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1 September 2023
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Thinking About Buying a New Computer?

Buying a new computer isn't unlike buying a new car. Define needs, identify suitable models, and consider useful options. Only then is it time to make the purchase.

At one time, the best advice was to first identify the software you needed and to use that information to determine what kind of computer to buy. That's less useful now because most applications run on both Windows and MacOS computers, and many run on Linux systems, too.

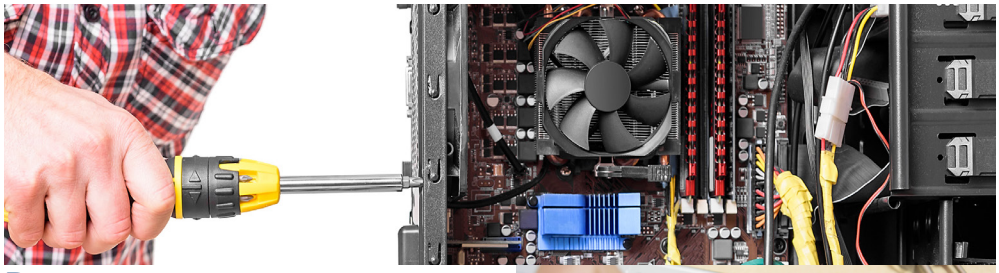
There may be nothing to decide because those who have used MacOS computers for a long time generally should stick with Apple, those who have used Windows for years, should probably stick with Microsoft. Likewise, for those who use one of the hundreds of Linux variants.

I know people who have switched from Windows to the MacOS and often they've been unhappy because things don't work the way they've become accustomed to. MacOS users who find a need to use a Windows computer can have similar issues. Switching to or from Linux is equally fraught.

You'll have more decisions to make with a Windows computer, which can be good or bad, but some of the basic decisions are the same regardless. Because there are more decisions to make with a Windows system, that's what I'll describe here.

Desktop or Notebook

How important is portability? Think about how you will use the computer. Will you use it mainly to browse the web, pay bills online, send email, and visit social networking sites? Or will you organize, edit, and share digital photos, watch streaming video, and work with complex spreadsheets and documents? Maybe you want to get into video production and high-end video editing, or you're an intense gamer.



Desktop computers are easier to maintain and upgrade, but notebook computers are highly portable.

More complex and demanding tasks call for more processing power, memory, and disk storage.

Many big manufacturers and hundreds of smaller shops build custom desktop computers. Not as many companies build notebooks, so you'll be limited to fewer than a dozen such as Acer, Dell, Hewlett-Packard, Lenovo, Microsoft, and Toshiba.

Notebook computers are portable, but desktop systems cost less for the same features and can be upgraded more easily. No manufacturer is inherently better than any other. All manufacture powerful, high-end computers and most also make limited, low-end computers. Specs are more important than brand.

If portability is essential or space is limited, a notebook computer is probably the better choice. Otherwise, a desktop system is likely to be less expensive, easier to maintain, and more powerful.

CPU & RAM

The central processing unit (CPU) runs the show and I usually buy a bit more processing power and RAM than I need immediately because I know I'll need more later. A word processor in the late 1980s likely consumed less than 100KB of memory and ran well on an Intel 8088 processor. Today's Microsoft Word easily consumes 200MB of memory and will be sluggish on low-end processors.

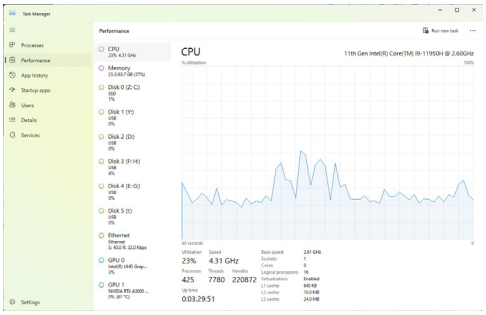
Browsers are memory hogs. As I was writing this article, Firefox and Vivaldi were each using more than 2GB of

Blinn Communications News (ISSN 2639-5762) is for clients and friends of William Blinn Communications, Worthington, Ohio. Phone 614.785.9359 (Columbus) and 718.577.1054 (NYC). On the Web at www.blinn.com.

RAM. That's a lot of memory, but the two browsers combined were using less than one percent of the CPU.

Today's applications have more features than their predecessors had, and programmers use languages and techniques that make development easier and faster at the cost of creating applications that need far more system resources to run.

The two primary manufacturers of CPUs are Intel and AMD. If the computer will be used solely for email and internet browsing, an Intel Core i3 or an AMD Ryzen 3 may be adequate, but the Intel Core i5 or AMD Ryzen 5 will be a better choice for most users. Those who need more power for gaming or photo editing should consider the Core i7 from Intel or the Ryzen 7 from AMD. For top performance, check out the Intel Core i9 or the AMD Ryzen 9.

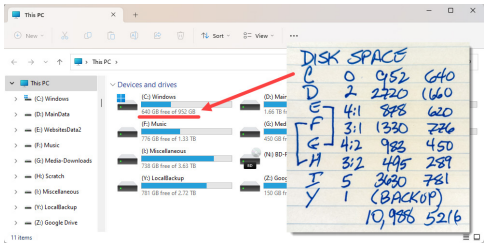


Most processor models are offered with different numbers of cores and various operating speeds. More cores and faster speeds mean the computer will run faster. An 8-core Intel i9 running at 3.5GHz will cost around $325 while a 24-core i9 running at 5.8GHz will cost double that. The best overall price-performance will often be the most powerful or second-most-powerful CPU with an operating speed one or two steps down from the maximum. An extra bit of CPU speed is rarely worth the cost.

Storage

How much disk space you need depends on how much disk space you need. That's the painfully obvious way of saying your needs are unique.

Look at how much disk space you're using now. Here's an example from my computer, which has six disk drives, internal and external. These are numbered 0 through 5 and there are eight drive letters (C through I and Y) because drives 3 and 4 each have two partitions.



Sum the sizes of all the disk drives and the amount of free space. Drive C, for example, starts with 952GB and the unused space is 640GB. I disregard drive Y because it's used as a temporary backup.

So the total size of all working disks is 10,988GB and the total free space is 5216GB, which means nearly half of the disk space (47%) is free.

If half or more of the disk space on your computer is free, you'll need about the same amount of space on your new computer unless your storage requirements will be changing.

I have tens of thousands of large digital photographs, about 34,000 audio tracks (not including files used for the production of TechByter Worldwide), a lot of video files and some entire motion pictures, and more than 168,000 files that represent applications and operating systems downloaded over the past several decades.

Your requirements will differ from mine, but the process and guidelines are the same: Try to keep about half of the disk space free and never let free space drop to less than 15%. A disk that's nearly full will be much slower than one with adequate free space.

Video System

Consider the type of graphics card you need. Virtually all computers include "integrated graphics" on the motherboard, but many also have a dedicated graphics processing unit (GPU). If you do a lot of photo editing or video editing, the GPU is critical. Most are made by Nvidia and AMD, and prices vary a lot.

Low-end GPU cards for desktop computers cost less than $100; at the other end of the spectrum, the Asus Nvidia GeForce RTX 4090 costs nearly $2200. Choices for notebook computers will be more limited. The video subsystem you choose may also depend on the number of monitors you want to use. I prefer at least two monitors, even for a notebook computer.

Other Components

Make sure the computer has enough USB ports for all the devices you need to connect to it and that the network connections are fast enough to support the speed from your internet service provider.

If the computer has too few ports, you may need to purchase a dock for a notebook computer or a port expansion unit for a desktop.

Does the computer need an optical drive? Few computers have a built-in optical drive now because software is rarely distributed on physical media. If you use CDs and DVDs, or you need to create them, you'll need an optical drive. These can be built in to desktop systems, but most notebook computers do not have an optical drive option and can accommodate one only as an external device.

Take all the time you need to think about your requirements. That's the best way to ensure that the computer you buy will be one that pleases you for many years. Ω