

Qualcomm® QCC30xx Series Bluetooth Audio SoCs for dongles and adapters

Extremely low-power Bluetooth® audio SoCs designed to enable a rich set of features in a USB dongle form factor.

The Qualcomm® QCC302x/Qualcomm® QCC303x/Qualcomm® QCC304x/Qualcomm® QCC305x/Qualcomm® QCC307x/Qualcomm® QCC308x SoC series is a family of flash programmable Bluetooth audio System-on-Chips (SoCs) based on an ultra-low power architecture. They are designed for the next generation of Bluetooth audio experiences, to meet listener demand for robust and sophisticated devices. This series includes options that support the Bluetooth® LE Audio standard and benefit from Snapdragon Sound™ Technology Suite—our optimized chain of superior audio, connectivity, and mobile innovations.

With our highly-integrated Bluetooth technologies, these SoCs are engineered to deliver a superior, sophisticated user experience. Qualcomm® QCC3086 is a single chip Bluetooth audio SoC platform designed to enable a rich set of features in a USB dongle form factor, bringing Snapdragon Sound technology suite to any source device. This solution broadens our Qualcomm® S3 Gen 2 Sound Platform portfolio, delivering a dual-mode device qualified to Bluetooth 5.4, leveraging Classic Bluetooth and LE Audio, along with the features of Snapdragon Sound to source devices.

The QCC3086 combines Snapdragon Sound and LE Audio to deliver ultra-low latency of less than 20ms for lag-free wireless audio with voice back-channel for in-game chat. When delivering game audio only, the latency is further reduced. The QCC3086 continues to bring Snapdragon Sound support with Qualcomm® aptX™ Adaptive, designed to enable music streaming at up to 24-bit 96kHz.

Alternatively, OEMs can utilize the platform to add Auracast™ broadcast audio functionality to dongles and adapters for use with source devices such as phones, laptops, TVs and a wide range of other audio equipment. The QCC3086 is designed to enable Auracast™ Broadcast Audio capabilities and LE Audio Unicast for music and voice.

Bluetooth® LE Audio

This dual-mode platform integrates the best of LE Audio and the best of traditional Bluetooth technology to enable smooth feature adoption for real-world listening. With a focus on gaming use cases the QCC3086 is designed to support a range of LE Audio features, including gaming mode, unicast voice or music and audio sharing. Alternatively, OEMs can utilize the platform to enable Auracast™ broadcast audio functionality to dongles and adapters for use with source devices such as phones, laptops, TVs and a wide range of other audio equipment.



Ultra-low latency

We have a legacy of delivering industry leading low latency solutions. The QCC3086 takes advantage of Bluetooth® LE Audio and Snapdragon Sound technology to achieve our lowest ever latency of less than 20ms. When delivering game audio only, the latency is further reduced. Designed for use cases where low latency between earbud/headset is paramount for an immersive user experience, such as gaming and video.



Dynamic adaptation for robust connectivity and range

QCC3086 is end-to-end optimized with Snapdragon Sound to ensure robust connectivity. The latency dynamically adapts based on the RF environment to create a seamless sound experience with no interruptions to the audio. For example, when gaming, users can walk away from the console and still hear all the gaming action and participate in game chat.



Bring Snapdragon Sound to any source device

The QCC3086 is designed for use in USB dongle and earbud charging cases and brings the many benefits of Snapdragon Sound to music streaming with 24-bit 96k support and hands-free calling with Super Wide Band support to any host device such as laptops, gaming consoles, PCs, Hi-Fis, TVs, and mobile phones.



Small form factor

With less than a 5mmx4mm footprint, the QCC3086 is designed to enable small form factor dongles which can be plugged in discreetly to the host device.



QCC30xx Bluetooth Audio SoCs

This series of audio SoCs is based on an extremely low-power architecture and designed to enable a rich set of features in a USB dongle form factor.



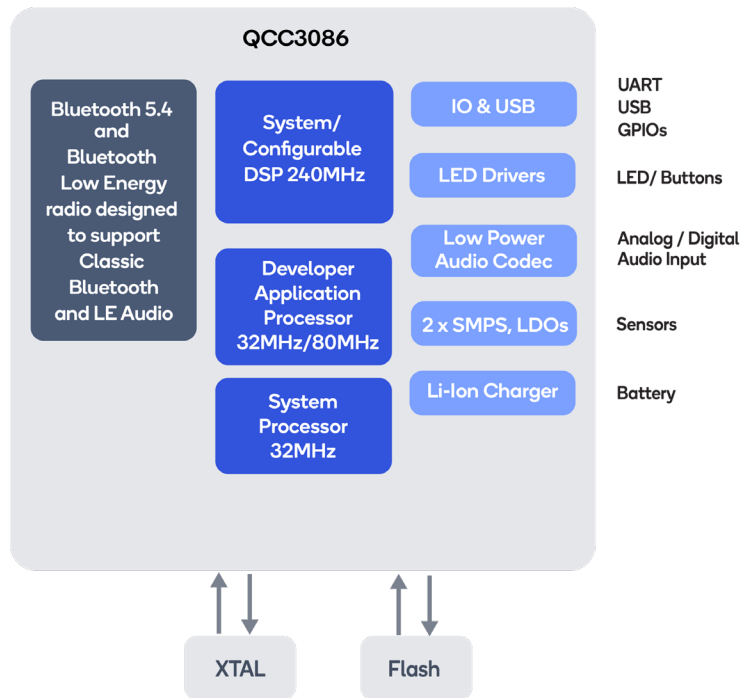
QCC3056/QCC3086 Features Comparison

	Snapdragon Sound	Bluetooth version	aptX Audio	aptX Adaptive	LE Audio for voice & music	LE Audio for broadcast	DSPs	Package
Qualcomm® QCC3056	Classic Bluetooth	5.3	aptX and aptX HD	Up to 24-bit 96kHz	—	—	1x 120MHz	WLCSP 3.98x4.02x0.54mm
Qualcomm® QCC3086	Classic Bluetooth and LE Audio	5.4	aptX and aptX HD	Up to 24-bit 96kHz	Gaming Mode Unicast voice Unicast music	Broadcast Auracast	1x 240MHz	WLCSP 4.93x3.936x0.57mm

QCC3086 Features

- ⌘ Extremely low-power performance
- ⌘ Designed to support both Classic Bluetooth and LE Audio use cases in a source device
- ⌘ Bluetooth 5.4 radio
- ⌘ Ultra-small form factor
- ⌘ Powerful tri-core processor architecture
- ⌘ Dual core 32-bit processor application subsystem (up to 80MHz)
- ⌘ Single core 240MHz configurable Qualcomm® Kalimba™ DSP audio subsystem (run from ROM)
- ⌘ Designed to support USB HID DFU and call control
- ⌘ Designed to support Snapdragon Sound with latency lower than 20ms
- ⌘ Software architecture compatible with Qualcomm® QCC518x
- ⌘ Embedded ROM + RAM and external Q-SPI Flash
- ⌘ Designed to support LE Audio Unicast, Broadcast and Auracast
- ⌘ Designed for Snapdragon Sound:
 - ⌘ Support for aptX Voice superior for call quality on uplink and downlink
 - ⌘ Support for aptX Adaptive at resolutions of up to 24bit/96kHz high resolution audio
 - ⌘ Support for Qualcomm® Bluetooth High Speed Link for robustness and stability
- ⌘ Backwards compatibility to stream classic aptX or aptX HD

QCC3086 Block Diagram



Ordering Information

Product	Part Number
QCC3056	QCC-3056-0-WLNSP94B
QCC3086	QCC-3086-0-WLNSP99

To learn more visit: qualcomm.com or createpoint.qti.qualcomm.com