User Manual

Qualcomm QCC711 Module Development Kit

March 2024

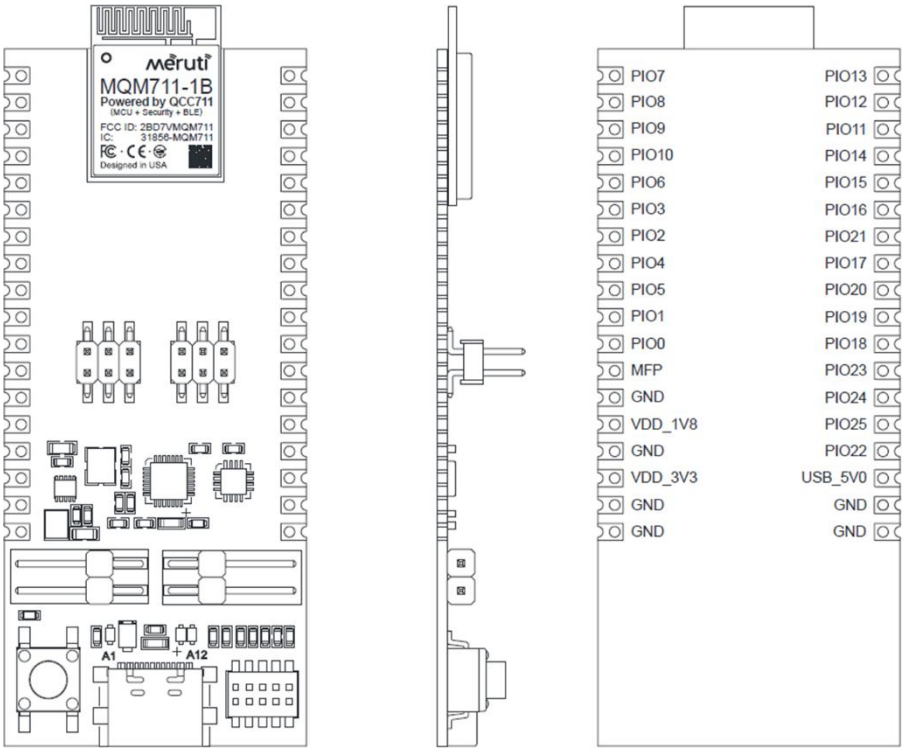

Table of Contents

1 Overview

Powered by Qualcomm QCC711, Qualcomm QCC711 Module Development Kit (“DevKit”) is purposely-designed for application software developers with developer first mindset. The DevKit exposes all QCC711 GPIO pins via QCC711 module to dual 2.54mm (0.1inch) headers to allow flexible expansion. Developers can easily add sensors and other accessories through these dual headers. The dual header is designed to have width of 25.4mm (1.0inch) to allow easy plug-in to the widely used breadboard further to facilitate prototyping development.

The QR code is provided on the back of the DevKit to allow developers to obtain this user manual online.

Figure 1: QCC711 Module Development Kit QR Code

The DevKit 3-side view is shown below:

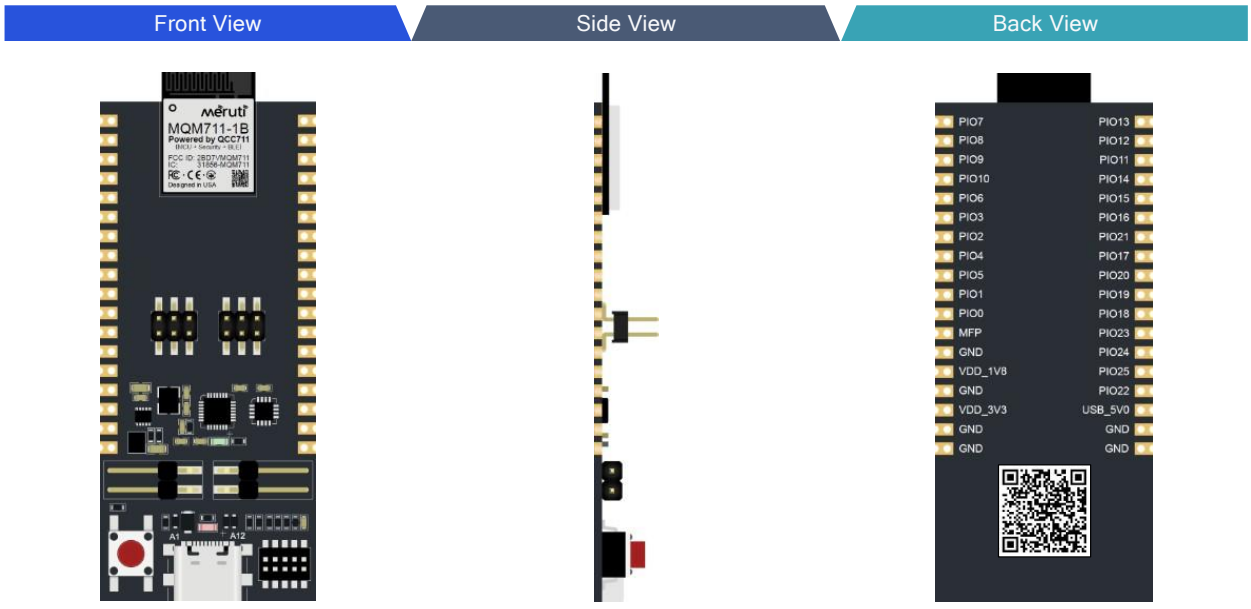

Figure 2: QCC711 Module Development Kit View

2 Package

Included with the DevKit are a pair of male and a pair of female headers to allow developers to have flexibility to mate into their expansion boards.

The DevKit package content is shown below:

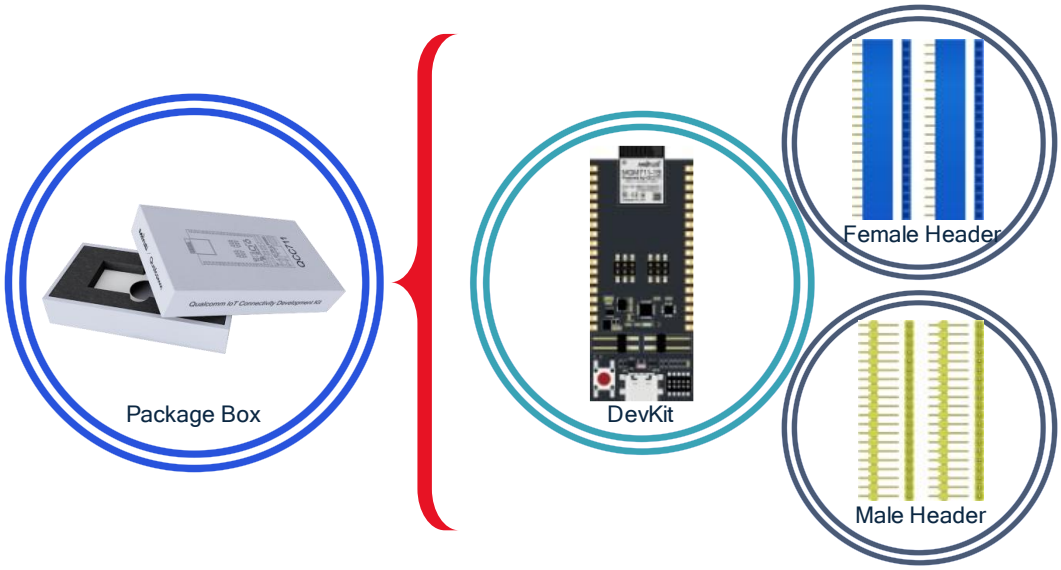

Figure 3: QCC711 Module Development Kit Package

3 Hardware

3.1 Block Diagram

The DevKit block diagram is shown below:

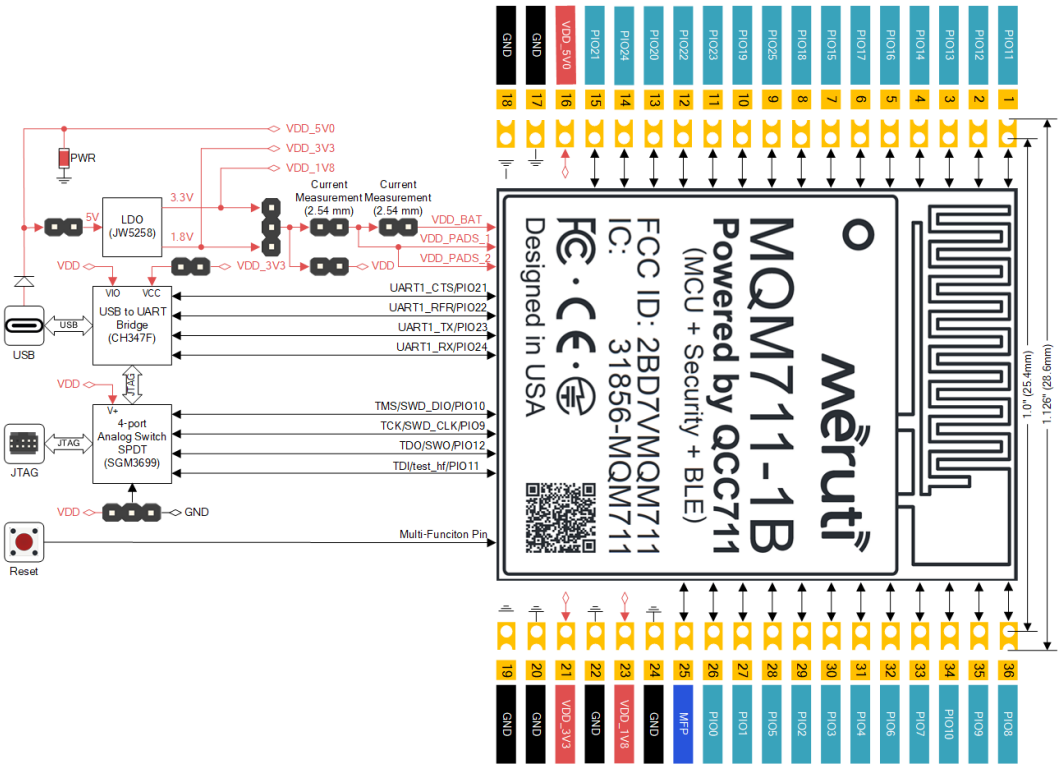

Figure 4: QCC711 Module Development Kit Block Diagram

3.2 Functional Description

3.2.1 Power Supply

The DevKit can be powered from USB-C by plugging into PC. The on-board LDO can convert USB-C 5V into 3.3V and 1.8V. The DevKit input and I/O voltage can be selected from either 3.3V or 1.8V. These 3.3V and 1.8V are also pulled to the DevKit header pins to power expansion boards attached to the DevKit.

The DevKit can also be powered from battery pack which can be plugged into the DevKit headers. The power from USB-C can be de-selected removing the jumper. The battery pack power can be supplied through VDD_3V3 and VDD-18V on the DevKit headers.

3.2.2 Power Measurement

QCC711 module power consumption can be measured through the on-board jumper by connecting to an external current measurement device.

3.2.3 Debug

The DevKit supports SEGGR J-Link and OpenOCD. The on-board analog switch allows to developers to choose QCC711 module JTAG to go through SEGGR J-Link or thru USB-C connected to PC. The on-board USB to UART/JTAG bridge allows both JTAG and UART populated on the PC device manager. Developers can use OpenOCD and UART simultaneously.

3.2.4 Reset

The on-board RESET button allows developers to do software reset.

3.2.5 Headers

Dual standard 2.54mm (0.1inch) headers with 17-pin each side is created on the DevKit to allow developers to attach to any expansion boards of their choice.

The pin map is shown below:

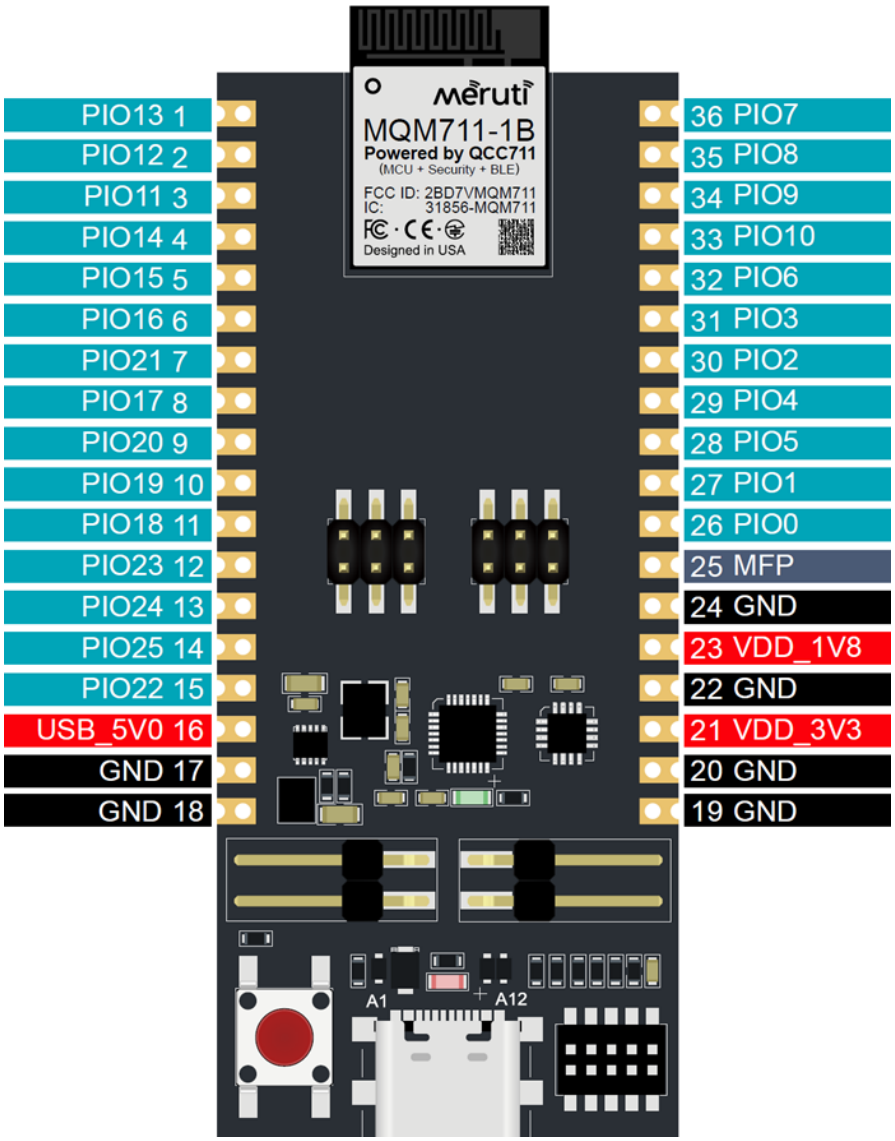

Figure 5: QCC711 Module Development Kit Pin Map

3.2.6 Pin Definition

Pin	Pin Name	Type	Power Domain	Description
16	VDD_5V0	PWR	-	5.0V from USB-C
19	VDD_3V3	PWR	-	3.3V from on-board LDO or external battery
21	VDD_1V8	PWR	-	1.8V from on-board LDO or external battery
17,18,20,22	GND	GND	-	Ground
23	MFP	DI	VDD_VBATT	SW configurable as a reset input
25	PIO0	DI/DO	VDD_PADS_1	Generic PIO
24	PIO1	DI/DO	VDD_PADS_1	Generic PIO
27	PIO2	DI/DO	VDD_PADS_1	Generic PIO
30	PIO3	DI/DO	VDD_PADS_1	Generic PIO
28	PIO4	DI/DO	VDD_PADS_1	Generic PIO
26	PIO5	DI/DO	VDD_PADS_1	Generic PIO
29	PIO6	DI/DO	VDD_PADS_1	Generic PIO
31	PIO7	DI/DO	VDD_PADS_1	Generic PIO
32	PIO8	DI/DO	VDD_PADS_1	Generic PIO
15	PIO9	DI/DO	VDD_PADS_2	Generic PIO
14	PIO10	DI/DO	VDD_PADS_2	Generic PIO
13	PIO11	DI/DO	VDD_PADS_2	Generic PIO
33	PIO12	DI/DO	VDD_PADS_2	Generic PIO
34	PIO13	DI/DO	VDD_PADS_2	Generic PIO
1	PIO14	DI/DO	VDD_PADS_2	Generic PIO
3	PIO15	DI/DO	VDD_PADS_2	Generic PIO
2	PIO16	DI/DO	VDD_PADS_2	Generic PIO
4	PIO17	DI/DO	VDD_PADS_2	Generic PIO
5	PIO18	DI/DO	VDD_PADS_2	Generic PIO
6	PIO19	DI/DO	VDD_PADS_2	Generic PIO
7	PIO20	DI/DO	VDD_PADS_2	Generic PIO
12	PIO21	DI/DO	VDD_PADS_2	Generic PIO
10	PIO22	DI/DO	VDD_PADS_2	Generic PIO, analog in configurable
9	PIO23	DI/DO	VDD_PADS_2	Generic PIO, analog in configurable
11	PIO24	DI/DO	VDD_PADS_2	Generic PIO, analog in configurable
8	PIO25	DI/DO	VDD_PADS_2	Generic PIO, analog in configurable

3.3 Component Layout

Jumpers and button are purposedly designed and defined to allow flexible configurations and operations. The DevKit component layout is illustrated below:

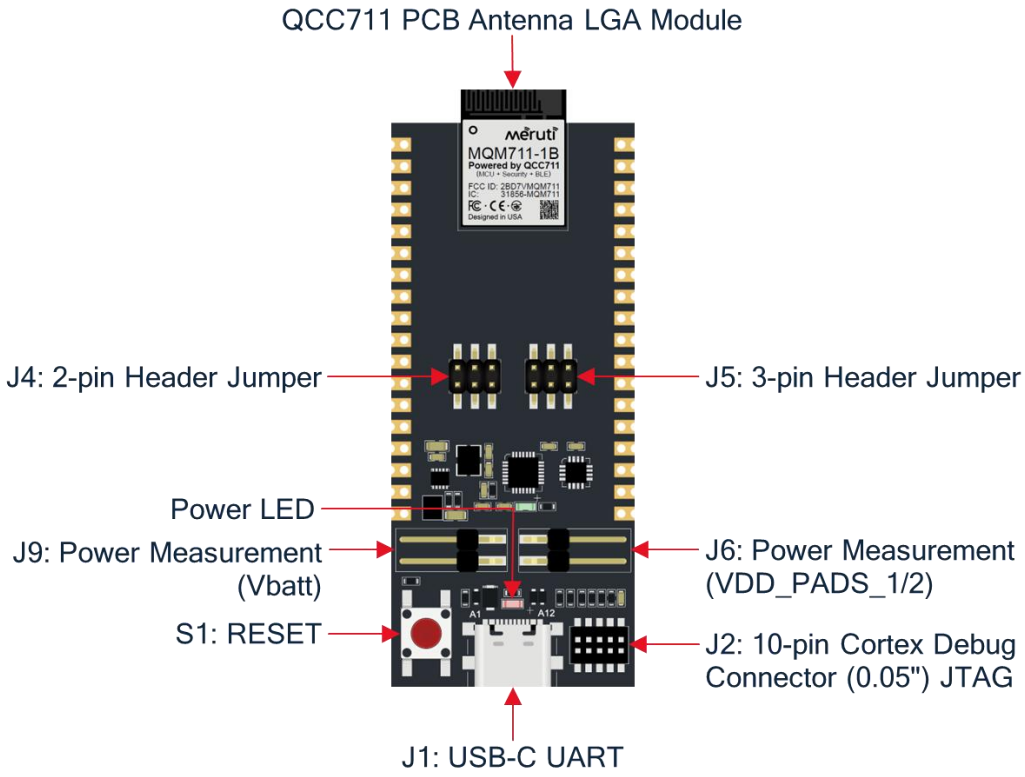

Figure 6: QCC711 Module Development Kit Component Layout

3.4 Jumper Setting

The DevKit jumper definition is illustrated below:

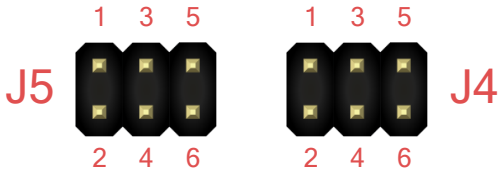

Figure 7: QCC711 Module Development Kit Jumper Setting

Each individual jumper setting is defined in the table below:

Jumper	Pin 1	Pin 2	Function
J4 (2-pin Jumper)	1	2	USB 5V power supply enable
	3	4	USB to UART bridge (CH347F) VDD power-on
	5	6	USB to UART bridge (CH347F) power-on
J5	1	3	VDDIO selection 1.8V

(3-pin Jumper)	3	5	VDDIO selection 3.3V
	2	4	10-pin Cortex debug JTAG
	4	6	USB-C debug OpenOCD

3.5 Mechanical Dimension

The DevKit mechanical dimension is shown below:

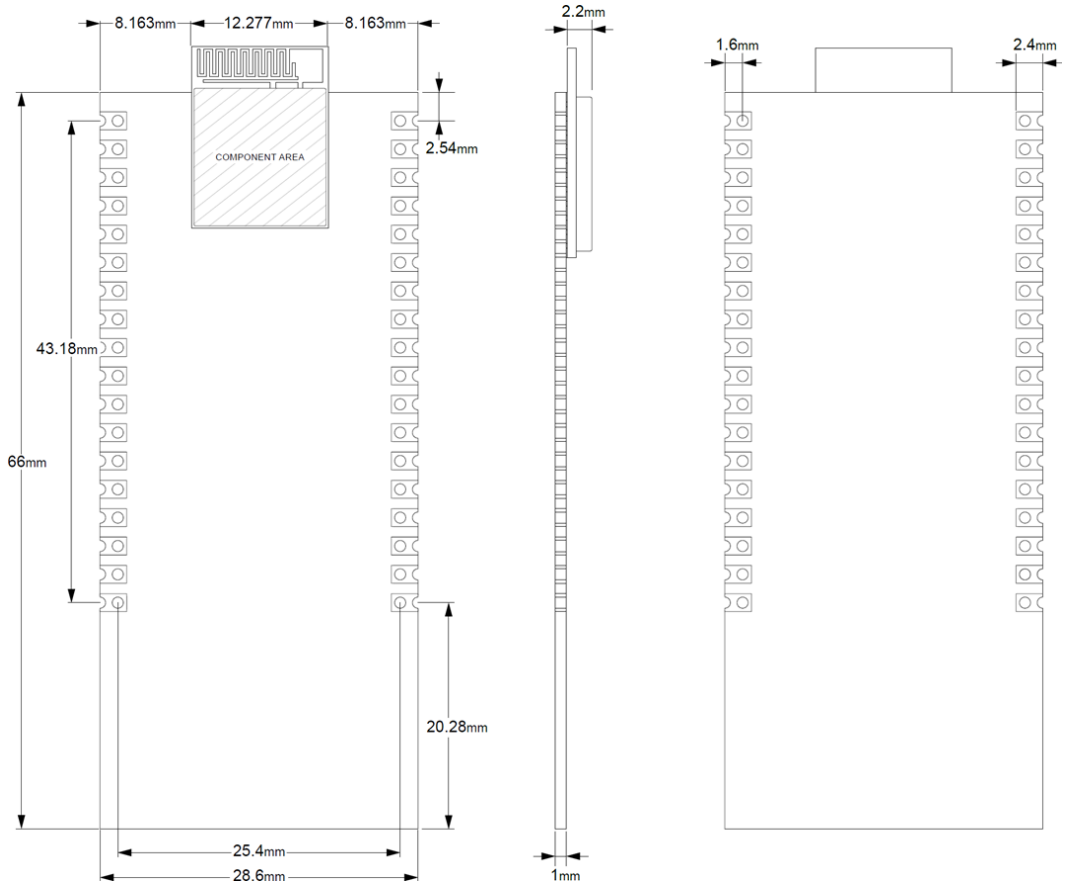

Figure 8: QCC711 Module Development Kit Dimension

3.6 Schematic

The DevKit schematic is shown below:

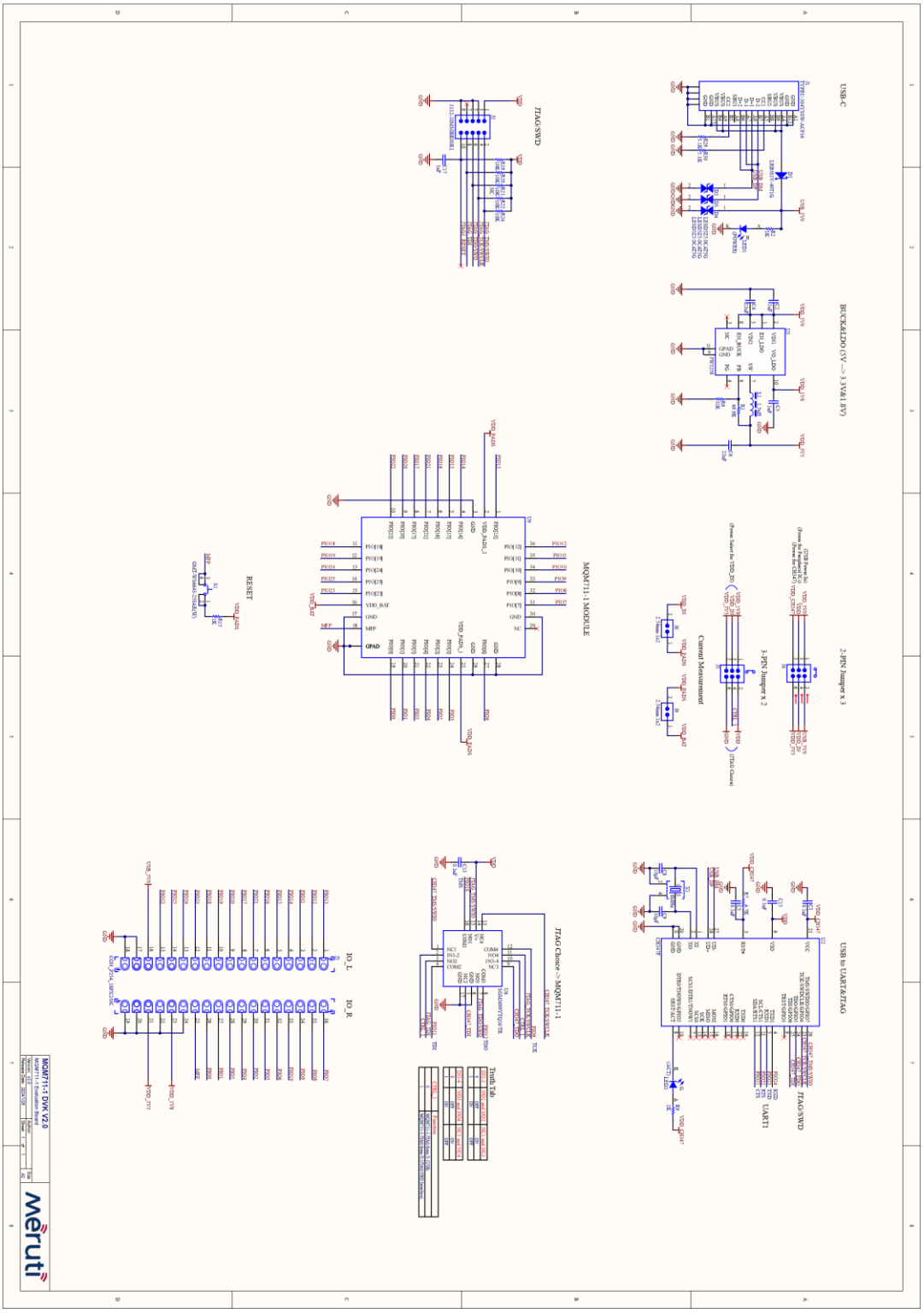

Figure 9: QCC711 Module Development Kit Schematic

4 Software

The DevKit software SDK architecture consists of three parts as illustrated below – Computing Subsystem (APSS) will be open-sourced on GitHub while Bluetooth Subsystem (BTSS) and Security Subsystem will be offered binary inside software SDK package.

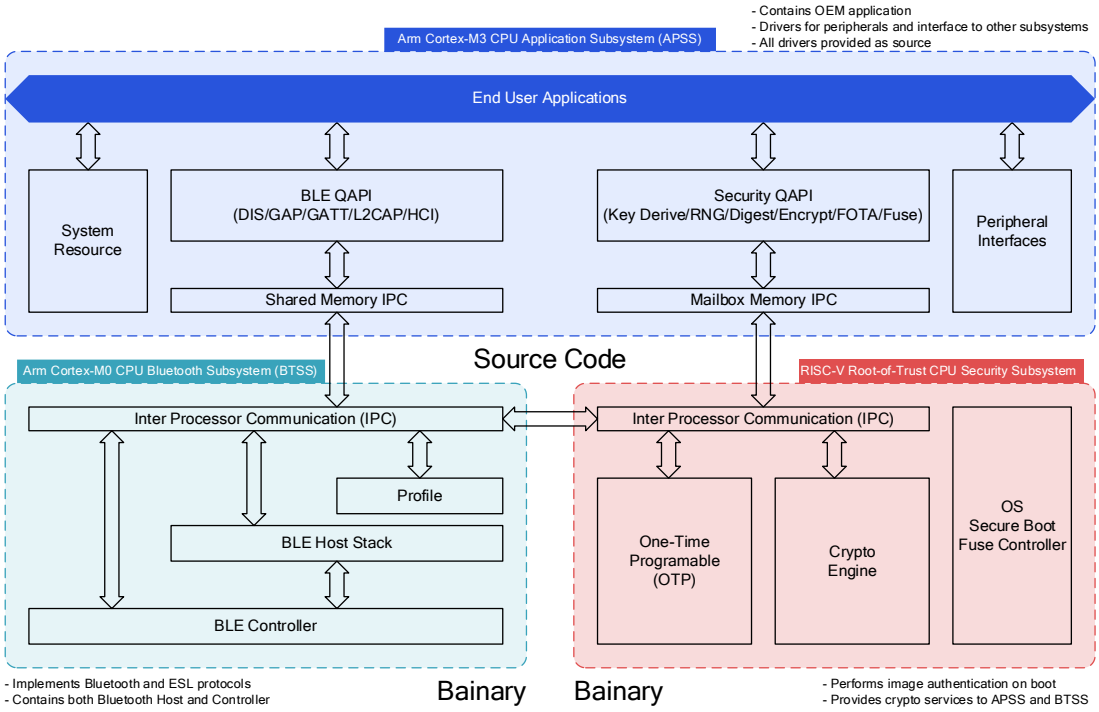

Figure 10: QCC711 Module Development Kit SDK Software Architecture

The software SDK can be available at GitHub: *https://github.com/quic/qccsdk-qcc711*

5 Integrated Development Environment (IDE)

The DevKit leverages Microsoft Visual Studio Code (“VS Code”) for its integrated development environment (IDE). The VS Code market extension (to be available free on GitHub soon) is developed to customize VS Code for Qualcomm QCC711.

5.1 Microsoft Visual Studio Code (VS Code)

Microsoft Visual Studio Code is widely adopted Integrated Development Environment (IDE) embraced by developer community. It becomes an ad-hoc standard IDE lately. VS Code can be downloaded from:

VS Code: *https://code.visualstudio.com/docs/?dv=win*

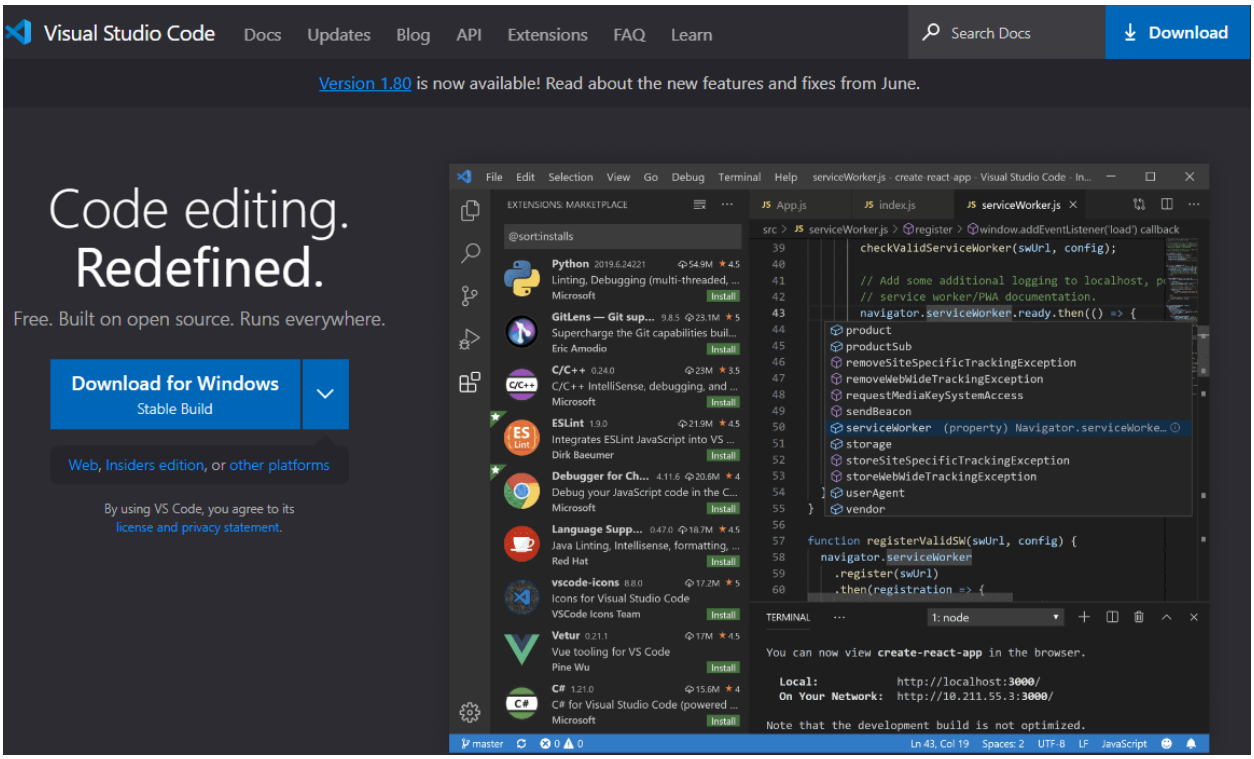

Figure 11: Microsoft Visual Studio Code Download

5.2 VS Code IDE Functional Description

With VS Code, developers can complete all application software development inside this IDE, including:

Edit/Build/Flash
- Build and flash bin
- Build parameter config
- Console port
- Code editor

Debug Target
- Breakpoint
- Back trace
- Step in/out

- Step over
- Local variable, argument variable, and register watch
- Add variable to watch
- Reset debug
- Pause debug
- Stop debug
- Read memory

Project

- Create new project from example
- Download SDK
- Auto configure Build & debug environment

QCC711 Module Development Kit VS Code IDE architecture is shown below:

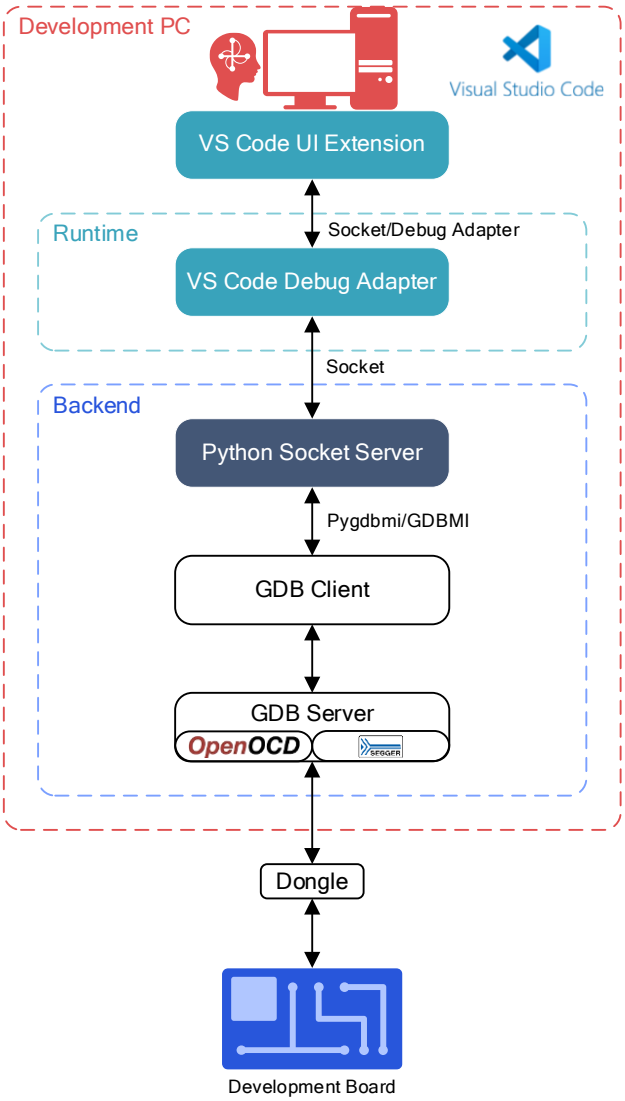

Figure 12: QCC711 Module Development Kit VS Code IDE Architecture

6 Order Information

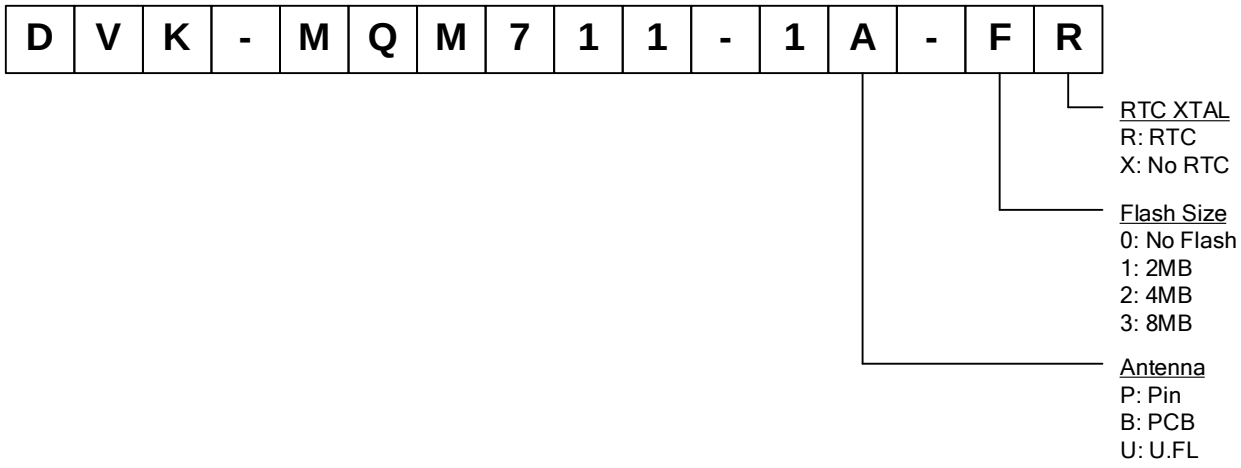

Figure 13: Order Number

7 Where to Buy

The DevKit can be available from the following retailors:

Retailer	Region	Website
Codico	Europe	*www.codico.com*
OKdo	Europe, USA	*www.okdo.com*
Excelpoint	SE Asia, USA	*www.excelpoint.com*
SeeedStudio	Global	*www.seeedstudio.cc*

Revision History

Revision	Description	Date
0.1	Initial draft	December 14, 2023
0.2	Updated jumper setting and module labeling	January 5, 2024
0.3	Changed module model name to MQM711-1	January 20, 2024
2.0	Re-designed to optimize RF performance	March 31, 2024

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