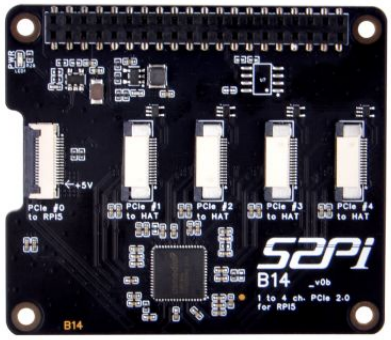
EP-0233

RPi 5 Quad FPC PCIe HAT

Description



Raspberry Pi HAT: Expand Your PCIe Connectivity Elevate your Raspberry Pi 5 experience with the B14 Raspberry Pi HAT, a versatile accessory that transforms your FPC PCIe interface into four, enabling seamless connection to multiple PCIe devices. With the ability to daisy-chain multiple units, users can create a multi-level PCIe setup for enhanced flexibility and functionality.

Features

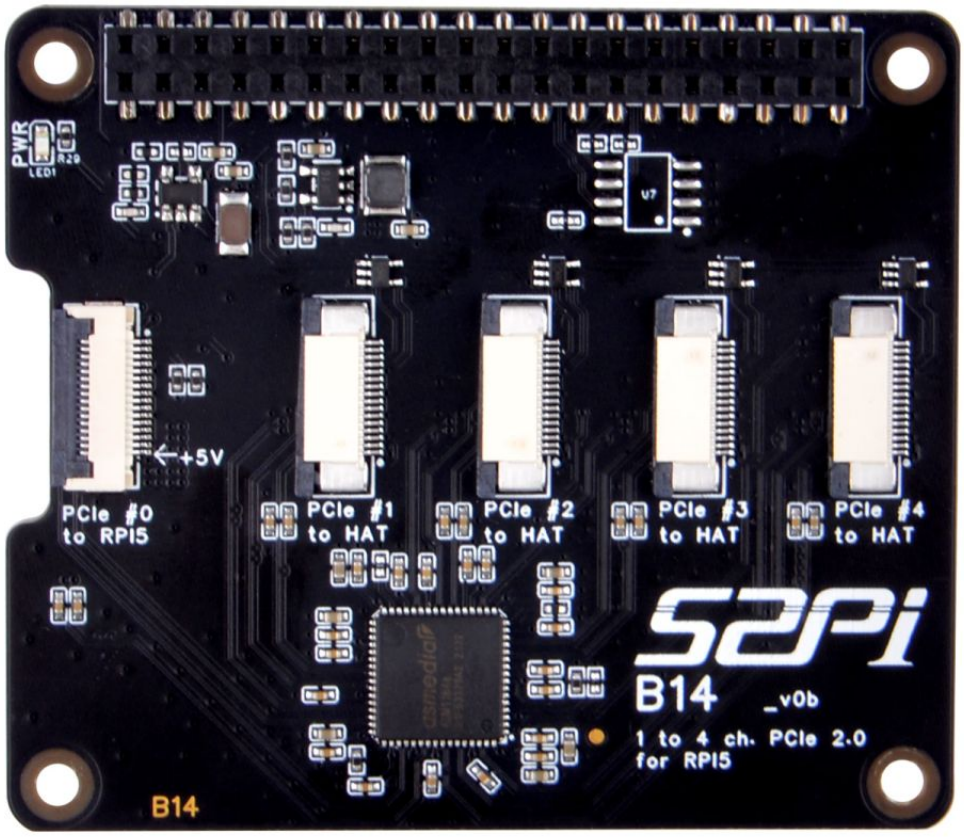
- **Quad PCIe Expansion:** Effortlessly expand your Raspberry Pi 5's FPC PCIe interface into four, providing users with the convenience of connecting multiple PCIe devices simultaneously for increased productivity and versatility.
- **Daisy-Chaining Capability:** Connect multiple units in a cascading fashion to create a multi-tiered PCIe configuration, allowing for expanded connectivity options and customized setups tailored to your specific needs.
- **Seamless Integration:** Designed for easy integration, the B14 Raspberry Pi HAT offers a user-friendly experience, making it simple to set up and configure for immediate use with your Raspberry Pi 5.
- **Enhanced Connectivity:** Unlock the potential to connect a wide range of PCIe devices, such as SSDs, GPUs, network cards, and more, expanding the capabilities of your Raspberry Pi 5 for diverse applications and projects.
- **Robust and Reliable Design:** Built with quality and durability in mind, the B14 Raspberry Pi HAT ensures stable and reliable performance, providing a dependable solution for your PCIe expansion needs.

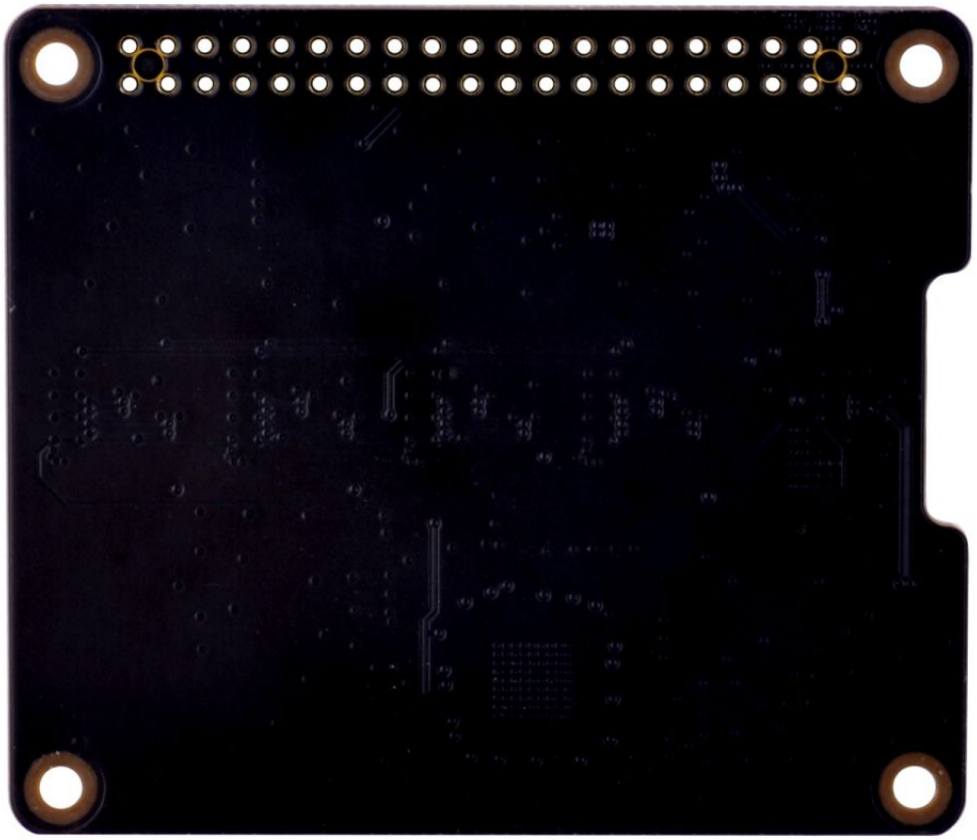
Transform your Raspberry Pi 5 into a powerhouse of connectivity with the B14 Raspberry Pi HAT. Experience seamless PCIe expansion, enhanced flexibility, and endless possibilities for your projects and applications. Elevate your setup with the B14 and unleash the full potential of your Raspberry Pi 5.

- **Dual Board Expansion:** This feature allows for the connection of two additional Pineberry Pi boards, providing users with the flexibility to expand their projects' scope and functionality.
- **ASMedia PCIe Switch Integration:** The board incorporates an ASMedia PCIe Switch (Gen2 variant), facilitating reliable and efficient data transfer between connected devices.
- **Included FPC Ribbon Cables** : Three FPC ribbon cables are provided, simplifying the connection process and offering flexibility in setup and configuration.
- **Compatible Form Factor:** Board format is compatible with the original Raspberry Pi HAT dimensions of 65 x 56.50 mm.
- **40-Pin Raspberry Pi HAT Connector Support:** Supports the standard 40-pin Raspberry Pi HAT connecto

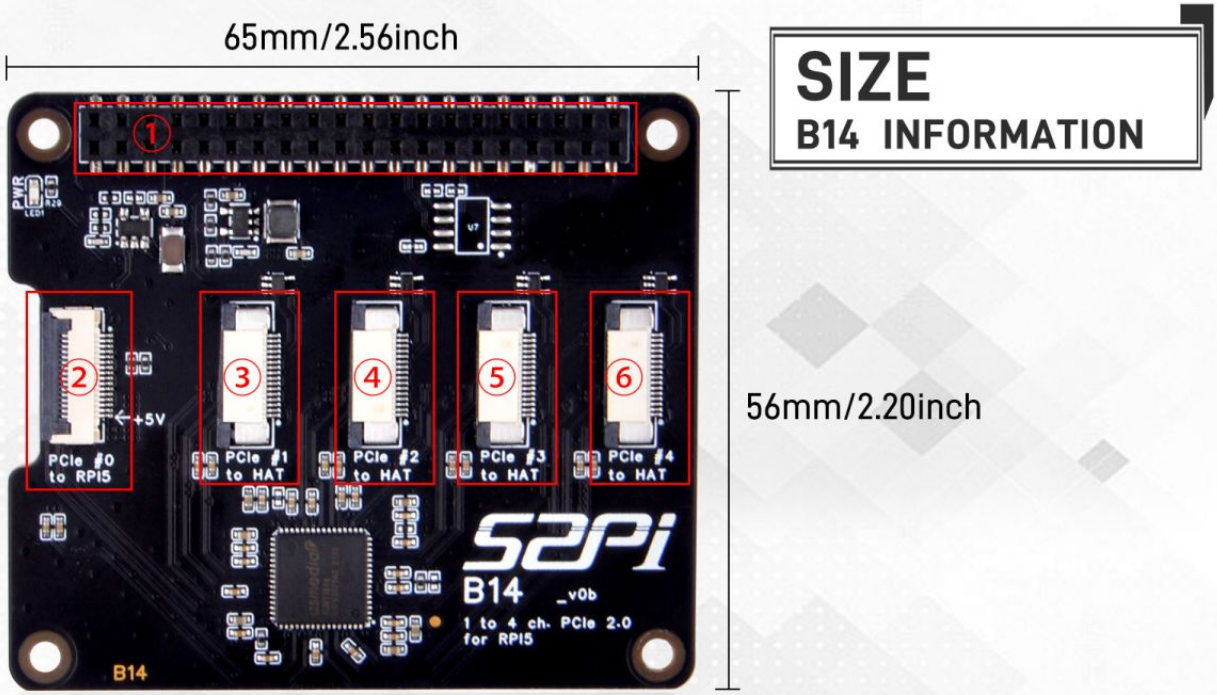
Gallery

- Product outlook

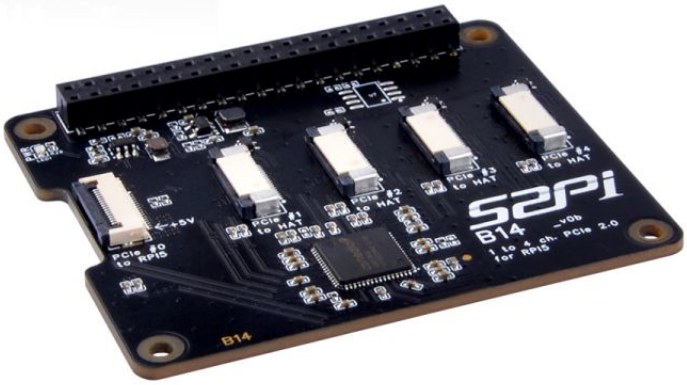

PWR
LED1
R20
U7
+5V
PCIe #0
to RPI5
PCIe #1
to HAT
PCIe #2
to HAT
PCIe #3
to HAT
PCIe #4
to HAT
S2PI
B14
_v0b
1 to 4 ch. PCIe 2.0
for RPI5
B14



- Port definitions

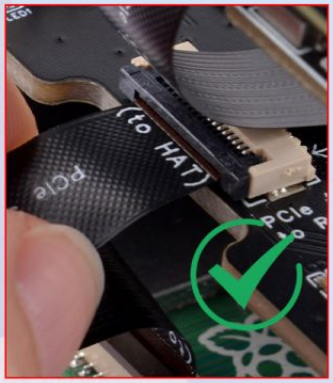


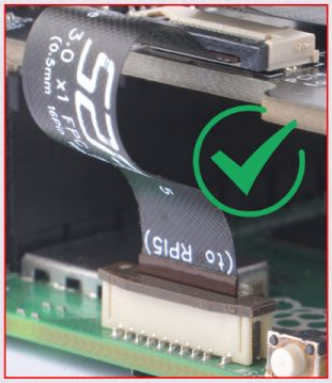
1. 40Pin GPl0 Pin header
2. PCIe sock (From Pi)
3. PCIe sock (To HAT1)
4. PCIe sock (To HAT2)
5. PCIe sock (To HAT3)
6. PCIe sock (To HAT4)

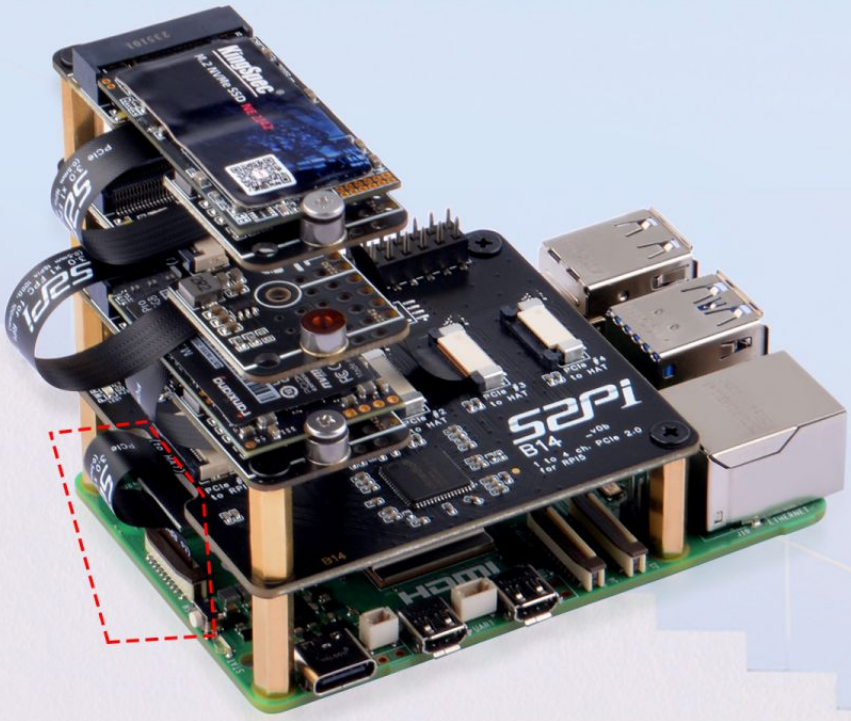


- FPC installation details

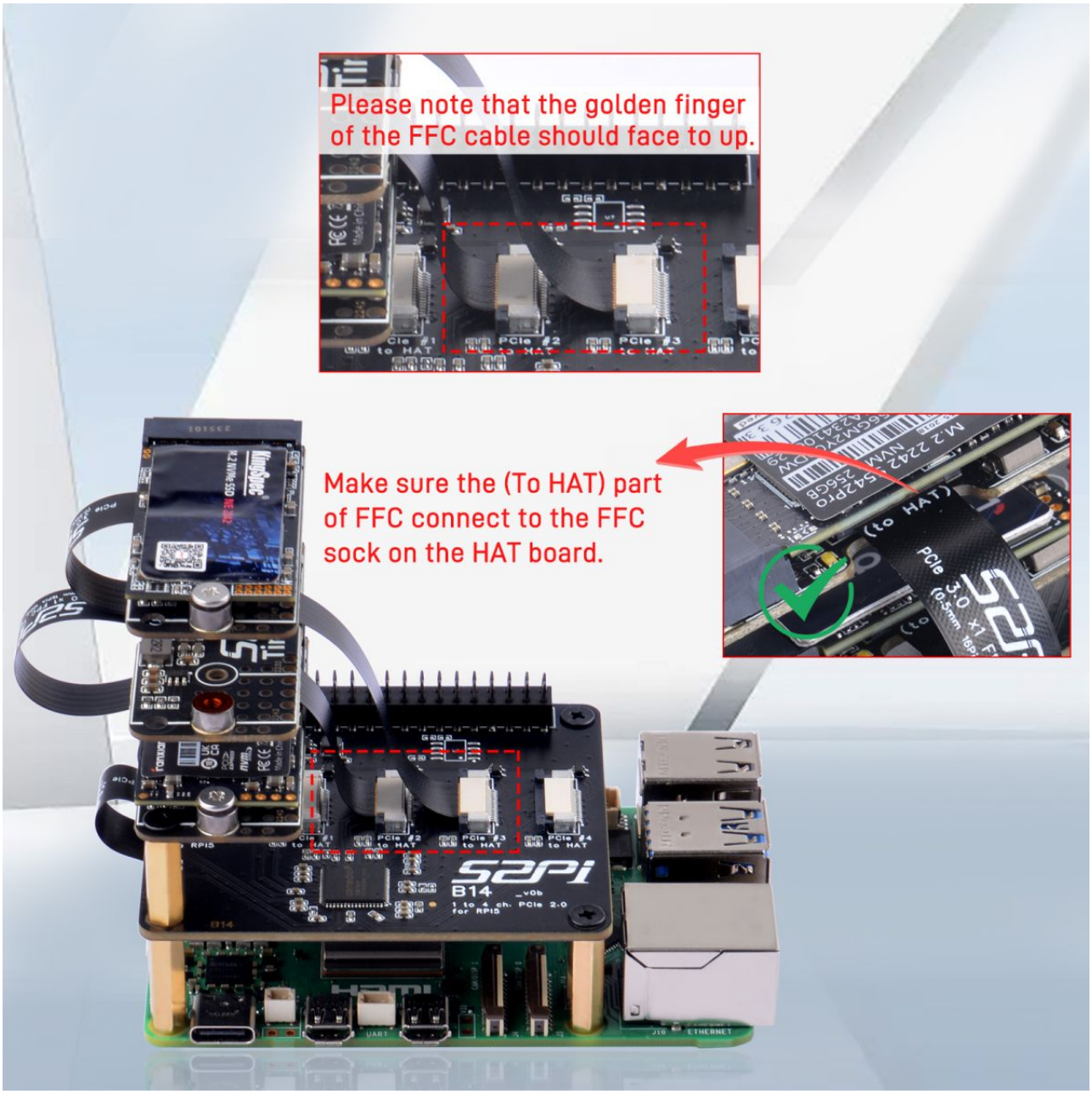
About the correct insertion method of the B14 four-lane FPC PCIe HAT and RPI5 cables



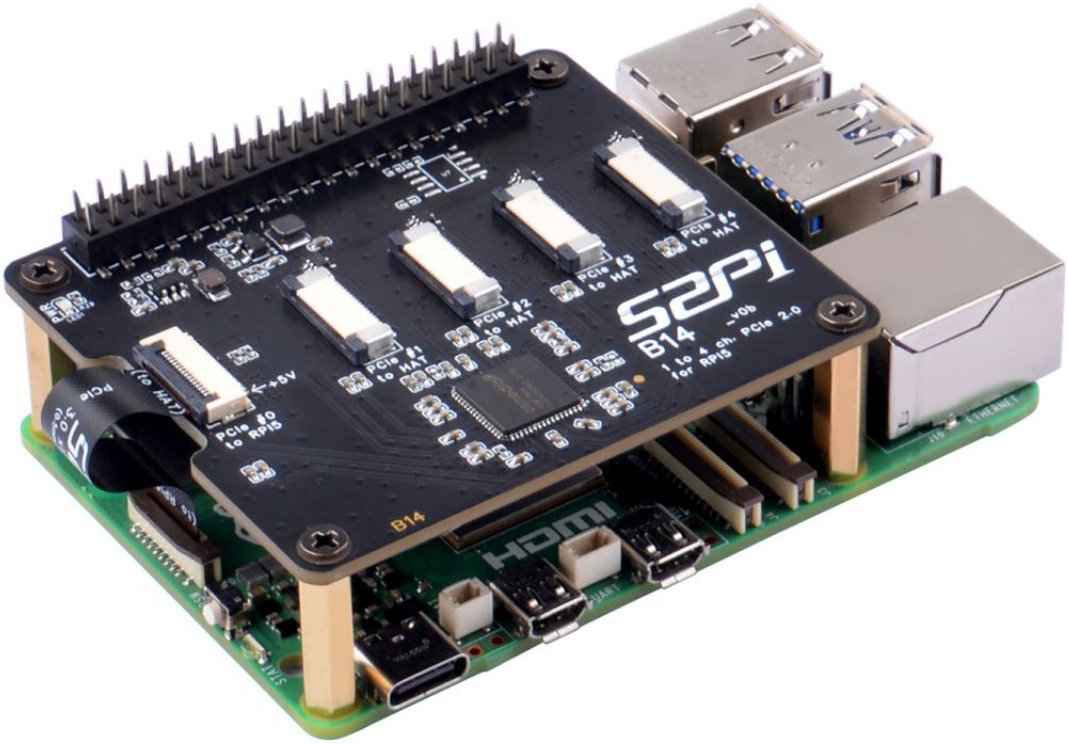


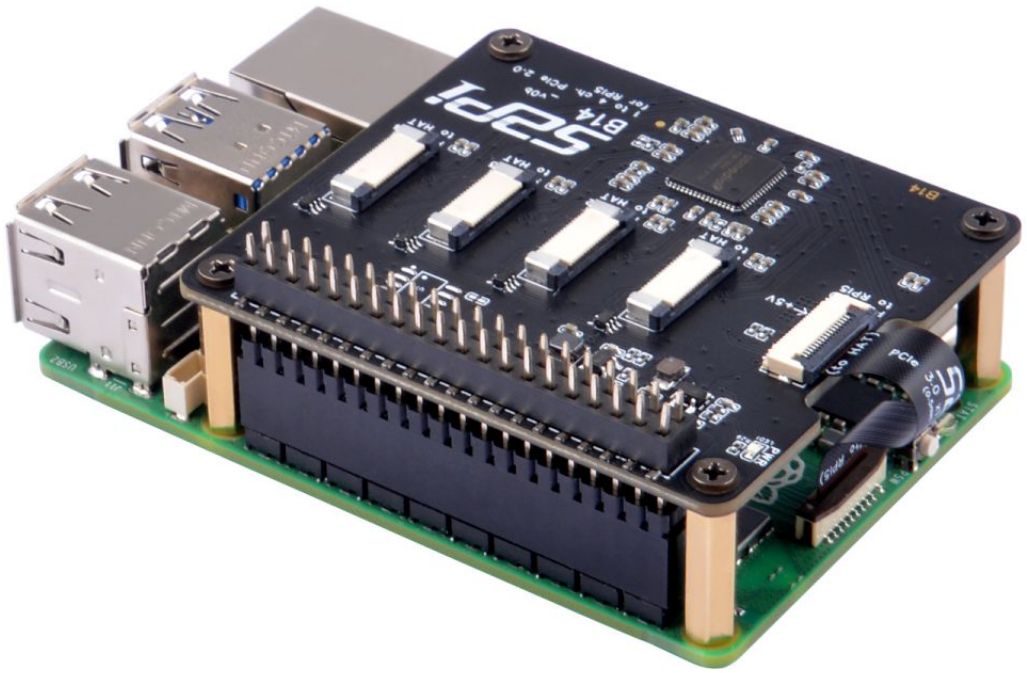


Raspberry Pi 5 and M.2 NVMe SSD drives do not include in the package, additional purchase required!

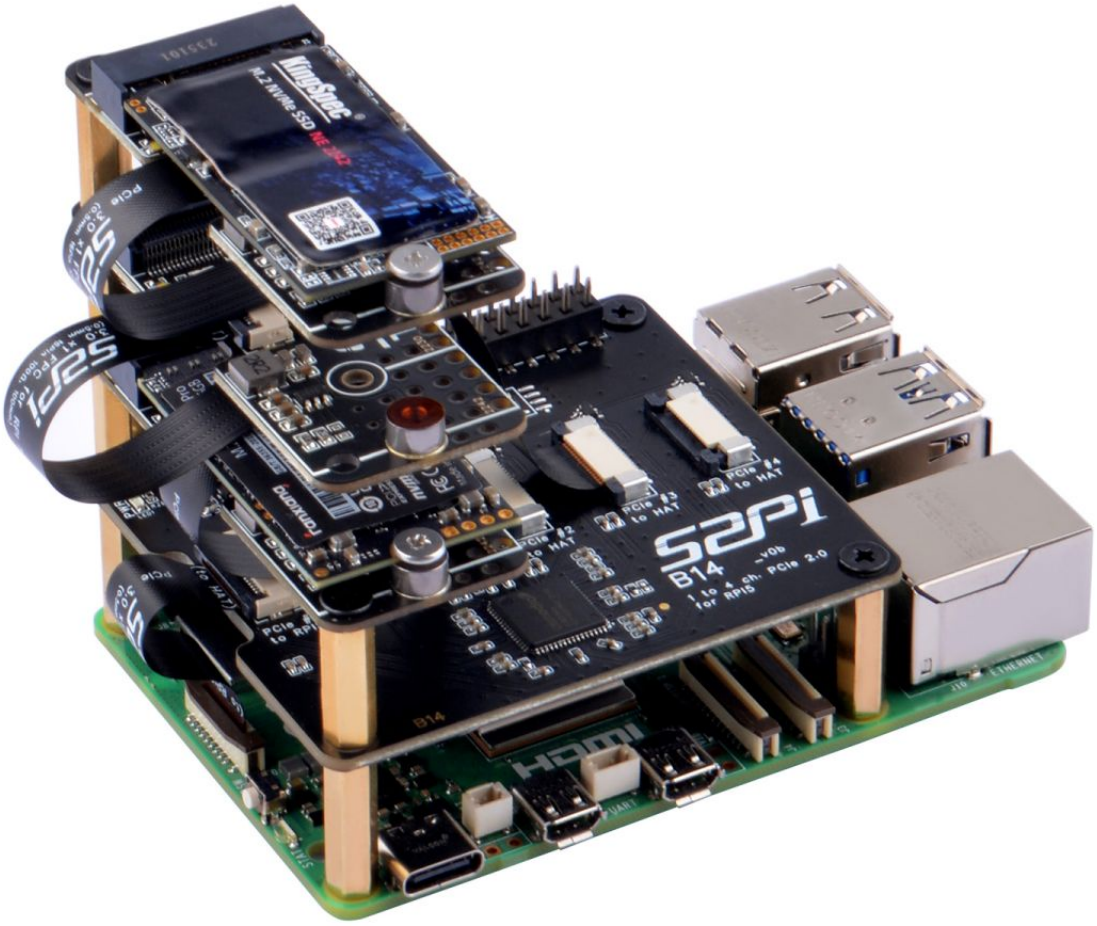


- Application scenarios


PCIe #1 to HAT
PCIe #2 to HAT
PCIe #3 to HAT
PCIe #4 to HAT
PCIe #0 to RPi5
+5V
B14
1 to 4 ch. PCIe 2.0 for RPi5
HDMI

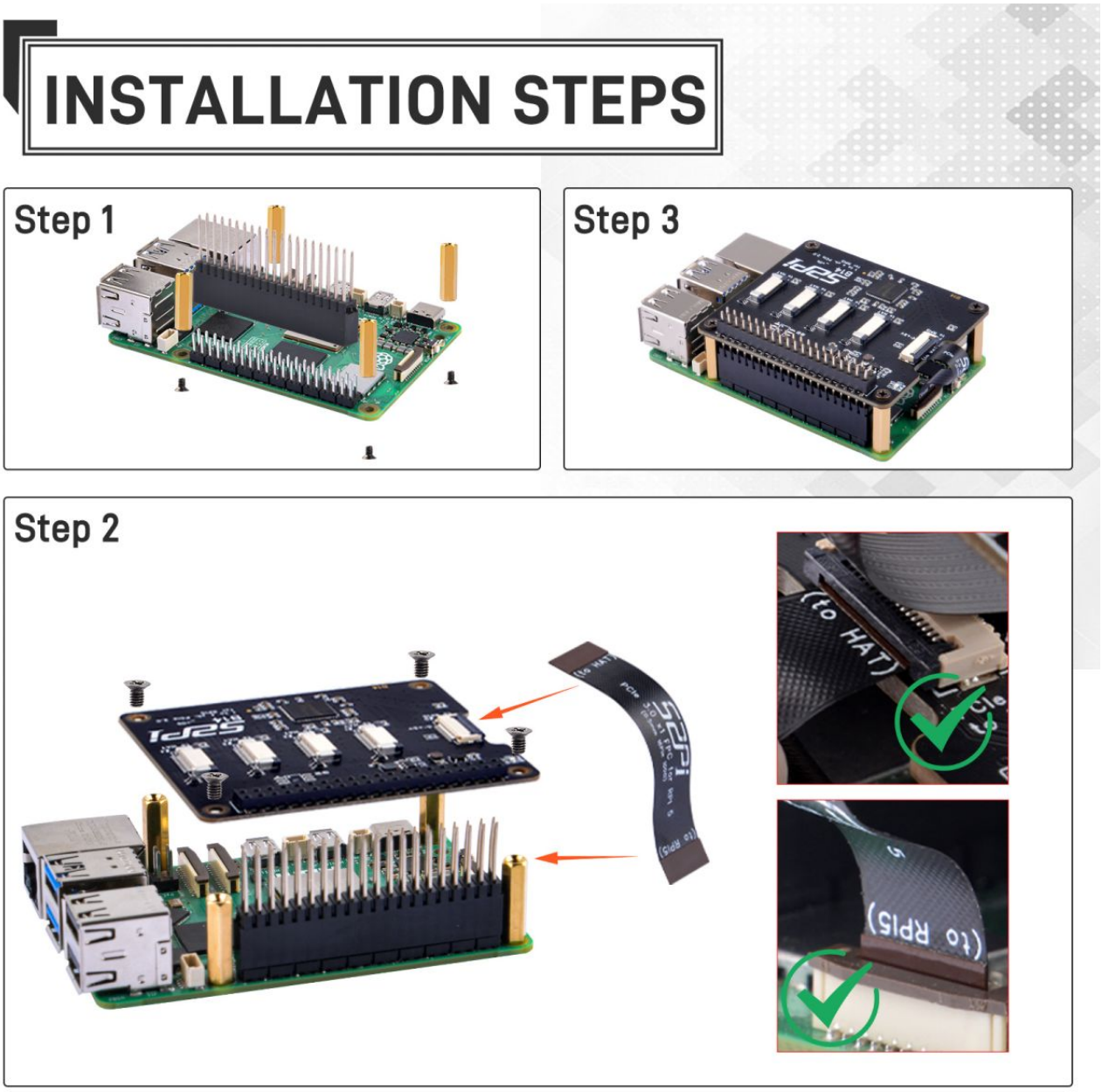


- Adding three tiny NVMe expansion board with it.



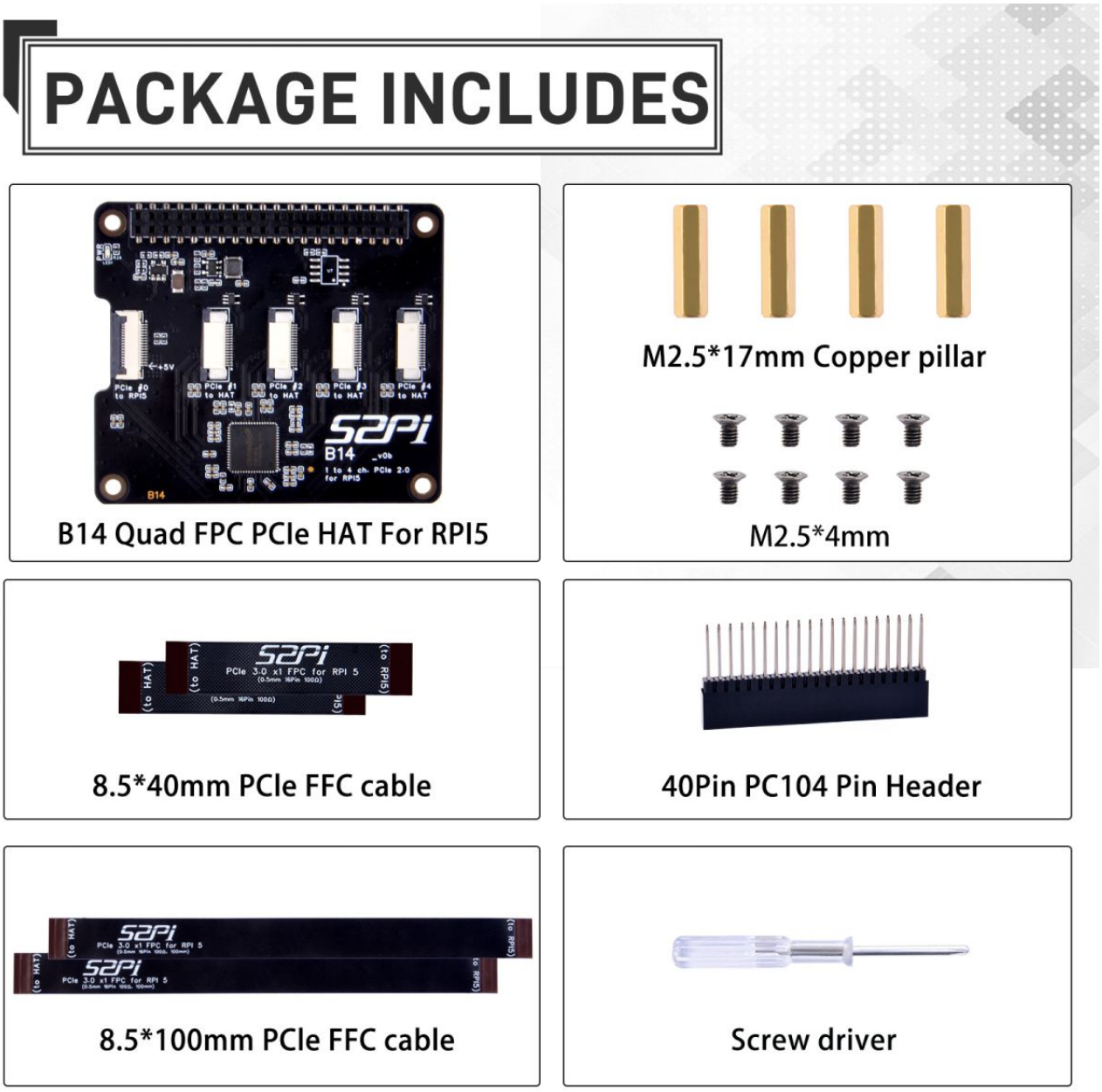
How to install it?

- Please strictly follow the installation method as shown in the figure below for installation. During the installation process, please protect your FFC cable well to avoid damage. Additionally, it is important to pay attention to the direction of the FFC cable on the HAT board; the gold fingers should be facing upwards. Moreover, when connecting the FFC cable between the Raspberry Pi and the HAT board, please refer to the information indicated on the cable for connection. "To HAT" means to connect to the HAT board, and "To RPI5" means to connect to the PCIe interface of Raspberry Pi 5.



Package Includes

- 1 x B14 Quad FPC PCIe HAT For RPI5
- 2 x 8.5*40mm PCIe FFC cable
- 2 x 8.5*100mm PCIe FFC cable
- 4 x M2.5*17mm copper pillar
- 8 x M2.5*4mm Flat head screw
- 1 x 40Pin PC104 Pin Header
- 1 x Screw driver (M2.5)



How to enable PCIe on Raspberry Pi 5

- We assume that you are using Raspberry Pi OS (bookworm) 2024-03-15

Step 1

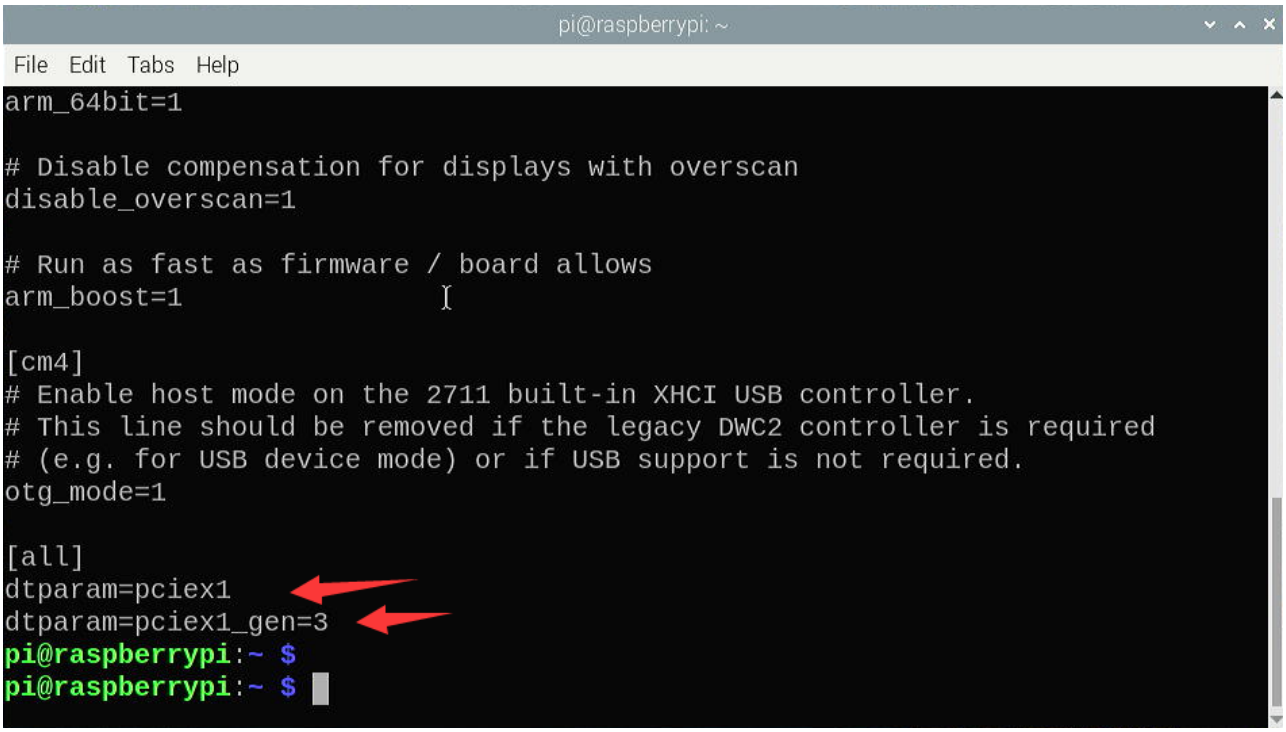
- Enable PCIe function

Edit /boot/firmware/config.txt file and adding following parameter in to the file.

```
dtparam=pciex1
dtparam=pciex1_gen=3
```

Save it and then do remember reboot your Raspberry Pi to take effect.

Keywords



- Raspberry Pi HAT for RPi 5, Raspberry Pi 5 PCIe expansion hat, RPi 5 Quad FPC PCIe HAT

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