

## **How to service a computer**

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**PLEASE READ THE DISCLAIMER BEFORE ATTEMPTING TO FOLLOW THIS GUIDE**

Welcome to our how to guide in this guide we are going to walk you through some basic maintenance of personal computers.

If done regularly your computer will have a longer life span and will run cooler causing far less issues that require technical support.

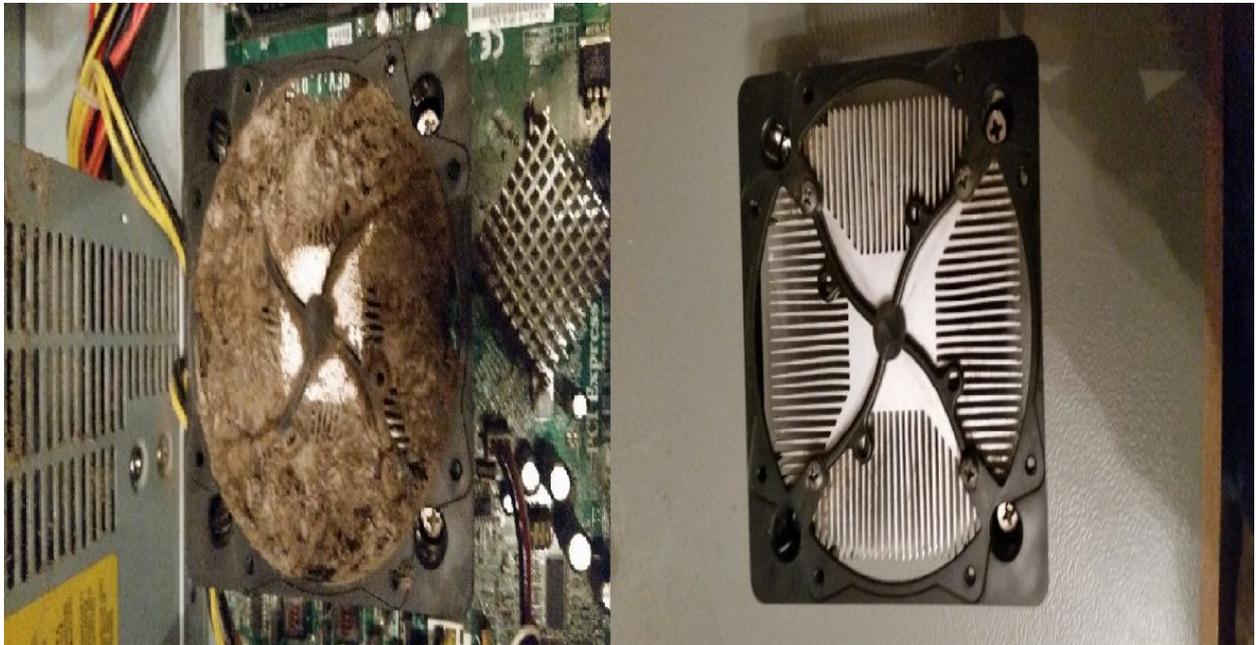


### **Things you need to service a computer**

- 1) A Philips screw driver
- 2) Thermal paste
- 3) A slightly damp clean cloth ( nearly DRY )
- 4) Clean small paint brush ( ideally unused )
- 5) A Hoover ( optional if the computer case is heavily filled with dust )
- 6) Thermal paste remover / or IPA ( isopropyl alcohol )
- 7) Tissue paper any type

Over time our computers collect dust which restricts air flow and makes our computers run hot and noisy.

This is because the cooling fans must spin up faster than usual to try and cool the system back down, a good example of this is in the picture below.



Heat spreads from the computer brain ( CPU ) evenly through the metal block filled with fins for air flow provided by a fan sitting on top.

But if the fins are clogged up with a thick layer of dust as above there is no air flow to the cooling fins at all resulting in a hot, noisy, sluggish computer.

### **So where do we start?**

Firstly, and most important of all we start by.

**Completely unplugging the computer.**

Now we have our computer unplugged we need to have a look at the left-hand side.

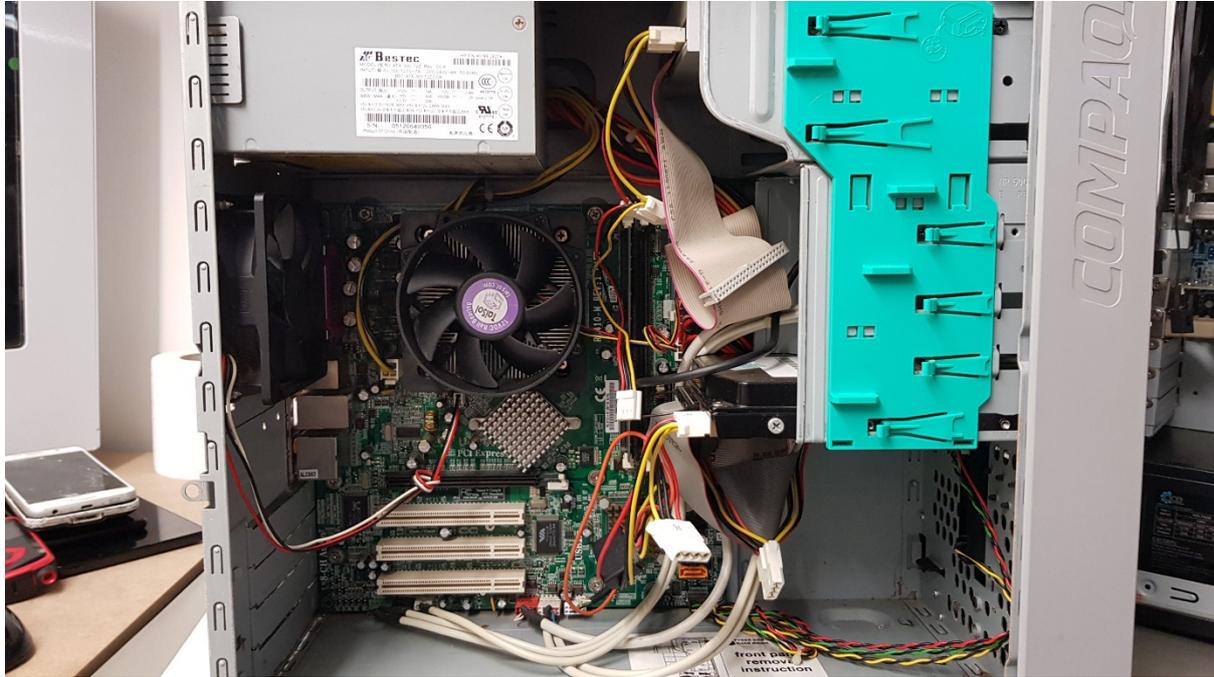


On the back edge you will find some screws that can be removed to slide off the side panel.



I have marked off the most common spots for the side panel fixing screws with blue circles for your convenience.

Once removed you should be able to either slide the side panel backwards away from the front of the computer or pull the panel out away from the side of the computer to release it.



From here you get a good look at what your computer is like.

If yours is filled with dust it's a good idea to get a Hoover and a paint brush and get rid of the bulk of the dust on the case and cables.

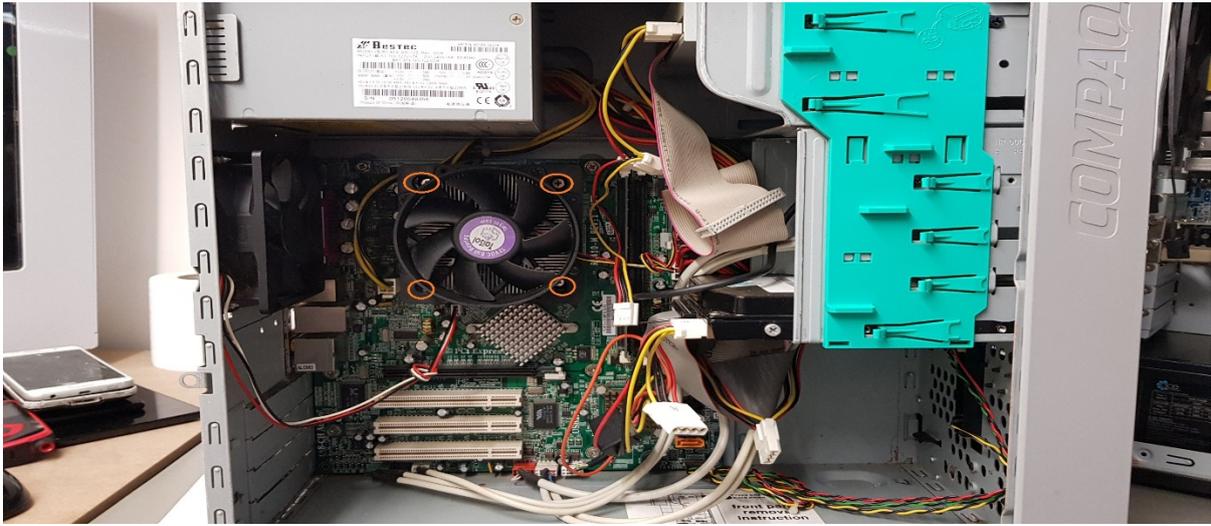
Go along using a dry small paint brush to agitate the dust and the Hoover to suck it away.

You can also use a slightly damp cloth to wipe down any dusty cables.

Next we need to look at our CPU cooler, there are a few different ways these can be attached to the motherboard.

(The motherboard is the largest circuit board fixed to the case which every other component attaches to.)

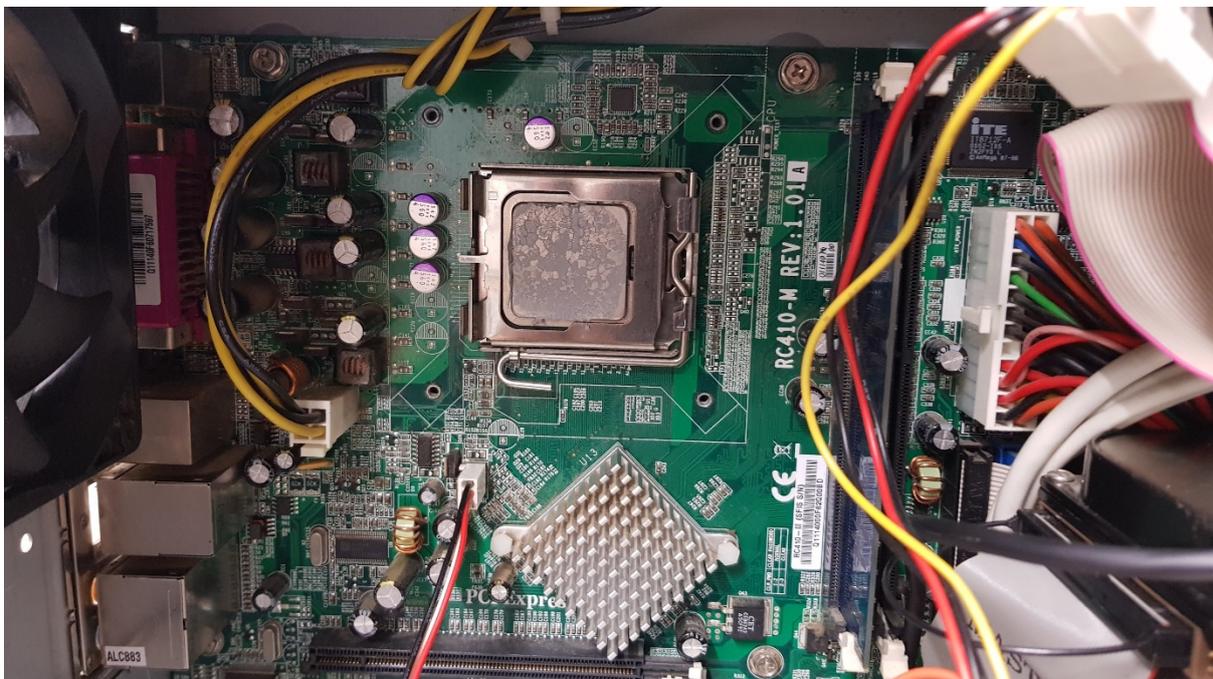
## CPU cooler removal intel style



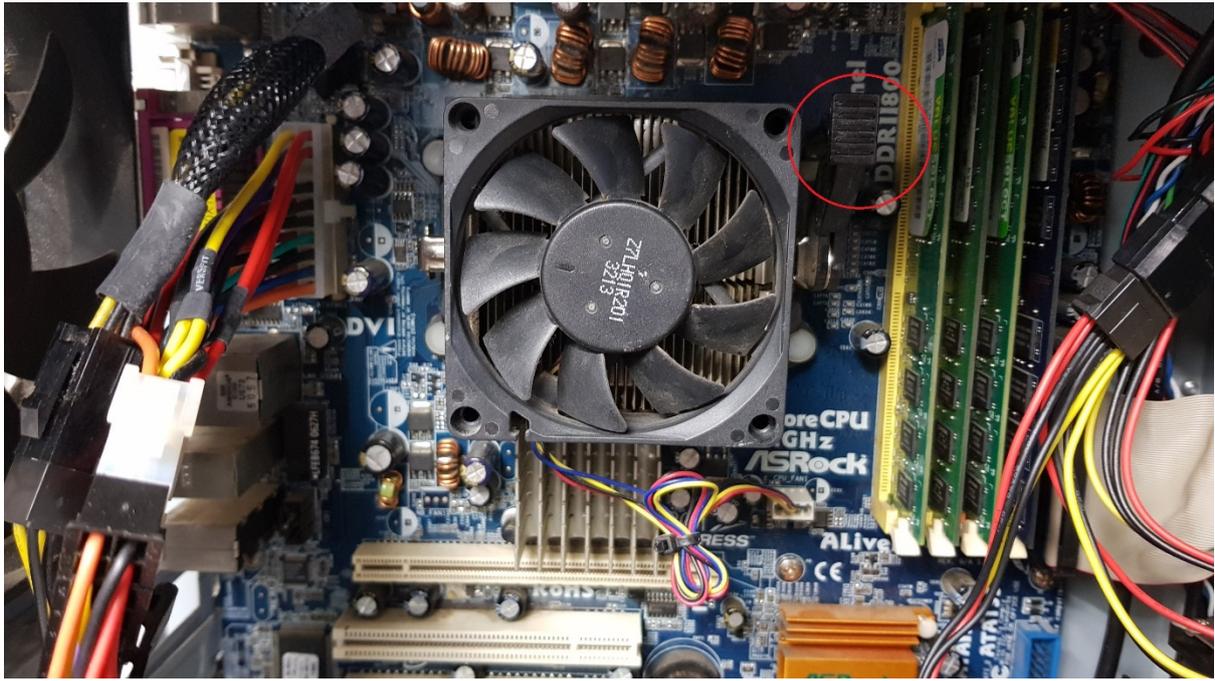
Common intel CPU cooler remove the 4 screws marked in orange once removed carefully twist the cooler block clockwise to release the CPU from the old thermal paste.

This step is important sometimes the thermal paste on top of the CPU may be hard and well bonded to the aluminium cooler, yanking this out could damage the CPU and motherboard.

After a gentle twist you should be holding the cooler which is now only attached by the fan cable which can be gently pulled up away from the motherboard.



## CPU cooler removal AMD style



On AMD motherboards your CPU cooler may look like this with a bracket that stretches across the cooler and connects to black clips either side of the CPU socket.

Marked off in red you'll find a lever this can be pulled down to slacken the bracket allowing you to remove it from the clips.

Once removed carefully twist the cooler block clockwise to release the CPU from the old thermal paste.

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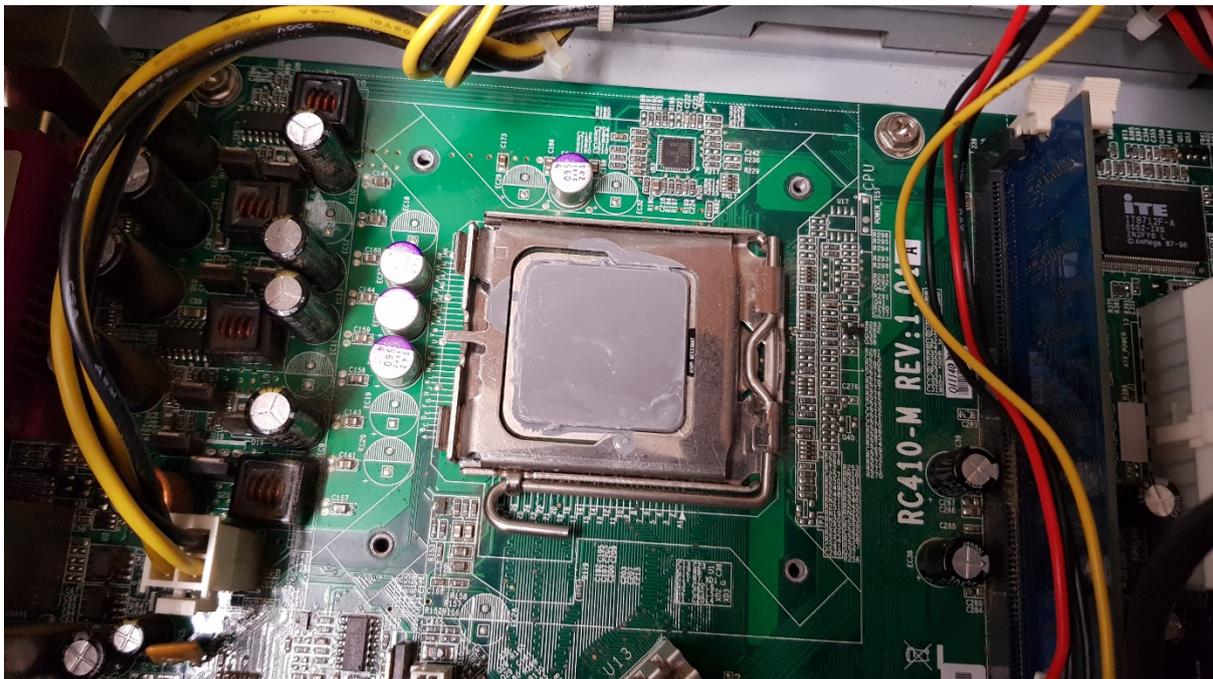


## CPU Cleaning

You can either use a 2 part thermal paste removal kit or a 1 part IPA (isopropyl alcohol), to remove old dry thermal paste from the CPU chip for this guide we will be using the 2 part removal kit.

First apply solution 1 a small drop in the centre of the CPU is plenty, it helps to have your computer laying down when cleaning the CPU and there is no need to remove the CPU from the motherboard.

Agitate the small drop of solution 1 with a clean small paint brush it will turn to a runny liquid wipe away the liquid with some clean tissue paper.

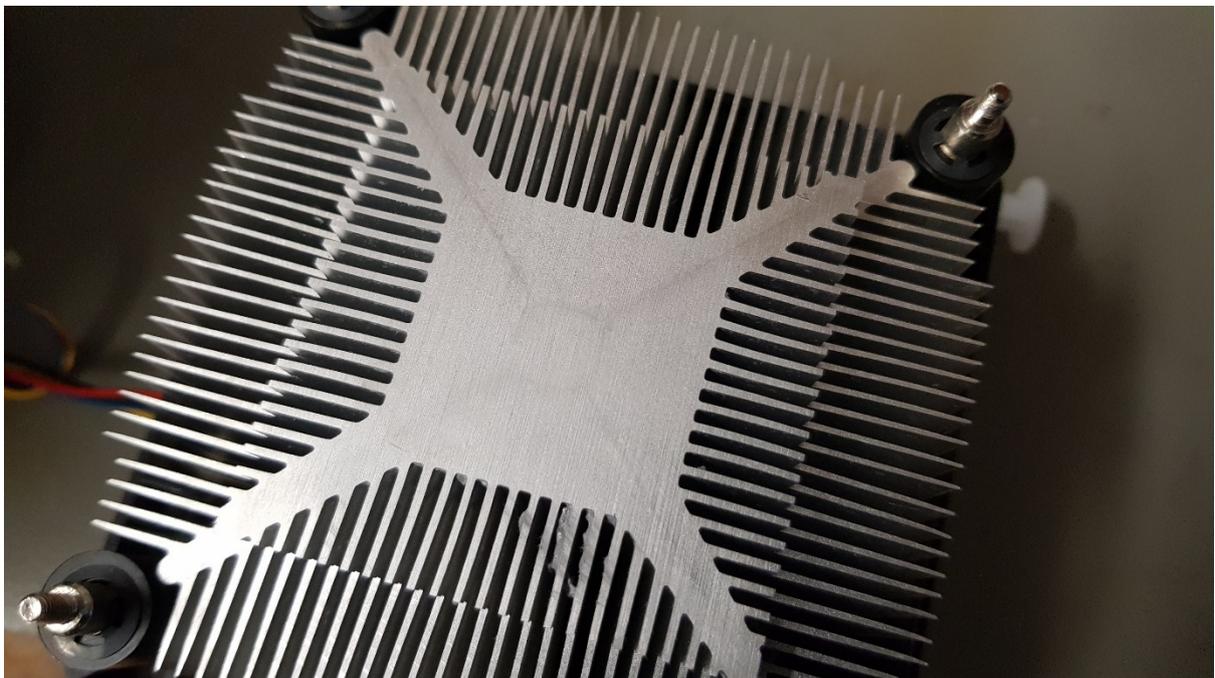
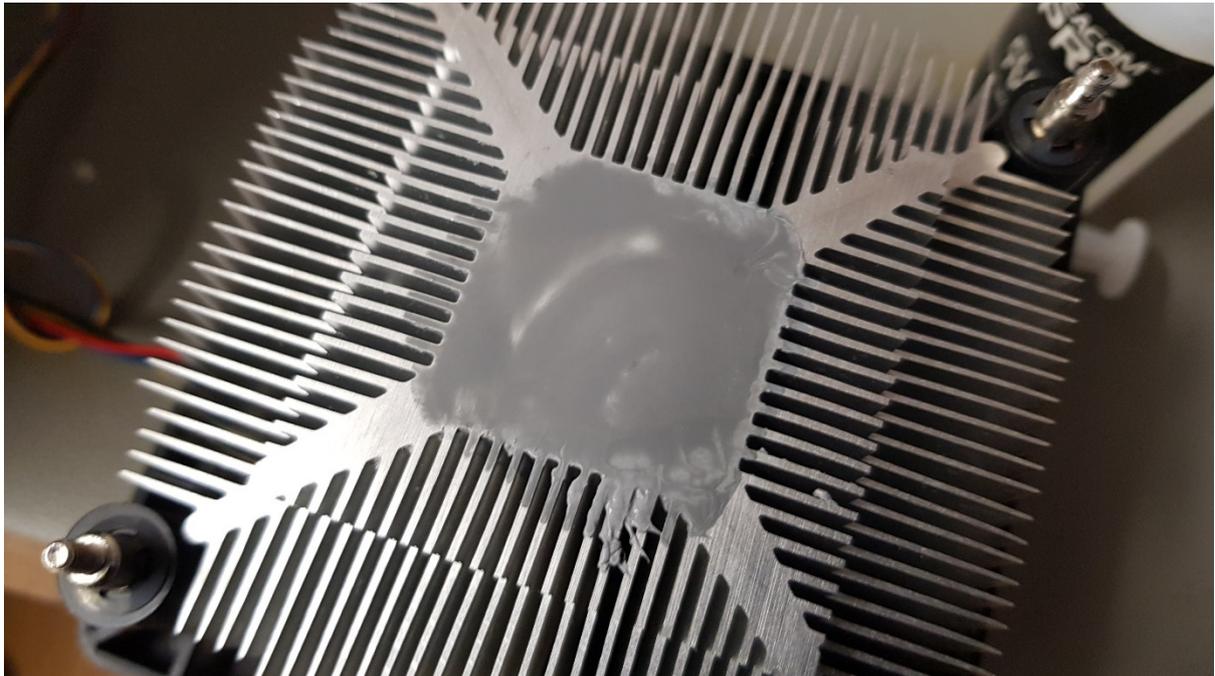


Solution 1 breaks down the thermal paste to make it easy to remove but it is usually citrus based and leaves behind deposits of its own.

So apply a small drop of solution 2 to purify the surface and prepare it for fresh thermal paste.

Agitate the area with your brush and wipe away with some clean tissue paper.

We need to repeat the process on the back of our CPU cooler like this.



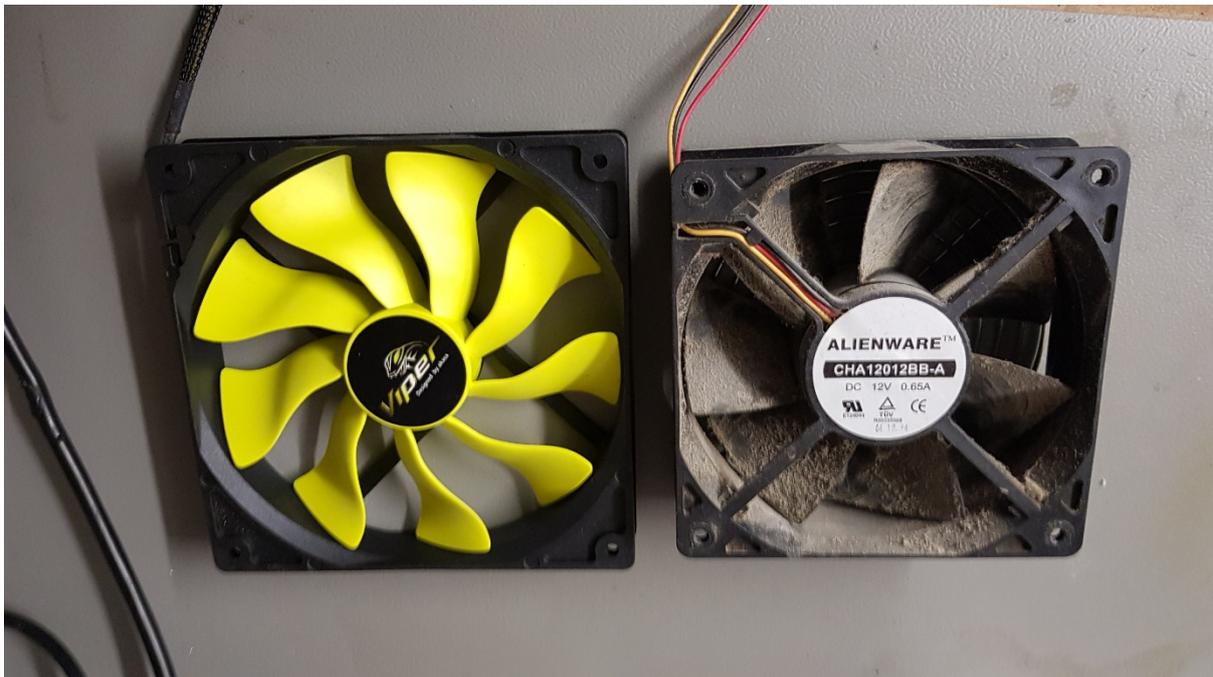
## Cleaning the cooling fans

Next we need to clean all the fans in our computer this may be few and may be many but with a slightly damp cloth all the fins on each fan should be wiped clean.

This will include unscrewing the fixing screws to remove them and give both sides of the fans a clean.

Take note of the way the fans attach to the computer as refitting the fan the wrong way around could jam the blades or reverse the flow and not work as intended.

Dirty fans become unbalanced and wear out quicker.



TOP TIP wrap your finger inside a damp cloth and use the tip of your finger to wipe down the fan blades.

Take care not to apply too much pressure so as not to damage the blades or motor in the centre.

## Removing case fans

To remove case fans simply hold the fan with one hand whilst you remove the 4 screws marked in orange.



Your fan may be in a different spot maybe at the front of the case or even on top, but the principal is the same 4 screws one in each corner usually from the opposite side like this...





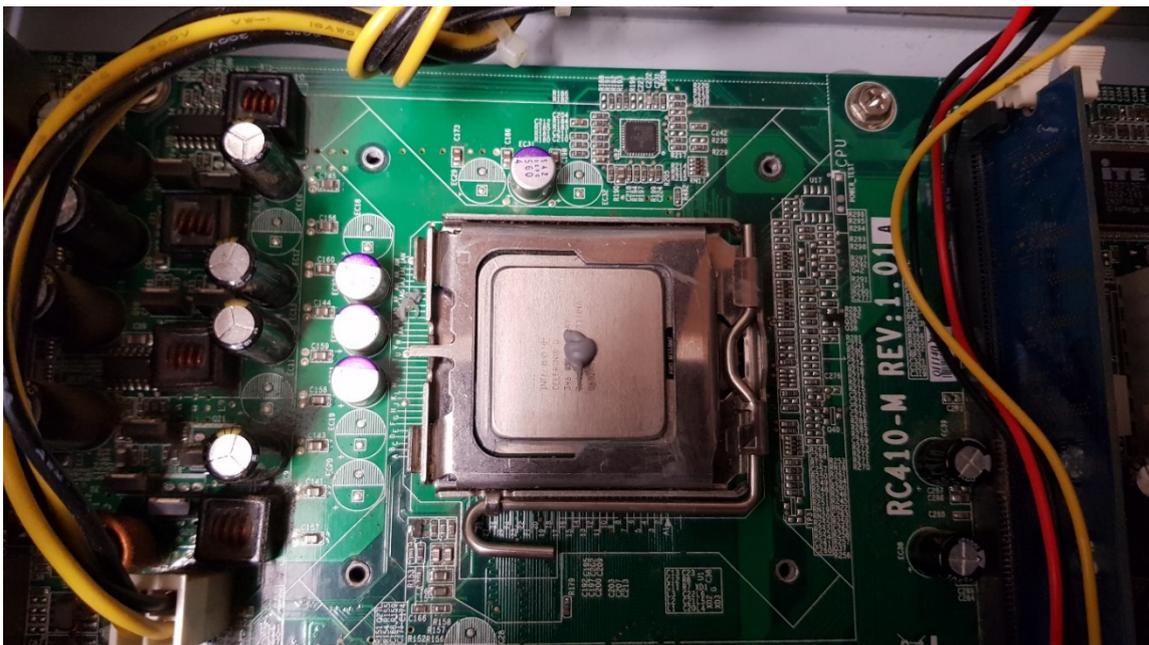
Once all your fans are cleaned we can go ahead and reverse the process and refit them.

### **Applying thermal paste**

Thermal paste should be applied sparingly, there is a saying less is more.

And this applies to thermal paste, the correct amount to use would be a blob no bigger than a grain of rice.

Placed on the centre of the CPU like this...



Now its time to reverse the process from earlier and re attach the now clean CPU cooler to our CPU chip.

( take care not to over tighten screws once they resist stop )



And that's it all done, your computer should be looking great and with its fresh thermal paste and restored air flow may well be a completely different machine for you.

Computers come in all shapes and sizes and do differ in appearance and capability this guide is intended to teach you the fundamental basics.

As you will find the things you learn here will still apply to even the most high-end gaming rig.

There will simply be some extra jobs to tackle such as cleaning graphics cards, and water cooling loops, which is something we are going to write up a whole new guide for.

We hope you enjoyed our guide, and maybe learned something new along the way.

Thanks for reading, why not check out our website and Facebook page to see examples of our work, and find out about all our other services like games console and mobile phone repairs.

## **DISCLAIMER**

We would like to take this opportunity to say that Matthew Callear and Callear Technology take no responsibility for any damage caused to your system as a result of following this guide.

whilst every precaution has been taken to make this guide detailed enough to aid you in servicing your computer we cannot account for user error in following this guide.

Should you wish to have a go yourself and follow our guide you do so at your own risk.

Alternatively, if you want your computer serviced, and don't feel up to it yourself, we offer professional computer service packages from as little as £30.

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