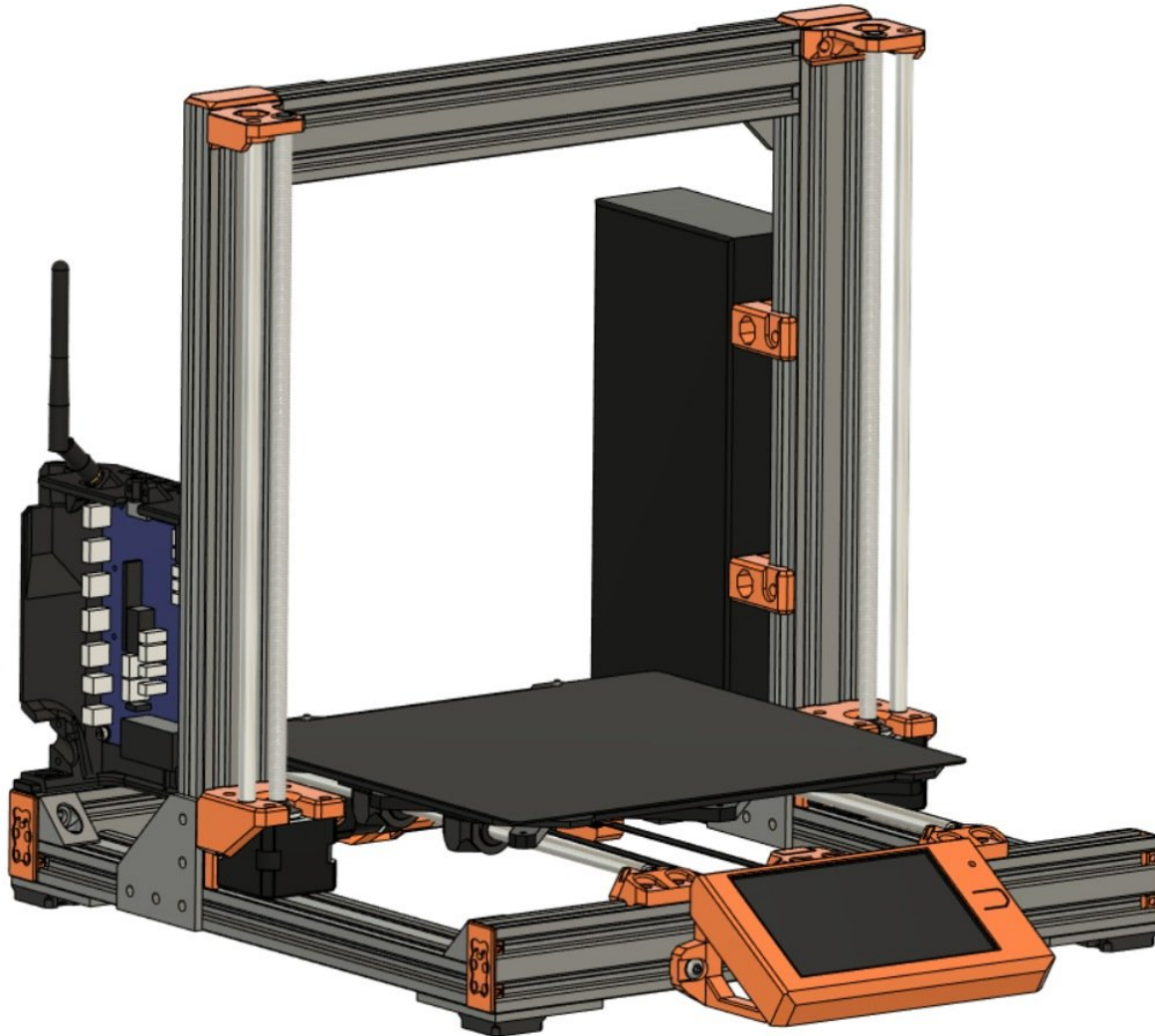


Bear Lab

1. Hardware Assembly

Written By: Florian Daeubler

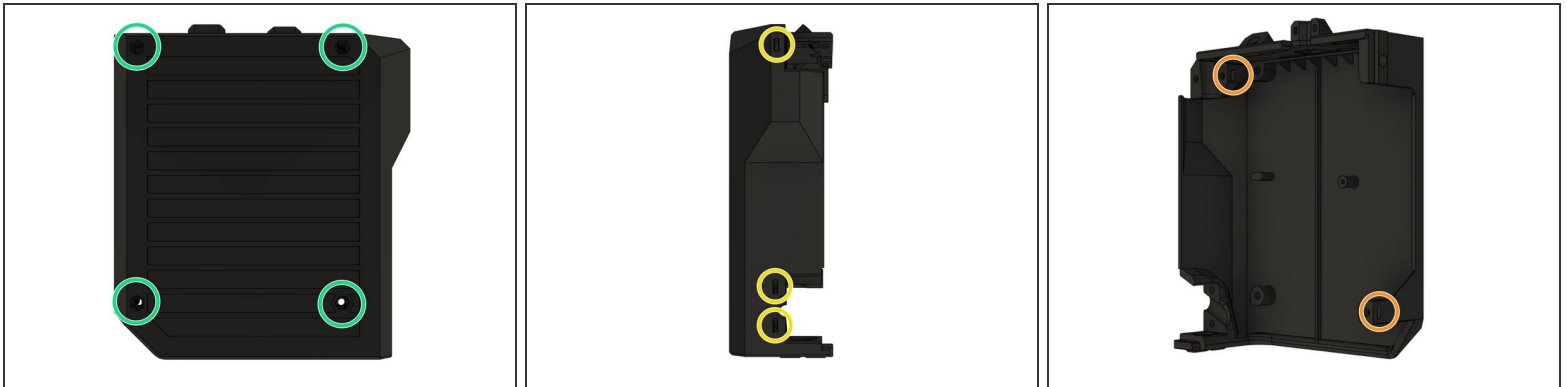


INTRODUCTION

This guide walks through the assembly of the PanelDue and Duet 3 Mini 5+ with its case. Remove your old controller board/case and LCD before starting this guide.

You can find the necessary hardware for this guide in our BOM [here](#). The printed parts are located [here](#).

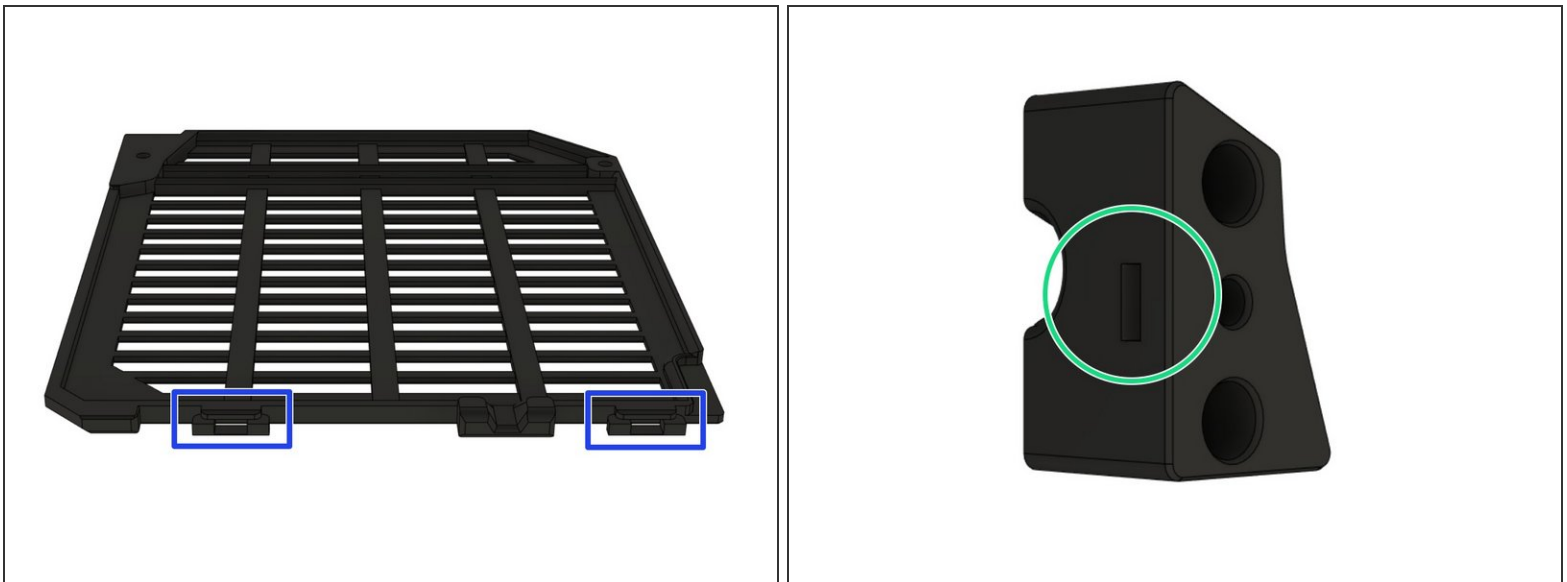
Step 1 — Preparation I



- Insert 4x M3 hex nuts in *board_cover*.
- Insert 3x M3 square nuts in *board_cover*.
- Insert 2x M3 square nuts on the from the oder side of *board_cover*.

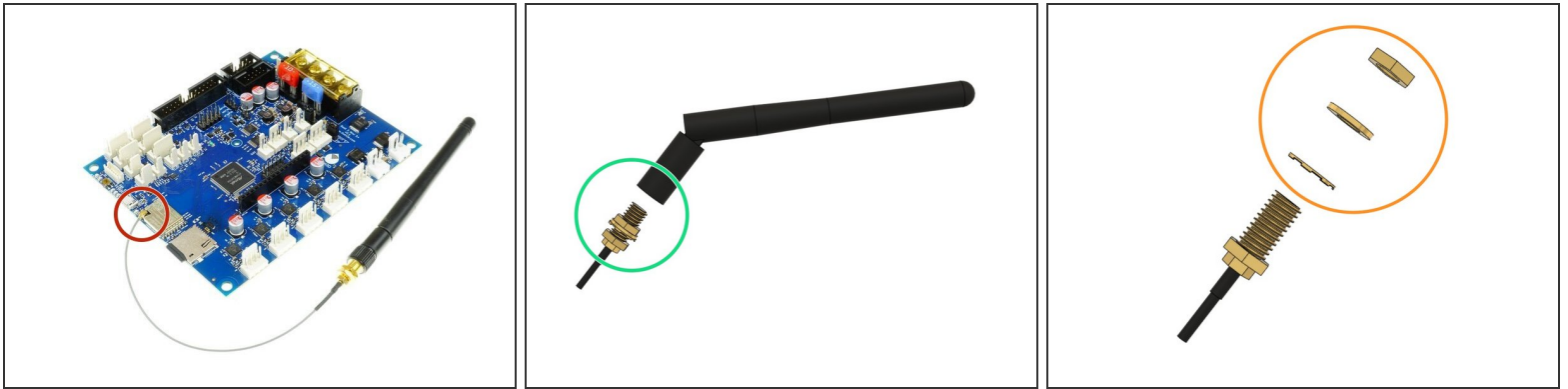
⚠ Make sure to fully insert the nuts!

Step 2 — Preparation II



- If they are still present, remove both printed supports from the tabs on *board_lid*.
- Insert one more M3 square nut in *board_cable_clamp_bed*.

Step 3 — WiFi only - Antenna Disassembly

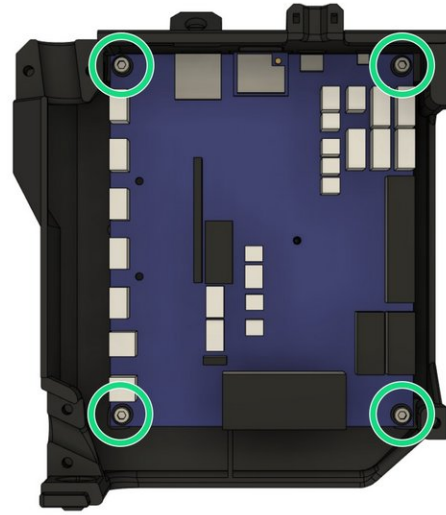
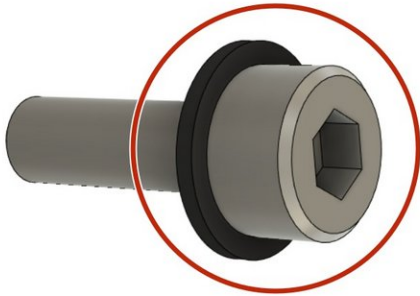


⚠ If you have the Ethernet Version of the Duet 3 Mini 5+ you can skip this step.

⚠ Be careful when handling the antenna, especially the connection with the board is very sensitive and you should avoid putting any strain on it.

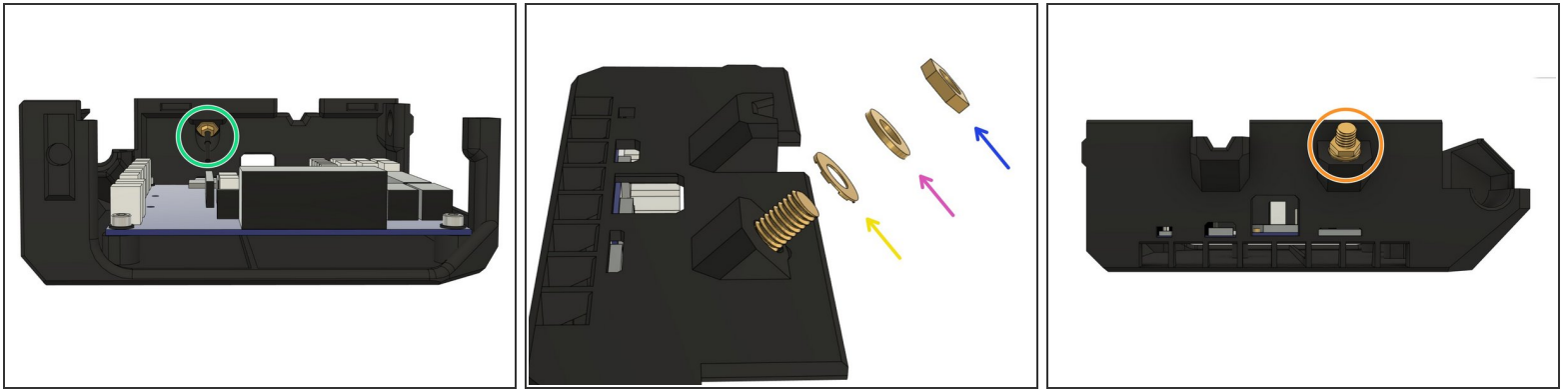
- Unscrew the antenna carefully from the wire and keep it for later use. You can keep the antenna connected to the board if it is already connected.
- Remove the nut, the washer and the locking washer from the thread as well and keep them for later use.

Step 4 — Duet 3 Mini 5+ Installation



- Slide the printed *board_washers* on each 4x M3x10 screws.
- Secure the board in *board_cover* with the 4x M3x10mm screws and washers. Be careful not to over-tighten the screws as this might damage the board.

Step 5 — WiFi only - Antenna Installation I

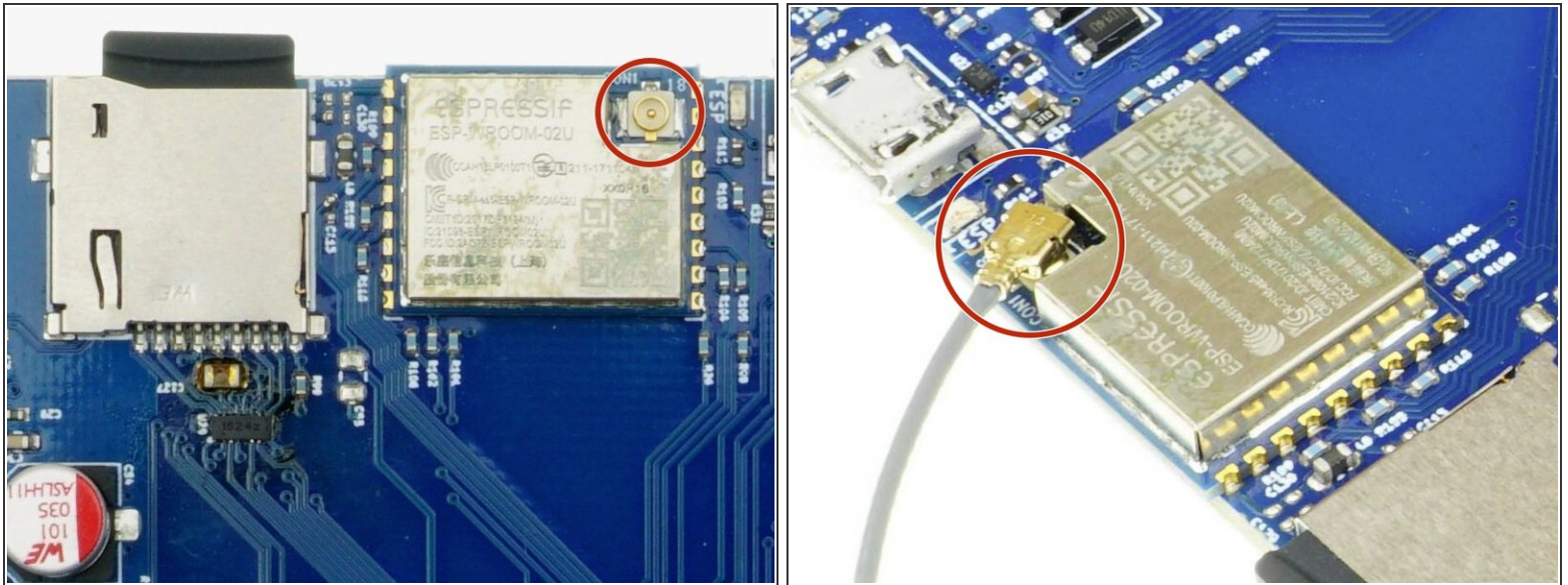


⚠ If you have the Ethernet version of the Duet 3 Mini 5+ you can skip this step.

⚠ Be careful when handling the antenna, especially the connection with the board is very sensitive and you should avoid putting any strain on it.

- Insert the end of the antenna wire (has a hex nut on it) into the pocket on the case.
- Secure the wire to the case by screwing the included nut and washers to the outside of the case until it is secured firmly. Make sure to follow the correct order:
 - Locking washer
 - Washer
 - Hex nut

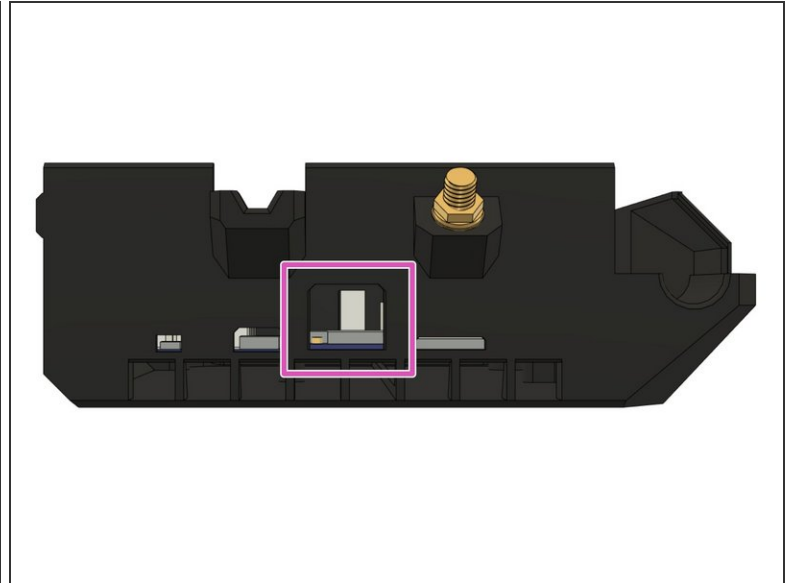
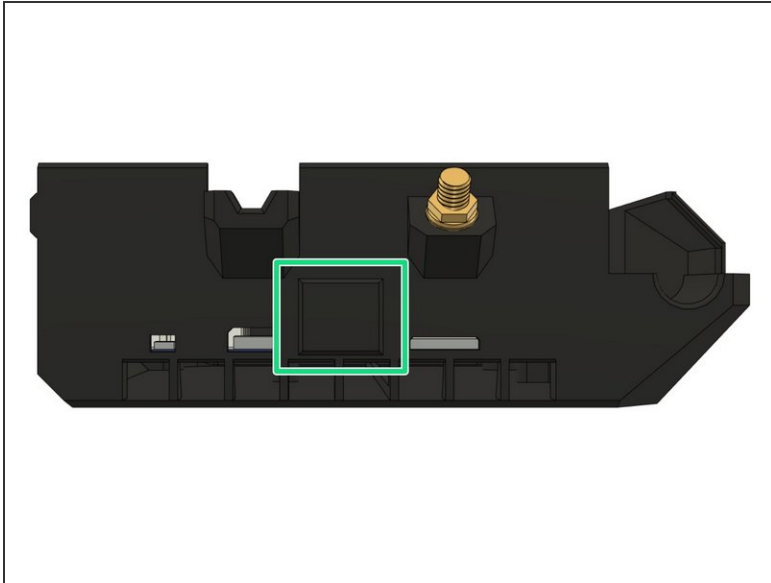
Step 6 — WiFi only - Antenna Installation II



⚠ The antenna connector is quite a tight fit, and is not intended for frequent connecting/disconnecting!

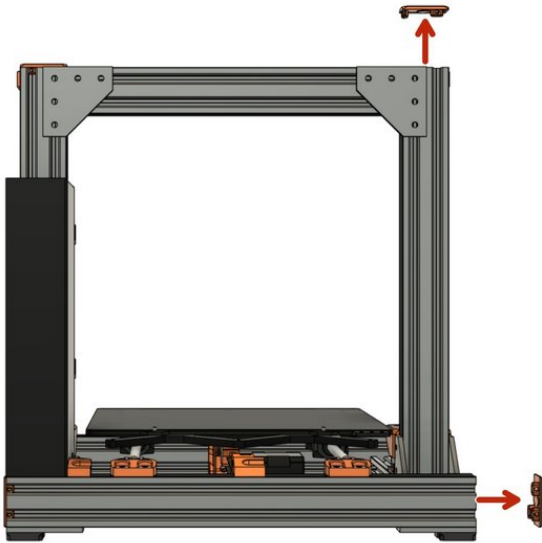
- If your antenna was not yet connected to the Duet 3 Mini 5+:
 - Carefully align the connectorn before firmly pushing on.

Step 7 — WiFi vs Ethernet



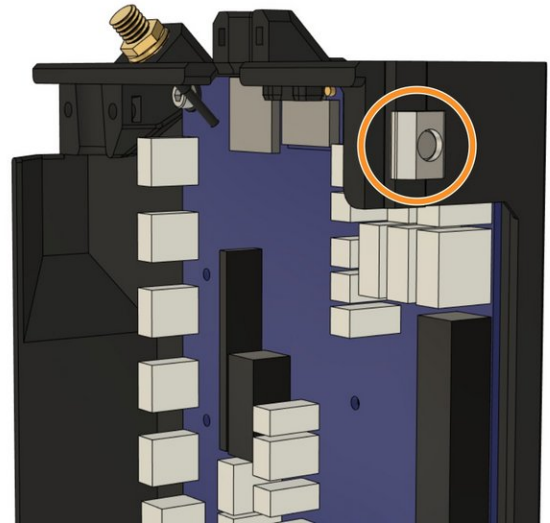
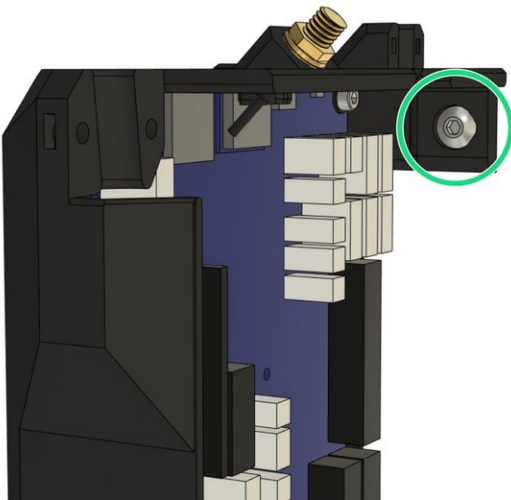
- **WiFi Only:** If you have the WiFi version of the Duet 3 Mini 5+ you will not need to connect an Ethernet cable.
 - Cover the cut-out for the ethernet connector with *board_rj45_cap*.
- **Ethernet Only:** If you have the Ethernet version of the Duet 3 Mini 5+ you will need access to its Ethernet port.
 - Leave the *board_rj45_cap* off the case as the cut-out will allow you to attach an ethernet wire to the board.

Step 8 — Remove End Caps



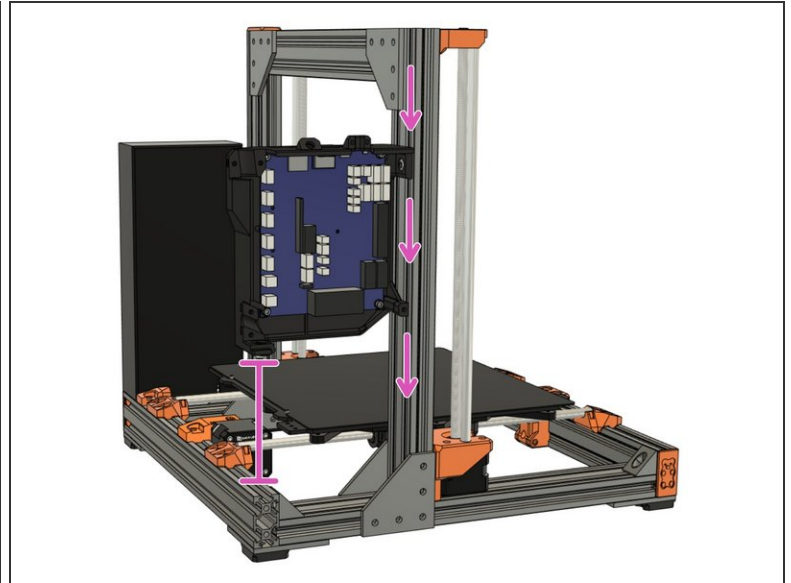
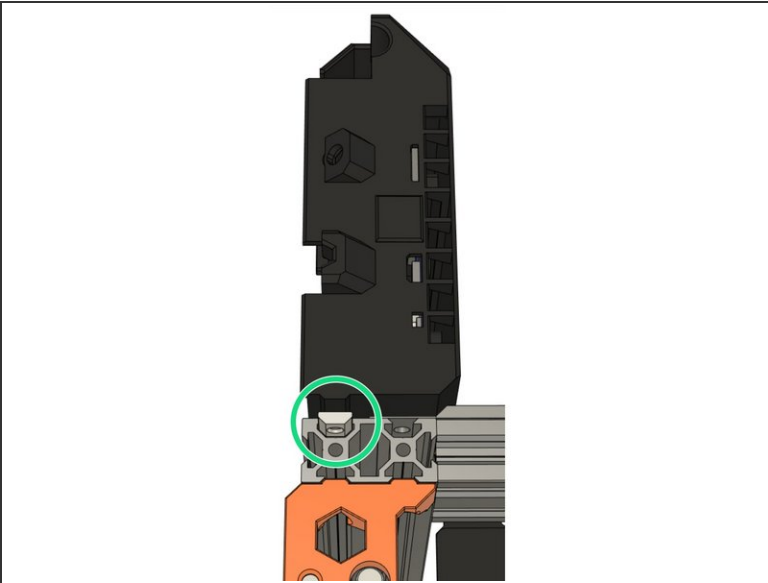
- Remove the Z end cap on the left Z extrusion and on the left end of the back XY-frame extrusion (**left** when standing in front of the printer) .

Step 9 — Case Mounting I



- Insert a *M5x8mm* screw into the pocket on the top of the case.
- **Loosely** thread a t-nut onto the screw from the outside of the case. Do not tighten the T-nut to the case, as we will slide the T-nut into the Z extrusion on the frame.

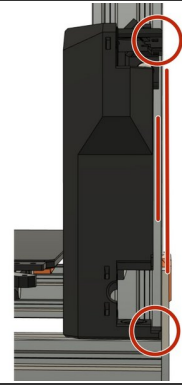
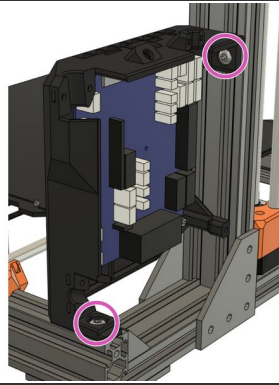
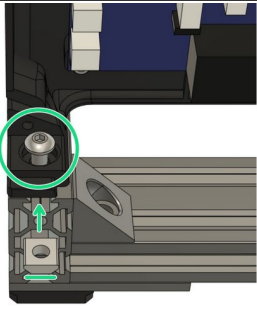
Step 10 — Case Mounting II



- Slide the T-nut into the outside slot on the backside of the left Z extrusion.
- Slide the case down together with the inserted T-nut.
- Until the bottom of the case touches the top surface of the extrusion on the back of the XY-frame.

 Do not tighten the screw yet.

Step 11 — Case Mounting III

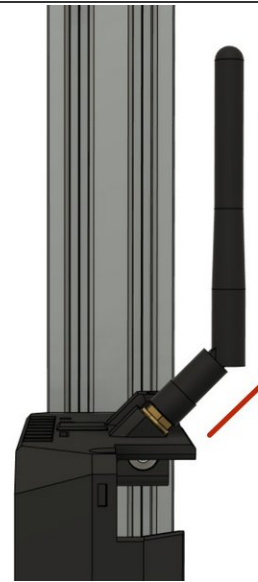


- Insert a t-nut and M5x8mm screw in the on the back extrusion as shown in the picture.

- **Alternatively** tighten both screws to the frame with the help of the t-nuts.

⚠ Tighten the case parallel to the Z extrusion.

Step 12 — WiFi only - Antenna Installation III



- Screw the antenna on the thread sticking out of the case. Make sure it is secured firmly but do not over-tighten, not much force is needed.

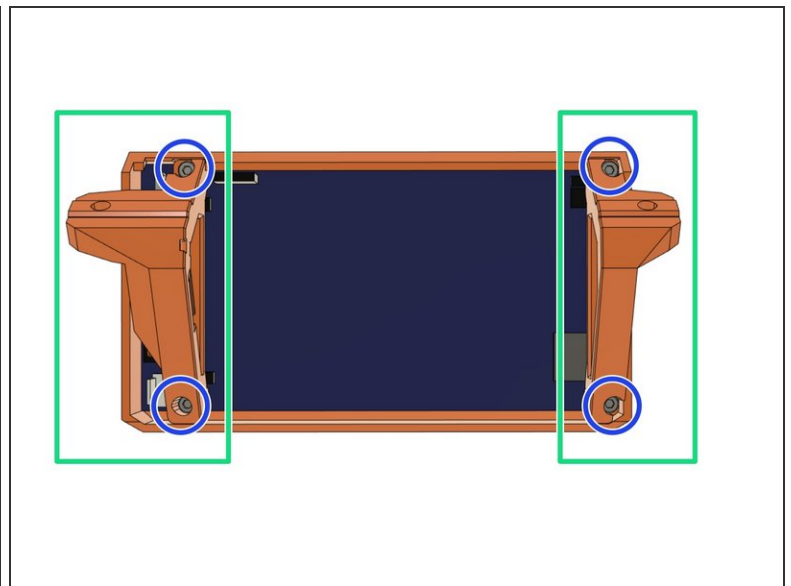
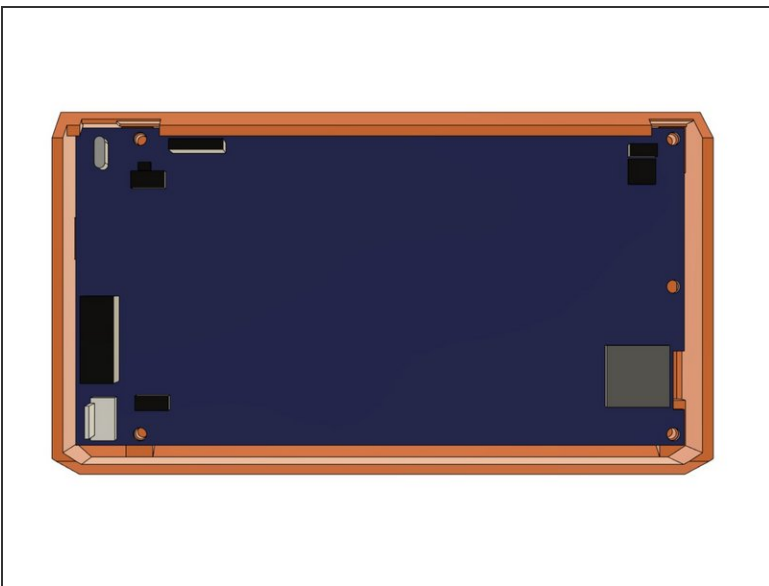
⚠ We recommend to angle the antenna as shown in **picture 2** as this will prevent it from sticking out of the frame too much. Otherwise you might damage it while working on or moving the printer later.

Step 13 — Add End Caps



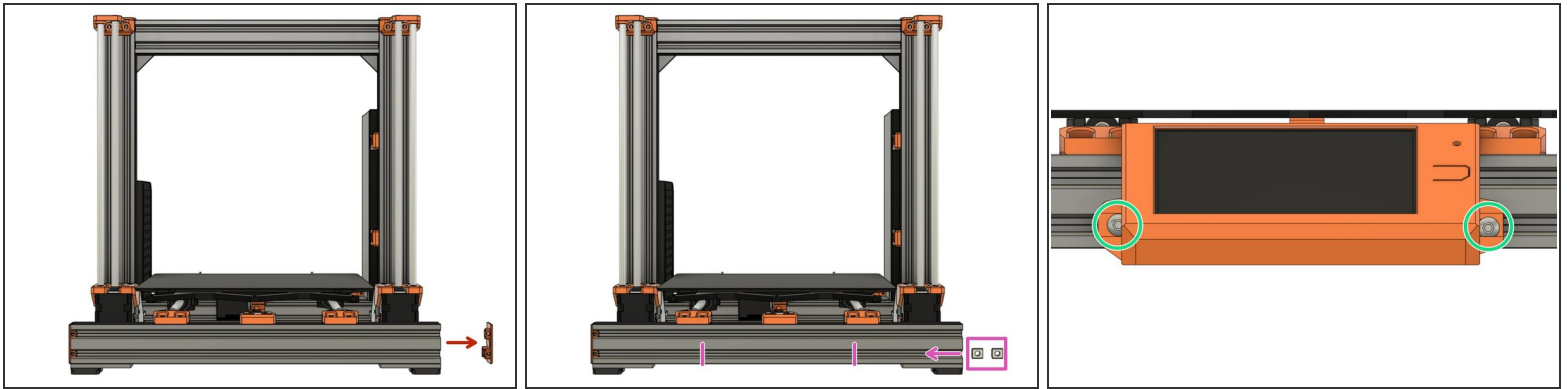
- Re-attach the end caps on both the left Z extrusions and the extrusion on the back of the XY-frame.

Step 14 — PanelDue Installation



- Place the PanelDue into *cover_paneldue_5in*, facing down on the table.
- Add *lcd_support_left* and *lcd_support_right*.
- Secure the PanelDue and its supports to the case with 4x M3x10mm screws.

Step 15 — PanelDue Mounting I



- If you don't have a screen attach to the frame, then proceed as following:
 - Remove one end cap on the **front** extrusion of the XY-frame.
 - Insert 2x t-nuts in the bottom slot where we have removed the end cap.
 - Secure the PanelDue to the extrusion via the LCD supports with 2x M5x10mm screws.

Step 16 — Add End Cap



- Re-attach the end cap to the extrusion on the front of the XY-frame.

Step 17 — Hardware Assembly Complete!!!



- **Congratulations** you have assembled the necessary hardware for your Duet Bear!
- You can now proceed to the [Wiring Instructions](#).