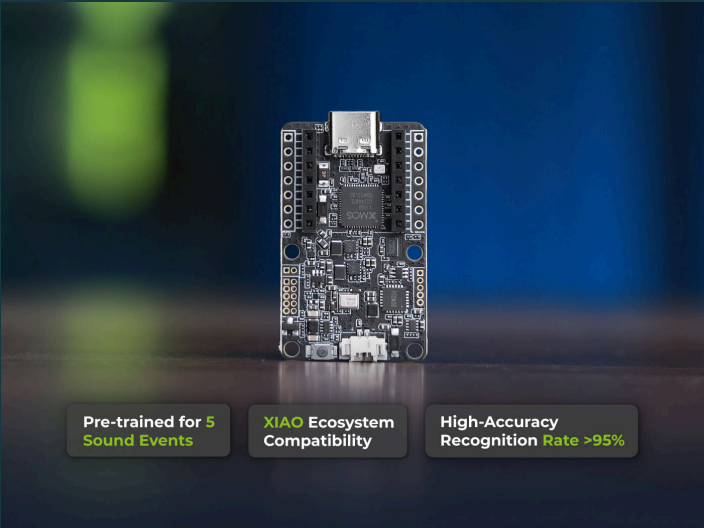


INDUSTRIAL PRODUCT DATASHEET

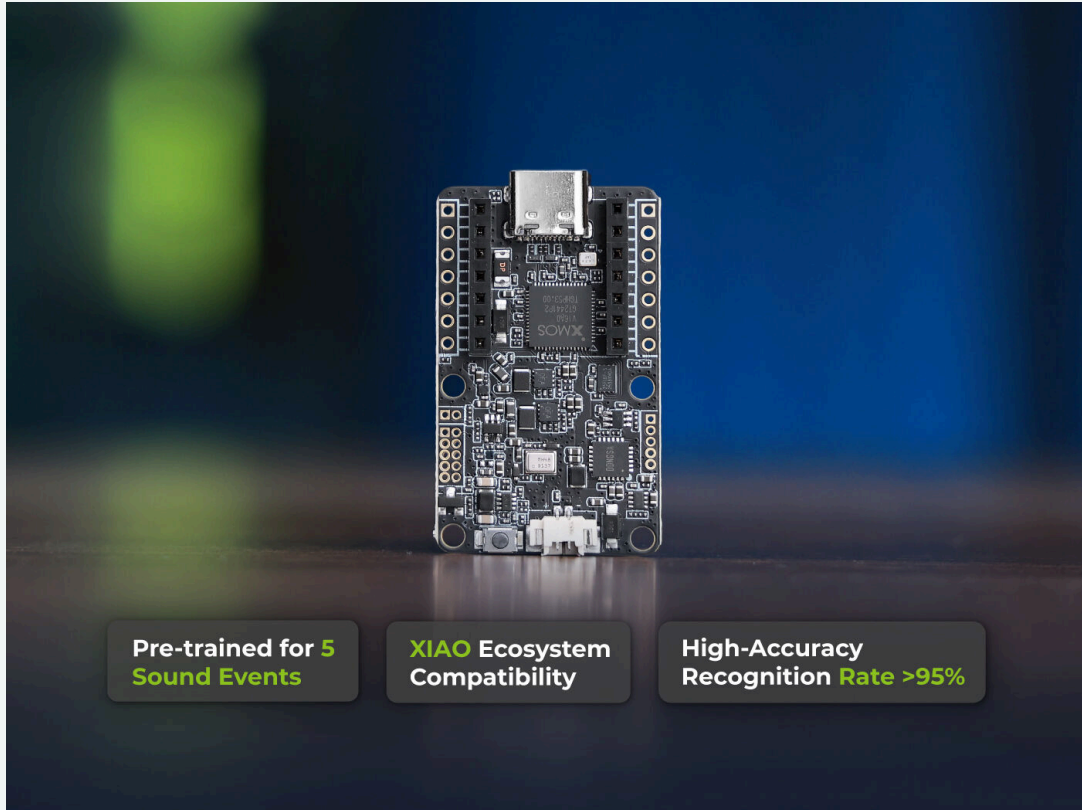
Sound Event Detection Module D1 - Sensor/Audio Board for XIAO

Sound Event Detection Module D1 - Sensor/Audio Board for XIAO: ultra-fast, privacy-focused on-device detection of Baby Cry, Glass Break, Gunshot, T3/T4 Alarms, and Snore with >95% accuracy.

SKU	UPDATED	PRICE
100049596	2026-08-12 02:14:35	\$18.90(Excl. VAT)



Overview



The Sound Event Detection Module D1 - Sensor/Audio Board for XIAO provides ultra-fast sound event detection (≤ 100 ms) with AI-powered edge processing, achieving $>95\%$ detection rate and $<2\%$ false positive rate for Baby Cry, Glass Break, Gunshot, T3/T4 Alarms, and Snore. It performs fully local processing with no audio recording or storage, supports XIAO ecosystem and Arduino, and offers ESPHome/Home Assistant integration for smart home automation, security & intrusion detection, office & workspace safety, and edge AI prototyping.

Key Features

1. Ultra-Fast Sound Event Detection

From the moment an abnormal sound event occurs to the instant it is detected, the module responds in **under one second (≤ 100 ms)**. This real-time detection performance ensures immediate awareness and faster reactions, enabling **timely alerts** and enhanced protection without delay.

2. AI-Powered Edge Processing with High-Accuracy Detection

Driven by the **AIZIP** sound event detection model, the module delivers precise **on-device analysis** with a **detection rate of >95%** and a **false positive rate of <2%**. This ensures highly reliable identification of **five distinct sound events (Baby Cry, Glass Break, Gunshot, T3/T4 Alarms, and Snore)** while minimizing missed detections and false alarms.

3. Fully Local Processing with Privacy Protection

All sound analysis is performed entirely **on-device**, with **no audio recording** or data storage involved. The onboard AI model processes sound events locally and transmits only detection results and timestamps for alerts—never raw audio data. This architecture ensures **strong privacy protection** and **secure deployment** in sensitive environments.

4. XIAO Ecosystem Compatibility

This audio board is designed for the Seeed Studio **XIAO** series to enable remote wireless communication. Fully compatible with the **Arduino** ecosystem for seamless integration.

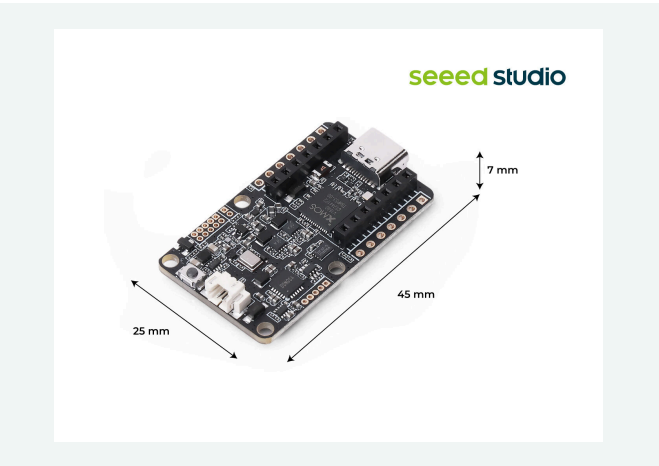
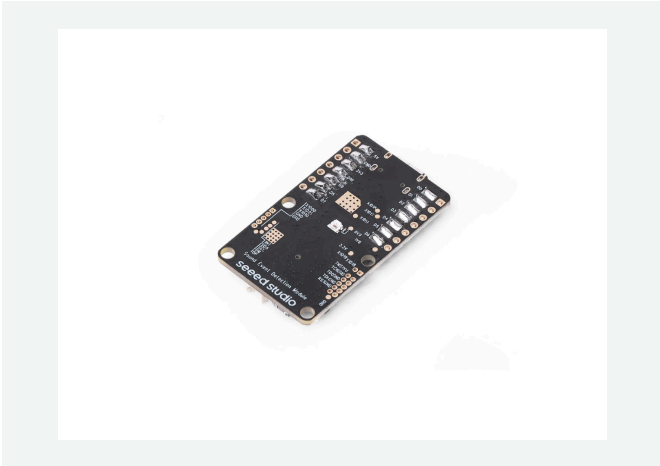
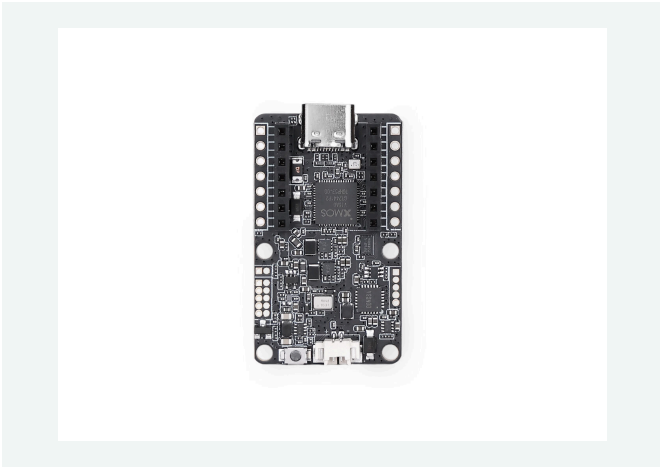
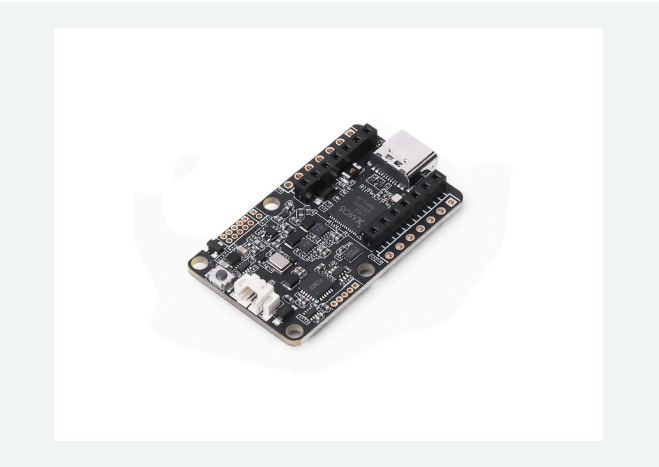
5. Smart Home Integration & Customizable Configuration

Designed for native **ESPHome** integration with seamless compatibility for **Home Assistant** with **XIAO** series, allowing for automated actions such as lighting triggers and push notifications. Enable or disable specific abnormal sound event detections based on your needs, and fine-tune **detection thresholds** for each event. This flexible configuration allows precise adaptation to different environments, reducing false triggers while maintaining reliable sensitivity.

6. Developer-Friendly Design with Flexible Control

Designed for seamless integration and efficient development, the module features both **UART** and **USB** interfaces for real-time monitoring and easy firmware updates. It also supports flexible configuration via hardware **switches** or **AT commands**, enabling mode selection, event customization (1–5 types), and precise sensitivity tuning to adapt to different application needs.

Product Gallery

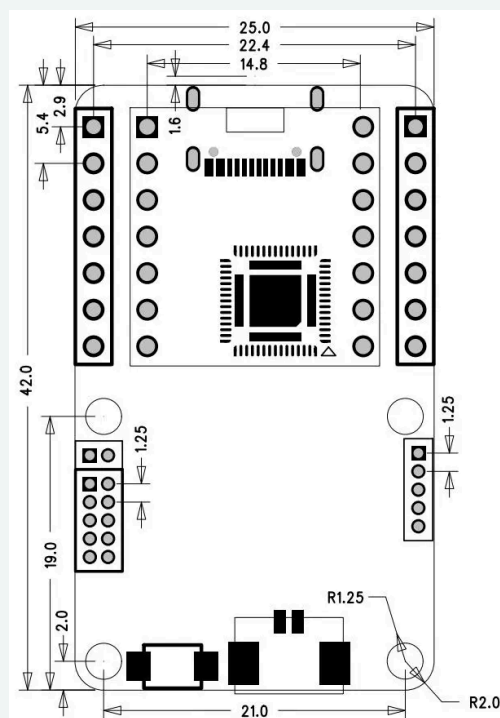
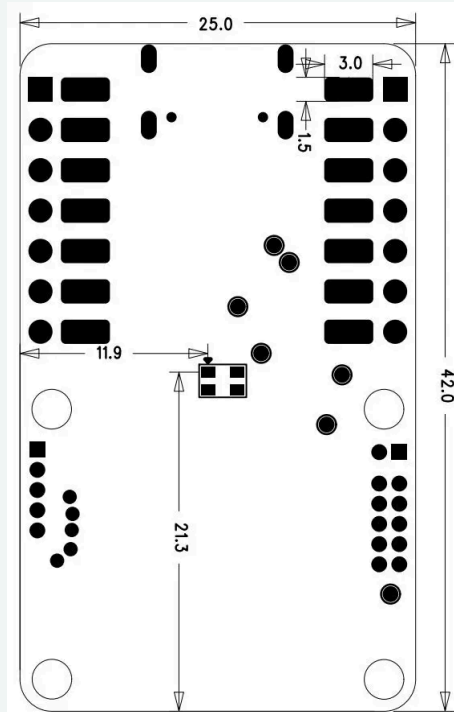


Specification

Core Chip	XMOS XU316-1024-QF60BC24
Support Event	Baby cry / Glass break / Gunshot / Smoke alarm & CO alarm (T3/T4) / Snoring
Digital Microphones	High-performance digital microphones * 1

Sensitivity	-26 dBFS
Acoustic Overload Point	120 dBL
SNR	64 dBA
Power Supply	USB 5V, external 5V
Dimensions	40*20mm
Operating Temperature	0°C- 65°C

Hardware Overview



Applications

- **Smart Home Automation:** Detect abnormal sound events such as baby crying, glass breaking, or snoring to automatically trigger smart home actions. For example, Baby cry detected - parents receive instant notifications + gentle lullaby is played; Glass breaking detected - activate an alarm; Snoring detected - logged to help track frequency over time, supporting follow-up health insights and personalized adjustments. With fully local processing and no audio recording, it ensures privacy-focused monitoring for everyday environments. Seamless integration with Home Assistant enables users to easily customize detection types and sensitivity based on real-world needs.
- **Security & Intrusion Detection:** In residential, office, or remote environments with periods of unattended operation, this sound event detection audio board provides low-power, long-duration, and precise sound monitoring. It complements traditional vision-based security systems by covering blind spots where cameras may be limited, delivering more comprehensive and reliable protection.
- **Office & Workspace Safety:** Deploy in offices or shared spaces to detect emergency alarm sounds (T3/T4) and trigger automated workflows or alert systems.
- **Edge AI Prototyping & Integration:** Integrate with microcontrollers and automation platforms (e.g., ESPHome, Home Assistant) for custom IoT solutions requiring lightweight, on-device sound intelligence.

Part List

Sound Event Detection Module D1	x 1
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Compliance & Logistics

HSCODE	9031900090
USHSCODE	9031902100
UPC	
EUHSCODE	9013101000
COO	CHINA

Resource Links

- <https://www.seeedstudio.com/Sound-Event-Detection-Module-D1-p-6652.html>
- [reSpeaker Series Flyer](#)

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