seeed studio

INDUSTRIAL PRODUCT DATASHEET

Seeed Studio XIAO RA4M1 (Pre-Soldered)

The thumb-sized Seeed Studio XIAO RA4M1 (Pre-Soldered) combines a powerful 48 MHz ARM Cortex-M4 MCU, expanded IOs, security, and ultra-low power for wearable and production applications.

SKU	UPDATED	PRICE
102010638	2026-06-29 03:34:47	$5.90(Excl. VAT)

Overview

The Seeed Studio XIAO RA4M1 (Pre-Soldered) features a Renesas RA4M1 ARM Cortex-M4 MCU running at up to 48 MHz with 256 KB Flash and 32 KB SRAM. It expands IOs to 19 GPIOs, includes a 14-bit ADC, 12-bit DAC, USB 2.0, onboard RGB LED, hardware security, and achieves 45 µA deep sleep power consumption in a thumb-sized SMD design ideal for wearables and production.

Key Features

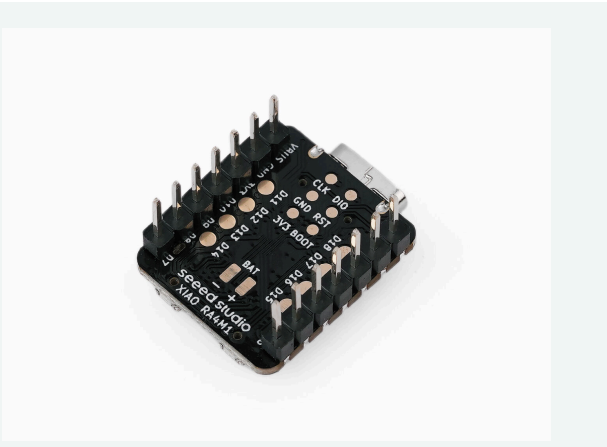
- **Popular Microcontroller Onboard:** Powered by **Renesas RA4M1**, an 32-bit ARM® Cortex®-M4 R7FA4M1AB3CNE MCU operating at up to 48 MHz with FPU, 256 KB of Flash memory, and 32 KB of SRAM.
- **Highlighted Onboard Resources:** Equipped with a 14-bit ADC, 12-bit DAC, USB 2.0, and an onboard RGB LED.
- **Expanded 8 New IOs:** Adds 8 new IO pins on the back compared to previous XIAO boards (19 GPIOs in total), enabling more complex applications.
- **Powerful Security Features:** Built-in hardware encryption, secure boot, key storage, and other functions to ensure application security.
- **Software Compatibility:** Fully compatible with Arduino IDE for seamless project development and prototyping.
- **Efficient Power Design:** Offers 4 operating modes with power consumption as low as 45μA in deep sleep, and supports lithium battery charge management.
- **Compact Thumb-Sized Design:** Measuring 21 x 17.8mm, adopting Seeed Studio's classic XIAO form factor, ideal for space-conscious applications.
- **Production-Friendly:** Surface Mount Device (SMD) design with all components on the front and stamp holes on both sides, facilitating efficient mass production.

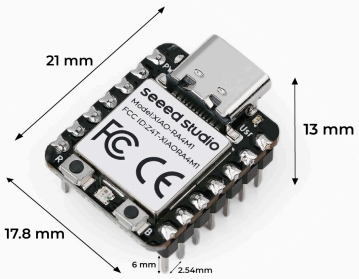
Being the 10th member of the **Seeed Studio XIAO family**, the XIAO RA4M1 remains the classic XIAO design (thumb-size, SMD, stamp holes). All these features make it a perfect fit for either space-limited projects such as wearables, or a production-ready module for your PCBA designs. (check out our **Fusion Co-Create one-stop prototyping, producing and promoting services** to explore how to scale up your XIAO-based designs).

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.

Product Gallery

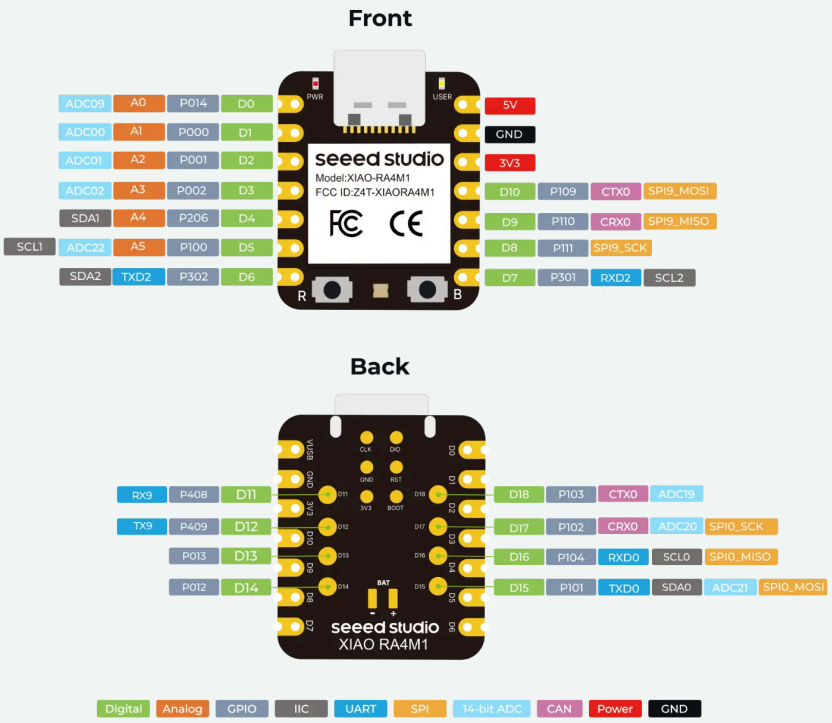


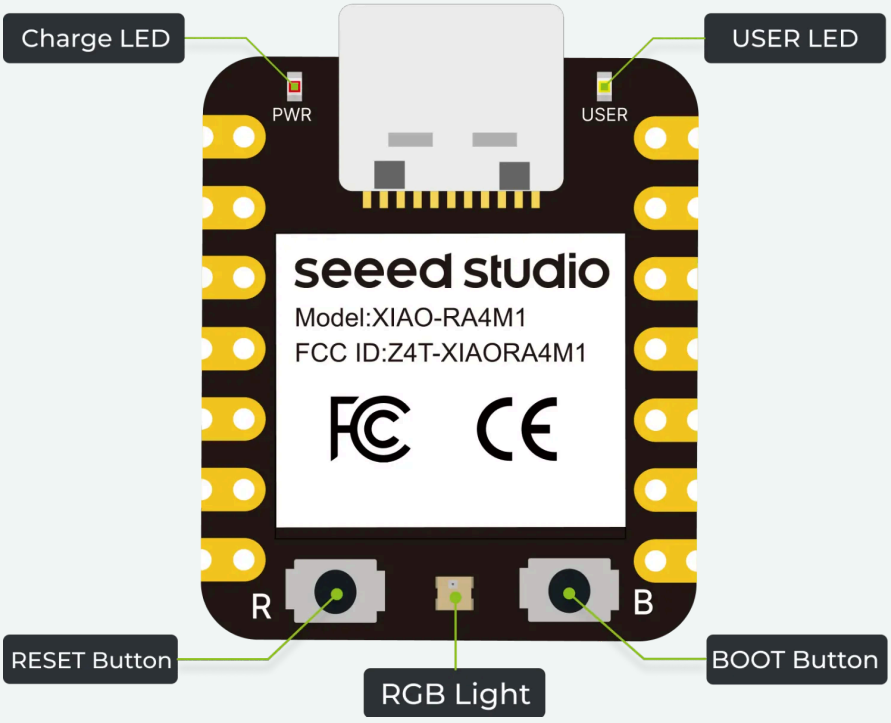


Specification

Product	XIAO RA4M1
Processor	Renesas RA4M1
	48-MHz Arm® Cortex®-M4 Core with FPU
RAM	32 KB SRAM
Flash	256 KB
LEDs	1x User LED 1x Power LED 1x RGB LED
Interfaces	19 IOs: 6x Analog 19x Digital 2x IIC 2x UART 2x SPI
Buttons	1x RESET Button 1x BOOT Button
Security	AES128/256
Low Power（Typ.）	42.6μA@3.7V
Software Compatibility	Arduino IDE
Working Temperature	-20°C~70°C
Dimensions	21x17.8 mm

Hardware Overview





Applications

- **Smart Control**
- **Education**
- **Robotics**
- **Wearables**

Part List

Seeed Studio XIAO RA4M1 (Pre-Soldered)	x1

Compliance & Logistics

HSCODE	8543709990
USHSCODE	8517180050
UPC	
EUHSCODE	8543709099
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-RA4M1-Pre-Soldered-p-6329.html
- PCN-XIAO Series Packaging Upgrade.pdf
- Wiki-XIAO RA4M1 Resources
- Seeed Studio XIAO Use Case

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