

1. Overview



Figure 1: Soundskrit Sound Tracking Demo Kit (Strider)

The Sound Tracking Demo Kit (Strider) is designed to demonstrate Soundskrit’s sound-localization performance. The kit includes a Soundskrit Strider board – a PCB board populated with four cardioid microphones—together with an embedded camera board. The Strider board connects to the Soundskrit PARDI board, which interfaces the MEMS microphones to a PC over USB. The camera board connects directly to the PC over a separate USB cable.

You can evaluate its performance using the Soundskrit Demo Kit Interface software, which presents a visual display of the detected sound origin. Users can change the number of people that can be simultaneously detected and toggle Voice Activity Detection (VAD) on or off depending on if they which to localize all sounds or just speech only.

What’s In the Box	
Strider Board	PCB board with four cardioid microphones, one at each corner of the board grid.
Camera Board	720p wide-angle camera with digital output.
Soundskrit PARDI audio interface	Multichannel audio interface that connects the microphones to a PC over USB.
Molex cable	Connects the Strider board to the audio interface.
Camera cable	Carries the camera video signal to your PC.
USB-A to USB-C cable	Connects PARDI board to your PC.

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2. Hardware Introduction

2.1 Strider Board Introduction

The Sound Tracking Demo Kit board is a PCB carrying four SKR0610 microphones, each fitted with a special mesh (SAATI HD12) that gives it a cardioid response. The microphones are arranged as a square array, one at each corner of the board grid, 47mm spacing to each other.

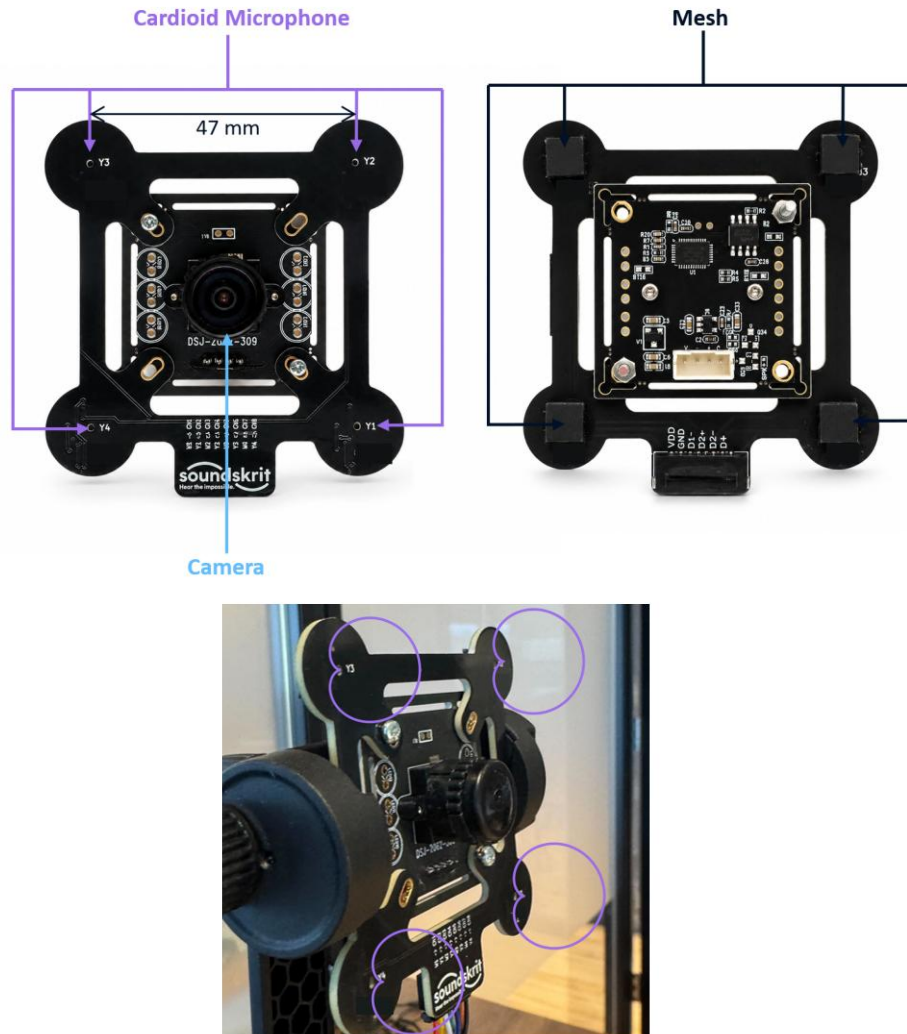


Figure 2: Sound Tracking Demo Kit Board and Microphones Configuration

2.2 PARDI Board Interface

The PARDI audio interface has a USB-C connector for the PC and a Molex connector for the Strider board. The Molex cable ships pre-connected and only needs to be reattached if it becomes disconnected.



Figure 3: PARDI Audio Interface Board

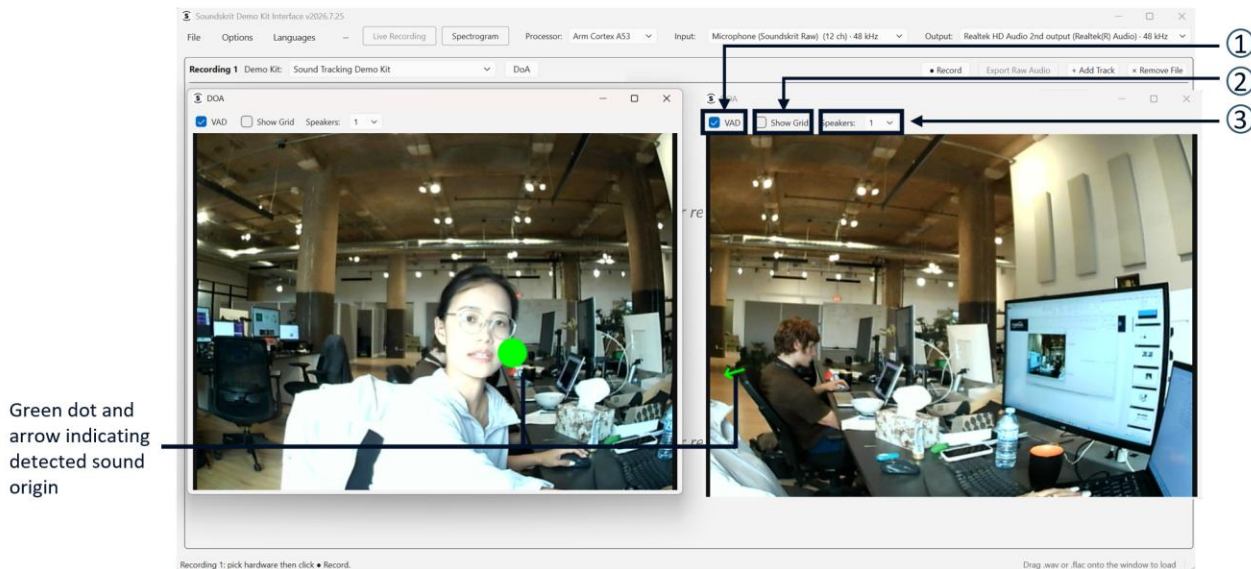
2.3 Camera Board

The camera used in the Strider is a 720p USB camera that offers a 140° wide-angle field of view and plug-and-play compatibility. It provides a visual reference on which the detected sound location is overlaid.

3. Software Introduction

To convey sound-localization performance clearly, Soundskrit developed an intuitive visualization interface, integrated into the **Soundskrit Demo Kit Interface**. For configuration details, refer to the Setup Guide in **Section 5**.

In the interface, a green dot marks the sound source detected by the demo kit. If the source lies outside the camera's field of view, a green arrow appears instead, indicating the direction of the sound source. This lets you judge DoA (Direction of Arrival) accuracy immediately and assess performance throughout testing.



1. **VAD On/Off** – Enable or disable Voice Activity Detection
2. **Grid Display On/Off** – show or hide the grid of accuracy testing
3. **Speaker Selection** – Select the number of speakers (1-3 options available)

Figure 4: DoA Interface and Corresponding Functionality

For more detailed introduction of Soundskrit Demo Kit Interface, please refer to [Downloads](#) → **Soundskrit Demo Kit Interface User Manual**.

4. Algorithms in Strider

The Strider runs a processing chain that converts the raw microphone signals into a DoA estimate, providing the coordinates of the sound source for applications such as voice tracking, beam steering, etc.

An AI-based Voice Activity Detection (VAD) algorithm is used to determine whether the kit responds only to speech, or to the loudest sound of any kind, non-speech sounds. You can enable or disable VAD from the interface window.

The DoA algorithm then detects the direction of the sound by leveraging the signals detected from the four cardioid microphones and outputs the coordinates of the sound source, which the interface displays as a green dot or arrow. You can set the speaker count from 1 to 3 to localize one or several simultaneous sources. When set to a single source, the kit reports the loudest speech source when VAD is enabled.

5. Setup Guide

5.1 Installation

Download and launch the Soundskrit Demo Kit Interface installer file from the [Downloads](#) page on Soundskrit's website and follow the installation steps. A prompt may appear requiring approval for an unknown publisher.

Connect the kit to your PC using the included USB-A cable and camera cable.

To start the software, search from the Windows start menu for 'Soundskrit Demo Kit Interface' or use the desktop shortcut generated by the installer.

Make sure the demo kit is correctly connected to the PC and that the PARDI board is in **raw mode**. If the PARDI board is not in raw mode (this may apply to units shipped before June 2026), a window will appear, prompting you to change the PARDI board to raw mode.

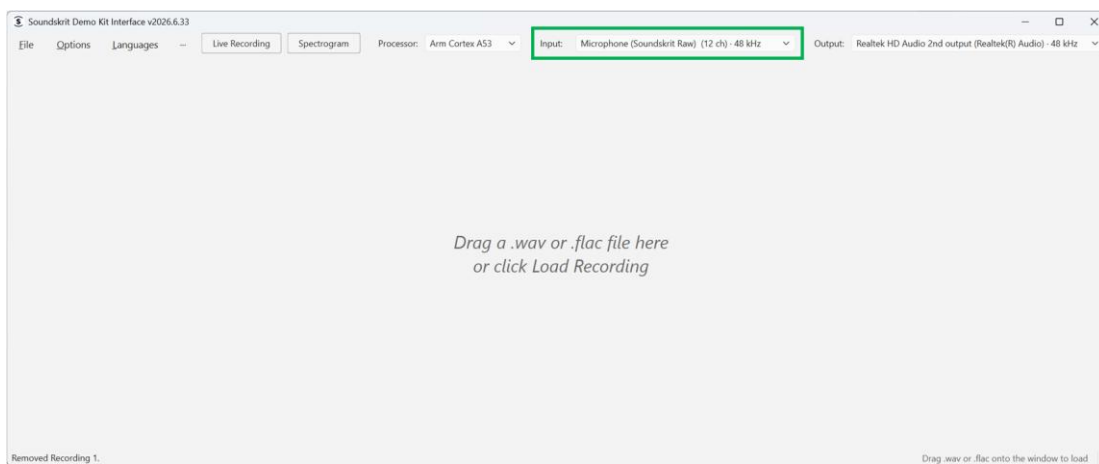


Figure 5: Raw Signal Detected in the GUI

5.2 DoA Performance Evaluation

Click **Live Recording** and select the **Demo Kit** as **Sound Tracking Demo Kit** from the drop-down menu. Then click the **DoA** button next to Demo Kit, and the DoA visualization interface will appear.

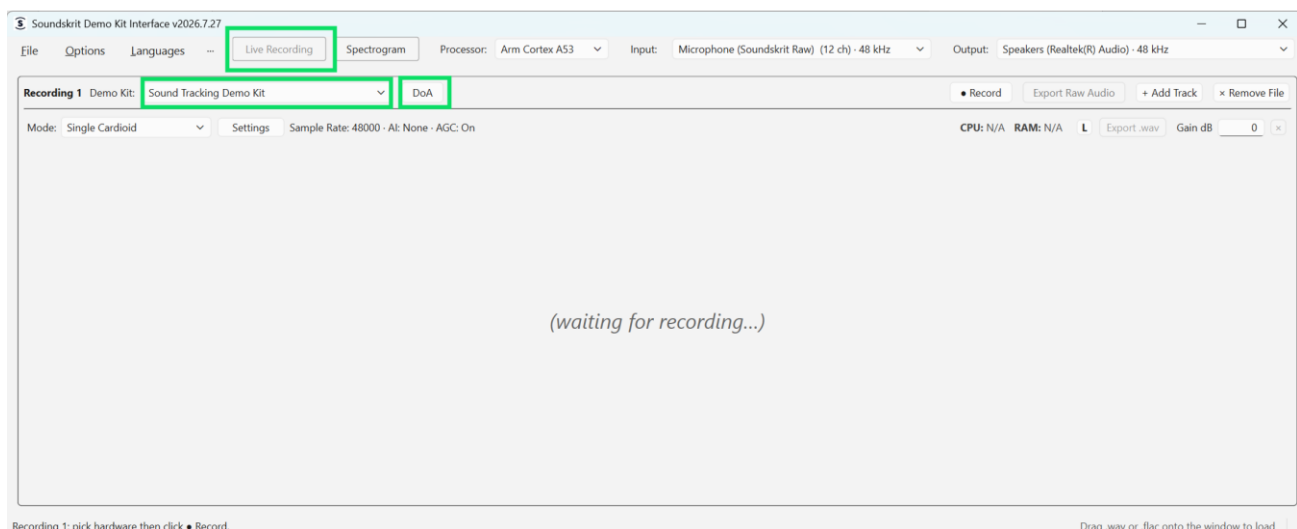


Figure 6: Open DoA Interface in the GUI

In the new window, you can begin testing the DoA performance.

Toggling **VAD** changes whether the DoA is triggered by speech or by the loudest sound. Toggling **Show Grid** overlays a reference grid on the camera view; each interval between two grid dots represents 5 degrees. Changing the number of **Speakers** from 1 to 3 enables the DoA kit to localize the sound source from 1 to 3 simultaneously.

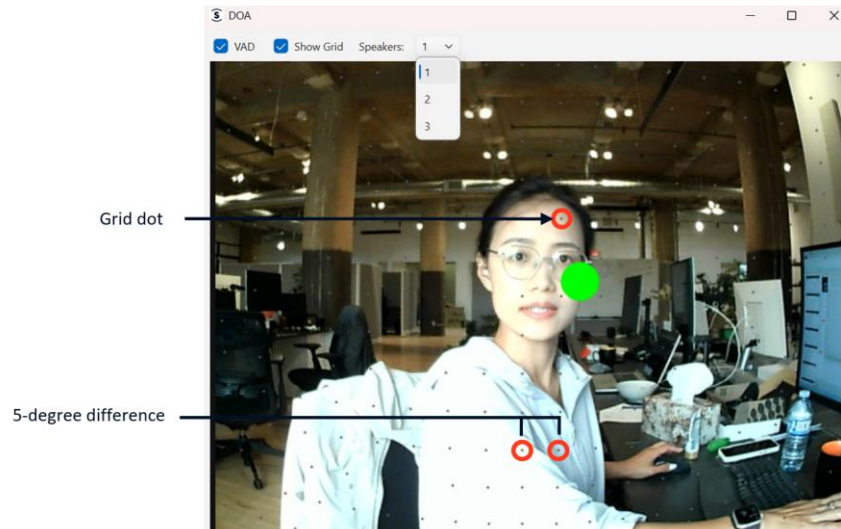


Figure 7: Grid Display in the DoA Kit Interface

6. Troubleshooting

This section provides solutions to common issues encountered during installation and operation of the demo kit.

Problem	Possible Cause	Solution
Soundskrit Demo Kit Interface doesn't show Microphone (Soundskrit Raw) in the Input	The demo kit is not correctly connected to the PC.	Verify the connections between the PARDI board and the demo board, and between the PARDI board and the PC. A green LED indicator on the PARDI board should flash when the connection is correct.

7. Additional Support

For further information on Soundskrit's products, visit our website at <http://www.soundskrit.ca> where you can find more application notes, datasheets, and purchasing information. If you have any questions or need technical support, please reach out to applications@soundskrit.ca.

8. Revision History

Revision Label	Revision Date	Sections Revised
-	Jul 2026	Initial release



Soundskrit developed the first high-performance directional MEMS microphone on the market, leveraging years of research in bio-inspired MEMS based on how spiders and other insects in nature hear. In combination with Soundskrit's in-house audio processing algorithms, directional microphones can be used to capture and isolate any sound in an environment with a fraction of the size, power, and computation of traditional omnidirectional-based microphone arrays.

Soundskrit was founded in 2019 and is headquartered in Montreal, Quebec with an R&D facility in Ann Arbor, Michigan.

