Qualcomm

Qualcomm® QCC711

Tri-Core Ultra-Low Power Bluetooth® Low Energy (LE) SoC

Ultra-low power Bluetooth LE SoC with dedicated application MCU, security subsystem, and display control.

QCC711 is an industry-leading, tri-core, ultra-low power Bluetooth LE SoC, optimized for IoT applications like beacons for asset positioning and tracking, smart health/fitness devices, remote controls, and computer peripherals, or for Bluetooth onboarding for Wi-Fi devices in smart switches and sensors, and building automation and control. QCC711 supports Bluetooth 5.4 and single-mode Bluetooth LE.

Unlike other Bluetooth LE devices on the market, QCC711 is the first publicly announced Bluetooth LE device integrating three microcontroller cores with on-chip 128 KB SRAM and 512 KB RRAM.

QCC711 is driven by an open-source software SDK which is available on GitHub. QCC711 is also equipped with the Qualcomm® Connectivity Integrated Development Environment based upon Microsoft Visual Studio Code (VSCode). The QCC711 specific VSCode extension plugin will be made available as open-source software to allow customized VSCode specifically for QCC711.

Size- and cost-optimized modules and associated development kits are available from Qualcomm® Authorized Design Centers to allow quick time-to-market productization.

Highlights

Advanced hardware-based security subsystem

A dedicated RISC-V Root of Trust (RoT) CPU for a Trusted Execution Environment (TEE) with dedicated and lock-in SRAM and ROM, as well as a crypto acceleration engine, stands out against competition for security-sensitive applications.

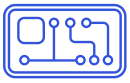
Dedicated application microcontroller

A dedicated Arm® Cortex®-M3 processor can run customer applications on embedded RRAM without the need for additional, external NOR flash. Applications can run with or without an RTOS, providing product designers with product customization flexibility.

Dedicated Bluetooth microcontroller

A dedicated Arm® Cortex®-M0 processor can run the Bluetooth LE stack in ROM, and is designed to support consistent execution without taking computing resources from the Cortex®-M3 processor. QCC711 supports Bluetooth 5.4 and single-mode Bluetooth LE.

User-friendly development environment and tools



QCC711 will be provided with an open-source software SDK available on GitHub, as well as a VSCode-based IDE supported by size- and cost-optimized modules and associated development kits.

87-77413-1 Rev. A

Target Applications

- Beacons for asset positioning and tracking
- Smart health/fitness devices
- Remote controls
- Peripheral devices
- Bluetooth onboarding for Wi-Fi devices
- Smart switches and sensors
- Building automation and control
- Various Bluetooth LE-based IoT applications

Features

- QCC711 tri-core, high-security, Bluetooth LE SoC supports Bluetooth 5.4 and Coded PHY (Long Range)
- Advanced hardware-based security featuring dedicated RoT CPU and associated memory for trusted execution environment, secure boot, secure debug, encrypted storage, key provisioning, and secure OTA updates
- Comprehensive set of peripherals and interfaces: QSPI, SPI, UART, I2C, FTC (PWM), ADC, MFP, PTA
- Dual operating modes, Hostless mode (on-board Bluetooth LE stack) or Hosted mode (connects to external host over UART)
- Integrated power management unit with direct battery connection
- On-chip RRAM (NVM) to host application without need for an external NOR flash

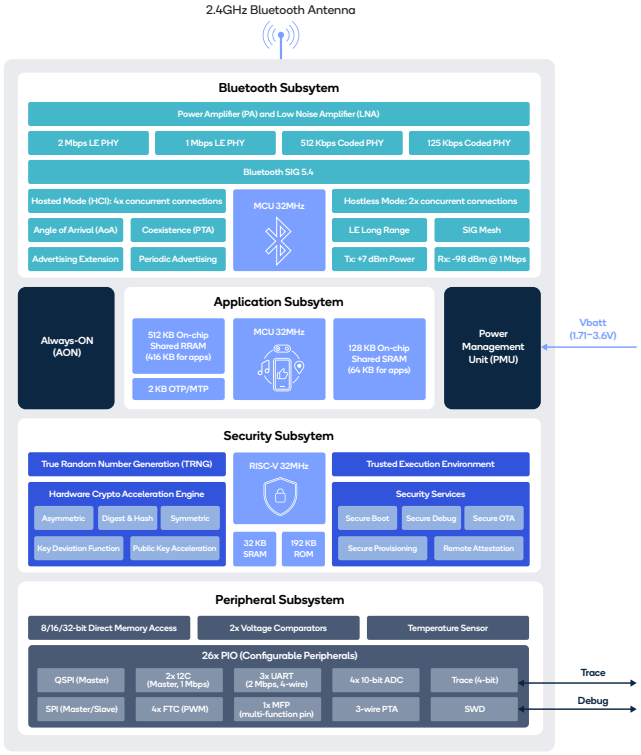
Ordering Information

Product	Part Numbers
QCC711	QCC-711-1-MQFN48C-MT-02-1 (bulk) QCC-711-1-MQFN48C-TR-02-1 (reel)

Related Products

Qualcomm® QCC730 is an ultra-low micro-power Wi-Fi SoC designed to unleash new battery-powered IoT applications and replace traditionally Bluetooth-only connectivity.

Block Diagram



Specifications

CPU	Cortex®-M3 processor (32 MHz) for applications Cortex®-M0 processor (32 MHz) for Bluetooth LE RISC-V (32 MHz) for security subsystem
Bluetooth	Bluetooth 5.4
Security Support	Qualcomm® Trusted Execution Environment (TEE) Cryptographic Accelerator Secure boot and secure storage Key provisioning security and secure debug
Interfaces & Peripherals	SPI, QSPI, FTC (PWM), UART, I2C, GPIO, ADC, MFP, temperature sensor, voltage comparators, LED driver
Package Type	48-lead, 5.6 x 5.6 x 0.85 mm, 0.40 mm pitch QFN 40 nm process node

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