

## ESP32C5 SEEED STUDIO XIAO

The Seeed Studio XIAO ESP32C5 is the first **XIAO** board to bring true 5 GHz Wi-Fi 6 into an ultra-compact form factor. Designed for modern IoT and edge applications, it delivers faster speeds, cleaner spectrum access, and rock-solid connectivity while maintaining full compatibility with the crowded 2.4 GHz band.

Despite its tiny size, this board packs serious performance. Powered by a high-speed 32-bit RISC-V processor running up to 240 MHz, it handles complex protocols, multitasking, and scalable applications with ease. With 8 MB Flash, 8 MB PSRAM, and ample on-chip memory, you get the flexibility needed for everything from smart home devices to secure edge computing.

### Built for the Connected World

The XIAO ESP32-C5 supports a wide range of wireless standards, including dual-band Wi-Fi 6, Bluetooth® 5 LE, Zigbee, and Thread (802.15.4). This makes it an excellent choice for projects using Matter, HomeKit, MQTT, and other modern IoT ecosystems—all from a single, compact board.

### Security You Can Trust

Security is built into the hardware. Features like secure boot, flash encryption, and hardware cryptographic acceleration help protect your firmware and data, making this board suitable for production-grade and security-sensitive applications.

### Optimized for Low-Power Designs

With an integrated battery management interface and ultra-low-power sleep modes, the XIAO ESP32-C5 is ideal for battery-powered devices. Deep-sleep current can go as low as 15  $\mu$ A, enabling long-term operation for sensors, trackers, and remote IoT nodes.

### From Prototype to Mass Production

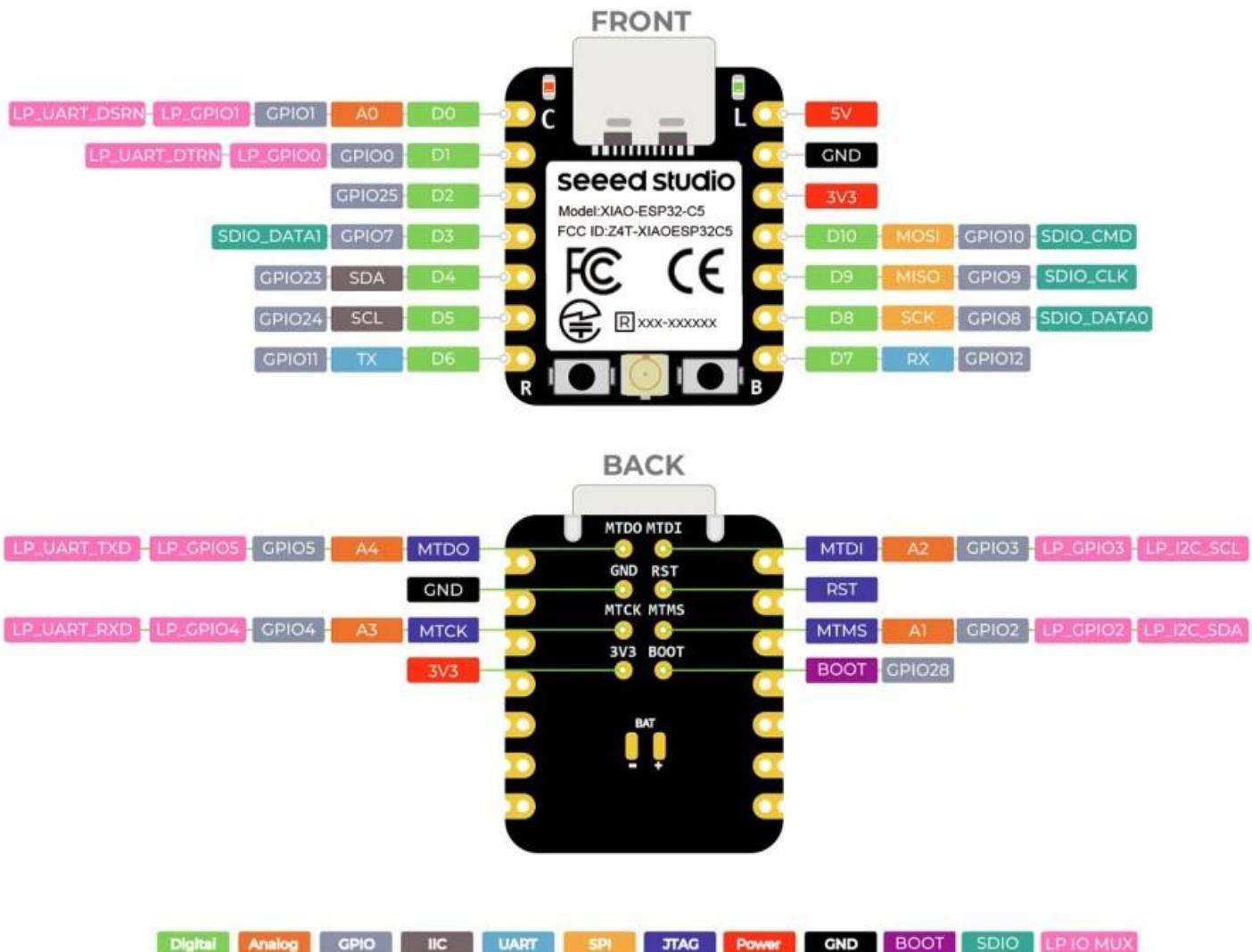
All XIAO boards use a production-ready SMD design with stamp holes, making them easy to integrate directly into custom PCBs. With Seeed Fusion PCBA support, you can scale your design faster and at lower cost, supported by professional DFM guidance—perfect for startups and commercial products.

### Beginner-Friendly, Yet Developer-Approved

Whether you're just starting out or building advanced products, the XIAO ESP32-C5 fits right in. Access Seeed Studio's Grove ecosystem with 400+ plug-and-play modules, free learning resources, and visual programming tools like Codecraft for TinyML projects. No deep electronics background required—just start building.

## Pinouts

# XIAO ESP32-C5 Pin Definition



## Key Applications

- Smart sensor nodes
- Home automation devices
- IoT gateways
- BLE trackers
- Wi-Fi buttons
- Secure edge devices

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## Specifications at a Glance

- **Chipset: ESP32-C5HR8**
- **Processor: 32-bit RISC-V, up to 240 MHz**
- **Memory: 384 KB SRAM, 8 MB Flash, 8 MB PSRAM**
- **Wireless: Dual-band Wi-Fi 6 (2.4 GHz & 5 GHz), Bluetooth® 5 LE, Zigbee, Thread**
- **Power: USB-C (5 V) or 3.7 V Li-Po battery**
- **Deep Sleep: As low as 15  $\mu$ A (battery)**
- **Size: 21  $\times$  17.8 mm**
- **Operating Temperature: 0 °C to 85 °C**