
# MOD-ESP32-C5

# User Manual

Rev.1.0 November 2025

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# What is MOD-ESP32-C5

MOD-ESP32-C5 is Dual band 2.4Ghz and 5Ghz WiFi 6, Bluetooth 5 LE, Zigbee, Thread, Matter development board with UEXTconnector.

The board is with ESP32-C5-WROOM-N8R4 module with 8MB of Flash and 4MB of RAM

The features of MOD-ESP32-C5 are:

- ESP32-C5-WROOM-N8R4 module
- 32 bit RISC-V processor 240Mhz
- Dual-Band Wi-Fi (2.4 GHz + 5 GHz)
- Bluetooth 5, Zigbee, Thread, Matter
- 8 MB Flash + 4 MB RAM
- UEXT connector
- USB-C JTAG
- Two status LEDs
- Dimensions 40x20mm

MOD-ESP32-C5 is Open Source Hardware, all CAD files and firmware and available, so people can study and modify.

## Order codes for MOD-ESP32-C5 and accessories:

| | |
|---|---|
| MOD-ESP32-C5 | ESP32-C5 development board |
| USB-CABLE-AM-USB3-C | High speed, High current cable for power supply and programming |

# HARDWARE

## MOD-ESP32-C5 layout:

## UEXT connector:

MOD-ESP32-C5 has UEXT connector which is compatible with the UEXT connector on all our other development boards.

Note that UEXT connector have UART which signals have to be crossed. So there is UEXT HOST and UEXT device connectors.

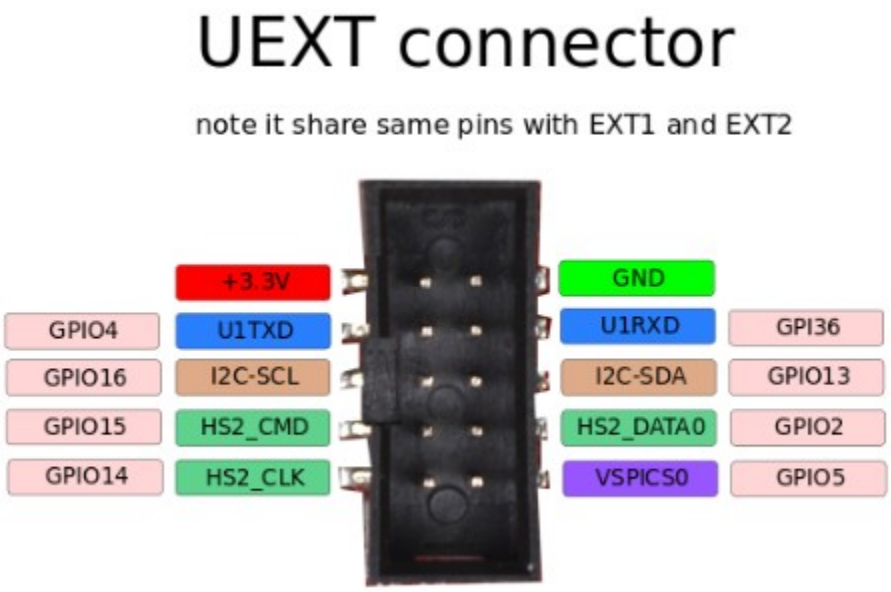
The UEXT HOST connector is male connector with pins. The UEXT DEVICE connector is with receptacle connector.

Our development boards with UEXT have UEXT HOST connector.

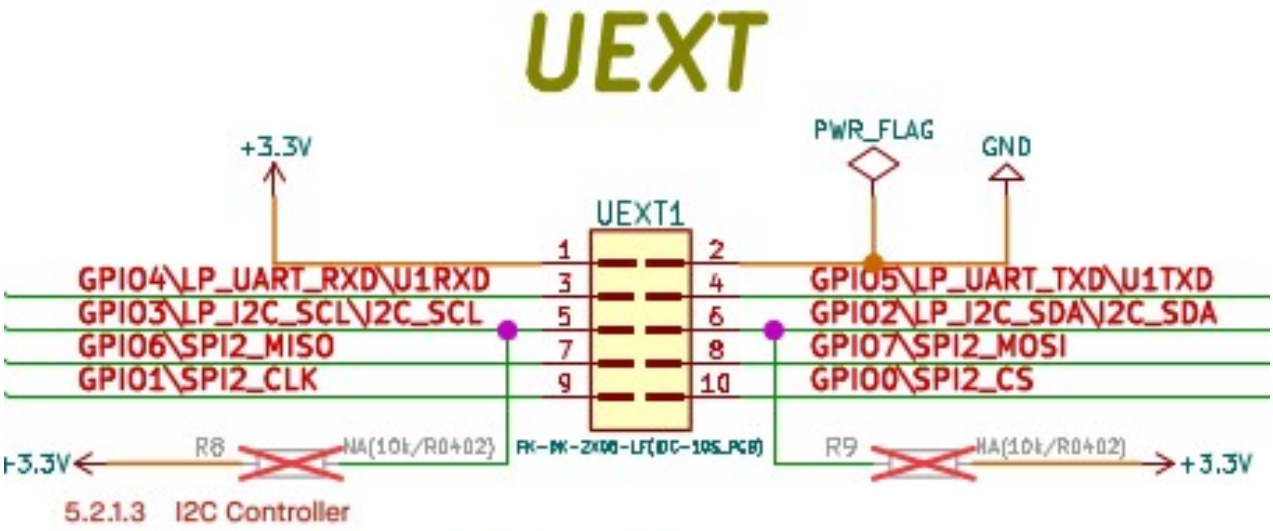
MOD-ESP32-C5 is with UEXT DEVICE connector.

UEXT connector can be in different shapes.

The original UEXT connector is 0.1” 2.54mm step boxed plastic connector. All signals are with 3.3V levels. Here is picture of UEXT HOST connector (with pins):



## MOD-ESP32-C5 UEXT connector wiring:




5.2.1.3 I2C Controller

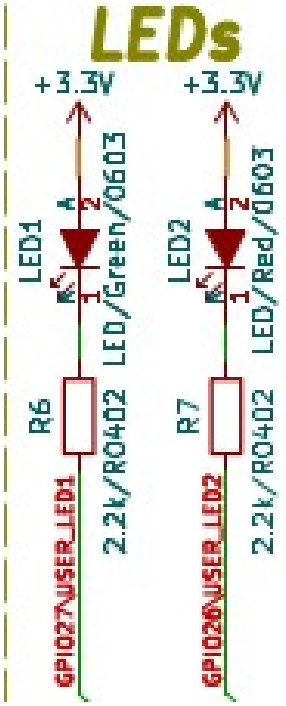
ESP32-C5 has an I2C and an LP I2C bus interface. I2C is used for I2C master mode or slave mode, depending on your configuration, while LP I2C is always in master mode.

## LEDs:

MOD-ESP32-C5 has two status LEDs

LED1 is Green and connected to GPIO27

LED2 is Red and connected to GPIO26



## MOD-ESP32-C5 schematics:

MOD-ESP32-C5 latest schematic is on GitHub

# SOFTWARE:

ESP32-C5-DevKit-Lipo can be programmed with Espressif IDF 5.5 and Arduino.

# Revision History

Revision 1.0 November 2025