USB DSP CODEC with Hardware AEC DSP

Product Overview

Conexant's CX20562 is the world's first family of SPoC solutions that integrates the functionality of a digital audio/voice processor, audio CODEC, and class-D amplifier in one cost-effective 48-pin QFN package. The CX20562 solution is optimized with a high fidelity, 24-bit stereo DAC for music rendering. The CX20562 also features a built-in echo-free speakerphone with wideband AEC and a noise-reduction hardware DSP. The high-quality music speaker and voice speakerphone combination is made possible with the latest advances in all-CMOS, mixed-signal and DSP integration. The turnkey solution enables manufacturers to quickly design cost-effective convergence products for high definition audio and voice applications.

Key innovations include BrightSound, which is a Conexant proprietary sound processing algorithm that dramatically improves audio quality and reduces speaker clipping. In Night mode, the background sound signal quality is maintained, and allows the user to clearly hear the vocal audio when watching a movie or playing a video game without increasing the volume.

The CX20562 also supports many consumer-oriented features such as music on-hold, aux fade-in/fade-out, DSP array microphones, GSM communications noise immunity, and an IM "hotkey" launch button.

The CX20562 has one USB interface that allows manufacturers to develop plug-and-play products that are PC and Mac compatible, and one auxiliary analog input for connection with other audio peripherals. The device supports both digital and analog volume control, microphone mute, and speaker mute. The built-in class-D amplifier is capable of driving 1.2W on a 4Ω load through the USB host power, and can also be used as the pre-amplifier for the larger powered speakers' output. The efficiency of class-D amplifier makes it ideal for portable audio application.

Conexant's SPoC solution provides the technology platform to make the convergence of audio entertainment and voice communication a reality.
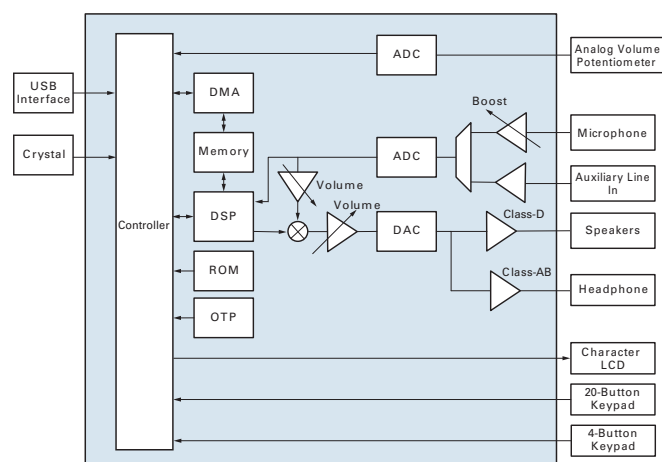
Applications

- All-in-one PC speakers and speakerphone
- USB VoIP speakerphone
- LCD monitor with built-in speakers and speakerphone
- Notebook PC docking station
- Embedded USB audio applications

Key Features

- Wideband AEC DSP engine that exceeds the TIA 920 requirement
- Integrated 1.2W class-D amplifier that features non-clipping, filterless output with selectable gains—A higher output reference design is available
- High fidelity 24-bit, stereo DAC—44.1kHz and 48kHz sampling rate
- Wideband 16-bit, stereo ADC—44.1kHz and 48kHz sampling rate
- USB 2.0 full-speed compliant
- Auxiliary line-in input with jack sense
- Music-on-hold
- Aux fade-in/fade-out
- BrightSound (VM central PC host software required)
- USB bus powered 5V, 500mA, or external powered option

System Block Diagram

Additional Features

- IM launch (VM central PC host software required)
- Integrated stereo headphones driver with jack sense
- Stereo micbias input

- Analog volume control
- Digital volume up/down control
- Mic mute
- Speaker mute

- On-hook/off-hook control
- Microphone boost 10dB, 20dB, 30dB, and 40dB
- 48-pin QFN

Ordering Information

Ordering Part Number	Part Number	Description	Package
Multimedia	CX20562-15Z	48-pin QFN	DSAC-L562-151
Evaluation Kit	-	-	CX20562-EVK

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