

😎 EXTREMELY COOL ❄️



14x GPU Mining Rig Frame w/ 36 fans

DIY Building Guide with Instructions & Blueprints

Introduction

This mining frame build guide was made by Seb of Sebs Fintech Channel on YouTube.

Subscribe to his channel for other crypto mining related content by clicking this link:

<https://www.youtube.com/channel/UCQzug7Uk2Z9LcvCpYqeJO9g>

If you build one of these, I'd love to see a picture of it! Send to sebsfintech@gmail.com :)

Features

Can hold at least up to 14 GPUs easily

The frame can fit GPUs up to a length of 320mm, or even longer if you decide to not place fans on the side at the front of the frame. The frame comfortably holds up to 14 GPUs, but you can actually fit even more than that if you decide to mount them closer to each other. Just keep in mind that mounting GPUs that close to each other can cause heat to build up which could lead to thermal throttling and potentially damage your hardware if proper cooling is not applied.

Can hold up to 36 fans

The frame is designed to fit up to 36 fans which can be placed in many different configurations. The placement of the fans allow them to blow both along the length of the GPUs as well as up through the GPUs. This means that air can move freely through the heat sink irregardless if your GPUs have horizontally or vertically aligned heat sinks, or both. The fans can also be placed to either push cool air in or pull hot air out, or a combination of both. It's all up to you!

Plenty of space for other components

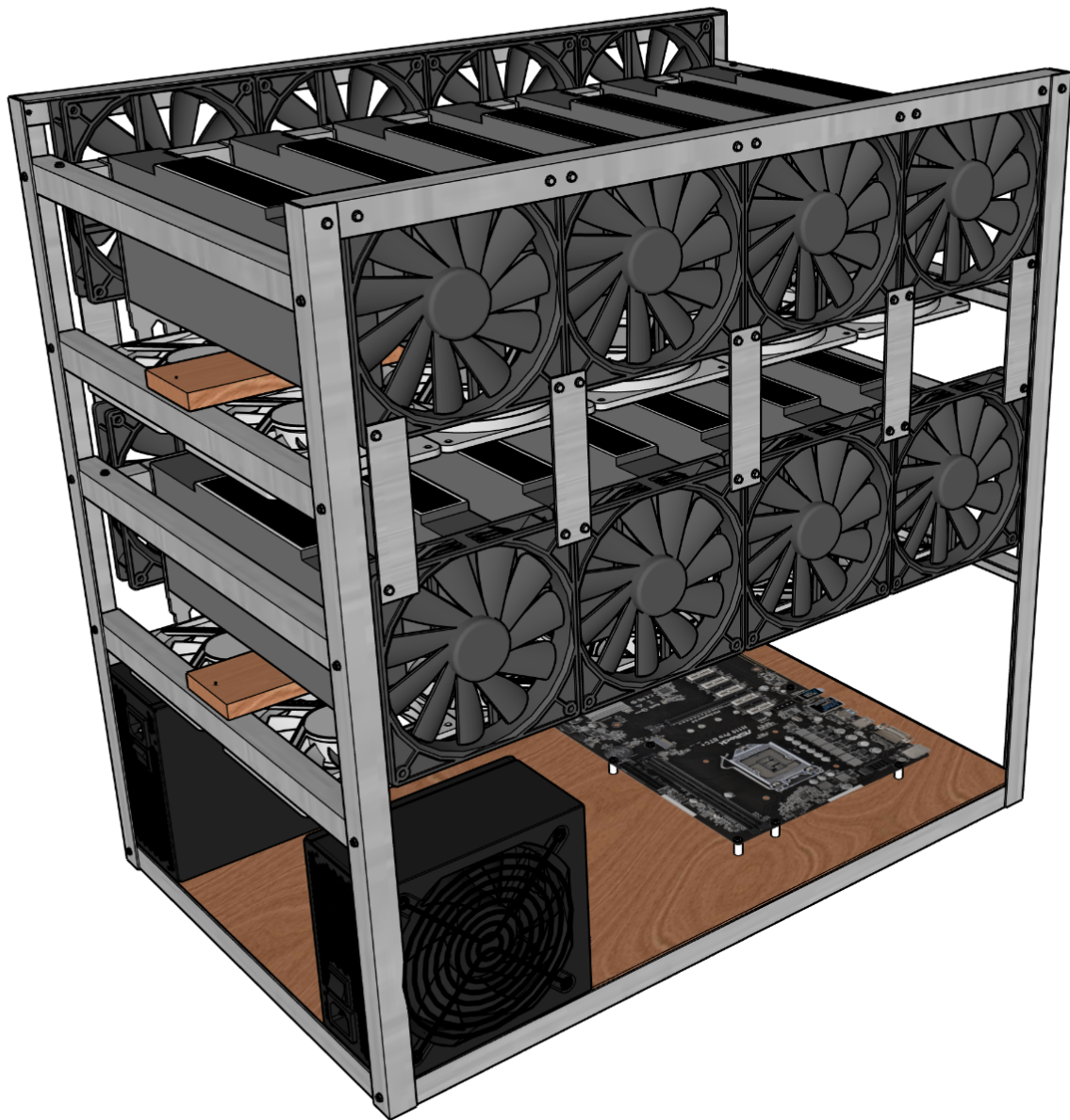
You can comfortably fit your motherboard and several power supplies on the bottom plate of the rig. There is actually enough room to fit up to 4 ATX power supplies on this mining frame!

Cheap, easy, available and customized to your needs

Whenever there is a new crypto mining boom, ready-made mining frames always skyrocket in price and sell out. With this guide you don't have to worry about any of that, as building a frame yourself is always cheap and the materials are readily available at hardware stores. And not only that, but since you are building the frame yourself, you can customize it to your needs in terms of the amount of GPUs you want to mount and how widely you want them spaced out, how many fans you want to mount and in what direction you want them to move air, how many power supplies you want and where on the bottom plate you want your power supplies and motherboard to go, layout-wise.

Legal disclaimer

The author, publisher and distributor of this guide are in no way responsible or liable for any harm that may come to you, any other person or any materials and/or equipment as a result of following this guide.



Tools required

1. Power drill/Screwdriver and bits
2. Jigsaw/Power saw*
3. Clamps
4. Tape measure
5. Pencil

*NOTE: many building warehouses can cut materials to spec for you (sometimes even for free). This can be a good option if you don't have access to the tools needed to cut the materials yourself.

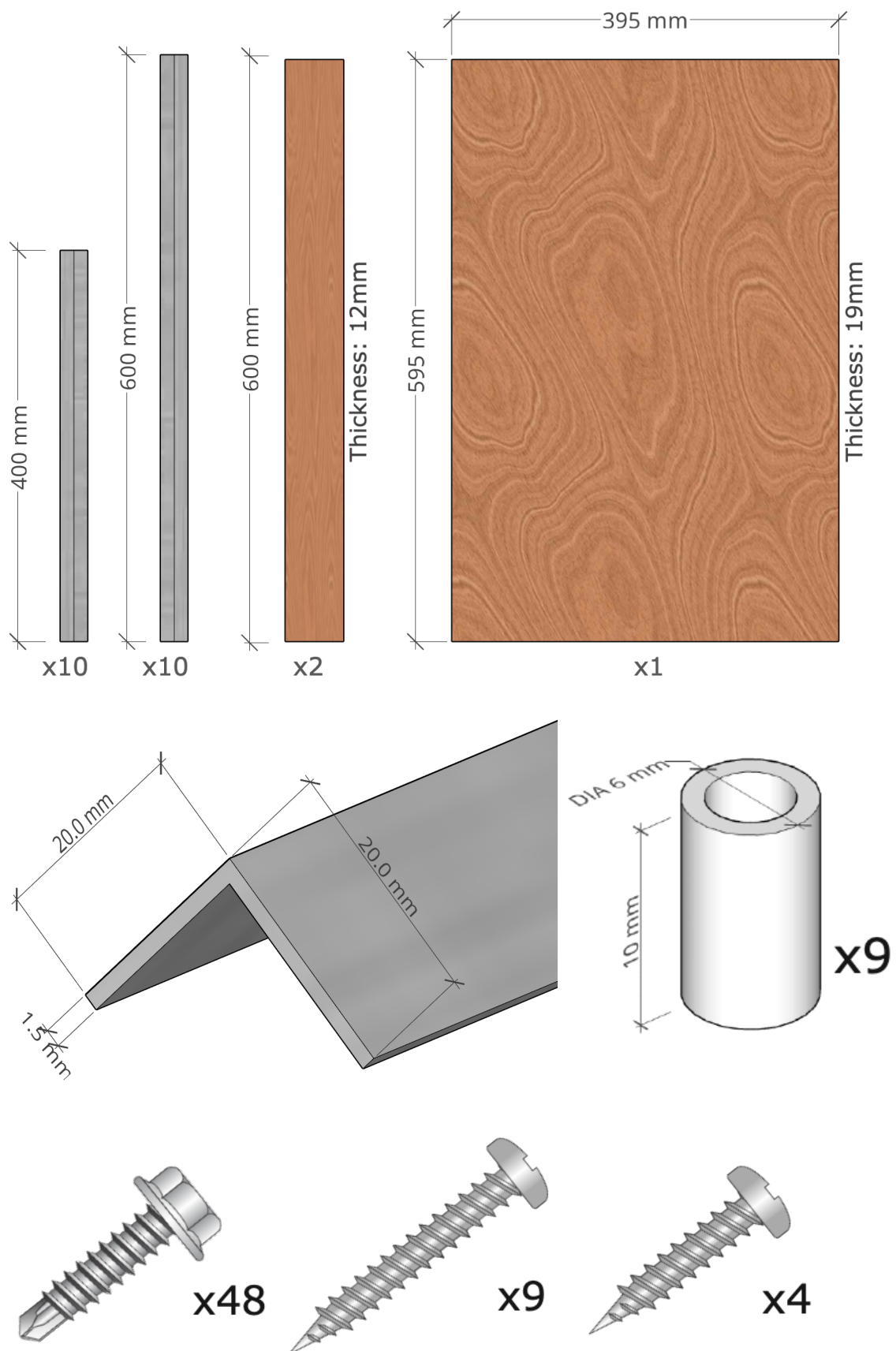
Required materials

1. 10 meters of aluminium angle (e.g. 5x 2m pieces), dimensions: 20x20mm, 1.5mm thickness. Cut into 10x 400mm and 10x 600mm lengths.
2. 1x 395x595mm plywood board, 19mm thickness
3. 2x 60x600mm plywood board, 12mm thickness
4. 48x self tapping screws, roughly 16mm in length
5. 4x wood screws, roughly 16mm in length
6. 9x wood screws for motherboard, roughly 25mm in length (might need more/less depending on motherboard design)
7. 6mm wide PVC pipe to use as motherboard standoffs, cut into 9x 10mm lengths (might need more/less depending on motherboard design)

Optional materials

1. 4x rubber feet
2. 1.1 meter of flat aluminium, dimensions: 25mm, 1.5mm thickness. Cut into 10x 110mm lengths. (For mounting side fans on the lower GPU shelf.)
3. 40x 35mm wood screws (for mounting fans under riser shelves).

Required materials



Instructions

Before you start

Always clean off any and all dust and debris before placing any electronics onto what you're building. Never plug any electronics into power while still building.

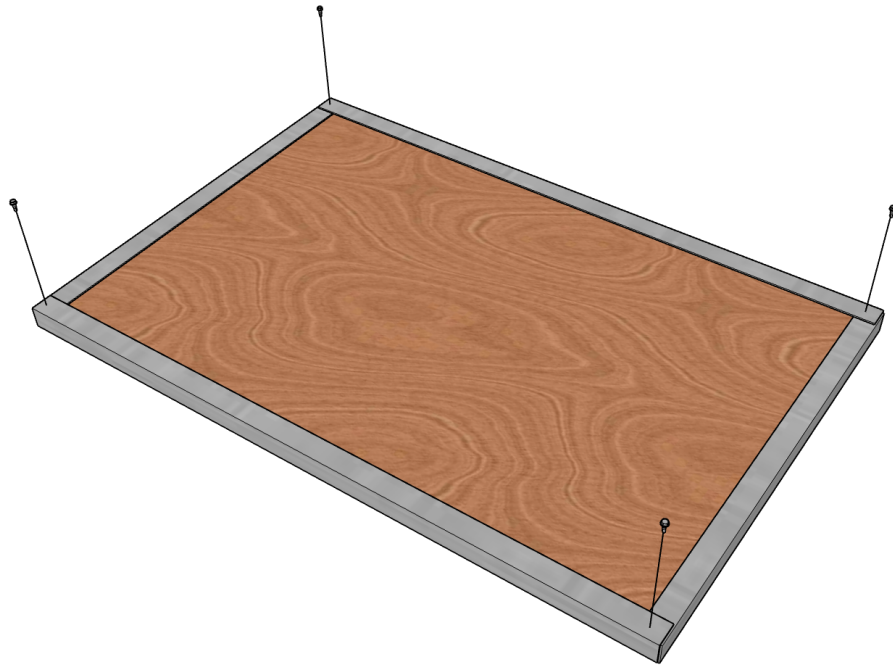
Preparation

1. Cut aluminium angle into 10x 600mm pieces and 10x 400mm pieces.
2. If needed, cut wood into one 395x595x19mm board and two 60x600x12mm boards.
3. Cut PVC pipe into 9x 10mm lengths (or more/less depending on the amount of mounting holes for your motherboard)
4. If mounting fans on the side of the frame, cut flat aluminium into 10x 110mm lengths.

Construction

1. Using your self tapping screws, attach 2x 400mm and 2x 600mm aluminium angle to your plywood bottom plate. Take care to be consistent in putting the shorter pieces UNDER the longer pieces.

Image 1



2. It's time to make the riser shelves! Start by drilling a hole 180mm into 4 of your 400mm aluminium angle pieces as seen in image 3. Then, using your 16mm wood screws, assemble the two riser shelves by screwing your 60x600mm plywood boards into two 400mm aluminium angle pieces each, as seen in image 4.

Image 3

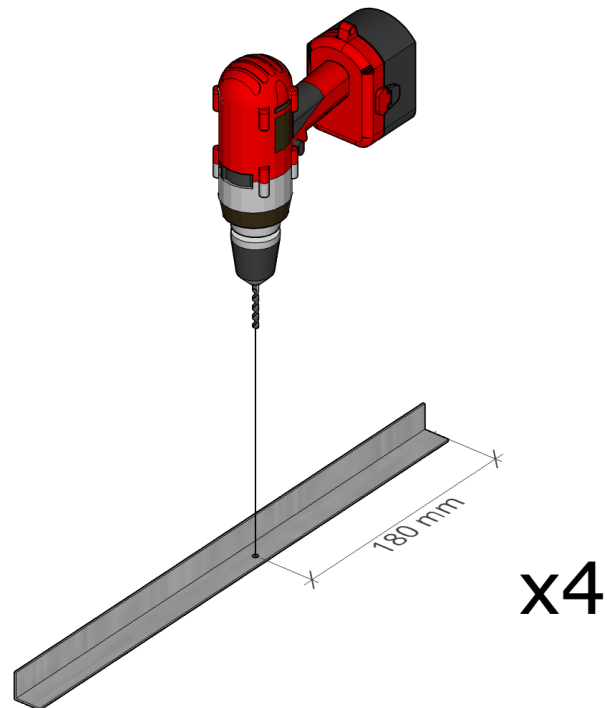
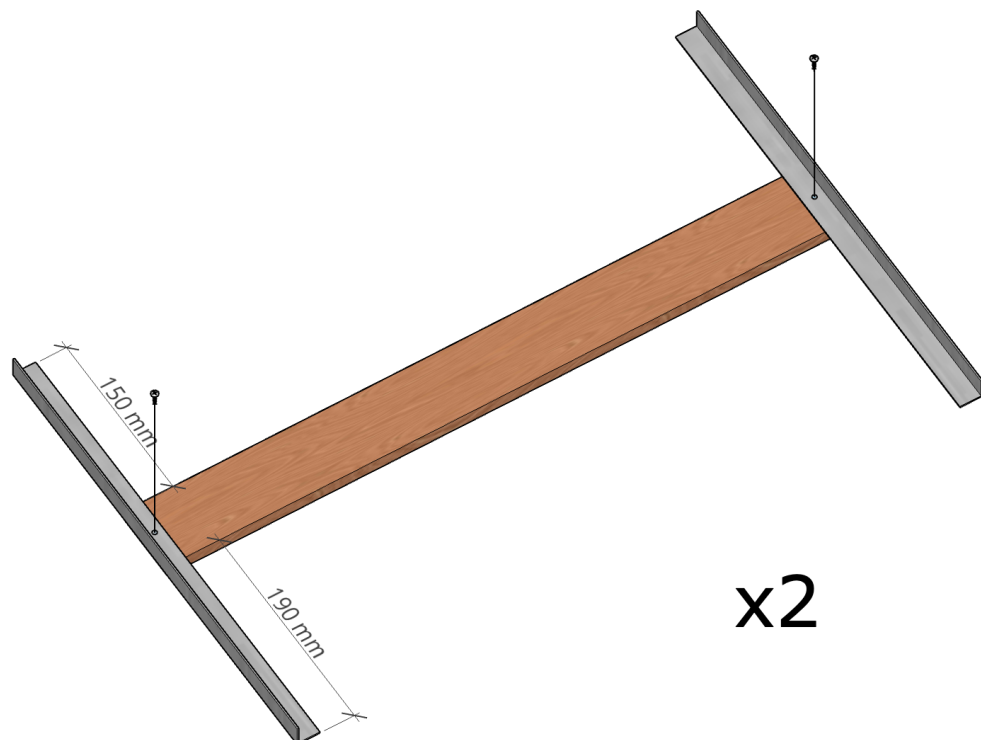
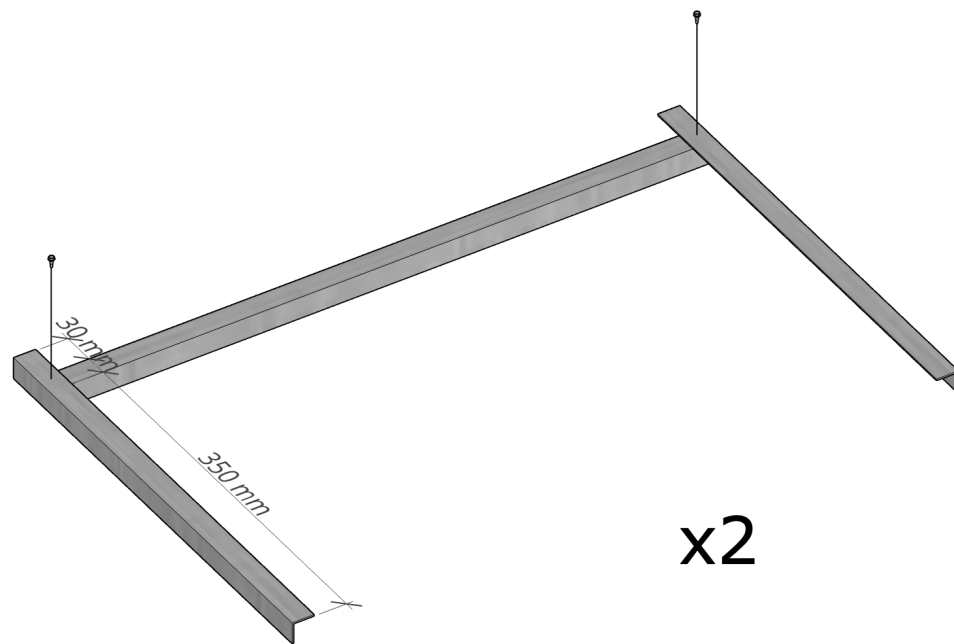


Image 4



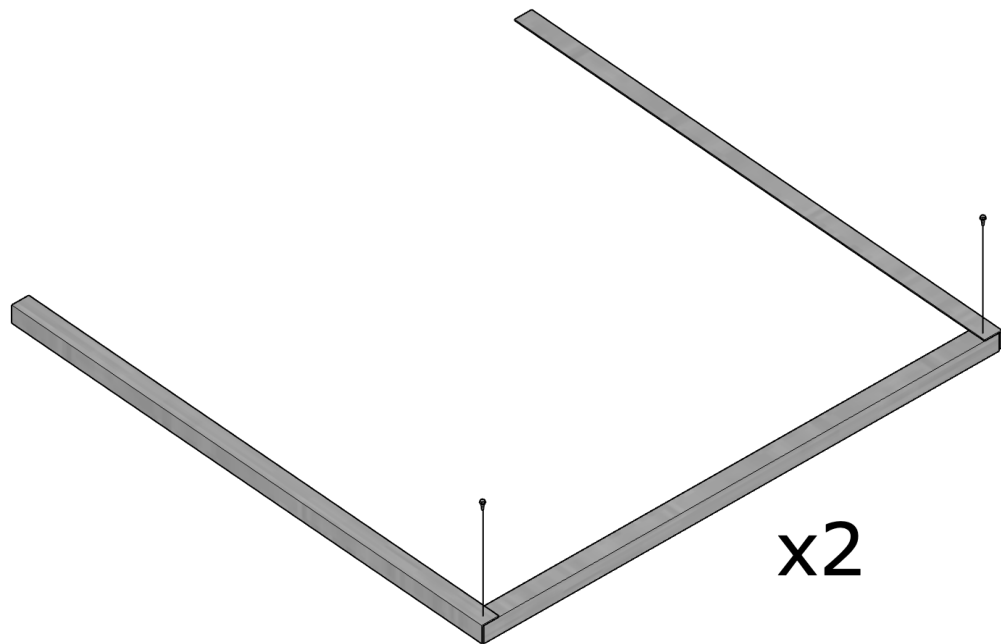
3. Now we're going to make the 2 GPU shelves. You do this by screwing a 600mm aluminium angle 30mm in on 2 400mm pieces of aluminium angle using your self tapping screws as seen in image 5.

Image 5



4. We're now going to make the two long sides of the frame. This is done by screwing 3 600mm aluminium angle pieces together into an U-shape using your self tapping screws. See image 6 for more detail.

Image 6



5. It is now time to start assembling all of the pieces we've made! We do this by attaching the shelves we've made to the sides we've also made, starting from the top and working our way down. We'll be using our self tapping screws for this. The first step in this is to take one of the GPU shelves we made in step 3, and attach it 40mm down on one of the side pieces we made in step 4, as seen in image 7. (To clarify, the top of the GPU shelf should be 40mm below the top of the side piece.) You then turn it around and attach it to the second side piece, as seen in image 8.

Image 7

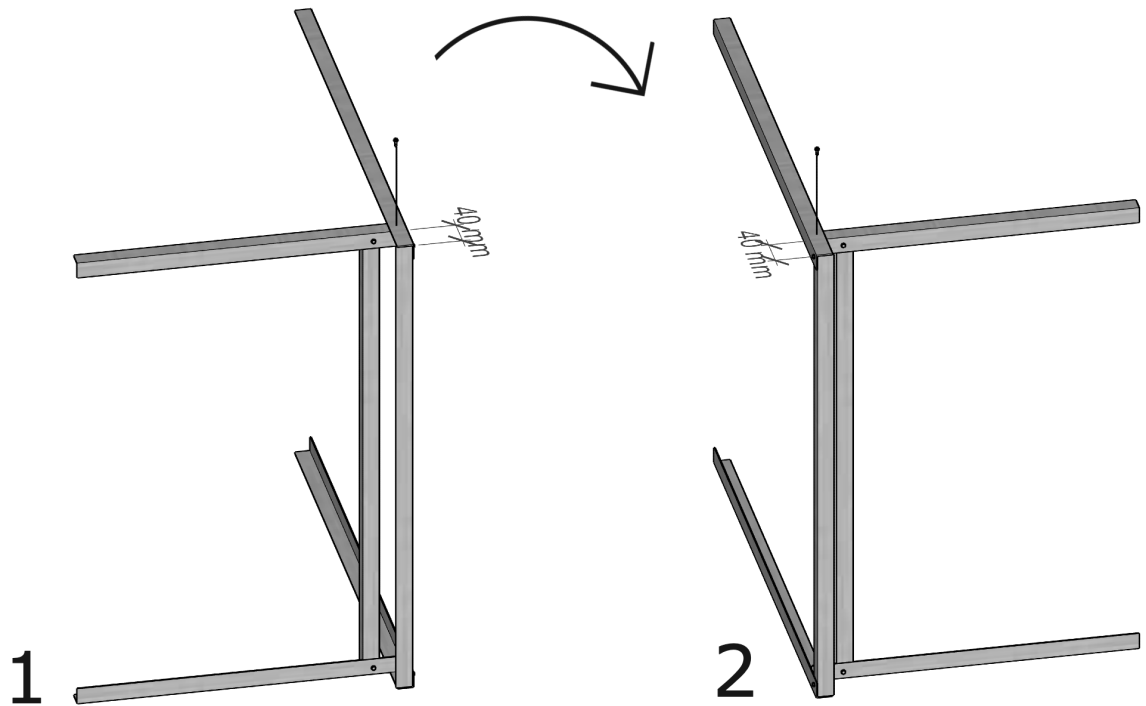
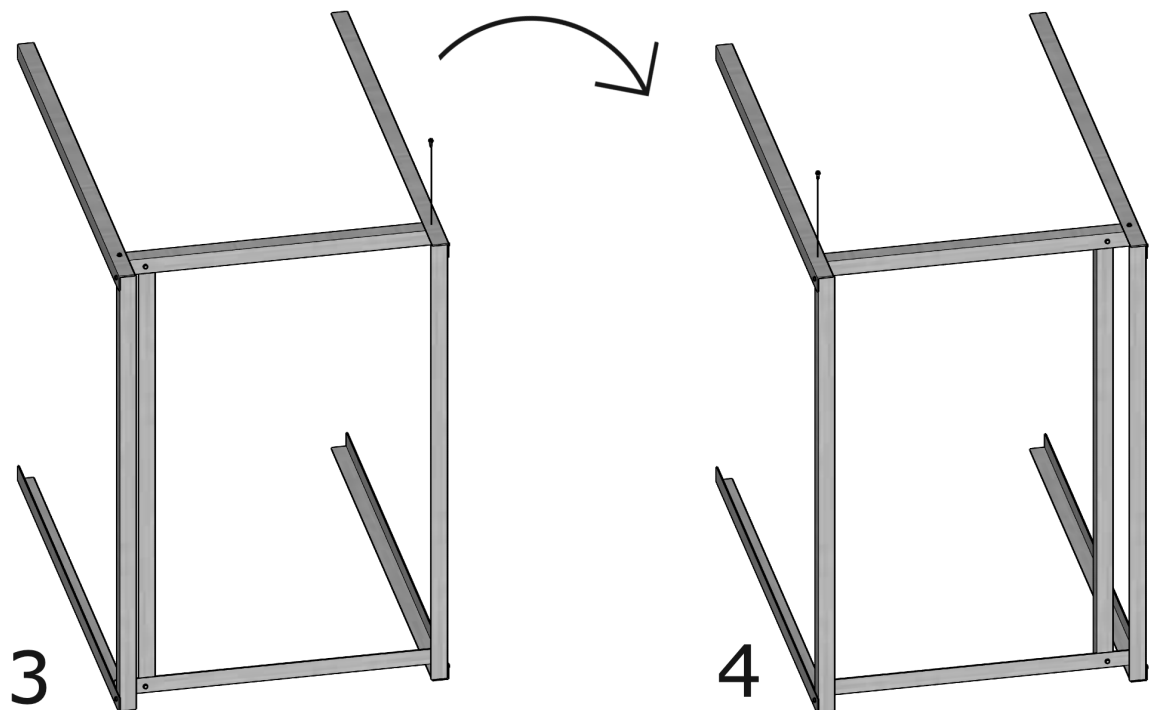
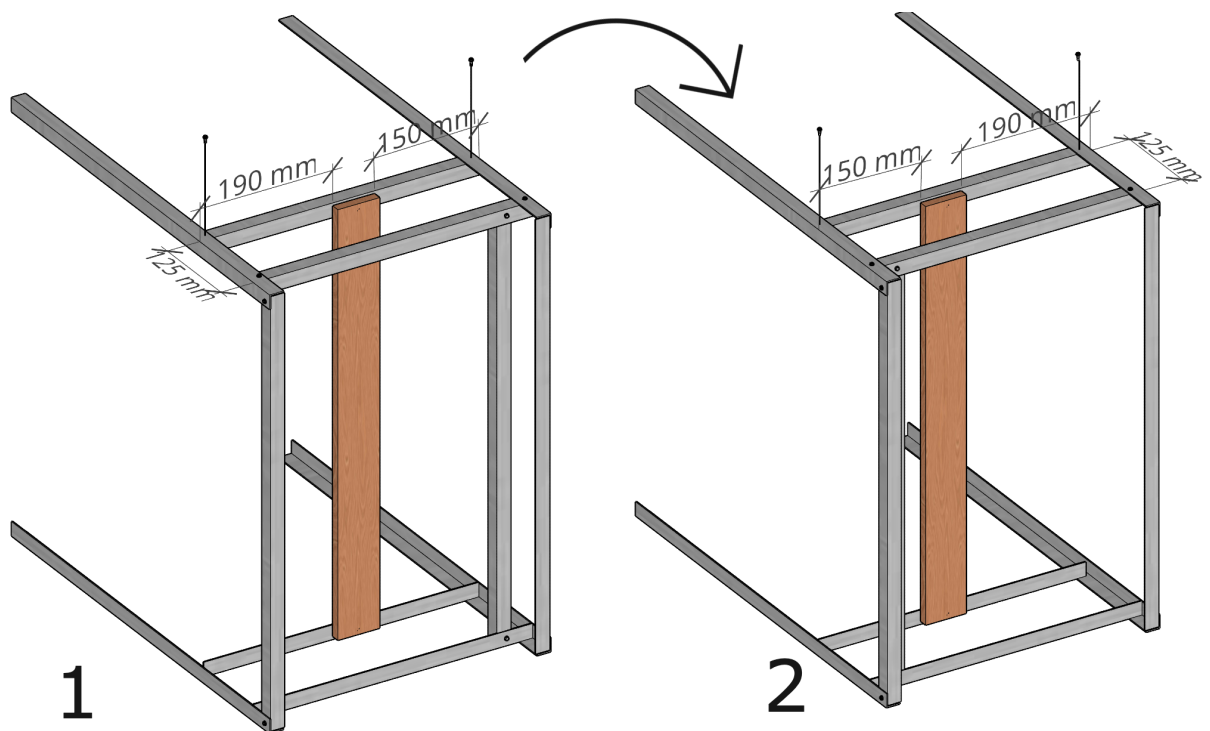


Image 8



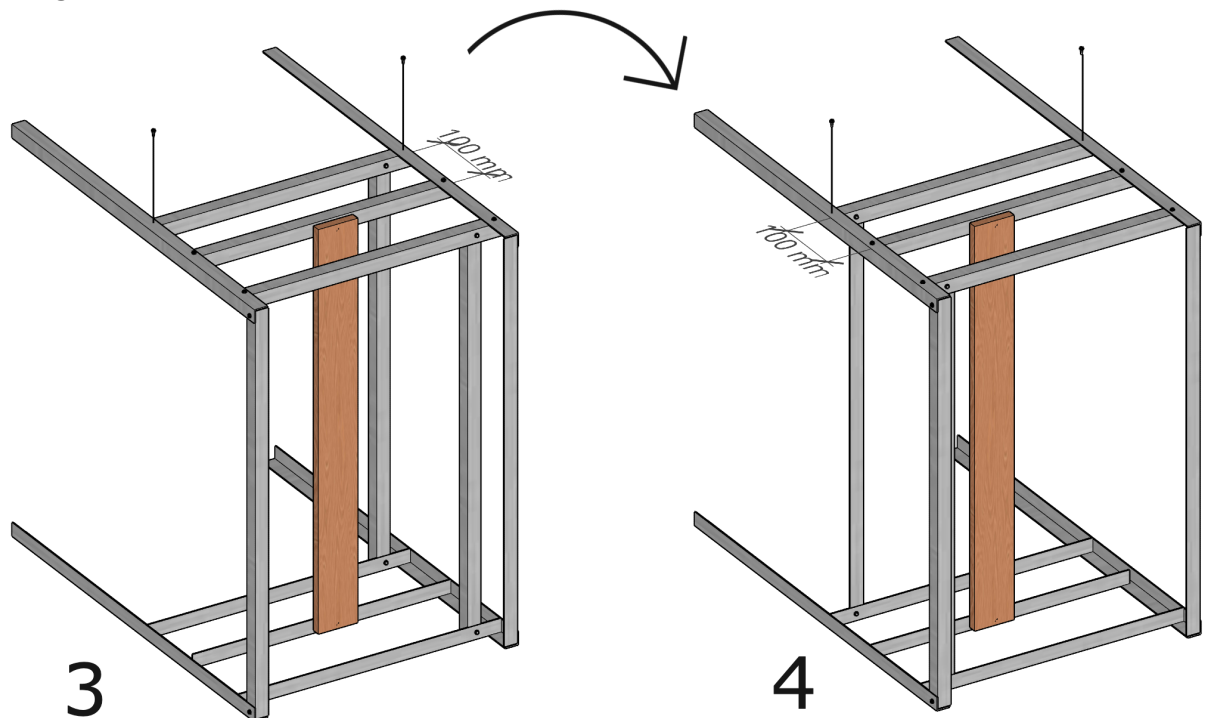
6. a) You now repeat this process for your three remaining shelves using your self tapping screws, starting with attaching your top riser shelf to your two side pieces 125mm below your top GPU shelf. As the riser shelf isn't perfectly centered, you need to make sure it's in the correct position where the actual wooden shelf is closer to the GPU shelf. See image 9 for more detail.

Image 9



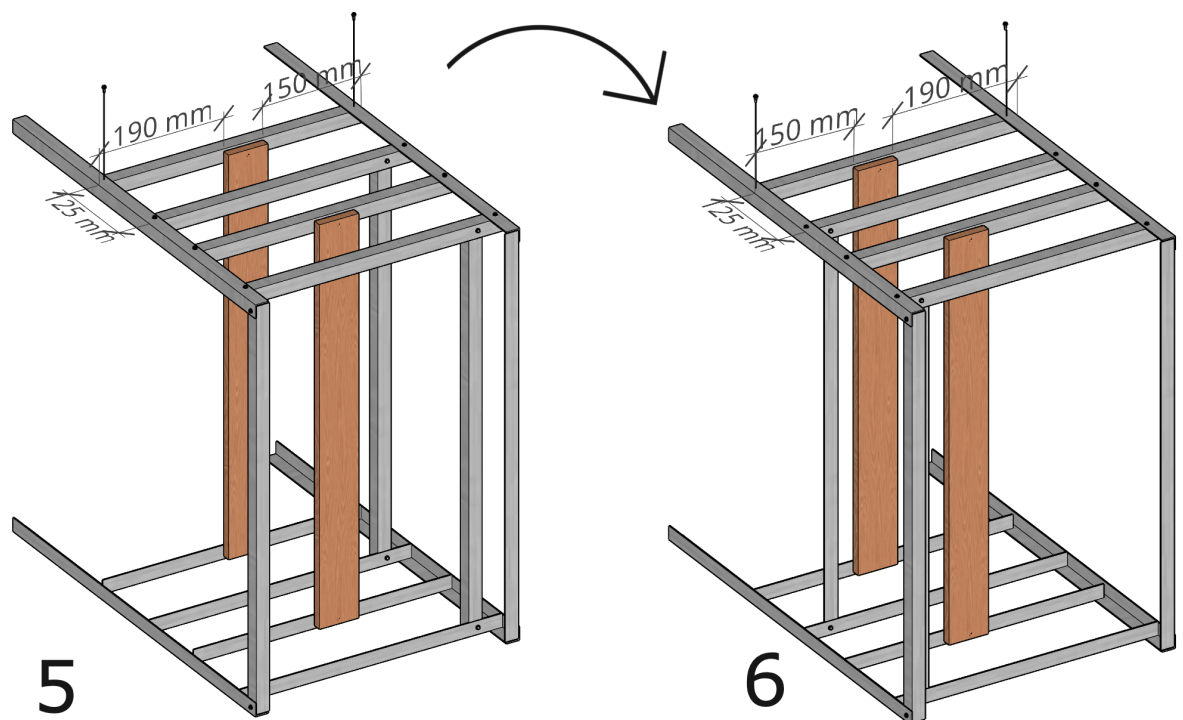
b) After that, attach your lower GPU shelf to your two side pieces 100mm below the riser shelf you just attached.

Image 10



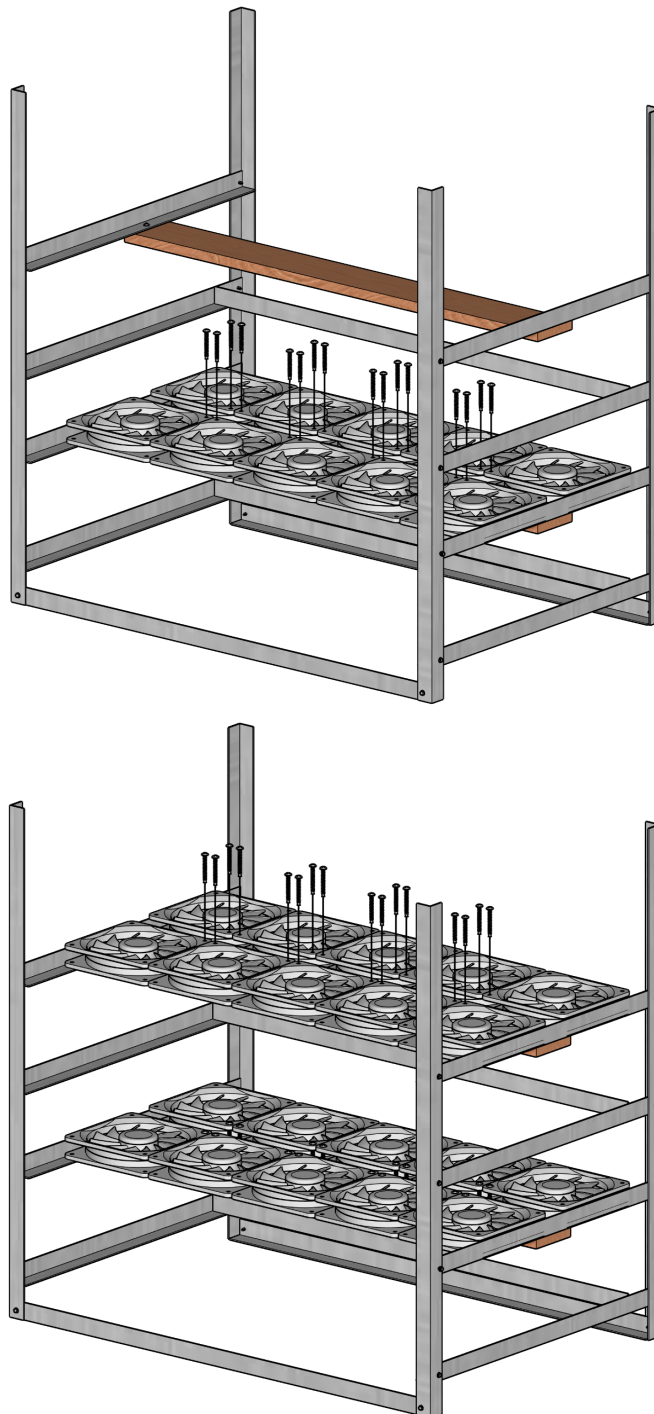
c) Finally, attach your second riser shelf to your two side pieces 125mm below the lower GPU shelf.

Image 11



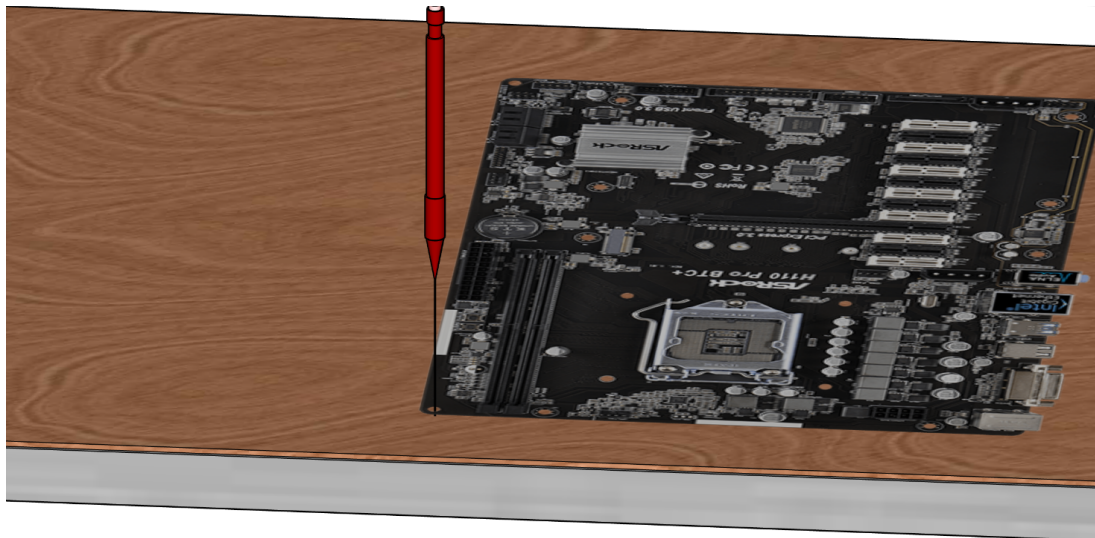
7. Optional: If you want to add fans under your GPUs for cooling, now's the easiest time to do so. Place the rack of shelves you just assembled upside down and using your 35mm wood screws, attach 120mm fans by screwing them into the bottom of the riser shelves as seen in image 12. You can fit a total of 20x 120mm fans this way, 10 under each riser shelf. Note, each fan only attaches with 2 screws, and the 2 on each side of each shelf only attaches with 1 screw. This is enough to hold the fans in place, however, there are options for attaching them more securely. You can do this by either zip-tie'ing them together as well as to the frame, or by drilling holes in the aluminium angle and screwing the fans in on the sides as well, or a combination of both.

Image 12



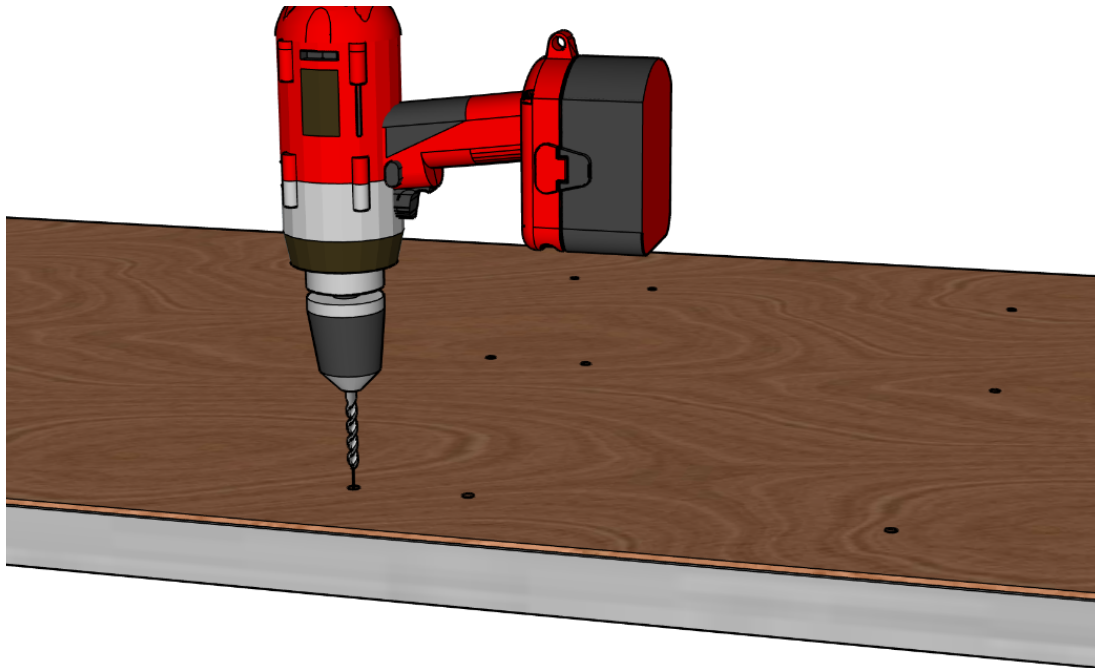
8. Temporarily lay out your motherboard in its desired position on the bottom plywood board of the frame. Use your pencil and mark on your bottom board where the screw holes on your motherboard are, being careful not to move the motherboard in the process. See image 13.

Image 13



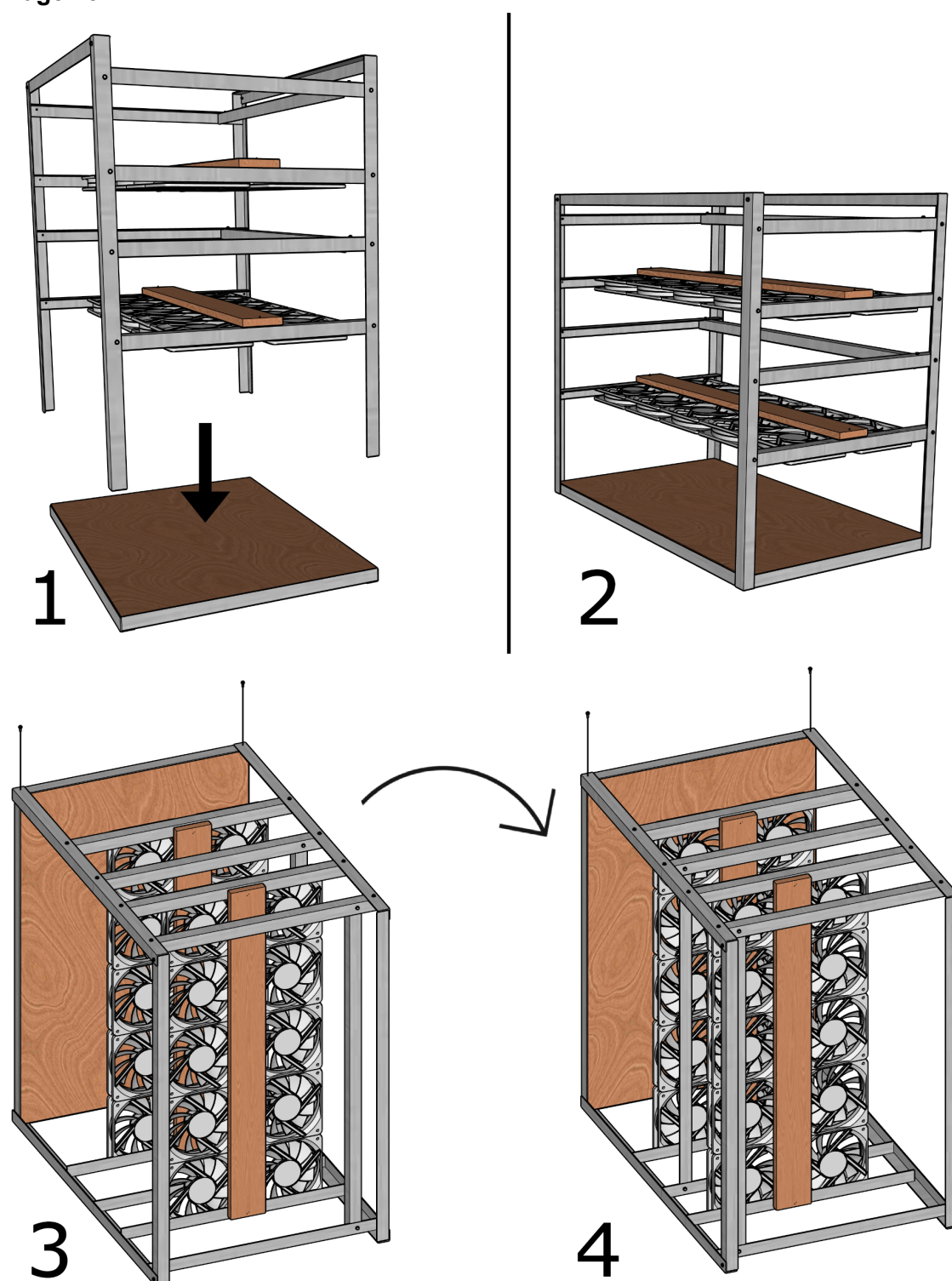
9. Remove your motherboard and drill small holes in your bottom plywood board where your markings are. These holes will guide the screws with which we'll be attaching your motherboard. See image 14.

Image 14



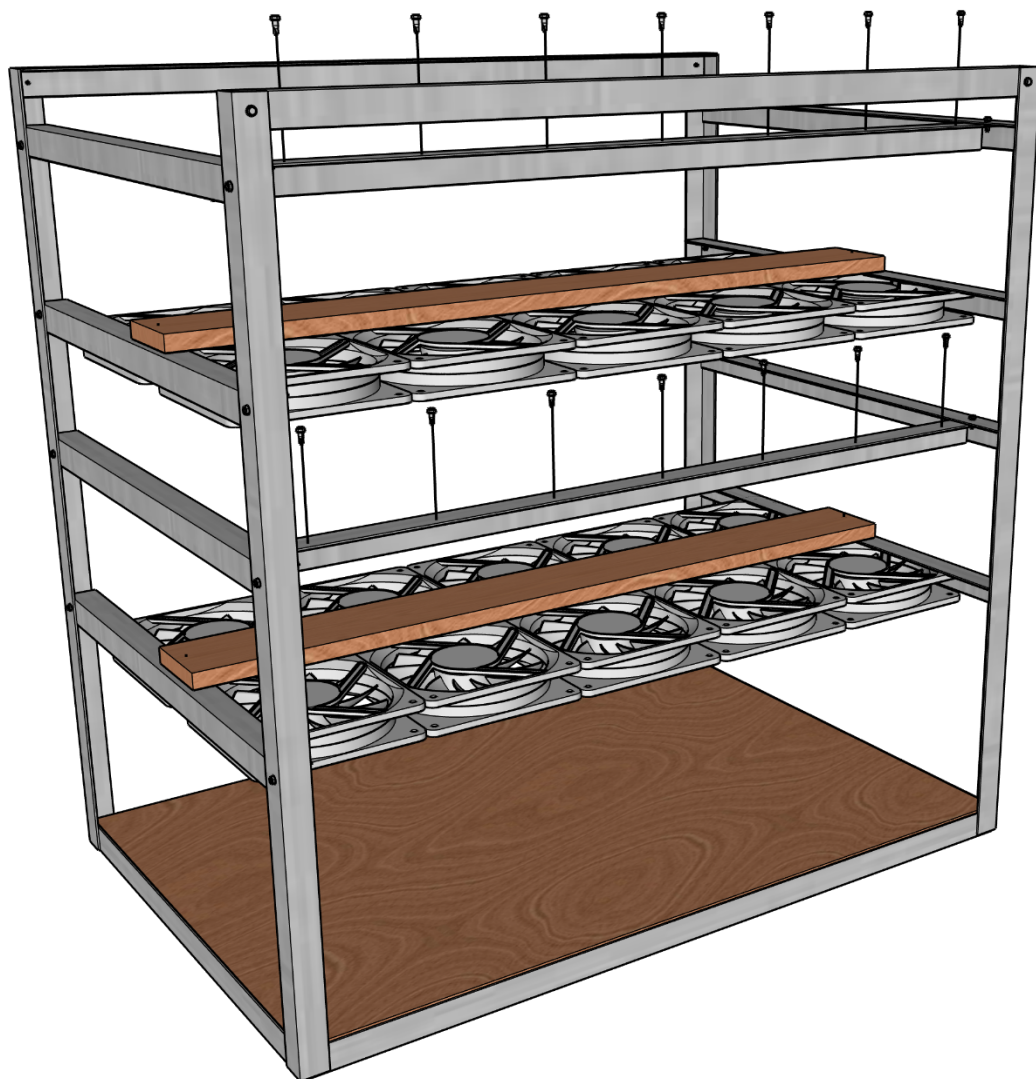
10. Turn your rack of shelves right-side-up and slot it onto your bottom plate. Screw it in place with your self tapping screws from each short side as seen in image 15.

Image 15



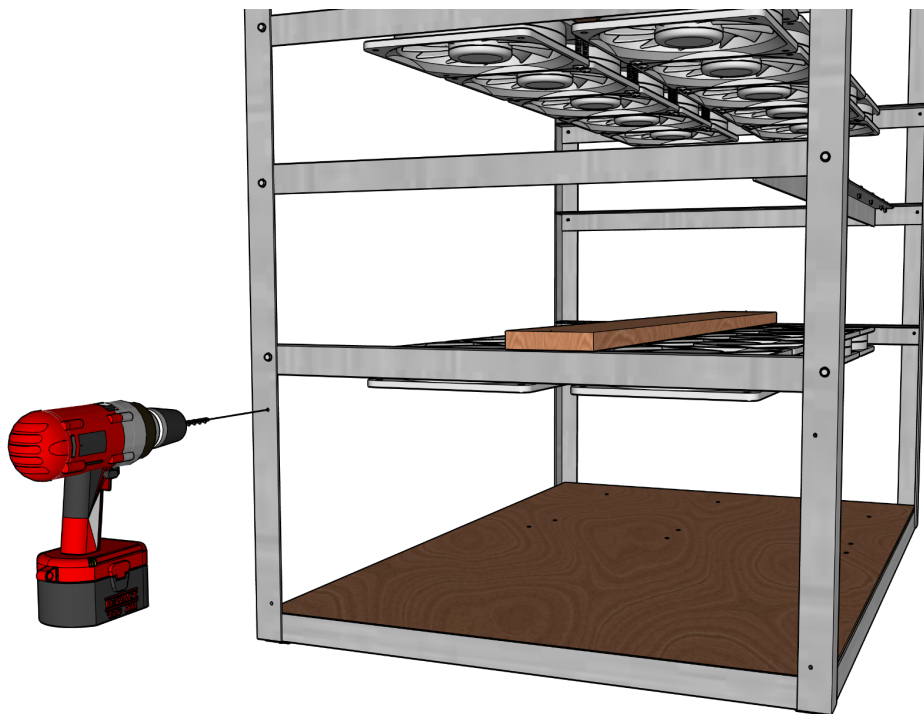
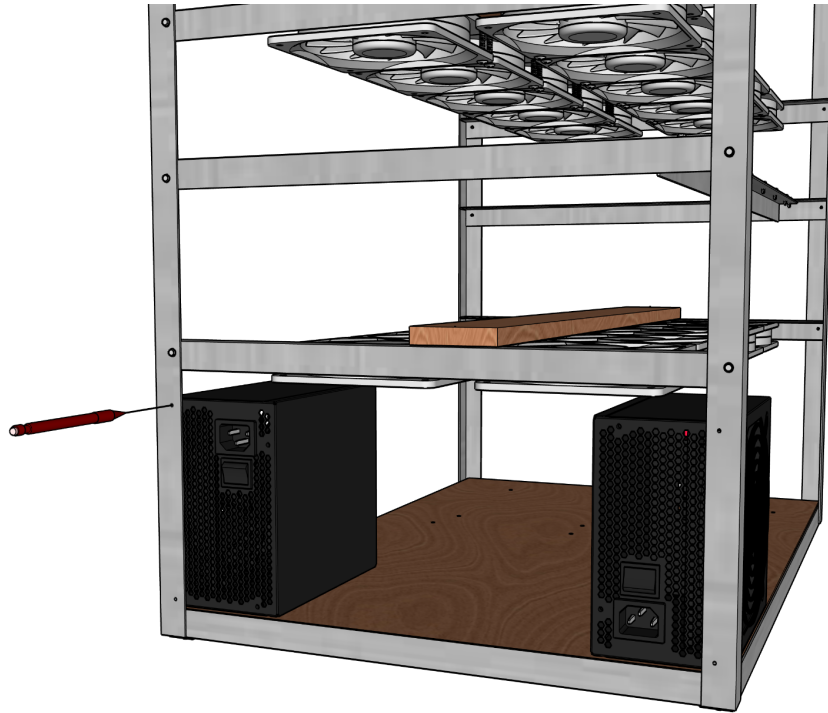
11. Turn your frame right side up and screw in (up to) 7 self tapping screws on each GPU shelf as seen in image 16. Space the screws out evenly as desired, where you put these screws is where your GPUs will go. Make sure to not screw the screws all the way in, as you'll need to unscrew them later to attach your GPUs.

Image 16



12. Optional: place your power supply/supplies on the bottom plywood board and mark on the aluminium frame where the screw holes on the back of the power supply/supplies are. Remove the power supply/supplies and drill holes in the aluminium frame where your markings are. See image 17.

Image 17



13. a) Optional: if your rig needs additional cooling, you can attach 8x 140mm fans on each long side of the frame. Start by making 10 mounting brackets as shown in image 18 using your 25mm wide flat aluminium. Use these pieces to attach the fan together using the screws that came with your fans as seen in image 19, 8 fans for each side.

Image 18

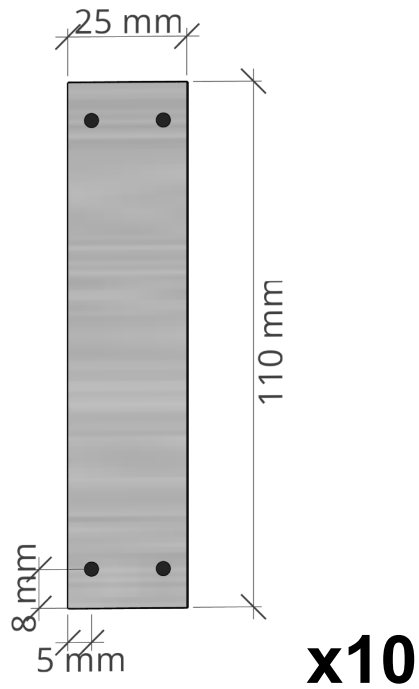
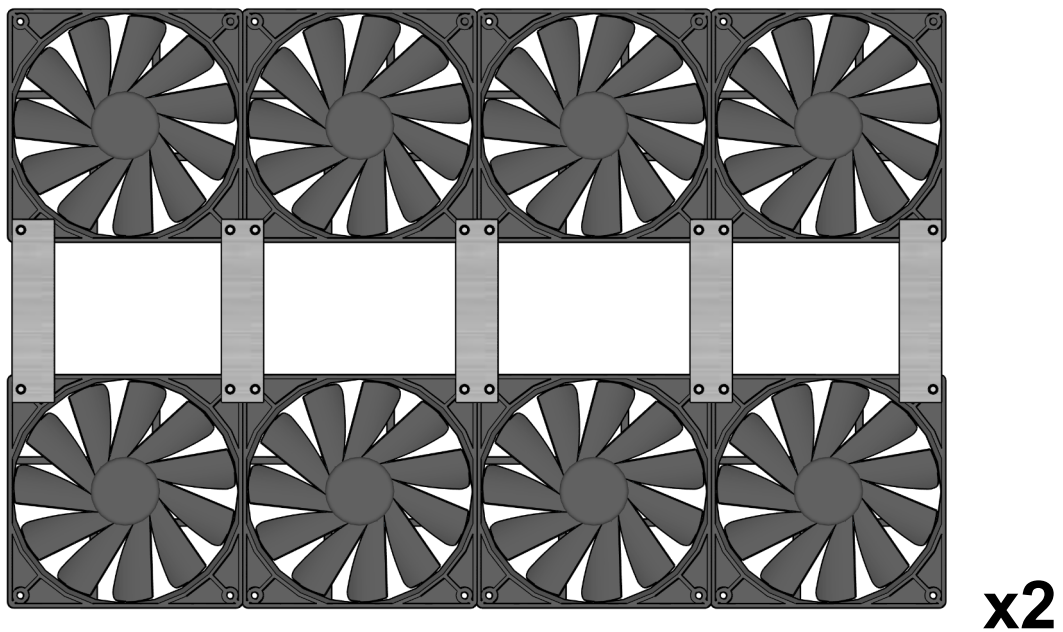
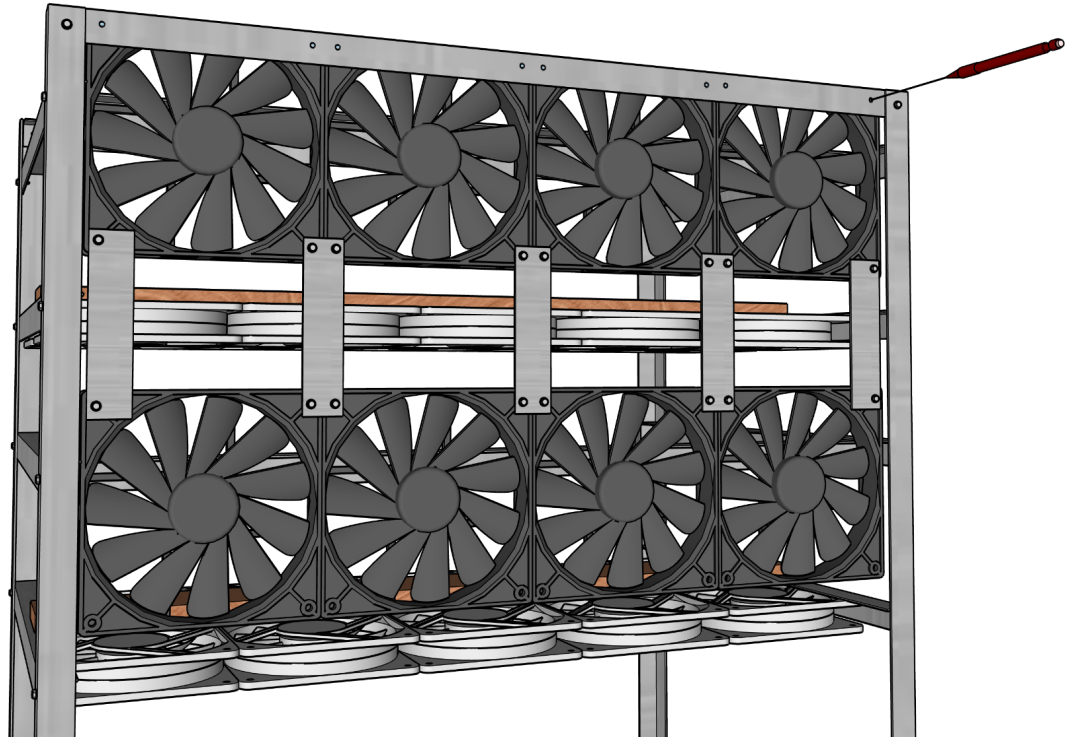


Image 19



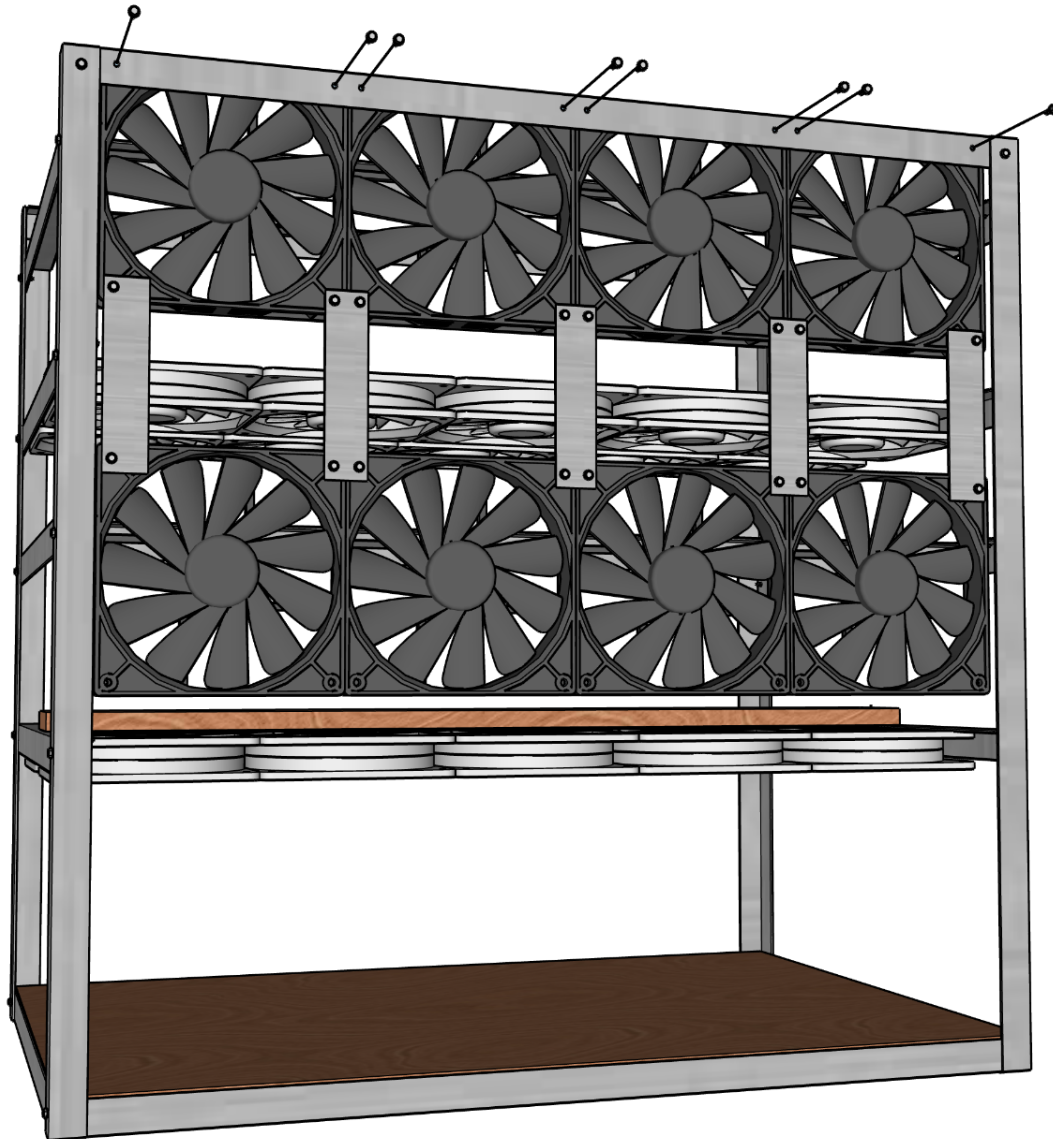
b) Next, hold the fans up against your frame and mark on the top edge of the side where the mounting holes of the fans are using your pencil. Remove the fans and drill mounting holes through your markings. See image 21. Remember, you have to do this on both sides if you want fans on both sides!

Image 21



c) Finally, mount both your sets of fans, each on each side of the frame, again using the screws that came with your fans. The fans should now be securely attached to your frame, but for additional stability you could also zip-tie them to the vertical pieces of the frame, as well as zip tie the bottom row of fans to each other. Again, you have to do this on both sides if you want fans on both sides!

Image 22



14. It's final assembly time. Start by mounting your power supply/supplies and screwing them in through the holes you drilled in step 12. Then place your 9 pieces of 10mm PVC pipe on each of your 9 pre-drilled holes in the bottom plywood board of your frame, and carefully lower your motherboard onto them. The motherboard should now be resting on the PVC pipes which in turn are standing over your pre-drilled holes. You can now screw your motherboard through the PVC pipes into your bottom plywood board. See image 23. Be careful during this process to not damage your motherboard! The motherboard should now be resting securely 10mm above your bottom board. Your frame is now finished and your rig is ready to be assembled on the frame!

Image 23

