X1004

Overview

Enhance your Raspberry Pi 5 with effortless installation and lightning-fast PCIe storage speeds!

M2 NVMe SSD Socket
(Only support NVMe SSD 2280 Length)

40Pin GPIO

Introducing the X1004 NVMe dual SSD shield, designed to provide a seamless and high-speed storage solution for your Raspberry Pi 5. Its sleek and compact design enables easy attachment of two full-size M.2 2280 SSDs to your Raspberry Pi 5. With its PCIe 2.0 interface, you can experience data transfer rates of up to 5Gbps, allowing you to effortlessly transfer large amounts of data within seconds.

The X1004 is specifically designed to be placed on top of the Raspberry Pi 5, similar to a traditional HAT, and it provides a 40-pin header for easy access to the GPIO. With this NVMe shield, you can still use your favorite HATs alongside it. Additionally, it is fully compatible with the Raspberry Pi's official passive cooler, ensuring efficient heat dissipation. The inclusion of mounting holes and standoffs not only protects the solid-disk drives but also effectively dissipates heat for reliable performance. The built-in LED light indicates the status of reading or writing, eliminating any guesswork.

LED
On: Power OK/Standby
Flashing: Reading/Writing Status

PCIe Connector

X1004 V1.1 Dual Nvme shield

The X1004 is an ideal storage solution for creating a home media center or building a network-attached storage (NAS) system. It allows you to store and stream your own videos, music, and digital photos within your home or even remotely across the world.

Good News! The X1004 supports booting from NVME SSDs starting with bootloader version **2024-05-17** and later versions.

Geekworm PCIe to NVME Sets:

After the release of the Raspberry Pi AI Kit (https://www.raspberrypi.com/products/ai-kit/), we tested four PIPs: X1001, X1004, X1011, and M901. X1001, X1004, and M901 all support the hailo-8 ai accelerator, but X1011 does not.

It should be noted that X1004 uses ASMedia ASM1182e (https://www.asmedia.com.tw/product/213yQcasx8gNAzS4/b7FyQBCxz2URbzg0) PCIe switch, it can't support PCIe Gen 3 speed, so even though we forced to enable PCIe Gen 3.0 setting in Raspberry Pi 5, it is limited by ASMedia ASM1182e PCIe switch, and speed is still PCIe Gen 2.0 5Gbps speed. when you use an hailo-8 ai accelerator, Raspberry Pi Fundation highly recommends using PCIe 3.0 to achieve best performance with your AI Kit.

Our tentative conclusions are as follows:

- If you need to use hailo-8 ai accelerator with high performance, it is recommended to use X1015/X1002/X1003/M901/ the official M.2 HAT+ (https://www.raspberrypi.com/products/m2-hat-plus/) etc. When choosing these PIP boards, **you should focus on whether there is a conflict between the camera cable and the PIP board installation**, and enable PCIe3.0 to use hailo-8 ai accelerator. At the same time, you need to prepare an SD card as the system disk.
- If you don't care about the high performance brought by PCIe 3.0, then you can consider using X1004, so that you can use any socket of X1004 to install NVME SSD as the system disk, and another socket to install hailo-8 ai accelerator, so as to have both.

Model	Compatible with	Position	NVMe M2 SSD Length Support	Matching Case	Matching Cooler	Support NVMe Boot	Support PCIe 3.0	Support Hailo-8 AI Accelerator
X1000	Raspberry Pi 5	Top	2230/2242	P579	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Not tested
X1001	Raspberry Pi 5	Top	2230/2242/2260/2280	P579	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Yes
X1002	Raspberry Pi 5	Bottom	2230/2242/2260/2280	P580 / P580-V2	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Not tested
X1003	Raspberry Pi 5	Top	2230/2242	P579 / P425	Official Cooler / H501 Only	Yes	-	Not tested
X1004	Raspberry Pi 5	Top	Dual ssd: 2280	P579-V2	Official Cooler / Argon THRML Cooler / H505/ H501	Yes (Requires EEPROM 2024/05/17 and later version)	NO	Yes
X1015	Raspberry Pi 5	Top	2230/2242/2260/2280	P579	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Yes
X1005	Raspberry Pi 5	Bottom	Dual ssd: 2230/2242/2260/2280	P580-V2	Official Cooler / Argon THRML Cooler / H505/ H501	Yes (Requires EEPROM 2024/05/17 and later version)	NO	Yes
X1011	Raspberry Pi 5	Bottom	4 ssds: 2230/2242/2260/2280	X1011-C1	Official Cooler / Argon THRML Cooler / H505/ H501	Yes (eeprom 2024/05/17 and later version)	NO	NO
M901	Raspberry Pi 5	Top	2230/2242/2260/2280	P579	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Yes
Q100	Raspberry Pi 5	Top	2242	P579	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Not tested
Q200	Raspberry Pi 5	Top	Dual ssd: 2280	P579	Official Cooler / Argon THRML Cooler / H505/ H501	NO	-	Not tested
M300	Raspberry Pi 5	Top	2230/2242	P579	Official Cooler / Argon THRML Cooler / H505/ H501	Yes	-	Not tested
M400	Raspberry Pi 5	Top	2230/2242/2280	P579	Official Cooler/ Argon THRML Cooler / H505/ H501	Yes	-	Not tested

Features

- Model: X1004
- Compatible With - Raspberry Pi 5B Only
- Supports a total of 8TB storage capacity (4TB+4TB) with M.2 NVMe solid-state drives
- **Accommodates two full-size 2280 NVMe SSDs**
- Provides speedy data transfer with PCIe 2.0 5Gbps.
- Fully compatible with the Raspberry Pi official active cooler
- LED indicators in blue display power and drive status

- Features an integrated high-performance PCIe packet switch
- Equipped with two high-efficiency DC/DC step-down converters, delivering a maximum of 3.5A+3.5A to power your SSDs
- Designed to be attached on top, allowing stacking with other HATs
- **Powered via the 40-pin GPIO header & PCIe FFC**
- Compatible with the HAT+ STANDBY power state, automatically turning off when the Pi 5 shuts down.
- Since X1004 is using ASMedia ASM1182e (https://www.asmedia.com.tw/product/213yQcasx8gNAzS4/b7FyQBCxz2URbzg0) PCIe switch, it can't support PCIe Gen 3 speed, so even though we forced to turn on PCIe Gen 3.0 setting in Raspberry Pi 5, it is limited by ASMedia ASM1182e PCIe switch. speed is still PCIe Gen 2.0 speed.

Technical Specification

Power supply	5Vdc +/-5% power via FFC & 40-pin header, converted to 3.3V max 3.5A+3.5A to power the SSDs
Ports & Connectors	PCIe connector - 16-pin pitch0.5mm SSD connector - M.2 KEY-M 67P
PCIe cable length	30mm
PCB Size	87mm x 57mm

Important Notes

- Compatible with M.2 NVMe SSDs only
- Not compatible with M.2 SATA SSDs, M.2 PCIe AHCI SSDs, or other M.2 non-NVMe devices
- Older NVMe drives with less efficient flash media may not perform as well as newer drives
- New NVMe SSDs are not partitioned and will need to be both partitioned and formatted when first connected to the Raspberry Pi before they will be accessed in the Explorer.

Matching Case

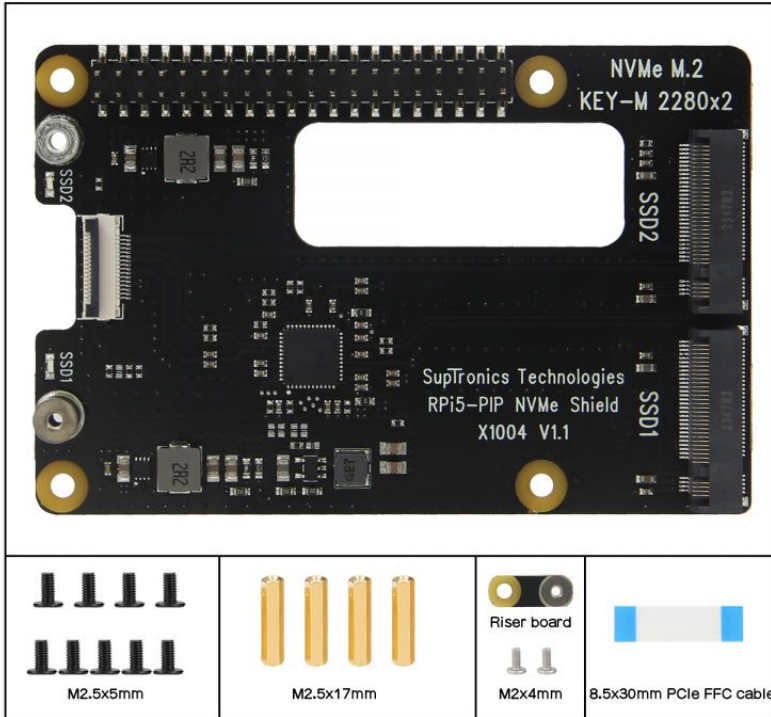Please refer to P579-V2

Matching Case:P579-V2 （NOT include）

Packing List

- 1 x X1004 Shield

- 4x M2.5x17mm F/F Spacers
- 9x M2.5x5mm Screws
- 1x Riser Board
- 2x 30mm length FFC cable(one as backup)

X1004 Packing List

User Manual

- X1004 hardware description: X1004 Hardware (https://suptronics.com/Raspberrypi/Storage/x1004-v1.1_hardware.html)
- How to make X1004 work: NVMe SSD boot with the Raspberry Pi 5
- Raspberry pi 5 pcie connector pin out (https://datasheets.raspberrypi.com/pcie/pcie-connector-standard.pdf)

Assembly Instructions

1

M2.5x17mm F/F Spacer x4
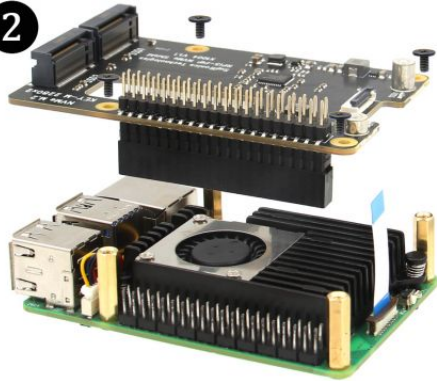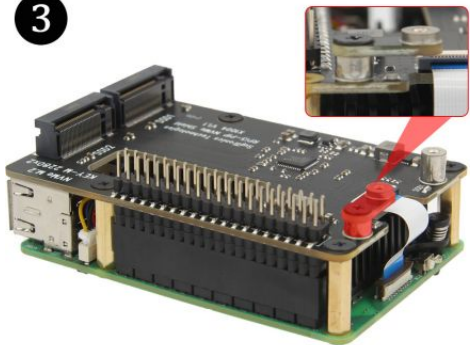
Insert FFC cable & fix spacers,
then install the active cooler.
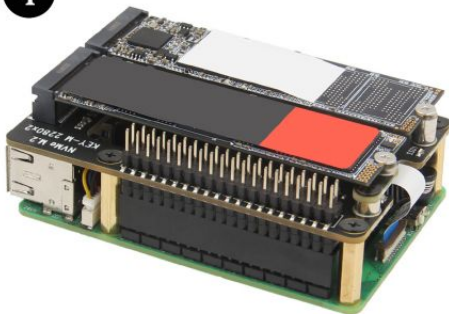(NOT include Active Cooler)

2

Plug in the X1004 straight into Pi 5
GPIO header, fix 4pcs screws.

3

Insert FFC to X1004 firstly.
Align the riser board and securely
fasten it by a M2.5x5mm screw.

4

Insert and fix M2 NVMe 2280 SSD.
(SSD & Pi 5 are both NOT included)

5

Replace the 4pcs M2.5 screws with
M2.5x5+5mm spacers at the bottom of Pi 5.

6

Push the kit into P579-V2 case, use
KM2.5x4 screws to fix at case bottom.

7

Fix top cover using 4pcs KM2.5x4 screws.

8

Pasting 4pcs rubber pads on the bottom.

Installation Video: https://youtu.be/IuklNh_pOos