



Qualcomm® QCC30xx Series Bluetooth Audio SoCs for Stereo Headphones or Portable Speakers

Extremely low-power Bluetooth audio SoCs optimized for compact, feature-rich stereo headphones, headsets or speakers.

The Qualcomm® QCC302x/Qualcomm® QCC303x/Qualcomm® QCC304x SoC series is a family of flash programmable Bluetooth® audio System-on-Chips (SoCs) based on an ultra-low power architecture. This series includes options designed specifically to meet consumer demand for robust, high quality, wireless listening experiences in smaller devices with longer audio playback. These SoCs are engineered for low power performance even in demanding use cases, supporting longer battery life in virtually all operating modes.

Qualcomm® aptX™ Audio is designed to deliver high-quality audio over the Bluetooth connection. aptX HD is available on QCC303x and is designed to deliver “better than CD” resolution audio, and aptX Adaptive is available on the Qualcomm® QCC3044 adding further advances in robustness and latency.

QCC30xx SoCs offer powerful tri-core processing, designed to support flexible innovation without extended development cycles. The SoC architecture includes two dedicated, configurable 32-bit application processor subsystems and a Qualcomm® Kalimba™ DSP. A feature-rich audio development kit (ADK) and enhanced development tools are available to help reduce time needed for commercialization.

Qualcomm® Active Noise Cancelling (ANC) from our premium tier SoCs is now available in QCC3044, designed to deliver immersive listening and to protect user hearing.

Highlights

Ultra-low power

The QCC302x/QCC303x/QCC304x 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 devices with long playback time capabilities.



High quality wireless audio

aptX audio is designed to deliver consistent, high quality audio and low-latency 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.



Integrated noise cancellation

The QCC304x supports integrated ultra-low-power digital active noise cancelling (ANC) technology, including our Qualcomm ANC, 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 truly wireless devices.



Digital Assistant-ready

Support for voice services is available via button-press activation. This feature is designed to relay the audio stream and voice control capabilities to a handset to process and execute commands.



Qualcomm

QCC30xx

Bluetooth Audio Applications

- Bluetooth Stereo Headphones or Headsets
- Bluetooth Stereo Portable Speakers



QCC302x/QCC303x/QCC304x Features Comparison

	Stereo Headset	Stereo Speaker	aptX Audio	aptX HD	aptX Adaptive	Qualcomm ANC	cVc	Voice Assistant button activation	Qualcomm [®] Broadcast Audio	Package
Qualcomm [®] QCC3024	✓						2-mic	✓		BGA 5.5x5.5x1.0mm
Qualcomm [®] QCC3034	✓		✓	✓			2-mic	✓		BGA 5.5x5.5x1.0mm
Qualcomm [®] QCC3044	✓		✓	✓	✓	✓	2-mic	✓		BGA 5.5x5.5x1.0mm
Qualcomm [®] QCC3021		✓					1-mic		✓	QFN 8.0x8.0x0.85mm
Qualcomm [®] QCC3031		✓	✓	✓			1-mic		✓	QFN 8.0x8.0x0.85mm

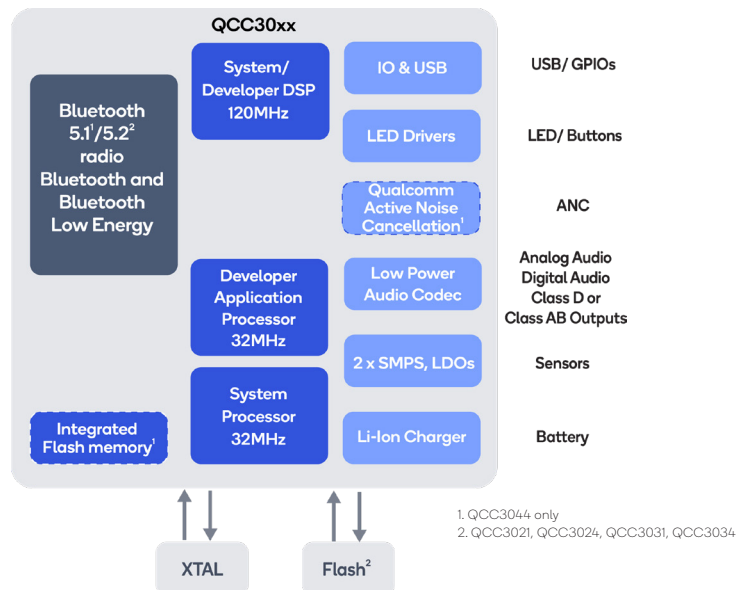
Features

- Highly integrated SoC with extremely low-power design*
- Support for digital assistants with minimal integration effort
- Fully programmable digital ANC¹
- Support for aptX and aptX HD audio
- Support for aptX Adaptive¹
- Support for Qualcomm[®] cVc[™] Echo Cancelling and Noise Suppression (ECNS)
- QCC302x/QCC303x qualified to Bluetooth 5.1 and QCC3044 qualified to Bluetooth 5.2
- 2Mbps Bluetooth low energy (LE) support
- Variety of form factors, down to ultra-small 5.5mm x 5.5mm
- Dual core 32-bit processor application and Kalimba DSP Audio subsystem
- Embedded ROM + RAM and (integrated Flash with QCC3044)
- High-performance low power audio codec
- 2-ch 98dBA headset class D
- 2-ch 99dBA line inputs (single-ended) 192kHz 24-bit I2S & SPDIF interfaces
- Flexible software platform with powerful new IDE support

*up to 73% improved compared with our Qualcomm[®] CSR867x series

¹QCC3044 only

QCC30xx Block Diagram



Ordering Information

Product	Part Number	Product	Part Number
QCC3021	QCC3021-0-80PQFN	QCC3031	QCC3031-0-80PQFN
QCC3024	QCC3024-0-CSP90	QCC3034	QCC-3034-0-CSP90
QCC3044	QCC-3044-0-CSP90B		

Qualcomm QCC3020, Qualcomm QCC3024, Qualcomm QCC3031, Qualcomm QCC3034, Qualcomm CSR867x and Qualcomm cVc and Qualcomm Broadcast Audio are products of Qualcomm Technologies, Inc. and/or its subsidiaries.