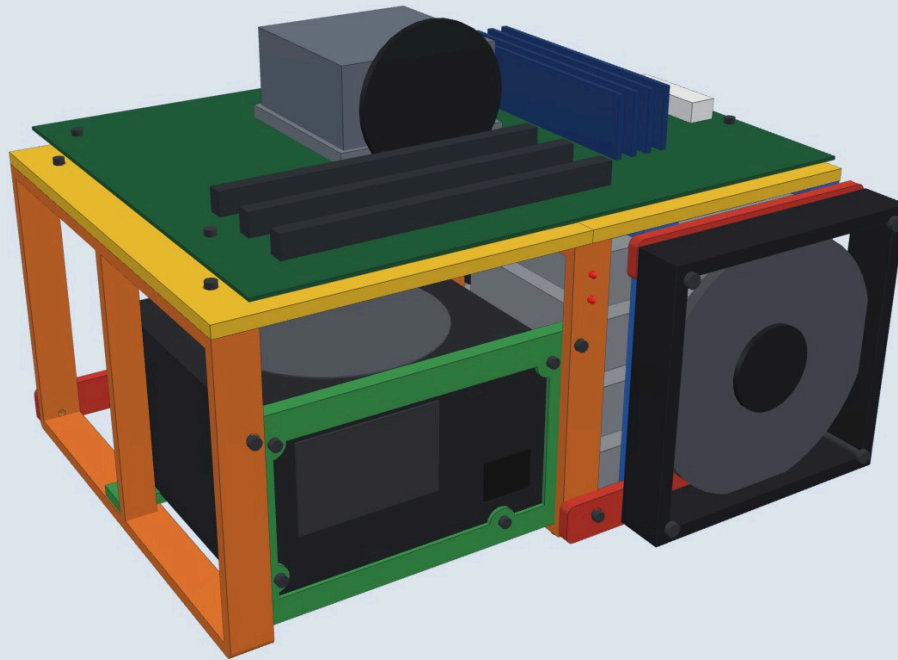


Open NAS **ATX**



An open ATX frame for a NAS. The power supply sits on the left, eight 3.5" drives sit on the right in two cages, the motherboard lies flat on top, and a 140 mm fan cools the drives from the front.

The frame is about **330 × 235 × 162 mm**. It fits ATX, micro-ATX and mini-ITX boards (not E-ATX) and ATX power supplies.

The author's photo shows the case in a rack cabinet set up like this: PSU, LED and fan at the front.

Heat-set inserts are marked in gold on the models. Melt them in before you start screwing parts together.

Printed parts

All files are already oriented for printing and need no supports; you may have to clean up some holes. Print the frame in ABS (or PLA with good ventilation), and the rails and washers in TPU. Everything except the longest braces fits a 240×240 mm bed.

FILE	QTY	MATERIAL	PURPOSE
<code>foot-left.stl</code>	1	ABS	Left wall of the PSU bay
<code>foot-right.stl</code>	1	ABS	Middle wall (with holes for two 3 mm LEDs)
<code>hdd-rack.stl</code>	2	ABS	Drive cages. Together the two hold 8 × 3.5" drives (4 front, 4 rear)
<code>mb-mount-left.stl</code> + <code>mb-mount-right.stl</code>	1+1	ABS	Motherboard plate, joined with a lap joint
<code>psu-bracket.stl</code>	1	ABS	Frame with the ATX hole pattern that the PSU screws to
<code>psu-support.stl</code>	1	ABS	Bar the PSU rests on
<code>rear-brace-long.stl</code>	1	ABS	Lower rear brace, 330 mm. Needs a bed of at least 330 mm; alternative: <code>rear-brace-medium</code> (228 mm) + <code>rear-brace-short</code>
<code>front-brace-with-fanmount.stl</code>	1	ABS	Lower front brace that also serves as the lower fan mount
<code>fanmount-top.stl</code>	1	ABS	Upper mount for the 140 mm fan
<code>hdd-rail.stl</code>	8	TPU	Vibration-damping rail, one per drive
<code>washer.stl</code>	4	TPU	Fan washers

Variants (optional)

FILE	WHEN TO USE
<code>rear-brace-long-with-fanmount.stl</code> (340 mm)	Second 140 mm fan at the rear. Replaces <code>rear-brace-long</code> ; add a second <code>fanmount-top</code>
<code>rear-brace-medium-with-fanmount.stl</code>	Rear fan without the long brace; connects the middle wall to both cages
<code>rear-brace-medium.stl</code> / <code>rear-brace-short.stl</code>	Shorter rear braces when 330 mm does not fit your print bed
<code>fanmount-bottom.stl</code>	Lower fan mount on its own, without a brace

Hardware to buy

ITEM	QTY	WHERE
M3 heat-set inserts (Ø4 hole)	≈30	Top edges of the walls and cages, front/rear near the bottom, PSU frame and bar, 7 motherboard standoffs
M3 socket head screws, 8–10 mm	23	Joining the printed parts
M3 × 6 mm screws	7	Motherboard to standoffs
M4 inserts + M4 × ~30 mm screws	4+4	Fan (Ø5 holes in the mounts). The author recommends M4, but regular fan screws also work
Drive screws 6-32 UNC	40	24 for the rails (3 per drive) and 16 through the cages (2 per drive)
PSU screws 6-32 UNC	4	PSU to psu-bracket
140 mm fan	1–2	Front of the drive bay (optionally also the rear)
3 mm LED	2	Power and HDD, optional
Rubber feet	8	Under the walls (instead of printed feet)

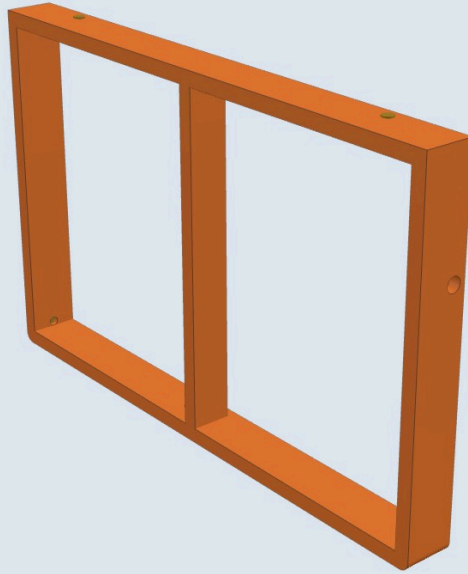
Where this guide comes from

The author (Oskari Nykänen, CC BY-NC-SA 4.0 license) did not publish assembly instructions. I reconstructed the layout from the geometry of the STL files: hole spacings match between parts to the millimetre (e.g. plate holes at 31.5/205.5 mm, the ATX PSU pattern 114/138/64.5 mm, the 3.5" drive side holes 60/41.6 mm). This also agrees with the author's note that you have to remove the fan to reach the drive screws, and the fan mount too for the lowest drive. Two things are less certain. The number of **hdd-rack** parts (2) follows from the four rows of holes in the plate and in the long brace. The order of the steps is my suggestion.

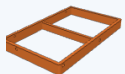
1

of 13

Left wall



NEEDED IN THIS STEP



1x
foot-left



3x
M3 insert

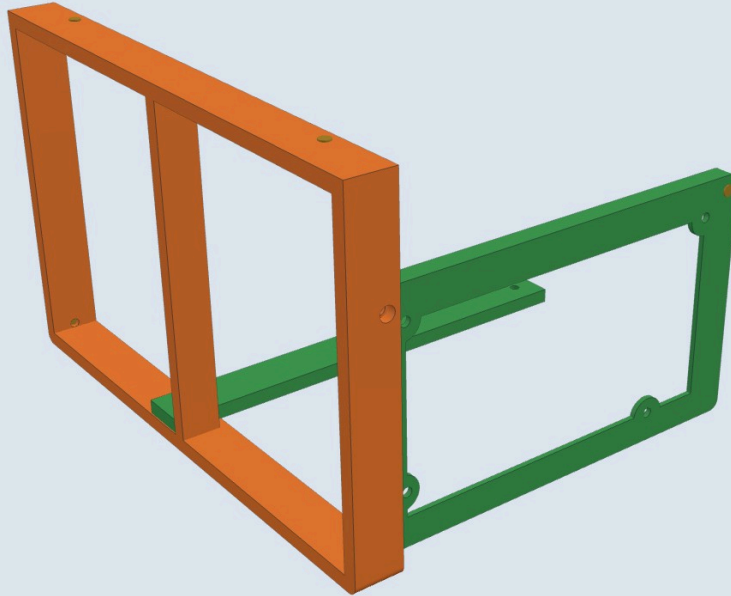
Stand **foot-left** upright, with its long side (235 mm) running front to back.

The holes **without counterbores** go on top, because the inserts for the plate go there. The counterbored holes (Ø6) go at the bottom and the front, because you drive screws through them.

INSERTS & SCREWS

- 2 M3 inserts in the top edge
- 1 M3 insert at the rear near the bottom (for the rear brace)

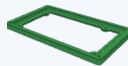
2 of 13 PSU supports



NEEDED IN THIS STEP



1x
psu-support



1x
psu-bracket



6x
M3 insert

psu-support lies on the lower bar of the walls, about 12 cm from the front. The power supply rests on it.

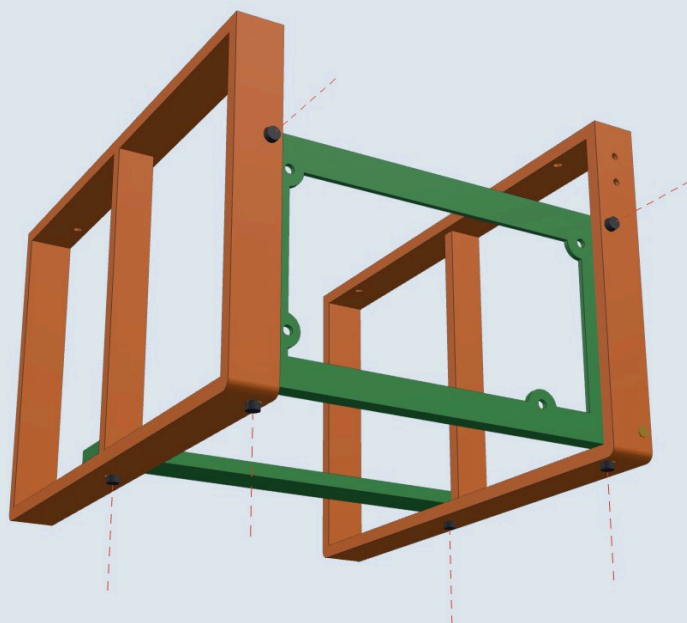
psu-bracket stands just **behind the front bar** of the wall. It has the ATX hole pattern (114 / 138 / 64.5 mm).

Slide the ends of both parts into the window of the left wall.

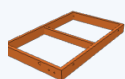
INSERTS & SCREWS

- 2 M3 inserts in psu-support (from below)
- 4 M3 inserts in psu-bracket: 2 at the front and 2 in the bottom edge

3 of 13 Middle wall



NEEDED IN THIS STEP



1x
foot-right



4x
M3 insert



6x
M3 x 8

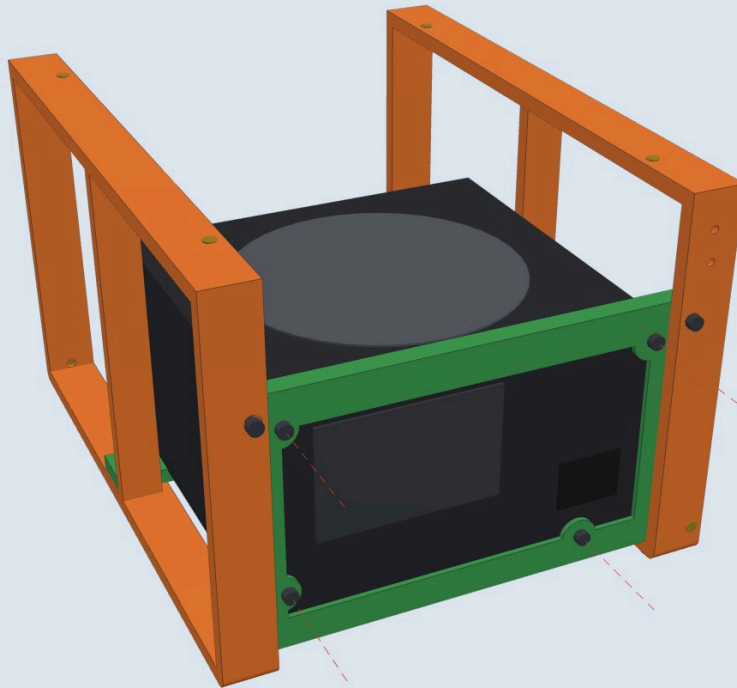
Fit **foot-right** onto the other ends of the supports. The LED holes go at the front, near the top.

Drive **2 screws from the front** (about 10 cm up) into the PSU frame and **4 screws from below**: 2 into the frame and 2 into the bar. This is easiest with the frame lying on its side.

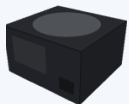
INSERTS & SCREWS

- 6x M3 x 8–10 mm

4 of 13 Power supply



NEEDED IN THIS STEP



1x
ATX PSU



4x
6-32 UNC

Lower the power supply from above onto **psu-support** . **The power socket faces the front**, against the frame.

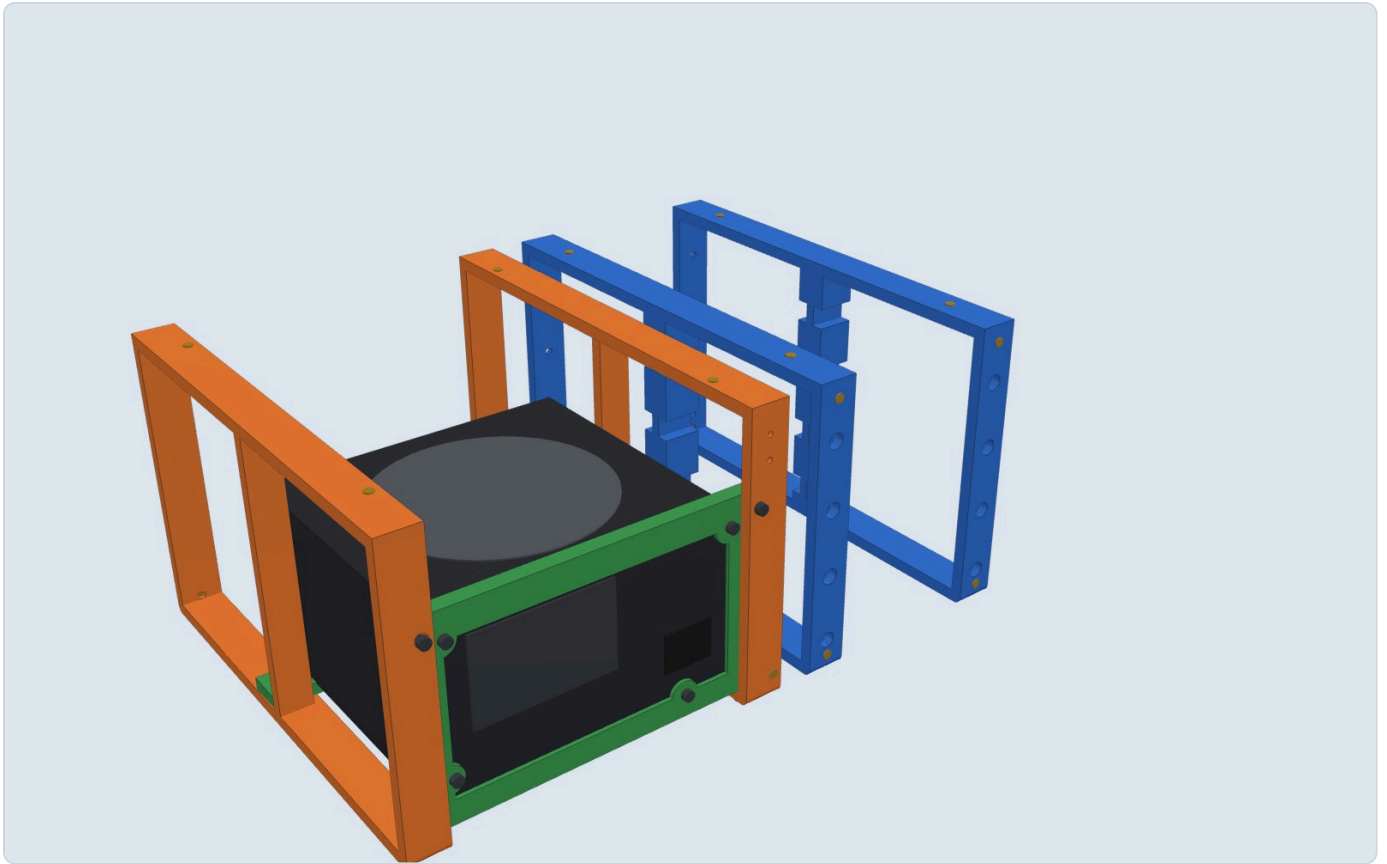
Fix it with the 4 standard screws through the frame.

About 5 cm of space remains above the PSU. The author notes that 2 more drives would fit there, but airflow would suffer.

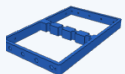
INSERTS & SCREWS

- 4x PSU screw 6-32 UNC

5 of 13 Drive cages



NEEDED IN THIS STEP



2x
hdd-rack



12x
M3 insert

Print **two** **hdd-rack** parts and stand them parallel to the walls: the first 18 mm from the middle wall, the second 81 mm further, at the right edge.

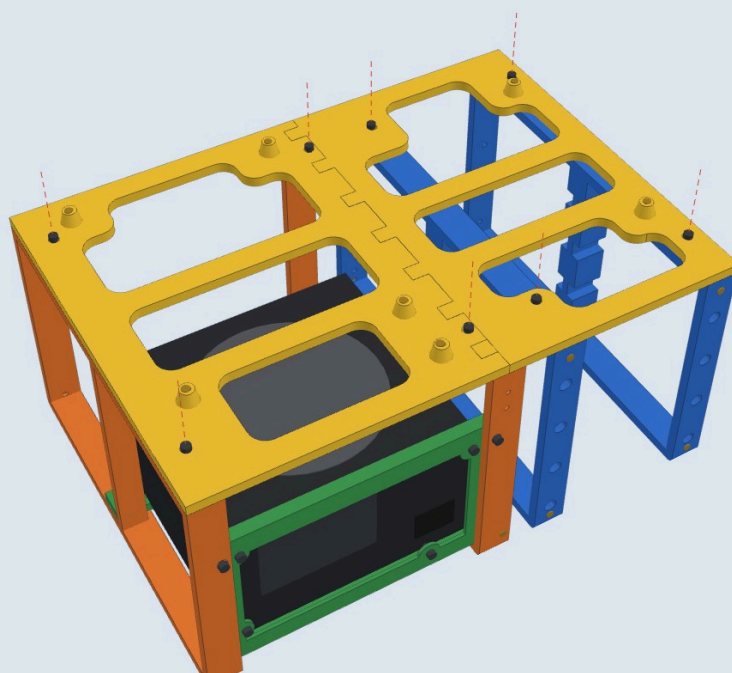
They stand loose for now. The plate in the next step sets their exact spacing.

The notches in the middle bar are slots for the TPU rails.

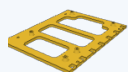
INSERTS & SCREWS

- 6 M3 inserts per cage: 2 on top, 2 at the front and 2 at the rear

6 of 13 Motherboard plate

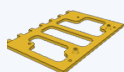


NEEDED IN THIS STEP



1x

mb-mount-left



1x

mb-mount-right



7x

M3 insert



8x

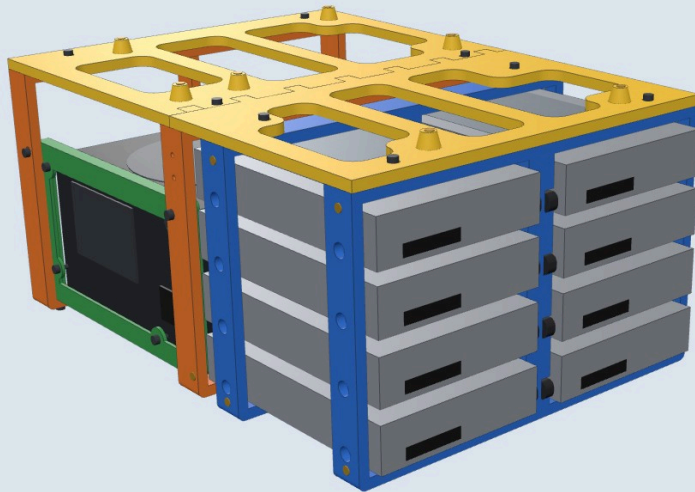
M3 x 10

Join the two halves with the lap joint: the teeth of the right half fit into the slots of the left one. No glue is needed, because the screws hold everything together.

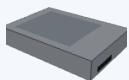
Melt inserts into the 7 standoffs. Then screw the plate with 8 screws (the heads sit in counterbores) to the top edges of all four walls.

INSERTS & SCREWS

- 8x M3 x 8–10 mm
- Optional: the joint has a $\varnothing 3.3$ mm channel for a pin (e.g. a piece of 2.85 mm filament)



NEEDED IN THIS STEP



8x
3.5" drive



8x
hdd-rail (TPU)



24x
6-32 UNC

Screw an **hdd-rail** to each drive with three screws into the side holes (spacing 60 / 41.6 mm). The rail goes on the side that faces **the middle** of the case: the rear side of the front drives and the front side of the rear drives.

Slide the drives in from the right through the windows of both cages, SATA connectors facing out, until they touch the middle wall. The rail slides into the notch in the middle bar.

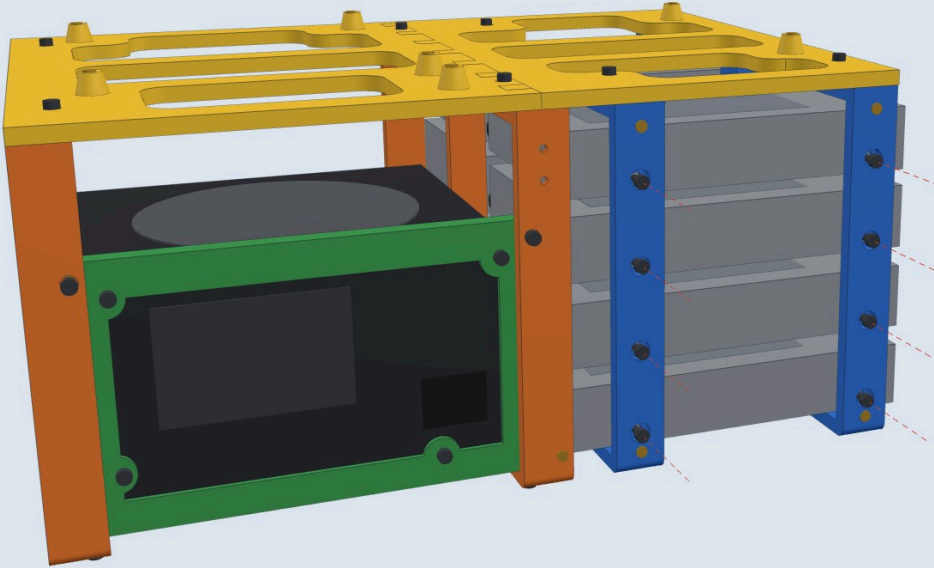
INSERTS & SCREWS

- 24x 6-32 UNC screw (3 per drive)

8

of 13

Screw in the drives



NEEDED IN THIS STEP



16×
6-32 UNC

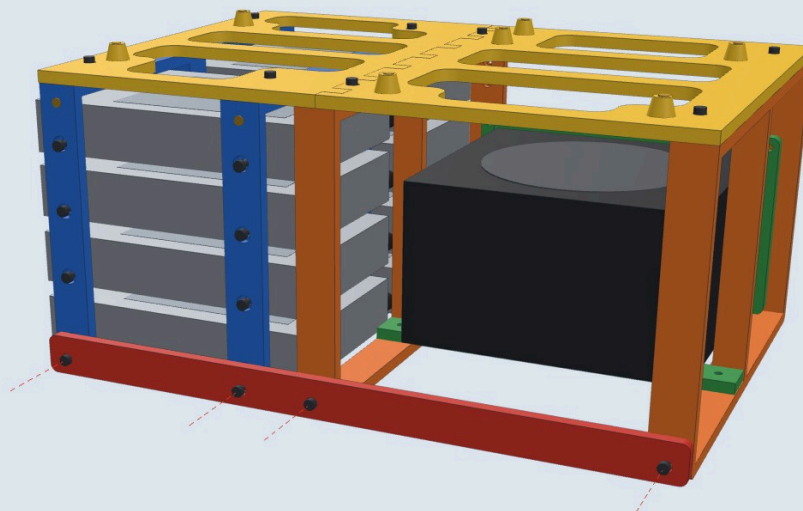
Each drive gets 2 screws through the outer bar of both cages: front drives from the front, rear drives from the rear. The heads sit in the Ø8 counterbores.

Do this **before** fitting the braces and the fan. They cover the screws of the lowest drive afterwards.

INSERTS & SCREWS

- 16× 6-32 UNC screw

9 of 13 Rear brace



NEEDED IN THIS STEP



1x

rear-brace-long



4x

M3 × 8

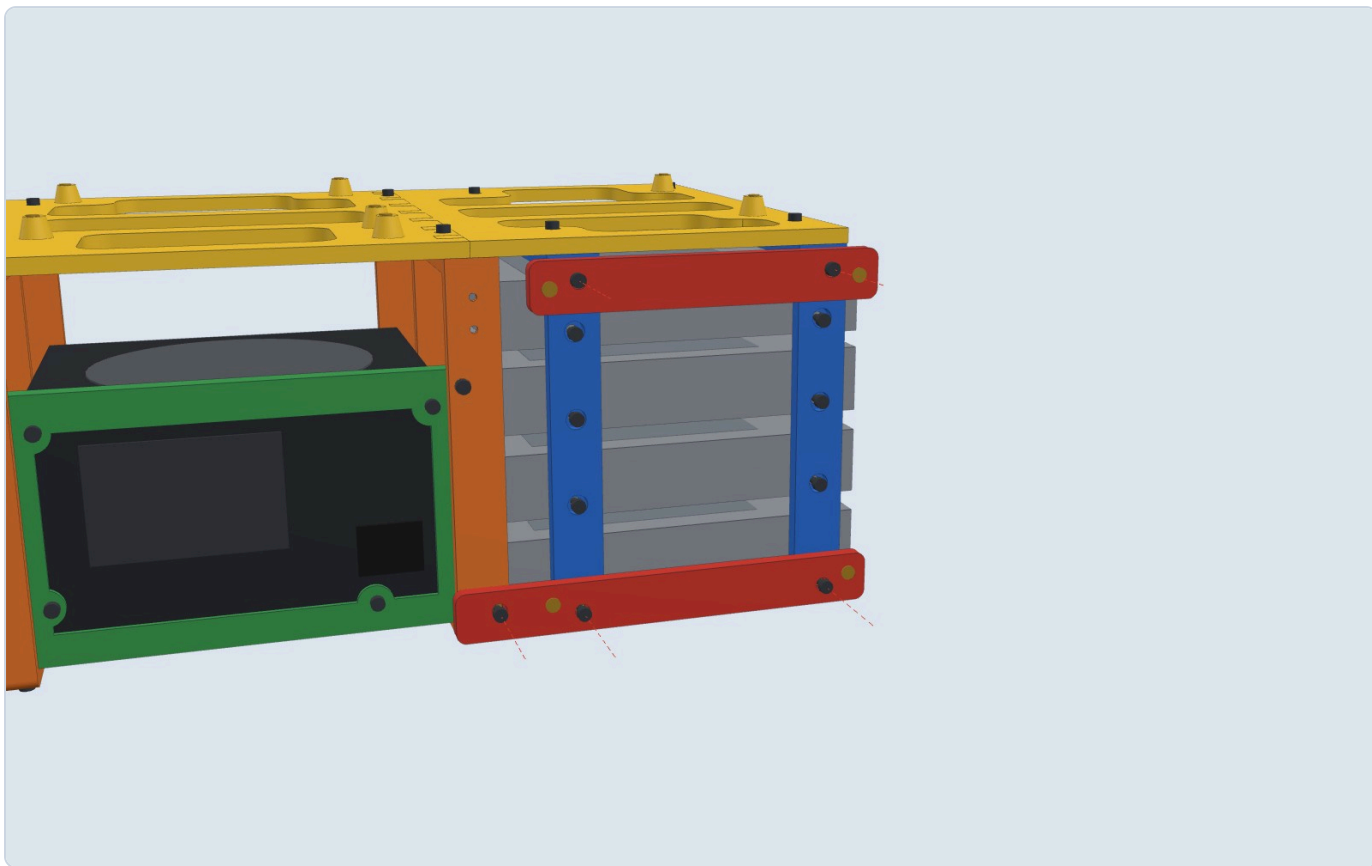
Screw **rear-brace-long** to the bottom rear. It ties all four walls together and stiffens the frame.

If your printer cannot print 330 mm, use **rear-brace-medium** with **rear-brace-short**. For a rear fan there is a **...-with-fanmount** variant.

INSERTS & SCREWS

- 4x M3 × 8–10 mm

10 of 13 Fan mounts



NEEDED IN THIS STEP



1x

front-brace-with-fanmount



1x

fanmount-top



4x

M4 insert



5x

M3 x 8

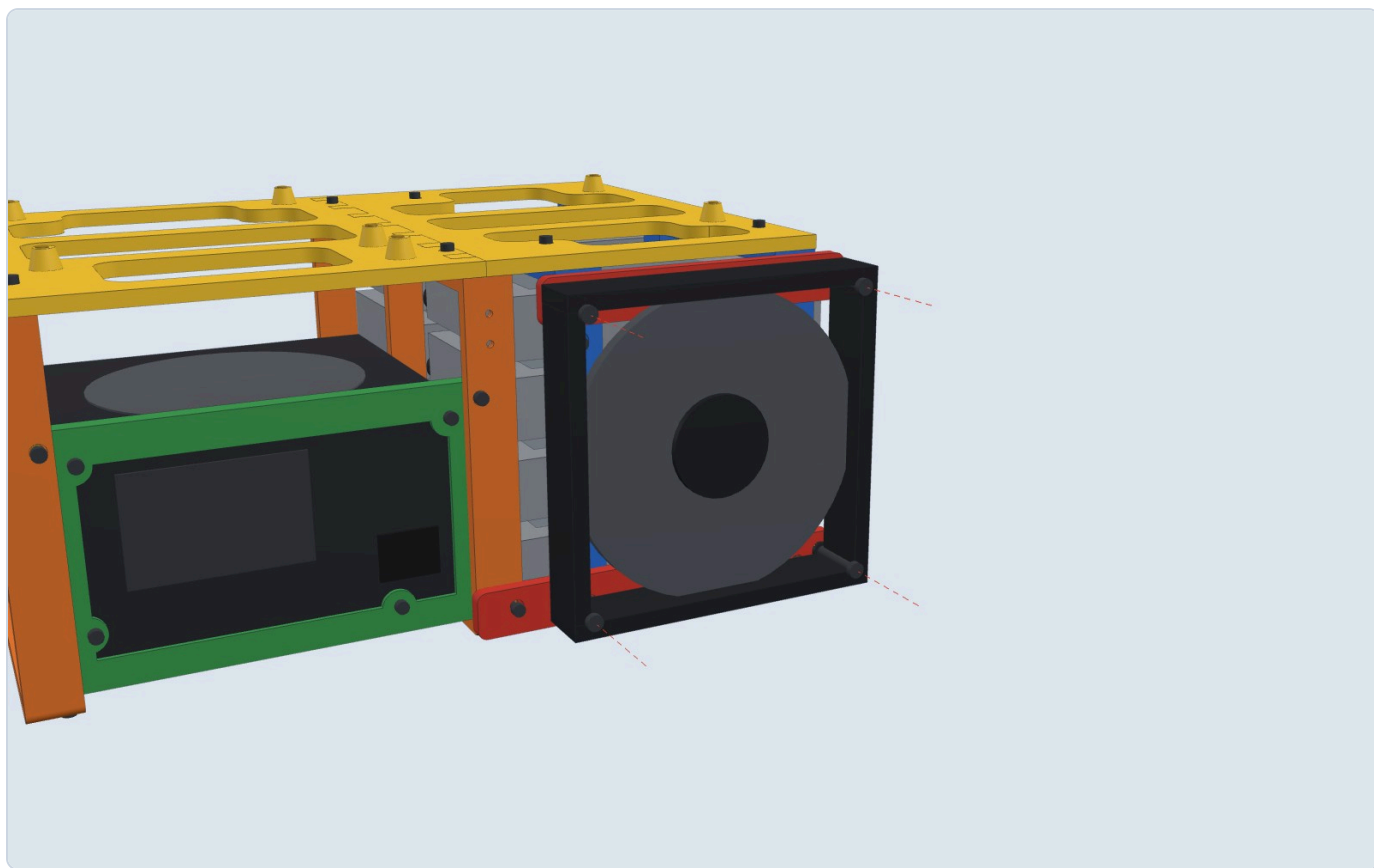
At the bottom front, screw **front-brace-with-fanmount** to the middle wall and both cages (3 screws). At the top, screw **fanmount-top** to the cages (2 screws).

Melt 4 M4 inserts into the Ø5 fan holes.

INSERTS & SCREWS

- 5x M3 x 8–10 mm
- 4 M4 inserts

11 of 13 140 mm fan



NEEDED IN THIS STEP



1x
140 mm fan



4x
washer (TPU)



4x
M4 × 30

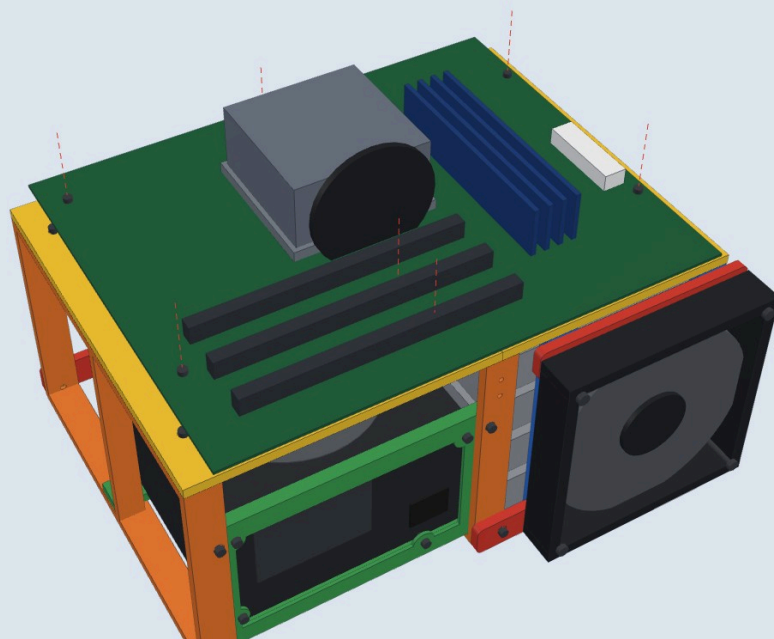
Put the TPU washers between the fan and the mounts to damp vibration. Fix the fan with 4 M4 screws.

Ideally it should blow in: the air then flows through the 8 mm gaps between the drives to the rear of the case.

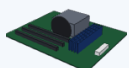
INSERTS & SCREWS

- 4x M4 × 30 mm (or the screws supplied with the fan)

12 of 13 Motherboard



NEEDED IN THIS STEP



1x

ATX motherboard



7x

M3 × 6

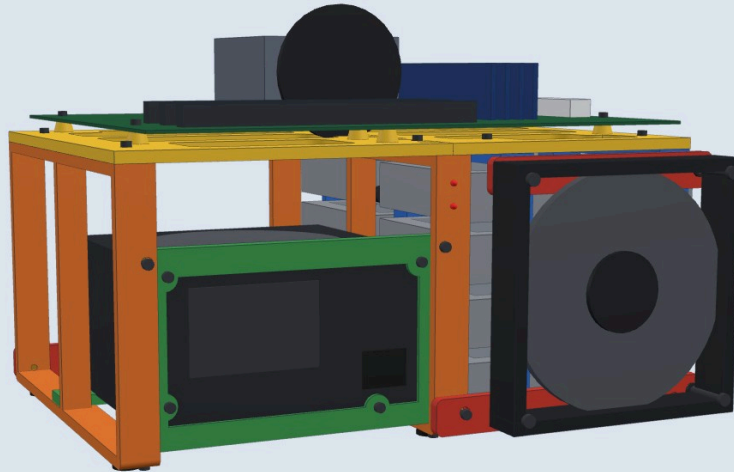
Place the motherboard on the 7 standoffs (ATX pattern) and screw it to the inserts with M3 screws. Micro-ATX and mini-ITX boards use some of the same holes.

Finally route the cables: 24-pin and CPU power from the PSU below, SATA on the right side of the drives.

INSERTS & SCREWS

- 7x M3 × 6 mm

13 of 13 LEDs and feet



NEEDED IN THIS STEP



2×
LED 3 mm



8×
rubber foot

Optionally press two 3 mm LEDs (power and HDD) into the holes at the front of the middle wall. There is room for the wires behind them.

Stick rubber feet under the walls and you are done.

INSERTS & SCREWS

- 2× 3 mm LED (optional)
- 8× rubber foot