

HYPERPIXEL 4 & RASPBERRY PI MOUNT FOR VORON 2.4



INSTALL GUIDE

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THE LEGAL & SAFETY STUFF

Safety Statement

Print Up Limited is not responsible for any personal injury or damage that may occur to your 3D printer as a result of not following the instructions in this manual carefully.

It is important that you read and understand all of the instructions before operating your 3D printer, and follow them carefully to ensure the safe and proper use of the device.

Failure to do so may result in injury or damage to the printer

Electrical Safety

It is important to always turn off your 3D printer and unplug it from the power source before attempting any modifications to the electrical aspects of the device. This includes replacing parts, cleaning the printer, or making any other changes to the electrical system. Allowing the printer to remain powered while making changes to the electrical components can be dangerous and may result in injury or damage to the printer.

"Please note that Print Up is not affiliated with Voron or the Voron Design Team. We are simply fans of the Voron printers and want to contribute to the open source community by providing helpful resources and support for these amazing machines."

INTRODUCTION

Welcome to the Hyperpixel 4 & Raspberry Pi Mount installation manual for the Voron 2.4 printer. In this manual, we will walk you through the steps required to properly install the mounting system on your Voron 2.4 printer. This system will allow you to easily attach a Raspberry Pi & Hyperpixel 4 attached via GPIO to your printer.

Before we begin, please make sure you have the following tools and materials on hand:

- An M3 Hex Allen Key or Screwdriver with a Hex M3 bit - You may benefit from an Allen Key that can be used at an angle such as the Wera Hex Keys with a Ball-End.
- The mounting system kit, including all necessary screws and brackets - You can find the full BOM (Bill of materials later in the manual or on GitHub)
- A soldering iron (ideally with a tip for M3 heat set inserts, although a normal tip will work)
- A Voron 2.4 printer

Please follow these instructions carefully to ensure that the mounting system is installed correctly and safely. If you have any questions or encounter any issues during the installation process, please don't hesitate to reach out to us for assistance.

Let's get started!

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BILL OF MATERIALS (BOM)

For this project you will require the following items:

- 1x Hyperpixel 4 Display Rectangular by Pimoroni
- 1x Raspberry Pi 4 or 3B
- All the printed parts required for your printer (you can find more details on the next page)
- 16x M3 x 8mm SHCS (Socket Head Cap Screw)
- 4x M2.5 x 6mm BHCS (¹)
- 4x M2.5 x 15mm Standoffs (¹)
- 12 x M3 x 5.7mm Heat Set Insert - We recommend the ones from [CNC Kitchen](#) or their resellers.
- Front Left & Right Belt Guards from the original Voron 2.4 printed parts.
- Right Angle USB-C connector (for RPi 4) or Right Angle USB Micro B connector (for RPi 3B) (²)

(1) - These might be included with your Hyperpixel 4.

(2) - You can install this without a Right Angle USB connect however, we still recommend one to avoid bending the cable.

PRINTED PARTS

The printed parts can be found on GitHub or on Printables. Depending on your printer size you will need to download and print the following parts:

250mm Voron 2.4	300mm Voron 2.4	350mm Voron 2.4
<ul style="list-style-type: none">• Screen Front Mount• Screen Back - Pi Mount• Cable Cover Left (Short)• Cable Cover Right (Short)• Skirt End Left (Short)• Skirt End Right (Short)	<p>Combination 1</p> <ul style="list-style-type: none">• Screen Front Mount• Screen Back - Pi Mount• Cable Cover Left (Short)• Cable Cover Right (Short)• Skirt End Left (Long)• Skirt End Right (Long) <p>OR Combination 2</p> <ul style="list-style-type: none">• Screen Front Mount• Screen Back - Pi Mount• Cable Cover Left (Long)• Cable Cover Right (Long)• Skirt End Left (Short)• Skirt End Right (Short)	<ul style="list-style-type: none">• Screen Front Mount• Screen Back - Pi Mount• Cable Cover Left (Long)• Cable Cover Right (Long)• Skirt End Left (Long)• Skirt End Right (Long)

NOTE: All parts only need to be printed once!

PRINTED PARTS REFERENCE

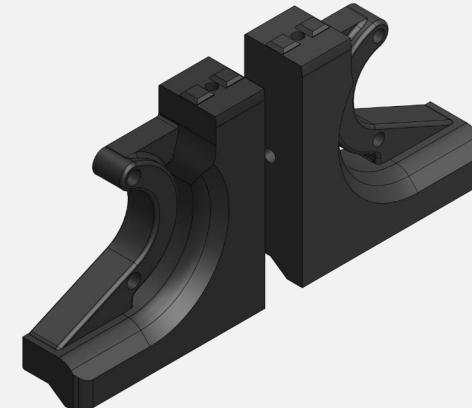
A visual guide to the printed parts for reference



Screen Front Mount



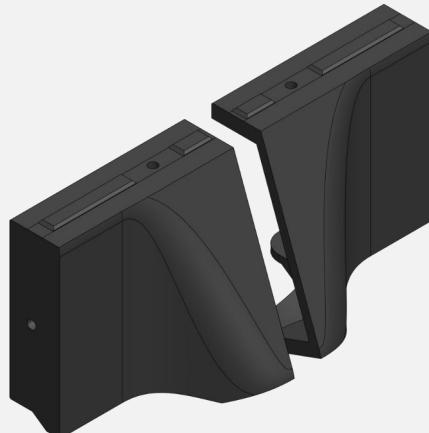
Cable Cover Left & Right (Short)



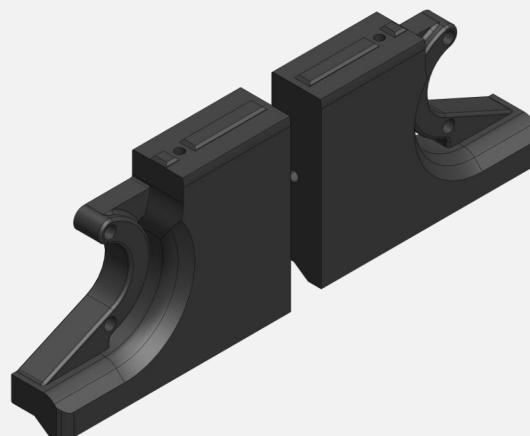
Skirt End Left & Right (Short)



Screen Back - Pi Mount



Cable Cover Left & Right (Long)



Skirt End Left & Right (Long)

PRINT SETTINGS

What material should I print these parts in?

We recommend that you print in ABS, ASA or PC, however you should be able to print these parts in PETG as well if you use your printer without an enclosure. We do not recommend PETG for printers with an enclosure or if you print with high bed & chamber temperatures.

Do I need supports?

No! All the parts can be printed support free. The STLs are orientated the correct way, so just drag into your slicer and slice away!

Other Settings

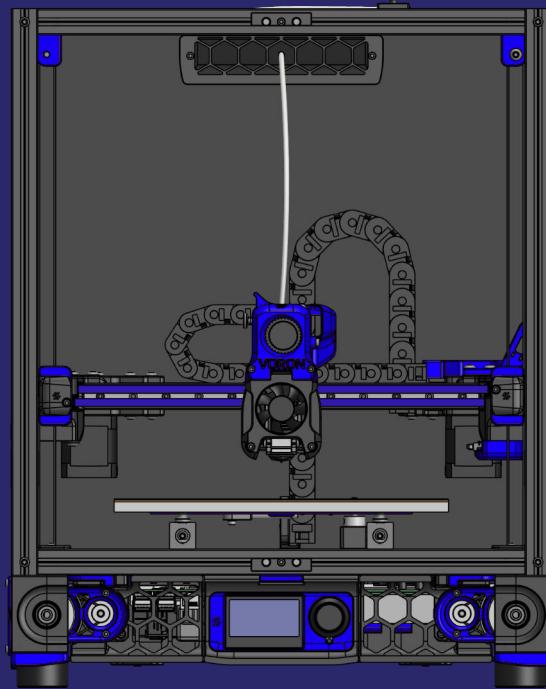
- Infill: 20-30%
- Layer Height: 0.2mm
- Perimeters: 3

Bed Type

We recommend printing the **Screen Front Mount** on a **Textured bed** with **no brim** for a truly professional look, however you can print on whatever surface your printer has available.

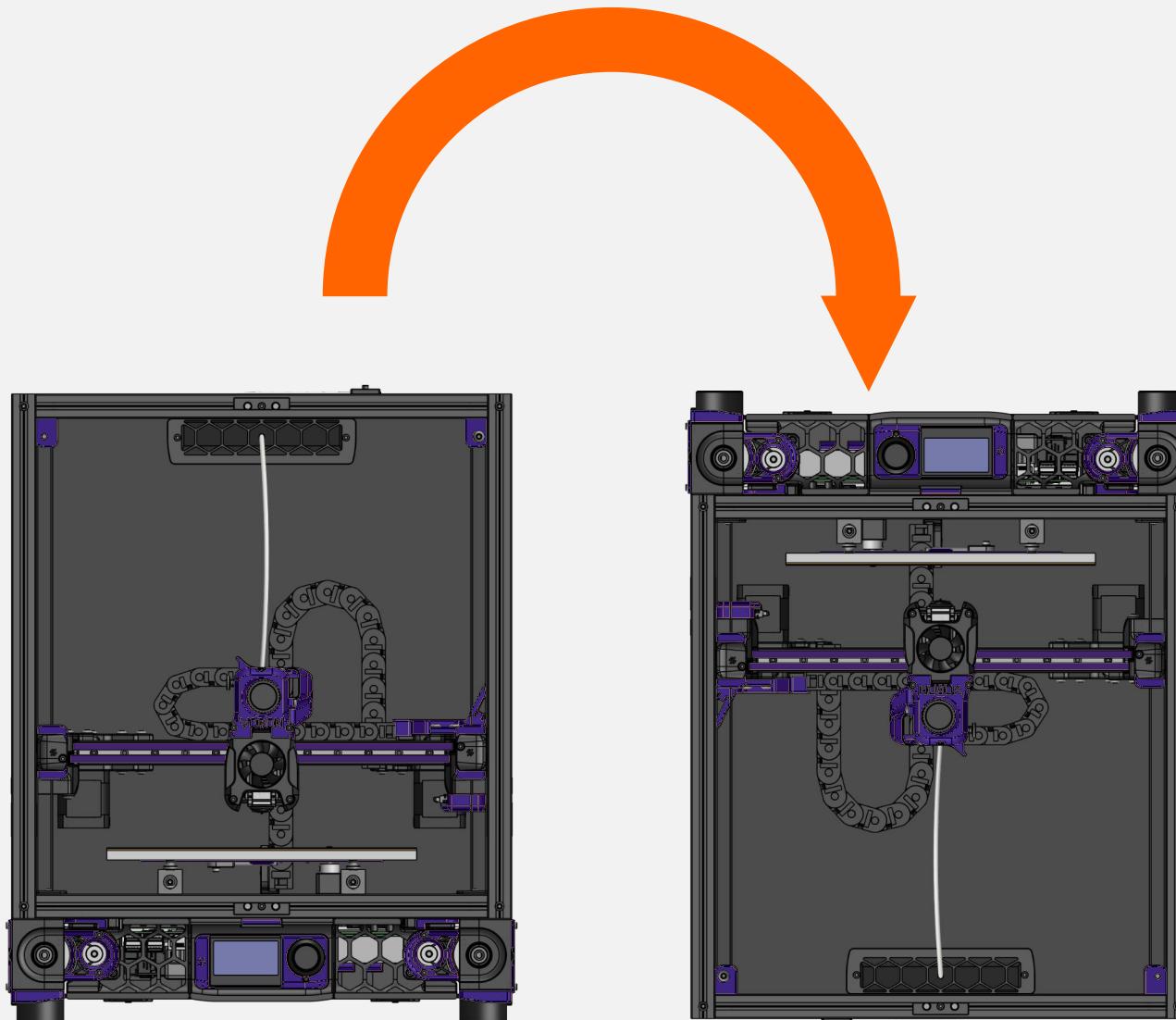
Do I need a Brim?

If you're not printing a material that warps such as ABS, ASA, PC then you don't need a brim, however if you are printing with ABS, ASA or PC you may benefit from a brim. If your printer has a heated chamber then its likely you wont need a brim for these parts although your mileage may vary!



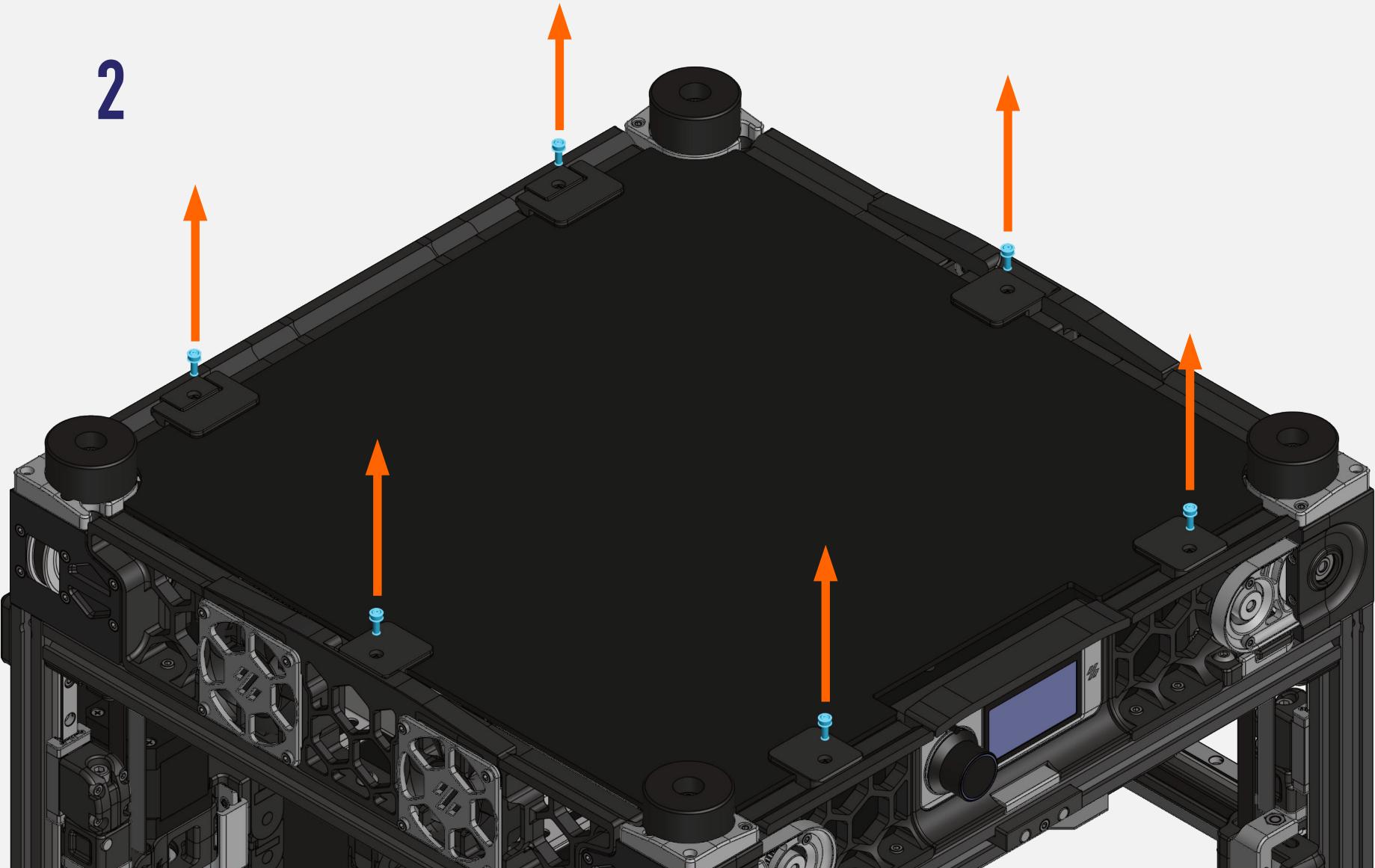
INSTALL PART 1 - ORIGINAL PART REMOVAL

1



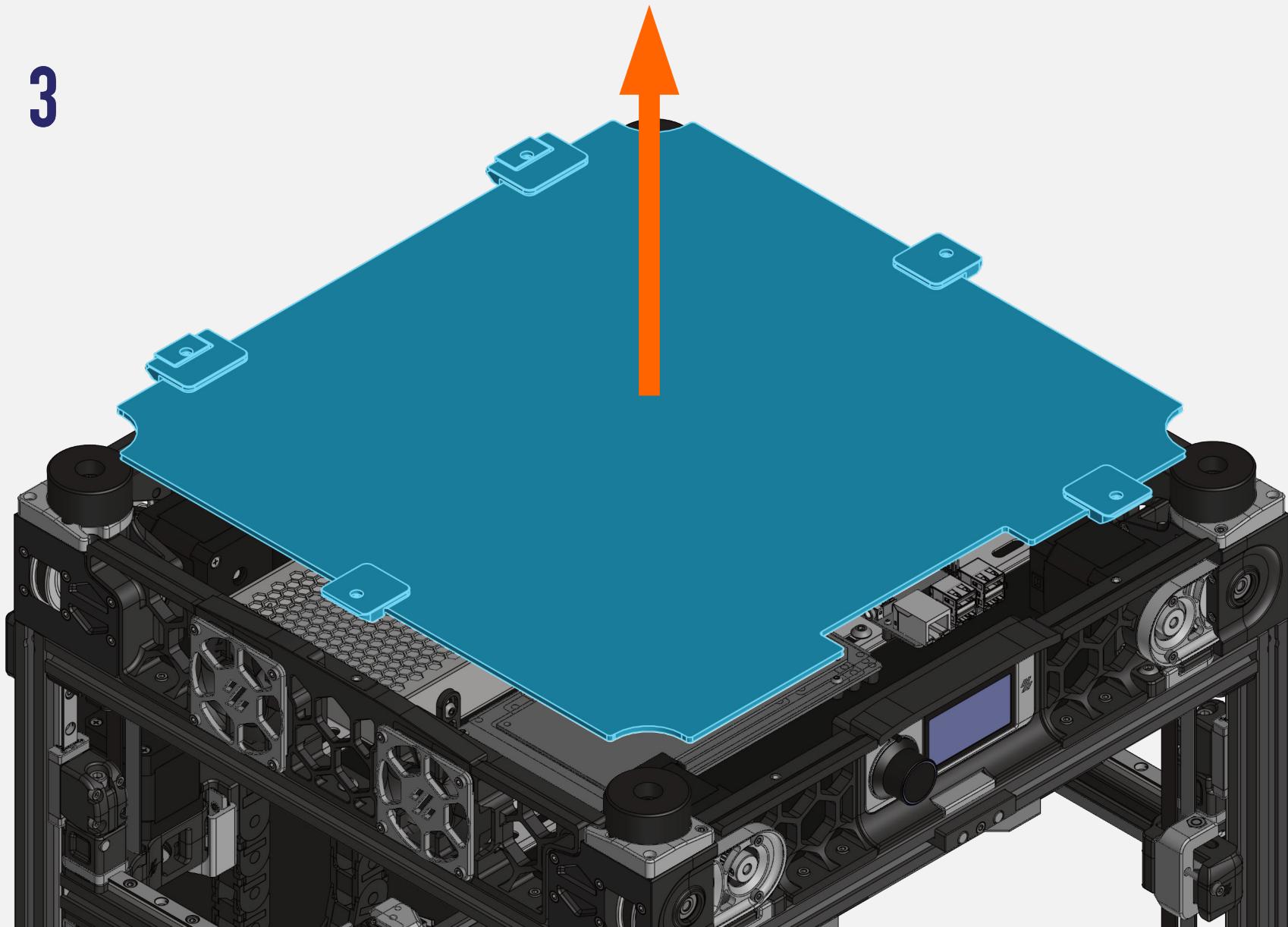
Place your Voron 2.4 upside down on a secure table or workbench.

2



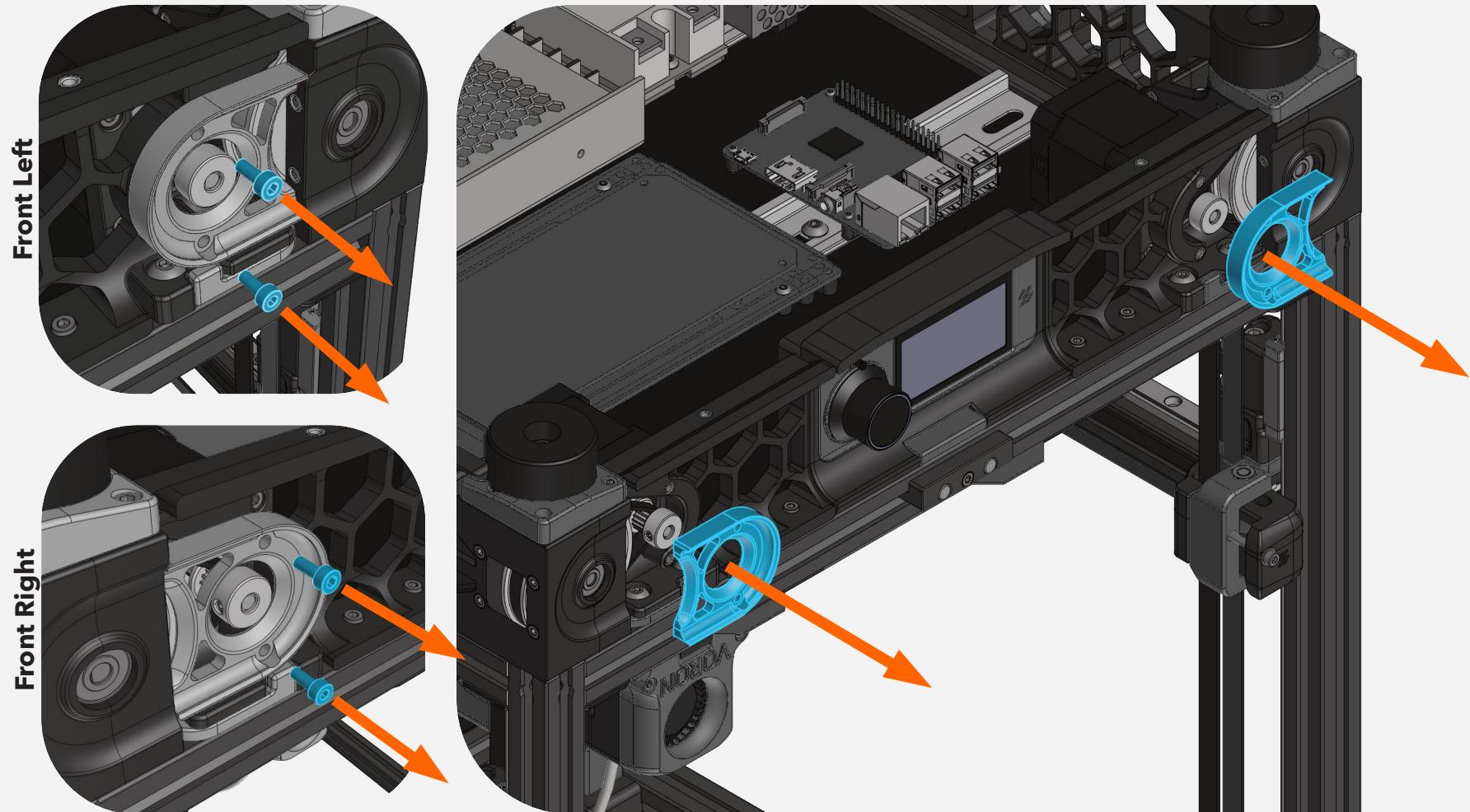
Remove all the screws from the bottom panel clips

3



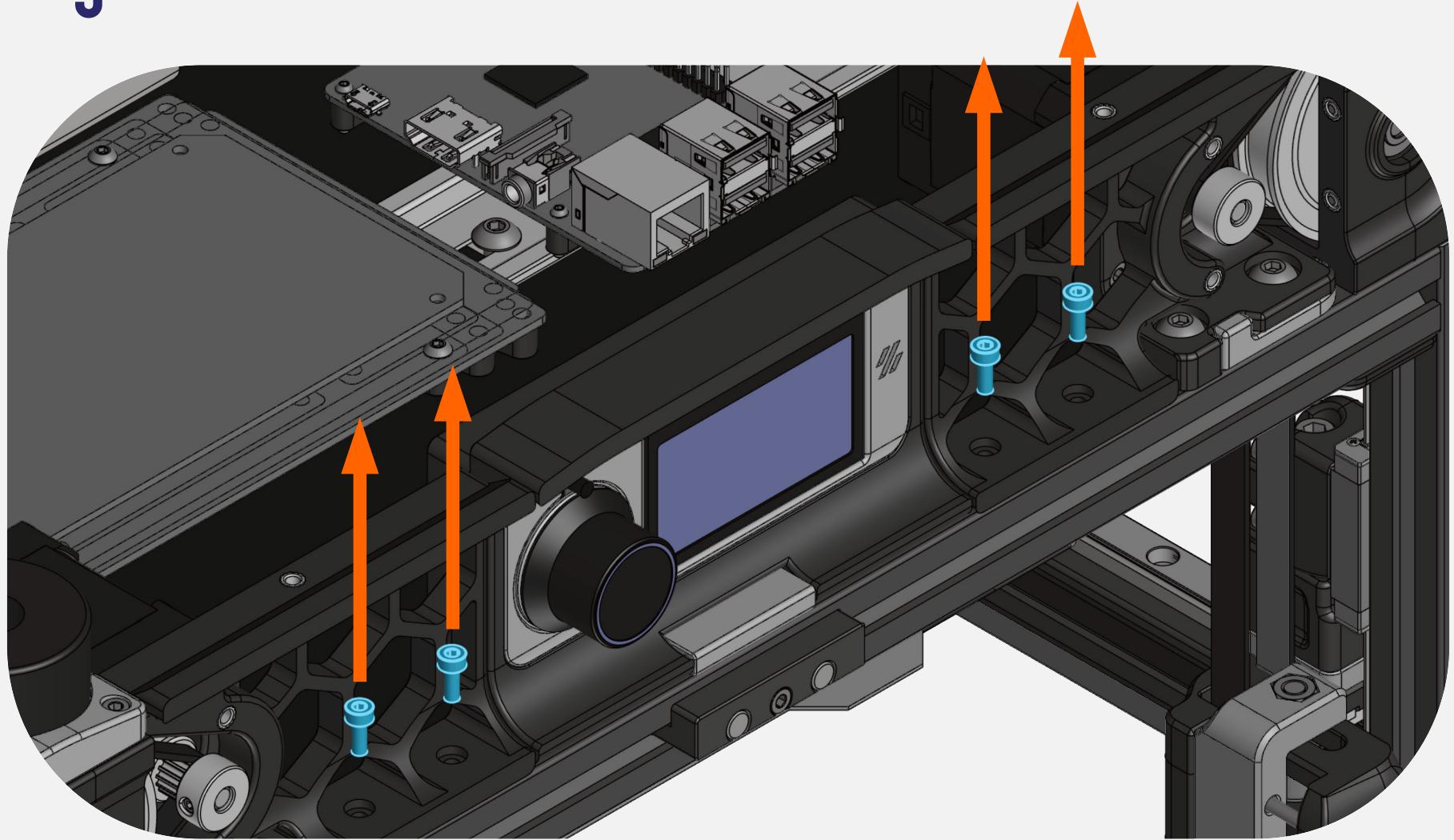
Remove the bottom panel. Your front panel clips might need to be removed separately if they are attached using VHB tape as you might need to move these during the install. All the other clips can remain in the same position.

4



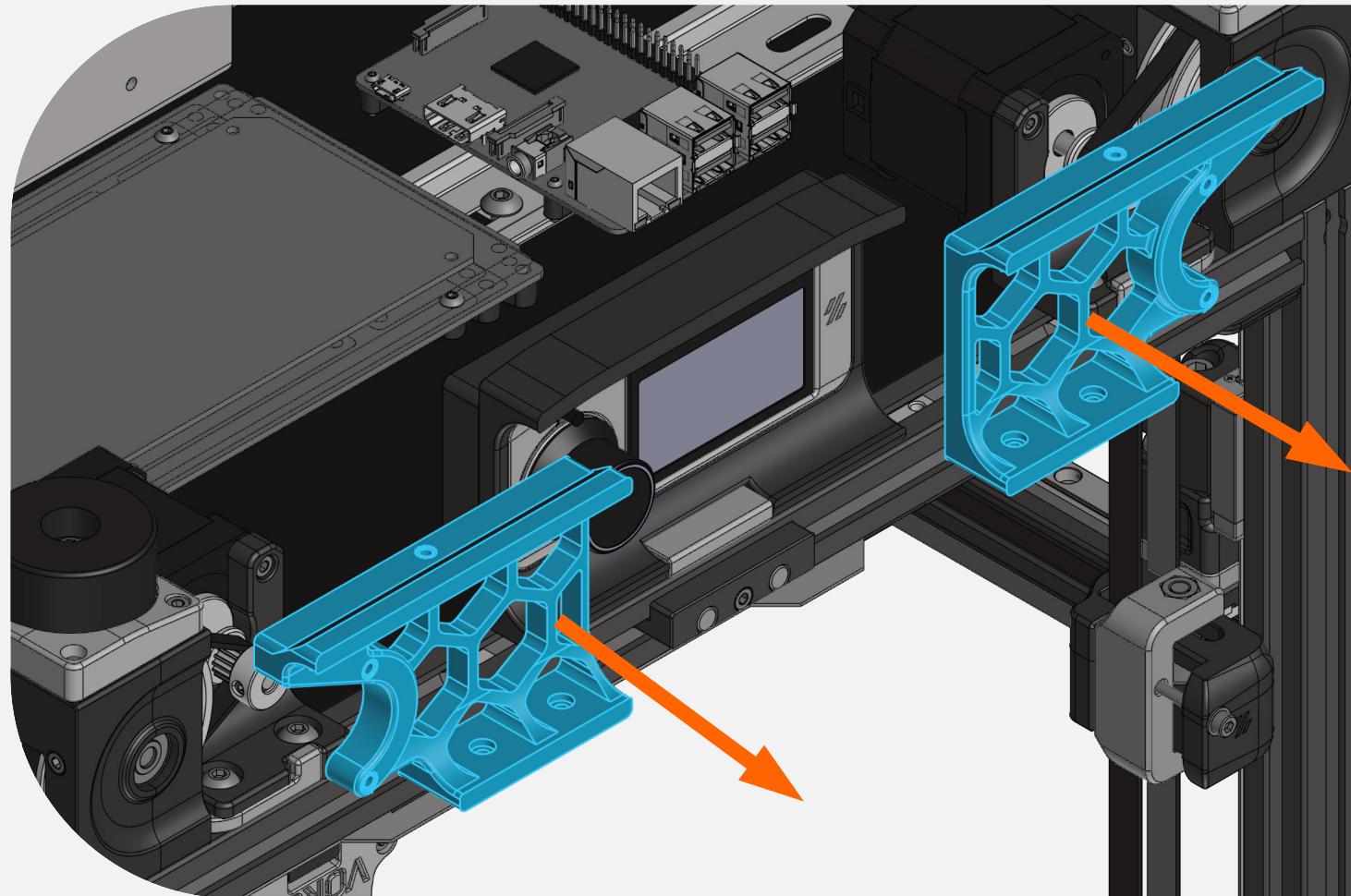
Remove the belt guard screws and the belt guards. Make sure you keep these parts, you'll need them later!

5



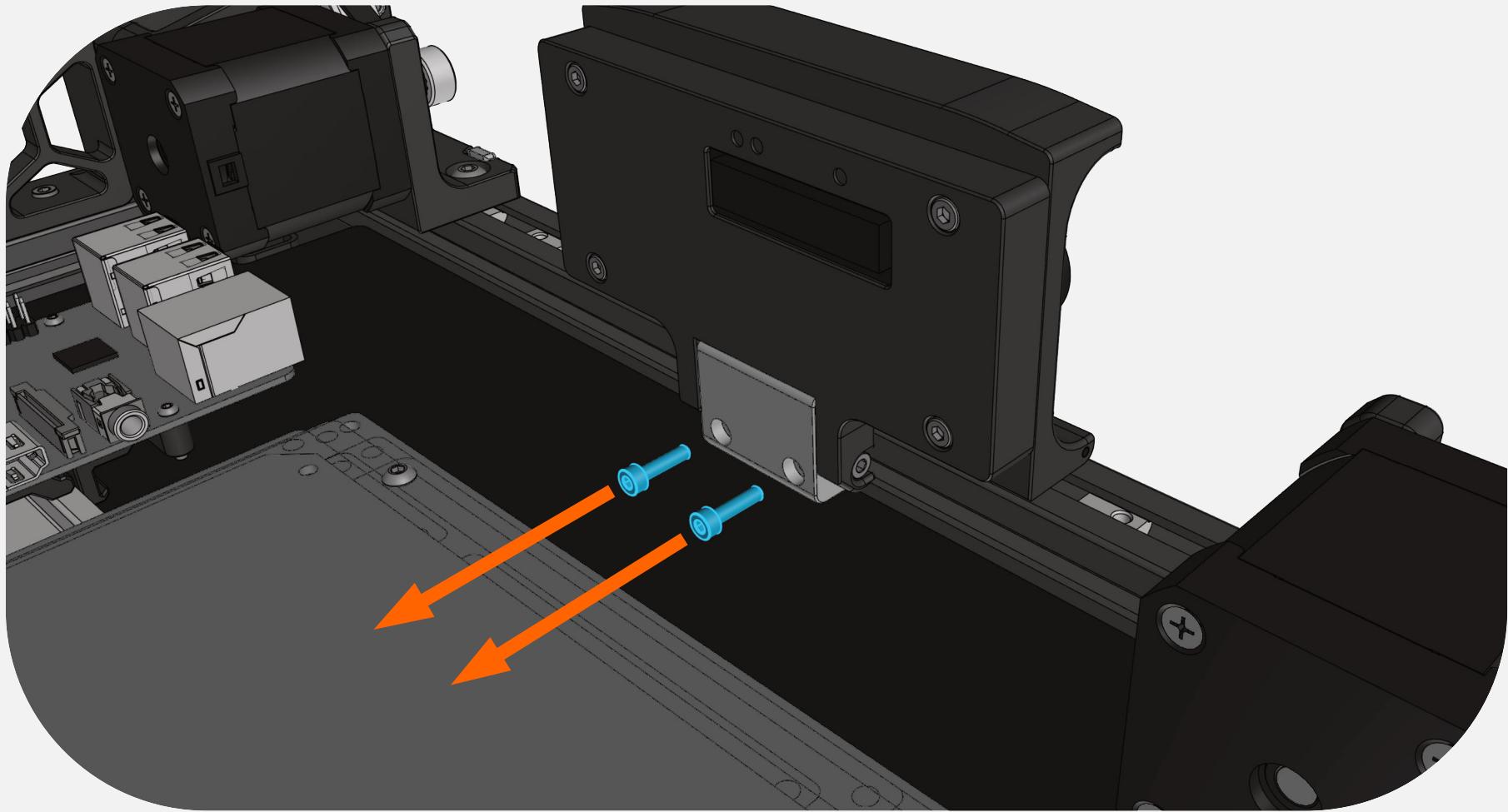
Remove the screws for the front left & right skirts.

6



Remove the front left & right skirts.

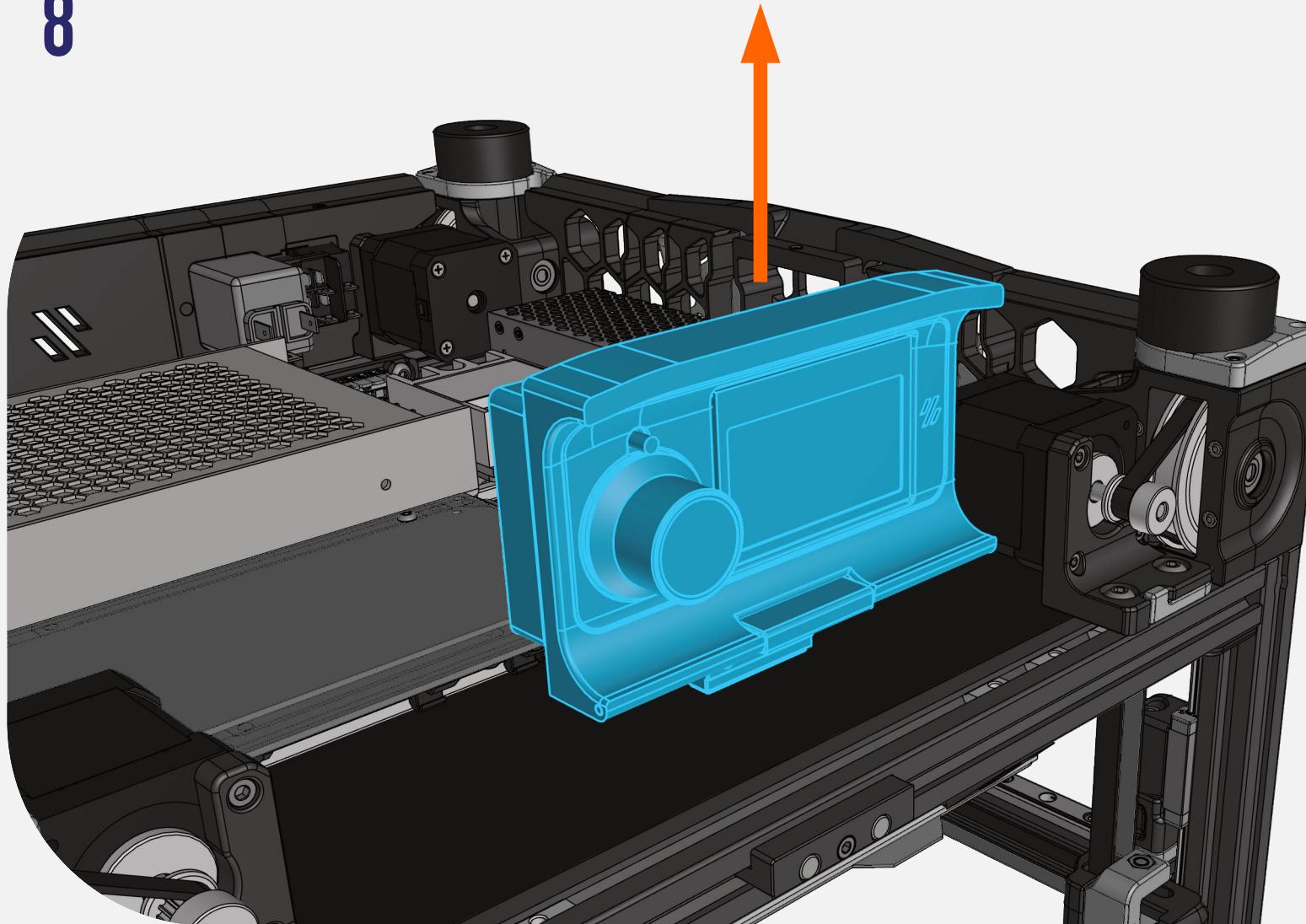
7



Unplug the display cable(s) from both the controller board and the display, then remove the screws for the display mount.

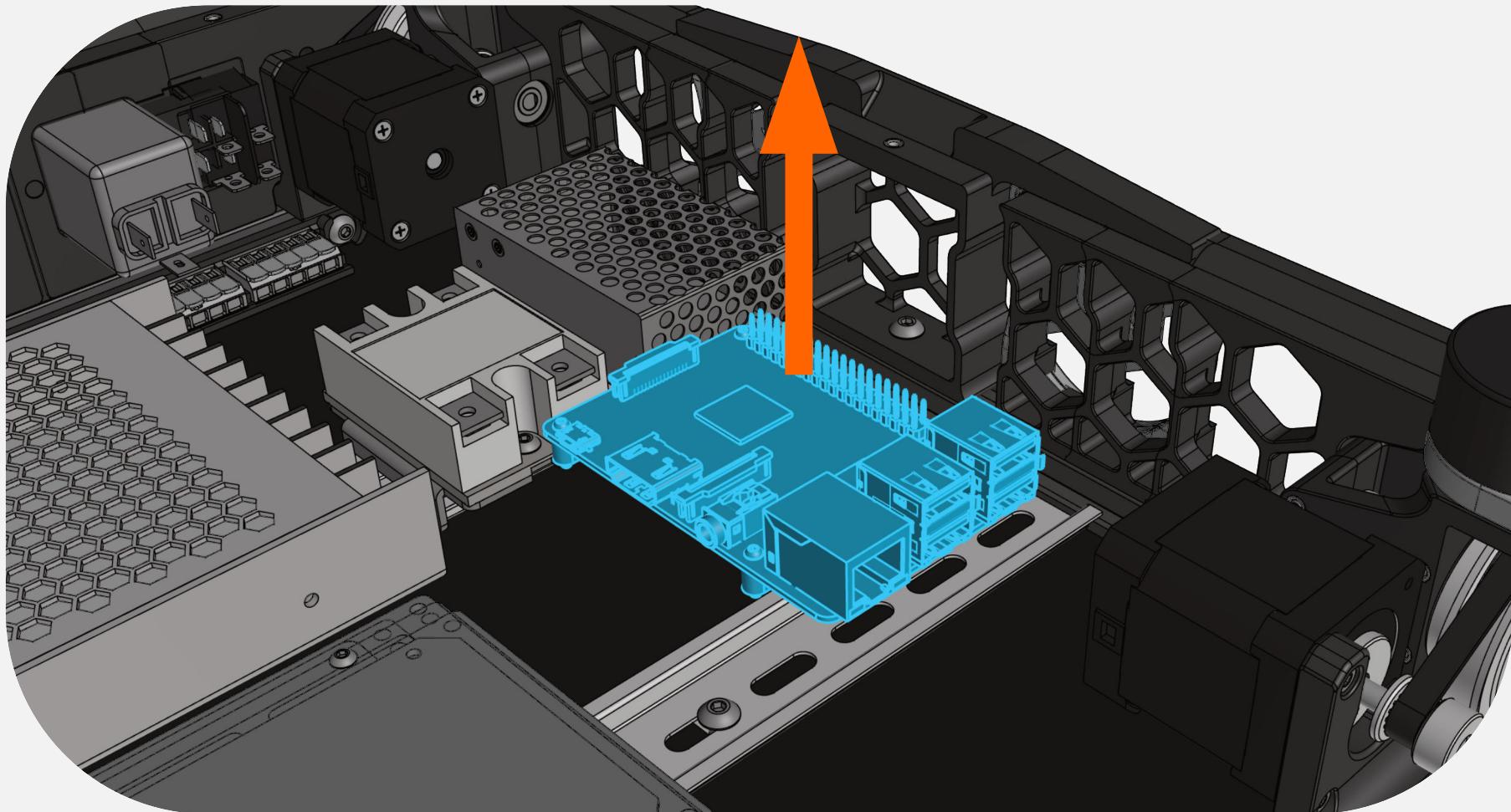
2.4r1 users please note, your display mount is slightly different than this, and you will need to tilt your screen to access them.

8



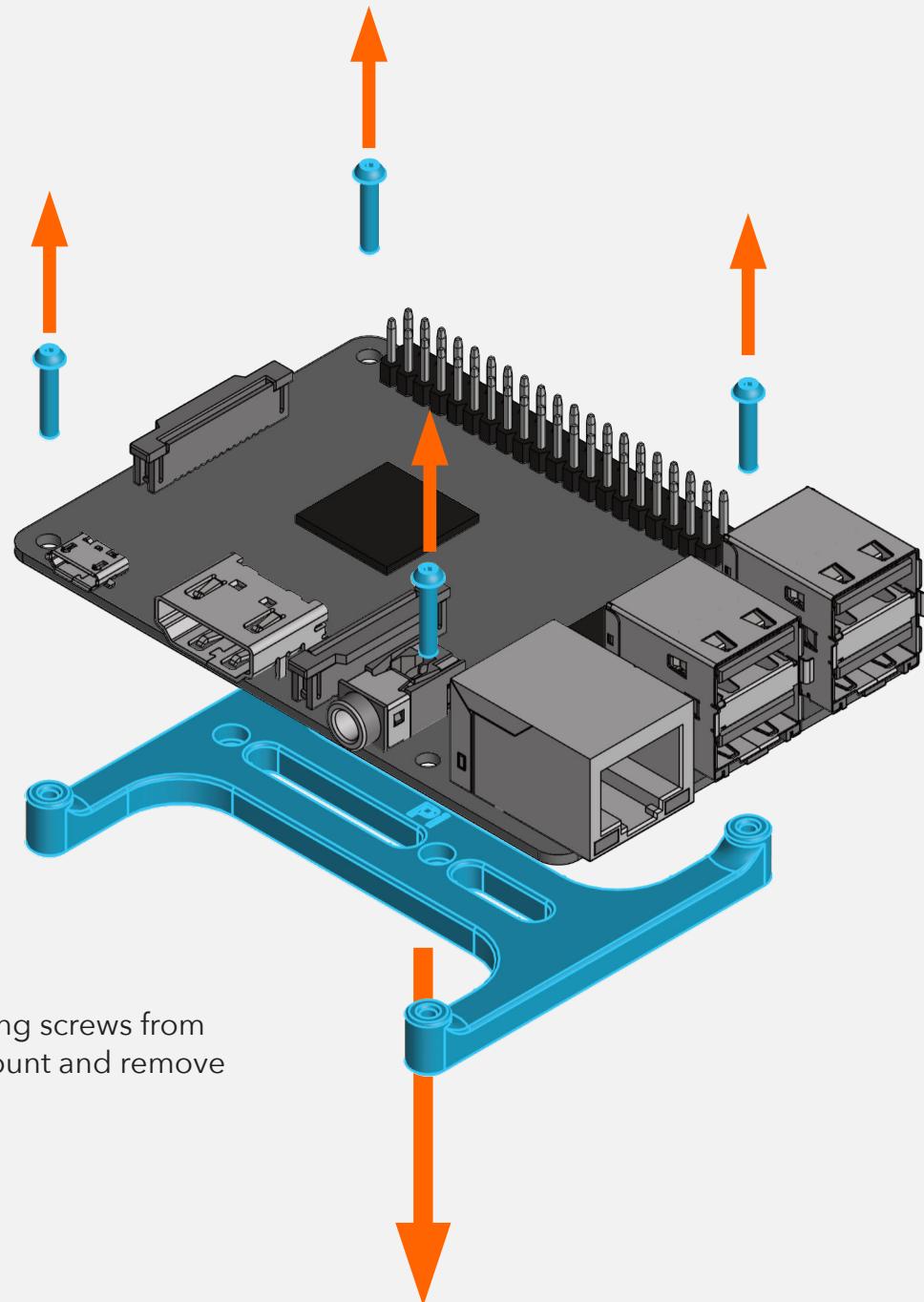
Remove the BTT Mini 12864 display and mount.

9



Unplug the all the cables from the Raspberry Pi & remove the Pi from the printer.

10



Remove the M2.5 self tapping screws from the Raspberry Pi DIN rail mount and remove the mount.



INSTALL PART 2 - HYPERPIXEL MOUNT

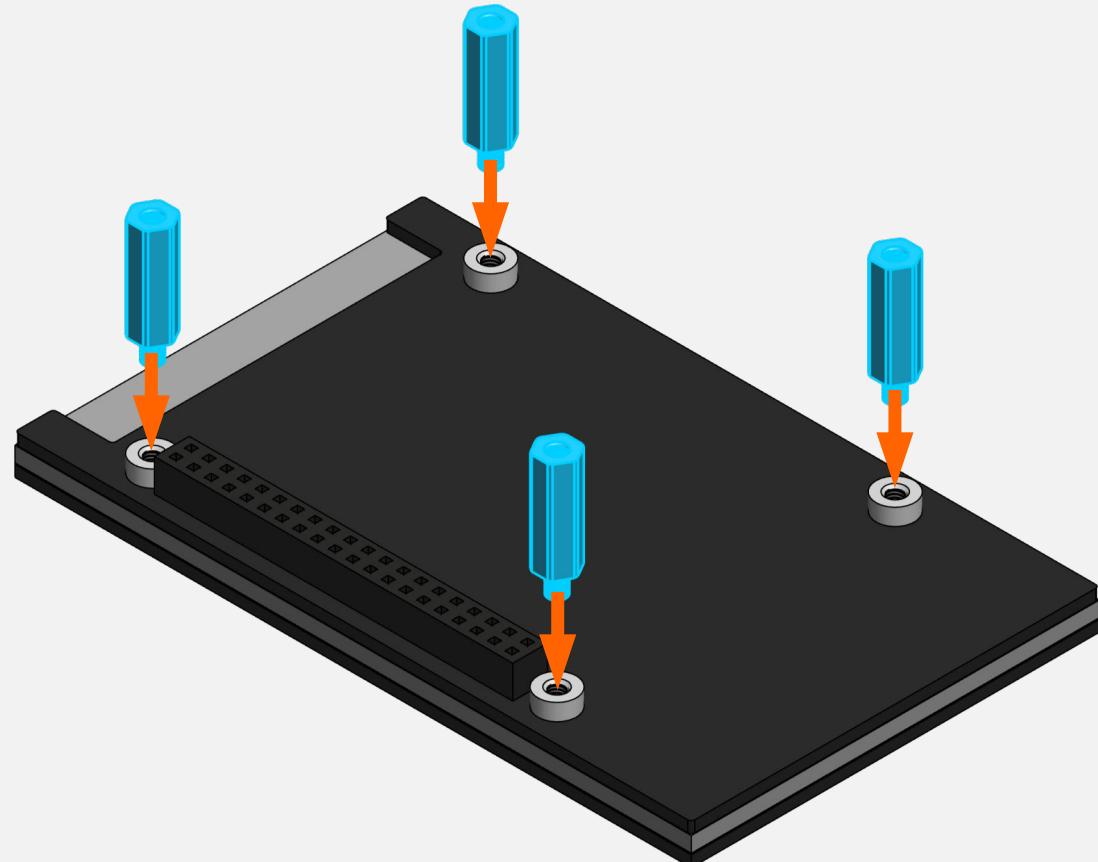
1

1. Place the Hyperpixel display facing down.

Make sure you place the display on a soft surface like a towel or cloth to avoid any damage/scratches to the display.

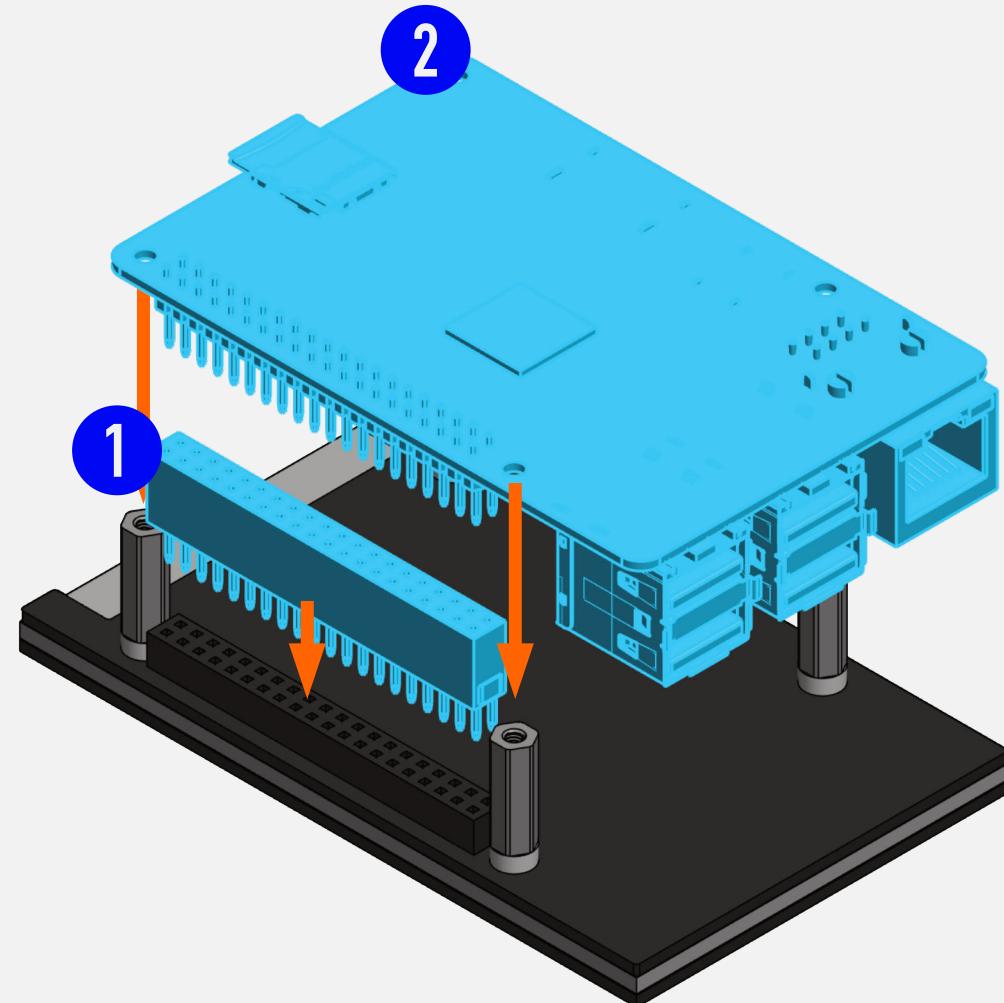
2. Screw in the M2.5 x 15mm standoffs into the mounting holes on the Hyperpixel display.

Do not apply any pressure to the display as this could damage it.

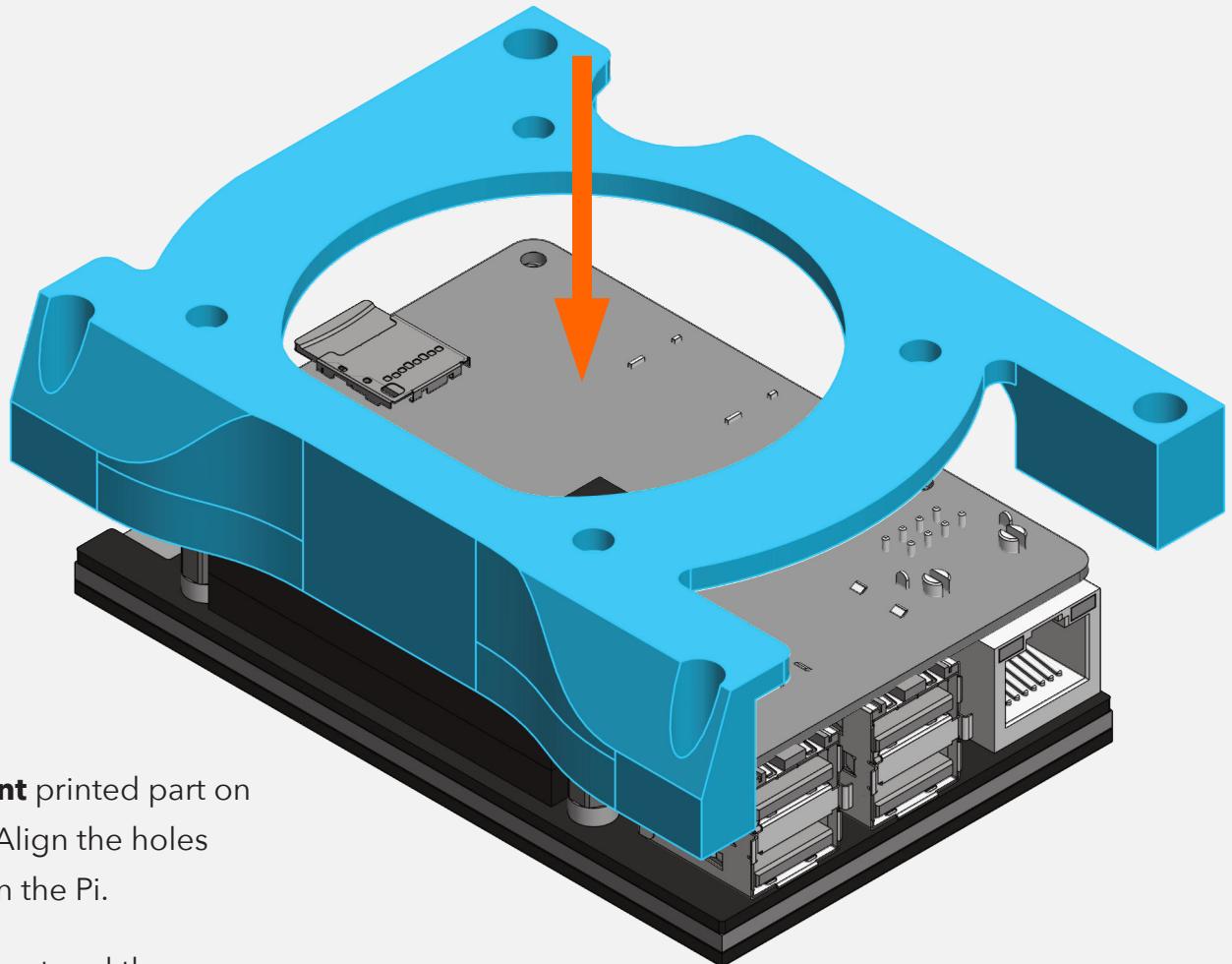


2

1. Place the GPIO Header into the GPIO pins on the Hyperpixel. Again, be careful not to apply too much pressure.
2. Place the Raspberry Pi into the GPIO Header. Do not apply too much pressure! You may need to wiggle the Pi into the GPIO header to avoid using force.



3



Place the **Screen Back - Pi Mount** printed part on to the back of the Raspberry Pi. Align the holes with the M2.5 mounting holes on the Pi.

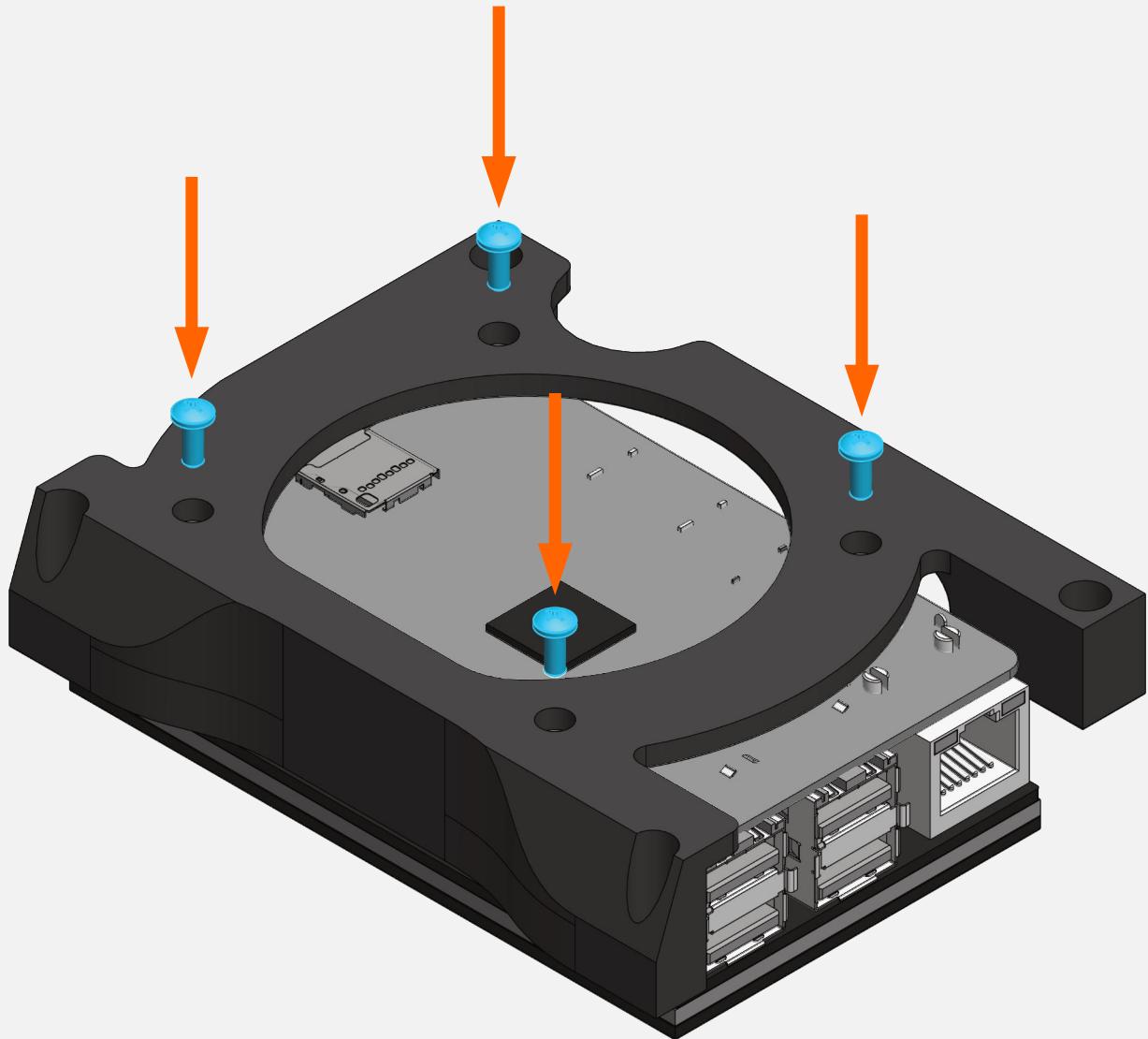
Ensure the orientation of the mount and the Raspberry Pi are as shown.

4

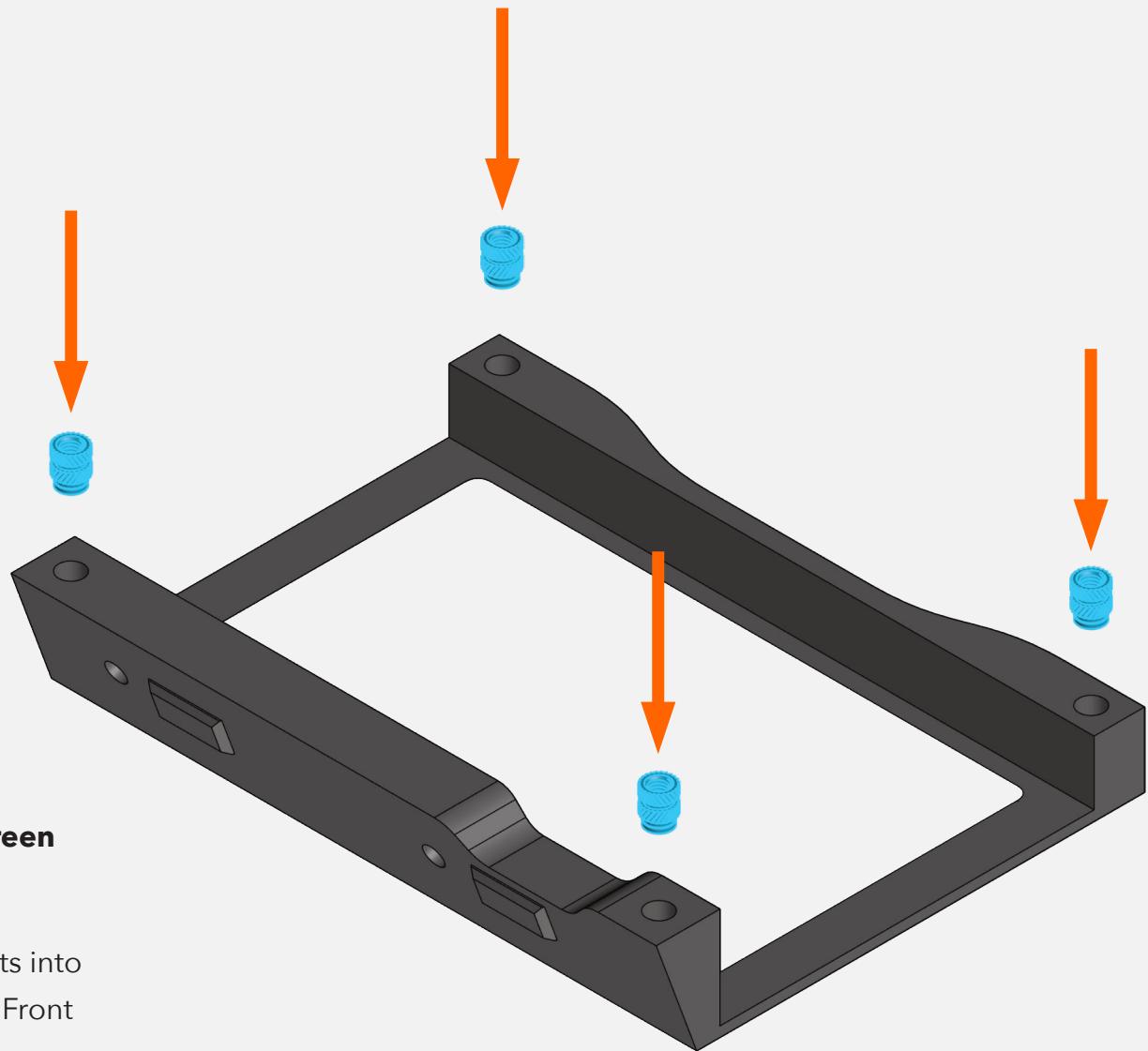
Secure the **Screen Back - Pi Mount** part with the M2.5 x 6 BHCS screws

Warning: Do not use the M2.5 Self Taping Screws from the Original DIN Mount, this will damage the M2.5 risers.

After you have completed this step, put this part to one side. You'll need it again in step 7.



5

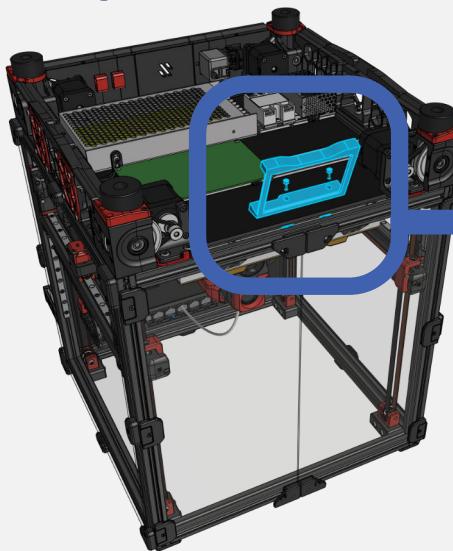


For this next step you'll need the **Screen**

Front Mount printed part.

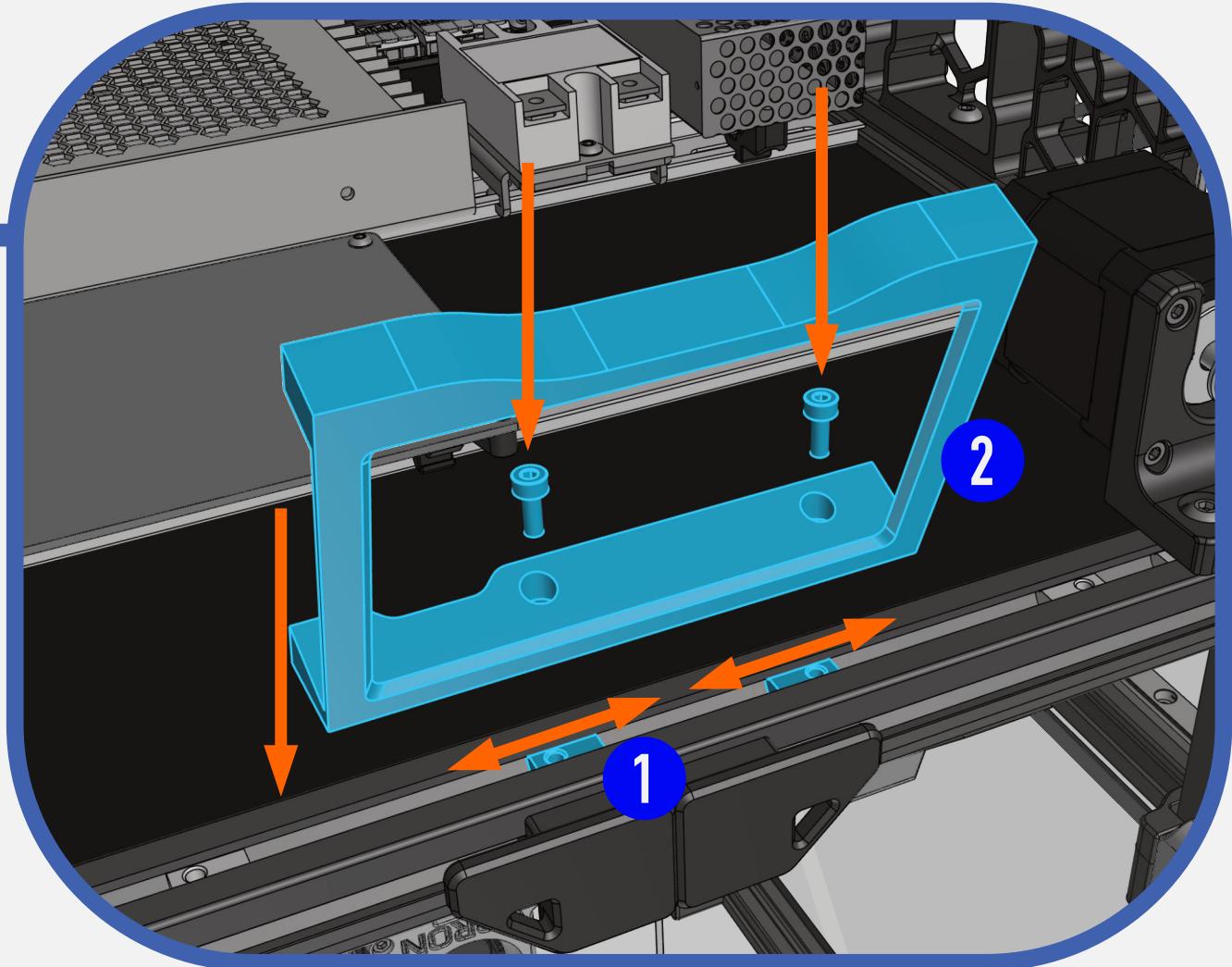
Insert the M3 x 5.7mm heat set inserts into the 4 mounting holes on the Screen Front Mount part.

6



1. Line up the M3 Nuts that are placed in extrusion. You should already have 2 of these from the previous display mount (1).

2. Place the **Screen Front Mount** and align with the M3 Nuts. Then secure with 2x M3 x 8 SHCS (again you should have these left over from the previous display).



(1) - **2.4r1** users will have M3 nuts placed in the correct part of the extrusion, **2.4r2** users, you will need to place 2 new M3 nuts or retrieve your old M3 nuts from the previous screen mount.

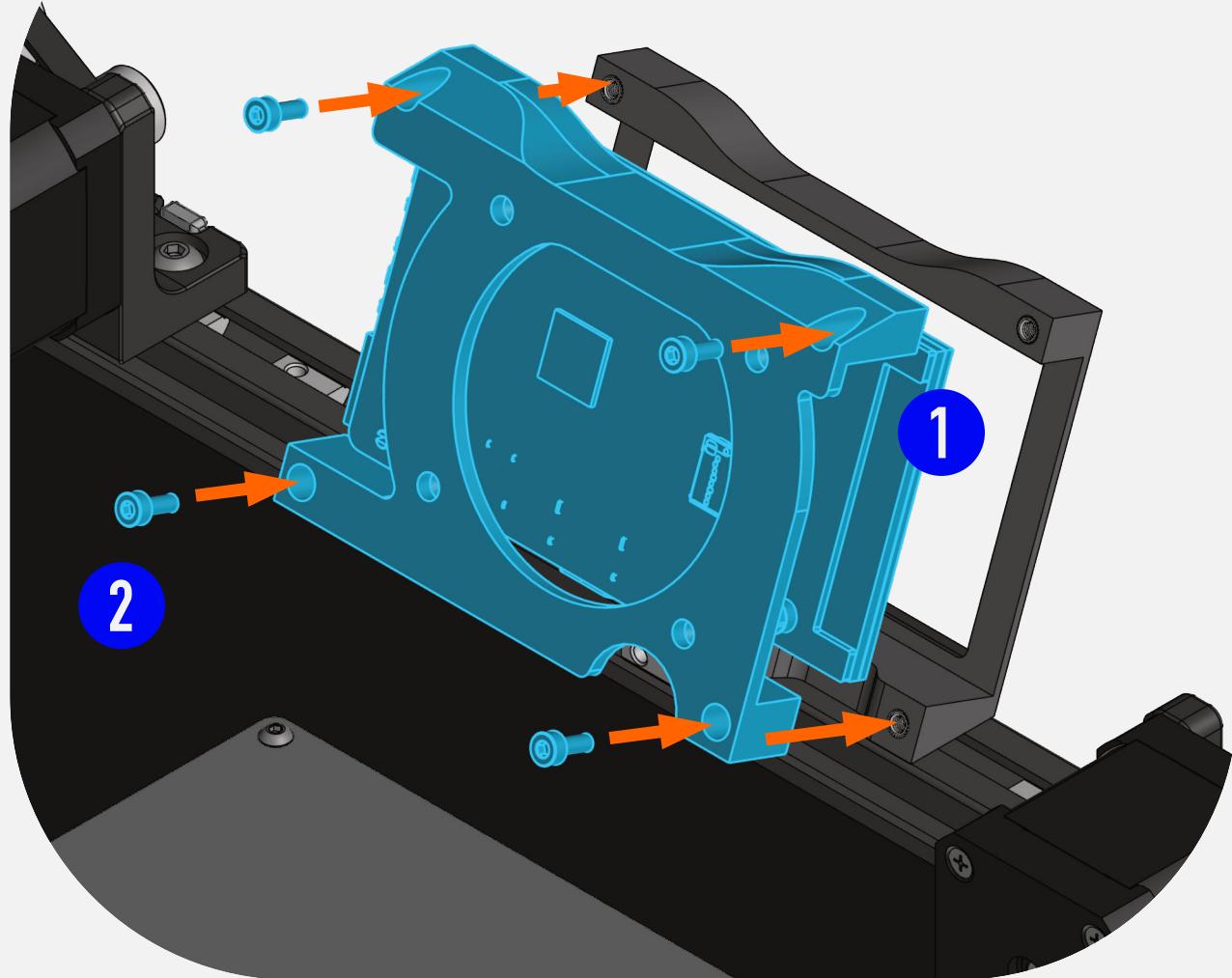
7

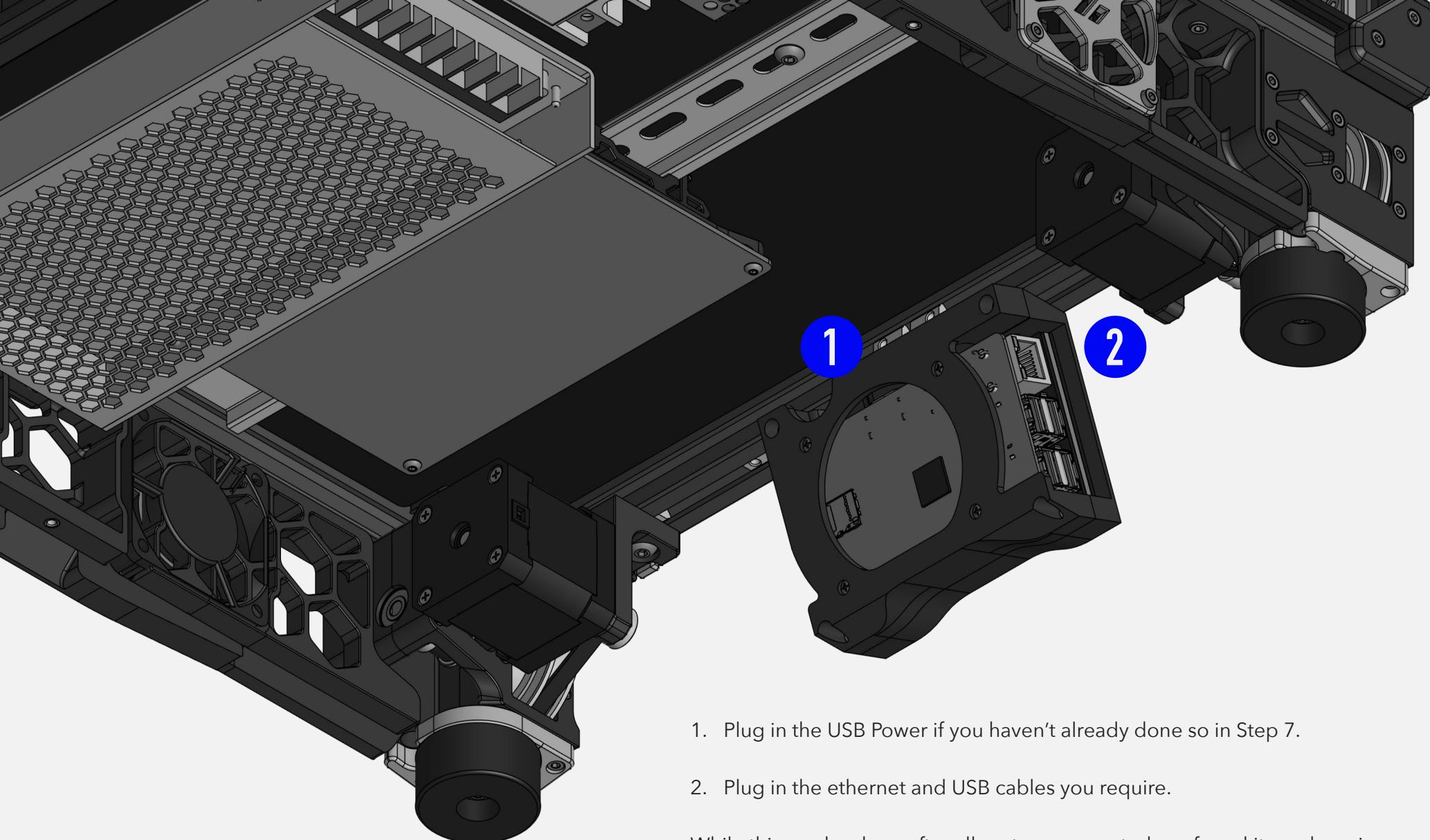
1. Align the completed Screen Back - Pi Mount part with the Screen Front Mount as show.
2. Secure with 4 x M3 x 8 SHCS.

TIP: You may find it easier to plug the USB power cable into the Raspberry Pi now due to its location when mounted.

Note: When mounting the Screen Back - Pi Mount part, you might find the Screen Front Mount is flimsy until all screws have been secured.

Raspberry Pi 4 Users: You can use a Right Angle USB C connector to make accessing the Pi's power easier.

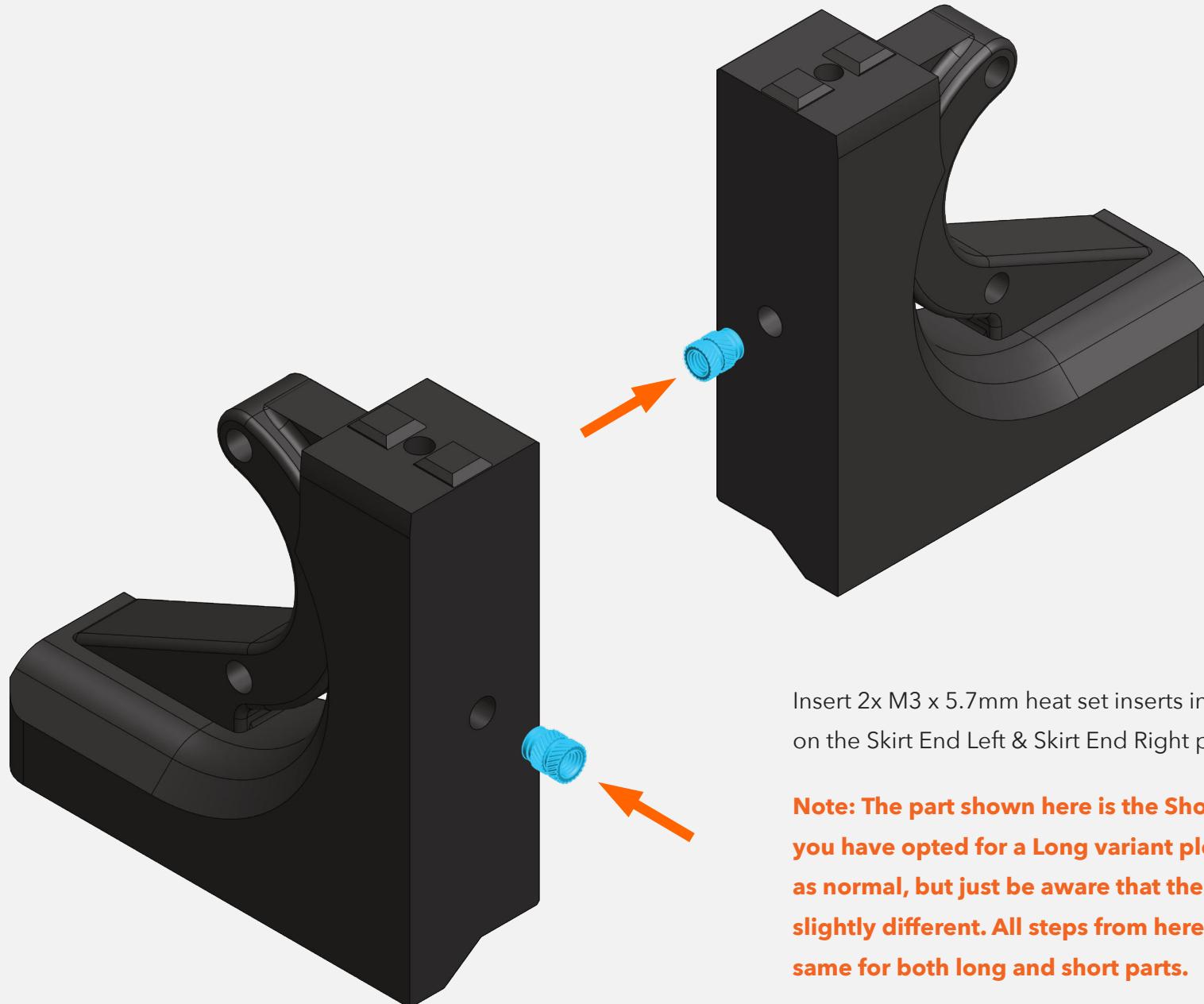




1. Plug in the USB Power if you haven't already done so in Step 7.
2. Plug in the ethernet and USB cables you require.

While this can be done after all parts are mounted, we found it much easier to do it as this stage.

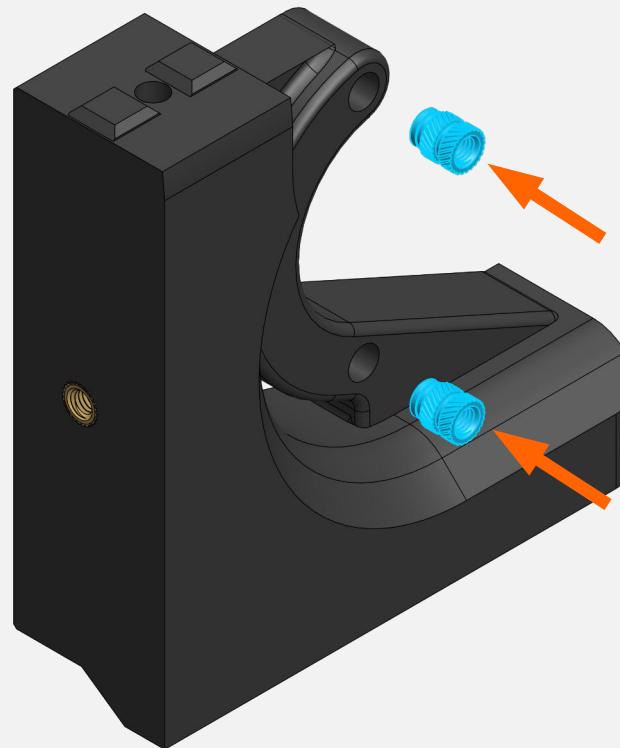
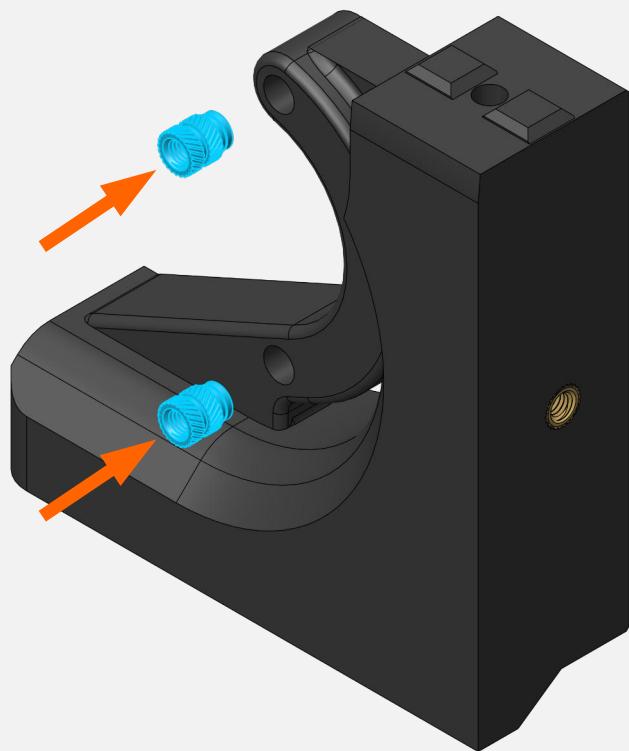
9



Insert 2x M3 x 5.7mm heat set inserts into side holes on the Skirt End Left & Skirt End Right parts.

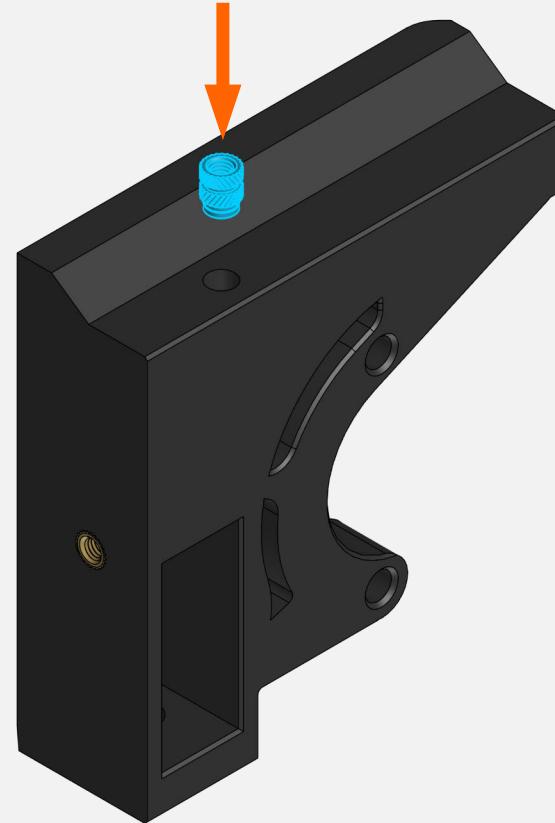
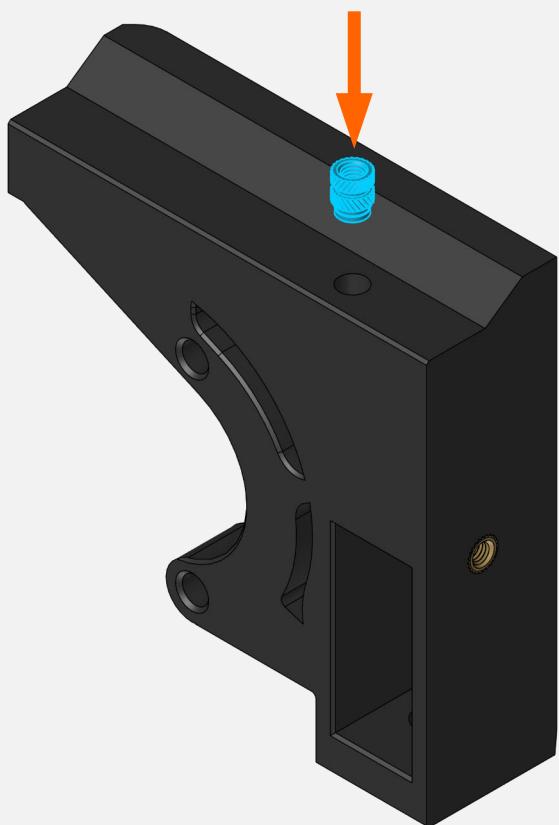
Note: The part shown here is the Short version, if you have opted for a Long variant please continue as normal, but just be aware that the parts will look slightly different. All steps from here will be the same for both long and short parts.

10



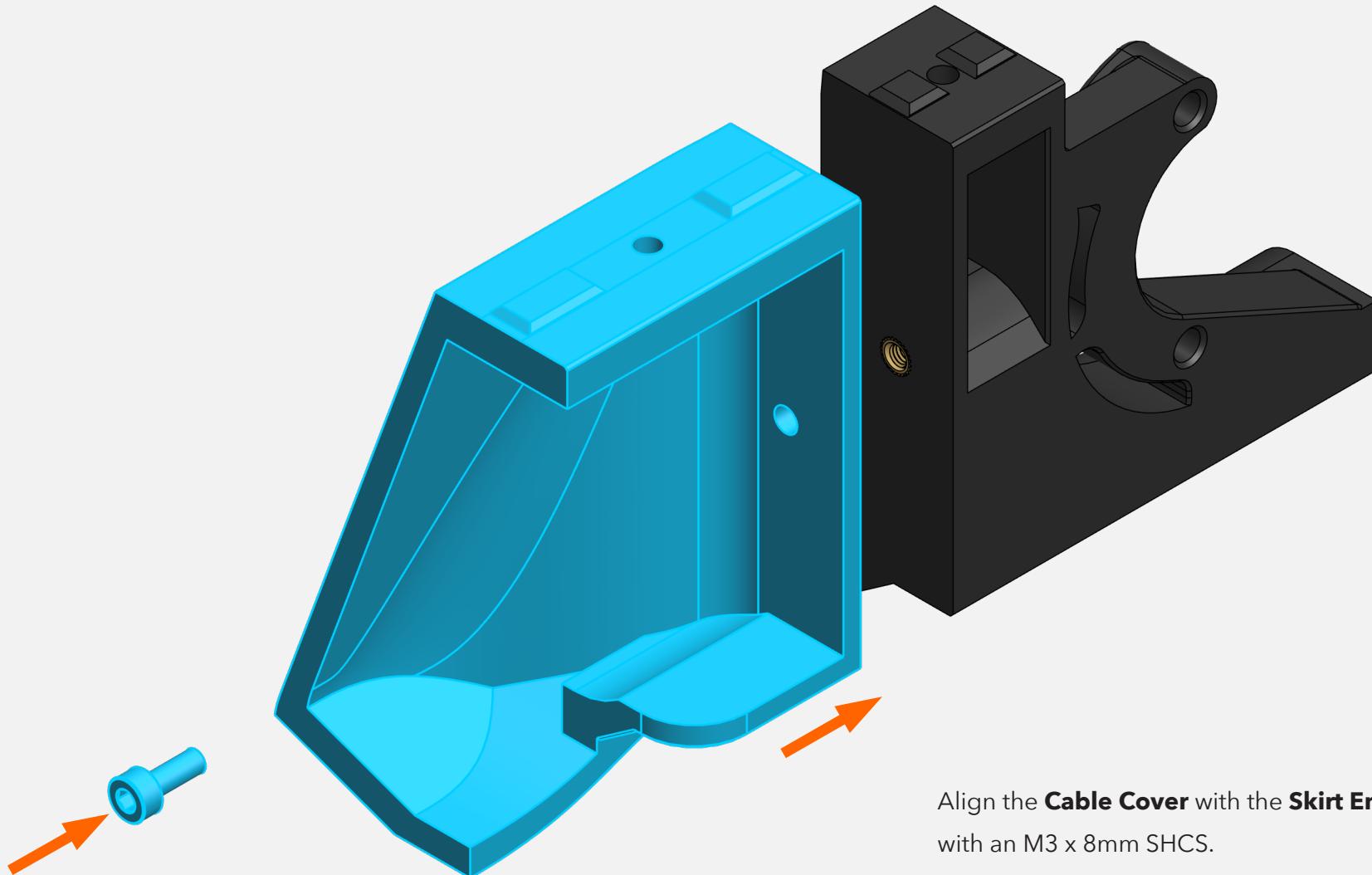
Insert 4x M3 x 5.7mm heat set inserts into the belt guard mounting holes.

11



Insert 2x M3 x 5.7mm heat set inserts into the bottom panel mounting holes.

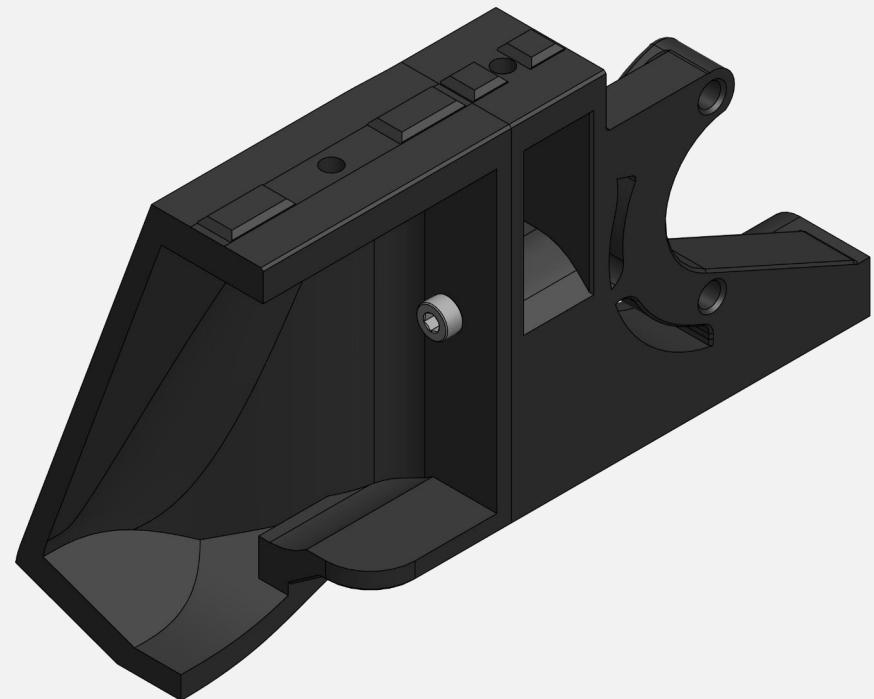
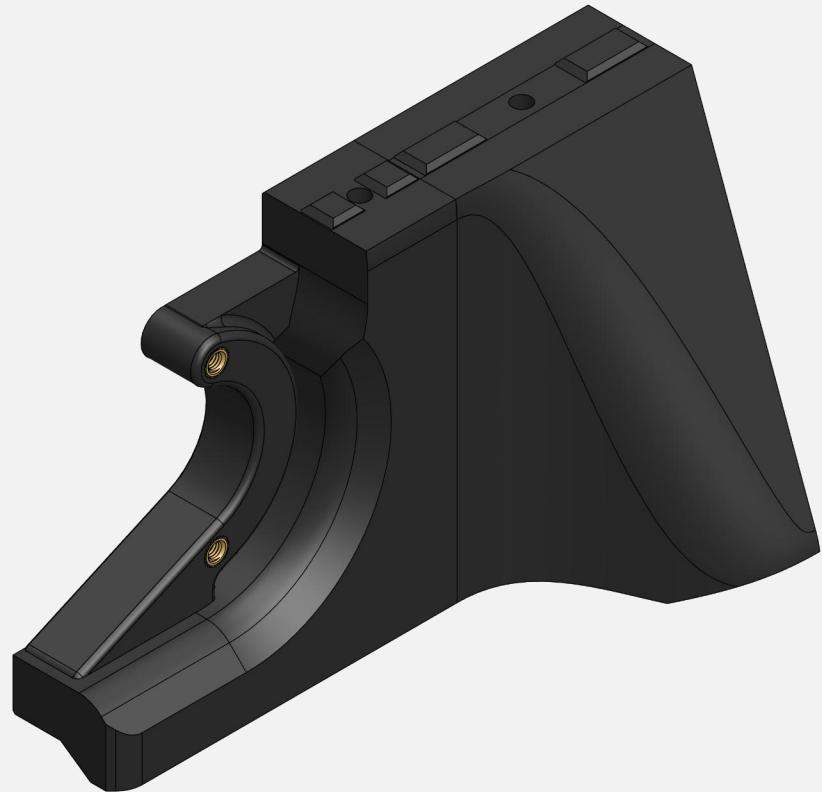
12



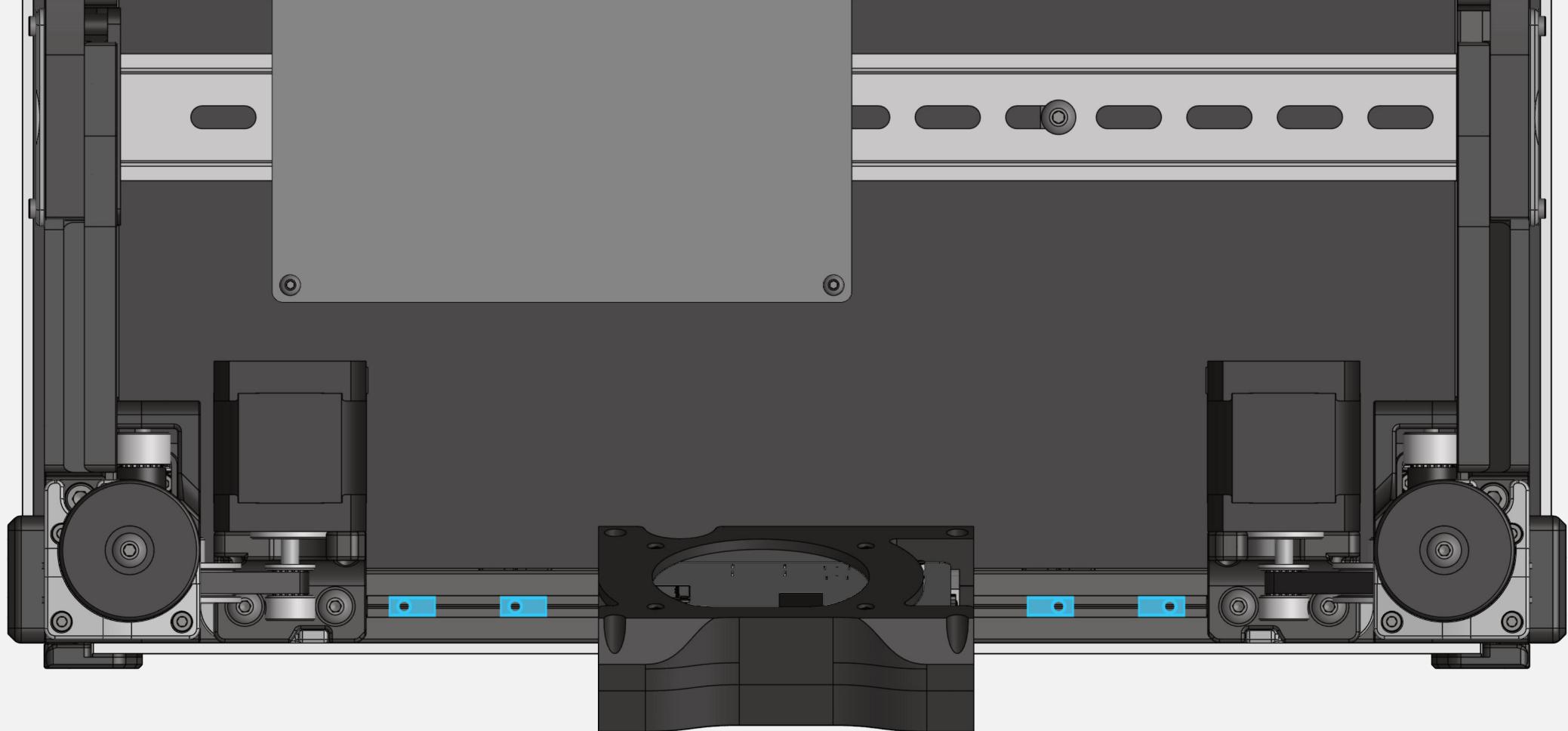
Align the **Cable Cover** with the **Skirt End** and secure with an M3 x 8mm SHCS.

Ensure you repeat this step for both sides.

13

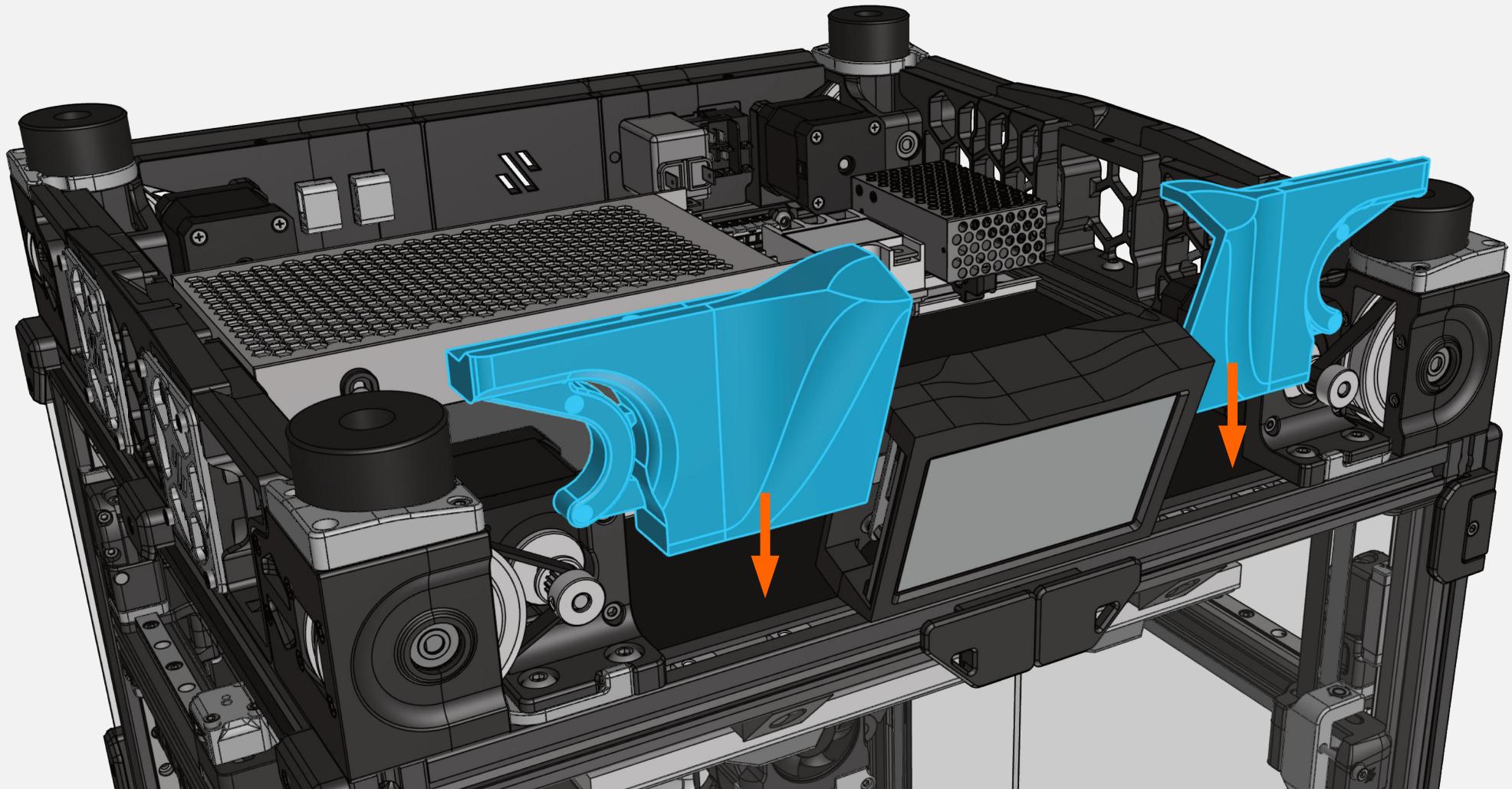


The finished skirt will look something similar to this .

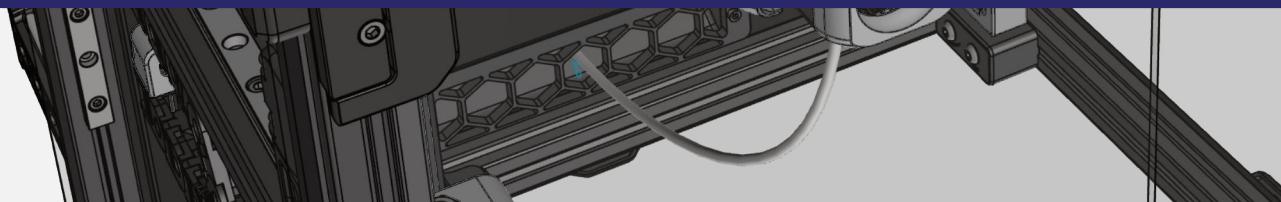


Place 4x M3 T-Slot nuts in the bottom extrusion. Locations shown are approximations. 300 & 350mm users will need to use the finished part in step 13 to guide the placement of the nuts.

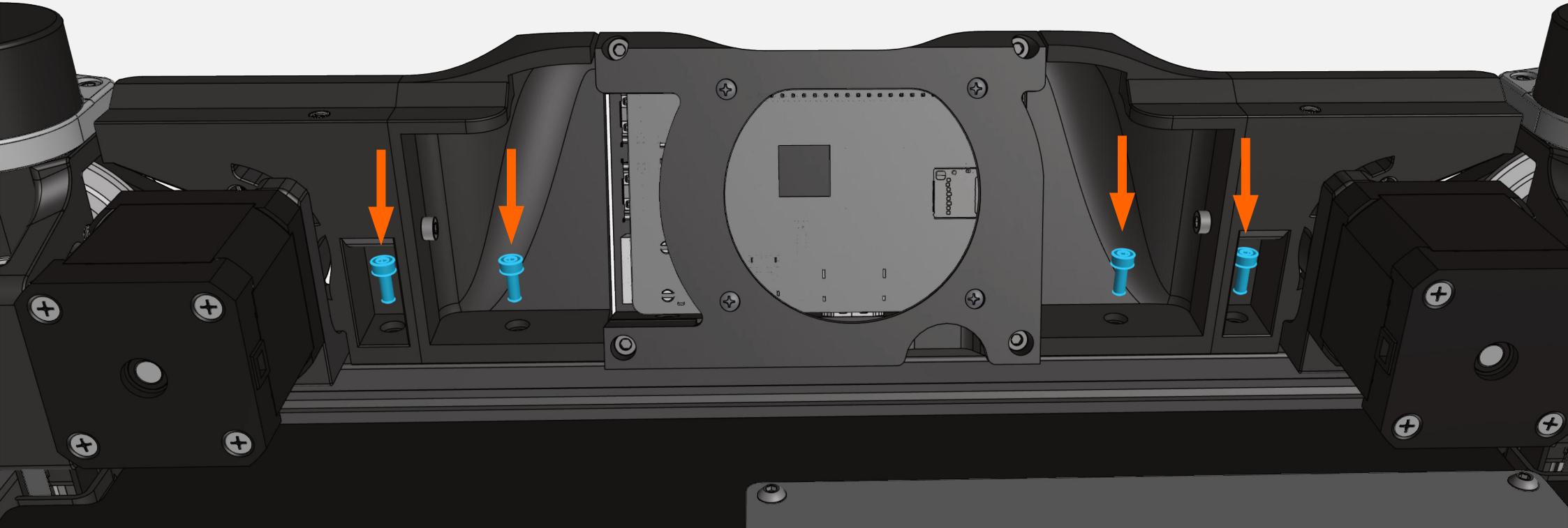
15



Position the finished skirt parts on the right and left of the installed Hyperpixel screen as show.

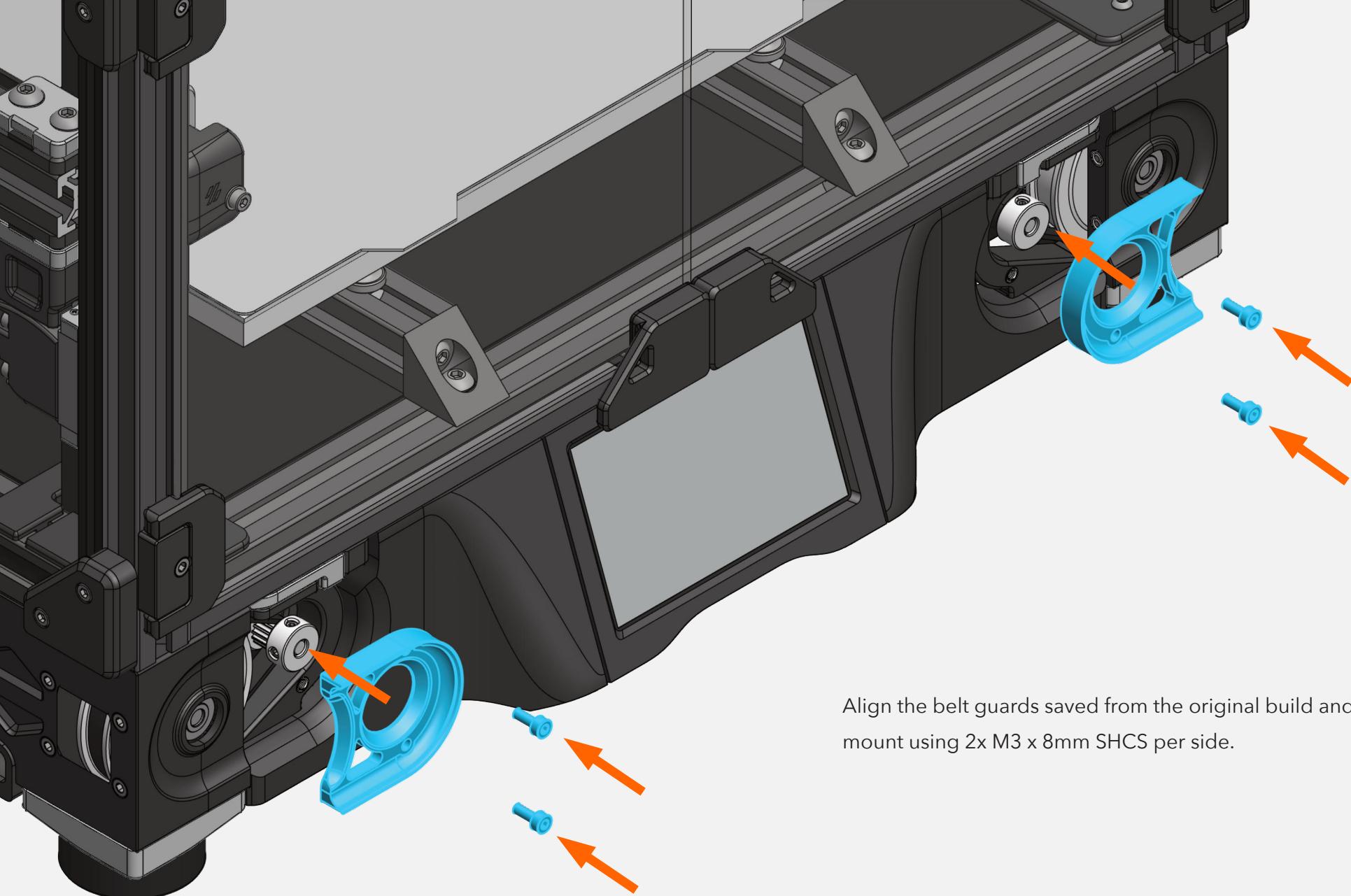


16

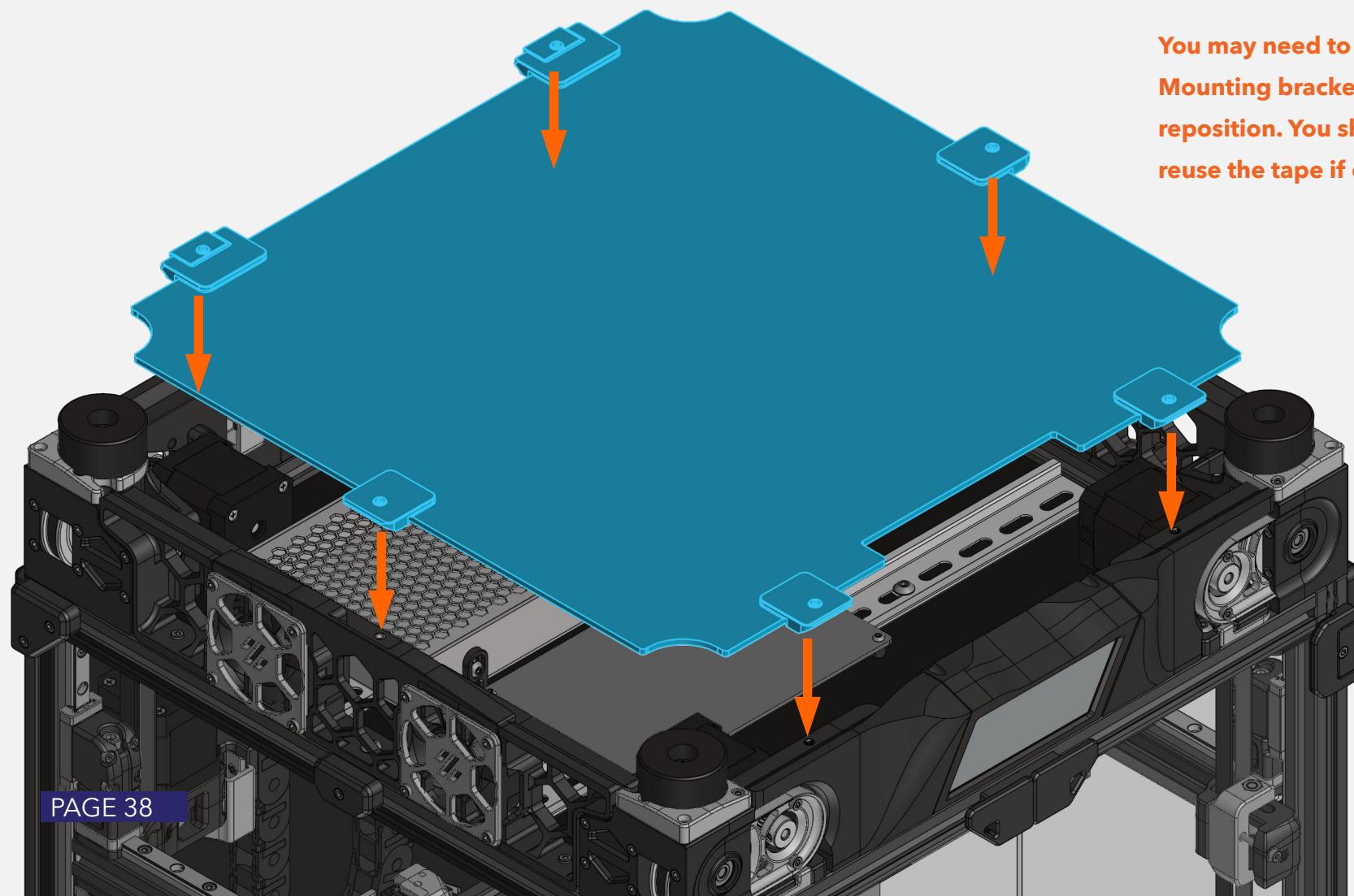


Secure the front skirt with 4x M3 x 8mm SHCS. Locations will vary depending on Voron Size.

You might need an Allen Key with a Ball-End to access the M3 screws in the End Skirt Parts.



Align the belt guards saved from the original build and mount using 2x M3 x 8mm SHCS per side.

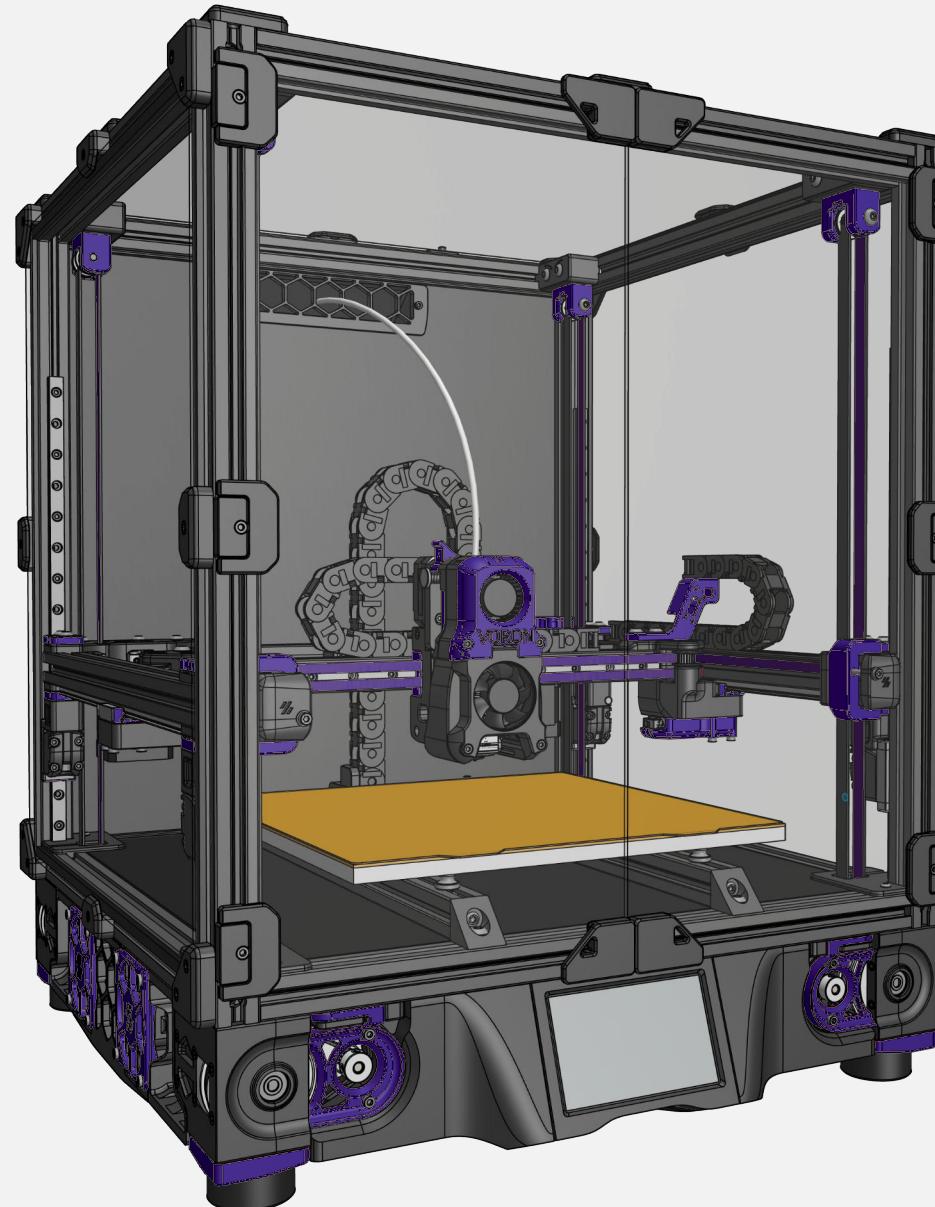


Mount the bottom panel as shown.
Please note, your mounting hole
position at the front of the machine may
have changed.

**You may need to remove the
Mounting brackets & VHB tape and
reposition. You should be able to
reuse the tape if careful.**

Step back and enjoy the magnificence of a new screen and aesthetic for your printer.

***But hang on, the fun isn't over,
we need to configure the
Hyperpixel for Klipper Screen!***



```
ssh pi@yourpiaddress
```

3. Navigate to `/boot/config.txt` file

- Using the following command, navigate to the `/boot/config.txt` file.

```
sudo nano /boot/config.txt
```

4. Add the following items to the config file

- Add the following items to the bottom of your `config.txt` file

```
dtoverlay=vc4-kms-dpi-hyperpixel4
```

```
dtparam=rotate=90,touchscreen-swapped-x-y,touchscreen-inverted-y
```

5. Save the changes

INSTALL PART 3 – HYPERPIXEL CONFIGURATION

For the latest Hyperpixel Pi installation for Klipper Screen, please go to our [GitHub Repo for this project](#).

Details can be found in the main Repo Readme.

Any issues installing the Hyperpixel? Let us know by emailing **info@printup.xyz**

ACKNOWLEDGEMENTS

Thank you to the Voron Design Team for designing such awesome printers! You guys rock 🤘 🎉

<https://vorondesign.com/>

Thanks to Pimoroni for making this awesome screen! Go check them out for more Raspberry Pi and maker goodness 🎊

<https://shop.pimoroni.com/>

Thanks to the people at Klipper Screen!

<https://klipperscreen.readthedocs.io/en/latest/>

CONTRIBUTING

We would love anyone to contribute to this project, from design variants to cable clips, make it yours!