ASUS Zen Pad 10 Micro USB Port & Camera Replacement

The USB port is where you charge and transfer...

Written By: Mr Circuit



INTRODUCTION

The USB port is where you charge and transfer info so it is obviously essential that this works. These micro USB ports can easily be damaged so this is a way to fix the USB port on this particular tablet. Be aware, you are dealing with soldering on to <1mm width copper pads so I would advise you to have proficient soldering skills to attempt this repair.

I would not advise newbies to attempt this repair.

The camera is a very straightforward job and I would give it an easy rating suitable for anyone.

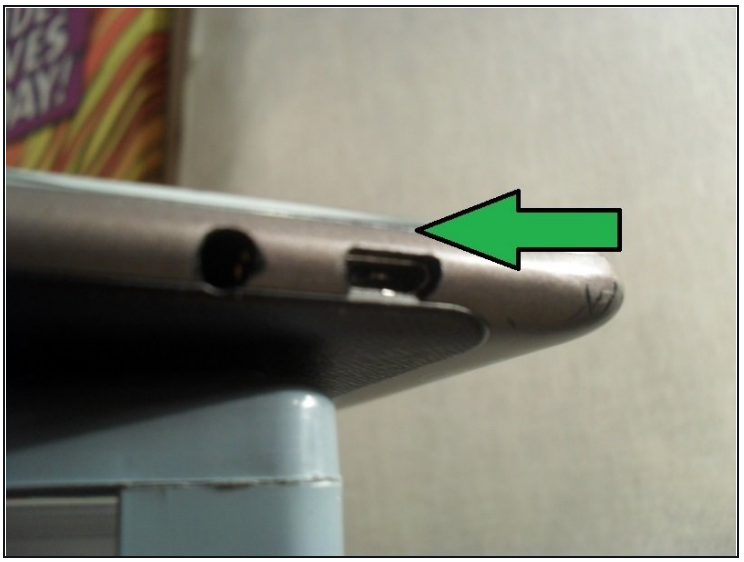
Please read the whole guide before attempting the repair, and make sure your part is the correct type for your tablet.

TOOLS:

Soldering Iron 60w Hakko 503F (1)
Phillips #00 Screwdriver (1)
Nitrile Gloves 100 Box (1)
antistatic surface (1)
Anti-Static Wrist Strap (1)
Tweezers (1)
Cotton Swabs (1)
Acetone or Isopropanol (1)
heat proof aluminium tape (1)
Spudger (1)
Desoldering Braid (1)
Desoldering Pump (1)
Vice (1)
Multimeter (1)
Micro USB cable (1)
Hot Air Rework Station Hakko FR-810B-05 (1)

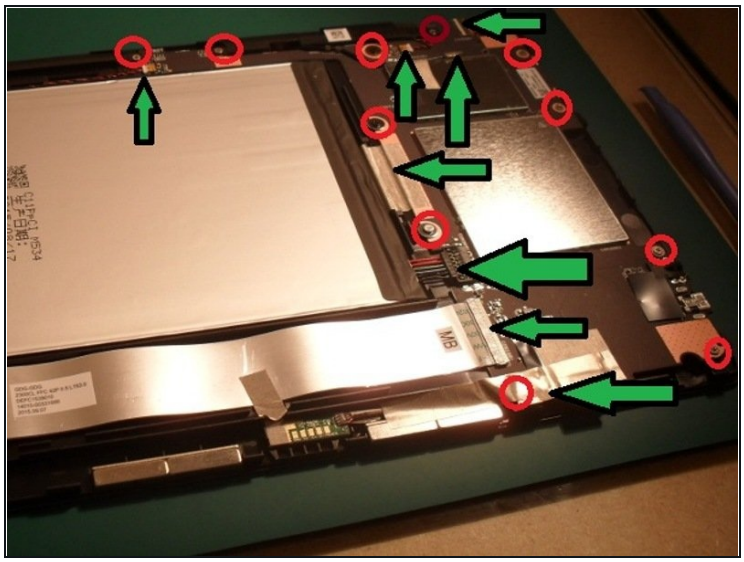
Step 1 — Opening the case

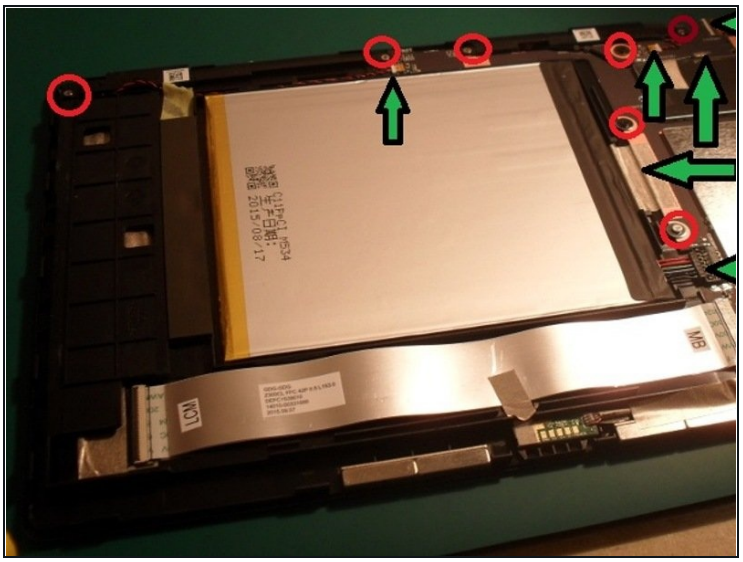




- Make sure the power is OFF and the tablet is not just sleeping. To open the tablet you need to insert the spudger in between screen fascia and the plastic back.
- The arrow indicates where you should place the spudger to remove the case. you need to pry the plastic back away from the screen.
- You do not need to put a lot of pressure on it to get it open, it should come apart easily using a bit of leverage to unhook the plastic. If you are putting a lot of pressure on it, that means you are doing it wrong and are risking damaging it.

Step 2 — Assess the situation



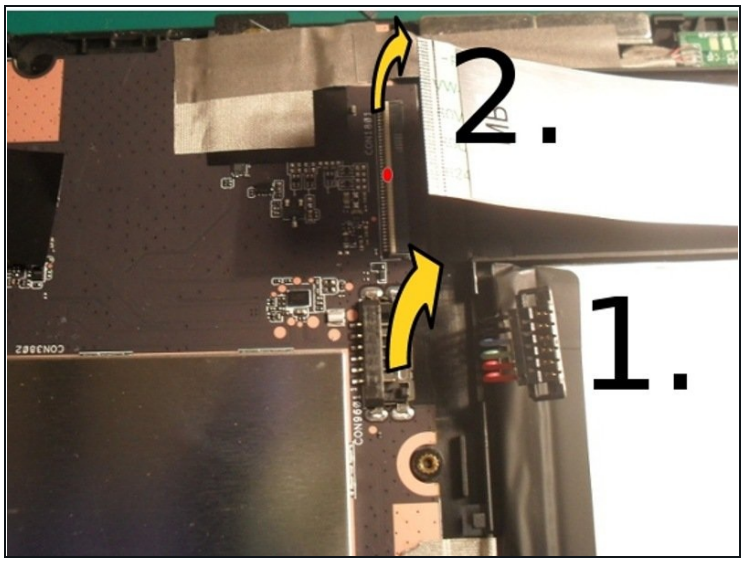


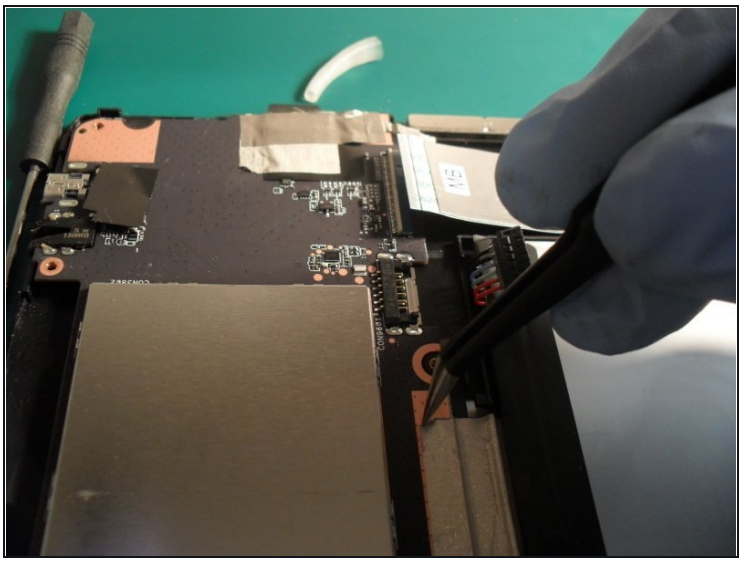
- The battery takes up most of the area, the motherboard is to the right. I have marked the screw positions in red and the green arrows indicate where connectors need to be removed.

- Before you touch anything make sure you have taken all anti static precautions and are wearing nitrile gloves.

- You MUST remove the battery connector before you do any other steps - see next.

Step 3 — Remove battery & Screen



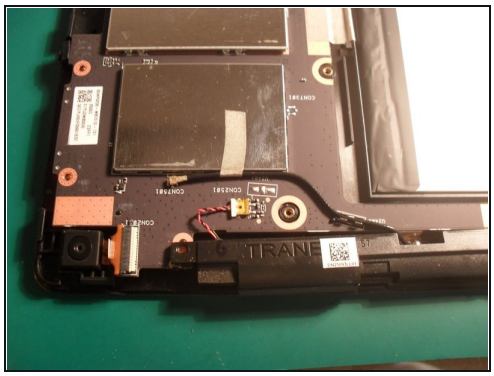


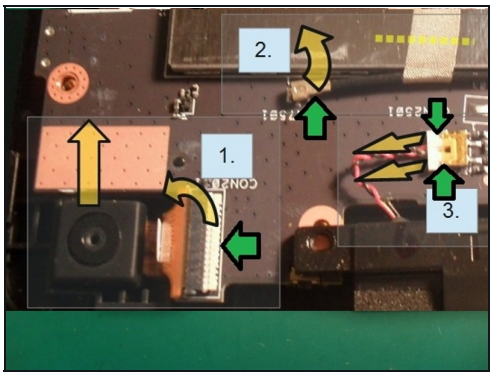
- Using the spudger, lever the connector marked at 1 up and in the direction of the arrow. It is essential to remove power to the device before you do any work on it, or you could cause a short and destroy the device. *****DO NOT USE A METAL SPUDGER FOR THIS STEP, YOU MUST ONLY USE A PLASTIC ONE*****

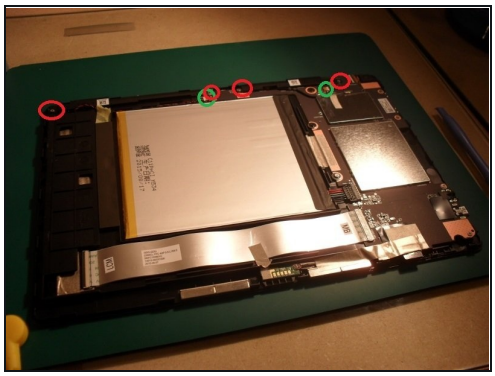
- Having removed the battery connector at 1, remove the screen at 2. To do this lift up the white plastic lip marked with the red dot using a spudger. This will allow you to pull the ribbon cable out of the connector.

- You may need to remove the tape which attaches the motherboard to the battery if present. To do this use a pair of tweezers to pick the edge up and then it should peel off.

Step 4 — Remove Camera and modules







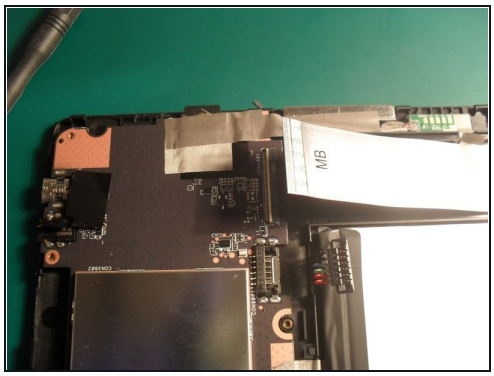
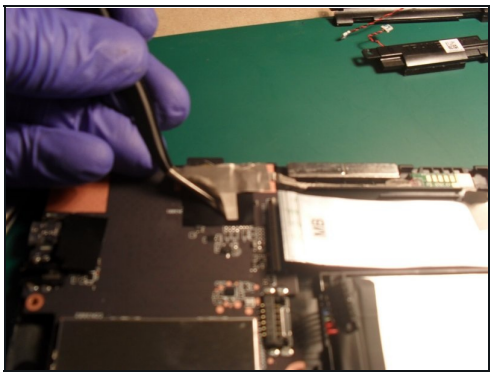
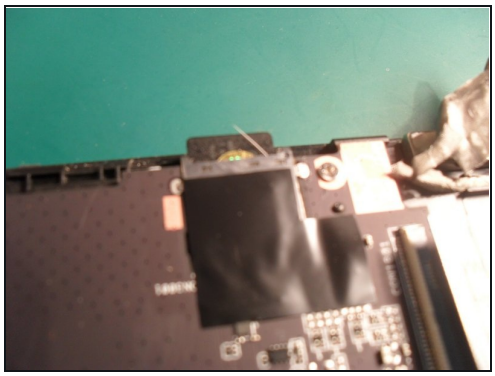
- Now we need to remove the modules. They are situated here. If you are replacing the camera you need only remove this.

- 1. Place the spudger (green arrow) under the connector and lift it up and toward the camera. The ribbon cable will pull out once this is lifted. To remove the camera, simply lift it out with your fingernails or tweezers. You can then swap the camera and rebuild your device, if you are only replacing the camera.

- 2. Unpeel or cut the fabric tape if present on wifi cable. Simply use the spudger to lever the connector UP. Do not put leverage on the cable, make sure you are levering the connector UP off the board.

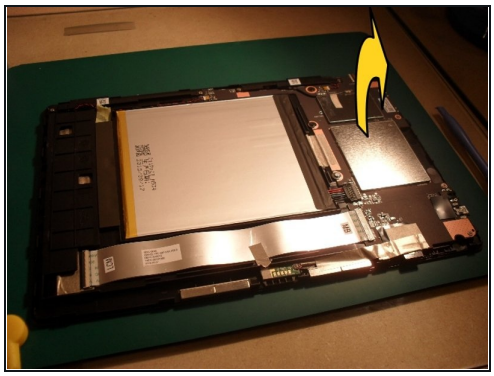
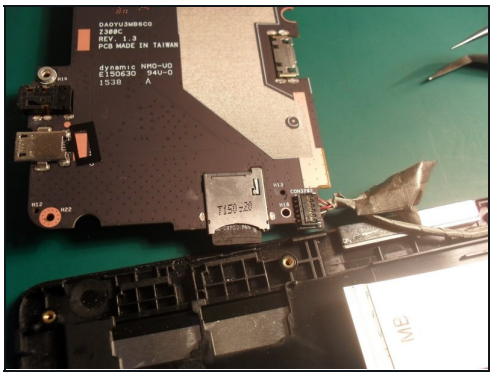
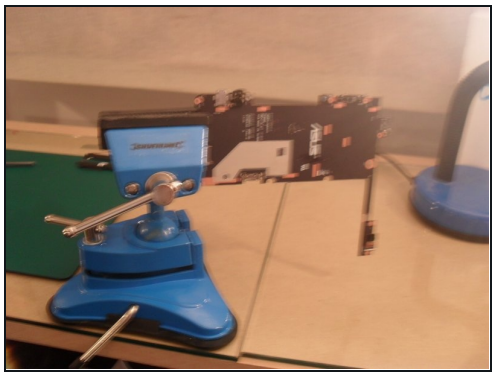
- 3. Using a spudger, gently push the connector out pressing the spudger against the corners. Do not use a lot of force, it should come out if you put pressure on alternate sides. Remove both module connectors (see last picture)marked with green ring and undo the screws marked red, the modules can then be removed with ease.
  - I usually mark the top side of the cable connectors with marker pen, to ensure correct orientation when reassembling.

Step 5 — Reveal hidden screw

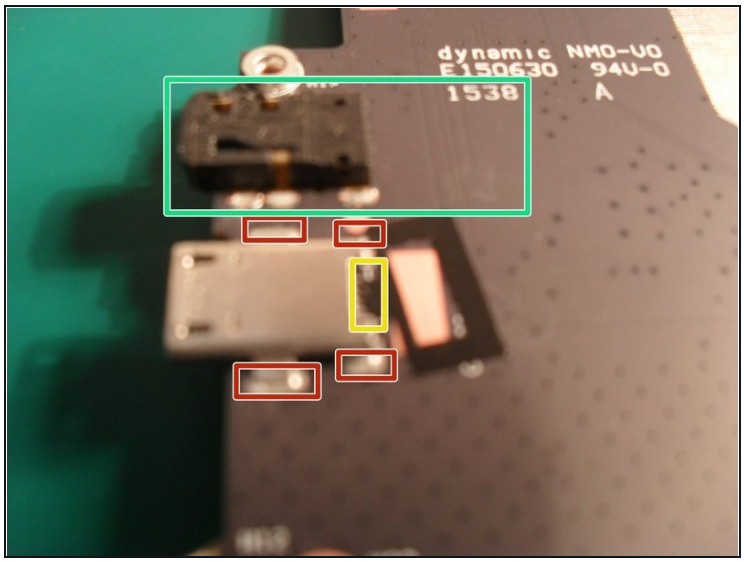
- We need to remove the tape at the top to reveal a hidden screw. On the underside of the board is another connector which we need to be careful about .
- Get the tweezers and peel back the tape. It will likely be connected to the cable under the board, so just cut it (making sure you don't cut the cable).
- Then remove all the screws and the motherboard is ready to be taken out.

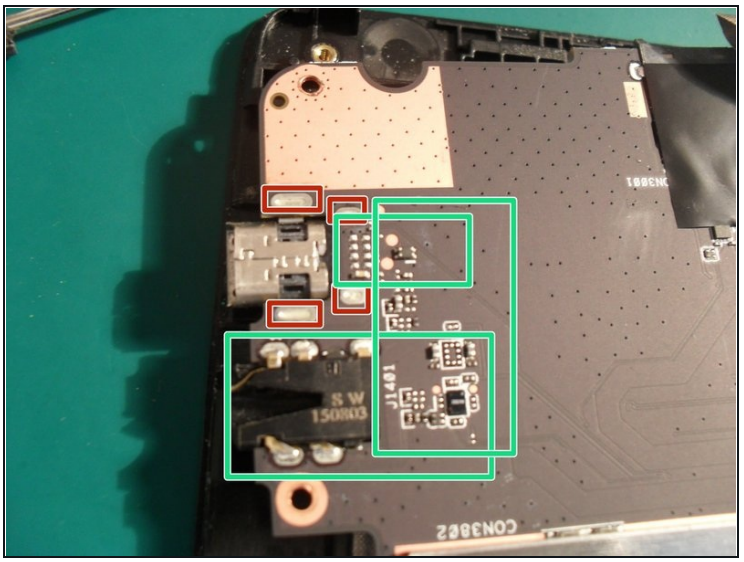
Step 6 — Remove Motherboard

- From the orientation shown in the picture, lift the motherboard from the back and up towards you, essentially flipping it over the front edge.
- You should then be able to access the connector and remove it, freeing the board from the unit. Remove this in the same way you did the battery connector.

Step 7 — Preparation for removal



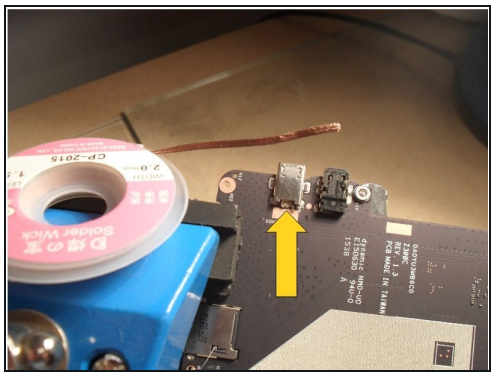
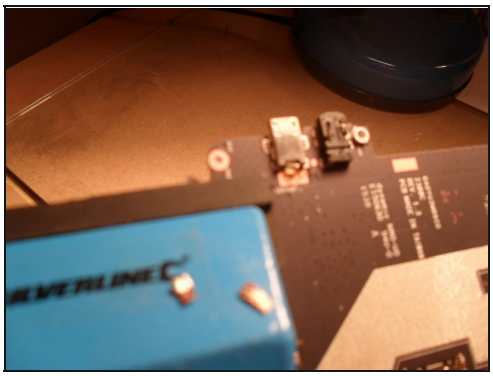
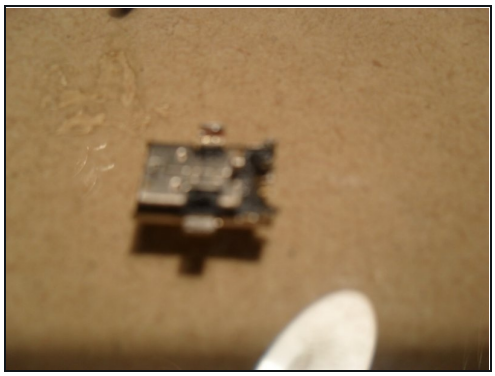


- On the top of the board the usb connector is held on to the board by the four pins marked red. Remove the sticker from the port if present, using tweezers. What the yellow marking indicates is where you will find 5 pins that need desoldering with an iron before the port is removed using the hot air gun.

- On the underside of the board you need to cover the componentswith heat proof tape, to ensure you do not blow any components off the board when using the hot air.

- You will also need to cover the neighbouring jack socket with heat proof tape to ensure you do not melt the plastic (marked in green). It is advisable to cover the jack sockets on both sides of the board. Cut pieces of tape to shape to cover the components and jack socket to protect from accidental damage.

Step 8 — Desoldering process

- At the back by the arrow are the connections. There are 5 tiny pads to unsolder and they must be cleaned thoroughly, in order to facilitate removal.
  - Using the soldering iron and plenty of flux, use the desoldering braid to mop up as much solder as you can. It is a little time consuming here but persevere and it makes the next step easier. It helps if you snip off the used braid and insert a clean end in each time with more flux.

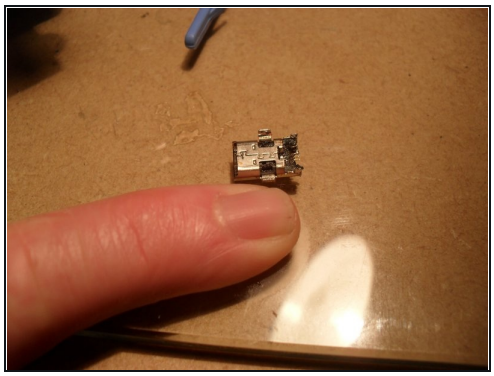
- After cleaning as much solder as possible off, use the hot air gun on high temperature (450C) and full blast to rapidly heat the component. Lift it off with a pair of tweezers once it gets up to temperature.
  - As well as melting the solder around the four mounting pins, you should also put some heat on the 5 pads you worked on, to ensure you do not lift the copper pads along with the USB port. Do not force it, it should lift out easily with tweezers. Also do not touch the port with your fingers as you can burn yourself.

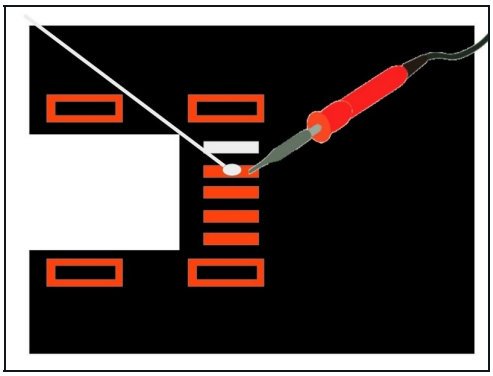
  - You can use the soldering iron to help heat the pins and get it up to temperature more quickly. Please note you should have already covered the adjacent plastic audio jack socket with heat proof tape, as per previous step.

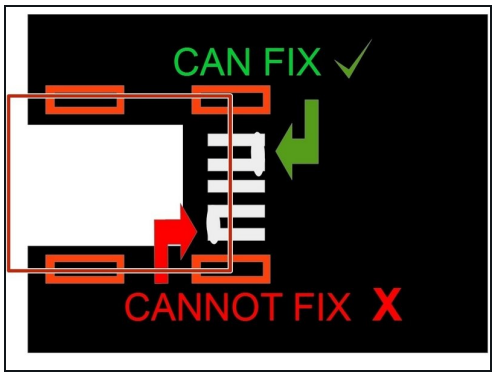
- You could attempt this step without using a hot air gun but the melting temperature of the solder is so high, and it is a multilayer board, it makes life difficult. The problem you will have is that the heat will drop by the time you get the desolder pump nozzle near it after removing the iron.

- To finish this step you can now mop up the excess solder from around the lugs using the solder braid and plenty of flux. Remove the excess flux off the board using cotton wool buds and acetone. Make sure you do not leave any cotton debris as this can short across tracks!

Step 9 — Solder new port

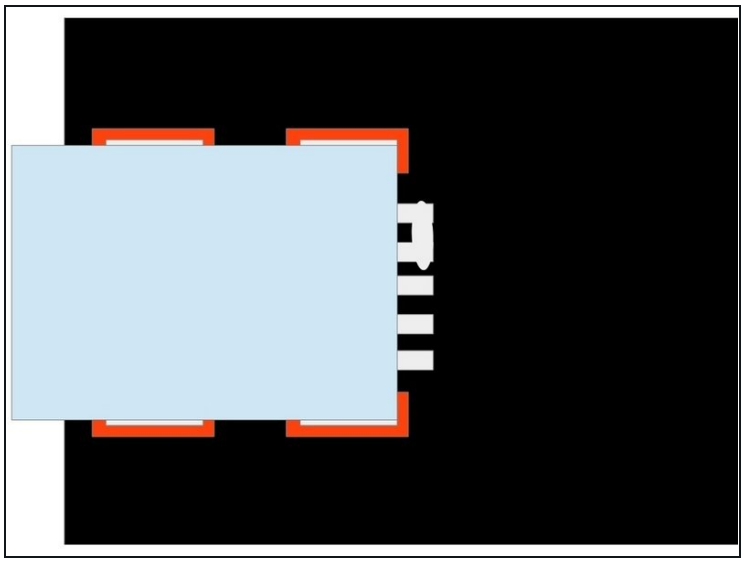


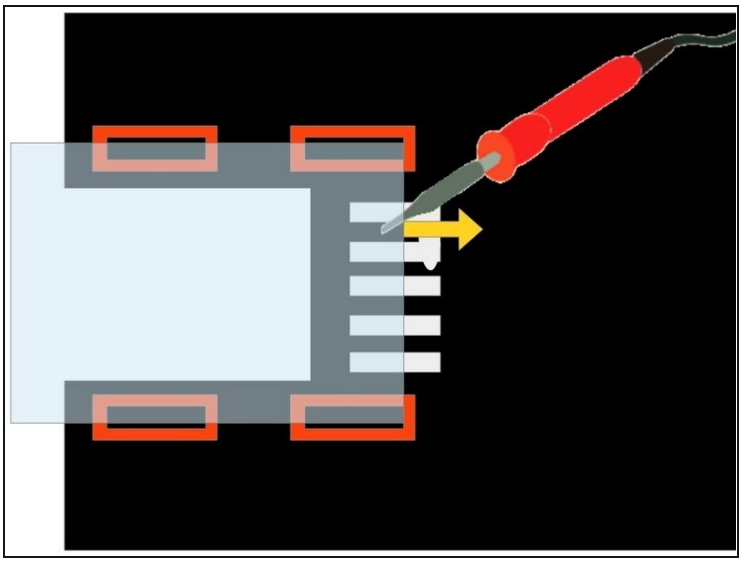




- To give you an idea of scale this is my little finger. My pictures were too blurred to use here so I will illustrate the process with a diagram.
- First you will need to remove the chisel tip from your soldering iron and change it for the conical tip that has been gathering dust in the bottom of your tool box. Make sure it has cooled down and power is off. You will need this for precision, a chisel tip is too cumbersome.
- 1. Tin the copper terminal pads by heating the end of the trace and applying a tiny amount of solder.
- 2. Don't worry if you create a bridge over the tracks as this can be rectified later. However, if this happens at the hidden end - that is to say the end that will be covered by the hood of the port -this will need removing. The position of the port is marked in red on third picture.
- 3. Inspect with a magnifier or jewellers loupe. You do not want any solder splash or bridges between the terminals at the end that will be covered. Any at the end that is accessible can be removed.

Step 10 — Position Port





- Hold the replacement USB port in place with tweezers. Then use the hot air gun to heat the traces and pins. Make sure the solder has melted and you have a good connection before removing the heat. Try to place the port flat and not at an angle or else you can bridge the pads by dragging the pins across any of the pads.

- Ideally you want no bridges but if you make a mistake get the soldering iron in there and drag the iron out along the traces. **Do not drag the solder toward the port or you WILL ruin the component.** The surface tension should make the solder flow on to its respective pad and eliminate any bridges. Try not to create new bridges with the iron!
  - This step is particularly difficult but if you make a mistake or bridge the pads simply heat the port with the air gun and remove, clean it up and repeat step 9 again where appropriate, ready for next attempt at this. If you drag the solder towards the port is going to be pretty much game over and you will need a new micro USB port.

- All being well, inspect your work and if you are happy then solder the 4 mounting pins. It is worthwhile changing back to the chisel tip if you are using the iron.

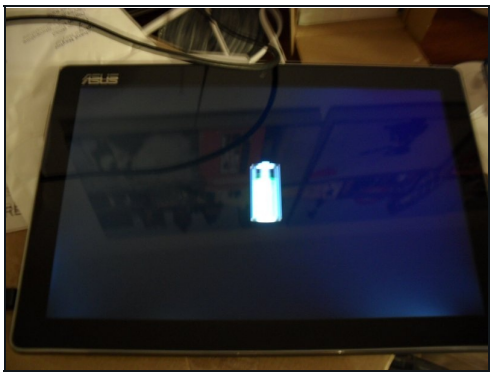
Step 11 — Test your work

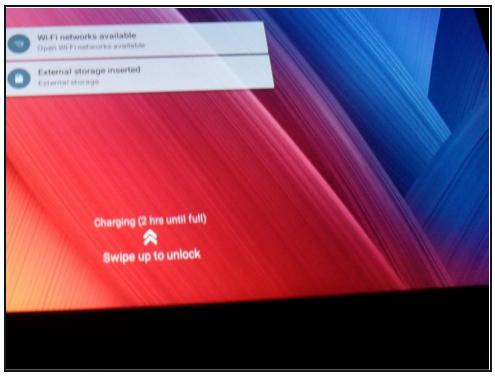


- If any of the pins are shorted together, it is possible to fry the board. You must check there are no shorts before applying any power.
- The best way to do this is using a micro usb cable. You need to cut the cable in half and strip back the insulation for each strand. It is impossible to get a multimeter probe in to the port itself.
- Holding one end of the cableand probe together with the crocodile clip, apply the other probe to the pad and do a resistance check. Make sure you are only getting a reading off one pad. Make sure you are using the ohm meter setting rather than the audible continuity checker on your multimeter, as it is possible to miss mistakes.
- Do not touch the outer housing of the USB port as it is DC coupled to the board. This will conduct and give you a false reading. If you detect a short desolder the port and try again. It took me two attempts before I got it spot on.

Step 12 — Rebuild notes







- Make sure the motherboard connector and battery connectors are clipped in correctly. The wifi cable also needs to be clipped in place securely. Obviously the battery is clipped in LAST.
- Be aware that inside the case are copper pads. These sit on this little circuit board pictured. Make sure the board has not moved from its original position.
- I found it easier to clip the case back together starting from the power switch and volume controls, to ensure they are properly aligned.

To reassemble your device, follow these instructions in reverse order.