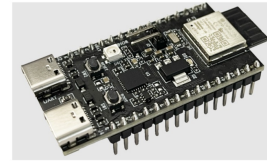


ESPRESSIF ESP32-H2-DevKitM-1 Entry Level Development Board



ESPRESSIF ESP32-H2-DevKitM-1 Entry Level Development Board User Guide

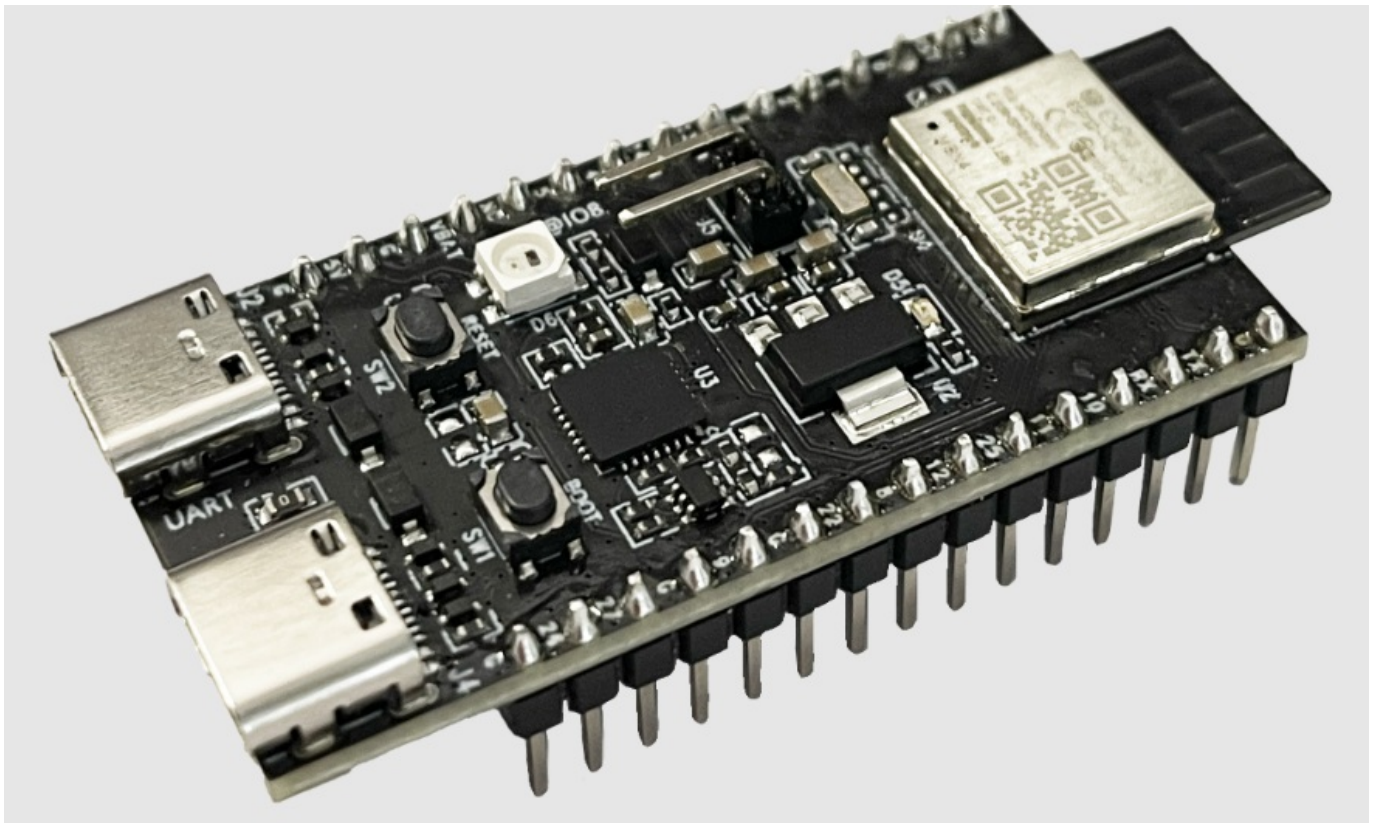
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ESPRESSIF ESP32-H2-DevKitM-1 Entry Level Development Board



Specifications

- Product Model: ESP32-H2-DevKitM-1
- On-board Module: ESP32-H2-MINI-1
- Flash: 4 MB
- PSRAM: 0 MB
- Antenna: PCB on-board

Hardware Setup

1. Connect the ESP32-H2-DevKitM-1 to your computer using the USB-A to USB-C cable.
2. Ensure the board is in good condition before powering it up.
3. Check the hardware components for any visible damage.

Software Setup and Application Development

1. Refer to the installation steps in the user manual for setting up the software environment.
2. Flash your application onto the board following the provided instructions.
3. Start developing your application using the ESP32-H2-DevKitM-1.

Frequently Asked Questions (FAQ)

Q: What do I do if my ESP32-H2-DevKitM-1 does not power on?

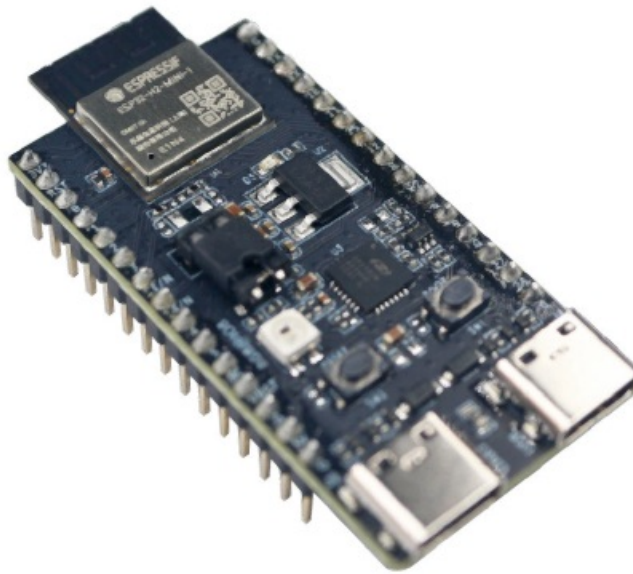
A: Check the power source and connections to ensure proper powersupply. If the issue persists, refer to the troubleshooting section in the user manual.

ESP32-H2-DevKitM-1

This user guide will help you get started with ESP32-H2-DevKitM-1 and will also provide more in-depth information.

ESP32-H2-DevKitM-1 is an entry-level development board based on Bluetooth® Low Energy and IEEE 802.15.4 combo module ESP32-H2-MINI-1 or ESP32-H2-MINI-1U.

Most of the I/O pins on the ESP32-H2-MINI-1/1U 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-H2-DevKitM-1 on a breadboard.



ESP32-H2-DevKitM-1 (with ESP32-H2-MINI-1 on board)

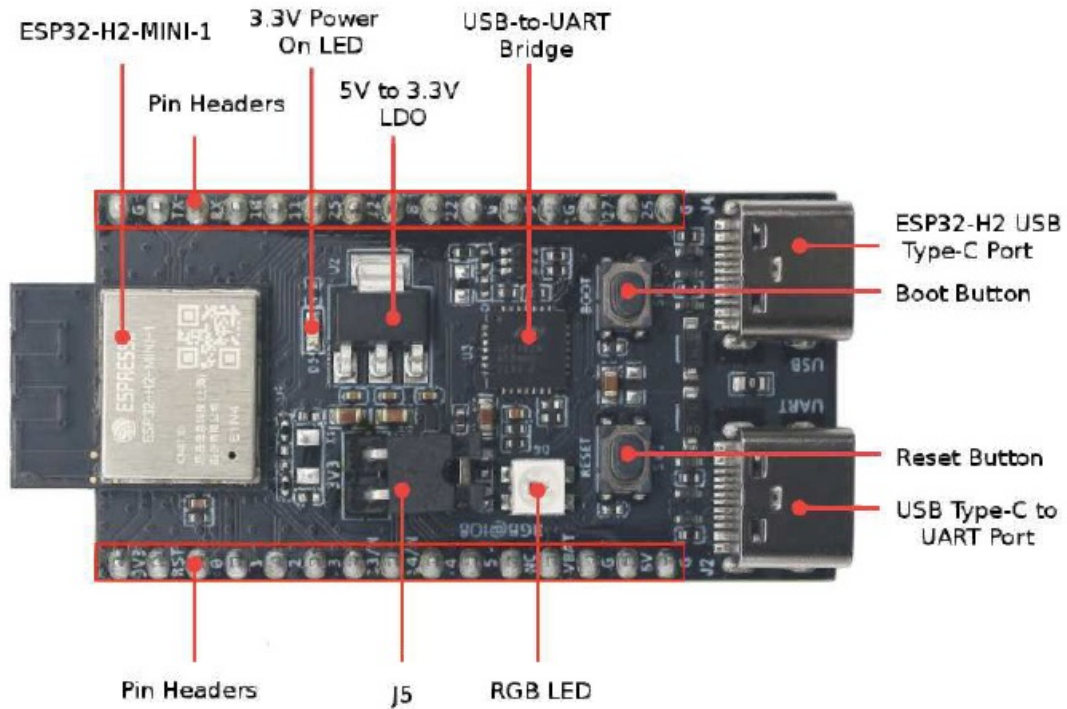
The document consists of the following major sections:

- Getting Started: Overview of ESP32-H2-DevKitM-1 and hardware/software setup instructions to get started.
- Hardware Reference: More detailed information about the ESP32-H2-DevKitM-1's hardware.
- Hardware Revision Details: Revision history, known issues, and links to user guides for previous versions (if any) of ESP32-H2-DevKitM-1.
- Related Documents: Links to related documents on.

Getting Started

This section provides a brief introduction of ESP32-H2-DevKitM-1, instructions on how to do the internal hardware setup, and how to flash firmware onto it.

Description of Components



ESP32-H2-DevKitM-1 - Front

The description of components starts from the ESP32-H2-MINI-1/1U module on the l side and then goes clockwise.

Key Component	Description
ESP32-H2-MINI-1 or ESP32-H2-MINI-1U	ESP32-H2-MINI-1/1U, with ESP32-H2 inside which i
Pin Headers	All available GPIO pins (except for the SPI bus for flas
3.3 V Power On LED	Turns on when the USB power is connected to the bo

Key Component	Description
5 V to 3.3 V LDO	Power regulator that converts a 5 V supply into a 3.3
USB-to-UART Bridge	Single USB-UART bridge chip provides transfer rates
ESP32-H2 USB Type-C Port	The USB Type-C port on the ESP32-H2 chip complia
Boot Button	Download button. Holding down Boot and then press
Reset Button	Press this button to restart the system.
USB Type-C to UART Port	Power supply for the board as well as the community
RGB LED	Addressable RGB LED, driven by GPIO8.
J5	Used for current measurement. See details in Section

Start Application Development

Before powering up your ESP32-H2-DevKitM-1, please make sure that it is in good condition with no obvious signs of damage.

Required Hardware

- ESP32-H2-DevKitM-1
- USB-A to USB-C (Type C) cable
- Computer running Windows, Linux, or macOS

Note

Some USB cables can only be used for charging, not data transmission and programming. Please choose accordingly.

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 on example onto your ESP32-H2-DevKitM-1.

Contents and Packaging

Ordering Information

The development board has a variety of variants to choose from, as shown in the table below.

Ordering Code	On-board Module	Flash [A]	PSRAM	Antenna
ESP32-H2-DevKitM-1-N4	ESP32-H2-MINI-1	4 MB	0 MB	PCB on-board

Ordering Code	On-board Module	Flash [A]	PSRAM	Antenna
ESP32-H2-DevKitM-1U-N4	ESP32-H2-MINI-1U	4 MB	0 MB	Externalanten

◀ The flash is integrated in the chip's package. ▶

Retail Orders

If you order one or several samples, each ESP32-H2-DevKitM-1 comes in an individual package in either a static 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

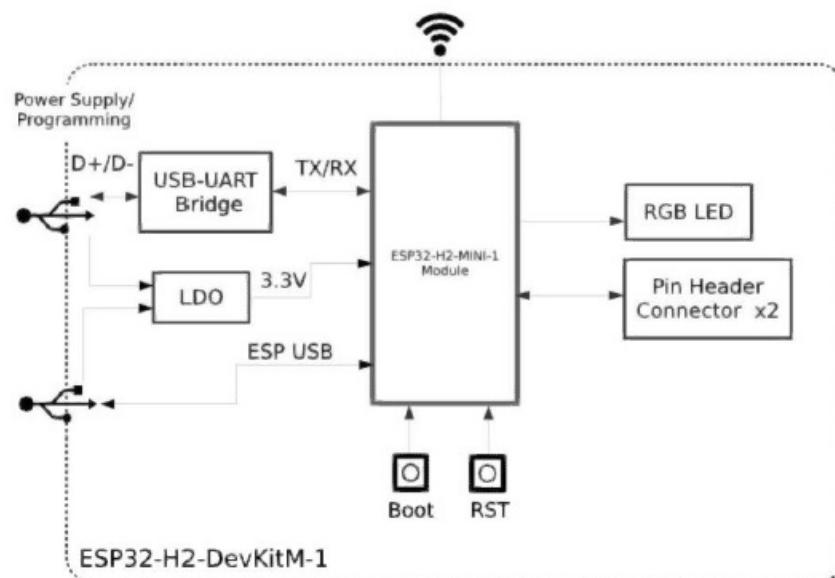
If you order in bulk, the boards come in large cardboard boxes.

For wholesale orders, please go to <https://www.espressif.com/en/contact-us/sales-queson>

Hardware Reference

Block Diagram

The block diagram below shows the components of ESP32-H2-DevKitM-1 and their interconnect.



Power Supply Options

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

USB Type-C to UART port, default power supply 5V and GND pin headers 3V3 and GND pin headers

Current Measurement

The J5 headers on ESP32-H2-DevKitM-1 (see J5 in Figure ESP32-H2-DevKitM-1 – Front) can be used for measuring the current drawn by the ESP32-H2-MINI-1/1U module:

Remove the jumper: Power supply between the module and peripherals on the board is cut off. To measure the module's current, connect the board with an ammeter via J5 headers.

Apply the jumper (factory default): Restore the board's normal function.

Note

When using 3V3 and GND pin headers to power the board, please remove the J5 jumper, and connect an ammeter in series to the external circuit to measure the module's current.

Header Block

The two tables below provide the Name and function of the pin headers on both sides of the board (J1 and J3). The pin header names are shown in Pin Layout. The numbering is the same as in the ESP32-H2-DevKitM-1 Schema c. (see attached PDF).

J1

No.	Name	Type 1	Function
1	3V3	P	3.3 V power supply
2	RST	I	High: enables the chip; Low: the chip powers off; connected to the in
3	0	I/O/T	GPIO0, FSPIQ
4	1	I/O/T	GPIO1, FSPICS0, ADC1_CH0
5	2	I/O/T	GPIO2, FSPIWP, ADC1_CH1, MTMS
6	3	I/O/T	GPIO3, FSPIHD, ADC1_CH2, MTDO
7	13/N	I/O/T	GPIO13, XTAL_32K_P 2
8	14/N	I/O/T	GPIO14, XTAL_32K_N 3
9	4	I/O/T	GPIO4, FSPICLK, ADC1_CH3, MTCK

No.	Name	Type 1	Function
10	5	I/O/T	GPIO5, FSPID, ADC1_CH4, MTDI
11	NC	–	NC
12	VBAT	P	3.3 V power supply or battery
13	G	P	Ground
14	5V	P	5 V power supply
15	G	P	Ground

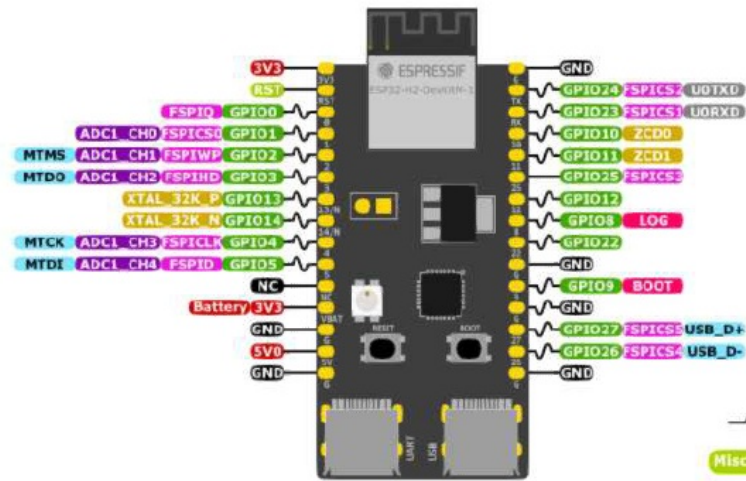
J3

No.	Name	Type 1	Function
1	G	P	Ground
2	TX	I/O/T	GPIO24, FSPICS2, U0TXD
3	RX	I/O/T	GPIO23, FSPICS1, U0RXD
4	10	I/O/T	GPIO10, ZCD0
5	11	I/O/T	GPIO11, ZCD1
6	25	I/O/T	GPIO25, FSPICS3
7	12	I/O/T	GPIO12
8	8	I/O/T	GPIO8 4 , LOG p
9	22	I/O/T	GPIO22
10	G	P	Ground
11	9	I/O/T	GPIO9, BOOT
12	G	P	Ground
13	27	I/O/T	GPIO27, FSPICS5, USB_D+
14	26	I/O/T	GPIO26, FSPICS4, USB_D-
15	G	P	Ground

1. (1,2): P: Power supply; I: Input; O: Output; T: High impedance.
2. When connected to XTAL_32K_P inside the module, this pin cannot be used for another purpose.
3. When connected to XTAL_32K_N inside the module, this pin cannot be used for another purpose.
4. Used for driving RGB LED inside the module.

For more information about pin description, please see the ESP32-H2 Datasheet.

Pin Layout



ESP32-H2 Specs

32-bit RISC-V single-core @96MHz
 IEEE 802.15.4 supporting Thread and Zigbee
 Bluetooth® Low Energy supporting Bluetooth 5 and Bluetooth mesh
 320 KB SRAM, 128 KB ROM, 4 KB LP Memory, 2/4 MB Flash
 19 GPIOs, 3x SPI, 2x UART, 2x I2C, 1x I2S, RMT, LEDPWM, MCPWM, PCNT, TWAI, USB Serial/JTAG, GDMA, ETM, PARLIO, SAR ADC, Temp Sensor, Timers

ESP32-H2-DevKitM-1 Pin Layout

Hardware Revision Details

No previous versions are available.


Related Documents

- [ESP32-H2 Datasheet \(PDF\)](#)
- [ESP32-H2-MINI-1/1U Datasheet \(PDF\)](#)
- [ESP32-H2-DevKitM-1 Schema cs \(PDF\)](#)
- [ESP32-H2-DevKitM-1 PCB Layout \(PDF\)](#)
- [ESP32-H2-DevKitM-1 Dimensions \(PDF\)](#)
- [ESP32-H2-DevKitM-1 Dimensions source file \(DXF\)](#)

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

Provide feedback about this document

Documents / Resources



ESPRESSIF ESP32-H2-DevKitM-1 Entry Level Development Board [pdf] User Guide

ESP32-H2-DevKitM-1, ESP32-H2-DevKitM-1 Entry Level Development Board, Entry Level Development Board, Level Development Board, Development Board, Board

References

-  docs.espressif.com/projects/espressif-esp-dev-kits/en/latest/_images/ESP32-H2-DevKitM-1_v1.0_SystemBlock_20220610.png
- [User Manual](#)

[Manuals](#), [Privacy Policy](#)

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