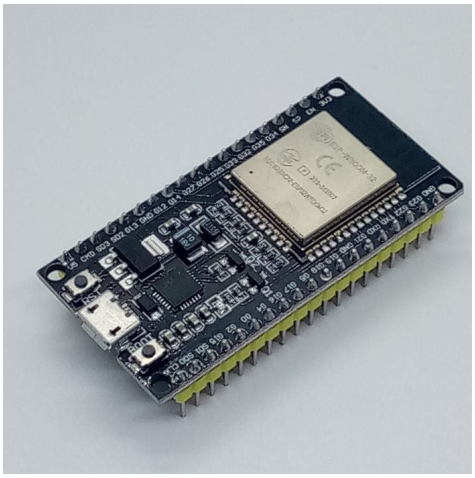
# ESP32 Development Board 38-Pin (CP2102)

Wi-Fi & Bluetooth Development Board



The ESP32 38-Pin Development Board is a versatile Wi-Fi and Bluetooth board based on the ESP32. With many GPIO pins, ADC inputs and communication interfaces, it is ideal for IoT, automation, robotics and embedded projects.

## TOP USES

- IoT and Wi-Fi projects
- Home automation
- Robotics and control
- Sensor systems

## KEY FEATURES

- ESP32 dual-core MCU
- Wi-Fi + Bluetooth
- 38-pin GPIO layout
- CP2102 USB interface
- ADC and PWM support
- USB programming

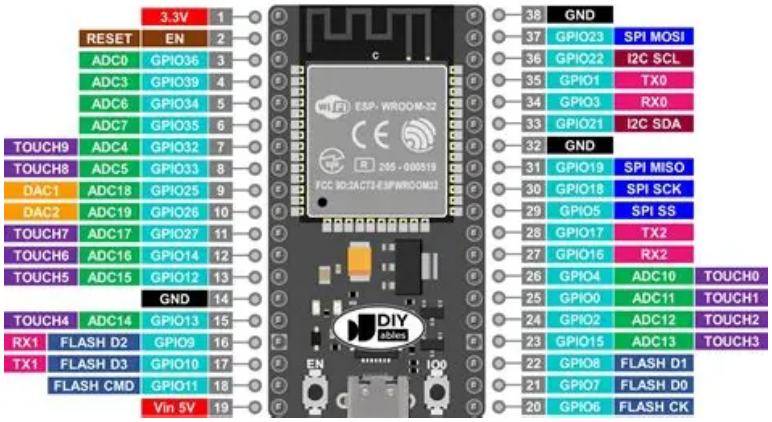
# Technical Specifications

ESP32 Development Board 38-Pin (CP2102)

| Parameter | Value |
|---|---|
| **MCU** | ESP32 |
| **CPU** | Dual-Core Xtensa |
| **Frequency** | Up to 240 MHz |
| **Wi-Fi** | 2.4 GHz 802.11 b/g/n |
| **Bluetooth** | Bluetooth Classic / BLE |
| **Flash** | Typically 4 MB |
| **ADC** | 12-bit |
| **Logic** | 3.3 V |
| **USB** | Micro-USB / CP2102 |

# Pinout

ESP32 Development Board 38-Pin (CP2102)




## PIN FUNCTIONS

| Pin | Function | Notes |
|---|---|---|
| **GPIO** | Digital I/O | General purpose input/output |
| **ADC** | Analog | Analog sensor inputs |
| **PWM** | Output | Motor, servo and LED control |
| **SDA / SCL** | I2C | Sensors and displays |
| **MOSI / MISO / SCK** | SPI | High-speed peripherals |
| **TX / RX** | UART | Serial communication |
| **3V3** | Power | 3.3 V supply |
| **GND** | Ground | Common ground |

## WIRING NOTES

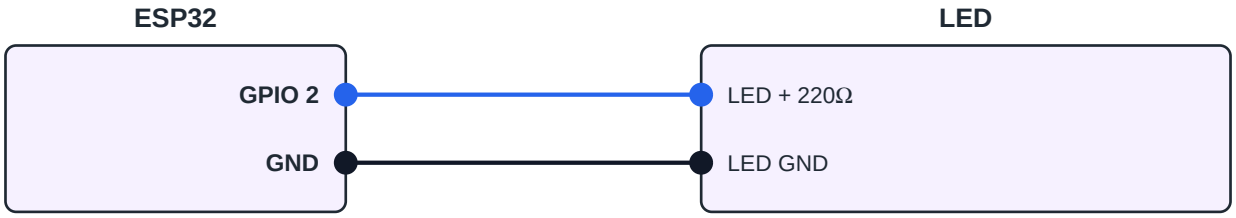
- ESP32 GPIO uses 3.3 V logic.
- Do not apply 5 V directly to GPIO pins.
- GPIO functions can vary by application.

# Example Project

Wi-Fi Web LED Control

Connect the ESP32 to Wi-Fi and control an LED from a web browser.

## CIRCUIT




## EXAMPLE CODE

```
#include <WiFi.h>

const char* ssid = "YOUR_WIFI";
const char* password = "YOUR_PASSWORD";
WiFiServer server(80);
const int ledPin = 2;

void setup() {
  pinMode(ledPin, OUTPUT);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) delay(500);
  server.begin();
}

void loop() {
  WiFiClient client = server.available();
  if (!client) return;

  if (client.available()) {
    client.read();
    digitalWrite(ledPin, !digitalRead(ledPin));
    client.println("HTTP/1.1 200 OK");
    client.println("Content-Type: text/html");
    client.println();
    client.println("<h1>ESP32 Control</h1>");
    client.println("<p>LED toggled</p>");
  }
  client.stop();
}
```

## EXPECTED RESULT

- The ESP32 connects to Wi-Fi.
- Open its IP address in a browser.
- Each request toggles the LED.

# Useful Links

ESP32 Development Board 38-Pin (CP2102)

| Resource | Link |
|---|---|
| **ESP32 Documentation** | https://docs.espressif.com/projects/esp-idf/en/latest/esp32/ |
| **Arduino ESP32 Core** | https://docs.espressif.com/projects/arduino-esp32/en/latest/ |
| **Arduino IDE** | https://www.arduino.cc/en/software/ |

## COMPATIBLE COMPONENTS

- DHT22
- PIR Sensor
- OLED Display
- Relay Module
- HC-SR04
- Servo Motor

## Need this component?

**Buy ESP32 38-Pin CP2102 >>**

https://techzoneegypt.com/p/esp32-development-board-38-pin-cp2102