

ESP32-C3-DevKitC-02

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 module. This board integrates complete Wi-Fi and Bluetooth LE functions.

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

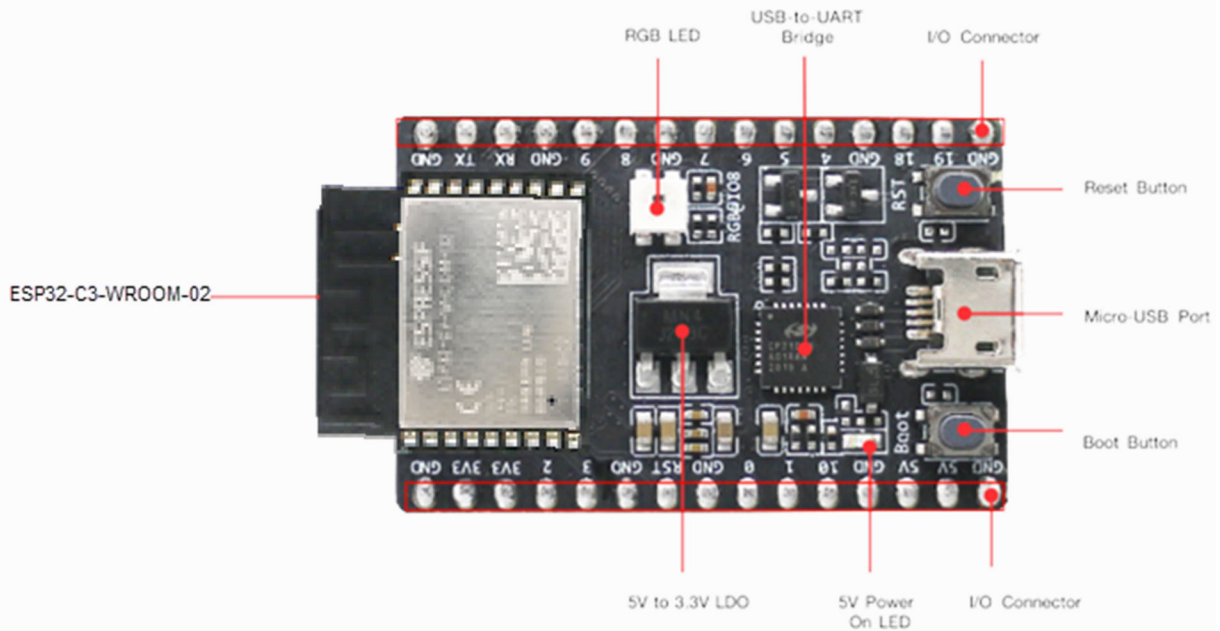


ESP32-C3-DevKitC-02

Getting Started

This section provides a brief introduction of ESP32-C3-DevKitC-02, 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 is a general-purpose Wi-Fi and Bluetooth LE combo module that comes with a PCB antenna. At the core of this module is ESP32-C3FN4, a chip that has an embedded flash of 4 MB. Since flash is packaged in the ESP32-C3FN4 chip, rather than integrated into the module, ESP32-C3-WROOM-02 has a smaller package size.
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 out to the pin headers on the board. For details, please see Header Block.

Key Component

Description

Boot Button	Download button. Holding down Boot and then pressing Reset initiates Firmware Download mode for downloading firmware through the serial port.
Micro-USB Port	USB interface. Power supply for the board as well as the communication interface between a computer and the ESP32-C3FN4 chip.
Reset Button	Press this button to restart the system.
USB to UART Bridge	Single USB-UART bridge chip provides transfer rates up to 3 Mbps.
RGB LED	Addressable RGB LED (WS2812), 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

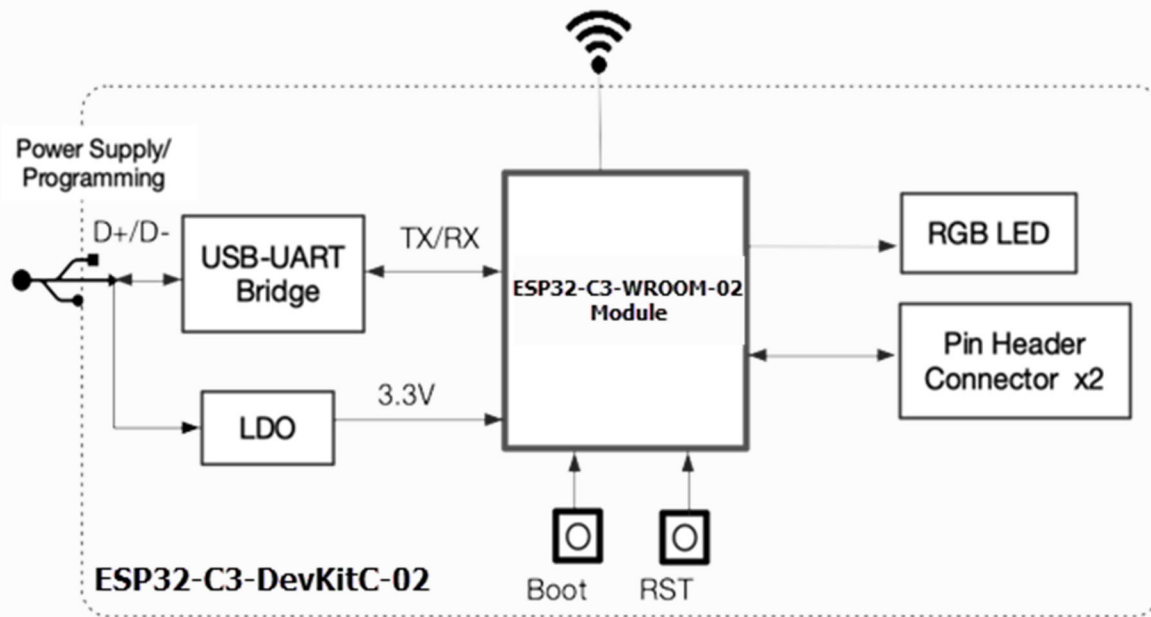
Software Setup

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 onto your ESP32-C3-DevKitC-02.

Hardware Reference

Block Diagram

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



ESP32-C3-DevKitC-02 Block Diagram

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.

J1

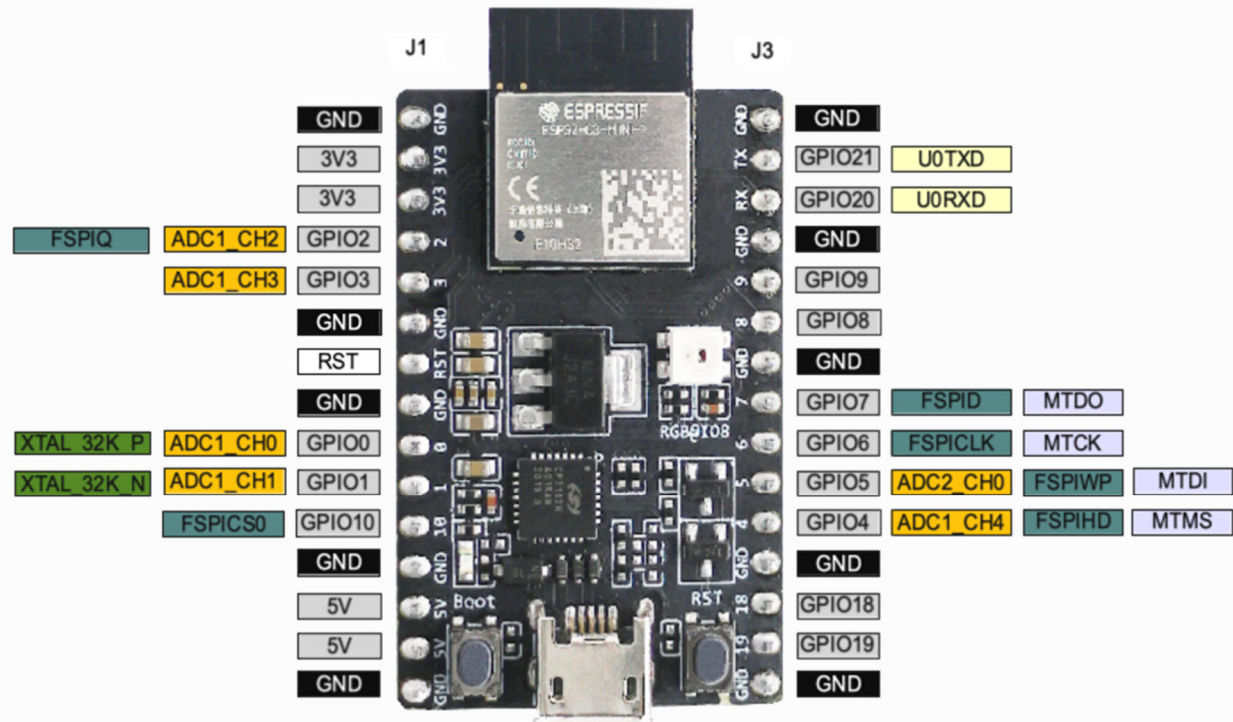
No.	Name	Type	Function
1	GND	G	Ground
2	3V3	P	3.3 V power supply
3	3V3	P	3.3 V power supply
4	IO2	I/O/T	GPIO2, ADC1_CH2, FSPIQ
5	IO3	I/O/T	GPIO3, ADC1_CH3
6	GND	G	Ground
7	RST	I	CHIP_PU
8	GND	G	Ground
9	IO0	I/O/T	GPIO0, ADC1_CH0, XTAL_32K_P
10	IO1	I/O/T	GPIO1, ADC1_CH1, XTAL_32K_N
11	IO10	I/O/T	GPIO10, FSPICS0
12	GND	G	Ground
13	5V	P	5 V power supply
14	5V	P	5 V power supply
15	GND	G	Ground

J3

No.	Name	Type	Function
1	GND	G	Ground
2	TX	I/O/T	GPIO21, U0TXD
3	RX	I/O/T	GPIO20, U0RXD
4	GND	G	Ground
5	IO9	I/O/T	GPIO9
6	IO8	I/O/T	GPIO8
7	GND	G	Ground
8	IO7	I/O/T	GPIO7, FSPID, MTDO
9	IO6	I/O/T	GPIO6, FSPICLK, MTCK
10	IO5	I/O/T	GPIO5, ADC2_CH0, FSPIWP, MTDI
11	IO4	I/O/T	GPIO4, ADC1_CH4, FSPIHD, MTMS
12	GND	G	Ground
13	IO18	I/O/T	GPIO18
14	IO19	I/O/T	GPIO19
15	GND	G	Ground

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

Pin Layout



ESP32-C3-DevKitC-02 Pin Layout