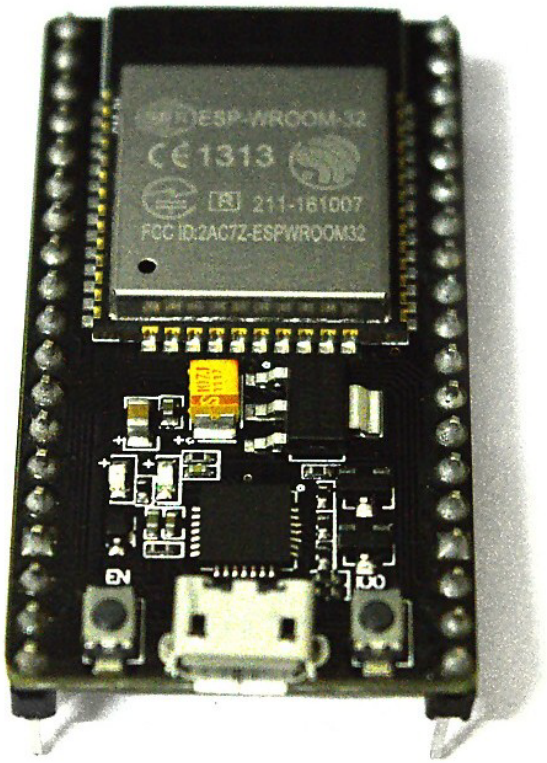
EINSTRONIC
TURN ON THE FUTURE

INTRODUCTION TO

NodeMCU ESP32

DevKIT v1.1

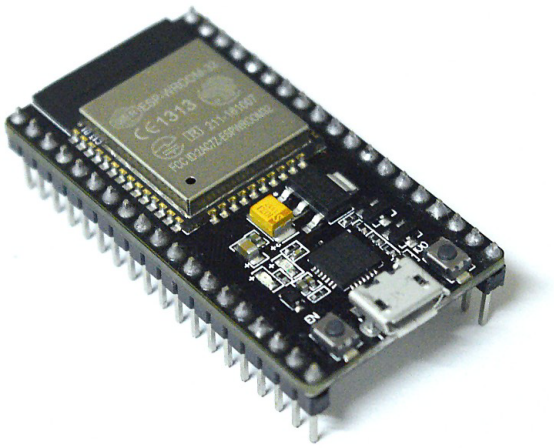
JULY 2017

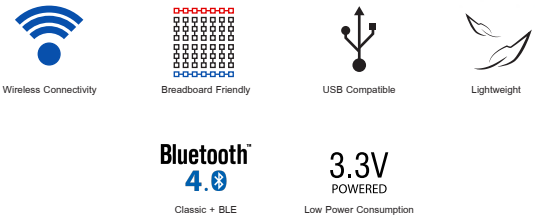


www.einstronic.com

NodeMCU ESP32 Wireless & Bluetooth Development Board

NodeMCU is an open source IoT platform. ESP32 is a series of low cost, low power system-on-chip (SoC) microcontrollers with integrated Wi-Fi & dual-mode Bluetooth. The ESP32 series employs a Tensilica Xtensa LX6 microprocessor in both dual-core and single-core variations, with a clock rate of up to 240 MHz. ESP32 is highly integrated with built-in antenna switches, RF balun, power amplifier, low-noise receive amplifier, filters, and power management modules.



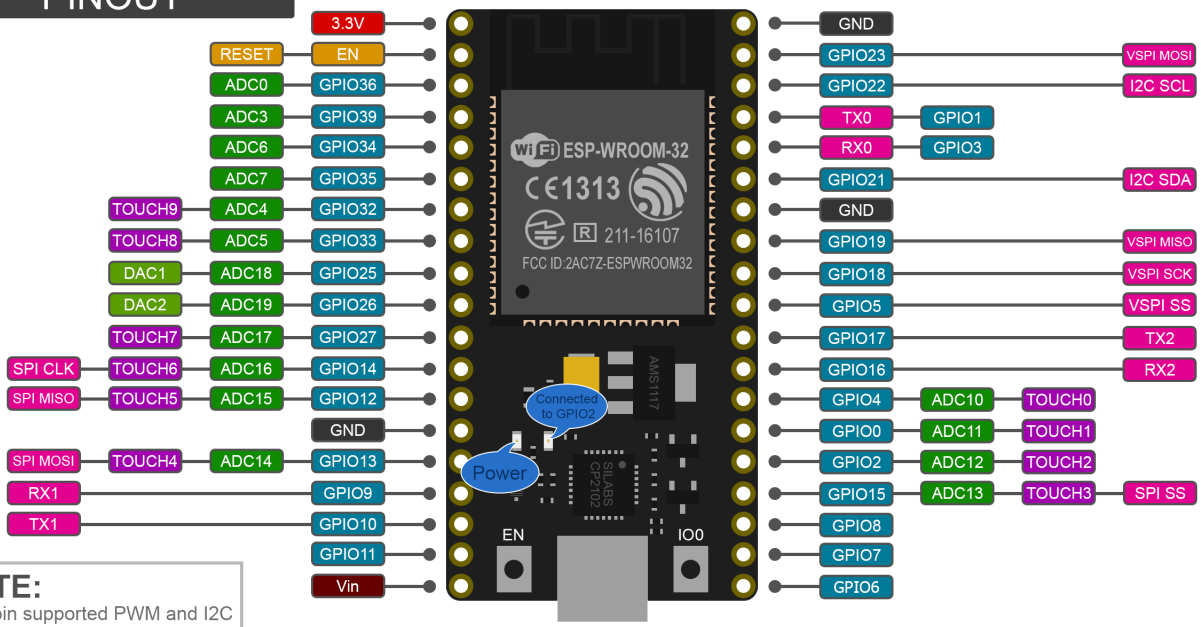


Features

- Manufactured by TSMC using their 40 nm process.
- Able to achieve ultra-low power consumption.
- Built-in ESP-WROOM-32 chip.
- Breadboard Friendly module.
- Light Weight and small size.
- On-chip Hall and temperature sensor
- Uses wireless protocol 802.11b/g/n.
- Built-in wireless connectivity capabilities.
- Built-in PCB antenna on the ESP32-WROOM-32
- Capable of PWM, I2C, SPI, UART, 1-wire, 1 analog pin.
- Uses CP2102 USB Serial Communication interface module.
- Programmable with ESP-IDF Toolchain, LuaNode SDK supports Eclipse project (C language).

NodeMCU-32S

PINOUT

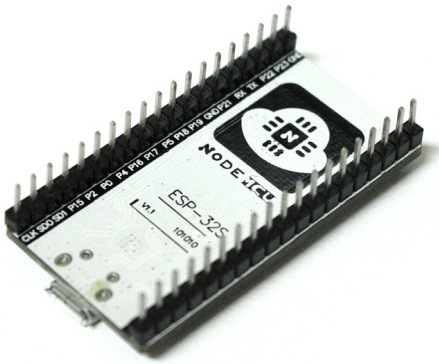


NOTE:
All pin supported PWM and I2C
Pin current 6mA (Max. 12mA)

Safety Precaution
All GPIO runs at 3.3V !!

Source
https://www.ioxhop.com/product/532/nodemcu-32s-esp32-wifibluetooth-development-board

Front View



Front View

Specifications of ESP-WROOM-32 WiFi+BLE BT Module

Wireless Standard	FCC/CE/IC/TELEC/KCC/SRRC/NCC
Wireless Protocol	802.11 b/g/n/d/e/l/k/r
Frequency Range	2.4 - 2.5 GHz
Bluetooth Protocol	Bluetooth v4.2 BR/EDR and BLE specification
Bluetooth Specifications	NZIF Receiver with -98dBm sensitiivity Class-1, Class-2 and Class-3 transmitter AFH, CVSD and SBC
Memory	16MB Flash, 520KB SRAM
Wireless Form	On-board PCB Antenna
IO Capability	UART, I2C, SPI, I2S, PWM, SDIO, GPIO, ADC, DAC
Electrical Characteristic	3.3 V Operated 15 mA output current per GPIO pin 80 mA average working current
Operating Temperature	-40 to +125 ºC
Wireless Network Type	Station / SoftAP / SoftAP + Station / P2P
Security Type	WPA / WPA2 / WPA2-Enterprise / WPS
Encryption Type	AES / RSA / ECC / SHA
Firmware Upgrade	UART Download / OTA / Host
Network Protocol	IPv4, IPv6, SSL, TCP / UDP / FTP / HTTP / MQTT
User Configuration	AT + Order Set, Web Android / iOS, Cloud Server

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Related Sites

NodeMCU Documentation
https://nodemcu.readthedocs.io/en/dev-esp32/

ESP32 Overview - ESPRESSIF
http://www.espressif.com/en/products/hardware/esp32/overview

ESP-IDF Programming Guide
http://esp-idf.readthedocs.io/en/latest/index.html

LuaNode for ESP32, by myembed (Hackaday)
https://hackaday.io/project/18666-luanode-for-esp32

LuaNode SDK Firmware (GitHub)
https://github.com/Nicholas3388/LuaNode

SmartArduino / SZDOIT Wiki on ESP8266 & ESP32
https://github.com/SmartArduino/SZDOITWiKi/wiki/ESP8266---ESP32

The INTERNET of THINGS with ESP32
http://esp32.net/

HOW TO GET STARTED WITH THE ESP32
http://hackaday.com/2016/10/04/how-to-get-started-with-the-esp32/

ESP-WROOM-32 Datasheet
http://akizukidenshi.com/download/ds/espressifsystems/esp_wroom_32_datasheet_en.pdf

ESP32 DevKitC Getting Started Guide
https://www.espressif.com/sites/default/files/documentation/esp32-devkitc_getting_started_guide_en.pdf

For more details, we can be reached at the addresses below.
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