Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Qualcomm

Qualcomm® QCC5100 Series Bluetooth Audio SoCs

Ultra-low power, premium-tier SoCs designed for compact, feature-rich wireless earbuds, headsets and speakers.

QCC5100 is a family of breakthrough Bluetooth® audio System-on-Chips (SoCs) based on a low power architecture. This series is designed to meet consumer demand for robust, high quality, truly wireless listening experiences in smaller devices with low power consumption for longer audio playback.

QCC5100 series architecture is engineered for low power performance. Power consumption can be reduced by up to 65 percent compared to our previous technology, for both voice calls and music streaming and devices are optimized to support longer audio playback in virtually all operating modes.

The flexibility provided by the programmable applications processor and audio DSPs, helps manufacturers to easily differentiate products with new features without extended development cycles. The SoCs are designed to support voice UI control, and voice assistant through cloud services.

The QCC5100 series features digital active noise cancelling (ANC) technology integrated in the SoC, designed to eliminate the need for an external ANC solution. This feature can help reduce the complexity, cost and PCB space needed for adding ANC to earbuds, hearables, and other portable audio devices.

With Qualcomm TrueWireless™ technology, the QCC5100 family is engineered to deliver improved robustness and more evenly balanced power distribution between both earbuds, supporting longer playback time.

Solution Highlights

Quad-core processing

Quad-core processing* architecture provides two application processors and two DSP units, designed to allow for an extensive degree of parallel processing, supporting the delivery of user experiences not previously possible.

Ultra-low power

The QCC5100 series is designed for unprecedented efficiency in power consumption. These SoCs support the development of very small form factor, richly-featured earbuds that can be used all day, with up to 10 hours of play from a 65mHA battery.

High quality wireless audio

Qualcomm® aptX™ and aptX HD audio technologies are designed to deliver consistent, high quality audio streaming over Bluetooth. The internal 24-bit end-to-end audio pipeline and high-performance DACs help provide high resolution audio to be delivered through the audio processing chain.

Customizable platform that supports innovation

The QCC5100 audio platform includes a comprehensive and customizable Audio Development Kit (ADK) and several example designs that help to address the key challenges faced when bringing products to market.

*Quad-core processing available on QCC5120, QCC5121 and QCC5124 variants

Qualcomm® aptX™ HD

QCC5100 Target Applications

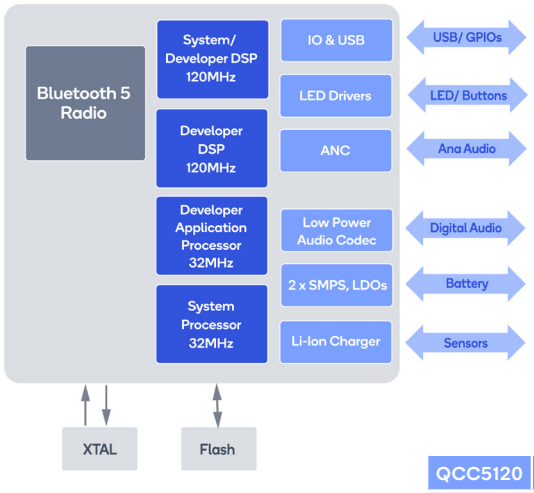
- Bluetooth Earbuds
- Bluetooth Headphones
- Bluetooth Headsets
- Bluetooth Hearables
- Bluetooth Portable Speakers

Features

- Extremely low power design
- Bluetooth 5 radio
- 2Mbps Bluetooth low energy (LE) support
- Ultra-small form factor
- Powerful quad-core processor* architecture
- Dual core 32-bit processor application subsystem
- Dual core Qualcomm® Kalimba™ DSP Audio subsystem
- Embedded ROM + RAM and external Q-SPI Flash
- High performance low power audio
- 2-ch 98dBA headset class D
- 2-ch 99dBA line inputs (single ended)
- 192kHz 24-bit I2S & SPDIF interfaces
- Fully programmable digital ANC
- Digital assistant ready
- Flexible software platform with powerful new IDE support
- aptX and aptX HD support
- Support for Qualcomm TrueWireless Stereo and Qualcomm TrueWireless Stereo Plus
- Integrated battery charger supporting internal mode (up to 200 mA) and external mode (up to 1.8 A)
- Designed for reduced eBoM through highly integrated SoC design

* Quad-core processing available on QCC5120, QCC5121 and QCC5124 variants

QCC5100 Block Diagram



	QCC5120	QCC5121	QCC5124	QCC5125
Digital Assistant Ready - Button Press	✓	✓	✓	✓
Digital Assistant Ready - Wake word detection	✓	✓	✓	✖
Number of Application Processors	2	2	2	2
Number of DSPs	2	2	2	1
Digital ANC - FeedForward/Feedback	✓	✓	✓	✓
Digital ANC - Hybrid	✓	✓	✓	✖
Power Consumption (A2DP streaming)	~6ma	~6ma	~6ma	~10ma

QCC5100 Specifications

Bluetooth	Bluetooth 5 including 2 Mbps Bluetooth LE Single ended antenna connection with on-chip balun and Tx/Rx switch
Audio DSP	Dual 120MHz Kalimba audio DSP cores Flexible clock speed from 2MHz up to 120MHz
Application Subsystem	32-bit firmware processor 32-bit 32/80MHz developer processor
Memory	80KB program RAM 256KB data RAM, 5Mb ROM
Interfaces	UART, 2x Bit Serializers (I2C/SPI), USB 2.0, SDIO, QSPI, NOR flash, up to 55x PIO
Power Management	Integrated power management unit (PMU) Dual switch-mode power supply (SMPS)
Battery Support	Integrated battery charger supporting internal mode (up to 200 mA) & external mode (up to 1.8 A)
Packaging	124-ball 6.5 x 6.5 x 1.0mm VFBGA, 0.5mm pitch

Qualcomm Kalimba, QCC5120, QCC5121, QCC5124 and QCC5125 are products of Qualcomm Technologies, Inc. and/or its subsidiaries.

To learn more visit: qualcomm.com

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