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Moviemaking on the Mac



by Bob Connolly QuickTime has long been one of the Mac's greatest strengths. But with the success of the iMac, the release of iMovie 2, wider availability of inexpensive FireWire drives, and the introduction of new Macintosh video cards, the case in favour of Mac superiority for both consumer and professional digital video has grown even more convincing.

For those of you who are just now entering the world of digital video, I would like to share some of my trials, tribulations and predictions which might help you make the right decision when purchasing your video setup. There are hundreds of systems out there, but I am going to touch on just one of them, and that's the Macintosh solution.

Why Mac? One simple reason: QuickTime.

QuickTime is like PostScript—it's widely used on both Mac and Windows, and it's here to stay. If you don't want to go down a road that might be closed one day, it's my opinion that you need to buy an open system that uses the native QuickTime format. Sure, you might release your Internet video on RealVideo, or Windows Media, or MPEG for CD-ROM, but in most cases those formats were created using the QuickTime file format on Mac or Windows computers.

I always found working with the Avid system to be inconvenient when I wanted to add special effects generated on a remote workstation. Exporting an Avid file to QuickTime or OMF for incorporation into Adobe *AfterEffects* was a big pain in the butt and I couldn't see the final rendered file played back on a TV monitor in real time unless I imported it back into the Avid.

Using DV or the new Cinéwave video card that uses a native QuickTime codec, video plays back from the *QuickTime Movie Player*. This is a great way to check your video before you add it to your edited footage. If you have a FireWire-equipped Mac, you can play the same DV footage on any other computer that you have, as long as it has QuickTime. This makes working in teams a real pleasure because most new Macs can play back DV on TV via FireWire using a DV camera or recorder. Even iMacs can do it, so this is a great place to start your digital journey.

IMOVIE 2 BRINGS DESKTOP VIDEO TO THE MASSES

The Mac is where the desktop publishing industry started, and in most cases it still reigns supreme when creating professional graphics for print and the Web. Now Apple has set its sights on the next trend—desktop video.

Have you noticed TV ads for iMacs? They're targeting home video producers—and they're winning. For as little as about \$2500 for an iMac and a basic DV camera, you can begin producing your own home digital videos. *iMovie 2* is so simple that it doesn't even come with a manual—the Help tutorial which is included is all you need to get started. The software is designed for the novice—such as someone who wants to make birthday videos that have dissolves, titles and special effects transitions.

To capture footage for editing via FireWire using *iMovie 2*, you need to have either a DV camera/recorder or a DV transcoder box. This DV codec has been a little confusing for the newcomer to desktop video. The *iMovie* TV ads show how simple it is to edit your home movies, but they don't mention that DV video is required. Many customers think that you can plug your 8mm or Hi-8 video camera into the computer and start editing. That



To make the **FIREWIRE CONNECTION** between your DV camera and its internal tape drive, look for the jack on the back of your camera (Sony calls it iLink).

used to be the case in the early days of AV Macs but those options are gone. Now the G4 PCI slots are for add-on video capture cards, and in the case of the iMac, getting video into the computer will be via FireWire (also known as IEEE 1394) or Sony's version called iLink. They both do the same thing by allowing the swift seamless transfer of digital video from camera to computer.

In a consumer DV camera, there is an additional internal video compressor that takes images from the CCDs and compresses them into DV format. DV cameras are basically regular Hi-8 cameras which have a digital video compressor built right into the camera.

The FireWire (or iLink) jack at the back of the DV camera is attached to the camera's internal tape drive. Digital video files that are stored on tape are simply transferred to your computer via



Digital video requires lots of storage. LaCie now sells a stackable fast 75GB **FIREWIRE EXTERNAL DRIVE** (above) for about \$1600 (Cdn).

the FireWire connection. This information is either stored internally or externally. A good choice for external drives is one of the many FireWire drives now available. They are inexpensive, fast enough for DV and best of all, plug and play, using tiny connector cords—there are no SCSI ID numbers to deal with. Plug them in and they work. I have two LaCie 75 GB FireWire drives and I love the way they stack on top of each other.

RACK 'EM OR STACK 'EM—FIREWIRE IS THE WAY TO GO FOR DIGITAL VIDEO

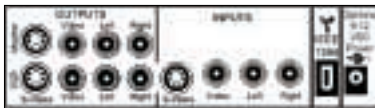
I can have several video editing projects on the go and I treat FireWire drives as big removable drives. Moving digital video content from my iMac to our G4s is a real snap—it's my replacement for fiber-channel. If you want to start a project on location

For as little as about \$2500 for an iMac and a basic DV camera, you can begin producing your own home digital videos.

using a PowerBook laptop, you can finish it back at work on the G4. Just plug in the drive and away you go. I often edit videos using iMacDVs and PowerBooks running FireWire drives, and then batch-digitize the final edit decision list into the uncompressed CinéWave system using the SCSI array drives.

But what about all the people out there who have VHS, 8mm or Hi-8 cameras? And in some cases Betacam? How do they use iMovie 2 with FireWire?

Several companies have started to produce inexpensive DV transcoders. For about US\$290, you can purchase a DV box that accepts YC or SuperVHS and line input analog video that outputs DV via FireWire. It also takes the DV signal and transcodes it back to analog video so you can record the video signal to your tape



Converting analog to DV and back again requires a DV TRANSCODER.

recorder or watch the video on a TV monitor. DV transcoders convert analog to DV and vice-versa.

Y-C, also known as SuperVHS and line inputs/outputs, are transcoded to and from DV. I suggest that even if you have a DV camera, you should purchase one of these DV transcoders and leave it hooked up to the FireWire port on the Mac—it's the best way to see how your work in progress is coming along. The DV playback on a computer monitor can sometimes be a little choppy, whereas the playback on a TV set, via the DV transcoder, is crystal clear without any dropping of frames.



Captured DV footage is stored in iMOVIE'S "SHELF". Clicking on a thumbnail loads it into a "clip viewer".

recorder hooked up to the computer and the software takes over control of the device. Importing the video is just a click of the mouse, and click again to stop capture and save the file. There is

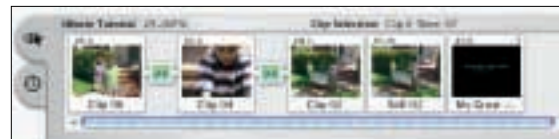
a window called the "Shelf" that shows thumbnails of your captured footage.

The Shelf is where you store your clips. Double clicking on a thumbnail picture loads the image into the "clip viewer" for display. Instead of setting in and out points for the footage that you want to keep, you delete unwanted portions of the image. This method resembles *MoviePlayer*, where you hold down the shift key and drag along the "scrubber bar" to select the footage that you want to copy or clear.

Clips from the shelf are dragged into the timeline viewer. After you clean up the imported clip of unwanted material, you then drag the clip to the "timeline viewer". Keep adding the clips as needed. For transitions, you click on the transitions button and a list of transitions such as dissolves and wipes is now available for your selection. Drag a transition such as a dissolve to the timeline and drop it between two clips. The transition, which can take a few seconds or over a minute, is automatically rendered. It is best to cut your project together and then add transitions at the end to save time—rendering is not done in real time.

Wipes, dissolves, and other effects are found in the transitions window. Adding titles is accomplished via the title menu, which features pre-generated scrolling and type-on styles. Titles over black or still images seem to work the best.

You can import AIFF or MP3 music files, transfer audio from CDs, or record right into the computer via an internal or external



Once the clip is cleaned up, it is imported into iMOVIE'S "TIMELINE VIEWER", where transitions are added.

microphone, and there are sound effect samples built right into the application such as applause, cats, and the usual household home movie sound effects.

To output your movie, you can recompress it for the Internet or CD-ROM or send it back out via FireWire to a DV camera, recorder or DV-to-analog transcoder. The predetermined Internet settings use H.263 codecs for video and Q-Design 2 audio. The resulting file size is quite large for the Internet because of the way H.263 compresses video. But this codec compresses very fast, so I guess Apple figures that most home videomakers are in a hurry to get the final product out to someone's mailbox. The Sorenson video codec might be a better choice if you are looking for smaller file sizes. However Sorenson also has its drawbacks since it is processor-intensive and doesn't work well with unsteady or shaky camera images.



Use the **TRANSITIONS DIALOG** box to create wipes, dissolves and other effects.



To add titles, iMovie has a **TITLES DIALOG** in which you may select pre-generated scrolling text or type on titles.

FROM IMOVIE TO FINAL CUT PRO

In my last article, I was in the midst of trying to figure out what type of digital video editing system I would buy to replace my aging Avid workstation. Would I go with Media 100, DV FireWire, or Uncompressed?

After two weeks of consultation with salesmen at Precision Camera and Solutions in Computing in Toronto, I decided on an uncompressed Macintosh configuration. This consists of a new Pinnacle CinéWave video capture card, two 36 GB and two 72 GB Atlas 10,000 rpm 160 Ultra-SCSI 3 drives, and an Atto dual-channel Ultra-SCSI 3 controller card. The drives were striped into an array and sit in their own tower; the cards went into my single processor G4 450 Mac. I removed the internal modem and replaced it with a serial port adapter to allow for RS 422 machine control of my BetacamSP and DVCAM decks. I also added two LaCie 75 GB FireWire

drives for storage and file transfer.

Thinking I could save some money, I decided to purchase all of the parts individually and assemble them myself; but at the last minute I relied on the expertise of Technique Microsystems in Mississauga to install the drives and configure them properly. Judging from the fact that most of the salesmen had not sold a system and were just trying to figure it out themselves, I'm guessing that I might have been the first person in the city to put this setup together.

There is a lot of confusion concerning digital video formats at the moment: MiniDV, DVCAM, DVPRO, FireWire, SDI, Component, High DEF—it's a real advantage to have a good system integrator at your disposal to make it all work. I wanted a system that runs entirely on QuickTime. So far it seems to work well with every one of these formats.

From FireWire to uncompressed video, I think I now have an "open" system that can handle mixed formats such as analog Betacam and digital MiniDV. It can output to broadcast TV, or even high definition TV if the need arises. Producing Internet streaming media should be a simple one-step procedure via QuickTime and *Media Cleaner Pro* utilizing the same computer. The folks at Avid no longer hold me hostage, and I'm glad to be free from their upgrade and support policies. Heck, I feel born again!

I'm sure many Avid users are going to argue with my point of view, but I just can't seem to find a reason to justify the money that Avid charges for uncompressed, non-linear editing systems. Granted, they have real time dissolves, but at this point my computer takes about twenty seconds to render a 30-frame dissolve. I can afford to wait for rendering in return for buying a computer at a quarter of the cost, and at the same time use all my favorite QuickTime digital video effect packages, such as *Commotion* and *AfterEffects*, on the same capture playback card—whereas the Avid card works only with Avid applications. Besides, I've seen version 2 of *Final Cut Pro* which allows for real time dissolves, and it's just around the corner. I can wait.

Pinnacle's CinéWave card works with any QuickTime application. I can now view uncompressed digital NTSC video straight out of *AfterEffects*, *Commotion*, or *Infini-D*, and I can even view uncompressed *Photoshop* graphics on my video monitor using QuickTime *PictureViewer*. I'm in heaven!

Instead of buying a whole Avid system, you can just buy the Pinnacle CinéWave card. For creating commercials or bumpers for TV spots, you're not forced to buy non-linear editing software—*AfterEffects* and CinéWave will do the entire job. You can now create several digital video workstations, all tailor-made to work together in unison without transcoding formats between workstations. Edit with *Final Cut Pro* and buy that software separately. Composite green-screen keyed effects on another workstation with *Commotion*. Just add CinéWave cards and high speed drives to the workstations where they're needed to view full screen, full motion, uncompressed digital video playback on an NTSC monitor.

You may think that I'm biased toward Apple computers and QuickTime. But I would like to point out that we have Linux

I just can't seem to find a reason to justify the money that Avid charges for uncompressed, non-linear editing systems.

servers running all our websites, as well as a Windows file server for networking the Macs. If we're going to produce high quality graphics for print, video and interactive rich media for CD-ROM and websites, I find the Mac and QuickTime to be the best platform for our shop. With the Mac's new push into digital video, I feel very happy to have invested in an Apple solution, knowing that it can only get better with OS X.

So go out, get an iMac and start making digital videos! ■

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