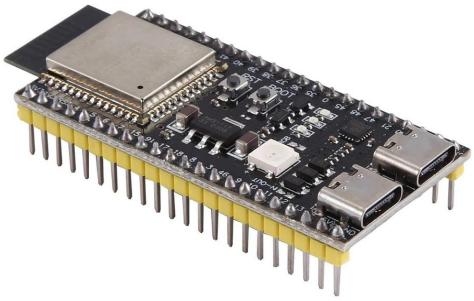
ESP32-S3 N16R8 Development Board

ESP32-S3 Wi-Fi & Bluetooth Development Board



The ESP32-S3 N16R8 is a powerful Wi-Fi and Bluetooth development board with 16MB Flash and 8MB PSRAM. It is designed for IoT, AI, embedded systems and advanced wireless projects.

TOP USES

- IoT Projects
- AI Applications
- Smart Home
- Embedded Systems
- Wireless Projects

KEY FEATURES

- ESP32-S3 Controller
- Wi-Fi + Bluetooth LE
- 16MB Flash
- 8MB PSRAM
- USB Support
- Multiple GPIO

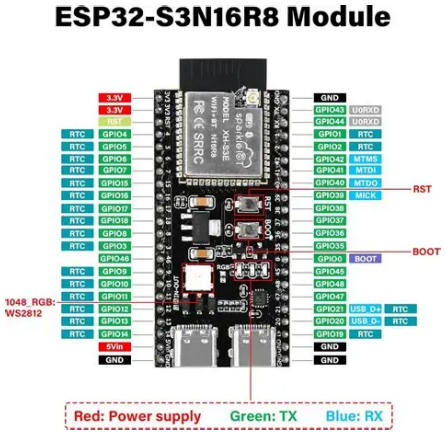
Technical Specifications

ESP32-S3 N16R8 Development Board

Parameter	Value
MCU	ESP32-S3
CPU	Dual-Core Xtensa LX7
Flash	16 MB
PSRAM	8 MB
Wi-Fi	802.11 b/g/n
Bluetooth	Bluetooth LE 5
Logic	3.3V
USB	USB Type-C

Pinout

ESP32-S3 N16R8 Development Board



PIN FUNCTIONS

Pin	Function	Notes
GPIO 1 - 21	General Purpose I/O	
GPIO 35 - 42	General Purpose I/O	
GPIO 43 / 44	UART TX / RX	
GPIO 8 / 9	I2C SDA / SCL	
GPIO 11 / 12 / 13	SPI	
3V3	3.3V Power	
GND	Ground	
5V	USB Power	

WIRING NOTES

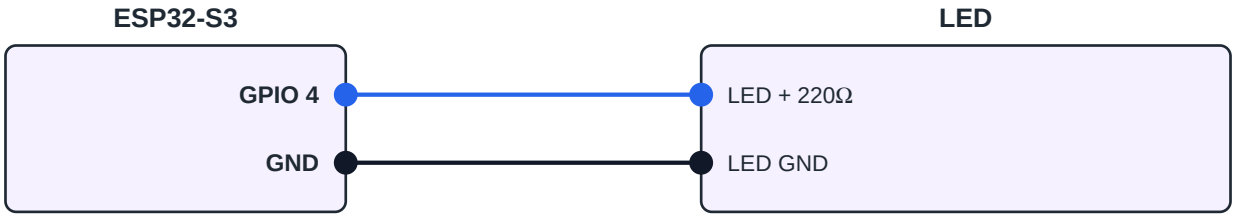
- GPIO uses 3.3V logic.
- Do not apply 5V directly to GPIO pins.
- Available pins can vary by board version.

Example Project

Wi-Fi Web LED Control

Connect the ESP32-S3 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 = 4;

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-S3 Control</h1>");
    client.println("<p>LED toggled</p>");
  }
  client.stop();
}
```

EXPECTED RESULT

- The ESP32-S3 connects to Wi-Fi.
- Open its IP address in a browser.
- Each request toggles the LED.

Useful Links

ESP32-S3 N16R8 Development Board

Resource	Link
ESP32-S3 Documentation	https://docs.espressif.com/projects/esp-idf/en/latest/esp32s3/
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

Need this component?

Buy ESP32-S3 N16R8 Development Board >>

https://techzoneegypt.com/p/esp32-s3-n16r8-development-board