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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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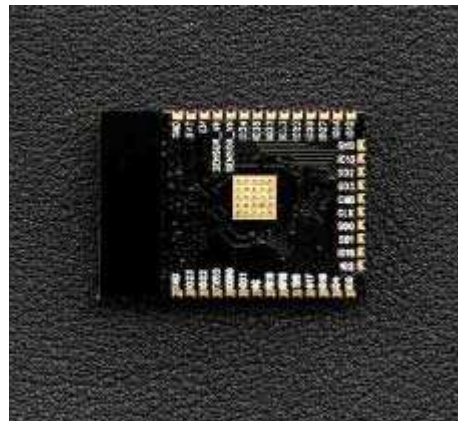
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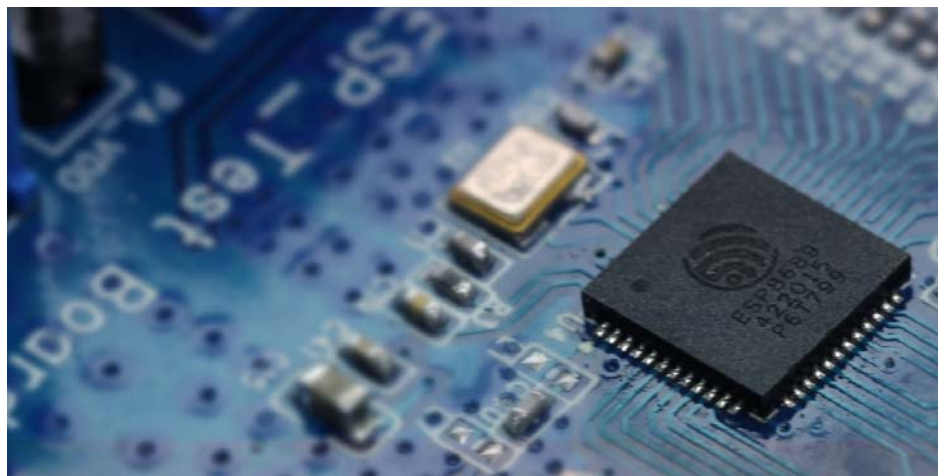
# ESP32 WiFi & Bluetooth Dual-Core MCU Module

SKU:TEL0111



## INTRODUCTION

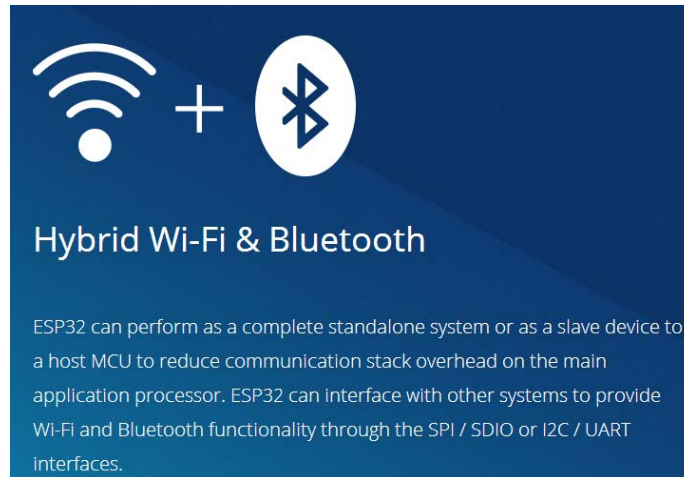
The ESP32 WiFi and Bluetooth chip is the latest generation of Espressif products. It has a dual-core 32-bit MCU, which integrates WiFi HT40 and Bluetooth/BLE 4.2 technology inside.





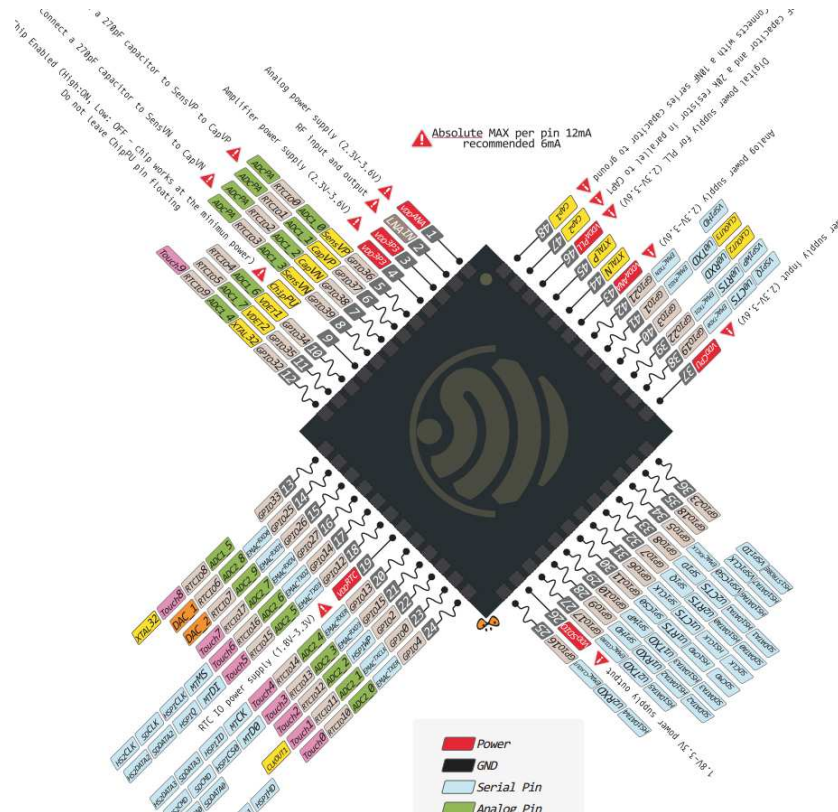
Compared to the arduino ESP8266 (the previous generation), the ESP32 has a significant performance improvement. It is equipped with a high-performance dual-core Tensilica LX6 MCU. One core handles high speed connection and the other for standalone application development. The dual-core MCU has a 240 MHz frequency and a computing power of 600 DMIPS.

In addition, it supports Wi-Fi HT40, Classic Bluetooth/BLE 4.2, and more GPIO resources.



The graphic features a dark blue background with a white Wi-Fi symbol and a white Bluetooth symbol separated by a plus sign. Below the symbols, the text reads: "Hybrid Wi-Fi & Bluetooth". Underneath, a paragraph states: "ESP32 can perform as a complete standalone system or as a slave device to a host MCU to reduce communication stack overhead on the main application processor. ESP32 can interface with other systems to provide Wi-Fi and Bluetooth functionality through the SPI / SDIO or I2C / UART interfaces."

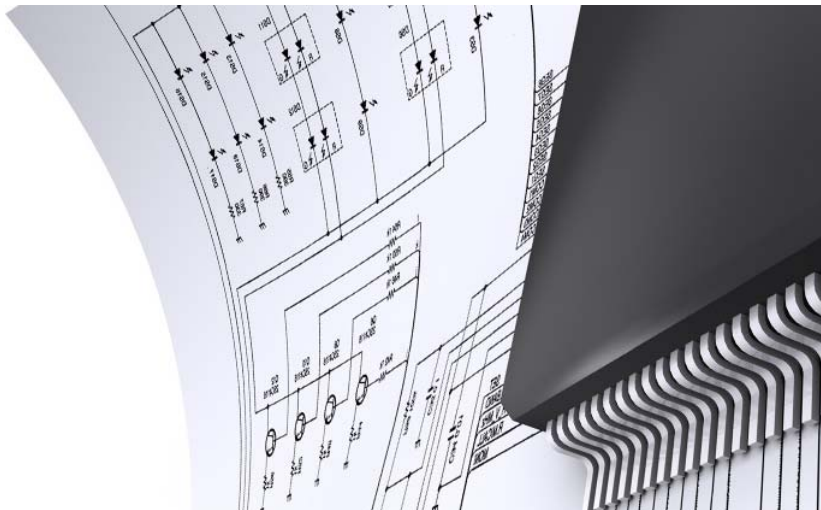
ESP32 chip integrates a wealth of hardware peripherals, including capacitive touch sensors, Hall sensors, low noise sensor amplifiers, SD card interfaces, Ethernet interfaces, high-speed SDIO / SPI, UART, I2S and I2C, etc.





## Support Arduino Programming

Engineered for mobile devices, wearable electronics and Internet of Things (IoT) applications, the ESP32 achieves ultra-low power consumption with a combination of several proprietary software applications. The state-of-the-art power saving features include fine resolution clock gating, power modes, and dynamic power scaling.



DFRobot introduces the ESP-ROOM-32 module, based on the Espressif. ESP32 chip. It has integrated electronic peripherals, external expansion of all GPIO pins, an onboard antenna, stamp hole design and easy mass production. It can be used for product development, integrated design and many more applications.

## **SPECIFICATION**

### **CPU and Memory**

- Xtensa® Dual-Core 32-bit LX6 microprocessors, up to 600 DMIPS
- 448 KByte ROM
- 520 KByte SRAM
- 16 KByte SRAM in RTC
- QSPI Flash/SRAM, up to 4 x 16 MBytes
- Power supply: 2.2 V to 3.6 V

### **Clocks and Timers**

- Internal 8 MHz oscillator with calibration
- Internal RC oscillator with calibration
- External 2 MHz to 40 MHz crystal oscillator
- External 32 kHz crystal oscillator for RTC with calibration
- Two timer groups, including 2 x 64-bit timers and 1 x main watchdog in each group
- RTC timer with sub-second accuracy
- RTC watchdog

### **Advanced Peripheral Interfaces**

- 12-bit SAR ADC up to 18 channels
- 2 x 8-bit D/A converters
- 10 x touch sensors
- Temperature sensor
- 4 x SPI
- 2 x I2S
- 2 x I2C
- 3 x UART
- 1 host (SD/eMMC/SDIO)
- 1 slave (SDIO/SPI)
- Ethernet MAC interface with dedicated DMA and IEEE 1588 support
- CAN 2.0
- IR (TX/RX)
- Motor PWM
- LED PWM up to 16 channels
- Hall sensor
- Ultra low power analog pre-amplifier

### **Development Support**

- SDK Firmware for fast on-line programming
- Open source toolchains based on GCC

**Operating Temperature Range: -40 ° C to + 85 ° C**

**Package size: 18mm x 25mm x 3mm**