

User Guide



DIGITAL ORIGIN

MotoDV™

Version 1.4

For Windows 95/98/NT4 and Mac OS



QuickTime™

Trademarks and Copyright

Digital Origin, the Digital Origin logo, Cinepak, and VideoVision are registered trademarks and PhotoDV, MotoDV, SoftDV, and Digital Origin EditDV are trademarks of Digital Origin Inc.

Mac OS, FireWire, MoviePlayer, and Power Macintosh are trademarks of Apple Computer, Inc, registered in the U.S. and other countries. QuickTime and the QuickTime logo are trademarks of Apple Computer, Inc., used under license. QuickTime is registered in the U.S. and other countries. PowerPC is a trademark of IBM. Adobe, Premiere, and After Effects are trademarks of Adobe Systems, Inc. Sony, DVCAM, and iLink are trademarks of Sony, Inc. Media Cleaner Pro is a trademark of Terran Interactive. All other brand or product names are trademarks of their respective holders.

Copyright © 1999 Digital Origin, Inc.

All rights reserved. Your rights of ownership are subject to the limitations and restrictions imposed by the copyright laws as outlined below.

It is against the law to copy, reproduce, or transmit including without limitation electronic transmission over any network any part of the manual or program except as permitted by the Copyright Act of the United States, Title 17, United States Code. Under the law, copying includes translation into another language or format. However, you are permitted by law to write the contents of the program into the machine memory of your computer so that the program may be executed. You are also permitted by law to make working copies of the program, solely for your own use, subject to the following restrictions: (1) Working copies must be treated in the same way as the original copy; (2) If you ever sell, lend, or give away the original copy of the program, all working copies must also be sold, lent, or given to the same person, or destroyed; (3) No copy (original or working) may be used while any other copy (original or working) is in use except within the terms of this license. The copyright notice that is on the original copy of the program must accompany any working copies of the program.

The above is not an inclusive statement of the restrictions imposed on you under the Copyright Act. For a complete statement of the restrictions imposed on you under the copyright laws of the United States of America, see Title 17, United States Code.

This user guide composed with Adobe FrameMaker and Adobe Photoshop. Photos captured with Digital Origin PhotoDV.

Digital Origin, Inc. • 460 East Middlefield Road • Mountain View, CA 94043 • U.S.A. • (650) 404 - 6000 • www.digitalorigin.com

 *part number 0014620-0002*

Contents

Introduction 1

About this manual	1
System requirements	2
Optional equipment and software	3
Software updates	3
Registration	3

Chapter 1: Installation and Setup 5

Unpacking	5
Installing the 1394 FireWire host adapter card	5
Connecting the cable	5
Installing the MotoDV software on Windows computers ..	6
Installing the MotoDV software on Mac OS computers ..	12
Important setup information	14

Chapter 2: Capturing DV 17

Before you capture	17
Capturing DV clips from tape	21
Capturing from the lens	24
Compensating for slower disks	24
Playing DV clips with MoviePlayer	26

Chapter 3: Editing DV with Premiere LE 29

Loading a project preset	29
Setting scratch disks	30
Importing DV clips	31
Playing clips via 1394 (Windows)	31
Recording to tape (Windows)	33
Playing and recording via 1394 (Mac OS)	33

Chapter 4: "Printing" to DV 35

Using the MotoDV Player	35
Controlling playback from disk	37

Appendix A: Troubleshooting 39

Troubleshooting principles	40
Configuration issues	40
Cannot recover I394 connection	41
Troubleshooting with PhotoDV	41
Troubleshooting with DV Tester (Windows only)	41
Problems in Premiere LE	42
Capture problems	43
I394 playback problems	45
I394 recording problems	46
 Appendix B: Editing with MoviePlayer	47
Cuts-only editing with MoviePlayer	47
Audio resampling with Movie-Player	49
 Appendix C: Regulatory Approvals	53
FCC Statement	53
Canadian RFI Statement	54
Japanese VCCI Statement	54
 Index	55

Introduction

Welcome to Digital Origin MotoDV™, another innovative product from Digital Origin designed to help you make the most of video footage recorded in the DV format. MotoDV allows you to transfer DV clips between your computer and your DV camcorder or tape deck via an IEEE 1394 serial connection. In addition, it allows you to render effects, titles, and transitions applied to these clips in the DV format using Adobe Premiere® LE, which is included with MotoDV.

MotoDV utilizes the Digital Origin 1394 FireWire host adapter card which is also used by PhotoDV™, Digital Origin's still image capture plug-in for Adobe® Photoshop® and by EditDV, Digital Origin's DV non-linear editing software. The IEEE 1394 connection, also known as FireWire (Apple's trademark) and iLink (Sony's trademark), is a high-speed serial interface originally developed by Apple Computer and now adopted by a number of companies in the computer and consumer electronics industries. The fast transfer rates achievable via 1394 enable MotoDV to take advantage of the DV circuitry built into the DV camcorder or VTR, minimizing the cost and complexity of the hardware that must be installed in your computer.

MotoDV consists of three primary components:

- The MotoDV capture application transfers DV clips into your computer, saving them as QuickTime movies that can be imported into QuickTime-compatible applications like Adobe Premiere LE. Clips may be captured in either real-time or in time-lapse mode. The capture application also allows you to remotely control the camcorder or

tape deck via the 1394 connection, either with the mouse or using keyboard commands.

- The Radius SoftDV™ software codec allows you to play back DV clips on your computer screen at a reduced size and frame rate so that you can make editing decisions while working in Premiere LE. The Radius SoftDV codec also allows you to render to the DV format any effects, titles, and transitions that you may apply to your video clips. Presets for Premiere LE provide the appropriate project settings for editing DV clips with the Radius SoftDV codec.

- The MotoDV Player transfers DV clips and movies via 1394 so that the camcorder or tape deck can play them back or record them at full size in full motion. The MotoDV Player functions from within Premiere LE and as a standalone application. It includes disk control commands that, similar to tape deck control, allow you to pause, play, step, and jump forward or backward through movies playing back off of a disk drive.

About this manual

The *MotoDV User Guide* explains how to install and use the Digital Origin 1394 FireWire card and the MotoDV software. Chapter 1 discusses the installation and setup of your system. Chapter 2 describes how to capture DV source material and remotely control the DV camcorder or tape deck. Chapter 3 explains how to edit in the DV format with Premiere LE. Chapter 4 explains how to output your DV clips and movies via 1394 using the MotoDV Player, both for playback and recording.

Please note that this user guide assumes that you have a working knowledge of your computer and the operating system software that comes with it. It also assumes that you understand how to properly operate your DV camcorder or tape deck. It does not attempt to explain all of the features of Adobe Premiere LE. The Premiere LE documentation is available in electronic format on the MotoDV CD-ROM.

Note: *The functionality of MotoDV is nearly identical on Windows and Mac OS systems. The screen captures in this manual are labeled "Windows" and "Mac OS" mainly for clarity's sake. Differences between the Mac OS and Windows versions are noted when they exist.*

System requirements

Note: *Check the Digital Origin web site at www.digitalorigin.com for the latest compatibility information and the current list of supported DV devices.*

To use MotoDV, you need, at a minimum, the following:

For Windows systems

- A 200MHz Pentium-class computer with an available PCI expansion slot, 64MB of RAM (128MB is recommended), and 16-bit graphics capability.
- A graphics card/subsystem with a DirectX/DirectDraw compatible driver.
- A CD-ROM or DVD drive.
- Microsoft Windows 95 or 98 or Windows NT4 with Service Pack 4. (Service Pack 4 is included on the MotoDV CD-ROM.)
- Microsoft DirectX (an update for Windows 95 is on the MotoDV CD-ROM).

- QuickTime 3.0 for Windows or later (included on the MotoDV CD-ROM).

- If you wish to edit your DV clips, an editing application like Adobe Premiere LE (included on the MotoDV CD-ROM).

- A fast AV hard disk connected to either an internal EIDE port or to a SCSI accelerator card with enough hard disk space for the projects you wish to complete.

- A Digital Origin 1394 FireWire host adapter card and digital interface cable.

- An NTSC or PAL format DV camcorder or tape deck with a digital 1394 FireWire port. This port is frequently labeled the "DV" port on many devices. Some devices label it the "iLink" port.

Note: *Some camcorder models only support output via 1394 and cannot be used to play back or record DV streams. These units can only be used for DV input to your computer.*

For Mac OS systems

- A Power Macintosh or Mac OS compatible computer with a PowerPC G3 or 604 processor, an available PCI expansion slot, at least 64MB of RAM (128MB is recommended), and 16-bit graphics capability.

- A fast AV hard disk connected to either a fast internal SCSI or EIDE port or a SCSI accelerator card with enough disk space for the projects you wish to complete.

- Mac OS version 8.1 or later.

- QuickTime 2.5 or later (included with Mac OS). The MotoDV CD-ROM includes the QuickTime 3 installer for use with applications like Adobe Premiere LE.

- A Digital Origin 1394 FireWire host adapter card and digital interface cable.
- An NTSC or PAL format DV camcorder or tape deck with a digital 1394 FireWire port. This port is frequently labeled the “DV” port on many devices. Some devices label it the “iLink” port.

Note: Some camcorder models only support output over FireWire and cannot be used to play back or record DV streams. These units can only be used for DV input to your computer.

Optional equipment and software

You can further enhance your system with the following equipment:

- A video monitor connected to your camcorder’s or tape deck’s analog video out port will enable you to see the video clips you are capturing, playing back, and recording to tape at full size, in full motion.
- Depending on the length of your projects, you will need additional disk space. The DV data rate is approximately 3.6MB per second which consumes about 216MB of disk space per minute or about 13GB per hour. You also need to consider that your finished rendered movies take additional space beyond what your source clips consume.
- Speakers attached to your computer and/or camcorder or VTR typically provide better sound than those built into the computer. Speakers with dual inputs are recommended because they can be connected to both your computer and your DV device. Headphones can also be useful.

Software updates

Be sure to check the Digital Origin web site (www.digitalorigin.com) from time to time for software updates to MotoDV. These updates typically provide support for new DV devices but may also include drivers for other operating systems as well as new MotoDV features.

Registration

Warranty registration materials are included with MotoDV both in hard copy and electronic form. Please choose one of these options to register your purchase with Digital Origin so that we can provide you with the best possible customer support and contact you about upgrades and other products designed for DV equipment.

Note: Customers outside the United States and Canada can also register their purchase with Digital Origin. The electronic registration program included with MotoDV provides a number of cost-effective options, including registration via electronic mail.

Chapter 1: Installation and Setup

This chapter explains how to install the Digital Origin 1394 FireWire host adapter card and the MotoDV software in your personal computer. It also includes important performance information and setup instructions so that you can get the most out of your system.

Note that the Digital Origin 1394 FireWire card is essentially a high-speed serial port in and out of your computer and can be used for both still image capture (PhotoDV) and for video capture, playback, and recording (MotoDV), among other things. The different functions that your 1394 card can be used for are determined by the software you use, not the hardware components on the card itself.

Unpacking

When you first open your MotoDV package, unpack all the materials and compare them with the packing list. If you are missing any items, please contact your reseller.

Note: *If you purchased MotoDV as a separate software package and have already installed your 1394 FireWire card with another Digital Origin DV product, proceed directly to the software installation section below.*

Installing the 1394 FireWire host adapter card

Refer to the documentation included with your personal computer for detailed instructions on how to install a PCI card in one of its expansion slots. Before proceeding:

- Make sure your computer is off before beginning the installation. Some manufacturers also instruct you to unplug the computer before installing expansion cards.
- Touch the metal casing of your computer's power supply before you remove the 1394 FireWire card from its antistatic package. This safely discharges any static electricity that may have built up on your body.
- Leave the card in its antistatic package until you are ready to place it inside the computer.
- Handle the card by the edges only. Do not touch the gold-plated PCI connector.

After you have installed the card, double-check to ensure that it is firmly and completely seated in the PCI slot. Replace the retaining screw in the expansion slot bracket so that you do not accidentally unseat the card when you plug in the cable.

Connecting the cable

A digital interface cable is included with MotoDV. The larger end (6-pin connector) plugs into one of the connectors on the back of the 1394 FireWire card. The smaller end (4-pin connector) plugs into the digital 1394 port on your camcorder. This port is usually labeled the "DV" port. (On some devices, this may be designated as the "iLink" port.)

To connect your camcorder to the Radius 1394 FireWire host adapter card,

1 Plug the larger end of the cable into one of the connectors on the card as shown. You can use any one of the three connectors.



Connecting the cable to the Digital Origin 1394 FireWire card

Note: The version of the 1394 FireWire driver software supplied with MotoDV currently only supports one connected device.

2 Plug the smaller end of the cable into the DV port on your DV device as shown. Note that the location of the DV port varies, depending on what kind of camcorder or tape deck you own.



Connecting the cable to a DV camcorder

Note: If you are going to transfer clips to and from your camcorder for an extended period of time, you should also connect the camcorder to an external power source using the AC power cord that is supplied with it.

You may also wish to connect a video monitor to the camcorder or tape deck's analog video out ports. Use a composite or S-video cable (not supplied with MotoDV), depending on the type of connections supplied by your camcorder or tape deck and video monitor.

Installing the MotoDV software on Windows computers

The software needed to run MotoDV is installed from the CD-ROM included with the product.

Note: If you are upgrading from a previous version of MotoDV with the "Radius" label (Digital Origin's former name), and wish to uninstall this software from your hard disk, it is **extremely important** that you do so **BEFORE** you install the new Digital Origin version of MotoDV.

If you run the uninstaller program in the Radius folder after you install the newer Digital Origin software, you may remove system files required by MotoDV. If this happens, reinstall the Digital Origin MotoDV software as described below.

If you are running Windows 95 or 98, you will first install the driver for the 1394 FireWire card, before you install the rest of the MotoDV software. (The driver for Windows NT4 is installed when you install the MotoDV software.)

You should then install Adobe Premiere LE so that the MotoDV installer can place the MotoDV Player plug-in and presets directly into the appropriate folders.

After you install Premiere LE and the MotoDV software, you will install supporting software such as QuickTime for Windows and DirectX, if the appropriate versions are not already present in your system. If you are running Windows NT4, you may also need to install Service Pack 4.

These steps are described in more detail in the following sections.

Installing the 1394 driver

If you are running Windows 95 or 98, the operating system will prompt you to install driver software after you add new hardware to your system. The driver installation procedures differ slightly for Windows 98, Windows 95 OSR2, and Windows 95 August Release. Each installation is described in this section.

Note: *There is no separate driver installation procedure for Windows NT4. The NT 1394 driver is installed when you install the MotoDV software, as described below.*

To install the driver for the 1394 host adapter card for Windows 98,

- 1 Startup your computer. The New Hardware Found window should appear briefly, followed by the Add New Hardware Wizard. Click Next.
- 2 Check the "Search for the best driver for your device" button and click Next.

3 If you have not done so already, insert the MotoDV CD-ROM into your computer and wait a few seconds for it to come up to speed before proceeding.

4 Check the CD-ROM drive box and uncheck all other options in the window. Click Next.



Add New Hardware Wizard (Windows 98)

Note: *Do NOT use any of the 1394 drivers that are included on the Windows 98 CD-ROM. You must use the 1394 driver included on the MotoDV CD-ROM.*

5 When the Add New Hardware Wizard asks you which driver you want to install, check the button next to the 1394 Host Adapter and click Next.



Selecting the 1394 driver (Windows 98)

6 The Add New Hardware Wizard will tell you it is ready to install the best driver for the device. The letter that represents your CD-ROM drive should appear as the "Location of driver". Click Next.



The 1394 driver selected (Windows 98).

7 Click Finish. You **must** then restart your computer for the driver to load properly.

To install the driver for the 1394 host adapter card for Windows 95 OSR2,

1 Startup your computer. The New Hardware Found window should appear briefly, followed by the Update Device Driver Wizard.

2 Insert the MotoDV CD-ROM into your computer, wait a few seconds for the CD to spin up to speed, and click Next.

3 The Wizard should tell you that it found the driver for the 1394 Host Adapter. If it does not find the driver, click Back and then Next again, in case the CD was not ready the first time. Click Finish.



Update Device Driver Wizard (Windows 95 OSR2)

Note: Depending on how your computer was configured by its manufacturer, the Wizard may complete the driver installation at this point. If so, restart your computer. If not, complete the remaining steps.

4 Click OK if the Insert Disk message appears asking for the MotoDV CD-ROM again.

5 When the Copying Files... window appears, click Browse.



Copying Files... window (Windows 95 OSR2)

6 The Open window appears. Select the letter that represents your CD-ROM drive from the drop-down list in the Drive(s) section of this window. The file "pcilynx.inf" should appear in the left side of the window. Click OK.



The Open window (Windows 95 OSR2)

7 The letter that represents your CD-ROM drive should now appear in the "Copy files from:" section at the bottom of the Copying Files... window. Click OK.

8 You **must** then restart your computer for the driver to load properly.

To install the driver for the 1394 host adapter card for Windows 95 August Release (also known as Windows 95a),

1 Startup your computer. The New Hardware Found window should appear.

2 Select the button "Driver from disk provided by hardware manufacturer", then click OK.



New Hardware Found window (Windows 95a)

3 When the Install From Disk window appears, insert the MotoDV CD-ROM into your computer and wait a few seconds for it to come up to speed. Then click the Browse button.

4 Select the letter that represents your CD-ROM drive from the drop-down list in the Drive(s) section of the Open window. The file named "pcilynx.inf" should appear in the left side of the window. Click OK.



The Open window (Windows 95a)

5 The letter that represents your CD-ROM drive should now appear in the "Copy manufacturer's files from:" section at the bottom of the Install From Disk window. Click OK.



Install From Disk window (Windows 95a)

6 You **must** then restart your computer for the driver to load properly.

To verify that the driver is properly installed,

- 1 Choose Settings and then Control Panel from the Start menu.
- 2 Double-click on the System icon and then click on the Device Manager tab. You should see an entry titled "1394 Bus Controller" (Windows 98) or "Digital Origin 1394 Devices" (Windows 95a and OSR2).
- 3 Click on this entry and verify that there are no conflicts (indicated by either a red "x" or a yellow "(!).")



Device Manager for Windows 95 and for Windows 98

If you have a conflict, use the Windows help system to try to resolve it. From the Start menu choose Help and display the "Troubleshooting hardware conflicts" topic, following the step-by-step procedures presented by this help wizard.

Note: If you are upgrading from a previous version of MotoDV with the "Radius" label, then the Device Manager entry for the driver may continue to be listed as "Radius 1394 Devices" under Windows 95. For Windows 98, the entry under "1394 Bus Controller" may remain as "Radius 1394 Host Adapter". This will not affect the operation of MotoDV.



Device Manager entries with Radius-labeled driver

To install the driver for the 1394 host adapter card for Windows NT4,

Install the MotoDV software as described below. The Windows NT4 driver for the 1394 card will be installed at that time. There is no separate driver installation procedure for NT4.

Installing Premiere LE, MotoDV, and other supporting software

After you have installed the driver and restarted your computer, you will need to install the other software components on the MotoDV CD-ROM, starting with Adobe Premiere LE.

1 Reinsert the MotoDV CD-ROM if you removed it after installing the driver. If the installation window does not automatically appear on your screen, double-click on the icon that represents your CD-ROM drive in the My Computer window.

2 Click the Read Me button for additional information about using MotoDV.

3 Click on the Install Premiere LE button to install this program. Locate the Premiere LE installer program on the MotoDV CD-ROM and follow its instructions.

4 Click on the Install MotoDV button to install the MotoDV software and its system files. The installer will also locate the Plug-ins and Settings folders for Premiere LE and place the appropriate files there.

5 Click the Install QuickTime button and follow the instructions to install QuickTime for Windows on your system.

6 If you are running Windows 95, then the MotoDV installer window will include an option to install a newer version of Microsoft DirectX. Click the Install DirectX button and follow the instructions. The DirectX installer will determine if DirectX needs to be updated. When prompted, restart your computer.

If you are running Windows NT4, you need to install Microsoft's Service Pack 4. Click the Install Service Pack 4 button and follow the instructions. If you have sufficient disk space, be sure to select the option that allows you to uninstall Service Pack 4, in case you need to troubleshoot your system.

Verifying the NT driver installation

If you are running Windows NT4, the driver for the 1394 FireWire card is installed when you install the MotoDV software.

To verify that the NT driver is properly installed,

1 Make sure you have restarted your computer after installing the MotoDV software.

2 Choose Settings and then Control Panel from the Start menu.

3 Double-click on Services to open the Services window.

4 If necessary, scroll down until you locate the Radius 1394 Bus Manager entry. It should be set to automatic and indicate that the service has started.

Note: The 1394 driver for Windows NT will be shown as "Radius 1394 Bus Manager" for both new installations and for systems being upgraded from previous versions. There is no Digital Origin-labeled 1394 driver for Windows NT at this time. This difference is strictly cosmetic and will not affect operation.



The Radius 1394 Bus Manager entry in the NT Services window

5 If the status indicates that it has not started, highlight the Radius 1394 Bus Manager entry and click the Start button in the Services window.

Starting your Windows system

Now that you have installed all the necessary components of your system, you are ready to get started. Use the following routine to ensure a consistent and reliable connection between your computer and DV device:

1 Turn off your computer and your DV camcorder or tape deck. Wait several seconds.

2 Turn on your computer.

3 When your computer has completed the startup process, turn on your DV camcorder or tape deck. Insert one of your source tapes into the device.

Before proceeding to chapter 2 for an explanation of how to capture your clips with MotoDV, read the important setup information at the end of this chapter.

Installing the MotoDV software on Mac OS computers

The MotoDV software for Mac OS consists of several files as well as system extensions. The MotoDV installer lets you specify the location to install these files. It automatically installs the system extensions in the System Folder of your startup disk.

Before installing the MotoDV software, you may need to install other software.

Mac OS 8.1 or later

While the MotoDV software should function properly with Mac OS version 7.6.1, Digital Origin recommends that you use Mac OS version 8.1 or later. If you do not have Mac OS 8.1 or later installed, you will need to purchase an upgrade from your Apple dealer or contact Apple for a system update.

Note: Select *About This Macintosh...* from the Apple menu to determine the version number of the system software you are running.

QuickTime 2.5 or later

QuickTime 2.5 or later is required by MotoDV and must also be installed in your system. In general, QuickTime 2.5 or later is installed with Mac OS 8.0 and 8.1.

Note: To determine which version of QuickTime is installed, highlight the main QuickTime file icon in your Extensions folder and select *Get Info* from the File menu.

MotoDV is compatible with QuickTime 3 and the installer for QuickTime 3 is included on the MotoDV CD-ROM for your convenience. Adobe recommends installing QuickTime 3 when using Adobe Premiere LE.

Note, however, that you will need an upgrade to the Pro Edition of QuickTime 3 in order to use many of the features in MoviePlayer 3 that were included in MoviePlayer 2.5. The QuickTime 3 Pro upgrade is available from Apple for a small fee. See Appendix B for more information on using MoviePlayer for basic editing operations.

When you have determined you have the correct system software installed, you are ready to install the MotoDV software.

To install the MotoDV software in a Mac OS system:

- 1 Insert the MotoDV CD-ROM into your computer.
- 2 Locate the installer for Adobe Premiere LE on the CD-ROM and double-click on it to start the installation. Follow the instructions until Premiere LE is installed.
- 3 Double-click on the MotoDV installer. Click continue and read the information in the read me file. Click continue again.

4 Specify where you want to install the MotoDV files that are not system extensions using the pop-up menu in the installer's window.



The MotoDV Installer window

You can choose either a hard disk or select a folder. To select a folder, use the navigation dialog box that appears when you choose "Select Folder" in the pop-up menu.



Specifying a folder for the MotoDV files

The installer will place the MotoDV files on the hard drive or in the folder you selected and the MotoDV system extensions in the Extensions folder of the active System Folder.

Note: To install the MotoDV system extensions on a disk drive other than your current startup disk, you will need to restart your system with the new drive designated as the startup disk using the Startup Disk control panel. Make sure that the Mac OS is installed on this drive.

5 Click install.

6 When complete, click restart to restart your computer.

Note: The MotoDV installer will place an electronic registration program in the Startup Items folder of your System Folder. When you restart your computer, this application will launch and ask you to register your copy of MotoDV. Once you complete this process, the registration program is automatically moved to the trash folder. The serial number for your MotoDV software is located on the back of the MotoDV user guide. You will need this number to complete the MotoDV registration.

7 After your computer has restarted, copy the MotoDV presets and print to video plug-in to their appropriate folders.

- Copy the MotoDV presets to the Premiere LE Settings folder.
- Copy the Print to MotoDV plug-in to the Premiere LE Plug-ins folder.

Before proceeding to chapter 2 for an explanation of how to capture your clips with MotoDV, read the important setup information in the next section.

Important setup information

The following information will help you optimize the configuration of your system so that you can be more productive when editing your DV footage.

General setup information

It is important to note that when MotoDV outputs DV data streams via the 1394 connection (as opposed to playing back clips on your computer screen), the video will be decoded by the DV camcorder or tape deck. In order to see your video, you will need to connect a video monitor to the camcorder or tape deck. (If you are using a camcorder, you could look in the camcorder's viewfinder or use its LCD screen instead but this isn't always practical.)

Likewise, to hear the audio from a DV stream output via 1394, you will need to connect speakers or headphones to your camcorder or tape deck.

Make sure the hard disk you use for your video and audio clips is not fragmented. You can purchase disk optimizing software from a number of companies to keep your files from becoming fragmented. Alternately, after you backup any necessary data, you can reinitialize the drives you use for your media files. Be careful! The reinitializing process removes all existing files from the disk.

Windows performance issues

MotoDV's excellent capture and playback performance allow you to use most standard Ultra DMA disk drives as media drives in your system. Note, however, that you may need to enable DMA to the drive(s) to prevent dropped frames or late interrupts during capture and playback. The procedure for doing this is different for Windows 95/98 than from Windows NT4.

To enable DMA to an Ultra DMA IDE drive running

under Windows 95 or 98,

- 1 Choose Settings and then Control Panel from the Start menu.
- 2 Double-click on the System icon and then click on the Device Manager tab. You should see an entry titled "Disk drives". Click on it once.



- 3 Highlight the IDE entry that represents your hard disk drive and click the Properties button.
- 4 Select the Settings tab, check the DMA box and apply your changes, following the onscreen instructions.



To enable DMA to an Ultra DMA IDE drive running

under **Windows NT4**,

- 1 Make sure you have installed Service Pack 4 from the MotoDV CD-ROM, as described above.
- 2 Download the file "Dmachcki.exe" from the Microsoft ftp site at: <ftp://ftp.microsoft.com/Softlib/MSLFILES/>
- 3 Once downloaded, double-click the file to expand the archive. Then launch the Dmacheck.exe program.
- 4 Click the "Enabled" button for each IDE channel to which you have Ultra DMA disk drives attached and follow the onscreen instructions.

Mac OS performance issues

The following information will help you get the best performance possible out of your Mac OS system and configure it for optimal use. Please take the time to follow the instructions below.

- Turn off virtual memory in the Memory control panel.
- Also in the Memory control panel, set the disk cache to the lowest possible setting, typically 96K or 128K. After you make the appropriate settings, as shown here, restart your computer.



- Use the Monitors control panel to make sure your mon-

itor is set to either Thousands (16-bit mode) or Millions (24-bit mode) of colors.

- The standard external SCSI port found on most Mac OS computer models is "slow" SCSI and is not suitable for capturing and playing back DV streams via 1394, in spite of the fact that this port has a theoretical transfer rate of 5MB per second. You must connect your media drives to either the appropriate internal port or to a SCSI card, as described immediately below.
- If you are using a Power Macintosh G3 model, then you should be able to successfully use internal Apple ATA drives connected to the internal EIDE port or fast (e.g. at least 7200 rpm) SCSI drives connected to a SCSI accelerator card. Note that, unlike the preceding 604-based machines, the internal motherboard SCSI port in most G3 models is "slow" SCSI and is not suitable for capturing and playing back DV streams over FireWire.
- If you are using a Power Macintosh computer that originally shipped with a PowerPC 604 processor, then you will get the best 1394 playback performance if you connect a fast (e.g. at least 7200 rpm) "narrow" (the connector type) SCSI drive to the fast motherboard SCSI port found on most 604 models. Check with your computer manufacturer if you are unsure if your 604 model has fast motherboard SCSI.

- If you need to use a SCSI controller card on a 604-based machine, then you may need to slow down the rate at which it sends and receives data to and from the attached drives in order to prevent it from using excessive bandwidth on the PCI bus. SCSI cards using excessive PCI bandwidth can prevent the 1394 FireWire card from successfully playing DV streams over FireWire (resulting in a DMA error) or cause the video to break up with a series of random gray blocks.

Note: Limiting a SCSI card's transfer rate is only poten-

tially necessary for PCI Mac OS computers that originally shipped with 604 or 603 processors. Apple's Power Macintosh G3 models offer superior PCI bus performance, allowing a SCSI card to operate at full speed without affecting 1394 output.

You limit a SCSI card's transfer rate with its control software (e.g. Adaptec's PowerDomain utility for the Adaptec 2940UW card). Depending on the speed of your attached drives, you may need to use the control software to disable Ultra SCSI and wide transfers, and possibly to limit the transfer rate. Because the DV data rate is modest (3.6MB per second) you generally will not notice any side effects as a result of changes to these settings. Contact your SCSI card manufacturer if you need assistance limiting its transfer rate.

Alternately, if your computer has more than three slots (and therefore two banks of PCI slots), you can try putting the SCSI card in one PCI bank and the 1394 FireWire card in the other. The exceptions to this are the UMAX S900 and J700; these models seem to function best with the SCSI and FireWire cards together in the two top slots (S900) or two middle slots (J700).

- Use the Sound control panel (also included in the Monitors and Sound control panel) to set your computer's sound input source (e.g. from the internal CD) and its sound output port, if any. While these particular settings do not directly affect MotoDV's operation for the most part, you may need to be familiar with them to edit your video projects.

- MotoDV's performance is not generally impacted as much as some video products by certain Mac OS system features such as the menu bar clock and AppleTalk network connections, especially on Power Macintosh G3 machines. However, if you need to allocate the maximum possible system resources to your video editing efforts,

try minimizing the number of things that eat up your computer's processor cycles. If you are not satisfied with your system's performance, try the following:

- 1 Use Apple's Extensions Manager control panel to limit the number of system extensions and control panels that load when your computer starts up. Be careful not to disable those extensions required by your video editing system.

Note: *Use of extension management utilities other than Apple's Extensions Manager is not recommended. These software packages can actually prevent critical MotoDV system extensions from loading, causing problems with MotoDV's operation.*

- 2 If you do not require network access while doing your video work, disable AppleTalk from the Chooser or the Control Strip. Some editing applications, such as Adobe Premiere, prefer that AppleTalk be disabled when running.

- 3 Disable the menu bar clock using the Date & Time control panel.

Chapter 2: Capturing DV

This chapter explains how to capture and save DV clips from a DV camcorder or tape deck, either in real-time or in time-lapse mode, as well as how to remotely control these devices from your computer. Clips captured with MotoDV are saved as QuickTime movies with separate video and audio tracks and can be used with Adobe Premiere LE and other QuickTime-compatible applications. This chapter also explains how to optimize software playback of your clips on your computer screen in applications like Apple's MoviePlayer.

Because the DV data stream is already digital, MotoDV transfers the DV clips onto your computer's hard disk without generation loss. There is no analog-to-digital conversion when clips are captured.

Before you capture

Make sure your DV device is on and connected to the Radius 1394 FireWire card. If you are using a camcorder, set it to VTR mode. Then launch the MotoDV capture application, located in the MotoDV folder.

Note: (Windows only) The standalone MotoDV capture application cannot be running at the same time as the MotoDV Player or Adobe Premiere LE when the MotoDV Playback plug-in is installed in its plug-ins folder.

Choose NTSC or PAL as your default video format, depending on the DV equipment you are using.



The MotoDV capture window (Windows)



The MotoDV capture window (Mac OS)

Before capturing any material, however, you need to choose a capture mode, select a drive or folder to capture to, and set your capture preferences.

Select a capture mode

You set the capture mode by selecting Capture Options... from MotoDV's Windows menu and choosing an option from the pop-up menu.



Capture Options (Windows)



Capture Options (Mac OS)

Changes you make to this setting remain in effect until you change them again. Two modes are available:

- **Real time** This mode captures all of the audio and video information coming via 1394 in “real time”; for example, ten seconds of footage takes ten seconds to capture. This is the default capture mode when you first launch MotoDV.

- **Time lapse** This mode captures only the video frames you specify to create a time lapse effect. Note that no audio track is captured in time lapse mode.

To set the parameters for time lapse capture,

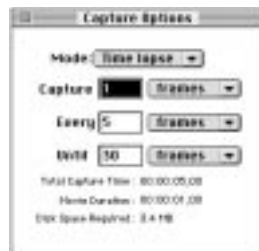
- **Capture** Choose frames, seconds, or minutes from the first pop-up menu in the time lapse section and enter the number you want to capture.

- **Every** Set the interval between captures by entering a number and setting the pop-up menu.

- **Until** Set the movie length by entering a number and setting the pop-up menu. If you choose Stop from the pop-up menu, MotoDV will capture in time lapse mode until you manually stop it.



Time lapse capture (Windows)



Time lapse capture (Mac OS)

Once you have set these parameters, MotoDV calculates the total capture time, the movie length, and the disk space required to capture the movie.

Note that when you are capturing in time lapse mode, MotoDV's preview window only displays the frames that are being recorded to disk.

Select a capture location

You set the disk or folder you wish to capture your DV clips to by clicking on the path button (not labeled in the Windows version) in the Capture location section of the MotoDV window. The current file directory path is displayed. If you wish, create a new folder for the clips you are about to capture. Be sure to select a disk drive that is fast enough to capture at the DV data rate.



Capture location (Windows)



Capture location (Mac OS)

MotoDV displays the amount of disk space remaining on the disk you selected and translates this disk space into the amount of time remaining for capturing clips at the DV data rate.

MotoDV also calculates “Disk Performance”, which is the rate at which it was able to write the last clip to your hard disk. This information is important because it lets you know if the performance of your disk drive is changing, either because of file fragmentation or because clips are being captured to the slower inner sectors of the drive.

Note: Because of the way MotoDV buffers captured video in memory, you may be able to successfully capture clips even if MotoDV reports disk performance lower than the DV data rate of 3.6MB per second. In general, however, you should be using a disk drive that can sustain at least this data rate, preferably faster.

Set your capture preferences

To set your capture preferences for MotoDV, select Preferences... from MotoDV’s Edit menu.



Capture prefs (Windows) Capture prefs (Mac OS)

The top section of the preferences window provide three tests to help ensure the integrity of the clips you capture

from DV tape. Each test provides three options: do nothing, show warning (after the capture is completed), and abort capture.

• When detecting... discontinuous timecode

The most common reason for discontinuous timecode on a DV tape is a gap between clips that occurs when you are shooting and reviewing your footage. If you are not careful, it is easy to advance a few seconds past the end of your last clip. When this happens, the camcorder usually resets the timecode of the next clip to zero.

For this reason, the default setting for this test is “show warning” because encountering a discontinuity in the timecode does not necessarily mean that MotoDV dropped frames during capture. However, if you are certain that the footage you are capturing has continuous timecode, this test can provide additional assurance that you are capturing all of the frames in your video.

• **When detecting... dropped frames** As its name suggests, this test is the primary means for checking for dropped frames. The 1394 FireWire driver software sends a message to the MotoDV capture application when it detects a dropped frame. In general, most video editors leave this test set to “abort capture” because they cannot tolerate even a single dropped frame. If you find that MotoDV repeatedly drops frames, make sure that the disk to which you are capturing can sustain the necessary transfer rate to record your DV clips. In addition, review the setup information in chapter 1, the “Compensating for slower disks” section below, and the troubleshooting section of this manual.

• **When detecting... audio sample rate change** MotoDV cannot capture the audio portion of a DV clip correctly if it encounters a change in the audio sample rate as it is recording the DV stream to your hard disk. This test informs you that a change in the audio sample rate

has been detected. The default setting is “abort capture” because the audio portion of the clip will be distorted after the sample rate change occurs.

The built-in microphones in many DV camcorders only record a single audio sample rate (typically 32kHz). Users with camcorders that can record different sample rates typically pick one rate and leave it at that setting. As a result, changes in the audio sample rate on your source tapes may be very rare. They are more likely to occur if you record different finished projects, each with different sample rates, to the same tape.

For example, you may record a music video at 44.1kHz (the CD sample rate) and then an interview at 32kHz. If you then recapture both of these segments with MotoDV as a single clip, you will encounter a change in the audio sample rate. The audio in the second segment will be distorted, if you continue capturing. You must recapture the segments individually to prevent this distortion.

- **Enable audio playthrough** (Mac OS only) If you check this option, MotoDV will decode the audio stream as you preview and capture your DV clips. The audio is played back through the computer’s speakers, in sync with MotoDV’s preview window.

Depending on the speed of your computer, you may wish to leave this option unchecked so that you can dedicate maximum processing power to capturing your clips. Connecting speakers or headphones to your camcorder or VTR will allow you to monitor the audio on your tapes without using additional processing power.

Note: If you are using a video monitor attached to your camcorder or tape deck to view the material you are capturing, the audio you hear playing through the computer’s speakers may be slightly behind the video it displays. This is caused by the processing time required

to decode the DV data stream in the preview window. It does not affect the synchronization between the audio and video in the clips you capture to your hard disk. If you find this delay distracting or objectionable, connect speakers to your DV device to monitor the audio as you capture clips.

- **16:9 (Widescreen)** Checking this box displays the video in MotoDV’s preview window in an aspect ratio of 16:9 and tags captured footage as 16:9 source clips. Use this setting if you recorded in 16:9 mode.

- **NTSC or PAL** Use these buttons to switch between the NTSC and PAL video formats, depending on the kind of DV equipment you are using.

Preview window settings

MotoDV’s preview window allows you to view the contents of your tapes without connecting a separate video monitor to your camcorder or VTR.

Note: Your display must be set to 16-bit, 24-bit, or 32-bit color to see video in MotoDV’s preview window.

You can adjust the quality of the image displayed in the preview window, trading off quality for speed.



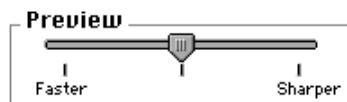
MotoDV preview window

The preview quality slider offers three settings. The setting to the right provides the sharpest picture but requires more processing power. Depending on the speed of your computer, the video may not play smoothly in the

preview window. If this is the case, try one of the other two settings. These play faster but at a lower quality level.



Preview quality slider (Windows)



Preview quality slider (Mac OS)

Note that when the camcorder or tape deck is paused, the preview window always uses the sharper quality level for display. When you are capturing, it always uses the fastest setting in order to minimize the amount of processing power needed to decode the video for preview and maximize the amount available for capture. Regardless of which setting you choose, you are always capturing the full quality DV data stream.

Capturing DV clips from tape

You are now ready to transfer DV clips from your tapes to your hard disk. To make this process easier, MotoDV allows you to remotely control your camcorder or tape deck from the computer so that you don't need to use the buttons on the device itself. The remote control commands are described in more detail below.

Note: The maximum file size you can capture on either a Mac OS or Windows system is 2GB, a little less than ten minutes of DV footage.

To capture a clip to your hard disk,

1 Make sure the digital interface cable is plugged into both the computer and the digital 1394 port of your camcorder or tape deck.



Active keypad (in VTR mode)

2 If you are using a camcorder, set it to VTR mode. MotoDV's remote control keypad should be visible. If you will be capturing clips for an extended period of time, you may also wish to power your camcorder with its AC power adapter.

3 Insert the appropriate tape cassette into the camcorder or tape deck.

4 Click the keypad's play button or press the space bar or the up arrow key to start the tape playing. The footage on your tape should be visible in the Preview window.

5 Click the Capture button or press enter or return on your keyboard when you want to start capturing.

6 When you want to stop capturing and save the clip, click the Stop Capture button or press enter or return on your keyboard. Typing escape (Windows) or command-period (Mac OS) also stops your capture. The camcorder or VTR will pause.

Note: Be sure to capture a few additional seconds of material at each end of a clip. These "handles" will ensure that you have sufficient media to do transitions and effects between clips in your projects.

7 Type in a name for your clip and click the Save button

or press the enter or return key.



MotoDV file name window (Windows)



MotoDV file name window (Mac OS)

Automatic naming

MotoDV provides an automatic naming scheme to help you capture your clips faster and keep them organized.

When you stop capturing a particular clip, you are prompted to enter a name for it. When you capture another clip, MotoDV remembers the last name you entered and sequentially appends a number to this base file name. For example, if you name the first clip you capture "Vacation", the next clip will automatically be named "Vacation-2", unless you type in a new name.

You may want to continue a naming scheme already established in a previous capture session. For example, if you have captured 20 clips from your recent trip to Paris and have named them "Paris-1", "Paris-2", "Paris-3", through "Paris-20", you can continue this scheme by naming the first clip of the new session "Paris-21". MotoDV will automatically name the next clip "Paris-22" and continue with this sequential numbering until you enter a new base file name.

Remote deck control

As mentioned previously, MotoDV allows you to remotely control your camcorder or tape deck from the computer. This "remote deck control" makes it much easier to locate the starting "in" points for your captures.

The MotoDV keypad buttons function much like the buttons on your camcorder or tape deck. Each is explained briefly here, along with their keyboard equivalents.

Note: MotoDV's remote deck control may not support all of the capabilities of your particular device.

- **Pause/Play** When pressed, the pause/play button starts playing the tape in the camcorder or tape deck. Pressing the button again pauses the tape. The pause/play button will also pause the tape if it is pressed when the camcorder or tape deck is in slow play, search, fast forward or rewind mode.



Pause/Play

You can also use the **space bar** or the **up arrow** key to toggle between pausing and playing the tape.

- **Stop** The stop button not only stops the camcorder or tape deck playing, it also retracts the tape from the tape heads. Use this button if you are done capturing clips from a tape or if you want to rewind or fast forward at the fastest speed. Otherwise, use the pause button to stop the tape. From the keyboard, use the **down arrow** key to stop the camcorder or tape deck.



Stop button

• **Rewind and Fast Forward** If the camcorder or tape deck is stopped, clicking the rewind or fast forward button rewinds or fast forwards the tape at about 20x speed. The tape's contents are not visible in the preview window.

If the camcorder or tape deck is paused or playing, holding down the rewind or fast forward button rewinds or fast forwards the tape at about 10x speed. The tape's contents are visible in the preview window. Letting go of the button returns the camcorder or tape deck to its previous mode.

Holding the **shift key** and pressing the **left arrow key** rewinds the tape; **shift-right arrow** fast forwards it.

• **Step** The step keys allow you to advance or rewind the tape one frame at a time. Each time you press one of the step buttons, the tape moves forward or backward one frame.

From the keyboard, use the **left arrow key** to step one frame backward and the **right arrow key** to step one frame forward.

• **Search** The search buttons allow you to easily locate the beginning of the previous or next clip on the tape. When one of the search buttons is pressed, MotoDV analyzes the DV data stream to determine where clips begin and end. It advances or rewinds at about 10x speed, stopping approximately at the beginning of the appropriate video clip.

From the keyboard, hold down the **shift** and **control** keys (Windows) or **option** key (Mac) and press the **left arrow key** to search backward to the previous clip. To search forward to the next video clip, hold the **shift** and **control** keys (Windows) or **option** key (Mac) and press the **right arrow key**.

• **Slow Play** The slow play buttons allow you to play the tape at one-10th speed, either forward or backward. From the keyboard, hold down the **control** key and press the **right arrow** to slow play forward. To slow play backward, hold down the **control** key and press the **left arrow** key.

Keyboard equivalents summary

The following summarizes the keyboard equivalents :

Pause/play:	Space bar or up arrow
Stop:	Down arrow
Rewind:	Shift-left arrow
Fast forward:	Shift-right arrow
Step back:	Left arrow
Step forward:	Right arrow
Search back:	Shift-control-left arrow (Win) or Option-left arrow (Mac)
Search forward:	Shift-control-right arrow (Win) or Option-right arrow (Mac)
Slow play back:	Control-left arrow
Slow play forward:	Control-right arrow
Capture:	Enter or return
Cancel/Done:	Escape (Win) or Command-period (Mac)

Timecode menu

MotoDV's timecode menu displays the timecode of the video as well as the time and date that it was recorded. Hold down the small pop-up menu to change which information is displayed.



Timecode in hours:minutes:seconds;frames (Windows)



Timecode in hours:minutes:seconds;frames (Mac OS)

If you think you will need to recapture the exact same clips at some point in the future, note the timecode of the in and out points of each clip. The timecode is displayed as hours:minutes:seconds;frames.

Note: Some DV camcorders and tape decks reset the timecode to 00:00:00;00 if you leave blank, unrecorded space between video clips. In this case, you will have more than one frame with the same timecode on your tape. If necessary, also note the time and/or date of the video clip.

Capturing from the lens

You capture clips directly from a camcorder's lens much the same way you capture when in VTR mode. However, because you are not acquiring video recorded on tape, MotoDV's keypad will be inactive.



Inactive keypad

To capture images from the camcorder's lens:

- 1 Set the camcorder to camera mode and point it at the subject matter you wish to capture. Be sure to remove your lens cover.

Note: Some camcorders go to "sleep" when in camera mode for an extended period of time. This protects the tape heads from excess wear. To keep the camcorder "awake" in camera mode, try removing the tape.

- 2 Set the capture option you prefer, either real time or time lapse.
- 3 Click the Capture button or use the enter or return key when you want to start capturing.
- 4 Click the Stop capture button or use the enter or return key to stop capturing. If you are using time lapse mode without the manual stop option, MotoDV will automatically stop capturing at the appropriate time.
- 5 Name and save the clips as described above.

Compensating for slower disks

You use the MotoDV capture application to acquire DV clips from your DV camcorder or tape deck. Before you launch the MotoDV application, you may wish to allocate additional memory to it to improve capture performance on slower disk drives. The procedure to do this is different on Windows than on Mac OS.

Windows

To change the amount of memory allocated to the MotoDV application for capture, launch the MotoDV Configuration Utility located in the MotoDV folder.

Increase the number of buffers in the Buffer Allocation section. The Configuration Utility will calculate how much RAM you have allocated to MotoDV and warn you if you exceed the total amount in your system. In most cases, it will allocate about 1MB of RAM for each buffer. For example, setting the number of buffers to 32 will usually allocate 32MB for capture.

Note: While the MotoDV Configuration Utility can determine the total memory in your system, it is not able to calculate the amount of memory in use by Windows and other applications. Be careful not to assign too much memory to MotoDV with the Configuration Utility.

The “Reset All” button in the MotoDV Configuration Utility lets you reset the amount of memory allocated to MotoDV to the factory defaults. It also restores the settings and preferences for the MotoDV capture application, the SoftDV codec, and the MotoDV Player to their initial states.

Mac OS

To change the amount of memory allocated to the MotoDV application for capture on Mac OS systems, first quit MotoDV if it is running. Then, highlight the MotoDV application icon, select Get Info from the File menu, and type in the allocation (in KB) in the “Preferred Size” section of the Get Info window. (If you are running Mac OS 8.5 or later, you will need to select Memory from the pop-up menu.) Close the Get Info window.



Assigning memory to MotoDV (Mac OS)

Dynamic buffering

You should have a fast AV disk drive or a disk array connected to your system and normally won't need to change the amount of memory allocated to MotoDV. However, MotoDV can utilize additional memory assigned to its partition to buffer the data that it captures, writing that data to disk as your computer is able to spare the processing cycles.

This “dynamic buffering” feature allows MotoDV to successfully capture DV clips for longer durations without dropping frames in configurations with marginal disk performance. These situations include:

- Disk drives not quite capable of sustaining the DV data rate (approximately 3.6MB per second).
- Disk drives that cannot sustain the DV data rate as they are filled with media files.

Note that disk drives write data faster to their outside sectors where files are initially stored. As a drive fills up with data, its performance typically decreases because the data is being written to its slower inside sectors.

- Disk drives that are becoming fragmented.

Dynamic buffering functions much like a garden hose filling up a bucket with a hole in it. The water going into the bucket from the hose represents the DV data stream coming in via 1394. The hole in the bucket represents the speed of the disk drive. The bucket itself represents the memory allocated to MotoDV.

If the water draining out of the bucket is slower than the water coming in from the hose, the bucket will eventually overflow. The time this takes represents the duration of a clip before a frame is dropped (the overflow). You can see that if you increase the size of the bucket (MotoDV's

memory allocation) you may be able to capture for longer periods of time without incident.

While dynamic buffering can't compensate for genuinely poor disk performance, it can make an important difference by enabling marginal configurations to successfully capture DV clips for longer periods of time.

Playing DV clips with MoviePlayer

Apple's MoviePlayer is a handy little application that comes with QuickTime. It is located in the QuickTime folder on your hard disk. If you can't find MoviePlayer, make sure you have run the QuickTime 3 installer included on the MotoDV CD-ROM. In addition, the QuickTime 2.5 installer should be located on most Mac OS 8 CD-ROMs.

MoviePlayer is the default application for playing back the clips you capture with MotoDV. This means that if you double-click on one of these clips, it will launch this application and display the first frame of the clip in a standard MoviePlayer document, like the one shown here.



A DV clip in a MoviePlayer document

This is useful because you can get a quick look at the footage you've transferred to your hard disk without launching your editing application.

Note: If your camcorder or tape deck is attached, you can also use the *MotoDV Player* to view them at full size, in full motion by playing them via 1394. See chapter 4 for more information on the *MotoDV Player*.

Typically, the clip will play back smoother if you make the window smaller. To make it smaller, use your mouse to resize the window from the lower righthand corner. To constraint the aspect ratio and maintain the proper dimensions of the clip, hold down the alt key (Windows) or the option key (Mac OS) when you resize. Note that in this case the window snaps to a new size as you move the mouse.

Alternately, if you have licensed the Pro Edition of QuickTime 3 from Apple or are using MoviePlayer 2.5 with QuickTime 2.5 (Mac OS only), you can resize the window from the menu bar by selecting one of the options from MoviePlayer's Movie menu. Select Half Size (quarter screen, technically speaking) to change the window's resolution to 360 x 240 (NTSC) or 360 x 288 (PAL). Select Normal Size from the Movie menu to return to full resolution.

You can save the new window size for the clip by selecting Save from MoviePlayer's File menu.

Note: Be aware that **saving** clips in MoviePlayer with a window size other than full resolution (720 x 480 for NTSC DV; 720 x 576 for PAL DV) may cause undesirable effects in other QuickTime applications and is not recommended.

Tips for smoother playback with SoftDV

To play your DV clips as smoothly as possible in MoviePlayer (and other QuickTime applications) with the Radius SoftDV codec,

- 1 Assign more memory to MoviePlayer (Mac OS only). Select Get Info from the File menu and allocate at least 6MB (6000KB) of RAM to it.
- 2 Make the MoviePlayer window smaller by resizing it from the lower righthand corner or from the Movie menu.
- 3 Make sure the clips you want to play are on a sufficiently fast hard disk.
- 4 Set the Radius SoftDV codec's playback options to better match the capabilities of your computer. The procedure to do this differs slightly between the Windows and Mac OS versions of MotoDV.

On Windows systems, launch the Digital Origin DV Options application located in the MotoDV folder by double-clicking on it. The Radius SoftDV Options window will appear. The various playback options are useful when editing your DV clips.



Radius SoftDV options (Windows)

- Select a playback image quality that is less than full resolution, either draft or intermediate mode. Draft mode decodes less of the image and therefore appears somewhat "soft". However, it plays back the fastest.

Note: Before rendering your DV clips to a format or compression scheme other than DV, such as Cinepak, SoftDV's Playback Image Quality may need to be set back to "Full".

- Select the number of frames you want to play back. For NTSC video, choosing every frame plays 30 frames per second, every second frame, 15 frames per second, every third frame, 10 frames per second, etc. For PAL video, choosing every frame plays 25 frames per second, every second frame 12 to 13 frames per second, etc.

On Mac OS systems, these SoftDV options are set using the SoftDV control strip at the bottom of your screen.



The SoftDV control strip (Mac OS)

With a little experimentation, you can find the right playback quality and speed for you and your system. As the speed of desktop computers increases, you will be able to play your DV clips on your computer screen at larger sizes with more resolution.

Again, if your camcorder or tape deck is attached to your system, you can use the MotoDV Player to play your DV clips via 1394 at full size, in full motion, as described in chapter 4 of this user guide.

You are now ready to begin editing your DV clips with Adobe Premiere LE, as described in chapter 3.

Chapter 3: Editing DV with Premiere LE

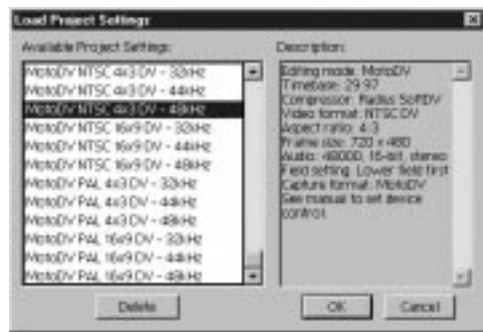
This chapter explains how to begin editing your DV footage with Adobe Premiere LE. For complete instructions on using Premiere LE, refer to Adobe's electronic documentation included on the MotoDV CD-ROM.

Loading a project preset

If you installed Premiere LE before the MotoDV software, then the MotoDV installer placed the MotoDV presets in the Premiere LE Settings folder (Windows only). If you have a Mac OS system, move the MotoDV presets from the MotoDV folder to the Premiere LE Settings folder before you launch Premiere LE. The MotoDV presets ensure that all the necessary parameters are properly set for editing DV footage.

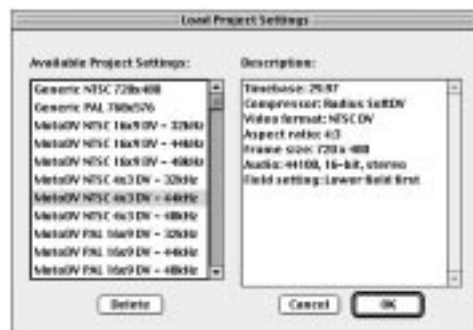
To load a MotoDV project preset,

- 1 First make sure your DV camcorder or tape deck is on. If you are using a camcorder, set it to VTR mode.
- 2 Launch Premiere LE. You should see:



Load Project Settings in Premiere LE (Windows)

- 3 Select one of the MotoDV presets depending on the video format of your equipment (NTSC or PAL), the aspect ratio of your footage (either 4:3 or 16:9 wide-screen), and the audio sampling frequency you plan to use (usually 32, 44.1, or 48kHz). Then click OK.



Load Project Settings in Premiere LE (Mac OS)

Choosing an audio sample rate

When choosing the audio sampling rate for your project, note that:

- If you are using a “professional” DV camcorder or tape deck, such as one of Sony’s DVCAM products, you should select either 32kHz or 48kHz. Both of these audio frequencies can be “locked”, a requirement for the audio in DV streams output to this type of equipment.
- If you are using a “consumer” DV camcorder or tape deck, such as the Canon XLI, you can select any of the three sampling frequencies.
- 32kHz is the sampling frequency at which many of the “consumer” DV camcorders record audio through their built-in microphones. If all of the audio in your project

comes from the camcorder's microphone, this is a good option to use.

Note: DV camcorders and tape decks typically record 32kHz audio at 12-bits per sample (companded). MotoDV converts 32kHz audio to 16-bits per sample (linear) as clips are being captured so that these clips can be imported into Premiere LE and other QuickTime applications.

MotoDV converts 32kHz audio back to 12-bits per sample (companded) when a clip or movie with this audio sampling rate is output via 1394.

- 44.1kHz is the sampling frequency recorded on music CDs. Again, this frequency should only be used with consumer-type DV equipment that does not require locked audio.
- 48kHz is the sampling frequency recorded on Digital Audio Tape (DAT). If your DV tape was recorded in "16-bit mode", use this sampling frequency.

Note: The audio sample rates that can be recorded from your computer to a DV tape are generally not dependent on the recording capabilities of the DV device itself. For example, you can record any of the "unlocked" audio sample rates (32, 44.1, and 48kHz) to a consumer DV camcorder even if the camcorder itself can only record 32kHz audio from its built-in microphone. You can record either of the locked audio sample rates (either 32kHz or 48kHz) to most professional DV devices. Check the documentation included with your DV device for any limitations when recording digitally via 1394.

Setting scratch disks

Before you can begin editing DV clips in Premiere LE, you should select the disk that it will use as a scratch disk when rendering its previews.

To select a scratch disk for Premiere LE,

- 1 From the File menu, select Preferences > Scratch Disks/Device Control....
- 2 Choose a scratch disk for the clips you will capture as well as one for your video and audio previews.



Setting the scratch disk for Premiere LE (Windows)



Setting the scratch disk for Premiere LE (Mac OS)

- 3 Click OK.

Importing DV clips

To edit your DV clips with Premiere LE, you need to first import them into your Premiere LE Project window.

To import DV clips into Premiere LE,

- 1 Make sure the Premiere LE Project window is the active window by clicking on it.
- 2 From the Premiere LE Project window select Import > File. Alternately, you can simply double-click on the Project window.
- 3 Navigate to the folder or directory that contains your captured DV clips and select one to import. Click the Open button (Windows) or the Import button (Mac OS).
- 4 Repeat this process to import other DV clips. Hold the shift key down as you select clips (Windows) or use the Import > Multiple menu selection (Mac OS) to import more than one clip at a time.

Playing clips via 1394 (Windows)

The MotoDV Playback plug-in creates an editing mode in Premiere LE that continually and transparently transports video and audio via 1394 to an attached DV device. Hence, you can play and scrub your clips at full resolution and in full motion on a video monitor attached to your camcorder or tape deck when you are working in Premiere LE.



The MotoDV Playback editing mode in Premiere LE (Windows)

If you installed Premiere LE before the MotoDV software as instructed in chapter 1, then the MotoDV Playback plug-in was placed in the Premiere LE plug-ins folder by the MotoDV installer.

Note: The MotoDV Playback plug-in replaces the original MotoDV "Print2DV" export plug-in, adding additional functionality and more transparent operation. If you have upgraded from a previous version of MotoDV, remove the Print2DV plug-in from your Premiere plug-ins folder if it is still present.

The MotoDV Playback plug-in also allows you to play your video projects directly from the Premiere LE timeline, bypassing the file size limit that prevents any single clip from being larger than 2GB. It also saves you substantial amounts of disk space because the "straight cuts" in your video do not need to be rendered; just your effects, titles, and transitions.

To play a clip via 1394 in Premiere LE,

- 1 If you have not already done so, import one or more of the DV clips you captured into the Premiere LE Project window, as described above.
- 2 Drag a clip from the Project window into the Source preview on the left side of the Monitor window.
- 3 Click the Play button under the Source preview. The clip's video should be visible on a video monitor attached to your DV device. (The image in the Source preview on your computer screen will remain static while the clip is playing via 1394.) If you don't have a monitor attached and are using a camcorder, look in the viewfinder or at its built-in LCD screen, if one is present.

Note: When you are **playing** clips in the MotoDV Playback mode, the audio, as well as the video, in your DV clips is exported to the attached DV device via 1394. To hear this audio, you will need to connect your speakers to your camcorder or tape deck or use head phones, if your device does not have its own internal speakers. Refer to chapter 1 for instructions on configuring your system.

To scrub a clip via 1394 in Premiere,

- 1 If you have not already done so, import one or more of the DV clips you captured into the Project window.
- 2 Drag a clip from the Project window into the Source preview on the left side of the Monitor window.
- 3 Drag the cursor under the Source preview back and forth to scrub through the clip. (You can monitor the video on either your video monitor or in the Source preview on your computer screen when you are scrubbing.)

Note: When you are **scrubbing** clips in the MotoDV Playback mode, the audio in the clip is played by the computer, NOT the attached DV device. If your speakers have two inputs, then you can connect them to both your computer and your camcorder or tape deck, as described in chapter 1. This will allow you to monitor your audio at all times.

Timeline playback

In addition to playing back video and audio via 1394 from the Premiere LE clip and Monitor windows, the MotoDV Playback plug-in allows you to play directly from the Premiere LE timeline.

Note: Any effects, titles, or transitions in your project must first be rendered to the DV format before they can be played via 1394 to your DV device. Unrendered effects must be previewed on the computer screen.

To play or scrub from the Premiere LE timeline,

- 1 If you have not already done so, import one or more of the DV clips you captured into the Premiere LE Project window.
- 2 Drag a clip from the Project window to the Video 1A track on the Premiere LE timeline. You can change the length of the clip in the timeline by dragging on its end point. Note that the preview on the right side of the Premiere LE Monitor window is another representation of the video you are building in the timeline.
- 3 Move the timeline cursor to the start and press the space bar to start playing the video. You should be able to watch it play on the video monitor attached to your DV device. The image in the Monitor window's righthand preview should be static. The audio is played by the camcorder or tape deck when you are playing via 1394.
- 4 Alternately, drag the timeline cursor back and forth in the timeline to scrub through your clip. Both the video on the monitor and in the preview window should be active. The audio is played by the computer when you are scrubbing via 1394.
- 5 Drag a second clip to track Video 1B in the Premiere LE timeline, leaving some overlap with the first clip in track Video 1A.
- 6 Drag a transition from the Transition window to the Transition track between the two clips. Stretch the blue work area bar at the top of the timeline to match the length of the two clips.
- 7 Save your project and then type Enter. Premiere LE will render the transition and then play the two clips with the transition via 1394.

Note that only the transition and audio needed to be rendered for playback via 1394. The unchanged video portions of your clips were played in real time.

In addition, this timeline playback capability allows you to bypass the 2GB file size limit. While no single clip can be larger than 2GB, MotoDV Playback allows you to sequence a series of clips in the Premiere LE timeline up to 3 hours in length and play them back via 1394.

Recording to tape (Windows)

After you have completed your video project, the MotoDV Playback plug-in allows you to record it to tape via 1394.

To record to tape,

- 1 Assemble your video project in the Premiere LE timeline and render any effects, titles, and transitions that you add to it.
- 2 Insert a few seconds of black at the beginning of your project. You may also wish to include color bars and a 1kHz tone.
- 3 Insert a blank tape into your camcorder or tape deck, making sure that it is not write protected. (Be careful not to record over one of your source tapes!) If you are using a camcorder, make sure it is in VTR mode.
- 4 Position Premiere LE's timeline cursor at the beginning of your project and type the space bar to start playing your video.
- 5 Press the record button on your camcorder or tape deck. When your video has ended, press the stop button on the DV device.

Note: You cannot record a video project with 44.1kHz audio to a professional DV (e.g. DVCAM) device. You must use either 32 or 48kHz, one of the "locked" audio sample rates. To change your project's audio sample rate, choose *Project > Settings > Audio...* and select either 32 or 48kHz. Then stretch the Premiere LE work area bar for the duration of your project and type enter.

Playing and recording via 1394 (Mac OS)

On Mac OS, the Print to MotoDV plug-in allows you to play DV clips and movies to an attached DV device via 1394 from either the Premiere LE Monitor window or from the Premiere LE timeline. Be sure you have copied the Print to MotoDV plug-in from the MotoDV folder to the Premiere LE plug-ins folder before launching Premiere LE.

To print to MotoDV from Premiere LE's Monitor window,

- 1 If you have not already done so, import one or more of the DV clips you captured into the Premiere LE Project window, as described above.
- 2 Drag a clip from the Project window into the Source preview on the left side of the Monitor window.
- 3 From the Premiere LE File menu, select *Export > Print to MotoDV...*

The MotoDV Player options window should appear on screen as shown here.



MotoDV Player options (Mac OS)

- 4 After you have made the appropriate settings for your DV device, (described in chapter 4), click the Play button. To record, hold the shift key down and click the Record button.

To print to MotoDV directly from the Premiere LE timeline,

1 If you have not already done so, import one or more of the DV clips you captured into the Premiere LE Project window.

2 Drag a clip from the Project window to the Video 1A track on the Premiere LE timeline. You can change the length of the clip in the timeline by dragging on its end point. Note that the preview on the right side of the Premiere LE Monitor window is another representation of the video you are building in the timeline.

3 Drag a second clip to track Video 1B in the Premiere LE timeline, leaving some overlap with the first clip in track Video 1A

4 Drag a transition from the Transition window to the Transition track between the two clips. Stretch the blue work area bar at the top of the timeline to match the length of the two clips.

5 Save your project and then type Enter. Premiere LE will render the transition.

6 From the Premiere LE File menu, select Export > Print to MotoDV.... The MotoDV Player options window should appear, as described above.

7 After you have made the appropriate settings for your DV device, (described in chapter 4), click the Play button. To record, hold the shift key down and click the Record button.

Note: *Make sure the tape you are recording to is not write-protected.*

Note that only the transition and audio needed to be rendered for playback via 1394. The unchanged video portions of your clips were played in real time.

In addition, the Print to MotoDV plug-in allows you to bypass the 2GB file size limit. While no single clip can be larger than 2GB, the Print to MotoDV plug-in allows you to sequence a series of clips in the Premiere LE timeline up to 3 hours in length and play them back via 1394.

Chapter 4: “Printing” to DV

This chapter explains how to use the standalone MotoDV Player application to playback and record your DV footage via 1394 to DV camcorders and tape decks. This chapter also explains how to control the playback of your clips, with the mouse or from the keyboard, as they are being played from your disk drive.

Using the MotoDV Player

The MotoDV Player is a standalone application that allows you to play and record DV clips and movies via 1394 without using an editing application.

Note: (Windows only) The MotoDV Player application cannot be running at the same time as the MotoDV capture application or Adobe Premiere LE with the MotoDV Playback plug-in installed in its plug-ins folder.

To play a movie via 1394 with the MotoDV Player,

- 1 Make sure your DV device is on and connected to the 1394 FireWire card. If you are using a camcorder, it must be set to VTR mode.

Note: Your DV device must support DV input via 1394 in order to play and record DV clips and movies transferred to it from your computer.

- 2 Double click on the MotoDV Player icon, located in your MotoDV folder. The MotoDV Player window appears.



The MotoDV Player window (Windows)



The MotoDV Player window (Mac OS)

- 3 Locate the DV clip or movie you want to play or record. On Windows, Select File > Open (Control-O) or use the Browse button to the right of the Path field. On Mac OS, navigate to the file you want to play and click Open.

Note: You can also drag and drop a clip onto the MotoDV Player application.

4 On Windows, select File > Preferences (Control-P) to open the MotoDV Player preferences window.



MotoDV Player preferences (Windows)

On Mac OS, this window opens automatically when you open a file.



MotoDV Player preferences (Mac OS)

- **Playback** You can play the clip once or have it loop by clicking the appropriate button. Check the Play Audio box to output audio as well as video.

- **Deck Type** Select the type of camcorder or tape deck you are using. “Consumer” refers to those devices, such as the Sony DCR-VX1000 and Canon XL1, that record “unlocked” audio. “Pro” refers to devices, such as Sony DVCAM or Panasonic DVCPRO equipment, that record “locked audio”.

Note: You cannot output 44.1kHz audio to “Pro” equipment, like Sony’s DVCAM devices, because this is not a locked audio sampling rate. Use either a 32kHz or 48kHz

sampling rate with Pro equipment.

If you are having trouble recording to a Pro device, make sure you have the “Pro” button selected and are outputting either 32kHz or 48kHz audio. Note that some Pro equipment only accepts 48kHz audio. See the user guide for your particular device for additional information.

If you are controlling your camcorder or tape deck via LANC, check the “External LANC” box (Windows) or uncheck the “DV Device Control” box (Mac OS) so that the MotoDV Player’s device control commands do not conflict with those coming in over LANC.

- **Blank screen** If you want to blank the screen before and/or after the footage you are exporting, enter the desired number of seconds in the appropriate boxes. If you want color bars displayed during the blanking period, check the “Blank with Color Bars” box.

5 After you have set the preferences, click the OK button to close the preferences window (Windows only) and then click the Play button.

To record your DV clip or movie to tape via 1394 with the MotoDV Player,

- 1** Make sure your DV device is on and connected to the 1394 FireWire card. If you are using a camcorder, it must be set to VTR mode.

- 2** Launch the MotoDV Player application and open the clip or movie you want to record, as described above.

- 3** On Windows, select File > Record To Tape (Control-R) and confirm that you want to record by clicking Begin. On Mac OS, hold down the shift click to activate the Record button. Click Record.

Note: Make sure the tape you are recording to is not write-protected.

Controlling playback from disk

The MotoDV Player window includes a keypad that allows you to control clips and movies being played back via 1394 from your disk drive (Windows only). These controls are described here along with their corresponding keyboard shortcuts. Keyboard control is available for both Windows and Mac OS.

- **Play/pause** Press the play/pause button or use the space bar to start your playback and then pause it.
- **Stop** To stop playback, press the stop button or hit the escape key (Windows) or type command-period (Mac OS).
- **Fast forward** Click the fast forward button to play your clip at about 10x speed or press both the shift key and the right arrow key.
- **Rewind** Click the rewind button to play your clip backward at about 10x speed or press both the shift key and the left arrow key.

- **Step** Use the step keys on the keypad to step one frame at a time, either forward or backward. You can also use the left and right arrow keys on the keyboard.

- **Fast step** To step forward quickly, first pause playback with the space bar, then hold down the control key and the right arrow key. To step backward quickly, pause playback with the space bar, then hold down the control key and the left arrow key.

- **Go To Start/Go To End** To jump to the start of your clip, first pause playback then click the Go To Start button or hold down the alt key (Windows) or option key (Mac OS) and press the left arrow key. To jump to the end of the clip, click the Go To End button or hold down the alt key (Windows) or option key (Mac OS) and press the right arrow key.

Appendix A: Troubleshooting

This appendix contains solutions to some of the problems you may encounter setting up and using MotoDV. In many cases, the error messages will provide sufficient detail so that you can correct any problems. However, should the cause of a problem not be immediately evident, this appendix may be of some assistance. Before calling Digital Origin Technical Support or your reseller for help, please take a minute to review this information. You should also review the MotoDV read me file included with the MotoDV software for any technical issues discovered after this manual was printed.

Note: Because new DV devices are constantly be introduced, it is important to check the Digital Origin web site at www.digitalorigin.com for the most recent list of DV camcorders and tape decks tested with MotoDV and for the latest software updates.

If you do need to call Digital Origin Technical Support, please have the following information ready. Most of this information can be determined from the Windows Device Manager (for 95/98), the Setup menus, in various control panels, or from your product packaging. You should also be prepared to provide as detailed a description of the problem as you can, including the wording of any error messages you are seeing.

Be aware that video editing is a high-performance application that places higher than normal demands on your system. Any number of variables could affect the way your system functions. Providing complete configuration information will, in most cases, be worth the time it takes to collect it.

Digital Origin product name and version

DV device manufacturer, model, and serial number

Premiere, Photoshop, QuickTime, and DirectX versions installed

Operating system, version, and service packs installed

Computer manufacturer and model

Processor type and speed

Motherboard manufacturer and chip set type

BIOS manufacturer and version

Total memory (RAM) installed

Sound card/subsystem manufacturer and driver version

Graphics card/subsystem manufacturer and driver version

Display resolution and bit-depth you are working in

Disk manufacturer, model, and type (e.g. UltraDMA vs. SCSI)

Size of partitions and file system type (FAT, FAT32, NTFS, HFS, HFS+)

Disk controller manufacturer and type (e.g. IDE vs. SCSI)

Network/modem card manufacturer, bus type, and driver version

Other cards installed, bus type, and driver versions

Troubleshooting principles

Before you move on to more specific recommendations, a couple of general troubleshooting principles may help you find a solution faster.

- Change or add to your system one component at a time. For example, if you are also installing a network card, in addition to MotoDV, install one product first and get it up and running before installing the second product. If you are installing two new Ultra DMA drives, put one in first and verify that you can capture to and playback from it with MotoDV. Then add the second drive. Changing two things at once makes it much more difficult to isolate problems.

- Unless it is obvious, do not be too quick to draw a conclusion about the cause of the problem. This is especially easy to do if you don't follow the suggestion above and change more than one component in your system at the same time. Be observant and keep an open mind. Narrowing your focus too early can cause you to waste a lot of time.

Configuration issues

Windows configuration issues

A systematic review of your configuration can be helpful before moving on to more specific suggestions.

- Review the MotoDV system requirements listed in the introduction to this user guide to ensure you have all the necessary hardware and software.
- Make sure the 1394 FireWire host adapter card is properly installed and that the 1394 digital interface cable is connected from the card to the DV device.
- Make sure the driver for the 1394 FireWire host

adapter card is not conflicting with another device. See chapter 1 for information on verifying the driver installation for Windows 95, 98, and NT4.

If you have a driver conflict, use the Windows help system to try to resolve it. From the Start menu choose Help and display the "Troubleshooting hardware conflicts" topic, following the step-by-step procedures presented by this help wizard.

If that does not resolve the problem, try moving the 1394 FireWire card to another PCI slot in your computer, if one is available. Also, be sure you have the latest software driver for your graphics card and any other PCI cards you may have installed in your system.

Note: *MotoDV software is not currently compatible with 1394 FireWire cards from other manufacturers.*

- For Windows NT, make sure the Radius 1394 Bus Manager service has started. From the Start menu choose Settings and then Control Panel. Open the Services control panel and scroll down until you see the Radius 1394 Bus Manager entry. Verify that it has started. If not, highlight it and click the Start button in the Services window.
- If you are using Windows 98, make sure that you did not accidentally install one of the 1394 drivers included with Windows 98. You must use the 1394 driver included on the MotoDV CD-ROM. If you installed the wrong driver, use the Device Manager to remove it. Then install the correct driver from the MotoDV CD-ROM.
- Make sure you have installed all necessary software included on the MotoDV CD-ROM, including the QuickTime and (for Windows 95) DirectX software. Verify that your graphics card or subsystem is compatible with DirectX and obtain newer drivers from your graphics vendor, if necessary. If you are using Windows NT, make sure you have installed Service Pack 4.

- Verify that the MotoDV presets are located in the Premiere LE Settings folder and that the MotoDV Playback plug-in is in the Premiere LE Plug-ins folder.
- Make sure you have at least 64MB of RAM, preferably 128MB, in your system. Low memory conditions can cause some applications to perform in an unpredictable manner.

Mac OS configuration issues

- Make sure that all of the MotoDV extensions are in the extensions folder of your active system folder. The MotoDV installer places its extensions in this folder. If you dragged files into your system folder, they may not all be in the extensions folder or you may have placed them in a system folder that is not the active one.
- Make sure that utility software used to manage system extensions is not preventing the MotoDV extensions from loading when your computer starts up. Use of an extension management utility other than Apple's Extensions Manager is NOT recommended.
- Verify that the SoftDV codec loads when your computer starts up. If an "x" appears on its icon during startup, then the SoftDV codec did not load.



- Make sure that QuickTime 2.5 or later is installed in your system. If not, install it from the system software disks or CD-ROM included with your computer and restart your system.
- There may be a conflict with other extensions in your system. Disable or remove all unused extensions and control panels in your system folder and restart your com-

puter. Check to see if RadDVCodec loads.

- Make sure the 1394 FireWire card is properly installed and that the digital interface cable is connected from the card to the camcorder or tape deck.

Note: MotoDV software is not currently compatible with 1394 FireWire cards from other manufacturers.

Cannot recover 1394 connection

If you lose the 1394 connection between your computer and your DV device (e.g. the error message starts with "Can't initialize..."), try turning the DV device off and then on again. If that does not restore the connection, you may need to do a clean restart.

- Turn off your computer and your DV device.
- Wait several seconds.
- Turn on your computer.
- When your computer has completed the startup process, turn on your DV camcorder or tape deck.

Troubleshooting with PhotoDV

If you are having difficulty with MotoDV, try using PhotoDV to capture still images. You may need to install Photoshop LE, as well as the PhotoDV plug-in from the PhotoDV CD-ROM.

Troubleshooting with DV Tester (Windows only)

If you are having trouble with both MotoDV and PhotoDV, the DV Tester, located on the MotoDV CD-ROM, will help Digital Origin Technical Support isolate the problem. Launch the DV Tester application located in the Utilities

folder on the MotoDV CD-ROM. You should see a window that looks like this:



The DV Tester

- If the picture of the 1394 card is grayed out or if there is no manufacturer or device ID in the 1394 Devices section, there may be a problem with the driver installation.
- Click one of the device control buttons in the middle of the window to see if you have control of the DV device. If not, then the 1394 asynchronous channel is not working.
- Click the Test button to test the 1394 isochronous channel. You should see frames being received. Click the Stop button. If you run this test more than once you will see one broken frame (ignore this). Otherwise, you should not be experiencing broken frames, data overruns, and reused buffers.

Problems in Premiere LE

This section discusses problems you may encounter when using the MotoDV with Adobe Premiere LE.

(Windows only) When playing a clip, the image in the Premiere LE window remains static and does not update.

- If you are editing in the MotoDV Playback mode with the MotoDV Playback plug-in, then this is normal. The clip is played via 1394 to an attached DV device. If you do not have an LCD screen on your DV camcorder or if you are using a tape deck, then you need to connect a video monitor to your device to view the video.

You get a "Can't initialize..." or "Can't set up DMA..." error message in Premiere LE.

- You may have lost your 1394 connection. Try turning the DV device off and then on again. If that does not restore the connection, you may need to do a clean restart. Turn off your computer and your DV device. After waiting several seconds, turn your computer back on. When your computer has completed the startup process, turn on your DV camcorder or tape deck. Relaunch Premiere LE.

You are unable to hear the audio in your project when playing or scrubbing a clip via 1394..

- Remember that when you play via 1394 with MotoDV, the DV device actually decodes and plays the audio from the DV stream. When you scrub a clip, the computer plays the audio. For this reason, speakers with dual stereo inputs are ideal because they can be connected to both the computer and the DV device. If your speakers only have one input, you can attach them to the computer and use headphones to monitor the audio from the DV device.

After transcoding (exporting) to another QuickTime codec (e.g. Cinepak), the new clip or movie appears abnormally soft and fuzzy.

- This problem may be related to the SoftDV codec's Playback Image Quality settings which allow you to playback DV clips faster on your computer. Before transcoding to another QuickTime codec, be sure to set SoftDV's Playback Image Quality to "Full" in the SoftDV options window, if you have change this setting. See chapter 2 for more information on SoftDV's options.

Capture problems

This section discusses problems you may encounter when capturing DV clips with MotoDV.

The MotoDV remote control keypad is not active in the MotoDV window and no video is displayed in the MotoDV preview window.

- Make sure that you have connected the digital interface cable to the 1394 FireWire card and to your camcorder or tape deck. Be careful not to unseat the 1394 FireWire card from the computer's PCI slot when you plug in the cable.
- Make sure that your camcorder or tape deck is powered on. If you are using a camcorder under battery power, make sure that the battery is not dead.
- If you are using a camcorder in camera mode, the MotoDV keypad will be inactive. If you do not see any video in the preview window, be sure you have removed the lens cap.
- (Mac OS only) Make sure that you have not placed copies of the MotoDV system extensions in the same folder or at the same directory level as the MotoDV application. The MotoDV extensions should be in the Extensions folder

in your active System Folder. If you want to store copies of these files, put them in a separate folder from the MotoDV application.

- Some camcorders need to be plugged into AC power for their 1394 ports to function. Check your camcorder documentation.
- If the above suggestions do not help, try shutting down your computer and waiting a few seconds. Then restart your computer and try capturing again with MotoDV.

The MotoDV remote control keypad is active but no video is displayed in the MotoDV preview window.

- Make sure you have inserted a DV tape in the camcorder or tape deck.
 - If the keypad's stop button is red, press the pause/play button (or the space bar) to start the tape playing. If you still do not see anything, rewind or fast forward to ensure you are not at a blank spot or at the end of the tape. Check the viewfinder or an attached video monitor to see if there is any video being displayed. Also, blank sections of tape will not generate any timecode information.
 - Make sure you have selected the appropriate video format (NTSC or PAL) in the MotoDV Preferences window.
- The preview window does not display continuous video during a capture.***
- (Windows only) The MotoDV preview may not play as smoothly while you are capturing DV footage to disk. This is normal and is not indicative of any problems, unless otherwise noted by MotoDV error messages.

- Check the Capture Options (MotoDV Windows menu) to see if you have inadvertently set MotoDV to capture in time lapse mode.
- Make sure you are not capturing with the camcorder or tape deck in slow play mode.

The preview window does not update during a capture.

- Make sure you are not capturing with the camcorder or tape deck in pause mode.

MotoDV drops frames during capture.

- (Mac OS only) Make sure that you have set the Disk Cache to its lowest possible setting. In addition, try disabling Virtual Memory if it is on. Use the Memory control panel to make these adjustments and restart your system.
- Your disk subsystem may not be fast enough to sustain the required rate for capturing DV data streams. Check the following recommendations:

For Windows machines, capture to an Ultra DMA IDE internal drive (or better) or connect a 7200 rpm SCSI drive (or better) to an Ultra or Wide SCSI controller. See chapter 1 for information on enabling DMA to Ultra DMA IDE disk drives.

For Power Macintosh G3 machines, use either the internal Apple ATA drive or connect a 7200 rpm SCSI drive (or better) to an Ultra or Wide SCSI controller.

For Apple and third-party 604-based Mac OS computers, connect a 7200 rpm SCSI drive (or better) to the fast motherboard SCSI port included on most models or connect the drive to an Ultra or Wide SCSI controller. See chapter 1 and below for possible limitations during playback when using a SCSI card in 604-based computers.

Note: *The standard external SCSI port on Mac OS computers is not fast enough to reliably capture and play back DV footage, regardless of the speed of your disk drive.*

- Make sure you are using MotoDV on a computer with a recommended processor. Pentium computers slower than 200MHz and PowerPC 601 and 603-based machines may not be fast enough.
- If possible, try assigning more memory to the MotoDV application. MotoDV's dynamic buffering compensates, to some degree, for configurations with less than adequate disk performance. See chapter 2 for more information.
- (Mac OS only) If you have enabled MotoDV's "Enable audio play-through" option, disable it by unchecking the box in MotoDV's Preferences window.
- If your disk has become fragmented, you may need to run a disk optimizer, not included with MotoDV, to defragment it.
- If necessary, disable other functions, such as your network connection, that may be requiring processor cycles during capture. You may need to quit other applications open in the background.
- Do not try to capture clips while your computer is running a background task, such as printing or copying files.
- (Mac OS only) If you continue to experience problems capturing, use Apple's Extensions Manager to run with a minimal set of extensions. Be careful not to disable essential extensions such as FireWire Support, the MotoDV extensions (all begin with Rad...), and the QuickTime extensions.

1394 playback problems

This section helps you solve problems playing back DV clips and movies via 1394 to your camcorder or tape deck.

If you cannot play back via 1394 at all,

- If you are using a camcorder, make sure it is set to VTR mode and that it is powered on. Verify that your model does in fact support input via 1394. Many camcorders, PAL models in particular, only support 1394 output to another device or computer.
- Check all of your cable and power connections, especially the 1394 cable. Take extra care not to damage the 4-pin connector on the cable that attaches to the DV device.
- Most camcorders display “DV In” in the viewfinder when a 1394 FireWire cable is connected. Check the user guide for your camcorder. If DV In should be visible, verify that you can see it in the viewfinder. If you do not, you may have a bad DV port on your DV device.
- If you are using a DV tape deck, make sure you have selected the DV input setting. For example, Sony’s DVCAM format DSR30 tape deck includes analog, as well as digital input. The deck must be set to “DV In” to accept FireWire input from the computer.
- Try turning the DV device off, then on again. If that does not help, shut down the computer, wait five seconds, and turn off your DV device. Then restart your system.

After playing a clip, the MotoDV Player indicates dropped frames due to slow disk performance.

- Your disk subsystem may not be fast enough to sustain the required rate for playing back DV data streams.

Check the following recommendations:

For Windows machines, use an UltraDMA 33 capable internal drive (or better) or connect a 7200 rpm SCSI drive (or better) to an Ultra or Wide SCSI controller. See chapter 1 for information on enabling DMA to Ultra DMA IDE disk drives.

For Power Macintosh G3 machines, use either the internal Apple ATA drive or connect a 7200 rpm SCSI drive (or better) to an Ultra or Wide SCSI controller.

For Apple and third-party 604-based Mac OS computers, connect a 7200 rpm SCSI drive (or better) to the fast motherboard SCSI port included on most models or connect the drive to an Ultra or Wide SCSI controller.

Note: *The standard external SCSI port on Mac OS computers is not fast enough to reliably capture and play back DV footage, regardless of the speed of your disk drive.*

- Make sure you are using MotoDV on a computer with a recommended processor. Pentium computers slower than 200MHz and PowerPC 601 and 603-based machines may not be fast enough.
- If your disk has become fragmented, you may need to run a disk optimizer, not included with MotoDV, to defragment it.
- If necessary, disable other functions, such as your network connection, that may be requiring processor cycles during capture. You may need to quit other applications that are currently running on your computer.
- Do not try to play back clips while your computer is running a background task, such as printing or copying files.

- (Mac OS only) If you continue to experience problems during playback, use Apple's Extensions Manager to run with a minimal set of extensions. Be careful not to disable essential extensions such as FireWire Support, the MotoDV extensions (all begin with Rad...), and the QuickTime extensions.

(Mac OS only) If playback is severely garbled with random blocks or if you get a DMA error,

- Make sure that Virtual Memory is not on and that you have set the Disk Cache to its lowest possible setting. Disk Cache settings larger than the minimum setting will prevent you from successfully playing back clips over FireWire. Use the Memory control panel to make these adjustments and restart your system.

- If you are using a SCSI controller card on a 604-based machine, then you may need to slow down the rate at which it sends and receives data to and from the attached drives in order to prevent it from using excessive bandwidth on the PCI bus. SCSI cards using excessive PCI bandwidth can prevent the 1394 FireWire card from successfully playing DV streams via 1394 (resulting in a DMA error) or cause the video to break up with a series of random gray blocks.

You limit a SCSI card's transfer rate with its control software (e.g. Adaptec's PowerDomain utility for the Adaptec 2940UW card). Depending on the speed of your attached drives, you may need to use the control software to disable Ultra SCSI and wide transfers, and possibly to limit the transfer rate. Because the DV data rate is modest (3.6MB per second) you generally will not notice any side effects as a result of changes to these settings. Contact your SCSI card manufacturer if you need assistance limiting its transfer rate.

If you have a 6-slot computer and are using a SCSI controller card, try installing this card in one of the first three slots and the 1394 FireWire card in one of the second three slots (e.g. slot 4, 5, or 6). For UMAX S900 computers, try installing both the SCSI card and the 1394 FireWire card in the top two slots. For UMAX J700 computers, try installing the two cards in the two middle slots.

I 394 recording problems

This section helps you solve problems recording DV clips and movies to tape via 1394.

The MotoDV Player cannot record to tape.

- Make sure your tape is not write-protected. The MotoDV Player cannot detect write protected tapes and may display an inappropriate error message when one is encountered.
- If you are recording to a professional device such as a Sony DVCAM tape deck or camcorder, make sure you have selected "Pro" (locked) audio in the MotoDV Player options window. You should also verify that you are outputting either 32kHz or 48kHz audio. 44.1kHz audio is not a valid locked audio sample rate.

Note also that some professional DV devices only accept 48kHz audio. See the user guide for your device for more information.

Appendix B: Editing with MoviePlayer

Chapter 2 of this user guide describes how to use Apple's MoviePlayer application to view and play back the DV clips you capture with MotoDV. This appendix explains how to use MoviePlayer for cuts-only editing and for resampling audio.

Note: *QuickTime 3 users (Windows and Mac OS) will need to purchase a license for the Pro Edition of QuickTime 3 from Apple in order to enable the editing capabilities of MoviePlayer that are described in this appendix. For more information, open the "Get QuickTime Pro" movie that was installed on your desktop during the QuickTime 3 installation.*

Cuts-only editing with MoviePlayer

Because MoviePlayer has been, until recently, an undocumented application, many of its capabilities are not particularly well known. This section describes how to use MoviePlayer for cuts-only editing of the DV clips you capture with MotoDV.

Although obviously not as powerful as full-blown editing applications, you may find that knowing how to edit with MoviePlayer comes in handy for basic projects that do not require capabilities beyond straight cuts.

To create a cuts-only movie with MoviePlayer,

- 1 Launch MoviePlayer by double-clicking on one of the DV clips you captured with MotoDV.

For smoother playback, make the clip window smaller and set the SoftDV playback options, as described in chapter 2.



DV clip in MoviePlayer (Windows)

- 2 Use the buttons at the bottom of the MoviePlayer clip to (from left to right) adjust the sound, play and pause the clip, and step one frame backward or forward. Holding the alt key (Windows) or control key (Mac OS) and clicking on one of the step buttons on the right changes these buttons into a jog/shuttle controller.



DV clip in MoviePlayer (Mac OS)



Standard QuickTime controller at the bottom of a clip

Alternately, you can simply drag the slider in the middle to navigate through the clip. The size box on the far right side allows you to resize the clip's window.

3 Position the slider at the starting point of the portion of the clip you want to paste into your new movie, hold down the shift key and drag the slider to the end of the clip as shown here.



Making a selection with the shift key and slider (Windows)

4 Select Copy from MoviePlayer's Edit menu. To clear your selection and make a new one, click anywhere on the gray portion of the slider bar.



Make a selection with the shift key and slider (Mac OS)

5 Select New from the File menu. A new movie appears with just the QuickTime controller.



New MoviePlayer movie

6 Select Paste from the Edit menu. The selected portion of the DV clip is pasted into your new movie. Both the video and sound tracks are included.

7 Open another DV clip, select the portion you want to copy with the shift key and the slider, and select Copy from the Edit menu.

8 Position the slider in the new movie at the point where you want to insert the next cut and select Paste from the Edit menu. You now have a movie with two cuts.

9 Save your movie by selecting Save from the File menu.



MoviePlayer options when you save a movie (Windows)



MoviePlayer options when you save a movie (Mac OS)

Saving normally means that your new movie just contains pointers to the parts of the original source clips you copied. This new movie is small in size but will only play back if the source clips are present. If you make the movie self-contained, an entirely new movie will be created and the portions of the original clips that you selected will be copied into it. This new movie is substantially larger but contains all of the movie's data in a single file.

10 You can play back and record the new movie via 1394 by dragging it onto the MotoDV Player icon, selecting the options as described in chapter 4, and clicking OK.

More MoviePlayer options

You can add more cuts to your new movie by repeating the steps above. Note that using the Paste command inserts new material at the point where you position the slider. If you hold down the shift key, the Paste command turns into the Replace command. Use this command to replace, rather than insert, new material.

In addition to adding new cuts to a movie, you can delete material by making a selection and choosing Cut or Clear from the Edit menu. If you hold down the alt key (Windows) or option key (Mac OS), the Clear command changes to the Trim command, which deletes all of the material in the clip that is not selected.

The Copy and Paste commands, as well as the others described above, act on all of the tracks in a movie. DV clips captured with MotoDV currently have two tracks, a video track and a sound track. If you only want to use one of the tracks in your DV clip, extract it from the clip into a new movie using the Extract command from the Edit menu. Once the track is in a new, single-track movie, you can select the portion of it you want to use.

You can also add a track to a movie, such as a music track to a movie with just video cuts, by using the Add command. Extract the track you want to add into a single-track movie with the Extract command and select the portion of it that you want to use. Position the target movie's slider where you want to insert the track. Then hold the option key down and select Add from the Edit menu.

Audio resampling with MoviePlayer

Some of the most popular DV camcorders, such as Sony's DCR-VX1000, record audio at a sampling frequency of 32kHz. In contrast, audio is typically recorded on CD at 44.1kHz and on DAT at 48kHz. As a result, you may find yourself working in a project with settings that resample your 32kHz audio up to 44.1kHz or 48kHz.

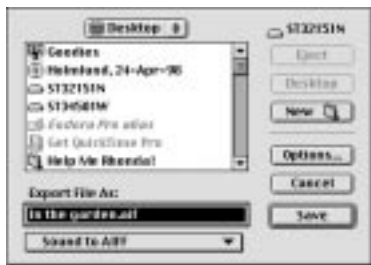
If you are not satisfied with the quality of the audio resampling provided by your editing application, try using MoviePlayer to resample your audio instead.

To resample the audio in a DV clip with MoviePlayer,

- 1 Open your DV clip in MoviePlayer by double-clicking on it.
- 2 Select Export from MoviePlayer's File menu.



MoviePlayer's export window (Windows)



MoviePlayer's export window (Mac OS)

3 Rename the new movie and set the pop-up menu below the name to "Sound to AIFF".

4 Click the Options button and select 44.1kHz from the pop-up menu or enter "48" for a 48.000kHz setting, whichever you desire. Then click OK.



MoviePlayer's export options (Windows)



MoviePlayer's export options (Mac OS)

5 Click the Save button to save the new movie with just a single sound track.

6 Open the new single-track movie in MoviePlayer by double-clicking on it or by selecting Open from the File menu.

7 Select the entire sound track with the Select All command in the Edit menu.



Selecting the new sound track

8 Choose Copy from the Edit menu.

9 Click on your original DV clip so that it is the active window in MoviePlayer.

10 Position the slider at the very beginning of the clip.

11 Hold down the option key and choose Add from the Edit menu. The new, resampled sound track will be added to your DV clip. The clip now has two sound tracks.

12 Select Delete Tracks... from the Edit menu and delete Sound Track 1, the original sound track in the clip.

13 Save the clip by selecting Save from the File menu.

Describing all of MoviePlayer's features is beyond the scope of this appendix. However, you may find the procedures explained above to be useful as you edit your DV footage.

Appendix C: Regulatory Approvals

FCC Statement

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

- 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.
- In case of TV or radio interference, turn the antenna until the interference stops, or consider installing an antenna with coaxial cable lead-in between the antenna and the TV.
- Increase the separation between the equipment and receiver
- Reorient or relocate the receiving antenna

Important: Modifications or changes to this product that are not expressly approved by Digital Origin could void the user's authority to operate the equipment.

To ensure compliance to FCC non-interference regulations, peripherals attached to this computer require shielded I/O cables.

You may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems
Stock # 004-000-00345-4

The above booklet is available from:
U.S. Government Printing Office
Washington, DC 20402
(202) 783-3238

DECLARATION OF CONFORMANCE

We,
Digital Origin, Inc. (formerly Radius Inc.)
460 East Middlefield Road
Mountain View, CA 94043
USA

Declare under our sole responsibility that the product, FireWire PCI 2330 card, to which this declaration relates, is in conformance with the following standard(s) or other normative document(s):

EN55022, EN5082-1
following the provisions of 89/336/EEC - EMC Directive.

*

Date and place of issue

*

Vice President of Engineering

* The signed and dated Declaration of Conformance is on file at the above listed address.

Canadian RFI Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Japanese VCCI Statement

This equipment is in the 2nd Class category (information equipment to be used in a residential area or an adjacent area thereunto) and conforms to the standards set by the Voluntary Control Council For Interference by Information-Technology Equipment aimed at preventing radio interference in such residential areas.

When used near a radio or TV receiver, it may become the cause of radio interference. Read the instructions for correct handling.

この装置は、第二種情報処理装置（住宅地域又はその隣接した地域において使用されるべき情報処理装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると受信障害の原因になることがあります。取扱説明書に従って正しい取り扱いをして下さい。

Index

Numerics

- 1394 connection
 - procedure to recover 41
- 16x9 capture 20

A

- Adobe Premiere
 - presets 1
 - printing to DV 33
- aspect ratio 29
- Assigning memory
 - to MoviePlayer 27
- audio
 - choosing an audio sample rate 29
 - locked vs. unlocked sample rate 29
 - played by computer when scrubbing 32
 - played by DV device 32
 - sample rates that can be recorded 30
- Audio resampling with MoviePlayer 49
- audio sample rate change 19
- Automatic naming 22, 24

C

- Cable
 - connect 4-in end to DV device 6
 - connect 6-pin end to Radius 1394 FireWire card 6
- cable
 - connecting the cable 5
- camcorder
 - DV output only 3
- Camcorder sleep mode, preventing 24
- camcorders with DV out only 2
- Camera mode 24
- Capture
 - direct from the lens 24
- Capture Options... 18
- Capture performance

improving 24

- Capture preferences 19
 - 16x9 (Wide Screen) 20
 - audio sample rate change warning 19
 - discontinuous timecode warning 19
 - dropped frames warning 19
 - enable audio playthrough 20
 - selecting NTSC or PAL 20

Capturing

- clip handles 21
- from tape 21
- from the lens 24
- Compensating for slower disks 24
- connecting a video monitor 14
- connecting speakers 14
- Connecting the cable 5
 - to a DV device 6
- Controlling playback from disk 37

D

- Deck control 22
- Deck Type 36
- Device Manager 10, 14
- Discontinuous timecode
 - on tape 24
- discontinuous timecode 19
- Disk Cache 44
- Disk cache (Mac OS) 15
- Disk performance calculation 19
- disk space required 3
- Display mode
 - required color bit depth 20
- DMA
 - enabling on Windows for IDE drives 14
- dropped frames 19
- DV data rate 3
- DV input

- required for 1394 playback 35

- DV port 2

- DV Tester 41

- DVCAM 29, 36

- Dynamic buffering 25

E

- Editing

- the DV format 29

- Enable audio playthrough 20

- Extensions Manager

- Apple 16

- third party versions not recommended on Mac OS computers 16

F

- File size

- maximum for Windows and Mac OS 21

- FireWire

- a high-speed serial port 5

- fragmented disk drive 14

H

- handles 21

I

- iLink 2, 5

- Importing DV clips 31

- Inactive keypad 24

- Installation 5

- DirectX update for Windows 95 11

- MotoDV software for Mac OS 12

- QuickTime for Windows 11

- QuickTime, MotoDV, and DirectX for Windows 10

- Radius 1394 FireWire host adapter card 5

- Service Pack 4 for Windows NT 11

- Installing

- the MotoDV software 6

- Installing the 1394 driver 7

- for Windows 95 8

- for Windows 98 7

- for Windows NT 10

- verifying installation 10

- verifying on Windows 95/98 10

- verifying the NT driver 11

- Windows 95 8

- Windows 98 7

K

- Keyboard shortcuts for deck control 23

L

- loading a MotoDV preset 29

- Locked vs. unlocked audio 36

M

- Mac OS 8.0 12

- determining version of system software 12

- Monitors control panel (Mac OS) 15

- MotoDV 5

- keypad 22

- location of serial number 13

- primary components 1

- registration 3

- Windows version vs. Mac OS 2

- MotoDV Configuration Utility 24

- MotoDV Playback plug-in 31

- MotoDV presets 29

- professional vs. consumer 29

- MotoDV software

- installation for Mac OS 12

- installation on a different startup disk on Mac OS 13

- registration 13

- MoviePlayer

- assigning more memory (Mac OS) 27

- audio resampling 49

- Cuts-only editing 47

- cuts-only editing 47

- more options 49

- playing back DV clips 26

N**Naming**

- a clip 21
- automatic 22

NT Services window 11**NTSC 20****NTSC video format 20****O****Optional equipment 3****Optional equipment and software 3****P****PAL video format 20****Path button 18****Performance**

- limit extensions and control panels 16

PhotoDV 5**playback**

- from Premiere clip window 31
- from Premiere timeline 32

Power Macintosh 604

- recommended disks 15

Power Macintosh G3 15

- recommended disks 15

Premiere LE

- importing DV clips 31
- setting scratch disks 30

Premiere LE Settings folder 29**Premiere plug-ins folder 31****Preview quality slider 20****Preview settings, MotoDV 20****Preview window**

- settings 20

Preview window settings 20**Print to Radius DV**

- from Premiere's Timeline 34

Print2DV export plug-in

- replaced by MotoDV Playback plug-in 31

Q**QuickTime**

- determining version installed on Mac OS 12

QuickTime 2.5 12**QuickTime 3**

- optional for Mac OS 2
- Pro Edition 12, 26, 47
- recommended for Mac OS version of Adobe Premiere 5 12

R**Radius DV Player**

- recording 36

Radius SoftDV 1

- playback image quality 27
- playback options 27

Real time capture 18**recording to tape 33**

- with Radius DV Player 36

Remote deck control 22

- keyboard commands 23
- Pause/Play button 22
- Rewind and Fast Forward buttons 23
- Search buttons 23
- Slow Play buttons 23
- Step button 23
- Stop button 22

Reset All button 25**S****scratch disk, selecting 30****scrubbing a clip 32****SCSI controller card 15**

- in UMAX Mac OS computers 16
- installing in separate PCI bank in Macs with more than 3 slots 16
- limiting transfer rate on 604 Macs 15

SCSI ports

- standard Mac external port not fast enough for DV 15

Selecting a capture location 18

- Selecting a capture mode 18
- Selecting the capture mode 18
- Services 11
- Setting scratch disks 30
- Setup information 14
- Setup instructions 14
- Slower disks
 - compensating for on Mac OS 25
 - compensating for on Windows 24
- Software playback
 - optimizing 27
- Software playback of DV clips 26
- Software updates 3
- Sound control panel (Mac OS) 16
- Speakers, dual input 3
- starting your system 11
- System requirements 2
 - optional equipment 3

T

- Time lapse capture 18
 - parameters 18
- Timecode menu 23
- Timeline playback 32
- timeline playback 31
- Troubleshooting 39
 - Capture problems 41
 - FireWire playback problems 45
 - Mac OS configuration issues 41
 - Windows configuration issues 40
- troubleshooting 39
 - problems in Premiere 42

U

- Unpacking 5

V

- Video format
 - selecting NTSC or PAL 20
- Virtual Memory (Mac OS) 15