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Buying a pre-built computer is a nightmare. It’s a pain, wading through technical sheets and reviews just to find a computer that you are inevitably going to overpay for. One example is my personal pc, which would have cost around 2500 dollars had I bought it pre-built. By assembling it myself, I saved over 1000 dollars. Similarly, a 500-dollar pre-built office computer can be built for 300 dollars. Building a pc is both a great experience and a money-saver. In addition to being cheaper than buying a pre-built, computer component manufacturers have been making connectivity improvements over the past 30 years that makes building a pc about as easy as putting together a Lego set. However, if you want to build a computer, you must first plan it out. When I plan computers, I prefer to use pcpartpicker.com, but you can also use Newegg. These planners allow you to sort through all the options for each component, and will filter out incompatible parts.

The first step is to decide what you want the pc for and create a budget. To simplify this process, I will split the computer market into three sections: office, gaming, and enthusiast. If you want a cheap computer that can process word documents smoothly, you likely want to build an office pc and should put aside anywhere between 3 to 6 hundred dollars. Next, if you plan on doing some light gaming or photo and video editing, you likely want a gaming computer. These will cost from 7 to 12 hundred dollars. The final group of computers are enthusiast computers, which will be anything over 12 hundred dollars.

Before you start planning your build, you need to understand what each piece of a computer does. A computer is made up of many components, which are all placed on a motherboard. The motherboard connects all these parts and allows them to communicate with each other. All computers have a CPU (Central Processing Unit), which manages most of the processing done in the computer. There is also RAM (Random Access Memory), which is essentially high-speed storage that the CPU uses to temporarily store information for the tasks it is completing. A GPU (Graphics Processing Unit), for processing the graphical output, which is what you see on your monitor. This is technically optional, but I will explain that later. Next is storage, which stores all data you keep on your computer, such as documents and pictures. Next is your PSU (Power Supply Unit), which delivers power to the rest of the computer. All of this is enclosed in a case and cooled by fans. When planning, you want to make sure that your computer is balanced. The computer is only as fast as its slowest part, and you can minimalize bottlenecks by purchasing components that complement each other. Now that you know your budget and what all the parts of a computer are, you can start deciding what parts you want.

The first component to choose is your CPU. This piece does most of the processing in a computer. In the current computer market, there are only two companies producing CPUs. These are AMD and Intel. For this example, we will be using AMD because of their great price to performance. AMD’s current CPUS are called Ryzen. There are five series of Ryzen chips, Ryzen 1000 to 5000. Each series was released around the same year, with 1000 being the oldest, and 5000 the newest. In each series, there are 4 main models, called Ryzen 3, 5, 7, and 9. AMD names their Ryzen lineup with a 4-digit model number, with the least powerful and least expensive chips having the smallest numbers. For example, the most powerful Ryzen CPU is the Ryzen 9 5950x, and it has the highest model number (5950). CPUs are made up of cores, with each core completing separate tasks. Some uses, such as gaming, requires more cores, but most office computers only need four. CPUs are measured in GHz, or Gigahertz, and measures the number of actions it can complete in a second, so the higher, the better. If your computer is an office computer, you need to get an APU (Accelerated Processing Unit), which are capable of handling graphics and can be used as a replacement for a GPU. Thankfully, Ryzen APUs are extremely easy to distinguish, as they have a G immediately succeeding the model number (Ex. 3400G). As with the rest Ryzen, the higher the model number, the better. For an office PC, I recommend