

## VIDEO CAPTURE USING FIREWIRE

To capture video using FireWire, you need a computer with either built-in FireWire or a FireWire PCI card, and a digital video camera. You will also need a four-to-six-pin FireWire cable. The four-pin connector attaches to the digital video camera and the six-pin connector attaches to the FireWire port in the computer. Six-to-six-pin FireWire cables are used to attach devices like FireWire hard drives to the computer. One of the more reasonably priced places to purchase a four-to-six-pin FireWire cable is through a computer store. You can also purchase them at most places that sell video equipment.

figure 8-1

Using a FireWire cable, this Sony DCR-VX2000 digital video camera is linked to a Macintosh computer.



### NOTE

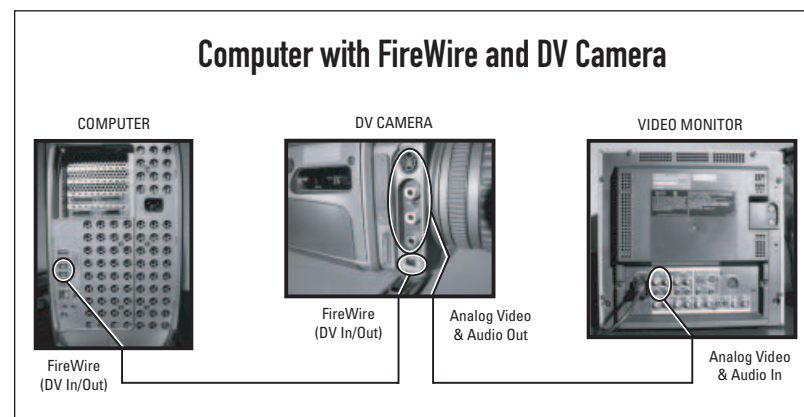
Most digital video cameras do NOT come with a FireWire cable, but rather come with a USB cable. You usually need to purchase the four-to-six-pin FireWire cable separately. The USB cable is used for digital still photographs, not full-motion video. Be careful not to mistake the USB port for the FireWire port!

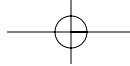
figure 8-2

This diagram depicts the typical connections for linking a computer with FireWire to a digital video camera.

### Attaching a Digital Video Camera

One of the easiest ways to get video into a computer is to attach a digital video camera directly to the FireWire port.





To attach a digital video camera to the FireWire port of your computer, do the following:

1. Identify the FireWire port on the back of your computer. This could be a built-in port on the Mac, or the port on a PCI card on the PC. It is typically a six-pin connector.
2. Identify the FireWire port on your digital video camera. This is typically a four-pin connector. It may say DV In/Out. Be sure you do not mistake a USB port for the FireWire port. (Sony calls this connection i.LINK.)
3. Connect the four-to-six-pin FireWire cable from the digital video camera (four-pin) to the FireWire port of the computer (six-pin). FireWire is **hot swappable**, which means that the devices (computer, video camera, etc.) can be turned on and off while the cables are plugged in and the power is on.
4. Turn your devices on, if they are not on already. Put the digital video camera in VTR or VCR mode. Make sure there is a tape with footage on it in the camera.
5. Launch your video editing software program and any third-party device control software. Adobe Premiere versions 6 and higher have device control software built in. Companies like Pipeline Digital sell third-party device control software.
6. If you are using a video monitor, attach the *analog video out* of your camera to the monitor's *analog video in*. Make sure the monitor is plugged in and turned on.
7. Make sure the computer recognizes the video camera and the tape's timecode before continuing. Then proceed with the video capture instructions specified later in this chapter.

## Attaching a Video Deck

You can also use a digital video deck instead of a digital video camera to capture video to and export video from your computer. Just connect the FireWire cable from your digital video deck (four-pin) to the FireWire port on your computer (six-pin). Many digital video decks also have additional interfaces for connecting equipment, such as the RS-422 protocol.

figure | 8-3 |

The FireWire port (DV In/Out) uses the IEEE 1394 standard.

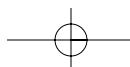


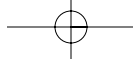
### NOTE

If the computer does not recognize the video camera, play the tape manually and relaunch the software. If a connection between the digital video camera and the computer is still not established, see the DV Troubleshooting Guide at the back of this book for more information.

### NOTE

High-end digital video cameras, decks, and video cards are equipped with **SDI, serial digital interface**. This connection provides lossless quality and is superior to standard DV In/Out (FireWire, IEEE 1394).





## Attaching a Video Monitor

You can also connect a *video monitor* to the *analog video out* of your video camera or video deck. The video monitor has more accurate color representation than the computer monitor. Remember that computers have a much higher color depth than video. Therefore, the colors that you select on your computer screen when you edit are not going to be the same as the colors you see on the television. Professional video editors use video monitors to preview their work. While it is not required to have a video monitor in order to edit digital video, it is highly recommended.

figure 8-4

This combination Mini-DV/S-video deck by JVC is linked to both the computer and the NTSC video monitor.



### TIP

If you cannot afford to purchase a professional video monitor, use a small color television set instead. Connect the analog video signal out of the camera to the AV input on the television. If you have an older television set that does not have an AV input, then loop the video signal through a VCR. Any video monitor is better than no video monitor!

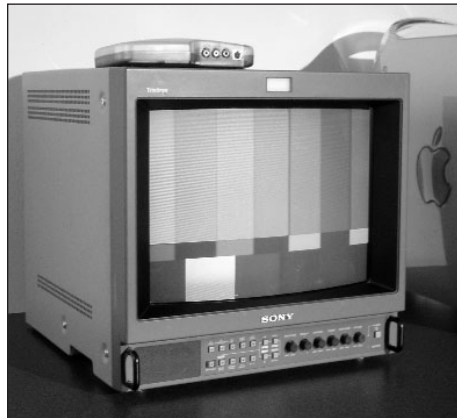
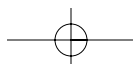


figure 8-5

The video monitor is an integral part of any digital video editing system.



Professional video monitors have composite (consumer), S-video (prosumer), and component (broadcast) video connections. Most have multiple video inputs for connecting several video devices simultaneously. They also usually have an overscan and underscan feature, which allows you to view the action and title safe areas. They have sophisticated color adjustments for precision color correction. Most of the higher-end models have switchable aspect ratios, allowing the user to select either standard 4:3 or 16:9 widescreen mode.

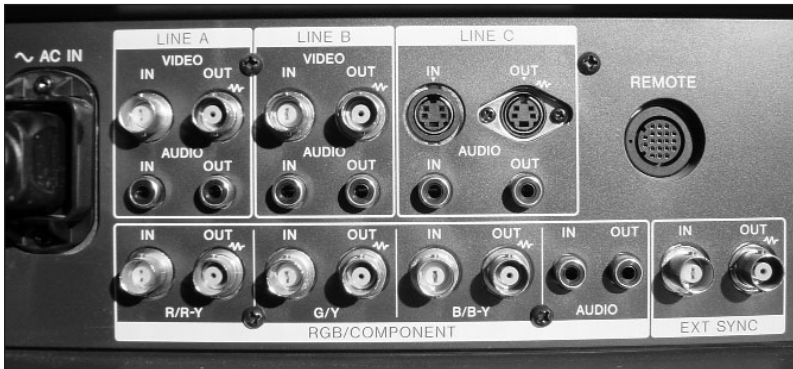


figure 8-6

This model monitor has component, composite, and S-video connections.

## VIDEO CAPTURE USING A VIDEO CARD

Video capture cards have come a long way in recent years. Originally, the primary purpose of the video capture card was to convert an analog video signal into a digital one. The early consumer capture cards weren't even able to convert the digital signal back into an analog one. They couldn't capture full-screen (640 x 480 pixels) or full-motion (30 fps) video.

However, today's capture cards do all that and a whole lot more. Most have support for a second computer monitor, in addition to a video monitor. Low-end cards support composite video, prosumer cards support S-video, and high-end cards support component video and SDI. Pinnacle's CineWave card even supports HDTV.



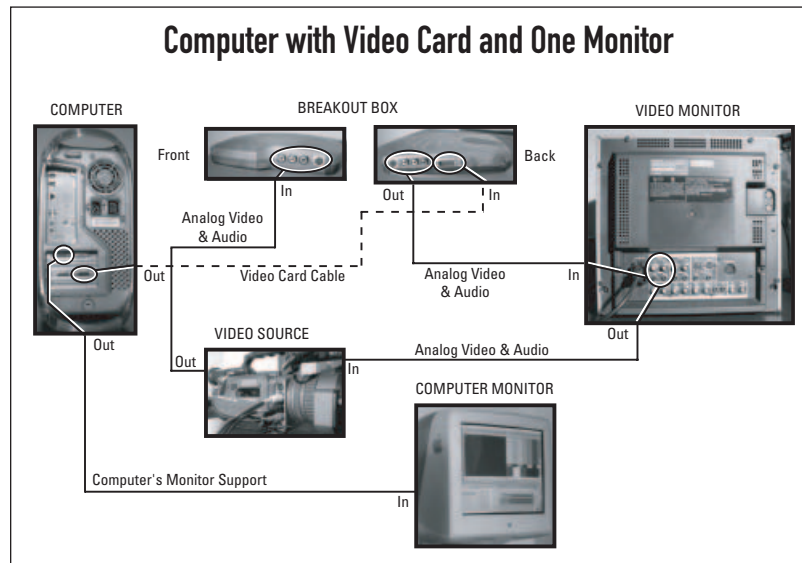
figure 8-7

Today's digital video cards not only convert an analog signal into a digital one, but also allow for real-time previewing and additional monitor support.

These video cards will also support several layers of video for real-time previewing of effects. With real-time preview, you don't have to wait for certain special effects to render in order to see what they will look like. The digital video card is capable of playing certain features directly from the timeline, such as basic transitions, motion, and alpha channels. However, you will still have to wait for these effects to render in the finished movie. The advantage is faster, easier editing.

figure 8-8

This diagram depicts the typical connections for a video card with one computer monitor and a video monitor.



## Using the Breakout Box

Many digital video cards come with a breakout box. A breakout box is a separate unit that uses a cable to plug into the video card. You can connect your video cameras, decks, and monitors directly to the inputs and outputs provided on the box.

figure 8-9

The breakout box, like this one by Matrox, allows editors to easily plug in their video equipment.



To use the breakout box, do the following:

1. With the computer's power turned off, attach the cable from the breakout box to the video card in the back of your computer.
2. Using a video source like a video camera or deck, connect the source's *analog video out* to the breakout box's *analog video in*.
3. Connect the breakout box's *analog video out* to a video recording device's *analog video in*. You can use either a video deck or a camera to record your video.
4. Connect your recording device's *analog video out* to a video monitor's *analog video in*.



figure | 8-10 |

The back of this breakout box has composite and S-video connections, as well as an interface cable for the video card.



figure | 8-11 |

This Matrox RTMac breakout box is wired using composite video inputs and outputs.

## Attaching a Second Computer Monitor

Most digital video cards will support an additional computer monitor. The computer's main monitor should be plugged into the computer's built-in monitor support. A second monitor plugs into the video card's monitor support. Typically, digital video editors use a 17-inch monitor or larger. They prefer a two-monitor configuration, with a third video monitor. Screen space is valuable to the digital video professional because most editing software programs use many windows. With dual monitor support, you can extend your workspace from the edge of one monitor to the next by simply dragging your mouse across the desktop.