

HOW TO BUILD A COMPUTER – I : CHOOSING COMPUTER COMPONENTS



Note: This is the first installment in an ongoing series that will detail how to build a computer starting with selecting the components and covering everything in between up to installing the operating system (OS) and tweaking the BIOS settings.

Building your own personal computer (PC) can seem overwhelming at first. There are so many components that go into building a PC that just learning what you need to buy can be very confusing. As a result, many first-time builders sometimes overlook buying some parts. This Tech Tip will cover how to select your components, and how to ensure that your components are compatible and will work together. We will start by making a list of the basic components you need for an average gaming or general use PC; you can then refer back to this basic list throughout the series. With this Tech Tip, we will be covering the basics of choosing the items in bold below. Optional components are marked with an asterisk *:

- Chassis/case
- Power supply
- CD drives
- DVD drives
- Floppy Drive*
- Hard Drive(s)
- RAM (random access memory)
- Motherboard
- CPU (central processing unit)
- CPU heat sink/fan
- Thermal paste
- Hard drive cable
- Floppy drive cable*
- CD/DVD drive cable
- Video card (graphics card)*
(optional if your motherboard has onboard graphics)
- Sound card* (optional if your motherboard has onboard sound)

- Monitor (display)
- Input – Keyboard/Mouse
- Speakers*
- Operating system software

Choosing Your Computer Case or Chassis

Choosing your computer case seems pretty straight forward, and it is. There are a few different form factors (the physical size and shape of a device) around that you need to be aware of when case shopping. The first is the newer BTX (Balanced Technology Extended) format cases. While they are not as common, it is important to point out that almost all motherboards are ATX and they will not fit inside a BTX case.

The same goes for the small form factor cases that are designed to sit on a desktop. A simple rule of thumb is if the case is smaller than your motherboard, don't buy it! The vast majority of cases you will find are ATX compatible. ATX has a few different variants basically having to do with the size of the motherboard.

Most all computer case retail boxes will list the type of motherboards it is compatible with right on the computer case packaging. If you are shopping and buying online, the website will certainly list the motherboard compatibility. Be sure the case matches up with your chosen motherboard form factor and you will be fine.



Choosing Your Power Supply



Power supply units (PSU) are one of the main components of your computer that many people put little thought into. It would be a wise move to not simply buy the cheapest PSU you can find. A bad PSU with unstable and fluctuating power output can cause all sorts of problems with your computer, such as damaged components due to a power surge, to crashes and reboots due to power levels falling too low that can wreak havoc on your patience. Because computer components put increasing

demands on the case power supply, manufacturers are working to bring more powerful and efficient power supplies to the consumer that feature the new ATX12V 2.2/ EPS12V power supply standard, which you can find in power supplies such as the Antec NeoHE 500-Watt 24-pin Power Supply.

PSUs that are included with computer cases are notorious for being cheaply made. The PSU is one component where you certainly get what you pay for. While you don't necessarily have to buy a \$500.00 Pc Power & Cooling unit, a few extra dollars are wisely invested in a unit such as the ASYS 650-Watt Dual Fan ATX Power Supply. Geeks.com has a great selection of power supplies that are kind to your budget.

If you are a hardcore gamer looking to get into SLI (Nvidia Scalable Link Interface) or Crossfire (ATI Technology) setups, you will want to buy a PSU that has two PCI-E power connectors and is SLI-ready if you're going the SLI route. Ensure that it has enough Wattage to power two of your cards as well as the other components inside your system. For more information on power requirements of SLI, check out Nvidia's SLI Zone. For more information on ATI Crossfire gaming, check out the ATI site.

Choosing Compact Disk/Digital Video Drives

Choosing a CD/DVD drive is a bit easier than choosing some of the other main components of your computer system. Short of the speed at which the drives can burn disks, most drives are similar. There are some DVD/CD drives out that use SATA ports like a newer hard drive rather than the IDE channels from your motherboard. You can choose either style, so long as your motherboard supports SATA. You can even go with an external drive if you so desire.



Most drives you find will be the standard IDE type. DVD burners are quickly becoming the drive of choice for computers. The newer dual-layer DVD drives will allow you to store more data per disk for your back-ups. The new Blu-Ray drives are also available, but at an exorbitant price typically over \$1,000.00. Your typical DVD burner will run you well under \$100. Keep an eye out for media compatibility, availability, and burn speed. Go with the fastest drive that fits in your budget and you will be happy. A DVD drive is recommended over a simple CD drive as more games and software are shipping on DVD media.



Floppy Drive

The floppy drive is the first of the optional components of your computer system. As DVD drives take over, many newer computers from the big manufacturers such as Dell and HP no longer ship with floppy drives. With files getting ever bigger, the floppy drive just doesn't have enough capacity any more.

However, if you go without a floppy drive, keep in mind that you may find yourself at some point needing one to load a driver if you plan to use an older operating system like Windows 98 or 98 SE. Depending on your motherboard, you might need a floppy drive to easily install drivers for your SATA RAID or drives during the Windows install at the F6 prompt. We will cover this in more detail in a later installment of this series. If you are not sure you will need a floppy drive, just pick one up to be safe. Floppy drives are readily available for under \$20.00, and Geeks.com still carries a fairly good selection of floppy drives.

Conclusion of Part One

There are just too many components and too much information to cover the basics of what you need to know when building your own PC and shopping for components in one installment. In Part 2 of this series on how to build a computer system, we will pick up at choosing the right hard drive for your computer. If you still find you can't decide on what components to choose for your system, call the Geeks.com sales team for assistance. Trust me - it's far better to ask than it is to buy the wrong component; it's quite common for components to be non-returnable once opened.

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