

7-Port USB Hub for Raspberry Pi

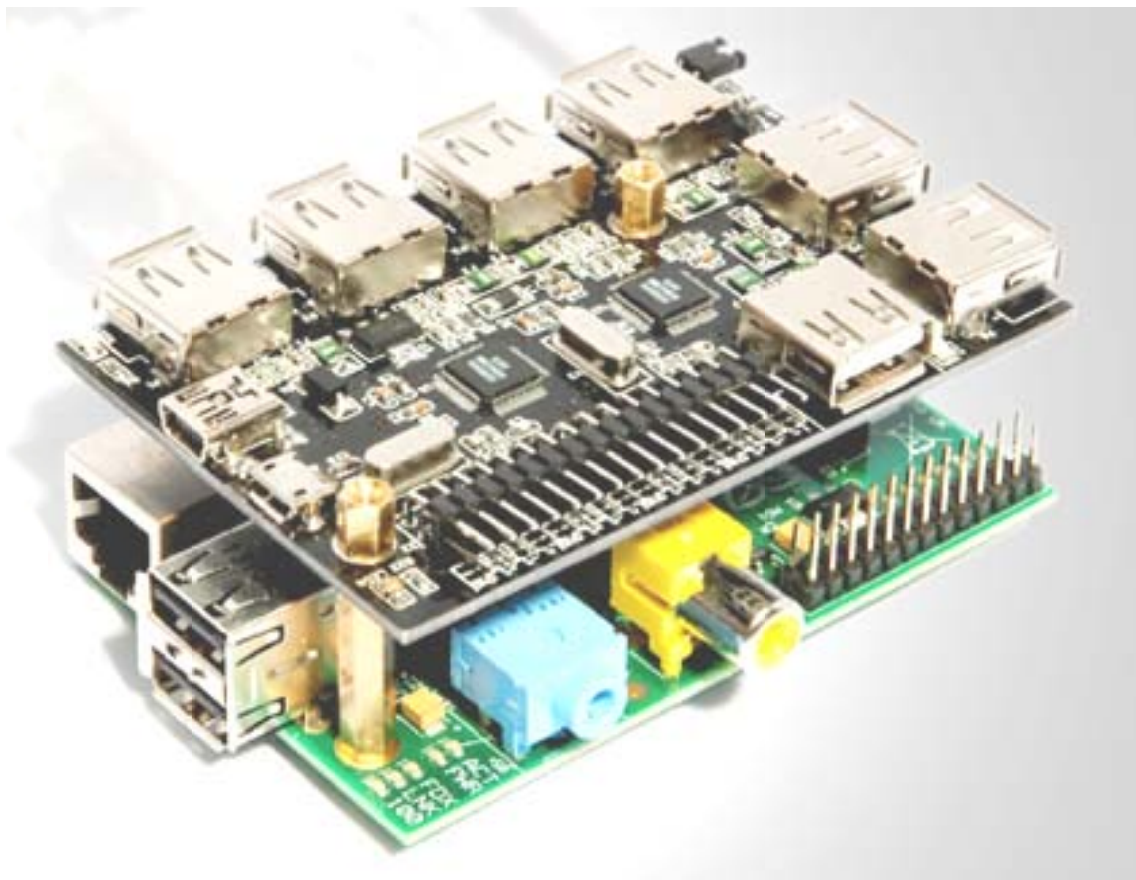


Table of Content

7-Port USB Hub for Raspberry Pi	1
Introduction	3
Product Overview.....	3
Features.....	4
Specifications.....	5
Package Content	6
Power Mode Configuration	6
Bus-Power Mode	6
Self-Power Mode	7
Connect the Hub with Raspberry Pi.....	9
Place the hub above Raspberry Pi	10
Place the hub under Raspberry Pi.....	11
Place the hub and Raspberry Pi on the same plane	11

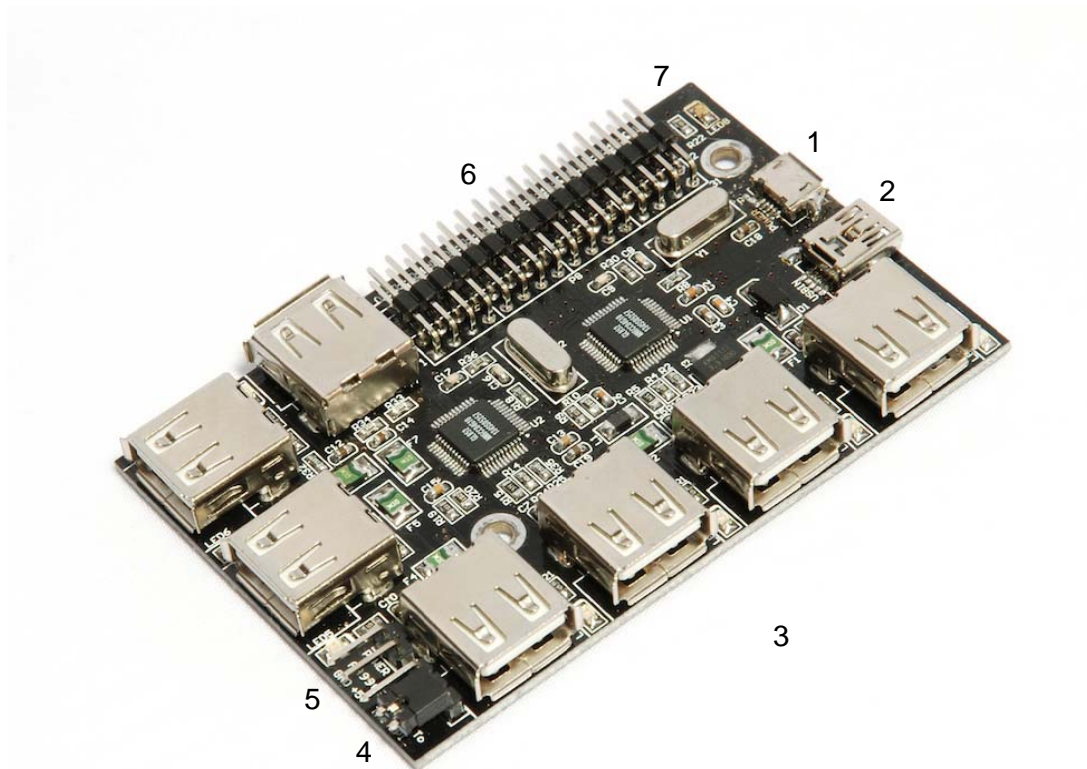
Introduction

This 7-Port USB hub is designed for Raspberry Pi, and allows you to connect up to seven USB devices to a single USB port on the board. This device complies with USB 2.0 specifications and is compatible with all USB 1.1 and 2.0 devices. You can even stack multiple hubs together to support up to 127 devices through a single USB port on Raspberry Pi.

The hub has exactly the same PCB size with Raspberry Pi, and could be mounted on Raspberry Pi in various ways. All USB ports and power supply are wired to pin headers, thus you could relocate the USB ports and power the hub via any interface.

Although this USB hub is suppose to be used on Raspberry Pi, it works well with any computer that has a USB port.

Product Overview



- 1) DC 5V power in
- 2) Upstream USB port
- 3) Downstream USB port 1~7 with LED indicator aside

- 4) Power mode jumper
- 5) Pin header for DC 5V power in
- 6) Pin headers for all upstream/downstream USB ports
- 7) LED power indicator

Features

- USB 1.1 and 2.0 compatible
- Multiple Transaction Translator (MTT)

What is Multiple Transaction Translators (MTT)?

A USB hub has two choices for organizing Transaction Translators (TTs). A hub could have one TT for all downstream facing ports that have full-/low-speed devices attached (which is called Single Transaction Translator, STT), or the hub could have one TT for each downstream facing port (which is called Multiple Transaction Translator, MTT) .

For Single Transaction Translator (STT), connecting one USB 1.1 device to the hub will force all ports to process data with USB 1.1 standard, thus slowing down all the devices on the hub. While for Multiple Transaction Translator (MTT), each downstream port of the hub has its own transaction translator to provide the best USB performance no matter what class of USB device is connected it.

So MTT is much better than STT, if the higher price is acceptable.

- Has same PCB size with Raspberry Pi
- Stackable and Mountable via copper cylinders and screws
- Plug and Play
- Connect up to 7 high powered devices at once
- 1 LED to indicate power supply
- 7 LEDS to indicate individual port activity
- Per port over-current detection and protection

- Support both self-power and bus-power modes

What are those Power Modes?

A USB hub could be powered by the USB bus (bus-power mode), or be powered by power adapter (self-power). Bus-power mode is simpler as it does not need to have external power adapter, but it has quite limited ability to power the devices on the hub (maximum 500mA for all ports). When you are trying to power more devices with higher current, it is better to use the self-power mode, which could provide maximum 1,000mA per port, and the total current is limited by the power adapter.

This USB hub supports both bus-power mode and self-power mode. Please read the “Power Mode Configuration” clause to get more details.

Specifications

Dimension:	85.60mm x 56mm x 10mm
Weight	36g
Standards	USB Specification Revision 2.0 and 1.1 compatibility
Data Speed	USB v1.1: 12 Mbps USB v2.0: 480 Mbps
USB Ports	Upstream: 1 Downstream: 7
LED Indicators	Power: 1 Port Activity: 7
Power Mode	Bus-Power / Self-Power
Output Voltage	DC 5V
Output Current	Bus-Power: maximum 500mA for all ports Self-Power: maximum 1,000mA per port

Static Current	18mA
Operating Temperature	5°C~40°C
Storage Temperature	-20°C~60°C
Humidity	0~80%RH, no condensing

Package Content

- 7-Port USB Hub
- USB - mini USB short cable
- Two M2.5 x 18mm + 6mm Copper Cylinders
- Two M2.5 x 11mm + 6mm Copper Cylinders
- Two M2.5 screws
- Two M2.5 nuts

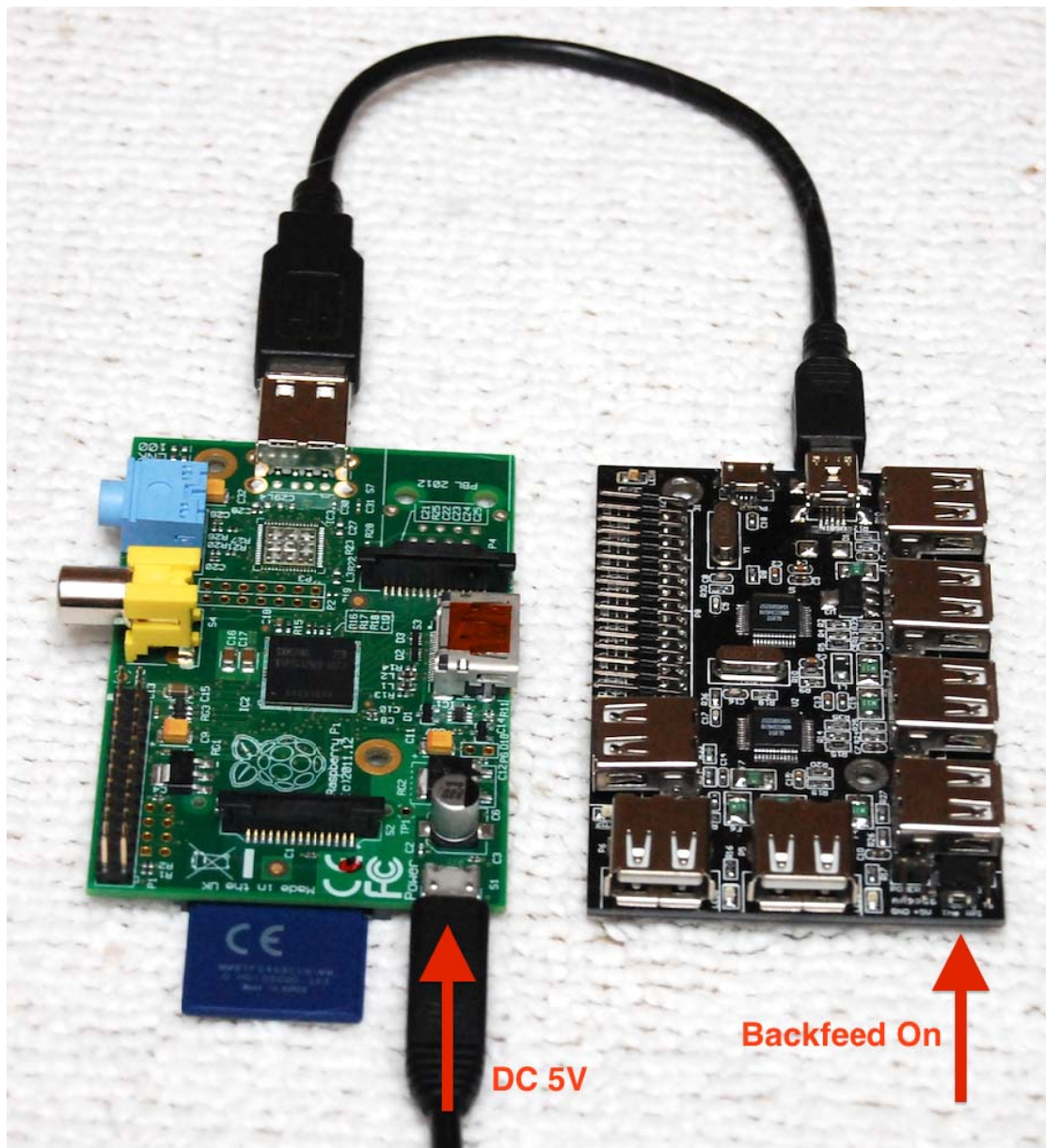
Power Mode Configuration

There are two power modes for this 7-Port USB hub: self-power mode and bus-power mode. They are configured by the jumper on board.

Bus-Power Mode

In bus-power mode, the hub is powered by the USB bus, and does NOT require the use of the AC power adapter. The hub is provided with 500mA for all 7 ports. This should be adequate for mice, keyboards, and other low power devices.

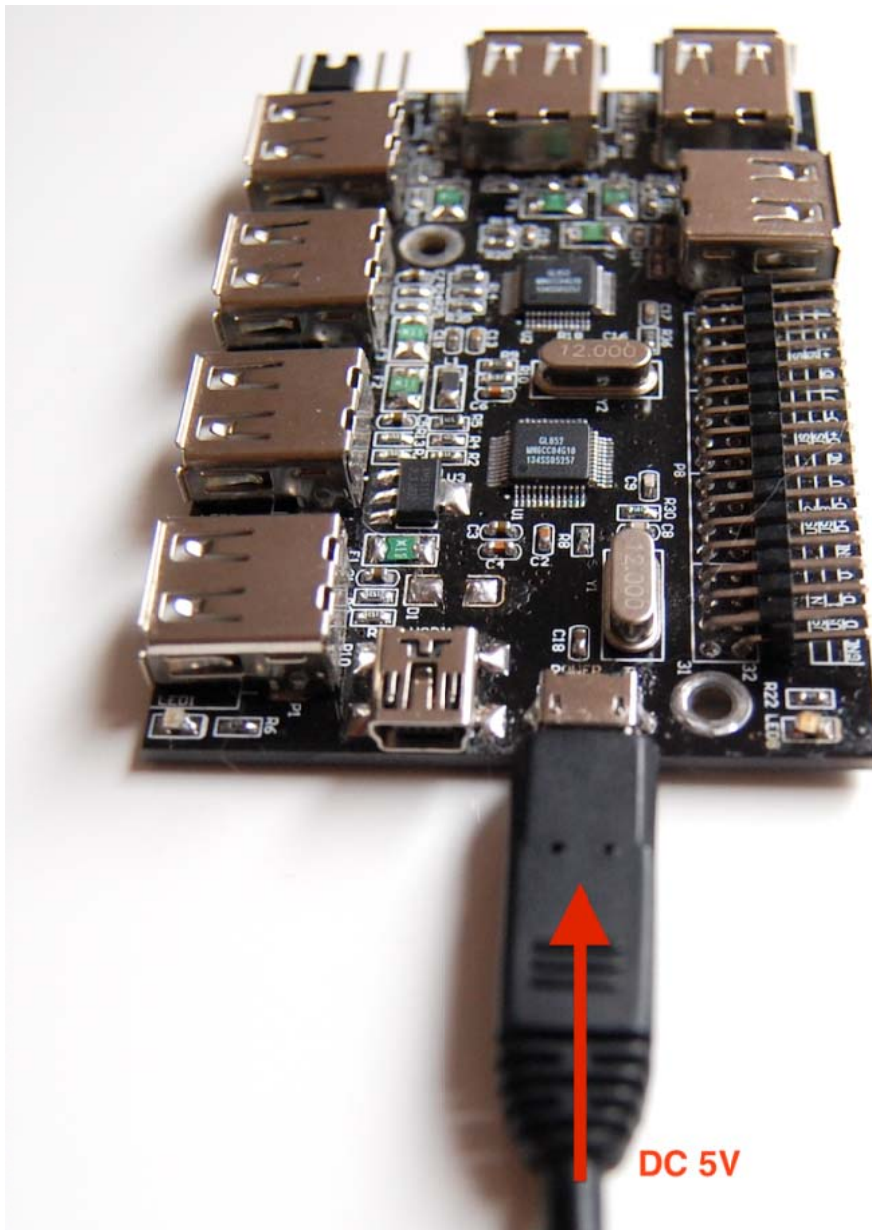
To use this mode, make sure to connect the “Power Connection” jumper (which is connected by default), and power the Raspberry Pi via the micro-USB port on board:



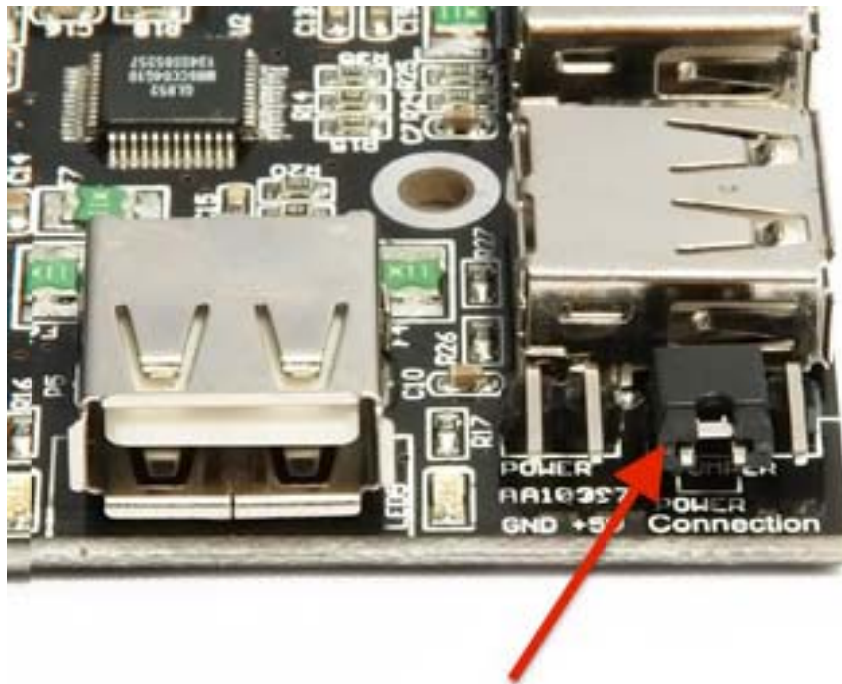
Self-Power Mode

In self-power mode, the hub is powered by the AC power adapter. In this mode, each port will be able to provide up to 1,000mA current, and the maximum current for all ports are decided by the power adapter.

To use self-power mode, make sure to connect the AC power adapter to the micro-USB port on the hub:



While using the self-power mode, you could choose to backfeed power to Raspberry Pi or not. By connecting the “Power Connection” jumper, Raspberry Pi could be powered by via the upstream USB port on the hub:



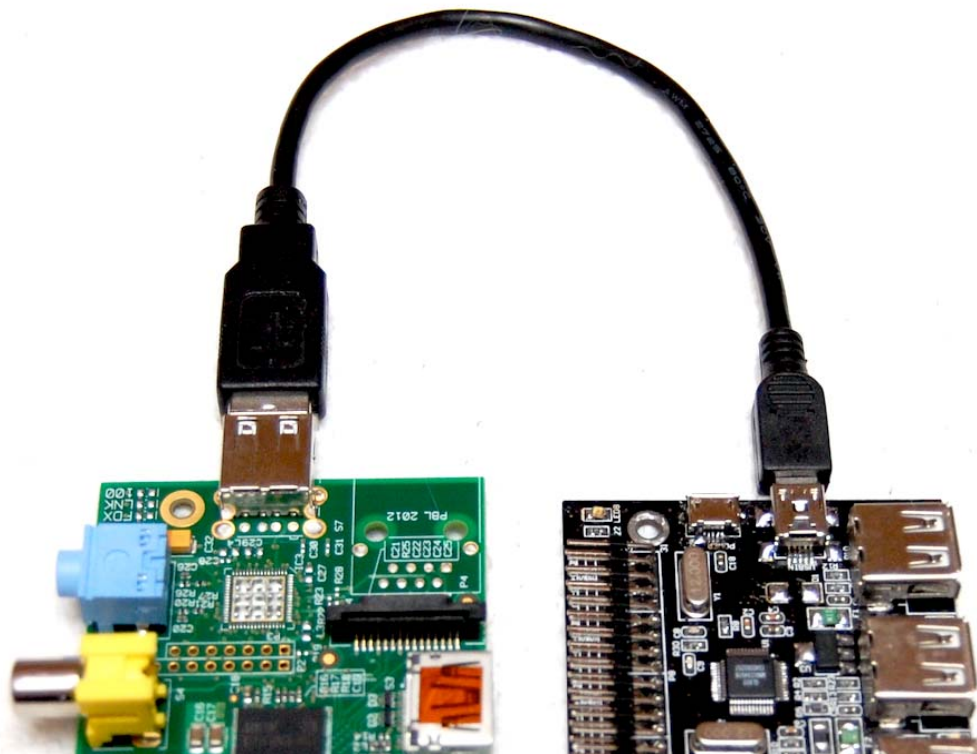
It is the recommended way to power the USB hub and Raspberry Pi with just one AC adapter. If you don't want the backfeed power, make sure to disconnect the "Power Connection" jumper, and then power the hub and Raspberry Pi separately:



Connect the Hub with Raspberry Pi

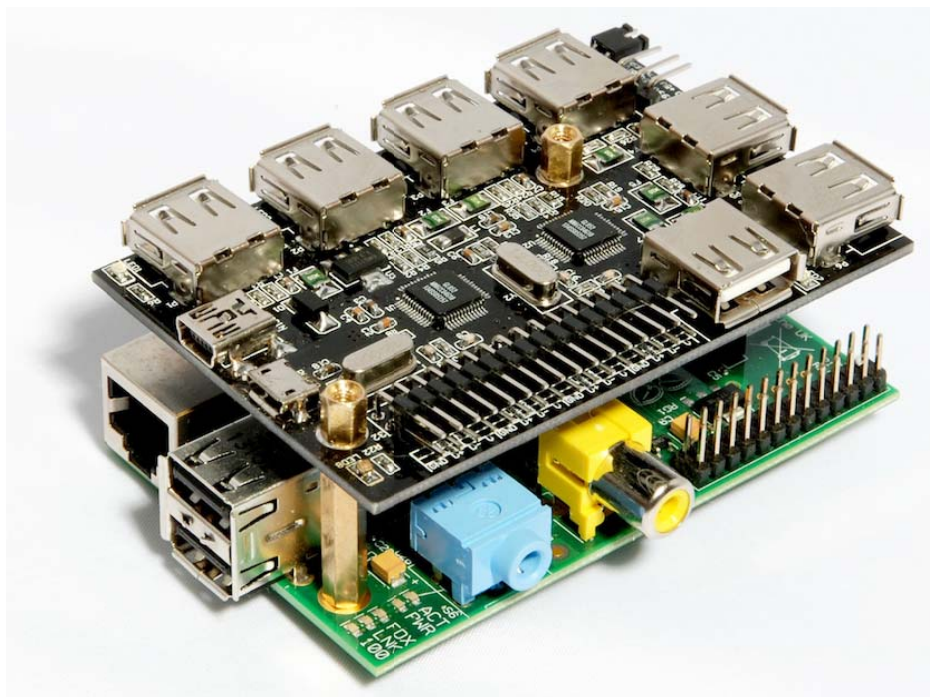
Please connect one USB port on Raspberry Pi to the upstream port (mini-USB) on the

hub, with the USB cable.



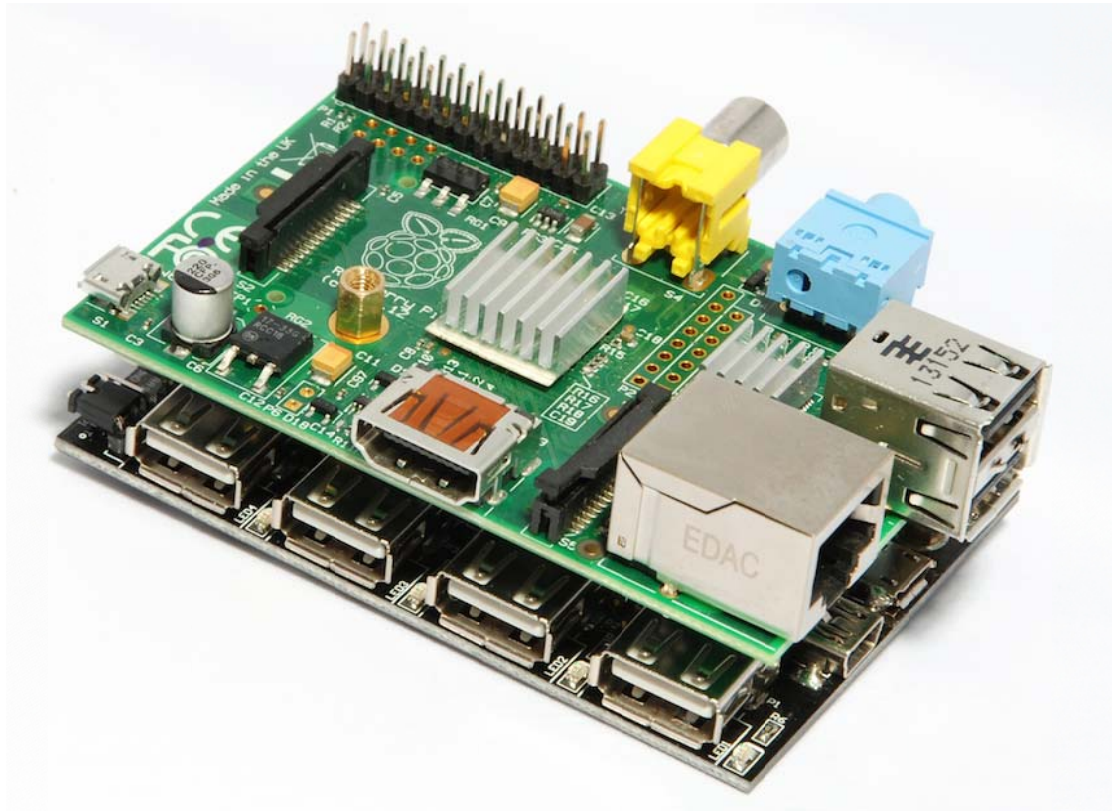
Place the hub above Raspberry Pi

You could mount the hub over Raspberry Pi, with the 17mm cooper cylinders.



Place the hub under Raspberry Pi

You could mount the hub over Raspberry Pi, with the 11mm cooper cylinders.



Place the hub and Raspberry Pi on the same plane

If you want to put everything into a slim case, you could place the hub and Raspberry Pi on the same plane. In this case, some USB ports on the hub might not be accessed directly from the case, but you could place that port on the case and connect it to the hub via the pin header.

