

OpenWRT One

URLs

- [\[OpenWrt Wiki\] OpenWrt One](#)
- [\[OpenWrt Wiki\] Quick start guide for OpenWrt installation](#)
- [Banana Pi OpenWrt One Router | BananaPi Docs](#)

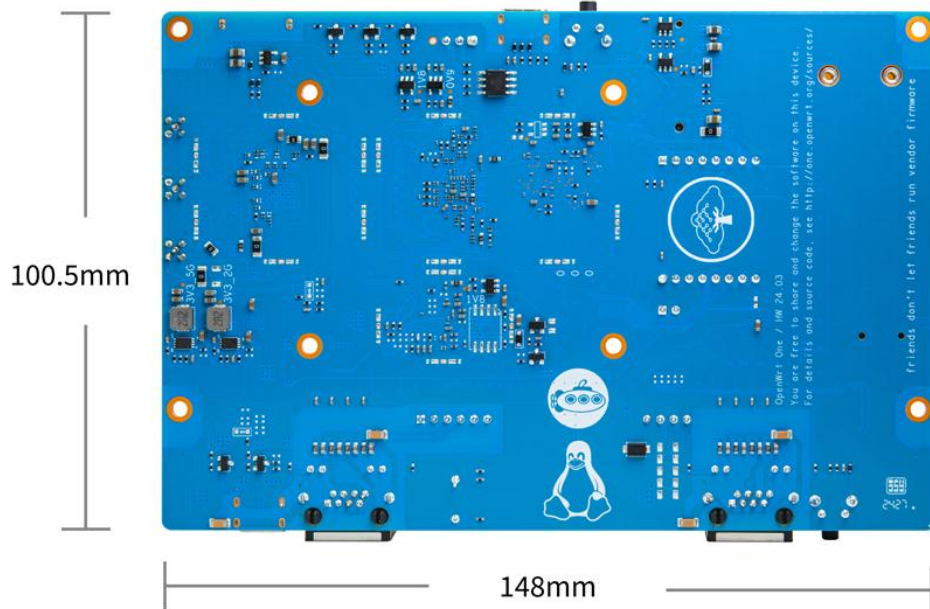
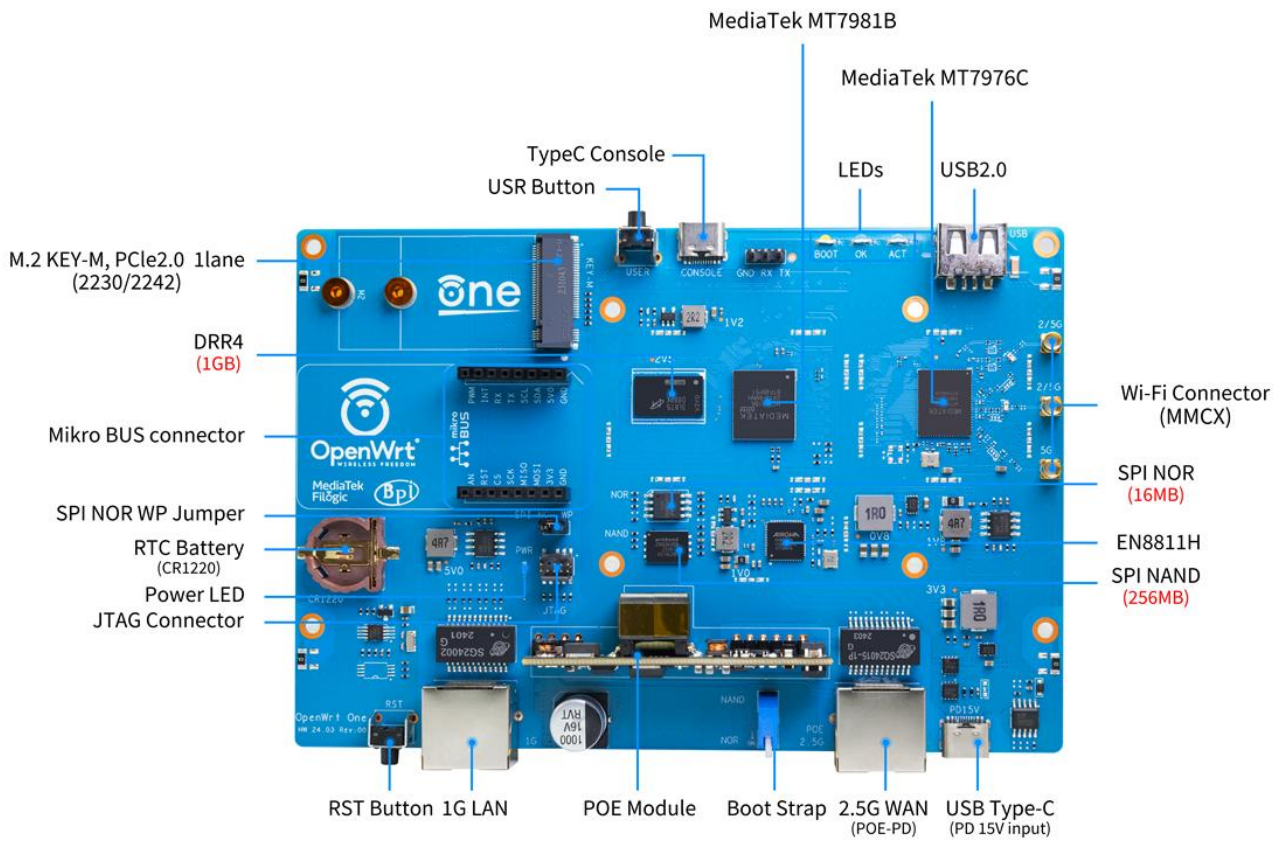
Hardware

Specification

SoC	MediaTek MT7981B (Filologic 820) dual-core Cortex-A53 processor @ 1.3 GHz
System Memory	1GB DDR4
Storage	<ul style="list-style-type: none">• 256 MB SPI NAND flash for U-boot and Linux• 16 MB SPI NOR flash for write-protected (by default) recovery bootloader (reflashing can be enabled with a jumper)• Two types of flash devices are used to make the board almost unbrickable• M.2 2242/2230 socket for NVMe SSD (PCIe gen 2 x1)
Networking	<ul style="list-style-type: none">• 1 x 2.5GbE RJ45 port• 1 x Gigabit Ethernet RJ45 port• Dual-band WiFi 6 via MediaTek MT7976C (2x2 2.4 GHz + 3x3/2x2 + zero-wait DFS 5Ghz)• 3x MMCX antenna connectors
USB	<ul style="list-style-type: none">• 1x USB 2.0 Type-A host port• USB Type-C (device, console) port using Holtek HT42B534-2 UART to USB chip
Expansion	MikroBUS socket for expansion modules
Debugging	Console via USB-C port or 3-pin header, 10-pin JTAG/SWD header for main SoC
RTC	support RTC onboard

Misc	<ul style="list-style-type: none">• Reset and User buttons• Boot select switch: NAND (regular) or NOR (recovery)• 2x PWM LEDs, 2x Ethernet LED (GPIO driven)• EM6324 External hardware watchdog• NXP PCF8563TS (I2C) RTC with battery backup holder for CR1220 coin-cell
Power Supply	<ul style="list-style-type: none">• 15V USB-PD on USB-C port• Optional 802.3at/af PoE via RT5040 module
Dimensions	148 x 100.5 mm compatible with Banana Pi BPI-R4 case design
Certifications	FCC/EC/RoHS compliance

Interface



Installation

Firmware Download

- Download1: https://firmware-selector.openwrt.org/?version=24.10.1&target=mediatek%2Ffillogic&id=openwrt_one
- Download2: <https://downloads.openwrt.org/releases/>

First Power up

?????????Openwrt One?????????????????????OpenWrt??????

1. ???????????? NAND/NOR ?????? NAND
2. ??????? 192.168.1.1 ??????? 1G ???
3. ?????????????????????????
4. ??????? 192.168.1.1 ??? LuCI GUI??????????? `ssh root@192.168.1.1` ?

FAQ

Why are there are 2 different flash chips?

The idea is to make the device (almost!) unbrickable and very easy to recover.

- NAND will hold the main loader (U-Boot) and the Linux image and will be the default boot device
- NOR will be write-protected by default (with WP jumper available on the board) and will hold a recovery bootloader (and other essential data, like Wi-Fi calibration)
- a dedicated boot select switch will allow changing between NOR and NAND

What will the M.2 slot be used for?

We will use M.2 with M-key for NVMe storage. There is a work-in-progress patch to make PCIe work inside the U-Boot bootloader. This will allow booting other Linux distributions such as Debian and Alpine directly from NVMe.

Why is there no USB 3.x host port on the device?

The USB 3.x and PCIe buses are shared in the selected SoC silicon, hence only a single High-Speed USB port is available

What is the purpose of the console USB-C port?

Holtek UART to USB bridge with CDC-ACM support on USB-C makes the device ultra easy to communicate with. No extra hardware or drivers will be required. Android for example has CDC-ACM support enabled by default.

What MAC OUI will the device have?

We plan to register an OUI block for OpenWrt which can also be used for other vendor extensions such as Wi-Fi beacon IEs.

What is the purpose of the mikroBUS connector?

mikroBUS was chosen as we wanted to make the hardware extendable. There are dedicated pins for UART, SPI, I2C buses and RST/INT signals. The standard uses regular 2.54 mm pitch connectors (you can use available mikroBUS modules or just connect to it something else, with 2.54 mm jumper cables).

Why have the RTC on board instead of a mikroBUS module?

We believe there are many things a Wi-Fi (or networking in general) device should have on-board by default. Always having a correct time on the device is crucial in many applications, like VPN, DNSSEC, ...

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