How to Build a Gaming PC

Selecting the right components for your gaming PC is a challenging yet exciting job. Building a gaming PC involves exploring a whole new aspect of the tech world.
This guide covers everything you need to know when building a gaming PC. It also includes info on everything from a high-end system to a simple computer for home media.

Accessories Required To Build a Gaming PC Processor (CPU)
The Central Processing Unit (CPU) is a vital component for any PC, and as you'd expect, there are almost endless options available at a variety of price ranges. The two leading manufacturers in the consumer PC space are Intel and AMD. If exploring AMD processors, you'll most likely be selecting Ryzen 5 3600 or Threadripper. Designated Intel's CPUs are also solid choices. You'll probably consider it an 8th or 9th Gen i5 or i7 if you're looking to assemble a reliable Gaming PC.

Motherboards

The motherboard is an essential integrated circuit board that connects all the components that make up your PC and allows communication between different hardware. While assembling a Gaming PC, you'll come across a wide range of motherboards, varying in prices and features.
The ASUS ROG Strix Z390-E, LGA 2066, MSI MEG X570 ACE, and GIGABYTE X299 are considered the best among motherboards. When customizing a gaming PC, one should pick the best tech component in its range. Notable features like CPU overclocking capabilities, lighting, and connectivity options are factors to keep in mind while purchasing a motherboard.

Graphics Processing Unit (GPU)/ Video Cards

The Graphics Processing Unit (GPU) will have the most impact on your gaming experience. The GPU allows your computer to do complex graphics integration, while CPUs have integrated graphics.

If you want to have a modern gaming experience, the GPU might be the priciest component. You shouldn't settle for the less, especially if you're looking to get a pure gaming experience at higher resolutions and frame rates.

The two profound tech giants in the world of graphics cards are AMD and Nvidia. Depending on your budget, you can opt for something GPUs, like the GTX 1050 Ti from Nvidia or the Radeon RX570 from AMD. But if you desire a cutting-edge experience, Nvidia's RTX 2080 Ti is the current king in GPUs, along with the Radeon RX Vega architecture from AMD GPUs not far behind.

Memory/RAM

Random-access memory (RAM) is the PC's short-term memory. RAM keeps your in-use data easily accessible and provides short term memory to run program codes. RAM is entirely different from your primary storage devices. RAM resets when the PC is powered off, which is why you need larger storage drives for long term data storage.

When it comes to selecting RAM, you can't have too much RAM, but for practical purposes, most gaming systems will be functional with 16GB or 32GB if you want to keep your Gaming PC in use for several years.

TEAM XTREEM ARGB DDR4-3600 C14 and Corsair Dominator Platinum RGB RAM are the best picks while assembling a high-end Gaming PC. Their sleek exterior design with DHX cooling technology and their unrivaled performances have made them ideal for gaming purposes.

Storage

As you can probably guess, your storage is where you keep all the files, games, data, and operating systems on your system. In the past, storage mostly comprised of hard disk drives (HDD), but now solid-state drives (SSD) are more widely available. SSDs are significantly faster and more durable but are more expensive compared to the older physical disk drives. Users also rely on external storage, commonly known as portable hard disks solutions, which have the edge of being mobile.
The Samsung 970 Pro M.2 SSD is among the best solid-state solutions, and the 3TB Seagate BarraCuda HDD is compatible with larger installations and for excess file storage.

Cases

Cases are one of the most customizable features of a PC. Users get cases in just about every shape and size imaginable. A case is aesthetically the most critical component of your PC, where all of your expensive parts will get assembled. All cases are designed to house the same elements, so they share similarities across brands and layouts.
An important feature to consider is the cooling parts. Many cases will come with pre-installed cooling fans, which can be useful, but if low temperatures are essential to you, you'll want to make sure there's enough room to install additional cooling fans. A simple thumb rule is, if you desire to do a lot of customization, the bigger the case, the better.
If the user is exploring for a unique open-air design layout, Thermaltake P5 is the best choice for various lighting options, options for Carbide Spec-Omega RGB from Corsair. For something simple, attractive, and reliable, Rosewill Cullinan is a fantastic pick.

Power Supply Unit (PSU)

The power supply is the metal box usually found in the upper corner of the case. The PSU is often overlooked when customizing a standard PC, but gaming enthusiasts

should research efficiencies, wattage, and quality if the gaming system you want to build is more complex. If you are using high-end graphic cards or an additional customized cooling loop, you'll want to ensure a power supply unit (PSU) with enough wattage.

If you're looking for a PSU for a super fancy system, you should consider Dark Power Pro 11. If something simpler is required, the EVGA SuperNOVA 550 watt power supply might be a good fit.

CPU Heatsink/Fan

A hard-working CPU generates plenty of heat. Keeping your CPU cool is especially vital for your system to run efficiently, and though many CPUs come with a cooler, you'll want something a little more robust. These options can vary from simple fans and heatsinks to workable liquid cooling solutions. We recommend getting fan-based solutions or an all in one (AIO) liquid CPU cooler for your first build, especially if you plan on overclocking your CPU. The AIO liquid coolers are enclosed in a special casing, so you don't even have to handle the liquid inside. Just ensure the cooler is compatible with your CPU and motherboard.

One of the most in-demand and entry-level air coolers is the Cooler Master Hyper 212 EVO. It's a perfect pick if planning to replace your stock fan. If you're looking to get AIO liquid coolers, then NZXT Kraken X52 is the pick. Not only is it an excellent CPU cooler, but it also has some fantastic lighting options as well!

Monitors

To observe and engage with high-quality graphics, the user needs a simple monitor to start. It can be an entry-level 1920×1080 monitor or TV if you want. If you have invested in a heavy-duty system thus far, you might want to move up to high-quality resolutions, like 2540×1440 or even 3840×2160 (4K), for crystal clear, highly processed images. Users can also upgrade to a higher refresh rate like 144Hz or even 240Hz, making everything look significantly smoother and improved. Depending on your GPU, you may

want to invest in a monitor supporting either Nvidia's G-Sync or AMD's Freesync to provide an enhanced gameplay experience.
If you consider a moderately priced entry-level gaming monitor, the curved Acer ED242QR has Freesync and a 144Hz refresh rate, the best fit for AMD GPU. But if you want to go for a super high-end monitor, the Asus ROG Swift PG348Q has just about everything you could desire for a luxurious gaming experience.

Mouse

The gaming mouse is one of the most critical components of a Gaming PC setup. If you're a gamer, having extra buttons you can set is a big leg up—other features, such as adjusting the DPI (speed of the cursor), also have a significant impact.
Logitech's G502 Lightspeed, Razor Deathador V2, and Benq Zowie EC2 are the elite choices currently available on the market.

Computer Keyboards

When it comes to keyboards, the best way to find the right one is by testing various options.
There are many great keyboards out on the market, membrane keyboards, wired and wireless keyboards, as well as mechanical keyboards. When it comes to gaming, nothing beats the tactile nature and responsiveness of mechanical keyboards, and one of the most user-friendly is the Corsair K95 RGB Platinum. In contrast, the HyperX Alloy FPS is a great entry-level mechanical board with high-quality Cherry

Operating System (OS)

The Operating System (OS) integrates all the software and hardware of your computer. Once the operating system is installed on your storage device (preferably an SSD), you can then start customizing and installing all of your programs, games, and software.

Microsoft Windows is the most convenient and reliable operating system for gamers due to its widespread use and user-friendly experience.

Assembling your PC

You can start assembling the components for your Gaming PC by watching online video tutorials carefully. Diagrams in the user manuals can help you get your bearings while getting started.

Installing Memory (RAM)

Memory is the easiest component to install. Start by simply pushing open the two tabs on either side of the RAM slot on the motherboard slot. Once the RAM module is lined up with the slot, push down lightly until you hear a click sound, then closely check the closed tabs.

Installing the Central Processing Unit (CPU)

Start by unlocking the CPU bar. Then, open the CPU door, place the CPU in the right direction, close the door, and lock the bar down. At times this is done with screws or locking/twisting plastic pins. Remember to use a reasonable portion of thermal paste when planting the heatsink. Also, be sure to plug the CPU cooler into the motherboard to have the power it needs to function. However, the CPU and heat sinks (cooling fans) are done before the motherboard is placed in the case to keep things as simple as possible.

Installing the Motherboard And Preparing the Case

Now that the CPU installation, cooler, and RAM on the board is done, you should place the motherboard into your casing. Open up your casing's right panel and set the short standoffs you got with your case.
These are small brass mounts into holes on the casing's plate at the back, making ample space for screws to secure the motherboard.

Installing the Power Supply Unit (PSU)

After placing the motherboard, get the PSU in. The process is straightforward. Place the Power supply unit down on the bottom of the case with its power input and switch facing outwards at the back of the case.

Installing HDDs and SSDs

At the front face of your case, you'll have the hard drive slots, which will house your HDDs or SSDs. Some cases have screw-less HDD installation, which is easy to install, remove the bay tray and slide in your HDD, setting the tray back in its slot.
All your drives (SSD and HDD) come with their specific cables, which go at the back end, and are plugged into the motherboards SATA ports.

Installing the Graphics Card

Insert the graphic card on the PCIEX16 slot indicated and push down just until you hear the clip close. Now use one or two screws that came packaged with your Graphic card to implant on the side of the PCIE panel. Next, connect any four or six-pin connectors on your card via the cables on PSU.

Connecting Power, USB, and Cables

Finally, connect all the power cables and peripheral devices. The PSU's main power cable will connect to the motherboard, and similarly, cables from the casing's external ports will be plugged into the motherboard switches.

Flip the Switch!

Once everything is wired and screwed up, it's time to plug in the power supply, press the power button, and turn on your new computer! If everything is connected correctly, you will spot your motherboard's BIOS screen. The final step is to install your operating system (OS) and start using your new Gaming PC!