



CINÉWAVE

HARDWARE & SOFTWARE
INSTALLATION GUIDE

 **PINNACLE**
SYSTEMS



CinéWave™
Hardware & Software Installation Guide

For Power Mac™ G4 Computers

Pinnacle Systems, Inc.
280 N. Bernardo Avenue
Mountain View, CA 94043

December 2000
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Pinnacle Systems Part #141001000
For Release 1.1
12/30/2000
JML

Table Of Contents

OFFICIAL NOTICES AND WARRANTIES	v
FCC Declaration Of Conformity (TARGA Ciné PCI Series)	v
CE Declaration Of Conformity	vi
Limitation Of Liabilities	vii
Warranty Disclaimer	vii
Limited Warranty	vii
End-User License Agreement	vii
INTRODUCTION	ix
Pinnacle Systems CinéWave	ix
Using This Manual	ix
CHAPTER 1 — CARD INSTALLATION & HARDWARE SETUP	1-1
Unpacking	1-1
Product Information	1-1
Installing the TARGA Ciné Card	1-3
Overview Of Hardware Installation	1-3
Card Installation Procedure	1-3
About The TARGA Pro Analog Breakout Box	1-8
Pro Analog Breakout Box Input And Output Connections	1-8
TARGA Pro Analog Breakout Box Rack Mounting	1-9
Connecting Audio/Video Input Devices To TARGA Pro Analog Breakout Box	1-10
Connecting TARGA Pro Analog Breakout Box To Audio/Video Output Devices	1-10
About The TARGA Pro Digital Breakout Box	1-13
Connecting Audio/Video I/O Devices To TARGA Pro Digital Breakout Box	1-13

About The CinéWave Pro HD Digital Breakout Option	1-16
Connecting Audio/Video I/O Devices To CinéWave Pro HD Digital Breakout Option	1-16
CHAPTER 2 — SOFTWARE INSTALLATION AND SETUP	2-1
About The CinéWave Software	2-1
Software Setup For CinéWave	2-1
Installing The CinéWave Software	2-2
Installing The Adobe Acrobat PDF Reader	2-2
Configuring The TARGA Ciné Card	2-3
CHAPTER 3 — APPLICATION SPECIFIC VIDEO-EDITING SETTINGS	3-1
Ciné Settings Within Video-Editing Applications	3-1
TARGA Ciné Settings Within Final Cut Pro	3-1
Preferences Settings For TARGA Ciné	3-1
General Tab Settings	3-1
Device Control Tab Settings	3-2
Capture Tab Settings	3-3
Compression (Video)	3-4
Source (Video)	3-4
Disk Performance (Video)	3-5
Sample (Audio)	3-7
Source (Audio)	3-8
Speaker (Audio)	3-8
Sequence Preset Tab Settings	3-9
Scratch Disk Tab Settings	3-12
Sequence Menu Of Final Cut Pro	3-12
Adjusting The Video Image	3-13
External Video View Settings For TARGA Ciné	3-14
Off	3-14
All Frames	3-14
Single Frames	3-15

CinéWave Settings Within Commotion Pro	3-16
Preferences Settings For CinéWave	3-16
Render Settings	3-16
Scratch Disk Settings	3-17
Composite Menu Of Commotion Pro	3-18
Using Video Mirror With CinéWave	3-19

**APPENDIX A — TROUBLESHOOTING
& CONTACTING PINNACLE SYSTEMS A-1**

CinéWave Troubleshooting	A-1
General Problems	A-1
System Compatibility Problems	A-4
Video Input Problems	A-5
Recording Problems	A-6
Audio Problems	A-7
Playback Problems	A-8
Pinnacle Systems Customer Satisfaction Center	A-10
Troubleshooting Questionnaire	A-10
Contacting Pinnacle Systems	A-11

APPENDIX B — TARGA PRO ANALOG RACK MOUNT ASSEMBLY B-1

Pro Analog Breakout Box Rack Mount Installation	B-1
Rack Mounting Hardware	B-1
Equipment Needed	B-1
Procedure	B-1

APPENDIX C — TARGA CINÉ TECHNICAL SPECIFICATIONS C-1

Technical Specifications	C-1
TARGA Ciné Card Only	C-1
TARGA Pro Analog Breakout Box Only	C-3
TARGA Pro Digital Breakout Box Only	C-6
TARGA Pro HD Digital Breakout Box Only	C-8

INDEX Index-1

Legal Stuff

FCC DECLARATION OF CONFORMITY (TARGA Ciné PCI SERIES)

This equipment has been tested and found to comply with the limits for a Class A only digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the installation manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Any changes or modifications not expressly approved by Pinnacle Systems could void the user's authority to operate this device.

Δ WARNING To minimize emissions from your system, use only shielded interface cables and certified Class A peripherals.



DECLARATION OF CONFORMITY

Application Of Council Directive 89/336/EEC

Standards to which Conformity is Declared:
EN 55022 and EN 50082-1

Manufacturer's Name: Pinnacle Systems Inc.
Manufacturer's Address: 280 N. Bernardo Avenue
Mountain View, CA 94043
Type of Equipment: PCI Display Card
(Macintosh Platform)
Model Name: TARGA Ciné
Tested By: EMC Compliance Management Group
670 National Avenue
Mountain View, CA 94043 USA
Manufacturer's Test Engineer: Frank Davis

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive and Standard.

Name (please print): Carl Calabria

Title: Vice President of Engineering

Signature: 

Date: 18 July 2000

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Introduction

Pinnacle Systems CinéWave

Be sure to register your TARGA Ciné Series product. Doing so will entitle you to software updates, answers to frequently asked questions, and put you on the TARGA E-Mail distribution to receive important bulletins. Either fill out the registration card enclosed in the box (see **Chapter 1**), or register online at: <http://www.pinnaclesys.com/register>

CinéWave system recommendations are as follows:

- Power Mac G4 Computer at 400 MHz or better
- Pro Analog, Pro Digital, or Pro HD Digital Breakout Box
- One or more Analog or High Definition compatible VTRs
- Analog or SDI (Serial Digital Interface) video monitor with speakers
- Cables for connecting your VTR deck, video monitor, and speakers

Your VTR should be the highest practical quality. To take advantage of the capabilities of TARGA Ciné in High Definition, we recommend a deck with SDI SMPTE 292M. To take advantage of the capabilities of TARGA Ciné in Standard Definition, we recommend a deck with component-level outputs or SDI SMPTE 259M, although the TARGA Ciné does accept S-Video and Composite Video.

Note: For the latest information on what versions of Final Cut Pro or Commotion Pro can be used, or what hardware is recommended, check the online compatibility guide at <http://www.pinnaclesys.com>

Using This Manual

Here is a quick overview of this manual's Chapters and Appendices:

- **Chapter 1** -- Discusses unpacking your TARGA Ciné card, installing the card, and connecting input/output devices.
- **Chapter 2** -- Gives instructions for installing the TARGA Ciné software and configuring the TARGA Ciné system control panel for the card.

- **Chapter 3** -- Discusses setting TARGA Ciné specific software panel options within a video-editing application such as Final Cut Pro and Commotion Pro.
- **Appendix A** -- Covers CinéWave troubleshooting and provides information for contacting the Pinnacle Systems Customer Support Center (for technical support and troubleshooting).
- **Appendix B** -- Details the TARGA Pro Analog Breakout Box rack mount installation.
- **Appendix C** -- Lists the technical specifications for CinéWave.

Chapter 1: Card Installation & Hardware Setup

Unpacking

The following items should be included in the Pinnacle Systems CinéWave package:

- TARGA Ciné card
- Pro Analog Breakout Box
- Anti-Static Wrist Strap
- Pinnacle Systems CinéWave software CD

Additions or options may include:

- Other complementary software CDs
- Pro Digital Breakout Box

Δ WARNING Do not remove the card from its antistatic bag until you're ready to install it. Removing the card prematurely exposes it to static electricity, which could damage it.

Product Information

The Warranty/Registration Card for your TARGA product can be found in the box. Please follow the directions on the card to register your product.

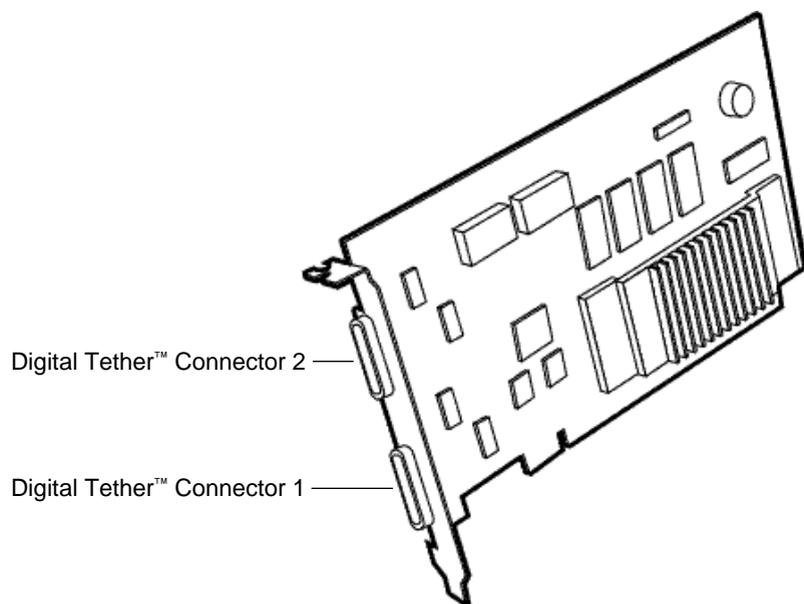
Also, please record the following information *before* you install your TARGA card. This information is necessary for Pinnacle Systems Technical Support to serve you. If you need assistance, see the [Troubleshooting Appendix](#) for more information on Technical Support.

Purchased From _____

Purchase Date _____

Card Serial Number _____

(On underside of card)



Digital Tether™ Connector 1 -- This 36-pin female connector is where a TARGA Analog and/or Digital Breakout Box is connected for Standard Definition video. The tether connector accepts input from and provides output to a TARGA Analog Breakout Box in parallel ITU-R BT.656 format. The connector also inputs to and accepts the serial digital format from a TARGA Digital Breakout Box.

Digital Tether™ Connector 2 -- This 36-pin female connector is where a TARGA Analog and/or Digital Breakout Box is connected for High Definition or Standard Definition video. The tether connector accepts input from and provides output to a TARGA Analog Breakout Box in parallel ITU-R BT.656 format. The connector also inputs to and accepts the serial digital format from a TARGA Digital Breakout Box.

Figure 1-1 TARGA Ciné Card

Installing The TARGA Ciné Card

Overview Of Hardware Installation

Complete hardware installation of the TARGA Ciné can be accomplished by doing the following:

- Install TARGA Ciné card into the computer
- Attach TARGA Analog or Digital Breakout Box to TARGA Ciné card
- Connect input and output devices to Analog or Digital Breakout Box

Details for each of the items listed above can be found in this Chapter.

Card Installation Procedure

These are general-purpose installation instructions. You should refer to the owner's manual of your Power Mac G4 computer ("Setting Up your Power Mac") for additional information on installing cards. You should also refer to the "Read Me" files provided with the TARGA software.

1. Shut down the Power Mac G4 computer and turn off the monitor.

Always shut down the computer before opening it to avoid damaging its internal components. To shut down the Power Mac G4, select "Shut Down" from the Special menu and then wait 5 minutes so that the computer's internal components can cool. Do not attempt to open the computer or install the TARGA Ciné card while the computer is turned on.

Note: If you think the computer is in sleep mode, press the power button in front of the computer to wake it, and then shut the computer down.

2. Except for the power cord, remove all other cables from the computer.

If you have never plugged in your Power Mac G4 computer, refer to the Power Mac G4 owner's manual ("Setting Up your Power Mac") for instructions on how to properly set the voltage switch before plugging in the computer.

3. Discharge static electricity that you may have on your clothes or body.

Use the Anti-Static Wrist Strap that is provided with your TARGA package. Also, touch the metal part of the PCI port access covers to discharge any static electric charge that you might be carrying. Refer to Figure 1-2.

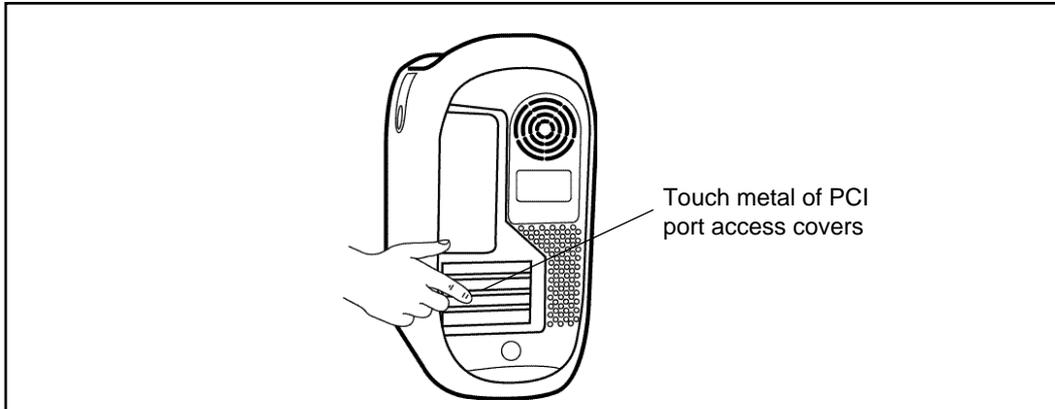


Figure 1-2 Discharge Static Area On Power Mac G4 Computer

4. Unplug the power cord, and then open the computer.

Lift the latch on the side of the computer to unlock the side panel. Gently lower the side panel onto a clean, flat surface. Refer to Figure 1-3.

Important: No LEDs should be glowing on the motherboard. If LED lights are glowing, the computer was not shut down. Close the side panel and shut down the computer before proceeding.

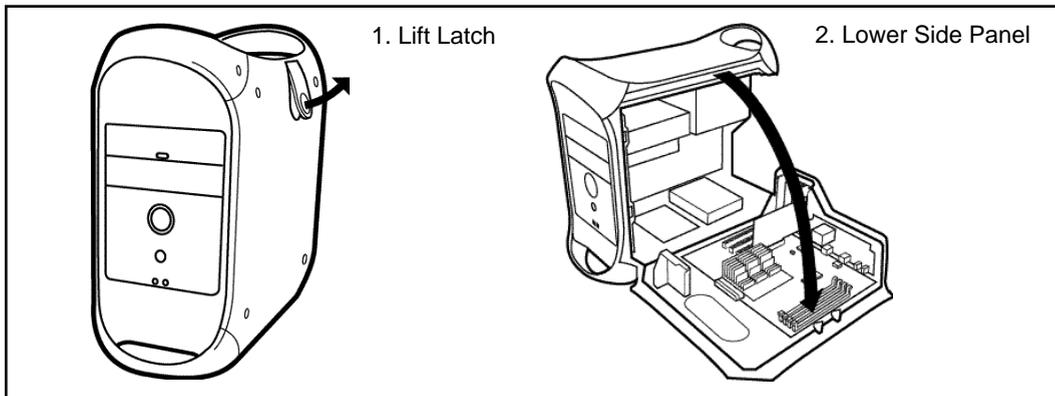


Figure 1-3 Opening The Power Mac G4 Computer

5. Prepare an expansion slot.

Locate an empty PCI slot (they are labeled 2, 3, and 4). Then remove the port access cover at the back of the computer's expansion slot area by removing the cover screw and then lifting off the port access cover. Make sure that there are no obstructions to the slot. Refer to Figures 1-2 and 1-4.

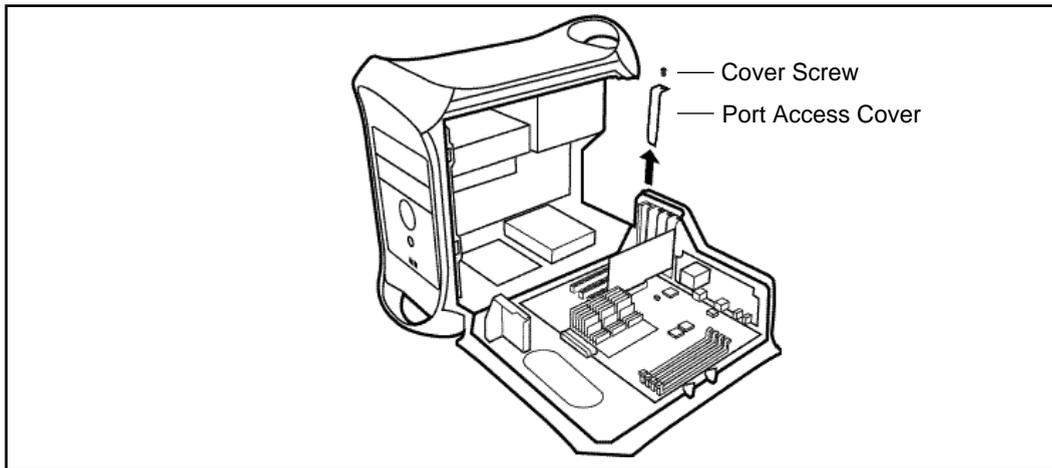


Figure 1-4 Power Mac G4 Computer PCI Expansion Slot Area

6. Remove the TARGA card from its antistatic bag.

Make sure you are grounded via the antistatic wrist strap that is provided with your TARGA package. Handle the card by its edges and by its metal bracket. Avoid touching the connector pins on the bottom of the card.

7. Insert the TARGA card into the expansion slot.

With the bracket toward the open access port, align the connector on the bottom of the TARGA Ciné card directly over the slot you've chosen. Refer to Figure 1-5. Then push down and gently rock the card lengthwise until it is firmly seated. When pushed into the slot, the card will catch as if it were in place – gently continue

to exert pressure until the card “seats” again or until you see that the card’s gold slot connectors are barely visible and that the card is completely installed.

Important: Don’t force the card. If there is resistance, remove the card and try again.

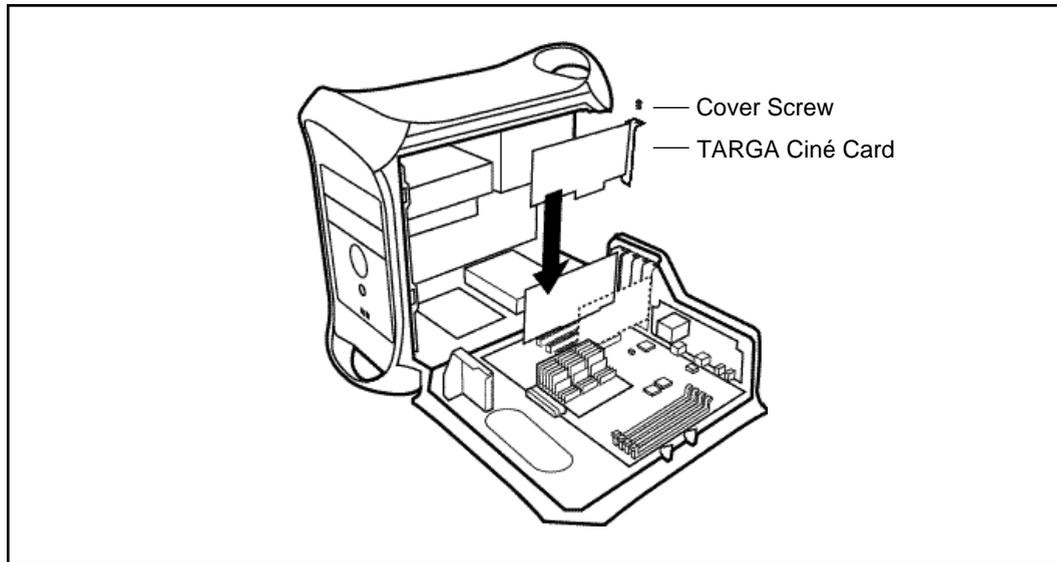


Figure 1-5 Inserting The TARGA Ciné Card

8. Replace port access cover screw and close the computer.

Fasten the TARGA Ciné card into place with the port access cover screw. Then raise the computer’s side panel and press it against the housing until it snaps securely into place.

Δ WARNING Do not turn on your Power Mac G4 computer unless all of its internal and external parts are in place and it is closed. Operating the computer when it is open or missing parts can damage your computer or cause injury.

9. Connect a TARGA Analog and/or Digital Breakout Box to the TARGA Ciné card.

Connect the cable from the back of the Pro Analog and/or Pro Digital Breakout Box to the Digital Tether™ connectors on the bracket of the TARGA Ciné card. Refer to Figures 1-1 and 1-6.

Important: We recommend that you do not disconnect or reconnect the Breakout Box cable from or to the TARGA Ciné card while the computer is powered up.

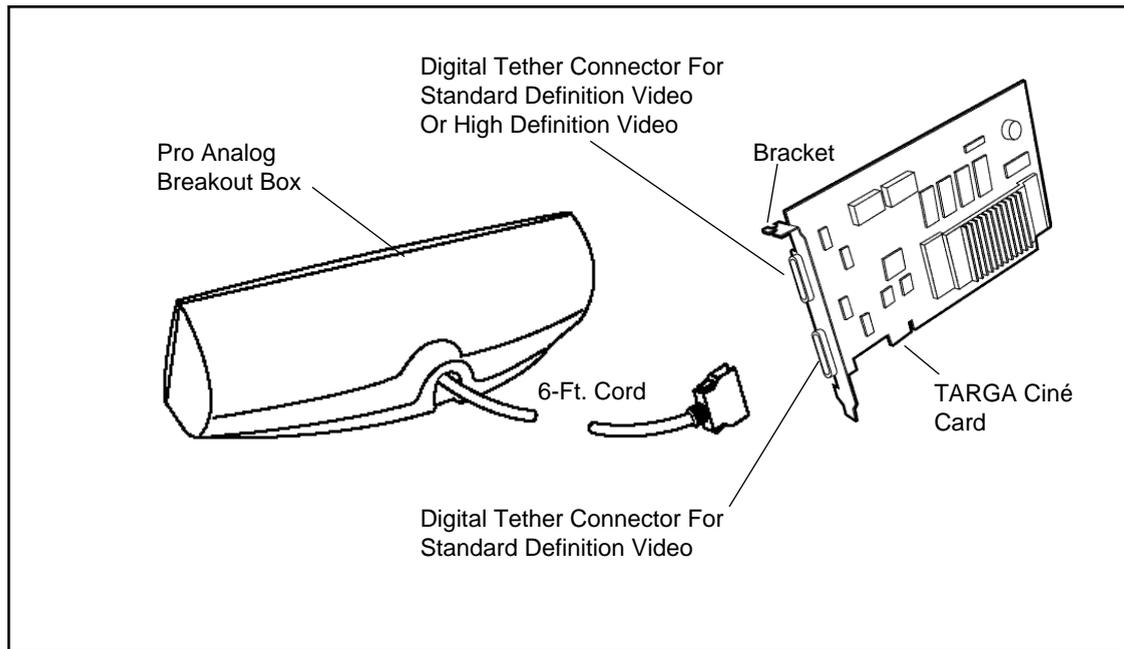


Figure 1-6 Pro Analog Breakout Box Cable To TARGA Ciné

Note: Two different types of TARGA Breakout Boxes (e.g., analog with digital) can be connected to the TARGA Ciné card for simultaneous use.

About The TARGA Pro Analog Breakout Box

The TARGA Pro Analog Breakout Box supports XLR balanced audio, RCA unbalanced audio, S-Video (YC), Component Video (Y, B-Y, R-Y), Composite Video (CV/CS), Reference (synchronized or genlocked), and a key out (COMP-B).

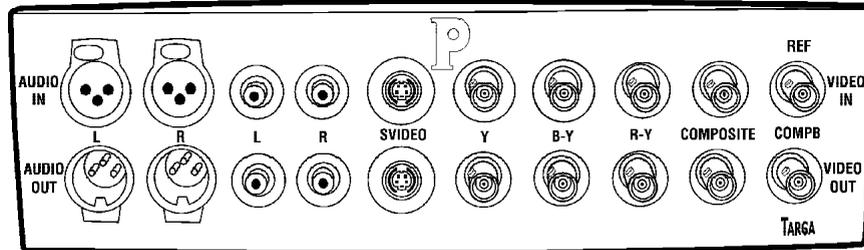


Figure 1-7 Pro Analog Breakout Box Input and Output Connections

Pro Analog Breakout Box Input And Output Connections

The input and output connections for the TARGA Pro Analog Breakout Box are defined as follows:

- XLR Audio:** The dual-channel XLR connectors are for balanced analog input and output audio. Use the XLR connector labeled “L” for Left and “R” for right.
- RCA Audio:** The dual-channel RCA connectors are for unbalanced analog input and output audio. Use the RCA connector labeled “L” for Left and “R” for right.
- S-VIDEO:** If you are using an S-Video (Y/C) input or output source, use the S-Video 4-pin Mini-DIN connector.
- Y B-Y R-Y:** The BNC connectors labeled “Y,” “B-Y,” and “R-Y” are used for Betacam and Betacam-J component input and output. If a Betacam format is going to be used, all 3 of the BNC connectors for input or output must be used for a complete betacam signal. “Y” is for Luma or Luminance. “B-Y” and “R-Y” signify color difference in a signal.

The color difference labeling Pinnacle Systems uses (Y/B-Y/R-Y) is a standard representation of a Betacam Component video signal format. You may encounter others, such as Y/Pb/Pr or Y/U/V. In these cases, attach the Breakout “**Y**” to the Y connector on the peripheral, the Breakout “**B-Y**” to the U or Pb/B connector on the peripheral, and the Breakout “**R-Y**” to a V or Pr/R connector on the peripheral.

COMPOSITE: If you are using a Composite Video input or output source, use the BNC connector labeled “**Composite**” for Composite Video (CV).

REF: “**Ref**” (Reference) is used to provide subcarrier field ID for the Component outputs. This is to be used when Y/B-Y/R-Y is selected as an input. If “**Ref**” is used, both it and the selected video source must be locked together.

COMP(B): Use to output to a second Composite Video device, or as a “Key” output signal. The output signal is provided for application software that allows an 8-bit Alpha channel for image blending information. Availability of a Key signal is a function of third party applications designed to take advantage of this hardware feature of the TARGA Ciné. This feature is not active in Final Cut Pro or Commotion Pro.

TARGA Pro Analog Breakout Box Rack Mounting

Rack Mounting instructions for the TARGA Pro Analog Breakout Box can be found in **Appendix B**. An optional rack mounting kit for the TARGA Pro Analog Breakout Box can be acquired from your nearest Pinnacle Systems reseller. You can call the Sales Information number listed in the “**Contacting Pinnacle Systems**” section of Appendix A to obtain information on how to contact the reseller in your area. Also, contact information for Pinnacle Systems resellers can be obtained from the Pinnacle Systems website at:

<http://www.pinnaclesys.com>

Connecting Audio/Video Input Devices To TARGA Pro Analog Breakout Box

From your originating input source equipment: Attach the audio and/or video output connections of the equipment (e.g., Camcorder, VCR, VTR, etc.) to the “**IN**” connections of the Pro Analog Breakout Box using the appropriate cables (XLR audio, RCA audio, S-Video, and/or BNC). Remember to connect from the output of your source devices to the Pro Analog Breakout Box’s input connector(s). For example diagrams, refer to the following: “**Diagram 1: Analog Component VTR For Standard Definition Capture**” and “**Diagram 2: Betacam SP Print-To-Tape For Standard Definition Video.**”

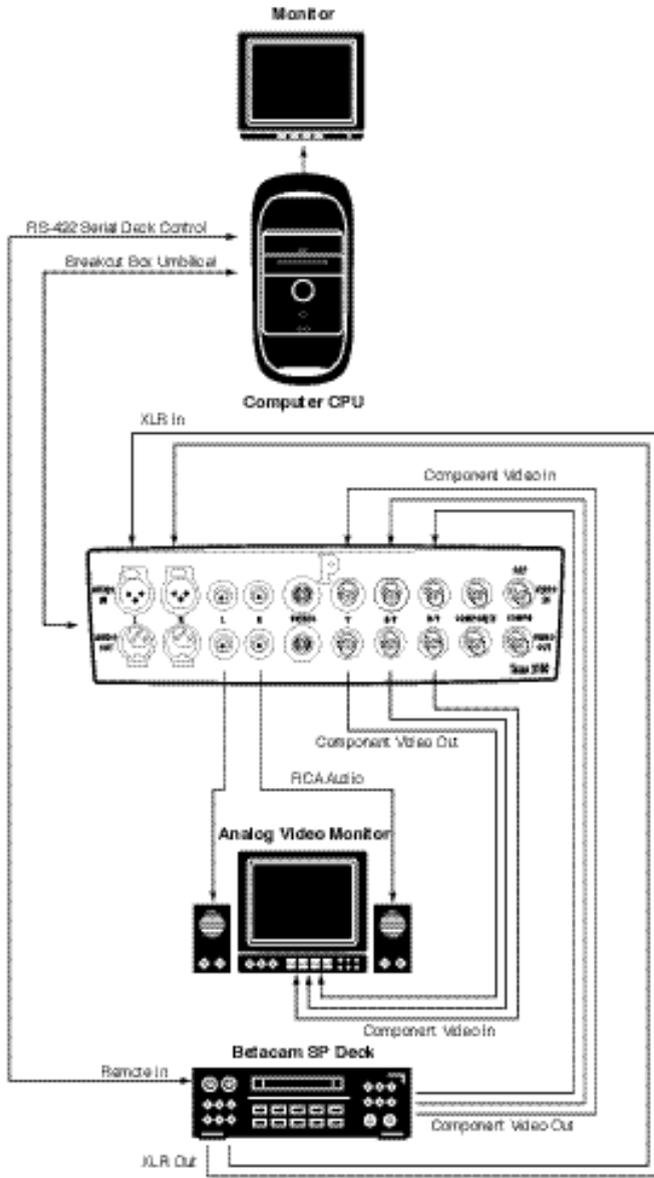
Note: If a Component signal is being sent by the source device to the Pro Analog Breakout Box, all three Component In connections on the Pro Analog Breakout Box: “**Y**,” “**B-Y**,” and “**R-Y**,” must be used for a complete Component signal to be received.

Connecting TARGA Pro Analog Breakout Box To Audio/Video Output Devices

Attach the appropriate connections labeled “**Out**” on the Pro Analog Breakout Box using appropriate cables (XLR audio, RCA audio, S-Video, and/or BNC) to the input connections on each receiving output signal device (e.g., Analog Video Monitor, Speakers, VCR, VTR, etc.,). Remember to connect from the output of the Pro Analog Breakout Box to your receiving output signal devices’ appropriate input connector(s). For example diagrams, refer to the following: “**Diagram 1: Analog Component VTR For Standard Definition Capture**” and “**Diagram 2: Betacam SP Print-To-Tape For Standard Definition Video.**”

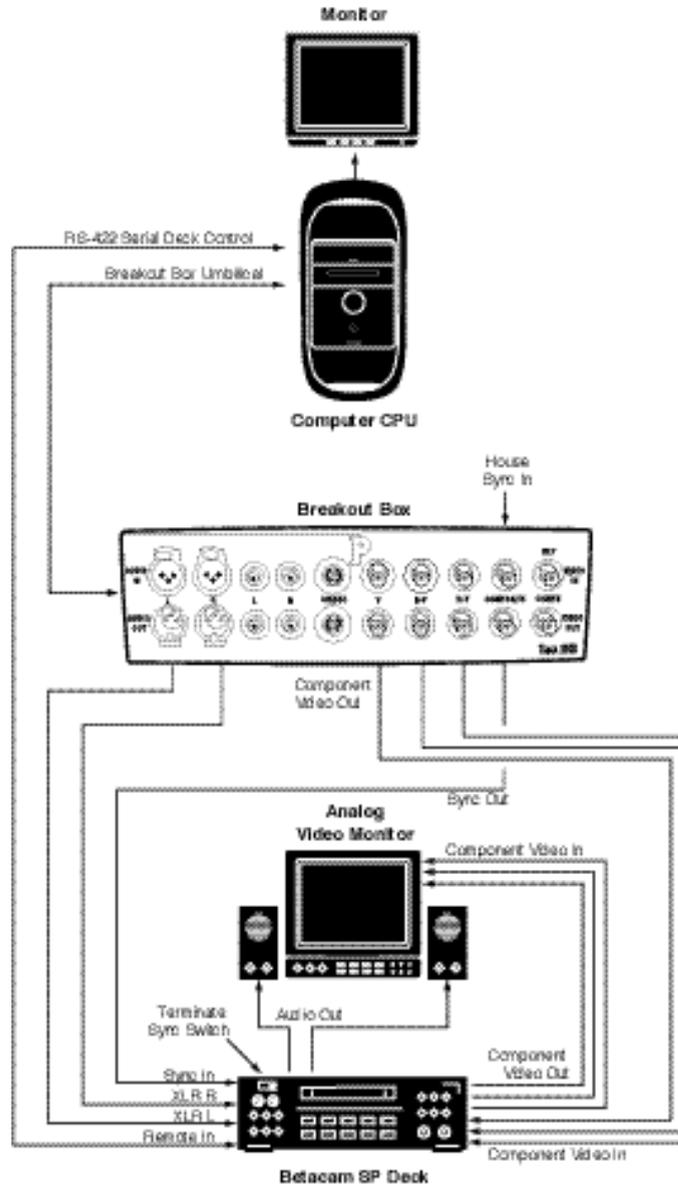
Note: If a Component signal is being sent by the Pro Analog Breakout Box to a receiving device, all three Component Out connections on the Pro Analog Breakout Box: “**Y**,” “**B-Y**,” and “**R-Y**,” must be used for a complete Component signal to be sent.

Diagram 1: Analog Component VTR For Standard Definition Capture



Note: Set the Remote/Local switch on the deck to "Remote" so that the deck accepts RS-422 device control commands.

Diagram 2: Betacam SP Print-To-Tape For Standard Definition Video



Note: Set the Remote/Local switch to "Remote" so that the deck accepts RS-422 device control commands, and set the Terminate Sync Switch to "ON."

About The TARGA Pro Digital Breakout Box

The TARGA Pro Digital Breakout Box inputs uncompressed standard definition serial digital interface (SDI) video to the TARGA Ciné card. This breakout box also outputs uncompressed standard definition serial digital video from the TARGA Ciné card. The Pro Digital Breakout Box connects to the TARGA Ciné card via the Pinnacle Systems Digital Tether™ Cable. Refer to Figure 1-8. The supported SDI signal for input and output is SMPTE 259/ITU-BT.656-3 and SMPTE 259/ITU-BT.656-4.

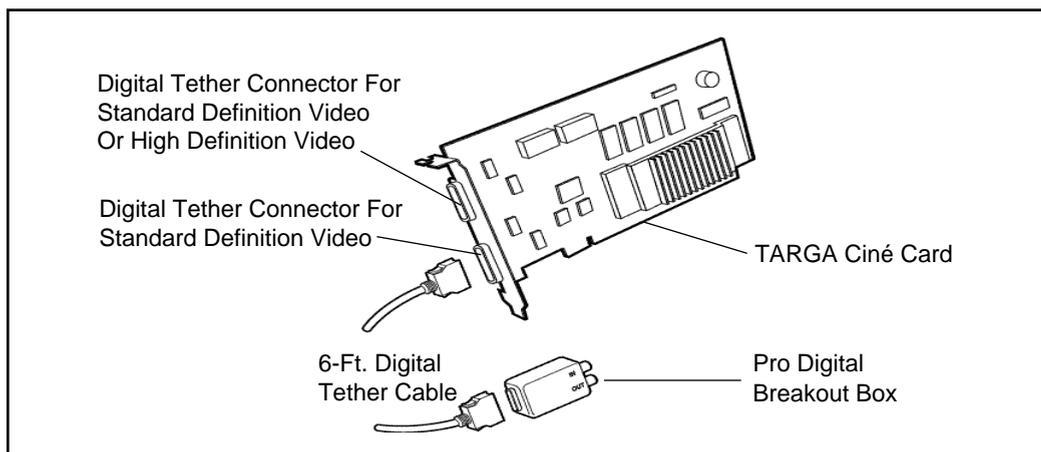


Figure 1-8 Pro Digital Breakout Box Cable To TARGA Ciné

Note: Two different types of TARGA Breakout Boxes (e.g., analog with digital) can be connected to the TARGA Ciné card for simultaneous use.

Connecting Audio/Video I/O Devices To TARGA Pro Digital Breakout Box

From your originating input source component serial digital equipment, attach the SDI output connection of the equipment (e.g., Camcorder, VCR, VTR, etc.) to the BNC “**IN**” connection of the Pro Digital Breakout Box. Remember to connect from the output of your source device to the Pro Digital Breakout Box’s input connector. Then attach the BNC connection for “**Out**” on the Pro Digital Breakout Box to the input connection on

the receiving output signal device (e.g., SDI compatible Video Monitor or VTR). For example diagrams, refer to the following: “Diagram 3: Capture And Playback For SDI Standard Definition Video” and “Diagram 4: SDI Capture With Analog Playback For Standard Definition Video.”

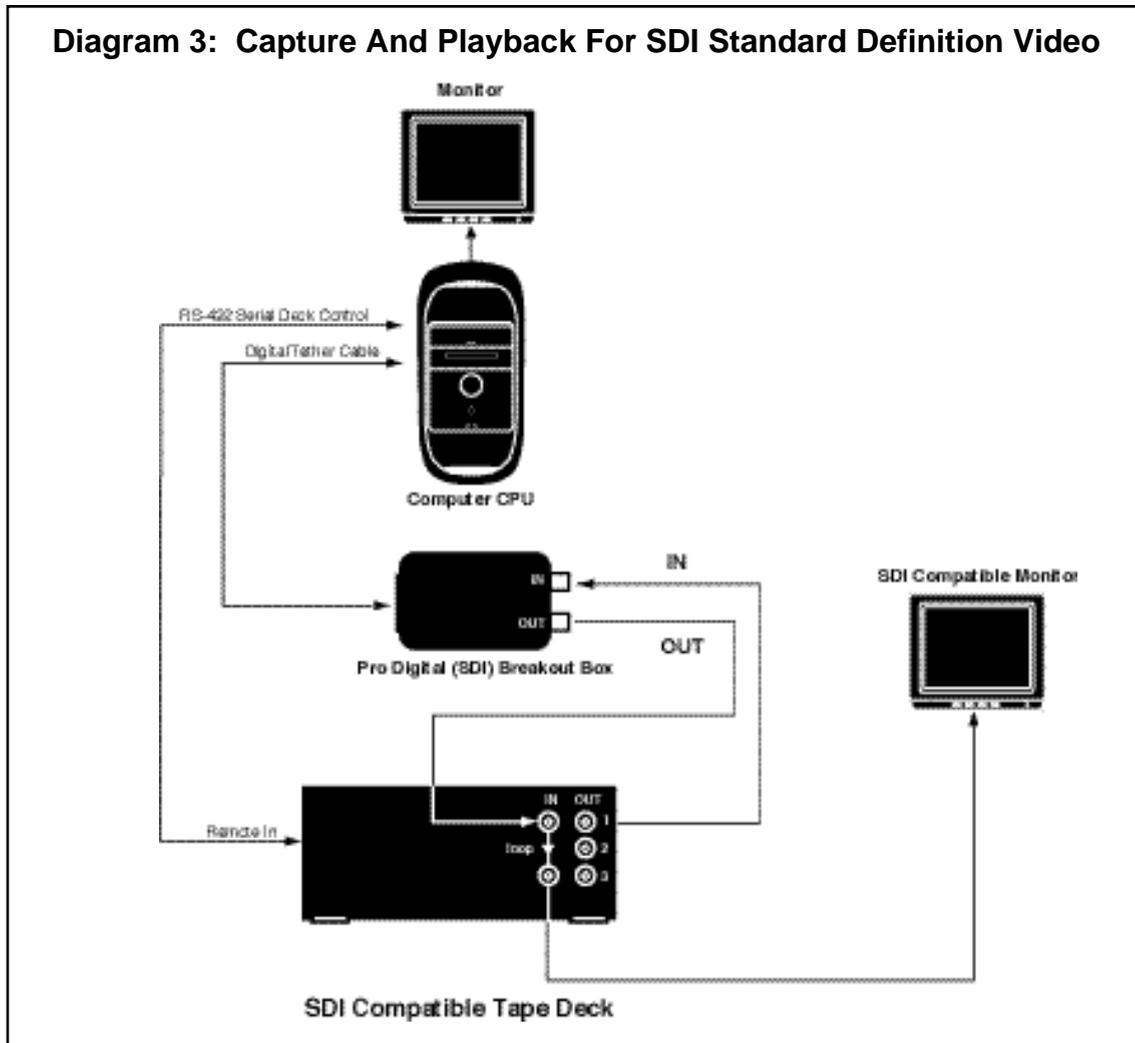
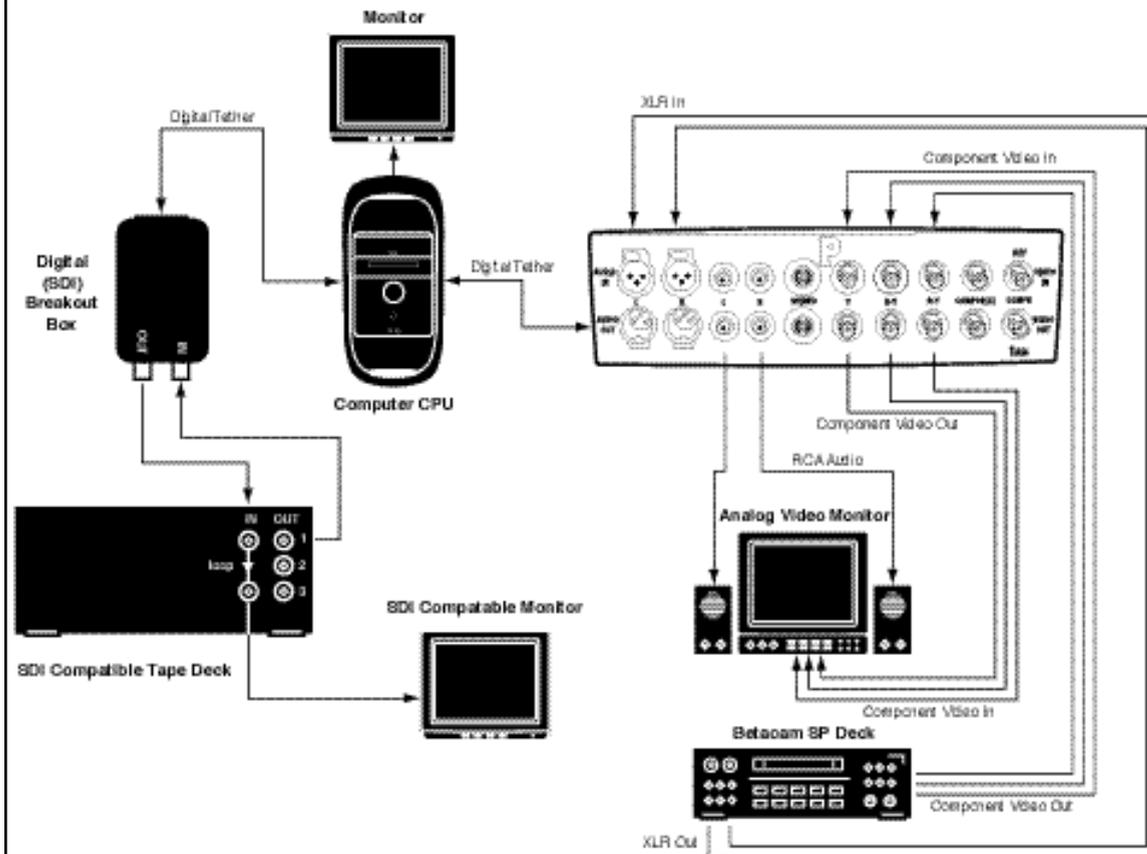


Diagram 4: SDI Capture With Analog Playback (Standard Definition Video)



About The CinéWave Pro HD Digital Breakout Option

The CinéWave Pro Digital Breakout Option inputs uncompressed high definition (HD) video to the TARGA Ciné card. The CinéWave Pro Digital Breakout Option also outputs uncompressed high definition video from the TARGA Ciné card. The Pro HD Digital Breakout Option connects to the TARGA Ciné card via the Pinnacle Systems Digital Tether Cable. Refer to Figure 1-9. The supported SDI signal for input and output is SMPTE 292M, SMPTE 274M (1080 Format), and SMPTE 296M (720P Format).

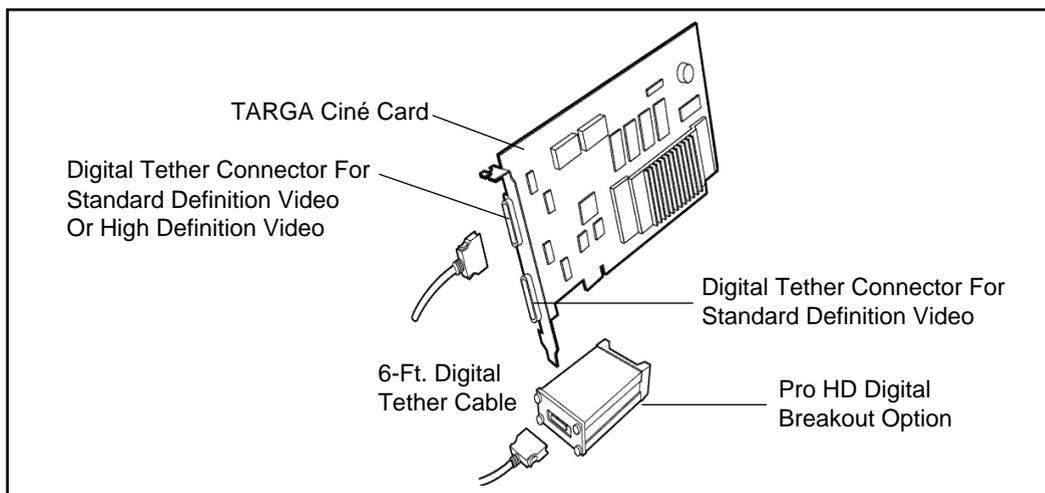


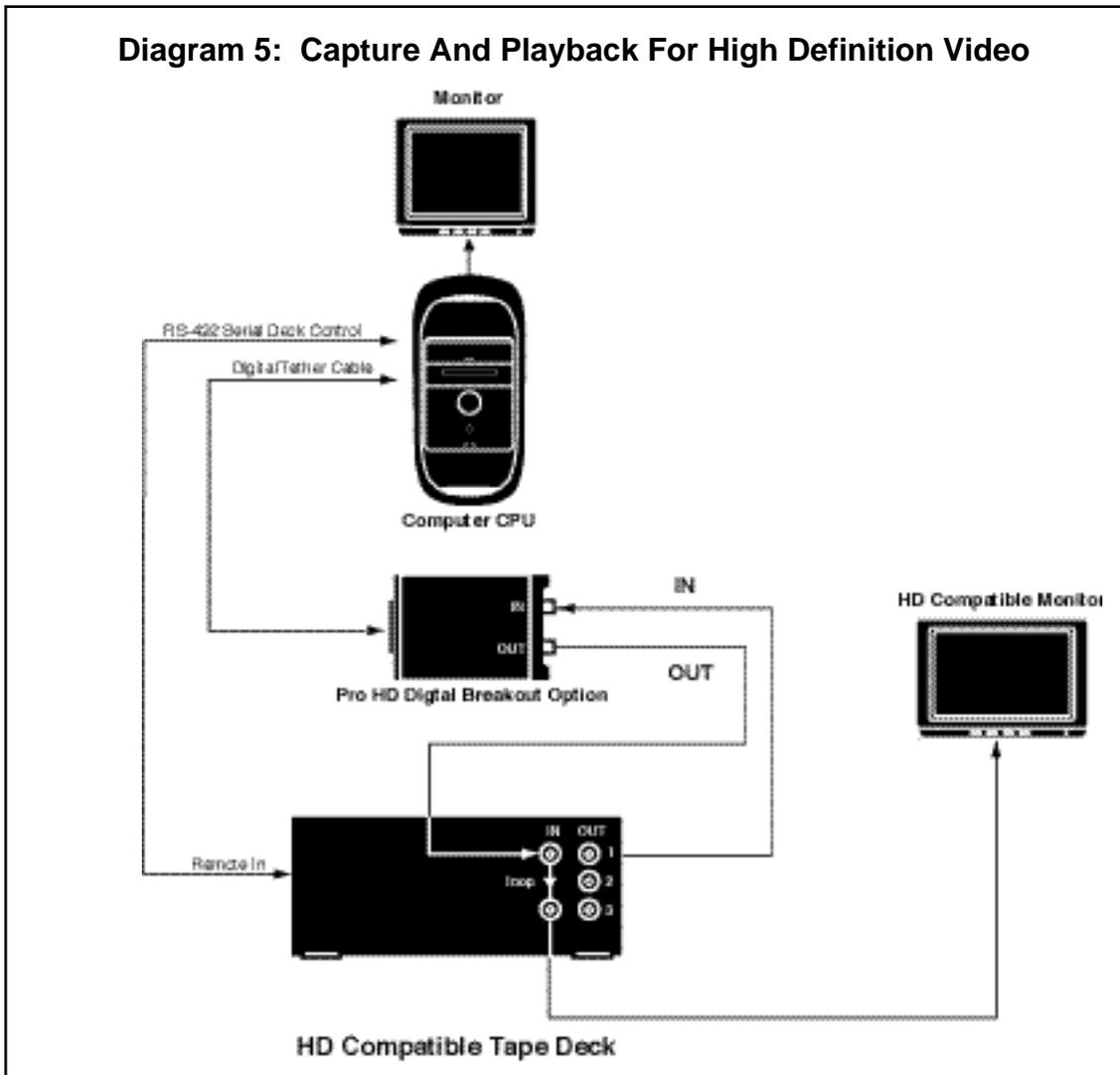
Figure 1-9 Pro HD Digital Breakout Box Cable To TARGA Ciné

Note: Two different types of Breakout Boxes (e.g., analog with digital) can be connected to the TARGA Ciné card for simultaneous use.

Connecting Audio/Video I/O Devices To CinéWave Pro HD Digital Breakout Option

From your originating input source HD equipment, attach the HD output connection of the equipment (e.g., Camcorder, VCR, VTR, etc.) to the BNC “IN” connection of the Pro HD Digital Breakout Option. Remember to connect from the output of your source device to the Pro HD Digital Breakout Option’s input connector. Then attach the BNC

connection for “**Out**” on the Pro HD Digital Breakout Option to the input connection on the receiving output signal device (e.g., HD compatible Video Monitor or VTR). For an example diagram, refer to “Diagram 5: Capture And Playback For High Definition Video.”



Chapter 2: Software Installation & Setup

About The CinéWave Software

Enclosed with your CinéWave System is a CinéWave Software CD-ROM. The CinéWave CD-ROM contains an installation program which copies all of the software needed by the CinéWave System onto your computer. In addition, a folder named CinéWave is added to your computer's hard disk. The CinéWave folder contains various files, including "Read Me" files and other documentation. An Adobe Acrobat™ Reader Installer is also provided for viewing documentation that is in PDF format (Portable Document Format). *Refer to the Read Me files after installing the TARGA Ciné software.*

Note: For the latest information on what versions of software should be used with TARGA Ciné, check the online compatibility guide at <http://www.pinnaclesys.com>

Software Setup For CINÉWAVE

The CinéWave CD-ROM contains an installation program that automatically loads the CinéWave software for you. The following things may need to be done before using your CinéWave product:

- Turn off "Virtual Memory" for the Power Mac G4 computer
- Make sure the Power Mac G4 computer's VGA display color depth is set for "Millions."
- Install your video-editing application software before you install the TARGA Ciné software

Virtual Memory -- CinéWave requires that virtual memory on the Power Mac G4 computer is set to off. This can be done by opening the "Memory" Control Panel (found in the Control Panels folder within the System folder) and setting virtual memory to off.

Millions of Colors -- The VGA display's color depth on the Power Mac G4 computer should be set to "Millions" so that the TARGA Ciné Overlay feature works properly. This can be done by opening the "Monitors" Control Panel (found in the Control Panels folder within the System folder) and selecting "Millions" for the monitor color depth.

Installing The CinéWave Software

Do the following to install the CinéWave software:

- 1. Exit any open applications.**
- 2. Install the software for your video-editing application at this time.**
Install Final Cut Pro from the Final Cut Pro CD-ROM onto your Power Mac G4 computer. Refer to the Final Cut Pro Installation documentation to do this.
- 3. Place the CinéWave CD into the DVD-ROM drive of your computer, and then double click the CD-ROM icon to open the CD.**
- 4. Double click the CinéWave Installer icon to open the installer, and then click the “Continue” button.**
Read the license agreement and then select that you agree with it to continue with the installation.
- 5. Select the drive and folder you want the installation to occur into and then click the “Open” button.**
When the installation is complete, you must restart your computer before using the CinéWave System.

Installing The Adobe Acrobat PDF Reader

To install the Adobe Acrobat Reader:

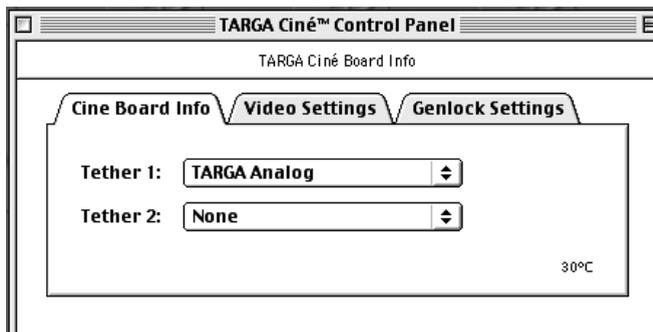
- 1. From the CinéWave CD-ROM, open the Acrobat Reader folder.**
- 2. Double click on the Acrobat Reader Installer file and then click the “Continue” button.**
- 3. Select the installation location destination from the pull-down menu, then click the “Install” button.**
When complete, the Acrobat Reader can be used to view and print PDF documents.

Configuring The TARGA Ciné Card

Settings must be made in the TARGA Ciné Control Panel (installed by the CinéWave software installer) and the Sound Control Panel to configure the TARGA Ciné card. Both of these Control Panels can be found in the Control Panel folder of the Power Mac G4 computer's System folder. Settings must be made to these Control Panels before you use the TARGA Ciné card.

Set the TARGA Ciné Control Panel as follows:

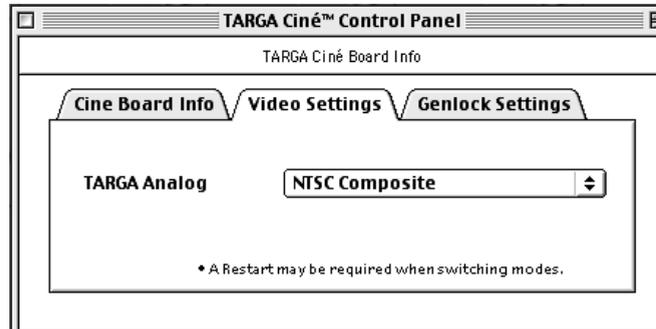
1. Open the TARGA Ciné Control Panel and click on the “Ciné Board Info” tab.



— The type of TARGA Breakout Box connected to Tether 1 and/or Tether 2 on the TARGA Ciné card will either be displayed or can be selected. Possible choices are as follows:

- None
- TARGA Analog
- Pro Analog and Digital
- Pro Digital
- Pro HD Digital

2. Click on the “Video Settings” tab.

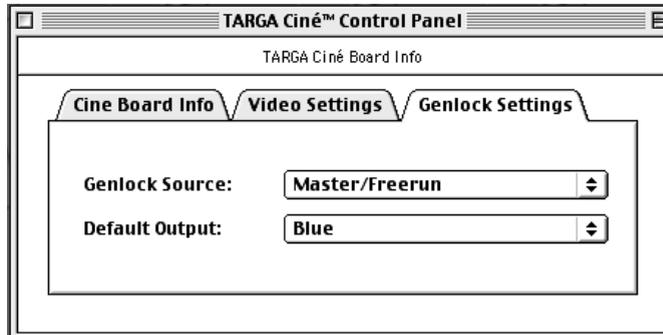


- Select the format of the type of video input going to your TARGA Ciné card. The choices displayed are dependent on the type of TARGA Breakout Box being used. Your choices are as follows:

- NTSC Composite
- NTSC S-Video
- NTSC Component
- NTSC-J Composite
- NTSC-J S-Video
- NTSC-J Component
- PAL Composite
- PAL S-Video
- PAL Component
- 525 Line SDI
- 625 Line SDI
- HD 1080i/PsF/29.97
- HD 1080i/PsF/30
- HD 1080i/PsF/25
- HD 1080i/PsF/23.98
- HD 1080PsF/24
- HD 1080PsF/23.98
- HD 720p/59.94
- HD 720p/60

Note: Where “In” is selected you are really selecting the active input, and the active outputs are simultaneous. For example if you select PAL Composite (In), then PAL Component and PAL S-Video are active on output.

3. Click on the “Genlock Settings” tab.



— Select the type of Genlock Source going to your TARGA Ciné card:

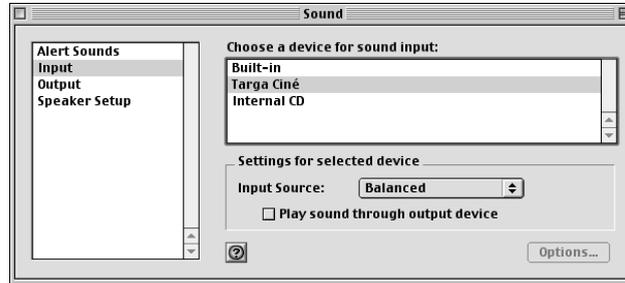
- Master/Freerun -- Use this option when genlock is not to be used. Master/Freerun instructs the TARGA Ciné card to generate output timing based on its built-in timing circuits. The output timing is not dependent on any external timing reference.
- The Type(s) of Breakout Box Connected -- The choices displayed are dependent on the type of TARGA Breakout Box being used. This option is intended for the studio environment where there is a house sync as the external sync source. The TARGA Ciné generates its output timing locked to the reference signal (i.e., the card genlocks to an external source).

— Select the Default Output to the screen during bootup or when no other image is available. The choices are blue, black, or color bars.

4. Close the TARGA Ciné Control Panel.

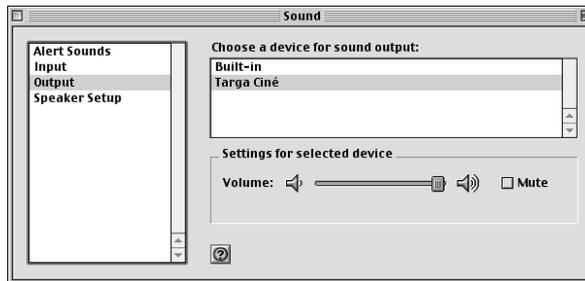
Set the Sound Control Panel as follows:

1. Open the Sound Control Panel and click on “Input.”



- Select “TARGA Ciné” as the device for sound input.
- Select the input source for TARGA Ciné. This pull down reflects the type or types of audio input available on the TARGA Breakout Box being used. If you have an Analog Breakout Box connected, select “Unbalanced” if RCA jacks are used for audio, or “Balanced” if XLR jacks are used for audio. If you have an SDI Breakout Box connected, the selection will include which stereo group of the channels embedded on SDI are available for selection.

2. Click on “Output.”



- Select “TARGA Ciné” as the device for sound output.

3. Close the Sound Control Panel.

Ciné Settings Within Video-Editing Applications

The CinéWave software loads several TARGA Ciné specific controls into your video-editing application. These controls allow you to make direct settings to the TARGA Ciné card for capture and playback. The video-editing applications discussed in this Chapter are:

- Final Cut Pro
- **Commotion Pro**

TARGA Ciné Settings Within Final Cut Pro

Within Apple Computer's Final Cut Pro software-specific settings for TARGA Ciné are made from within: "Preferences" within the Edit Menu, the **Sequence Menu**, and the View Menu for "**External Video.**" Video **image adjustments** that pertain to but are not specific to the TARGA Ciné can also be made. Once the TARGA Ciné specific settings are made, use Final Cut Pro as you normally would for editing video.

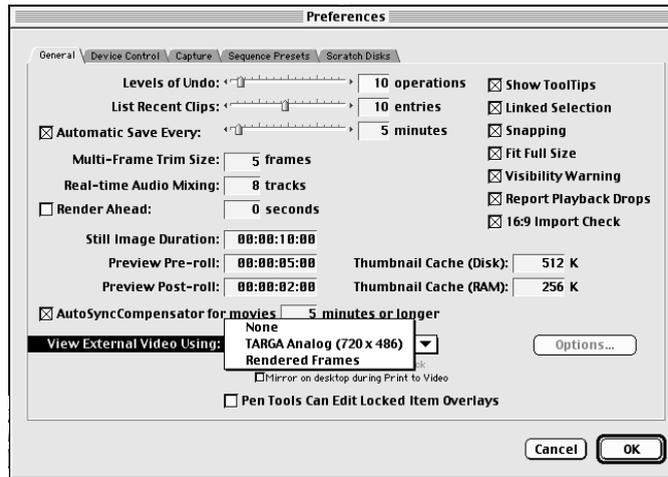
Preferences Settings For TARGA Ciné

The Preferences for Final Cut Pro are accessed from the Edit Menu (Edit » Preferences). Once Preferences are accessed, settings specific for the TARGA Ciné card occur within the following tabs:

- General
- **Device Control**
- **Capture**
- **Sequence Presets**
- **Scratch Disks**

General Tab Settings

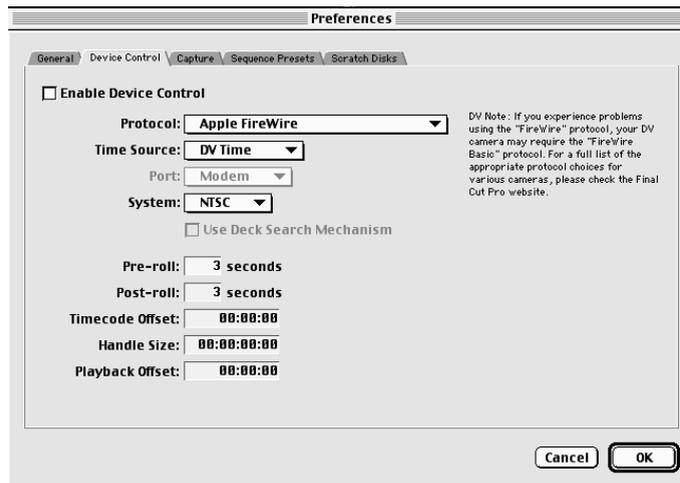
Within the Preferences' General Tab of Final Cut Pro, a setting should be made for viewing external video with the TARGA Ciné card. The "View External Video Using:" setting indicates to Final Cut Pro the type of TARGA Breakout Box (or Boxes) connected to the TARGA Ciné card. The TARGA option(s) displayed will be what was chosen in the **TARGA Ciné Control Panel** ("Ciné Board Info") within the System folder of the computer.



— From the “View External Video Using:” pull down, select the appropriate TARGA Breakout Box option for your system.

Device Control Tab Settings

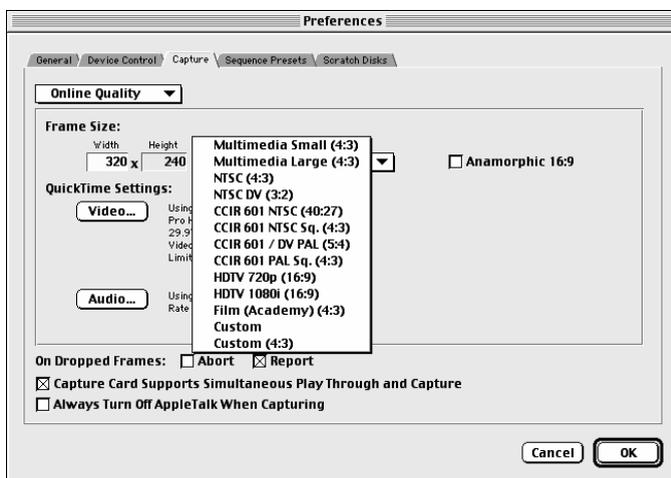
Final Cut Pro supports device control with the TARGA Ciné card.



— Refer to the Final Cut Pro documentation for information on using device control.

Capture Tab Settings

Settings need to be made for Frame Size, QuickTime **Video**, and QuickTime **Audio** within the Capture Tab for the TARGA Ciné card.

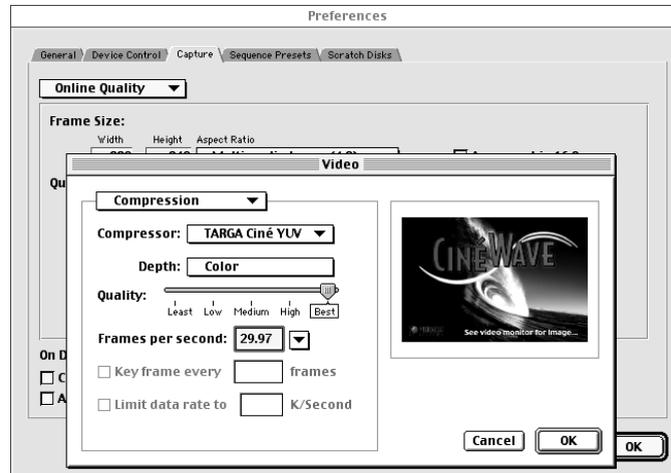


- Select the Frame Size “Aspect Ratio” that you want to use for video Capture. The aspect ratio is not the size of the capture; it is only for the size of the on-screen display. Pinnacle Systems recommendation is that “Multimedia Large (4:3)” is selected for the aspect ratio because this setting saves bandwidth.

Once the aspect ratio for the frame size has been made, you need to set how the TARGA Ciné card compresses and controls images via QuickTime. This is done by way of the Video dialog.

- From within the Capture Tab dialog click on the “Video” button. The **Video dialog** will be displayed. The Video dialog allows you to:
 - Make **video compression settings**
 - Identify aspects of the **video source**
 - Check **disk performance**

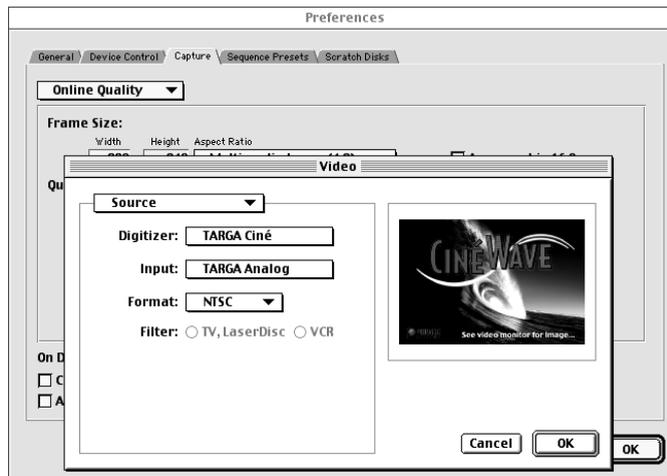
Compression -- From the pull down at the top left of the Video dialog, select “Compression.” The Video-Compression dialog will be displayed. This dialog allows for the selection of a compressor, and lets you adjust the compression ratio.



— Select the options as follows:

- Compressor: TARGA Ciné YUV
- Depth: Color
- Quality Slider: Best
- Frames Per Second: 29.97 for NTSC or 25 for PAL

Source -- From the pull down at the top left of the Video dialog, select “Source.” The **Video-Source dialog** will be displayed. This dialog is used to identify the digitizer, signal input, signal format, and filter. The Digitizer and Input selections are automatically set by the software to match the selections made in the **TARGA Ciné Control Panel**.

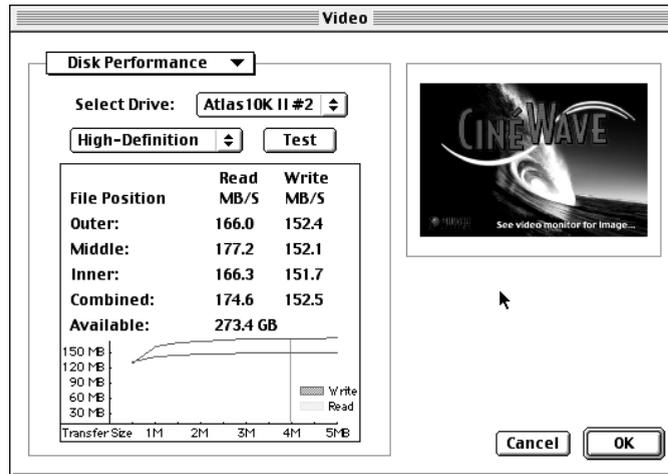


— The following options should be selected:

- Digitizer: TARGA Ciné
- Input: The type or types of TARGA Breakout Box connected will be shown here. The choices displayed are dependent on the type(s) of TARGA Breakout Box you selected in the **TARGA Ciné Control Panel**.
- Format: This field will reflect the format for the type of equipment you selected in the TARGA Ciné Control Panel. NTSC will be displayed if you are using NTSC equipment, or PAL if you are using PAL equipment.

Note: To change the format type, you must quit the application and then make the change in the TARGA Ciné Control Panel.

Disk Performance -- From the pull down at the top left of the Video dialog, select “Disk Performance.” The **Video-Disk Performance dialog** will be displayed. The disk performance test is designed to simulate either standard definition or high definition video activity to the disk drive array that you are capturing video to and/or playing video from. The frame size and speed of the type of video selected is simulated and then measured. The test provides an estimate of the achievable read and write data rates, and the test is accurate to within about $\pm 15\%$.



— To use Disk Performance:

1. Use the “Select Drive” pull down to choose the drive that is to be tested.
2. Use the pull down below “Select Drive” to choose the type of video the drive is being tested for. Your choices are Standard or High-Definition.
3. Click the “Test” button on the dialog.

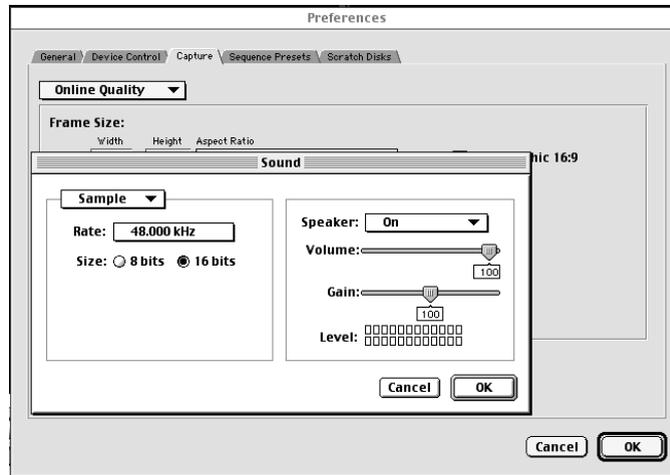
Note: If you want to stop the test you are running, press the <esc> key.

If you are using audio, then after the settings for the Video dialog are made you need to set how the TARGA Ciné card handles audio. This is done by way of the Audio dialog.

—From within the Capture Tab dialog click on the “Audio” button. The **Audio dialog** will be displayed. The Audio dialog allows you to:

- Make audio **sample settings**
- Identify aspects of the **audio source**
- Control the **audio volume**

Sample -- From the pull down at the top left of the Audio dialog, select “Sample.” The Audio-Sample dialog will be displayed. This dialog allows for the selection of the audio bit size. The audio sample rate selection should be 48,000 kHz.



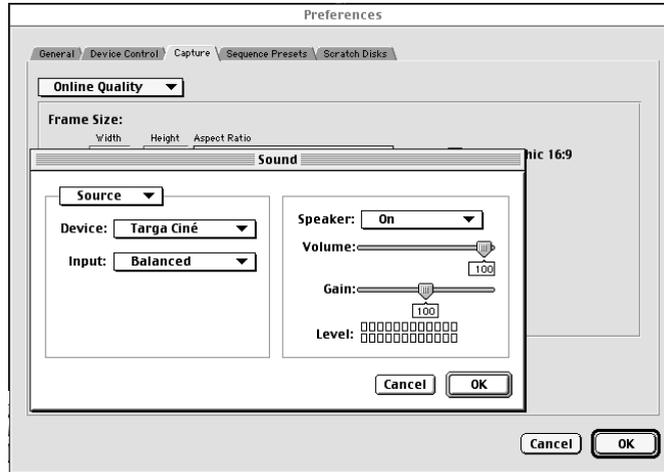
The audio sample rate is the number of audio digital samples per second taken by the TARGA Ciné card. That is, the audio sampling rate is the number of times per second that the amplitude of the sound wave (analog signal) is tested and recorded. The more frequently the amplitude is sampled, the closer the sample values will follow the wave form. The TARGA Ciné records at 48,000 kHz, the highest sampling rate possible.

The audio size is defined by bit depth. The bit depth is the number of binary digits (bits) used to specify the amplitude of each digital sample. With more bits used, the digital samples more closely approach the true amplitude. An 8-bit resolution provides 256 levels (0-255), and a 16-bit resolution provides more than 65 thousand levels (65,536). Pinnacle Systems recommends you select recording at 16 bits. Efficiency is actually *decreased* by selecting 8-bit sampling.

— Select the options as follows:

- Rate: 48,000 kHz
- Size: 16 Bits

Source -- From the pull down at the top left of the Audio dialog, select “Source.” The Audio-Source dialog will be displayed. This dialog is used to identify the audio source device and audio input.



— Select the options as follows:

- Device: TARGA Ciné
- Input: This pull down will reflect the type or types of audio input available on the TARGA Breakout Box you selected as being used. (Select “Unbalanced” if RCA jacks are used for audio, or “Balanced” if XLR jacks are used for audio.) If you have an SDI Breakout Box connected, the selection will include which stereo group of the channels embedded on SDI are available for selection.

Speaker -- You have the option of setting the audio input circuit of your TARGA Breakout Box to “Off,” “On,” or “Off While Recording.” If you plan to record audio, set the pull down to “On.”

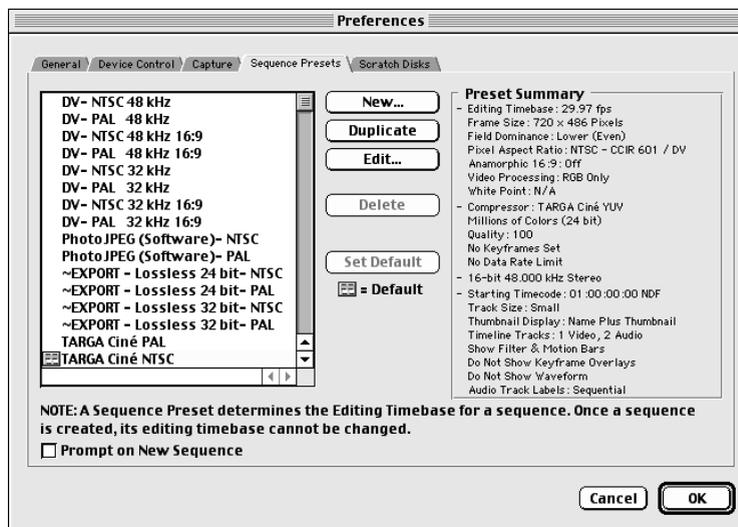
— Adjust the audio volume and audio gain as needed.

Note: Gain is the attenuation of the input audio, and will work only with an analog signal (i.e., analog breakout box). For digital signals, the exact digital stream is recorded and the gain can not be changed.

Sequence Presets Tab Settings

A “Sequence Preset” in Final Cut Pro is a combination of settings for video, still images, audio, and/or other media that has been saved for later use. Sequence Presets are listed and accessed from the Sequence Presets tab within the Preferences Menu of Final Cut Pro. A new Sequence Preset could be created here for TARGA Ciné, or the existing TARGA Ciné Preset can be duplicated and edited. A NTSC (or PAL) preset has been pre-installed for the TARGA Ciné.

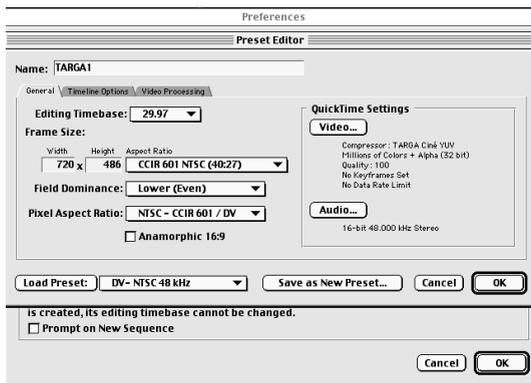
Important: The timebase of an existing Sequence Preset cannot be changed. For example, an NTSC Sequence Preset with a timebase of 29.97 cannot be edited to have a PAL timebase of 25 (or vice versa).



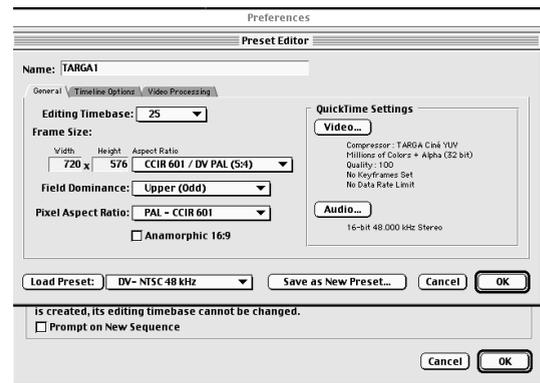
—To edit an existing TARGA Ciné preset, select the preset and then click the “Edit...” button to make the dialog for the preset open.

—Select from the Aspect Ratio pull down, Field Dominance pull down, and Pixel Aspect Ratio pull down as follows for a TARGA Ciné with standard definition video:

- Frame Size Aspect Ratio: CCIR 601 NTSC (40:27) or CCIR 601 / DV PAL (5:4)
- Field Dominance: Lower (Even) *if NTSC* or Upper (Odd) *if PAL*
- Pixel Aspect Ratio: NTSC - CCIR 601 /DV or PAL - CCIR 601
- Editing Timebase: 29.97 for NTSC or 25 for PAL



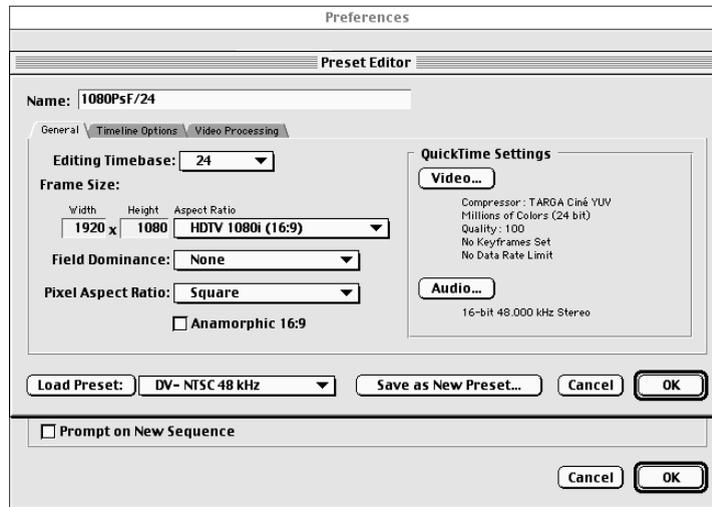
NTSC For TARGA Ciné



PAL For TARGA Ciné

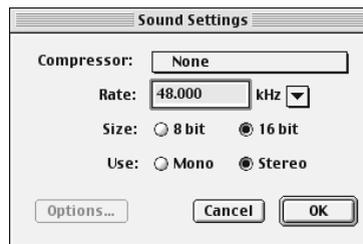
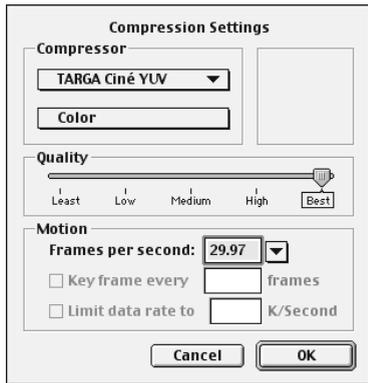
— For a TARGA Ciné with High Definition video, select from the Aspect Ratio pull down, Field Dominance pull down, and Pixel Aspect Ratio pull down as follows:

- Frame Size Aspect Ratio: 1080 resolutions are always 1920 x 1080
720 resolutions are always 1280 x 720
- Field Dominance: For interlaced HD modes, dominance is “Top Field First”
For progressive HD modes, dominance is “None”
- Pixel Aspect Ratio: HD is always square pixel
- Timebase: Match the timebase to the HD format you are currently using.



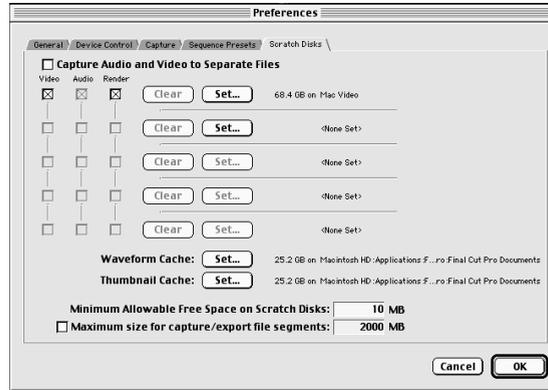
HD For TARGA Ciné

— Verify the “Video” and “Audio” settings.



Scratch Disks Tab Settings

Make sure you are capturing video and audio to the correct disk drive array. Refer to the Final Cut Pro documentation for information on using the Scratch Disks tab settings.



Sequence Menu Of Final Cut Pro

The Sequence Menu in Final Cut Pro provides options for manipulating video, still images, audio, and/or other media. Settings specific for the TARGA Ciné card can be made to an active sequence by selecting Sequence » Settings from the Final Cut Pro main menu. Once this is done you should do the following:

— Confirm the Aspect Ratio, Field Dominance, and Pixel Aspect Ratio pull downs of the sequence as follows in order to use the sequence with TARGA Ciné with minimal rendering:

- Frame Size Aspect Ratio: CCIR 601 NTSC (40:27) or CCIR 601 / DV PAL (5:4)
- Field Dominance: Lower (Even) *if* NTSC or Upper (Odd) *if* PAL
- Pixel Aspect Ratio: NTSC - CCIR 601 /DV or PAL - CCIR 601

— Verify the “Video” and “Audio” settings.

- Video Compressor: TARGA Ciné YUV
- Frames Per Second: 29.97 for NTSC or 25 for PAL
- Sound Settings: 48,000 kHz at 16 Bits Stereo

Adjusting The Video Image

In Final Cut Pro, adjustments can be made to how a video image looks. The adjustments are made by way of the “Log and Capture” dialog window, which is accessed from the File Menu (File » Log and Capture » Clip Settings tab). The sliders enabled within the dialog window allow adjustments to be made to the video signal being sent as input to a TARGA Breakout Box (i.e., before that signal is digitized by the TARGA Ciné card).



— The adjustments made available are dependent on the type of video format being used. For Composite and S-Video input the following slider adjustments are enabled:

- Hue
- Saturation
- Brightness
- Contrast

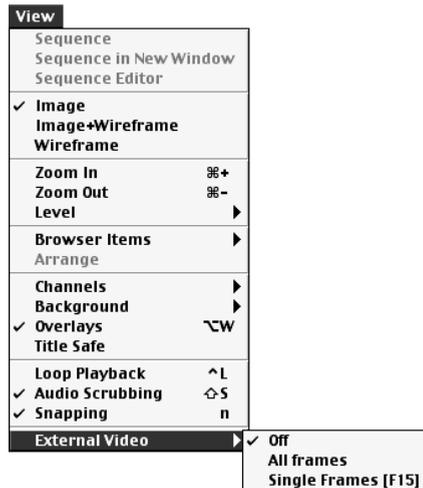
— For Component input the following slider adjustments are enabled:

- Saturation
- Brightness
- Contrast

— For digital inputs none of the sliders are enabled. What comes in digitally as input is exactly what is digitized by the TARGA Ciné card.

External Video View Settings For TARGA Ciné

The TARGA Ciné engine stores video data (as frames) into a framebuffer (memory area) on the Ciné card until that data is sent from the framebuffer as output. It is usually best to let the TARGA Ciné decompressor decide how many frames should be stored into the framebuffer before the frames are sent as output, but there may be circumstances where you may want to “force” a decision onto the TARGA Ciné decompressor. Final Cut Pro allows a user to force such a decision on a decompressor by way of external video settings which are found within the View Menu.



Off -- This is the default setting and the overall best setting for compressed and uncompressed video since it allows the decompressor to control how many frames should be stored in the framebuffer. This is the recommended mode for both playback and scrubbing, and allows the desktop overlay display to be enabled during playback.

All Frames -- This setting “forces” the decompressor to place all of the frames possible into the framebuffer. This setting can be used with compressed video when a DV device is connected via a 1394 cable, and the data from the DV device is what

will be sent as output. All Frames is also a good choice for scrubbing within a timeline, or if you are compositing frames. All Frames is not a good choice for uncompressed playback since it can increase the likelihood of dropped frames and thus degrade playback performance.

Single Frames -- This setting “forces” the decompressor to place one frame at a time into the framebuffer. This is useful if individual frames need to be viewed as they are rendered. The Single Frames setting allows you to see the output data on your output device as it is rendered, but there is no desktop overlay displayed during the playback.

CinéWave Settings Within Commotion Pro

Within Pinnacle Systems Commotion Pro software specific settings for CinéWave are made from: the File Menu within “Preferences” and “**Video Mirror**,” and from within the **Composite Menu**. Once the CinéWave specific settings are made, use Commotion Pro as you normally would for editing video.

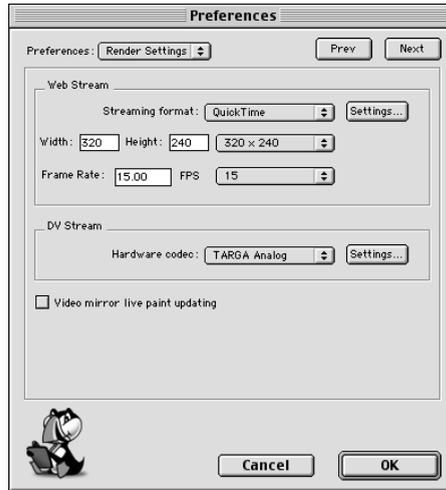
Preferences Settings For CinéWave

The Preferences for Commotion Pro are accessed from the File Menu (File » Preferences). Once Preferences are accessed, settings specific for the TARGA Ciné card occur within the following dialogs:

- Render Settings
- **Disk / Cache**

Render Settings

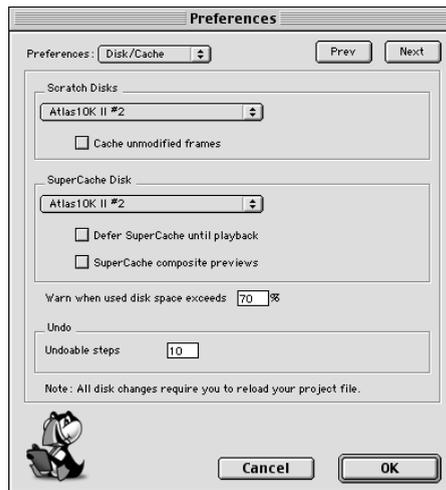
Within the Preferences’ Render Settings of Commotion Pro, a setting should be made to the DV Stream section of the dialog. The “Hardware codec:” pull down indicates to Commotion Pro the type of TARGA Breakout Box (or Boxes) connected to the TARGA Ciné card. The TARGA option(s) displayed will be what was chosen in the **TARGA Ciné Control Panel** (“Ciné Board Info”) within the System folder of the computer.



— From the “Hardware codec” pull down, select the appropriate TARGA Breakout Box option for your system.

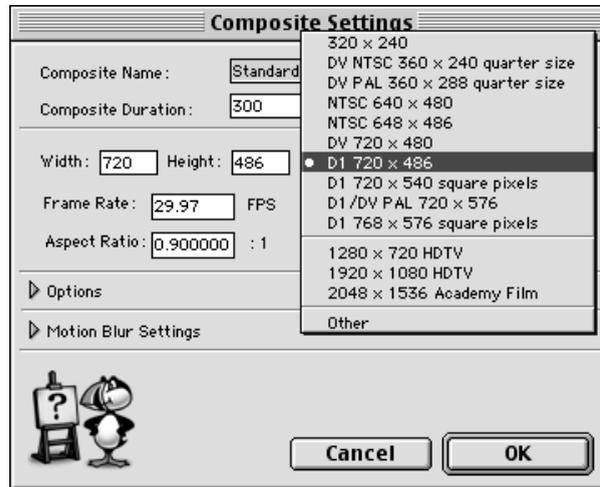
Scratch Disks Settings

Make sure you are capturing video to a high-performance disk drive array. Refer to the Commotion Pro documentation for information on using the Scratch Disks tab settings.



Composite Menu Of Commotion Pro

Commotion Pro needs to be set to the video frame size that it will be compositing. In Commotion Pro, this is done in the Composite Menu within “Composite Settings” (Composite » Composite Settings).



— Select the video frame size. The following sizes are acceptable by the TARGA Ciné with Commotion Pro:

- D1 720 x 480
- D1 / DV PAL 720 x 576
- 1280 x 720 HDTV
- 1920 x 1080 HDTV

Using Video Mirror With CinéWave

CinéWave supports the “Video Mirror” feature of Commotion Pro. Video Mirror can be enabled from within the File Menu (File » Video Mirror).



— Refer to the Commotion Pro documentation for information on using “Video Mirror.”

CINÉWAVE TROUBLESHOOTING

Occasionally, you may have a problem while using your CinéWave System. This Appendix covers potential situations and describes steps you can take to identify and correct them. CinéWave troubleshooting in this Appendix is subdivided into the following categories:

- General Problems
- **System Compatibility Problems**
- **Video Input Problems**
- **Recording Problems**
- **Audio Problems**
- **Playback Problems**

Important: Additional troubleshooting information discovered after this manual was printed can be found in the “Read Me” file within the CinéWave folder. If your problem is not solved by this Troubleshooting section or the Read Me file, additional help can be obtained from the Pinnacle Systems Customer Satisfaction Center. Refer to the **Customer Satisfaction Center section** later in this Chapter.

General Problems

Audio Output Crackles Or Pops

1. Decrease the input level (or gain) within the video-editing application and recapture.
2. Input from device may be “hot.” Reduce the audio level at the input device.

Audio And Video Not In Sync

1. Check your disk performance with the TARGA Ciné “**Disk Performance**” feature. The disk you are capturing and playing from should be capable of reading and writing at uncompressed video data rates.
2. Check your “**Video Input**” settings and “**Audio Input**” selections.
3. Make sure that all audio rates are set to 48,000 kHz at 16 bits.

Poor Performance

1. For best performance, capture the video and audio to a hard disk array with at least 10,000 RPM Ultra 160 SCSI disks that have been designated as your video storage drive.
2. Use Dual-Channel Bus-Mastering Ultra 160 SCSI Controllers.
3. Make sure the scratch files within the application's "Preferences" are set to your AV drive.

You have a SCSI boot drive (internal) and an A/V drive (external). Your data rates are not acceptable and occasionally the system freezes and lockups.

- Your problem is probably related to SCSI Termination. You should always use an active terminator on the end of your SCSI chain. Another problem in this scenario is that you may have placed your SCSI card in the middle of your SCSI chain. This will keep all the data moving in one direction with the source on one end (i.e. SCSI controller) and with destinations (i.e., hard drives) on the other. Although the SCSI controller manufacturers show the original configuration as a viable one, sustained high data-throughput negates this option. Use an active terminator. Most drives typically include only passive termination.
- Avoid setting the SCSI ID to 0 or 7. These ID's are commonly used to identify either a boot drive or the SCSI Controller itself.

Low Memory Situations

- Low Finder memory can cause numerous problems including poorly captured videos, no audio in videos and crashes. Be aware that there should be at least 2 MB of memory available for the finder at all times.

Video-Editing Application Is Inconsistent

- Sometimes, when an application is forced to stop abruptly, it can be left in an “unknown” or “confused” state. Evidence of this might be incorrect default settings or failure in simple operations.
 - If you suspect this has happened, quit the application. Open the Preferences folder (in the System folder) and drag that application’s Preferences file to the trash. Then empty the trash. The next time you launch the application, it will create a new Preferences file and you will need to recreate your settings. (Final Cut Pro Preferences can be located in the System’s Preferences folder under Final Cut Pro Data. The filename is “Final Cut Pro Preferences”)
 - Delete the TARGA Ciné and Sound Preferences file
 - Rebuild the desktop by rebooting holding down the Command-Option keys.
 - "Zap the PRAM" by holding down the Command-Option-P-R keys during reboot until the system chimes 4 times.

The last video frame for either capture or play back remains displayed on the video output screen.

- This is normal with CinéWave.

Using Software-Only Compression

- The TARGA Cine does include a software codec that is active whenever hardware is not installed. You may install the TARGA Cine extension on any G4 machine and compress and render TARGA Cine format movies.

Video Field Jitter

- Since the TARGA Ciné captures two fields of video for each frame, high-motion frames will appear to jitter when they are grabbed or still-framed. This is normal and occurs with any product, high-end or low-end, that captures two fields per frame. During normal video playback, this technique makes motion look smoother and more realistic, indicating a high-quality capture system.

System Compatibility Problems

Incompatible Systems

1. Only the PowerMac G4/400 and above (including Multiprocessor models) are recommended for use with the TARGA Ciné.
2. Do not use a G4 upgrade card on a lower speed machine. The system bus will not reach the recommended performance. G4 upgrade cards affect the processor speed only, and not the PCI bus. You may use the software codec to render media on incompatible machines.
3. See the ReadMe and www.pinnaclesys.com/CineWave for information on the compatible SCSI controller cards and drive systems. Currently, the Atto UL3D and the Adaptec 39160 are the recommended hard disk controllers. SoftRaid 2.2.2 or higher and Atto ExpressRaid 2.3.2 and higher are the current recommendations. The Quantum Atlas 10K II's are recommended for HD work in Dual Channel configurations with 8 total drives (4 per channel) formatted as RAID 0.
4. For multiple displays, the ATI Nexus 128 is known compatible. See www.pinnaclesys.com/CineWave and the ReadMe for updated information as it becomes available.
5. Use a dual channel Ultra 160 SCSI controller instead of 2 PCI slots with separate SCSI controller cards.

Video Input Problems

Live Video Does Not Work

1. Verify that you have all of the software components correctly installed.
2. Make sure the software is set to match your video format and source signal.
 - NTSC or PAL format with SDI, Component, S-Video, or Composite signal.
3. Check your video source.
 - Some video cameras shut off automatically after a few minutes.
4. Check the cable from the video source to your TARGA Ciné card.
5. Make sure to set the Monitors Control Panel to “**Millions of Colors.**”

Can't Get Video in the Preview or Capture Windows

- This is normal. CinéWave is designed to display a graphic on the desktop monitor, and video on the output monitor.

Drop Frames on Record

1. Record to the fastest array or drive. Setup “Scratch Disks” within the “Preferences” of your video-editing application
2. Check your disk performance with the TARGA Ciné “**Disk Performance**” feature. The disk you are capturing and playing from should be compatible for the test results.

Recording Problems

CinéWave Records Nothing or only a Few Frames

1. Verify that all necessary software is installed.
 - Make sure you are using System 9.0 or greater.
 - Use the version of QuickTime that was provided with the CinéWave software.
 - The application you are using must be compatible with the QuickTime version being used in the computer.
2. Check the video signal.
 - You should see video playing on the output monitor before you try to record.
 - Make sure to set the Monitors Control Panel to “**Millions of Colors.**”

Unable To Switch Formats (NTSC, PAL, HD)

- This is normal. The change has to be made in the **TARGA Ciné Control Panel** which is found in the Control Panel folder. Restart the application after making the change.

Unable To Record More Than 2 Gigabytes

- This occurs when the drive is formatted with the HFS format instead of HFS+. Convert the drive to HFS+ to support longer file recording.

Video Doesn't Record at Full Speed

1. Use TARGA Ciné YUV compression format.
2. If you have more than one multimedia card, make sure the correct source is selected.

Audio Problems

Audio Output Crackles Or Pops

1. Decrease the input level (or gain) within the video-editing application.
2. Input from device may be “hot.” Reduce the audio level at the input device and recapture.
3. Check your disk performance with the TARGA Ciné “**Disk Performance**” feature. The disk you are capturing and playing from should be compatible for the test results.

No Sound On Playback

- Make sure sound output device in **Sound Control Panel** is set to TARGA, and then confirm by playing a system sound which should be heard on the external speakers.

Sound Will Not Record

1. Make sure sound input in your application is set to the correct source.
2. Make sure sound input device in **Sound Control Panel** is set to TARGA, and then confirm by recording a new system sound and playing it back.

Sound Too Low When Recording

1. Turn speaker “On” in Sound Out of your application.
2. Turn volume up in Sound Out of your application.

Audio Is Distorted Or Clipping

- Turn Gain down in Sound Input of your application.

Playback Problems

Video Doesn't Play at the Full Frame Rate or Pauses Intermittently

1. Verify that the video is in the TARGA Ciné video format. If it is not, convert it to the TARGA Ciné video format. (Note: Simply converting the video will not change its frame rate.)
2. Check that the video is playing entirely on the screen of the TARGA-connected display system.
 - If even a portion of the video window is on an adjacent screen, the software goes into still-decompression mode.
3. Check that you are using the correct playback format: NTSC or PAL.
4. Verify the video frame rate.
5. Free as much RAM as possible. (Quit other applications.)
6. Check that AppleTalk is turned off and all unnecessary Extensions and Control Panels are disabled.
7. Verify that the video is playing from the drive connected to the SCSI Accelerator Card.
8. Close the Capture Window if it is open.
9. Make certain "File Sharing" is off when recording or playing movies.
10. If you are not connected to a network, then check your TCP/IP settings.

If you are on a network without a DHCP server, make sure you are not using DHCP services (which can be accomplished by assigning a fixed IP address to the machine). The network will poll for the presence of a network IP server, which affects performance.

Application Won't Playback Captured Video

- Check that the application's playback feature is correctly set.

Video Doesn't Look Right During Playback

1. Check **TARGA Ciné Control Panel** settings.
2. Make sure to set the display to “**Millions of Colors.**”

Playback Is Very Slow

1. Make sure to set the display to “**Millions of Colors.**”
2. Move any windows overlapping the playback window (even palettes).

Drop Frames on Playback

- Check your disk performance with the TARGA Ciné “**Disk Performance**” feature.
The disk you are capturing and playing from should be compatible for the test results.

Problems with Taped Output

1. Check cabling.
2. You may need to have a Time Based Correction unit between the card and your recording device.

Pinnacle Systems Customer Satisfaction Center

You can contact the Pinnacle Systems Customer Satisfaction Center ([next page](#)) for additional help. *Before contacting the Customer Satisfaction Center, please complete the Troubleshooting Questionnaire below and have the answers ready before you contact us.*

On-line services are available 24 hours per day. Customer Satisfaction Center personnel are available Monday through Friday 9:00 A.M. to 9:00 P.M. Eastern Time (1300 - 0100 Universal Time/GMT).

Troubleshooting Questionnaire

Please have answers to the following questions before calling for additional help:

1. What are the serial numbers, model numbers, and software version numbers of the Pinnacle Systems products that you have installed on your computer?
2. Which computer system are you using with the product listed in item 1 of this questionnaire?
3. What version of the Apple OS are you using?
4. How much memory (RAM) is installed in your computer?
5. What background/scheduled tasks are installed and running on your computer?
6. What other hardware is connected to your computer (multimedia cards, monitors, network cards, hard drives, etc.). Please include all relevant model numbers, ROM version numbers, and software version numbers where applicable.
7. What are the steps to duplicate the problem?

Contacting Pinnacle Systems

On-Line Services

E-mail: targa-support@pinnaclesys.com

WWW Site: www.pinnaclesys.com

Fax Inquires

U.S. and Canada: (317) 576-7770

Worldwide: (317) 594-2900

Telephone Contact

Sales Information: (877) 733-5846 within United States and Canada

Technical Support: (317) 577-8788

Note: This information is subject to change. Check www.pinnaclesys.com on the web for the latest contact information.

Appendix B: TARGA Pro Analog Rack Mount Assembly

Pro Analog Breakout Box Rack Mount Installation

The rack mounting hardware for the TARGA Pro Analog Breakout Box is designed to fit cabinets with 19-inch wide racks. Pinnacle Systems recommends that the mounting bracket specifically designed for the TARGA Pro Analog Breakout Box be used for mounting purposes.

Rack Mounting Hardware:

- Mounting Bracket
- Miscellaneous items (screws)

Equipment Needed:

- Small and Medium sized phillips-head screwdriver

Procedure:

- 1. Turn off your computer and then disconnect the Pro Analog Breakout Box cable from the TARGA card .**

Remove any other cables attached to the Pro Analog Breakout Box.

- 2. Place the Pro Analog Breakout Box upside down on a convenient work surface.**

- 3. Remove the four screws from the metal plate.**

Do NOT remove the metal plate itself. Refer to Figures 1 and 2.



Figure 1

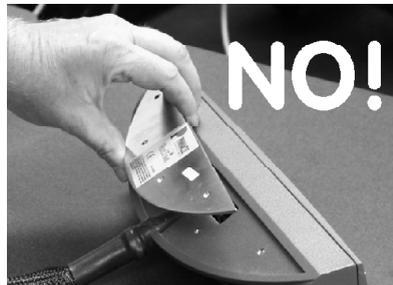


Figure 2

4. Place the rack mount bracket over the Pro Analog Breakout Box as shown (Figure 3).



Figure 3

5. Using the four screws supplied with the bracket (Figure 4), attach the rack mount bracket to the Pro Analog Breakout Box (Figure 5).

Align the holes in the bracket, metal plate, and Pro Analog Breakout Box. Then insert the screws and turn them down some. Do not completely tighten the screws yet.



Figure 4

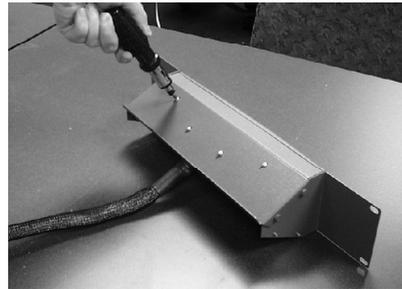


Figure 5

6. Center the Pro Analog Breakout Box in the rack mount bracket as shown in Figure 6 and Figure 7.

Note that if your position is different from these, you may have difficulty sliding the entire assembly into the rack.

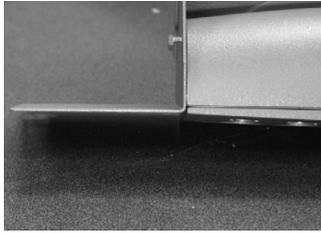


Figure 6



Figure 7

7. Now tighten the four screws inserted in Step 5.

Be careful not to overtighten the screws.

8. Place the Pro Analog Breakout Box and rack mount bracket assembly into the rack as shown in Figure 8.



Figure 8

9. Attach the rack mount bracket assembly with the screws included with the rack-mount kit onto the rack (Figure 9).

This completes the rack installation.

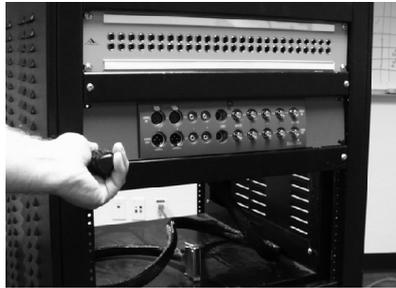


Figure 9

Note: A rear-facing installation is also possible. The Pro Analog Breakout Box may be mounted to a rack's rear rails. The rear-facing installation is advantageous for direct connection of VTRs to the Pro Analog Breakout Box.

Appendix C: TARGA Ciné Technical Specifications

Technical Specifications*

The specifications for CinéWave are divided into four sections within this Appendix:

- TARGA Ciné Card Only
- TARGA Pro Analog Breakout Box Only
- TARGA Pro Digital Breakout Box Only
- TARGA Pro HD Digital Breakout Box Only

TARGA Ciné Card Only

General

Card Size7.5" x 5.0"

Bus Interface.....1 PCI slot

Power Consumption4.7 Watts max
-- 0.12A @ +12v DC
-- 0.00A @ -12v DC
-- 0.35A @ +5v DC
-- 0.45A @ +3.3v DC

Regulatory ComplianceFCC Class A and CE

Connectors.....2 HD 36-pin Digital Tether™ Female Receptacles

Memory

Frame Buffer Memory.....128 MB SDRAM

Color Tables

Color Correction Tables256 x 15 bits for each primary

*All specifications subject to change without notice.

Video Processor

Video Resizer2D sub-pixel filter

Video Compositor1024 levels

Color Space Converter10-bit transparent

Supported Clock Rates

Standard Definition Video.....27 MHz Clock Frequency

High Definition Video.....74.176 MHz Clock Frequency

High Definition Video.....74.250 MHz Clock Frequency

TARGA Pro Analog Breakout Box Only

General

<u>Width</u>	-- 12.0" (19.0" w/rack mount bracket)
<u>Height</u>	-- 3.5"
<u>Depth</u>	-- 3.8"
<u>Weight</u>	-- 2.5 lb. (1.0 Kg.)
<u>Power Supply</u>	-- Power is supplied from Digital Tether™ cable at 6.8 Watts max
<u>Input Current</u>	-- 0.20A @ +12vDC -- 0.07A @ -12vDC -- 0.50A @ +5v DC -- 0.30A @ +3.3v DC
<u>Ambient Temperature</u>	-- Operating at 0 to 40° C
<u>Ambient Humidity</u>	-- Operating at 0 to 90% non-condensing
<u>Mounting Option</u>	-- Detachable (bracket for mounting in a 19.0" wide rack)
<u>Sampling Structure</u>	-- I.T.U. 656, 8 Bit, 4:2:2, Component
<u>Sampling Frequency</u>	-- Y: 13.5 MHz B-Y, R-Y: 6.75 MHz

Video Input

<u>CV, Y/C</u>	-- 8 bit, 4:2:2 spatial resolution -- Gain and offset controls -- Saturation controls -- CV input passes through a comb filter
	* CV 1.0 V p-p, 75 , BNC
	* S-Video Y: 1.0V p-p C: 627mV p-p 4-pin DIN

*Output levels are based on NTSC 100% white 75% amplitude fully saturated bars.

Component

(Y, B-Y, R-Y)

- 8 bit, 4:2:2 spatial resolution
- Input gain and offset controls

* Y 1.0 V p-p, 75 BNC
* B-Y +/- 350mV p-p, 75 , BNC
* R-Y +/- 350mV p-p, 75 , BNC

Genlock Reference

- Input is 1Vpp, 75 , BNC (REF)

Supported Formats:

- Composite (NTSC, NTSC-J, PAL)
- S-Video (NTSC, NTSC-J, PAL)
- Y,B-Y,R-Y (NTSC Betacam, NTSC Betacam-J, SMPTE/EBU)

Video Output

Supported Formats

- Composite (NTSC, NTSC-J, PAL)
- S-Video (NTSC, NTSC-J, PAL)
- Y,B-Y,R-Y (NTSC Betacam, NTSC Betacam-J, SMPTE/EBU)

CV, Y/C

- Interpolates 8 bit data path to a 10 bit DAC resolution
- Supports NTSC, NTSC-J and PAL
- Output phase control

* CV 1.0 V p-p, 75 , BNC
* S-Video Y: 1.0V p-p
 C: 627mV p-p
 4-pin DIN

Component

(Y, B-Y, R-Y)

- Interpolates 8 bit data path to a 10 bit DAC resolution
- Output gain offset & saturation control

* Y 1.0 V p-p, 75 , BNC
* B-Y +/- 350mVp-p, 75 , BNC
* R-Y +/- 350mVp-p, 75 , BNC

* Levels are based on NTSC 100% white, 75% fully saturated bars.

Audio Input

Balanced Inputs

- Channel 1 (left) 1 x XLR, line level, +4dBu, nominal
- Channel 2 (right) 1 x XLR, line level, +4dBu, nominal
- Headroom 20 dBu above nominal
- Input Impedance 10 k
- 24 bit ADC resolution
- Audio to Video Sync < 1mS
- Sample Rate 48 kHz

Unbalanced Inputs

- Channel 1 (left) 1 x RCA, -10 dBu, nominal
- Channel 2 (right) 1 x RCA, -10 dBu, nominal
- Headroom 28 dBu above nominal
- Input Impedance 20 k
- 24 bit ADC resolution
- Audio to Video Sync < 1mS
- Sample Rate 48 kHz

Audio Output

Balanced Outputs

- Channel 1 (left) 1 x XLR, line level, +4dBu nominal to 600 load
- Channel 2 (right) 1 x XLR, line level, +4dBu nominal to 600 load
- Headroom 20 dBu above nominal
- 24 bit DAC resolution

Unbalanced Outputs

- Channel 1 (left) 1 x RCA, -10 dBu nominal
- Channel 2 (right) 1 x RCA, -10 dBu nominal
- Headroom 28 dBu above nominal
- 24 bit DAC resolution

TARGA Pro Digital Breakout Box Only

General

<u>Width</u>	-- 2.2"
<u>Height</u>	-- 3.7"
<u>Depth</u>	-- 0.9"
<u>Weight</u>	-- 2.5 oz. (0.34 Kg.)
<u>Power Supply</u>	-- Power is supplied from Digital Tether™ cable at 3.6 Watts max
<u>Input Current</u>	-- 0.08A @ +12vDC -- 0.00A @ -12vDC -- 0.35A @ +5v DC -- 0.25A @ +3.3v DC
<u>Ambient Temperature</u>	-- Operating at 0 to 40° C
<u>Ambient Humidity</u>	-- Operating at 0 to 90% non-condensing

Video Input

<u>Standards Conformance</u>	-- ITU-R BT.656; SMPTE 125M; 259M
<u>SDI</u>	-- Input impedance at 75 -- Return loss greater than 15dB from 5 MHz to 270 MHz -- Resolution at 8/10 bits -- Bit rate at 270 Mb/sec

Video Output

<u>Standards Conformance</u>	-- ITU-R BT.656; SMPTE 125M; 259M
<u>SDI</u>	-- Amplitude at 800 mV p-p, ± 10% into 75 -- Overshoot at 10% -- Rise and fall times at 0.4 to 1.5 ns -- Jitter 0.2 UI p-p total for all frequencies above 10 Hz -- Resolution at 8/10 bits -- Bit rate at 270 Mb/sec

SDI Embedded Audio Input

Standards Conformance -- SMPTE 272M

Number Of Channels -- 8 channels in 2 groups; 4 AES/EBU audio pairs

Frequency -- 48 kHz

Quantization -- 20 bits/sample

SDI Embedded Audio Output

Standards Conformance -- SMPTE 272M

Number Of Channels -- 8 channels in 2 groups; 4 AES/EBU audio pairs

Frequency -- 48 kHz

Quantization -- 20 bits/sample

TARGA Pro HD Digital Breakout Box Only

General

<u>Width</u>	-- 3.4"
<u>Height</u>	-- 1.75" (1U)
<u>Depth</u>	-- 5.5"
<u>Weight</u>	-- 20 oz. (0.56 Kg.)

<u>Power Supply</u>	-- Power is supplied from Digital Tether™ cable at 5.5 Watts max
<u>Input Current</u>	-- 0.06A @ +12vDC
	-- 0.00A @ -12vDC
	-- 0.75A @ +5v DC
	-- 0.31A @ +3.3v DC

<u>Ambient Temperature</u>	-- Operating at 0 to 40° C
----------------------------	----------------------------

<u>Ambient Humidity</u>	-- Operating at 0 to 90% non-condensing
-------------------------	---

Video Input

<u>Standards Conformance</u>	-- ITU-R BT.656; SMPTE 292M; 296M; 274M (including proposed segmented frame)
------------------------------	--

<u>SDI</u>	-- Input impedance at 75
	-- Return loss greater than 15dB from 5 MHz to 1500 MHz
	-- Resolution at 8/10 bits
	-- Clock rate at 74.25 MHz or 74.176 MHz

Video Output

Standards Conformance -- ITU-R BT.656; SMPTE 292M; 296M; 274M (including proposed segmented frame)

SDI

- Amplitude at 800 mV p-p, $\pm 10\%$ into 75
- Overshoot at 10%
- Rise and fall times at less than 270 ps
- Jitter 0.2 UI p-p total for all frequencies above 10 Hz
- Resolution at 8/10 bits
- Clock rate at 74.250 MHz or 74.176 MHz

SDI Embedded Audio Input

Standards Conformance -- SMPTE 299M

Number Of Channels -- 8 channels in 2 groups

Frequency -- 48 kHz

Quantization -- 20 bits/sample

SDI Embedded Audio Output

Standards Conformance -- SMPTE 299M

Number Of Channels -- 8 channels in 2 groups

Frequency -- 48 kHz

Quantization -- 20 bits/sample

Index

Symbols

525 Line SDI 2-4

625 Line SDI 2-4

A

Adjusting Video Image (Final Cut Pro) 3-13

Adobe Acrobat 2-2

Adobe Acrobat Reader 2-1, 2-2

Analog Breakout Box 1-7

Anti-Static Wrist Strap 1-1, 1-4

Audio Bit Depth (Final Cut Pro) 3-7

Audio Input (Specifications) C-5

Audio Output (Specifications) C-5

Audio Problems A-1, A-7

Audio Sample Rate (Final Cut Pro) 3-7

Audio Source Dialog (Final Cut Pro) 3-8

B

Breakout Box 1-13

Breakout Box Rack Mounting 1-9

Breakout Boxes (Types) 2-3

C

Card Size C-1

Ciné Board Info 2-3, 3-1

CinéWave Pro Digital Breakout Option 1-16

CinéWave Software CD-ROM 2-1

Clock Rates (Specifications) C-2

Color Correction Tables C-1

Color Tables (Specifications) C-1

Com(B) 1-9

Commotion Pro x, 3-1, 3-16

Commotion Pro (Composite Menu) 3-18

Commotion Pro (Render Settings) 3-16

Commotion Pro (Scratch Disks Settings) 3-17

Commotion Pro (Video Mirror) 3-19

Commotion Pro Preferences 3-16

Composite 1-9

Composite Menu (Commotion Pro) 3-18

Composite Settings (Commotion Pro) 3-18

Configuring TARGA Ciné ix, 2-3

Connecting Audio/Video I/O Devices 1-13

Connecting Input Devices 1-10

Connecting Pro Digital Breakout 1-13

Connecting Pro HD Digital 1-16

Contacting Pinnacle Systems A-1, A-11

Customer Satisfaction Center A-10

D

Digital Breakout Box 1-7

Digital Tether 1-2, 1-7

Digital Tether Cable 1-13, 1-16

Digital Tether Connector 1-2

E

Expansion Slots (G4 Computer) 1-5

External Video View (All Frames) 3-14

External Video View (Off) 3-14

External Video View (Single Frames) 3-15

F

Fax Inquires (Pinnacle Systems) A-11

FCC v

Final Cut Pro x, 3-1

Final Cut Pro (Aspect Ratio) 3-3

Final Cut Pro (Audio Dialog) 3-7

Final Cut Pro (Audio Source) 3-8

Final Cut Pro (Capture Settings) 3-3

Final Cut Pro (Compression) 3-4

Final Cut Pro (Device Control Settings) 3-2

Final Cut Pro (Disk Performance) 3-5

- Final Cut Pro (General Settings) 3-1
- Final Cut Pro (Scratch Disks Settings) 3-12
- Final Cut Pro (Sequence Menu) 3-12
- Final Cut Pro (Sequence Presets Settings) 3-9
- Final Cut Pro (Source) 3-4
- Final Cut Pro (Video Dialog) 3-3
- Final Cut Pro Preferences 3-1

G

- General Problems A-1
- Genlock Settings 2-5

H

- Hardware Installation 1-3
- HD 1080i/29.97 2-4
- HD 1080p/23.98 2-4
- HD 1080PSF/23.98 2-4
- HD 720p/59.94 2-4
- High Definition ix, 1-16

I

- Input Devices (Connecting) 1-10
- Installation Procedure 1-3
- Installing TARGA Ciné Card ix

L

- License Agreement vii
- Limitation Of Liabilities vii
- Limited Warranty vii

M

- Master/Freerun 2-5
- Memory (Specifications) C-1
- Millions of Colors (G4 Computer) 2-1

N

- NTSC Component 2-4
- NTSC Composite 2-4
- NTSC S-Video 2-4
- NTSC-J Component 2-4
- NTSC-J Composite 2-4
- NTSC-J S-Video 2-4

O

- Official Notices v
- On-Line Services (Pinnacle Systems) A-11
- Output Devices (Connecting) 1-10
- Overview 1-3

P

- PAL Component 2-4
- PAL Composite 2-4
- PAL S-Video 2-4
- Patents 2
- PDF Reader 2-2
- Playback Problems A-1, A-8
- Power Consumption C-1
- Preferences Settings (Commotion Pro) 3-16
- Pro Analog and Digital 2-3
- Pro Analog Breakout Box x, 1-8
- Pro Analog Breakout Box (Specifications) C-3
- Pro Analog Breakout Box Connections 1-8
- Pro Digital 2-3
- Pro Digital Breakout Box 1-13
- Pro Digital Breakout Box (Specifications) C-6, C-8
- Pro HD Digital 2-3
- Pro HD Digital Breakout Option 1-16

R

Rack Mount Bracket B-3, B-4
Rack Mounting x, 1-9, B-1
Rack Mounting Hardware B-1
RCA Audio 1-8
Recording Problems A-6
REF 1-9
Registration Card ix
Regulatory Compliance C-1

S

S-Video 1-8
SDI 1-13
SDI Embedded Audio Input (Specifications) C-7, C-9
SDI Embedded Audio Output (Specifications) C-7, C-9
Sequence Menu (Final Cut Pro) 3-12
Serial Digital 1-13
Software Installation 2-2
Software Setup 2-1
Sound Control Panel 2-3, 2-6
Sound Input 2-6
Sound Output 2-6
Speaker Selections (Final Cut Pro) 3-8
Standard Definition ix
Supported Clock Rates C-2

T

Table Of Contents i
TARGA ix
TARGA Analog 2-3
TARGA Breakout Boxes (Types) 2-3
TARGA Ciné ix, 1-13, 3-1
TARGA Ciné Card 1-1, 1-7

TARGA Ciné Connectors C-1
TARGA Ciné Control Panel 2-3
TARGA Ciné Framebuffer 3-14
TARGA Ciné Sound Input 2-6
TARGA Ciné Sound Output 2-6
TARGA Ciné Video Inputs 2-4
Technical Specifications C-1
Telephone Contact (Pinnacle Systems) A-11
Trademarks 2
Troubleshooting A-1
Troubleshooting Questionnaire A-10

V

Video Capture Problems A-1
Video Input (Specifications) C-3, C-6, C-8
Video Input Problems A-1, A-4, A-5
Video Mirror (Commotion Pro) 3-19
Video Output (Specifications) C-4, C-6, C-9
Video Processor C-2
Video Settings 2-4
Video-Editing Applications 3-1
View Settings (Final Cut Pro) 3-14
Virtual Memory (G4 Computer) 2-1

W

Warranties v
Warranty Disclaimer vii

X

XLR Audio 1-8

Y

Y B-Y R-Y 1-8

Index-4



Index



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Part Number 1001000