

A vertical bar on the left side of the page, consisting of an orange rectangle on top and a green rectangle below it.

VisionCB-x2L-STD Datasheet and Pinout

Rev. 20250117210606

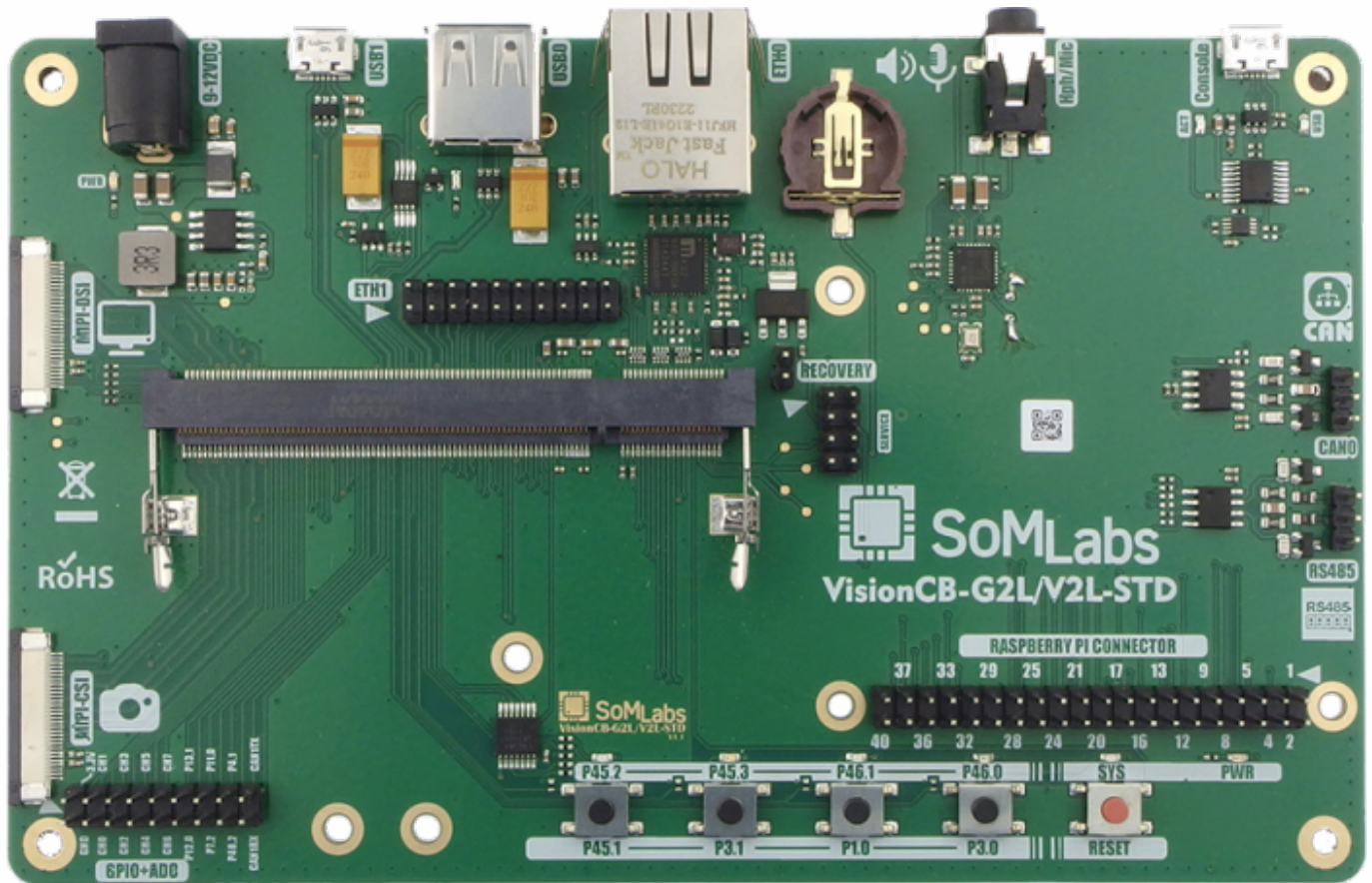
Source URL: https://wiki.somlabs.com/index.php?title=VisionCB-x2L-STD_Datasheet_and_Pinout

Table of contents

General description	1
Applications	1
Features	3
Pictures of VisionCB-x2L-STD v1.2 board	4
Ordering info	5
Block Diagram	6
Electrical parameters	7
Power supply connector	8
Camera MIPI-CSI interface (FPC/FFC30, 0.5mm)	9
Display MIPI-DSI interface (FPC/FFC30, 0.5mm)	11
USB Console Port	13
ADC + GPIO connector	14
Raspberry Pi compatible I/O header	15
GMII of ETH0 connection	17
GMII of ETH1 connector	18
USB interfaces	20
Audio codec	21
CAN interface	22
RS-485 interface	23
User Interface (switches and LEDs)	24
RECOVERY jumper	25
Dimensions	26

VisionCB-x2L-STD v.1.2 Datasheet and Pinout

General description



The VisionCB-x2L-STD (with SOM equipped with Renesas RZ/V2L and RZ/G2L MPUs compatible) is a carrier board for the VisionSOM-V2L and VisionSOM-G2L family of computer-on-modules which are powered by dual-core Renesas MPUs (2 x ARM Cortex-A55 + Cortex-M33). The carrier board, together with a System on Module (SoM), makes a complete development platform similar to SBC. The carrier board houses the most common interfaces such as USB, Ethernet, CAN, RS485, audio codec, etc. A large variety of interfaces allows to use it as both a complete development platform or as a stand-alone end-product. The VisionCB-x2L-STD is equipped with a simple user interface consisting of 4 buttons and 4 LEDs. VisionCB-x2L-STD carrier board is also equipped with a large number of popular peripherals, including: RS485, CAN, 10/100/1G Ethernet, MIPI display and camera connectors, serial console port on USB vCOM.

Applications

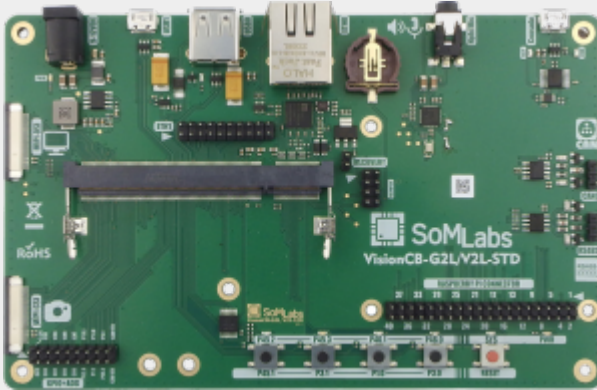
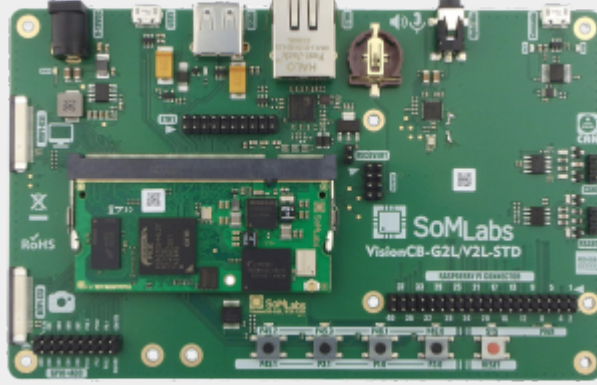
- Multimedia
- Video streaming
- Image inspection
- VisionAI gateway
- Doorbell systems
- EV chargers
- Smart agriculture gateways
- Industrial embedded Linux computer
- Home Appliances

- Home Automation - Smart Home
- Human-machine Interfaces (HMI)
- Point-of-sales (POS) terminals
- IoT gateways
- Machine vision equipment
- Robotics
- Fitness/outdoor equipment

Features

- Carrier Board compatible with the VisionSOM-G2L and VisionSOM-V2L families of modules based on dual core, heterogenous Renesas RZ/V2L and RZ/G2L application processors
- SoM Connector: SODIMM200
- Expansion Connectors:
 - ADC+GPIO connector 2x9 Pin Header (Male)
 - Raspberry Pi Compatible Connectors 2x20 Pin Header (Male)
 - Ethernet #1 (GMII) Connector Pin Header (Male)
- Communication Connectors:
 - 1x Ethernet 10/100/1000Mbit/s (RJ45)
 - 1x CAN (1x3 Pin Header, Male)
 - 1x RS-485 (1x3 Pin Header, Male)
 - 1x USB Host Type A connectors
 - 1x USB OTG Micro AB connector
 - 1x Console MicroUSB B connector
- Audio Interface:
 - Mini-jack 3.5mm (headphones + microphone)
- Display Interface:
 - 30-pin FFC/FPC MIPI-DSI (up to 4 lanes)
- Camera Interface:
 - 30-pin FFC/FPC MIPI-CSI2 (up to 4 lanes)
- User Interface:
 - 4+1 Pushbuttons
 - 4+2 LEDs
- External Power Supply 9-12V DC
- Temperature Range: 0 to +70°C
- Board Size: 160mm x 100mm x 21mm

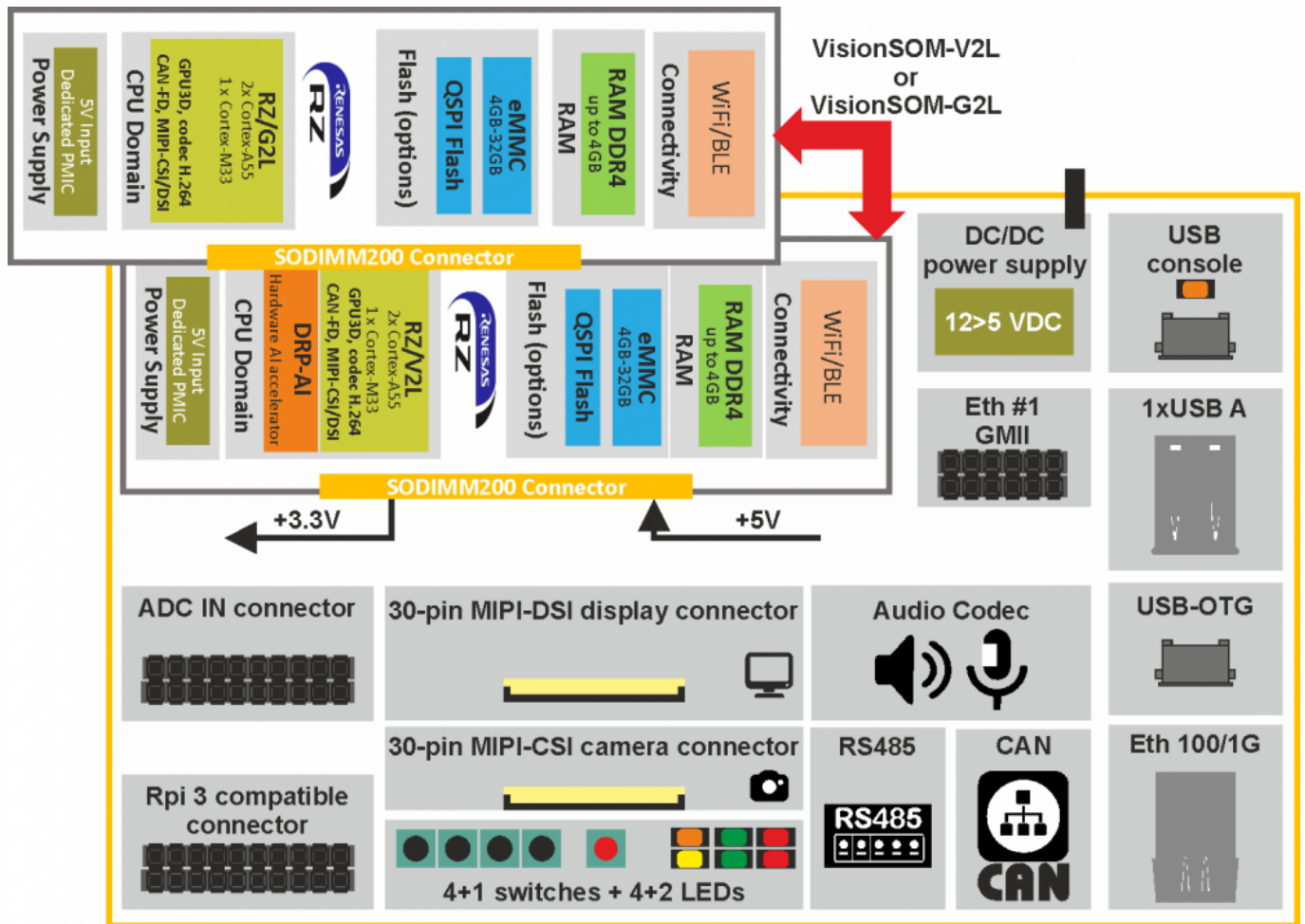
Pictures of VisionCB-x2L-STD v1.2 board

Version	Photo
VisionCB-x2L-STD v1.2 board only	 A photograph of the VisionCB-x2L-STD v1.2 board. The board is green and populated with various electronic components including a USB port, a micro-USB port, a 3.5mm audio jack, a power jack, and several integrated circuits. The text 'SoMLabs VisionCB-G2L/V2L-STD' is printed on the board.
VisionCB-x2L-STD v1.2 with VisionSOM-x2L	 A photograph of the VisionCB-x2L-STD v1.2 board with a VisionSOM-x2L module inserted into the central slot. The VisionSOM-x2L module is a smaller green board with its own components, including a micro-USB port and a power jack. The text 'SoMLabs VisionCB-G2L/V2L-STD' is printed on the main board.

Ordering info

VisionCB-x2L-STD v1.2

Block Diagram

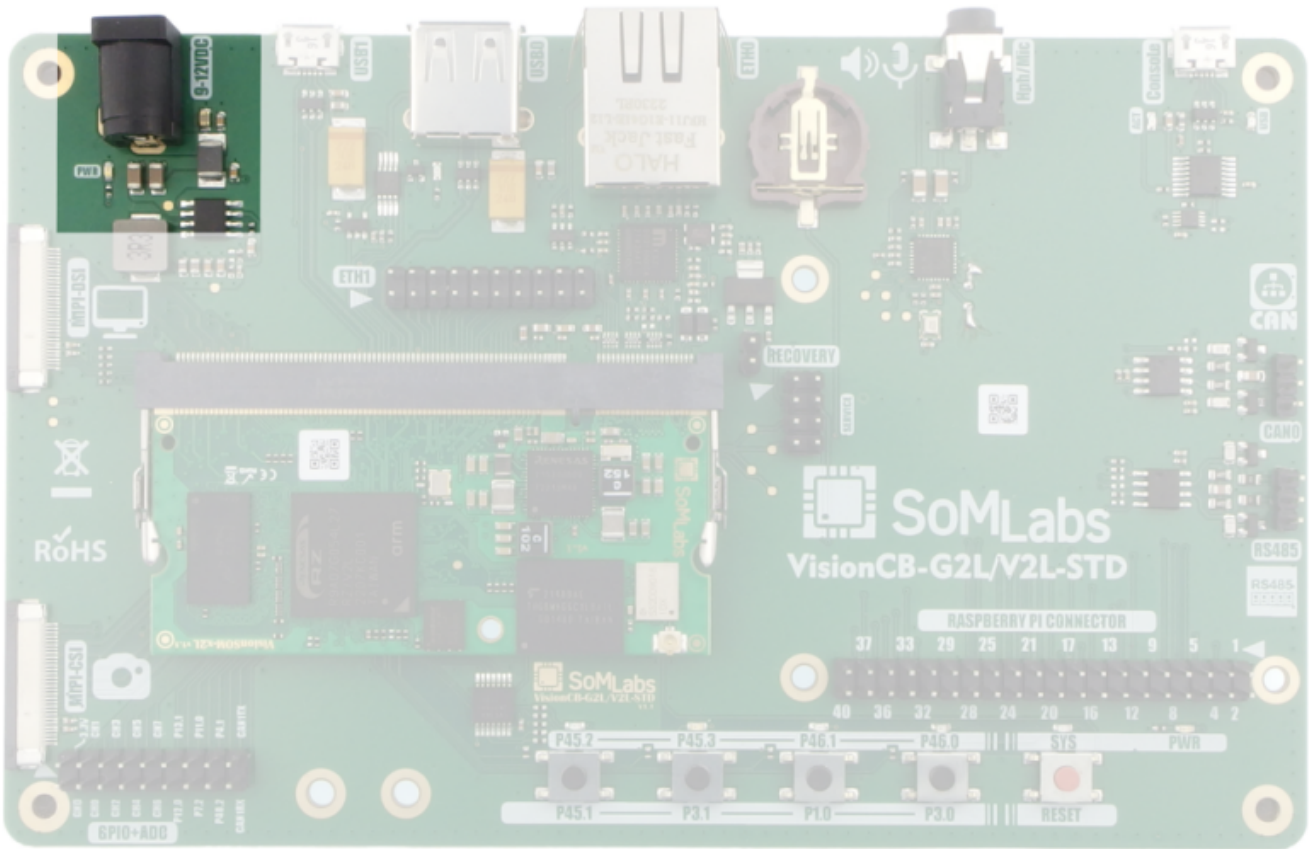


Electrical parameters

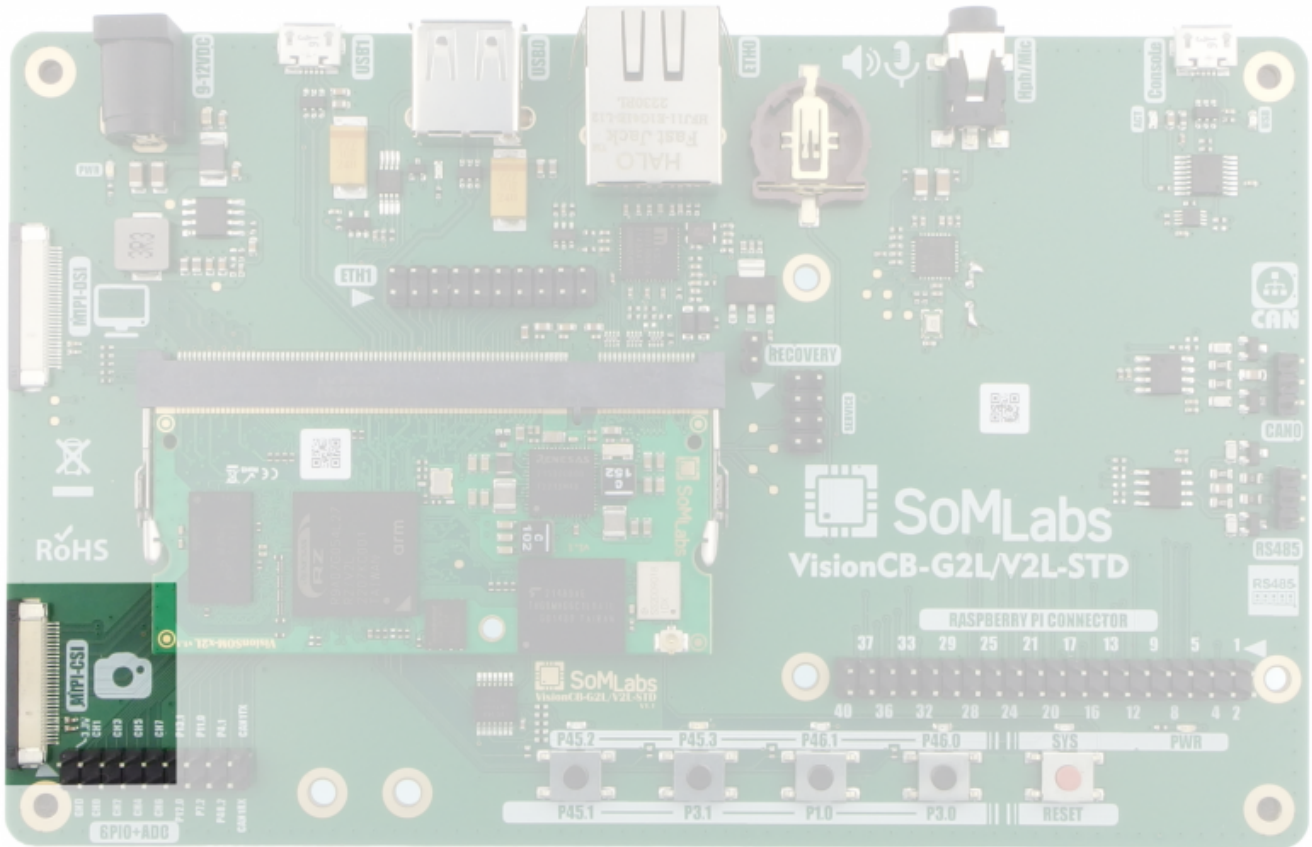
Parameter	Value			Units	Comment
	Min.	Typ.	Max.		
Power Supply	9.0	12.0	15.0	V	Positive pole on central connector of J200
Supply current	-	-	0.13	A	Excluding LCD, USB and antoher external loads
LCD/Camera Power Supply (logic)	3.25	3.3	3.35	V	-
LCD/Camera Power Supply (backlight and aux)	4.75	4.87	4.95	V	-
Arduino GPIO voltage		3.3		V	-

Power supply connector

The VisionCB-x2L-STD is equipped with external power source connector with pin diameter 2.5mm and hole diameter 5mm. The voltage of the external power source should be within the range 9-12 VDC.



Camera MIPI-CSI interface (FPC/FFC30, 0.5mm)



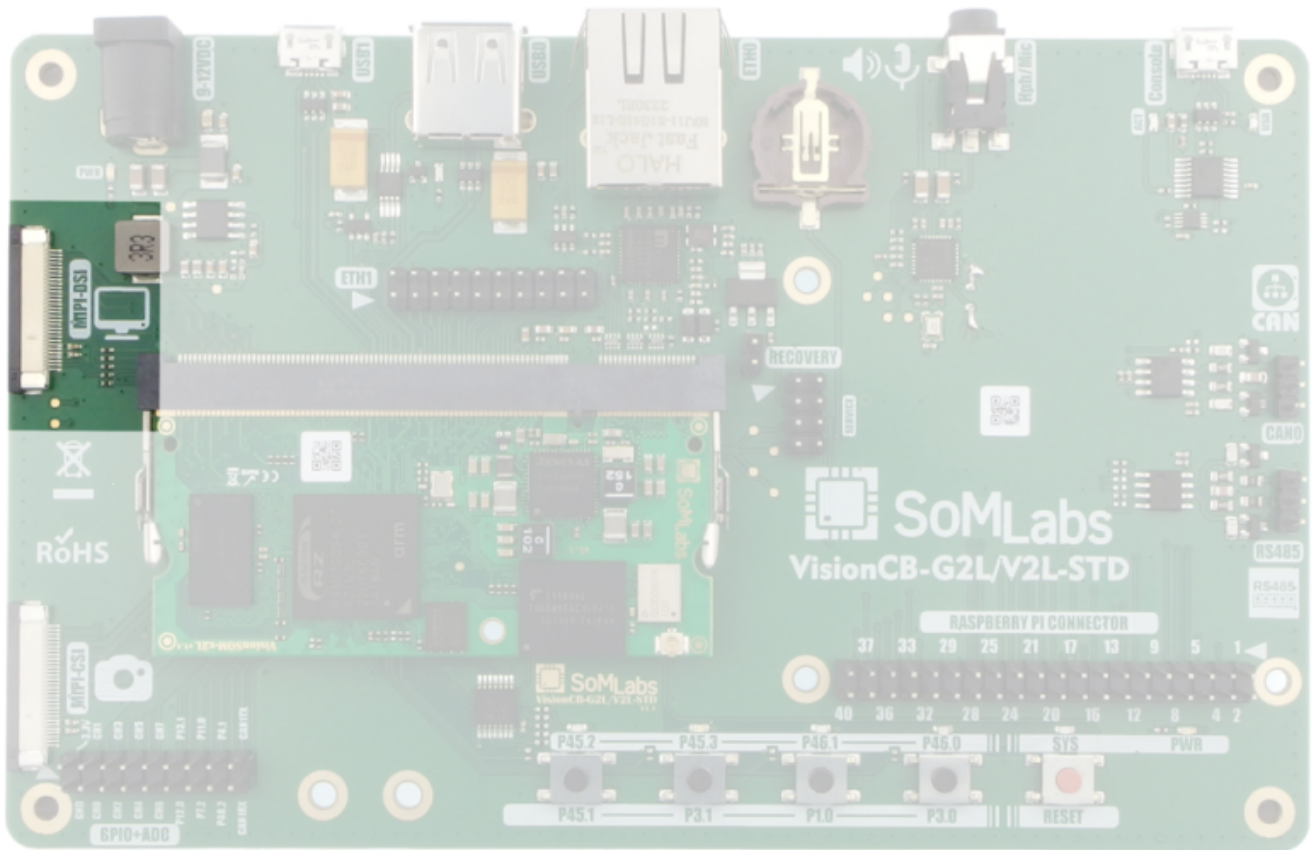
Pin	Signal	GPIO	Description
1	GND	-	-
2	CSI-CLK-P	-	-
3	CSI-CLK-N	-	-
4	GND	-	-
5	CSI-DATA0-P	-	-
6	CSI-DATA0-N	-	-
7	GND	-	-
8	CSI-DATA1-P	-	-
9	CSI-DATA1-N	-	-
10	GND	-	-
11	CSI-DATA2-P	-	-
12	CSI-DATA2-N	-	-
13	GND	-	-
14	CSI-DATA3-P	-	-
15	CSI-DATA3-N	-	-
16	GND	-	-
17	I2C1-SCL	RIIC1_SCL	Camera configuration I2C interface (3.3V), pulled-up with 2.2k
18	I2C1-SDA	RIIC1_SDA	Camera configuration I2C interface (3.3V), pulled-up with 2.2k
19	GND	-	-
20	CSI-GPIO0	P17-0	Auxiliary GPIO

21	CSI-GPIO1	P17-1	Auxiliary GPIO
22	-	-	-
23	GND	-	-
24	+3.3V	-	Power supply for external devices
25	+3.3V	-	Power supply for external devices
26	+5V	-	Power supply for external devices
27	+5V	-	Power supply for external devices
28	-	-	-
29	-	-	-
30	GND	-	-

Note:

1. The first pin of the MIPI-CSI connector is located in its upper part.

Display MIPI-DSI interface (FPC/FFC30, 0.5mm)



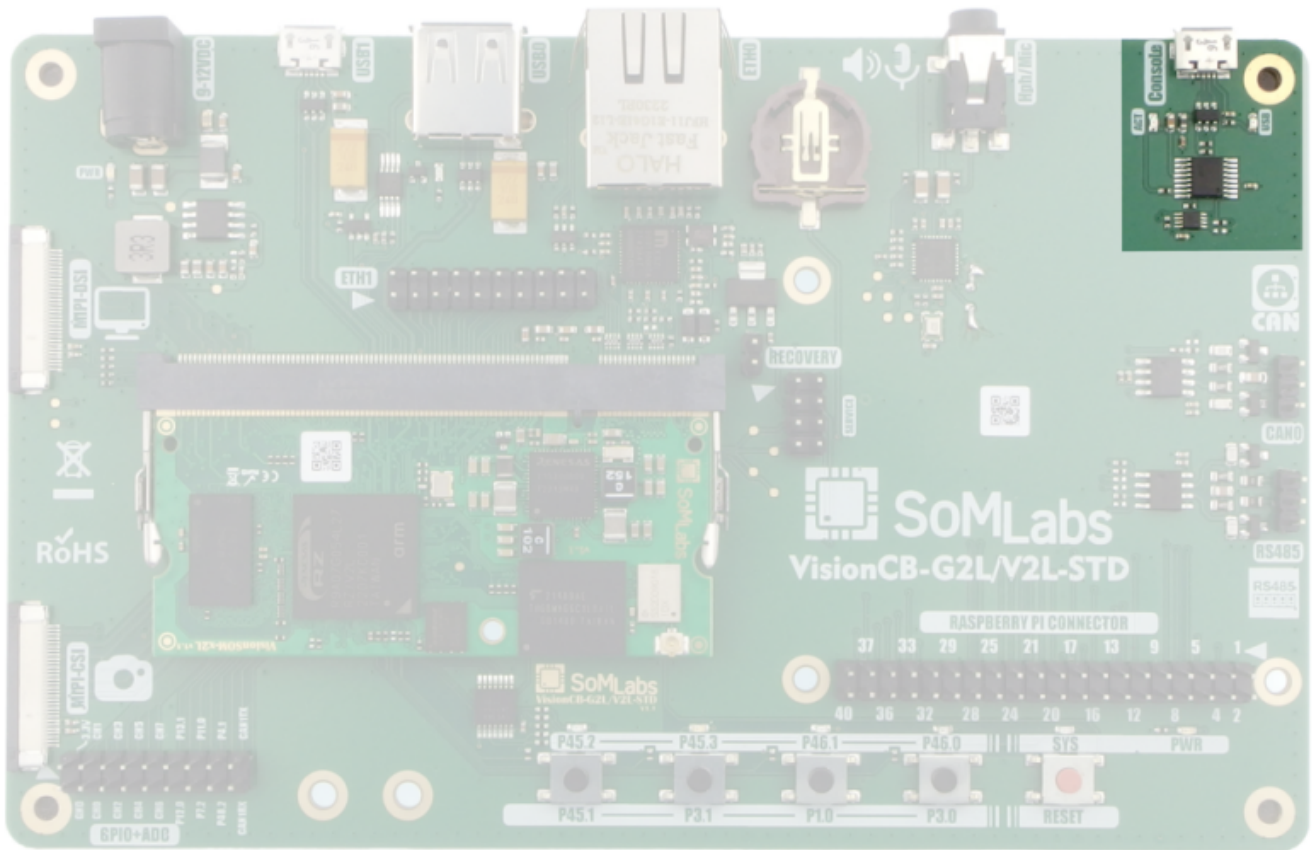
Pin	Signal	GPIO	Description
1	GND	-	
2	DSI-CLK-P	-	-
3	DSI-CLK-N	-	-
4	GND	-	-
5	DSI-DATA0-P	-	-
6	DSI-DATA0-N	-	-
7	GND	-	-
8	DSI-DATA1-P	-	-
9	DSI-DATA1-N	-	-
10	GND	-	-
11	DSI-DATA2-P	-	-
12	DSI-DATA2-N	-	-
13	GND	-	-
14	DSI-DATA3-P	-	-
15	DSI-DATA3-N	-	-
16	GND	-	-
17	I2C1-SCL	RIIC1_SCL	Display configuration I2C interface (3.3V), pulled-up with 2.2k
18	I2C1-SDA	RIIC1_SDA	Display configuration I2C interface (3.3V), pulled-up with 2.2k
19	GND	-	-
20	DISP-RST	P13-2	Optional display reset signal

21	TP-INT	P17-1	Optional touch-panel interrupt signal
22	TP-RST	P17-2	Optional touch-panel reset signal
23	GND	-	-
24	+3.3V	-	Power supply for external devices
25	+3.3V	-	Power supply for external devices
26	+5V	-	Power supply for external devices
27	+5V	-	Power supply for external devices
28	DSI-BL-PWM	P16-0	Optional PWM backlight signal
29	DSI-BL-EN	P16-1	Optional ENABLE backlight signal
30	GND	-	-

Note:

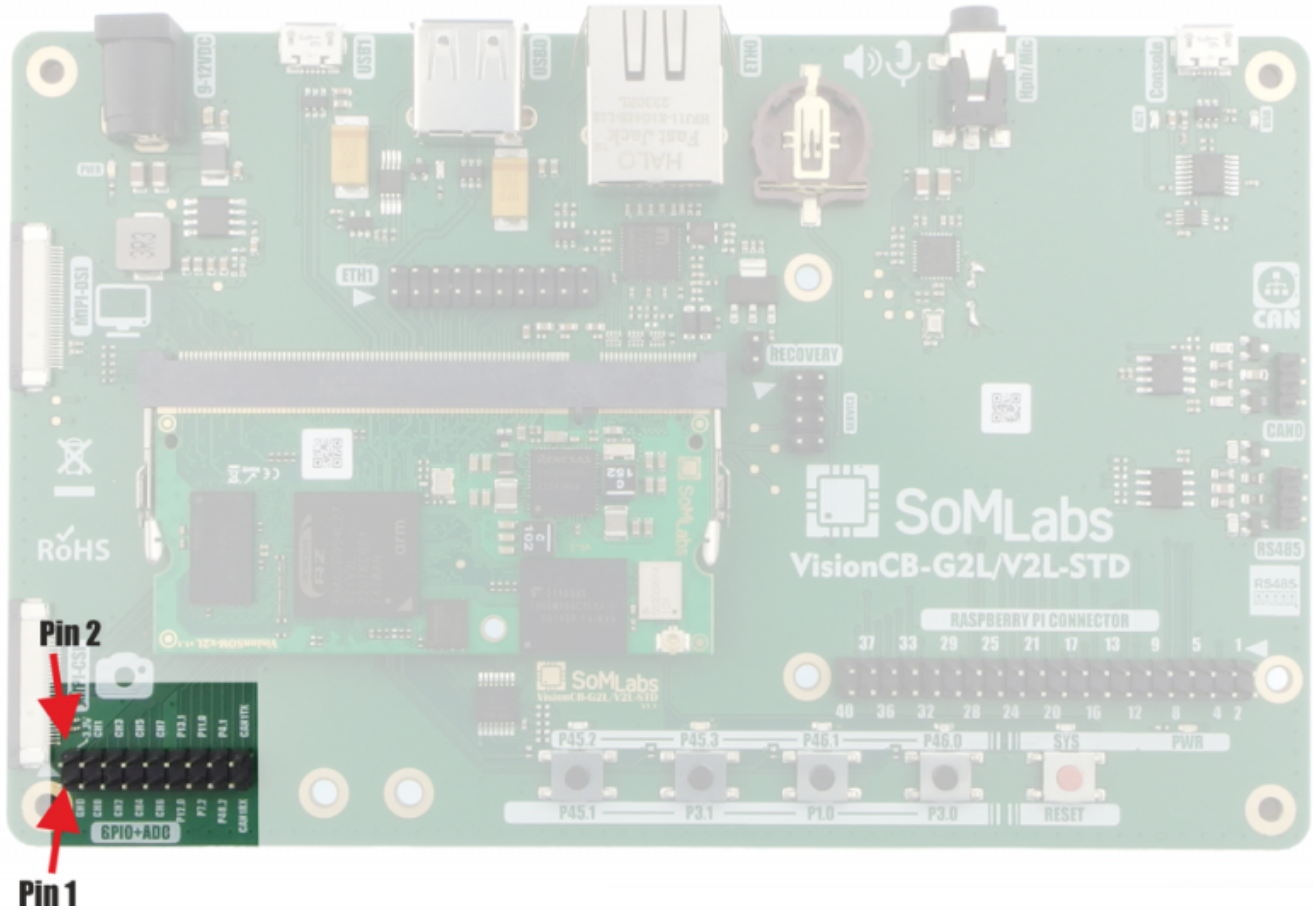
1. The first pin of the MIPI-DSI connector is located in its upper part.

USB Console Port



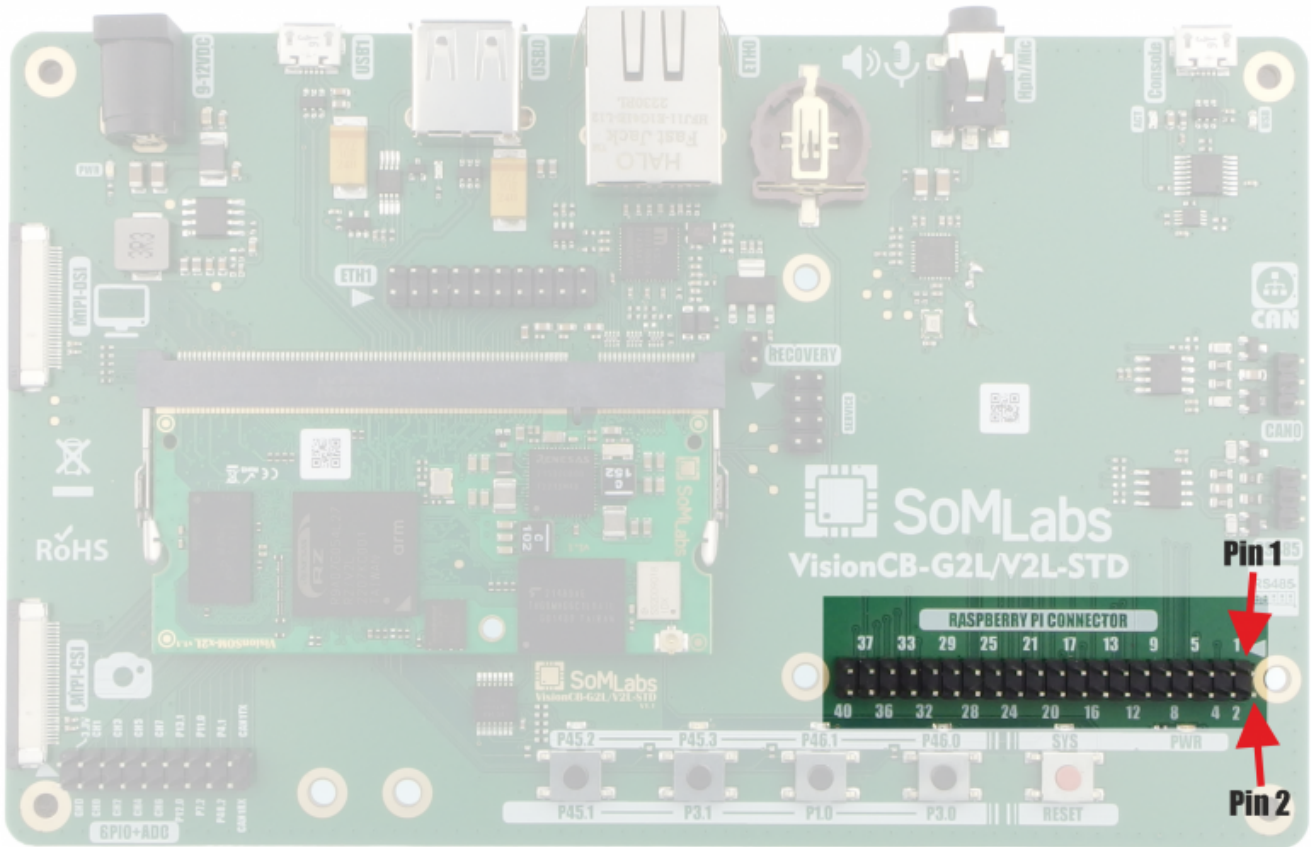
Console line	MPU signal	GPIO	Description
CONSOLE-TXD	UART0-RXD	P38-1	GPIO 3.3V voltage levels
CONSOLE-RXD	UART0-TXD	P38-0	GPIO 3.3V voltage levels

ADC + GPIO connector



Pin	Signal	GPIO	Description
1	GND	-	-
2	3.3V	-	-
3	ADC-CH0	ADC-CH0	Dedicated analog input, 12-bit ADC, max. 1.8V on input
4	ADC-CH1	ADC-CH1	Dedicated analog input, 12-bit ADC, max. 1.8V on input
5	ADC-CH2	ADC-CH2	Dedicated analog input, 12-bit ADC, max. 1.8V on input
6	ADC-CH3	ADC-CH3	Dedicated analog input, 12-bit ADC, max. 1.8V on input
7	ADC-CH4	ADC-CH4	Dedicated analog input, 12-bit ADC, max. 1.8V on input
8	ADC-CH5	ADC-CH5	Dedicated analog input, 12-bit ADC, max. 1.8V on input
9	ADC-CH6	ADC-CH6	Dedicated analog input, 12-bit ADC, max. 1.8V on input
10	ADC-CH7	ADC-CH7	Dedicated analog input, 12-bit ADC, max. 1.8V on input
11	P12-0	P12-0	GPIO 3.3V voltage levels
12	P13-1	P13-1	GPIO 3.3V voltage levels
13	P7-2	P7-2	GPIO 3.3V voltage levels
14	P11-0	P11-0	GPIO 3.3V voltage levels
15	P48-2	P48-2	GPIO 3.3V voltage levels
16	P4-1	P4-1	GPIO 3.3V voltage levels
17	CAN1-RX	P13-0	GPIO 3.3V voltage levels
18	CAN1-TX	P12-1	GPIO 3.3V voltage levels

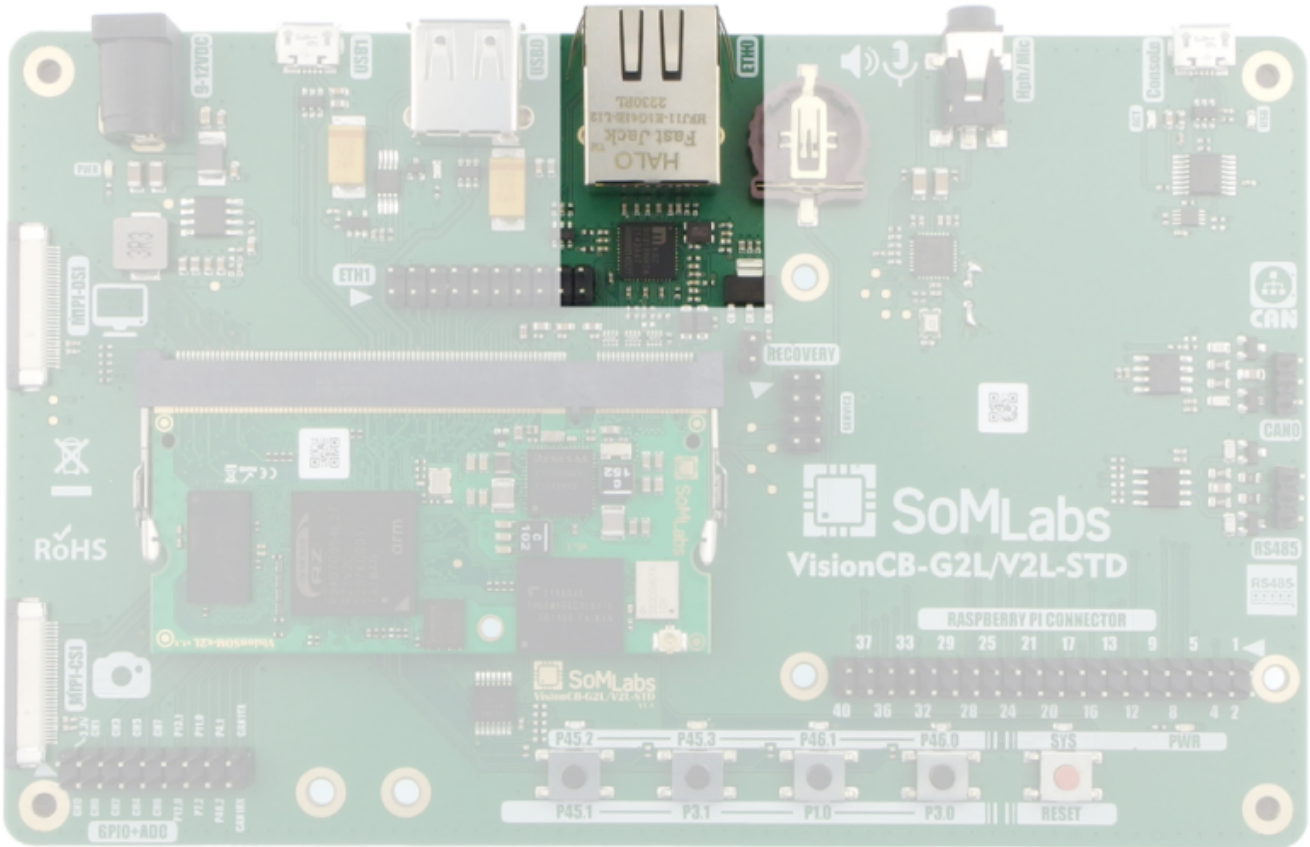
Raspberry Pi compatible I/O header



Pin	Signal	MPU signal	Description
1	3.3V	-	-
2	5.0V	-	-
3	I2C0-SDA	RIIC0_SDA	Dedicated I2C MPU line
4	5.0V	-	-
5	I2C0-SCL	RIIC0_SCL	Dedicated I2C MPU line
6	GND	-	-
7	P45-0	P45-0	GPIO 3.3V voltage levels
8	UART4-TXD	P2-0	GPIO 3.3V voltage levels
9	GND	-	-
10	UART4-RXD	P2-1	GPIO 3.3V voltage levels
11	P8-2	P8-2	GPIO 3.3V voltage levels
12	P15-0	P15-0	GPIO 3.3V voltage levels
13	P14-1	P14-1	GPIO 3.3V voltage levels
14	GND	-	-
15	P14-0	P14-0	GPIO 3.3V voltage levels
16	UART1-RXD	P40-0	GPIO 3.3V voltage levels
17	P11-1	P11-1	GPIO 3.3V voltage levels
18	UART1-TXD	P40-1	GPIO 3.3V voltage levels
19	SPI0-MOSI	P43-1	GPIO 3.3V voltage levels
20	GND	-	-

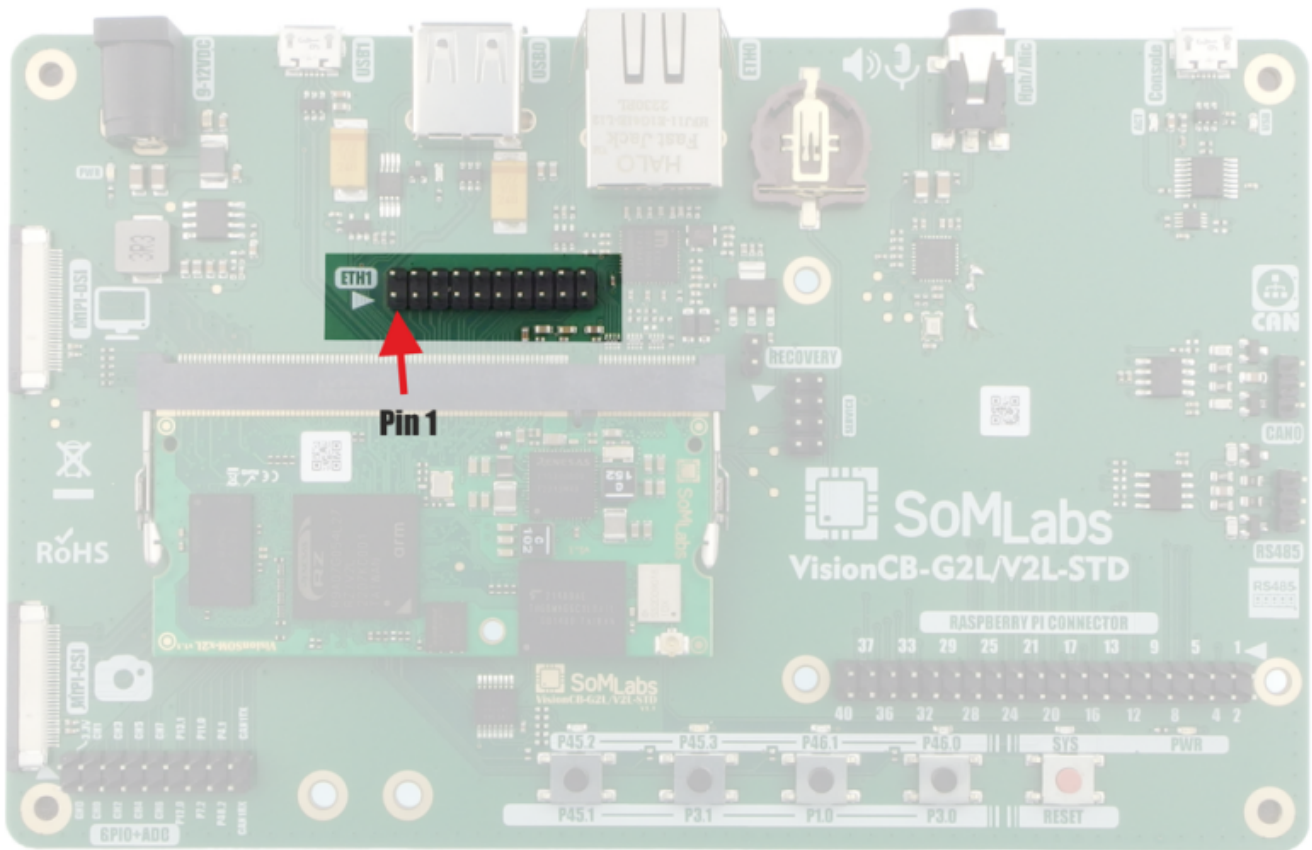
21	SPI0-MISO	P43-2	GPIO 3.3V voltage levels
22	P9-1	P9-1	GPIO 3.3V voltage levels
23	SPI0-CLK	P43-0	GPIO 3.3V voltage levels
24	SPI0-SSL	P43-3	GPIO 3.3V voltage levels
25	GND	-	-
26	P9-0	P9-0	GPIO 3.3V voltage levels
27	I2C3-SDA	P46-2	I2C interface used by MPU for SOM PMIC configuration
28	I2C3-SCL	P46-3	I2C interface used by MPU for SOM PMIC configuration
29	UART1-CTS	P41-0	GPIO 3.3V voltage levels
30	GND	-	-
31	UART1-RTS	P41-1	GPIO 3.3V voltage levels
32	P1-1	P1-1	GPIO 3.3V voltage levels
33	P10-1	P10-1	GPIO 3.3V voltage levels
34	GND	-	-
35	SPI1-MISO	P44-2	GPIO 3.3V voltage levels
36	SPI1-SSL	P44-3	GPIO 3.3V voltage levels
37	P10-0	P10-0	GPIO 3.3V voltage levels
38	SPI1-MOSI	P44-1	GPIO 3.3V voltage levels
39	GND	-	-
40	SPI1-CLK	P44-0	GPIO 3.3V voltage levels

GMII of ETH0 connection



Signal	MPU signal	Description
ET0-TXD0	ET0-TXD0	1.8V Power Domain, GPIO mode not allowed
ET0-TXD1	ET0-TXD1	1.8V Power Domain, GPIO mode not allowed
ET0-TXD2	ET0-TXD2	1.8V Power Domain, GPIO mode not allowed
ET0-TXD3	ET0-TXD3	1.8V Power Domain, GPIO mode not allowed
ET0-TXC	ET0-TXC	1.8V Power Domain, GPIO mode not allowed
ET0-TX-CTL	ET0-TX-CTL	1.8V Power Domain, GPIO mode not allowed
ET0-RXD0	ET0-RXD0	1.8V Power Domain, GPIO mode not allowed
ET0-RXD1	ET0-RXD1	1.8V Power Domain, GPIO mode not allowed
ET0-RXD2	ET0-RXD2	1.8V Power Domain, GPIO mode not allowed
ET0-RXD3	ET0-RXD3	1.8V Power Domain, GPIO mode not allowed
ET0-RXC	ET0-RXC	1.8V Power Domain, GPIO mode not allowed
ET0-RX-CTL	ET0-RX-CTL	1.8V Power Domain, GPIO mode not allowed
ET0-MDC	ET0-MDC	1.8V Power Domain, GPIO mode not allowed
ET0-MDIO	ET0-MDIO	1.8V Power Domain, GPIO mode not allowed
ET0-INT	P47-0	GPIO 3.3V voltage levels
ET0-PHY-RST	P47-1	GPIO 3.3V voltage levels

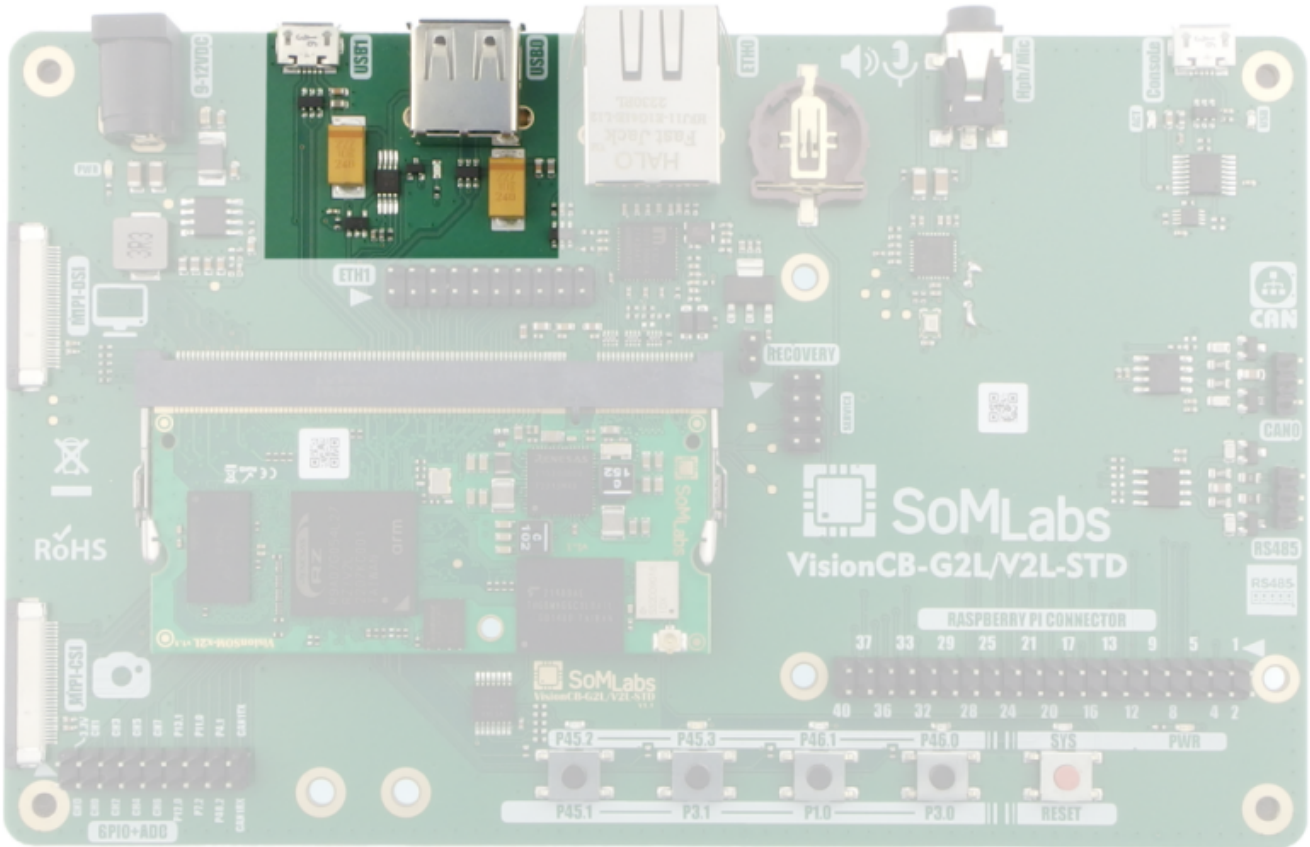
GMII of ETH1 connector



Pin	Signal	MPU signal	Description
1	3.3V	-	-
2	ET1-TXD0	P30-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
3	ET1-TXD1	P30-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
4	ET1-TXD2	P31-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
5	ET1-TXD3	P31-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
6	ET1-TXC	P29-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
7	ET1-TX-CTL	P29-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
8	ET1-RXD3	P36-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
9	ET1-RXD2	P35-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
10	ET1-RXD1	P35-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
11	ET1-RXD0	P34-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
12	ET1-RX-CTL	P34-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
13	ET1-RXC	P33-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
14	ET1-MDC	P37-0	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
15	ET1-MDIO	P37-1	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
16	ET1-INT	P47-2	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
17	ET1-PHY-RST	P47-3	1.8V or 3.3V Power Domain selected by ET1-VDD-SEL, GPIO allowed only for 3.3V.
18	ET1-VDD-SEL	-	Ethernet 1 (ET1) interface voltage selection: ET1-VDD-SEL='0' -> V=1.8V; ET1-VDD-SEL='1' or left open -> V=3.3V The line has internal pull-up.

19	GND	-	-
20	GND	-	-

USB interfaces

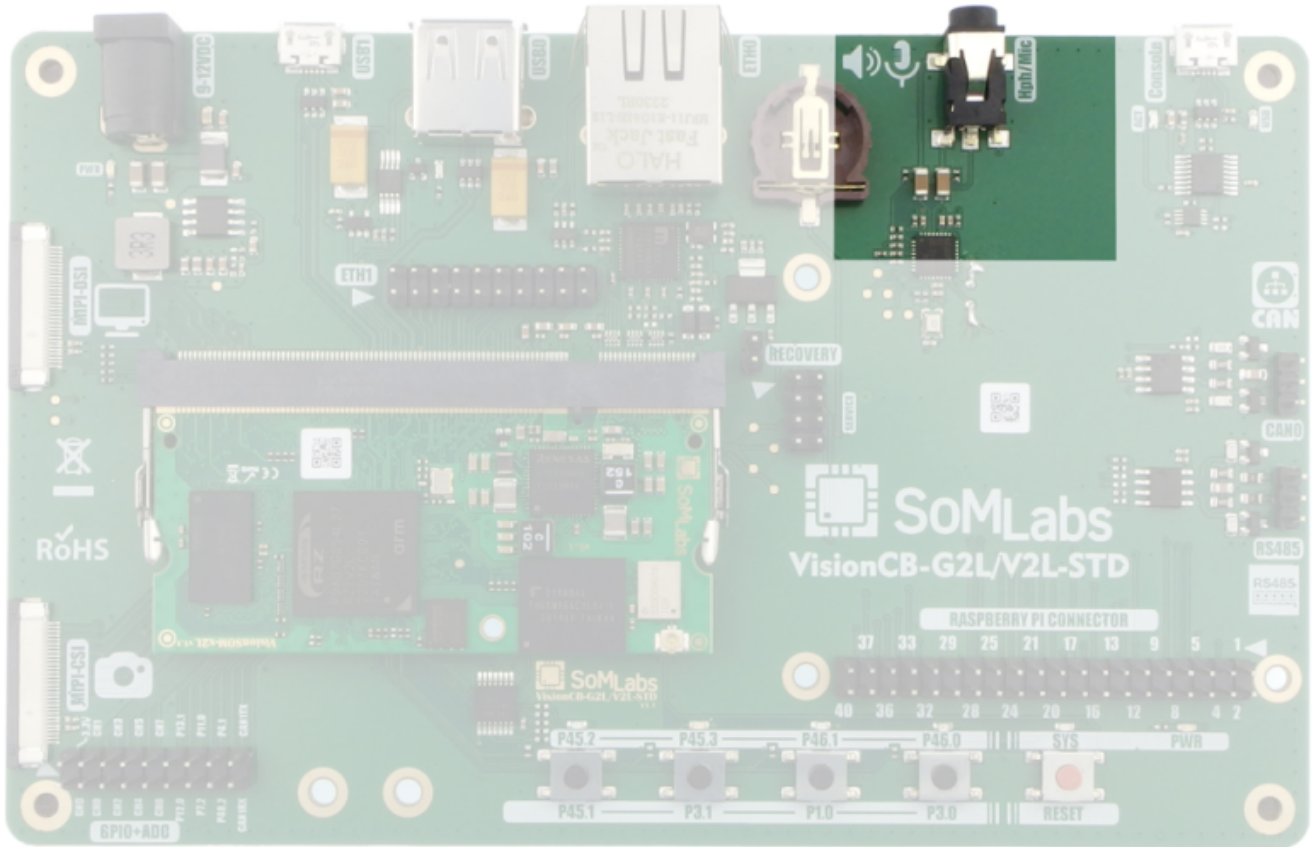


Signal	MPU signal	Description
USB0-ID	P5-1	GPIO 3.3V voltage levels
USB0-EN	P4-0	GPIO 3.3V voltage levels
USB0-OC	P5-0	GPIO 3.3V voltage levels
USB1-EN	P8-0	GPIO 3.3V voltage levels
USB1-OC	P8-1	GPIO 3.3V voltage levels

Note:

1. USB0 is configured as host, USB1 channel is configured as USB-OTG.

Audio codec

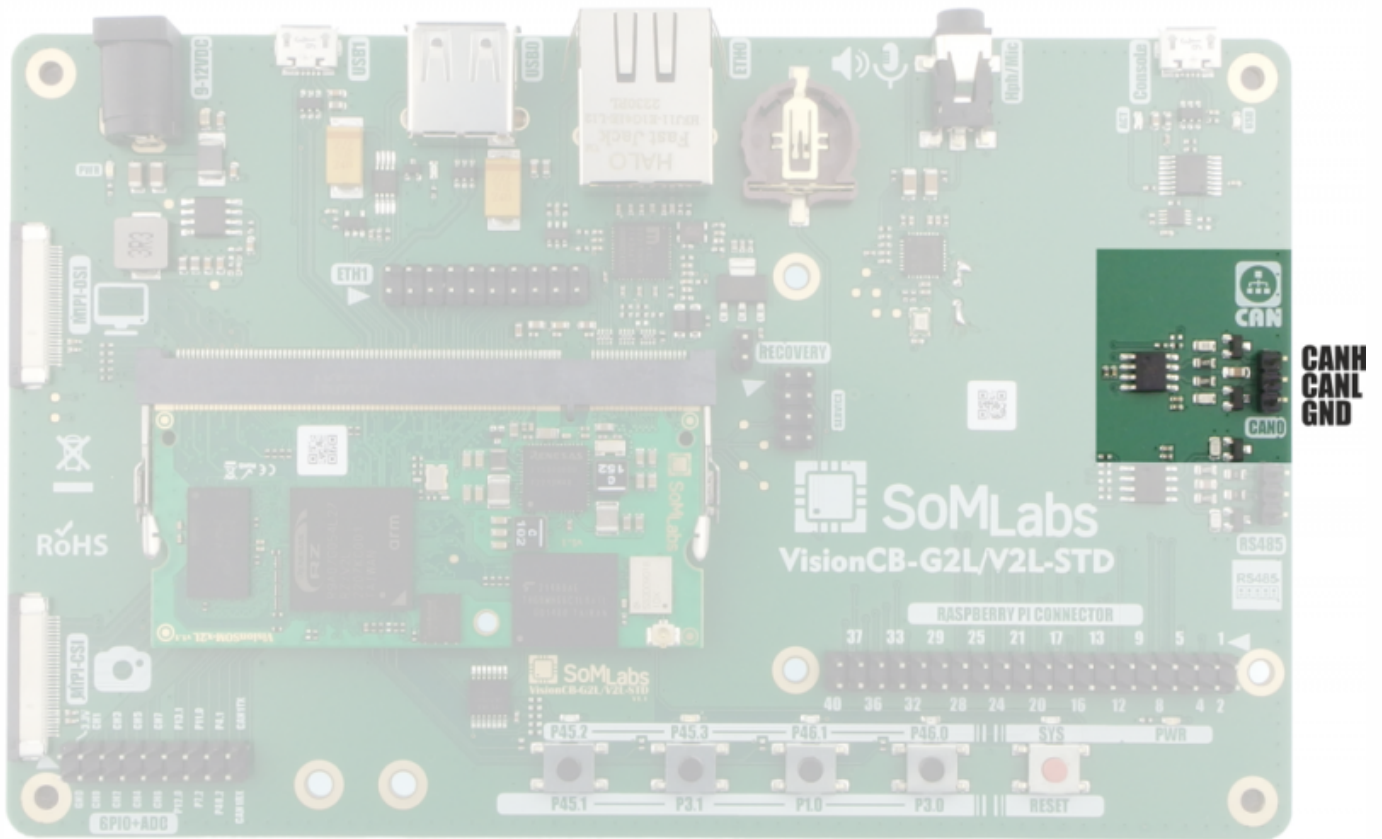


Signal	MPU signal	Description
SSI-MCLK	AUDIO_CLK1	GPIO 3.3V voltage levels
SSI0-BCK	P6-0	GPIO 3.3V voltage levels
SSI0-RCK	P6-1	GPIO 3.3V voltage levels
SSI0-TXD	P7-0	GPIO 3.3V voltage levels
SSI0-RXD	P7-1	GPIO 3.3V voltage levels

Note:

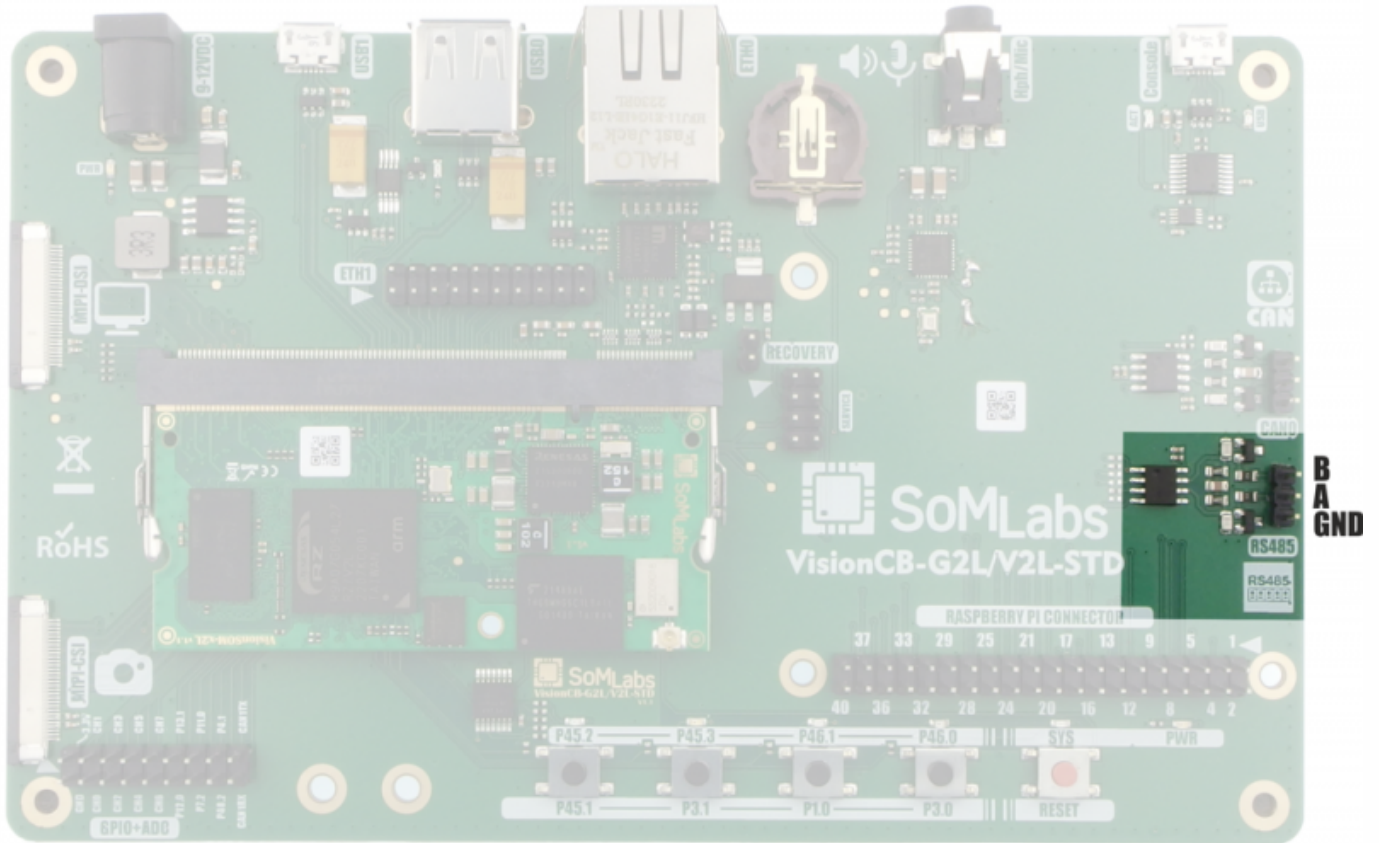
1. Audio codec is configured via I2C2 MPU interface.

CAN interface



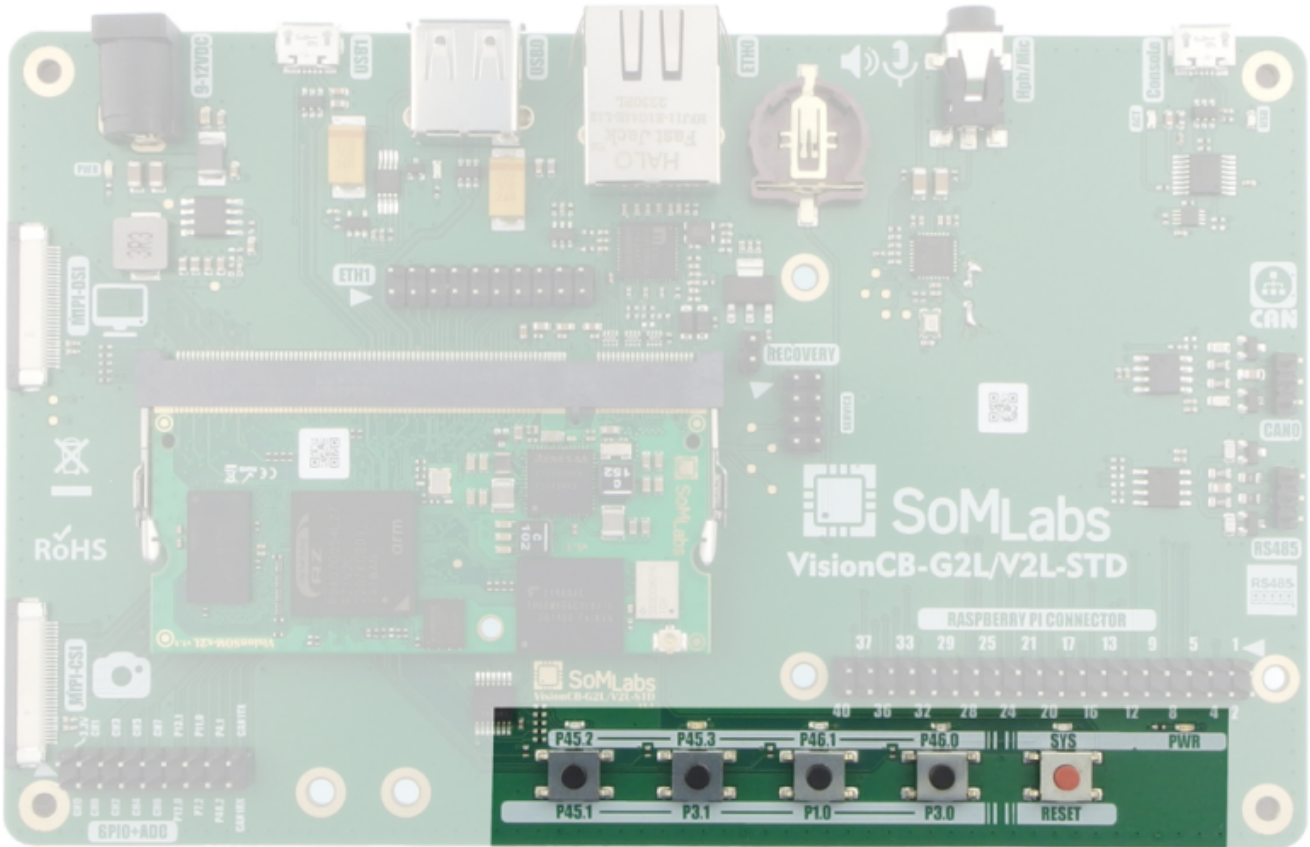
Signal	MPU signal	Description
CAN0-RX	P42-2	GPIO 3.3V voltage levels
CAN0-TX	P42-1	GPIO 3.3V voltage levels
CAN0-STB	P18-1	GPIO 3.3V voltage levels (STB line of MCP2542FD)

RS-485 interface



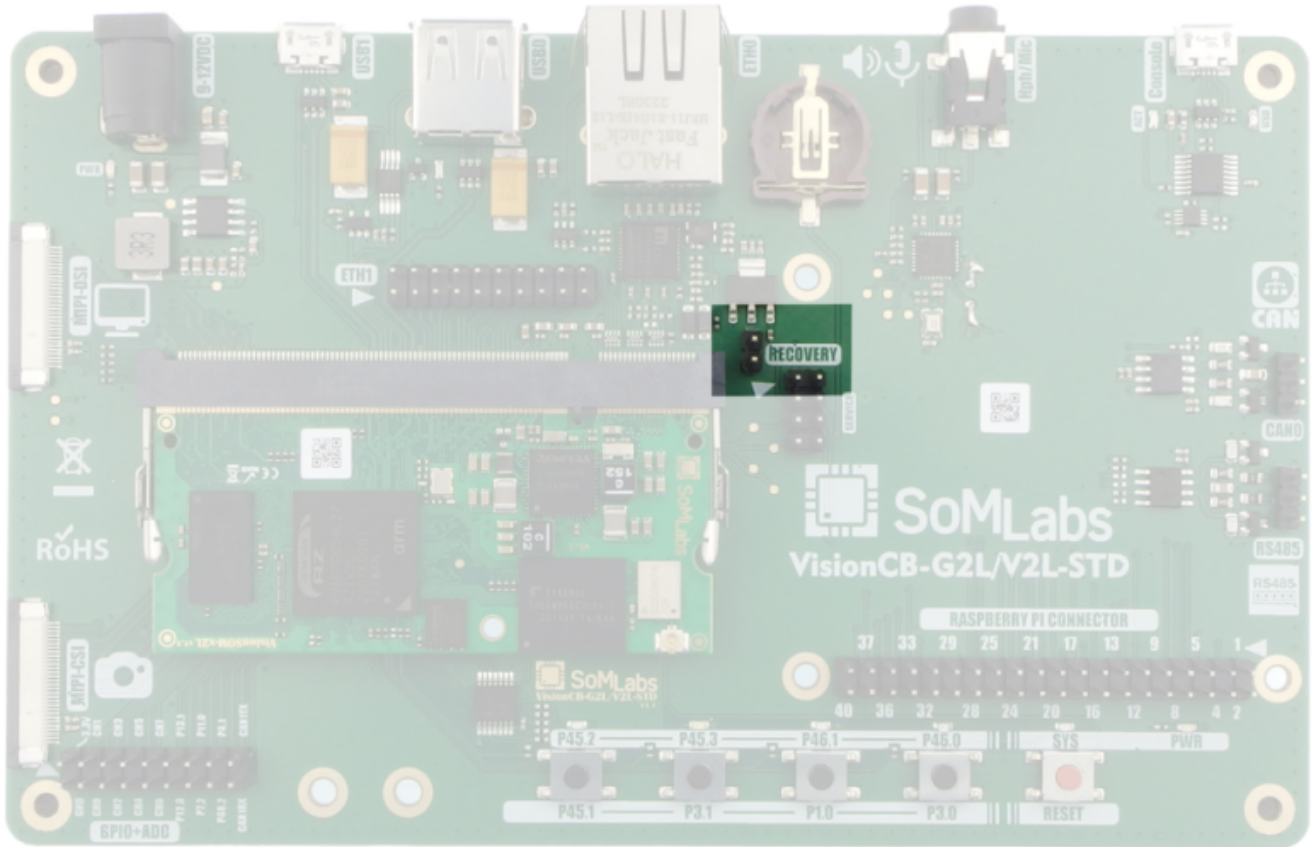
Signal	MPU signal	Description
UART3-RXD	P0-1	GPIO 3.3V voltage levels
UART3-TXD	P0-0	GPIO 3.3V voltage levels
RS485-RE	P18-0	GPIO 3.3V voltage levels In default configuration RS485-RE is connected to nRE and DE inputs of MAX3485
RS485-DE	P19-0	GPIO 3.3V voltage levels In default configuration this line is not used

User Interface (switches and LEDs)

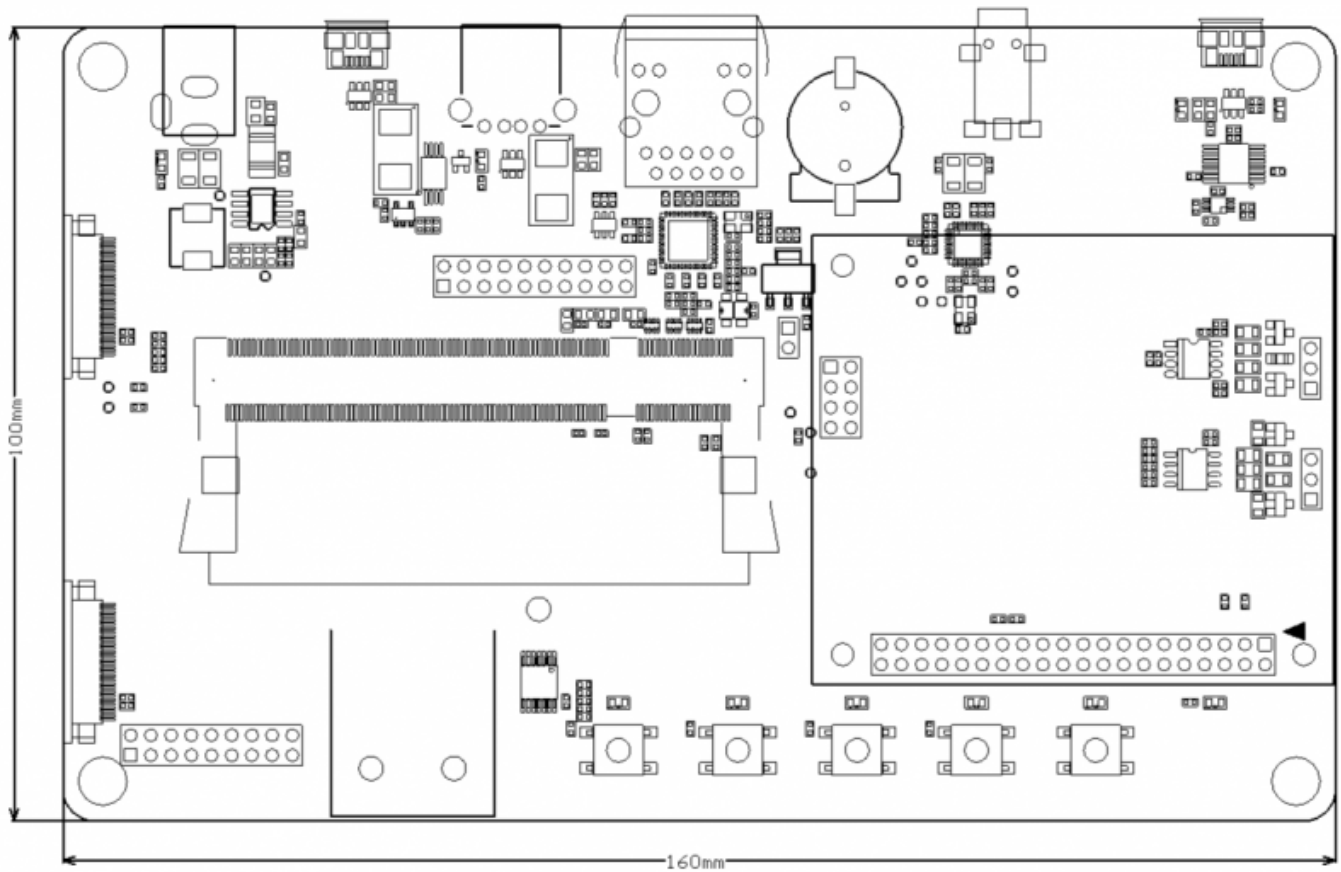


Signal	MPU signal	Description
User LEDs		
P45-2	P45-2	Inverted logic level
P45-3	P45-3	Inverted logic level
P46-0	P46-0	Inverted logic level
P46-1	P46-1	Inverted logic level
SYS-LED	P42-0	Inverted logic level
User switch		
P1-0	P1-0	Pushbutton, line pulled-up
P3-0	P3-0	Pushbutton, line pulled-up
P3-1	P3-1	Pushbutton, line pulled-up
P45-1	P45-1	Pushbutton, line pulled-up

RECOVERY jumper



Dimensions



**SoMLabs**

Lwowska 5
05-120 Legionowo
Poland
Tel. +48 22 767 36 20
Email: contact@somlabs.com
<http://somlabs.com>

Disclaimer: The information in this document is provided in connection with SoMLabs products. No license, express or implied, to any intellectual property right is granted by this document or in connection with the sale of SoMLabs products. SoMLabs makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and products descriptions at any time without notice. SoMLabs does not make any commitment to update the information contained herein.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[SoMLabs:](#)

[VisionCB-x2L-STD v.1.2](#)