

## Hard Drive Enclosure for 16 Drives (JBOD/HBA)



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### Summary

An HDD enclosure for 16 drives.

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I ran out of physical space to add more hard drives to my home server. Given that I already had a few parts laying around, I didn't want to spend several hundred dollars on a prebuilt enclosure. So, I set out to make my own.

### BOM (affiliate links):

1. >1.2 Kg of filament
2. This [SAS adapter](#)
3. An ATX power supply.
  1. This is sized for a PSU of 160x150x86mm and can accommodate anything shallower.
4. These [nylon standoffs](#) if you are using more than one adapter card.
5. Four 120mm 12V fans.
  1. I'm using the [Noctua NF-P12](#) due to their low noise at full speed.

2. While the top has space for 25 mm thick fans, you'd get some benefit by using 15 mm thick fans instead like the [NF-A12x15](#)
6. (Optional) A fan power hub
  1. I'm using a Corsair power hub that I had laying around, but something like either of these two should work.
    1. [Arctic fan hub](#)
    2. [Random no name hub](#)
  2. Alternatively, there are plenty of options for using adapters/splitters to power the fans directly off the PSU.

I'm using this [SFF-8088 cable](#) to connect the enclosure to my server through an LSI 9200-8E that I picked up on eBay for about \$25. There are newer cards capable of supporting more connections, but I didn't want to splurge too much before doing a proof of concept.

### **Printing:**

I printed everything at default settings using Bambu PETG Basic. The panels with holes on the edge will need supports under the strip with the holes. My drives are sitting at ~30°C, so PLA would probably have been fine.

The model file has a user parameter for joint clearance if you need to dial it in.

### **Assembly:**

All pieces are held together by interference fit joinery, so no gluing is required. The tenon joints might need a slight tap from something mildly heavy to help them close. I used a 4 oz hammer, but the backside of a screwdriver should get the job done just as well. Assembly should be relatively straight forward, but it is critical to double-check the orientation of each piece before popping the joints together.

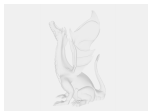
1. Join the bottom pieces first.
2. Join the two back panels and attach to the bottom.
3. Join the panels for each side and then attach to the bottom and the back panels.
4. Join the panels for the front and then attach to the bottom and side panels.
5. Join the panels for the top together.
6. Install the adapter card by putting it level with the external opening and pushing in. The holes should line up with the standoffs that are printed on the bottom panel.
  1. Install the 15 mm long standoffs if adding a second card.
  2. Secure the top card with M3 screws. Anything 6 mm long and shorter should work.

7. Install the PSU and secure it in place using the normal mounting screw points.
8. Install the fans.
9. Install all cabling and make sure the cables are free of the top fans.

You'll have to decide how you want to handle powering the PSU as there are a number of options. Some examples:

1. I have a modular PSU, so I ground the PS\_ON pin directly on the PSU.
2. Use a [jumper plug](#)
3. Install a [switch](#) or [latching button](#)

## Model files



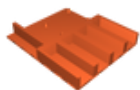
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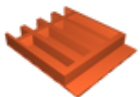
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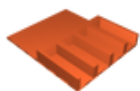
**loosetenons.stl**



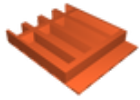
**bottombackright.stl**



**bottomfrontright.stl**



**bottombackleft.stl**



**bottomfrontleft.stl**

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**backleft.stl**

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**backright.stl**

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**rightfront.stl**

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**rightback.stl**

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**leftfront.stl**

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**leftback.stl**

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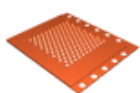
**frontleft.stl**

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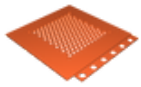
**frontright.stl**

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**lidbackleft.stl**

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**lidbackright.stl**

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**lidfrontleft.stl**

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**lidfrontright.stl**

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