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 possible using previous generation devices.

Ultra-low power

The QCC5100 series is designed for unprecedented efficiency in power consumption compared to our previous technology. 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 use from a 65mHA battery.

High quality wireless audio

Qualcomm® aptX™ Audio, aptX HD and aptX Adaptive 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 are designed to deliver high resolution audio 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 developing products.

1 Quad-core processing is available on Qualcomm® QCC5121, Qualcomm® QCC5126 and Qualcomm® QCC5127 variants.
2 Example use case stereo headset decoding A2DP stream, SBC at 350kbps/48 kHz, audio processing in by-pass.
**QCC5100 Target Applications**
- Bluetooth Earbuds
- Bluetooth Headphones
- Bluetooth Headsets

**QCC5100 Block Diagram**

**Features**
- Extremely low power design
- Bluetooth 5 radio
- 2Mbps Bluetooth low energy (LE) support
- Ultra-small form factor
- Powerful quad-core processor1 architecture
- Dual core 32-bit processor application subsystem
- Dual core Qualcomm® Kalimba™ DSP Audio subsystem
- Embedded ROM + RAM and external Q-SPI Flash
- Integrated PSRAM for audio buffering2
- 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
- Designed to support digital assistants, Push to Talk/Voice Activated
- Flexible software platform with powerful new IDE support
- Designed to support aptX, aptX HD and aptX Adaptive
- Designed to support 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

1 Quad-core processing is available on QCC5121, QCC5126 and QCC5127 variants
2 Integrated PSRAM on QCC5126 only; QCC5127 supports external PSRAM

**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-lg 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)

1 Quad-core processing is available on QCC5121, QCC5126 and QCC5127 variants
2 Integrated PSRAM on QCC5126 only; QCC5127 supports external PSRAM

To learn more visit: [qualcomm.com](https://www.qualcomm.com)