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 65mAH 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
**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.

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**QCC5100 Target Applications**

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

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**QCC5100 Block Diagram**

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**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 VF BG A, 0.5mm pitch

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