

Troubleshooting why your newly built or upgraded PC does NOT start

You have just finished building your new PC, or upgrading your existing PC to a faster spec. Or you have simply just repaired your PC through replacing one or more faulty parts. You connect all the cables, switch it on, and..... there is no display !

What could the problem be ?

The problem could be absolutely anything. It could be that ...

- The Motherboard is touching the case
- The VGA Card is faulty or is not pushed down correctly
- The PSU is dead or faulty, or not connected !
- The Hard Disk Drive is dead or faulty
- The IDE cables are connected incorrectly (if you do not use SATA)

These are just a few of the possibilities as to where the problem could lie. In truth, the problem could be something completely different, or, in the worst possible scenario, it could be a combination of the above. When faced with this type of problem the best way to deal with it is to go back to basics and **work by elimination**.

The essential “Bare Bones” PC

The essentials of a PC are as follows ...

- a) Motherboard
- b) CPU
- c) CPU fan
- d) Memory (RAM)
- e) VGA card (Graphics card)
- f) PSU (Power Supply Unit) which is an integral part of most new PC case.
- g) The PC Case

That's all !!! Nothing else is needed to have the “**essential bare bones**” PC – ie. the original PC with no storage (hard disk, Zip, DVD, or USB drive), no connectivity (modem, network card, USB wireless), and no frivolities (performance sound card, Firewire card, etc...). This essential bare bones PC will give you a display, you will not be able to do much more than play with the BIOS but at least you will know that the base structure of your PC works if you get a display.

Homing in on the problem

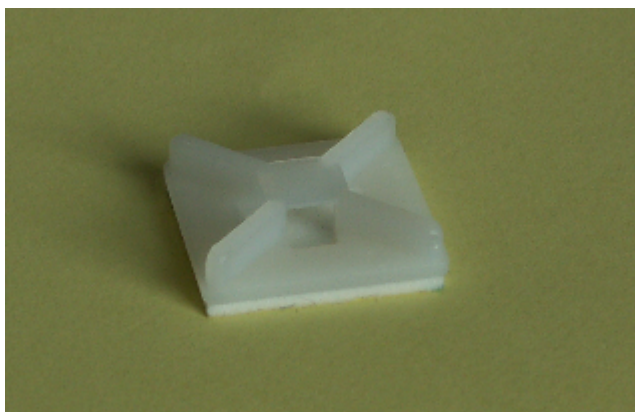
As mentioned above, in such circumstances we recommend approaching the problem by elimination, as follows...:

- Disconnect absolutely everything till all you have is a bare bones PC **as per points (a) to (g) above.**

- See if the PC is working. If it is not working then you either have a problem with improperly connected items, or one of the components is faulty and you will then need to replace them one at a time to see which one is the problem. Here are a few pointers :

- **The PC beeps but nothing else happens.** If you hear beeps then often there is an explanation about them in the motherboard manual. If there is no documentation, or the manual makes no mention of beeps, then remember that beeps **always** refer to a problem with either the Graphics card (VGA card) or the memory. *Check that both the memory and the graphics card are properly inserted. It is always worth taking them out and putting them back in.*

Note : in May 2006 we came across an amazing memory issue which seems to plague most users of the Gigabyte K8N series of motherboards : GA-K8N, GA-K8N Ultra-939, GA-K8N Pro, GA-K8NS, GA-K8NS Pro, GA-K8NS Pro-939, GA-K8NS Ultra-939. It is a ridiculous and shocking issue which Gigabyte need to address with a totally different board. *First, the problem : users find the PC won't boot, it will either beep, or it will work with one 512Mb stick of memory, but not with two 512Mb sticks of memory, or worse, the motherboard works but experiences frequent crashes & freezes.* The cause : the majority of those motherboards are slightly bent (we use mostly Gigabyte boards, so we know!), pure and simple, with the result that the memory chips go in at both ends but there is no contact in the middle. If you look carefully, you will see that that is indeed the case. This is the simple reason why so many users experience problems with the K8N series boards. To solve it, place on the PC case, exactly below the point where each DIMM's middle notch is, something like a flat plastic motherboard support, or anything that achieves the same purpose – we use a cable tie like the one below to solve the problem :



Doing this solves the problem instantly as it flattens out the bend in the motherboard and the DIMMs then insert properly, at both ends **and** in the middle.

- **Nothing moves.** Absolutely nothing, the PSU does not start, the CPU fan does not go round, no lights come on on the front of the PC, everything seems dead !
 - **Have you plugged the PSU into the motherboard ???** (A classic, and we ALL do it once!).
 - Some PSUs come with an ON/OFF switch at the back of the PC. Check that it is ON, and also check you have definitely plugged your PC into the mains !
 - Also, check that the base of the motherboard is not touching the case - if it is, that creates a short-circuit and your PC does not get started (if the motherboard is touching, then use a small piece of anti-static foam in the appropriate place to isolate it from the case – often, nowadays, the case will come with little plastic supports for just such eventualities).
 - Check that a screw has not strayed underneath the motherboard, thus creating a contact between the motherboard and the case.
 - We have also seen instances of faulty CPU fans preventing anything from happening.
 - Staying with CPU fans, from 2001 onward many motherboards will not power on if there is not at least one working CPU fan plugged into the **onboard CPU Fan** connector.
 - Unplug the **Reset** connector cable from the motherboard. Once or twice times a year we come across a PC case where the Reset button on the case is faulty and results in the PC being permanently in the “Turned OFF” position if the Reset cable is plugged into the motherboard.
 - Check the **Power** connector cable, working back from the motherboard all the way to the button on the PC case – again, once or twice a year we come across a case where the power ON/OFF connector cable has come off, or broken off, from behind the ON/OFF button of the case.
 - In countries where mains cables are fused (e.g. the UK), check if replacing the mains power cable solves the problem (unless you know that the cable definitely works).
 - If you are not plugged directly into the mains outlet on the wall, either try plugging directly into it, or replacing any extension/4-way that you are plugged into.

- There are lights, CPU fan is working, no beeps, but the PC still does not come on. This is potentially the worst case scenario and usually means a dead motherboard (most likely) or a dead PSU. *Note, however, that it can also mean a dead Graphics card as, nowadays, many motherboards do not necessarily beep if the Graphics card is faulty, so try replacing that first.*

If none of the above pointers help you solve the problem, then replace each of the components one at a time, restart the PC, and see if you can get your PC started. Replace them in this order : PSU, Graphics Card, Motherboard, CPU Fan, CPU. Note that CPUs are very rarely faulty unless you are buying OEM CPUs from a really unreliable source.

- If, unlike the above scenarios, the **bare bones PC** is working, then connect each additional item one at a time and reboot the PC after each new item that has been connected. If it boots fine then connect the next item until such time that the PC refuses to boot, at which point you have successfully homed in on what the problem item is.

When going through this step by step approach, reconnect the hardware in the following order :

Floppy Drive
Hard Disk
DVD/CD-ROM/DVD-Writer/CD-Writer drive
Sound Card (if using an add-on performance sound card)
Network Card (if not using the onboard network card)
Any other devices / cards

- That's it. We hope this document will have helped you solve your problem !!!

ooooooooOOOOOOoooooooo