StarCB-6ULL-STD Datasheet and Pinout

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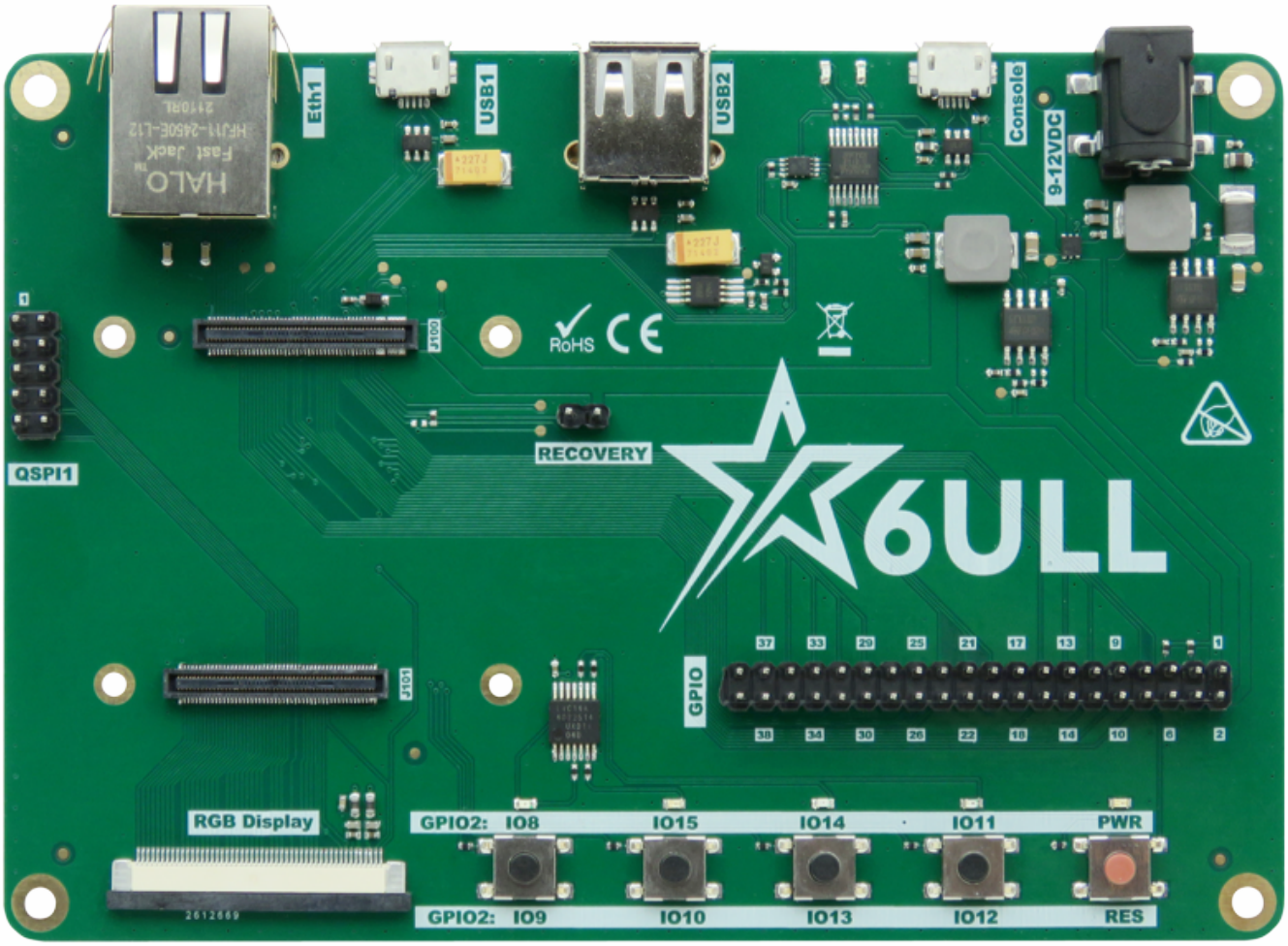
StarCB-6ULL-STD Datasheet and Pinout

General description



StarCB-6ULL-STD is a carrier board for the StarSOM-6ULL family of computer-on-modules, which are powered by NXP i.MX 6ULL application processors (ARM Cortex-A7). A 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, etc. A large variety of interfaces allows to use it as both a complete development platform or as a stand-alone end-product.
The carrier board connects with the SoM via a board-to-board, low profile connectors.

Applications

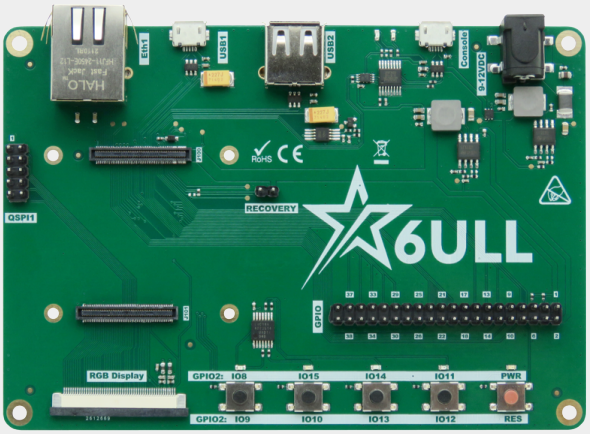
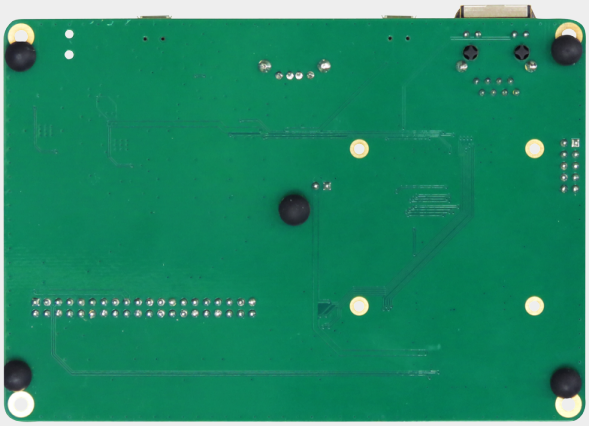
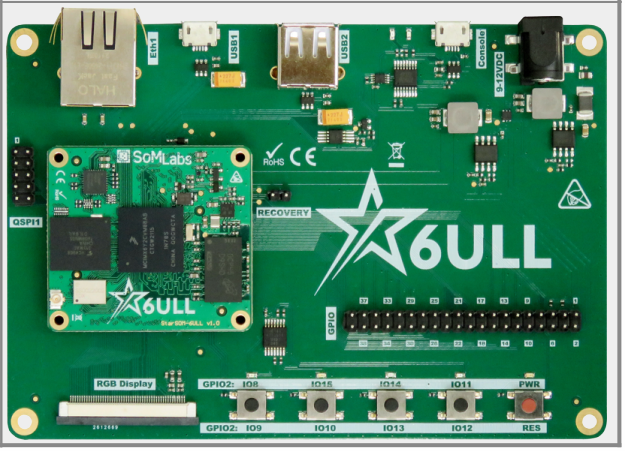
- IoT Sensor Hubs
- Home Appliances
- IoT gateways
- Protocol converters
- Home Automation – Smart Home
- Point-of-sales (POS) terminals
- Cash Register
- 2D barcode scanners and printers

- Smart grid infrastructure
- Residential gateways
- Outdoor equipment

Features

- Carrier Board (Base Board) compatible with the StarSOM-6ULL family of modules based iMX6ULL application processors
- SoM Interface: 2x100 board-to-board connectors
- Debug Interface: Linux console (vCOM/USB)
- Expansion Connectors:
    - QSPI connector 2x10 Pin Header (Male)
    - GPIO connector 2x20 Pin Header (Male)
- Communication Connectors:
    - 1x Ethernet 10/100Mbit/s, RJ45
    - 1x USB Host Type A connectors
    - 1x USB OTG Micro AB connector
    - 1x Console MicroUSB B connector
- Display Interface:
    - 50-pin FFC/FPC parallel RGB (up to 24 bits)
- User Interface:
    - 4+1 Pushbuttons
    - 4+3 LEDs
- External Power Supply 9-12V DC
- Temperature Range: 0 to +70°C
- Board Size: 130mm x 90mm x 20mm

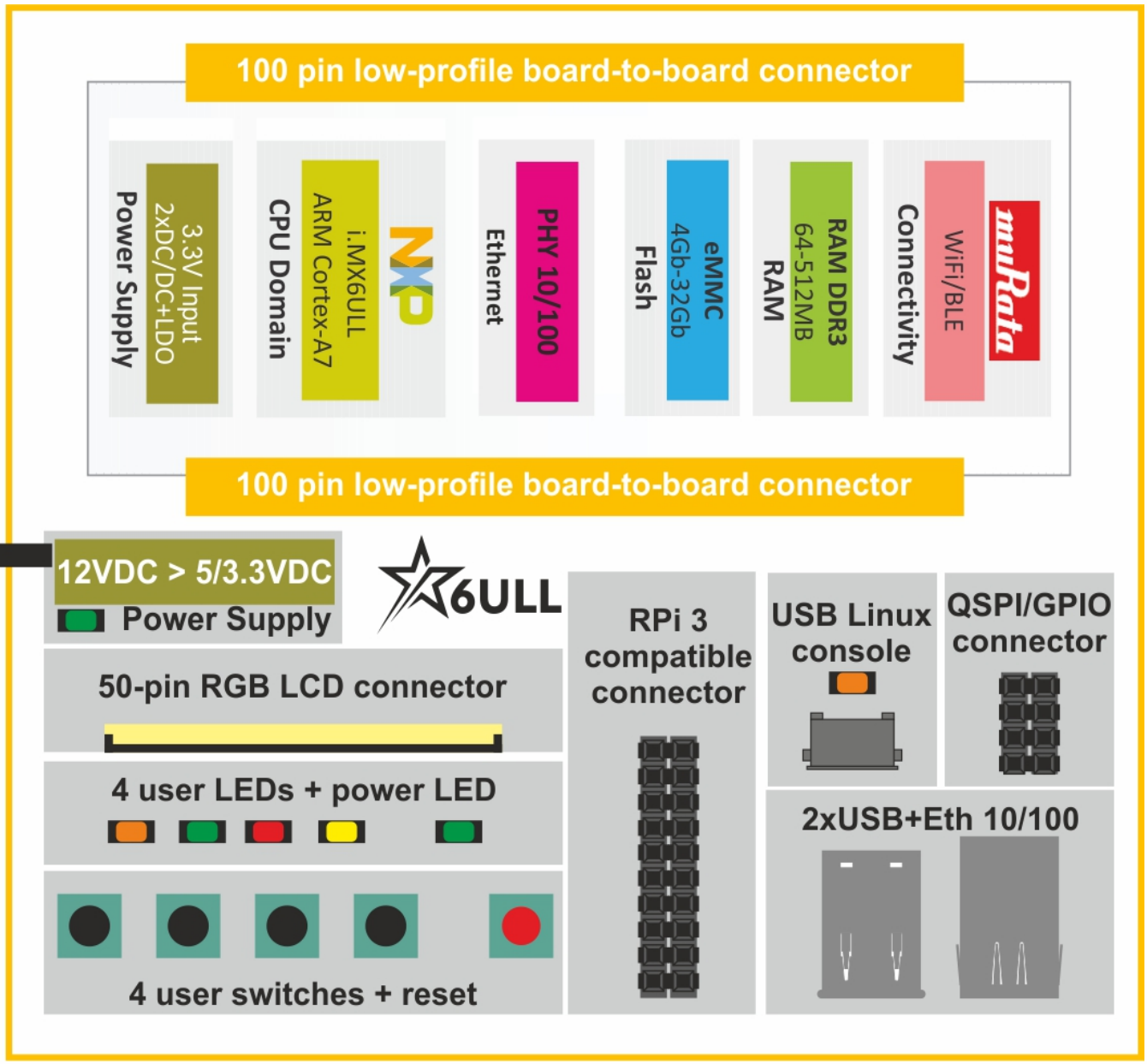
Pictures of StarCB-6LLL-STD board

Version	Photo
StarCB-6LL-STD board only	
StarCB-6LL-STD board - bottom side	
StarCB-6LL-STD board with StarSOM-6ULL installed	

Ordering info

StarCB-6ULL-STD

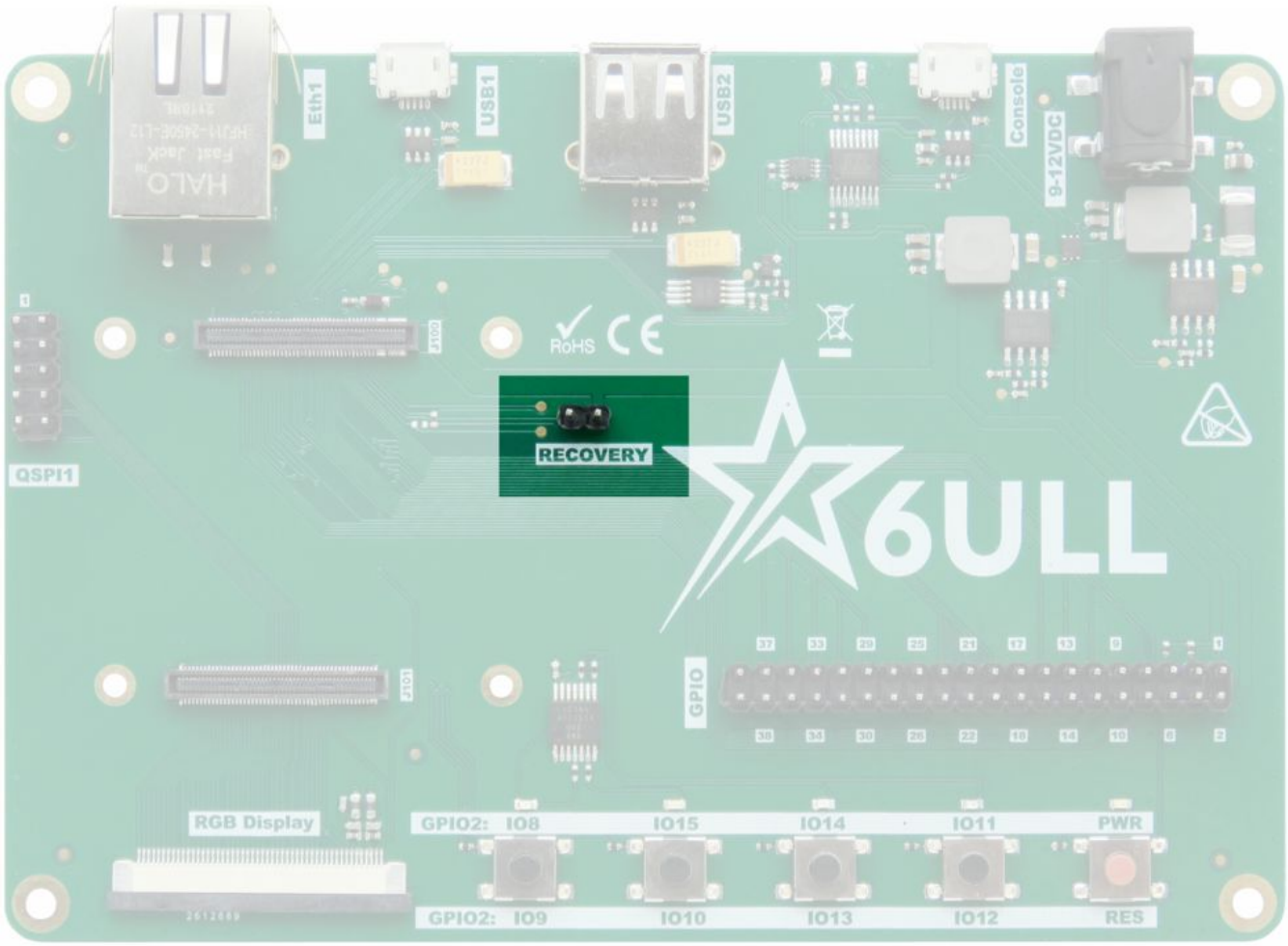
Block Diagram



Electrical parameters

Parameter	Value			Units	Comment
	Min.	Typ.	Max.		
Power Supply	9.0	12.0	15.0	V	Positive pole on central connector of J400
Supply current	-	-	0.09	A	Excluding SOM, LCD, USB and antoher external loads
GPIO voltage		3.3		V	

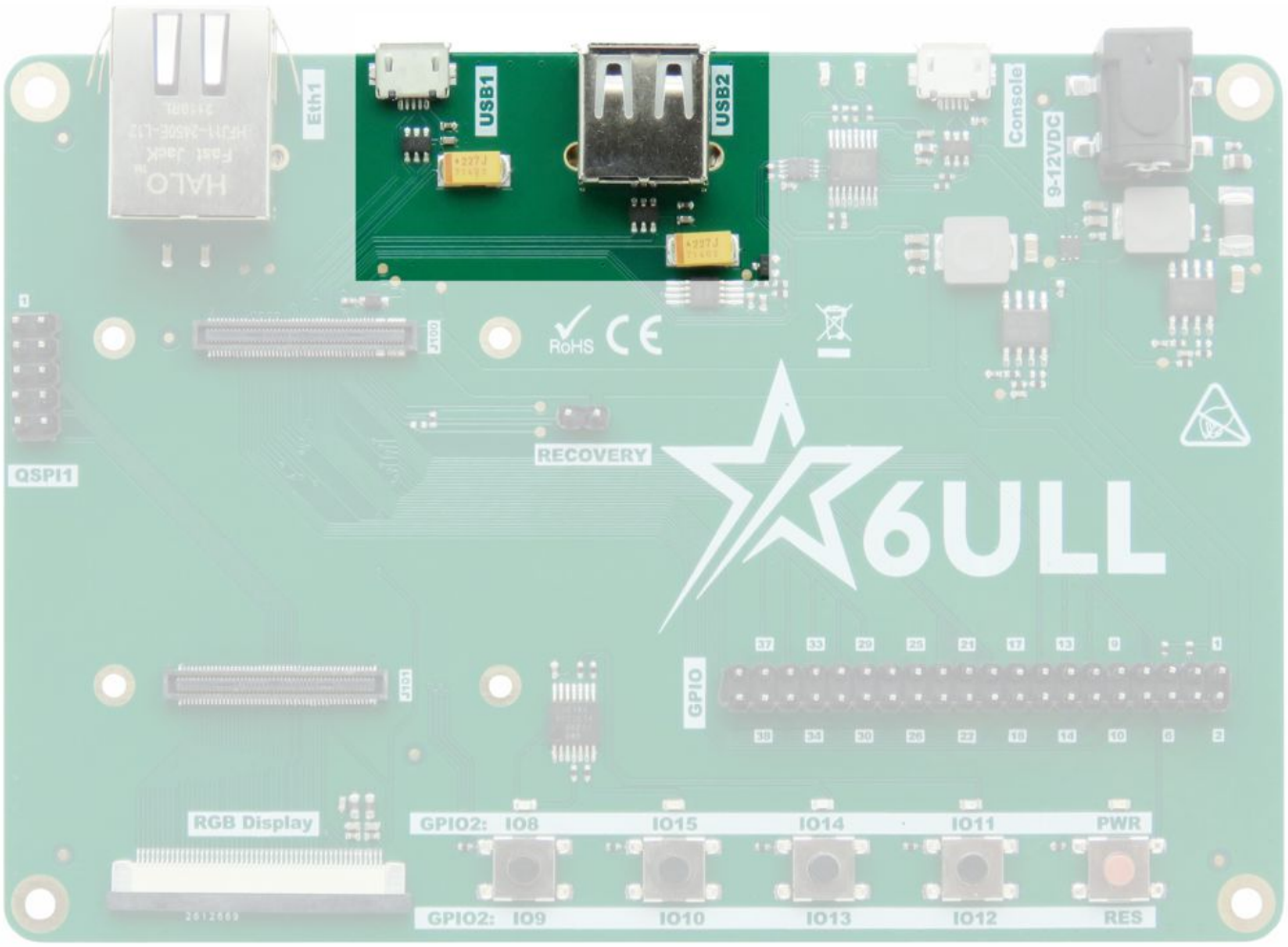
Recovery jumper (J501, 2.54mm)



Pin	Signal	Description
1	Recovery	SOM recovery input
2	GND	

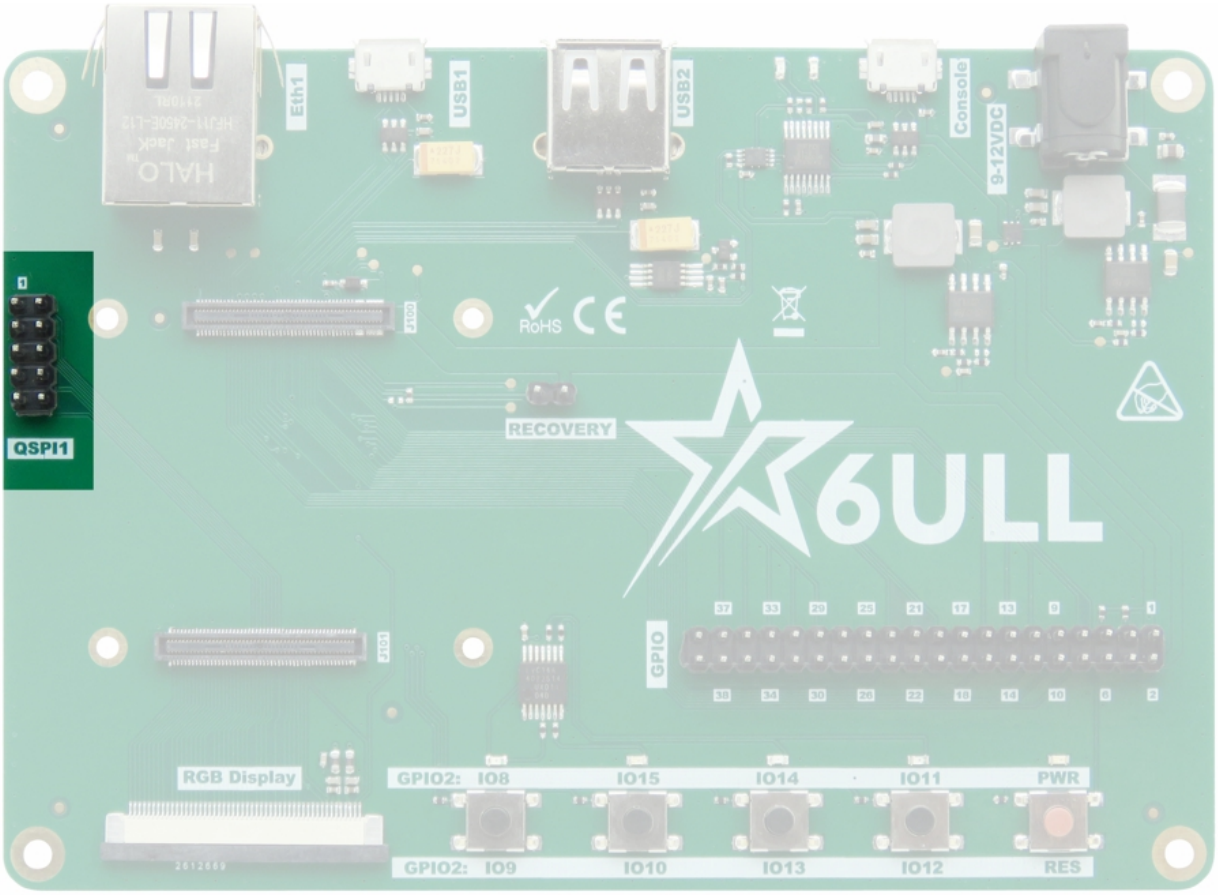
Note:
1. To start recovery procedure connect pins 1 and 2 of J501 and press RES (red) button.

USB interfaces (J200 and J201)



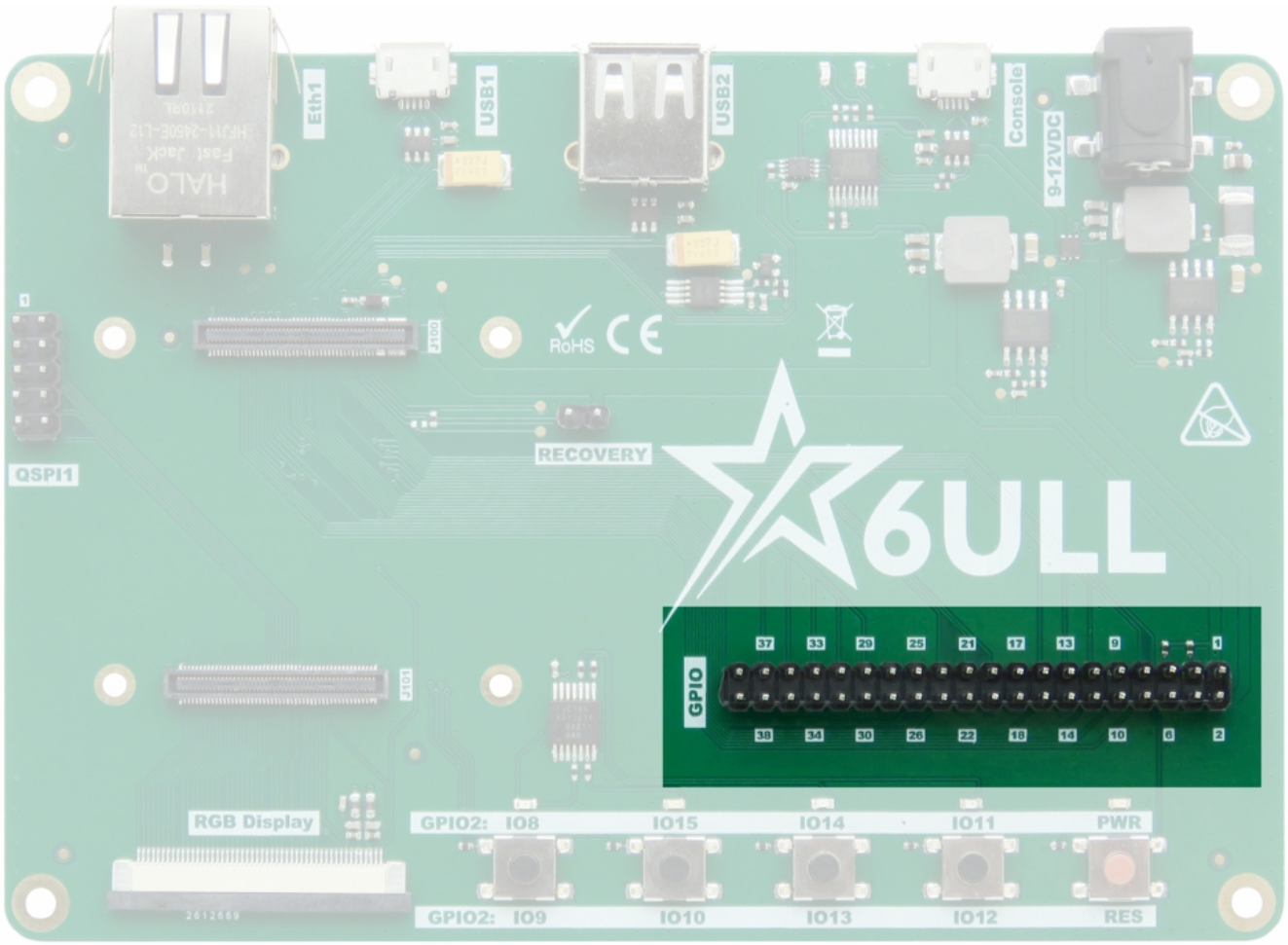
1. Connector J200 (5-pin MicroUSB-OTG) is connected to USB1 MPU transceiver.
2. USB1 is OTG type interface used for application and recovery purposes.
3. Connector J201 (4-pin USB-A) is connected to USB2 MPU transceiver.
4. USB1-ID (OTG identification line) is connected to GPIO1.00 of MPU.
5. USB1-VBUS-EN (USB device power supply enable line) is connected to GPIO1.05 of MPU.

QSPI interface (J502, 2x5 gold-pin, 2.54mm)



Pin	Signal	Description
1	QSPI1.D0	optionally GPIO4.12
2	VDD-EMMC	Internal (on SOM) 1.8V LDO output as reference or power supply voltage for QSPI (SDIO) interface
3	QSPI1.D1	optionally GPIO4.13
4	QSPI1.CLK	optionally GPIO4.11
5	QSPI1.D2	optionally GPIO4.14
6	QSPI1.CS0	optionally GPIO4.16
7	QSPI1.D3	optionally GPIO4.15
8	-	-
9	QSPI1.DQS	optionally GPIO4.10
10	GND	-

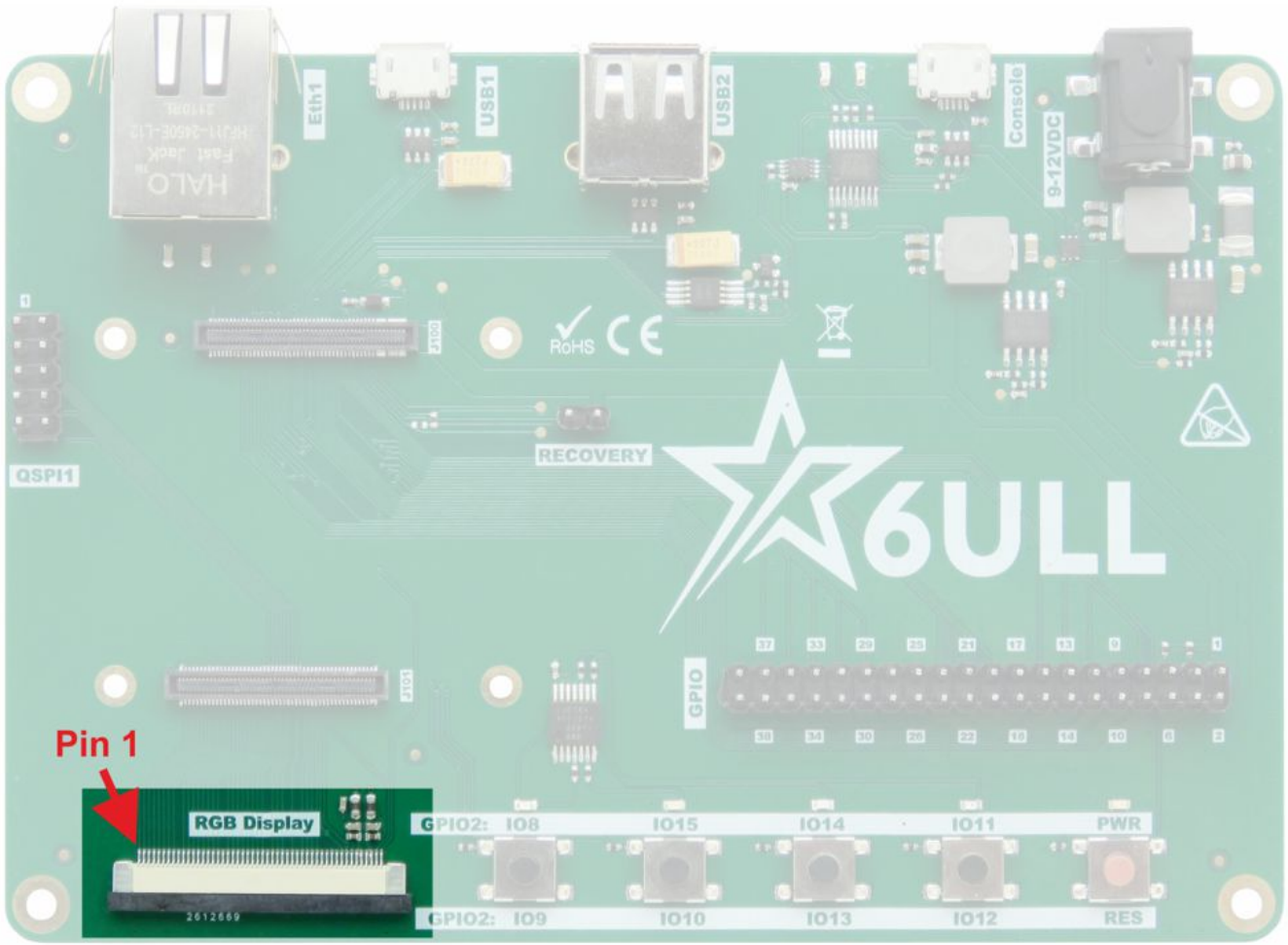
GPIO connector (J500, 2x20 gold-pin, 2.54mm)



Pin	Signal	Description
1	VDD-3V3	Power supply for external loads (up to 300 mA)
2	VDD-5V0	Power supply for external loads (up to 200 mA)
3	I2C2-SDA	4.7k pull-up resistor connected Connected to LCD J300 connector (touch panel controller) Optionally GPIO1.31
4	VDD-5V0	Power supply for external loads (up to 200 mA)
5	I2C2-SCL	4.7k pull-up resistor connected Connected to LCD J300 connector (touch panel controller) Optionally GPIO1.30
6	GND	-
7	TAMPER.0	optionally GPIO5.00
8	UART3.TXD	optionally GPIO1.24
9	GND	-
10	UART3.RXD	optionally GPIO1.25
11	TAMPER.1	optionally GPIO5.01
12	UART3.RTS	optionally GPIO1.27
13	TAMPER.2	optionally GPIO5.02
14	GND	-
15	TAMPER.3	optionally GPIO5.03

16	UART3.CTS	optionally GPIO1.26
17	VDD-3V3	Power supply for external loads (up to 300 mA)
18	JTAG.TDI	optionally GPIO1.13
19	UART1.CTS	optionally GPIO1.18
20	GND	-
21	UART1.RTS	optionally GPIO1.19
22	JTAG.TMS	optionally GPIO1.11
23	UART1.RXD	optionally GPIO1.17
24	UART1.TXD	optionally GPIO1.16
25	GND	-
26	TAMPER.9	optionally GPIO5.09
27	-	-
28	-	-
29	TAMPER.4	optionally GPIO5.04
30	GND	-
31	UART2.RXD	optionally GPIO1.21
32	TAMPER.8	optionally GPIO5.08
33	UART2.TXD	optionally GPIO1.20
34	GND	-
35	UART2.RTS	optionally GPIO1.23
36	TAMPER.7	optionally GPIO5.07
37	UART2.CTS	optionally GPIO1.22
38	TAMPER.6	optionally GPIO5.06
39	GND	-
40	TAMPER.5	optionally GPIO5.05

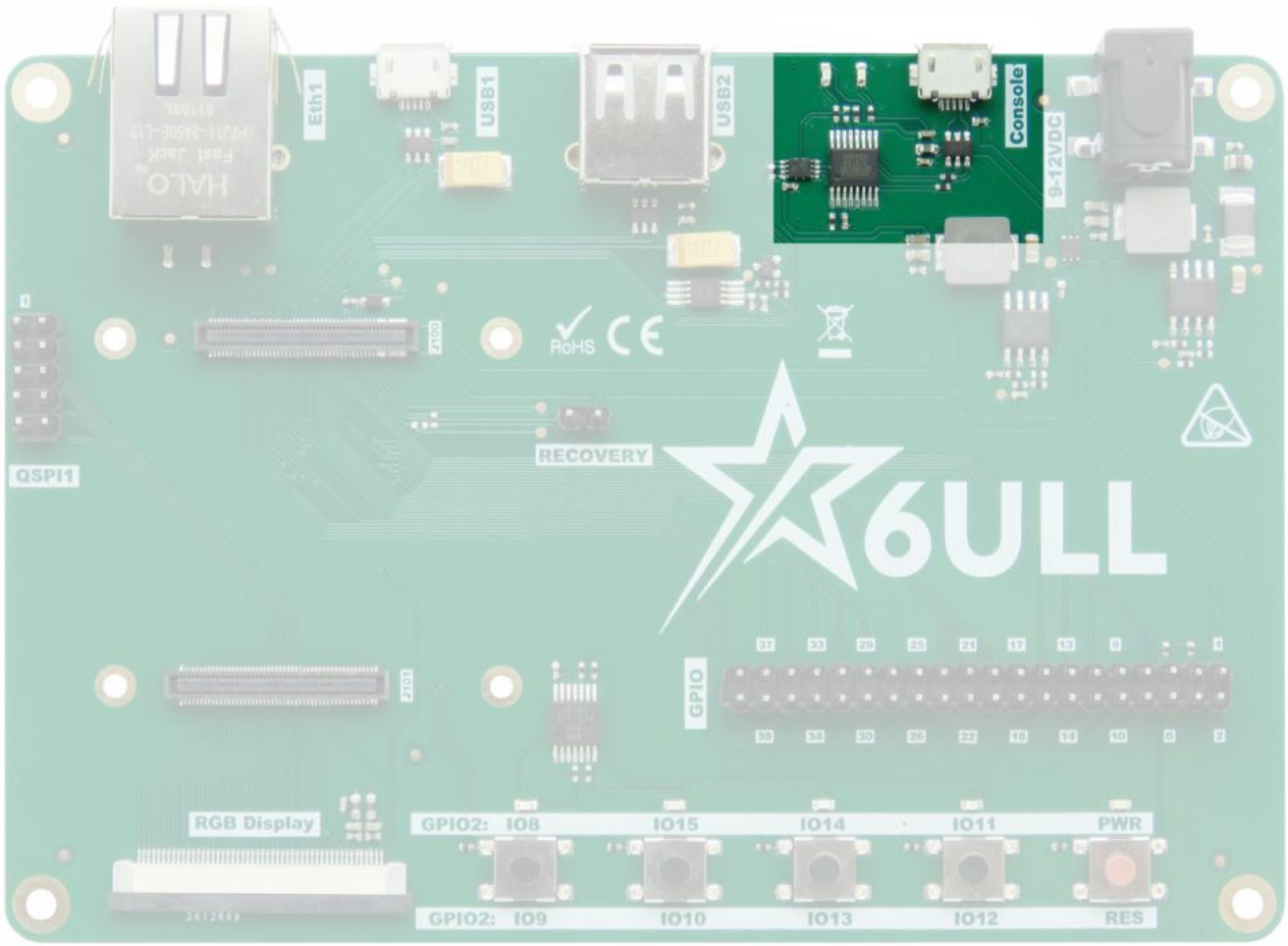
Display interface (J300, FPC/FFC 0.5mm)



Pin	Signal	Description
1	LCD.DATA00	B0
2	LCD.DATA01	B1
3	LCD.DATA02	B2
4	LCD.DATA03	B3
5	LCD.DATA04	B4
6	LCD.DATA05	B5
7	LCD.DATA06	B6
8	LCD.DATA07	B7
9	GND	-
10	LCD.DATA08	G0
11	LCD.DATA09	G1
12	LCD.DATA10	G2
13	LCD.DATA11	G3
14	LCD.DATA12	G4
15	LCD.DATA13	G5
16	LCD.DATA14	G6
17	LCD.DATA15	G7

18	GND	-
19	LCD.DATA16	R0
20	LCD.DATA17	R1
21	LCD.DATA18	R2
22	LCD.DATA19	R3
23	LCD.DATA20	R4
24	LCD.DATA21	R5
25	LCD.DATA22	R6
26	LCD.DATA23	R7
27	GND	-
28	LCD.ENABLE	-
29	LCD.HSYNC	-
30	LCD.VSYNC	-
31	GND	-
32	LCD.CLK	-
33	GND	-
34	GPIO1.04	TS-YPUL
35	GPIO1.03	TS-YNUR
36	GPIO1.02	TS-YPLL
37	GPIO1.01	TS-YNLR
38	-	-
39	-	-
40	-	-
41	-	-
42	I2C2-SCL	4.7k pull-up resistor connected Touch panel controller interface
43	I2C2-SDA	4.7k pull-up resistor connected Touch panel controller interface
44	GND	-
45	VDD-3V3	+3.3V power source fr LCD module
46	VDD-3V3	+3.3V power source fr LCD module
47	VDD-3V3	+3.3V power source fr LCD module
48	VDD-3V3	+3.3V power source fr LCD module
49	LCD.RESET	Optional reset signal GPIO3.04
50	PWREN	Optional power-enable signal GPIO1.15

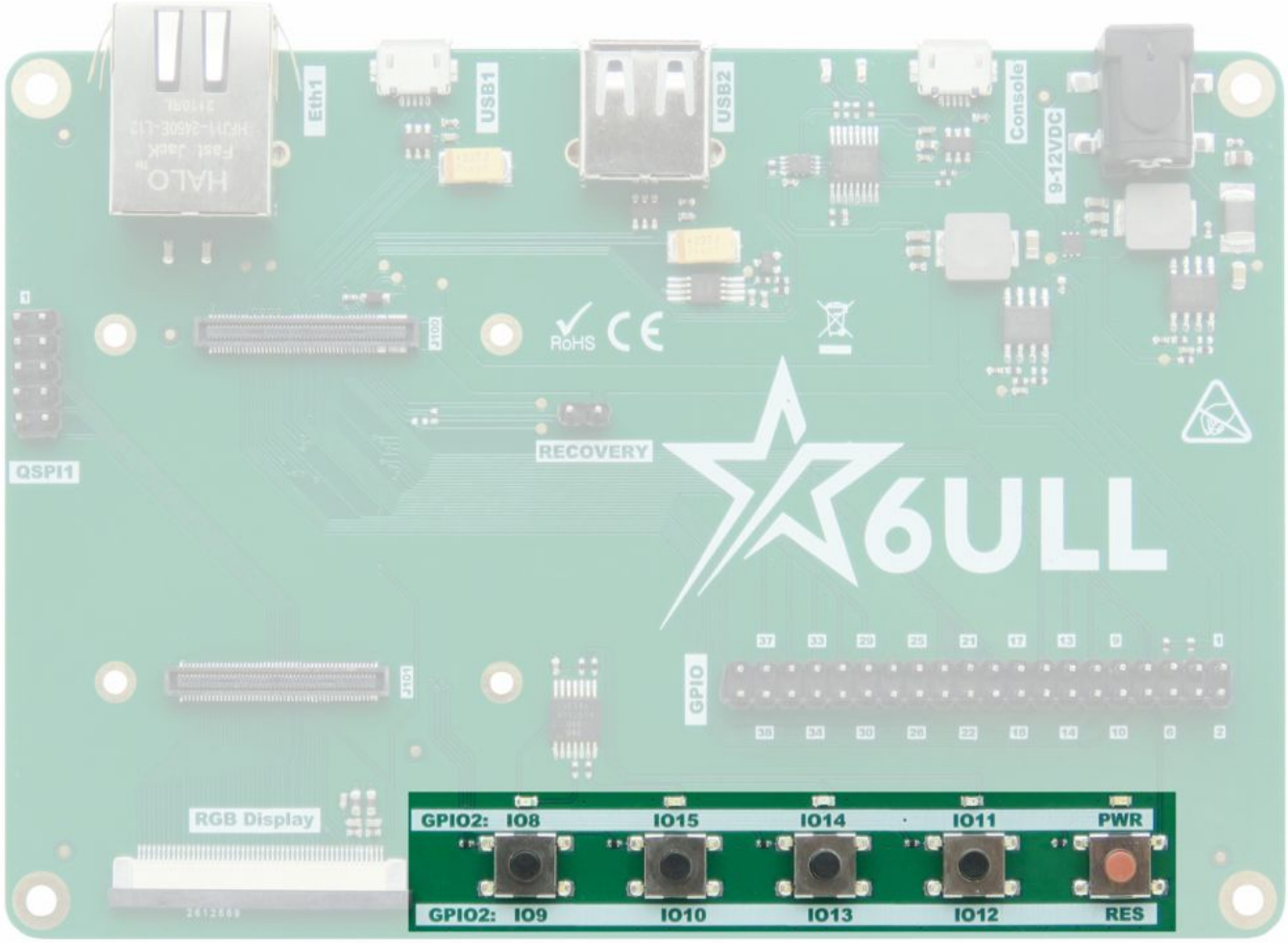
USB Console Port



MPU Port	GPIO	Description
CONSOLE-TXD	UART4.TXD	TxD line from MPU to vCOM
CONSOLE-RXD	UART4.RXD	RxD line to MPU from vCOM

Note:
1. Linux console port (UART4 in MPU) uses vCOM interface.
2. Two LEDs near MicroUSB connectors allow to monitor connection to USB interface and data transmission.

User Interface (switches and LEDs)



User switches

Switch	GPIO	Description
S500 (black, most on the left)	GPIO2.09	Optionally ENET2.RXD1
S501	GPIO2.10	Optionally ENET2.RXEN
S502	GPIO2.13	Optionally ENET2.TXEN
S503 (black, on the right)	GPIO2.12	Optionally ENET2.TXD1

System switches

Switch	Signal name	Description
S504 (on the right, red)	Reset	Connected to POR input on SOM

User LEDs

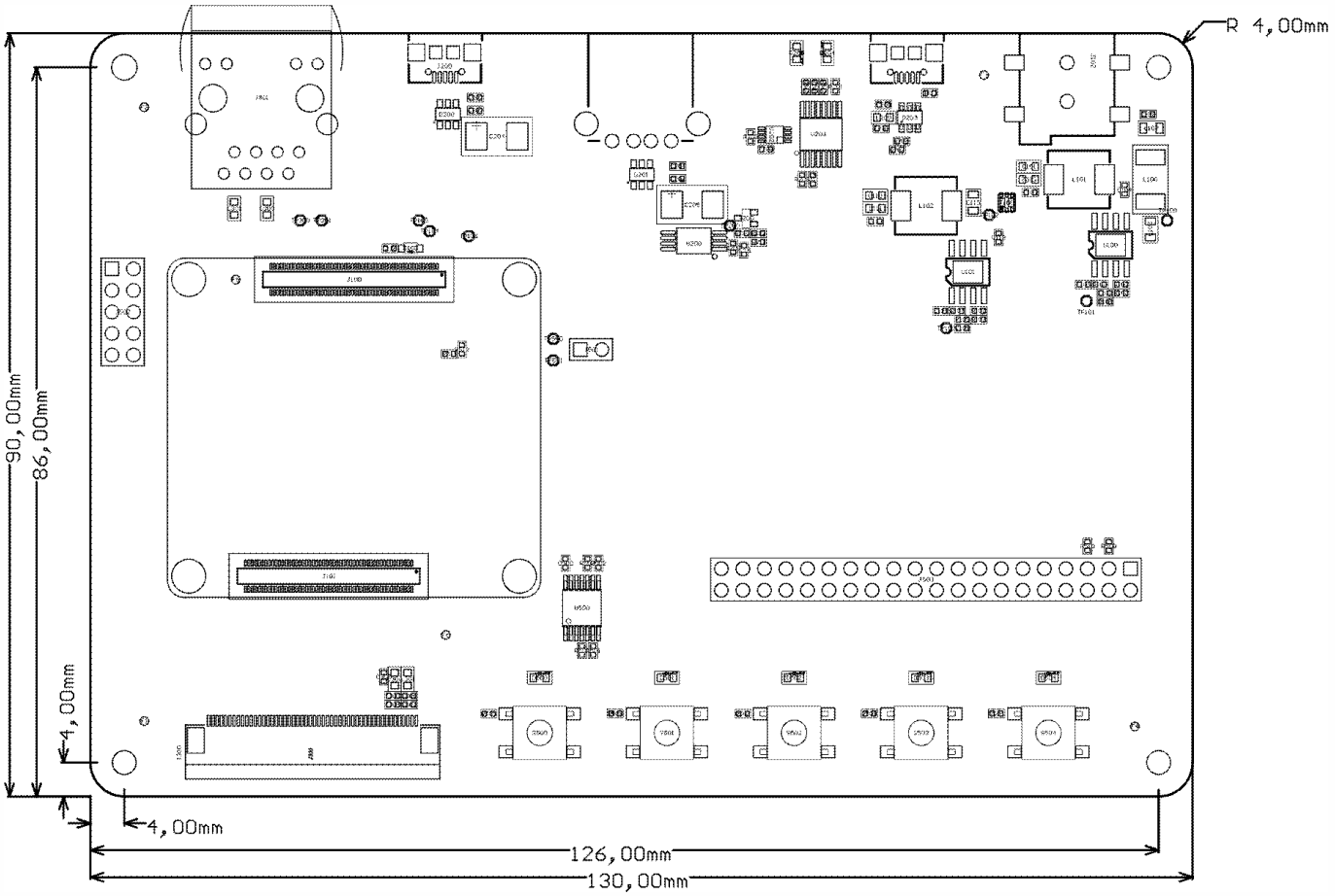
LED	GPIO	Description

D500 (most on the left)	GPIO2.08	User LED buffered with inverter Optionally ENET2.RXD0
D501	GPIO2.15	User LED buffered with inverter Optionally ENET2.RXER
D502	GPIO2.14	User LED buffered with inverter Optionally ENET2.TXCLK
D503 (most on the right)	GPIO2.11	User LED buffered with inverter Optionally ENET2.TXD0

System LEDs

LED	GPIO	Description
D504	Power	Power active (3.3V)

Dimensions



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