



Speakers-on-a-Chip with On-Chip Voice/Audio DSP, Integrated I²S/USB Codec, and PWM Class-D Amplifier

CX20709-EVK Evaluation Kit

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for communications and consumer applications.

The CX20709-EVK provides developers with a USB-based reference board and PC-based software Toolbox for comprehensive evaluation of the following Conexant Speakers-on-a-Chip (SPoC) devices: CX20702, CX20703, CX20704, CX20705, CX20706, CX20707 and CX20709.

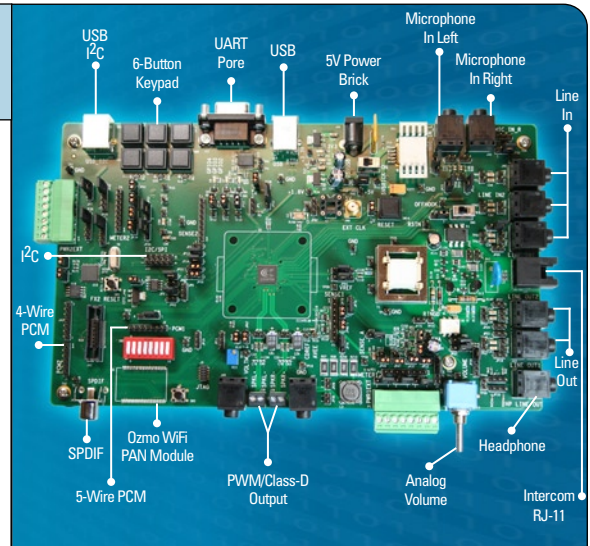
The reference board features the CX20709 device with the proprietary on-chip Digital Signal Processor (DSP), Codec, Class-D/PWM (Pulse Width Modulator) driver, USB, and I²S and I²C interfaces for designing voice and music convergence applications such as All-In-One Speakers/Docking systems, Portable Multimedia/ Navigation Devices, Smart Home Intercom System, and Unified Communication Peripherals.

The device also features multiple high performance 24-bit DACs and ADCs, capless headphone output, support for mono and array microphones, and a range of digital and analog input/output channel selections for flexible routing and mixing. The DSP hardware runs a suite of voice processing algorithms and audio post processing effects offered by Conexant that dramatically improves sound quality and frees-up processing power for other applications.

The CX20709 evaluation kit contains everything for the developer to design convergence audio entertainment and voice communication applications.

Distinguishing Features

- Three 24-bit DAC/four 24-bit ADC, SNR 102dB, THD – 92dB at 48kHz 3.3V
- Configurable on-chip proprietary DSP
 - Subband acoustic echo suppression and cancellation
 - Stereo beam forming
 - Noise reduction
 - Dynamic loudness adaptor
 - Mic auto gain control
 - Subband line echo cancellation (two-way intercom applications)
 - Digital equalizer (10 bands/channel)
 - Dynamic range control
 - 4th Order Digital Crossover for subwoofer line-out
 - 3D Expander (Phantom mode and Immersion mode)
- 4-wires and 5-wires digital audio I/O (I²S/PCM/SPDIF), supporting full duplex independent sampling rates
- USB 2.0 Compliant Audio Class Interface (high speed data and control)
- One 3-wire I²C or 4-wire SPI slave interface for external MCU
- 2.5 W x 2 BTL stereo Class-D speaker amplifier, also configurable as a PWM output for external feedback-less type Class-D amplifier
- Flexible power management
- Audio sample rate: 8, 11.025, 12, 16, 22.05, 24, 32,44.1, 48, 64, 88.2, 96 kHz



Evaluation Kit and Software CD Content

- Reference Board - CX-9Z-C00303
- Datasheet - DSH-202264
- Schematic - SCH-C00303
- BOM-C00303
- Layout - G600Z- C00303
- Conexant SPoC Configuration Toolbox
- EVK User Guide
- Firmware upgrade instructions

Applications

- All-in-One PC speaker system
- Multimedia LCD display/sound bar
- Smart home automation/intercom
- Docking systems for portable communication/media device
- Mobile Internet devices/portable navigation devices/portable media player
- Multimedia IP phone
- Telepresence/Unified Communication Device
- Embedded applications
- Door phone system
- Full-duplex hands-free telephony
- Advanced headset for Unified Communication

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Part Number CX20709-EVK

Description Speakers-on-a-Chip with On-Chip Voice/Audio DSP, Integrated I²S/USB Codec, and PWM Class-D Amplifier