XIAOMI MI NOTEBOOK PRO
INTERNAL BROADCOM WiFi INSTALLATION GUIDE
Version 0.3

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!!!!!!!!! DISCLAIMER !!!!!!!!!

If you choose to follow this guide, it is at your own risk.
I cannot accept any responsibility for damage caused to your hardware.

PLEASE NOTE THAT THIS HACK DOES NOT MAKE BLUETOOTH WORK
THIS IS NOT PHYSICALLY POSSIBLE THROUGH THE M.2 M KEY SLOT

!!!!! WARNINGS !!!!!

This solution is working with following system specification:

CLOVER_v0.5 configuration as provided by Razorkey's post:
https://www.tonymacx86.com/threads/guide-xiaomi-mi-notebook-pro-high-sierra-10-13-3.242724/

BIOS Version is XMAKB5R0P0502.
If your BIOS version is different I cannot guarantee that this solution will work.
If Xiaomi make changes to the hardware whitelist in newer BIOS versions it could mean this solution might not work with the newer BIOS.
Some of the steps in this process are not easy, and require some skill and patience:

- **Prying open the back cover, this requires some good pry tools and careful application of force in the right places.**
- **Installation of the MHF4 antenna extension cables is very fiddly, requires steady hands and good eyesight, these things are tiny!**
- **I was not able to find MHF4 antenna extension cables that were long enough to reach the antennas. The only solution was to join 2 cables together to make 1 longer cable. There are 2 antennas, so you need to buy 4 extension cables. This is not ideal, but it worked for me. In future I hope to tidy this up if I can find longer cables.**

KNOWN ISSUE:
It should be noted that, while the parts detailed in this guide do physically fit inside the Xiaomi Mi Notebook Pro, height of the components is a slight issue. The BROADCOM module does appear to be in contact with the rear cover and create a slight bulge. Visually, the bulge is not obvious, but if you run your hand across the rear cover you can feel it.

IF YOU STILL FEEL CONFIDENT, READ ON…..

SHOPPING LIST:

Tools:

ESD Wrist Strap
https://www.amazon.co.uk/Anti-Static-Wristband-Discharge-Prevents-Electricity/dp/B004TQRFPE/ref=sr_1_1?s=officeproduct&ie=UTF8&qid=1522791998&sr=1-1&keywords=ESD+wrist+strap

Torx T5 Screwdriver
https://www.amazon.co.uk/Draper-28117-Precision-Screwdriver-Pieces/dp/B00DW8L1QE/ref=sr_1_cc_2?s=aps&ie=UTF8&qid=1522792146&sr=1-2-catcorr&keywords=Torx+T5

Plastic Pry Tools (strong ones) & Metal Tweezers
https://www.amazon.co.uk/Opening-Repair-Smart-Phone-Disassembly/dp/B01K1X8DYU/ref=sr_1_1?s=diy&ie=UTF8&qid=1522792230&sr=1-1&keywords=pry+tools

Heavy Duty Wire Cutters (for cutting the E to M adapter down to size)
https://www.amazon.co.uk/Draper-Redline-67988-Diagonal-Handles/dp/B011IL41CC/ref=sr_1_16?ie=UTF8&qid=1522843424&sr=8-16&keywords=heavy+duty+wire+cutters

The links above are to give **an example of the tools** that are needed. I haven't used these exact tools, so I cant guarantee that the quality is good.

Parts:

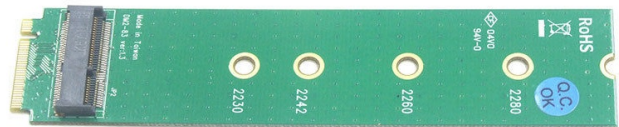Broadcom BCM94352Z DW1560 M.2 (E-Key) WiFi Module
https://www.ebay.co.uk/itm/New-Broadcom-BCM94352Z-DW1560-Wireless-AC-867M-WiFi-Bluetooth-4-0-NGFF-M-2-Card/172212358962?hash=item2818a80f32:g:ai8AAOSwu1VW4OZR

E to M Key Adapter
https://www.ebay.co.uk/itm/E-to-M-Key-M-2-NGFF-Adapter-Card-2230-2242-2260-2280-support-WiFi-module-52059-/152953251086
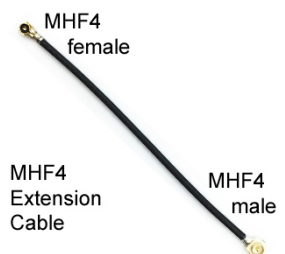
MHF4 Antenna Extension Cables (4 required)
I used 4x 12 inch, which was a little long
I would suggest 4x 10 inch might be better
https://www.data-alliance.net/mhf4-extension-cable-male-to-female-2-inch-3-in-4-inch-6-in-8-in-10-inch-12-inch/#

The links above for parts are the **exact parts** that I used, they worked for me.

Additional Materials:

Electrical Insulation Tape
Fine Nail File or Fine Sand Paper

INSTALLATION PROCESS:

STEP 1: Prepare the E to M adapter & fit the BROADCOM module

The E to M adapter is too long to fit in the SSD slot, and also for some reason none of the fixing points on the adapter line up to the fixing hole on the laptop. In theory the 2280 fixing hole should line up, but it doesn't!

The height of these assembled parts is also a concern, so the best solution is to cut the adapter short enough to be clear of the fixing point on the laptop, that way it can sit lower down when installed.

Use the heavy duty wire cutters to cut the E to M adapter along the RED line indicated below:

(I tried using a small hack saw to begin with, but this did not work. I found cutters were much easier)

After cutting, use a fine file (nail file) or fine sand paper, to smooth off any rough edges. After smoothing off, make sure to clean up and dust. Before going any further, ensure you are wearing the ESD wriststrap, and the clip is connected to something that is EARTH.

Now the BROADCOM module can be fitted into the E Key Slot on the adapter. I didn't have any suitable fixings, so for a quick solution I taped down the BROADCOM module to secure it in place. This is not ideal, so if you can think of a better solution then go for it. I might tidy this up in future if I can work out something better. If you are using insulation tape like me, make sure you don't cover the 2 antenna connectors. Tape down as flat as possible. Keep it low profile.
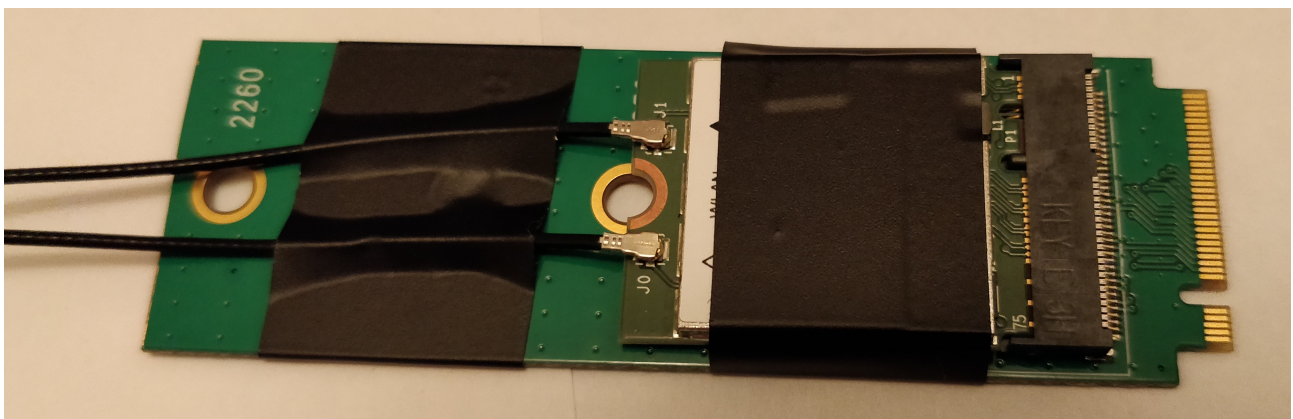
STEP 2: Prepare the antenna extension leads & attach to the BROADCOM module

As I mentioned already, I couldn't find MHF4 antenna extension leads that were long enough, so I made 2 longer leads (24 inch) out of 4 short ones (12 inch). Not ideal, and very fiddly, but it worked. Hopefully in future I can find some longer leads. 24 inches did turn out to be a little longer than necessary, so you may be better off with 20 inches.

After much swearing, I discovered that the best way to join together the MALE and FEMALE connector ends was to allign them inside a pair of tweezers and then squeeze together with the tweezers. These connectors can be fragile, use caution!

!!! Once you are happy you have a decent join, it is important to insulate the connectors with the insulation tape to prevent them shorting something on your logic board !!!

Once you have assembled your two longer extension leads, you can fit them to the BROADCOM module antenna connectors. Once fitted, use some insulation tape to support the wires so that there is no strain on the connectors. The finished product should look something like this:

STEP 3: Open the back of the laptop (remove the back cover)

Ensure you are still wearing the ESD wrist strap, and the clip is connected to something that is EARTH.

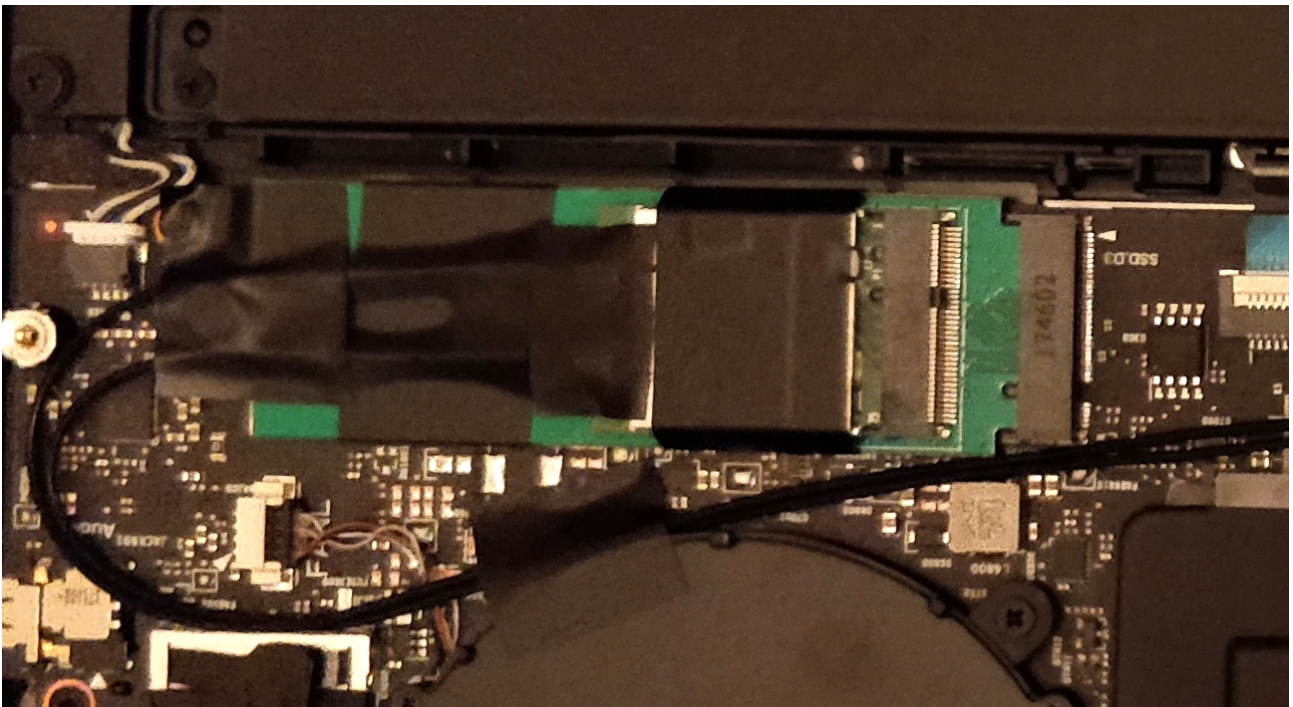This video gives a good explanation on how to open the back, jump to 1:02.
https://www.youtube.com/watch?v=kerWDJrb3CE

He also explains how to disconnect the battery, which is a sensible precaution to take before moving on to step 4.

STEP 4: Fit the assembled E to M adapter & BROADCOM module

Carefully insert into the empty slot and push the whole thing down flat onto the logic board. The copper contacts will be hidden once properly fitted.

The board will want to spring back up, so it needs to be held down (for long enough to allow you to finish the installation and get the cover back on). I didn't have a good solution so I reverted to using insulation tape for this also. Once the back cover goes back on everything will be held firmly in place anyway, so this doesn't have to be a really robust solution. I might tidy this up later by using some glue in place of tape, but its probably not necessary.

This is what mine looked like:

For good measure I added some more insulation tape over the MHF4 connectors.

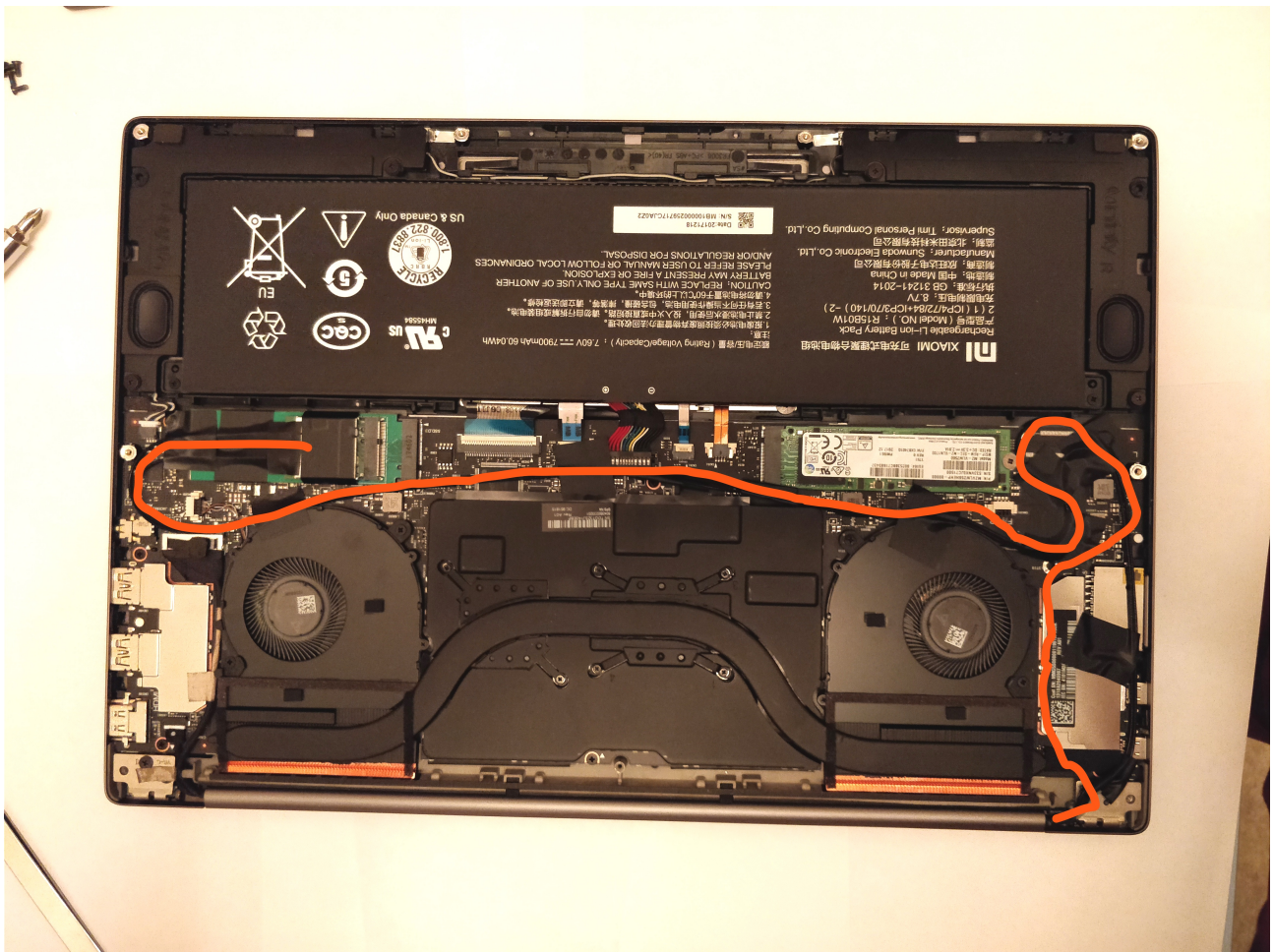## STEP 5: Route and secure the antenna extension leads

If you get this step wrong, the extension leads can easily cause obstructions that stop the rear cover going back on properly and the extension leads may be damaged.

My first attempt at routing (you can see in the picture below) did not work because the cables were obstructing the rear cover from fitting back on. I forgot to take a photo of the final successful routing, so I have illustrated what that looked like below.

The routing that worked for me is shown below in **ORANGE**. My cables were 24 inches total length, and this was slightly too long, which forced me to make the loop that you can see on the right hand side. If you went for shorter cables (20 inch total rather than 24) your routing can be neater than mine as you wont have to deal with so much excess wire.

I used electrical insulation tape to secure the cables at regular intervals. Try to avoid putting tape over the metal screen cans, as this might stop the gasket material making contact when the rear cover goes back on.

See **POSSIBLE IMPROVEMENTS** for a possible better solution to this routing.

STEP 6: Disconnect the antennas from the onboard Intel WiFi

Use tweezers to peel away the back tape that is covering the MHF4 antenna connectors. Use tweezers to carefully lift and disconnect the MHF4 antenna connectors from the onboard Intel WiFi module.

STEP 7: Connect the extension leads to the antennas

The antenna wires are colour coded, black and grey. I am not certain if there is a right and wrong way around, but I connected the J0 extension cable to GREY, and the J1 extension cable to BLACK. This worked fine for me.

I used tweezers again to pinch the MHF4 connectors together. After making the connections I used electrical insulation tape to insulate the connectors. Then push everything down, maintaining the cable routing that I showed above.

Assuming you disconnected the battery earlier, now is the time to re-connect.

STEP 8: Re-Fit the back cover

When re-fitting the back cover it is best to start from the front edge of the laptop, make sure the clips along the front all pop back into place. Then work your way up along the side edges and across the back.
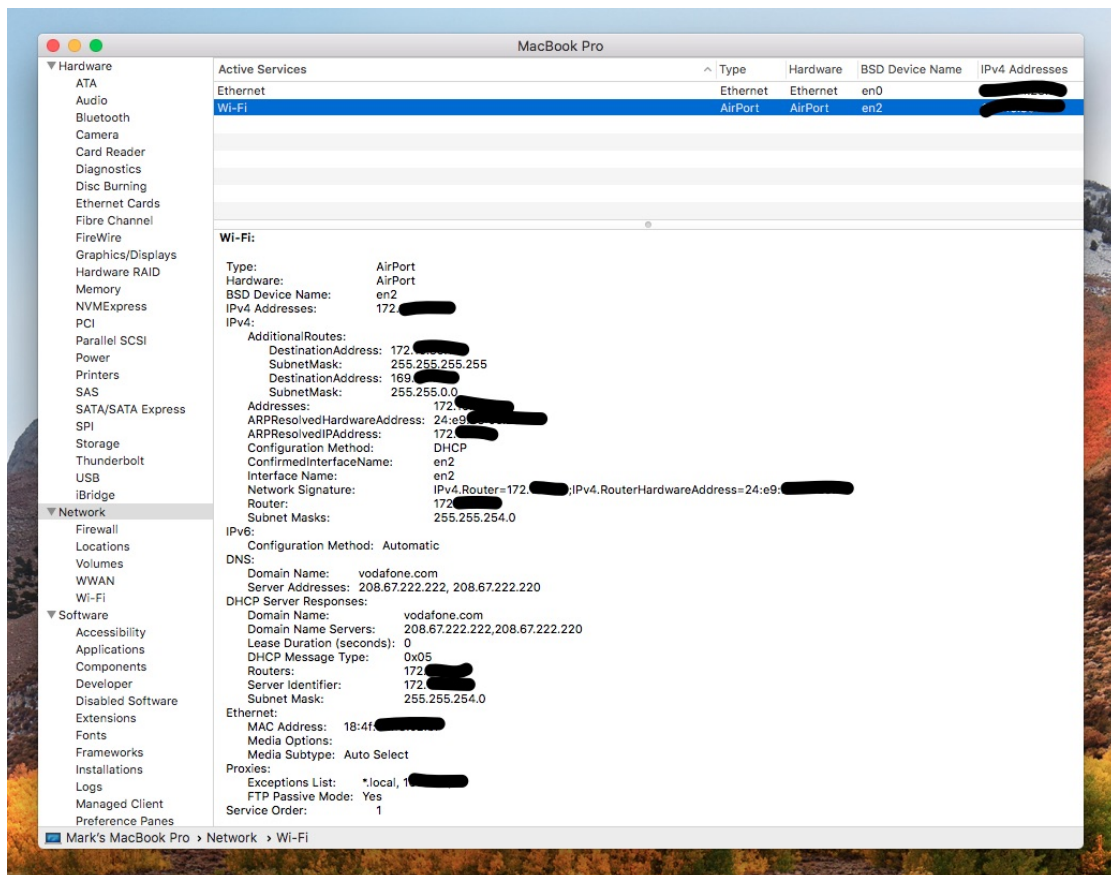
If something feels like its not coming together, you might have the cables obstructing something, use caution.

There are 2 snaps in the centre of the laptop, just above the battery, I was only able to make one of these pop back. The other is close to the BROADCOM module and I didn't want to force it back. This is the slight bulge that I mentioned.

Secure the back cover with all of the Torx screws and put the foot back on the centre position. (It only fits one way)

STEP 9: Boot Up and check the system report

The moment of truth. If everything has gone well with the installation, you should be able to power on and run a system report. Go to the network section and see that you now have AirPort WiFi. It should look something like this:

CONGRATULATIONS, YOU NOW HAVE INTERNAL WiFi !!!

UPDATE 2018-05-03

Dailansky updated his Master Github branch for the Xiaomi Mi Notebook Pro on 2018-04-13.

If you apply these updates to your system, it will disable the Airport interface and you wont have WiFi.

To restore the Airport functionality, the FakePCIID Kexts from RehabMan need to be installed.

These can be downloaded from: https://bitbucket.org/RehabMan/os-x-fake-pci-id/downloads/

Install FakePCIID.kext and FakePCIID_Broadcom_WiFi.kext to /S/L/E using KextBeast.

In my experience, a reboot was not required, the Airport interface should start working straight away. If it doesn't, try a reboot.

The Broadcom WiFi should be working again, showing up as Airport in the system report.

POSSIBLE IMPROVEMENTS:

SWAP THE SSD AND WiFi ?

A question came up in the forum, why not swap the SSD and WiFi around to make the cables shorter?

That was a good question!

When I was putting this solution together I was under the impression that the secondary m.2 slot was slower than the primary m.2 slot (2x PCIe lanes instead of 4x PCIe lanes), so I did not consider swapping the SSD and WiFi around, as I didn't want to lose SSD performance.

There is still some uncertainty around this, and I may have gotten that wrong. It is possible that the secondary slot could support the same speeds as the primary.

With the SSD and WiFi swapped around, the antenna extension leads can be much shorter and easier to route. This would only require 2 leads, rather than 4, which would be a neat solution.

I have no plans to pull apart my laptop again to test this, but this is a possible improvement if anyone else wants to try!

IF YOU APPRECIATE THE EFFORT I PUT IN WORKING OUT THIS WiFi SOLUTION, PLEASE CONSIDER MAKING A SMALL DONATION TO MY PAYPAL ACCOUNT HERE: paypal.me/owenlars