

INDUSTRIAL PRODUCT DATASHEET

Seeed Studio XIAO RP2040 Plus

Seeed Studio XIAO RP2040 Plus is a thumb-sized RP2040 module with 15 extra GPIOs, integrated Li-ion battery management, and multi-language SDK support for advanced IoT, wearables, and production-ready SoM applications.

SKU

100059977

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PRICE

\$4.90(Excl. VAT)



Overview



The Seeed Studio XIAO RP2040 Plus is an upgraded variant of the XIAO RP2040, adding 15 additional SMD GPIOs and integrated Li-ion battery management while retaining the classic 21 x 17.8 mm thumb-size form factor. Powered by Raspberry Pi's RP2040 dual-core ARM Cortex-M0+ processor at up to 133 MHz, it supports Arduino, MicroPython, CircuitPython, C/C++ SDK, Rust, Go, and Zephyr, and is suited for battery-powered wearables, IoT, advanced prototyping, and production-ready SoM designs.

Key Features

Note:

This product is the Seeed Studio XIAO RP2040 Plus, the upgraded variant of XIAO RP2040 with 15 additional SMD GPIOs and integrated Li-ion battery management. The board and two 7-pin headers are included. No battery, USB cable, or other accessories are included.

Overview

Inspired by the XIAO Plus design language established by XIAO nRF52840 Plus, XIAO nRF52840 Sense Plus, and XIAO ESP32-S3 Plus, the new Seeed Studio XIAO RP2040 Plus expands the Raspberry Pi RP2040 family with additional GPIO resources, integrated Li-ion battery management, and a standardized backside layout for seamless hardware integration.

Powered by Raspberry Pi's RP2040 dual-core ARM Cortex-M0+ processor, XIAO RP2040 Plus brings enhanced expandability to the tiny and versatile XIAO RP2040. While maintaining all the powerful features including Arduino, MicroPython, CircuitPython, and PIO state machines, the Plus variant features redesigned castellations and backside pad layout, providing **15 additional GPIOs** and integrated Li-ion battery management. It is ideal for advanced IoT projects, battery-powered wearables, custom PCBA designs, and production-ready SoM applications.

As an addition to the [Seeed Studio XIAO family](#), the XIAO RP2040 Plus remains the classic XIAO design (thumb-size, SMD, stamp holes). All these features make it a perfect fit for either space-limited applications, or a production-ready System on Module (SoM) for your PCBA designs. Through our Fusion PCBA Sponsorship program, you can not only enjoy the lowest unit prices for all XIAO modules from [our Fusion](#) Open Parts Library, but also fabricate and scale your XIAO-based PCBA designs at **low cost (30% off) with FREE Design for Manufacturing consulting services**, streamlining your journey from prototype to production.

Note:

XIAO SoM User Manual open-sources all hardware and software materials of XIAO, providing professional product design guidelines to help you accelerate ideas off the ground, streamline product design, providing a seamless experience from module selection to mass production. You can check [here](#) to see more info.

- **High-Performance MCU**

Dual-core ARM Cortex-M0+ processor running at up to 133 MHz, equipped with Raspberry Pi's unique PIO (Programmable I/O) state machines. Fully compatible with Arduino, MicroPython, CircuitPython, C/C++ SDK, Rust, Go, and Zephyr for any project from learning to production.

- **Multi-Language SDK Support**

Code with Arduino IDE for rapid prototyping, leverage C/C++ SDK for optimal performance, script in MicroPython/CircuitPython for quick iteration, or develop with Rust, Go, and Zephyr for modern applications. Backed by comprehensive documentation and an active Raspberry Pi community, you'll find abundant examples and resources to kickstart your projects.

- **Efficient Power Management**

The onboard PMIC enables direct Li-ion battery connection and provides 3V3/BAT backflow protection for convenient battery-powered applications.

XIAO RP2040 Plus also integrates a software-controlled battery voltage monitoring circuit. GPIO24 (BAT_EN) is used to enable the battery sensing circuit, while GPIO29 (A3) reads the battery voltage through the ADC, allowing the battery status to be monitored directly in software.

- **Expanded I/O**

15 additional GPIOs through redesigned 1.27mm-pitch SMD castellations, expanding the total available GPIO count for advanced applications. These extra I/Os enable direct connection of more sensors, displays, actuators, and peripherals without requiring external I/O expanders, making XIAO RP2040 Plus more flexible for complex embedded projects and production-ready SoM designs.

- **Universal Compatibility — Standardized Backside Layout**

Standard backside layout with aligned battery pads and debugger pads, ensuring compatibility with all current and upcoming XIAO expansion boards. One XIAO Plus footprint, infinite project possibilities.

- **Classic XIAO Form Factor**

21 x 17.8mm thumb-sized design with 2.54mm pin headers, single-sided mounting for wearables and space-constrained projects.

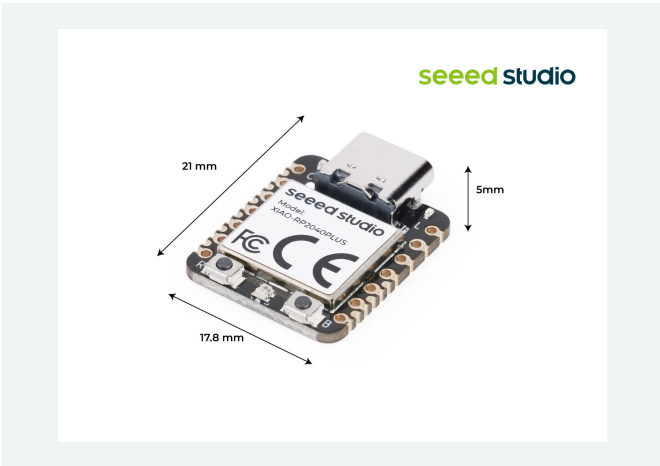
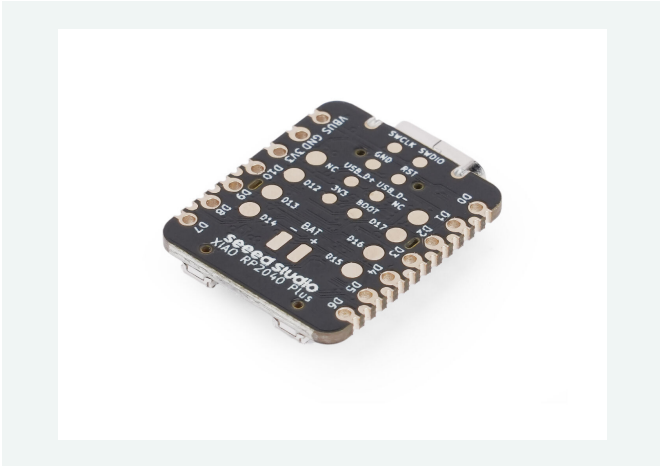
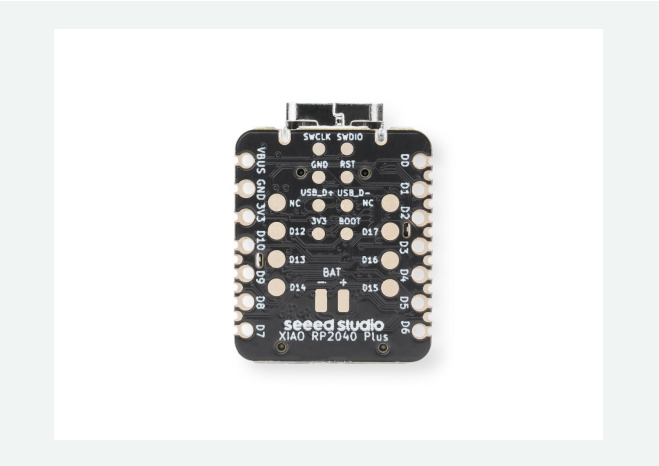
- **XIAO Accessory Add-ons Compatibility**

Natively compatible with the full XIAO Add-on ecosystem — from expansion boards, sensors and displays to connectivity modules and actuators (Grove Expansion, CAN-Bus, LoRa module, LED Matrix, Vision AI Sensor, Round Display, L76K GPS module, 2-Mic Array, ePaper Displays, mmWave sensor, AC relay, Bus Servo Driver and many more).

- **Software-Controlled Battery Monitoring**

Monitor battery status directly in software with the onboard battery sensing circuit. GPIO24 (BAT_EN) controls the sensing circuit, while GPIO29 (A3) is used to measure the battery voltage through the ADC. The sensing circuit can be enabled only when needed, providing flexible battery monitoring for portable and battery-powered applications.

Product Gallery

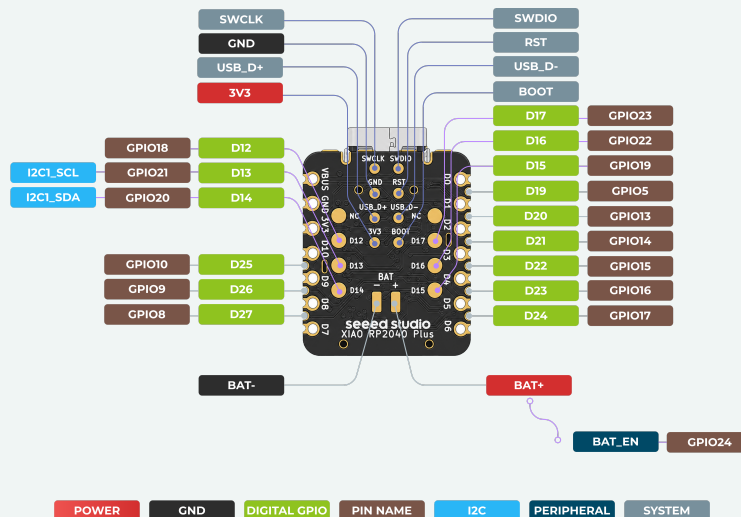
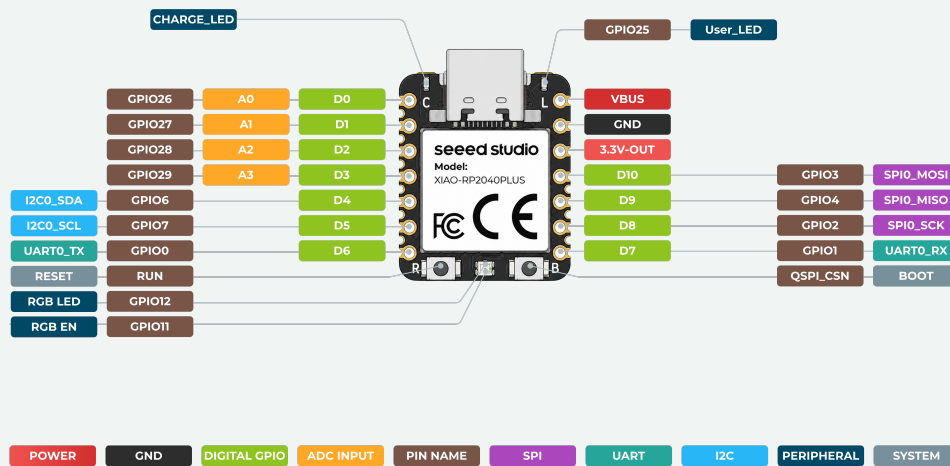


Specification

Product Name	Seeed Studio XIAO RP2040	Seeed Studio XIAO RP2040 Plus
Chipset	Raspberry Pi RP2040	
Processor	Dual Cortex M0+ up to 133 MHz	

RAM	264 KB SRAM	
Flash	2 MB Onboard Flash	
Interface	GPIO Pin x14 Digital Pin x11 Analog Pin x4 I2C x1 UART x1 SPI x1 PWM x11	GPIO Pin x29 Digital Pin x26 Analog Pin x4 I2C x2 UART x1 SPI x1 PWM x26
Onboard	User LED (3 Colors) x1 Power LED x1 RGB LED x1 Reset Button x1 Boot Button x1	User LED x1 Charge LED x1 RGB LED x1 Reset Button x1 Boot Button x1
Battery Management (PMIC)	None	Onboard PMIC
Power	Input Voltage (Type-C): 5V Input Voltage (BAT): 5V	
Working Temperature	-20 to 70°C	
Dimensions	21 x 17.8mm	
Software Compatibility	Arduino, PlatformIO, MicroPython, CircuitPython, TinyGo, Rust, Zephyr, and more to come	
Varients	XIAO RP2040 3PCS Pack XIAO RP2040 (Pre-Soldered)	

Hardware Overview



Applications

- **Learning & Education:** Arduino, MicroPython, CircuitPython, TinyGo, Rust, embedded systems basics
- **USB HID Devices:** Custom keyboards, stream decks, arcade controllers, MIDI interfaces
- **Wearable Projects:** Smart accessories, LED clothing, wrist devices, sensor wearables
- **IoT & Sensors:** Environmental monitoring, smart home panels, weather stations, MQTT
- **Display Projects:** LED matrices, POV displays, rotating LED spheres
- **Development:** Rapid prototyping, hardware testing, PCB validation
- **Robotics:** Basic motor control, sensor integration, automation
- **Audio/Video:** Sound processing, media controls, visualizations
- **Battery-Powered Devices:** Portable data loggers, wireless sensor nodes, remote monitoring, wearables with on-board Li-ion battery, asset trackers
- **Mass-Production SoM Designs:** Mid-to-high volume products needing extra I/Os and integrated battery management

Part List

Seeed Studio XIAO RP2040 Plus	x1
7-Pin Header	x 2

Compliance & Logistics



HSCODE	8471504090
USHSCODE	8517180050
UPC	
EUHSCODE	8471707000
COO	CHINA

FCC Requirement

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
 - (2) this device must accept any interference received, including interference that may cause undesired operation.
- 15.21

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy.

If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Resource Links

- <https://www.seeedstudio.com/Seeed-Studio-XIAO-RP2040-Plus-p-6932.html>
- [Wiki-XIAO RP2040 Plus Resources](#)
- [Seeed Studio XIAO Use Case](#)
- [3D Printing "Case" Studies](#)

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