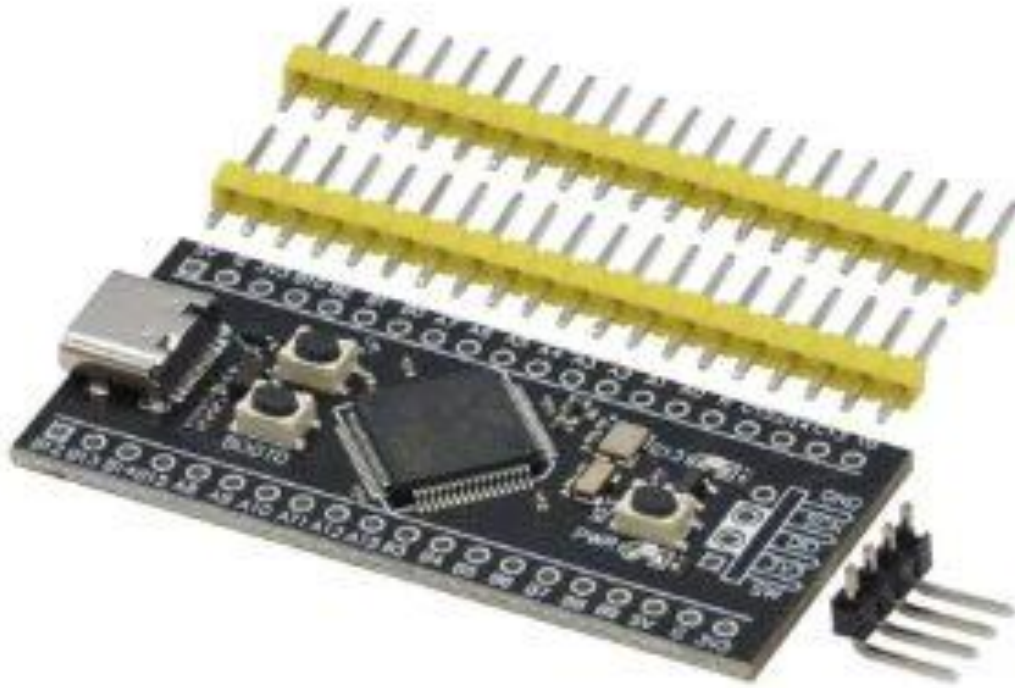# STM32F401CCU6 Development Board – Arduino Compatible

The **STM32F401CCU6 Development Board** is a high-performance, feature-rich microcontroller board designed for developers, students, and hobbyists who want to explore the capabilities of the **STM32F4 series**. This board combines the power of the **ARM Cortex-M4 32-bit processor** with full Arduino compatibility, making it an ideal platform for **embedded systems, IoT projects, robotics, and real-time applications**.

With its compact design and rich set of peripherals, the **STM32F401CCU6 board** is perfect for both **learning microcontroller programming** and **prototyping advanced electronic projects**. It supports a wide range of development environments including **Arduino IDE, STM32CubeIDE, KEIL, and PlatformIO**, giving developers the flexibility to choose the tools they are most comfortable with.

Key Features of STM32F401CCU6 Development Board

- **Microcontroller**: STM32F401CCU6 ARM Cortex-M4 32-bit processor with **84 MHz clock speed**.
- **Memory**: 64 KB SRAM and 256 KB Flash memory for program storage and data handling.
- **Arduino Compatible**: Fully compatible with **Arduino IDE** and most Arduino libraries, simplifying development for beginners.
- **Rich Connectivity Options**: Includes **USART, I2C, SPI, ADC, and PWM** pins for diverse applications.
- **USB Interface**: USB Mini-B for programming and serial communication with the PC.
- **Onboard LEDs**: Status and user LEDs for easy debugging and project indication.
- **Power Supply**: Supports **5V and 3.3V**, making it compatible with various sensors and modules.

- **Compact and Durable Design**: Small form factor with sturdy PCB layout for reliable prototyping.
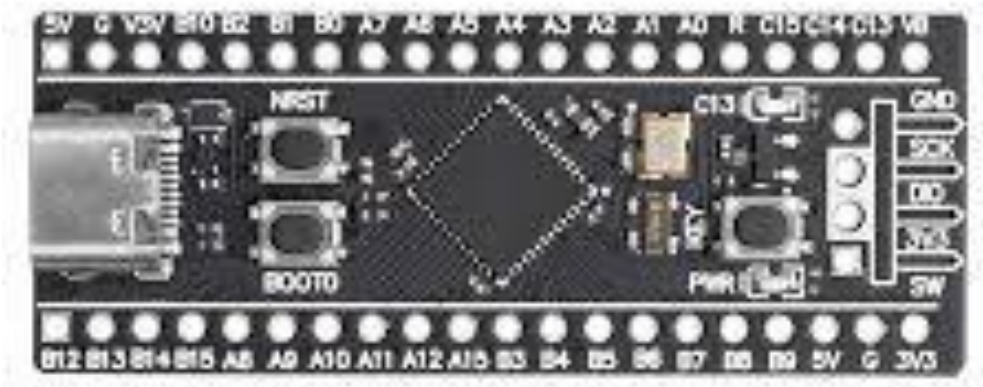
Technical Specifications

- **Microcontroller**: STM32F401CCU6
- **CPU**: ARM Cortex-M4 32-bit, 84 MHz
- **Flash Memory**: 256 KB
- **SRAM**: 64 KB
- **Operating Voltage**: 3.3V
- **Input Voltage**: 5V via USB or external supply
- **I/O Pins**: Multiple GPIO pins with **analog, digital, PWM, UART, SPI, and I2C support**
- **Programming Interface**: USB Mini-B or SWD
- **Dimensions**: Compact PCB, easy to integrate into projects
- **Compatibility**: Arduino IDE, STM32CubeIDE, KEIL, PlatformIO

Why Choose STM32F401CCU6 Development Board?

The **STM32F401CCU6 board** offers a balance of **high-performance processing, Arduino compatibility, and low power consumption**. Its advantages include:

1. **High-Speed Processing** – The Cortex-M4 core with FPU enables efficient handling of real-time applications and complex computations.
2. **Arduino-Friendly** – Beginners can leverage Arduino libraries while taking advantage of the powerful STM32 features.
3. **Versatile Peripherals** – Connect sensors, actuators, and modules easily using **I2C, SPI, UART, PWM, and ADC pins**.
4. **Compact Design** – Ideal for embedded and portable applications without sacrificing functionality.
5. **Multiple Programming Options** – Supports USB programming, SWD debugging, and standard Arduino IDE coding.

Weight : 7.10g
(with pin)

52.9mm

20.7mm

Applications of STM32F401CCU6 Board

The **STM32F401CCU6 Development Board** is suitable for a wide range of applications, including:

- **IoT Projects**: Smart home automation, remote sensing, and cloud-connected devices.
- **Robotics**: Motor control, sensor integration, and autonomous systems.
- **Embedded Systems**: Real-time data acquisition, control systems, and industrial automation.
- **Educational Projects**: Learning ARM Cortex-M programming and advanced microcontroller concepts.
- **Wearable Electronics**: Low-power wearable devices and health monitoring systems.
- **Prototyping and Testing**: Rapid development for engineers and students.

How to Use the STM32F401CCU6 Board

1. **Install the Arduino IDE** – Add STM32 support using the board manager.
2. **Connect via USB** – Use the USB Mini-B port for programming and serial monitoring.
3. **Select Board and Port** – Choose **STM32F401CCU6** in the Arduino IDE board manager.
4. **Upload Code** – Write or import Arduino sketches and upload them to the board.
5. **Connect Sensors and Modules** – Use GPIO, PWM, I2C, SPI, and UART pins to interface with external devices.
6. **Debug and Monitor** – Use serial monitor or onboard LEDs for project debugging and testing.

This intuitive process allows beginners and professionals alike to quickly develop **IoT, robotics, and embedded applications**.

Package Includes

- 1 × **STM32F401CCU6 Development Board – Arduino Compatible**

Conclusion

The **STM32F401CCU6 Development Board** is a versatile, high-performance, and Arduino-compatible platform that is perfect for **students, hobbyists, and professional developers**. With its **powerful ARM Cortex-M4 core, rich peripheral support, and compact design**, it can handle everything from simple educational projects to complex embedded systems.

Whether you are building **IoT devices, robotics systems, or real-time embedded applications**, this development board provides all the tools necessary for rapid prototyping and efficient project development.