

ESP32 Basic Core IoT Development Kit V2.7



Description

BASIC is a cost-effective entry-level IoT main controller. It adopts Espressif ESP32 chipset, equipped with 2 low-power Xtensa® 32-bit LX6 microprocessors with main frequency up to 240MHz. Built-in **16M FLASH** memory, integrated **2.0-inch full-color HD IPS display panel**, **speaker**, **TFCard slot** and other peripherals. The full-coverage housing ensures circuit stability even in complex industrial applications. Internal provides a variety interface resources (ADC/DAC/I2C/UART/SPI, etc.) and 15x IO pins at the bottom, which is highly developable. Ideal for a variety of product prototyping, industrial control, intelligent building application.

- **High productization:**
 - Exquisite designs, Prototyping right into products
 - Product-grade full-coverage cover for more stable circuit operation
- **Low Code Development:**
 - Support UIFlow graphical programming platform, scripting-free, cloud push
 - Fully compatible with mainstream development platforms such as Arduino and ESP32-IDF
 - Support FreeRTOS, with dual-core and multitasking mechanism, it can perform the tasks efficiently, Program optimization.
- **High Integration:**
 - 2.0 inch IPS display panel, speakers, custom buttons x3
 - Built-in lithium battery power, integrated power management chip, support TypeC interface
 - Finely tuned RF circuit for stable and reliable wireless communication

- **Strong Expandability:**
 - 15x IO leads
 - Easy access to M5Stack's hardware and software ecology system, stackable module design, plug-and-play rich sensors expansion

Power on/off operation:

Power on: Click the red power button on the left

Shutdown: Quickly double-click the red power button on the left

**USB power supply*:* By default, when USB is powered, it cannot be shut down

Product Features

- Based on ESP32 development
- 16M FLASH
- Integrated full-color high-definition IPS display panel and a variety of hardware peripherals
- Rich resources interface, compatible with M5Stack stacking modules and sensors, highly expandable.
- Use M5CORE BOTTOM base built-in lithium battery, 15x IO leads.

Included

- 1x BASIC
- 10x Dupont line
- 1x Type-C USB(20cm)
- 1x manual
- 1x sticker

Application

- IoT Controller
- DIY creator works
- Smart home control

Specifications

Specifications	Parameters
ESP32-D0WDQ6-V3	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi
Flash	16MB
Input power	5V @ 500mA
Interface	TypeC x1, I2C x1
IO	G21, G22, G23, G19, G18, G3, G1, G16, G17, G2, G5, G25, G26, G35, G36

Specifications	Parameters
Button	Physical button x 3
LCD screen	2.0"@320*240 ILI9342C IPS panel, maximum brightness 853nit
Speaker	1W-0928
USB chip	CH9102F
Antenna	2.4G 3D Antenna
Battery	110mAh @ 3.7V
Net weight	47.2g
Gross weight	93g
Product size	54mm x 54mm x 18mm
Packing size	95 x 65 x 25mm
Cover Material	Plastic (PC)

Pinmap

LCD screen & TF card

LCD pixels: 320x240 TF card supports up to 16GB

ESP32 Chip	GPIO23	GPIO19	GPIO18	GPIO14	GPIO27	GPIO33	GPIO32	GPIO4
ILI9342C	MOSI/MISO	/	CLK	CS	DC	RST	BL	
TF Card	MOSI	MISO	CLK	/	/	/	/	CS

Button & Speaker

ESP32 Chip	GPIO39	GPIO38	GPIO37	GPIO25
Button pin	BUTTON A	BUTTON B	BUTTON C	/
Speaker	/	/	/	Speaker pin

GROVE interface A & IP5306

The power management chip (IP5306) is a customized I2C version, and its I2C address is 0x75. Click [here](#) to view Register manual of IP5306.

ESP32 Chip	GPIO22	GPIO21	5V	GND
GROVE A	SCL	SDA	5V	GND

ESP32 Chip GPIO22 GPIO21 5V GND

IP5306 SCL SDA 5V GND

IP5306 charge/discharge, voltage parameters

charge

discharge

0.00 ~ 3.40V -> 0% 4.20 ~ 4.07V -> 100%

3.40 ~ 3.61V -> 25% 4.07 ~ 3.81V -> 75%

3.61 ~ 3.88V -> 50% 3.81 ~ 3.55V -> 50%

3.88 ~ 4.12V -> 75% 3.55 ~ 3.33V -> 25%

4.12 ~ / -> 100% 3.33 ~ 0.00V -> 0%

PORT

PORT-A(REDF) G21/22 I2C

PORT-B(BLACK) G26/36 DAC/ADC

PORT-C(BLUE) G16/17 UART

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

M-BUS

GPIO TYPE	Analog Function	M-BUS			Analog Function	GPIO TYPE	
		LINE 0		LINE 1			
		GND	ADC	G35	ADC1_CH7	I	
		GND	ADC	G36	ADC1_CH0	I	
		GND	RST	EN			
I/O/T		G23	MOSI	DAC/SPK	G25	ADC2_CH8	I/O/T
I/O/T		G19	MISO	DAC	G26	ADC2_CH9	I/O/T
I/O/T		G18	SCK	3.3V			
I/O/T		G3	RXD1	TXD1	G1		I/O/T
I/O/T		G16	RXD2	TXD2	G17		I/O/T
I/O/T		G21	SDA	SCL	G22		I/O/T
I/O/T	ADC2_CH2/T2	G2	GPIO	GPIO	G5		I/O/T
I/O/T	ADC2_CH5	G12	IIS_SK	IIS_WS	G13	ADC2_CH4/T4	I/O/T
I/O/T	ADC2_CH3/T3	G15	IIS_OUT	IIS_MK	G0	ADC2_CH1/T1	I/O/T
		HPWR	IIS_IN	G34	ADC1_CH6	I	
		HPWR	5V				
		HPWR	BATTERY				

Version Change

Release Date	Product Changes	Notes
2017.7	First Release(Core1.4)	/
2019.7	TN screen changed to IPS screen(Core2.2)	Please upgrade your M5Stack library to the latest version (v0.2.8 or above) to solve the screen reflection problem
2020.3	Battery capacity changed from 150mAh to 110mAh(Core2.4)	/
2020.6	Flash size changed from 4MB to 16MB(Core2.5)	/
2021.10	Upgrade v2.6, change CP2104 to CH9102, optimize structure details(Core2.6)	/
2021.10	Upgrade v2.7	The screen was changed to a glass screen for clearer display;The Grove port adds a boost function to stabilize the 5.1V output with a more stable load;Add a battery-powered switch

Note: **2018.2A** PCB version of the device does not support C2C (TypeC to TypeC) connection and PD power supply.

