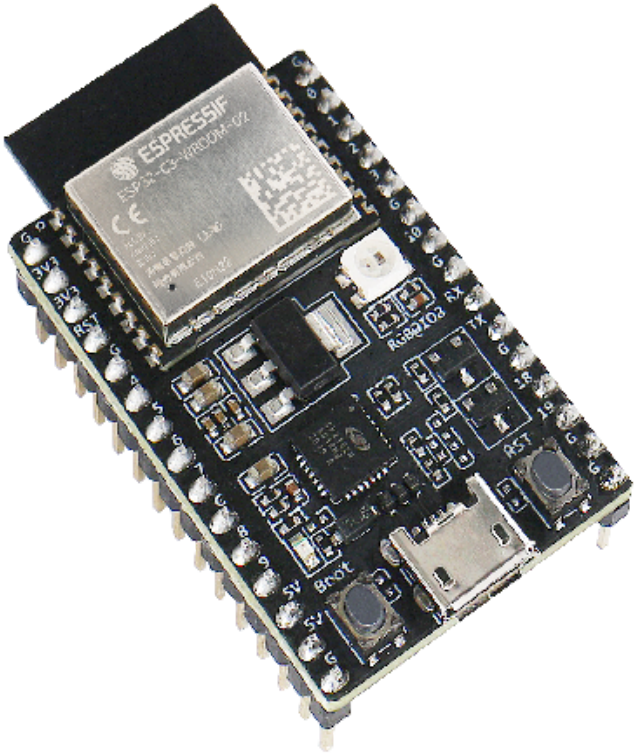
ESP32-C3-DevKitC-02

[中文]

This user guide will help you get started with ESP32-C3-DevKitC-02 and will also provide more in-depth information.

ESP32-C3-DevKitC-02 is an entry-level development board based on ESP32-C3-WROOM-02, a general-purpose module with 4 MB SPI flash. This board integrates complete Wi-Fi and Bluetooth LE functions.

Most of the I/O pins are broken out to the pin headers on both sides for easy interfacing. Developers can either connect peripherals with jumper wires or mount ESP32-C3-DevKitC-02 on a breadboard.



ESP32-C3-DevKitC-02

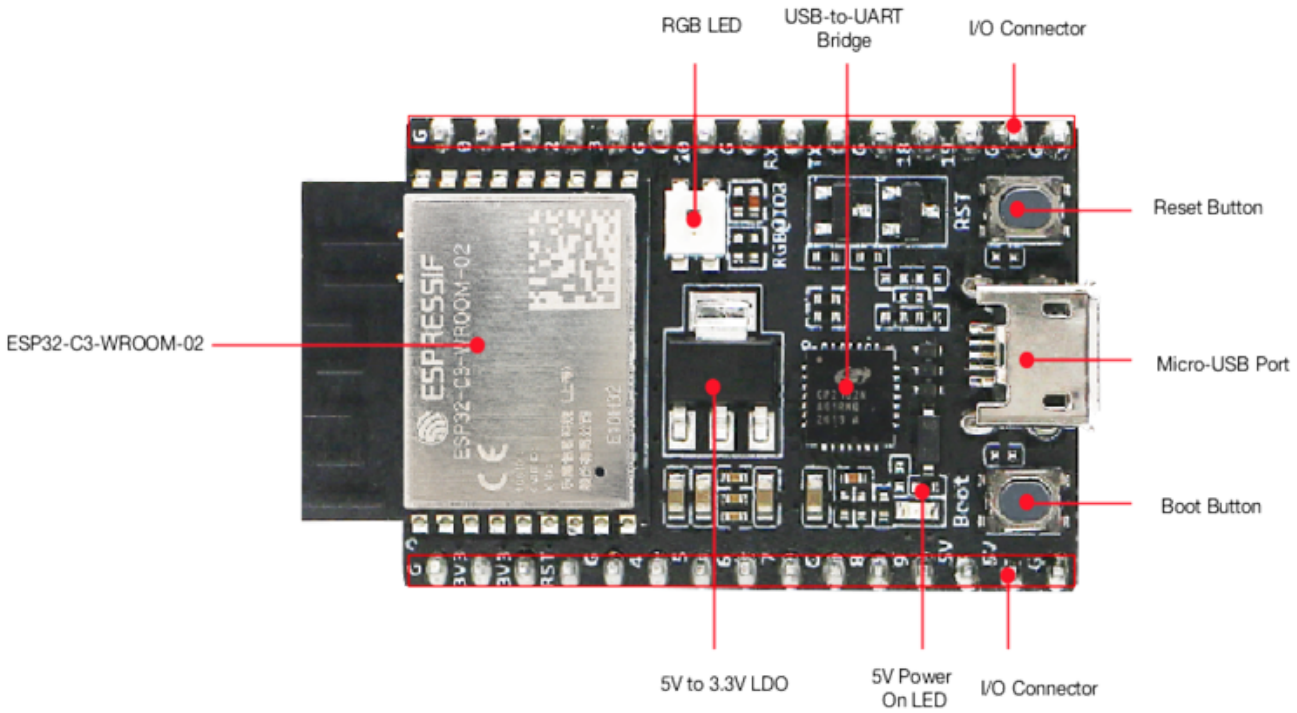
The document consists of the following major sections:

- Getting Started: Overview of ESP32-C3-DevKitM-1 and hardware/software setup instructions to get started.
- Hardware Reference: More detailed information about the ESP32-C3-DevKitM-1's hardware.
- Hardware Revision Details: Revision history, known issues, and links to user guides for previous versions (if any) of ESP32-C3-DevKitM-1.
- Related Documents: Links to related documentation.

Getting Started

This section provides a brief introduction of ESP32-C3-DevKitM-1, instructions on how to do the initial hardware setup and how to flash firmware onto it.

Description of Components



ESP32-C3-DevKitC-02 - front

Key Component	Description
ESP32-C3-WROOM-02	ESP32-C3-WROOM-02 from Espressif is a powerful and general-pu
5 V to 3.3 V LDO	Power regulator that converts a 5 V supply into a 3.3 V output.
5 V Power On LED	Turns on when the USB power is connected to the board.
I/O Connector	All available GPIO pins (except for the SPI bus for flash) are broken o
Boot Button	Download button. Holding down **Boot** and then pressing **Reset** initia
Micro-USB Port	USB interface. Power supply for the board as well as the communica

Key Component	Description
Reset Button	Press this button to restart the system.
USB-to-UART Bridge	Single USB-to-UART bridge chip provides transfer rates up to 3 Mbp
RGB LED	Addressable RGB LED, driven by GPIO8.

Start Application Development

Before powering up your ESP32-C3-DevKitC-02, please make sure that it is in good condition with no obvious signs of damage.

Required Hardware

- ESP32-C3-DevKitC-02
- USB 2.0 cable (Standard-A to Micro-B)
- Computer running Windows, Linux, or macOS

> **Note**
>
> Be sure to use a good quality USB cable. Some cables are for charging only and do not provide the needed data lines nor work for programming the boards.

Software Setup

Please proceed to Get Started, where Section Installation Step by Step will quickly help you set up the development environment and then flash an application example into your ESP32-C3-DevKitC-02.

Contents and Packaging

Retail orders

If you order a few samples, each ESP32-C3-DevKitC-02 comes in an individual package in either antistatic bag or any packaging depending on your retailer.

For retail orders, please go to https://www.espressif.com/en/company/contact/buy-a-sample.

Wholesale Orders

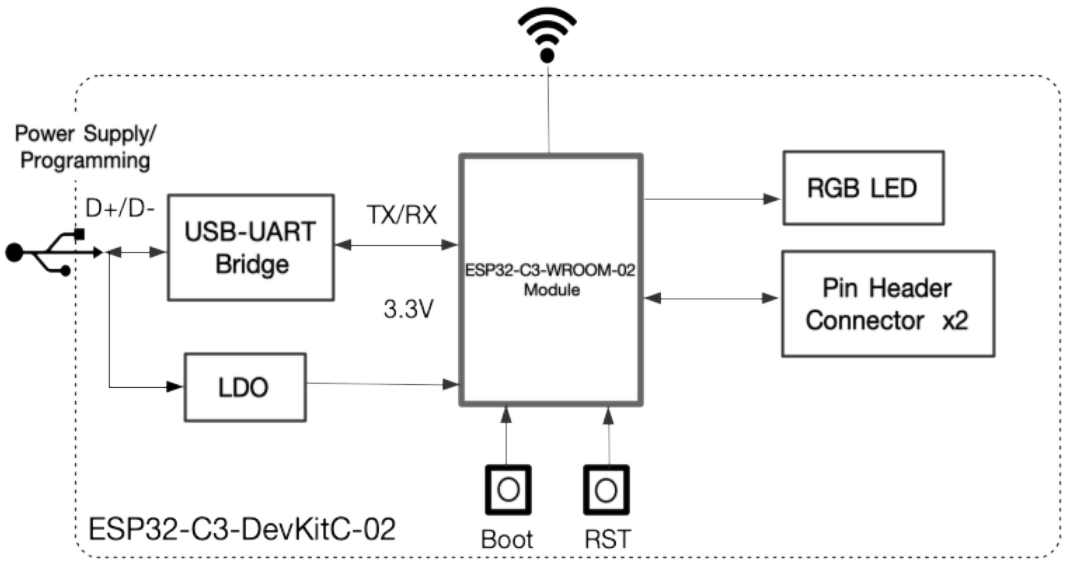
If you order in bulk, the boards come in large cardboard boxes.

For wholesale orders, please check Espressif Product Ordering Information (PDF)

Hardware Reference

Block Diagram

The block diagram below shows the components of ESP32-C3-DevKitC-02 and their interconnections.



ESP32-C3-DevKitC-02 (click to enlarge)

Power Supply Options

There are three mutually exclusive ways to provide power to the board:

- Micro USB port, default power supply
- 5V and GND header pins
- 3V3 and GND header pins

It is recommended to use the first option: micro USB port.

Header Block

The two tables below provide the **Name** and **Function** of I/O header pins on both sides of the board, as shown in ESP32-C3-DevKitC-02 - front. The numbering and names are the same as in the ESP32-C3-DevKitC-02 Schematic (PDF).

J1

No.	Name	Type [1]	Function
1	G	G	Ground
2	3V3	P	3.3 V power supply
3	3V3	P	3.3 V power supply
4	RST	I	CHIP_PU
5	G	G	Ground
6	4	I/O/T	GPIO4, ADC1_CH4, FSPIHD, MTMS
7	5	I/O/T	GPIO5, ADC2_CH0, FSPIWP, MTDI

No.	Name	Type [1]	Function
8	6	I/O/T	GPIO6, FSPICLK, MTCK
9	7	I/O/T	GPIO7, FSPID, MTDO
10	G	G	Ground
11	8	I/O/T	GPIO8 [2]
12	9	I/O/T	GPIO9
13	5V	P	5 V power supply
14	5V	P	5 V power supply
15	G	G	Ground

J3

No.	Name	Type	Function
1	G	G	Ground
2	0	I/O/T	GPIO0, ADC1_CH0, XTAL_32K_P
3	1	I/O/T	GPIO1, ADC1_CH1, XTAL_32K_N
4	2	I/O/T	GPIO2, ADC1_CH2, FSPIQ
5	3	I/O/T	GPIO3, ADC1_CH3
6	G	G	Ground
7	10	I/O/T	GPIO10, FSPICS0

No.	Name	Type	Function
8	G	G	Ground
9	RX	I/O/T	GPIO20, U0RXD
10	TX	I/O/T	GPIO21, U0TXD
11	G	G	Ground
12	18	I/O/T	GPIO18
13	19	I/O/T	GPIO19
14	G	G	Ground
15	G	G	Ground

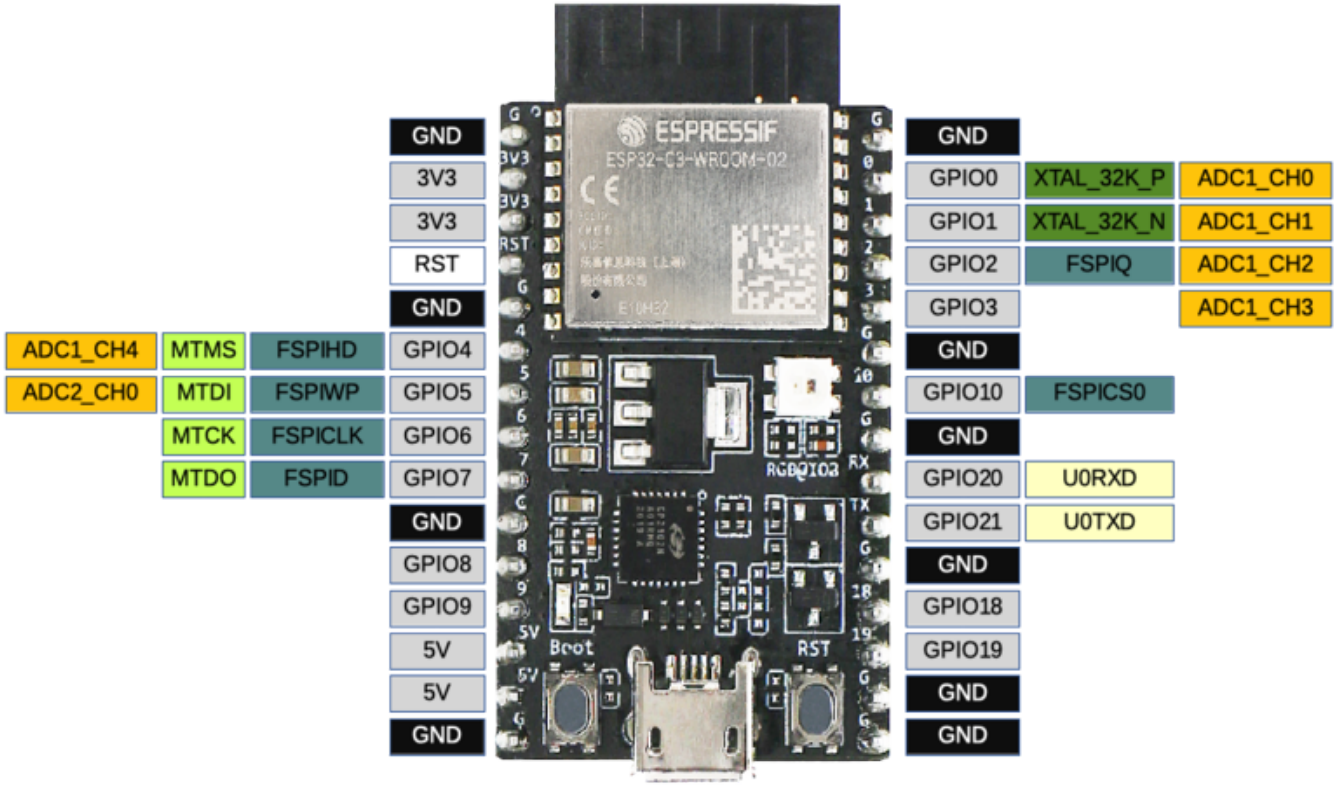
1

P: Power supply; I: Input; O: Output; T: High impedance.

2

Used to drive the RGB LED.

Pin Layout



ESP32-C3-DevKitC-02 Pin Layout

Hardware Revision Details

No previous versions available.

Related Documents

- ESP32-C3 Datasheet (PDF)
- ESP32-C3-WROOM-02 Datasheet (PDF)
- ESP32-C3-DevKitC-02 Schematic (PDF)
- ESP32-C3-DevKitC-02 PCB Layout (PDF)
- ESP32-C3-DevKitC-02 Dimensions (PDF)

- ESP32-C3-DevKitC-02 Dimensions source file (DXF) - You can view it with Autodesk Viewer online

For further design documentation for the board, please contact us at sales@espressif.com.

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