Should I upgrade or buy a new computer?

If you are thinking about purchasing a new computer expect to pay about $1,500 to $3,500 depending on the size of the computer. Upgrading your computer can cost you as much as $500 to $1,000 depending on the components replaced or added. Typical upgradeable components include more memory (RAM), hard drive space, processor, sound card with speakers, CD-ROM, video card, and the motherboard.

Deciding to upgrade also depends whether or not your computer is capable of running the newer operating systems or application software. Today’s operating systems (OS) require a minimum of a 486DX, 66 Mhz processing power, and 16 MB of RAM. Typically, it is recommended to purchase more RAM and processing speed to help the performance of the OS and application software.

If you are thinking about adding components other than a new motherboard it can be fairly feasible to accomplish rather than buying a new computer. If you are thinking about upgrading your motherboard, you may need to consider upgrading other components. Depending on what motherboard you purchase, your old components like the memory and processor may not work. A good example of this is when you are upgrading from a 386/486 to a Pentium or to a Pentium II. These are different boards that require different processors either built-in or as an add-on and sometimes the memory chips will work in one but not the other.

By the time you figure up what all needs to be upgraded and how much it is going to cost, you may want to consider spending a little more to get a newer computer.

Buying a New Computer

As you set out to buy your new computer consider these six factors:

- Software
- Configuration
- Performance
- Price
- Purchase Channel
- Service and Support

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Software

Depending on what computer to purchase largely depends on how you plan to use it in your day-to-day activities. Looking at software titles is usually your first start. Because there are two main operating systems (OS) available on the market (Windows 98/NT or the Apple Macintosh 8.1 OS), software titles designed for agricultural related activities have been limiting for the Macintosh computer. However, most of the popular commercial software programs such as Microsoft Word, Excel, Quicken, WordPerfect, to name a few, are available on both OS platforms.

Nearly every new home computer includes a software bundle of anywhere from 10 to 50 programs. All computers come with a basic OS. Look for quality of titles, not quantity. To advertise a high number of titles, some vendors count a single package of eight programs as eight titles, while others would count that as only one product.

Some vendors offer additional software at large discounts at the time of purchase. The offerings can include better productivity software, such as word processing or money management packages, or reference software for the whole family. With some mail-order vendors, you may even be able to substitute for the advertised software package one that is more tailored to your needs, at little or no additional cost. You’ll find that a standard software bundle includes an integrated software suite comprising based word processor, spreadsheet, and graphics programs; personal finance software; reference titles; online-service starter kits, with several hours of free connect time; and communications software for your modem. The package can also include games, personal productivity titles (sports and travel), and children’s “edutainment” (educational entertainment) titles.

Configuration

As a minimum (unless your budget’s tightly constrained), look for a desktop multimedia system with a Pentium or Pentium II processor, operating at a speed of 200 Mhz. Buying higher end models such as 350- or 400- systems will last longer and will add about $500 to $750. Also, get a performance-boosting secondary cache (also known as L2 or processor cache): 256 kilobytes (256KB) are sufficient but 512 kilobytes are becoming the standard. Hard disks are fairly inexpensive now, so you can afford to buy a little extra room; look for a system with 2-gigabyte (2 GB) disk or, even better, a 4 GB disk.

Don’t buy a CD-ROM drive slower than 12X. In addition, unless you really need to save, get a 15-inch monitor, not a 14-inch one. Your graphics adapter should have 4 megabytes (4 MB) of video memory to speed up and enhance Windows 98 applications and to provide more than 256 colors on-screen at higher resolutions; 2 MB of memory is sufficient but not ideal when using intense multi-media functions.

Many systems will bundle a data/fax modem that has the new 56 kilobytes per second (Kbps) technology. Choose a modem speed no slower than 28,800 bits per second (28.8 Kbps-the V.34 standard); most modems transfer data at 28,800 bps to 56,000 bps. Data/fax modems can also provide telephony features, acting as answering machines and speakerphones.

Optional extras you should consider at the time of purchase include a extra MBs of RAM, a 512K CPU cache if it does not come with the system ($100); a premium 15-inch monitor with a 0.28-mm dot pitch ($200 to $350), or a 17-inch monitor ($300 to $500); and top-level speakers with a subwoofer ($100 to $200). The dealer or vendor should install these options at the time of purchase.
Miscellaneous items you may need if your computer does not come with them include a microphone, a mouse pad, a printer cable, a telephone cord, a surge protector, and extra floppy.

Notebook buyers should look for a system with a Pentium-level processor, an active-matrix (TFT or thin-film transistor) color screen, a nickel hydride battery (or preferably a lithium ion battery), and a 2 GB hard disk. If your budget allows, consider a multi-media notebook with built-in sound and CD-ROM drive. You can save a little bit of money with a dual-scan (DSTN or double supertwisted nematic) color screen. When buying a laptop, spend as much as you can on speed (200 Mhz or greater).

You can always upgrade the RAM and disk drive space later. When you want to upgrade the processor down the road you may have to replace the motherboard and other components. This may result in purchasing a newer computer.

Macintosh users should look for a home-oriented PowerPC processor (which is roughly equal to the Pentium in performance) or the new iMac. The iMac is economically priced and has all that you need to get on to the Internet and use multi-media application software.

Performance

There’s a 2-to-1 performance difference between the fastest and slowest computers, and if you’re comparing specifications or contemplating a central processing unit (CPU) upgrade, note that the CPU is only one factor affecting performance. Stay with CPUs that use the faster 66 and 100 Mhz bus. The 100 Mhz bus size is typical for the 350 to 450 Mhz Pentium II computers.

Also, remember that adding more memory (RAM) and CPU secondary cache improves performance about as much as buying the next-fastest CPU. EDO memory, a special type of RAM, can improve performance by about 5 percent. A 24X CD-ROM drive will improve your multi-media games and applications. The fastest CD-ROM drives run up to 32x.

There is also available what they call DVD which stands for either Digital Video Disk or Digital Versatile Disk. DVD is for mass storage and multimedia entertainment. With a minimum 4.7 GB capacity per side (double-sided, two-layer discs can accommodate up to 17 GB), it’s capable of delivering crystal-clear movies in wide-screen format with ground-shaking Dolby Digital audio. It can hold the equivalent of seven CD-ROMs.

DVD hardware is starting to become a standard fixture on high-end systems. What if you don’t want to buy a new machine to gain the benefits of DVD? You can always upgrade your existing system with DVD-ROM upgrade kits that cost as little as $400. Make sure when you do buy a new computer that it has this upgrade option down the road.

Other features also affect the computer’s performance. If you work with graphics-intensive programs, use DVD or anticipate working with photographs and the like, you may want to upgrade your video memory to 4 or 8MB ($50-200) so you can view images in true color (24 bits, 16 million colors). A sound adapter that supports wavetable synthesis ($50 to $100) will make your applications sound more like than one that supports only FM or frequency-modulation synthesis. Having good speakers with a subwoofer ($50 to $200) is also a nice feature.

Price

A good Pentium-class multimedia computer will cost you $2,000 to $2,500 without a monitor. You can also get a system for as little as $1,000 or as
much as $3,500. Remember that the advertised price doesn’t always include a monitor.

If a printer is bundled with the system, figure its value at $150 to $200 for a basic three-color ink jet printer, $250 to $500 for a four-color ink jet, or $350 to $600 for a personal laser printer. Including a printer allows the dealer to discount the package more than either the computer vendor or printer vendor would allow separately. Check for $50 to $100 rebates.

Some dealers offer 30-day price protection in case the price goes down, but they won’t notify you. You have to notice the reduction and ask for a rebate. Several also offer price matching for the same model sold elsewhere, but they usually require an advertisement. Some manufacturers also use different model names for similar systems, confusing the issue. Most dealers offer 30-day returns.

Local dealers charge sales tax. Some direct dealers do, others don’t, but you are technically obligated to pay. For computers sold direct, add $50 to $100 for shipping. Try to haggle. Occasionally sales reps will discount prices or offer free accessories—anything from a $5 box of floppy disks to extra software or a $50 surge suppressor, free shipping, or an extended warranty.

If you’re buying from a given vendor for the first time, use a credit card. If something goes wrong, this gives you extra leverage. A gold or platinum credit card might extend your warranty.

**Purchase Channel**

You have several options when it comes to where you’ll buy your computer. There are computer retail stores in several categories: computer superstores (such as CompUSA and Computer City), electronic stores and superstores (Best Buy, Circuit City), office-supply superstores (Office Max, Staples), buying clubs (Sam’s Club), general discount stores (Kmart, Walmart), and local dealers. There are also business-oriented computer dealers along with smaller *value-added resellers* or VARs, which customize your system’s hardware and software further and may install it in your home or home office.

Direct mail (mail-order) vendors such as Dell, Gateway 2000, and Micron manufacture and sell their own brands. Others resell major brands (Computer Discount Warehouse, Insight, PC Connection, PCs Complete). Some major retail-oriented vendors, such as Compaq and IBM, also sell directly. Mail-order consolidators and liquidators may sell refurbished computers or previously unsold merchandise.

Local retailers vary greatly in the level of knowledge and expertise they can offer about their products, so come somewhat prepared. You get to see the computer you’re buying, and you can usually have it immediately, even if you decide to make minor enhancements to the configuration displayed. Adding memory or substituting a bigger hard disk or better monitor—all of which the retailer can do for you.

Sales representatives for direct vendors are almost uniformly knowledgeable. Most direct-sales computers are built to order and take about a week to arrive.

**Service and Support**

Most systems come with a one-year warranty covering parts and labor, and the best include standard coverage for up to three years. Many vendors (by which we mean manufacturers) also provide on-site service—sending a repair technician to your location, at least for the first year. Otherwise, you will have to bring the unit to a service depot (a dealer or authorized service shop) or mail it back to the vendor. Some vendors will reimburse you for shipping fees;
check for that at the time of purchase. If you buy your system through a retail store, you may get support from either the vendor or the dealer. With systems bought directly (via mail order), you contact the vendor. If you are uncomfortable opening the system yourself to investigate problems, you may want to send it to a local retailer.

Extended warranties (for years two, three, and maybe more) are available at $50 to $200. Some vendors also offer premium plans that may include a different support number (so you spend less time waiting to talk with a technician) or a guarantee of faster turnaround on replacement parts or repaired systems. Telephone-support hours range from weekdays, business hours only, to 7-by-24 support – 7 days a week, 24 hours a day.

A few vendors offer a remote-diagnostic service with systems that include modems. With this service, you can connect to your vendor’s repair department and a technician can access your system directly, helping him to diagnose and even repair your system from his location. Certain vendors whose computers come with modems with a DSVD feature (digital simultaneous voice and data) allow you to talk with the technician through your computer even as he gathers data from your system without a separate phone connection.

**Hardware Recommendations**

The following are some minimum and advanced computer system requirements for a MS-DOS based system. If you are involved with Site-Specific Management (Precision Farming) activities or intense graphic production work (i.e. scanning and manipulating family pictures) on your farm you may want to consider the advanced systems recommendations.

**Minimum System Requirements**

- 200 Mhz MMX Intel Pentium
- PCI Motherboard
- 2.0 GIG IDE Hard Drive
- 24 MB EDO RAM
- 12x min. / 24x max. CD-ROM
- 33.6 Kbps Fax/Data Modem
- Sound Blaster Sound Card & Speakers
- PCI 2 MB VGA Video Adapter
- 15 inch VGA Color Monitor
- 2 Serial / 1 Parallel IO Ports
- 104-Key Keyboard
- 2 Button Mouse
- MS-Windows 98 Operating System
- Surge Protector for Power & Phone Lines

**Advanced System Requirements**

- 400 Mhz Pentium II
- 100 Mhz BX Chipset, PCI Motherboard
- 512 K CPU Cache
- 4.0 GIG IDE Hard Drive
- 64 MB EDO RAM
- 12x min. / 24x max. CD-ROM
- 56 Kbps Fax/Data Modem
- Sound Blaster Sound Card & Speakers
- PCI 4 MB VGA Video Adapter
- 17 inch VGA Color Monitor
- 2 Serial / 1 Parallel IO Ports
- 104-Key Keyboard
- 2 Button Mouse
- MS-Windows 98 Operating System
- Surge Protector for Power & Phone Lines
- Scanner
- PCMCIA Card Reader
- Color Ink Jet Printer or Laser Printer

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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Keith L. Smith, Director, Ohio State University Extension.

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