

## More Dolby Digital Programming than Ever

Summer 2004 saw the long-awaited return of the Olympic Games to Athens. The event was the first to be held in the city since the inception of the modern Olympic Games in 1896. NBC Universal and its stable of television and cable networks broadcast the event in the US with unprecedented 24-hour coverage, featuring more than 1,200 hours over its August 11–29 duration. And the thrills weren't just for those watching in the crowds in Greece, as broadcasters worldwide had the option to deliver fantastic Dolby® surround sound with their television coverage of the games.

For the first time, sound mixes at many event venues were created using Dolby audio technologies and included with broadcasts of the summer games around the world. Feeds were available for broadcast as both Dolby Digital 5.1 on digital services and Dolby Pro Logic® II on conventional stereo services.

With a total of 36 competition venues, the preparation of state-of-the-art audio and video creation and transmission systems was a massive technological undertaking. The Olympic broadcasts were quite possibly the most extensive surround sound presentation to have been undertaken of any sports event worldwide.

The Olympic Stadium—the site of the opening and closing ceremonies, the football gold medal match, and the majority of the athletic events—was the heart of the 2004 games. The 72,000-capacity stadium, part of the Athens Olympic Sports Complex (OAKA), was outfitted to deliver high-definition (HD) video with multichannel audio feeds, using Dolby E for easy distribution. This and other competition venues were also equipped to deliver realistic surround sound via stereo signals using Dolby Pro Logic II encoding.

### Broadcasters Make HDTV More than Just Another Pretty Picture

HDTV comes alive this fall with more programming than ever before in Dolby Digital 5.1. ABC continues its lead with the commencement of its sixth year of HDTV broadcasts with Dolby Digital 5.1 surround sound. A few of the episodic programs airing in Dolby Digital 5.1 include *The Wonderful World of Disney*, *8 Simple Rules for Dating My Teenage Daughter*, *Hope & Faith*, and *ABC Saturday Night at the Movies*. Additionally, ABC's *Monday Night Football* broadcast on its HDTV service places football fans right in the middle of the action with enthralling surround sound.

On Fox's HDTV service, broadcast this year for the first time, football games will include Dolby Digital 5.1 audio. Three of the last four Super Bowl broadcasts have been presented in Dolby Digital 5.1 on HDTV and DTV services, bringing viewers right into the action of the game.



In May of this year, TNT-HD went on the air in HD and Dolby Digital 5.1. All programs and commercials on TNT in HD will be presented in Dolby Digital 5.1 surround sound. "Our goal is to provide TNT in HD viewers with high-quality, three-dimensional sound. Dolby Digital 5.1 provides our viewers with a sound experience that complements our realistic, high-def visual experience," said Turner's Dan Darling, Senior Vice President, Technology and Production Operations.

Beginning in November with the broadcast of the movie *The Lord of the Rings: The Fellowship of the Ring*, the WB will air its shows with Dolby Digital 5.1 surround sound. The WB, which has aired a substantial percentage of its programming in HDTV since fall 2003, will also broadcast its first made-for-TV movie, *Samantha: An American Girl Holiday*, on its HDTV service in Dolby Digital 5.1.



## Sound Bytes

Ray Dolby was inducted into the National Inventors Hall of Fame on May 1, 2004, in recognition of his invention of the Dolby® noise reduction system, which electronically reduces the tape hiss and other noise inherent in analog audio tape recording and playback. Ray Dolby joins such legendary inventors as Alexander Graham Bell, Eli Whitney, and Thomas Edison in the National Inventors Hall of Fame.



The Mix Foundation for Excellence in Audio, presenters of the Technical Excellence and Creativity (TEC) Awards, has announced the first 25 inductees into the TECnology Hall of Fame, an honor established this year for those products and innovations that have had an enduring impact on the development of audio technology. Dolby's A-Type noise reduction system has been named as one of the 15 inductees for innovation introduced between 1950 and 1995, by a panel of more than 50 audio veterans and scholars.



More new products with Dolby Headphone and Dolby Virtual Speaker—which provide the experience of a full surround system over stereo headphones or speakers—have recently been announced. Among the products incorporating these technologies are A/V receivers from Onkyo and Kenwood, personal surround systems and CD player/receivers from Denon, a universal DVD-Audio/Video player from Marantz, and wireless headphone systems from Audio-Technica, Philips, and Pioneer.



The new Dolby Digital Cinema system made its North American debut at ShowEast on October 25, 2004. At the core of the new system are the Dolby Show Store and Dolby Show Player units, which together provide everything exhibitors need to load, store, decode, and deliver pristine digital movies to digital cinema projectors. The accompanying Dolby Show Manager software provides complete operational control and enables advanced scheduling.

Nine of the television programs nominated by the Academy of Television Arts and Sciences for the 2004 Emmy® Awards in sound-related categories were mixed and broadcast in Dolby Digital 5.1 audio. The 56th Annual Primetime Emmy Awards were broadcast internationally from the Shrine Auditorium in Los Angeles on September 19. Winning programs include *Angels in America*, *Deadwood*, and *Starring Pancho Villa as Himself*, and *Dinosaur Planet*, which won two sound-related Emmys.



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# Dolby News

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## Dolby Digital Plus Is the Sound of High-Definition DVD

Dolby® Digital Plus, introduced earlier this year, is a highly sophisticated and versatile audio codec based on Dolby Digital and designed specifically to adapt to the changing demands of future audio and video delivery and audio storage systems, while simultaneously retaining backward compatibility with the 39 million Dolby Digital 5.1-channel home theater systems already in use worldwide.

**Dolby Digital Plus offers new levels of enhanced audio resolution and fidelity, further complementing the superior video performance.**

Advancements in storage capabilities of optical media have led to the development of the high-definition digital versatile disc (HD-DVD), a next-generation optical disc format that promises to deliver high-definition picture quality in a packaged media format. The coding efficiencies of Dolby Digital Plus, along with new coding efficiencies for video, are creating new opportunities to deliver enhanced audio performance in higher-bandwidth environments. Because of this, the DVD Forum has selected Dolby Digital Plus as a standard audio format for HD-DVD.

In addition to Dolby Digital Plus, the DVD Forum selected MLP Lossless™, licensed by Dolby Laboratories, as a mandatory part of the HD-DVD standard. MLP Lossless, the core audio technology behind multichannel DVD-Audio, enables content providers to encode multiple channels of 24-bit/96 kHz surround sound or stereo 24-bit/192 kHz content onto an HD-DVD. The result is the most realistic and involving high-fidelity

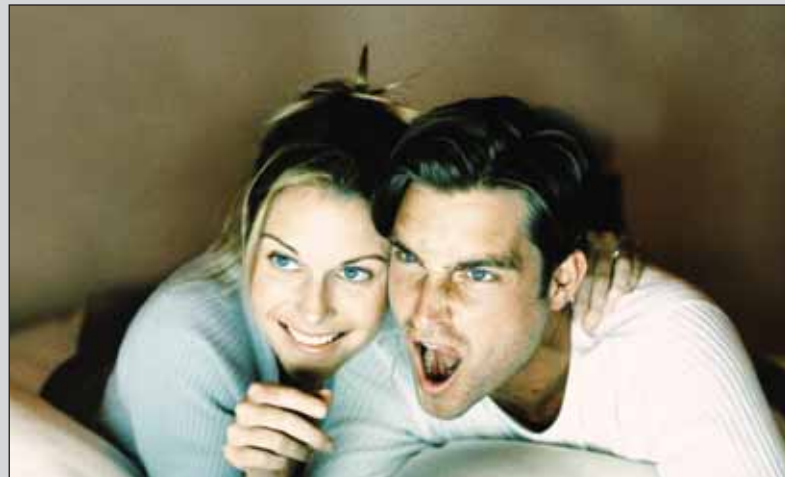
audio available for packaged media, making MLP Lossless the perfect complement to Dolby Digital Plus.

Dolby Digital Plus offers new levels of enhanced audio resolution and fidelity, further complementing the superior video performance. These extensions to the existing Dolby Digital format extend the peak 640 kbps data rate to 3 Mbps and beyond. Dolby Digital Plus is also designed with the flexibility to permit future channel expansion beyond the traditional 5.1-channel model, to 7.1 discrete channels and beyond. Dolby Digital Plus will

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## Dolby Pro Logic II on the Rise

**Dolby® Pro Logic® II technology is fast becoming the preferred delivery format for surround sound via stereo broadcast services.**



Eighteen TV series airing this fall on major US networks are being encoded and delivered in Dolby Pro Logic II. For this year's Academy Awards presentation in March, ABC used Dolby Digital 5.1 for its digital service and Dolby Pro Logic II for the stereo broadcast.

The same will be true of both the upcoming World Series and the Super Bowl, both broadcast by Fox. Starting September 12, the network will present up to six football games every week during the regular season, as well as post-season games (including the NFC Championship Game and Super Bowl XXXIX), on its analog service in Dolby Pro Logic II surround.

Broadcasters aren't the only ones taking advantage of the technology. Advertisers provided Dolby Pro Logic II on a variety of commercials presented during CBS's Super Bowl XXXVIII broadcast on February 1, giving all television viewers a full surround sound experience for the best commercials of the year.

Dolby Pro Logic II decoding technology is now incorporated into more than 19 million products worldwide. Developed for home A/V receivers, cars, and personal computers, Dolby Pro Logic II technology creates a natural and convincing five-channel listening experience from any stereo source.

Dolby Pro Logic II has proven so popular, the Mix Foundation for Excellence in Audio has announced that the DP563 Dolby Surround and Pro Logic II encoder is a TEC Award nominee in the Digital Converter Technology category. The 20th Annual TEC Awards ceremony will be held on October 30, 2004, at the Marriott Hotel in San Francisco.



**Fall TV Series airing in Dolby Pro Logic II**  
*American Dreams* (NBC)  
*Austin City Limits* (PBS)  
*Crossing Jordan* (NBC)  
*Desperate Housewives* (ABC)  
*ER* (NBC)  
*Father of the Pride* (NBC)  
*Hawaii* (NBC)  
*Joey* (NBC)  
*Las Vegas* (NBC)  
*Law & Order* (NBC)  
*Law & Order: Criminal Intent* (NBC)  
*Law & Order: SVU* (NBC)  
*LAX* (NBC)  
*Monday Night Football* (ABC)  
*Monk* (USA)  
*NFL on CBS* (CBS)  
*NFL on Fox* (Fox)  
*Six Feet Under* (HBO)

## Dolby Digital Plus Is the Sound of HD-DVD *continued from page 1*



offer compatibility with current DVD-Video software content and extendability, thereby ensuring that current software will have a playback life through the next generation of DVD players.

Dolby Digital Plus is also ideal for limited bandwidth environments, such as broadcast television, and interactive delivery of audio for future packaged media applications. Earlier this year, the Advanced Television Systems Committee (ATSC) nominated Dolby Digital Plus a Candidate Standard.

Dolby will demonstrate Dolby Digital Plus for high-definition applications at the 117th AES Convention, in demo room 203, East Mezzanine, Moscone Convention Center.



## DualDisc Arrives

In the near future, you'll see the launch of the latest DVD-Audio format, the new dual-sided DVD-Audio and compact disc-compatible DualDisc™. DualDisc combines high-quality stereo and surround audio for use in DVD-Audio and DVD-Video players on one side, and CD-compatibility for traditional compact disc players on the other.

DVD-Audio is the highest-quality disc technology available today, using MLP Lossless™ to carry up to six channels of 24-bit/96 kHz audio or two channels of 24-bit/192 kHz audio. This allows the format to deliver a dynamic range of 144 dB across the entire audible frequency range.

The DVD-Audio format can also carry extras such as music videos, slide galleries, and lyrics. A DVD-ROM section can be included for computer-based features, such as the new DVD-Audio ROM-Zone (also known as

second session), which allows high-quality multichannel files in high efficiency AAC format. The new HE AAC technology, which has been selected by the DVD Forum as the mandatory codec for the DVD-Audio ROM-Zone, makes files easily transferable directly to portable music players and jukeboxes with full digital rights management.

The Advanced Resolution® audio quality can be enjoyed by owners of the more than 15 million DVD-Audio players already in consumers' homes. As for backward compatibility, virtually all DVD-Audio discs include a DVD-Video area with Dolby® Digital 5.1-channel audio, enabling anyone with a standard DVD player to enjoy the disc.



## Dolby Model 585 Breaks Boundaries in Pitch Shifting

The Dolby® Model 585 Time Scaling Processor performs phase-coherent pitch shifting and time scaling on up to eight channels of audio, with minimal setup and adjustment. This makes it ideal for pitch correction of material that is being transferred from 24 fps 35 mm film to 25 fps video, or of 25 fps video material that needs to be transferred to 24 fps 35 mm film for cinematic presentation. The Dolby 585 can normalize pitch changes that occur during the transfer process, or time scale programming by ±15 percent while maintaining proper pitch, all with unparalleled, natural results.



Unlike previous time scaling processors, the Dolby 585 works well with any kind of audio: music, speech, special effects, or any combination of these. It uses a new algorithm based on auditory scene analysis to individually identify and intelligently process each "auditory event" in the program—a musical note, a drum hit, phonetic speech components, and so on. As a result, actors sound exactly like themselves, and music and effects tracks remain as the producers intended.

A 585 unit was recently purchased by Pixar Animation in Emeryville, California. With megahits like the *Toy Story* films, *A Bug's Life*, and *Finding Nemo*, Pixar has developed a reputation for state-of-the-art animation and first-rate storytelling. Alex Stahl, the studio's own Mad Audio Scientist, took part in comparative listening tests of various systems that eventually led to the selection of the 585. According to Stahl, "It's nearly impossible to time-scale a complex final mix without unacceptable glitches, like burbles in the orchestra whenever a hard effect hits. The 585 produced the most natural and transparent results, no matter what content we threw at it. For our latest short film, *Boundin'*, we pulled up the 5.1 master from 24 to 25 fps for PAL release, then used the 585 to pitch-shift back down four percent. It was nice to hear writer/director Bud Luckey's gravelly voice back at original pitch, without any annoying windowing artifacts [audible processing errors often caused by FFT-based DSP algorithms]." Pixar plans to implement 585 units for use in upcoming projects. "Plus," he said, "the front panel alone is worth the price of admission!"

For time scaling or pitch shifting multichannel audio for film, video, music or other applications, the Dolby 585 is an easy-to-use solution with unprecedented audio quality. Contact your Dolby Professional Audio Products Dealer to arrange a trial in your facility. For more information on the Dolby 585, and to find your nearest Dolby dealer, visit [dolby.com/promo/dolby585.html](http://dolby.com/promo/dolby585.html).

## Dolby LM100 Broadcast Loudness Meter Wins 2004 Primetime Emmy Engineering Award

On August 9, 2004, the Academy of Television Arts and Sciences awarded Dolby Laboratories an Emmy Award in recognition of the Dolby® LM100 Broadcast Loudness Meter. Launched in May 2003, more than 400 units are used in more than 80 facilities worldwide. The Dolby LM100 provides postproduction, television broadcast, cable systems, and satellite providers a unique tool that offers them advanced loudness measurement capabilities to address one of the most common problems in broadcast today: the perceived loudness of programming.

The LM100 incorporates a revolutionary technology called Dialogue Intelligence™, which allows professionals producing programming destined for television broadcast, and DVD releases in Dolby Digital to quantify the level of dialogue automatically from the input signal, by recognizing and measuring loudness only during the presence of speech. Dialogue Intelligence then presents the results in an easy-to-understand numerical format.



Since 1998, Dolby Laboratories has been awarded six Emmy Awards, including an award in 2003 for the development of surround sound for television. Ray Dolby, the company's founder and current chairman of the board, has received an Emmy Award for lifetime achievement in 2003 along with a previous Emmy for "outstanding achievement in engineering development for audio noise reduction systems for professional television tape recorders" in 1989.