

Selecting a Computer

by Sophia

WHAT'S COVERED

At some point, it may be your responsibility to make a computer purchase decision. You may be in a managerial role at your job and realize that your company needs new computers, or you will need to have a computer for personal use at home. Maybe you already own a decent computer but are now thinking about learning how to develop 3D models for electronic games. With there now being a multitude of computer types on the market, with each one designed to meet a specific user need, selecting the most appropriate computer can be a daunting task. For example, if you are interested in developing 3D models for games, then you will need a very specific system configuration requiring a fast processor (at least 3 gHZ), around 500GB of storage, a high-level video card with rendering capability (ideally with its own processor), and as much RAM as you can afford (no less than 8GB). As a computer literate person, it is important that you can very quickly assess a given situation and then make a determination as to how, or even if, a computer can solve the problems presented by said situation. Furthermore, it is equally as important that you have the knowledge to assess a given computer hardware and software for its potential long-term effectiveness. In this tutorial, we will explore some of the major factors involved with selecting computers and their related equipment.

Our discussion breaks down as follows:

1. Factors Affecting Computer Performance and Cost

The overall performance speed of a computer is determined by many elements, some related to hardware and some related to software. In hardware, speed is improved by giving the electrons shorter distances to traverse to complete a circuit. Since the first CPU was created in the early 1970s, engineers have constantly worked to figure out how to shrink these circuits and put more and more circuits onto the same chip. And this work has paid off — the speed of computing devices has been continuously improving ever since. The hardware components that most contribute to the overall performance speed of a personal computer are the CPU, the motherboard, RAM, and the hard disk (even more so if you need a high-performance computer). In most cases, these items can be replaced with newer, faster components. In the case of RAM, simply adding more RAM can also speed up the computer.

DID YOU KNOW

Not all desktop PCs have the same size and shape. Most system units are towers, sitting upright on their

shortest side with drive bays perpendicular to the tower's longest side. The original desktop featured the system unit resting flat on its longest side with drive bays parallel to its longest side.

OID YOU KNOW

The first tablet computers used an attached pen as a writing device for input.

2. Recipe for Buying a Computer

With respect to your computing needs, it may be the case that one type of computer may serve you better than another. As you are planning to purchase a computer, it is important to consider its portability, screen size, processing speed, and data input.

2a. Portability

Portability refers to how easily a type of computer can be transported. If you need to have a computer at home and at work or if you travel often, then a small, portable computer would be suitable for purchase. If you find yourself in this situation, a desktop computer is not going to meet your needs. Instead, you will probably want to purchase a netbook or laptop as these machines will give you comparable processing speed as well as portability. Depending on your processing needs, a tablet PC may also be well suited to your situation.

E TERM TO KNOW

Portability

How easily a computer can be transported.

2b. Screen Size

If you will be working with video/photo data or you plan on looking at the screen for long periods of time, then **screen size** should be an important consideration. A desktop computer provides room for a screen as large as you would like but remember that a desktop computer is not portable. A tablet PC is portable, but provides a very small screen size and generally is not a good computer choice for editing video, photos, or for working in situations in which you will be viewing the screen for extended periods of time.

TERM TO KNOW

Screen Size

The length of the monitor, typically the diagonal measured in inches.

2c. Processing Speed

A computer's processing is one of the factors that has a direct impact on the speed with which the system performs. **Processing speed** refers to the amount of clock cycles a processor can perform in a second. The greater your computer's processing speed, the more instructions can be processed per second. If you run graphics-intensive or data-intensive programs, produce multimedia content, or use your computer for gaming, you will need a large processing capability. The data that you are going to primarily work with is also of great consideration when buying a computer. If you plan on working with multimedia content, you will want a computer with a large screen, graphics accelerators, HDMI inputs, thunderbolt inputs, etc.

TERM TO KNOW

Processing Speed

Amount of clock cycles a processor can perform in a second, measured in hertz.

SUMMARY

Computers are available in many different types. Understanding what each type of computer offers, in terms of **portability**, **processing speed**, data input, and **screen size**, can provide clues into its overall effectiveness within a given situation. It is important that you carefully **assess your computing needs** before **purchasing a computer**, in order to insure that what you buy will work best for the situation you plan on using it in.

Source: Derived from Chapter 2 of "Information Systems for Business and Beyond" by David T. Bourgeois. Some sections removed for brevity.

https://www.saylor.org/site/textbooks/Information%20Systems%20for%20Business%20and%20Beyond/Textbook.html

TERMS TO KNOW

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