BRIEF INTRODUCTION

ESP32C3 is an IoT mini development board based on the Espressif ESP32C3 WiFi/Bluetooth dual mode chip. ESP32-C3 is a 32-bit RISC-V CPU that includes an FPU (floating point unit) that can perform 32-bit single precision operations and has powerful computing power. It has excellent RF performance and supports IEEE 802.11 b/g/n WiFi and Bluetooth 5 (LE) protocols. This board comes with an external antenna to enhance the signal strength of wireless applications. It also has a compact and exquisite appearance combined with a single surface mount design. It is equipped with rich interfaces, with 11 digital I/Os that can be used as PWM pins and 4 analog I/Os that can be used as ADC pins. It supports four serial interfaces: UART, I2C, and SPI. There is also a small reset button and a boot loader mode button on the board.

Based on the above characteristics, ESP32C3SuperMini is positioned as a high-performance, low-power   and cost-effective IoT mini development board, suitable for low-power IoT applications and wireless wearable applications.

PRODUCT PARAMETERS

Powerful CPU: ESP32-C3, 32-bit RISC-V single core processor, running at frequencies up to 160 MHz

WiFi: 802.11b/g/n protocol, 2.4GhHz, supports Station mode, SoftAP mode, SoftAP+Station mode, hybrid mode

Bluetooth 5.0

Ultra low power consumption: Deep sleep power consumption is about 43 μ A

Rich board resources: 400KB SRAM, 384KB ROM with built-in 4Mflash.

Chip model: ESP32C3FN4

Ultra small size: as small as the thumb (22.52x18mm) in a classic shape, suitable for wearable devices and small projects
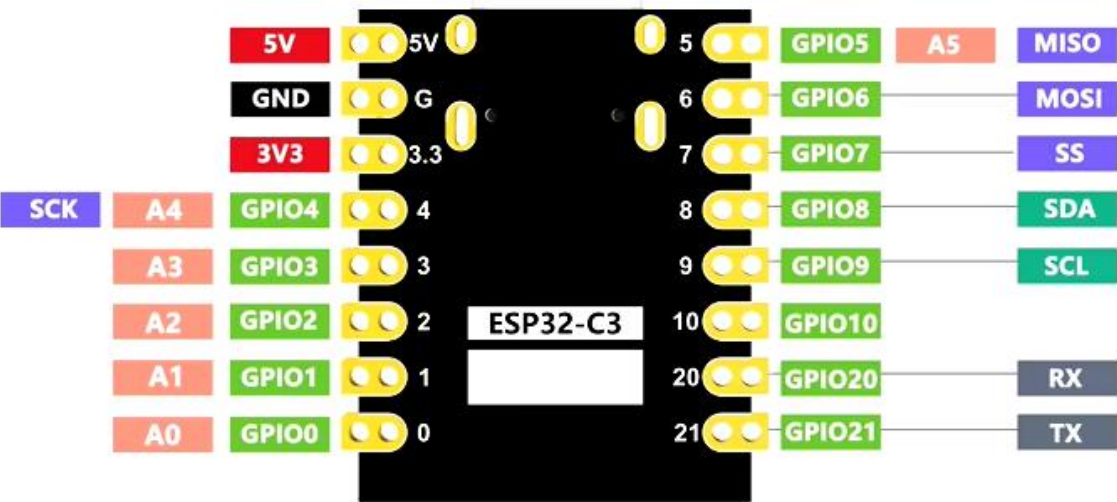
Reliable security features: Encryption hardware accelerator supporting AES-128/256, hashing, RSA, HMAC, digital signature, TZT,and secure boot

Rich interfaces: 1xI2C, 1xSPI, 2xUART, 11xGPIO (PWM), 4xADC

Single sided components, surface mount design

On board LED blue light: GPIO8 pin

PIN DIAGRAM

	5V	5V	5	GPIO5	A5	MISO
	GND	G	6	GPIO6		MOSI
	3V3	3.3	7	GPIO7		SS
SCK	A4	GPIO4	4	8	GPIO8	SDA
	A3	GPIO3	3	9	GPIO9	SCL
	A2	GPIO2	2	ESP32-C3	10	GPIO10
	A1	GPIO1	1	20	GPIO20	RX
	A0	GPIO0	0	21	GPIO21	TX

Legend: ■ Pin No. ■ Power ■ ADC ■ SPI ■ GND ■ UART ■ Digital

EXTERNAL POWER SUPPLY

If external power supply is required, simply connect the external power supply+level to the 5V position and connect the GND to the negative pole. (Supports 3.3-6V power supply).

Remember that when connecting to an external power source, USB cannot be connected, TZT,and only one can be selected between USB and external power supply.

> ⚠ **TAKE CARE**
>
> Please be careful not to short-circuit the positive and negative electrodes during welding, which may burn out the battery and equipment.

WIFI ANTENNA

If you want to use an external antenna, you can connect it according to the picture below.

Shielding Layer

Wire core
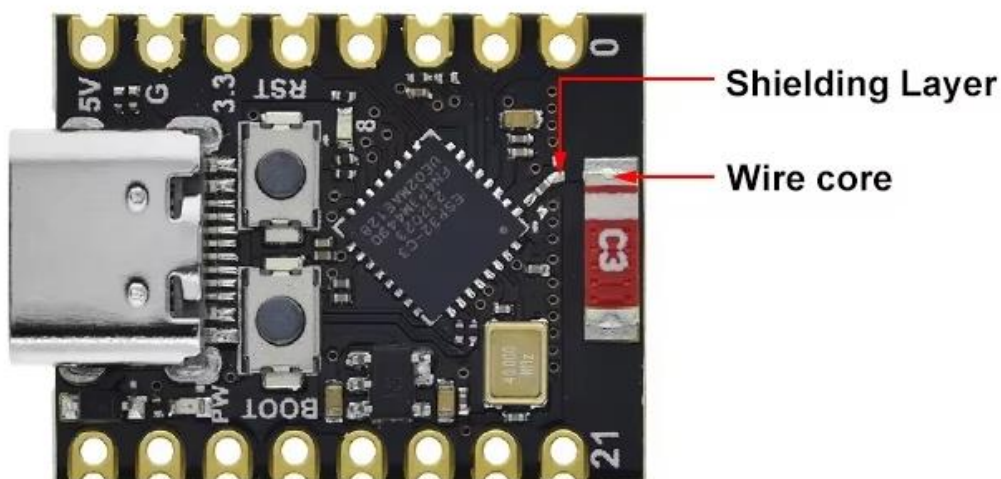
ARDWARE SETUP

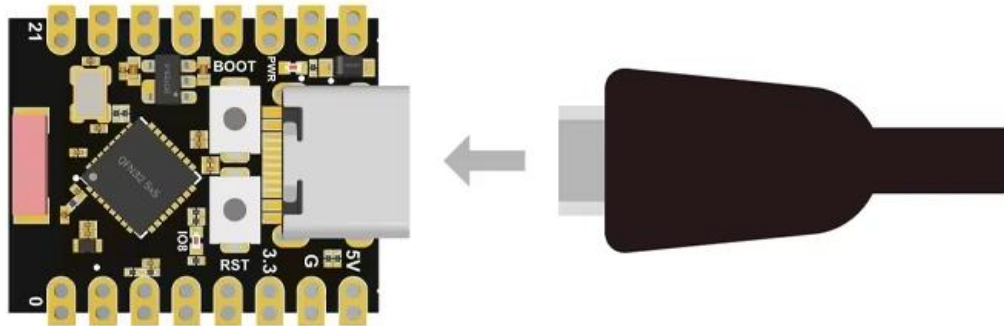You need to prepare the following content

1 ESP32C3

1 computer

1 USB Type-C data cable

> ## 💡 PROMPT
>
> Some USB cables can only provide power and cannot transmit data. If you do not have a USB cable or do not know if your USB cable can transfer data, you can purchase a Type-c data cable

Step 1. Connect ESP32C3 to the computer through a USB Type-C data cable

SOFTWARE SETTINGS

Step 1. Download and install the latest version for Arduino IDE based on your operating system

If the download is slow, you can download it at the following link for
https://arduino.me/download

Step 2. Start the Arduino application

Step 3. Add the ESP32 board package to the Arduino IDE

Navigate to File>Preferences and fill in the 'Additional Boards Manager URL' using the following URL:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

Navigate to Tools>Board>Boards Manager…, Enter the keyword "esp32" in the search box, select the latest version of esp32, and install it.

Navigate to Tools>Development Board>ESP32 Arduino and select 'ESP32C3 Dev Module'. The list of boards is a bit long, you need to scroll to the bottom to reach it.
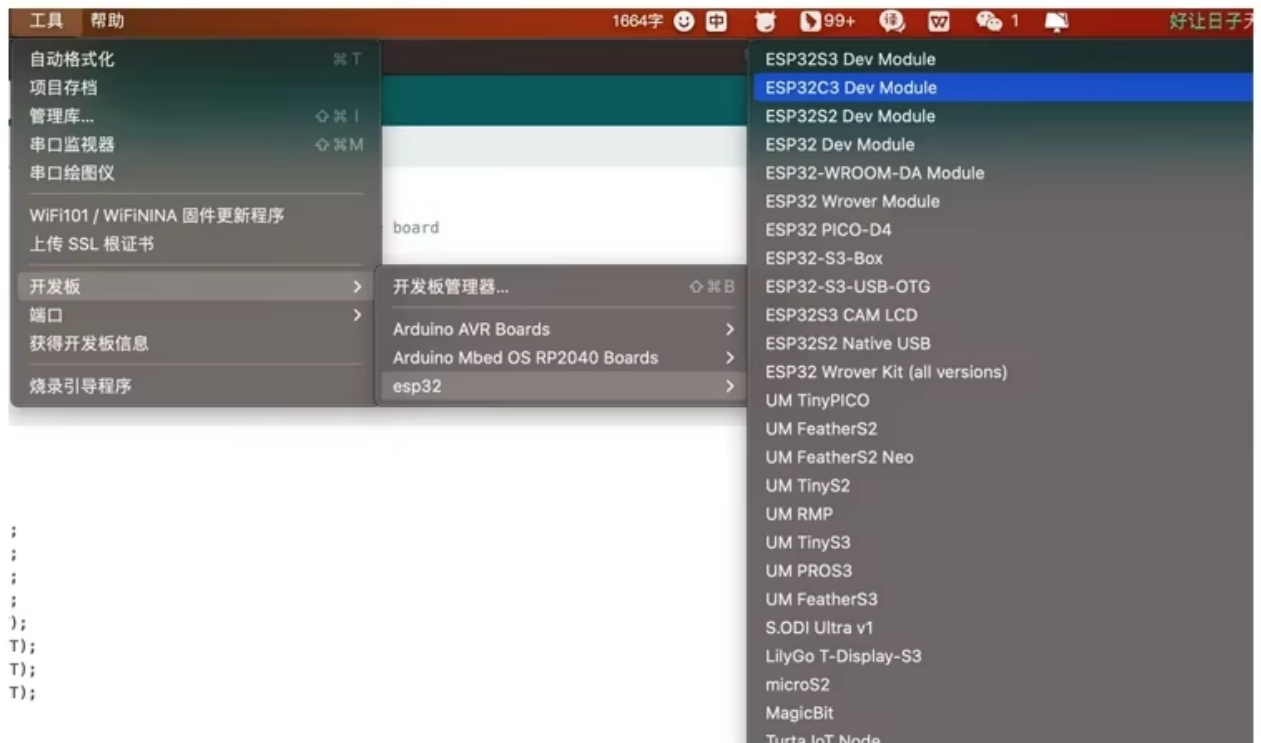
avigate to Tools>Ports and select the serial port name of the connected ESP32C3. TZT,This may be COM3 or later (COM1 and COM2 are usually reserved for hardware serial ports).

Wi-Fi

- IEEE 802.11 b/g/n-compliant
- Supports 20 MHz, 40 MHz bandwidth in
  2.4 GHz band
- 1T1R mode with data rate up to 150 Mbps
- Wi-Fi Multimedia (WMM)
- TX/RX A-MPDU, TX/RX A-MSDU
- Immediate Block ACK
- Fragmentation and defragmentation
- Transmit opportunity (TXOP)
- Automatic Beacon monitoring (hardware TSF)
- 4 × virtual Wi-Fi interfaces
- Simultaneous support for Infrastructure BSS in
  Station mode, SoftAP mode, Station + SoftAP
 mode, and promiscuous mode
  Note that when ESP32-C3 scans in Station mode,
  the SoftAP channel will change along with the
  Station channel
- Antenna diversity

Bluetooth®

- Bluetooth LE: Bluetooth 5, Bluetooth mesh
- High power mode (20 dBm)
- Speed: 125 Kbps, 500 Kbps, 1 Mbps, 2 Mbps
- Advertising extensions
- Multiple advertisement sets
- Channel selection algorithm #2
- Internal co-existence mechanism between
  Wi-Fi and Bluetooth to share the same

ANT1

40MHZ 10PPM
High Precision

ESP32-C3

LED GPIO8

RST

BOOT

USB Type-c
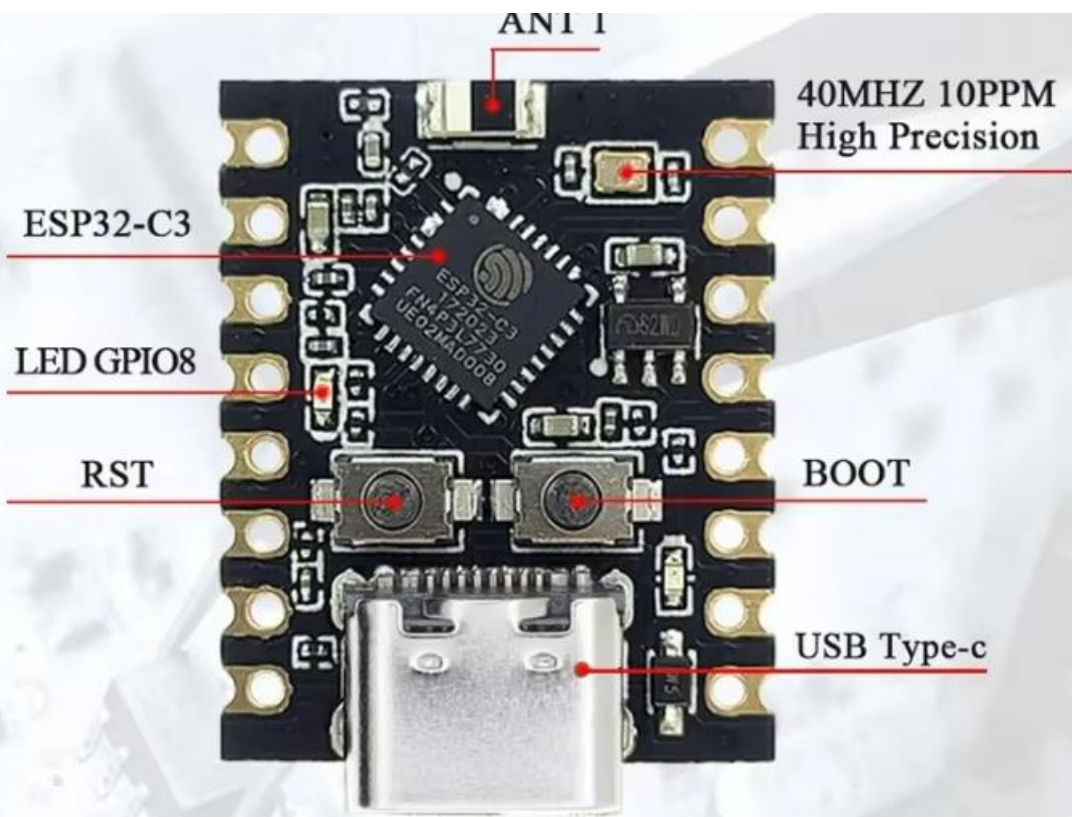
- Ultra-Low-Power SoC with RISC-V Single-Core CPU
- 2.4 GHz Wi-Fi (802.11 b/g/n) and Bluetooth® 5 (LE)
- Optional 4 MB flash in the chip's package
- QFN32 (5×5 mm) Package