



# RP2350pc

Rev.1.0 June 2025

# User Manual olimex.com

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## What is RP2350pc

RP2350pc is complete all in one computer based on RP2350 Dual core Cortex-M33 + Dual core Hazard3 RISC-V processor from the Raspberry Pi foundation.

#### The features of RP2350pc are:

- RP2350B SOC with easy to load new firmware via drag and drop virtual drive
- 520 KB on-chip SRAM
- 16MB SPI Flash
- 8MB of PSRAM
- DVI/HDMI output
- USB hub with x4 USB2.0 hosts which can be used to connect to keyboard, mouse, USB Flash, USB Gamepads etc
- Stereo Audio codec
- Stereo Amplifier
- Audio 3.5mm connector Line In
- Audio 3.5mm connector for Headphones
- JST2.0 connectors for Left and Right speakers
- USB-C connector for power supply
- USB-C connector for programming
- Two UEXT connectors with I2C, UART and SPI for connecting to external boards
- Power switch
- Reset and Boot buttons
- four mounting holes 3.3mm diameter
- Lipo battery charger which allow the board to run from LiPo battery.
- Lipo JST2.0 mm connector
- Dimension 85x65mm

RP2350pc is Open Source Hardware, all CAD files and firmware and available, so people can study and modify.

**Important notice:** If RP2350pc is not mounted in box be careful to not place it on metal surface, nor drop metal objects on top of the PCB! This will lead to damage.

# Order codes for RP2350pc and accessories:

RP2350pc RP2350 all in one computer with 4 USB hosts and HDMI display

<u>USB-KEYBOARD-PS2</u> Keyboard which is compatible with RP2350pc

<u>USB-GAMEPAD</u> USB Gamepad

<u>USB-WIRELESS-GAMEPAD</u> USB Wireless Gamepad

<u>USB-CABLE-AM-USB3-C</u> High speed, High current cable for power supply and programming

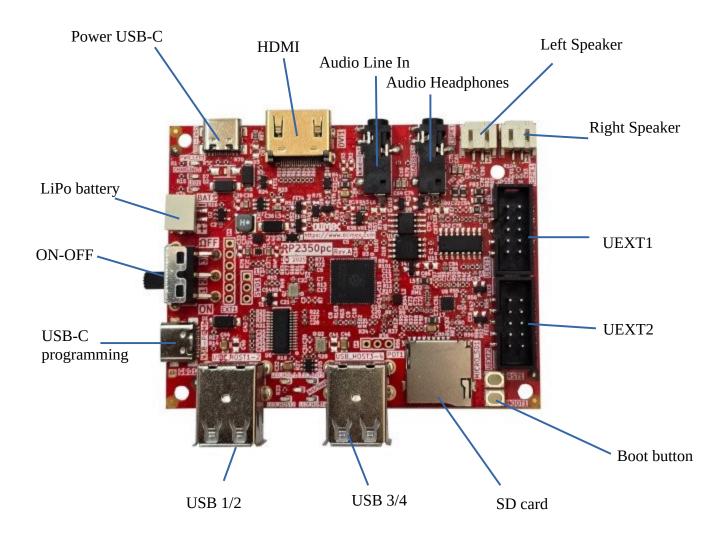
<u>CABLE-HDMI-50CM</u> HDMI cable

<u>UEXT modules</u> many UEXT modules which can connect to Neo6502 UEXT connector

<u>BATTERY-LiPo1400mAh</u> LiPo battery compatible with RP2350pc

# **HARDWARE**

# RP2350pc layout:



### **UEXT** connector:

UEXT connector stands for Universal EXTension connector and contain +3.3V, GND, I2C, SPI, UART signals.

UEXT connector can be in different shapes.

The original UEXT connector is 0.1" 2.54mm step boxed plastic connector. All signals are with 3.3V levels.

# **UEXT** connector

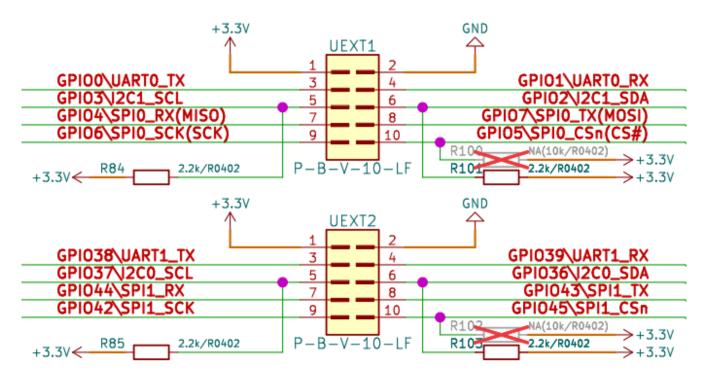
note it share same pins with EXT1 and EXT2



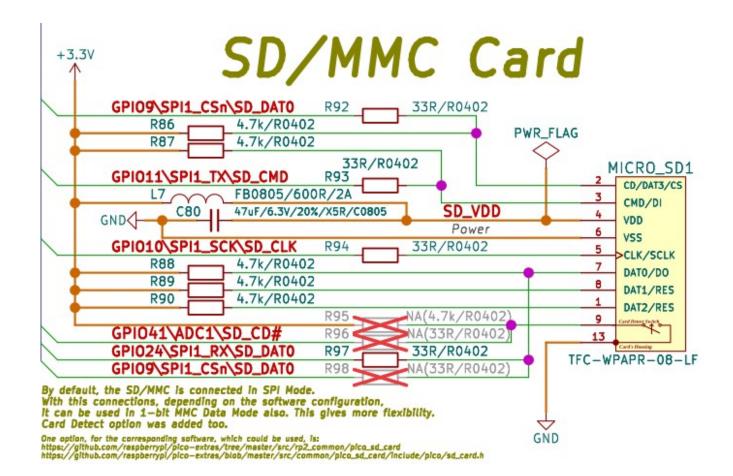
Olimex has developed number of <u>MODULES</u> with this connector. There are temperature, humidity, pressure, magnetic field, light sensors. Modules with LCDs, LED matrix, Relays, Bluetooth, Zigbee, WiFi, GSM, GPS, RFID, RTC, EKG, sensors and etc.

## **RP2350pc UEXT connectors:**

# UEXTs & EXT (Extensions)

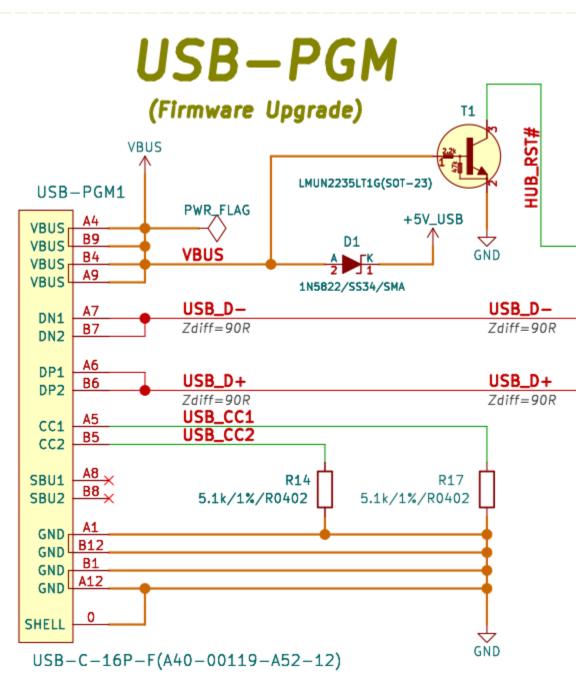


#### **SD-card interface:**



## **USB-C** programming connector:

It automatically disables the USB-HUB just press the boot button insert USB-C cable and the RP2350 go in bootloader mode and make disk.



# RP2350pc schematics:

RP2350pc latest schematic is on <u>GitHub</u>

## **SOFTWARE:**

RP2350pc can be programmed with RaspberryPi C-SDK or MicroPython SDK.

For the retro computing fans the <u>Reload</u> emulator written by Veselin Sladkov will support RP2350pc soon and will emulate Apple ][, Apple][e, Oric Atmos, Pravetz 82, Pravetz 8D and all games from Total Replay 5.2 are supported.

Paul Robson works on <u>RP2350pc API</u> which will allow compilers and OS to be created with unified API (BIOS).

# **Programming RP2350pc**

The RP2350 firmware is UF2 file. You will be able to get pre-build firmware of reload emulator on olimex's ftp when available.

To program the .uf2 files you need USB-A to USB-C cable like <u>USB-CABLE-AM-USB3-C</u>.

- 1. Disconnect the power supply from USB-PWR1 connector and connect it to USB-PGM1 connector.
- 2. Press the BOOT1 button and switch on the power supply with PWR\_ON/OFF1 switch then release BOOT1 button.
- 3. You will see on your computer new disk drive RPI-RP2.
- 4. Copy the .uf2 file to this drive, once it's copied the drive will disappear.
- 5. Switch OFF the PWR\_ON/OFF1 switch
- 6. Disconnect the USB-C cable from USB-PGM1 and connect to USB-PWR1 connector.
- 7. Switch ON power supply.

# **Revision History**

Revision 1.0 June 2025