

ESPduino Development Board

ESP-13 (ESP8266) Wi-Fi Module | Arduino UNO R3 Form Factor

DOIT / ESP8266

GENERAL DESCRIPTION

The **ESPduino** combines the high performance of the **ESP8266 (ESP-13)** Wi-Fi module with the widely adopted **Arduino UNO R3 footprint**. Powered by an onboard high-efficiency switching regulator supporting an input voltage of **5V to 16V DC**, it provides stable operation even under power-demanding Wi-Fi transmission states. Features the onboard **CH340C USB-to-UART converter** for seamless programming via standard Arduino IDE.

BOARD LAYOUT & VIEWS

ESPduino Annotated Diagram

Annotated Hardware Component Overview

3D Angle View

Isometric View

Top Perspective View

Top Perspective

KEY SPECIFICATIONS

Parameter	Value / Specification
Microcontroller	ESP8266EX (ESP-13 Module)
Form Factor	Arduino UNO R3 Compatible
Operating Voltage	3.3V System Level
DC Input Voltage	5V – 16V DC (Buck Regulator)
USB Interface	CH340C USB-to-UART Driver
Wi-Fi Standard	802.11 b/g/n (2.4 GHz)
Flash Memory	4 MB (32 Mbit) SPI Flash
Analog Input	1 Channel (A0, max 3.2V input)
Onboard Switches	Reset Button (RST) / Key Switch

POWER ARCHITECTURE

- DC Power Jack:** Accepts 5V–16V wide input via step-down converter ensuring low thermal dissipation.
- USB Power:** Powered directly via standard USB Type-B port.
- Power Rails:** Provides 5V, 3.3V, and GND headers.

PIN MAPPING & INTERFACES

Header Label	ESP8266 GPIO Mapping	Primary Function / Bus	Notes
TX0 / RX0	GPIO1 (TX) / GPIO3 (RX)	Hardware UART / Serial Debug	Connected to CH340C USB Converter
D0 – D2	GPIO16, GPIO5, GPIO4	General I/O, I2C (SDA/ SCL)	D4 (GPIO2), D5 (GPIO14)
D12 – D15 / SPI	GPIO12 (MISO), GPIO13 (MOSI), GPIO14 (SCK), GPIO15 (SS)	Hardware SPI Interface	Used for SD Card / Display modules
SCL / SDA	GPIO5 (SCL) / GPIO4 (SDA)	I2C Bus Hardware Mapping	Shared with standard I2C pins
A0	ADC0	10-bit ADC Input	0 to 1.0V internal (board resistor divider up to 3.2V)