Computer CPU

The Actual Computer

Your "computer" is a collection of devices that function as a unit. The most basic collection includes a Computer CPU, a Monitor, a Keyboard, and a Mouse. The Computer CPU is normally a rectangular box that sits on your desktop (called a "Desktop Case") or next to your knee under the desk (called a "Tower Case"). The computer's CPU is actually a small electronic device inside the case but the term is often used to refer to the whole collection of electronics inside the box

The Monitor

The Computer Monitor is the computer user's window into the workings of the computer. It consists of a television picture tube that had been modified to accept the type of video signal created by the computer's electronics.

The Keyboard

The Keyboard is the primary input device used to communicate with the computer. A computer keyboard closely resembles a conventional typewriter keyboard with the addition of numerous keys that are used specifically for computing functions.

The Mouse

Named for the resemblance of the wire coming out of it and a mouse's tail, the mouse was introduced to computing in the early 1980's when Macintosh created its graphical user interface (GUI). The mouse is another input device used to point at objects on the computer monitor and select them. Using the mouse and keyboard in combination allows the computer user substantial latitude in how to accomplish a wide variety of tasks.

The Floppy Diskette Drive

Once the most advanced of storage devices, floppy diskettes are normally used a temporary storage containers or transportation media for data. A standard floppy diskette can hold 1.44 MB of computer data. This amounts to a rather large number of pages if translated to the paper standard for textual information. Computer diskettes are not as reliable or fast as the internal storage drives on the computer. They are also the primary vector of virus infection in the computer world.

The CD-ROM Drive

This modern miracle gained prominence in the late 1980's and has become the primary distribution medium for software to consumers. The Compact Disk-Read Only Memory (CD-ROM) disk itself is a collection of concentric circles containing millions of pits and plateaus which correspond to on/off bits of data. The disk is read with an optical laser similar to the one used to scan your groceries at the supermarket. Most disks of this kind are "Read Only" meaning that the computer can retrieve information from the disk, but cannot place information on it. New developments have improved this technology to allow writing and rewriting data to the disk. A different kind of hardware mechanism is needed to employ this innovation.

Computer Peripherals

Computer peripherals are any electronic devices that can be hooked up to a computer other than the standard input-output devices (monitor, keyboard,mouse). Peripheral devices include speakers, microphones, printers, scanners, digital cameras, plotters, and modems. Peripherals often require special software packages called "drivers". These drivers are usually included with the peripheral at purchase time.

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Memory

Memory can be very confusing but is usually one of the easiest pieces of hardware to add to your computer. It is common to confuse **chip memory** with **disk storage**. An example of the difference between memory and storage would be the difference between a table where the actual work is done (memory) and and a warehouse where the finished product is stored (disk). To add a bit more confusion, Windows will use the computer's hard drive as **temporary memory** when the program needs more that the chips can provide.

Random Access Memory or RAM is the memory that the computer uses to temporarily store the information as it is being processed. The more information being processed the more RAM the computer needs.

Most computers use memory called **SIMMs** (you can look up the full name). Older computer use 30 pin SIMMs and modern computers use 72 pin SIMMs.

RAM memory chips come in many different sizes and speeds. Check your manual to find out what kind of memory your computer uses.

Introduction to Computers

presented by

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A computer is an information appliance.

*The information you put in (called input)
can include data and commands.
Data is the facts that you want a
computer to process
Commands -tells the computer
what to do with the data.
The information you get from
a computer is called output.*

Modem - A modem is used to transfer information through telephone lines.

The term stands for **modulate and demodulate** which means to change the signal from **digital**, which computers use, to **analog**, which telephones use then back again.

Modems are measured by the speed that the information is transferred. The measuring tool is called the **baud rate**. Originally modems worked at speeds below 2400 baud but today 14,400 is the minimum and speeds of 56,000 are common.

Modems also use **Error Correction** which corrects for line noise on the telephone system by constantly checking whether the information was received properly or not and **Compression** which allows for faster data transfer rates.

Anyone who has used the Internet has noticed that at times the information travels at different speeds. Depending on the amount of information that is being transferred the information will arrive it's destination at different times. The amount of information that can travel through a line is limited. This limit is called **bandwidth**. There are many different potential solutions to the problem of limited bandwidth.. **ISDN** is one up and coming technology which skips the modulation process and sends the information digitally (and much faster). Cable connections are another.

Basic Computer Operations

How Computers Work

Input: Information and programs are entered into the computer through **Input devices** such as the **keyboard**, **disks**, or through other computers via network connections or **modems** connected to telephone lines. The input device also retrieves information off disks.

Output: Output Devices displays information on the **screen (monitor)** or the **printer** and sends information to other computers. It also displays messages about what **errors** may have occurred and brings up **requesters** or **message box** asking for more information to be input. The output device also saves information on the **disk** for future use.

Information provided by the following web sites:
http://www.grassrootsdesign.com/intro/dhtml.htm
http://literacy.kent.edu/Midwest/Materials/ndakota/complit/introresources.html

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Processing: The **CPU** is sometimes called the **Control Unit** and directs the operation of the input and output devices. The **Co-processor** or the **Arithmetic-Logic Unit** does arithmetic and comparisons. The **memory** or **RAM** temporarily stores information (files and programs) while you are using or working on them.

Sound cards allow computers to produce sound like music and voice. The older sound cards were 8 bit then 16 bit then 32 bit. Though human ear can't distinguish the fine difference between sounds produced by the more powerful sound card they allow for more complex music production.

Colour cards allow computers to produce colour (with a colour monitor of course). The first colour cards were 8 bit which produced 16 colours. It was amazing what could be done with those 16 colours. Next came 16 bit allowing for 1064 colours and then 24 bit which allows for almost 17 million colours and now 32 bit is standard allowing monitors to display almost a billion separate colours.

Video cards allow computers to display video and animation. Some video cards allow computers to display television as well as *capture* frames from video. A video card with a camera allows computers users to transmit live video. Currently a fast connection like an ISDN or network connection is needed for effective video transmission.

Introduction to Computers Resources

Books Maran, Ruth. Computers Simplified, 3rd Ed. CA: IDG Books Worldwide, Inc., 1996. Pereira, Linda. Computers Don't Byte. CA: Teacher Created Materials, Inc., 1996. White, Ron. How Computers Work. CA: Ziff-Davis Press, 1997.

Internet Introduction to Computers, 1998. http://jove4.eng.ysu.edu/ce612/612intcm.htm

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