WI-FI + BLUETOOTH DEVELOPMENT BOARD

ESP32 WROOM-32 Development Board (Wi-Fi + Bluetooth)

The ESP32 development board, built on the ESP32-WROOM-32 module, is a powerful dual-core microcontroller with both Wi-Fi and Bluetooth built in. It is much faster than an Arduino Uno, has more memory and has many more pins, including touch sensing and a true analog output (DAC). It is the go-to board for IoT, Bluetooth apps and advanced robotics.



Key Features

- Dual-core 32-bit Xtensa LX6 processor at up to 240 MHz
- Wi-Fi 802.11 b/g/n plus Bluetooth v4.2 (Classic + BLE)
- 520 KB SRAM and 4 MB flash
- 12-bit ADC on up to 18 channels and two 8-bit DACs
- 10 capacitive touch pins
- Programs in the Arduino IDE, ESP-IDF or MicroPython

Technical Specifications

Module	ESP32-WROOM-32
CPU	Dual-core Xtensa LX6, up to 240 MHz
Memory	520 KB SRAM, 4 MB flash
Wireless	Wi-Fi b/g/n 2.4 GHz; Bluetooth 4.2 BR/EDR + BLE
Logic level	3.3 V (not 5 V tolerant)
Input power	5 V via micro-USB or VIN
ADC	12-bit, up to 18 channels
DAC	2 × 8-bit (GPIO25, GPIO26)
Interfaces	3 × UART, 2 × I2C, SPI, I2S, CAN (TWAI), PWM on most pins
USB-serial chip	CP2102 or CH340

Pinout / Connections

GPIO21 / GPIO22	Default I2C: SDA / SCL
GPIO23 / 19 / 18 / 5	Default SPI: MOSI / MISO / SCK / SS
GPIO34–39	Input only (no pull-ups)
GPIO0, 2, 12, 15	Strapping pins; affect boot
GPIO25 / 26	DAC outputs
EN	Reset
3V3 / GND / VIN	Power

Typical Applications

- Bluetooth-controlled robots and cars
- IoT dashboards and home automation
- BLE wearables and beacons
- Projects that need more speed or memory than an Uno

Usage Notes & Safety

! Add the ESP32 board package in Boards Manager and select 'ESP32 Dev Module'.

! ADC2 pins can't be used while Wi-Fi is on. Use ADC1 pins (GPIO32–39) for analog reads.

! If an upload hangs on 'Connecting...', hold the BOOT button until uploading starts.