



# DVD

isc

~~ideo~~

Versatile

igital

# RULES!

DVD-Video

DVD-ROM

BY BOB CONNOLLY



*Second-generation DVD,  
re-engineered for a  
multitude of formats, is  
now coming of age.  
More than simply the  
much-heralded digital  
replacement for videotape,  
DVD-ROM is now the  
successor to CD-ROM,  
ballyhooed as a boon to  
multimedia developers and  
producers. But if the  
recent DVD Professional  
Conference held in  
Orlando, Florida is any  
indication, even industry  
veterans are having a  
tough time deciphering all  
the new faces of DVD.*

E HAVE ALL HEARD ABOUT IT. SOME OF US HAVE EVEN HAD A CHANCE TO see them at our local Future Shop.

DVD has finally arrived on the PC, and on the Mac, System 8.1 has taken care of the incompatibilities with the first generation of DVD-ROM drives.

The graphics community is starting to feel the pull of this exciting new media. DVD is sort of a big brother to the CD-ROM, but unfortunately *this* big brother has some big personality problems.

Hoping to find a cure for the misinformation that seems to be running rampant about this new technology, I made my way to the 1998 DVD Professional Conference that was held at the Omni Rosen Hotel on Feb. 2-3 in Orlando, Florida. Some of you may want to explore the possibilities of adding full screen video to your computer presentations. Some might simply wish to back up data to DVD-ROM instead of CD-ROM.

Here's a look at the roadmap for the next digital data highway.

#### **WHERE DID DVD COME FROM?**

DVD is a new medium originally fueled by the movie industry. Its roots are in the VHS video rental market.

Hoping to avert the Beta-VHS wars that confused early consumers of home video recorders, Japanese industrial hardware producers sat down with the blessing of America's movie moguls and drew out a battle plan to gradually eliminate VHS video and replace it with a digital medium: DV video recorders and DVD Digital (Video-Versatile) Discs. It was done before in the music industry — when CD's gradually replaced vinyl records — and now seems to be the time to change the face of consumer video.

Today there are more than half a million set-top DVD players in the market. There are also thousands of popular movie titles in this new format. By the end of 1998, market researchers say there will be more than fifteen million DVD-ROM equipped PCs in the marketplace; as many as five million set-top players will be shipped into homes across North America. In the industrial corporate world, most professional A/V presentation facilities (hotel banquet rooms, conference centers, suites) will be equipped with DVD players by mid-1998.

Although identical in size to a CD, DVD discs can store 4.7 gigabytes on a single layer, single side. Two layers and two-sided discs will allow 17 GB. A single-layered disc has the capacity to store a full length, high quality movie with Dolby Digital surround sound.

CONTINUED

## THE CONFUSING WORLD OF DVD FORMATS

The failed initial launch of DVD caused the Hollywood movie moguls to call on the wisdom of the digital dingbats of Silicon Valley. The alliance negotiated quite a list of must-haves before giving the nod of approval to the hardware manufacturers.

Backward compatibility with CD-ROM, CD-R, PhotoCD and other formats has created an engineering nightmare. The first generation of consumer DVD-Video titles were so

is expected to become the new standard by the end of this year. It is not necessary to have MPEG video hardware to use this drive. Consider it like a big CD-ROM where you can run *Director*-based productions utilizing high quality Quick-Time movies or software decoded MPEG-Video. (P.S. Everyone at the conference was betting on this format to succeed even if the DVD home market fails.)

**Hybrid DVD Titles.** Hybrid titles are DVD discs that play on both DVD consumer players and DVD-ready PC's. Unfor-

*Second generation DVD-ROM drives must also play CD-ROM, CD-R and PhotoCD.  
The DVD-ROM drive is expected to become the new standard by the end of this year.*

bad that only half of them worked properly, and the computer industry has now just begun to install second generation players that are capable of also reading CD-R. To make everyone happy, several DVD formats had to be developed.

**DVD-Video.** DVD-Video discs are designed for home entertainment. They play back on consumer DVD players that plug into TV sets or on desktop PC's equipped with a DVD-ROM drive and additional hardware and software to decode digital audio and MPEG video. This is the preferred format of the DVD market and we will explain why later.

**DVD-ROM.** DVD-Read-Only-Memory is another 12 cm digital disc like CD-ROM that can be read by DVD-ROM drives installed in PCs (although it also comes in an 8 cm disc format). Storage capacity varies for DVD-ROM discs, ranging

from single layer single side (4.7 GB) to dual layer dual sided (17 GB).

Second generation DVD-ROM drives must also play CD-ROM, CD-R and PhotoCD. The DVD-ROM drive

fortunately, they behave differently on both players.

Hybrid discs contain a special executable program for the PC which enables the application to take advantage of the PC features that don't exist in the DVD-Video consumer player. These features might require enhanced graphics, interactivity or Internet connections. Big authoring problems for new developers.

**DVD-R.** DVD-R (Recordable) is a type of DVD that allows one time recording of data. DVD recordable discs can store 3.95 GB on a single sided disc, and 7.9 GB on a double sided disc. There is only one DVD-R recorder on the market at this time, made by Pioneer, and its whopping \$20,000 cost is slowing the development of independent titles at this time; developers are really complaining about the gouging.

To make a test disc to check your DVD-Video work in progress, you need to shell out \$500 to a DVD service bureau, and only the big movie houses have cash like that to throw around.

The rumbling among developers is that Pioneer has inflated the price of its recorder to keep it out of general circulation to discourage illegal copying of movie titles.

But if you have twenty grand? Copy away!

**DVD-RAM.** The DVD-RAM format is on the horizon for under \$1,000, and several versions exist. But only Hitachi will have one ready to ship in the near future.

However, it's important to note that DVD-RAM actually has little to do with DVD and is really best thought of as being similar to a magneto-optical, Iomega Jaz or Syquest drive.

DVD-RAM is a variation of DVD that is erasable, and can be rewritten. The specification for DVD-RAM enables users to store

(below) Pioneer's DVD-R Writer, the only one of its kind on the market right now. Unfortunately, it currently carries a price tag of \$20,000.



CONTINUED

# Your work demands the best!

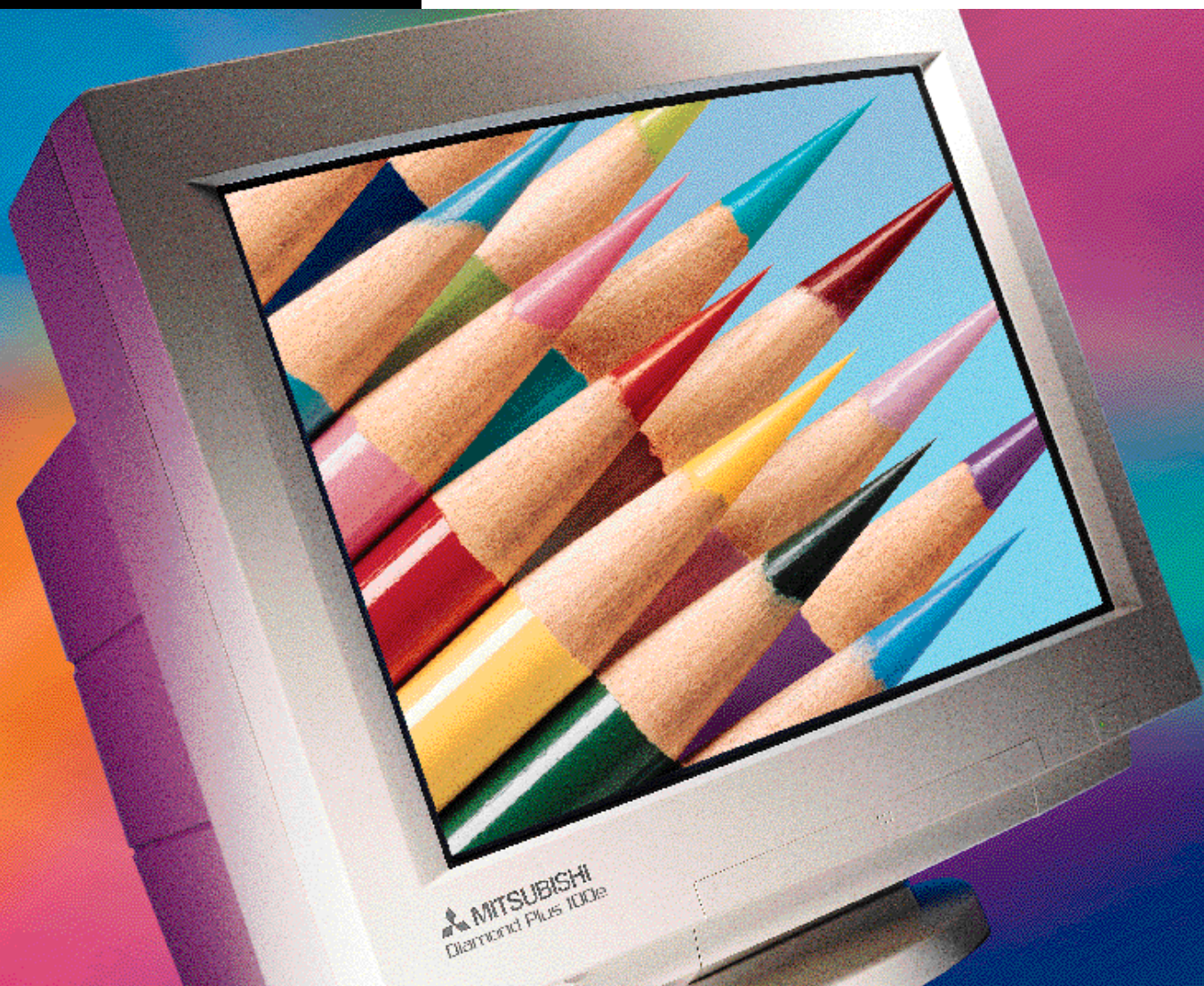
Is your monitor providing the performance you need to do your best work? Are your images as sharp as our pencils? Are you protected by service and support programs that are the best in the business. Probably not, unless your organization is already enjoying the benefits of Mitsubishi monitors.

Mitsubishi's full line of award-winning monitors have a proven reputation for quality, reliability, and value. Our advanced DIAMONDTRON™ CRT, featured in our 17" to 21" models, is the best technology available, delivering images with razor-sharp focus, exceptional brightness, superb contrast and bright vivid colours. And now you can get all this at prices lower than ever before.



So ask your reseller for pricing on Mitsubishi monitors and see for yourself how everyone using graphics intensive applications can experience the Mitsubishi difference.

For more information call us at 1-800-450-MITS (6487), ext. 188, or visit our website at [www.mitsubishi-display.com](http://www.mitsubishi-display.com)"



**MITSUBISHI**  
"Innovative Display Products"

2.6 GB on a single sided disc and 5.2 GB on a double sided disc. DVD-RAM is not compatible with DVD-video set top players or DVD-ROM.

**DVD-Audio.** The specification for a DVD-Audio disc is still being discussed by the DVD Consortium. However, some DVD-Video audio-only discs are already being produced. The high quality surround sound provided by the DVD-Video specification already enables you to author high quality audio discs.

*Sonic's DVDit!, which makes it easy to produce one-off DVDs, is a breakthrough application. It should start a new industry just like Macromedia Director did.*

**Divx.** To add another wrench in the gears, Divx was recently announced by Circuit City as a format based on DVD discs that offers a pay-per-48-hour viewing period. Divx titles will be cheaper than DVD titles but additional payment will have to be done via the Divx player's modem port connected to the user's phone line when additional viewing time is required. Divx players will be more expensive than DVD players and the Divx format is not compatible with DVD-Video, which means that DVD players do not play Divx discs.

The concept behind Divx is to offer an alternative to video rental that doesn't require the user to go to the rental store to return the title. Divx, however, introduces incompatibility into the world of DVD and could cause delay in the adoption of the new media. It also adds a billing mechanism to the living room which most consumers would rather avoid. (And to think that Spielberg endorsed the idea — Steve, maybe you should stick to making great movies and leave the digital business to guys like that other Steve at Apple, or even Bill at Microsoft!)

Who should we bet on?

Even though everyone feels DVD-ROM is a sure thing, the attendees at the DVD convention were being constantly reminded to author for the DVD-Video format by IBM and Microsoft. This was confusing at first, but we all gradually came to realize that DVD-Video also ran on DVD-ROM equipped computers! Even Macromedia had a camera crew taping the entire conference so the staff at Macromedia's head office in California could grasp the concept.

#### THE SECRETS OF DVD-VIDEO REVEALED

Basically, DVD-Video is an extension of the 12" laser disc, only in this case, interactivity is built into the DVD disc and this data is read by the set-top box player. There's a menu to select different "titles", such as chapters in a book or music video selections on the disc. If you had filmed a

music concert with multiple cameras that ran in sync, you could select different angles or cameras and there would be no pause in the playback. Try that with QuickTime movies!!

Now, apply that approach to authoring a DVD-Video title. Just like an interactive CD-ROM allows you to branch to different locations on the disc, DVD-Video also allows you to branch to different MPEG movies on the disc. But with DVD-Video, all your content (PICTs, animations, QuickTime etc.) must be converted to MPEG-2 Video. Even still pictures

that are used in interfaces for branch navigation must be converted to MPEG-2 Still Video.

But unlike QuickTime, you can have interactive navigational hot spots on moving Broadcast Quality Video! This I really like! No more tiny 320 x 240 QuickTime movies. *Everything* is broadcast quality MPEG-2 VIDEO.

To author this way, you simply composite all your video and still segments in *Premiere*, *AfterEffects* or even in *Director* and export the final product in the DVD 720 x 480 QuickTime format. You then convert the QuickTime segments to MPEG-2 using a software utility such as MPEG Professional. Then you link the segments using hot spot graphic overlays for user interactivity utilizing an authoring package that is dedicated to DVD

(below) At the DVD Professional Conference, Sonic Solutions showed off its suite of DVD authoring software solutions, including DVDit!, a new, relatively inexpensive program for creating a disc image file from popular desktop applications such as Power-Point, Hypercard and Premiere. A key feature is its ability to convert QuickTime video, audio and graphics to DVD MPEG-2 video streams for playback on DVD-Video TV set-top boxes or computers equipped with DVD-ROM.



production. Games like *Myst* could really benefit from this style of interactivity.

There are buffers in the hardware to allow for game scores, etc. Some desktop players even allow for joystick controllers.

The authoring solutions on the market are still very expensive because they all incorporate some sort of MPEG encoding which boosts the cost. However, there are loads of us that have access to JPEG capture boards and computers that can convert it to MPEG via software.

#### SONIC DVD CREATOR — A MAC SOLUTION

Sonic *DVD Creator* is the first, the most widely used, and most complete DVD professional premastering system in use today. *DVD Creator* consists of modules for high-quality MPEG-2 and MPEG-1 video encoding, audio prep and encoding, authoring and proofing. Sonic was the first to bring Hollywood DVD production below \$100K, and is now the first to deliver a solution for the corporate market. Sonic Solutions has now introduced *DVDit!*, an inexpensive DVD authoring system for under \$900.

*DVDit!* is designed to work in conjunction with popular desktop applications such as Microsoft *PowerPoint*, Apple *HyperCard*, Adobe *Premiere* and web authoring tools. This application creates a DVD disc image file or volume directory that can be recorded on a DVD-R disc for playback on set-top DVD players or DVD-equipped PCs. It's targeted at anyone delivering multimedia presentations or high quality full motion video presentations, and provides an easy means of delivering one-off DVDs to clients before mass replication.

You print a DVD-Video by using the Menu, just like Page Setup; then select *DVDit!*, just like printing. *DVDit!* then creates a DVD disc image file that can be copied to a DLT tape for replication. With the proper MPEG decoder installed in your computer, it can even be played in real time from a hard disk or Syquest drive directly.

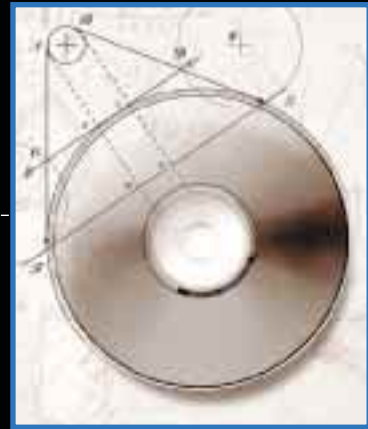
The key feature of this program is its ability to convert media such as QuickTime video, audio and graphics that consist of a *PowerPoint* presentation into DVD MPEG-2 video streams for playback on DVD-Video TV set-top boxes or DVD-ROM equipped computers. Audio files are converted to PCM sound tracks with 48 kHz stereo audio. Still images and graphics are converted to DVD slide shows. Hyperlink buttons and menu commands are converted to DVD data commands which correspond with the remote control that comes with the DVD-video player.

This is a breakthrough application. *DVDit!* should start a new industry just like *Director* did.

Jeff Martin, Apple Computer's senior director, Worldwide Design and Publishing Markets, said, "Apple is excited to

CONTINUED

DVD  
CD-ROM  
CD-AUDIO



Celebrating 10 Years of  
Replicating Leadership

Replicating . . . Mastering  
Pre-Production . . . Packaging  
Distribution . . . Fulfillment  
Full Turnkey Capability

Our team will help bring your project to life...along the way,  
you'll appreciate our commitment to *Total Quality*...  
from manufacturing through our full turnkey service.  
Go ahead...put your CD or DVD project in the right hands.

SANYO Verbatim

In Canada call 905.642.2072 ... General: 1.800.704.7648  
Web: [www.sanyo-verbatim.com](http://www.sanyo-verbatim.com)



FREE CATALOGUE!



**COMSTOCK**<sup>®</sup>  
STOCK PHOTOGRAPHY *Classic*

**800-387-0640**

Rights-Controlled Stock Photography

have Sonic, for the first time, bring easy and affordable DVD authoring on the Macintosh to the corporate environment. Sonic is the industry leader in DVD production tools and, with the introduction of *DVDit!*, they have opened the floodgates for DVD publishing in the office."

#### DVD — THE NEAR FUTURE

DVD will be the de facto standard in the near future for computers, there's no doubt about that. You don't need to be Nostradamus to predict that DVD's sheer storage capacity of 16 GB, compared to CD-ROM's 650 MB, and its backward compatibility with CD-ROM, will relegate second-hand CD-ROM drives to the third world.

On the other hand, DVD-Video for home consumers is only being purchased by connoisseurs. It will probably take a killer application or movie title to move set-top DVD-Video players off store shelves.

For guys like me who produce corporate videos and multimedia for presentations, there's no reason not to jump in now, even if I feel slightly in the dark. But my first step is to buy a DVD-Video set-top player. Unfortunately, I was warned by Ted Stout of IBM Interactive Media (IBM's spin-off company which specializes in multimedia production) that Sony machines will not play a one-off DVD-R, although Panasonic works — and Toshiba, too.

Speaking of IBM, here's an anecdote which I thought was a curious addendum to the subject of DVD-R production.

At one point in the seminars, I stood up and asked a panel consisting of representatives from multimedia production houses whether they might not have a better solution for me to press a one-off DVD than converting my digital production back to analog videotape, so that they could then translate that back to digital onto a DVD disc. After all, what sense was there in losing an entire generation in quality, when an all-digital workflow must be possible?

"Can't be done any other way," came the reply.

But right after the session, Stout approached me.

"I think we can help you with your problem," he said. "IBM Interactive can do exactly what you were describing."

"But you're IBM," I replied. "And I'm strictly a Mac guy. I don't think there's much you could do to help me."

"Oh, but there is!" was his answer. "We carry the IBM name, but we're also completely set up with Mac production systems. We know that multimedia *is* Macintosh."

Hmmm...isn't that interesting? Even IBM knows where the action is. \*

*BOB CONNOLLY IS A PBS TV PRODUCER & MULTIMEDIA PRODUCER FOR BC PICTURES/ALLTOUR VIDEO. HE IS ALSO A CD-ROM PUBLISHER & MULTIMEDIA CONSULTANT SPECIALIZING IN THE CONVERGENCE OF TELEVISION, PRINT, CD-ROM & THE INTERNET. BOB CAN BE REACHED AT (905) 890-3400 OR BY E-MAIL AT B.CONNOLLY@SYMPATICO.CA.*