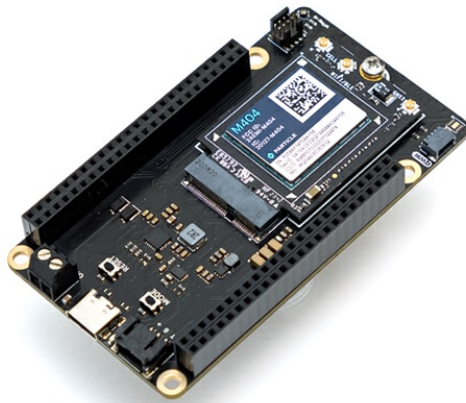# Muon datasheet

This is a preliminary overview of the Muon. A full datasheet will be released at a later date.

Overview

The Muon is a developer kit based on the M-SoM with additional peripherals for easy prototyping.

- LoRaWAN module (Quectel KG200Z, 862 – 928 MHz)
- Expansion connector
- Temperature sensor (TMP112A)
- Configuration EEPROM (24CW640T)
- Real-time clock and watchdog chip (AM1805)
- Reset and mode buttons
- RGB status LED
- Power input options
  - USB-C
  - VIN (6-12 VDC)
  - LiPo battery with temperature sensor (3-pin JST-PH)

M-SOM

The Muon contains a Particle M-SoM that the following functional units:

- M.2 SoM form-factor, like the B-Series SoM
- Can use cellular or Wi-Fi (2.4 GHz or 5 GHz) for the cloud connection
- Realtek RTL8722DM MCU (BLE and Wi-Fi)
- Cellular modem
  - M404: Quectel BG95-M5 LTE Cat M1/2G (Global)
  - M524: Quectel EG91-EX LTE Cat 1 with 2G/3G fallback (EMEAA)
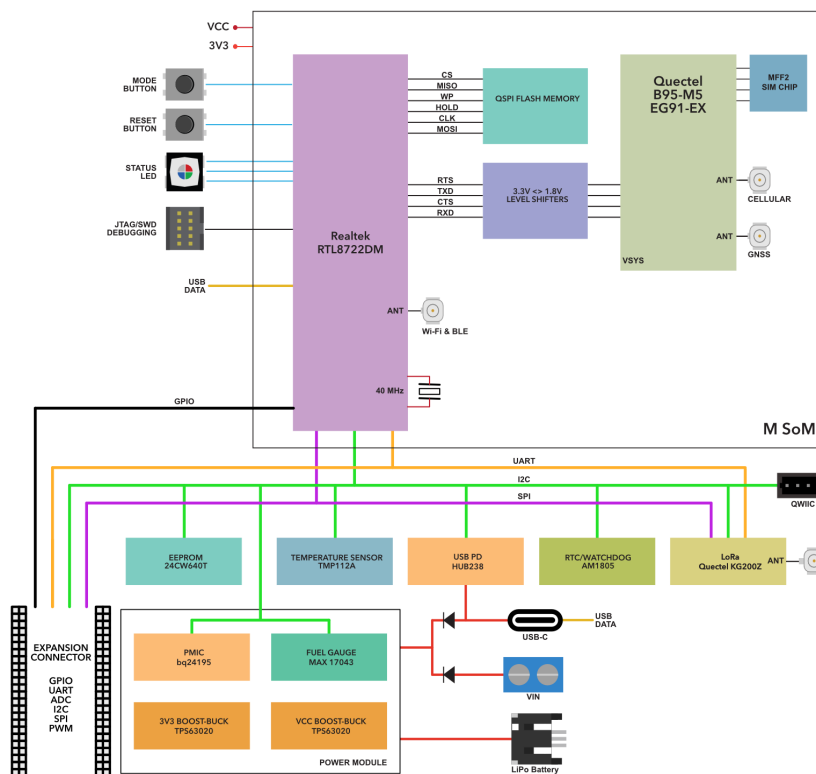 - M635: Quectel BG95-M5 LTE Cat M1/2G (Global with satellite)

The M404 is fully supported in the United States, Canada, and Mexico. It is in beta testing in other locations. See the carrier list for country compatibility information.

MCU

The Realtek RTL8722DM is in the same family as the P2 and Photon 2 modules (RTL8721DM), but has additional GPIO.

- 802.11a/b/g/n Wi-Fi, 2.4 GHz and 5 GHz
  - U.FL connector for external antenna
- BLE 5 using same antenna as Wi-Fi
- Realtek RTL8722DM MCU
  - ARM Cortex M33 CPU, 200 MHz
- 2048 KB (2 MB) user application maximum size
- 3072 KB (3 MB) of RAM available to user applications
- 8 MB flash file system
- FCC (United States), ISED (Canada), and CE (European Union) certified

BLOCK DIAGRAM

DEVICE FAMILIES

	Cellular Only	Cellular & Wi-Fi	Wi-Fi Only
Developer devices	Boron	Muon	Photon 2
Production module	B-SoM	M-SoM	P2

Ordering information

SKU	Description	Region	Modem	EtherSIM	Lifecycle	Replacement
MUON404EA	Muon LTE-M/2G Kit (Global, EtherSIM), [x1]	Global	BG95-M5	✓	In development	
MUON404KIT	Muon LTE M1/2G Kit (Global, EtherSIM), [x1]	Global	BG95-M5	✓	In development	
MUON524EA	Muon LTE CAT1/3G/2G Kit (Europe, EtherSIM), [x1]	Global	EG91-EX	✓	In development	
MUON524KIT	Muon LTE CAT1/3G/2G Kit (Europe, EtherSIM), [x1]	Global	EG91-EX	✓	In development	
MUON635EA	Muon LTE M1/2G/Satellite Kit (Global, EtherSIM), [x1]	Global	BG95-M5	✓	In development	
MUON635KIT	Muon LTE M1/2G/Satellite Kit (Global, EtherSIM), [x1]	Global	BG95-M5	✓	In development	

- EMEAA: Selected countries in Europe, Middle East, Africa, and Asia, including Australia and New Zealand. See the cellular carrier list for more information.