How to Build a PC?

Brands

When choosing parts for a PC, one of the first decisions is selecting the correct CPU and GPU brand. For CPUs, the two main competitors are Intel and AMD (Ryzen/Threadripper), each providing options for different budgets and performance needs. For GPUs, the brands are NVIDIA and AMD, both providing powerful GPUs used for gaming, editing, and work. Each brand has its own strengths and weaknesses, their differences help beginners choose the right brand for price and performance.

Choosing Parts

To make the process of selecting parts easier, you can use the AI Chatbot on this website, which provides suggestions based on your needs and budget but has limited options in budget. The chatbot can guide beginners by recommending compatible CPUs, GPUs, and other components. You are not limited to this tool, you can also research parts on your own or use trusted websites such as PCPartPicker or Amazon.

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Note- Descriptions are given to all the parts, only stock part description and methods are addressed.

Motherboard

Description

Motherboard is the baseplate for all the components, similar to a lego base, where all the pieces are assembled on it. Major differences between motherboards are their socket types (different sockets support different CPUs) and DDR slots (DDR is a classification of the level of speeds of RAM), check your motherboard description to see which socket type it is and what ram it supports.

Basic Labelled Motherboard
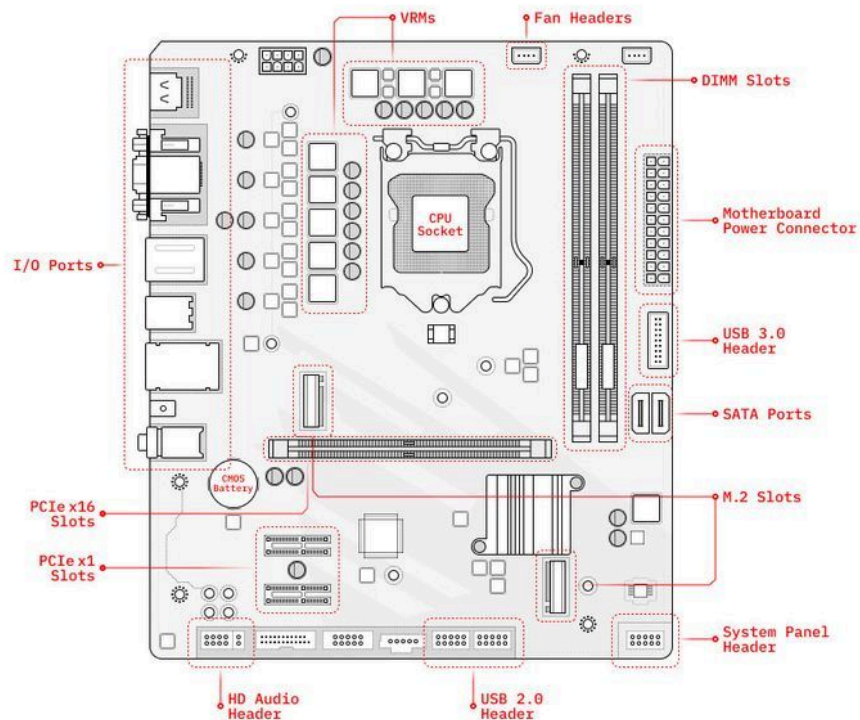
CPU

Description

A CPU (Central Processing Unit) is like the brain of a computer. It handles all the tasks that make your computer run. The CPU takes input from programs, processes the data, and sends it back as output so your computer can perform tasks. Its speed and efficiency affect how quickly and smoothly your computer works, which is why choosing a good CPU is important for things like gaming, editing and work. Think of it as the engine that powers your entire system. For building a PC, you don't need to understand the CPU process in depth.

Cautions

Do not touch the bottom of CPUs which have pins, those pins are very sensitive, just one pin with minor angle adjustment can cause you to lose performance, same goes with motherboards with pins.
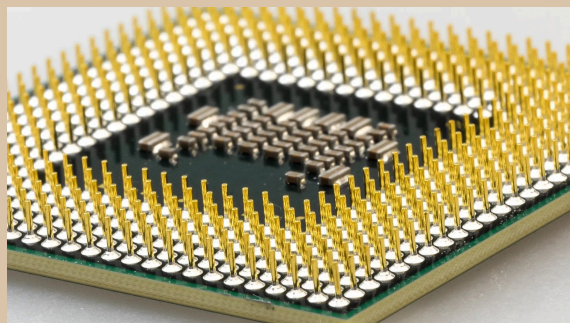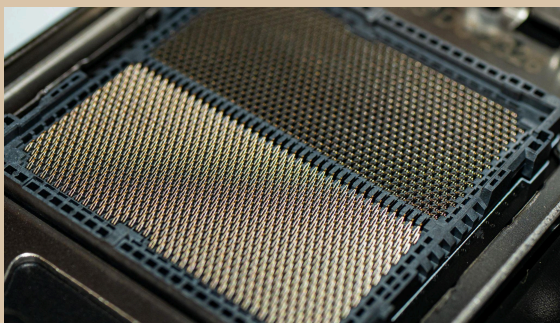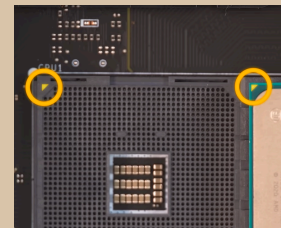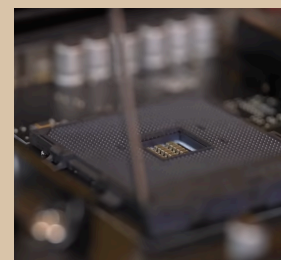
Inserting the CPU

AMD AM4 CPU

To insert your AM4 CPU follow the follow steps

Start by holding the CPU on its sides and align the triangle on the CPU with the one on the motherboard.

Pull the Lever all the way up, while doing so, you should be able to hear a subtle sound when you pull it all the way up.

After you pull the lever up, seat the CPU properly on the socket, ensure the triangle on the CPU is correctly aligned.
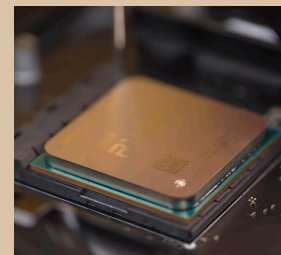
After inserting CPU in the Socket, pull down the lever to lock it into place, you may feel resistance when you do it for
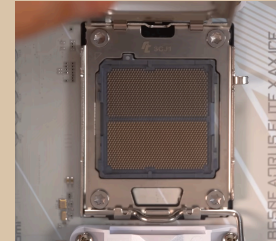the first time

Congratulations You Have Successfully Inserted Your CPU In The Motherboard
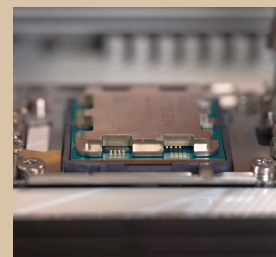
AMD AM5 CPU

To insert your AM5 CPU follow the follow steps

Start by pulling the lever on the motherboard up and then pull the cover up, make sure not to touch the pins on the motherboard.

Align the triangles and gently place the CPU on the socket, gently push along the sides into place. Do not apply force, it will cause damage to the pins.

Pull down the cover onto the CPU after ensuring the CPU is seated properly and secured without damage.

After pulling down the cover onto the CPU, pull down the latch back into its original place. If done correctly the cover should come off.

Congratulations You Have Successfully Inserted Your CPU In The Motherboard
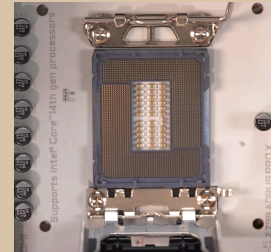
Intel Core CPU

To insert your AM5 CPU follow the follow steps

Start by pulling the lever on motherboard up and then pull the cover up, make sure not to touch the pins on the motherboard.

Align the triangles and gently place the CPU on the socket, gently push along the sides into place. Do not apply force, it will cause damage to the pins.

Pull down the cover onto the CPU after ensuring the CPU is seated properly and secured without damage. If done correctly, the cover should come off.
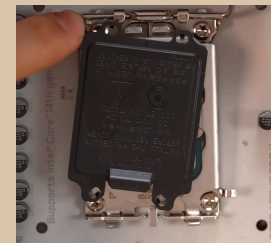
After pulling down the cover onto the CPU, pull down the latch back into its original place to lock the CPU in place.

Congratulations You Have Successfully Inserted Your CPU In The Motherboard

RAM

Description

RAM, or Random Access Memory, is like your computer's short term memory. It temporarily stores the data and programs your computer is actively using so they can be accessed quickly. The more RAM you have, the more tasks your computer can handle at the same time without slowing down, like having more space on your desk to work on multiple things at once. When you open apps, browser tabs, or games, they load into RAM so everything runs smoothly. Once you shut down your computer, the data in RAM is cleared, ready for the next use.
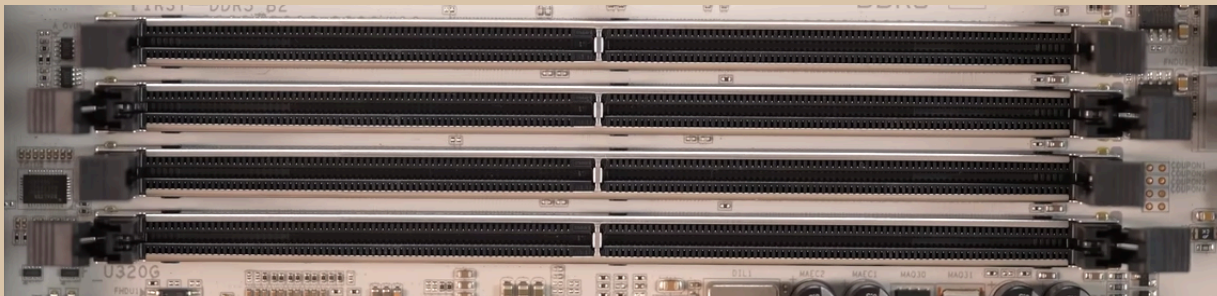
RAM Tips
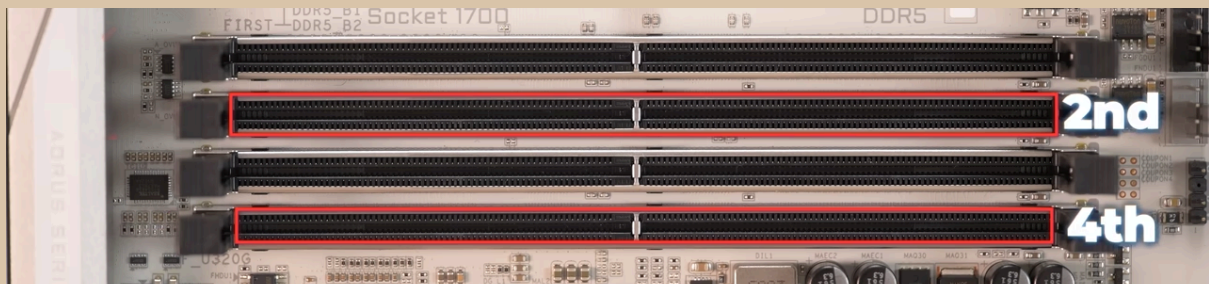
If you are using 2 sticks in a 4 slot RAM motherboard you should take advantage of Dual Channel. In most cases they are typically the 2nd and 4th slot when you are viewing it. Check the motherboard manual for more information about the slots.

Inserting RAM

Start by flicking the tabs on both the sides (some motherboards only have one side tab).

Align the notch in the RAM stick and the division on the slot. Different DDR sticks and slots have different divisions and notch locations.

Place the stick on the slot and push it into place, if done correctly the tabs should lock it into place.

Congratulations You Have Successfully Inserted RAM In The Motherboard

Storage: M.2 NVMe

Description

An M.2 NVMe is a type of super-fast storage drive used in modern computers. It's much smaller and thinner than traditional hard drives, but far quicker. NVMe drives plug directly into the motherboard, allowing data to move at very high speeds, which makes your computer start up faster, load games quickly, and open apps almost instantly. Think of an M.2 NVMe as a tiny but powerful storage chip that lets your computer access files in a flash, making everything feel smooth and responsive.
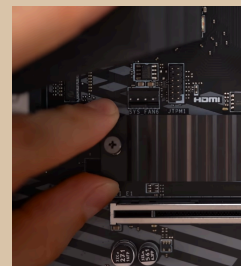
Inserting M.2 NVMe

Identify the location of the M.2 ssd slot which is located under the CPU.
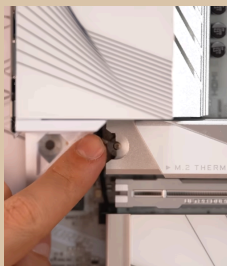
Unscrew the cover of M.2 slot (image on the right), newer motherboards tend to have a latch, which needs to be flicked (picture to the left), peel the plastic covering the thermal paste on cover and the heat shield. You might need to buy your own heat shield if it's not included on the slot.
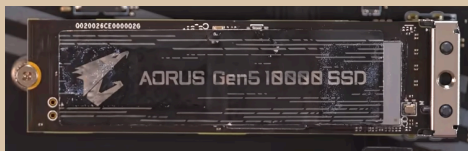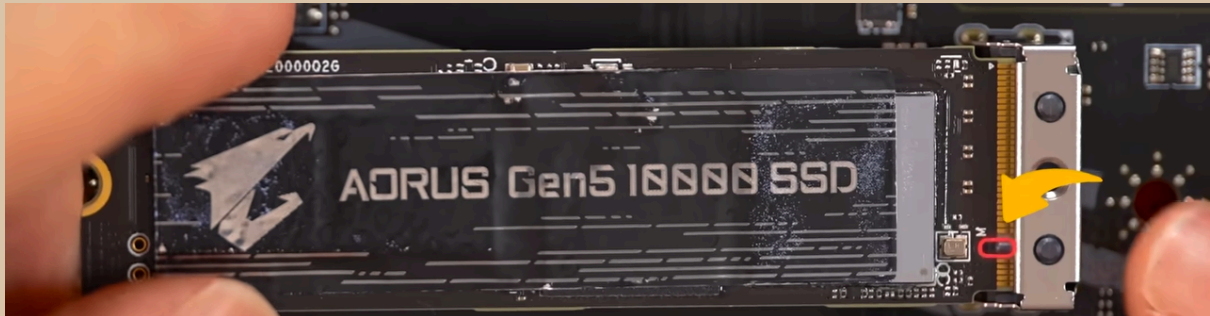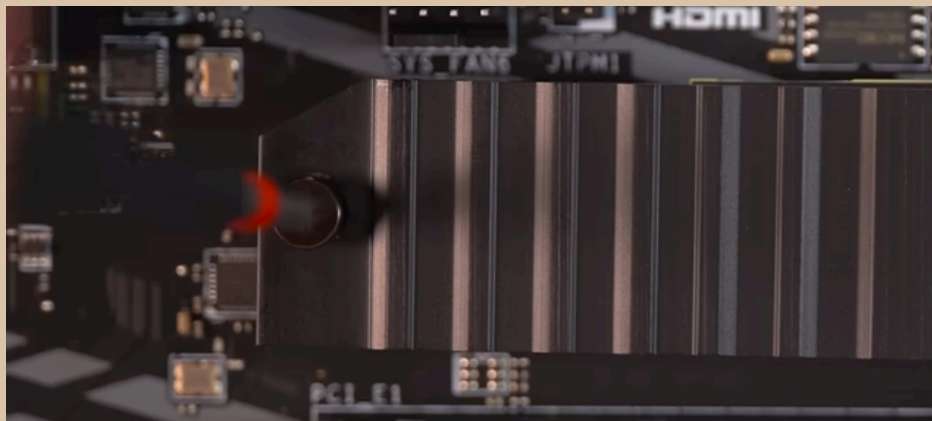
Similar to RAM, adjust the notch on the M.2 ssd with the one on the slot and gently push it in.

Screw the M.2 in place/ Latch it back in place.

Screw the cover back into place. If you have your own heat shield, insert it in a similar way.

Congratulations You Have Successfully Inserted M.2 NVMe SSD In The Motherboard

CPU Cooler

Description

A CPU cooler is a device that keeps your computer's processor (CPU) from getting too hot while it works. Just like an engine needs cooling to run smoothly, the CPU needs a cooler to stay at a safe temperature. It usually uses a fan, metal heatsink, or liquid cooling system to pull heat away from the CPU and push it out of the computer. Without a CPU cooler, the processor could slow down, overheat, or even get damaged. In simple terms, it's the CPU's "air-conditioner" that helps your computer run safely and efficiently.

Inserting CPU Cooler

Unscrew the brackets near the CPU (only on AM5), skip this step if you do not have these brackets on your motherboard.
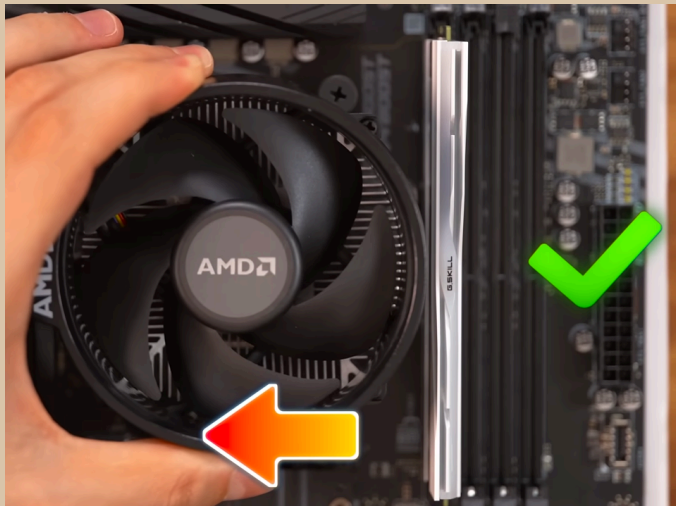
Ensure that you do not touch the bottom of the cooler (it has the adhesive for thermal paste), Hold the cooler, ensuring that the logo is facing the opposite side of the RAM sticks.

Screw in the bolts of the cooler in a criss cross pattern, start by screwing in the top left bolt, follow through by bottom right, then to top right and lastly screw in bottom left screw.

Congratulations You Have Successfully Inserted Your CPU Cooler In The Motherboard
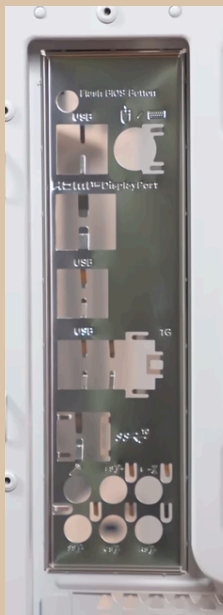
Case

Description

A computer case is the outer shell that holds and protects all the parts of your computer, like the CPU, RAM, and storage drives. It keeps everything organized, provides airflow to keep components cool, and offers ports and buttons you can use from the outside. Cases come in different sizes and styles, but their main job is to keep your hardware safe, clean, and running properly. Think of it as the computer's "home" where all the important parts live and stay protected.
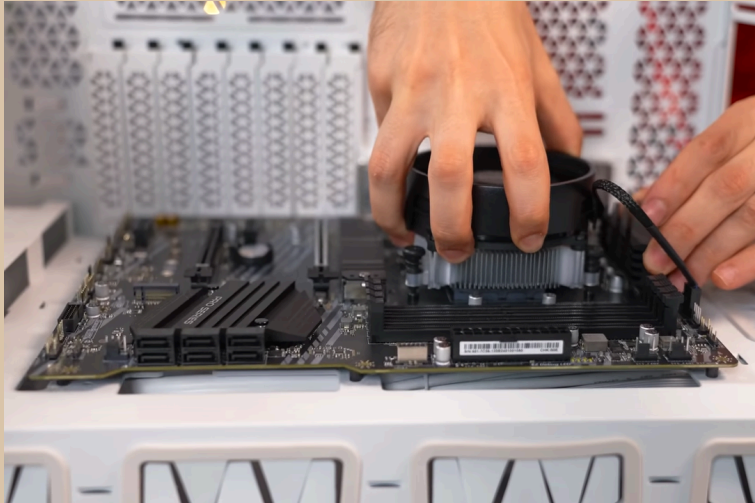
Preparing the Case

Insert the IO shield onto the case, IO shield is a cover which covers your usb ports on the motherboard, some motherboards have them built onto it, for ones which don't, find the IO shield in the motherboard box and insert it onto the rectangular opening behind the case.

Inserting Motherboard in the Case

Align the holes on the motherboard and the standoffs on the case, making sure the io shield is also aligned, then screw it in.

Please refer to the motherboard and the case manual to plug in all the case ports in the front/top to the motherboard. Notably, USB 3.0, USB C, USB 2.0, HD Audio, 3 PIN-RGB, JFP1 Connectors (Power, Restart, Shutdown), please note that all these ports may or may not be present.

Congratulations You Have Successfully Connected Motherboard With Case.