ESP32-C6 WiFi Bluetooth Development Core Board ESP32-C6-WROOM-1-N8 Type-C Kit

The **ESP32-C6 WiFi Bluetooth Development Core Board** is a next-generation microcontroller platform designed by **Espressif Systems**, featuring the advanced **ESP32-C6-WROOM-1-N8** module. This board delivers exceptional wireless performance and powerful computing capabilities, making it the perfect choice for Internet of Things (IoT), automation, smart home, robotics, and industrial control projects. Whether you are a professional developer or a hobbyist, this compact yet highly capable development board offers all the tools you need to bring your ideas to life.

High-Performance RISC-V Processor

At the heart of the board lies a **32-bit RISC-V single-core processor** that runs at up to **160 MHz**, providing efficient processing power for multitasking and complex applications. The RISC-V architecture ensures low power consumption and high computing efficiency, which is essential for embedded and IoT systems. With built-in **8MB or 16MB Flash memory**, the ESP32-C6 offers ample space for firmware, data storage, and complex program execution.

Next-Generation Wireless Connectivity

The **ESP32-C6-WROOM-1-N8** is the first ESP32 chip to feature **Wi-Fi 6 (802.11ax)** support, offering faster data rates, improved range, and enhanced power efficiency compared to previous generations. This ensures stable and fast communication even in congested network environments.

In addition to Wi-Fi 6, the board integrates **Bluetooth 5 Low Energy (BLE)** and **IEEE 802.15.4** protocols, enabling support for **Zigbee 3.0** and **Thread** wireless communication. This makes it an ideal platform for **IoT ecosystems**, **smart lighting systems**, **home automation networks**, and **industrial IoT gateways**.

Versatile Connectivity and Compatibility

The board includes a **USB Type-C interface**, ensuring easy and reliable connections for power supply and programming. Thanks to the **onboard CH343 and CH334 chips**, users can enjoy seamless **USB-to-UART communication** and flexible development via Type-C.

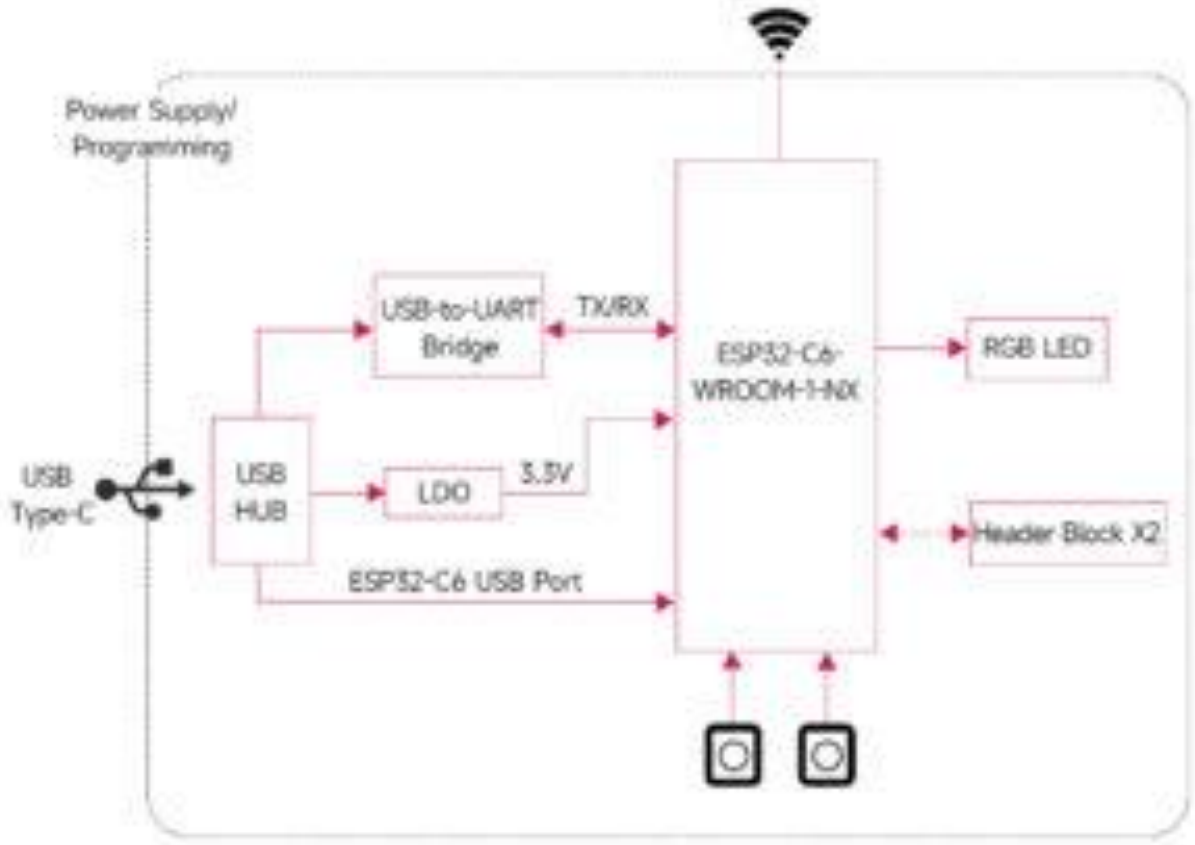
Moreover, the board is designed to be **pin-compatible** with the official **ESP32-C6-DevKitC-1** development board, ensuring full compatibility with existing projects, add-ons, and accessories. The **rich peripheral interfaces** include GPIOs, UART, SPI, I2C, PWM, and ADC pins, allowing effortless integration with sensors, displays, actuators, and other modules.

Superior RF Performance

The **ESP32-C6** module is built with Espressif's proven **RF design and manufacturing expertise**, offering excellent signal stability and range across all supported wireless protocols. The onboard antenna and optimized circuit layout ensure reliable wireless communication with minimal interference, even in challenging environments.

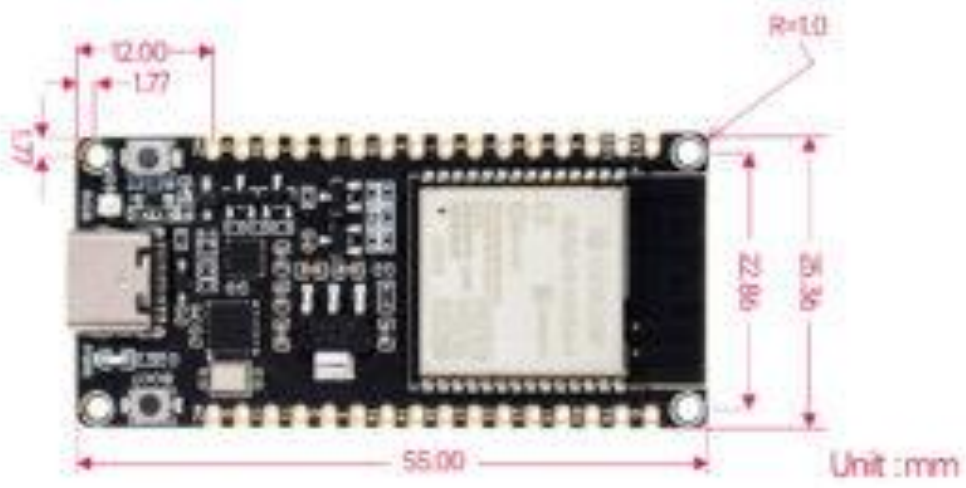
Compact Design and Robust Build

The board's compact form factor makes it ideal for both **prototyping** and **integration into final products**. It features **castellated edges**, allowing it to be easily soldered directly onto carrier boards for mass production or embedded applications. The robust PCB construction ensures durability and long-term performance in demanding electronic systems.



Developer-Friendly Features

This development board supports multiple programming environments, including **Arduino IDE**, **ESP-IDF**, **MicroPython**, and other open-source frameworks. Developers can easily program, debug, and upload firmware via the USB-Type C port without requiring external converters or adapters. The onboard **RESET** and **BOOT** buttons simplify firmware uploading and testing, making it user-friendly for both beginners and professionals.

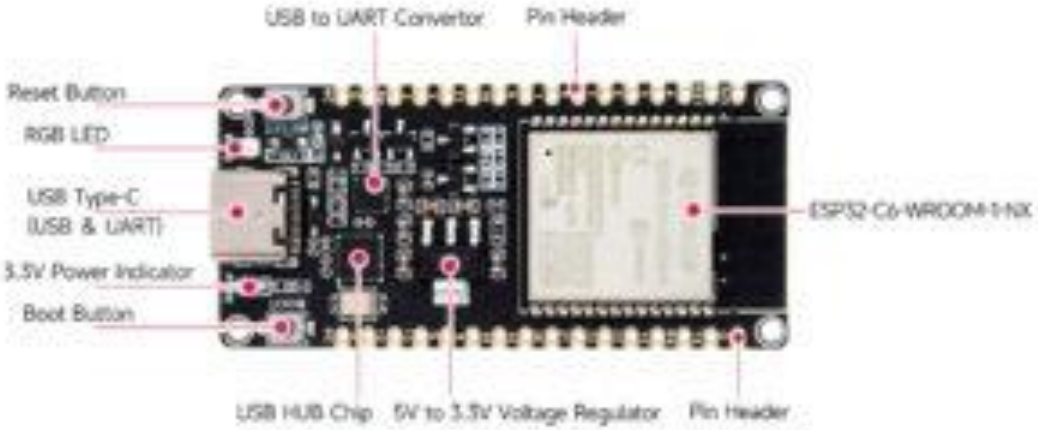


Applications

The **ESP32-C6 WiFi Bluetooth Development Core Board** is a versatile platform suitable for a wide range of applications, including:

- IoT and Smart Home Systems
- Industrial Automation and Monitoring
- Wireless Sensor Networks
- Robotics and Control Systems
- Smart Lighting and Energy Management
- Wearable Devices and Health Monitoring
- Wireless Gateways and Communication Hubs

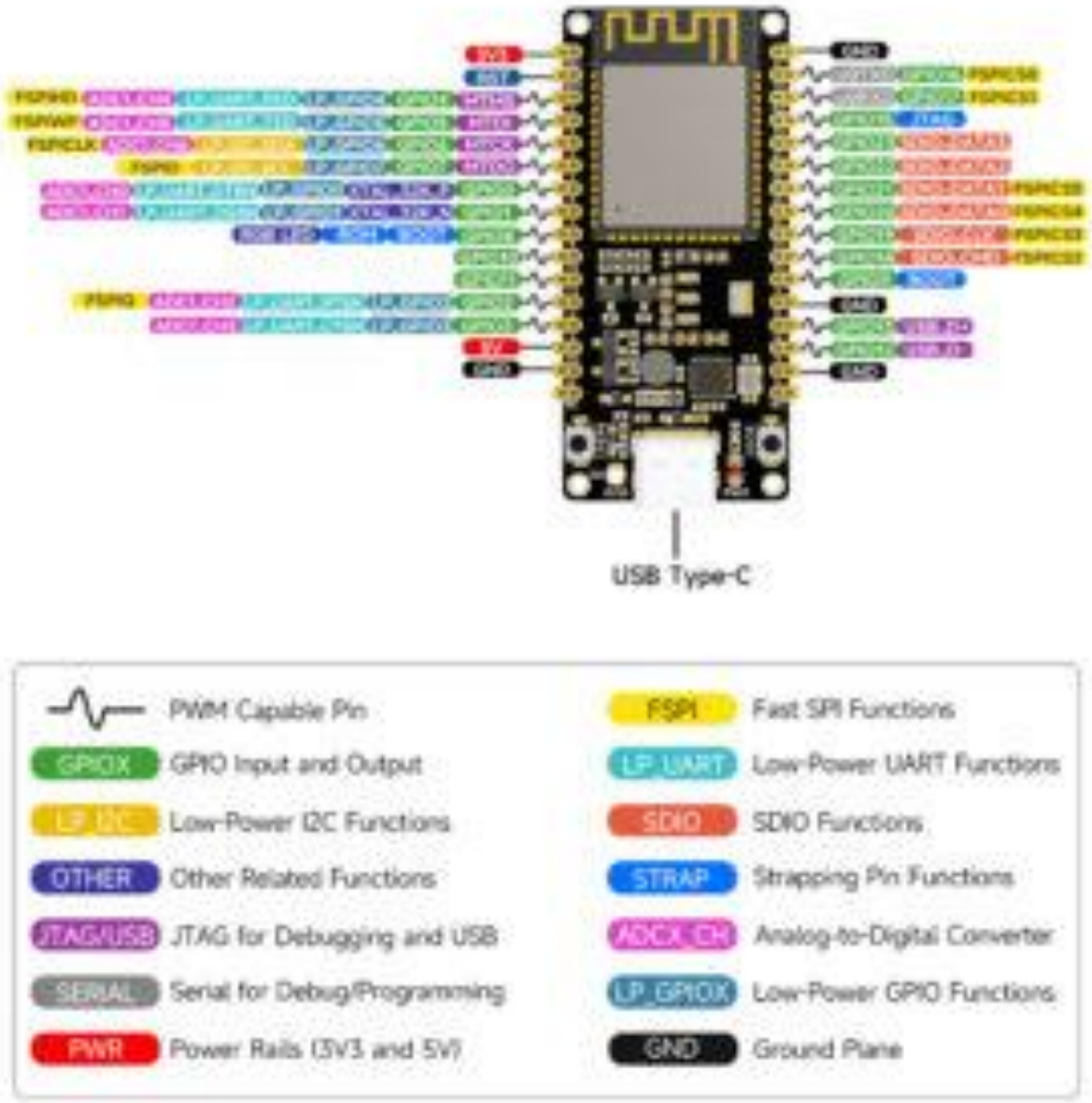
With its support for **Wi-Fi 6, Bluetooth 5, Zigbee, and Thread**, this board stands out as one of the most comprehensive wireless solutions available for developers in 2025.



Key Features Summary

- Based on **ESP32-C6-WROOM-1-N8** module
- **RISC-V 32-bit single-core processor** up to **160 MHz**
- **8MB / 16MB Flash memory**
- Integrated **Wi-Fi 6**, **Bluetooth 5**, **IEEE 802.15.4 (Zigbee & Thread)**
- **USB Type-C** interface for power and programming
- **CH343 & CH334** chips for USB-UART communication
- Compatible with **ESP32-C6-DevKitC-1 pinout**
- **Rich GPIOs and peripheral support** (UART, SPI, I2C, PWM, ADC)
- **Castellated module** for easy integration and soldering

- **Excellent RF performance** and reliable wireless range



Why Choose the ESP32-C6 Development Board

The ESP32-C6 Development Core Board offers the perfect combination of **speed, versatility, and connectivity**. Its Wi-Fi 6 and Bluetooth 5 capabilities future-proof your projects, while its RISC-V processor ensures high efficiency and low power consumption. Whether you're building a

prototype, testing new IoT ideas, or developing a commercial product, this board provides all the performance and flexibility you need.