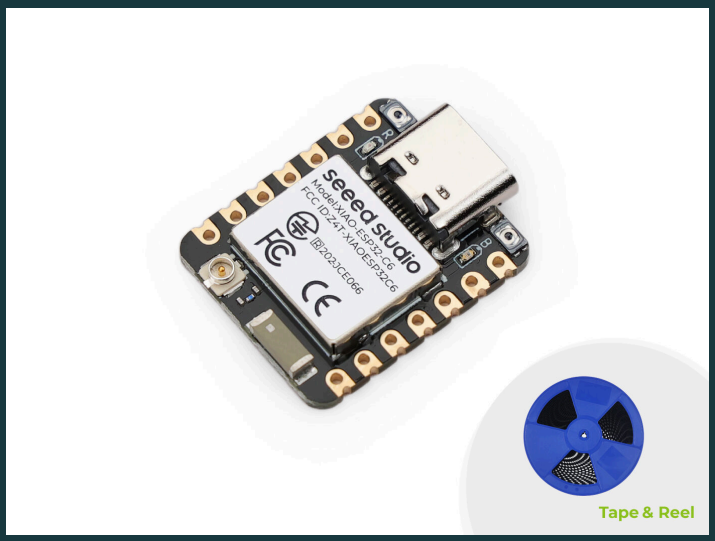
seeed studio

INDUSTRIAL PRODUCT DATASHEET

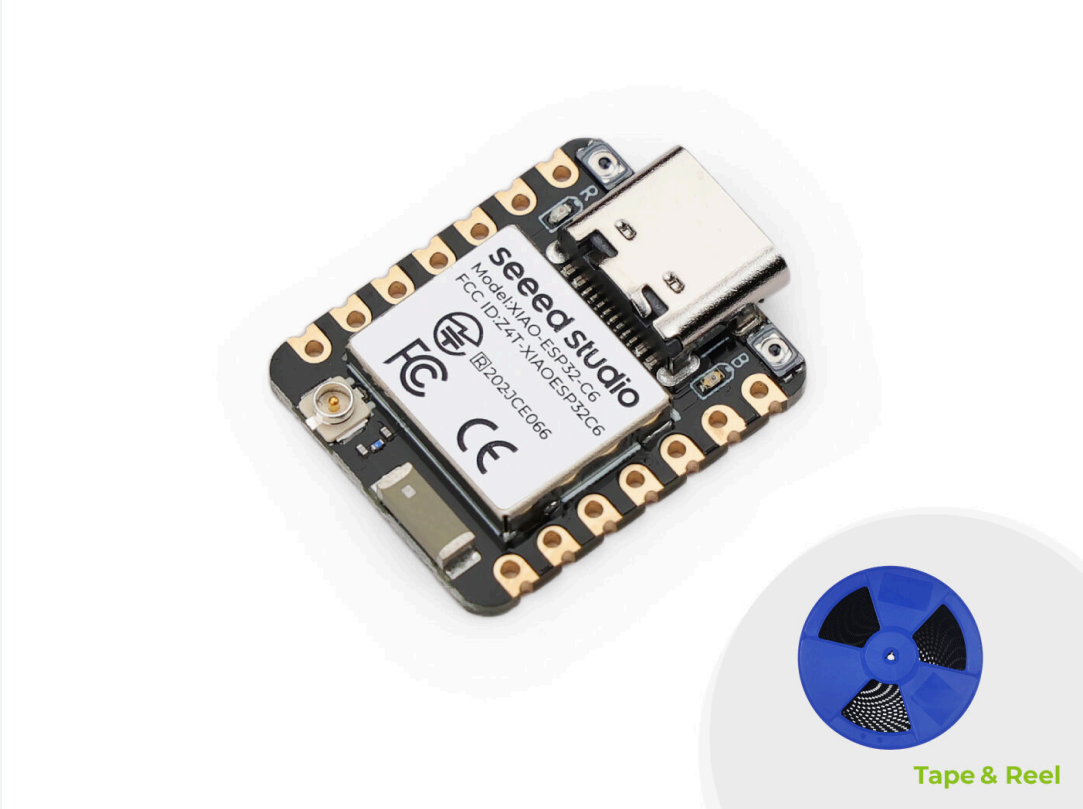
# Seeed Studio XIAO ESP32-C6(Tape & Reel)

Seeed Studio XIAO ESP32-C6(Tape & Reel): Compact, SMT-ready wireless module with multi-protocol connectivity and encrypted security for smart home, wearables, and IoT.

| SKU | UPDATED | PRICE |
| --- | --- | --- |
| 101991470 | 2026-05-07 06:30:43 | $4.90(Excl. VAT) |



# Overview




The Seeed Studio XIAO ESP32-C6(Tape & Reel) (101991470) is a thumb-sized production-ready module combining 2.4GHz Wi-Fi 6, Bluetooth 5 (LE), and IEEE 802.15.4 connectivity (Thread/Zigbee) with encrypted-on-chip security and dual RISC-V processors. Ideal for secure smart home, battery-powered wearables, and wireless IoT applications, it offers ultra-low power consumption down to 15 µA deep sleep and an impressive 80m BLE/Wi-Fi range.

# Key Features

**Note:**

This 101991470, Seeed Studio XIAO ESP32-C6 (Tape & Reel) is specifically designed for **Surface Mount Technology (SMT)** production. This variant comes in a Tape & Reel package for seamless integration into automated assembly lines and does **not include pin headers**.

- **Enhanced Connectivity**: Combines 2.4GHz Wi-Fi 6 (802.11ax), Bluetooth 5(LE), and IEEE 802.15.4 radio connectivity, allowing you to apply the Thread and Zigbee protocols.
- **Matter Native:** Supports building Matter-compliant smart home projects thanks to its enhanced connectivity, achieving interoperability
- **Security Encrypted on Chip:** Powered by **ESP32-C6 Wi-Fi 6 & BLE 5 & Thread/Zigbee SoC | Espressif Systems**, it brings enhanced encrypted-on-chip security to your smart home projects via secure boot, encryption, and Trusted Execution Environment (TEE)
- **Outstanding RF performance:** Has an on-board antenna with up to 80m BLE/Wi-Fi range, while reserving an interface for external UFL antenna
- **Leveraging Power Consumption:** Comes with four working modes, with the lowest being 15 μA in deep sleep mode, while also supporting lithium battery charge management.
- **Dual RISC-V Processors:** Incorporates two 32-bit RISC-V processors, with the high-performance processor running up to 160 MHz, and the low-power processor clocking up to 20 MHz
- **Classic XIAO Designs:** Remains the classic XIAO designs of the thumb-size form factor of 21 x 17.8mm, and single-sided mount, making it perfect for space-limited projects such as wearables
- **Seamless integration with mainstream Cloud Platforms:** ESP Rain Maker, AWS IoT, Microsoft Azure, and Google Cloud

**Production-Ready Design with Fusion PCBA Support**

Being the 8th member of the **Seeed Studio XIAO, the smallest Arduino boards for tinyML**, XIAO ESP32-C6 remains the classic XIAO design. All these features make it a perfect fit for either space-limited projects such as wearables, or a production-ready unit for your PCBA designs. Through our **Turn Your XIAO Projects into Reality with Fusion: 30% Off PCBA - Latest News from Seeed Studio %**, 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.

## Starter Kit with free Course for all Electronics Neophytes and Enthusiasts

Seeed Studio has provided the **Seeed Studio XIAO Starter Kit - all Seeed Studio XIAO series Development boards supported, XIAO Series Expansion board, 9 Grove Modules, Additional Controllable Components, presented with XIAO Series Courses - Seeed Studio** along with **Seeed Studio XIAO Kit Courses | Seeed Studio Wiki** for you quickly get started with microcontrollers and electronics, regarding all the Seeed Studio XIAO boards, promising you a great learning experience.

Not only programming but also electronics knowledge is not required, you will be taken step by step, from **understanding the basic concepts to exercising the simple projects individually**, finally being able to **build**

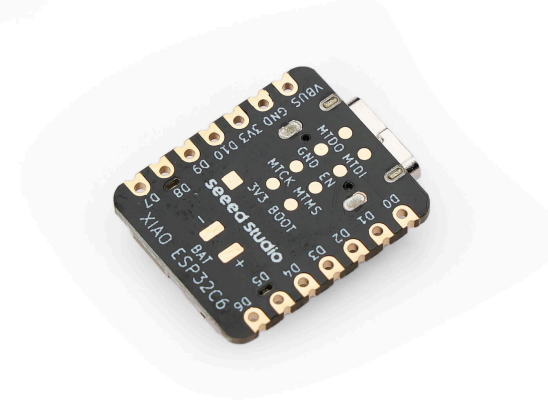
**complex, interesting, wearable projects** on your own, owing a **practical electronic product prototype** from the course.

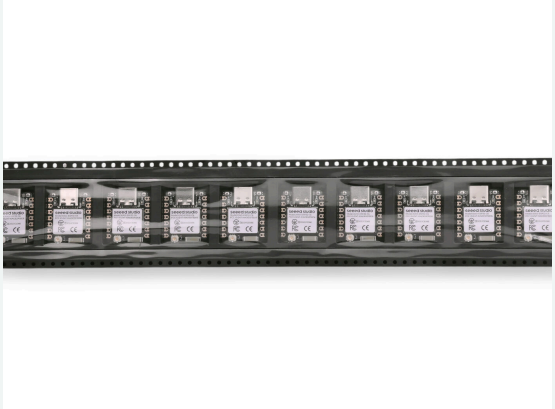
You can have access to the **Grove Ecosystem Introduction | Seeed Studio Wiki** by connecting it to the compatible **Seeed Studio XIAO Expansion board for XIAO Series with Grove OLED - IIC, Uart, Analog/Digital - Seeed Studio**. We have developed more than **Grove**, covering a wide range of applications that can fulfill various needs. For example, you can make a **BLE AI-driven Smartwatch Detecting Potential Sun Damage - Hackster.io** by connecting the Seeed Studio XIAO nRF52840 with an **Seeed Studio XIAO Expansion board for XIAO Series with Grove OLED - IIC, Uart, Analog/Digital - Seeed Studio**, and a **Grove - UV Sensor - Seeed Studio**. Get started and explore the infinite possibilities of the Seeed Studio XIAO series!

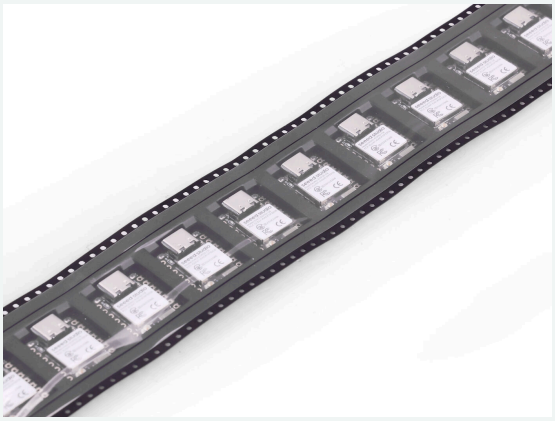
If you are interested in programming embedded machine learning, we have **Seeed Studio Codecraft Graphical Programming Platform for TinyML** visual programming that can help you quickly start your own TinyML project. And we have set up a **#tinyml** channel on our Discord server, please click to join for 24/7 making, sharing, discussing, and helping each other out.

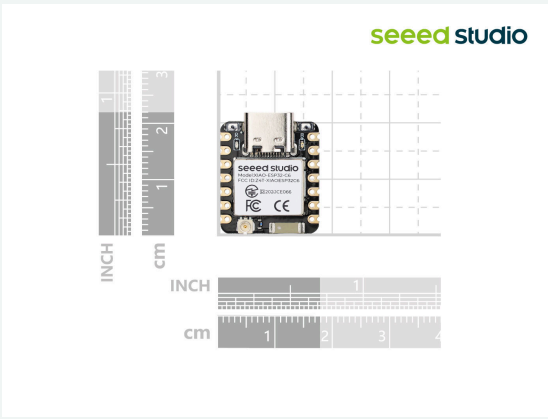
# Product Gallery







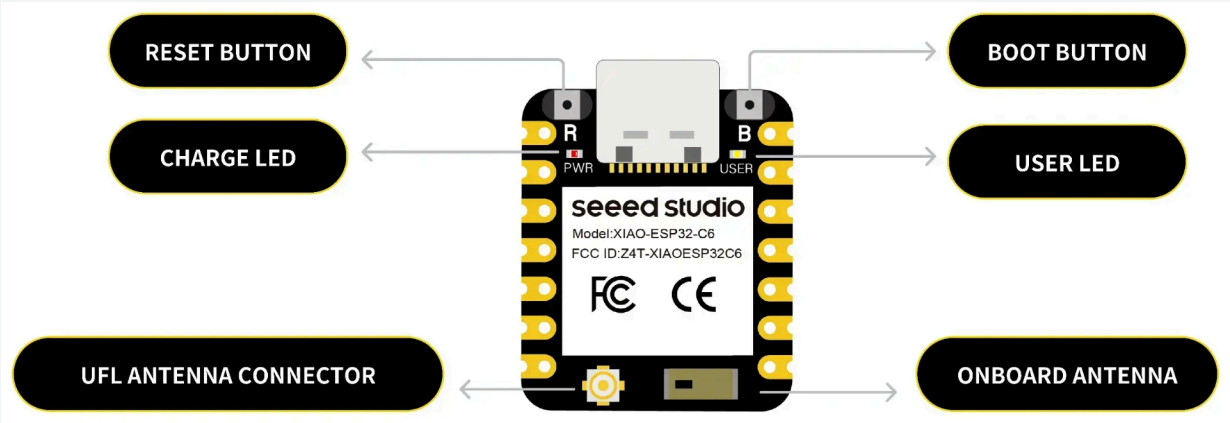


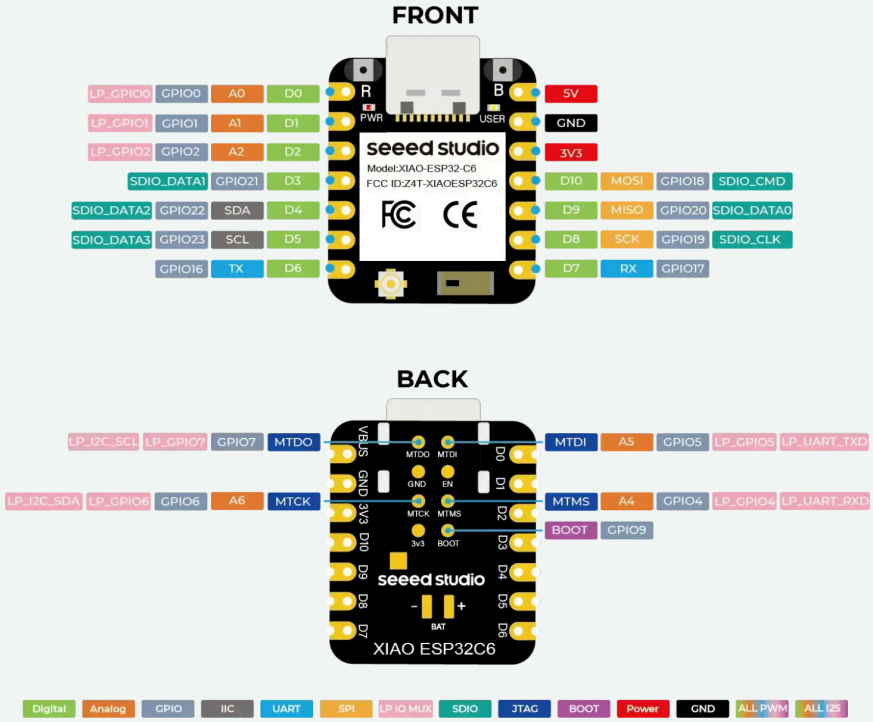

## Specification

| | | | |
|---|---|---|---|
| Product | XIAO ESP32-C6(3PCS) | XIAO ESP32-C3(Tape&Reel) | XIAO ESP32-S3(Tape&Reel) |

| | | | |
|---|---|---|---|
| Processor | Espressif ESP32-C6 SoC | Espressif ESP32-C3 SoC | Espressif ESP32-S3R8 SoC |
| | two 32-bit RISC-V processors, with the high-performance one running up to 160 MHz, and the low-power one clocking up to 20 MHz | RISC-V single-core 32-bit chip processor with a four-stage pipeline that operates at up to 160 MHz | Xtensa LX7 dual-core, 32-bit processor running up to 240 MHz |
| Wireless | Complete 2.4GHz Wi-Fi 6 subsystem | Complete 2.4GHz Wi-Fi subsystem | Complete 2.4GHz Wi-Fi subsystem |
| | Bluetooth Low Energy 5.0 | | |
| | Zigbee,Thread,IEEE 802.15.4 | / | / |
| On-chip Memory | 512KB SRAM & 4MB Flash | 400KB SRAM & 4MB Flash | 8MB PSRAM & 8MB Flash |
| Interface | 1x UART<br>1x LP_UART<br>1x IIC<br>1x LP_IIC<br>1x SPI<br>11x GPIO(PWM)<br>7x ADC<br>1xSDIO | 1x UART<br>1x IIC<br>1x SPI<br>11x GPIO(PWM)<br>4x ADC | 1x UART<br>1x IIC<br>1x SPI<br>11x GPIO(PWM)<br>9x ADC<br>1x User LED<br>1x Charge LED |
| | 1x Reset button<br>1x Boot button | | |
| Dimensions | 21 x 17.8mm | | |
| Power | Input voltage (Type-C): 5V<br>Input voltage (BAT): 3.7V | | |
| Power Consumption Model (Typ.) (Supply Power: 3.8V) | Modem-sleep Model: 30 mA<br>Light-sleep Model: 3.1 mA<br>Deep Sleep Model: 15 μA | Modem-sleep Model: 24 mA<br>Light-sleep Model: 3 mA<br>Deep Sleep Model: 44 μA | Modem-sleep Model: 27 mA<br>Light-sleep Model: 2 mA<br>Deep Sleep Model: 14 μA |
| Working Temperature | -40°C ~ 85°C | -40°C ~ 85°C | -40°C ~ 65°C |

# Hardware Overview



# Applications

- **Secure and Connected Smart Home:** enhancing everyday life through automation, remote control, and more
- **Space-limited and Battery-Powered Wearables:** thanks to their thumb-size and low-power consumption
- **Wireless IoT Scenarios:** enabling rapid, reliable data transmission

## Part List

| | |
|---|---|
| Seeed Studio XIAO ESP32-C6（Tape&Reel） | ×1 |

## Compliance & Logistics

| | |
|---|---|
| HSCODE | 8543709990 |
| USHSCODE | 8517180050 |
| UPC | |
| EUHSCODE | 8543709099 |
| COO | CHINA |

# Resource Links

- https://www.seeedstudio.com/Seeed-Studio-XIAO-ESP32C6-Tape-Reel-p-6565.html
- PCN-XIAO Series Packaging Upgrade.pdf
- Wiki-XIAO ESP32-C6 Resources
- Seeed Studio XIAO Use Case

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