



Qualcomm® CSR8670

Bluetooth Audio Platform

Bluetooth® audio flash platform with embedded 80Mhz 24-bit DSP & optional support for Qualcomm® aptX™ Audio

CSR8670 is a premium-tier flash product in our CSR86xx Bluetooth audio SoC portfolio designed to deliver high quality wireless audio performance and support development of highly differentiated premium wireless audio products.

CSR8670 is part of the CSR86xx portfolio, a range of silicon platforms for wireless audio applications which integrate a dual-mode Bluetooth radio, a low power DSP, an application processor, a battery charger, memory and various audio and hardware interfaces into a single-chip solution.

This programmable SoC offers the flexibility to develop differentiated wireless audio products utilizing our unique Qualcomm® cVc™ Noise Cancellation Technology, aptX audio coding and Qualcomm TrueWireless™ Stereo technologies.

The Audio Development Kit (ADK) software for CSR8670 includes various Bluetooth applications, voice and music technologies and tuning tools for reference headset and speaker applications and supports developers with programming the device and integrating custom or third party software. Optional software features are also available to enhance the standard Bluetooth audio experience, making CSR8670 an ideal solution for balancing performance and cost.

Solution Highlights

Integrated single-chip solution for smaller designs

Application processor, Bluetooth and Bluetooth low energy radios, DSP and memory integrated into a single SoC helps reduce system complexity and eBOM while supporting small form factor designs.



Comprehensive ADK software support for easy application development

The software development environment with integrated Bluetooth and audio applications, reference designs and tuning tools supports reduced development time.



High-performance audio with aptX technology

aptX audio technology supports high-quality wireless audio, bringing pro-audio quality to consumer electronic devices.



Unique audio features available through eXtension Program

The CSR8670 audio platform is compatible with a large range of third party audio technologies from our eXtension Program members including music enhancement, voice processing and voice recognition.



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CSR8670

Bluetooth Audio Flash Applications

- Speakerphones
- Stereo Speakers
- Stereo Headphones
- Stereo Headsets
- Wireless Earbuds
- Soundbars

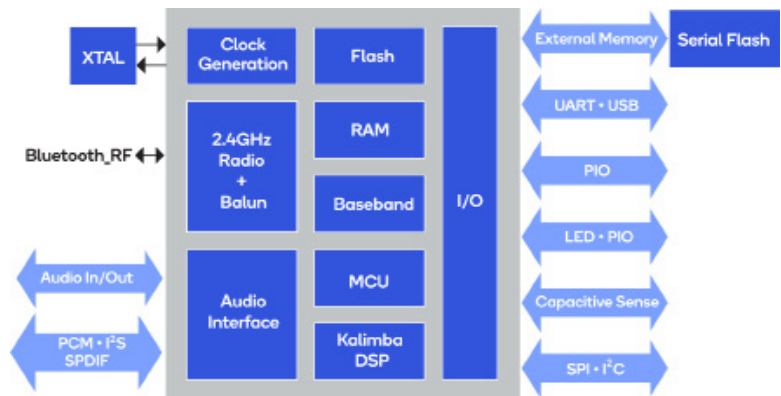


Features

- Bluetooth version 4.2 compliant
- 80MHz programmable Qualcomm® Kalimba™ DSP with integrated multipoint A2DP and HFP audio applications
- aptX, aptX Low Latency, MP3, AAC and SBC audio codecs
- 2-mic cVc 8th Generation voice processing technology with wideband speech
- Audio tuning suite with audio enhancements and two 5-band EQs
- GAIA V2 and associated Android & iOS example apps for enhanced connectivity with mobile devices
- Link Layer Topology support for enhanced multi-device co-existence
- Stereo ADC with 2 microphone inputs and one line input; support for up to 6 digital microphones; stereo DAC
- Qualcomm TrueWireless stereo
- Support for Apple MFi¹ & Apple ANC for enhanced communication with iOS devices
- Qualcomm® meloD™ Audio Processing stereo widening technology
- Compatible with third party solutions available from selected eXtension Program members

¹ Customer will need an MFi license.

CSR8670 Block Diagram



CSR8670 Specifications

Bluetooth	Integrated dual-mode radio and balun (50 Ω) -90dBm receiver sensitivity; +10dBm transmitter Bluetooth v4.2 firmware Support for various profiles including: HFP 1.6, A2DP 1.3.1, AVRCP 1.6, HOGP 1.0, FMP 1.0, PXP 1.0, BAS 1.0, TPS 1.1
MCU	80MHz programmable RISC processor
Audio	Programmable 24-bit fixed-point 80MHz Kalimba DSP 2x single-cycle MACs; 24x24-bit multiply & 56-bit accumulator
Battery Support & Power Management	Li-Ion battery charger supporting up to 200mA 2x high-efficiency switch-mode regulators with 1.8V and 1.35V outputs from battery supply
Audio Interfaces	Stereo 16-bit ADC; up to 48kHz sampling frequency Stereo 16-bit DAC; up to 96kHz sampling frequency Microphone inputs: up to 2x analog & 6x digital (MEMS)
Physical Interfaces	2x PCM/I²S & 1x SPDIF with 24-bit support Up to 29x PIOs, including 14x GPIOs, USB2.0, I²C, SPI, UART 3x LED controllers; support for up to 6x touch sensor inputs
Memory	Integrated 16Mb programmable flash memory with support for up to 64Mb external SPI FLASH 56kB system MCU RAM 64k x 24-bit data & 12k x 32bits program memory for DSP
Packaging	6.5 x 6.5 x 1mm, 0.5mm pitch 112-ball VFBGA or 4.73 x 4.84 x 0.6mm, 0.5mm pitch 79-ball WLCSP

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