USB 3.2 Gen1 HUB Gigabit ETH HAT

This is a driver-free 3 ports USB 3.2 Gen1 Hub HAT for Raspberry Pi, also with a Gigabit Ethernet port, provides more USB/network capability to your Pi, make it easy to connect more USB devices and network devices.

The HAT features a standard Raspberry Pi 40PIN GPIO extension header, when working with Raspberry Pi 4, the USB 3.2 Gen1 ports is able to provide up to 5 Gbps data rate, which means 10 times faster than USB 2.0.

Features

- 3x USB 3.2 Gen1 ports, compatible with USB 3.0 / 2.0 /1.1
- 1x Gigabit Ethernet port, 1000M/100M/10M compatible
- Onboard external USB-C 5V DC power port, ensures a more stable power supply
- 1x power indicator and 3x USB port indicators, easy to check the operating status
- Driver-free, plug, and play, compatible with OS including Windows, Mac OS, Linux, and Android
- Purpose-made for Raspberry Pi 4, compatible with other Raspberry Pi versions as well

What's on board

1. Raspberry Pi GPIO header

for connecting Raspberry Pi

2. USB 3.2 Gen1 HUB input

connects to Raspberry Pi USB port

3. USB 3.2 Gen1 extended ports

USB1~USB3

4. Gigabit Ethernet port

up to 1000Mbps data rate

5. PWR ONLY port

for external USB-C 5V DC power input

6. VL817-Q7

USB HUB chip

7. RTL8153B

USB 3.0 to Gigabit Ethernet converter

8. TGE-2401SR

Gigabit Ethernet transformer

9. PWR

power indicator

10. USB1~USB3

indicator for each USB port

11. MX25L512EOI-10G

FLASH chip

Expected Result

Take Raspberry Pi 4B as an example

- Insert the module to 40PIN GPIO of Raspberry Pi 4B. Connect the USB interface of USB HUB to Raspberry Pu by the USB 3.0 Adapter.
- Connect 5V power supply to the POWER ONLY port.
- Connect USB devices to USB ports *USB1~UBS4), the corresponding LED will turn on for indicating.

Working with Raspberry Pi

1. Hardware preparation

- Raspberry Pi 4B x1
- USB 3.2 Gen1 HUB Gigabit ETH HAT x1
- USB 3.0 Adapter x1 (You also use USB3,0 cable)
- USB 3.0 SSD x1

2.Configure Rasberry Pi

- 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
```
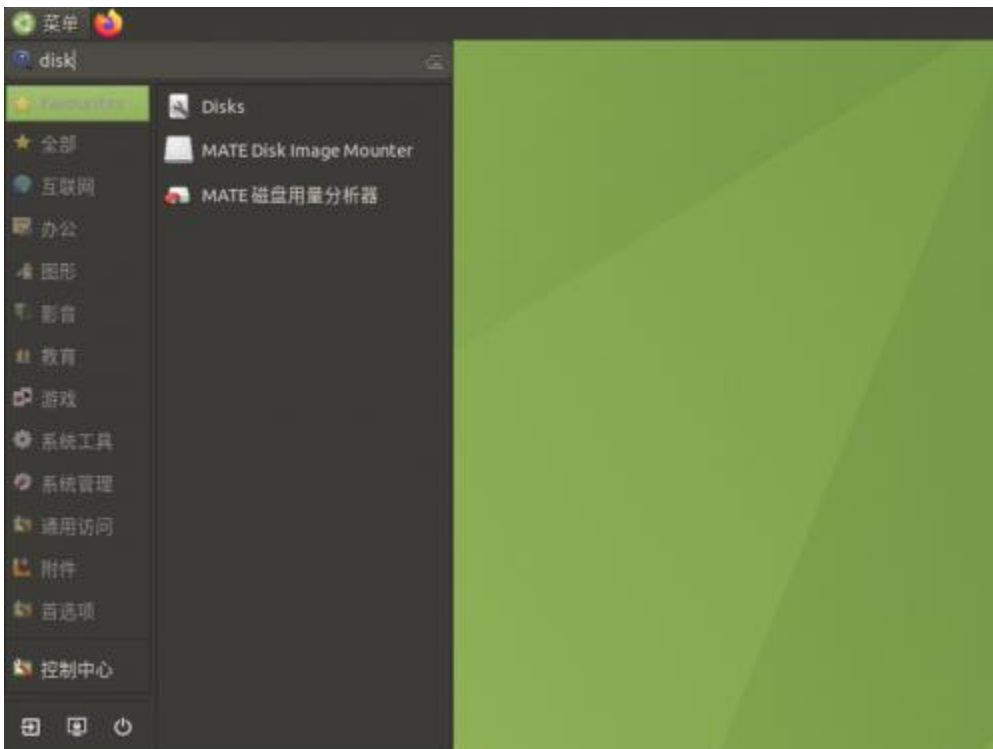
- Copy 2G data to the Raspberry Pi

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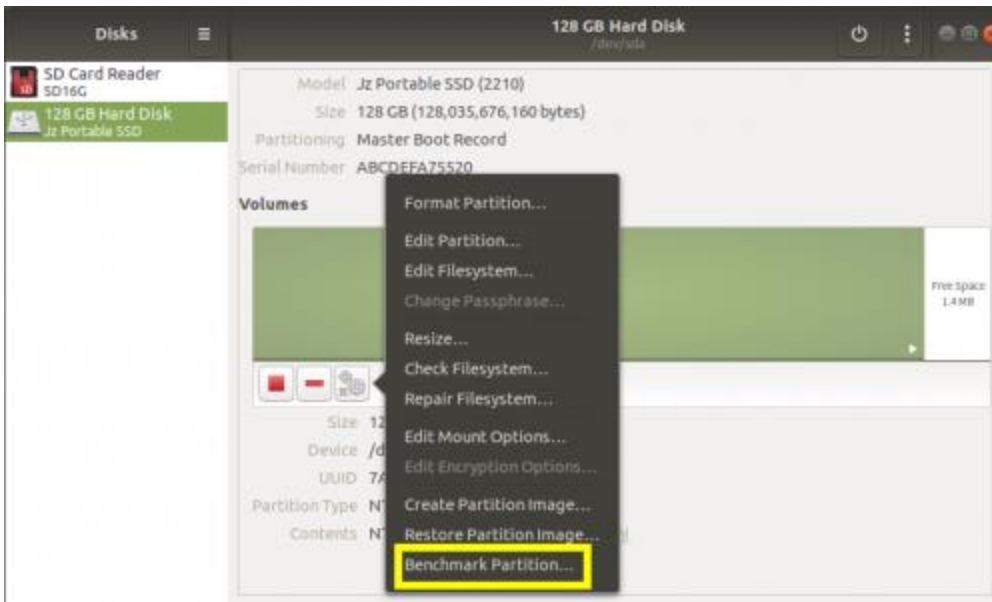
```
pi@raspberrypi:/media/pi/mini $ dd if=./test_write of=/dev/null count=2000 bs=1024k
2000+0 records in
2000+0 records out
2097152000 bytes (2.1 GB, 2.0 GiB) copied, 3.14886 s, 666 MB/s
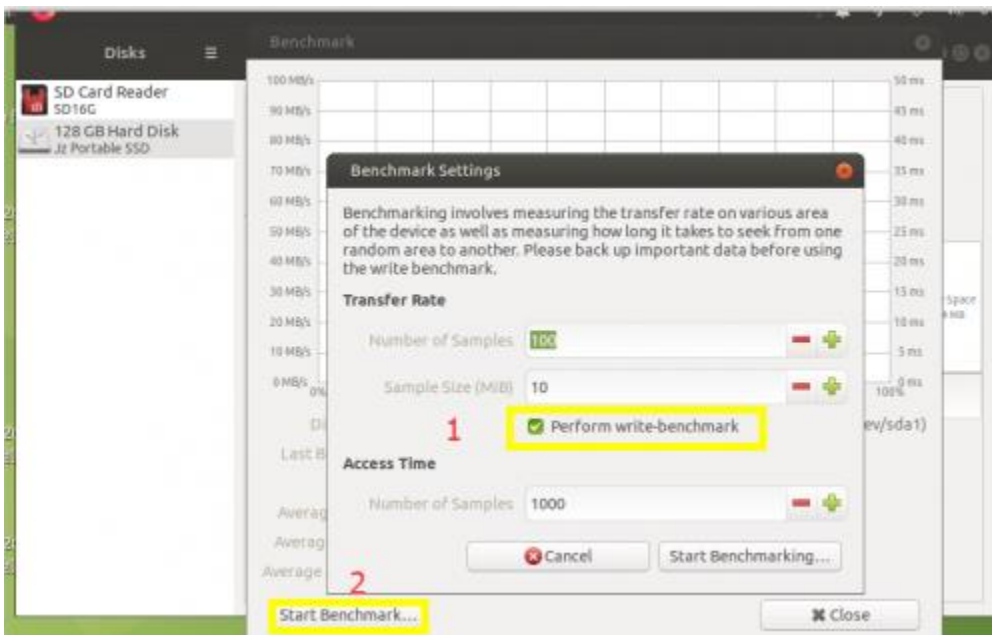```

## 3.Working with Ubuntu (Raspberry Pi)
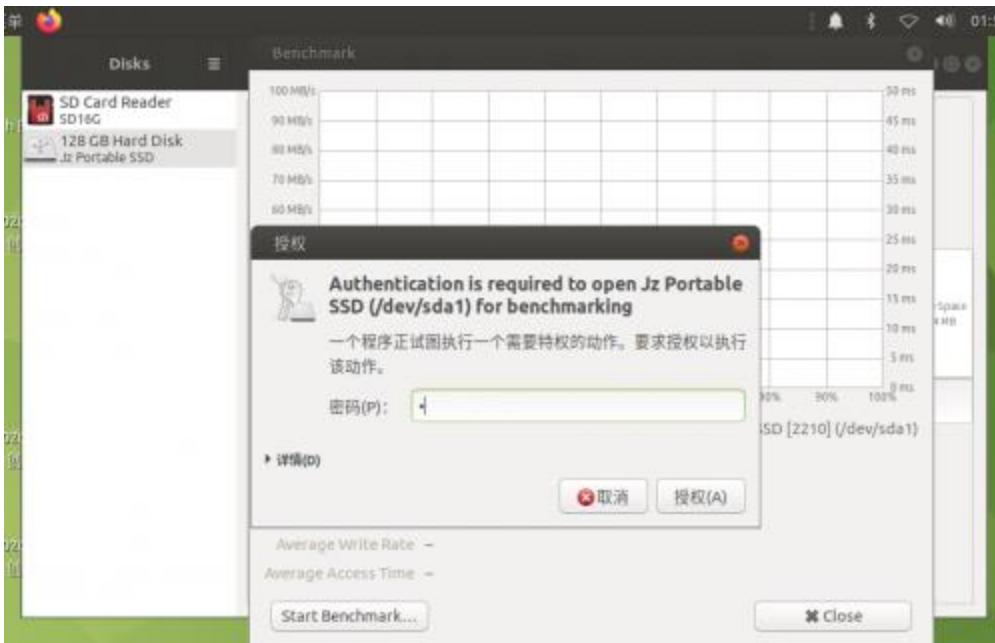
- Search disk in menu->Enter->Open the disk



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

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



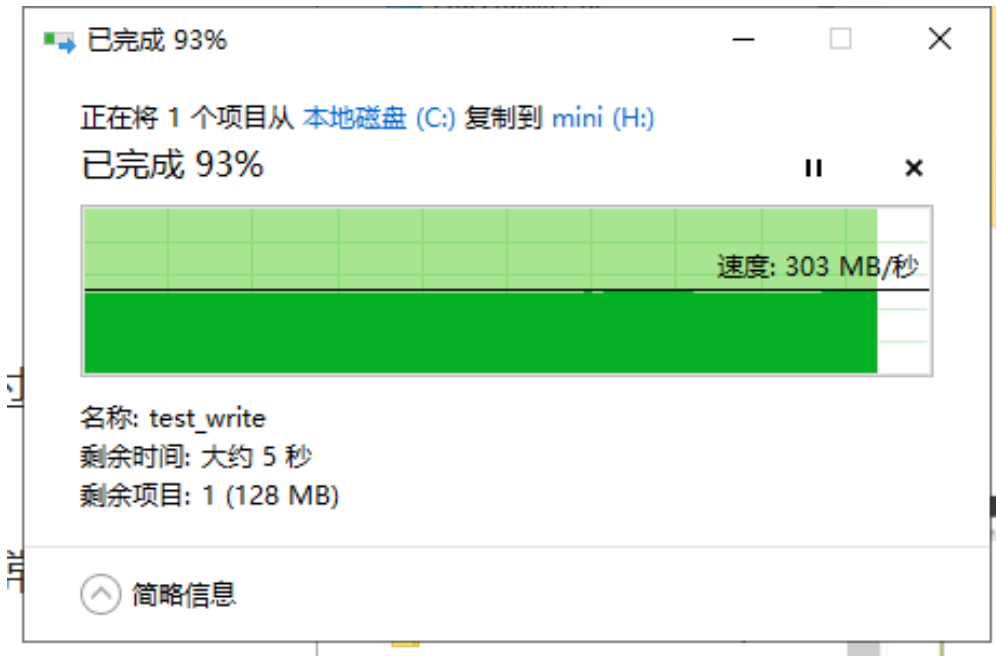- Input the user password and authorize.

- Test



| Disk or Device | Partition 1 of 120 GB Disk — tigo SSD 120GB [Q0627A0] (/dev/sda1) |
| Last Benchmarked | 2020年11月10日 星期二 09时53分06秒 (Less than a minute ago) |
| Sample Size | 10.0 MiB (10,485,760 bytes) |
| Average Read Rate | 366.3 MB/s (100 samples) |
| Average Write Rate | 263.0 MB/s (100 samples) |
| Average Access Time | 0.15 msec (1000 samples) |

# Working in Windows PC

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

- Copy file to the PC

已完成 93%

正在将 1 个项目从 本地磁盘 (C:) 复制到 mini (H:)

已完成 93%

速度: 303 MB/秒

名称: test_write
剩余时间: 大约 5 秒
剩余项目: 1 (128 MB)

简略信息

- Copy file to the portable SSD



已完成 100%

正在将 1 个项目从 STM32视频 复制到 mini SSD (H:)

已完成 100%

速度: 160 MB/秒

名称: test.rar
剩余时间: 大约 5 秒
剩余项目: 0 (0 字节)

简略信息

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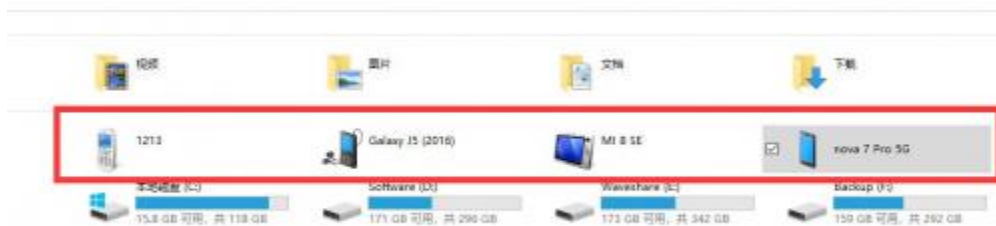


**3. Connect the HUB to USB3.0 Port, connect network (The cable and router should suport Gigabit network)**

Document

- [Schematic](Schematic)