

A Dolby Digital Encoding System for DVD

Introduction

Dolby® Digital is a standard multichannel audio format for DVD all over the world. An equipment package is available from Dolby Laboratories that, when partnered with a Windows® PC, allows users to create a workstation to encode Dolby Digital for DVD. This system makes Dolby Digital an affordable and accessible technology for music and postproduction studios that prepare, mix, and encode 5.1-channel audio for DVD. The system consists of the following hardware and software:

- **DP569 Dolby Digital Multichannel Encoder**—A 1-U rack-mount device that encodes 5.1 audio channels and metadata into a Dolby Digital stream
- **DP564 Multichannel Audio Decoder**—A 2-U rack-mount device that decodes Dolby Digital and Pro Logic® streams
- **DolbyRemote**—Software that controls the DP569 Dolby Digital Encoder
- **Dolby Digital Recorder (Cat. No. 542)**—Software that takes an encoded Dolby Digital data stream from the DP569 and records it to disk as an .ac3 file

System Benefits

This versatile system features user-friendly desktop control with the reliability and speed of a hardware-based system. Dolby Digital audio files can be easily delivered from the recording studio to the authoring station on a removable disk or CD-R, or sent over a network.

In addition to the encoded audio, Dolby Digital carries *metadata* that is input during encoding to control audio parameters in a consumer decoder. Metadata allows the decoder to:

- Fit multichannel program material to the number and configuration of speakers (downmixing).
- Play back all programs with consistent loudness (dialogue normalization).
- Alter the dynamic range to suit different listening conditions and/or equipment capabilities (dynamic range control).

Choosing the correct values for these and other metadata parameters is a vital step in the Dolby Digital encoding process. Audio engineers can now set metadata values in their own facility with the confidence that consumers will experience audio as close as possible to what the producer intended.

This system can also fit into an existing DVD facility as a perfect upgrade to real-time multichannel audio coding, freeing up time on the DVD authoring station and making the entire process more efficient.

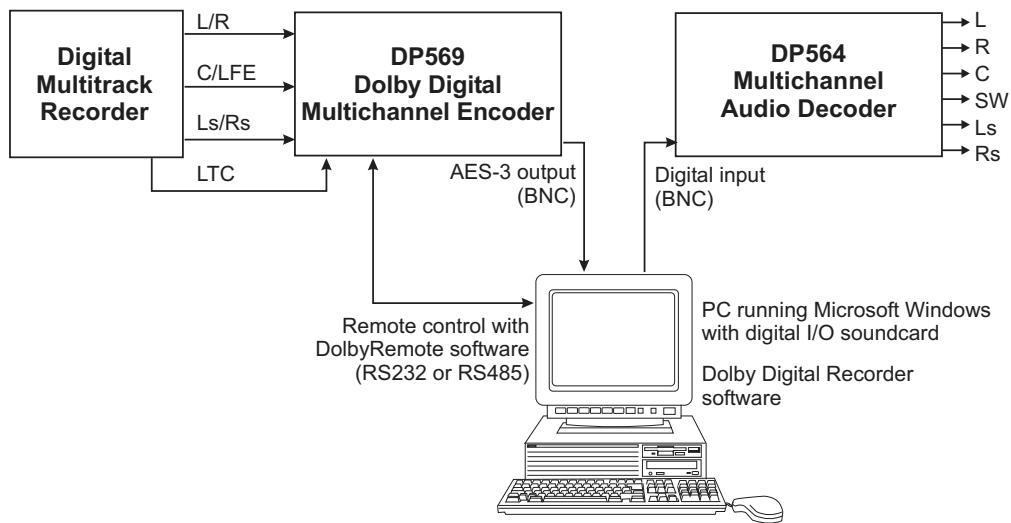


Figure 1 DVD Encoding System Block Diagram

Software Features

The DolbyRemote and Dolby Digital Recorder software can simultaneously control the DP569 Dolby Digital Encoder and write the encoded .ac3 file to the hard disk on a Windows PC. Program windows from both applications appear on the next page.

The Dolby Digital Recorder software enables the user to:

- Record .ac3 files (including time stamps) compatible with all DVD authoring platforms.
- Insert data seamlessly into the encoded audio using the *punch-in* time display.
- Perform nondestructive editing.
- Detect playback and record frame errors and generate an *error.log* file.
- Locate specific points in the recorded file quickly and easily with the *Go to* option and file position slider.
- View SMPTE time code, absolute elapsed time, or frame count.
- Compare and verify *actual bitstream* and *reference* SMPTE time stamps.
- View main bitstream parameters contained within the .ac3 file.

The DolbyRemote program allows the user to:

- Use the *Input level* and *Dynamic Range Compression* meters to obtain visual feedback while setting metadata parameters.
- Control multiple DP569s from a single instance of the DolbyRemote application.
- Save and restore DP569 settings with a file.
- Export DP569 settings as a text or HTML file.
- Configure the software in an offline mode without a DP569.

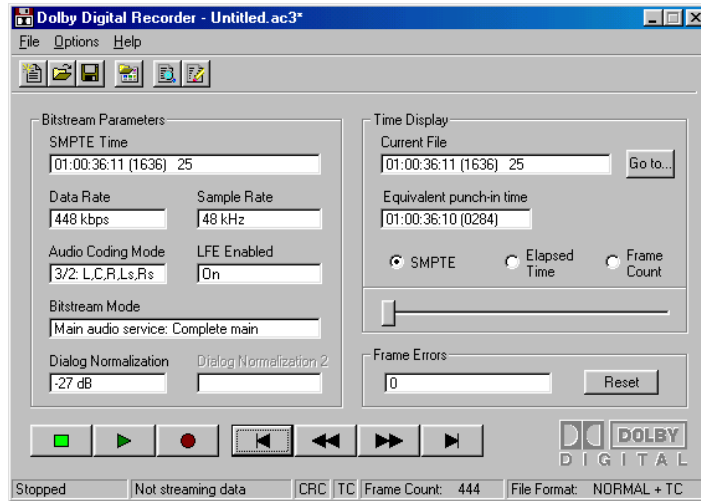


Figure 2 Dolby Digital Recorder Window

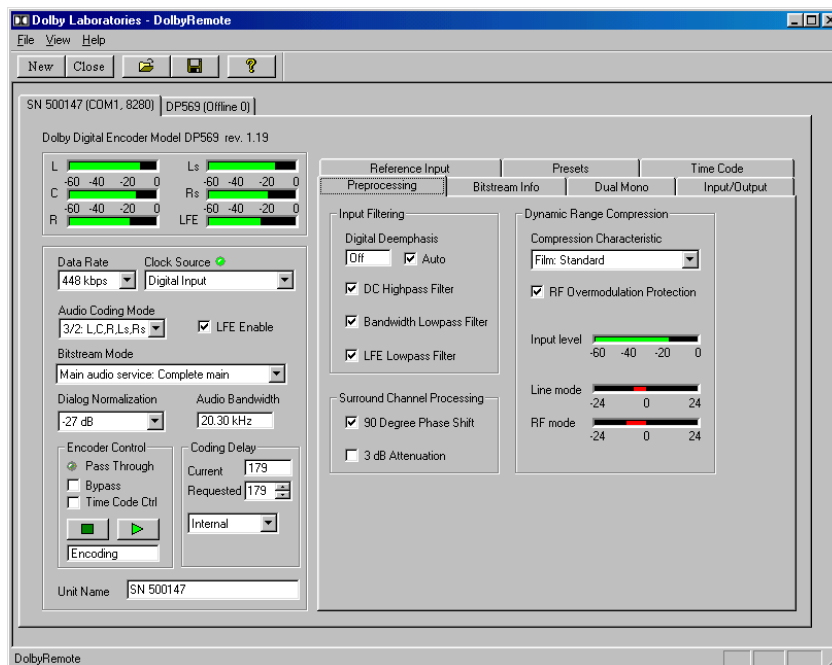


Figure 3 DolbyRemote Window

Computer Requirements

The Dolby DVD encoding system requires a PC running Windows 95, 98, NT, 2000, or XP with standard serial ports to control the DP569 Dolby Digital Encoder, and an unused expansion slot for a digital soundcard with an AES/EBU or S/PDIF input (see list of soundcards below). A separate hard drive is recommended to store Dolby Digital data files, which require approximately 3 MB storage per minute of audio.

Soundcard Information for the Dolby Digital Recorder

Although the Dolby Digital Recorder program has been used with the six digital I/O soundcards listed below, they have not been tested with all versions of the Windows operating system. Soundcard compatibility may vary by operating system. Soundcards from other manufacturers may also be suitable. Use the contact information below to learn more about these soundcards; check websites for product availability and current drivers. When using Windows 2000, Dolby Digital Recorder requires at least Service Pack 2 to be installed.

**Prodif Plus by
SEK'D**

Web: www.sekd.com

Local dealer: www.sekd.com/distri.htm

Lynx One by

Lynx Studio Technology, Inc.

1048 Irvine Avenue, PMB 468

Newport Beach, CA 92660-4602

Web: www.lynxstudio.com

Email: sales@lynxstudio.com

Phone: 949-515-8265

Fax: 949-645-8470

ZA2 DAT interface card by

Zefiro Acoustics

P.O. Box 50021

Irvine, CA 92619-0021

Web: www.zefiro.com/main.htm

Email: info@zefiro.com

Phone: 949-551-5833

Fax: 949-653-2260

SoundTrack Audio DSP 24 by

Hoontech Co. Ltd

4th Flr., Minkyung Bldg.,

#332 Songne-1Dong,

Sosa-ku, Bucheon, Kyung Ki-Do, Korea

Web: www.hoontech.com

Fax: 82-32-612-0079

DATPort by

Opcode Systems Inc

1818 Elm Hill Pike

Nashville, TN 37210

Web: www.opcode.com

Phone: 877-999-4199

Delta DIO 2496 by

M-Audio

45 E. Saint Joseph Street,

Arcadia, CA 91006

Web: www.midiman.com/m-audio.htm

Distributors: www.midiman.com/ids.htm

Phone: 800-969-6434

Contact Dolby Laboratories or an authorized Dolby dealer or distributor for additional information on the Dolby Digital encoding system for DVD.