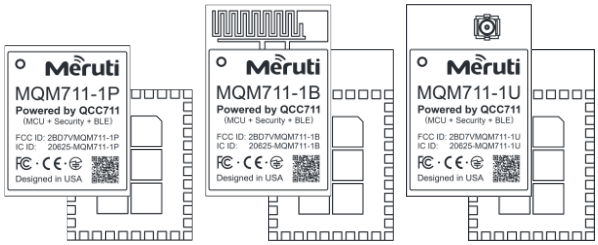
Product Brief

Qualcomm QCC711 Module Portfolio

Application MCU with display control, dedicated Root of Trust (RoT) security subsystem, and BLE 5.4

OVERVIEW



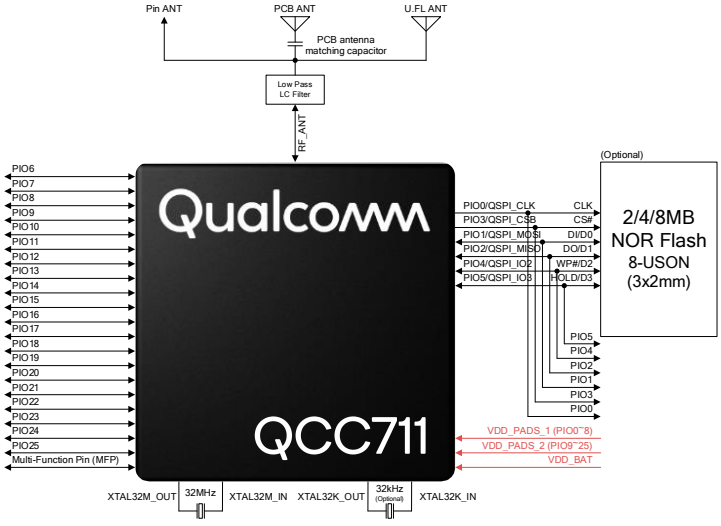
Powered by Qualcomm QCC711, Qualcomm QCC711 IoT connectivity LGA module portfolio (“MQM711-1”) is purposely-designed to pack multi-core processing capabilities, dedciated security subsystem, BLE connectivity, and on-module flash into a single 40-pin LGA form factor with flexible choices of Pin, PCB and U.FL antenna. All variant antenna modules are pin compatible, allowing easy swap among modules. Its 1.27mm (0.05”) pitch design enables seamless LGA pad into standard 1.27mm (0.05”) header conversion to allow field repalcable header module portfolio if needed. Its compact size and on-chip SRAM and RRAM (NVM) contribute to reduced costs and enhanced performance, making it an attractive choice for space-constrained IoT devices.

Unlike many other BLE modules on the market, MQM711-1 has integrated three processors – 32MHz Arm Cortex-M3 processor for application and 32MHz Arm Conrtex-M0 processor for BLE with shared on-chip 128KB SRAM and 512KB RRAM memory. Additional Root-of-Trust (RoT) 32MHz RISC-V processor with its own secure SRAM and ROM is dedicated to security subsystem to ensure the highest level of security for IoT applications with critical security needs. It has built-in resistive RAM (RRAM), the industry latest Nov-volatile Memory (NVM) technology, eliminating need for externally attached NOR flash for more streamlined and cost-effective system. They also feature 3-wire and 4-wire SPI display control, making them capable of driving external LCD/TFT screens. Furthermore, MQM711-1 can be powered directly by a battery, making them suitable for battery-operated devices.

MQM711-1 operates in hostless mode, capable of running both the Bluetooth stack and applications without an external MCU. It can also be used as a BLE transceiver in hosted (HCI) mode via UART interface (AT command) with an external host running Bluetooth stacks and applications.

MQM711-1 has undergone rigorous regulatory compliance testing and is certified with FCC, CE, IC, UKCA, RCM, MIC, KC, SRRC and environmentally compliant with RoHS and WEEE directives. It also completes protocol certification such as Bluetooth SIG 5.4.

BLOCK DIAGRAM

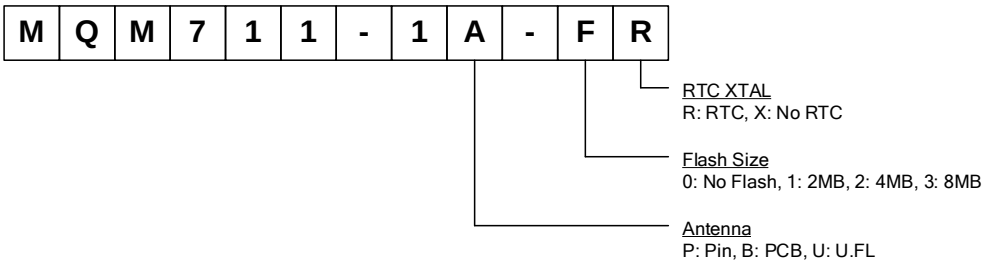


Qualcomm QCC711 Module Portfolio

SPECIFICATION

ITEM	SPECIFICATION	
Microcontroller	- 32MHz Arm Cortex-M3 processor (Application subsystem)	- 32MHz Arm Cortex-M0 processor (Bluetooth subsystem)
On-chip Memory	- 128KB SRAM	- 512KB NVM (Resistive RAM – RRAM)
External Flash	- Optional 2/4/8 MB NOR flash selectable	
Security System	- 32MHz RISC-V Root-of-Trust CPU - Trusted Execution Environment (TEE)	- Hardware crypto acceleration engine - Secure services (boot, debug, OTA, etc.)
Standards	- Bluetooth SIG v5.4	- Bluetooth Low Energy (BLE)
BLE Radio	- Max Tx Power • 2Mbps: +6 dBm (typical) • 1Mbps: +6 dBm (typical) • 500kbps: +6 dBm (typical) • 125kbps: +6 dBm (typical) - Active Tx Power (3.3V) • 16.6 mA @+6 dBm	- Rx Sensitivity (30.8% PER, Boost Mode) • 2Mbps: -93 dBm (typical) • 1Mbps: -96 dBm (typical) • 500kbps: -98 dBm (typical) • 125kbps: -103 dBm (typical) - Active Rx Power • 5.3 mA @-95 dBm
Peripherals	26x configurable digital I/O and 4x can be used for analog I/O - QSPI (master for flash) - 2x SPI (master or slave) - 3-wire or 4-wire SPI display controller - 3x I2C (2x master, 1x slave) - 3x UART (2Mbps, 8-bit/9-bit, 4-wire)	- 4x Flexible timer/counter (FTC) – PWM - 4x channel 10-bit SAR ADC - 3-wire PTA coexistence - Multi-function Pin (MFP) - SWD with 4-bit trace
Voltage	- Input voltage: 1.71V~3.6V, 3.3V	- I/O voltage: 0V ~ 3.3V
Compliance	- FCC, CE, IC, UKCA, RCM, MIC, KC, SRRC, WEEE, RoHS	
Environmental	- Temperature • Operating: -40°C ~ 85°C • Storage: -40°C ~ 85°C	- Humidity • Relative: < 90% Non-condensing • Storage: < 90% Non-condensing
Physical	- Dimension: 12.8 x 18.82 x 2.2 mm - Pin: 40 LGA pad	- Weight: 1.05g - Antenna: Pin or PCB or U.FL

ORDER INFORMATION



Bluetooth · FC · CE · IC · UKCA · RCM · KC · SRRC · RoHS · WEEE

Meruti

ABOUT MERUTI DESIGN: Headquartered in US with R&D center spread out globally, Meruti is dedicate to design, marketing and support of Wi-Fi/BT/15.4 connectivity modules. Meruti module products have fully certified and compliant with FCC, CE, IC, UKCA, RCM, SRRC, MIC, KC. As a Qualcomm Authorized Design Center (ADC) partner, Meruti collaborates closely with Qualcomm to offer a portfolio of cutting-edge, purpose-built, and cost-optimized modules based upon Qualcomm IoT connectivity chipsets. For more information, please visit our website at www.meruti.com.