USB3.2-Gen1-HUB-2IN-4OUT

From Waveshare Wiki
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Overview

USB3.2-Gen1-HUB-2IN-4OUT

(https://www.waveshare.com/usb3.2-gen1-hub-2in-4out.htm)

USB 3.2 Gen1

Features

- 4x extended USB ports with a maximum speed of 5Gbps, switchable two inputs, sharing USB devices for two hosts.
- Industrial grade HUB chip, USB 2.0 adopts MTT technology.
- ESD protection for each USB port, preventing electric surge damage and data loss.
- Over-voltage protection, effectively preventing other high-voltage power inputs from damaging the connected devices.
- Multiple protection circuits: over-voltage, over-current, short circuit, over-temperature, reverse current, under voltage lock-out, 8KV ESD protection, filtering protection, etc.
- Industrial grade metal case, rugged & durable, with mounting holes for easy installation.

Hardware Connection

- 7~36 voltage for DC power jack and round hole power port, USB only allows 5V input.
- 4x USB output ports, maximum output current is 1.2A, exceeding this limit will trigger short circuit protection, need to remove the device to recover.
- Operating temperature range: -10 ℃ ~ 85 ℃, no condensation, this module is not waterproof.
- LED1~LED4 indicates the enumeration of each USB device, there is a USB device connected and correctly enumerated successfully, the LED is on, but some modules need software to enable before it will light up.
- The red PWR light indicates the power supply, green LED identifies the use of the USB interface.

(/wiki/File:USB3.2-Gen1-HUB-2IN-4OUT02.jpg)

User Guide

Expected Result

Take Raspberry Pi 4B as an example:

- Insert the module to 40PIN GPIO of Raspberry Pi 4B. Connect the USB interface of USB3.2-Gen1-HUB-4U to Raspberry PI via the USB 3.0 Adapter.
- Connect the 5V power supply to the POWER ONLY port.
- Connect USB devices to USB1-UBS4, the corresponding LED (USB1-USB4) will light up in sequence, which means the device works normally.

Working with Raspberry Pi

1. Hardware preparation

- Raspberry Pi 4B x 1
- USB3.2-Gen1-HUB-2IN-4OUT x 1
- USB 3.0 Adapter x 1 (or USB3.0 cable)
- USB 3.0 SSD x 1 (Speed varies with different SSD)

2. Configure Rasberry Pi

- Enter the Raspberry Pi terminal:
- Enter the root directory of Pi:

```
cd ../..
```

- Enter the directory of USB3.0 SSD.

```
cd media/pi/xxx (xxx is the name of the disk)
```

- Free Memory.

```
sudo sh -c "sync && echo 3 > /proc/sys/vm/drop_caches"
```

- Copy 2G data to the SSD disk.

```
dd if=/dev/zero of=./test_write count=2000 bs=1024k
```

```
pi@raspberrypi:/media/pi/mini $ dd if=/dev/zero of=./test_write count=2000 bs=1024k
2000+0 records in
2000+0 records out
2097152000 bytes (2.1 GB, 2.0 GiB) copied, 16.625 s, 126 MB/s
```

(/wiki/File:USB_3.2_Gen1_HUB_HAT_test1.png)

- Copy 2G data to the Raspberry Pi.

```
dd if=./test_write of=/dev/null count=2000 bs=1024k
```

```
pi@raspberrypi:/media/pi/mini $ dd if=./test_write of=/dev/null count=2000 bs=1024k
2000+0 records in
2000+0 records out
2097152000 bytes (2.1 GB, 2.0 GiB) copied, 3.14886 s, 666 MB/s
```

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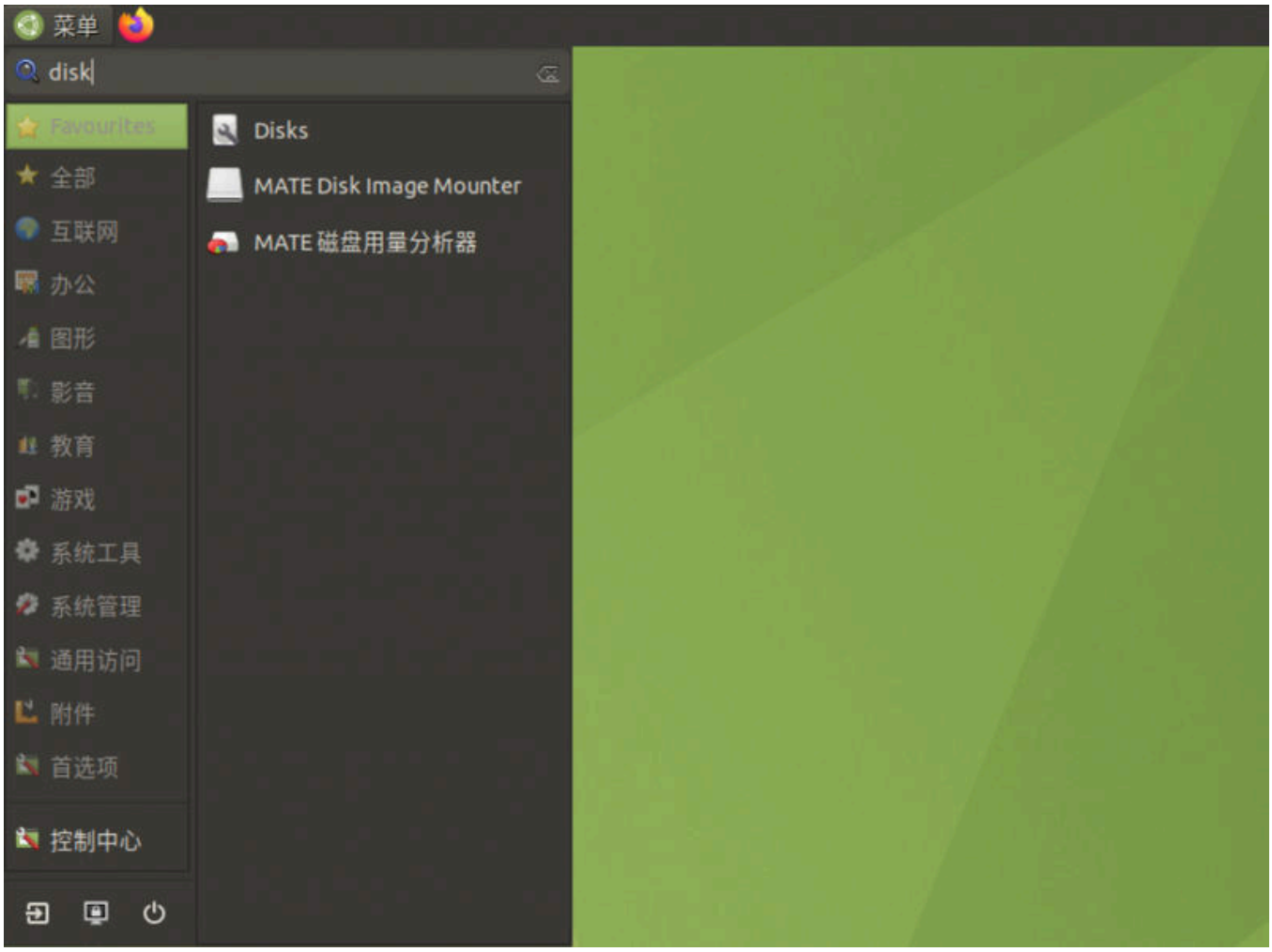
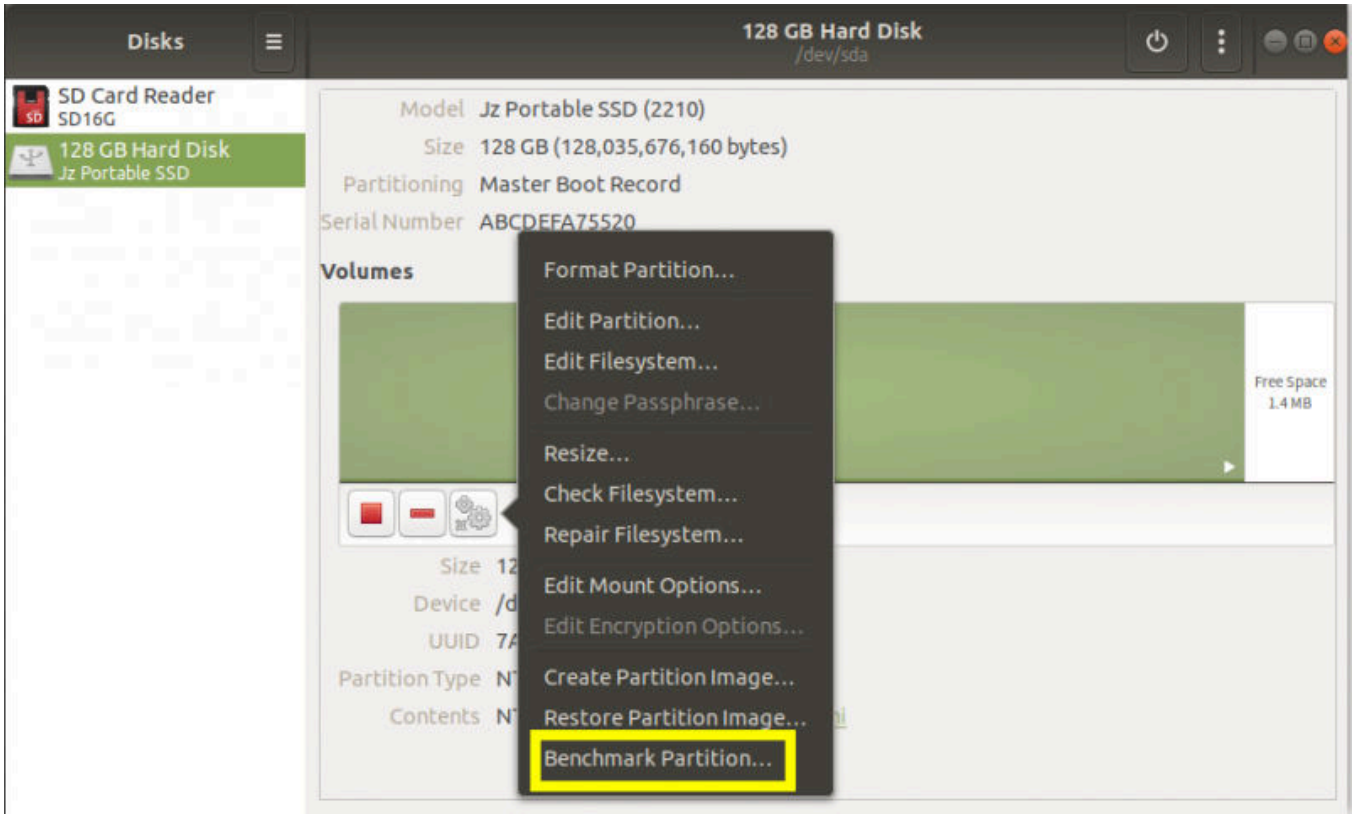
3. Working with Ubuntu (Raspberry Pi)

- Search disk in menu -> Enter -> Open the disk.



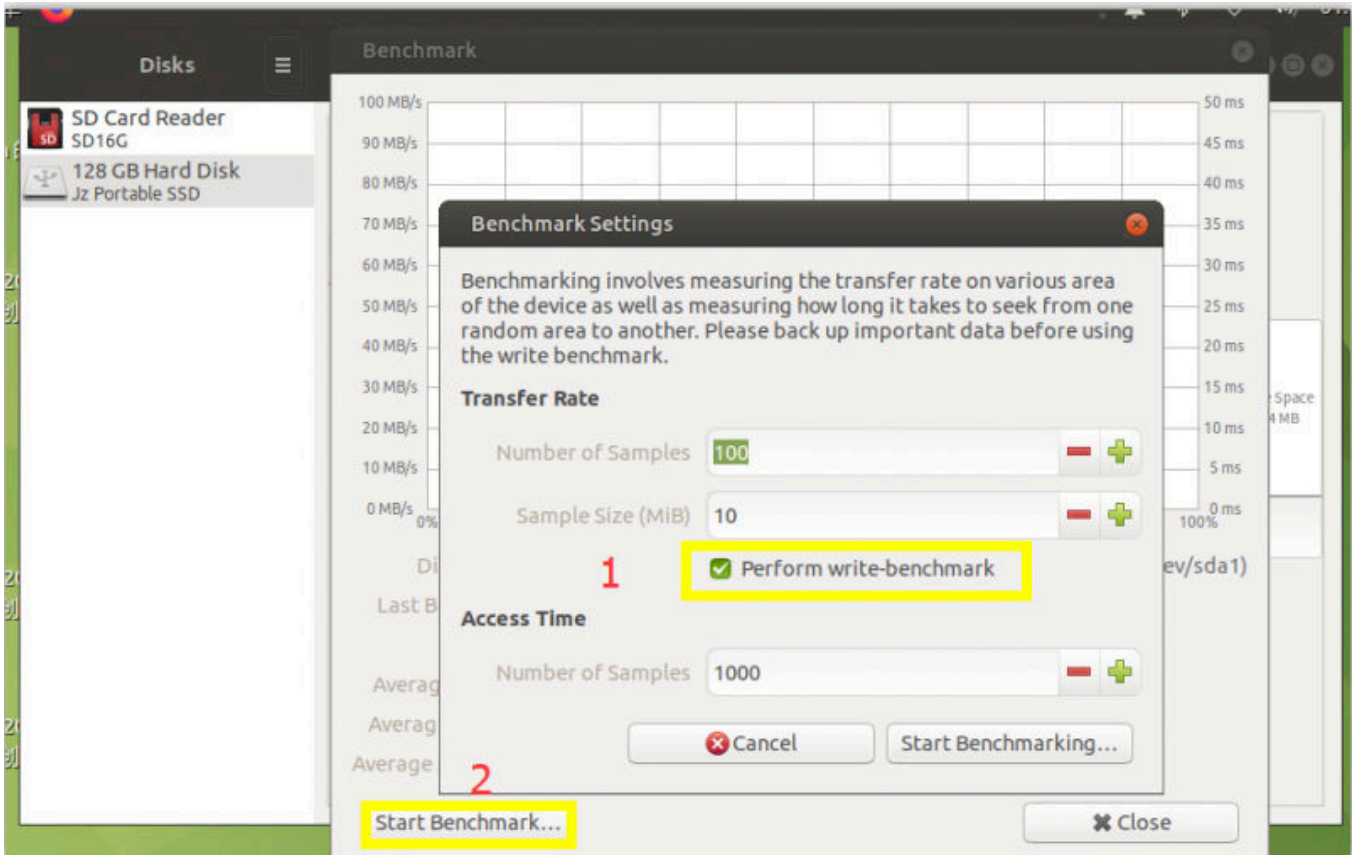
(/wiki/File:USB_3.2_disk.png)

- Choose the correct disk and click the Benchmark Partition option in the Menu:



(/wiki/File:USB_3.2_Gen1_HUB_HAT_test4.png)

- Click Start Benchmark, check to Perform write-benchmark, and keep other default settings.



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- Input the user password and authorization.

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- Test.

(/wiki/File:USB_3.2_Gen1_HUB_HAT_test7.png)

Use with Sunrise X3 PI

- Use the USB cable to connect the USB 3.0 port of the X3 PI to the USB port of the HUB.
- Insert a USB 3.0 solid-state drive.
- Test Disk Speed Using Commands.

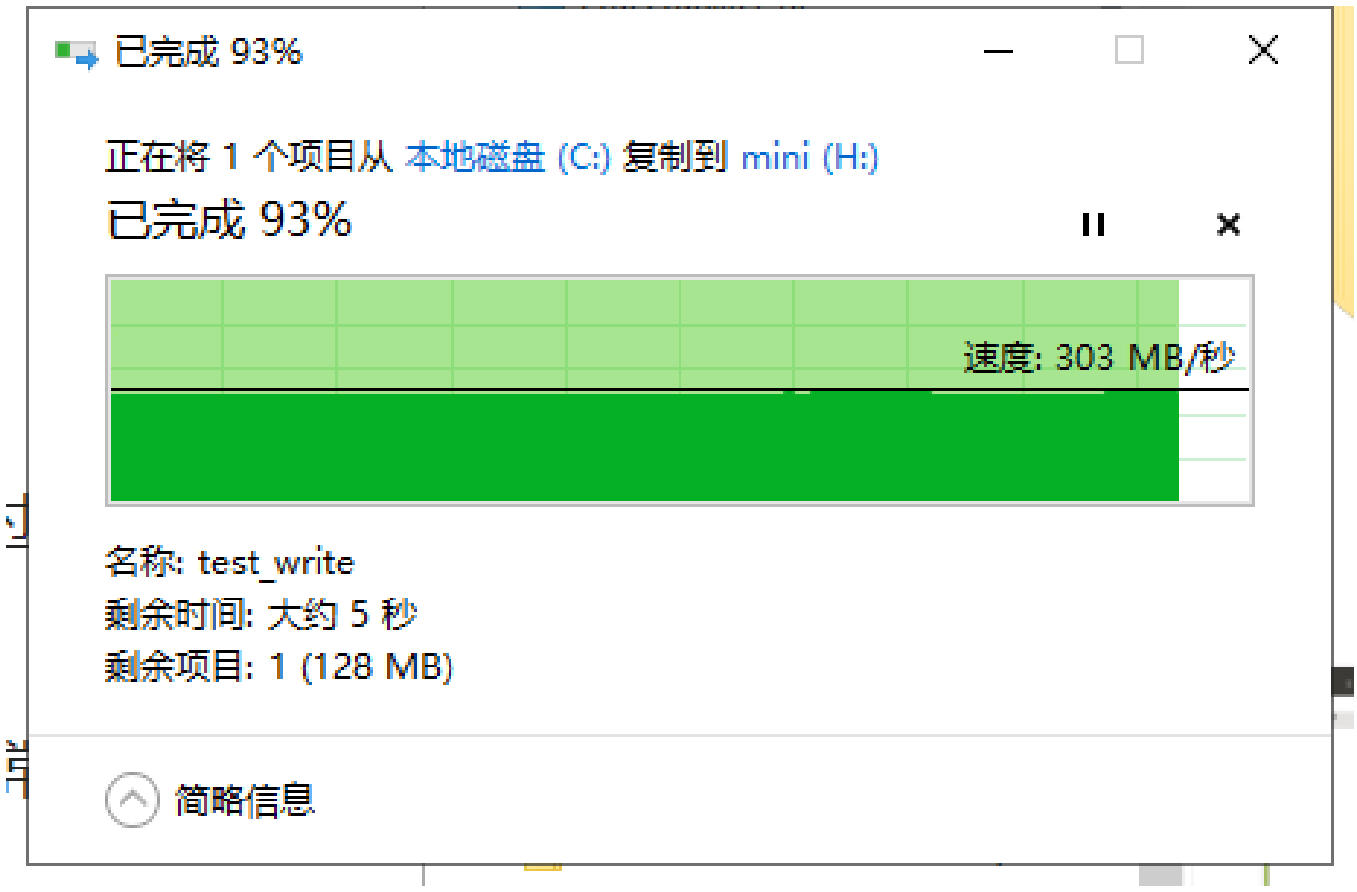
```
sudo apt-get update
sudo apt-get install hdpram -y
sudo hdpram -tT /dev/sda*
```

(/wiki/File:USB_3.2_Gen1_HUB_HAT01.png)

Working in Windows PC

1.Connect the USB port to USB3.0 of the PC, and you can copy the file to SSD

- Copy the file to the PC.



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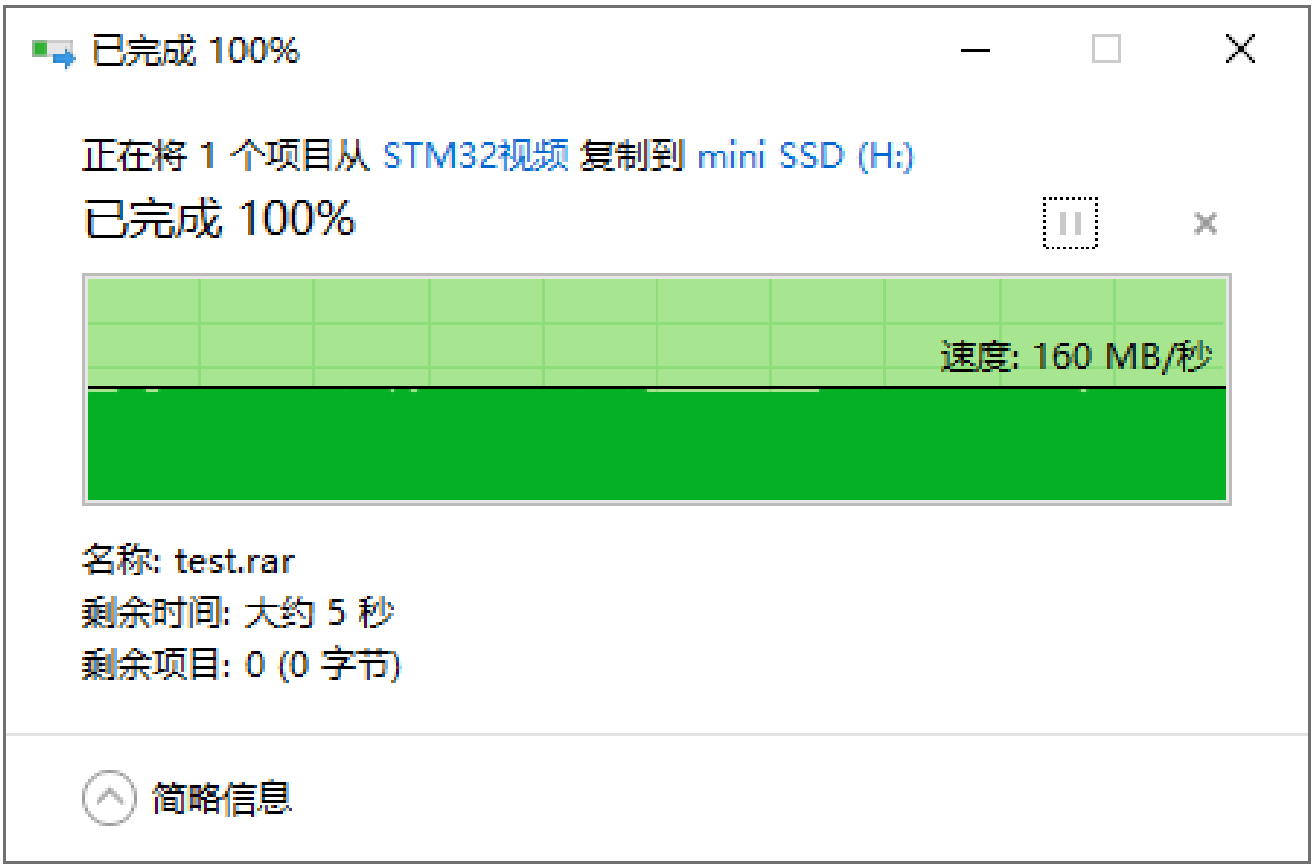
- Copy the file to the portable SSD.



(/wiki/File:USB_3.2_Gen1_HUB_HAT_test9.png)

2.Connect the USB to USB3.0 Port and connect four phones at the same time

(/wiki/File:USB_3.2_Gen1_HUB_HAT_test10.png)

Resources

- 3D Drawing of USB3.2-Gen1-HUB-2IN-4OUT PCBA (https://files.waveshare.com/wiki/USB3.2-Gen1-HUB-2IN-4OUT/USB3.2-HUB-2IN-4OUT%203D%20Drawing.zip)

FAQ

Question:Why the LED indicator is not on and the device could not work

after connecting the USB device?

Answer:

Please check whether the USB device is short-circuited, and ensure that the USB device power supply is normal. Check whether the device can be normally operated on the PC or other devices. If it is connected to the industrial control machine or other devices, check whether the USB has a driver

Question:What is the diameter of the DC port?

Answer:

DC-044 5.5*2.1mm

Question:What is the power consumption of USB3.2-Gen1-HUB-4U and what is the maximum current output of one interface?

Answer:

The power consumption is about 38mA, as the interface current limit protection, the maximum current can be 1.7A.

Question:The Mouse or Keyboard connected cannot work?

Answer:

- Re-plug the USB cable, and make sure that the connection is normal.
- Maybe the USb3.0 adapter is broken, please change to another adapter or USB 3.0 cable for a try.

Question:How to power USB3.2-Gen1-HUB-4U?

Answer:

After connecting the HUB and Raspberry Pi with a USB adapter, the Raspberry Pi can supply power to the HUB; if high-power devices such as mobile hard drives are connected, an external DC 5V power supply needs to be supplied to the Type-C interface of the HUB.

Question:How to verify USB 3.0 hard flash driver's speed and stability on Raspberry Pi?

Answer:

You can verify it by the following commands:

```
ls /dev/sd*
while true; do sudo hdparm -t /dev/sda2;  sleep 10; done
```

```
pi@aaaaa:~ $ ls /dev/sd*
/dev/sda  /dev/sda1  /dev/sda2
pi@aaaaa:~ $ while true; do sudo hdparm -t /dev/sda2; sleep 10; done

/dev/sda2:
 Timing buffered disk reads: 296 MB in  0.85 seconds = 349.09 MB/sec

/dev/sda2:
 Timing buffered disk reads: 296 MB in  0.85 seconds = 349.12 MB/sec

/dev/sda2:
 Timing buffered disk reads: 296 MB in  0.85 seconds = 349.13 MB/sec
```

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Question:What additional power ports are there?

(/wiki/File:USB3.2-Gen1-HUB-2IN-4OUT-FAQ.jpg)

Answer:

It is KF2EDG-2P, 3.81mm.

Support

Technical Support

If you need technical support or have any feedback/review, please click the **Submit Now** button to submit a ticket, Our support team will check and reply to you within 1 to 2 working days. Please be patient as we make every effort to help you to resolve the issue.
Working Time: 9 AM - 6 PM GMT+8 (Monday to Friday)

Submit Now (https://service.waveshare.com/)