



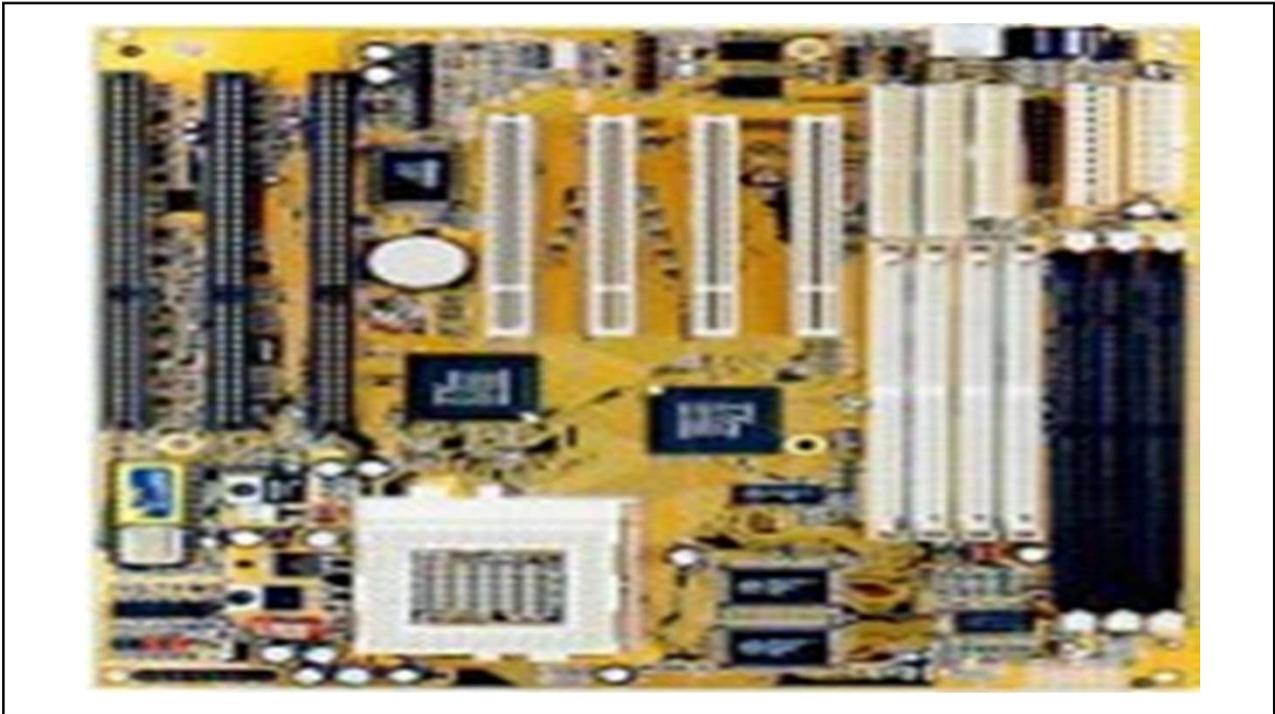
BASIC COMPUTER CONCEPTS

What is a Computer?

An electronic device that stores, retrieves, and processes data, and can be programmed with instructions. A computer is composed of hardware and software, and can exist in a variety of sizes and configurations.

Hardware & Software

The term hardware refers to the physical components of your computer such as the system unit, mouse, keyboard, monitor etc.



The software is the instructions that makes the computer work. Software is held either on your computers hard disk, CD-ROM, DVD or on a diskette (floppy disk) and is loaded (i.e. copied) from the disk into the computers RAM (Random Access Memory), as and when required.

Types of Computers



Mini and Mainframe Computers

Very powerful, used by large organizations such as banks to control the entire business operation. Very expensive!



Cheap and easy to use. Often used as stand-alone computers or in a network. May be connected to large mainframe computers within big companies.

Input Devices -- "How to tell it what to do"



- A keyboard and mouse are the standard way to interact with the computer. Other devices include joysticks and game pads used primarily for games.

Output Devices -- "How it shows you what it is doing"

- The monitor (the screen) shows how the computer sends information back to you. A printer is also an output device.

INPUT DEVICES

The Mouse

Used to 'drive' Microsoft Windows

The Keyboard

The keyboard is still the commonest way of entering information into a computer

Tracker Balls an alternative to the traditional mouse and often used by graphic designers

INPUT DEVIC

Scanners

A scanner allows you to scan printed material and convert it into a file format that may be used within the PC

Touch Pads



A device that lays on the desktop and responds to pressure

Light Pens

Used to allow users to point to areas on a screen

Joysticks

Many games require a joystick for the proper playing of the game



OUTPUT DEVICES

VDU

The computer screen is used for outputting information in an understandable format

Printers

Printers

There are many different types of printers. In large organizations laser printers are most commonly used due to the fact that they can print very fast and give a very high quality output.

OUTPUT DEVICES

Plotters



OUTPUT DEVICES

Plotters

A plotter is an output device similar to a printer, but normally allows you to print larger images.

Speakers

Enhances the value of educational and presentation products.

Speech synthesisers

Gives you the ability to not only to display text on a monitor but also to read the text to you
monitor but also to read the text to you



Storage Devices -- "How it saves data and programs"

- Hard disk drives are an internal, higher capacity drive which also stores the operating system which runs when you power on the computer.

- "Floppy" disk drives allow you to save work on small disks and take the data with you.

Hard Disks



Very fast!

The speed of a hard disk is often quoted as "average access time" speed, measured in milliseconds. The smaller this number the faster the disk.

Capacity:

Enormous! Often 40/80 Gigabytes. A Gigabyte is equivalent to 1024 Megabytes.

Cost:

Hard disks costs are falling rapidly and normally represent the cheapest way of storing data.



Diskettes (Floppy Disks)

Speed:

Very slow!

Capacity:

Normally 1.44 Mbytes.

Cost:

Very cheap.



CD-ROM Disks

Speed:

Much slower than hard disks. The original CD-ROM speciation is given a value of 1x speed, and later, faster CD-ROMs are quoted as a multiple of this value.

Capacity:

Around 650 Mbytes and more



DVD Drives

Speed:

Much faster than CD-ROM drives but not as fast as hard disks.

Capacity:

Up to 17 Gbytes.

Cost:

Slightly higher than CD-ROM drives.



Main Parts of Computer

Memory --"How the processor stores and uses immediate data"

RAM - Random Access Memory

The main 'working' memory used by the computer.

When the operating system loads from disk when you first switch on the computer, it is copied into RAM.

Memory

ROM – Read Only Memory

Read Only Memory (ROM) as the name suggests is a special type of memory chip that holds software that can be read but not written to.

A good example is the ROM-BIOS chip, which contains readonly software.

Often network cards and video cards also contain ROM chips.

How Computer Memory Is Measured

Bit

All computers work on a binary numbering system, i.e. they process data in one's or zero's. This 1 or 0 level of storage is called a bit.

Byte

A byte consists of eight bits.

Kilobyte

A kilobyte (KB) consists of 1024 bytes.

Megabyte

A megabyte (MB) consists of 1024 kilobytes.

Microprocessors --"The brain of the computer"

- PCs primarily use microprocessors (sometimes called the chip). The older Intel versions include the 386, 486 and now the Pentium line.



The CPU (Central Processing Unit) is normally an Intel Pentium (or equivalent) and it is one of the most important components within your computer.

It determines how fast your computer will run and is measured by its MHz speed.

Thus a 600 MHz Pentium is much faster than say a 400 MHz Pentium CPU.

Some of the Factors

That Impact on a Computer's Performance

CPU speed

RAM size

Hard disk speed and capacity



Software Component

Operating systems software

The operating system is a special type of program that loads automatically when you start your computer.

The operating system allows you to use the advanced features of a modern computer without having to learn all the details of how the hardware works

The link between the hardware and you, the user

Software Component

Applications software

An application program is the type of program that you use once the operating system has been loaded.

Examples include word-processing programs, spreadsheets and databases

Software Component

Application Software

Word processing applications

Microsoft Word

Lotus Word Pro

WordPerfect

Spreadsheets

Microsoft Excel



Database

Microsoft Access

Lotus Approach

Software Component

Application Software

Payroll

Sage software

Presentation tools



Information Network

LAN

A LAN (Local Area Network) is a system whereby individual PCs are connected together within a company or organization

WAN

Information Network

Uses of Network

If ten people are working together within an office it makes sense for them all to be connected.

- In this way the office can have a single printer and all ten people can print to it.

Computer Accessories

Modem

Short for “MODulate/DEModulate”. The modem sends information from your computer across the telephone system.

PC at Home

Common uses for the computer within the home

Computer games

Working from Home

Banking from Home

Connecting to the Web



Computers in Education

CBT (Computer Based Training)

Computer Based Training (CBT) offers a low cost solution to training needs where you need to train a large amount of people on a single subject.

These programs are normally supplied on CD-ROM and combine text, graphics and sound.

Packages range from general encyclopaedias right through to learning a foreign language.

Office Applications

Automated Production Systems

Many car factories are almost completely automated and the cars are assembled by computer-controlled robots.

This automation is becoming increasingly common throughout industry.

Design Systems

Many products are designed using CAD (Computer Aided Design) programs to produce exact specifications and detailed drawings on the computer before producing models of new products.

Office Applications

Stock Control

Stock control is ideal for automation and in many companies it is now completely computerized.

The stock control system keeps track of the number of items in stock and can automatically order replacement items when required.

Accounts / Payroll

In most large organizations the accounts are maintained by a computerized system.

Due to the repetitive nature of accounts a computer system is ideally suited to this task and accuracy is guaranteed.

Computers in Daily Life

Accounts

Games

Educational

On-line banking

Smart ID cards

Supermarkets

Working from home (Tele-working)

Internet



Create a Good Working Environment

Frequent breaks away from the computer

Appropriate positioning of screens, chairs and keyboards

Provision of adequate lighting and ventilation.

Health & Safety Precautions

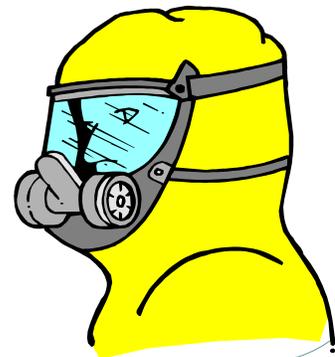
Make sure that cables are safely secured Make sure that power points are not overloaded

Also be aware of:

Repetitive Strain Injury (RSI)

Glare from screens

Bad posture



incremental backups

Use 'off-site' storage



passwords

Understand the Importance of shutting down your computer properly

Likes & Dislikes of Computer

Things computer like:

Good ventilation

Clean environment

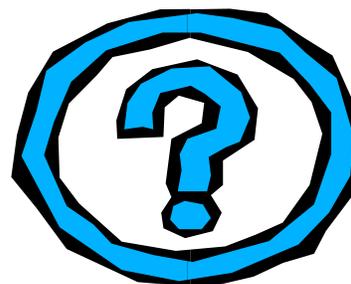
Stable, vibration free surface

Things computer don't like:

Dust

Drinking and eating over the keyboard

Heat, Cold or Moisture



How to prevent virus damage

There are a number of third party antivirus products available.

Most of these are better than the rather rudimentary products available within DOS and Windows, but of course you do have to pay for them!

The main thing about your virus checker is that it should be kept up to date.

Many companies supply updated disks on a regular basis or allow you to receive updates through an electronic, on-line bulletin board.

Software Copyright

Be aware on software copyright issues

Freeware

Shareware

What about software that you find on the Internet? Software site licenses

Software Copyright



If your computer system holds information about individuals then you have a moral and legal duty to treat that information with respect.

In a free society you have a right to ensure that information held about you is not abused.



In many countries this right is enshrined under data protection laws