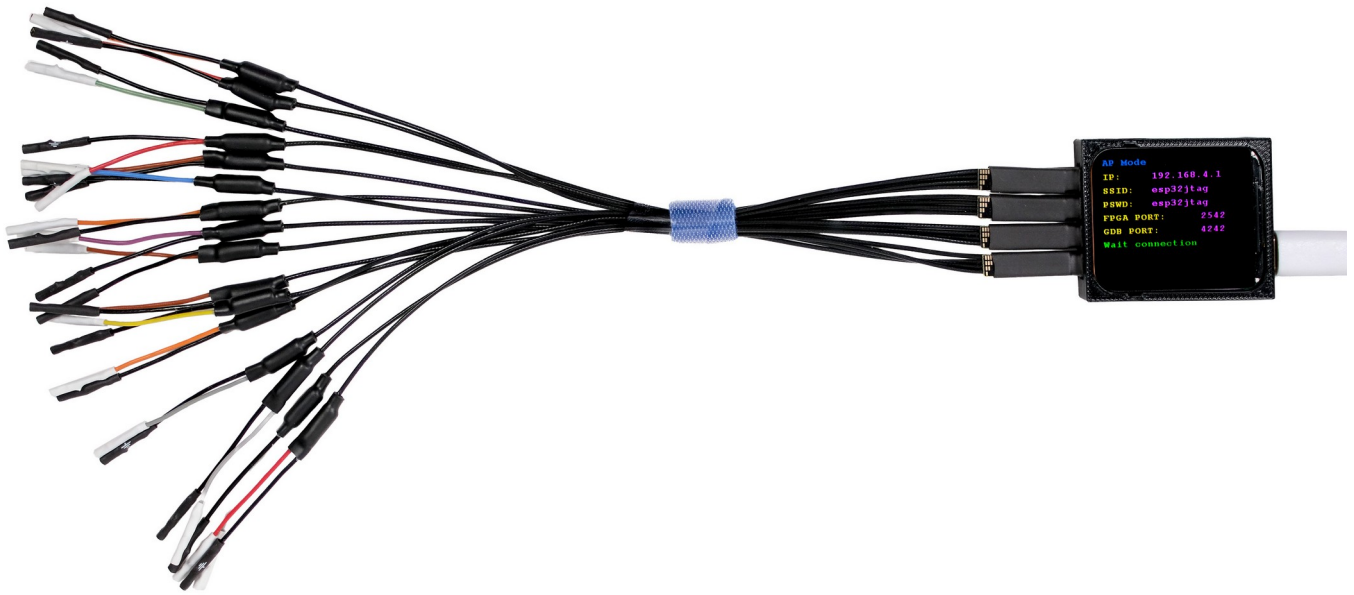


ESP32JTAG

Wireless All-in-One JTAG Debugger, Logic Analyzer, and FPGA Programmer



ESP32JTAG is an open-source, Wi-Fi-enabled debugging tool that unifies MCU JTAG/SWD debugging, FPGA programming, UART terminal access, and a 16-channel 250 MHz logic analyzer into one compact wireless device. With its built-in web interface and support for major IDEs, ESP32JTAG simplifies embedded development like never before.

Overview

ESP32JTAG is a multifunction, Swiss-army-knife–style debugging and development tool for embedded engineers. It combines MCU JTAG/SWD debugging, FPGA JTAG programming, XVC-compatible JTAG for Xilinx tools, UART with Webterminal support, and a 16-channel, 250 MHz logic analyzer — all in a single compact wireless device.

Powered by the **Espressif ESP32-S3** module, ESP32JTAG offers Wi-Fi 6 and Bluetooth 5.0 connectivity, a built-in web interface for driver-free operation, and full compatibility with popular development environments such as **VSCode**, **Arduino**, and **STM32Cube**.

Key Features

- **All-in-one debugging tool:** Combines JTAG/SWD debugging, FPGA programming, UART, and 250MHz 16-channel logic analyzer functions.
 - **Wireless & driver-free:** Operates via Wi-Fi 6 or Bluetooth 5.0 — no drivers or USB tethering needed.
 - **High performance:** Dual-core ESP32-S3 @ 266 MHz, 16 MB Flash, 8 MB PSRAM.
 - **Open-source hardware and firmware:** Transparent, hackable, and community-extendable.
 - **Web-based control interface:** Configure, debug, and analyze signals directly in a browser.
 - **Compact design:** Fits comfortably on your bench or in your pocket.
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Technical Specifications

Category	Specification
Processor	Dual-core ESP32-S3 @ 266 MHz
Memory	16 MB Flash, 8 MB PSRAM
Connectivity	Wi-Fi 6, Bluetooth 5.0, USB Type-C
Display	1.83-inch LCD for IP address, Wi-Fi status, and system info
FPGA	5 K logic gates, 1 Mbit internal RAM (CPU-configurable)
Configurable I/O Ports	4 ports × 4 wires (for JTAG/SWD/UART/Logic Analyzer)
Supported Modes	MCU JTAG/SWD debugging (OpenOCD, Blackmagic Probe, CMSIS-DAP) FPGA JTAG programming (openFPGALoader, XVC for Vivado) UART terminal with WebTerminal support 16-channel logic analyzer up to 250 MHz

ESP32JTAG Datasheet V1.0

Category	Specification
Target Features	Voltage monitoring & reset control
Operating System	FreeRTOS
Power Supply	USB Type-C 5 V DC
Dimensions (bare board)	33 × 40 × 5 mm
Product Dimensions (packaged)	12 × 8 × 2 cm
Weight (with packaging)	0.2 kg
Country of Origin	Canada
Battery	None (no Lithium or non-Lithium battery)

Included in the Box

- 1 × ESP32JTAG main unit (with 1.83-inch LCD display)
 - 1 × USB Type-C cable (for power and data)
 - 4 × Shielded fly-wire sets (for target connection)
 - 1 × Resealable ESD-safe bag
 - 1 × Quick-start guide
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Compliance

- **CE Mark:** Self-certified for **RoHS**, **EMC**, and **RED** directives
- **UKCA Mark:** Self-certified for **RoHS**, **EMC**, and **RED** regulations
- **FCC:** Uses pre-certified ESP32-S3 module; additional verification testing performed in China

No batteries included.

Software & Toolchain Support

- **Supported IDEs:** VSCode, Arduino IDE, STM32CubeIDE, Vivado, and PlatformIO
- **Supported Tools:** OpenOCD, Blackmagic Probe, CMSIS-DAP, GDB Server, openFPGALoader, XVC protocol
- **Logic Analyzer Interface:** Browser-based web application
- **UART Interface:** WebTerminal

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- **Firmware:** Fully open source (ESP-IDF-based, FreeRTOS)
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Open-Source Resources

- **Hardware:** Schematics.
 - **Firmware:** ESP-IDF projects for ESP32JTAG
 - **Documentation:** Built-in web interface, GitHub repository, and video tutorials
 - **Community:** GitHub Issues, Discussions, and Discord support
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Manufacturing & Quality

The ESP32JTAG V1.4 hardware revision is finalized for mass production.

Manufacturing and testing will be carried out by a qualified assembly partner in China with experience in ESP32-based products.

Each unit undergoes full functional testing:

- Wireless connectivity verification
- Logic analyzer and JTAG port validation
- LCD and interface check

Packaging includes an ESD-safe bag and protective retail box for safe shipment.

Fulfillment & Logistics

Products will be bulk-shipped to **Mouser Electronics'** fulfillment center for worldwide distribution via **Crowd Supply**.

Each backer will receive a fully tested unit with all accessories and printed documentation.

Pricing & Availability

- **Estimated retail price:** US \$129
- **Funding campaign:** <https://www.crowdsupply.com/ez32/esp32jtag>