Frequently Asked Questions

DIGITAL AUDIO FOR PLAYBACK—DELIVERING PICTURE-PERFECT SOUND™

DOLBY® TRUEHD

1. What is Dolby TrueHD?
Dolby® TrueHD is a next-generation audio coding technology that enables delivery of pure, lossless, multichannel audio. The expanded range of metadata support in Dolby TrueHD gives content creators advanced control over the audio playback process, ensuring superb performance for all types of listening environments.

Dolby TrueHD has been designed specifically with the needs of next-generation high-definition media in mind, offering higher data rates, more audio channels, and unparalleled flexibility, allowing the content provider to deliver high-resolution, multichannel, source-master-quality soundtracks directly to the consumer's playback system.

2. What are the potential software applications for Dolby TrueHD?
New delivery formats that can support at least a 2 Mbps bit rate for audio are potential software candidates. The first applications to adopt Dolby TrueHD are Blu-ray Disc and HD DVD, as these can support up to 18 Mbps for audio.

3. What is the benefit (value) of using Dolby TrueHD in software?
In software applications, Dolby TrueHD delivers pristine, studio-master-quality sound, delivered just as it was recorded.

4. What is the benefit (value) of implementing Dolby TrueHD in high-definition disc playback products?
Next-generation HD disc players can be designed to participate in processing audio for home theater systems. Features like interactivity and audio mixing will require the audio to be decoded in the player instead of the A/V receiver. A Dolby TrueHD multichannel decoder in the player will be the only way to ensure that listeners will hear the full quality of the wide range of programs anticipated.

5. What is the status of Dolby TrueHD in next-generation optical formats?
Dolby TrueHD is a mandatory audio codec for HD DVD—all players must support it—and is an optional audio codec for Blu-ray Disc.

6. What is a lossless audio format?
A lossless audio format delivers audio that is bit-for-bit identical to the studio master.

7. How does a lossless audio format differ from a lossy audio format?
Unlike perceptual or lossy data reduction, lossless coding does not alter the final decoded signal in any way, but merely "packs" the audio data more efficiently into a smaller data rate for storage or transmission.

The lossless version always sounds like the source. The lossy version may sound like the source, but this is not guaranteed. The perceived quality of a lossy audio format depends on many factors, including the nature of the source material, the compression efficiency of the codec, the delivery bit rate chosen, the quality of the playback hardware, and the listening environment.

8. Is Dolby TrueHD a lossless format?
Yes. Dolby TrueHD always provides a fully lossless audio signal.

9. Is every application of Dolby TrueHD lossless?
Yes.

10. What will I hear when content is encoded in Dolby TrueHD?
You will hear the original source content as it was recorded.

11. How does Dolby TrueHD differ from other lossless formats?
All lossless audio formats must ensure that the audio is always delivered with bit-for-bit accuracy. The core technology of Dolby TrueHD, MLP Lossless™, pioneered lossless audio on DVD-Audio. As a result, MLP Lossless technology has been in use longer and more widely than any other lossless audio format and has proven itself to consumers and industry experts alike.

But that is only part of the story. The Dolby TrueHD decoder circuit actually verifies the output is lossless as it is decoding. Dolby TrueHD also provides unique support for stereo playback, either via a programmable downmix or a wholly separate stereo mix, ensuring that surround content creators can deliver the companion stereo mix exactly as they intend, without compromise.

12. How does Dolby TrueHD differ from MLP Lossless?
Dolby TrueHD expands on the proven capabilities of MLP Lossless, adding the ability to deliver more flexible channel configurations, higher data rates, and extended metadata functionality to support next-generation content delivery formats.

13. What is the sampling frequency and word length for multichannel Dolby TrueHD?
Dolby TrueHD for next-generation high-definition media delivers sampling frequencies from 48 to 192 kHz and word lengths from 16 to 24 bits.

14. Does the sampling rate and word length for Dolby TrueHD main and surround speakers vary as it can with MLP Lossless?
The sample rate and word length for Dolby TrueHD content will always be the same for all channels.

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Example Data Rates	Source Data Rate	Peak Rate	Average Rate	Compression Ratio
Movie sound, six-channel 16-bit/48 kHz	4.61 Mbps	3 Mbps	1.4 Mbps	3:4
Movie sound, six-channel 24-bit/48 kHz	6.9 Mbps	5 Mbps	3.4 Mbps	2:0
Movie sound, eight-channel 16-bit/48 kHz	6.14 Mbps	3.8 Mbps	1.9 Mbps	3:1
Movie sound, eight-channel 24-bit/48 kHz	9.2 Mbps	6.6 Mbps	4.7 Mbps	2:0

15. What are the bit rates required to deliver a 5.1- or 7.1-channel Dolby TrueHD lossless audio track?
The bit rate needed to deliver a Dolby TrueHD lossless track depends on the characteristics of the source material, bit depth, and sampling frequency. Some example data rates from real-world content are provided in the table above.

16. What is the maximum bit rate at which Dolby TrueHD can operate?
Dolby TrueHD for next-generation high-definition media can operate at data rates up to 18 Mbps. All new players incorporating Dolby TrueHD technology will support this maximum data rate.

17. What is the maximum number of channels that Dolby TrueHD can support?
Dolby TrueHD for next-generation high-definition media supports up to eight channels of audio, and offers expandability to accommodate more channels in the future while retaining compatibility with all Dolby TrueHD decoders.

18. Will all new players equipped with Dolby TrueHD support the maximum channel capability of Dolby TrueHD?
The Dolby TrueHD stream is structured so that a player only needs to decode the number of channels it needs. This ensures that a single Dolby TrueHD stream can be used to deliver a two-, six-, or eight-channel presentation with precise control over the playback defined by the content producer.

19. What are the sonic differences between a 3 Mbps 7.1-channel Dolby TrueHD signal and the same signal supported at 5 Mbps?
None. If a stream can be encoded losslessly at 3 Mbps, then the same stream encoded at 5 Mbps will sound identical.

20. What is metadata?
Metadata is control information that accompanies the audio data in a Dolby TrueHD stream, allowing a content producer to define a consistent playback experience for consumers, whether they are listening on a two-channel stereo system, a 5.1-channel system, or a high-end, discrete 7.1-channel home theater system.

21. Does Dolby TrueHD feature any metadata applications? What are they? How will they benefit the consumer?
Dolby TrueHD is designed to offer comprehensive metadata functionality similar to that found in Dolby Digital and Dolby Digital Plus. This includes downmixes that are defined by the content producer, dynamic range compression for late-night listening, and dialogue normalization to ensure consistent playback loudness between different content. For future content featuring discrete 7.1-channel playback, Dolby TrueHD also supports multiple 7.1 configurations, enabling the full creative possibilities of next-generation sound design to be delivered to the consumer environment.

22. Will a player equipped with Dolby TrueHD decoding be able to play traditional DVD-Audio discs encoded with MLP Lossless?
If the device is equipped to play back DVD-Audio discs as well as next-generation high-definition discs, then the Dolby TrueHD decoder will decode MLP Lossless streams from any DVD-Audio disc.

23. Will a future player equipped with MLP Lossless decoding for DVD-Audio be enabled to play Dolby TrueHD encoded content?
You will need a Dolby TrueHD decoder to play Dolby TrueHD encoded content.

24. I have a two-year-old A/V receiver. How can I take advantage of the sonic benefits of Dolby TrueHD?
If your A/V receiver has an HDMI™ input that supports multichannel PCM or an external multichannel (analog) input, you're all set.

Be sure you purchase an HD player that is equipped with complementary output connections (HDMI/external multichannel outputs) and supports the channel capabilities of your corresponding A/V receiver and speaker setup.

25. I am about to purchase an A/V receiver. What should I look for to ensure compatible playback of content encoded with Dolby TrueHD?
An HDMI input that supports multichannel PCM or multichannel analog inputs are all you will need.