

STMP157-OLinuXino-LIME2

User Manual

Rev.1.0 October 2021

olimex.com

Table of Contents

Overview.....	3
STM32MP157 SOC features.....	5
STMP157-OLinuXino-LIME2 Features.....	8
Open Source Hardware.....	9
Long Term availability.....	10
Board variants and order codes.....	11
Power supply.....	12
Connectors.....	13
LCD.....	13
GPIO-1.....	14
GPIO-2.....	15
GPIO-3.....	16
GPIO-4.....	17
Software.....	18
Revision History.....	19
Contact information.....	20

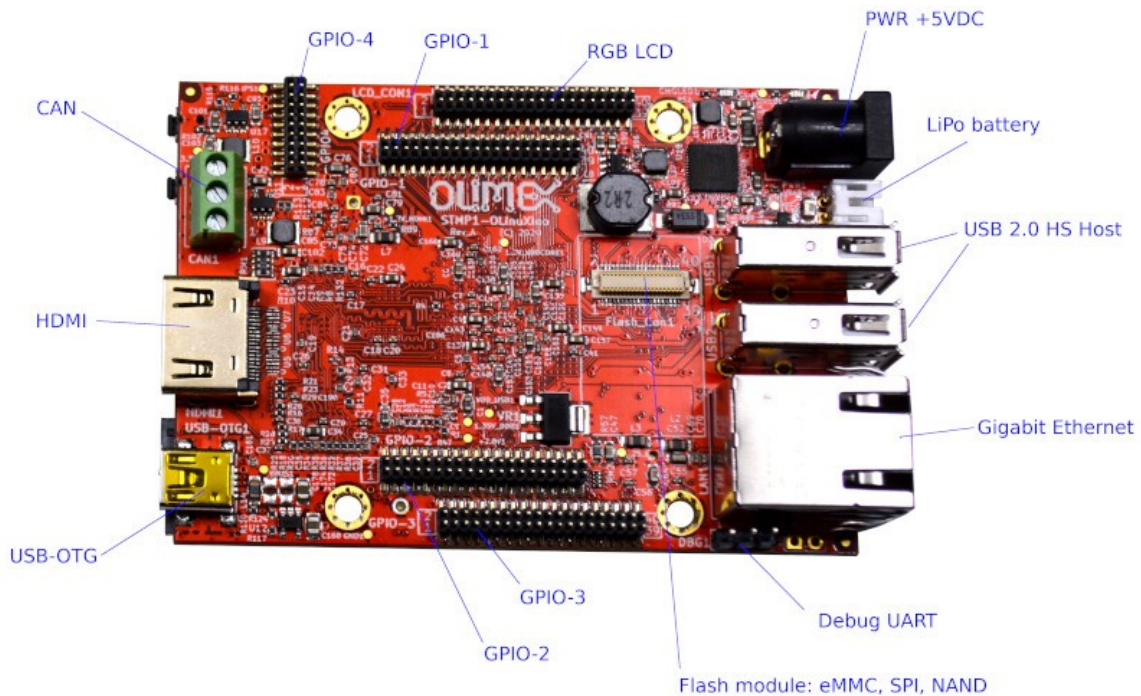
Overview

STMP157-OlinuXino-LIME2 is industrial grade Linux single board computer, which is physically compatible with our popular A20-OLinuXino-LIME2 board.

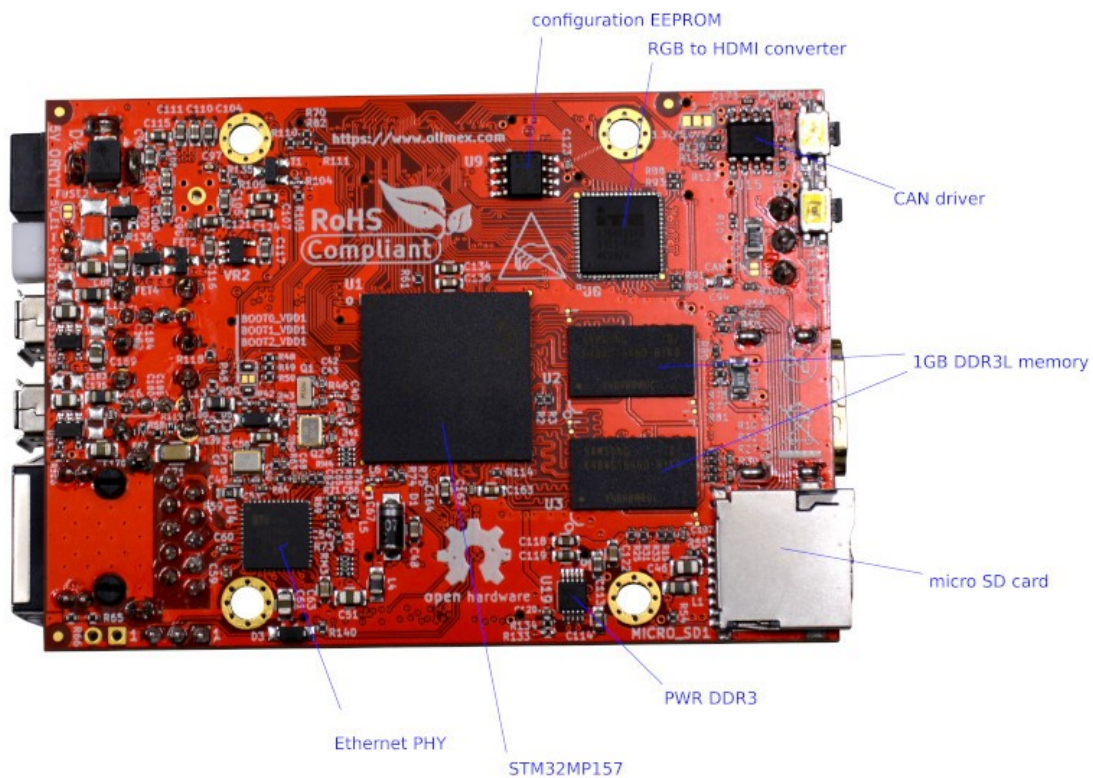
All connectors and dimensions are same, so easy transition from A20 to STM32MP157 based board is possible.

The only difference is that STM32MP157 has no SATA and instead of SATA connector CAN-FD connector is placed.

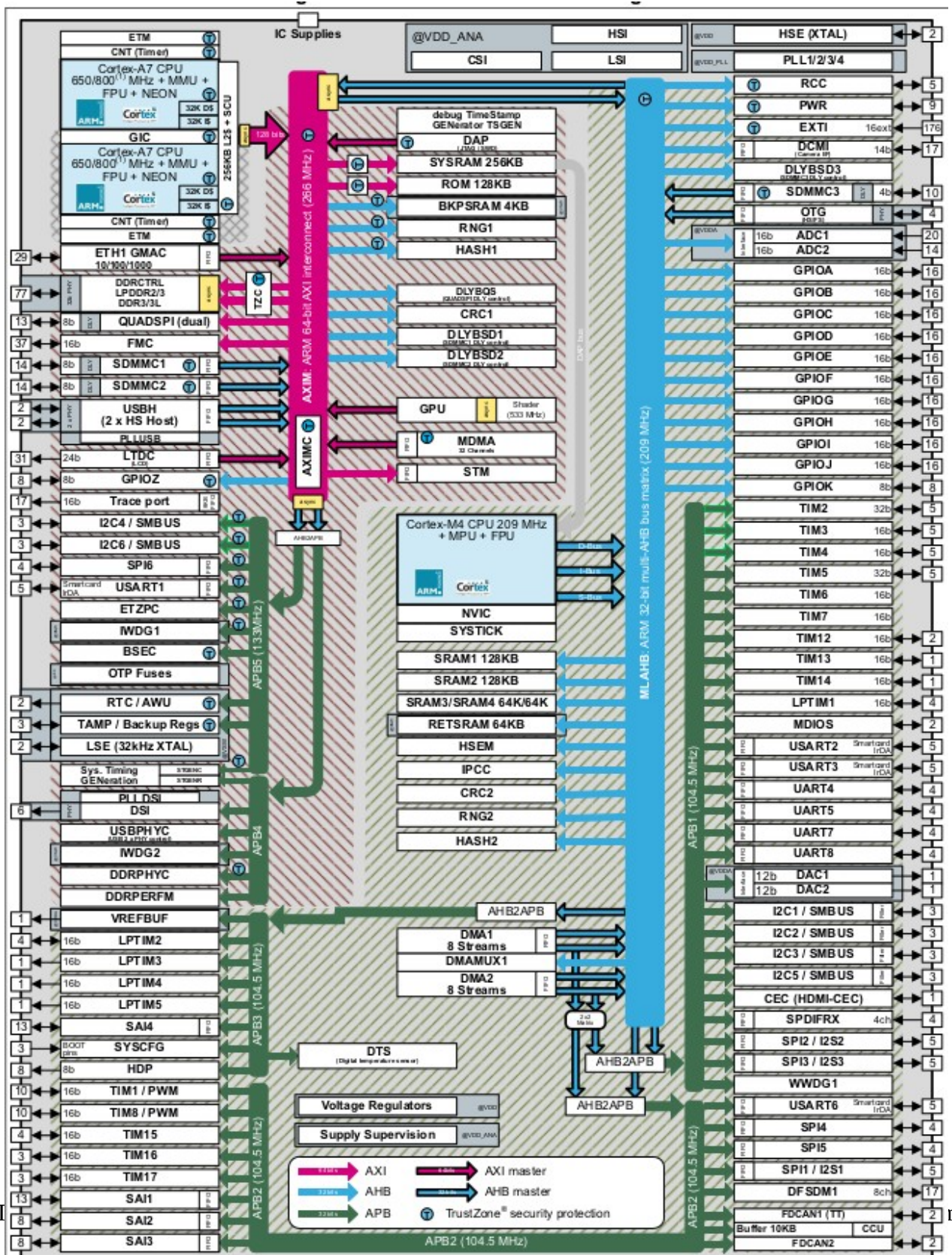
Top view of the board:



Bottom view:



STM32MP157 SOC features



1. STM32MP157A: 650 MHz. STM32MP157D: 800 MHz

- Dual Arm[®]Cortex[®]-A7 core running up to 800 MHz
- Cortex[®]-M4 at 209 MHz
- LCD-TFT display controller 24-bit RGB888 up to WXGA (1366 × 768) @60 fps or up to Full HD (1920 × 1080) @30 fps
- 3D GPU: Vivante[®] - OpenGL[®] ES 2.0 – Up to 26 Mtriangle/s, 133 Mpixel/s
- MIPI[®] DSI 2 data lanes up to 1 Gbps each
- Gigabit Ethernet
- Two USB 2.0 High Speed Hosts
- One USB 2.0 OTG
- External DDR3L memory up to 1 Gbyte
- 6 × I2C FM+ (1 Mbit/s, SMBus/PMBus)
- 6 × SPI (50 Mbit/s, including 3 with full duplex I2S audio class)
- 4 × SAI (stereo audio: I 2 S, PDM, SPDIF Tx)
- SPDIF Rx with 4 inputs
- HDMI-CEC interface
- 3 × SDMMC up to 8-bit (SD / eMMC[™] / SDIO)
- Two CAN controllers supporting CAN FD
- Two ADCs with 16-bit max. resolution (12 bits up to 4.5 Msps, 14 bits up to 4 Msps, 16 bits up to 3.6 Msps)
- Temperature sensor
- Two 12-bit D/A converters (1 MHz)
- One digital filters for sigma delta modulator (DFSDM) with 8 channels/6 filters
- AES 128, 192, 256, TDES, HASH (MD5, SHA-1, SHA224, SHA256), HMAC, 2 × true random number generator (3 oscillators each), 2 × CRC calculation unit
- Two × 32-bit timers with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input
- Two × 16-bit advanced motor control timers
- Ten × 16-bit general-purpose timers (including 2 basic timers without PWM)
- Five × 16-bit low-power timers

- RTC with sub-second accuracy and hardware calendar
- Two × 4 Cortex[®] -A7 system timers (secure, non-secure, virtual, hypervisor)
- SysTick M4 timer
- 3 × watchdogs (2 × independent and window)
- Arm[®] CoreSight[™] trace and debug: SWD and JTAG interfaces

STMP157-OLinuXino-LIME2 Features

- STM32MP157DAA1 (-20+85C 800Mhz) or STM32MP157AAA3 (-40+85C 650Mhz)
- 1 GB of DDR3L at 1066Mhz
- PMIC with LiPo battery charger and step up convertors, all board functions on LiPo battery UPS
- Two High Speed USB 2.0 Hosts
- One High Speed USB 2.0 OTG
- Gigabit Ethernet
- 40 pin 0.05 inch (1.27 mm) step connector compatible with LCD-OLinuXino
- HDMI connector
- configuration EEPROM
- Flash module connector for: SPI, eMMC, NAND Flash options
- CAN FD connector
- micro SD card connector
- Debug UART connector
- GPIO-1,2,3,4 connectors with all STM32MP157 signals on them, compatible with A20-OLinuXino-LIME2
- User status LED
- Boot configuration SMD jumpers
- RESET button
- POWER ON button
- Power supply connector 5VDC

Open Source Hardware

STMP157-OLinuXino-LIME2 is Open Source Hardware board – all CAD source files are available and you have right to view, learn, edit, modify, produce and sell this board or boards based on this design.

If you use our design to make your own design, you need to link Olimex Ltd as original author of the design and open your new design under the same terms.

Commercial licensee can be arranged if you do not want to open source your work. Please contact us for commercial licensee terms and conditions.

Long Term availability

Olimex Ltd produces all its products until there is demand and components are possible to be purchased.

ST Microelectronics Inc guarantee supply to Olimex Ltd for STM32MP157DAA1 SOC from year 2021 to year 2036.

This means STMP157-OLinuXino-LIME2-EXT and STMP157-OLinuXino-LIME2H-EXT will be available at least until year 2036.

Board variants and order codes

[STMP157-OLinuXino-LIME2-IND](#)

industrial grade board, all components are with -40+85C operating temperature, STM32MP157AAA3 SOC clock is limited to 650Mhz

[STMP157-OLinuXino-LIME2H-IND](#)

same as STMP157-OLinuXino-LIME2-IND but includes LCD-to-HDMI convertor, the convertor IC is only in commercial temperature range, so if you use HDMI on this board will limit operating temperature to 0-70C

[STMP157-OLinuXino-LIME2-EXT](#)

industrial grade board, all components are with -20+85C operating temperature, STM32MP157DAA1 SOC clock is limited to 800Mhz

[STMP157-OLinuXino-LIME2H-EXT](#)

same as STMP157-OLinuXino-LIME2-IND but includes LCD-to-HDMI convertor, the convertor IC is only in commercial temperature range, so if you use HDMI on this board will limit operating temperature to 0-70C

Power supply

STMP157-OlinuXino-LIME2 requires regulated +5V, 1A to operate.

Do not apply more than 5V as this would damage the board.

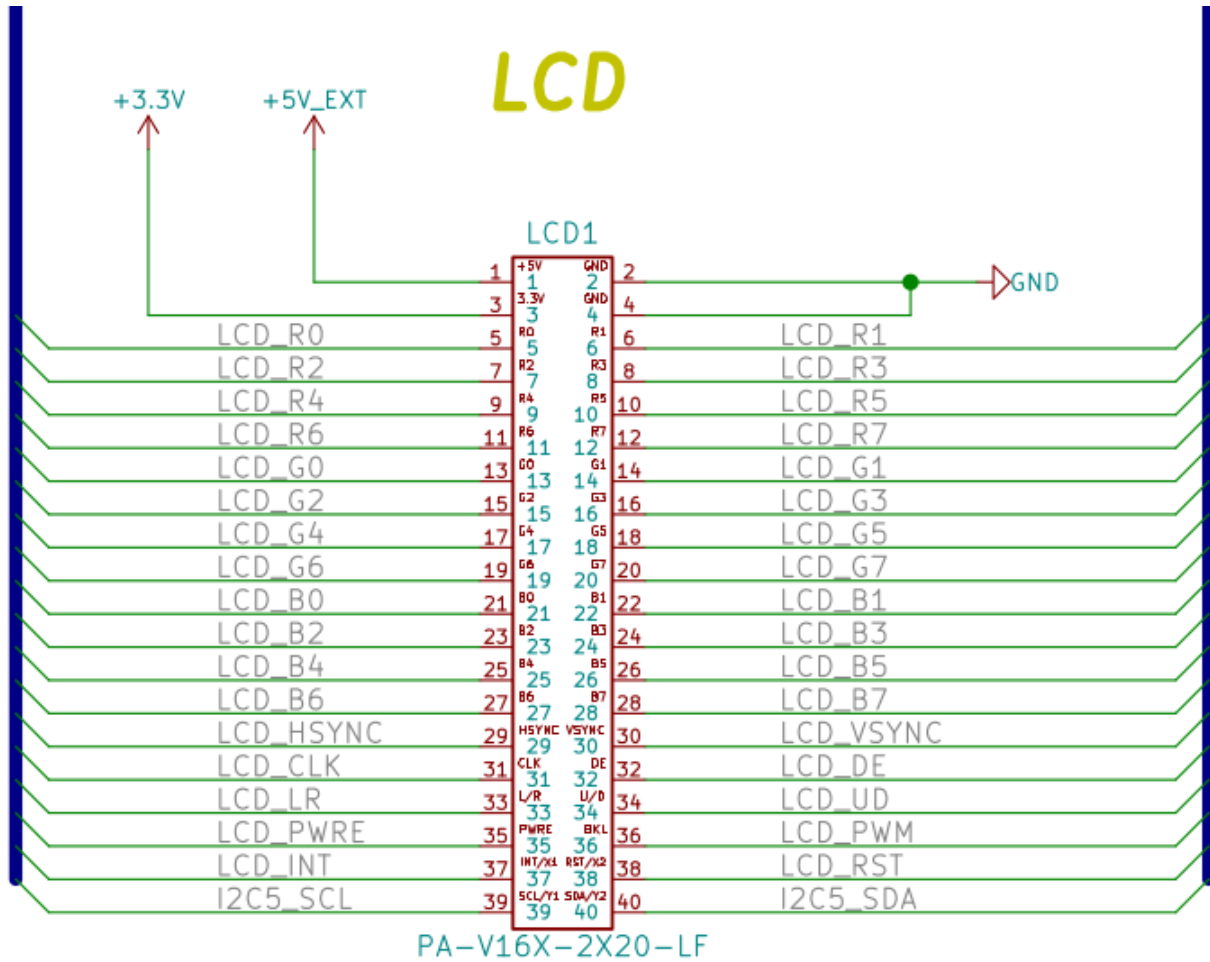
Power consumption is:

- around 0.4 A during boot
- around 0.6A when working at full speed
- around 1.2A when working at full speed and charge the LiPo battery

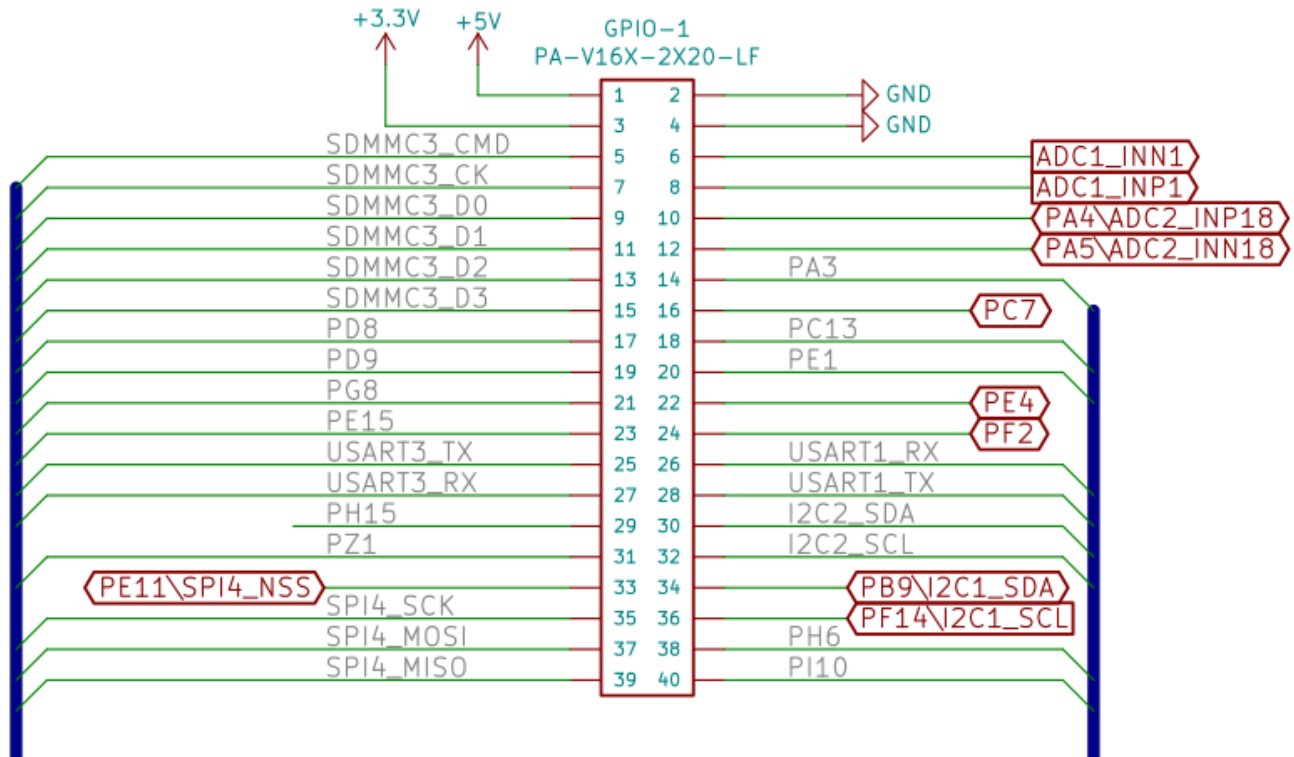
Connectors

LCD

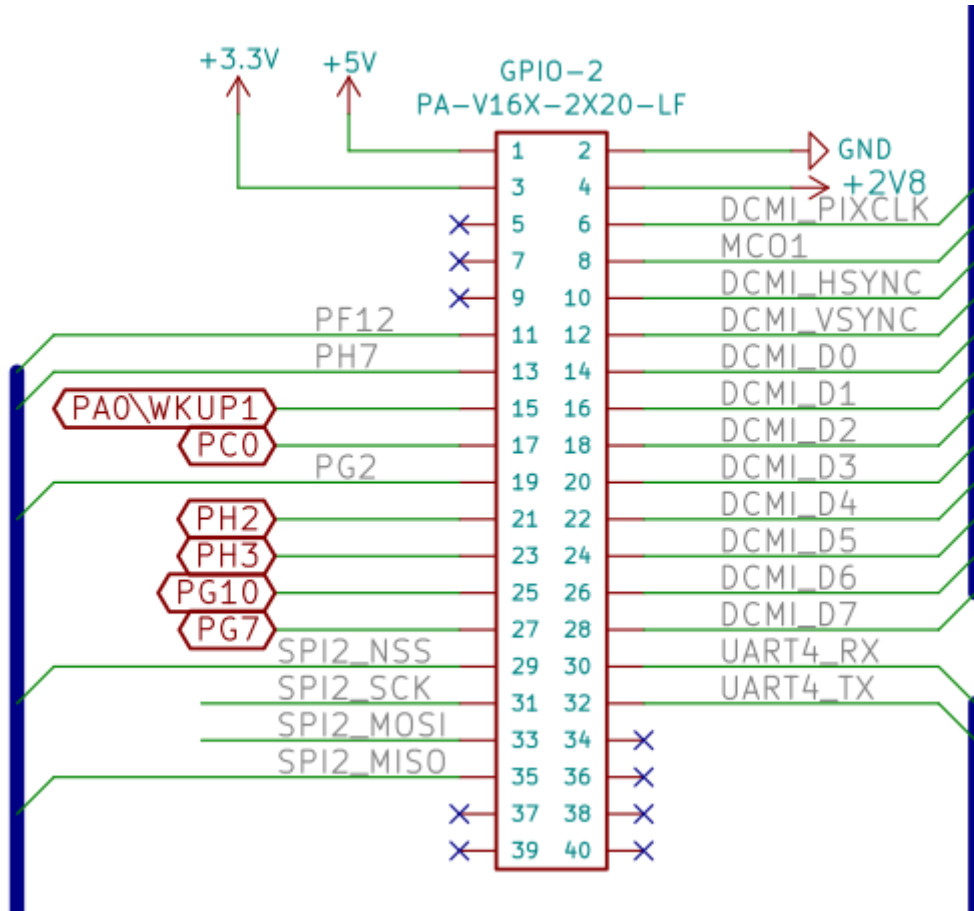
RGB LCD signals and I2C connector to digital touch panel interface.



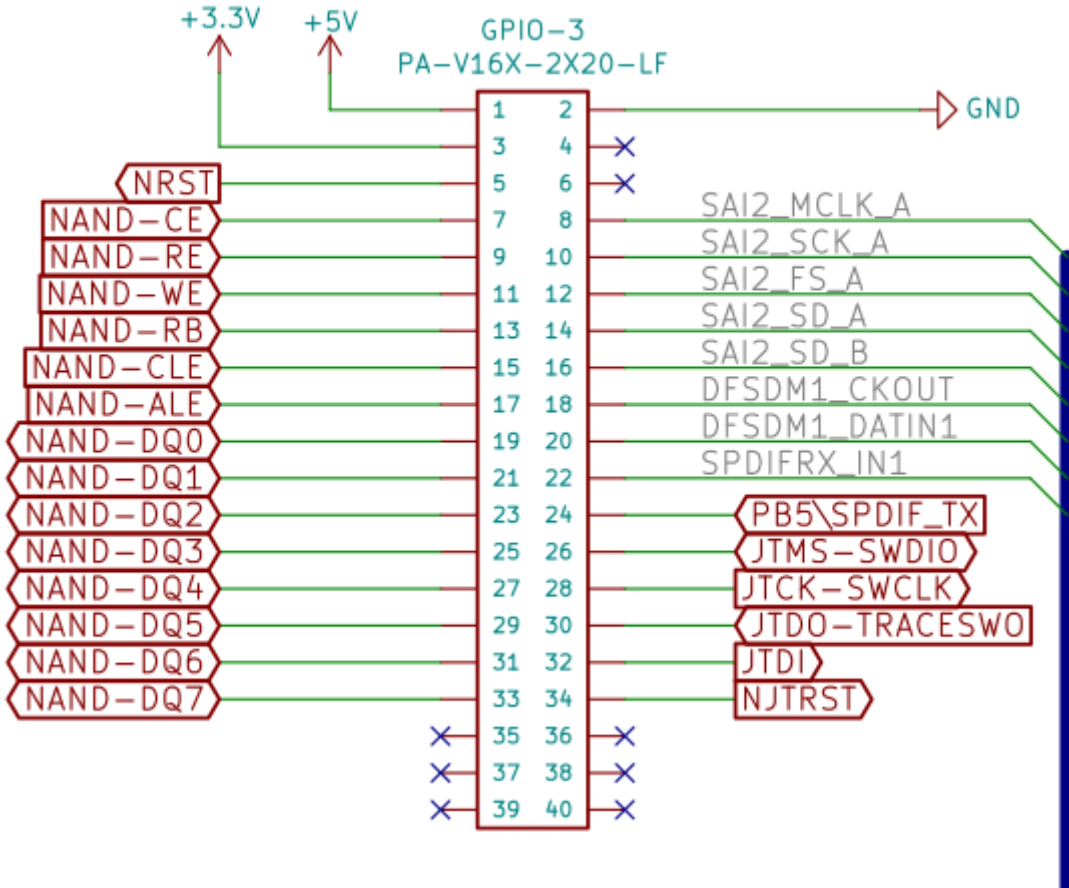
GPIO-1



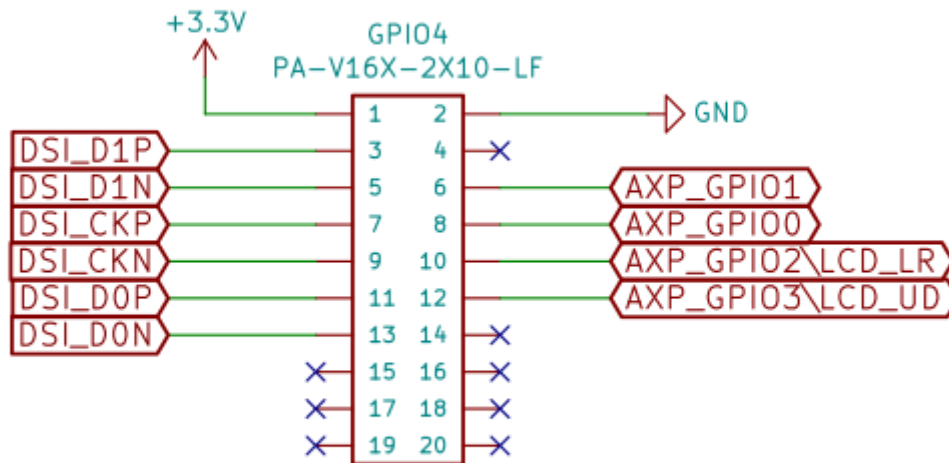
GPIO-2



GPIO-3



GPIO-4



Software

Official mainline Linux Kernel images are available at <https://images.olimex.com>

[OLIMAGE](#) is GitHub repository with the Mainline Uboot and Linux Kernel building scripts.

[Oimage-guide](#) explains how get started, what is included in the official Linux images and how to use the building scripts to modify the Linux Kernel and uboot. Please use be careful with the later. Linux is millions of code project modifying one thing may lead to lot of incompatibilities with other parts. If you decide to build and use your own Linux image we will not be able to support you and you will need to test everything you build yourself. We do extensively tests on every Linux image build we publish and we still find bugs and remove them on daily basis, as sometimes new Kernels break backward compatibility with drivers and packages in some rare corner cases which show up after lot of time. We encourage you to experiment and learn how to build Linux images, but strongly recommend you to use our official build and tested images for production.

Revision History

Revision 1.0 October 2021

Contact information

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