CONEXANT AD1882A Audio Codec Manual

http://www.manuallib.com/conexant/ad1882a-audio-codec-manual.html

The AD1882A audio codec and software provide superior HD audio quality and performance. The AD1882A has six DACs and four ADCs, two stereo headphone ports,C/LFE swapping, digital and analog PCBeep, and S/PDIF output, making the AD1882A the right choice for desktop PCs where performance is the primary consideration.

AD1882A HD Audio Codec With 6 DACs, 4 ADCs, Digital Microphone and SPDIF Out

Features

- 2 stereo headphone amplifiers
- 95 dB audio outputs, 90 dB audio inputs
- Internal 32-bit arithmetic for greater accuracy
- Impedance and presence detection on all jack pins
- Digital synthesis PCBeep
- C/LFE channel swapping
- 2 General-Purpose I/O (GPIO) Digital pins
- Advanced power management modes
- EAPD control for internal speakers
- 48-lead, Pb-free QFN package
- Six 96 kHz DACs
  - 3 independent stereo DAC pairs
  - Independent 8 kHz, 11.025 kHz, 16 kHz, 22.05 kHz, 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, and 96 kHz sample rates
  - 16-, 20-, and 24-bit PCM resolution
  - Selectable stereo mixer on outputs
- Four 96 kHz ADCs
  - 2 independent stereo ADC pairs
  - Simultaneous record of up to 4 channels
  - Independent 8 kHz, 11.025 kHz, 16 kHz, 22.05 kHz, 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, and 96 kHz sample rates
  - 16-, 20-, and 24-bit resolution
- S/PDIF Output
  - Supports 44.1 kHz, 48, kHz 88.2 kHz, and 96 kHz sample rates
  - 16-, 20-, and 24-bit data widths; PCM and AC3 formats
  - Digital PCM gain control
- Dedicated Auxiliary Pins
  - Stereo CD input w/GND sense
  - Mono out pin for internal speakers or telephony
  - Analog PCBeep input pin
- Stereo digital microphone
- – Two 192 kHz digital microphone
- channels
- – Supports 1 or 2 microphones on
- 1 pin
- – Selectable bit clock rates of
- 1.5 MHz, 2.0 MHz, and 3.0 MHz
- All sample rates, 8 kHz through
- 192 kHz
- – 16-, 20-, and 24-bit resolution

Applications

- Embedded Audio
- Automotive

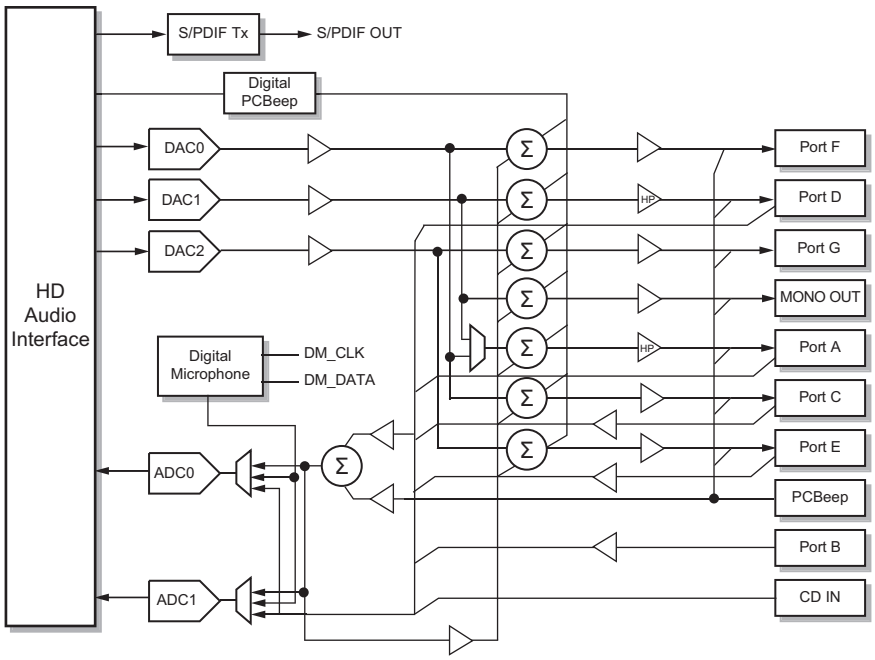
Overview

The AD1882A audio codec and software provide superior HD audio quality and performance. The AD1882A has six DACs and four ADCs, two stereo headphone ports, C/LFE swapping, digital and analog PCBeep, and S/PDIF output, making the AD1882A 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. In addition, stereo digital microphone with programmable clock output is supported.

The AD1882A is available in a 48-lead RoHS compliant lead frame chip scale package in both reels and trays.

Block Diagram



Part Number AD1882A

Description HIgh-Definition Audio Codec with Digital MIcrophone

Table 1. Performance Characteristics

Parameter	Min	Typ	Max	Unit
Line-Out Drive (10 kΩ Loads—DAC to Pin)				
Total Harmonic Distortion (THD + N)		–85		dB
Dynamic Range (–60 dB in Ref to f_S A-Weighted)		95		dB
Signal-to-Noise Ratio		95		dB
Headphone Drive (32 Ω Loads—DAC to Pin)				
Total Harmonic Distortion (THD + N)		–83		dB
Dynamic Range (–60 dB in Ref to f_S A-Weighted)		95		dB
Signal-to-Noise Ratio		95		dB
Input Ports (Pin to ADC, Mic Boost = 0 dB)				
Total Harmonic Distortion (THD + N)		–81		dB
Dynamic Range (–60 dB in Ref to f_S A-Weighted)		90		dB
Signal-to-Noise Ratio		90		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)			±0.5	dB
ADC Offset Error			±5	mV
ADC Crosstalk		–85		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 × f_S to 100 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 (SNR) Input to Output		95		dB
CD to Port D Output		95		dB
Port B, C, or E to Port D Output		95		dB
Port A to Port D Output		95		dB
Port D to Port A Output		95		dB

Ordering Information

Device Set Order ID	Package Type	Package	Operating Temperature
AD1882AJCPZ*	QFN	48-Lead QFN, 7x7 mm	0 °C to 70 °C
AD1882AJCIZ*	QFN	48-Lead QFN, 7x7 mm	-20 °C to 85 °C
*Lead-free (Pb Free) and RoHS compliant			

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