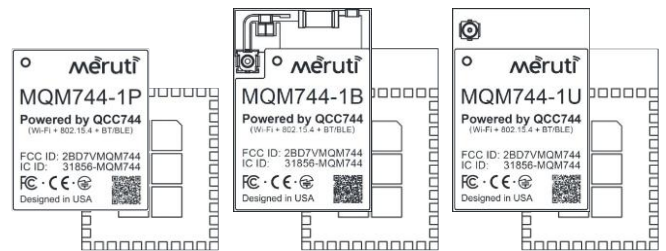


# Qualcomm QCC744 Module Portfolio

All-in-One 1x1 2.4GHz Wi-Fi 6/Bluetooth/802.15.4(Thread/ZigBee) combo all-in-one SoC

## OVERVIEW

Powered by Qualcomm All-in-One 1x1 2.4GHz Wi-Fi 6/BT/15.4 combo all-in-one SoC QCC744, Qualcomm QCC744 IoT connectivity LGA module portfolio (“MQM744-1”) is purposely-designed to pack processing capabilities, Wi-Fi/BT/15.4 combo connectivity, and on-module memory into a single 44-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 replaceable header module portfolio if needed.

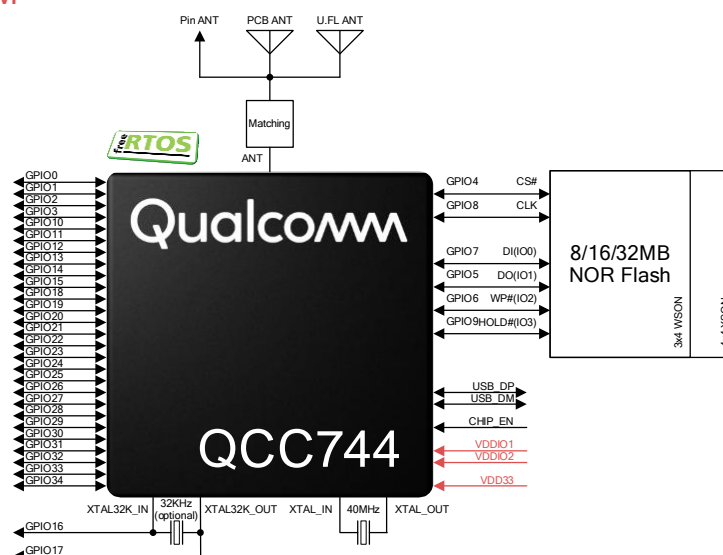


Unlike other Wi-Fi/BT/15.4 combo modules on the market, MQM744-1 has integrated powerful 32-bit RISC-V processor with FPU and DSP running up to 325MHz, on-chip 484KB SRAM and 128KB ROM, optional 4/8MB pSRAM and 8/16MB flash System-in-Package (SiP), multimedia features such as audio and video codec and interfaces, and 35x multiplexed GPIO rich peripherals. Its all-in-one design and capability contribute to reduced costs and enhanced performance, making it an attractive choice for IoT edge devices requiring single chip solution.

MQM744-1 operates in hostless mode, capable of running both the protocol stack all the way to application level as well as IoT applications without requiring an external MCU. Built on FreeRTOS, Its software SDK will be open-sourced on GitHub coupled with VS Code IDE market extension to facilitate rapid IoT application development. It can also be used as an IoT connectivity transceiver in hosted mode with an external host running all upper protocol stacks and applications.

MAM623-1 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 Wi-Fi Alliance, Bluetooth SIG 5.3 and OpenThread 1.3, Matter over Wi-Fi and Thread, AWS qualified device.

## BLOCK DIAGRAM



# Qualcomm QCC744 Module Portfolio

## SPECIFICATION

ITEM	SPECIFICATION			
Microcontroller	- 32-bit RISC-V processor up to 325MHz			
On-chip Memory	- 484KB SRAM	- 128KB ROM	- 1/2/4KB OTP	- 4Kb eFuse
Security System	- Security System encryption engine		- Secure services (boot, debug, OTA, OTFAD, etc.)	
Wi-Fi Standard	- 802.11b/g/n/ax	- IEEE 802.15.4	- Bluetooth Class/Low Energy 5.3 dual mode	
Wi-Fi	- Max Tx Power (HE40 and MCS9): +16 dBm - Active Tx Power (HE40 and MCS9): TBD		- Rx Sensitivity (HE40 and MCS9): -67 dBm - Active Rx Power (HE40 and MCS9): TBD	
802.15.4	- Max Tx Power: TBD		- Rx Sensitivity: TBD	
Bluetooth	- Max Tx Power <ul style="list-style-type: none"> <li>• EDR (3Mbps): +8 dBm</li> <li>• EDR (2Mbps): +8 dBm</li> <li>• BR (1Mbps): +10 dBm</li> <li>• BLE (2Mbps): +10 dBm</li> <li>• BLE (1Mbps): +10 dBm</li> <li>• BLE Coded PHY (500kbps): +10 dBm</li> <li>• BLE Coded PHY (125kbps): +10 dBm</li> </ul> - Active Tx Power: TBD		- Rx Sensitivity <ul style="list-style-type: none"> <li>• EDR (3Mbps): -90 dBm</li> <li>• EDR (2Mbps): -96 dBm</li> <li>• BR (1Mbps): -94 dBm</li> <li>• BLE (2Mbps): -97 dBm</li> <li>• BLE (1Mbps): -99 dBm</li> <li>• BLE Coded PHY (500kbps): -102 dBm</li> <li>• BLE Coded PHY (125kbps): -105 dBm</li> </ul> - Active Rx Power: TBD	
Peripherals	35x configurable I/O: <ul style="list-style-type: none"> <li>- 2x Serial Flash</li> <li>- SPI</li> <li>- RMIII (10/100M)</li> <li>- 12xch 12-bit ADC</li> <li>- SD/MMC</li> <li>- 2x I2C</li> <li>- CAN bus (ISO11898)</li> <li>- 2xch 12-bit DAC</li> <li>- SDIO 2.0</li> <li>- 2x UART</li> <li>- MIPI-DBI</li> <li>- 4x PWM</li> <li>- QSPI</li> <li>- I2S</li> <li>- DVP</li> <li>- JTAG</li> </ul>			
Voltage	- Input voltage: 2.97V~3.63V		- I/O voltage: 1.8V/3.3V	
Compliance	- FCC, CE, IC, UKCA, RCM, MIC, KC, SRRC - WEEE, RoHS		- Bluetooth 5.3, OpenThread 1.3, ZigBee Pro 3.0 - Wi-Fi Alliance, Matter, AWS qualified device	
Environmental	- Temperature <ul style="list-style-type: none"> <li>• Operating: -40°C ~ 105°C</li> <li>• Storage: -40°C ~ 85°C</li> </ul>		- Humidity <ul style="list-style-type: none"> <li>• Relative: &lt; 90% Non-condensing</li> <li>• Storage: &lt; 90% Non-condensing</li> </ul>	
Physical	- Size: 13.55 x 16.09/20.09 x 2.1 mm - Pin: 44 LGA pad		- Weight: TBD - Antenna: Pin or PCB or U.FL	

## ORDER INFORMATION

M Q M 7 4 4 - 1 A - F R S

**QCC744 SKU**  
1: QCC744-1, 2: QCC744-2, 3: QCC744-3, 4: QCC744-4, 5: QCC744-5

**RTC XTAL**  
R: RTC, X: No RTC

**Flash Size**  
0: No Flash, 1: 4MB, 2: 8MB, 3: 16MB, 4: 32MB

**Antenna**  
P: Pin, B: PCB, U: U.FL



**ABOUT MERUTI DESIGN:** Headquartered in US with R&D center spread out globally, Meruti is dedicated 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.io](http://www.meruti.io).

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