

🔗 Rust ESP Board

Welcome to the Rust ESP Development board project. This repository contains everything you will need to build the board yourself. Manufactured boards will be available soon, at which point a purchase link will replace this text.

🔗 Where to buy

- [ESP32-C3-DevKit-RUST-1](#)
- [AliExpress Espressif Official Store](#)
- [Mouser Electronics](#)

🔗 Ferrous Systems Training

- [Training: Explore the power of Rust on the new Espressif board](#)

🔗 Project Specification

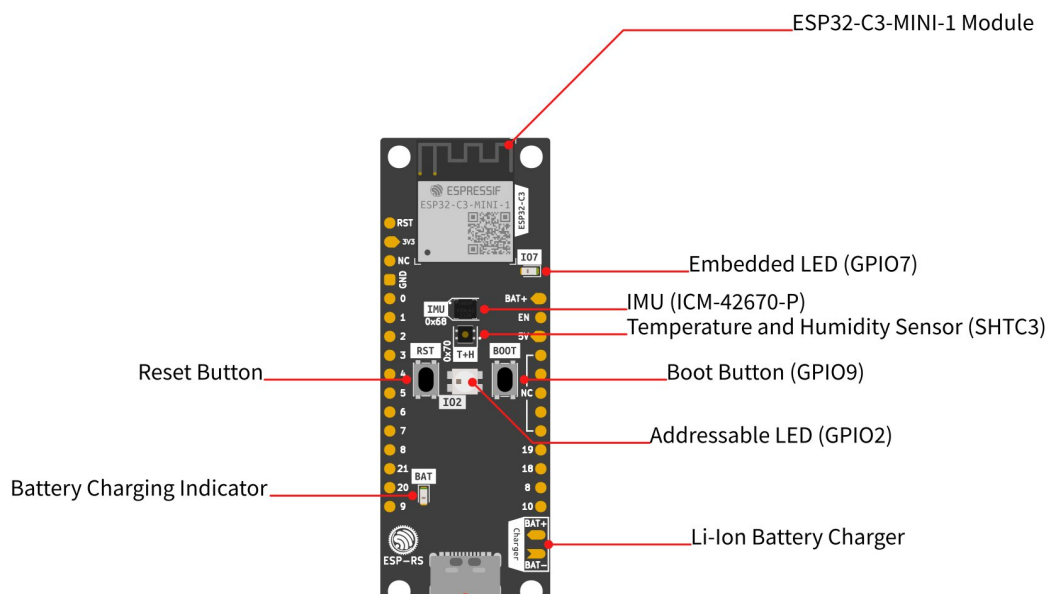
This board is based on the ESP32-C3, and includes sensors, LEDs, buttons, a battery

charger, and USB type-C connector.

SoC Features

- IEEE 802.11 b/g/n-compliant
- Bluetooth 5, Bluetooth mesh
- 32-bit RISC-V single-core processor, up to 160MHz
- 384 KB ROM
- 400 KB SRAM (16 KB for cache)
- 8 KB SRAM in RTC
- 22 × programmable GPIOs
- 3 × SPI
- 2 × UART
- 1 × I2C
- 1 × I2S
- 2 × 54-bit general-purpose timers
- 3 × watchdog timers
- 1 × 52-bit system timer
- Remote Control Peripheral (RMT)
- LED PWM controller (LEDC)
- Full-speed USB Serial/JTAG controller
- General DMA controller (GDMA)
- 1 × TWAI®
- 2 × 12-bit SAR ADCs, up to 6 channels
- 1 × temperature sensor

For the complete description, see the [ESP32-C3 Datasheet](#).





USB Type-C (Flash & JTAG)

I2C Peripherals

This board includes the following peripherals over the I2C bus:

Peripheral	Part number	Reference	Crate	Address
IMU	ICM-42670-P	Datasheet	Link	0x68
Temperature and Humidity	SHTC3	Datasheet	Link	0x70

I2C Bus Connection

Signal	GPIO
SDA	GPIO10
SCL	GPIO8

I/Os

The following devices are connected through GPIO:

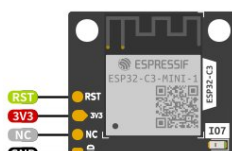
I/O Devices	GPIO
WS2812 LED	GPIO2
LED	GPIO7
Button/Boot	GPIO9

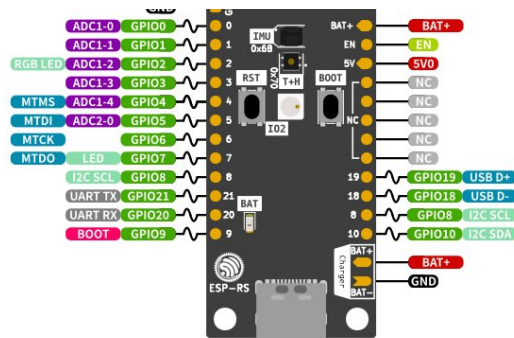
Power

- USB type-C (*no PD compatibility*).
- Li-Ion battery charger.

Pin Layout

Rust Board ESP32-C3





Left Side

Pin Number	Description	SoC
1	Reset	EN/CHIP_PU
2	3V3	
3	N/C	
4	GND	
5	IO0/ADC1-0	GPIO0
6	IO1/ADC1-1	GPIO1
7	IO2/ADC1-2	GPIO2
8	IO3/ADC1-3	GPIO3
9	IO4/ADC2-0	GPIO4
10	IO5/ADC2-1	GPIO5
11	IO6/MTCK	GPIO6
12	IO7/MTDO/LED	GPIO7
13	IO9/LOG	GPIO8
14	IO21/U0RXD	GPIO21
15	IO20/U0TXD	GPIO20
16	IO9/BOOT	GPIO9

Right Side

Pin Number	Description	SoC
1	VBAT	
2	EN [1]	
3	VBUS [2]	
4	NC	
5	NC	
6	NC	
7	NC	
8	NC	
9	IO18/USB_D-	GPIO18
10	IO19/USB_D+	GPIO19
11	IO8/SCL	GPIO8
12	IO10/SDA	GPIO10

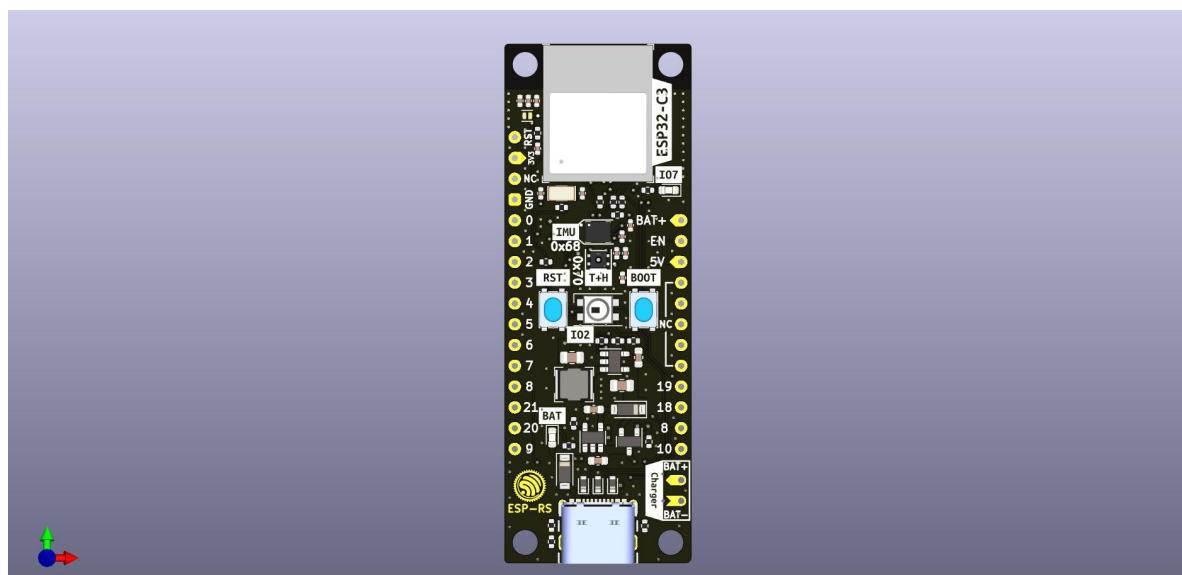
- [1] Connected to LDO enable pin*
- [2] Connected to USB 5V*

Project KiCad Libraries

- [ESP32C3](#)

Board Design

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Bottom

