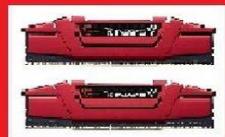


How to Build a Gaming Computer

HOW TO BUILD A GAMING PC



*I HAVE ALL THE
PARTS NOW WHERE
DO I START?*



Hello, Gerry from [GCCY](#) here and today I am going to be showing you how to put together a gaming rig. There's really not much difference between building a gaming desktop or a regular PC, but I have a few tips and recommendations. I am not going to be specific about whether you go the route of either AMD or Intel as the actual building for either system is very similar, the only thing I will say is that one is more expensive in general to the other and we all know which one that is. The building of the PC will be highlighted below in a 23 point explanation with photographs, but don't panic, it's really not too difficult, just take your time and you will enjoy it.

I am not going to be specific about the particular parts, just be aware they all need to match and for advice you are welcome to contact me at [GCCY](#). There are 6 main parts we are going to be looking at for the build today and they are:

- 1/ The CPU (Central Processing Unit, or processor). This is the single most important part of your machine, the brain of your computer.
 - 2/ The RAM (Random Access Memory). This store's everything that is being used in real-time
 - 3/ The Graphics Card or GPU. For a gaming PC, you will need a discrete or separate graphics card.
 - 4/ The Hard Drive/s. This is where the operating system (Windows), your games, music, and videos are stored.
 - 5/ The PSU (Power Supply Unit). This supplies power to every component in the computer.
 - 6/ The Motherboard. Everything connects to the motherboard in some way. -Optical
- Other forms of drives, such as DVD drives etc. and PCI cards I will not go into today.

For any assistance you may require regarding the above parts, you are welcome to contact me at [GCCY](#).

Note: Professional PC builders will often build all of the parts outside of the case and turn the PC to make sure it "posts" before installing inside the case. If you are careful and do everything properly, you will not usually need to do this, unless you are really unlucky and have a faulty part, so for the purposes of this guide, we will be building directly into the case.

This list does not include the OS (Operating System), but I will do a brief blog on how to install the OS later.

1/ Tools.



Well if you have never built a computer before you may find it surprising to know that the main tool you will need is one of these..... A simple Phillips-head screwdriver.

2/ Open the case.



In this day and age, if you are building a gaming desktop or new PC, you usually won't even need a screwdriver at this point. You will find that the front and rear covers are more often than not held on with thumbscrews and make for very easy removal. Unscrew the thumbscrews on either side of the case to open both sides up. Here you can see the front side panel being taken off and the same principle applies to the back panel.

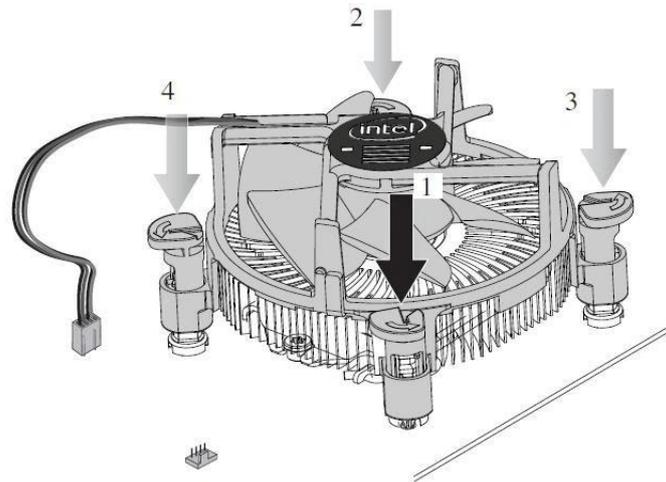
3/ Install the CPU.



Remove the CPU from its protective plastic, but be careful not to touch the gold pins on the bottom, because they are really fragile. On the motherboard, push the CPU cover-up and then the lever on the side. Place the CPU in gently, using the arrows to line it up correctly. **(There are instructions in the CPU packaging, take the time to read them. I have seen cases where the CPU has been put in incorrectly and damaged beyond repair, BE CAREFUL and read the instructions as the manufacturer's warranty will NOT cover this).** Neither will the warranty be covered in the next step if you do not use "Thermal Paste" when connecting the heatsink! A lot of heatsinks come with thermal paste already applied. Then

push the CPU cover down firmly but not roughly. It will feel quite hard to push down, but this is normal and provided you have lined up the CPU correctly you will not have any issues

4/ Connect the heatsink (CPU cooler)



The “heatsink” will fit right over the processor. It has 4 screws (sometimes tool-less tabs) that will have to be secured and AMD has different fittings to Intel, I cannot emphasise enough how important it is to read the instructions to ensure the correct fittings are used and if you are going to use an aftermarket heatsink, make sure it is compatible with your processor AND it will fit in your case. As pointed out above, thermal paste between the heatsink and the CPU is SO IMPORTANT!! Note: This guide does not cover the realms of water-cooling, that will be discussed in a later blog.

5/ Install the RAM



Unlock the clips on the RAM slots, then install the RAM modules in the appropriate slot/s. There is a groove in the RAM that corresponds to the slot. Push down on both sides of the module, and then replace the clips over the module. Repeat for additional modules. Note: If you are installing more than one stick of RAM, you cannot just place them where you want to, check the motherboard manual (on the rare occasion there isn't one, and I have come across that before, check the manufacturer's website and they will tell you the RAM configuration.) If they are not in the correct slots they may not be recognised.

6/ Attach the I/O shield (Input Output shield)



Unless you have bought a more expensive motherboard, your motherboard will come with a small metal piece that fits over the ports on the motherboard. (some more expensive motherboards already have a type of cover fitted). Generally, you will want to lie the case on its side, with the side window of the case up, to make it easier, but you will see what is the most comfortable way for you. The I/O shield goes in a

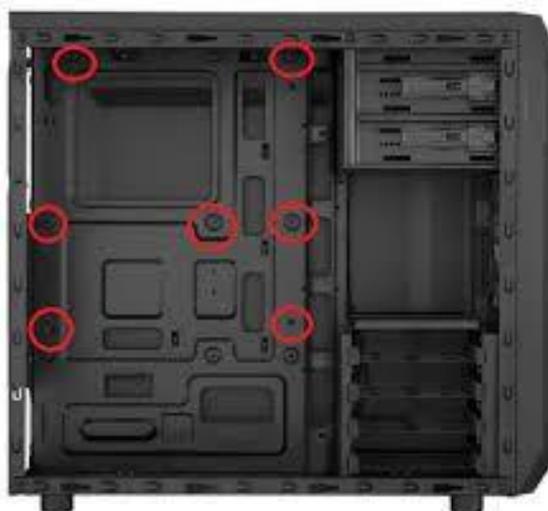
rectangular hole in the back of the case (make sure it is the right way up, there is writing on it), then simply snap it into place.

7/ Install the motherboard



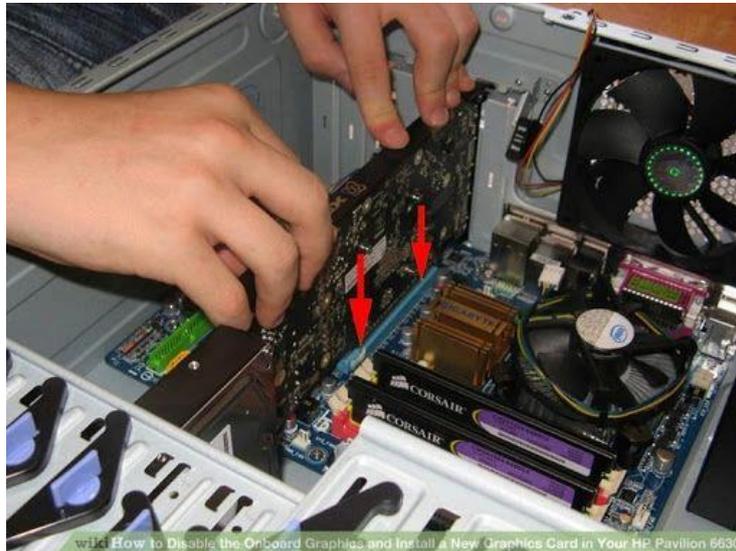
Place the motherboard in the case and slide it until the ports fit through the I/O shield. Note: Once the I/O shield is in place the motherboard can only go in one way with all of the outputs fitting through the openings in the I/O shield. However, before you do this make sure that all of the case risers for the motherboard are fitted as per the photo, these are usually installed in the case already or are provided in the bag of screws that come with the case. This **needs** to be done to ensure your PC will work correctly at a later stage and to make sure that there are no circuits on the motherboard that may be touching the case and shorting out. The picture below should give you some guidance.

8/ Secure the motherboard



Your case should come with some screws. The number of screws required depends on your motherboard and case. Refer to their respective manuals for further details. Use the screws to secure the motherboard to the case. It's a good idea to put them all in loosely then secure them tightly. Not too tight, otherwise you'll crack the PCB of the motherboard and then you will have to start again with a new motherboard. Again, this will NOT be covered by the warranty, please be careful

9/ Install the GPU (graphics card)



Remove the expansion slot covers on the back of the case, and slide the graphics card into place, then push it down into the slot on the motherboard until it clicks firmly into place. Then secure with the thumbscrews. Note: Not all cases are built equally, I have even had some cases that come with little to no instructions, so take your time doing this. The GPU will fit into the motherboard exactly the same way that RAM slots in and you will hear or feel it click when it is firmly fixed.

10/ Install the hard drive/s



I have to emphasise that the photo describes a generic type of case and that not all cases are built equally. Your hard drive bays/SSD bays could be at the back of the case and M.2 drives fit directly onto the motherboard. Some will require mounting as in the photo and others will simply slot in. So you will need to check either in the manual that comes with the case or on the internet where the drives go for your particular. Then you can remove the hard drive bracket from your computer, if necessary, secure it to the back of your hard drive. Slide the bracket with the hard drive back into the drive bay.

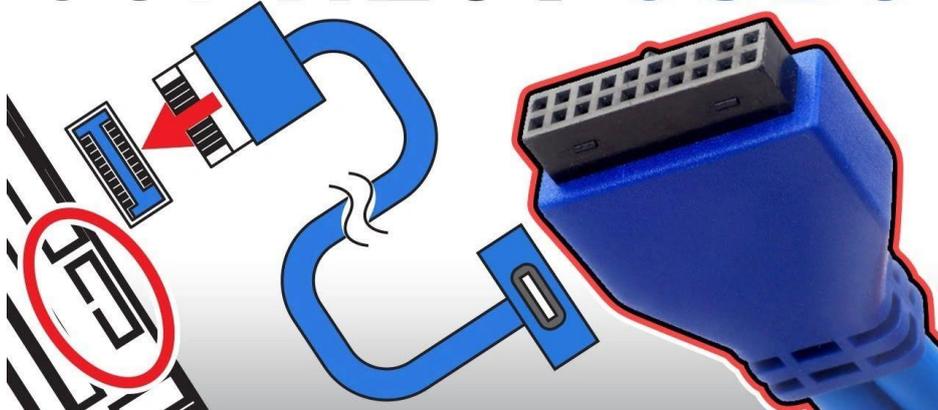
11/ Install the power supply



Remove the thumbscrews (sometimes they are actual screws and not thumbscrews) securing the power supply bracket, which may not on every case. Remember we cannot be specific because there are so many variations, with cases, however, the principle is the same. Attach the power supply with the included screws, then thread the cables through the case, and push the PSU until it is flush with the case. Make sure the PSU does not choke any cables, then simply screw the PSU into the provided locator points. Note the PSU is USUALLY at the back of the case, however, sometimes they are at the top or bottom. Confirm with the manual for your specific case. Note: If you are using a case with a side view panel, you will likely want to go for a modular PSU which will make cable maintenance that much easier for you.

12/ Attach the USB 3.0 cable

CONNECT USB3



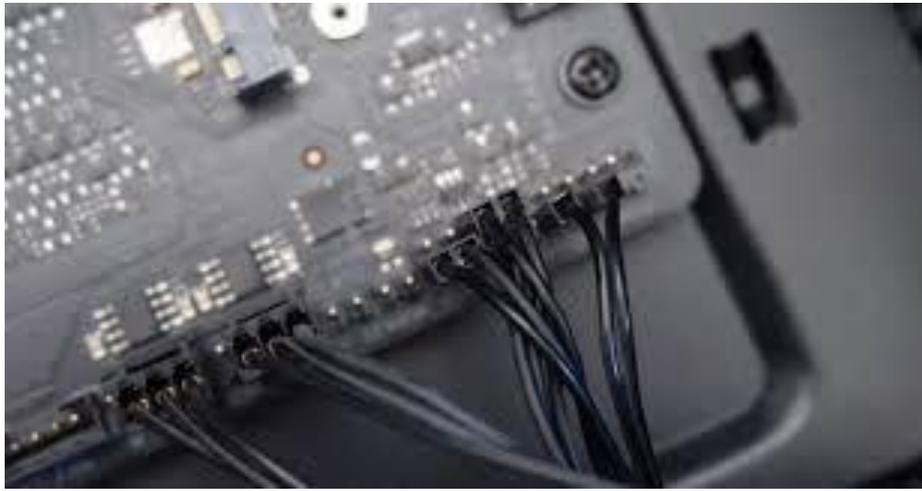
This is a cable that is attached to the front panel of the PC case usually along with the other cables that will need attaching shortly. This is probably the easiest of the cables to recognise as it is normally the biggest. Place the USB 3.0 cable in the indicated spot on the motherboard (it will normally have writing on both the cable and the slot to place it). Going forward all of the cables to connect from the case will normally be marked on both the cable and the allocated slot on the motherboard, just take your time.

13/ Attach the HD Audio cable



Attach the HD audio cable to the indicated spot beside the RAM and graphics card. It may help to remove the graphics card temporarily.

14/ The remaining case cables



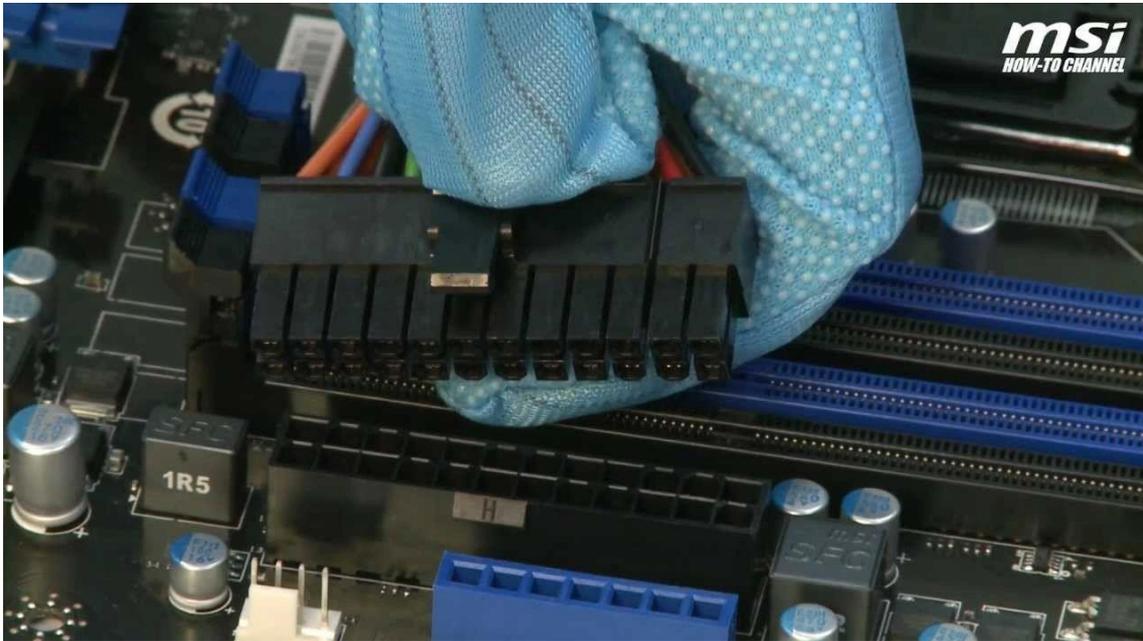
There will be some remaining cables for your motherboard. Refer to the manual that came with the motherboard or through the website of the motherboard manufacturer, on how and where to attach these for your specific model, however generally they all fit next to each other and it is a simple, but fiddly, task.

15/ Connect graphics card to PSU



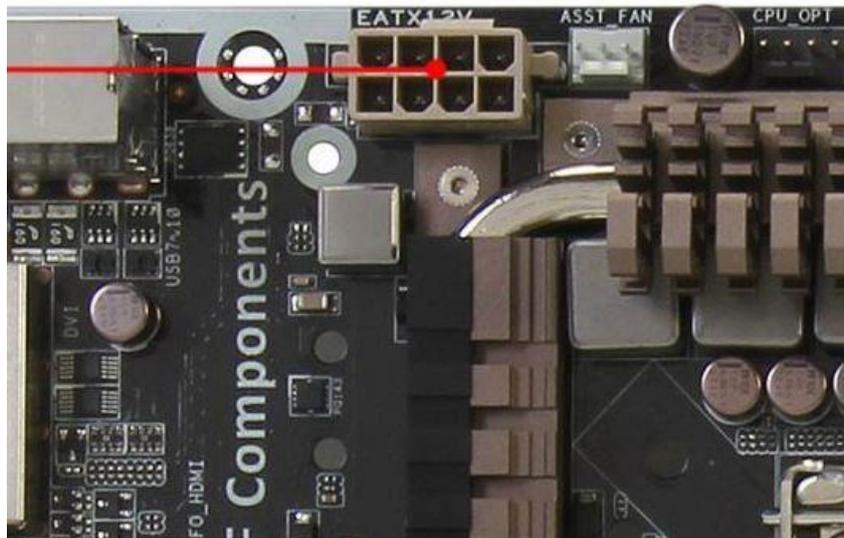
There will be a 6-pin PCIe connector coming from your power supply. This powers your graphics card. Some graphics cards need two of these, others need none. There will be ports on the top of the graphics card as shown in the photograph

16/ Connect the PSU to the motherboard



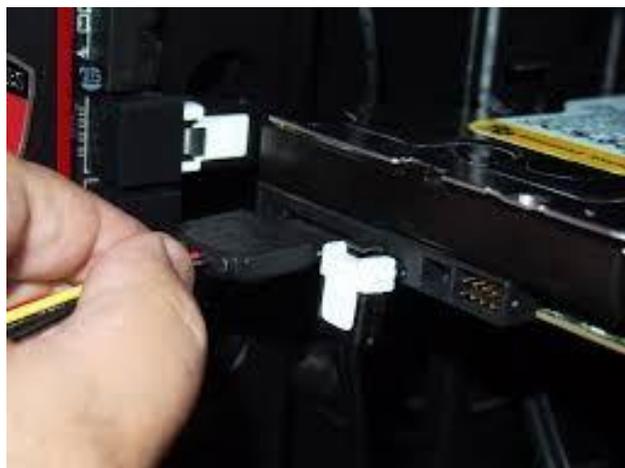
There will be a 24-pin connector that powers the motherboard. Connect in the indicated spot. Take your time and it will only fit in one way.

17/ Plug the CPU power pins in



There will be a CPU power pin. It should break into 2 parts for the motherboard and normally, you will only use one half.

18/ Connect the power to the hard drive



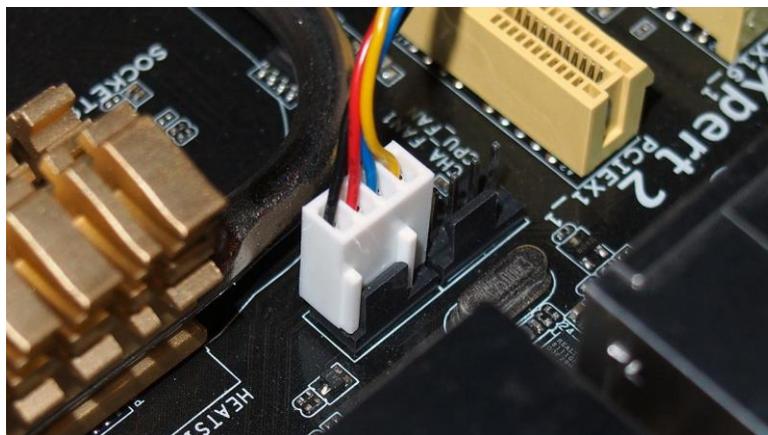
There is a SATA power cable with a protruding connector. Hook this into the hard drive. It will only fit in one way.

19/ Heatsink power



Next is the heatsink power cord. It comes off of the heatsink and is normally very close to the heatsink itself at the top of the motherboard.

20/ Attach the case fans to the PSU and or motherboard



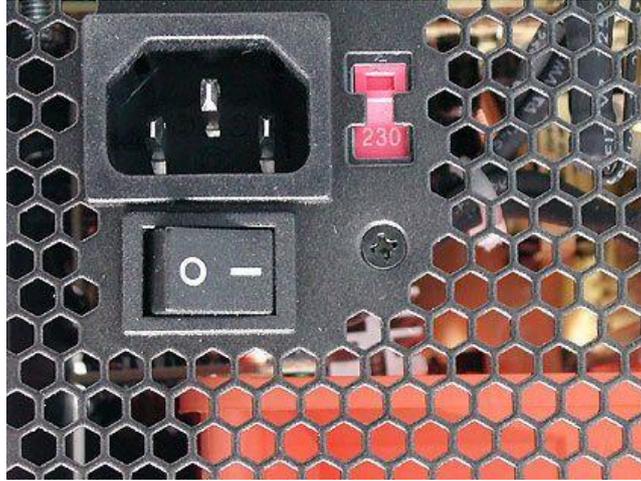
The case will have a small 3 or 4 pin connector for the case fan. Connect this in the indicated spot. There will be another in the back that will need a 3-pin to "Molex" adapter. Hook the adapter into the PSU and the other end to the 3 pin connector. I cannot stress enough that in this day and age there are different connectors and you should consult your motherboard manual for the exact location of the connections if you are unsure.

21/ Attach the hard drives to the motherboard



The motherboard will come with a SATA cable. Connect one end to the hard drive and the other to the motherboard. This is pretty straightforward and you should have no issues with this

22/ Switch on the PSU



OK, so you have managed all the cables and it's all tidy and the PC is all back together. Now comes the time to start her up. Make sure your monitor is plugged in and the HDMI cable (or other) is connected from the PC GPU and from there to the monitor and switch the PSU on.

23/ Power on!



Press the power button on the case and (hopefully) the computer turns on! You should get to the BIOS straight away, but if not, first of all don't panic. Take the side panel off and just check that you have all of the cables plugged in and that they are all in the correct places. If you have done all of this and it still won't "post", contact me at GCCY for further guidance.

Now you have done that and hopefully have a "post-screen" you need to install the OS and drivers. Some of you will be able to do this and may have done so in the past, but for those that have not, I will provide a guide to this in my next blog. Both this and the next guide will be put on my website as downloadable PDF's for you. If you need any help please contact me at sales@gccy.co.uk