THE DVD

By Mark E. Donaldson

Introduction

DVD is the new generation of CD technology. Its popularity has been enhanced by the power of the Pentium® II processor. The microprocessor's power is used to decode and playback MPEG2 video, AC3 audio and the contents scramble system algorithm (CSS) to prevent piracy of DVD content. In practical terms, nowhere is the convergence of the PC and consumer electronics (CE) devices more visible than in the hybrid content being created on DVD.

DVD disks can contain a combination of MPEG-2 video, Dolby Digital (AC3) audio, and traditional computer data. A DVD disc can currently store 4.7 GB on a single side, seven times as much information as a conventional CD-ROM. Future DVD discs will be double-sided and double-layered, allowing four times again as much data to be stored (up to 17 GB).

That means that instead of having one Beatles album on a standard CD, you could have seven albums on one DVD. Future DVDs with up to 17 GB of storage will probably have enough room to store every Beatles recording.

The Value of the Microprocessor on Host-Based DVD

Traditionally, if you wanted to play DVDs on your PC, you had to purchase both a DVD-ROM drive as well as a hardware add-on card to decode and play back the DVD (MPEG-2 video and Dolby Digital/MPEG-2/PCM audio). With current operating systems now supporting "host-based" DVD playback, users can take advantage of the power of the microprocessor rather than an add-in card to decode and play. This is especially important when it comes to upgrading the decode and playback engine.

With "host-based" DVD, all you have to do is download and install the software upgrade (with an add-in card it may mean upgrading or replacing the card). "Host-based" DVD works best on a system equipped with a minimum of a Pentium II processor at 300-MHz and an accelerated graphics port. The microprocessor adds advanced features such as dynamic execution and Dual Independent Bus to the media and communications processing of the Pentium II's MMX technology.

Audio & Video Playback

DVD disks are increasingly being used for audio and video playback. More than 1,000 DVD video titles-ranging from contemporary to classic films, documentaries, animation and recorded concerts-already await you via consumer electronics DVD players. But PC-based DVD playback can support all of the DVD formats. That means you can enjoy a broader array of applications, including interactive titles, archiving and movies. You can even access Internet-based online product catalogs for sales of movie-related merchandise, as well as interactive games.

You can choose interactive DVD-ROM software titles that have already shipped, or choose from the new titles scheduled for release in the near future. You'll even have new ways to view DVDs. Watch for new battery-powered portable devices to hit the market soon.

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Accessing Interactive Web Content

Today's high-end PCs with a Pentium II processor at 400 MHz and new 100-MHz system bus provide even more valuable horsepower. They enable you to simultaneously use your PC for things such as accessing Web sites while running a DVD "edutainment" title. Many of the movie titles already released for consumer electronics DVD players are combined with related interactive content accessible only through the PC. Examples include content-on-demand through Internet links, Internet-based online product catalogs, and visually rich, arcade-quality interactive games.

DVD-The New Video & Storage Standard

As a result of its massive capacity, DVD is the new industry video and storage standard. DVD-R and DVD-RAM, for example, will make you forget about not having enough optical storage capacity. These discs will have enough capacity to meet almost any backup need or to download graphic-intensive Internet material. You can even develop, run and rewrite interactive multimedia presentations and/or programs with animated cartoons and other video-based components.

DVD Benefits

Large storage capacity - Today's applications requiring multiple CD-ROMs can be consolidated onto a single DVD-ROM disk.

- Backward-compatibility - DVD drives can play audio CDs and CD-ROMs.

- Rich interactivity - The large capacity of DVDs combined with the power of the PC will enable software vendors to create applications that provide visually rich, interactive experiences for you.

- Convergence - DVD video disks will play on both set-top players and PCs.

Five Types of DVD Technology

Although DVD-Video, the format used for movies, and DVD-ROM, the format PC manufacturers and bundling with PCs today, are the best known, there are five variations of DVD technology to meet the needs of both the home entertainment and PC environments.

DVD-Video - DVD-Video is the movie format and is a read-only storage format. Players that attach to a TV or home theater system became available at the end of 1996. DVD-Video uses MPEG-2 compression providing approximately 133 minutes of LaserDisc-quality video per side.

DVD-ROM - DVD-ROM is a read-only optical disc that can be used as a general purpose computer storage device. Essentially a much higher capacity CD-ROM, that can also store MPEG2 video, AC3 audio, and traditional PC content. This format is ideal for PC content such as games, reference materials and other data-intensive applications.

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DVD-R (Recordable) - DVD-R is a write-once optical-disc that can be used as a general purpose computer storage device. This write-once, read-many format usage model includes archiving, software development and low-volume data distribution.

DVD-RAM - DVD-RAM is a read-write optical-disc that can be used as a general purpose computer storage device. This format supports write-many, read-many storage. Example applications include short-term archiving, software development and media recording.

DVD-Audio - DVD-Audio is a new high capacity, high throughput read-only optical-disc that can be used for the playback of high quality audio. This format focuses on music and other forms of audio-only content. DVD-Audio is still under development, and products are not expected until 1999. The goal of the format will be to provide better audio quality with backward compatibility so that Audio-CD titles can be used on a DVD-Audio player.