

HOW TO BUY A NEW COMPUTER

What Does a Computer Really Do?

It's easy to get buried too deeply in the complexities of these modern machines, but to really understand the design choices, let's think again about the fundamental operation of a computer. A computer is nothing more than a machine that reads a coded instruction, decodes the instruction, and executes it. If the instruction needs to load or store some data, the computer figures out the location for the data and moves it. That's it; that's all a computer does.

<http://www.extremetech.com/article2/0,1558,1155315,00.asp>

Planning: Think about what you plan on doing with your new computer. Will you be doing mostly word processing, e-mail, surfing the Internet, or playing an occasional video game? Do you want to scan pictures and print them out? Do you want to play music on your computer? Will you be storing and editing your digital photos? Do you want to copy/create your own CDs or DVDs? How will you backup your computer data files?

How you intend to use your PC will determine how much horsepower your system will need to run well. For example, sophisticated picture editing software demands more computer resources than a word processor, email program or a solitaire game would. If you intend to run very complex or multiple (5 or more) applications at one time you should consider increasing the amount of RAM.

The 6 biggies to consider:

- 1. Processor speed** - The case and power supply house the computer components and provide power to those components, much as the human body houses the brain and vital organs and provides energy to those components. The motherboard and processor can be thought of as the head and brain, with the head providing connection from the brain to the rest of the body. The processor, also called the Central Processing Unit (CPU), is the brain of the PC and plugs into a socket on the motherboard. Memory in the human body is a component of the brain. The overall speed and performance of a PC is based largely on the type and speed of its processor.
- 2. Front Side Bus** - The main highway for data in a PC. It connects the processor, RAM, hard drive, video card, sound card, etc. FSB is described in terms of its width in bits and its speed in MHz. The higher the speed the faster the CPU can transmit and receive data from each component.

www.crucial.com/library/glossary.asp

3. RAM (memory) - RAM: With PCs *Random Access Memory* (RAM) is plugged into the motherboard and provides a fast storage area for the processor to operate in, i.e., “thinking space”. *When power is removed from the system, the information stored in RAM is lost.* RAM chips are plugged onto the motherboard. RAM provides a fast temporary working area where the processor stores data while performing computations. All data must pass through the RAM to gain access to the processor, be manipulated by the processor, or passed from peripheral to peripheral. An open program is executed in RAM-that permits the application’s functionality (tools, utilities and buttons) to execute more quickly for you. Hence the more programs you run simultaneously the more RAM necessary to allow them to run smoothly and to prevent lockups. If you intend to run very complex or multiple applications simultaneously you should consider increasing the amount of RAM. To make a computer run better, it's all about. The more, the better. These days, consider 256 megabytes (MB) to be the bare minimum. 512 MB is better yet. More RAM often means less chance of crashing, freezing, and slowing up.

Analogy: If you (the processor) want to work on a document, you take it out of a file cabinet (the hard drive) and place it on your desk (the RAM), you make whatever changes need to be made, and then place the document back in the file cabinet. The size of your desktop determines how big a document you can place on the desktop; just as the amount of installed RAM determines how many applications and how much data can be in active memory at one time.

4. Hard Drive – is the permanent “file cabinet” in your computer for your operating system (Windows, etc.) applications (solitaire, word processor, etc.), and files (data, music, address book, pictures, etc.). Can you ever have too much storage room or closet space? No! But do you really need it if you have the ability to transfer your data to a removable storage media (burned CD’s, DVD’s, floppies, or USB drives)? Maybe not. If you are comfortable with making backups of your data to removable media then an enormous hard drive may not be necessary. If you are NOT, then invest in at least an 80 Gigabyte drive so you’ll have ample room to save your files. Hard disks are generally running about 50 cents per gigabyte these days.

**********Always keep a minimum of 15% of your hard drive unused to allow it to be used as additional “thinking space” that the operating system must have to run smoothly!*

5. Removable media - CD's, DVD's, floppy disks or USB drives provide portable, permanent storage for your files. You can copy or move your files from your computer to these devices to make data backups or for portability. Which one you need depends on the size of the files on your hard drive that you want to transfer. Can you ever have too much storage space...no! Buy the amount you need or what you can afford.

Floppy disk	1.44 megabyte
USB drive	64 megabyte to 5 gigabytes
CD	650 megabytes
DVD	4.5 to 18 gigabytes

6. Applications – Web browsers, email clients, games, word processors, photo editing software are all types of applications that you can install on your hard drive and run from your computer. Many of the programs that you use everyday are components of your Windows operating system-Solitaire, Outlook Express, Internet Explorer, Paint, etc. But you can install freeware, shareware or retail programs to your hard drive also. Each program will have system requirements such as operating system, minimum processor speed, RAM and available hard drive space. For example:

	Windows XP	Picasa	Spybot	Firefox
Processor speed	300 mhz or higher	300 mhz or higher	300 mhz or higher	233 mhz or higher
RAM	128 megabytes	64 megabytes	128 megabytes	64 megabytes
Hard drive space	1.5 gigabytes	50 megabytes	60 megabytes	52 megabytes

Processors & Chipset [? Learn More](#)

- *Intel® Pentium® 4 Processor with HT Technology (3GHz, 800MHz FSB, 1MB L2 Cache)
- *Intel® Pentium® 4 Processor (2.80GHz, 533MHz FSB, 1MB L2 cache)
- *Intel® Celeron® D Processor 320 (2.40GHz, 533MHz FSB, 256KB L2 cache)
- *Intel® Celeron® D Processor 330 (2.66GHz, 533MHz FSB, 256KB L2 cache)
- *Intel 865GV chipset

Operating Systems [? Learn More](#)

- *Microsoft® Windows® XP Professional
- *Microsoft® Windows® XP Home Edition
- *Microsoft® Windows® XP Media Center Edition

Office Suites & Productivity [? Learn More](#)

Standard:

- *WordPerfect®

Optional:

- *Microsoft Works Suite
- *WordPerfect Office 12
- *Microsoft Office 2003 Basic Edition
- *Microsoft Office 2003 Small Business Edition
- *Microsoft Office 2003 Professional Edition

Memory [? Learn More](#)

- *256 MB (single channel) shared⁴ DDR SDRAM at 400MHz
- *512 MB - 1 GB (dual channel) shared⁴ DDR SDRAM at 400MHz

<p>Processor/Display ?</p> <p>Intel® Celeron® Processor (2.40GHz, 400 FSB)</p>	<p>Processor/Display ?</p> <p>Intel® Celeron® D Processor 320 (2.40GHz, 533 FSB)</p>	<p>Processor/Display ?</p> <p>Intel® Celeron® D Processor 330 (2.66GHz, 533 FSB)</p>
<p>Operating System ?</p> <p>Microsoft® Windows® XP Home Edition</p>	<p>Operating System ?</p> <p>Microsoft® Windows® XP Home Edition</p>	<p>Operating System ?</p> <p>Microsoft® Windows® XP Home Edition</p>
<p>Memory ?</p> <p>256MB DDR SDRAM at 400MHz</p>	<p>Memory ?</p> <p>512MB Dual Channel DDR SDRAM at 400MHz</p>	<p>Memory ?</p> <p>512MB Dual Channel DDR SDRAM at 400MHz</p>
<p>Hard Drive ?</p> <p>80GB⁴ Ultra ATA/100 7200RPM Hard Drive</p>	<p>Hard Drive ?</p> <p>80GB⁴ Ultra ATA/100 7200RPM Hard Drive</p>	<p>Hard Drive ?</p> <p>80GB⁴ Ultra ATA/100 7200RPM Hard Drive</p>
<p>Monitor ?</p> <p>17 inch E773 (16 inch viewable) Conventional CRT</p>	<p>Monitors ?</p> <p>17 inch E773 (16 inch viewable) Conventional CRT</p>	<p>Monitors ?</p> <p>15 inch E153FP Analog Flat Panel</p>
<p>CD or DVD Drive ?</p> <p>Single Drive: 48x CD-RW Drive</p>	<p>CD or DVD Drive ?</p> <p>Single Drive: 48x CD-RW / DVD-ROM Combo Drive</p>	<p>CD or DVD Drive ?</p> <p>Single Drive: 16X CD/DVD burner (DVD+/-RW) w/double layer write capability</p>
<p>Speakers ?</p> <p>Dell A215 Speakers</p>	<p>Speakers ?</p> <p>Dell A215 Speakers</p>	<p>Speakers ?</p> <p>Dell A215 Speakers</p>
<p>Floppy Drive and Additional Storage Devices ?</p> <p>No Floppy Drive Included</p>	<p>Floppy Drives and Additional Storage Devices ?</p> <p>No Floppy Drive Included</p>	<p>Floppy Drives and Additional Storage Devices ?</p> <p>No Floppy Drive Included</p>
<p>Office Productivity Software (Pre-Installed) ?</p> <p>No Productivity Suite - Corel WordPerfect® word processor only</p>	<p>Office Productivity Software (Pre-Installed) ?</p> <p>No Productivity Suite - Corel WordPerfect® word processor only</p>	<p>Office Productivity Software (Pre-Installed) ?</p> <p>No Productivity Suite - Corel WordPerfect® word processor only</p>
<p>Security Software ?</p> <p>No Security Subscription</p>	<p>Security Software ?</p> <p>No Security Subscription</p>	<p>Security Software ?</p> <p>No Security Subscription</p>

Which of the 6 biggies is not listed here? And why do you think that is???

Gateway® 3200SE	Gateway® 3250S	Gateway® 3200XL	Gateway® 3250X Media Center
<ul style="list-style-type: none"> Intel® Celeron® D Processor 335 (2.80GHz)² 	<ul style="list-style-type: none"> Intel® Pentium® 4 Processor 515 (2.93GHz)² 	<ul style="list-style-type: none"> Intel® Celeron® D Processor 340 (2.93GHz)² 	<ul style="list-style-type: none"> Intel® Pentium® 4 Processor 515 (2.93GHz)²
<ul style="list-style-type: none"> Microsoft® Windows® XP Home Edition with Service Pack 2¹ 	<ul style="list-style-type: none"> Microsoft® Windows® XP Home Edition with Service Pack 2¹ 	<ul style="list-style-type: none"> Microsoft® Windows® XP Home Edition with Service Pack 2¹ 	<ul style="list-style-type: none"> Microsoft® Windows® XP Media Center Edition 2005 with Service Pack 2
<ul style="list-style-type: none"> 256MB PC2700 DDR SDRAM (333MHz) 	<ul style="list-style-type: none"> 256MB PC2700 DDR SDRAM (333MHz) 	<ul style="list-style-type: none"> 512MB PC2700 DDR (333MHz) SDRAM 	<ul style="list-style-type: none"> 512MB PC2700 DDR SDRAM (333MHz)
<ul style="list-style-type: none"> 80GB Ultra ATA100 7200rpm hard drive³ 	<ul style="list-style-type: none"> 80GB Serial ATA100 7200rpm hard drive³ 	<ul style="list-style-type: none"> 160GB Ultra ATA100 7200rpm hard drive (Free Upgrade from 120GB Hard Drive)³ 	<ul style="list-style-type: none"> 160GB Serial ATA100 7200rpm hard drive³
<ul style="list-style-type: none"> VX750 17" Silver Flat CRT Color Monitor (16.0" viewable) 	<ul style="list-style-type: none"> VX750 17" Silver Flat CRT Color Monitor (16.0" viewable) 	<ul style="list-style-type: none"> VX750 17" Silver Flat CRT Color Monitor (16.0" viewable) 	<ul style="list-style-type: none"> FPD1530 15" Black LCD Flat Panel Display (15" viewable)
<ul style="list-style-type: none"> 48x max, 20x min. CD-ROM Drive 	<ul style="list-style-type: none"> 48x/32x/48x CD-RW 	<ul style="list-style-type: none"> 16x Double-Layer Multi-Format DVD Writer (DVD±R/±RW) 	<ul style="list-style-type: none"> 48x/32x/48x CD-RW/DVD combo drive (limited time promotion)
<ul style="list-style-type: none"> Integrated Intel® Extreme Graphics with up to 64MB shared DDR memory 	<ul style="list-style-type: none"> Integrated Intel® Graphics Media Accelerator 900 with up to 128MB shared DDR memory 	<ul style="list-style-type: none"> Integrated Intel® Extreme Graphics with up to 64MB shared DDR memory 	<ul style="list-style-type: none"> Integrated Intel® Graphics Media Accelerator 900 with up to 128MB shared DDR memory
<ul style="list-style-type: none"> Floppy drive not selected 	<ul style="list-style-type: none"> Floppy drive not selected 	<ul style="list-style-type: none"> 8-in-1 media card reader 	<ul style="list-style-type: none"> 8-in-1 media card reader (Limited Time ONLY)
<ul style="list-style-type: none"> 2-piece speaker solution 	<ul style="list-style-type: none"> 2-piece speaker solution 	<ul style="list-style-type: none"> 2-piece speaker solution 	<ul style="list-style-type: none"> 2-piece speaker solution
	<ul style="list-style-type: none"> Advanced Desktop Technology 		<ul style="list-style-type: none"> TV Tuner Card Optional

Intel Celeron, Pentium 4 or AMD processors are the most popular. Which is better?

Research, research, research!!

<http://www.tomshardware.com/cpu/20020903/>

<http://www.tomshardware.com/cpu/20030623/index.html>

<http://reviews.cnet.com/5208-6121-0.html?forumID=45&threadID=51352&messageID=620691>

<http://www.dummies.com/WileyCDA/DummiesArticle/id-2184,subcat-HARDWARE.html>