



Description

R1BBIT NANO — Smart Automation in the Smallest Form

R1BBIT NANO is the smallest and most lightweight board in the **R1BBIT** ecosystem, designed for simple automation tasks, ultra-compact projects, and low-power applications. It delivers the core functionality of the platform in a tiny form factor — perfect for embedding into sensors, custom gadgets, wearables, and small IoT devices.

Despite its minimal size, **R1BBIT NANO** supports the same intuitive workflow as all **R1BBIT** boards. Write scripts, automate actions, control devices, and monitor data — all with zero complexity.

Key Features

Ultra-small footprint for tight or embedded installations

Supports the **R1BBIT** BASIC-like scripting language

USB Type-C for power and configuration

Ideal for automation triggers, sensor nodes, simple controllers, and compact IoT setups

Works seamlessly with the **R1BBIT** mobile app, cloud platform, and web development tools

Low power consumption for battery-powered projects

Minimal Setup — Maximum Efficiency

Just connect the **R1BBIT NANO**, write a small script, and your device is ready to run. It's the easiest way to automate tasks, collect data, or add “smart” behavior to any project — even with zero engineering experience.



Features

MCU

STM32F411RET6

Clock

100 MHz

Flash

512 kB

RAM

128KB SRAM

1. **R1BBIT NANO** works via **USB Type-C** with Windows and macOS computers through the Google Chrome browser and can also connect directly to a smartphone with full access through the mobile app. The smartphone powers the device during this connection.
2. **R1BBIT NANO** features a built-in programming language similar to BASIC, combining the power of a modern programming language with full mathematical functionality and very simple syntax. It is easy to understand for beginners and children.
3. **R1BBIT NANO** includes a **UART port** for connecting an ESP32 module, giving the board access to our cloud service: <https://cloud.r1bbit.com/>. Internet connectivity enables full remote control from anywhere in the world via the R1BBIT mobile app or cloud platform.
4. The **UART port** also supports Bluetooth modules, allowing local smartphone control without cloud services.
5. **R1BBIT NANO** supports direct USB connection to the R1BBIT mobile app.
6. **R1BBIT NANO** is powered via **USB Type-C**.
7. When operating over Wi-Fi, **R1BBIT NANO** devices can exchange variable values between each other, enabling coordinated operation within a unified ecosystem.
8. **R1BBIT NANO** provides multiple **+3.3V and +5V** output pins for powering sensors and modules.
9. **Six digital OUT pins** allow control of various external devices according to user-defined program logic.
10. **PWM outputs** generate signals with user-selectable frequencies.
11. **I²C interface** allows connection of displays and sensors that use this protocol.
12. **Six ADC inputs** enable processing of analog signals and voltage measurements.
13. **1-Wire interface** supports various sensors, such as DHT20/21, up to 8 DS18B20 temperature sensors, air quality sensors, and more.
14. **SPI interface** enables connection of high-quality color displays, including models with capacitive touch. The touch controller operates via **I²C**.
15. **R1BBIT NANO** includes non-volatile flash memory where users can store up to 30 variables that remain available after power restoration. This is useful for calibration data, access codes, or other runtime-generated values.
16. **Autostart** ensures automatic program execution when power is restored after an outage.
17. The internal code interpreter ensures system stability — user program errors will not cause hardware damage, system freezes, communication loss, or device failure. Scripts can be stopped, corrected, reuploaded, and restarted within seconds.



1. The Board

Like other compact development boards, **R1BBIT NANO** does not include a built-in battery charger. The board can be powered via **USB Type-C** or through its power pins.

2. Application Examples

Weather Station

Using **R1BBIT NANO** with environmental sensors and an OLED display, you can build a compact weather station that sends temperature, humidity, and other data directly to your smartphone or cloud service.

Air Quality Monitor

Air quality significantly affects health. By combining **R1BBIT NANO** with air quality sensors and a display, you can monitor indoor air conditions. When connected to an IoT service, the system provides real-time environmental data.

Recommended Operating Conditions

Description	Min	Max
Conservative thermal limits for the entire board	- 40 °C	+70 °C