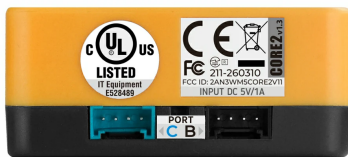


# Core2 For AWS v1.3

SKU:K010-AWS-V13





## Description

Core2 For AWS v1.3 is a development kit designed for AWS IoT learning and security projects, consisting of the M5Stack Core2 main controller and the Base M5GO Bottom2 v1.3 expansion base with an integrated cryptographic chip.

The main controller is built around the dual-core ESP32-D0WDQ6-V3 running at 240 MHz, equipped with 16MB Flash, 8MB PSRAM, and a 2.0-inch capacitive touchscreen with Wi-Fi connectivity. It features a built-in vibration motor, an RTC module, an AXP192 power management unit, and a green power indicator LED. A TF card slot is provided, along with an I2C audio amplifier and speaker. A power button is located on the left side, a reset button on the bottom, and three virtual programmable buttons on the front panel.

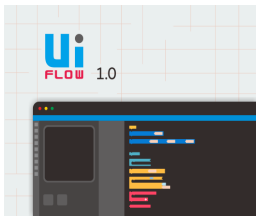
The expansion base integrates an ATECC608 cryptographic chip, a BMI270 6-axis IMU, an SPM1423 digital microphone, and a 500mAh Li-ion battery. Two HY2.0-4P ports supporting ADC, DAC, and UART are provided. Ten SK6812 RGB LEDs with frosted light guides are distributed on both sides. The bottom features a Pogo Pin magnetic charging port with a built-in TP4057 charging IC, which also exposes the I2C bus. The base includes built-in magnets and LEGO-compatible mounting holes, with reserved footprints for a CP2104 and a Li-ion battery connector for future expansion. It is well-suited for smart home security terminal prototyping, trusted data acquisition at the edge, and cloud data upload.

## Tutorial



### AWS IoT Core

This tutorial describes how to configure the Core2 For AWS device to quickly connect to AWS IoT Core.



## UiFlow

This tutorial describes how to control the Core2 For AWS device using the UiFlow graphical programming platform.



## UiFlow2

This tutorial describes how to control the Core2 For AWS device using the UiFlow2 graphical programming platform.



## Arduino IDE

This tutorial describes how to program and control the Core2 For AWS device using Arduino IDE.

## Note

- The vibration motor built into the M5Core2 physically conflicts with the M5 Base series expansion bases. To prevent device damage, do not stack the M5Core2 with any M5 Base series functional base.
- Some units may exhibit non-linear touch response near the screen edges. You can try upgrading the screen firmware using [M5Tool](#) to resolve this issue.

## Features

- ESP32-D0WDQ6-V3 main controller
- Built-in ATECC608 hardware cryptographic chip
- 16MB Flash
- 8MB PSRAM
- 2.4 GHz Wi-Fi
- Built-in speaker
- Power indicator LED
- Vibration motor
- RTC clock
- Capacitive touchscreen
- Built-in Li-ion battery
- Independent peripheral expansion board
  - Built-in BMI270 6-axis IMU
  - PDM microphone
- AXP192 power management
- microSD card slot
- HY2.0-4P expansion interface
- Development Platform:
  - UiFlow1
  - UiFlow2
  - Arduino IDE
  - ESP-IDF

- PlatformIO

## | Includes

---

- 1 x Core2 For AWS v1.3
- 1 x USB Type-C Cable (50cm)
- 1 x Hex Key L-Shape 2.5mm (For M3 Screw)

## | Applications

---

- IoT controller
- DIY projects

## | Specifications

---

Specification	Parameter
SoC	ESP32-D0WDQ6-V3 @ dual-core, 240 MHz
SRAM	520KB
Flash	16MB
PSRAM	8MB
Wi-Fi	2.4 GHz Wi-Fi
Hardware Crypto Chip	ATECC608B-TNGTLSU-G (addr 0x35)
Input Voltage	5V @ 500mA
Host Interface	USB Type-C x1, Pogo Pin x1, I2C x1, GPIO x1, UART x1
Programmable LED	SK6812 x 10
Buttons	Power button, RST button, Screen virtual buttons x 3
Vibration Alert	Vibration motor
IPS LCD	2.0"@320 x 240 ILI9342C
Capacitive Touch IC	FT6336U
Speaker	1W-0928
Microphone	SPM1423
I2S Amplifier	NS4168
IMU	BMI270
RTC	BM8563
PMU	AXP192
USB-TTL	CH9102F
DC-DC Boost	SY7088
Li-ion Battery	500mAh @ 3.7V
Antenna	2.4G 3D Antenna
Operating Temperature	0 ~ 40°C
Housing Material	Plastic ( PC )
Product Size	54.0 x 54.0 x 23.7mm
Product Weight	72.1g

Specification	Parameter
Package Size	90.0 x 60.0 x 30.0mm
Gross Weight	114.9g

## Learn

---

### Power On/Off

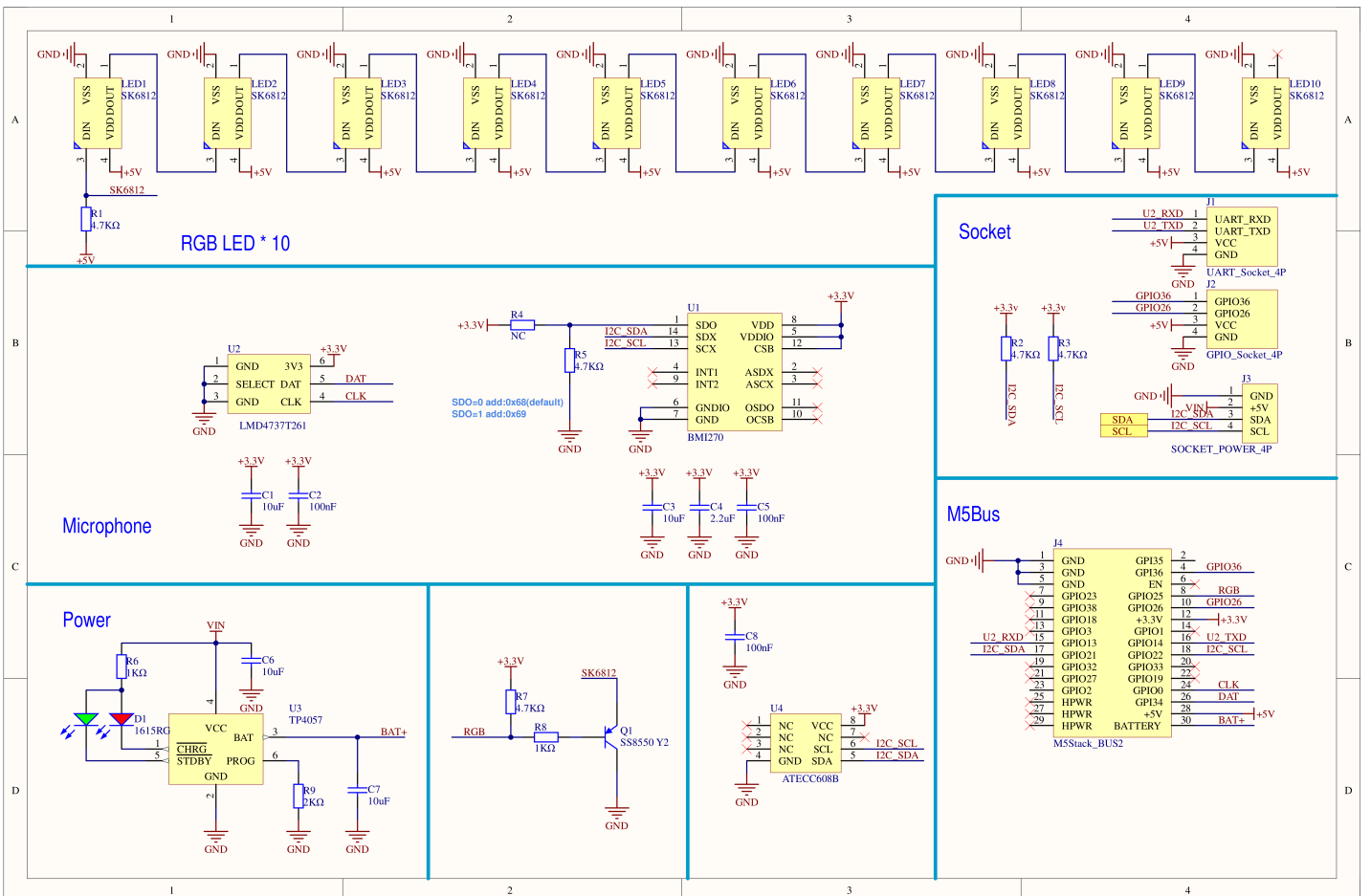
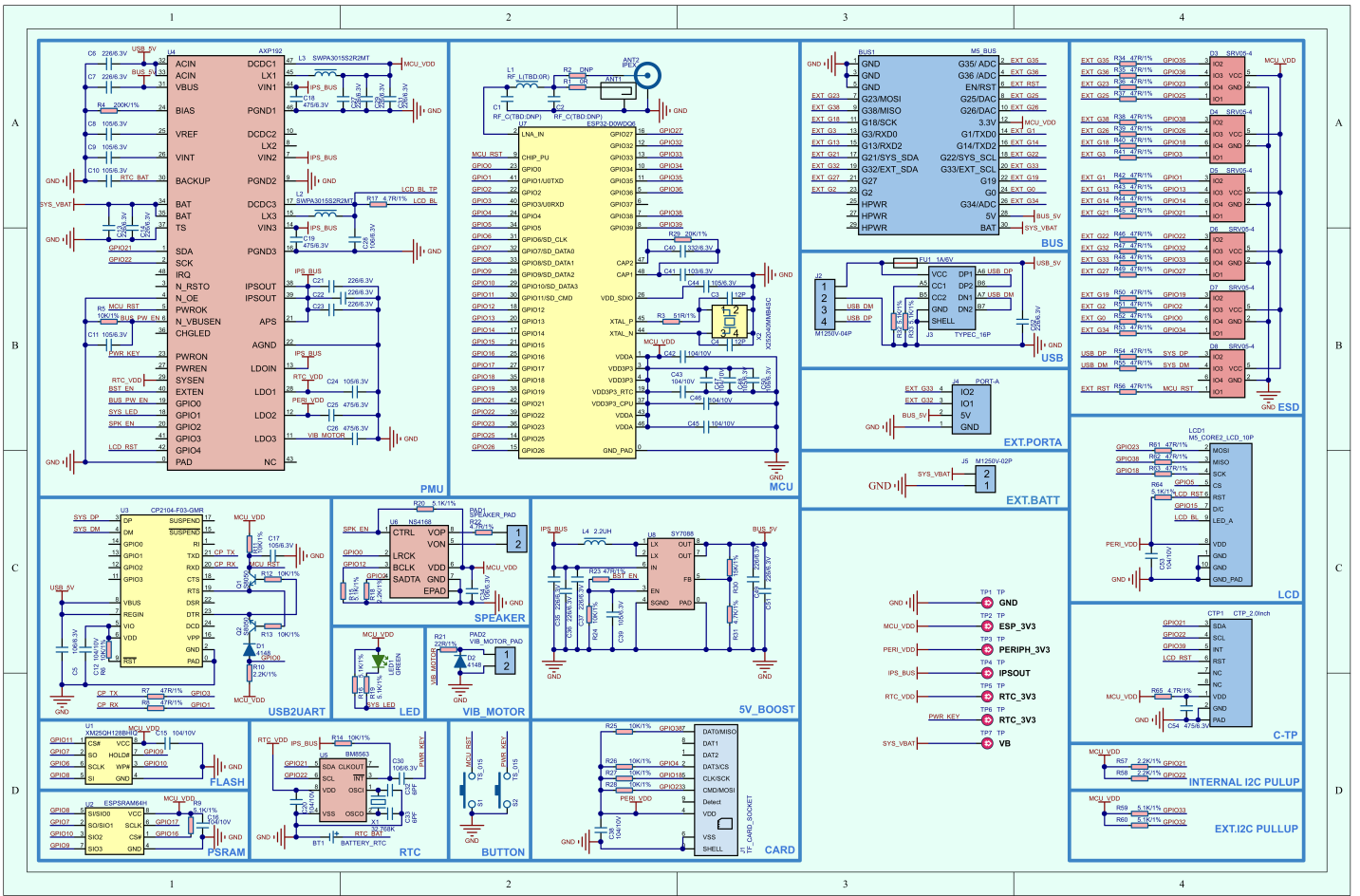
- Power On: Single-click the power button on the left side
- Power Off: Long-press the power button on the left side
- Reset: Single-click the RST button on the bottom



## Schematics

---

- [Core2 Schematics PDF](#)
- [M5GO-Bottom For AWS v1.3 Schematics PDF](#)



# PinMap

## LCD

ESP32-D0WDQ6-V3	G38	G23	G18	G5	G15
ILI9342C	MISO	MOSI	SCK	CS	DC

AXP192 Chip	AXP_IO4	AXP_DC3	AXP_LDO2
ILI9342C	RST	BL	PWR

## microSD

ESP32-D0WDQ6-V3	G38	G23	G18	G4
microSD	MISO	MOSI	SCK	CS

## Touch

ESP32-D0WDQ6-V3	G21	G22	G39
FT6336U (0x38)	SDA	SCL	INT

AXP192	AXP_IO4
FT6336U	RST

## Audio

ESP32-D0WDQ6-V3	G12	G0	G2	G34
NS4168	BCLK	LRCK	DATA	
SPM1423		CLK		DATA

AXP192	AXP_IO2
NS4168	SPK_EN

## AXP Power LED & Vibration Motor

AXP192	AXP_IO1	AXP_LDO3
Green LED	VCC	/
Vibration Motor		VCC

## RTC

ESP32-D0WDQ6-V3	G21	G22
BM8563 (0x51)	SDA	SCL

AXP192	AXP_PWR
BM8563	INT

## IMU (3-Axis Gyroscope + 3-Axis Accelerometer) & Pogo Pin

ESP32-D0WDQ6-V3	G21	G22
BMI270 (0x68)	SDA	SCL
Pogo Pin	SDA	SCL

## SK6812-LED

ESP32-D0WDQ6-V3	G25
SK6812-LED	DATA

## Internal I2C

ESP32-D0WDQ6-V3	G21	G22
BMI270 (0x68)	SDA	SCL
AXP192 (0x34)	SDA	SCL
BM8563 (0x51)	SDA	SCL
FT6336U (0x38)	SDA	SCL
ATECC608 (0x35)	SDA	SCL

## HY2.0-4P

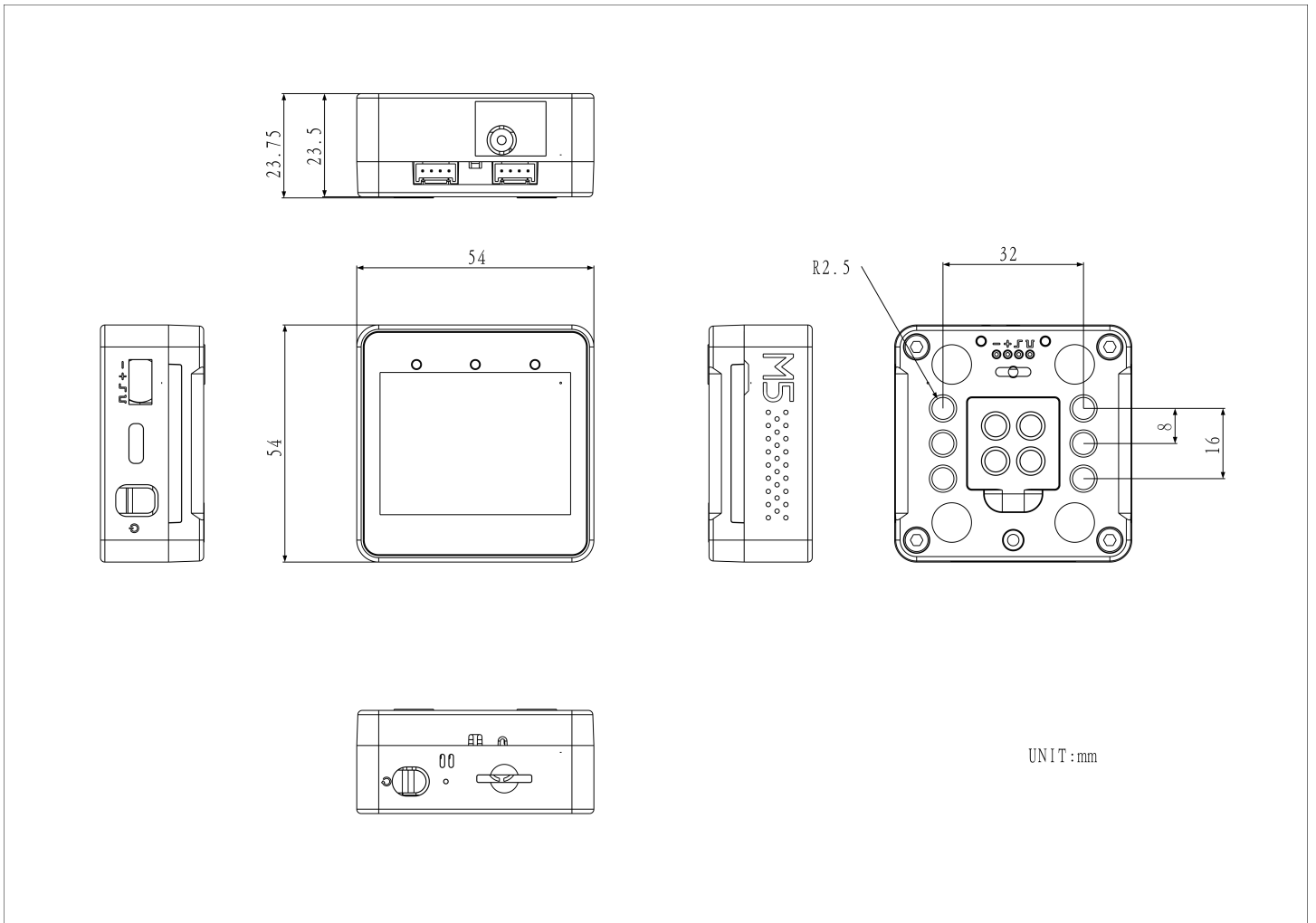
HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	G32	G33
PORT.B	GND	5V	G26	G36
PORT.C	GND	5V	G13	G14

## M5-Bus

FUNC	PIN	LEFT	RIGHT	PIN	FUNC
	GND	1	2	G35	ADC
	GND	3	4	G36	ADC
	GND	5	6	RST	EN
MOSI	G23	7	8	G25	DAC
MISO	G38	9	10	G26	DAC
SCK	G18	11	12	3V3	
RXD0	G3	13	14	G1	TXD0
RXD2	G13	15	16	G14	TXD2
Int SDA	G21	17	18	G22	Int SCL
PORT.A SDA	G32	19	20	G33	PORT.A SCL
GPIO	G27	21	22	G19	GPIO
I2S_DOUT	G2	23	24	G0	I2S_LRCK
	NC	25	26	G34	I2S_DATA
	NC	27	28	5V	
	NC	29	30	BAT	

## Model Size

- [Core2 For AWS v1.3 Model Size PDF](#)



## Datasheets

- [ESP32](#)
- [FT6336U](#)
- [NS4168](#)
- [BMI270](#)
- [ILI9342C](#)
- [SPM1423](#)
- [BM8563](#)
- [SY7088](#)
- [AXP192 datasheet](#)
- [AXP192 register](#)
- [ATECC608](#)
- [1027DC Motor](#)

## Softwares

### Quick Start

- [Connect to AWS IoT Core](#)

### Arduino

- [Core2 for AWS Arduino Quick Start](#)
- [Core2 for AWS Arduino Library](#)
- [Core2 for AWS Arduino API](#)

## UiFlow1

- [Core2 For AWS UiFlow1 Quick Start](#)

## UiFlow2

- [Core2 For AWS UiFlow2 Quick Start](#)

## PlatformIO

```
[env:m5stack-core2-for-aws]
platform = espressif32@6.12.0
board = m5stack-core2
framework = arduino
upload_speed = 921600
monitor_speed = 115200
board_build.partitions = default_16MB.csv
build_type = debug
build_flags =
  -DBOARD_HAS_PSRAM
  -DCORE_DEBUG_LEVEL=5
lib_deps =
  M5Unified=https://github.com/m5stack/M5Unified
```

## ESP-IDF

[Core2 For AWS ESP-IDF Example](#) [Core2 For AWS ESP-IDF Factory Firmware](#)

## USB Driver

Download and install the **CH9102** USB serial (VCP) driver for your operating system from the table below. When installing **CH9102\_VCP\_SER\_MacOS v1.7**, the installer may display an error prompt — this is typically a false positive and the driver is usually installed correctly; the prompt can be safely dismissed. If firmware flashing fails, times out, or returns errors such as **Failed to write to target RAM**, try reinstalling the driver, or switching to a different USB cable or port.

Driver Name	Applicable Chip	Download
CH9102_VCP_SER_Windows	CH9102	<a href="#">Download</a>
CH9102_VCP_SER_MacOS v1.7	CH9102	<a href="#">Download</a>

## Easyloader

Easyloader	Download	Note
Core2 For AWS v1.3 User Demo Easyloader	<a href="#">download</a>	/

## Video

- Core2 For AWS v1.3 Product Introduction and Feature Demonstration

[K010-AWS-V13\\_Core2\\_For\\_AWS\\_v1.3\\_video\\_EN.mp4](#)

## Product Comparison

### Product Compare



Core2 For AWS v1.3



Core2 For AWS

IMU	BMI270	MPU6886
USB-TTL	CH9102	CP2104/CH9102

For a full comparison of controller series products, visit the [Product Selector](#), select the target products, and the comparison results will be displayed automatically. The selector covers key information including core specifications and feature highlights, and supports simultaneous multi-product comparison.