



19" 1U Rack with Modular trays for Raspberry Pis



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[VIEW IN BROWSER](#)

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Summary

1U Server Rack design for use with Raspberry Pi Zero/3b+/4/5

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This is a 1U Server Rack rack/shelf designed initially to rack mount a bunch of Raspberry Pis.

Each 1U shelf should hold up to six Pi 0/3/4/5 or some mixture with accessories.

Every attempt is being made so that no supports should be needed, just make sure to flip the model face down before you print.

This design is intended to be used with the official POE hat.

Everything is friction fit. Tolerances can be tight depending on how well dialed in your printer is. There are some v2 versions slowly being posted with .1-.2 reduction in places that should improve the over all fit.

Optionally you may have to slightly sand some things if they aren't smooth.

Notice: Its come to my attention that the v1 Trays don't perfectly fit the v2 Rack pieces and aren't flush. The v2 trays will fit the older v1 Racks however though they might have some wiggle at the top due the gap differences.

About the cad files

A lot of folks are asking about the actual cad files and at the moment I do not intend to release those. I may release them in the future however.

I'm in the process of rebuilding the entire collection and I am actively reviewing the comment section for improvements. The original file is broken in some way, might be user error as I was learning Fusion360 when I started this project. New design ideas are welcome just post your ideas in the comments.

Printing Notes/Settings

- Print face down! No supports will be needed.
- .2 layer height
- .4 nozzle (extrusion width .45mm) ~ default in Prusa Slicer
- Perimeters 5 or 6 on the 1U shelf for strength (you basically want it to be solid)
- PETG \ PLA \ ABS should work just fine.

Printable Parts List

- Pi Rack - Left, Middle, Right parts - 1u mounting tray fits a standard 19" server rack
- Pi 4 Trays - Basic, Reset button, Reset button + OLED, and Reset button + OLED + led
- Pi 3/5 Trays - Basic, Reset button, Reset button + OLED, and Reset button + OLED + led
- Pi Zero v1 Tray - Basic and one with a OLED
- Pi 4 Tray with HDD - Holds 1 or 2 2.5" SSDs and\or 1 - 2.5" HDD - Great use for old drives
- Vented Tray - IE blank space fillers
- Keystone Port Tray - 1 to 3 ports - Uses these beside a PI for USB or HDMI port extenders to face of rack.
- Single Drawer Tray - Store screws/nuts/wires/keystones/etc
- Tray that holds only 3 x 2.5" SSDs or HDDs so long as they are 10mm on less thickness.
- Tray that holds 4 x 2.5" SSDs that are under 7.5mm in thickness.
- A Universal mounting tray intended to hold a small switch or other devices. Has slots for velcro and zip ties.

Purchased Parts List - Optional

Button

DIYhz Momentary Push Button Switch

OLED

OLED Display - MakerFocus 2pcs I2C OLED Display Module 0.91 Inch I2C SSD1306 OLED

RGB LEDs

ALITOVE 100pcs WS2812B Addressable 5050 smart RGB LED Pixel light on Black Heat Sink

Wires

Elegoo EL-CP-004 120pcs Multicolored Dupont Wire

Hard Drive Adapter

StarTech.com SATA to USB Cable - USB 3.0 to 2.5" SATA III Hard Drive Adapter

Thumb Screws used as knobs

uxcell Computer Graphics Card 6-32 Round Head Knurled Thumb Screws Silver Tone 10pcs

Official Raspberry Pi Hat

<https://www.pishop.us/product/raspberry-pi-poe-hat/>

4 Pin Header for POE Hat Standoff

SSQ-102-01-G-D

GPIO Header standoffs

GPIO Stacking Header for Pi A+/B+/Pi 2/Pi 3 (Extra-long 2x20 Pins)

Screws

M2.5 Black Nylon but any M2.5 standoff or nut combo should work.

Inspired in part by: <https://www.thingiverse.com/thing:3022136> and you can find some hints using this link for the OLED if you need it.

Another guide to setup your OLED can be found [here at Adafruit site](#).

Model Updates:

- 07-02-2021 - Pi4 tray button only and Pi4 HDD tray with no LCD (IE button only) also tried to improve naming and sorting of the files listed here.
- 07-03-2021 - Added a 3d printable knob thing but it's tricky to print layer height of .1 seems to work best. Even then the peg might need some sanding to slide in. Use super glue to attach.
- 08-07-2021 - Pi Zero Trays added. One with and one without OLED.
- 10-11-2022 - Keystone Port Trays added with support for 1-3 ports (v2)

- 10-12-2022 - Half Width Drawer Tray to store cables/screws/etc. (v2)
- 10-18-2022 - Pi Rack Left/Middle/Right (v2) - better tolerances/fit still pretty tight from my testing. You might want a spot of super glue if it seems loose now.
- 10-19-2022 - v2 Pi4 Tray basic, knob/slide pull, update to keystone trays
- 01-02-2023 - v2 Pi4 Tray basic, fixed a problem with the hole for the pi mount.
- 11-22-2023 - Raspberry Pi 5s appear to work fine with the Pi3 trays. I will relabel as such.
- 11-24-2023 - v2 HDD Tray. Holds 3 x 2.5" drives either SSD or HDD 10mm thick.
- 11-25-2023 - v2 SSD Tray. Holds 4 x 2.5" SSD Drives 7.5mm or thinner. (Samsung 870 evo works for example)
- 11-25-2023 - Universal Tray - could be used to hold smaller switches or other devices. Has slots for velcro or zip ties. Would love to hear how it works for you
- 02-04-2024 - Published v2 for Blanks, Vented, Pi Zero, and Pi 3/5 and 4s. Should fix the face being flush with the Rack.

Tested\Doesn't work

2.5" HDD Single Tray - Just not enough room for a HDD Single width Tray

This remix is based on

1U
Raspberr
Pi Rack
...with

1U Raspberry Pi Rack with Moduler trays
by Rob_Z71

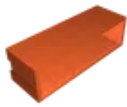
Model files


Pi Rack - Print One Each
3 files



pi-rack-left-part-v2.stl

☐ Left side of the Rack Mount



pi-rack-middle-part-v2.stl

☐ Middle part of the Rack Mount



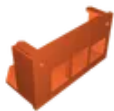
pi-rack-right-part-v2.stl

☐ Right side of the Rack Mount



Pi 4 Trays

5 files



tray-pi-4-basic-v2.stl

☐ A tray with only openings for the Pi's ports



tray-pi-4-button-v2.stl

☐ A tray with openings for both the Pi and a reset button



tray-pi-4-oled-v2.stl

☐ A tray with openings for both the Pi and a OLED screen



tray-pi-4-button-oled-v2.stl

☐ A tray with openings for both the Pi, a reset button, and a OLED screen



tray-pi-4-button-oled-led-v2.stl

☐ A tray with openings for both the Pi, a reset button, OLED screen, and LED



Pi 5 Trays also fits Pi 3

5 files



tray-pi-5-v2.stl

☐ A tray with only openings for the Pi's ports



tray-pi-5-button-v2.stl

☐ A tray with openings for both the Pi and a reset button



tray-pi-5-oled-v2.stl

☐ A tray with openings for both the Pi and a OLED screen



tray-pi-5-button-oled-v2.stl

☐ A tray with openings for both the Pi, a reset button, and a OLED screen



tray-pi-5-button-oled-led-v2.stl

☐ A tray with openings for both the Pi, a reset button, OLED screen, and LED



Pi Zero v1 (older version)

2 files



tray-pi-zero-v2.stl

☐ Tray for a Pi Zero W first Gen (v1)



tray-pi-zero-oled-v2.stl

☐ Tray for a Pi Zero W first Gen (v1) with a hole for a OLED



Accessories

10 files



tray-drawer-v2.stl

☐ Storage for screws, wires, other bits and pieces you might want to store near your pis



tray-blank-v2.stl

☐ A blank to cover open spaces if you want



tray-vented-v2.stl

☐ A blank with vents to let air flow into the space



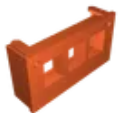
tray-1-keystone-port-v2.stl

☐ Might be useful to expose HDMI ports to the front of the rack.



tray-2-keystone-ports-v2.stl

☐ Might be useful to expose HDMI ports to the front of the rack.



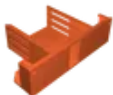
tray-3-keystone-ports-v2.stl

☐ Might be useful to expose HDMI ports to the front of the rack.



tray-knob-slide-pull-v2.stl

☐ Printable option to use in place of Thumb Screws used as knobs, requires glue



tray-3x-25-hdds-or-ssds-v2.stl

☐ Holds 3 x 2.5" drives either SSD or HDD 10mm thick.



tray-universal-mounting-tray-v2.stl

☐ Room for a small router or other devices. Can be secured using velcro or zip ties.



oled-cover.stl

☐ Cover for OLED opening if you end up not using it, friction fit from front of tray.

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