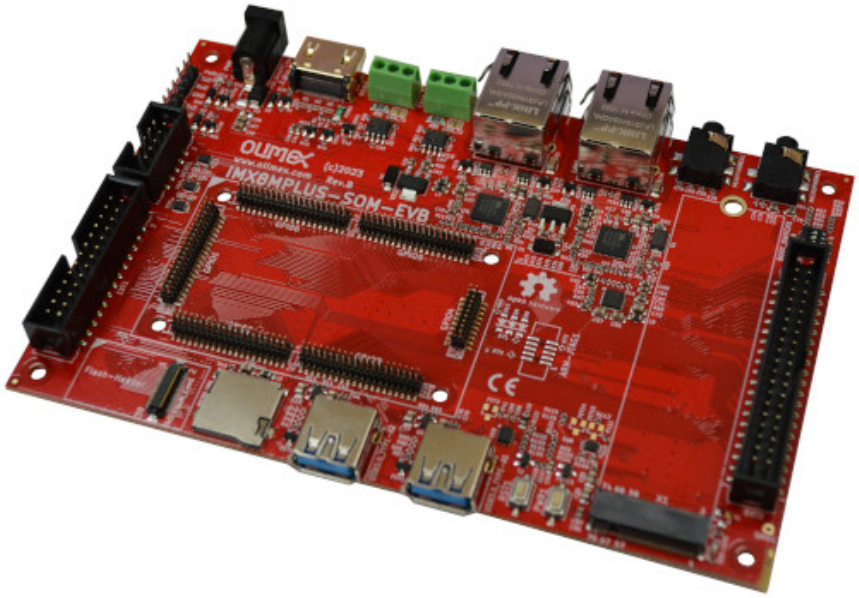



# IMX8MP-SOM-EVB

# User Manual

**document revision 2.0** **www.olimex.com**

# Table of Contents

# What is iMX8MP-SOM-EVB

iMX8MP-SOM-EVB is an expansion board for easier evaluation of iMX8MP-SOM system-on-module development board. It has:

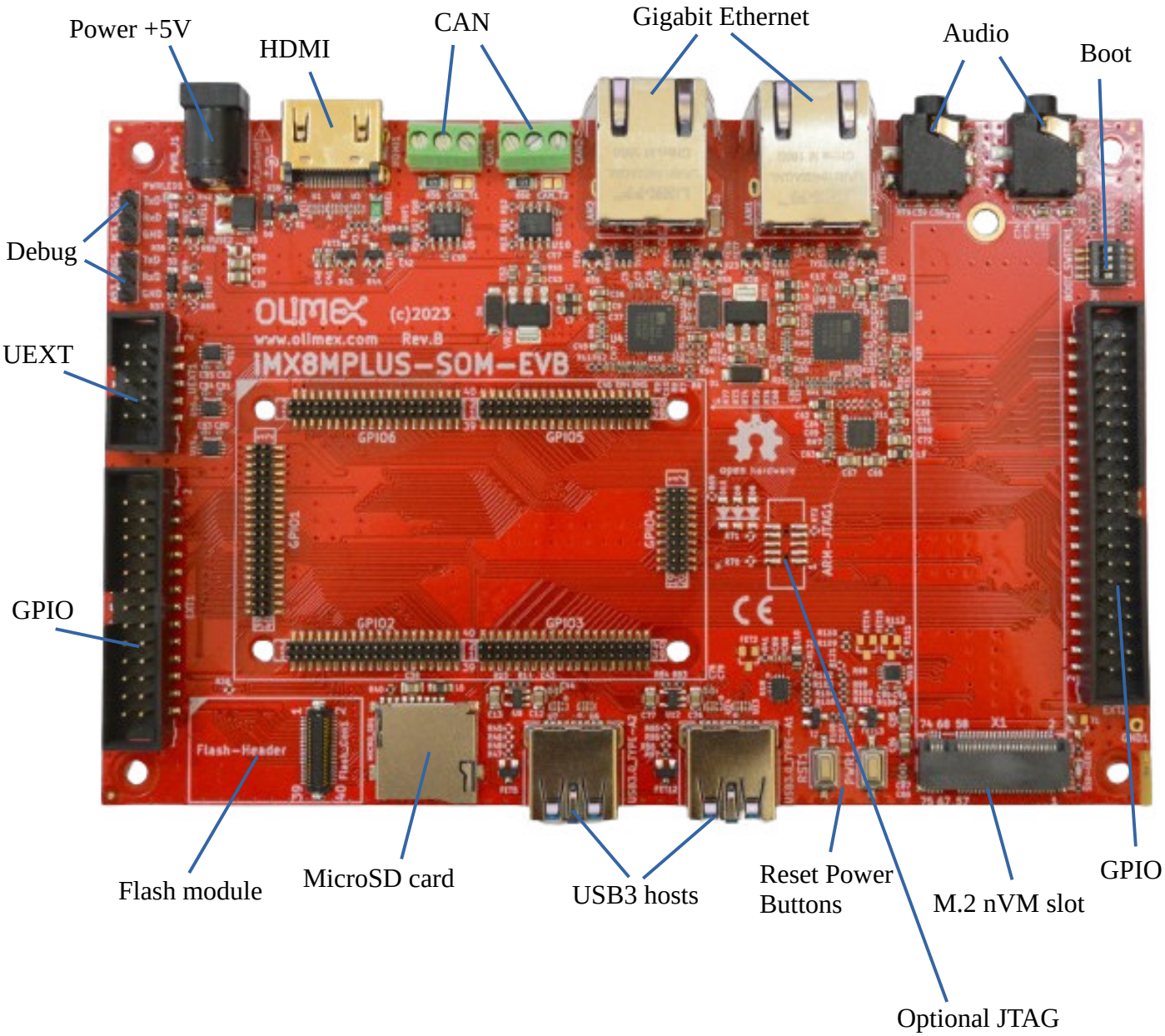
- iMX8MP-SOM matching connectors
- Two Gigabit Ethernet connectors
- Two CAN transceivers
- HDMI output connector
- Power jack for 5V DC
- Two serial debug UARTs (for A53 and M7)
- Micro SD-card connector
- Flash module connector
- USB 3.0 hosts
- PCI Express 3.0 M.2 expansion slot (2280) for nVME
- Headphone 3.5mm connector
- Microphone 3.5 mm connector
- Reset button
- PWR button
- UEXT connector
- Two GPIO connectors
- Optional ARM JTAG connector
- Boot slide switch
- Industrial grade temperature range: (-45+85)C
- Dimensions: (155 x 102)mm
- Open-hardware design, all original design files available, design made with KiCAD

## Order codes for iMX8MP-SOM-EVB and accessories

| | |
|---|---|
| iMX8MP-SOM-EVB | Expansion board for easy evaluation of iMX8MP-SOM which can be used as reference design; requires SOM module iMX8MP-SOM-4GB-IND |
| iMX8MP-SOM-4GB-IND | Main module with i.MX8 quad-core MIMX8ML8CVNKZAB, 4GB LPDDR4, EEPROM, PMIC |
| MICRO-SD-16GB-CLASS10 | Blank 16GB microSD card |
| USB-CARD-READER | USB card reader and writer |
| SY1505E | Power adapter 5V 3A |
| SY2005E | Power adapter 5V 5A |
| USB-SERIAL-F | Serial debug cable for console log |
| Flash-e32Gs16M | Plug-and-play eMMC and SPI memory expansion module |
| CABLE-HDMI-50CM | HDMI cable |
| USB-KEYBOARD-PS2 | Mini keyboard |
| PWR-CABLE | Cable with free leads fitting the Olimex barrel jacks |
| UEXT modules | There are temperature, humidity, pressure, magnetic field, light sensors. Modules with LCDs, LED matrix, Relays, Bluetooth, Zigbee, WiFi, GSM, GPS, RFID, RTC, EKG, sensors and etc. |

# HARDWARE

## iMX8MP-SOM-EVB layout



## iMX8MP-SOM-EVB schematics

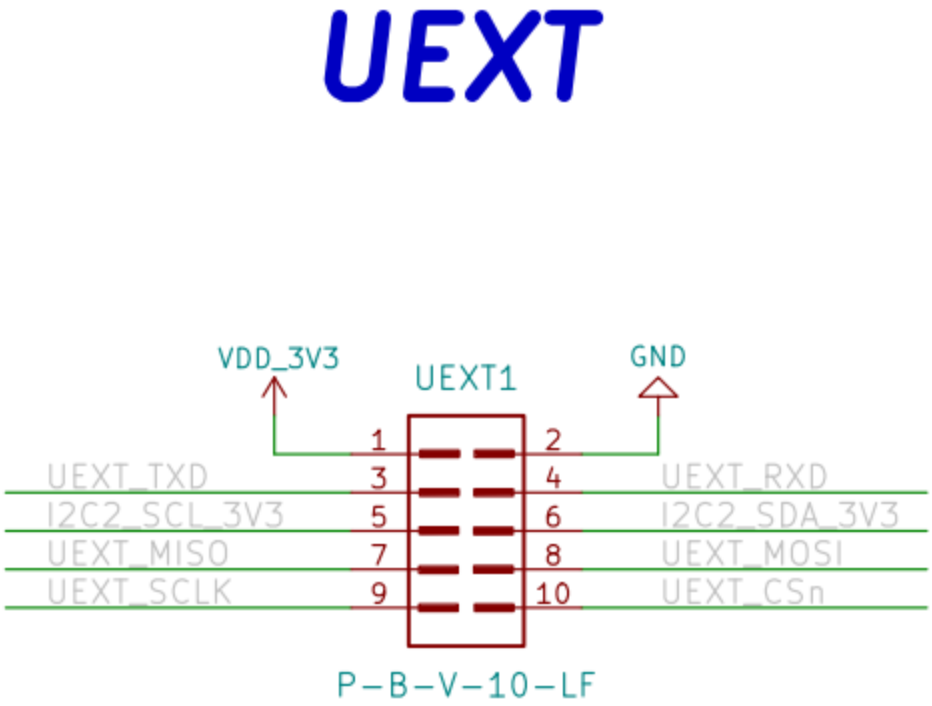
Latest PDF export of schematic is available at GitHub:

iMX8MP-SOM-EVB schematic PDF

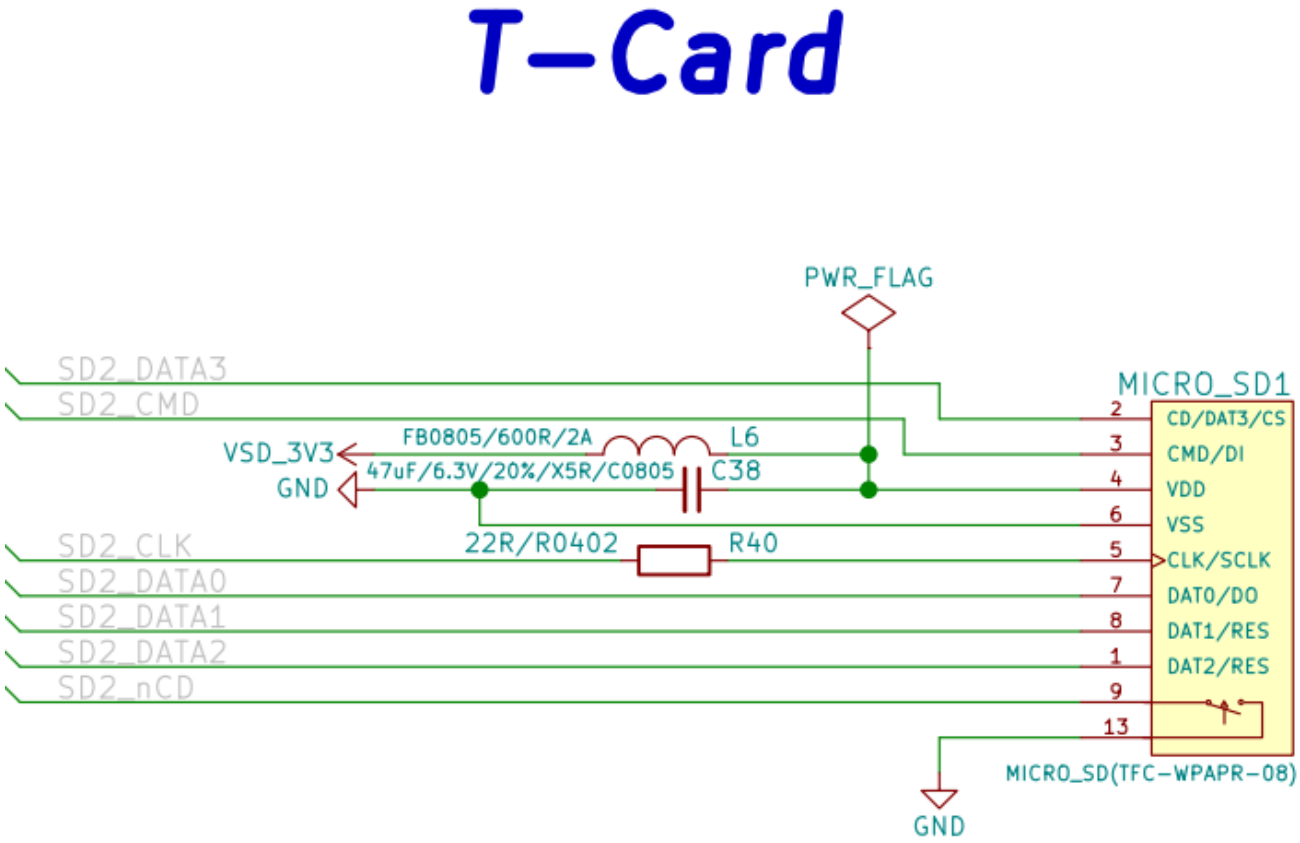
All design files and sources are again available at the GitHub page of the device.

# iMX8MP-SOM-EVB connectors

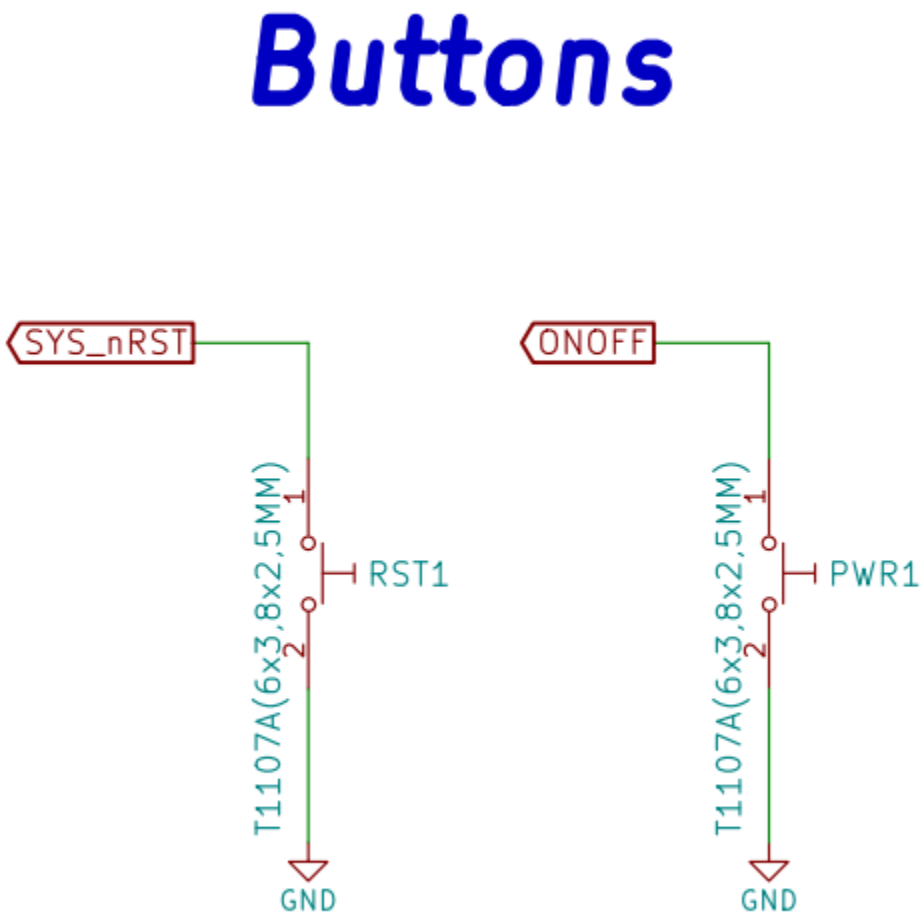
## UEXT1 connector



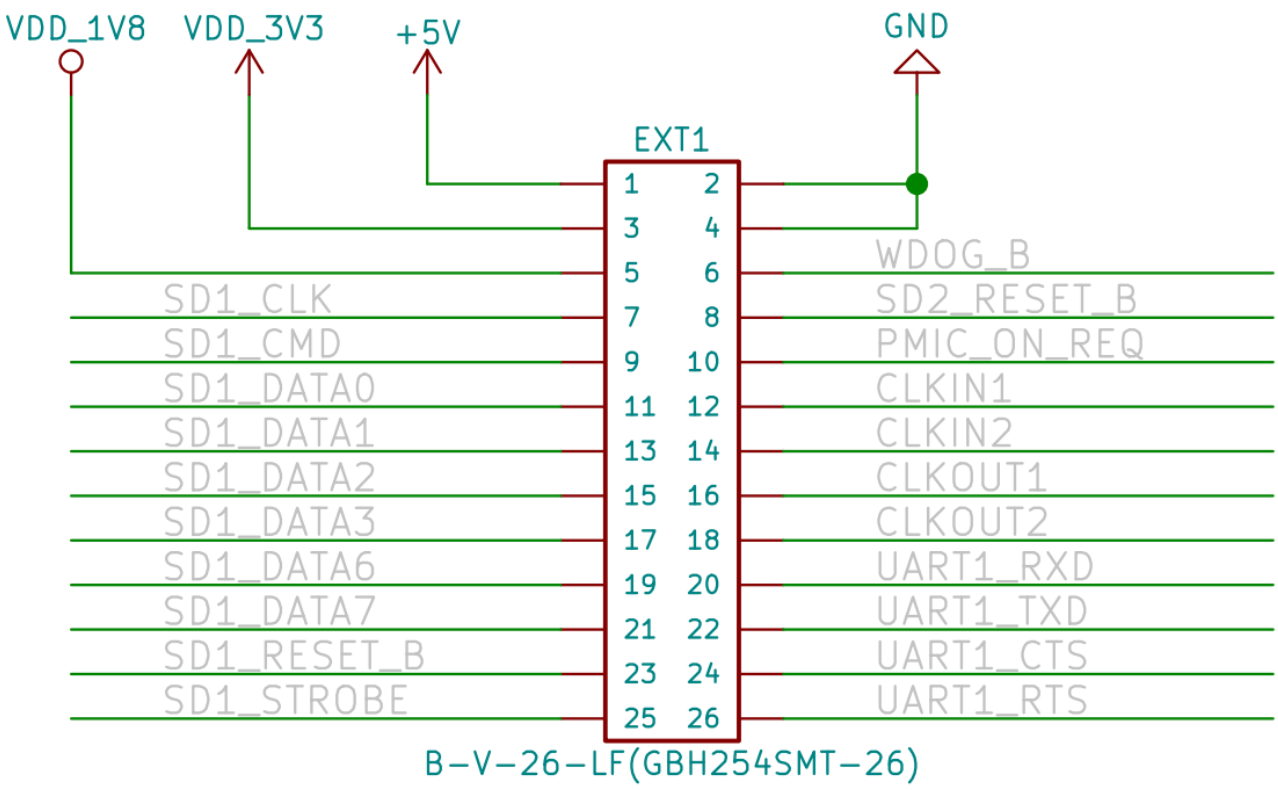
**Micro_SD1 connector**



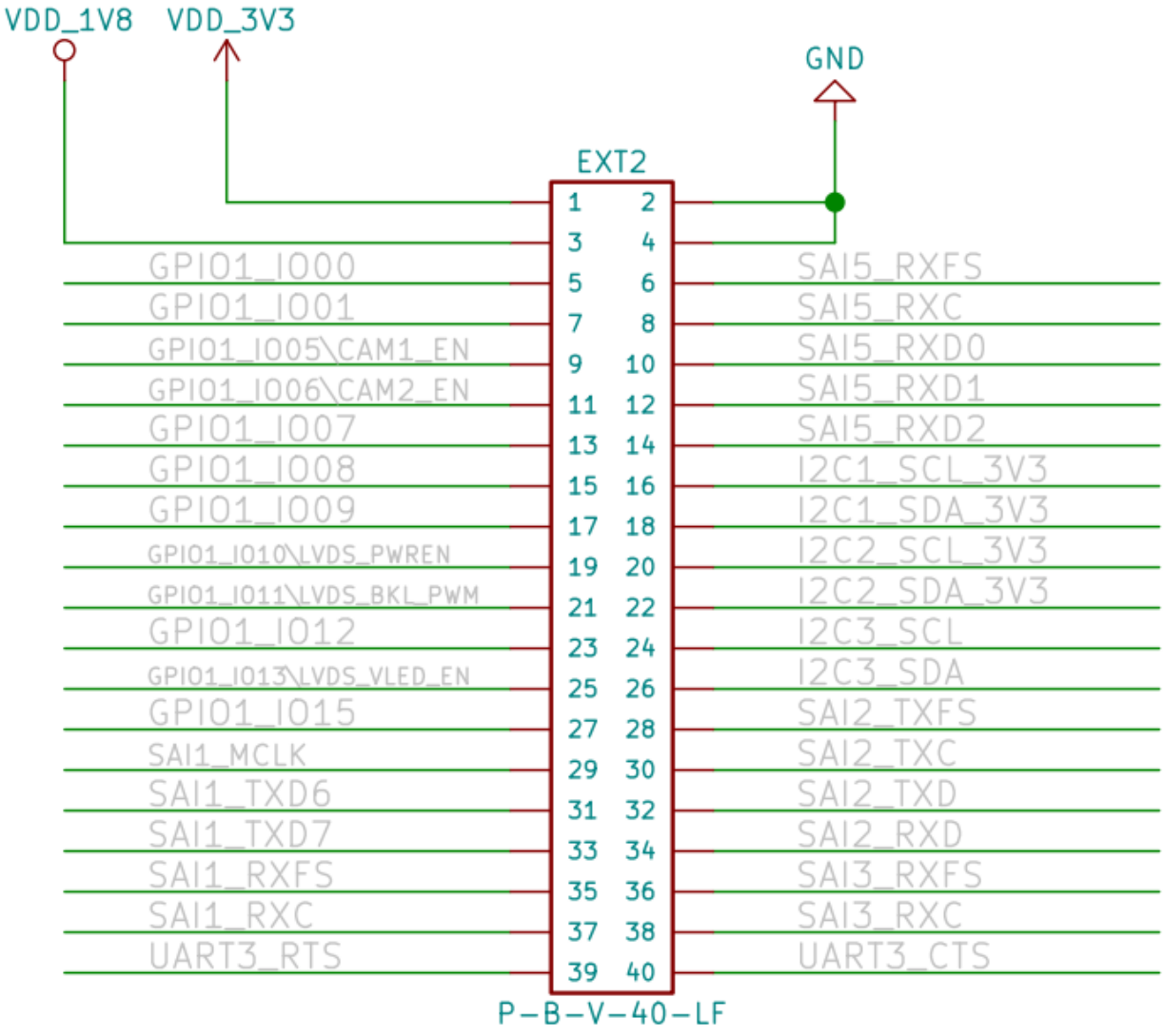
**Buttons**


Buttons
SYS_nRST
T1107A(6x3,8x2,5MM)
1
2
RST1
GND
ONOFF
T1107A(6x3,8x2,5MM)
1
2
PWR1
GND

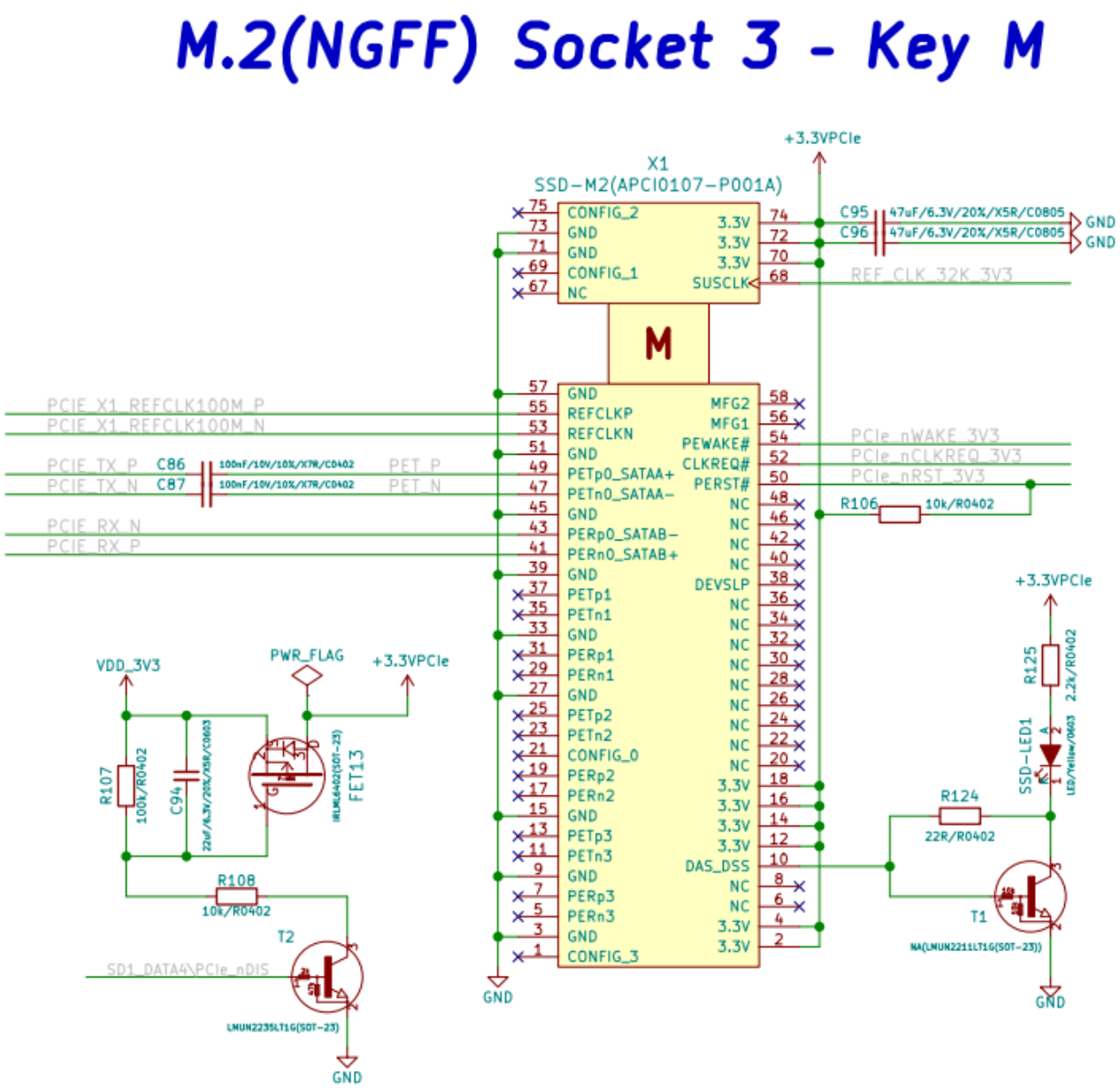
## EXT1 header


VDD_1V8
VDD_3V3
+5V
GND
EXT1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
SD1_CLK
SD1_CMD
SD1_DATA0
SD1_DATA1
SD1_DATA2
SD1_DATA3
SD1_DATA6
SD1_DATA7
SD1_RESET_B
SD1_STROBE
WDOG_B
SD2_RESET_B
PMIC_ON_REQ
CLKIN1
CLKIN2
CLKOUT1
CLKOUT2
UART1_RXD
UART1_TXD
UART1_CTS
UART1_RTS
B-V-26-LF(GBH254SMT-26)

## EXT2 header

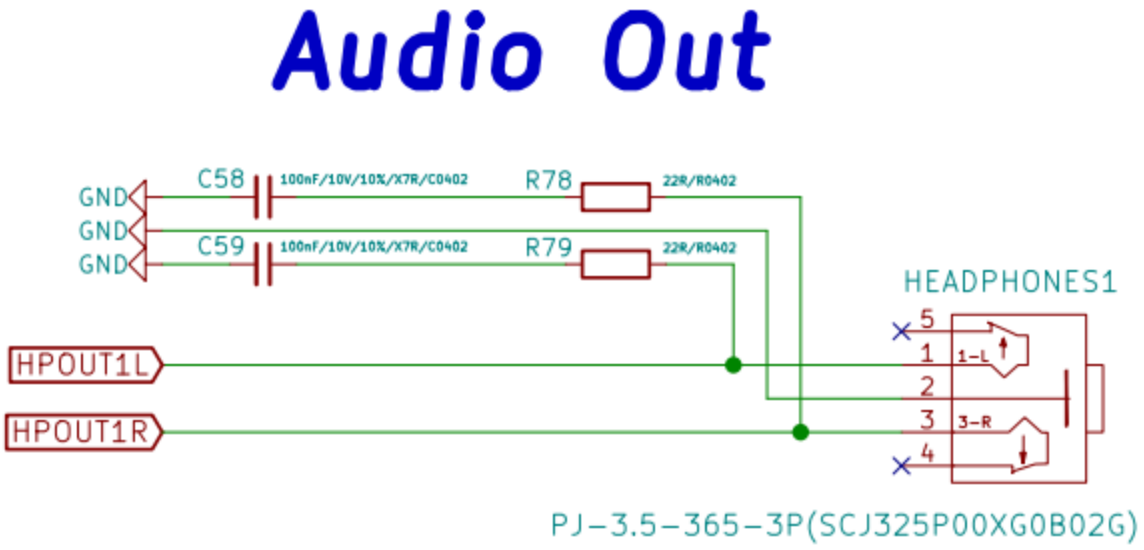

VDD_1V8
VDD_3V3
GND
EXT2
1 2
3 4
5 6
7 8
9 10
11 12
13 14
15 16
17 18
19 20
21 22
23 24
25 26
27 28
29 30
31 32
33 34
35 36
37 38
39 40
GPIO1_IO00
GPIO1_IO01
GPIO1_IO05\CAM1_EN
GPIO1_IO06\CAM2_EN
GPIO1_IO07
GPIO1_IO08
GPIO1_IO09
GPIO1_IO10\LVDS_PWREN
GPIO1_IO11\LVDS_BKL_PWM
GPIO1_IO12
GPIO1_IO13\LVDS_VLED_EN
GPIO1_IO15
SAI1_MCLK
SAI1_TXD6
SAI1_TXD7
SAI1_RXFS
SAI1_RXC
UART3_RTS
SAI5_RXFS
SAI5_RXC
SAI5_RXD0
SAI5_RXD1
SAI5_RXD2
I2C1_SCL_3V3
I2C1_SDA_3V3
I2C2_SCL_3V3
I2C2_SDA_3V3
I2C3_SCL
I2C3_SDA
SAI2_TXFS
SAI2_TXC
SAI2_TXD
SAI2_RXD
SAI3_RXFS
SAI3_RXC
UART3_CTS
P-B-V-40-LF

**PCI 3.0 M.2 (2280) nVME**



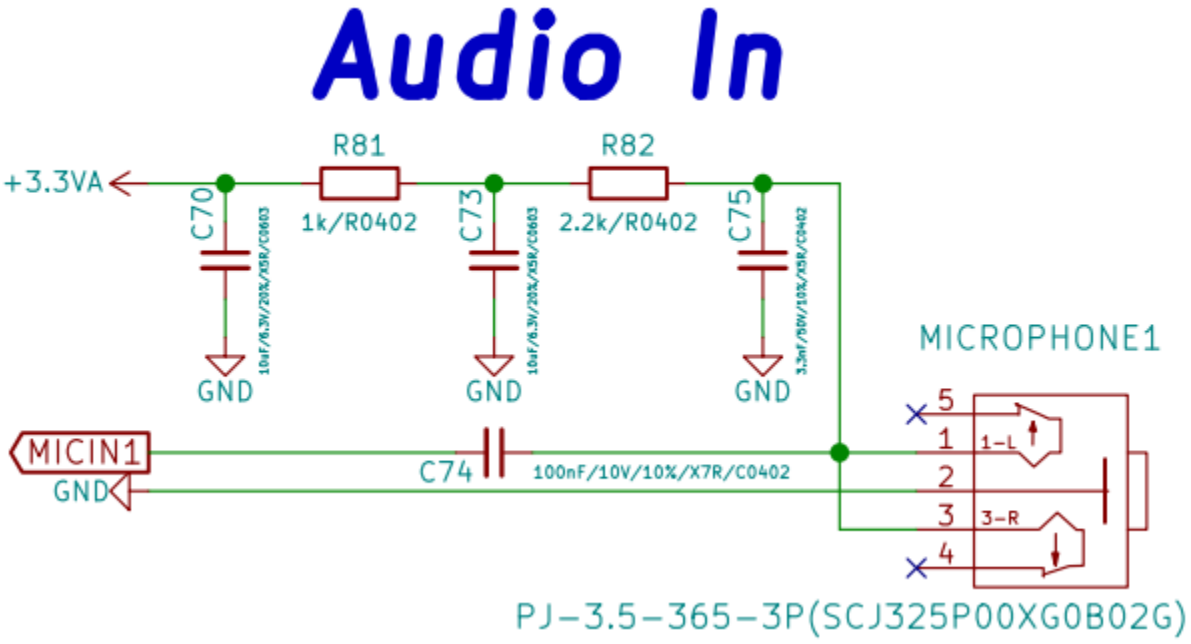
## Audio out

HEADPHONES1 jack is handled by ES8388 audio driver. It is currently not supported in the official Linux images.



## Audio in

MICROPHONE1 jack is handled by ES8388 audio driver. It is currently not supported in the official Linux images.



# SOFTWARE

You can find Olimex-maintained recommended images here:

- Recommended Olimage Linux images

It is recommended to start with the base Armbian image. The minimal Armbian image has no graphical user interface.

The software we provide and maintain for iMX8MP-SOM-EVB is the same as for the main board:

- Armbian-based Debian 12 “bookworm” images (base and minimal) with support for the main chip and most peripherals, like USB 3.0, GbE, NVMe M.2 slot, Flash-header slot, serial debug, HDMI output (+audio over HDMI), CAN, etc. Known software issues: Currently there is no support for the ES8388 audio driver, e.g. HEADPHONES1 and MICROPHONE1 jacks won’t work without additional software work (HDMI audio works ok).

- Buildroot setup

# Document Revision History

**Revision 2.0 February 2025:**

- removed misleading information about recommended LCD

- fixed links

- added info about Armbian-based Debian image

**Revision 1.0 May 2024**

- initial document release