

Computer Shopping

Computer Options

1. Desktop

- a. Advantages: Versatility – can be used for almost any computer related purpose. Price – usually lower. Comfort – large screen, mouse, and keyboard. Uniformity – what you learn on a desktop will translate to most other machines.
- b. Disadvantages: Difficulty – they can be more intimidating and have a steeper learning curve. Space/mobility requirements. Virus concerns.

2. Laptop

- a. Advantages: Mobility – particularly good if you travel or need something to use at multiple locations
- b. Disadvantages: Price. Easily damaged. Cramped keyboard, small screen.

3. Tablet

- a. Advantages: Mobility. User friendly. Multiple purposes (e.g. can be used as an eReader or music device.) Large and always growing catalog of Apps. Price.
- b. Disadvantages: Initial cost isn't bad but they lend themselves to buying lots of small extras. Almost impossible to modify or repair.

4. Smart Phone

- a. Essentially a small tablet that makes calls.

Different Ways To Buy

1. Purchase a prepackaged computer:
 - a. Advantages: Requires little to no knowledge to perform, good way to get a general purpose computer if you don't know exactly what you plan to do with a computer, easily done at any local computer store (e.g. Apple Store, Best Buy), usually a solid warranty package and easily reached technical support
 - b. Disadvantages: More expensive than other options, less control over specific details of computer, wasted money on components you don't want or need, can't necessarily trust the salesperson's information about what computer is "right for you"
2. Design a computer for a mail order company to prepare for you:
 - a. Advantages: Less expensive than store bought computers, a great deal of control over what you get in your computer, usually have strong warranties available for 1-5 years, quickly and easily done at many different places online or over the phone (e.g. www.DELL.com)
 - b. Disadvantages: Customer support can sometimes be frustrating to reach due to the fact that you need to call or email them (no store to visit), shipping can be expensive, sometimes package

deals or software contracts can force you to pay for something you don't want

3. Purchase individual parts and assemble your own computer:
 - a. Advantages: Far and away the cheapest method, much more computer for your money, complete control over what you purchase, parts are easily acquired online (least expensive) or at electronics stores (often surprisingly good deals).
 - b. Disadvantages: Requires a good deal of knowledge about inner workings of computer to begin, often very time consuming, while almost all parts have individual warranties there is no blanket warranty on your computer so if something goes wrong it's not always clear who to call.

What You Need To Know Before You Start

Parts (and the numbers that go with them):

1. Processor: This is the brain of the computer. Virtually everything your computer does somehow involves this little chip. When someone talks about the speed of a computer they're talking about the speed of the processor inside it. Processor speeds are measured in Megahertz (Mhz), a 1 hertz computer would perform 1 operation per second. Therefore a 500 Megahertz computer can perform 500 million operations per second. **Specifications and Prices →** Processors are now between 2 and 4 GHz though this isn't as straightforward as it sounds since there are a lot of "turbo boost" and mutli-core options. That's OK because the minutia of these ratings isn't really important in purchasing.
2. Hard Drive: The hard drive is where you store all the files on your computer. The space that holds that information is measure in bytes. Standard hard drive sizes today are anywhere from .5 - 2 Terabytes. **Specifications and Prices →** Bought by themselves they can be as cheap as \$50 and you shouldn't pay much more than \$100.
3. Motherboard: The motherboard ties everything together; it's how all your different cards, drives, processor, etc. talk to each other. It's

important to make sure that your RAM, and motherboard are the same speed. What you need to be concerned with: number of slots. We'll discuss this topic more later but the main point on which motherboards differ is in the number of AGP, PCI Express, PC Card and ISA slots.

4. **Memory (RAM):** This is the dynamic memory that your computer uses while it is performing tasks. There are so many different conventions and standards involved in choosing RAM it's impossible to list them all here but generally speaking you should shoot for 8 + gigabytes. We'll discuss this briefly in class. **Specifications and Prices** → Buying it by itself is reasonably priced (\$50-100 for 1GB-4GB) when you buy it as part of a computer system it's a bit pricier.
5. **Video Card:** The video card takes messages from the motherboard and translates them for the monitor. The faster a video card the more work it can take off the shoulders of the processor. Video cards also contain memory(RAM) and, in part, the quality of the video card can be measured by the size of it's RAM. **Specifications and Prices** → For \$150-\$300 you can make major improvements to most video cards, we'll take a look at some popular choices in class.

6. Monitor: We all know what a monitor does but we might not know how to choose the right one. There are three numbers that determine the quality of a monitor: Screen size (measured in inches), refresh rate (measured in Mhz), and resolution[or Dot Pitch] (measured in MM). You want to seek out larger numbers for refresh rate(which means the screen refreshes more times per second), and smaller numbers in dot pitch(meaning the distance between dots on the computer is smaller, thus allowing more dots to be on the screen giving you more detailed images). Screen size is a pretty obvious stat and is also pretty subjective(some people want larger monitors, some want smaller), but don't forget to check the viewable size to make sure the monitor you purchase is as large as it sounds. **Specifications and Prices** → Flat screens are pretty much all you'll see anymore and you can get a nice one (19-22") for about \$150. Widescreen is most common but square monitors are also available.
7. Case: This doesn't just hold the computer in place, it should also provide electricity, cooling, easy access, and upgradeability. We'll discuss the details in class but generally it's important to get a tower which will best fit your future plans (big if you want to upgrade, small if portability, money, or space are issues).

Decision Making Time

What do you really need?

Before purchasing a computer it's important to know what your planning on doing with it. There are so many different functions computers can perform you can end up spending a lot of money on something you have no interest in if you aren't careful. Later on we'll talk about how to figure out what might be right for you.

Planning for the future.

A computer well bought should be able to handle everything you want to do for at least 18 months. Hopefully, it'll be functional (if not outstanding) for around 3 years. For this reason, and because of the large expense of getting a new computer, we want to think to the future when purchasing our computers. Thus you don't want to buy the bare minimum computer for your current needs.

Categories Of Computer Users

1. General User: All of the things above appeal to you but nothing really stands out. For someone not sure what it is they want I'd suggest moderation and balance. Don't enhance one feature at the expense of

another and don't feel you need to get the absolute best that's out there. Overall you'll be prepared for just about everything, even though the computer won't be quite perfect for anything. Frankly this is what I would recommend for almost anyone buying a computer, computers today are so well rounded that you can buy something middle of the road and not have any trouble with whatever area of computing you become interested in.

2. Secretarial: Your computer is a glorified typewriter. Documents, spreadsheets, address book, maybe even a little database work. You use the computer for a number of very functional, not very entertaining tasks. Therefore your computer should also be very functional but not all that flashy. Cheap graphics and sound cards, no need for a joystick, small/inexpensive speakers. Some of the applications you use might be more processor intensive than you'd think so don't scrimp too much there but you don't need top of the line either. If you have the opportunity to get the MS Office Suite with your machine then do so. Save money by getting a small hard drive, you won't be using a lot of space.
3. Gamers: You may use the computer for more functional tasks like papers, e-mail, etc., but primarily you like to play games. If you plan

on purchasing all the best flight simulators, sports, strategy, or action games (and most other kinds of games these days), your computer should have certain things. Number 1, get a good video card. This is even more important than the processor speed because it takes a lot of work off the processors back and in many cases is required for games to run. However, you do need a decently fast processor as well. Make sure you have plenty of RAM, and for what they cost a good soundcard is well worth it. You also want a lot of Hard Drive space because current games are huge. Games are some of the most demanding applications done on computers (so much so that many benchmarks are done with popular games) so there really aren't too many corners to cut if this is your computers intended purpose.

4. Music/Video enthusiasts: Perhaps you have a lot of music of your own that you like to edit or work on. Maybe you use mp3s or maybe you make all of your phone calls over the internet. If sound is a priority for you there are a few things you ought to have. Obviously good speakers and a quality sound card are musts. You should also have a large hard disk since the size of all the sound files starts to add up before too long. If your interests lie in video editing, watching, and creating you'll have different needs. A graphics card becomes very

important again, as does a quality monitor. You'll need a fast processor to handle the video editing software out there (incidentally the software itself can be very expensive.) There are also more specialized tools (scanner, digital camera, etc.) that might make nice editions for you.