CX20672 HD Audio Codec with 2W Class-D, Capless HP, Retasking, and SPDIF Out

Features

- 2 pairs of independent DACs and 3 pairs of independent ADCs
- Sampling rates include 16-bit, 44.1 kHz to 24-bit, 192 kHz for DACs, and from 16-bit, 44.1 kHz to 24-bit; 96 kHz for ADCs.
- Integrated 2 WRMS (per channel) Class-D stereo speaker amplifier
- Capless headphone eliminates BOM
- Two retaskable ports
- Stereo Digital Microphone interface
- Integrated boost for all microphones
- One independent SPDIF output
- Integrated regulators maximize performance
- Record Security Control
- Integrated headphone limiter (GS Mark)
- D-Flex Power Management
- Wake on PC BEEP
- PopShield eliminates pops and clicks
- Fidelity exceeds Microsoft WHCK requirements
- Jack sense detects up to 4 jacks
- Digital Mixer
- Compliant with all Intel High Definition Audio Specifications
- Selectable 1.5V/3.3 V link signaling
- Available in 40-QFN package

Software

- SmartAudio GUI
- Voice Processing Algorithms include end-to-end Noise Reduction, multi-band AEC, Beam Forming, and Far Field Pickup
- 10 band Speaker EQ and DRC
- 3D Expander
- Third-party software support includes Andrea, Creative Labs, Dolby, Fortemedia, Waves MaxxAudio, SRS, and DTS
- Supports 32-bit/64-bit Windows/Linux

Applications

- Notebooks and Ultrabooks
- All In One PCs
- Point Of Sale Systems
- Embedded Audio

Overview

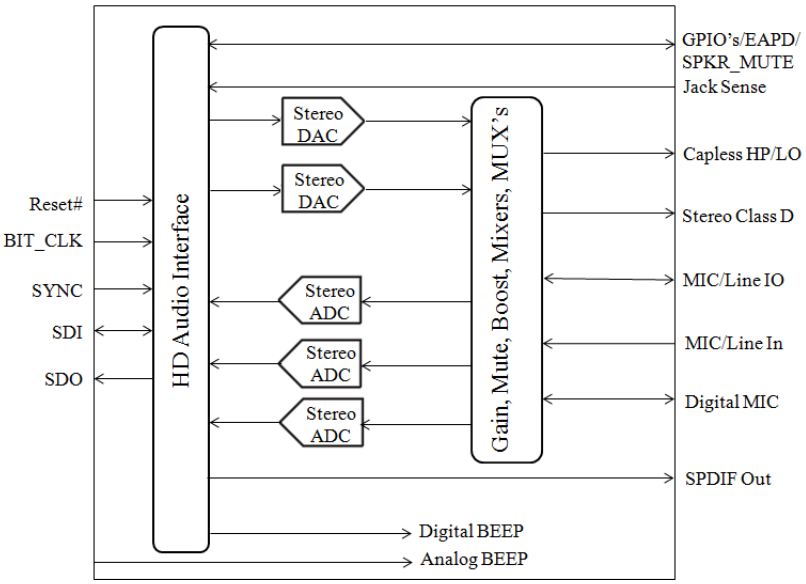
Conexant's CX20672 is a low-power, 102 dB SNR HD Audio codec with integrated 2-WRMS stereo Class-D using Spread Spectrum dispersion technology to prevent EMI. Two independent pairs of DACs and three independent pairs of ADCs support multi-Streaming and Real Time Communications applications. The audio fidelity of the device exceeds Microsoft Premium Logo requirements.

A ProCoustic capless headphone driver delivers 31 mW per channel into 32 Ω loads and eliminates external DC blocking capacitors. Two retaskable ports are available allowing Microphone/Line in and Microphone/Line In/Line Out retasking. All output ports feature PopShield technology that eliminates pops and clicks.

The codec features a stereo digital microphone interface that includes a hardware DC-level filter to remove DC offset and provides the clock output. One independent SPDIF output is available supporting sample rates up to 96 kHz, 16-24-bit resolution. Multiple GPIO's are provided, including speaker mute and EAPD functions.

Integrated 5 V to 3.3 V and 3.3 V to 1.8 V Low Dropout (LDO) regulators guarantee high performance analog audio and clean power to internal digital blocks. Conexant's D-Flex power management allows the system to exceed the power savings specified in the Intel ECR 15B. The internal Wake-on-BEEP logic resumes the analog paths for the PC BEEP to the output ports.

Block Diagram



Part Number CX20672

Description Low-Power Codec SoC

Analog Performance Characteristics

Parameter	Minimum	Typical	Maximum	Units
Line Outputs				
Full Scale Output Voltage	1.0			Vrms
Dynamic Range (measured with -60 dBFS signal present)		97		dBFS
Total Harmonic Distortion + Noise (THD + N), measured at -3 dBFS		-90	-93	dB
Channel Crosstalk		-84		dBFS
Analog Frequency Response (+/- 3 dB at 20 Hz, +/- 1 dB at 20000 Hz)	20		20000	Hz
Headphone Output				
Full Scale Output Voltage		1.0		Vrms
Dynamic Range (measured with -60 dBFS signal present)		97		dBFS
Total Harmonic Distortion + Noise (THD + N), measured at -3 dBFS		-85		dB
Channel Crosstalk		-75		dBFS
Analog Frequency Response (+/- 3 dB at 20 Hz, +/- 1 dB at 20000 Hz)	20		20000	Hz
Class-D Speaker Amplifier Outputs				
Full Scale Output Voltage (into 4 Ω)	2.83	2.90	3	Vrms
Dynamic Range (measured with -60 dBFS signal present)		92		dBFS
Total Harmonic Distortion + Noise (THD + N, measured at -3 dBFS)		-70		dBFS
Analog Frequency Response (+/- 3 dB at 20 Hz, +/- 1 dB at 20000 Hz)	20		20000	Hz
Efficiency (Measured at 1 W/Ch)		85		%
Line Inputs				
Full Scale Input Voltage	1.0			Vrms
Dynamic Range (measured with -60 dBFS signal present)		89		dBFS
Total Harmonic Distortion + Noise (THD + N), measured at -3 dBFS		-87		dB
Channel Crosstalk		-84		dBFS
Analog Frequency Response (+/- 3 dB at 200 Hz, +/- 1 dB at 20000 Hz)	200		20000	Hz
Microphone Inputs				
Full Scale Input Voltage (With 20 dB boost) Full Scale Input Voltage (With boost off)	0.1 1.0			Vrms
Dynamic Range (measured with -60 dBFS signal present)		89		dBFS
Total Harmonic Distortion + Noise (THD + N), measured at - 3 dBFS		-83.4		dBFS
Channel Crosstalk (measured at 1 kHz, 0 dB gain)		-84		dBFS
Analog Frequency Response (+/- 3 dB at 200 Hz, +/- 1 dB at 20000 Hz)	200		20000	Hz

Ordering Information

Model/Order/Part Numbers			Audio Codec Package Type	Supported Functions	
Device Set Order Number	Audio Codec Part Number	Codec Revision		Number of DACs/ADCs	Digital Mic
CX20672-21Z	CX20672	-21Z	40-QFN	4/6	2

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