

RK3328-SOM

User Manual

Rev.1.0 May 2021

olimex.com

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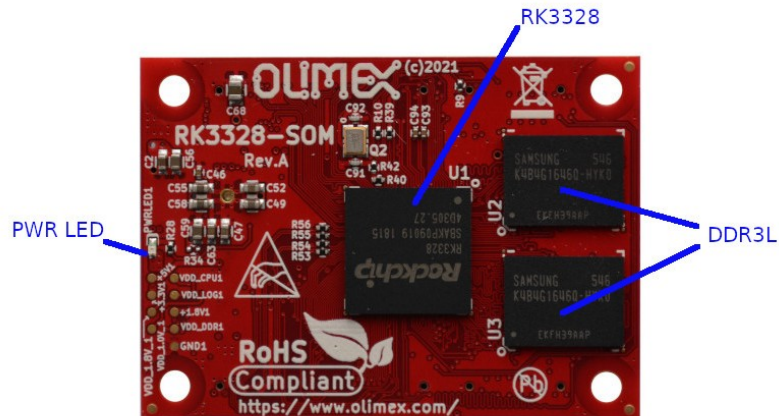
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Overview

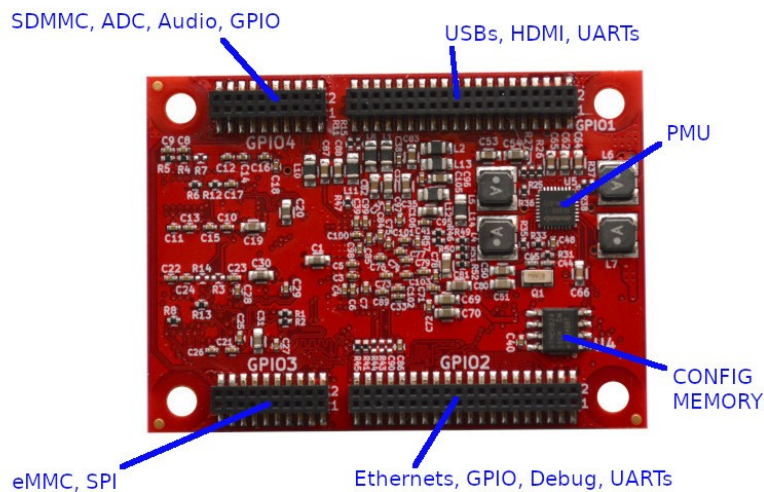
RK3328-SOM is System On Module with Quad core Cortex-A53 64 bit ARM SOC.

The SOM hides the high speed signal design: DDR memory and power management, while keep exposing all processor interfaces via 0.05 inch (1.27 mm) step connectors.

Top view:

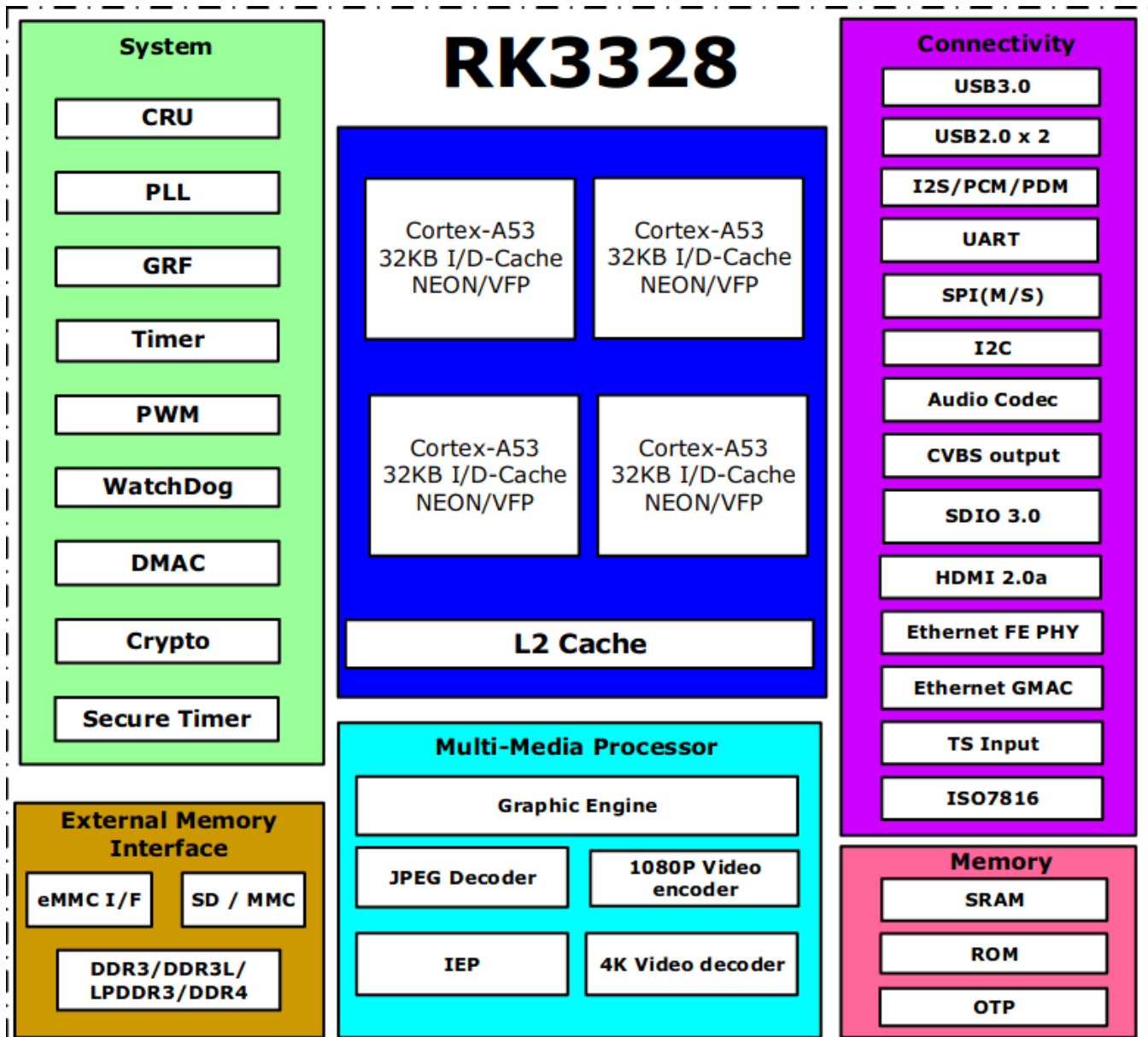


Bottom view:



General information

[RK3328](#) SOC is Quad core Cortex-A53 running up to 1.5 Ghz, USB 3.0, 2x USB 2.0, I2S, UART, SPI, I2C, Audio Codec, DDR3L memory, HDMI.



The system on modules are produced in commercial 0-70C temperature.

Order codes

[RK3328-SOM-1G](#)

commercial grade 0-70C SOM with RK3328 @1.5Ghz and 1GB of DDR3L RAM;

[RK3328-SOM-2G](#)

commercial grade 0-70C SOM with RK3328 @1.5Ghz and 2GB of DDR3L RAM;

RK3328-SOM Features

- RK3328 Quad Core Cortex-A53 64 bit ARM @1.5Ghz
- RK805 Power Management Unit (PMU)
- DDR3L memory 1GB or 2GB
- Power LED
- GPIO-1 40 pin connector with USB0 OTG,USB1 Host, USB3.0, HDMI, UART1
- GPIO-2 40 pin connector with Gigabit Ethernet, 100Megabit Ethernet, I2C1, SPDIF, Debug UART, PWM2, 3xGPIO, CLK32K, AP_reset, Power_on
- GPIO-3 20 pin connector with eMMC, SPI2
- GPIO-4 20 pin connector with 8xGPIO, SDMMC, SARADC 1-2, Codec, VDAC
- Operating temperature 0-70C

Software

Rockchip provides Android 7.1 and Android 8.1 SDK with sources, Debian and Ubuntu Linux distributions with all hardware accelerators working. The Linux is not mainline.

Pre-built images are hosted at:

<http://images.olimex.com/release/rk3328/>

We recommend the images to be written to SD card with minimum 16GB Class10 speed like:

<https://www.olimex.com/Products/Components/Storage/MICRO-SD-CLASS10/>

To write the images we recommend balenaEtcher:

<https://www.balena.io/etcher/>

Power supply

[RK3328-SOM](#) requires +5V, 1A to operate.

Do not apply more than 5V as this would damage the RK3328-SOM.

The power supply is provided on pin.1 of the LCD connector.

Power consumption is:

- around 0.4A during boot and idle
- around 0.6A when working at full speed
- around 0.8A at stress

Hardware components

SOC

RK3328 is Quad core Cortex-A53 ARM running @1.5Ghz

Memory

RK3328-SOM can have 1GB or 2GB DDR3L memory, powered with 1.35V, with 16 bit data bus width and running at 1066Mhz (533Mhz clock).

PMU

RK3328-SOM have Power Management Unit based on RK805. It allow the power voltage to SOC core, peripherals, DDR3L memory and etc to be programmable via I2C. Special driver in Linux take care for the different power modes.

USB

One USB 3.0 and two High Speed USB 2.0 Host and OTG

Display

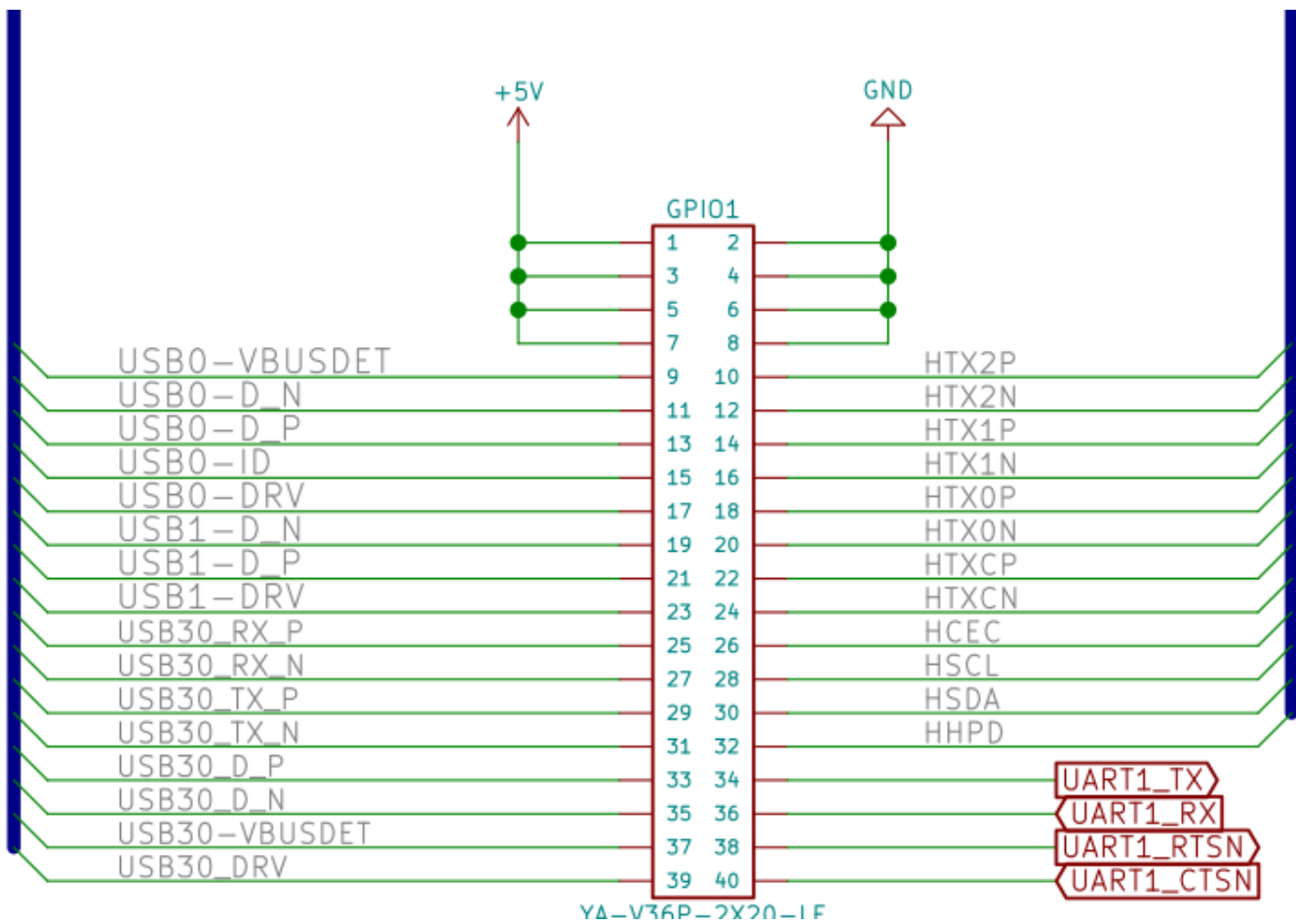
HDMI output 1080p Full HD resolution.

Audio

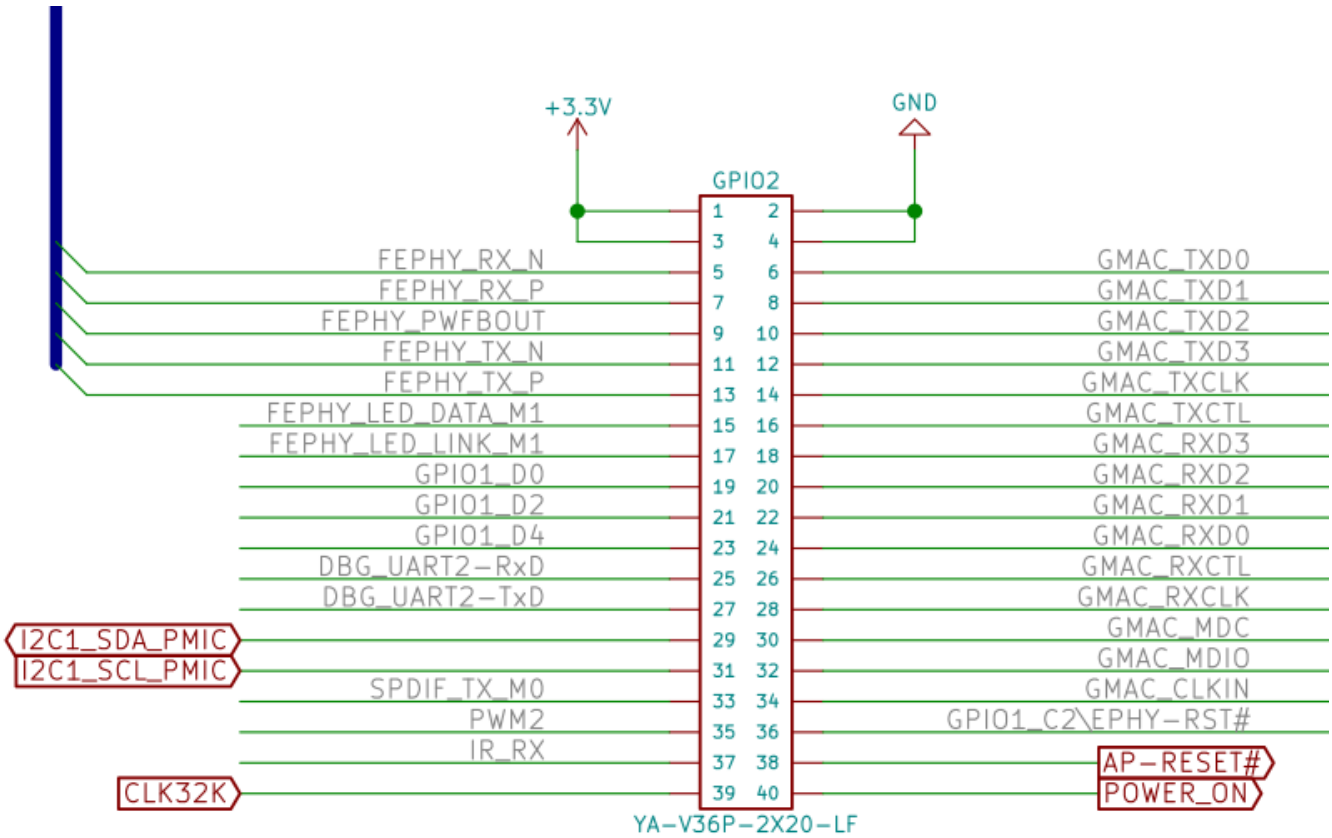
Build in Stereo Audio codec.

Connectors

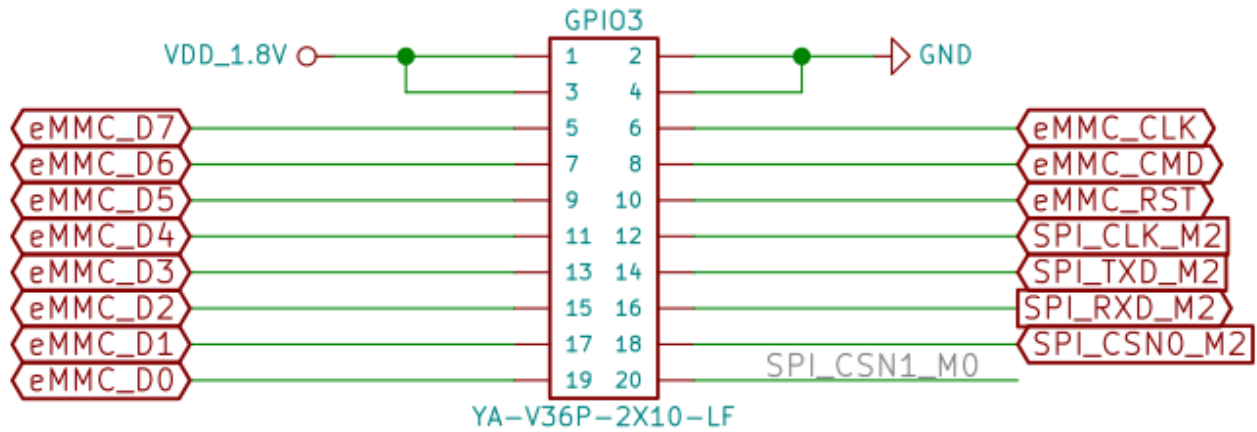
GPIO1



GPIO2



GPIO3

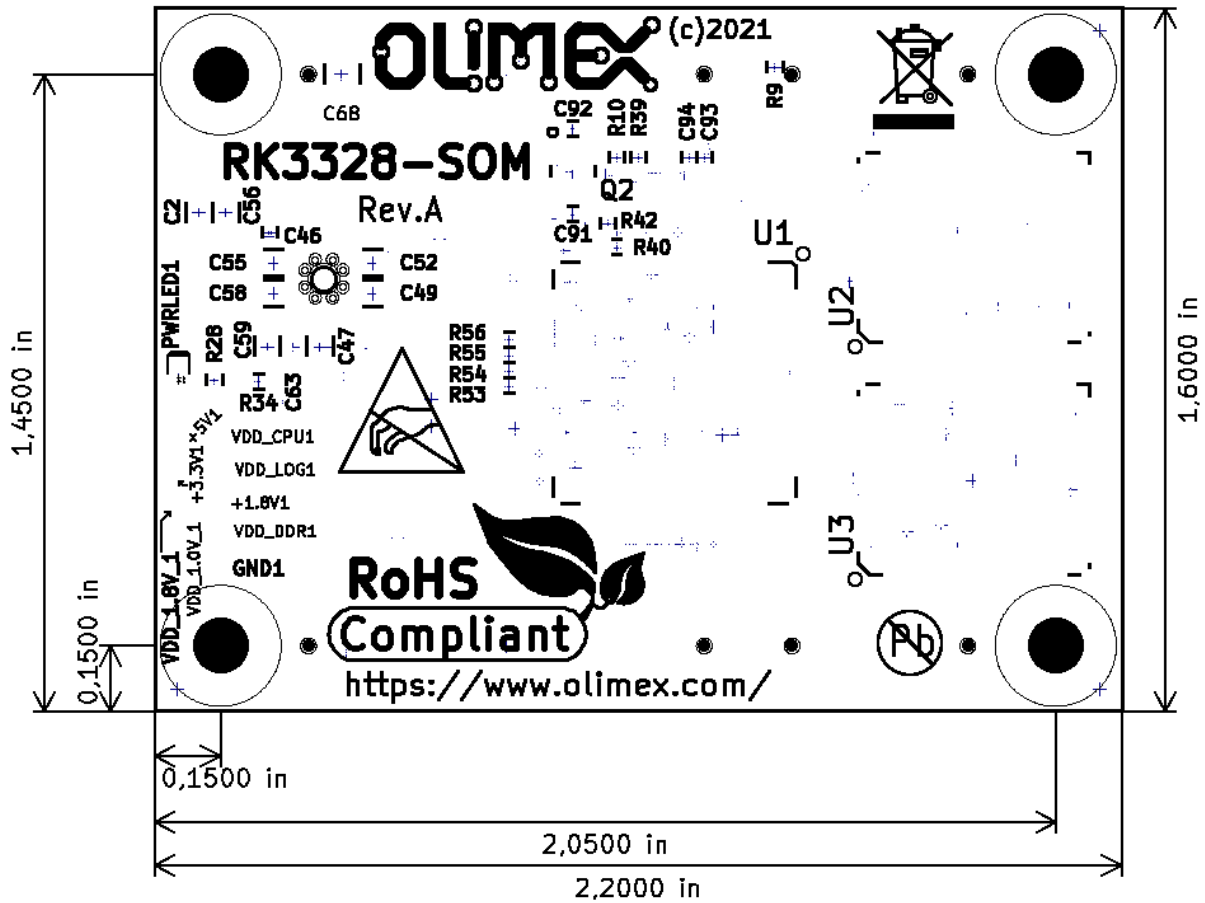


GPIO4



Mechanical drawings

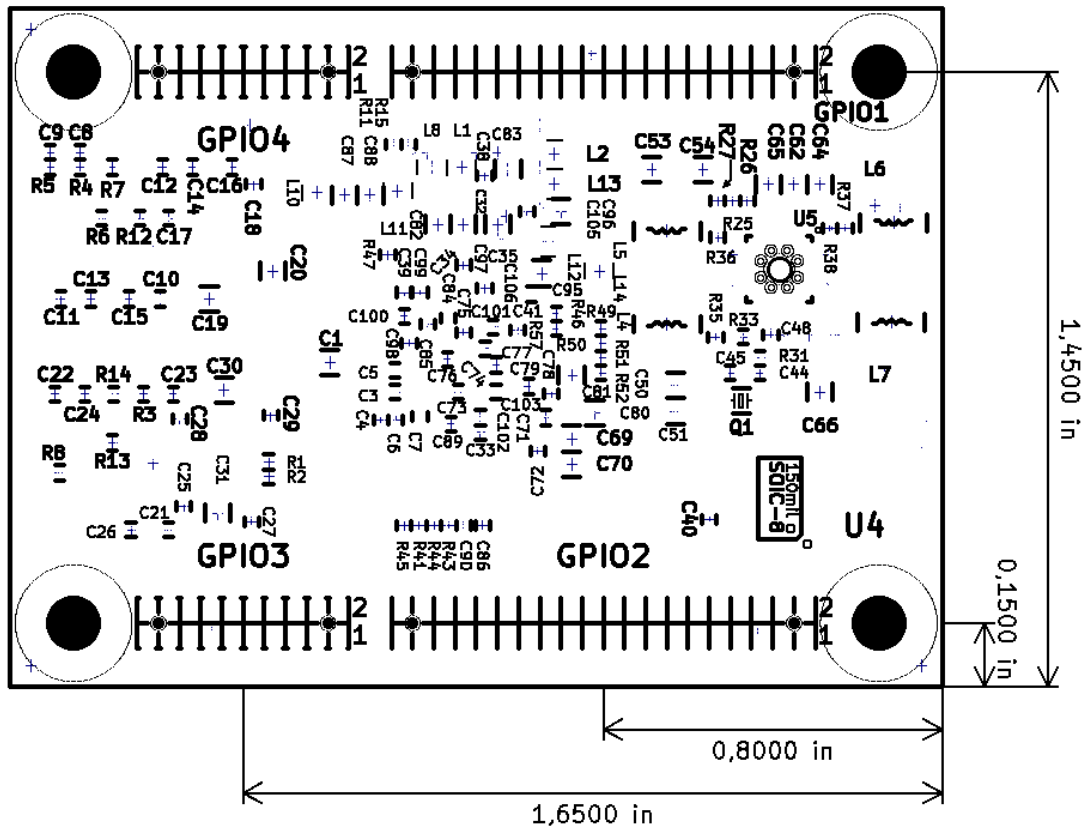
Top view (SOC and RAM side):



Board dimensions are: 2.2 inch (55.88 mm) x 1.45 inch (36.83 mm).

Mounting holes are at 1.9 inch (48.26 mm) x 1.3 inch (33.02 mm).

Bottom view (connector side):



The distance between the connectors is 1.3 inch (33.02 mm).

Connectors used for carrier board are 0.05 inch (1.27mm) step connectors:

[MALE-PAV16X-2x10-HIGH](#)

and

[MALE-PAV16X-2x20-HIGH](#)

Revision History

Revision 1.0 May 2021

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