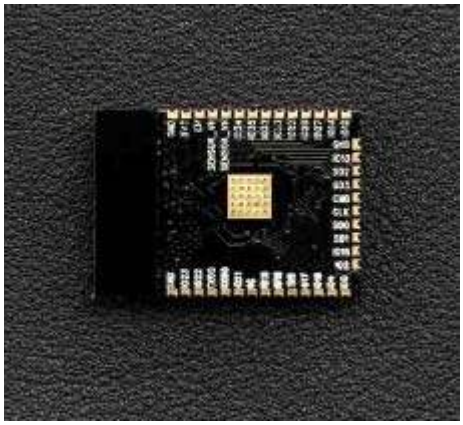
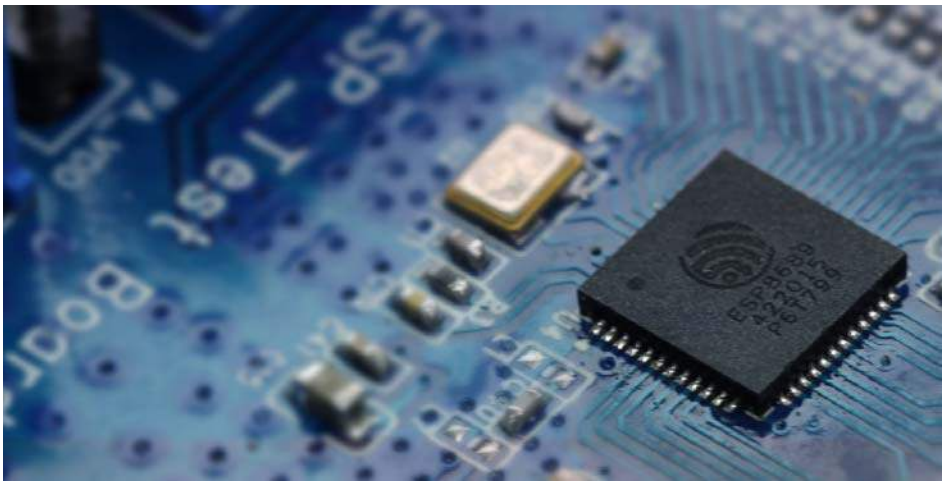
ESP32 WiFi & Bluetooth Dual-Core MCU Module

SKU:TEL0111



INTRODUCTION

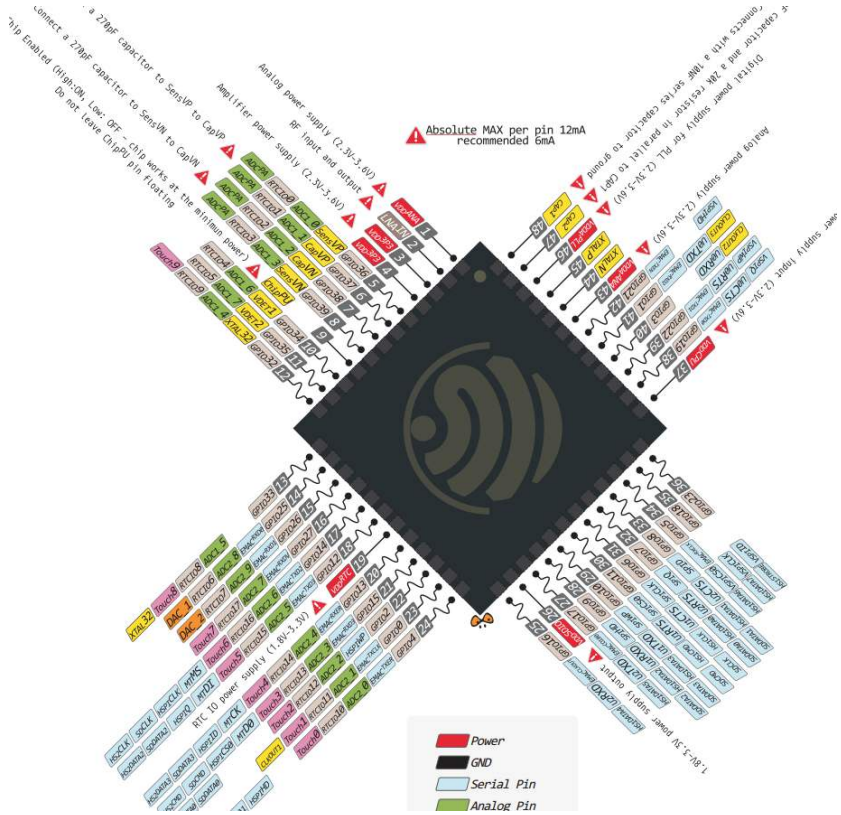
The ESP32 WiFi and Bluetooth chip is the latest generation of Espressif products. It has a dual-core 32-bit MCU, which integrates WiFi HT40 and Bluetooth/BLE 4.2 technology inside.



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.

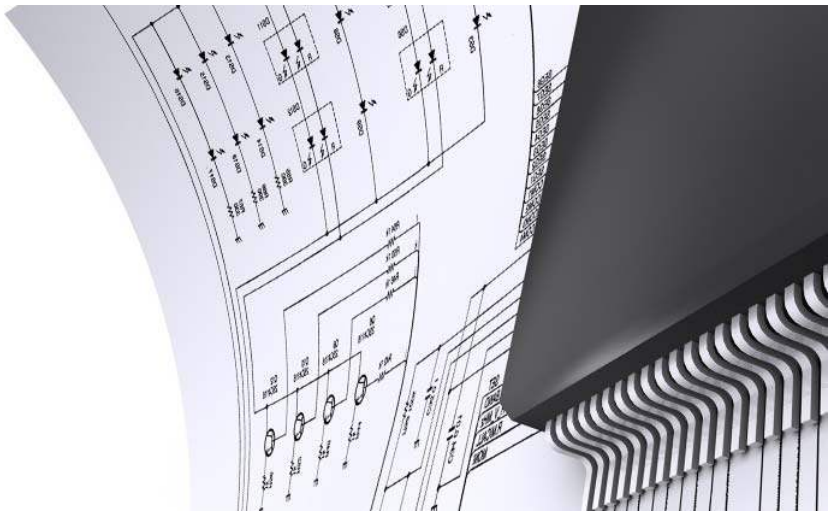
In addition, it supports Wi-Fi HT40, Classic Bluetooth/BLE 4.2, and more GPIO resources.

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 × 8-bit D/A converters

• 10 × touch sensors

• Temperature sensor

• 4 × SPI

• 2 × I2S

• 2 × I2C

• 3 × 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