



Qualcomm® BlueCore™ Audio Platform

CSR8670

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

Programmable Bluetooth dual-mode flash audio System on Chip (SoC)

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™ voice processing, aptX audio coding and Qualcomm TrueWireless™ stereo technologies.

There is comprehensive Audio Development Kit (ADK) software for CSR8670 which 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.

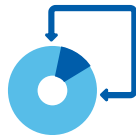
Solution Highlights

Integrated single-chip solution for ultra-small 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 ultra-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.





Speakerphones



Stereo Speakers



Stereo Headphones



Stereo Headsets



Wireless Earbuds



Soundbars

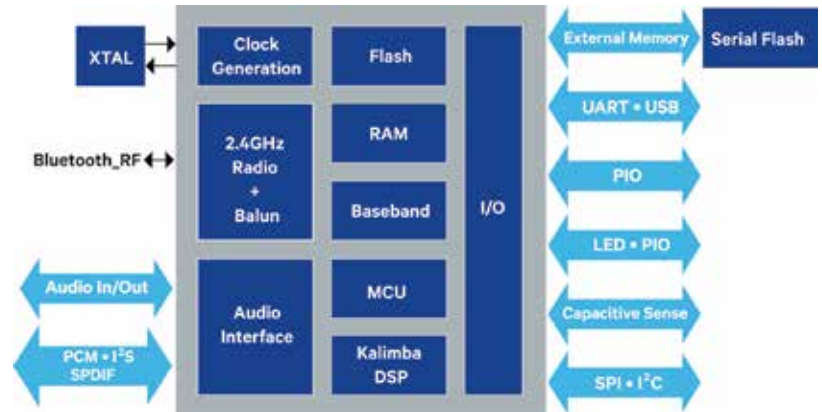
Features

- 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 ANCS for enhanced communication with iOS devices
- Qualcomm® meloD™ stereo widening technology
- Compatible with third party solutions available from selected CSR eXtension Program members

Product	Part Number
CSR8670C BGA	CSR8670C-IBBH-R
CSR8670 WLCSP	CSR8670C-ICXT-R
CSR8670C Dev Kit	DK-8670-10060-1A
CSR8670 Dev Board	DB-8670-10068-1A
CSR8670 WLCSP Dev Kit	DK-8670-10071-2A
CSR8670 WLCSP Dev Board	DB-8670-10070-2A

To learn more visit:
qualcomm.com or
developer.qualcomm.com

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/I ² S & 1x SPDIF with 24-bit support Up to 29x PIOs, including 14x GPIOs, USB2.0, I ² C, 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

¹ Customer will need MFi license.

Qualcomm meloD and Qualcomm Kalimba are products of Qualcomm Technologies International, Ltd.