CONEXANT AD1883 Audio Codec Manual

http://www.manuallib.com/conexant/ad1883-audio-codec-manual.html

The AD1882 audio codec and software provide superior HD audio quality and performance. The AD1882 has six DACs and four ADCs, two stereo headphone ports,C/LFE swapping, digital and analog PCBeep, and S/PDIF output, making the AD1882 the right choice for desktop PCs where performance is the primary consideration.
The jack re-tasking feature on this product supports various configurations, including platforms for 5.1 on five or three jacks, and front panel jack re-tasking.
The AD1882 is available in a 48-lead RoHS compliant lead frame chip scale package in both reels and trays.

AD1883 SoundMAX HD Audio Codec With 4 DACs, 4 ADCs, SPDIF Out

Features

- 2 stereo headphone amplifiers
- Line outputs and inputs
- Analog microphone inputs
- Retaskable ports
- 192 kHz DACs/ADCs
  - 2 independent stereo DAC/ADC pairs
  - Simultaneous record of 2 stereo channels
  - Simultaneous playback of 2 stereo channels
  - All independent sample rates, 8 kHz through 192 kHz
  - 16-, 20-, and 24-bit resolution
  - Selectable stereo mixer on outputs
- Stereo Digital Microphone Interface
  - Two 192 kHz digital microphone channels
  - Supports up to 4 microphones
  - Selectable bit clock rates of 1.5 MHz, 2.0 MHz, and 3.0 MHz
  - Mono and stereo array support
  - All sample rates, 8 kHz through 192 kHz
  - 16-, 20-, and 24-bit resolution Digital PCM gain control
- S/PDIF Output
  - Supports 44.1 Hz through 192 kHz sample rates
  - 16-, 20-, and 24-bit data; PCM and AC3 formats
  - Digital PCM gain control
    - ✓ Auxiliary Pins
- Impedance and presence detection on all jacks
- Full analog mixer with DAC inputs
- 3 independent microphone bias pins
- Digital and analog PCBeep
- 3 general-purpose digital I/O (GPIO) pins
- 3.3 V analog supply voltage
- 1.7 V to 1.9 V or 3.3 V digital supply voltages
- 1.5 V or 3.3 V HD Audio link signaling voltage
- Advanced power management modes
- Security feature prevents unauthorized recording
- 48-lead, RoHS compliant QFN package

Software

- Voice input enhancements
- Output enhancements

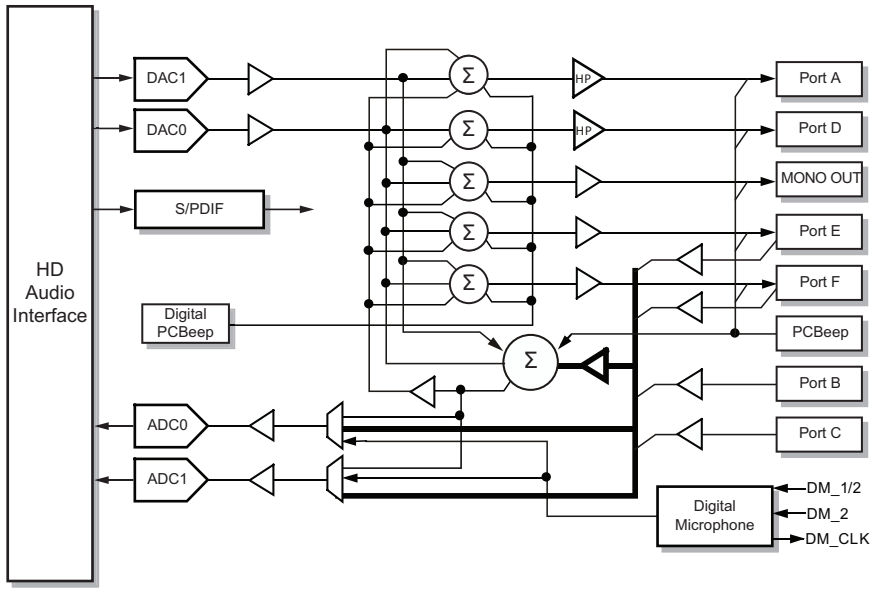
Applications

- Embedded Audio
- Point Of Sale Systems

Overview

The AD1883 audio codec and software provide superior high definition audio quality and performance. The AD1883 has two 192 kHz DAC pairs, two 192 kHz ADC pairs, an S/PDIF output, a 2-channel digital microphone interface, and digital and analog PCBeep. These features make the AD1984A the right choice for embedded systems where performance is key. The AD1984A is available in a 48-lead, RoHS compliant lead frame chip scale package in both reels and trays.

Block Diagram



Part Number AD1883

Description SoundMAX HD Audio Codec

Table 1. Performance Characteristics

Parameter	Min	Typ	Max	Unit
Line-Out Drive (10 kΩ Loads—DAC to Pin)				
Total Harmonic Distortion (THD + N)		–84		dB
Dynamic Range (–60 dB in Ref to f_S A-Weighted)		90		dB
Signal-to-Noise Ratio		90		dB
Headphone Drive (32 Ω Loads—DAC to Pin)				
Total Harmonic Distortion (THD + N)		–74		dB
Dynamic Range (–60 dB in Ref to f_S A-Weighted)		90		dB
Signal-to-Noise Ratio		90		dB
Microphone/Line-In (Pin to ADC, Mic Boost = 0 dB)				
Total Harmonic Distortion (THD + N)		–78		dB
Dynamic Range (–60 dB in ref to fS A-Weighted)		85		dB
Signal-to-Noise Ratio		85		dB

Table 2. Specifications

Parameter	Min	Typ	Max	Unit
Analog-to-Digital Converters				
Resolution		24		Bits
Gain Error (Full-Scale Span Relative to Nominal Input Voltage)			±10	%
Interchannel Gain Mismatch (Difference of Gain Errors)		±0.2	±0.5	dB
ADC Offset Error			±5	mV
ADC Crosstalk				
Line Inputs (Input L, Ground R, Read R; Input R, Ground L, Read L)		–85		dB
Line_In to Other		–100	–80	dB
Digital to Analog Converters				
Resolution		24		Bits
Gain Error (Full-Scale Span Relative to Nominal Input Voltage)			±10	%
Interchannel Gain Mismatch (Difference of Gain Errors)			±0.5	dB
Total Audible Out-of-Band Energy (Measured from 0.6 x fs to 20 kHz)		–85		dB
DAC Crosstalk (Input L, Zero R, Read R_OUT; Input R, Zero L, Read L_OUT)		–95		dB
Analog Mixer				
Signal-to-Noise Ratio Input to Output—Ports B, C, E, or F to Port D Output		90		dB
Step Size: All Mixer Inputs		1.5		dB
Input Gain/Attenuation Range: All Mixer Inputs	–34.5		+12.0	dB

Ordering Information

Device Set Order ID	Package Type	Package	Operating Temperature
AD1883JCPZ*	QFN	48-Lead QFN, 7x7 mm	0°C to 70°C
*Lead-free (Pb Free) and RoHS compliant			

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