

Grinn Sense Add-on for Synaptics® Coralboard™

1 Description

Grinn Sense Add-on is an add-on board that connects to Synaptics® Coralboard™ through the add-on J2 socket and the host J5 header. The board provides two GSA4030H10 MEMS microphones on a shared PDM interface, three individually controlled LEDs, a controlled buzzer, a direct UART header and a power header for a DSI display.

A mounting area for a CSI camera module is provided on the top side of the board.

The host supplies the board with 3.3 V and 5 V through J2. Header J3 provides two 5 V pins and ground for a DSI display. Header J4 exposes the host UART transmit and receive signals together with ground.

3 Features

- 20-pin Synaptics® Coralboard™ host connection with 3.3 V and 5 V supply rails
- Two GSA4030H10 MEMS microphones
- 3-pin UART header with transmit, receive and ground
- 3-pin DSI display power header with two 5 V pins and ground
- Independently controlled red, green and blue LEDs
- MLT-9650 buzzer with active-low control input
- Top-side mounting area for a CSI camera module

2 Applications

- Development of audio processing applications
- Visual and audible user feedback
- Direct UART console access during development

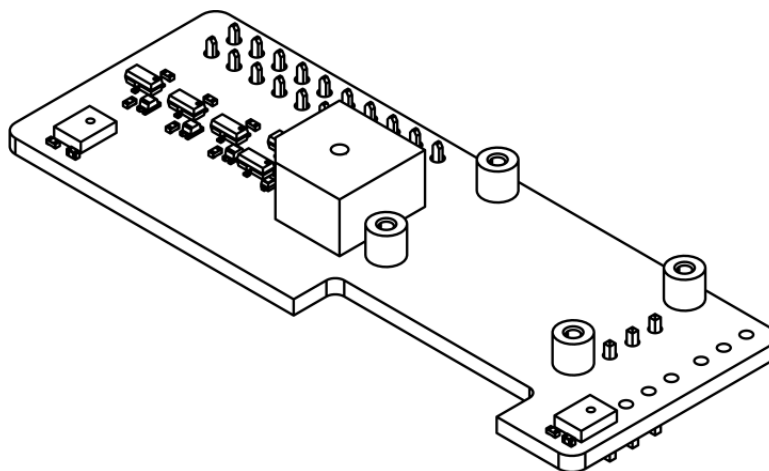


Fig. 1: Grinn Sense Add-on isometric view

4 Board Views

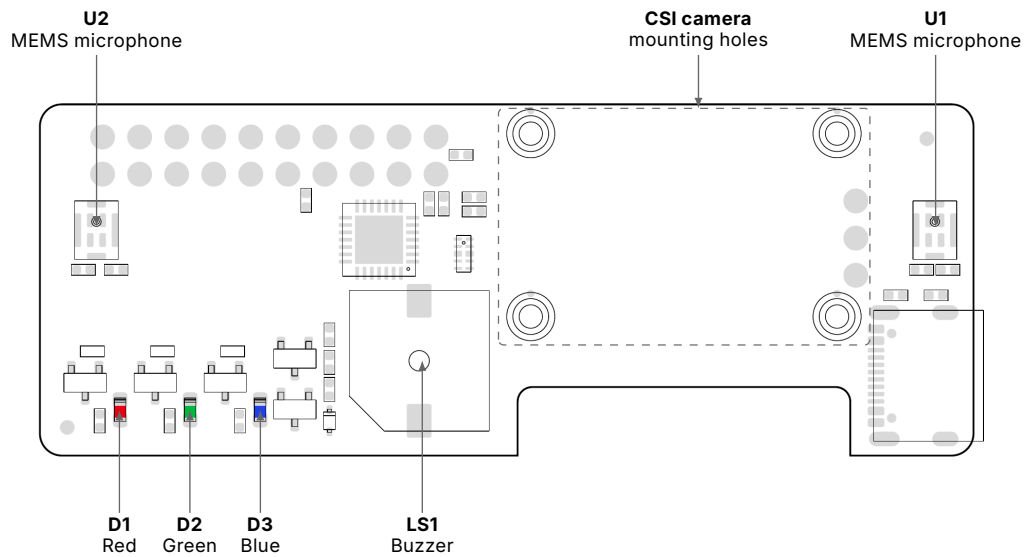


Fig. 2: Top-side components, seen from above

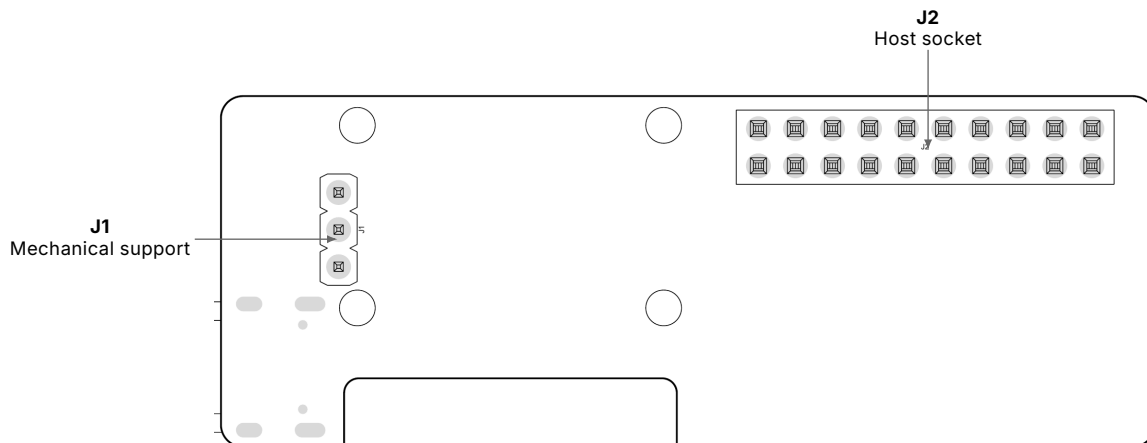


Fig. 3: Bottom-side connectors, seen from below

5 Hardware Overview

The board connectors, user-accessible devices and control circuits are listed below.

Tab. 1: Board connectors, devices and user-accessible circuits

Designator	Type	Connection or function
J1	3-pin header	Mechanical support; no electrical connection
J2	20-pin socket	Power and signal connection
J3	3-pin header	DSI display power: two 5 V pins and ground
J4	3-pin header	Direct host UART: transmit, receive and ground
U1, U2	GSA4030H10 MEMS microphones	Shared PDM clock and data nets
D1	Red LED	Host-controlled red LED
D2	Green LED	Host-controlled green LED
D3	Blue LED	Host-controlled blue LED
LS1	MLT-9650	Host-controlled 5 V buzzer

5.1 UART Header (J4)

J4 directly exposes the host UART: pin 1 is UART_TXD, pin 2 is UART_RXD and pin 3 is ground. The signals are connected directly to J2; the board does not contain a USB-to-UART converter.

5.2 DSI Display Power Header (J3)

J3 is a 3-pin power header for a DSI display. Pins 1 and 2 are connected to the board's 5V0 rail and pin 3 is connected to ground. J3 does not carry DSI data signals.

5.3 PDM MEMS Microphones (U1, U2)

U1 and U2 are GSA4030H10 MEMS microphones with a PDM interface. They are located at the left and right edges of the board, are supplied from 3.3 V and share the PDM_CLK and PDM_DATA nets. The SEL input of U1 is tied to ground, while the SEL input of U2 is tied to 3.3 V.

5.4 LEDs (D1–D3)

The board contains red D1, green D2 and blue D3 LEDs supplied from the 5 V rail. A high state on LED_RED, LED_GREEN or LED_BLUE turns on the corresponding LED.

5.5 Buzzer (LS1)

LS1 is an MLT-9650 buzzer supplied from the 5 V rail. The BUZZERn control is active low: a low state enables LS1 and a high state disables it.

5.6 Mechanical Support Header (J1)

J1 is a 3-pin header that mates with the J7 socket on Synaptics® Coralboard™. It is used solely to improve the mechanical strength and stability of the assembled boards, providing an additional retention point and reducing mechanical stress on the J2 host socket. J1 has no electrical function; its pins do not carry power, ground or signals.

6 Synaptics® Coralboard™ to Grinn Sense Add-on Pin Assignment

Grinn Sense Add-on connects to Synaptics® Coralboard™ through the 20-pin (2×10) socket J2, which mates with header J5 on Synaptics® Coralboard™.

The table below lists which Synaptics® Coralboard™ signal serves which function on the add-on board. Several of them are alternate functions of the pin rather than its default, so check the pin against the Synaptics® Coralboard™ schematic before configuring it.

Tab. 2: Host signal assignments

Function on Grinn Sense Add-on	Synaptics® Coralboard™ signal
PDM devices (U1, U2)	
Shared data	SM_PDM_DI0
Shared clock	SM_PDM_CLKIO
UART header (J4)	
Transmit from Synaptics® Coralboard™	SM_URT0_TXD
Receive to Synaptics® Coralboard™	SM_URT0_RXD
LEDs (D1-D3)	
Blue LED control	SM_GPI033
Green LED control	SM_GPI011
Red LED control	SM_GPI010
Buzzer (LS1)	
Active-low buzzer control	SM_GPI06

7 Ordering Part Number

GAH0. SCBSL261x. C. -A0

Grinn Astra HAT
0: Sense Add-on for Synaptics®
Coralboard™
1: Test Add-on for Synaptics®
Coralboard™

Target:
SCBSL261x: Synaptics® Coral-
board™ (SL261x series)

A: PCB revision
0: BOM revision

Temperature grade:
C: Commercial 0°C to +70°
I: Industrial -40°C to +85°

Revision History

Revision	Date	Description
1.0	2026-08-17	Initial release.
1.1	2026-08-24	Clarified the add-on board descriptions.
1.2	2026-09-03	Updated for PCB revision B0: USB-to-UART converter removed; DSI display power and direct UART headers added; board views and connector assignments updated.



Grinn sp. z o.o.

Strzegomska 140a
54-429 Wrocław, Poland

grinn-global.com
office@grinn-global.com
+48 71 716 40 99

Copyright © 2026 Grinn sp. z o.o. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without the prior written permission of Grinn sp. z o.o.

The information in this document is subject to change without notice and is provided without warranty of any kind, express or implied, including as to accuracy or completeness.

All trademarks are the property of their respective owners.