Melody™ Audio Decoders

MULTICHANNEL AUDIO DECODER/POST PROCESSOR REFERENCE DESIGNS

OVERVIEW

Analog Devices' Melody audio decoder/post-processor reference designs decode and post-process the leading digital audio encoded software in real-time on the ADSP-21065L SHARC® Digital Signal Processor (DSP). The decoders auto-sense and decode or post-process in real-time, combinations of DTS®, Dolby® Digital, THX®, HDCD®, MPEG 1 and MPEG 2 and Dolby Pro Logic®. The decoders support all of the bit rates (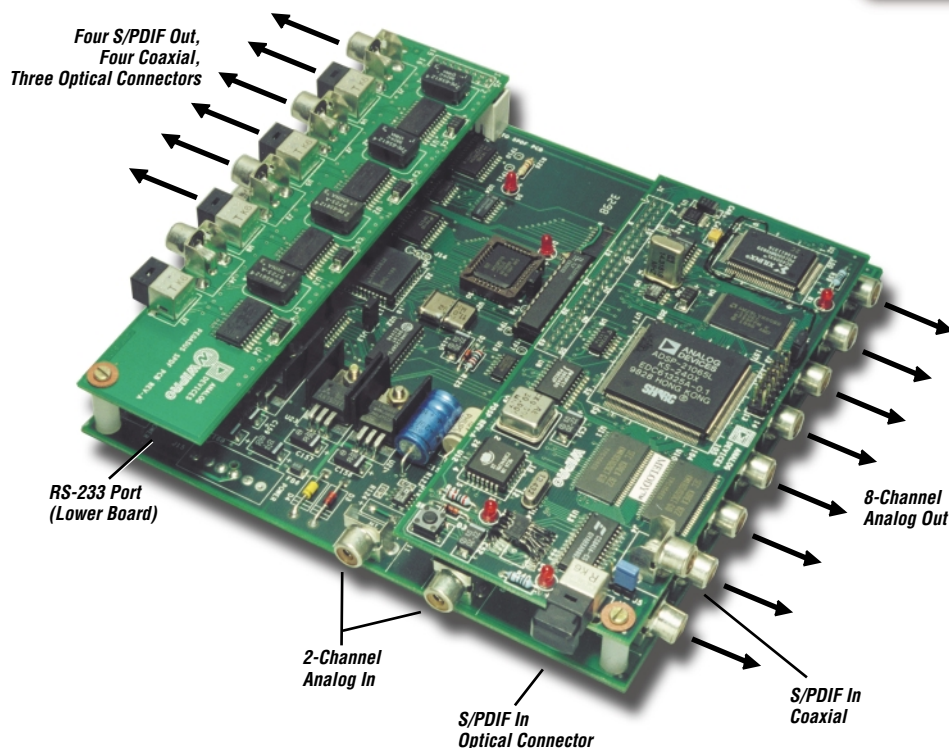32–4,096 Kbps) and sampling frequencies 8, 32, 44.1, 48, 88.2, 96, 176.4 and 192 kHz (per channel) specified by the encoding standards. The decoders also support additional features specified by the standards — including THX post-processing technologies, Bi-amplification™, Re-equalization™, Adaptive Decorrelation™ and Timbre Matching™.

Development Platform

A stand-alone board includes a ADSP-21065L SHARC DSP, four AD1855 DACs, one stereo ADC, one S/PDIF in, four S/PDIF out and an RS-232 port.

HIGHLIGHTS

- Industry's First 32-Bit, Floating-Point Implementation of the Industry's Leading Audio Encoded Software

- Decoders for Dolby Digital, HDCD, DTS, MPEG 1 and MPEG 2, Dolby Surround, Pro Logic and Post-Processors for HDCD and THX

- Ability to Auto-Detect and Display Bitstream Information

- Evaluation Boards, Sample Applications and All Necessary Software Support (Drivers, etc.) Available

Four S/PDIF Out, Four Coaxial, Three Optical Connectors

RS-233 Port (Lower Board)

2-Channel Analog In

S/PDIF In Optical Connector

8-Channel Analog Out

S/PDIF In Coaxial

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Ordering Information

The Analog Devices multichannel Melody Decoder Reference Designs must be ordered under the part number ADSST-MELODY-SDK for the stand-alone reference design. This includes the evaluation board with an evaluation copy of the software, schematics, etc.

Designers of products using this reference design will also be required to sign a license agreement with the respective license holder – viz., Dolby Labs., DTS and Lucasfilm Ltd., to use the appropriate code, and produce proof to Analog Devices of having successfully completed the appropriate licensing procedures,

before final product can be shipped to them. The final product will be shipped from Analog Devices and will include the decoder chipset and software; customers will be required to sign license agreements with Analog Devices and separately pay royalties to the respective license holder.

Audio Decoders—Specifications Summary

	PCM	Dolby Pro Logic	Dolby Digital	DTS	MPEG 2	HDCD	THX
Bit Rate Ranges	N/A		32–640 Kbps	32–1,536 Kbps		N/A	N/A
Typical Data Rate for 5.1 Channels			384 Kbps	1,411 Kbps		N/A	N/A
Sampling Rate (kHz)	16/22.05/24/ 32/44.1/48/96	32/44.1/48	32/44.1/48	8/32/44.1/48	16/22.1/24/ 32/44.1/48	44.1/88.2/96/ 176.4/192	32/44.1/48
Sound Quality	32 bits	32 bits	32 bits	32 bits	32 bits	32 bits	32 bits
MIPS Required		13	25	33	33	42	14

The Melody ADSP-21061 SHARC DSP decoder has been certified by Dolby, DTS, Pacific Microsonics (for HDCD) and Lucasfilm, Ltd., for THX.
Certifications for the Melody ADSP-21065L SHARC DSP decoders are pending.

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