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Process Essay: How to Build a Modern Gaming PC

Today many PC (Personal Computer) users prefer to build their own systems. Although pre-built computers are readily available, a custom-built PC for gaming purposes is not only cost-effective but enables the user to decide customized individual components according to the requirement and budget considerations, and allows them to upgrade easily. Over time, the process of building a gaming PC has significantly improved, allowing even non-technology oriented users to be able to modify, install, or upgrade the components of their PC, thus minimizing the need for buying pre-built systems. The process of building a modern gaming PC is further outlined below to illustrate how advances in benchmarking technology has improved the overall process of selecting the right components.

The initial phase of the process is to decide on the individual hardware components such as processors, graphics cards, hard drives, memory and power supplies, that are suitable for the user's requirements. The GPU or graphical processing unit also called the graphics card, display adapter or the video card is the most essential component of a gaming PC. It is an expansion card that is dedicated to rendering 3d graphical output, in order to take that load off the processor. ATI and NVIDIA are the two manufacturers of GPUs. To select the right card, it is important to note how much graphical superiority they offer against the competition balanced against their cost and power requirements. The card is to be selected by analyzing the series it belongs to, and the dedicated memory capacity it has. Comparing benchmark tests of each in-budget card’s frames per second performance is helpful in selecting the right one for the task.

The other two important component of the gaming PC is its CPU and RAM. The processor serves as a communicating agent between the components. The CPU is decided based on its clock speed, its number of cores and threads, its bus speed and cache. Game applications require a high memory capacity to be able to run smoothly for which currently, DDR4 RAMs offer the highest transfer rates. Furthermore, In any PC, the motherboard is the host of all the hardware components that allows them to interact and connect. Selection of the motherboard has to be based on its compatibility with the type of CPU and GPU selected. The motherboard socket has to have proven compatibility with the specific model of the CPU particularly. The board also has slots to install disk drives, RAMs, network cards and sound cards. It is powered by the power supply unit PSU, which again has to be selected based on the number of watts required by the system. This can be done by calculating the power requirements of each component installed and adding the values up. Finally, the Hard drive disk HDD has to be selected. All data on the system is permanently stored on the HDD, and a gaming PC requires a higher amount of storage since gaming application is usually very large sized.

The next phase after selecting the components is to assemble them together. Some special connectors and wires are necessary before proceeding with the assembly. The CPU chip is first installed by dropping it onto the respective socket, and the heat sink is installed onto its slot by cinching it down, locking it with a cam and connecting it to a power source. The RAM chips are to be pressed firmly inside the slots with care. The motherboard is now to be installed inside the casing using its faceplate, with terminal connectors (Chacos). The board is to be fixed just about the surface of the casing screwing it firmly. The next step is to locate the PCI-Ex16 slot that is closest to the processor's heatsink and install the GPU on it by inserting it into the slot it, locking it with a latch at its end. Finally fasten the retention bracket of the GPU to the PC's casing. In the final step, the PSU is fixed inside the case, connecting its two power leads to the motherboard and its external lead to the AC power outlet. The casing is then sealed, connecting the system's peripherals, such as a keyboard, monitor, and mouse, to run the new gaming system finally.

# Works Cited

Chacos, Brad. "How to build a PC: A step-by-step guide." 30 January 2018. *PC World.* 15 April 2019. <https://www.pcworld.com/article/2987057/computers/how-to-build-a-pc-a-step-by-step-comprehensive-guide.html>.