex Professional Properties . . . . .	5-3
INPUT 1 Tab . . . . .	5-3
INPUT 2 Tab . . . . .	5-5
Sync Rec Tab . . . . .	5-7
Compression Settings . . . . .	5-9
Detailed Settings 1 . . . . .	5-11
Detailed Settings 2 . . . . .	5-13

---

## CHAPTER 6: Notes & Limitations

About this Chapter . . . . .	6-1
Scalable Real-time Technology Explained . . . . .	6-1
Real-time capabilities . . . . .	6-1
Minimum CPU requirements . . . . .	6-2
Things you should know about... . . . . .	6-4
Working with Video in General . . . . .	6-4
DVRexRT Professional Hardware . . . . .	6-5
Rex Edit . . . . .	6-6
Canopus real-time plug-in for Adobe Premiere . . . . .	6-6

## CHAPTER 7: Troubleshooting

About this Chapter . . . . .	7-1
General Problems . . . . .	7-1
Performance extremely slow or slower than expected . . . . .	7-1
No video on computer screen while editing . . . . .	7-2
“Hardware is in use” error message . . . . .	7-2
DVRexRT MPEG2 Module YUV output does not work . . . . .	7-2
Problems in Rex Edit . . . . .	7-2
Audio Problems . . . . .	7-2
No audio through computer speakers . . . . .	7-2
No audio while scrubbing . . . . .	7-3
No audio during playback . . . . .	7-3
Audio skips or repeats . . . . .	7-3
Cannot select Record to track 3,4 from Ex Audio 2 (32 kHz) . . . . .	7-3
Video Problems . . . . .	7-3
Cannot select Luminance key . . . . .	7-3
Cannot select Chroma key . . . . .	7-3
Cannot select background color or Video for Picture-in-Picture . . . . .	7-4
Color corrected video clip shows different color on output . . . . .	7-4
Usage Problems . . . . .	7-4
System seems to get “stuck” for a while then continues . . . . .	7-4
“Stop playback. Frame drop has occurred.” during playback . . . . .	7-4
Problems in Premiere . . . . .	7-4
Xplode transitions do not play back in real-time . . . . .	7-4
Cannot render Xplode transitions . . . . .	7-4
“Not Rendered” screen appears during scrubbing or playback . . . . .	7-5
Cannot export a Canopus DV AVI file . . . . .	7-5
Cannot select Export to Tape from File menu . . . . .	7-5
No deck control in Movie Capture or Export to Tape . . . . .	7-5
All clips render - even unaltered clips . . . . .	7-5
Premiere filters and motion need to render . . . . .	7-5
Cannot preview Canopus Audio filter . . . . .	7-6
Cannot drag a video clip onto a video track . . . . .	7-6
How do I...? . . . . .	7-6
Rex Edit . . . . .	7-6
Apply audio or video filters to a portion of a clip? . . . . .	7-6
Render a clip with video filters? . . . . .	7-6
Position a clip by its first frame? . . . . .	7-6
Move a separation point? . . . . .	7-7



---

Start playback with the playback buffer pre-filled? . . . . .	7-7
Dissolve between Insert AV and Main AV? . . . . .	7-7
Change the size of a graphic used in the titler? . . . . .	7-7
Get more real-time performance? . . . . .	7-7
<b>Rex Navi . . . . .</b>	<b>7-7</b>
Starting indexing a tape from the a particular point? . . . . .	7-7
Change the thumbnail for a clip? . . . . .	7-7
<b>Adobe Premiere . . . . .</b>	<b>7-8</b>
Install the Canopus real-time plug-in? . . . . .	7-8
Start playback with the playback buffer pre-filled? . . . . .	7-8
Add more audio and video tracks? . . . . .	7-8
Other questions... . . . . .	7-8





## *Introduction*

---

### Thank you

Thank you for purchasing the Canopus DVRExRT Professional nonlinear digital video editing product. Before you start using your system, please read this manual and follow the installation instructions. This will ensure that you have a trouble-free setup. If you have any questions please call, fax, mail or email us at:

Canopus Corporation  
711 Charcot Ave.  
San Jose, CA 95131

Main telephone: (408)954-4500  
Main fax: (408)954-4504  
Technical support number: (408)954-4506  
Web site: [www.canopuscorp.com](http://www.canopuscorp.com)

*Just Edit.*

Introduction

---

## About this manual

The information contained in this manual covers the installation and specific functionality of the DVRexRT Professional.

Troubleshooting information which covers both the hardware and DVRexRT Professional software is contained in the final chapter of this guide.

Information about using the DVRexRT Professional software is contained in the separate User's Guide.

---

## Manual summary

### **Chapter 1**—Introduction

Provides information about contacting us and using this manual.

### **Chapter 2**—Installation

Step-by-step on installing the DVRexRT Professional into your computer system.

### **Chapter 3**—Connecting Devices

Provides several scenarios and examples for connecting your DV or analog device to DVRexRT Professional.

### **Chapter 4**—Hardware Features

Describes the features of the DVRexRT Professional hardware.

### **Chapter 5**—Properties

Describes the properties and hardware settings for DVRexRT Professional.

### **Chapter 6**—Notes & Limitations

Provides informative notes about DVRexRT Professional and its applications, as well as the limitations of DVRexRT Professional.

### **Chapter 7**—Troubleshooting

Describes common problems and their solutions.

## Manual conventions

The following conventions are used throughout this manual:

- **Bold** usually indicates software menu commands

### File>Open

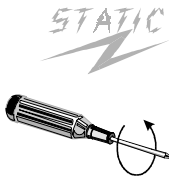
- *Italic* is used for emphasis and naming
- [square brackets] refer to software messages to you



“info check” notifies you to write down parameters or make note of manual suggestions.



“caution” means to take care in avoiding physical injury or damage to the computer or peripherals.



“STATIC” warns you of situations where the danger of damage from static electricity is present.

The two screw driver icons represent removing screws (counter clockwise) and replacing screws (clockwise).



---

## Trademarks

DVRexRT Professional, Rex Edit, Rex Video, Rex Audio, and SmartPlay are trademarks of Canopus Corporation. i.LINK is a trademark of Sony Corporation. MediaStudio is a trademark of Ulead Systems. Premiere is a trademark of Adobe Systems. DirectDraw and IntelliMouse are trademarks of Microsoft. Boris Graffiti and Boris Factory are trademarks of Artel Software. SpruceUp is a trademark of Spruce Technologies. All other trademarks and registered trademarks belong to their respective holders.



# CHAPTER 2

## Installation

Just Edit.

Installation

### Package Contents

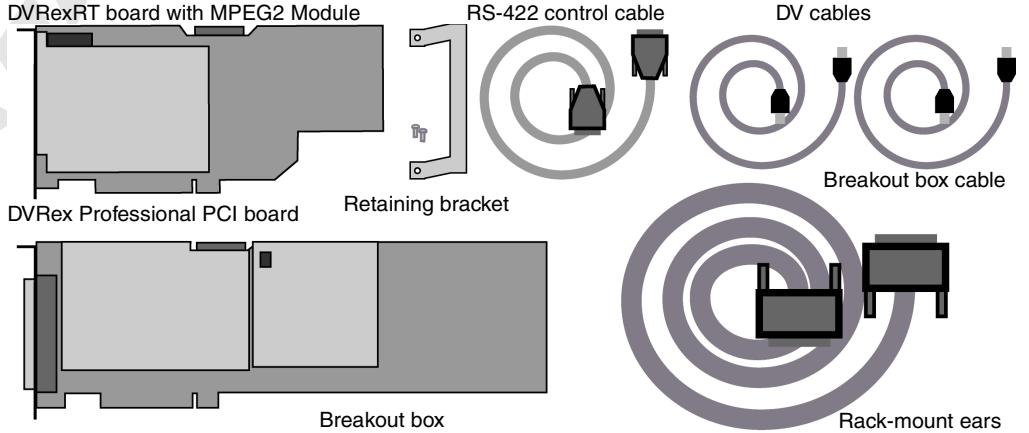


Your Canopus DVReXRT Professional package should contain the following items:

- 1 x DVReX Professional PCI board
- 1 x DVReXRT PCI board (with MPEG module)
- 1 x Retaining bracket and screws
- 1 x Breakout box connection cable (62-pin)
- 1 x Breakout box rack-mount set (ears and screws)
- 1 x RS-422 control cable (9-pin)
- 2 x DV cable (4-pin to 4-pin)
- 2 x BNC to RCA adapter
- 1 x Adobe Premiere 5.1\* package (CD and Manual)
- 1 x DVReXRT Professional software set (DVReXRT Professional software, Boris Graffiti LTD, Sonic Foundry ACID Style, Spruce Tech SpruceUp full version)
- 1 x DVReXRT Professional Installation Manual (this manual)
- 1 x DVReXRT Professional / DVReXRT / DVStorm User's Manual
- 1 x SoftXplode Manual

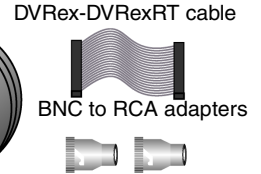
\* Adobe Premiere 5.1 or newer version

If your package is missing any items, please contact your dealer and/or Canopus.



Manuals

Software



DVRexRT Professional Package Contents



## System Requirements



Make sure your computer system meets the following minimum requirements:

- 2 free PCI v2.1 slots (adjacent or one slot between, one must support a full-length card)
- 2 free IRQs
- Dual Pentium III 450 MHz CPUs
- 256MB RAM
- CD-ROM drive
- Hard disk drive(s) capable of sustaining 10MB/sec data transfer or faster.
- 100 MB free hard disk space
- Microsoft® Windows® NT4.0\* (Service Pack 4 or higher), or Windows® 2000
- VGA card with hardware DirectDraw overlay support\*\*
- Microsoft Intellimouse or compatible (optional)

\* SoftXplode does not work under Windows NT.

\*\* See the Canopus website at <http://www.canopuscorp.com/> for a list of compatible VGA cards.

## Detailed Requirements

### IRQ requirements

DVRexRT Professional requires two free IRQs - one for the DVRex Professional and one for the DVRexRT's MPEG encoder. In many cases, the DVRexRT Professional and DVRexRT boards can work properly sharing IRQs. While Canopus hardware can share IRQs with other devices, many devices that report they can share IRQs do not share IRQs properly.

For best results, try to get DVRexRT Professional and the DVRexRT boards on their own IRQs, preferably 9 or higher.

### PCI slot requirements

DVRexRT Professional requires two free PCI v2.1 slots. Furthermore, the slots must either be adjacent, or have no more than one slot between them.

DVRexRT Professional does not support ACPI and installing DVRexRT Professional will disable suspend and hibernate mode in Windows 2000 systems installed with ACPI HALs.

For best results, we highly recommend against installing the DVRex Professional or DVRexRT option in the PCI slot that shares resources with the AGP slot, as this can often cause problems.

### **Graphics Board**

To display and overlay video on the VGA monitor you need a graphics board that supports hardware DirectDraw and DirectDraw overlay. Check the Canopus website for a list of compatible VGA cards, or use Rex Test to check your card's compatibility.

### **Hard Disk requirements**

When working with DV data in real-time, a high sustained data throughput is necessary. We recommend a dedicated hard disk with a sustained data transfer rate of at least 10MB/Sec for video. Popular video editing storage configurations include UltraATA66 drives, Ultra Wide SCSI controllers and Ultra Wide SCSI hard disks.

---

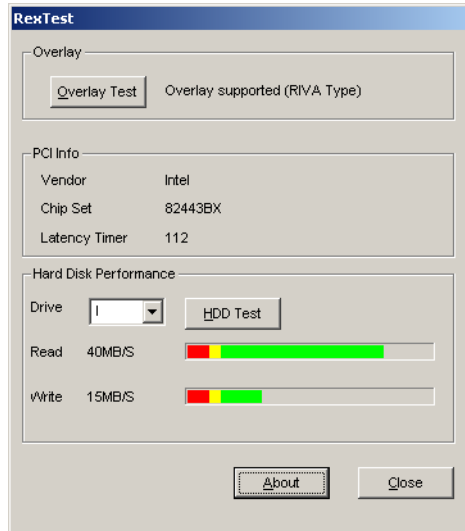
## **Testing your Hardware with Rex Test**

DVRexRT Professional comes with Rex Test software to profile your system. This program checks CPU speed, PCI BIOS version, motherboard chipset, hard disk speed, and graphics card capabilities. By running this small application you can make sure your computer meets the requirements of DVRexRT Professional. Run Rex Test before installing the DVRexRT Professional.

### **Running *Rex Test***

1. Close all applications and utilities.
2. Insert the DVRexRT Software CD-ROM into your CD-ROM drive
3. Open Windows Explorer and navigate to the **Rex Test** folder

4. Double-click RexTest.exe
5. The Rex Test window will appear.



## Overlay

Displays information on the DirectDraw overlay capabilities of your VGA card. DVRExRT Professional uses DirectDraw overlay to display full-motion video on your computer monitor.

Click the **Overlay Test** button to test your VGA adapter for overlay capabilities. A window will appear on the screen and color bars should be displayed there. Another window will appear and ask “Is the overlay screen displayed properly?”

If the window shows color bars, then click **Yes**. If it is not showing color bars, click **No** and another overlay method will be tried and the question will come up again.

If the result of the overlay test is “Overlay supported” then overlay is supported on your VGA adapter.

If the result of the overlay test is “Overlay not supported” then try changing display resolution, refresh rate, and color depth. 1024x768 or 1152x864 at 60Hz - 75Hz, 16-bit color is a good starting point, though with some cards overlay will also work at lower resolutions. Also make sure you are using the latest drivers for your graphics card.

If you cannot find a mode where DirectDraw Overlay is supported, you will have to replace your graphics card with a graphics card that supports the required type of DirectDraw overlay (such as the Canopus Xplode card) or you will not be able to view video on your computer monitor. DV and analog output will still work.

## PCI Info

Displays information about your computer system. The items listed in Machine Info and their descriptions follow. Pay special attention to **Chip Set** and **Latency Timer**.

### Vendor

Displays the vendor of your motherboard chip set.

### Chip Set

Displays the detected motherboard chip set. If your motherboard chip set cannot be detected, you might run into problems. Since new chipsets come out frequently, there is no guarantee that your chipset will be detected.

### Latency Timer

Displays the current PCI Latency Timer setting. The PCI Latency Timer determines how long a PCI card can hold the CPU's attention before attention is passed to another card.

The PCI Latency should be set to 60 or higher. If it is lower than 60, you may encounter problems. Most BIOS configuration utilities allow you to change the PCI Latency Timer setting in the Advanced, Chipset,

or PCI/PNP settings. If your BIOS does not let you change the latency, it may change it automatically after you install the DVRexRT Professional card.

## Hard Disk Performance

Displays performance measurements of your hard disk drive and rates it for use with DVRexRT Professional.

Select the drive you want to test from the **Drive** drop-down. Click the **HDD Test** button to execute the hard drive test. Make sure no other programs are running while the test is being performed, as this may affect the results.

The measured read and write performance of your hard drive is listed in KB/sec and by a colored bar.

The bar is split into three colors:

**Red:** The data transfer rate is below 5MB/sec. This drive is not suitable for use with DVRexRT Professional - try another drive.

**Yellow:** The data transfer rate is between 5MB/sec and 10MB/Sec. This drive has moderate performance and should be fine for capture but may not work well for real-time playback of more than one video clip or other intensive processes.

**Green:** The data transfer rate is above 10MB/Sec. This is a high performance drive and should be fine for use with DVRexRT Professional.

If your hard drive is not suitable for capture, you should get a faster hard drive dedicated for video storage, or you can possibly increase drive performance by using multiple drives in a striped RAID configuration.

## Special note for IDE hard drive users

When using IDE video and system hard drives, we strongly recommend that your video drive(s) be on a separate IDE channel from your system drive. IDE does not allow for

overlapped I/O, so if two hard drives are on the same IDE channel, only one can be accessed at any given time. Keeping your video drives on separate channels will give you optimal performance.

### **Special note for Windows NT users with IDE hard drives**

Windows NT, by default, does not enable DMA transfers for IDE drives connected to the primary and secondary IDE controller. Thus, IDE performance under Windows NT is often much slower than in other Windows versions.

To enable DMA transfers for IDE drives under Windows NT, obtain the DMACHECK utility from Microsoft's support site (<http://support.microsoft.com/>) and use it to enable DMA transfers.

Note that if you have a separate IDE controller card, its drivers may already enable DMA transfers.

## Hardware Installation

This section contains instructions on how to install the DVRexRT Professional hardware. Please follow the instructions below while installing the DVRexRT Professional PCI card.



The tools needed for installation.

1. A Phillips head screwdriver (star)
2. Your PC's User's Manual



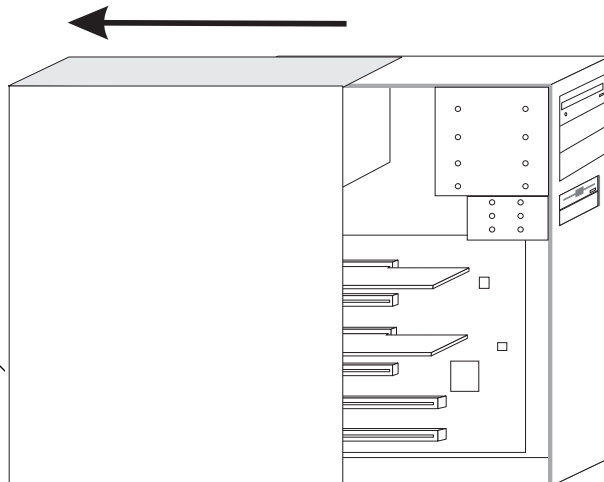
**Caution:** Static electricity can damage electronic components. Take care not to touch connectors or cards directly. When installing or working on your PC, first touch a grounded metal surface. This will discharge any static electricity on your body

### STEP 1: Opening your PC Cover

1. Quit any applications you are using and shut down Windows.
2. Switch off and unplug your PC.
3. Remove your PC cover, as shown in your PC manual.



Remove computer cover



Preparation for DVRexRT Professional installation

## STEP 2: DVRex Professional Retaining Bracket Installation (optional)

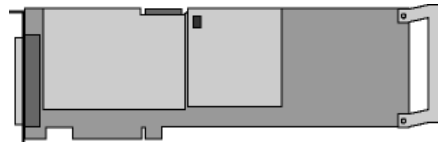
We recommend installing the retaining bracket - especially for systems in tower cases.

1. Get the retaining bracket and screws from your package.



Retaining bracket and screws

2. Remove the DVRex Professional PCI card from the anti-static bag. The DVRex Professional is the larger of the two PCI cards.



DVRex Professional PCI board

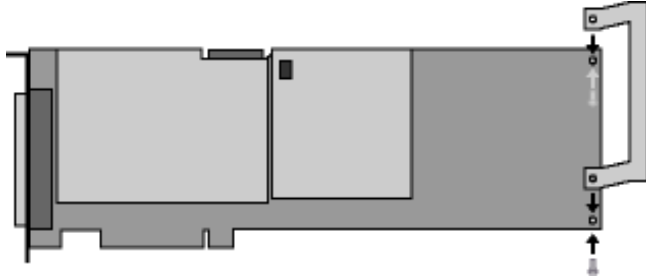


**HANDLE THE CARD BY THE EDGES. AVOID TOUCHING THE CARD'S SURFACE**

3. Attach the retaining bracket on to the right end of the DVRex Professional card.  
The retaining bracket should be attached on the component side of the board with the higher portion up (away from the board), and the screws should be inserted from the back side of the board.  
The retaining bracket will help keep your board from



moving, bending, or sagging when installed in your system.



DVRex Professional retaining bracket installation

### STEP 3: DVRex Professional PCI card Installation

1. Find a free PCI slot (preferably NOT the PCI slot next to the AGP slot) and remove the protective bracket.\*

\*If you are upgrading a DVRexRT system, you can use the same PCI slot the DVRex was in. If you have not already done so, uninstall the DVRex board and breakout box now. Be sure not to lose the DVRex to DVRexRT connection cable - you'll need it shortly.

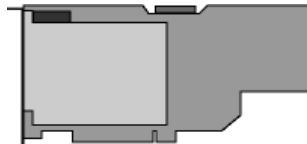
2. Gently push the DVRex Professional card (with retaining bracket) into the slot and screw it into place.  
If you installed the retaining bracket and your case has grooves for full-length cards, make sure the retaining bracket is properly lined up in the groove for the slot it's in.

### STEP 4: DVRexRT PCI card Installation

1. Find a free PCI slot (preferably NOT the PCI slot next to the AGP slot) and remove the protective bracket.\*

\*If you are upgrading a DVRexRT system, you use the same DVRexRT board you already have installed. Skip this step.

2. Remove the DVRexRT PCI card from the anti-static bag. The DVRexRT is the smaller of the two PCI cards.



DVRexRT PCI board with MPEG module



HANDLE THE CARD BY THE EDGES. AVOID TOUCHING THE CARD'S SURFACE

3. Gently push the card into the slot and screw it into place.

#### STEP 5: Connecting the cards

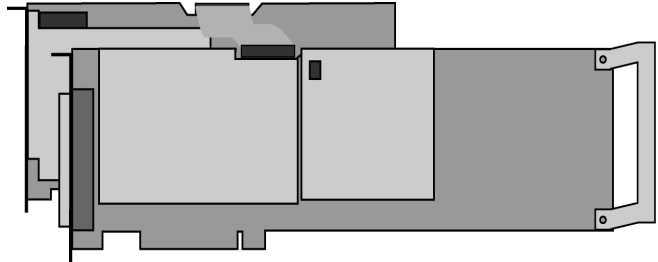
1. Get the DVRex to DVRexRT connection cable from your package.\*

\*If you are upgrading a DVRexRT system, use the same DVRex to DVRexRT cable that came with your DVRexRT.



DVRex to DVRexRT connection cable

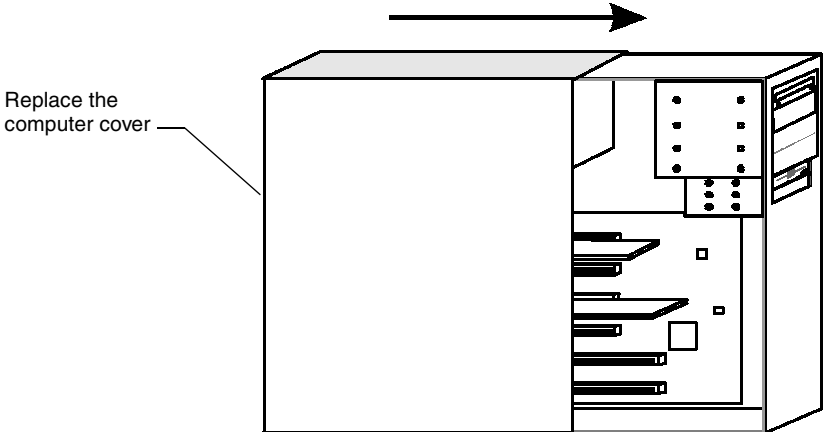
2. Connect one end of the cable to the connector at the top of the DVRex Professional board.
3. Connect the other end of the cable to the connector at the top of the DVRexRT board. **DO NOT** twist or flip the cable around. Make sure the wire with a stripe on it is on the same side for both boards.



DVRex Professional and DVRexRT PCI boards connected

### STEP 6: Checking Connections

After installing the DVRExRT Professional cards, check all your connections and replace the computer cover. Do not plug your computer back in yet.



Replacing the computer cover

### STEP 7: Attaching rack-mount hardware (optional)

1. Get the rack-mount ears and screws from your package.



Rack-mount ears and screws

2. Attach an ear to each side of the breakout box using the supplied screws. The smaller holes of the ears should attach to the breakout box.

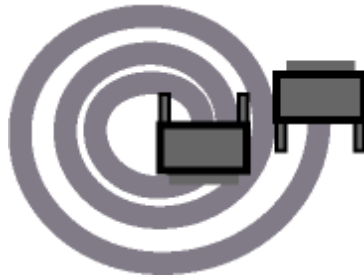
You can attach the ears to the front or back of the box depending on your rack configuration.



- Depending on your rack space, you may need to remove the rubber feet from the bottom of the breakout box. Use a screwdriver to unscrew the feet from the breakout box if necessary.

### STEP 8: Connecting the breakout box

- Get the breakout box cable from your package. Its connectors have 62 pins in three rows.

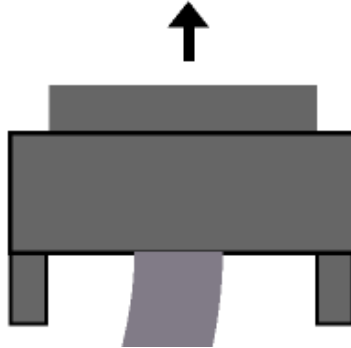
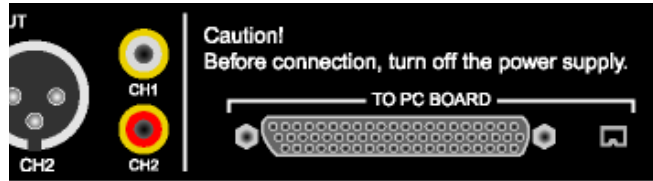


Breakout box cable

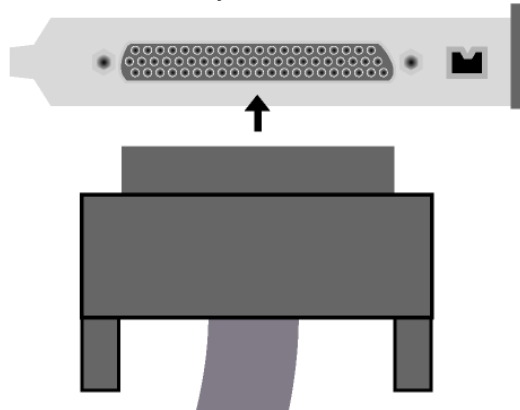


- Make sure your computer is still unplugged. **IMPORTANT:** Whenever connecting or disconnecting the breakout box, make sure the computer is turned off and unplugged. Connecting or disconnecting the breakout box while the computer is still receiving power can damage your breakout box and computer system.
- Attach one end of the DVReX Professional breakout box cable to the back of the breakout box. The connector

will fit only one way. Use the thumbscrews to screw the connector on so it won't accidentally fall off.



4. Attach the other end of the DVRex Professional break-out box cable to the 62-pin connector on the back of the DVRex Professional card. The connector will fit only one way. Use the thumbscrews to screw the connector on so it won't accidentally fall off.

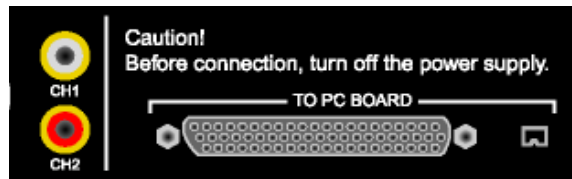


5. Get one of the DV cables from your package.

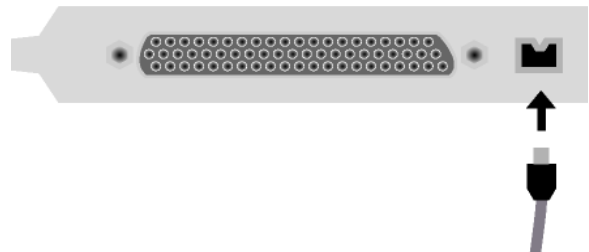


DV cable

6. Attach one end to the DV cable in the “TO PC BOARD” section on the back of the breakout box. The connector will only fit one way.



7. Attach the other end of the DV cable to the DV connector on the back of the DVReX Professional card.



**STEP 9: Rack-mounting the breakout box (optional)**

If you have attached the rack-mount ears to the breakout box, mount your breakout box in your rack now.

Alternatively, you can wait until after you connect your equipment in the next chapter before mounting your breakout box.

**STEP 10: Final check**

Check the connections to the breakout box once more, and plug your computer back in.

---

## Before installing DVRexRT Professional software

Please make sure your system is working properly and free of viruses.

If you are installing DVRexRT Professional on a system that had another Canopus DV card installed on it, we **highly suggest** installing DVRexRT Professional to a fresh installation of the OS. If this is not possible, please make sure all components of the prior installation have been removed.

Use Add/Remove programs to remove all the programs and CODECs.

If Adobe Premiere or MediaStudio Pro was installed, uninstall these programs and make sure any Canopus plug-ins have been removed.

Also delete the CANOPUS.INI file from your Windows directory if there is one there.

If you plan to use Adobe Premiere, please install Premiere by following the instructions included in the Premiere package and apply any necessary updates before installing the DVRexRT Professional applications. This will make sure the Premiere plug-in is installed with the rest of the DVRexRT Professional software.

---

## Windows 2000 Driver Installation

The first time you start Windows after installing the DVRexRT Professional hardware, the **Add New Hardware** dialog will appear. Insert the DVRexRT Professional software CD-ROM in your CD-ROM drive and point the Add New Hardware wizard to look in **D:\DVRex** (where D: is the letter of your CD-ROM drive). Follow the on-screen instructions to install the DVRex Professional and DVRexRT drivers.

After the DVRexRT Professional drivers are installed, restart your system and follow the steps under Applications



Installation later in this chapter to install the DVRExRT Professional applications.

---

## Windows NT 4.0 Driver Installation

There is no driver installation necessary for Windows NT 4.0. Please install the DVRExRT Professional applications by following the steps under Applications Installation later in this chapter.

---

## Applications Installation

To install the DVRExRT Professional applications, insert the DVRExRT Professional Applications and Drivers CD-ROM into your CD-ROM drive and run **SetupMgr.exe** by double-clicking the icon. The DVRExRT Professional setup manager will appear and launch the appropriate. Follow the prompts to install the DVRExRT Professional applications, QuickTime 4, Windows Media components, RexNavi, Canopus SoftMPG Encoder, and SoftXplode.

During installation, setup may ask you if you want to restart your computer. Go ahead and follow the prompts. The next part of setup will automatically launch after the computer restarts.

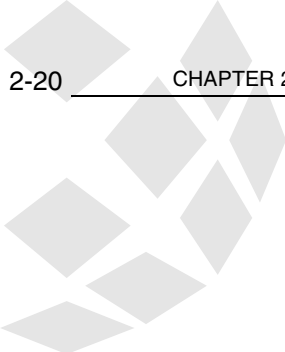
---

## Bundled Applications Installation

### Boris Graffiti LTD

Install Boris Graffiti LTD by inserting the Boris Graffiti CD-ROM in you CD-ROM drive. Run Setup.exe from the Graffiti\Install folder if it does not automatically run.

Boris Factory is located on the Boris Graffiti CD-ROM as an added bonus. To install Boris Factory, run Setup.exe from the Factory\Install folder on the Boris Graffiti CD.



## Canopus Web Video Wizard

To install the Canopus Web Video Wizard, run **WebVideoWizard.exe** from the **WebVideoWizard** folder on the DVReXRT Professional Applications and Drivers CD-ROM.

To install the rest of the bundled software that comes with DVReXRT Professional, please insert the appropriate CD-ROM into your CD-ROM drive and run **Setup.exe** (if it does not automatically run when you insert the CD).

## Sonic Foundry ACID

ACID comes on two CD-ROMs. The first CD-ROM contains the application and core loop set. The second CD-ROM contains a set of loops you can purchase and unlock.

To install ACID, insert the Application CD-ROM into your CD-ROM drive. Locate and run Setup.exe if it does not automatically run.

To unlock the loops on the second CD-ROM, go to the ACID website and purchase the unlocker.

## Spruce Technologies SpruceUp

To install SpruceUp, insert the SpruceUp CD-ROM into your CD-ROM drive. Locate and run Setup.exe if it does not automatically run.

Your serial number to unlock SpruceUp to the full version is included in the DVReXRT Professional package.



# CHAPTER 3

## Connecting Devices

---

### About this Chapter



This chapter describes how to connect a typical analog and DV camera or deck. The individual connections for your device may be different from what is described here. Please consult the manual for your camera or deck for specific information about your equipment.

Follow the instructions in the appropriate section for your setup.

---

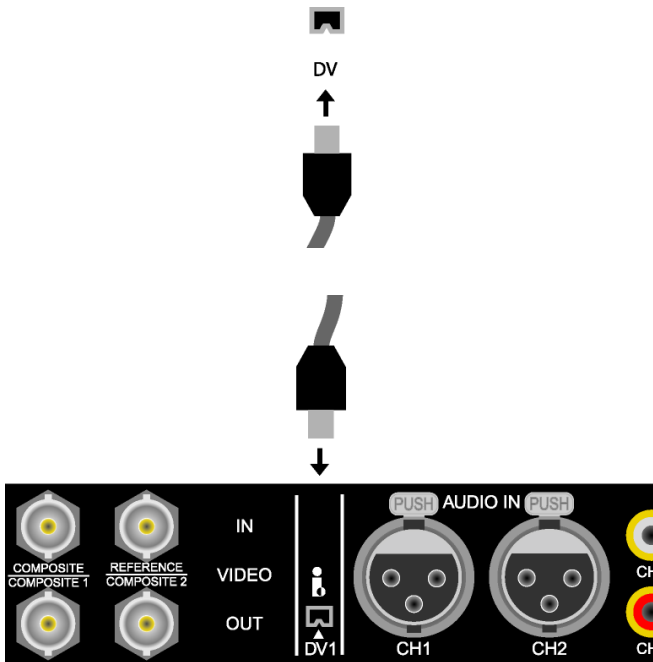
### Connecting a DV camera or deck for Capture/Output

The DVReX Professional breakout box has two DV inputs - DV1 in the rear, and DV2 in the front. We suggest you connect a dedicated DV deck to the rear connection, and leave the front connection for cameras or decks that you don't always have connected.

### Connecting to DV1 (rear)

#### STEP 1: Connect DV

Get the remaining DV cable from your package. Connect one end to your DV device, and the other end to the DV1 connector at the back of the breakout box.

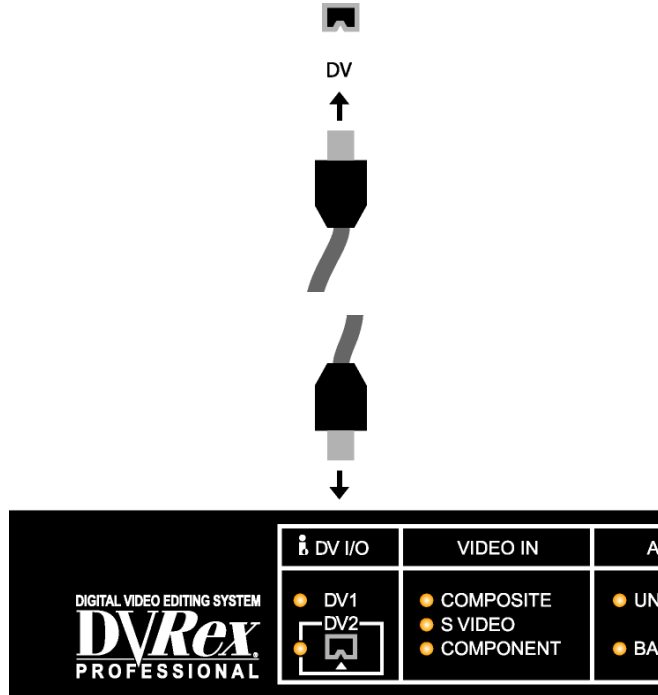


This is the only connection necessary for a DV camera or deck for both capture and output.

## Connecting to DV2 (front)

### STEP 1: Connect DV

Get the remaining DV cable from your package. Connect one end to your DV device, and the other end to the DV2 connector at the back of the breakout box.



This is the only connection necessary for a DV camera or deck for both capture and output.

## Connecting an Analog camera or deck for Capture

### STEP 1: Connect Video

The method you use to connect your camera or deck depends on the connectors it has. Follow the instructions in the appropriate step below.

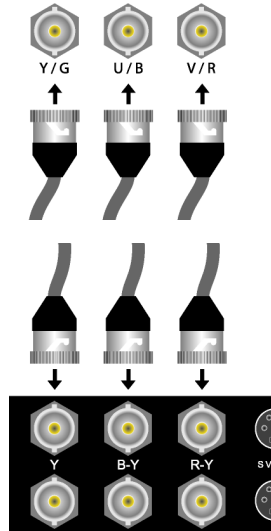
#### STEP 1a: Connecting via Component

Connect one BNC cable from your camera or deck's Y (or G) output jack to the Y input jack on the breakout box.

Connect one BNC cable from your camera or deck's U (or B) output jack to the B-Y input jack on the breakout box.

Connect one BNC cable from your camera or deck's V (or R) output jack to your R-Y input jack on the breakout box.

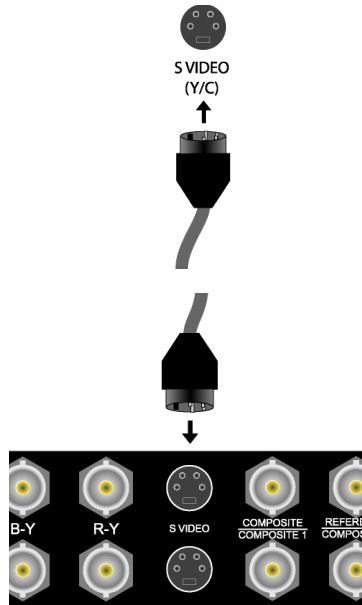
**Make sure all three BNC cables are of identical length and quality, otherwise you may encounter problems with your video. Also make sure you don't switch or cross connections. If you connect the cables incorrectly, the video signal will appear scrambled or with incorrect color.**



Component video connection is the preferred method of connecting an analog device, as it has the best signal quality.

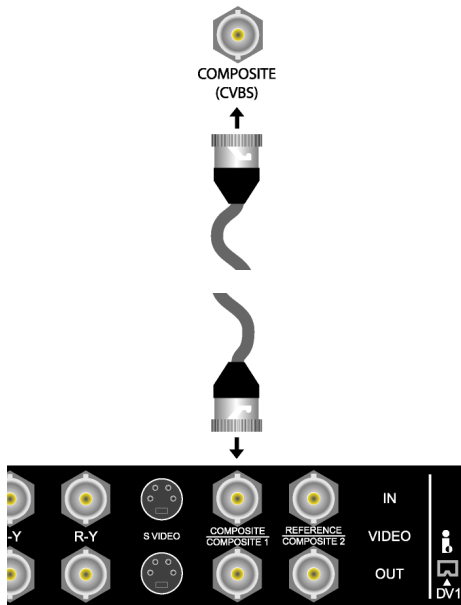
### STEP 1b: Connecting via S-Video

Connect an S-Video cable from your camera or deck's S-Video output jack to the S-Video input jack on the breakout box.



**STEP 1c: Connecting via Composite (BNC)**

Connect a BNC cable from your camera or deck's BNC composite output jack to the Composite input jack on the breakout box.

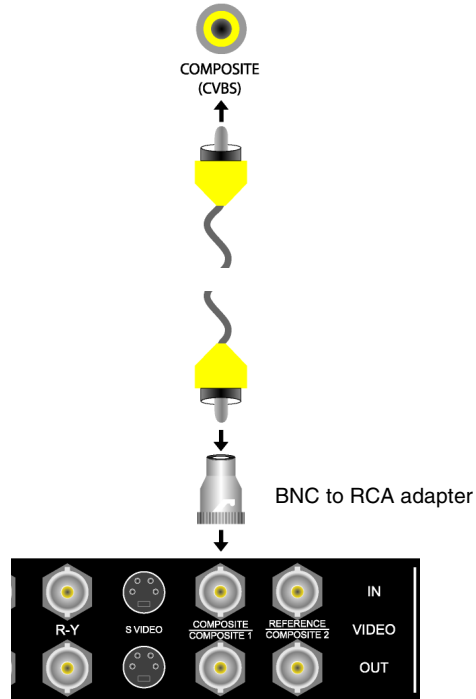




**STEP 1d: Connecting via Composite (RCA)**

Connect a composite video cable from your camera or deck's composite video output jack to one of the supplied BNC to RCA adapters.

Connect the BNC to RCA adapter to the Composite input jack on the breakout box.



### STEP 2: Connect Audio

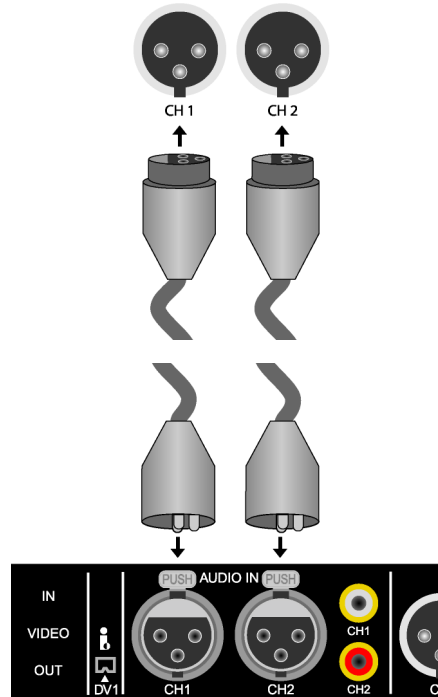
The method you use to connect your camera or deck depends on the connectors it has. Follow the instructions in the appropriate step below.

#### STEP 2a: Connecting via Balanced XLR

Connect one balanced audio XLR cable from your camera or deck's channel 1 balanced audio output jack to the CH1 balanced audio input jack on the breakout box.

Connect another balanced audio XLR cable from your camera or deck's channel 2 balanced audio output jack to the CH2 balanced audio input jack on the breakout box.

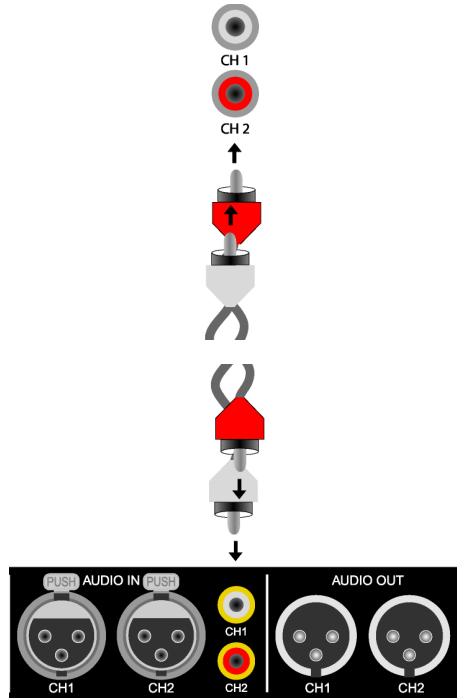
Make sure Channel 1 is connected to CH1 and Channel 2 is connected to CH2, otherwise your audio channels will be swapped.



**STEP 2b: Connect via Unbalanced RCA**

Connect a stereo RCA patch cable (or a pair of RCA cables) from the unbalanced RCA audio output of your camera or deck to the unbalanced RCA audio inputs of the breakout box.

Remember, red is right, white is left. Make sure the connectors match on both ends or your audio channels may be swapped.



**STEP 3: Connect RS-422 deck control (optional)**

If your camera or deck has a RS-422 control port, you can connect it for batch capture deck control on supported devices.

Connect the supplied RS-422 control cable from your computer's COM1 or COM2 serial port to the RS-422 connector on your deck.

The female end should go to your computer's serial port, while the male end should go to your camera or deck's RS-422 port.

**Only use the supplied RS-422 control cable or an identically wired cable. Using a different cable will not work and may damage your equipment.**



## Connecting an Analog camera or deck for Output

### STEP 1: Connect Video

The method you use to connect your camera or deck depends on the connectors it has. Follow the instructions in the appropriate step below.

#### STEP 1a: Connecting via Component

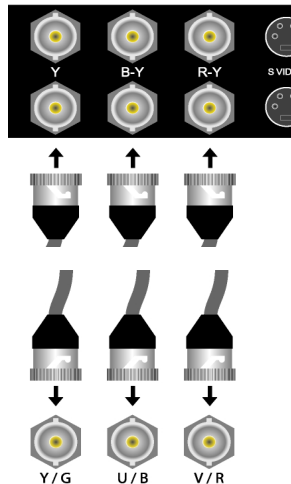
Connect one BNC cable from the Y output jack on the breakout box to your camera or deck's Y (or G) input jack.

Connect one BNC cable from the B-Y output jack on the breakout box to your camera or deck's U (or B) input jack.

Connect one BNC cable from the R-Y output jack on the breakout box to your camera or deck's V (or R) input jack.



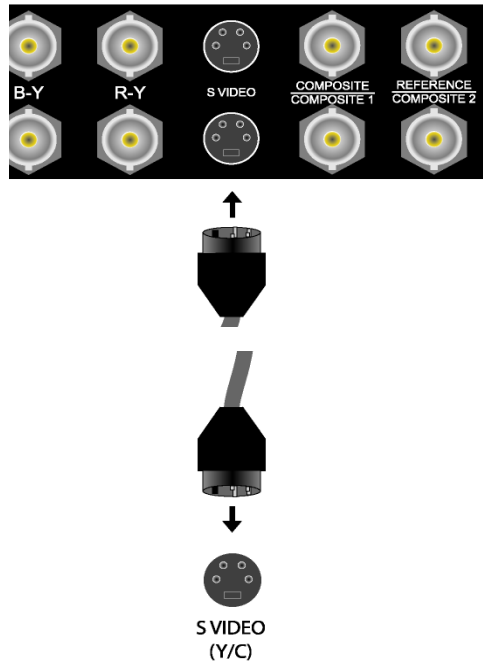
**Make sure all three BNC cables are of identical length and quality, otherwise you may encounter problems with your video. Also make sure you don't switch or cross connections. If you connect the cables incorrectly, the video signal will appear scrambled or with incorrect color.**



Component video connection is the preferred method of connecting an analog device, as it has the best signal quality.

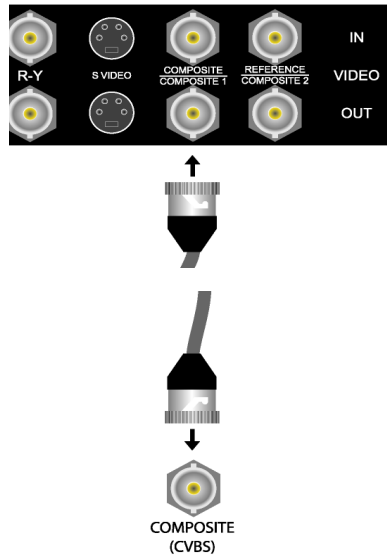
### STEP 1b: Connecting via S-Video

Connect an S-Video cable from the S-Video output jack on the breakout box to your camera or deck's S-Video input jack.



**STEP 1c: Connecting via Composite (BNC)**

Connect a BNC cable from the COMPOSITE 1 or COMPOSITE 2 output jacks on the breakout box to your camera or deck's BNC composite input jack. Both COMPOSITE 1 and COMPOSITE 2 jacks output simultaneously.

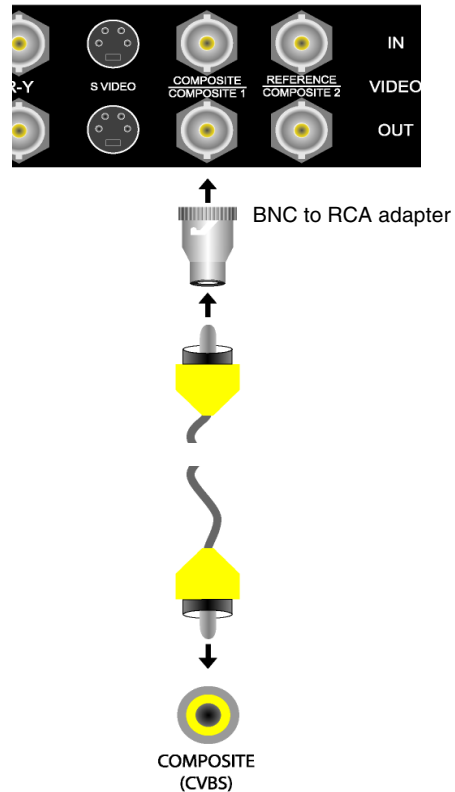


**STEP 1d: Connecting via Composite (RCA)**

Connect one of the supplied BNC to RCA adapters to the COMPOSITE 1 or COMPOSITE 2 output jacks on the breakout box.

Connect a composite video cable from the BNC to RCA adapter to your camera or deck's composite video input jack.

Both COMPOSITE 1 and COMPOSITE 2 jacks output simultaneously.





## STEP 2: Connect Audio

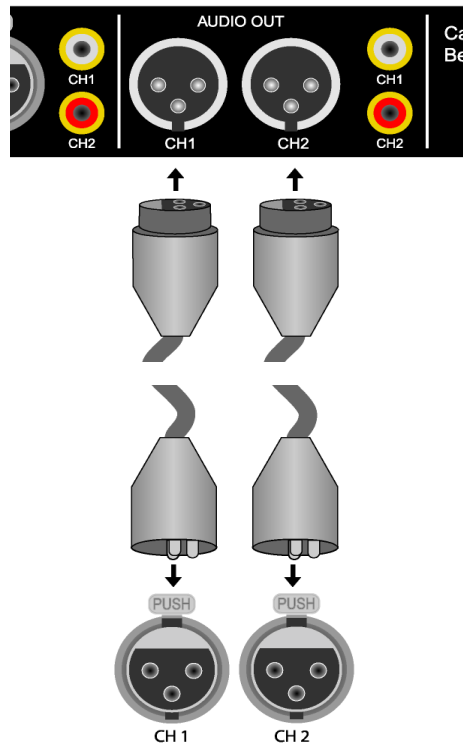
The method you use to connect your camera or deck depends on the connectors it has. Follow the instructions in the appropriate step below.

### STEP 2a: Connecting via Balanced XLR

Connect one balanced audio XLR cable from the CH1 balanced audio output jack on the breakout box to your camera or deck's channel 1 balanced audio input jack.

Connect another balanced audio XLR cable from the CH2 balanced audio output jack on the breakout box to your camera or deck's channel 2 balanced audio input jack.

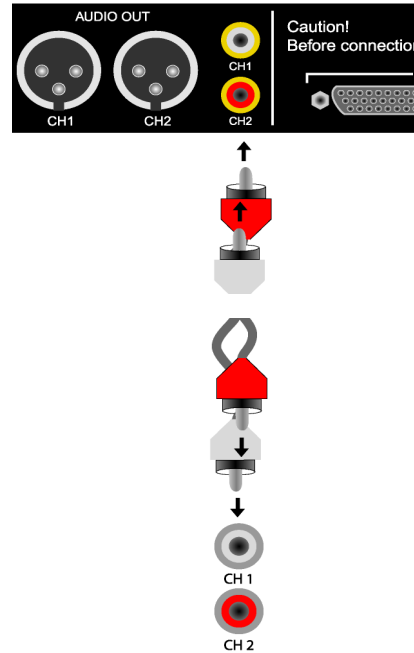
Make sure CH1 is connected to Channel 1 and CH2 is connected to Channel 2, otherwise your audio channels will be swapped.



**STEP 2b: Connect via Unbalanced RCA**

Connect a stereo RCA patch cable (or a pair of RCA cables) from the unbalanced RCA audio output of the breakout box to your camera or deck's unbalanced RCA audio inputs.

Remember, red is right, white is left. Make sure the connectors match on both ends of your audio channels may be swapped.



## Connecting to a Video Monitor for Preview

### STEP 1: Connect Video

The method you use to connect your video monitor depends on the connectors it has. Follow the instructions in the appropriate step below.

#### STEP 1a: Connecting via Component

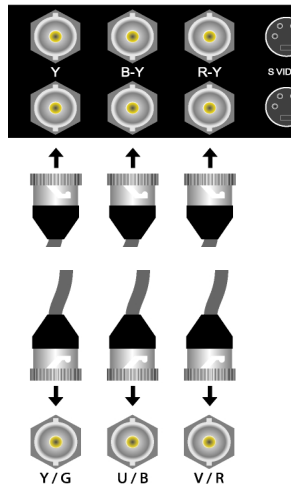
Connect one BNC cable from the Y output jack on the breakout box to your video monitor's Y (or G) input jack.

Connect one BNC cable from the B-Y output jack on the breakout box to your video monitor's U (or B) input jack.

Connect one BNC cable from the R-Y output jack on the breakout box to your video monitor's V (or R) input jack.



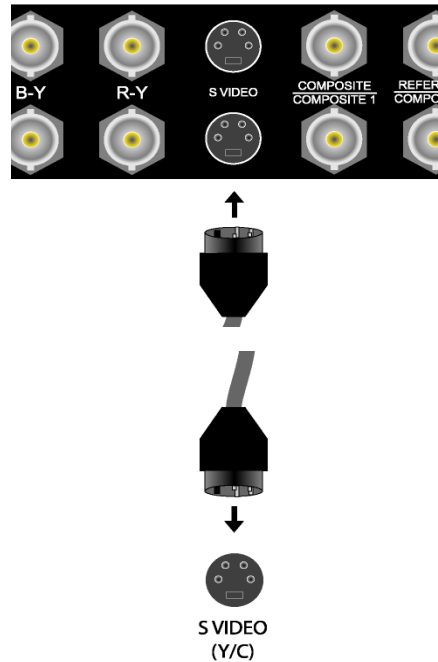
**Make sure all three BNC cables are of identical length and quality, otherwise you may encounter problems with your video. Also make sure you don't switch or cross connections. If you connect the cables incorrectly, the video signal will appear scrambled or with incorrect color.**



If you are already using the component output to connect to an analog deck, you can use the S-Video or Composite outputs as described further.

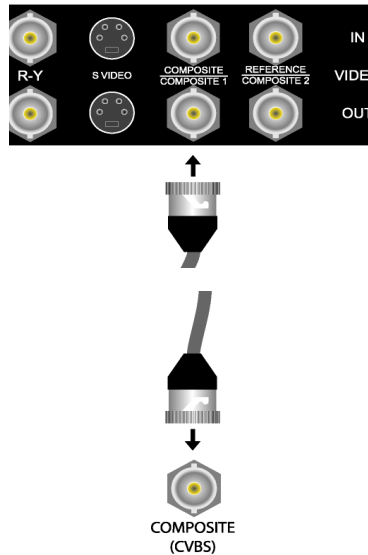
### STEP 1b: Connecting via S-Video

Connect an S-Video cable from the S-Video output jack on the breakout box to your video monitor's S-Video input jack.



**STEP 1c: Connecting via Composite (BNC)**

Connect a BNC cable from the COMPOSITE 1 or COMPOSITE 2 output jacks on the breakout box to your video monitor's BNC composite input jack. Both COMPOSITE 1 and COMPOSITE 2 jacks output simultaneously.

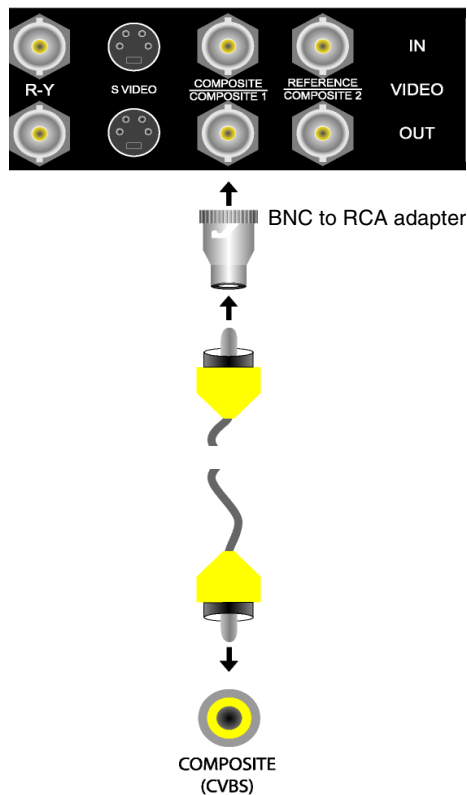


**STEP 1d: Connecting via Composite (RCA)**

Connect one of the supplied BNC to RCA adapters to the COMPOSITE 1 or COMPOSITE 2 output jacks on the breakout box.

Connect a composite video cable from the BNC to RCA adapter to your video monitor's composite video input jack.

Both COMPOSITE 1 and COMPOSITE 2 jacks output simultaneously.



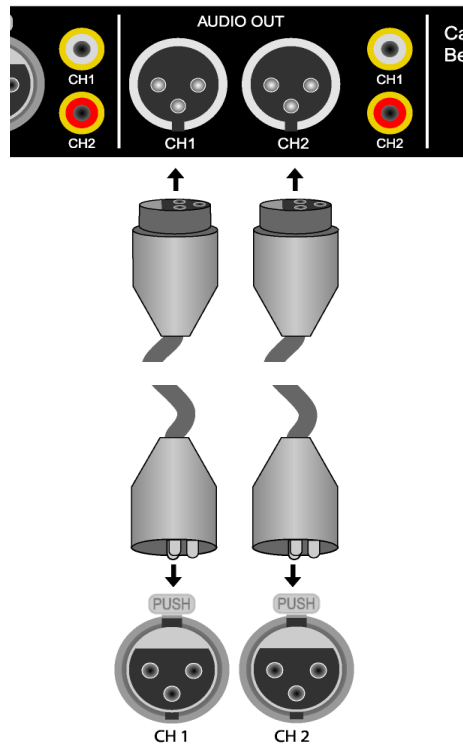
**STEP 2: Connect Audio**

The method you use to connect your video monitor depends on the connectors it has. Follow the instructions in the appropriate step below.

**STEP 2a: Connecting via Balanced XLR**

Connect one balanced audio XLR cable from the CH1 balanced audio output jack on the breakout box to your video monitor's channel 1 balanced audio input jack. Connect another balanced audio XLR cable from the CH2 balanced audio output jack on the breakout box to your video monitor's channel 2 balanced audio input jack.

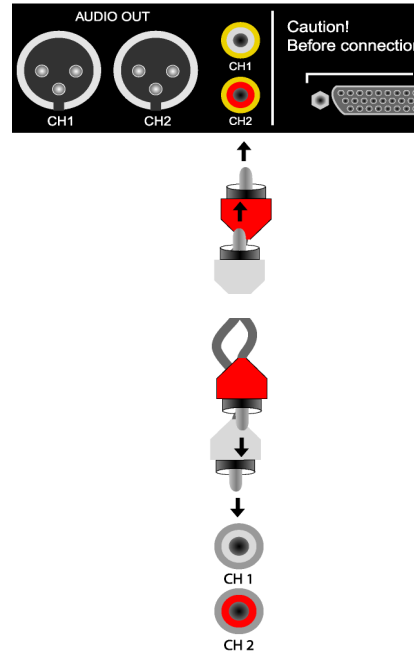
Make sure CH1 is connected to Channel 1 and CH2 is connected to Channel 2, otherwise your audio channels will be swapped.



**STEP 2b: Connect via Unbalanced RCA**

Connect a stereo RCA patch cable (or a pair of RCA cables) from the unbalanced RCA audio output of the breakout box to your video monitor's unbalanced RCA audio inputs.

Remember, red is right, white is left. Make sure the connectors match on both ends or your audio channels may be swapped.

**Selecting the Proper Input Channel**

When capturing using DVReXRT Professional, it is important to select the proper input channel in the program you're capturing from.

See the DVReXRT Professional / DVReXRT / DVStorm User's Manual for instructions on how to select the input channel.





## Hardware Features

---

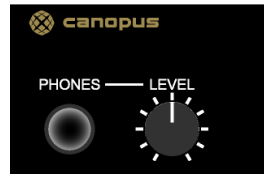
### About this Chapter

This chapter describes the hardware features of the DVR-exRT Professional.

---

### Breakout Box

#### Headphone Output

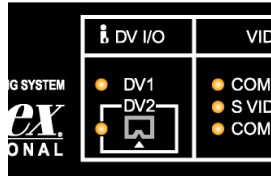


You can use the headphone output of the breakout box to monitor audio while editing.

Use the **LEVEL** knob to adjust the headphone volume.

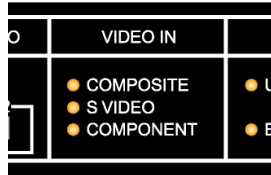
Turn the knob clockwise to increase the output level, turn the knob counter-clockwise to reduce the output level.

### DV I/O Status



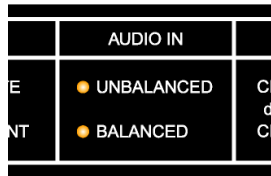
The DV I/O status lights indicate which DV connection is active for input and output - DV1 at the rear of the breakout box and DV2 at the front of the breakout box. Only one DV connection can be active at a time.

### Video In Status



The Video In status lights indicate which analog video connection is active for input - Composite, S-Video, or Component. Although all connections are active for output, only one analog video connection can be active for input at one time.

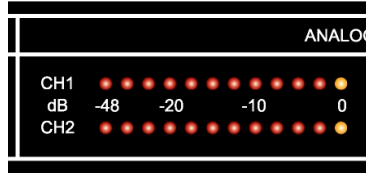
### Audio In Status



The Audio In status lights indicate which analog audio connection is active for input - Unbalanced (RCA) or Balanced (XLR).

Although all connections are active for output, only one analog audio connection can be active for input at one time.

## Analog Audio Level Meter

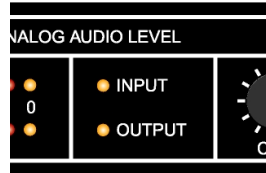


The Analog Audio Level meter displays the current analog audio level for input or output depending on whether the system is in capture or output mode.

The top meter is for channel 1 (left) and the bottom meter is for channel 2 (right).

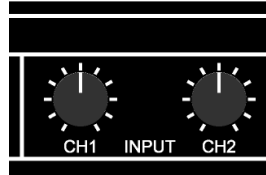
The lowest displayed level is -48 dB and the highest displayed level is 0 dB. Peak hold is active for levels between -17 dB and 0 dB. Peak hold keeps the last peak displayed for a short time.

## Analog Audio Level Status



The Analog Audio Level status lights indicate whether the level meters are displaying the input or output levels.

## Analog Audio Input Gain Controls



The Analog Audio Input Gain controls allow you to adjust the input levels of channel 1 and 2 when capturing from an analog source.

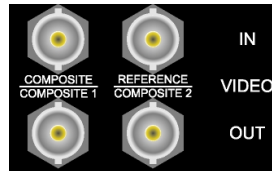
The left knob controls channel 1 and the right knob controls channel 2.

Turn the knob clockwise to increase the input level for the channel up to +17 dB, turn the knob counterclockwise to decrease the input level for the channel down to  $-\infty$ .

When the line on the knob is at the center position with the line facing straight up no change is made to the input level.

Use the gain controls to adjust the input audio levels so they do not clip (exceed 0 dB).

## Reference Input



The Reference input gives you the ability to sync the analog output to a reference input signal. Connect your reference signal to the REFERENCE input at the back of the breakout box and make sure you set DVREx to use the reference signal in the DVREx properties (see next chapter).



## Properties

Just Edit.

### About this Chapter

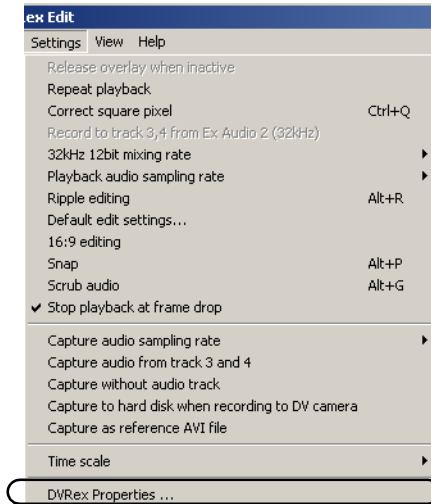
This chapter describes the settings in the properties dialogs for DVReXRT Professional.

### Accessing the DVReXRT Professional Properties

You can access the DVReXRT Professional Properties dialog from Rex Edit, Rex Video, Rex Audio, and Rex Navi.

#### Rex Edit

Choose **DVReX Properties...** from the **Settings** menu.



Properties

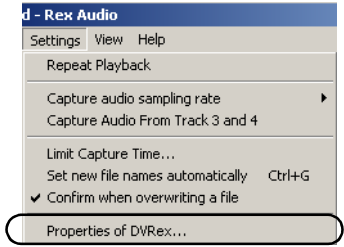
### Rex Video

Choose **Properties of DVRex ...** from the **Settings** menu.



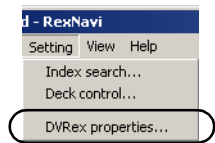
### Rex Audio

Choose **Properties of DVRex ...** from the **Settings** menu.



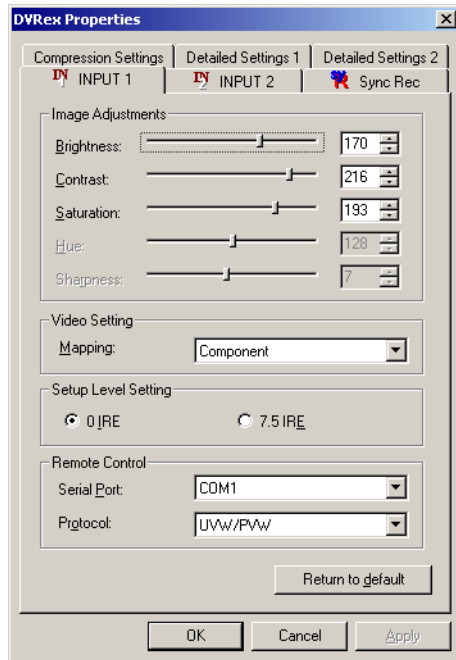
### Rex Navi

Choose **DVRex Properties...** from the **Settings** menu.



## DVRex Professional Properties

### INPUT 1 Tab



The INPUT 1 tab controls the settings for the DVRex Professional's first analog input.

#### Image Adjustments

You can make adjustments to the input video using the sliders. These adjustments are done before the video is encoded to DV by the hardware CODEC. These adjustments apply to analog input only.

**Brightness**

This slider adjusts the brightness of the input analog video.

**Contrast**

This slider adjusts the contrast of the input analog video.

**Saturation**

This slider adjusts the saturation of the input analog video.

**Hue**

This slider adjusts the hue of the input analog video.  
This option is not available for Component input.

**Sharpness**

This slider adjusts the sharpness of the input analog video.  
This option is not available for Component input.

**Video Setting****Mapping**

Specifies whether INPUT 1 should map to the Component, Composite or S-Video connection.  
Set this to the analog input that you want INPUT 1 to correspond to.

**Setup Level Setting**

The setup level setting specifies the black-level of the analog input.  
If you know the setup level of the input device or signal, you should set this option to the same level.  
This option is disabled when operating in PAL as PAL is always 0 IRE.

**0 IRE**

Sets the black-level to 0 IRE. This is the standard for composite NTSC in Japan.

**7.5 IRE**

Sets the black-level to 7.5 IRE. This is the standard for composite NTSC in North America.

**Remote Control****Serial Port**

Specifies which serial port to use for RS-422 control when using INPUT 1. When using RS-422 control for



the device you're mapping as INPUT 1, set this to the serial port the RS-422 control cable is connected to.

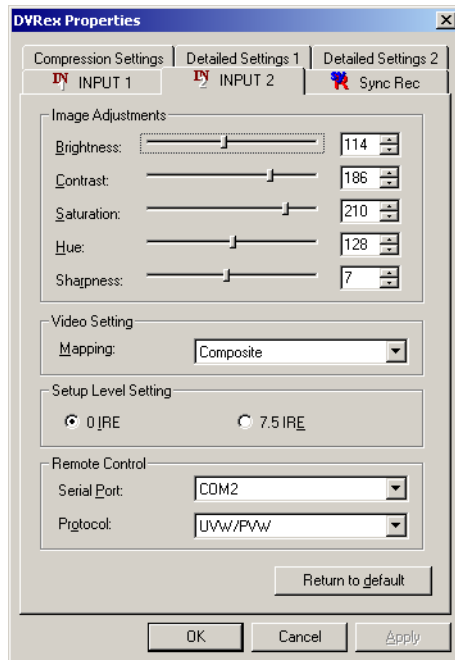
### Protocol

Specifies the RS-422 protocol to use. Select the option that corresponds to your device.

### Return to default

Returns all settings on this tab to their default values.

## INPUT 2 Tab



The INPUT 2 tab controls the settings for the DVREx Professional's second analog input.

### Image Adjustments

You can make adjustments to the input video using the sliders. These adjustments are done before the video is encoded to DV by the hardware CODEC. These adjustments apply to analog input only.

**Brightness**

This slider adjusts the brightness of the input analog video.

**Contrast**

This slider adjusts the contrast of the input analog video.

**Saturation**

This slider adjusts the saturation of the input analog video.

**Hue**

This slider adjusts the hue of the input analog video.  
This option is not available for Component input.

**Sharpness**

This slider adjusts the sharpness of the input analog video.  
This option is not available for Component input.

**Video Setting****Mapping**

Specifies whether INPUT 1 should map to the Component, Composite or S-Video connection.  
Set this to the analog input that you want INPUT 2 to correspond to.

**Setup Level Setting**

The setup level setting specifies the black-level of the analog input.  
If you know the setup level of the input device or signal, you should set this option to the same level.  
This option is disabled when operating in PAL as PAL is always 0 IRE.

**0 IRE**

Sets the black-level to 0 IRE. This is the standard for composite NTSC in Japan.

**7.5 IRE**

Sets the black-level to 7.5 IRE. This is the standard for composite NTSC in North America.

**Remote Control****Serial Port**

Specifies which serial port to use for RS-422 control when using INPUT 2. When using RS-422 control for

the device you're mapping as INPUT 2, set this to the serial port the RS-422 control cable is connected to.

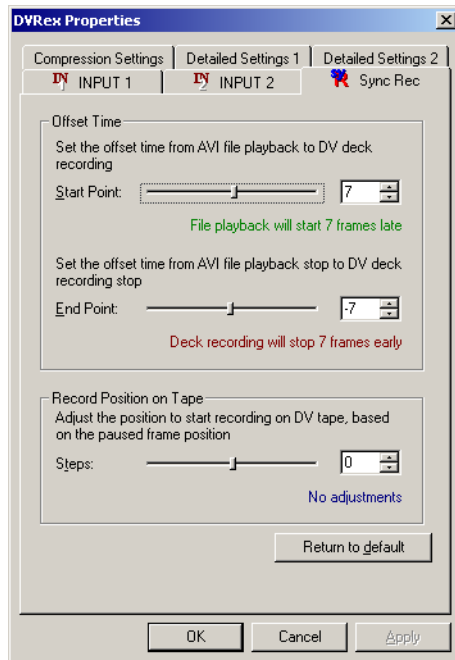
### Protocol

Specifies the RS-422 protocol to use. Select the option that corresponds to your device.

### Return to default

Returns all settings on this tab to their default values.

## Sync Rec Tab



### Offset Time

Since DV cameras and decks are mechanical devices, there can be a lag between when the record command is sent and recording actually starts. Similarly, there can be a lag between when the stop command is sent and the recording actually stops.

The settings will vary from device to device, even in the same make and model.

**Start Point**

Defines how many frames after the recording command is sent that the file playback will start.

You will need to adjust this for the delay between when the record command is received by the deck and recording actually begins.

**End Point**

Defines how many frames before file playback stops that the deck stop command is sent.

You will need to adjust this for the delay between when the stop command is received by the deck and recording actually stops.

**Record Position on Tape**

You can use this setting to adjust the recording position from the position where the tape is paused. For example, you may want to start recording from the frame after where you paused, instead of at the frame you paused at.

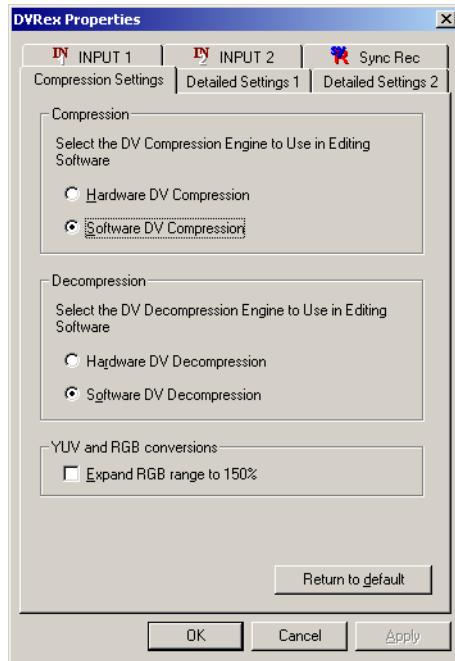
**Steps**

Determines the number of position to start recording with respect to the paused tape position when Sync Record is initiated.

**Return to default**

Returns all settings on this tab to their default values.

## Compression Settings



### Compression

Selects the compression method to use for DV compression when editing. Generally, this option should be left at Software.

#### Hardware DV Compression

Uses the hardware DV CODEC to compress data.

#### Software DV Compression

Uses the software DV CODEC (CPU) to compress data.

### Decompression

Selects the decompression method to use for DV decompression when editing. Generally, this option should be left at Software.

**Hardware DV Decompression**

Uses the hardware DV CODEC to decompress data.

**Software DV Decompression**

Uses the software DV CODEC (CPU) to decompress data.

**YUV and RGB Conversions****Expand RGB range to 150% checkbox**

When checked, the luminance and chrominance ranges are increased during conversion to RGB.

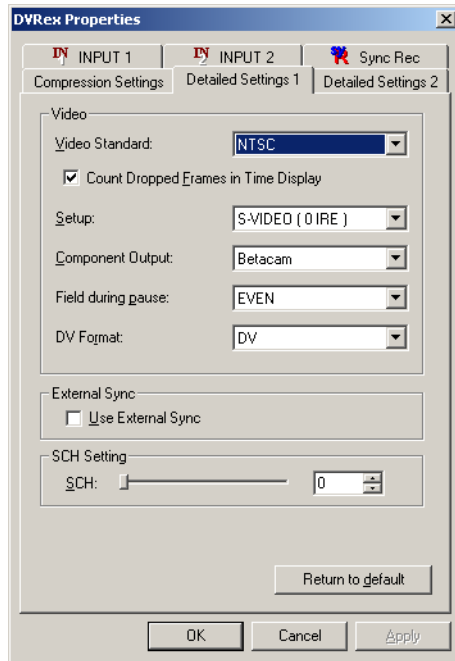
When unchecked, the standard DV Blue Book conversion method (which limits the RGB range) is used.

This option has no effect on programs which edit in YUV colorspace, such as Rex Edit. However, for programs which use RGB colorspace, setting this option may help increase the video quality of AVIs created in those programs.

**Return to default**

Returns all settings on this tab to their default values.

## Detailed Settings 1



### Video

#### Video Standard

##### NTSC

Sets the system for NTSC capture and output.

##### PAL

Sets the system for PAL capture and output.

#### Count Dropped Frames in Time Display checkbox

When checked, 29.97 fps drop-frame timecode is used.

When unchecked, 30 fps non-drop-frame timecode is used.

This option affects all timecode entry and calculations and is not available when in PAL mode.

Except in special cases, this option should be checked when in NTSC mode.

paused playback. This does not affect DV output.

#### Setup

Defines the black-level of the output analog signal.

This option is disabled when operating in PAL as PAL is always 0 IRE.

**0 IRE**

Sets the black-level to 0 IRE. This is the standard for composite NTSC in Japan.

**7.5 IRE**

Sets the black-level to 7.5 IRE. This is the standard for composite NTSC in North America.

**Component Output**

This option determines the output voltage range of the component output. You may have to adjust this setting depending on your device.

**Betacam**

Sets the component output mode to Betacam-compatible mode. The voltage range for some Betacam decks is slightly different from the standard SMPTE voltage range.

**SMPTE**

Sets the component output mode to SMPTE-compatible mode.

**Field during pause****FRAME**

When AVI playback is paused, the frame (both fields) is shown.

There may be some jitter apparent in the display when FRAME is selected for pause. This does not affect DV output.

**ODD**

When AVI playback is paused, only the odd field is shown.

Use this option to eliminate jitter in the display on paused playback. This does not affect DV output.

**EVEN**

When AVI playback is paused, only the even field is shown.

Use this option to eliminate jitter in the display on **DV Format**

**DV**

Selects DV format for capture and output

**DVCAM**

Selects DVCAM format for capture and output



## External Sync

### Use External Sync checkbox

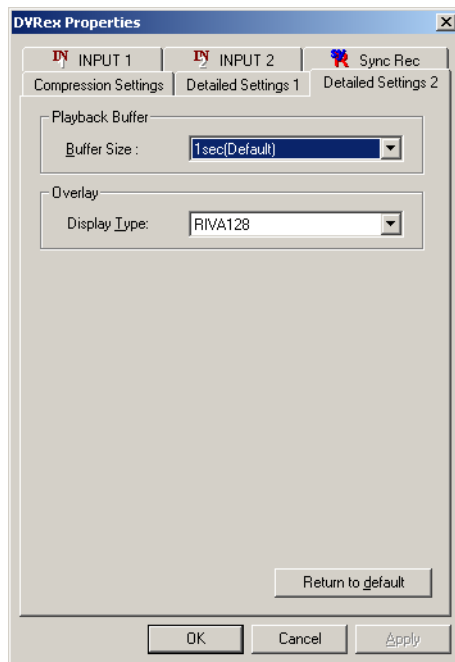
When checked, the analog output will be synchronized to the signal coming in on the Reference input.

## SCH Setting

### SCH

Sets the offset for the horizontal sync timing subcarrier. Try adjusting this value if you analog signal jumps or hops.

## Detailed Settings 2



## Playback Buffer

### Buffer Size

#### 1sec(Default)

Sets a 1-second buffer for real-time playback. This is the default.

**2sec(192MB)**

Sets a 2-second buffer for real-time playback. Recommended for systems with 192MB or more.

**3sec(256MB)**

Sets a 3-second buffer for real-time playback. Recommended for systems with 256MB or more.

**4sec(320MB)**

Sets a 4-second buffer for real-time playback. Recommended for systems with 320MB or more.

**5sec(384MB)**

Sets a 5-second buffer for real-time playback. Recommended for systems with 384MB or more.

**Automatic**

The system will try to automatically determine an appropriate size for the buffer. It is **highly recommended** that you set the buffer to a specific size instead of using Automatic, as the Automatic setting can make some systems fail to start.

**Overlay****Display Type**

Selects the overlay type to use. Rex Test should give you the appropriate type for your display card.

If you select a type that your card does not support, your on-screen video may display incorrectly or not display at all.

**RIVA128**

Specifies RIVA128 overlay type. This is the method used by nVidia graphics cards such as the RIVA128, TNT, TNT2, GeForce, and GeForce2.

**S3**

Specifies S3 overlay type. This is the method used by S3-based graphics cards and also most ATI-based graphics cards.



# CHAPTER 6

## Notes & Limitations

Just Edit.

Notes & Limitations

---

### About this Chapter

This chapter describes some notes about DVRExRT Professional as well as the limitations of DVRExRT Professional.

---

### Scalable Real-time Technology Explained

Unlike other real-time editing products, Canopus technology abstracts the complex processing away from the hardware and uses the CPU power of the system to achieve its real-time processing.

Since CPU speeds increase constantly, Canopus real-time increases as you upgrade your system. This keeps your Canopus hardware from becoming obsolete. New features can be added by simply upgrading the software. Increased real-time functionality can be added by simply upgrading the speed of your system.

With the CPU speeds at the time of this writing, running two real-time chroma keys is barely possible, but in a few months, system speeds should reach the level where it is possible to assemble a system that can run two real-time chroma keys, and in the not-so-distant future, even more.

---

### Real-time capabilities

It is difficult to answer the question "What can I do in real-time?" The information that follows details the real-time

functionality of scenarios we have tested. Since CPU speeds increase rapidly, there will obviously be more that can be done in the future. Please check the Canopus website for the latest performance information.

## Minimum CPU requirements

The tables that follow describe the minimum CPU speeds necessary to perform certain effects or sets of effects.

These minimums should be used as a guide only - individual system differences such as motherboard differences, CPU bus speed, hard disk transfer speeds, drive controller CPU utilization, background services and applications, operating system utilization and various other factors will make your individual results vary.

For example, "Single Filter in Real-time" specifies the minimum system speed required to play clips with a single filter applied.

This does not mean that you can only have one clip on the timeline, or only use filter within the entire timeline. This just means that at any single point in time on the timeline, there is only one clip with one filter on it. There can be other clips at that point in time on the timeline, but they cannot have filters applied to them.

A simple example: clip A has Picture-in-Picture applied to it and is playing over clip B which has Motion Blur applied to it. This would be a case of two filters - one on clip A (Picture-in-Picture) and one on clip B (Motion Blur).

A slightly more complex example: clip A has Emboss applied to it, clip B has Motion Blur applied to it, and there is a transition between them. Now there are three effects happening at one time - Emboss on clip A, Motion Blur on clip B, and the transition between them.

A final complex example: clip A has Emboss applied to it, clip B has Pencil Sketch and Motion Blur applied to it, there is a transition between clip A and clip B, and clip C has Picture-in-Picture applied to it. Now there are five effects happening at one time - Emboss on clip A, Motion Blur and

Pencil Sketch on clip B, the transition between A and B, and the Picture-in-Picture on clip C.

**Table 1: Transition Effects in Real-time**

Effect	Minimum CPU Speed
Any basic transition effect <u>except</u> Push Stretch (Alpha, Blind Push, Blind Slide, Blind Wipe, Block, Box, Clock, Circle, Dissolve, Stripe, Stretch, Slide)	Single 500 MHz
Any basic transition effect including Push Stretch	Single 933 MHz
One to ten tracks of titling (1/10 screen size with dissolve in/out effect)	Single 500 MHz

**Table 2: Single Filter in Real-time**

Filter	Minimum CPU Speed
Noise	Single 500 MHz
Blur	Single 933 MHz
High Quality Blur	Dual 600 MHz
Color Correction	Single 500 MHz
Emboss	Single 500 MHz
Pencil Sketch	Single 500 MHz
Monochromatic	Single 500 MHz
Mosaic	Single 500 MHz
Motion Blur	Single 933 MHz
Sharp	Single 700 MHz
Soft Focus	Dual 600 MHz
Old Movie	Dual 600 MHz

**Table 3: Picture-in-Picture, Keying, and Slow Motion**

Effect	Minimum CPU Speed
High Quality Picture-in-Picture (1/4 screen size with edge and shadow)	Single 933 MHz
Standard Quality Picture-in-Picture (1/4 screen size with edge and shadow)	Single 700 MHz
Chroma Key	Dual 700 MHz
Luminance Key	Single 933 MHz
Slow Motion (1/2 speed, no audio)	Single 500 MHz

## Things you should know about...

### Working with Video in General

Editing video on a computer is a system-intensive process. As such, things that cause small or no problems in day-to-day use can cause hours of headaches when trying to edit video. Follow these tips to ensure a pleasant editing experience:

- Start off clean. If you use your computer for other day-to-day tasks, seriously consider either getting a dedicated video editing machine, or at least install and boot into a new operating system installation so you can be assured that there's nothing remaining that might cause problems.
- Disable Power Management. On multi-processor machines, power management can actually hang the system. On single-processor machines, power management can cause problems if the machine suddenly decides to go to sleep in the middle of capture or output back to tape.
- Disable any unnecessary background programs and services. Screen savers and virus protection software can cause problems because they interrupt the system

to blank the screen or scan the drive for viruses. System management software that polls drives and system status can also cause problems.

- Use high-quality components. If you build your own system, choose reliable parts that you can easily get support for. If you have someone build a system for you, make sure they're using quality components. There's not much worse than losing a hard drive full of video just before you finish a project.
- Don't install anything you don't need. Especially games - many games update critical parts of the operating system and that can cause problems later down the road.
- Back up frequently. If you have completed projects, store a backup of the clips and completed project to tape. Store a backup of the project file and batch capture list on a disk or CD somewhere too.
- Always make sure you have enough free disk space. As you run out of disk space, system performance will decrease, aside from overall system reliability.
- Get comfortable with your editing setup before you take on any projects. Do some practice editing to get a good feel for what you can and can't do.
- Don't be afraid to ask for help. There is a wealth of information on the Canopus website and user group, as well as all over the Internet. Many people have developed timesaving tips and tricks that they're happy to share.

### **DVRexRT Professional Hardware**

While editing, sound is output through DV and the analog connections on the breakout box. However, editing sound is not output through the computer speakers. If you want to hear audio through your computer speakers while editing, connect the breakout box's audio output to your soundcard's Line Input and make sure your soundcard's Line Input is not muted. Alternatively, you can use the Headphone output to listen to editing sounds - but keep in mind that only the editing sound will come through the headphone output - standard computer sounds will not.

## Rex Edit

Rex Edit for DVReXRT Professional can load existing Rex Edit for DVReXRT projects. However, it cannot load projects from the non-real-time version of Rex Edit (versions earlier than 2.7).

Rex Edit is able to play a maximum of 3 video clips simultaneously (two clips involved in a transition, plus one clip keyed in on the Insert line).

You cannot view audio waveforms in Rex Edit, nor can you output 4-channel DV audio back to tape. This is a limitation of Rex Edit.

If you move or rename a file used in a Rex Edit project, Rex Edit will prompt you to relocate the file the next time you open the project. However, we generally suggest you avoid moving or renaming files used in Rex Edit projects.

## Canopus real-time plug-in for Adobe Premiere

DVReXRT Professional is limited to 4 simultaneous video clips playing in real-time. This means that you can have up to 4 AVIs playing simultaneously at a single point in time on the timeline. If you have more than 4 AVIs playing back simultaneously, the segment will need to be rendered before you can play it back.

Aside from Premiere's 99 video track limit, and the speed of your system and hard drives, there are no limits to the number of graphic or still image overlays playing in real-time.

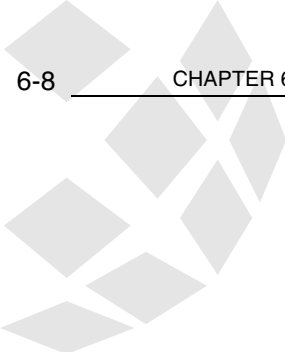
When using the Canopus Picture-in-Picture, Chroma key, and Luminance key filters to overlay video clips, the keyed-out area (the background for Picture-in-Picture) will appear gray in the on-screen filter preview and the filter preview DV and analog output. This is a limitation of the way Premiere works. If you use the Canopus Picture-in-Picture, Chroma key, or Luminance key transitions instead of the filters, you will be able to see the background video in the preview.



Audio filter previews in Premiere are limited to 10 seconds and audio filter preview is only available when monitor out is enabled. See the Premiere chapter of your User's Guide for more information.

The Canopus Slow Motion video filter, the Canopus Media Importer audio filter, and the Canopus DirectX Plugin Bridge audio filter are not available in Premiere.

You must manually set the DVReX Device Control in the Premiere Preferences when you first set up Premiere. Loading a preset cannot change this setting. See the Premiere chapter of your User's Guide for more information.





---

## About this Chapter

This chapter will describe some common issues and ways to correct them.

---

## General Problems

### Performance extremely slow or slower than expected

Make sure that no other programs are running in the background.

Check that the DVReX to DVReXRT connection cable is connected.

If you have a multi-processor machine, make sure that your operating system is using both CPUs. You can bring up the Task Manager and look at the Performance tab in Windows NT and Windows 2000 to see the CPU usage. Dual-CPU systems should have two CPU graphs.

If you are running Windows NT Server or Windows 2000 Server, be aware that the server performance is tuned so both foreground and background applications run with equal priority.

For best performance, we highly suggest running the non-server versions - Windows NT Workstation or Windows 2000 Professional.

If you must use the Server versions, you can get better performance by changing the application tuning. Utilities can be obtained from sites like SysInternals at

<http://www.sysinternals.com/>

Keep in mind that this may adversely affect server processes.

Also keep in mind that overall performance depends on more factors than CPU speed alone - motherboard chipset, front-side bus speed, video card, drive controller overhead, disk subsystem speed, and other devices in the system can affect performance as well.

### **No video on computer screen while editing**

Check that your VGA card supports DirectDraw overlay. Try changing the resolution, refresh rate, and color depth of your display.

1024x768 or 1152x864, 60-75Hz, 16-bit color is a good place to start.

### **“Hardware is in use” error message**

Close all instances of Premiere and Rex Edit and open one again.

If that does not help, restart the system and check for IRQ conflicts with the DVRex Professional and DVR-exRT cards.

Verify that the DVRex Professional and DVRexRT boards are firmly seated in their slots. It may also help to remove and re-install the boards.

### **DVRexRT MPEG2 Module YUV output does not work**

This is normal. Please use the YUV output of the breakout box instead.

---

## **Problems in Rex Edit**

### **Audio Problems**

#### **No audio through computer speakers**

To hear editing audio through your computer's speakers, connect the breakout box analog audio output to

your soundcard's Line Input and make sure your soundcard's Line Input is not muted.

### **No audio while scrubbing**

Is **Scrub with audio** in the **Settings** menu checked?

Note that scrubbing performance is better without audio. Timeline playback and filter preview still play with audio.

### **No audio during playback**

Make sure that the analog audio output of the breakout box is connected to either a device with speakers or the line input of your sound card. If it is connected to your sound card's line input, make sure that input is not muted in the Windows volume control.

Check that you have not applied filters that mute the audio. Any of the audio filters can mute the audio, and the Slow motion video filter also mutes audio.

### **Audio skips or repeats**

You may have too many effects going on at one time and the playback is dropping frames. Render transitions and/or video filters until you can play the timeline back normally.

### **Cannot select Record to track 3,4 from Ex Audio 2 (32 kHz)**

This is normal. DVReXRT Professional cannot output 4-channel DV audio.

## **Video Problems**

### **Cannot select Luminance key**

Luminance key is only selectable for Insert AV clips.

### **Cannot select Chroma key**

Chroma key is only selectable for Insert AV clips.

### Cannot select background color or Video for Picture-in-Picture

Picture-in-Picture background color and the Video background option are available only for Main AV clips.

### Color corrected video clip shows different color on output

Not all colors are safe for broadcast. Make sure the **Safe color** box is checked in the Color Correction filter dialog.

## Usage Problems

### System seems to get “stuck” for a while then continues

If you have any non-RT transitions in the timeline, make sure **Show render image thumbnail in timeline** is not checked in the **View** menu. Also check for IRQ conflicts.

### “Stop playback. Frame drop has occurred.” during playback

This is the warning message shown when **Stop playback at frame drop** is checked in the **Settings** menu. This means that there are too many effects for the system to keep up with. Render transitions and/or filters until you can play the timeline back normally.

---

## Problems in Premiere

### Xplode transitions do not play back in real-time

This is normal. Xplode transitions do not play back in real-time except in special cases.

### Cannot render Xplode transitions

This can happen if you are using Xplode transitions through the **Canopus Transition** transition. Do not use Xplode transitions (or any other third-party transi-

tions) through the **Canopus Transition** transition. Use the Premiere Xplode transitions instead.

### **"Not Rendered" screen appears during scrubbing or playback**

This marks an area of the timeline that cannot be played back in real-time. Render the necessary areas first in order to play or scrub the area in real-time.

### **Cannot export a Canopus DV AVI file**

Make sure you load the appropriate Canopus preset from the Export Movie Settings dialog. This will set the necessary parameters to export a Canopus DV AVI file from the timeline.

### **Cannot select Export to Tape from File menu**

Check the Scratch Disks / Device Control settings to verify that DVREx Device Control is selected.

Make sure you click on the Timeline window before going to the File menu. The option will be available if the timeline has focus.

### **No deck control in Movie Capture or Export to Tape**

Verify that your Editing Mode is set to DVRExRT in the Project Settings.

Check the Scratch Disks / Device Control settings to verify that DVREx Device Control is selected.

### **All clips render - even unaltered clips**

Make sure the clips you're using are Canopus DV AVI files. AVI files compressed with other CODECs are not supported for real-time editing and must be transcoded to the Canopus DV CODEC.

### **Premiere filters and motion need to render**

This is normal. Only the Canopus Video Filter, Audio Filter, Transition, Chromakey, Luminance key, and Picture-in-Picture are available can be real-time. Stan-

Standard Premiere filters and effects still need to be rendered since they are not designed to take advantage of the Canopus real-time hardware.

### **Cannot preview Canopus Audio filter**

You need to have **Enable monitor out preview** selected in the Playback Settings in order for Audio filter preview to work.

### **Cannot drag a video clip onto a video track**

If there is no associated audio track for the video track, Premiere will not let you put the clip on the track if it has audio.

Make sure there is an associated audio track for the video track you're trying to drag the clip to. Video 1A and 1B use audio tracks 1 and 2, Video 2 uses audio track 3, Video 3 uses audio track 4, etc.

---

## **How do I...?**

### **Rex Edit**

#### **Apply audio or video filters to a portion of a clip?**

Separate the portion you want to apply filters to from the rest of the clip by using the Separate command. Then apply the video/audio filters to only the separated portion.

Alternatively, you can keyframe the Blend Effects filter to control where the filter is applied.

#### **Render a clip with video filters?**

Please refer to the Rex Edit chapter in your User's Manual for instructions on rendering.

#### **Position a clip by its first frame?**

Hold down the Control key while dragging the clip. The clip will be positioned at the frame after the displayed frame.



### Move a separation point?

(On Main AV clips only) hold down the **Alt** key and drag the separation. The Out point of the first clip and the In point of the second clip will automatically be adjusted.

### Start playback with the playback buffer pre-filled?

Hold down **Shift** then press **Space** to play your timeline instead of just pressing **Space**.

### Dissolve between Insert AV and Main AV?

Use Luminance key or Chroma key with Fade In/Out set, or use a full-size Picture-in-Picture with Dissolve effect.

### Change the size of a graphic used in the titler?

Use Adobe Photoshop, or a similar image editing application to resize the image.

### Get more real-time performance?

Upgrade to faster CPUs. CPU power is the determining factor in real-time performance. The faster your CPUs, the more real-time capabilities you will have.

## Rex Navi

### Starting indexing a tape from the a particular point?

Position the tape at the point where you want to start indexing then hold down **Shift** when you click the **Auto-Index** button.

### Change the thumbnail for a clip?

Move the camera to the frame you want to use for the clip, then right-click the clip and choose **Thumbnail**.

## Adobe Premiere

### Install the Canopus real-time plug-in?

Run the DVReXRT Professional applications installer or choose DVReXRT Professional from Add/Remove Programs and make sure the box for Premiere plug-in is checked.

### Start playback with the playback buffer pre-filled?

Hold down **Shift** then click the Play button on the Monitor target window.

### Add more audio and video tracks?

Click on the right-facing triangle on the upper-right of the Timeline window and select **Track Options**. Click the **Add** button to add more audio and video tracks.

### Other questions...

Please refer to your Adobe Premiere manual and DVReXRT Professional/DVReXRT/DVStorm User's Manual for other questions about Adobe Premiere.