seeed studio

INDUSTRIAL PRODUCT DATASHEET

reSpeaker Lite 2-Mic Array Voice Kit, Compatible with ESPHome

Powered by XMOS XU316 AI Sound and Audio chipset, it is a high-performance open source voice assistant development kit.

SKU	UPDATED	PRICE
110061601	2026-11-11 09:41:15	$29.90(Excl. VAT)



Overview



Powered by XMOS XU316 AI Sound and Audio chipset, it is a high-performance open source voice assistant development kit. The kit integrates the reSpeaker Lite dual-microphone array and a powerful XIAO ESP32S3 processor, offering exceptional voice recognition, noise reduction, and voice processing capabilities thanks to its onboard AI NLU algorithms. This kit provides firmware integration with Home Assistant via ESPHome, making it ideal for smart voice assistants and home automation applications.

Key Features

01 **Pre-Soldered ESP32 Controller**

A powerful XIAO ESP32S3 is pre-soldered via the I2S pins, offering a solderless experience for further development and integration.

02 **Dual Microphone Array for Far-Field Voice Capture**

The 2 high performance digital microphones capture and extract far-field speech and voice (up to 3 meters) even in noisy environments as it cancells point noise using two microphone input.

03 **Onboard Audio front-end Algorithms**

Powered by XMOS XU-316 AI sound and audio chip, the kit includes Natural Language Understanding algorithms for Interference Cancellation (IC), Acoustic Echo Cancellation, Noise Suppression, and Automatic Gain Control (AGC), enabling high quality voice capture.

04 **Embracing Open Source**

It's compatible with Arduino, PlatformIO, MicroPython, CircuitPython for furthur developement.

05 **Compatible with Popular Voice Assistants**

This kit allows you to build your own natural language processor and connect it to Home Assitant via ESPHome, Amazon Alexa Voice Service, Google Assistant, or Cloud Speech-to-Text service, enabling you to ask questions and issue voice commands to your programs.

06 **Onboard RGB LED**

The kit features a programmable WS2812 RGB LED, supporting custom effects and offering a visual interface for your applications.

Product Gallery

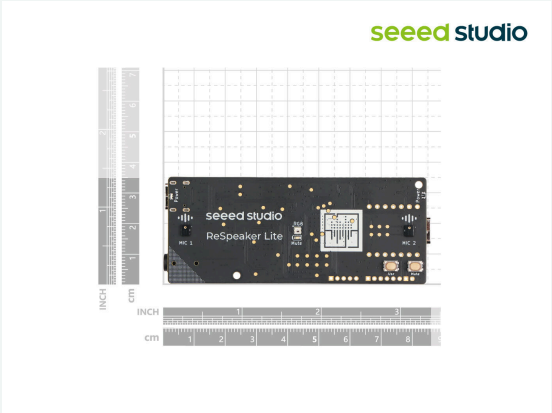




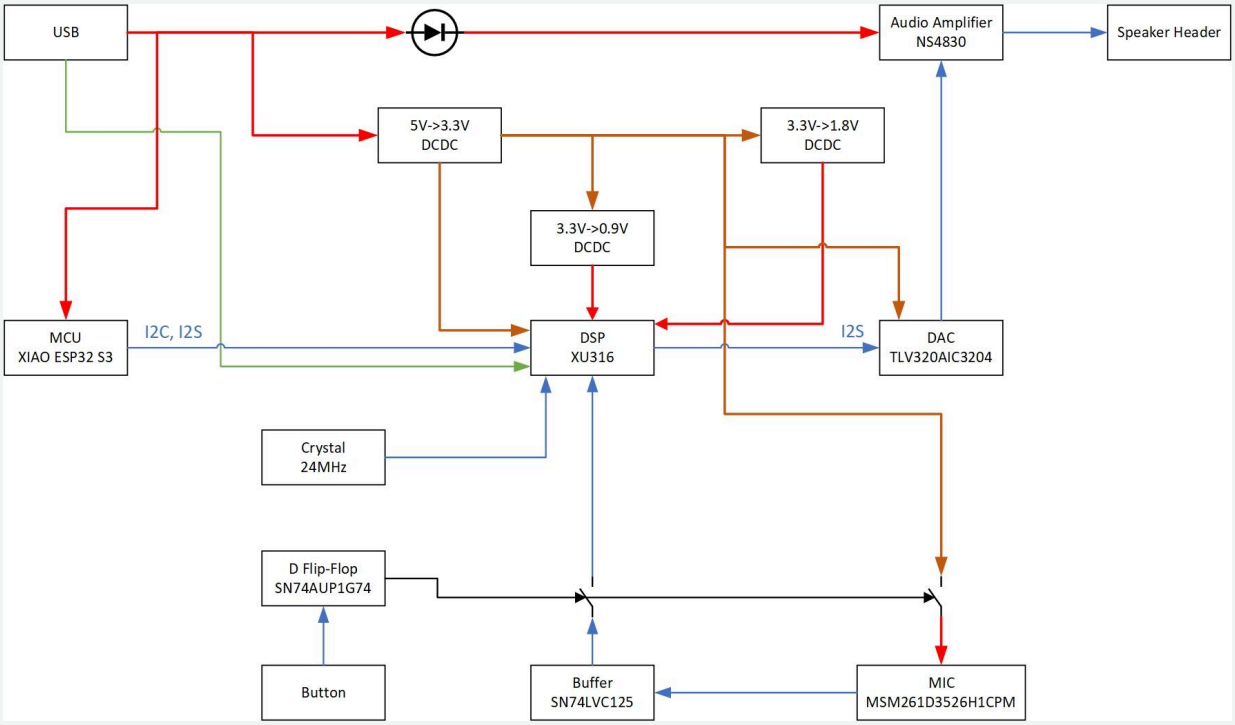


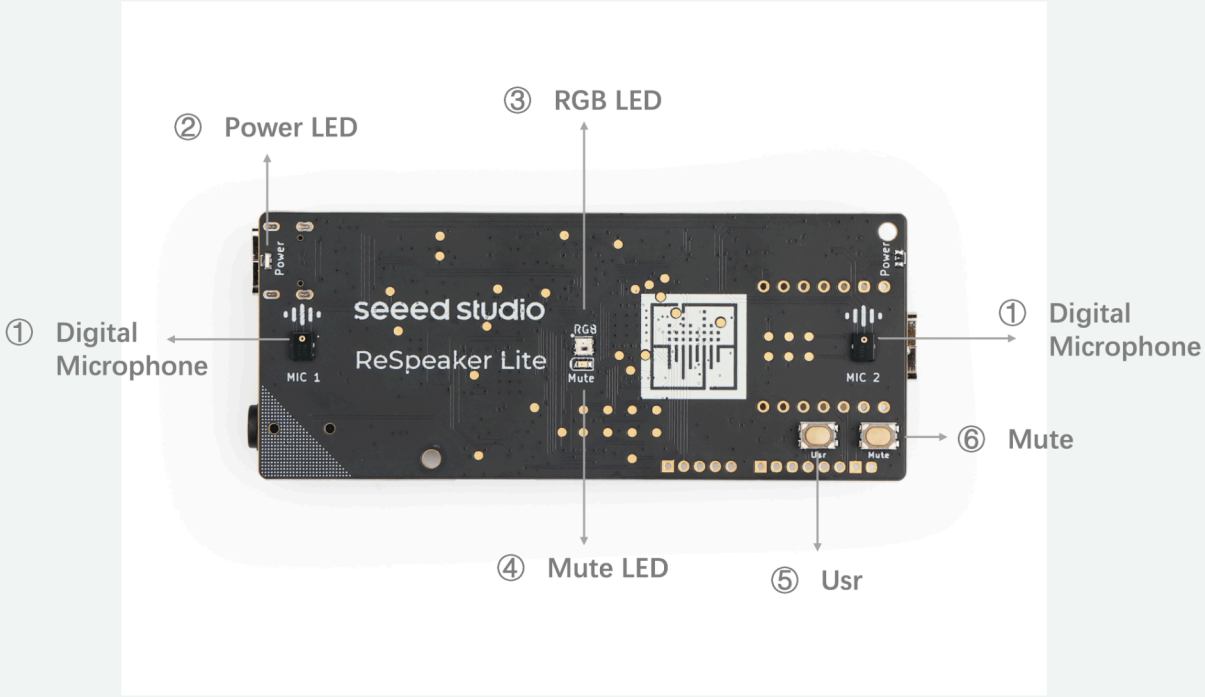


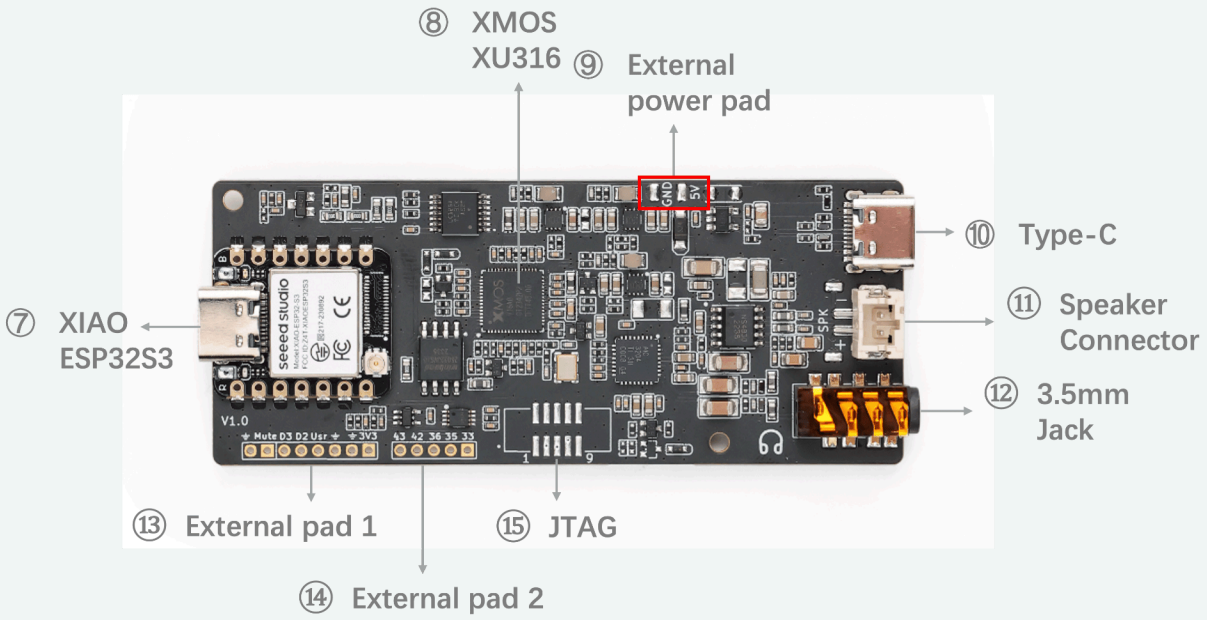


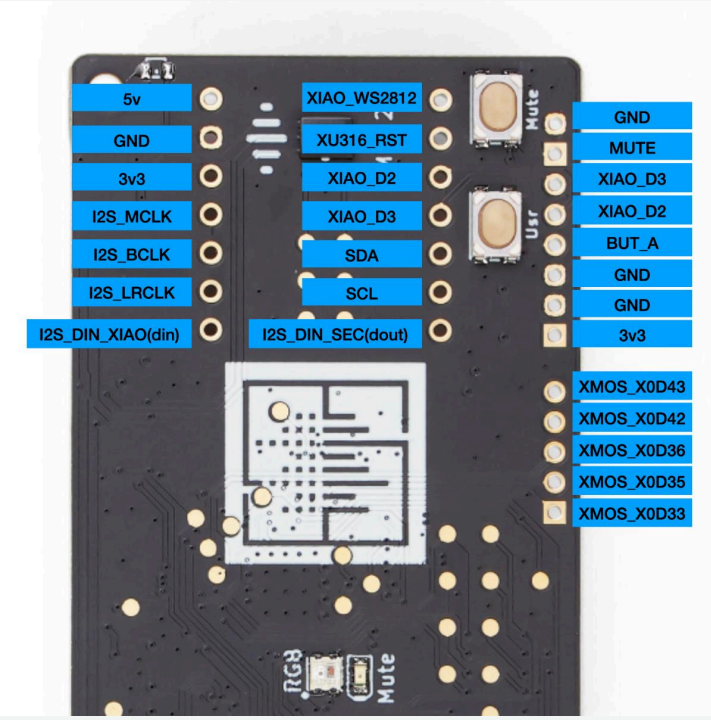


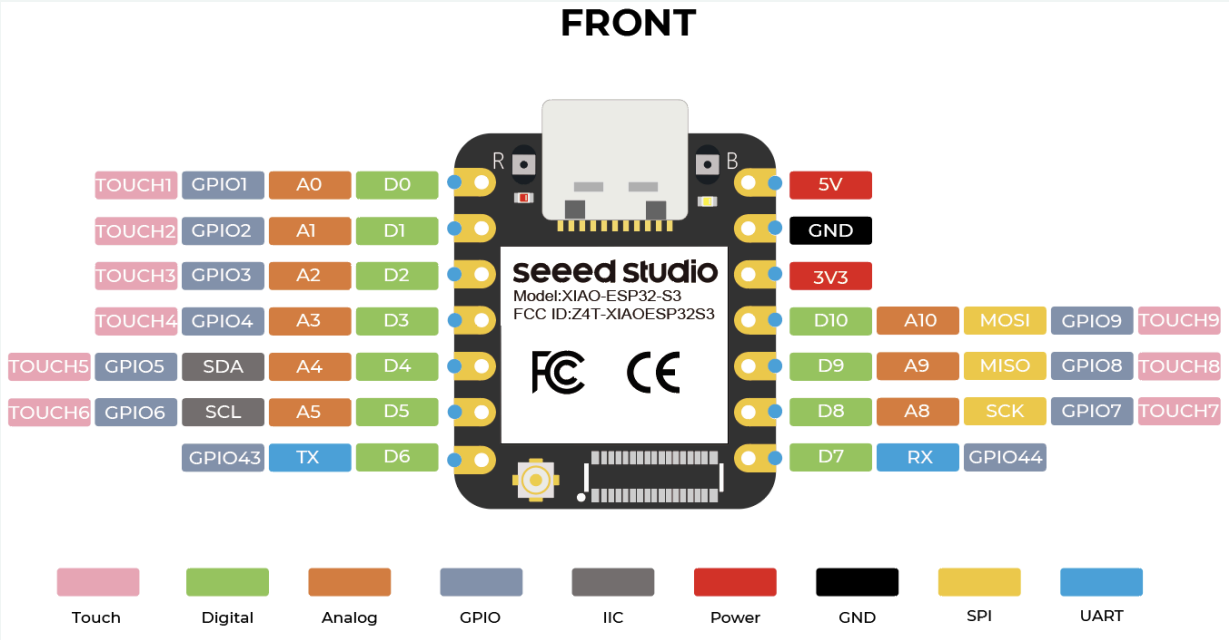
Hardware Overview






⑧ XMOS XU316
⑨ External power pad
⑦ XIAO ESP32S3
⑩ Type-C
⑪ Speaker Connector
⑫ 3.5mm Jack
⑬ External pad 1
⑮ JTAG
⑭ External pad 2


5v
GND
3v3
I2S_MCLK
I2S_BCLK
I2S_LRCLK
I2S_DIN_XIAO(din)
XIAO_WS2812
XU316_RST
XIAO_D2
XIAO_D3
SDA
SCL
I2S_DIN_SEC(dout)
GND
MUTE
XIAO_D3
XIAO_D2
BUT_A
GND
GND
3v3
XMOS_X0D43
XMOS_X0D42
XMOS_X0D36
XMOS_X0D35
XMOS_X0D33
Mute
Usr
RGB
Mute



Applications

- **Smart Speakers and Virtual Assistants: Work with Amazon Alexa and Google Assistant to improve voice command recognition.**
- **Audio Processing Development: Suitable for projects involving audio signal processing and analysis.**
- **Conference Systems: Ensures clear communication during video and audio conferences.**
- **Voice-Bsed Remote Control Cars**
- **Keywords Spotting and Wake up**

Resource Links

- https://www.seeedstudio.com/ReSpeaker-Lite-Voice-Assistant-Kit-p-5929.html
- reSpeaker Series Flyer
- Product-Brief of XMOS XU316
- reSpeaker Lite Voice Assistant Kit with XIAO ESP32S3 - CE certifications
- reSpeaker Lite Voice Assistant Kit with XIAO ESP32S3 - FCC certifications
- Schematic diagram of reSpeaker Lite

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