

Core2 for AWS

SKU:K010-AWS



Description

Core2 for AWS is an exclusive kit for IoT learning program - AWS IoT eduKIT. It remains all features of **M5Stack Core2** and **M5GO-Bottom For AWS**, adding with secure element - ATECC608A, which would be an ideal toolkit for IoT learning and secured projects building.

Core2 is the second generation device in the M5Stack family, further enhances functions of the original M5Core. The main controller is based on ESP32, D0WDQ6-V3, which comes with two Xtensa 32-bit LX6 processors. Main frequency supports up to 240Mhz. Onboard 8MB PSRAM and 16MB Flash. Wifi and BLE supported. Equipped with a 2.0-inch capacitive touch screen, which brings users a smooth HMI experience. The built-in vibration motor can provide feedback and vibration reminder functions. Onboard RTC module provides accurate timing. The power supply is adopting AXP192 power management chip, which can effectively control the power consumption. At the same time, Core2 is equipped with a TF card slot and speaker. In order to ensure higher quality sound effect, the I2S digital audio interface power amplifier chip can effectively avoid signal distortion. There are independent Power Button and Reset (RST) Button on the side of Core2. And the 3 virtual buttons on the front screen can be programmable. M5GO Bottom for AWS, is an expansion base designed for M5Core2. Besides internal MPU6886 6-Axis IMU, Digital Mic (SPM1423), 500mAh Lithium ion battery and 10 programmable RGB LEDs(SK6812), it features with a secure element - ATECC608A, a crypto-authentication chip that can be used to lock away private keys securely.

Operations:

- Power on: click the power button on the left
- Power off: long press the left power button for 6 seconds
- Reset: Click the RST button on the bottom side

Product Feature

- ESP32 Based, support WiFi and Bluetooth

- 16M Flash, 8M PSRAM
- Built-in ATECC608A hardware encryption chip
- Capacitive touch screen
- Built-in PDM microphone, power indicator, 6-Axis IMU, vibration motor, I2S codec, Amplifier, Speaker, RTC, power button, reset button, 10 x RGB LEDs
- TF card slot (support up to 16GB)
- Built-in 500mAh Lithium ion battery, equipped with power management chip
- AWS IDT Certified
- Development platform [FreeRTOS](#), [MicroPython](#), [UIFlow](#), [Arduino](#)

Part List

- 1x M5Stack Core2
- 1x M5GO Bottom2 for AWS
- 1x Type-C USB (50cm)
- 1x Hex wrench

Application

- Internet of Things Controller
- STEM Education
- DIY projects

Specifications

Master controller resources Parameters

ESP32-D0WDQ6-V3	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi, dual mode Bluetooth
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Flash	16MB
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PSRAM	8MB
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Hardware encryption chip	ATECC608A
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Input voltage	5V @ 500mA
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Host interface	TypeC x 1, GROVE(I2C+I/O+UART) x 1
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Programmable LED light	SK6812*10
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Button	Power button, RST button, virtual screen button * 3
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Vibration reminder	Vibration motor
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IPS LCD screen	2.0"@320*240 ILI9342C
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Capacitive touch screen IC	FT6336U
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Speaker	1W-0928
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Microphone	SPM1423
I2S power amplifier	NS4168
IMU	MPU6886
RTC	BM8563
PMU	AXP192
USB chip	CP2104
DC-DC boost	SY7088
TF card slot	Support up to 16G
Lithium battery	500mAh @ 3.7V
Antenna	2.4G 3D antenna
Working temperature	32°F to 104°F (0°C to 40°C)
Net weight	101g
Gross weight	108g
Product size	54 x 54 x 24mm
Package size	90 x 60 x 27mm
Shell material	Plastic (PC)

EasyLoader

EasyLoader is a concise and fast program writer, which has a built-in case program related to the product. It can be burned to the main control by simple steps to perform a series of function verification. Please install the corresponding driver according to the device type. M5Core host [Please click here to view the CP210X driver installation tutorial](#), M5StickC/V/T/ATOM series can be used without driver)

The image displays the EasyLoader software interface and a video player. The software interface is titled "2, Select COM" and shows a "Product Example" window with fields for "COM:" (set to COM1) and "Baud:" (set to 921600). There are "Burn" and "Erase" buttons, and a "Ready" status indicator. A red arrow points to the "Burn" button. To the right, a cloud icon labeled "Easy Loader" is connected to a device labeled "1, Downloads". Below the device, a USB cable is connected to a tablet-like device labeled "Core \ M5StickC \ M5StickV...". A third step, "3, Burn Firmware", is indicated by a red arrow pointing to the "Burn" button. At the bottom, there are buttons for "Windows" and "MacOS".

The video player shows a product demonstration for "CORE2". The video title is "Description:" and the content includes "This case will perform hardware running tests for speakers, wifi, buttons, accelerometer, TF-card(microSD), screen, etc." The video player interface includes a play button, a progress bar, and a volume icon. The video is from the channel "M5STACK" and is part of a "NEW ARRIVALS" series.

PinMap

LCD & TF card

LCD : 320x240 TF card Maximum size 16GB

ESP32 Chip GPIO38 GPIO23 GPIO18 GPIO5 GPIO15

AXP192 Chip AXP_IO4 AXP_DC3 AXP_LDO2

ILI9342C MISO MOSI SCK CS DC RST BL PWR

ESP32 Chip GPIO38 GPIO23 GPIO18 GPIO4

TF Card MISO MOSI SCK CS

CAP.TOUCH

ESP32 chip GPIO21 GPIO22 GPIO39

AXP192 AXP_IO4

FT6336U SDA SCL INT RST

Mic & NS4168(Speaker)

ESP32 Chip GPIO12 GPIO0 GPIO2 AXP_IO2 GPIO34

NS4168 BCLK LRCK DATA SPK_EN

Mic CLK DATA

AXP Power Indicator Light

AXP192 AXP_IO1 AXP_LDO3

Green LED Vcc

Vibration motor Vcc

RTC

ESP32 Chip GPIO21 GPIO22

AXP192 AXP_PWR

BM8563 SDA SCL INT

IMU(3-axis gyroscope & 3-axis accelerometer) & Pogo Pin

ESP32 Chip GPIO21 GPIO22

MPU6886 SDA SCL

Pogo Pin SDA SCL

USB to serial chip

ESP32 Chip GPIO1 GPIO3

CP2104 RXD TXD

SK6812-LED

ESP32 Chip GPIO25

SK6812-LED DATA

Internal I2C connection

ESP32 Chip GPIO21 GPIO22

MPU6886 SDA SCL

AXP192 SDA SCL

BM8563 SDA SCL

FT6336U SDA SCL

ATECC608A SDA SCL

Charging current measured value

charging current Fully charged current(Power OFF) Fully charged current(Power ON)

0.219A 0.055A 0.147A

M5Core2 M-BUS Schematic diagram

	GND	ADC	G35
	GND	ADC	G36
	GND	RST	EN
G23	MOSI	DAC	G25
G38	MISO	DAC	G26
G18	SCK	3.3V	
G3	RXD0	TXD0	G1
G13	RXD2	TXD2	G14
G21	intSDA	intSCL	G22
G32	PA_SDA	PA_SCL	G33
G27	GPIO	GPIO	G19
G2	I2S_DOUT	I2S_LRCK PDM_CLK	G0
	NC	PDM_DAT	G34
	NC	5V	
	NC	BAT	

M5Core2 PORT

HY2.0-4P-PortA(Red)

ESP32 Chip GPIO32 GPIO33

PortA GPIO32(SDA) GPIO33(SCL)

M5GO-Bottom For AWS PORT

HY2.0-4P-PortB(black)

ESP32 Chip GPIO26 GPIO36

PortB GPIO26(DAC) GPIO36(ADC)

HY2.0-4P-PortC(blue)

ESP32 Chip GPIO13 GPIO14

PortC GPIO13(RXD2) GPIO14(TXD2)

ESP32 ADC/DAC

ADC1	ADC2	DAC1	DAC2
8 channels	10 channels	2 channels	2 channels
G32-39	G0/2/4/12-15/25-27	G25	G26

For more information about Pin assignment and Pin Remapping, Please refer to [ESP32 Datasheet](#)

Related Link

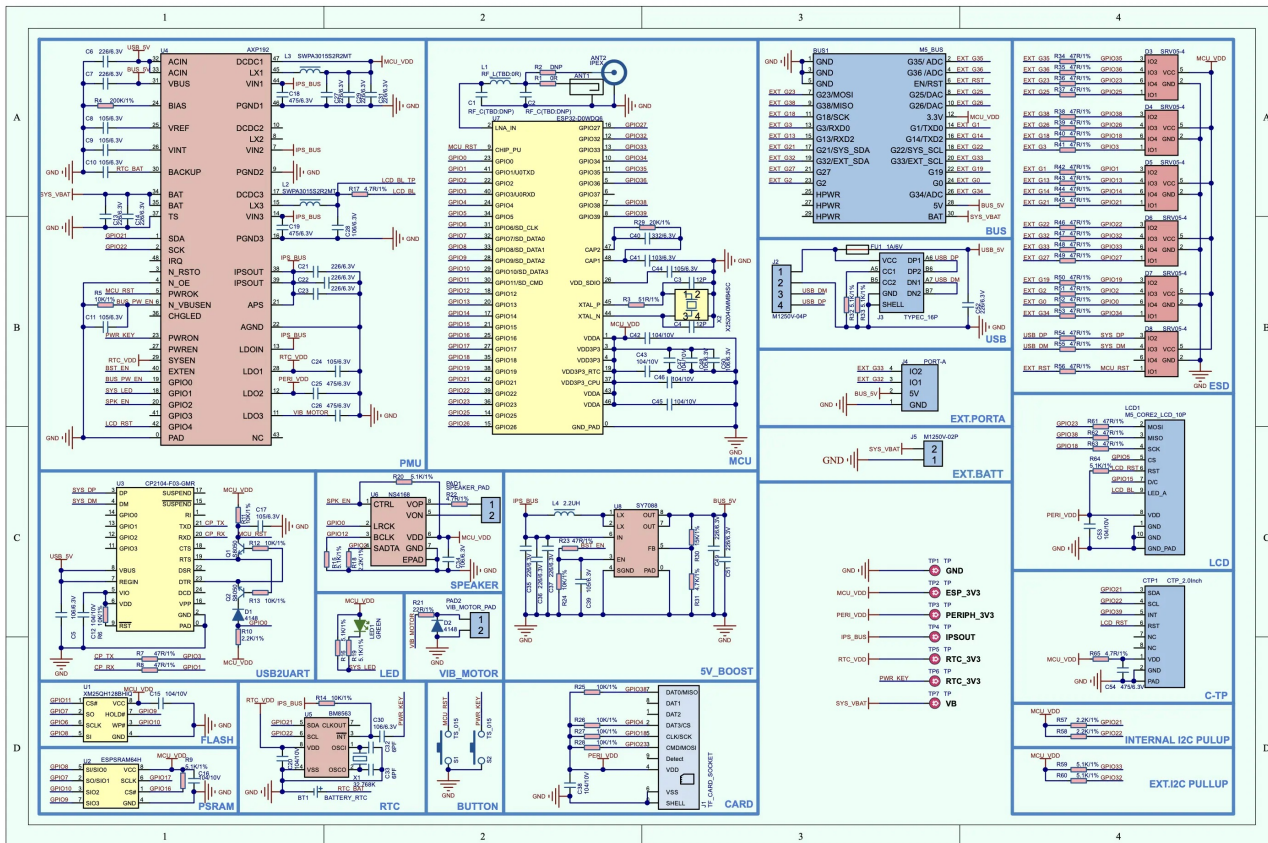
- **Datasheet**

- [ESP32](#)
- [FT6336U](#)
- [NS4168](#)
- [MPU6886](#)
- [ILI9342C](#)
- [SPM1423](#)
- [BM8563](#)
- [SY7088](#)
- [AXP192](#)
- [ATECC608A](#)

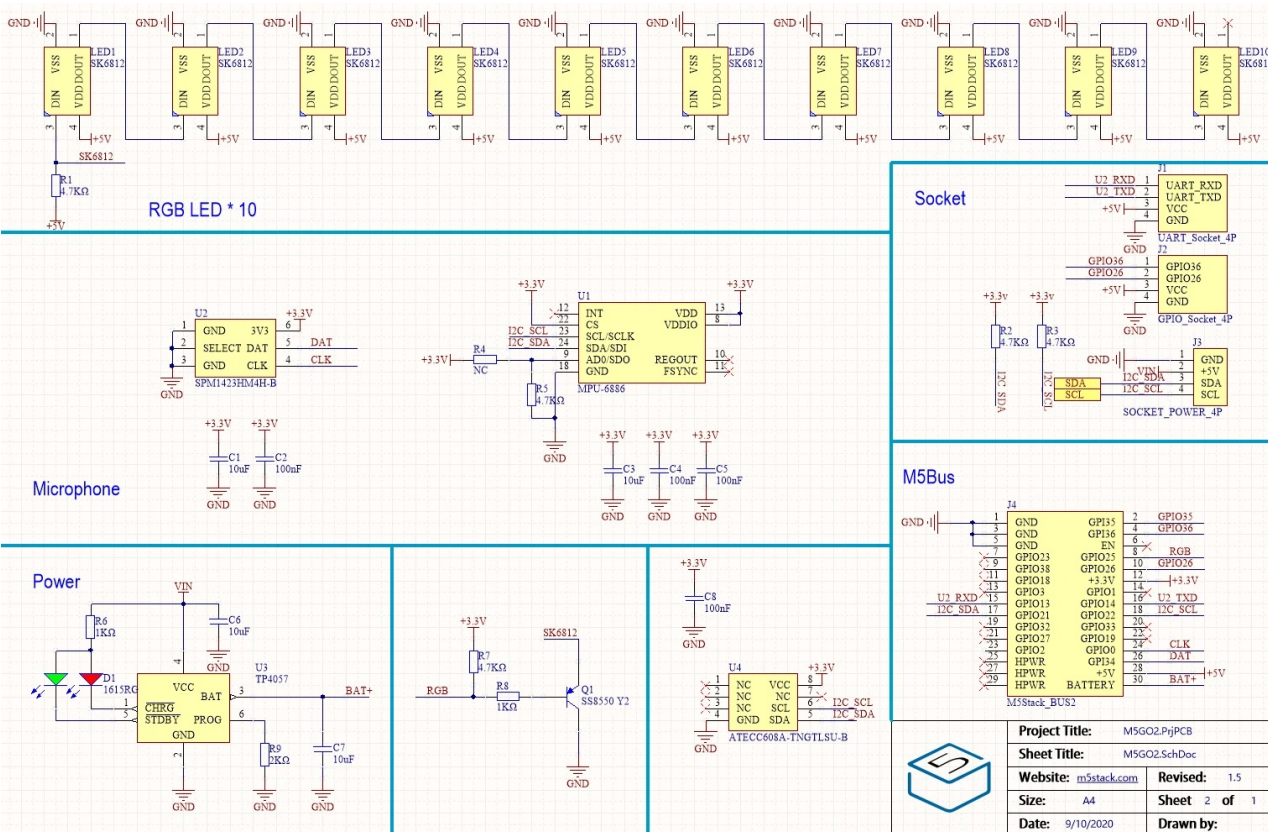
- **API**

- [Arduino API](#)

Schematic



• Core2-Schematic



Example

Arduino IDE

- [Click here](#) to get Arduino code

Tutorial

- [UIFlow](#)
- [Arduino](#)