



No-Compromise Surround Sound Comes to Online Entertainment

A new era in home entertainment has arrived. Consumers increasingly stream online content to their living room systems—and they expect the same high-quality surround sound they get from HD broadcast and packaged media. Dolby® Digital Plus offers the best way to deliver this solution. It's fully compatible with existing A/V entertainment systems and has the flexibility to adapt to any bandwidth delivery requirements.



 **DOLBY.**
DIGITAL PLUS

“Netflix required an audio solution that could efficiently deliver an outstanding surround sound experience for a wide range of consumer devices. Dolby Digital Plus proved to be the best solution to meet our needs and the needs of our device partners.”

— Greg Peters
VP, Product Development, Netflix



Bringing the Cinematic Experience to Online Entertainment in the Living Room

The rapid growth of over-the-top (OTT) content delivery is having a major impact on the home entertainment industry. Consumers like the wide variety of material available and the ability to pick and choose exactly what to watch and when.

Sound is as important as the picture in creating a total entertainment experience, and it is integral to communicating the artist's original intent. For viewers choosing OTT content, particularly feature films, TV shows, and video concerts, it is essential that you offer a streamed experience that matches what they expect from packaged media and high-definition broadcast.

Dolby Digital Plus provides the perfect online entertainment surround sound solution. Delivering up to 7.1 discrete channels, it offers richer and more compelling audio than the stereo or matrix-encoded surround solutions of the past could deliver. It supports a wide range of data rates to suit both program format and available bandwidth. Its audio performance and delivery flexibility combine to make superior-quality multichannel surround sound a must-have feature for streamed content.

Advantages of Dolby Digital Plus for Streamed Entertainment

Superior Performance

As the audio complement to today's advanced video coding technologies, Dolby Digital Plus delivers discrete multichannel audio within the constraints of the bandwidth-sensitive online entertainment market. Its flexible data rates for multichannel playback scale from 192 kbps to 3 Mbps, and support up to 7.1 channels of the highest quality audio. A 7.1-channel Dolby Digital Plus bitstream retains full compatibility with stereo and 5.1-channel playback systems, and the technology is also ideally suited to the demands of ever-changing network conditions. Dolby Digital Plus decoders are specifically designed to handle changes in data rate and other bitstream parameters on the fly while maintaining a seamless audio output. Internet-delivered multichannel audio also benefits from the full application of Dolby Digital Plus decoding, digital signal processing, and bass management functionality that is included in today's most advanced A/V receiver and home-theater-in-a-box products.

Greater Device Penetration

More than 375 million products incorporate Dolby Digital Plus technology. These include many of today's advanced consumer electronics devices—set-top boxes, Blu-ray Disc™ players, digital media players, and HDTVs.

Proven in Use

In the US, two leading online services, Netflix and Vudu, have chosen Dolby Digital Plus. Worldwide, 18 broadcast and online services have deployed this technology. To best help you deliver multichannel audio to your customers, Dolby works closely with all segments of the content delivery ecosystem to effectively and seamlessly integrate Dolby Digital Plus into file- and container-based formats.

“*Dolby Digital Plus competencies and efficiencies in delivering discrete, scalable surround sound complement the instant high-definition entertainment experience Vudu delivers to home theaters.*”

— Prasanna Ganesan
Chief Technical Officer, Vudu



Compatibility with Dolby Digital Home Theater Systems

More than 3.4 billion products incorporate Dolby Digital technology. Dolby Digital Plus does not leave them behind. Far from it: Through an elegant low-complexity process, a Dolby Digital Plus bitstream, regardless of its source bit rate, can be converted into a 640 kbps Dolby Digital bitstream, enabling connectivity via S/PDIF to millions of legacy home theater devices that support Dolby Digital decoding.

Because Dolby Digital Plus is built on core Dolby Digital fundamentals, the conversion process does not require decoding the signal to PCM and then reencoding it, thereby avoiding the unwanted introduction of tandem coding artifacts and latency that can affect other legacy connectivity solutions. For next-generation devices, enabling Dolby Digital Plus to Dolby Digital conversion ensures that legacy systems can enjoy many of the benefits of online content featuring true multichannel sound.

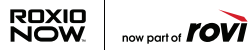
End-to-End Ecosystem Support

The Dolby brand is recognized and trusted throughout the online value chain, assuring consumers that they can now experience great Dolby surround sound with their online entertainment.

Dolby works closely with leading companies at all steps of the video delivery chain. These respected companies are driving worldwide adoption of Dolby Digital Plus as the technology of choice for delivering high-quality surround sound online.

“*Dolby Digital Plus represents exacting audio expertise combined with a highly versatile and efficient technology that helps emphasize the realism, excitement, and emotion of a movie.*”

— David Cook, RoxioNow



Encoding for IP delivery has its own unique requirements. Dolby offers a full set of IP system solutions to encode, mux, store, stream, deliver, demux, and play rich media over IP networks. Our technologies are shipping, and IP services utilizing Dolby Digital Plus are live and proven.

Dolby Digital Plus is specified in the international digital video broadcasting (DVB) standards for terrestrial, cable, and satellite systems. It is rapidly becoming the format of choice for DVB systems.

Dolby Digital Plus has broad support across multiple integrated circuit platforms. Manufacturers include Broadcom, Intel, Texas Instruments, Analog Devices, and many others. Increasingly, major consumer electronics manufacturers offer HDTV and Blu-ray Disc players with Internet connectivity and dedicated portals to popular online services including Vudu and Netflix. Dolby has also partnered with Rovi Corporation to deliver Dolby Digital Plus online services to Rovi's RoxioNow platform. Dolby Digital Plus device support extends beyond home theater components to PCs, game consoles, and mobile phones.



Easy Implementation and Comprehensive Support

A wide range of professional encoding solutions from Dolby and other companies support Dolby Digital Plus.

Dolby solutions include the DP600 Program Optimizer, the Dolby Media Generator to optimally prepare files for broadband delivery, Dolby Media Producer authoring software, and Dolby Digital Plus professional encoder system development kits.

Third-party solutions are available from Rhozet, Digital Rapids, Ateame, MainConcept, Telestream, and others. For a complete list, visit www.dolby.com/professional/technology/professional-partner-products.html.

Additional tools and services provided by Dolby facilitate successful online delivery of compelling surround sound using Dolby Digital Plus. These include reference documentation defining storage of Dolby Digital Plus bitstreams in popular online file container formats such as MPEG-4, ASF, and MPEG-2 TS, comprehensive online testing services and test support, and the Dolby Digital Plus decoder system development kits for IP-connected devices to help enable your online success.



Online Entertainment Highlights

Scalable, with support for up to 7.1 channels of discrete surround sound, and higher data rates available for future applications.

Enables high-quality 5.1-channel surround sound within available bandwidth, starting at 192 kbps.

Simple conversion to Dolby Digital for playback compatibility via S/PDIF with millions of existing Dolby Digital home theaters.

All Blu-ray Disc players, and many HDTVs, set-top boxes, A/V receivers, and game consoles already feature a Dolby Digital Plus decoder.

Get started with Dolby Digital Plus. Email us now at onlinemedia@dolby.com.

We'll provide you with the information you need to deliver the best available streaming surround sound experiences to your customers.



Dolby Laboratories, Inc. | 100 Potrero Avenue, San Francisco, CA 94103-4813 USA | T 415-558-0200 F 415-645-4000 | dolby.com

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