

UNIT-1: INTRODUCTION TO COMPUTERS

Contents:

- Introduction to Computer,**
- History of Computer**
- Generation Computer**
- Characteristics, of computer**
- Types of Computer and computer system**
- Classification of Computer**
- Application of computer**

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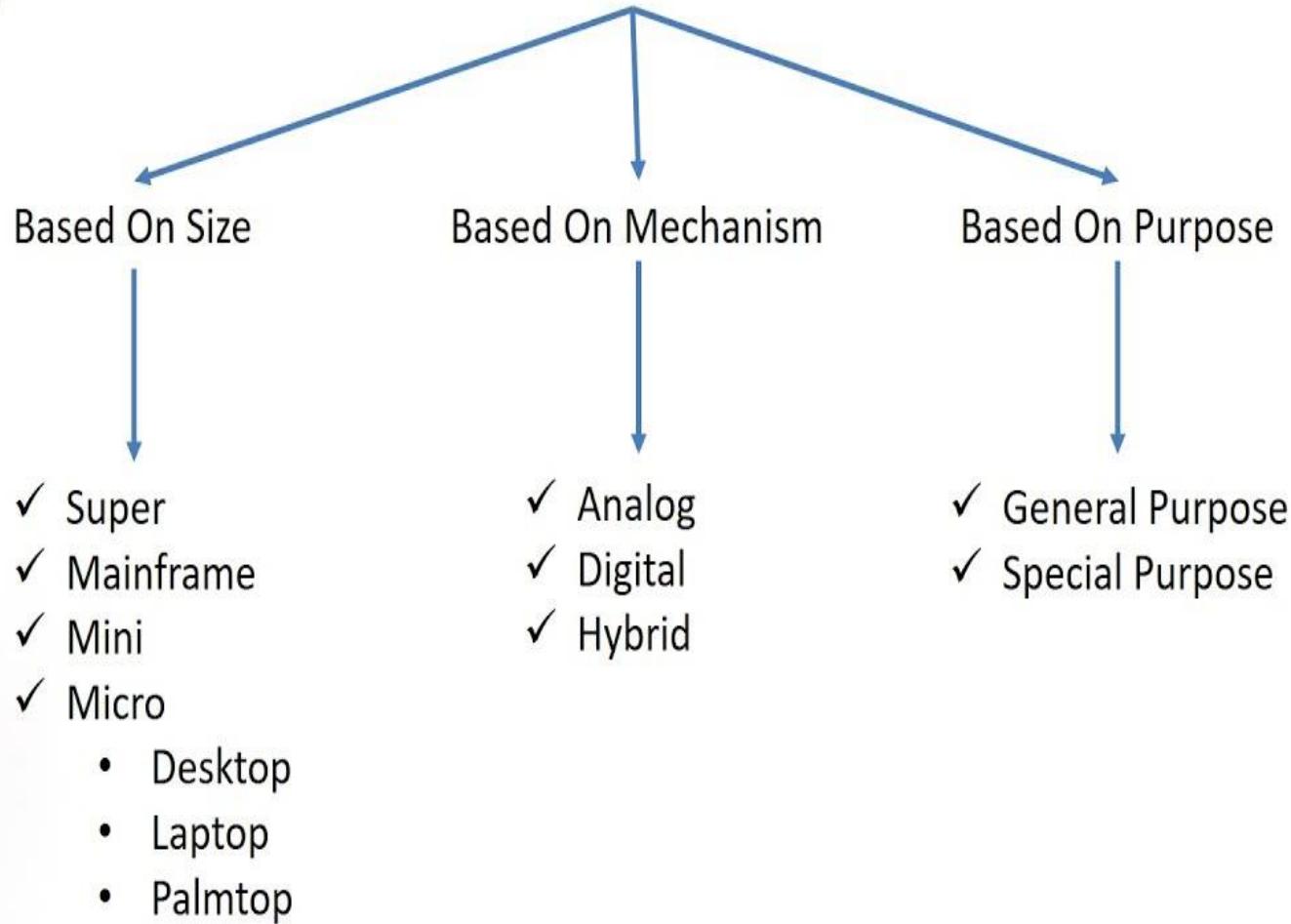
What is a computer?



A computer is an electronic machine that accepts information (**Data**), processes it according to specific instructions, and provides the results as new information.

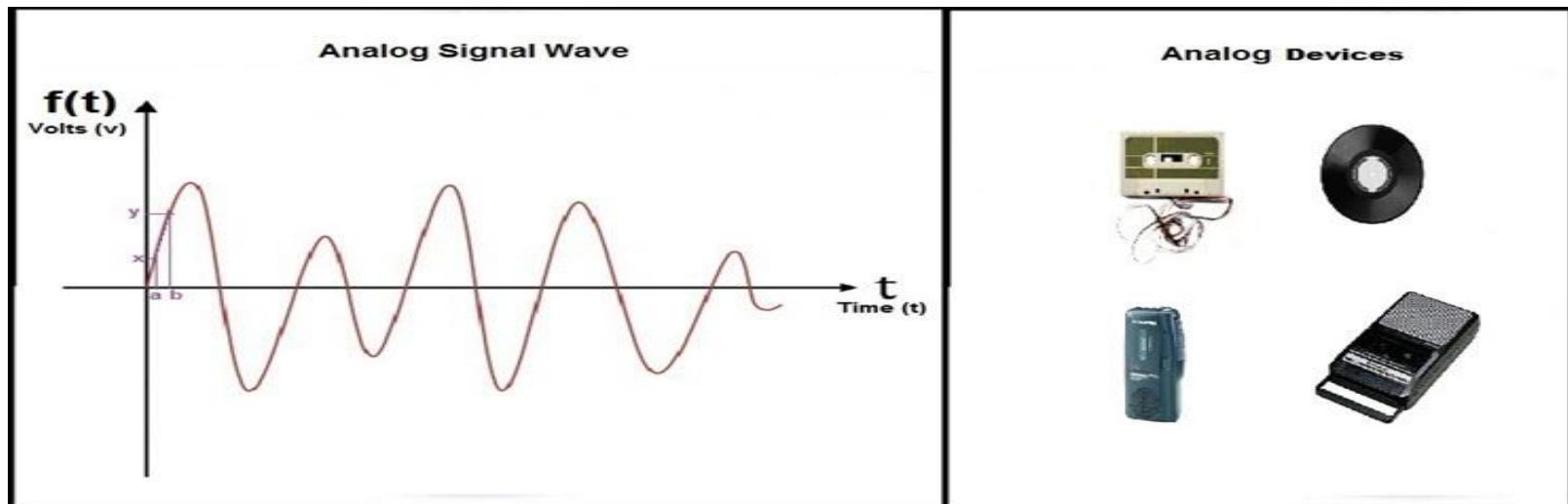


Types of Computer



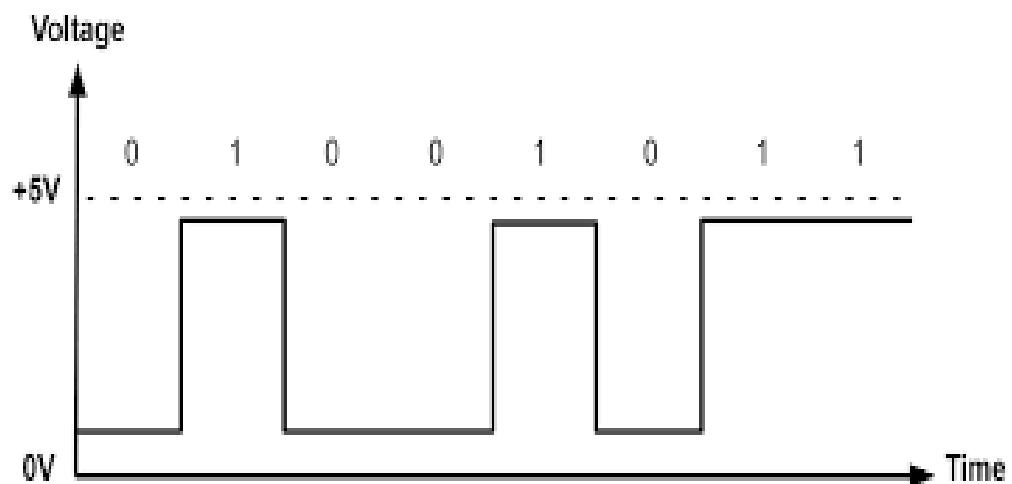
ANALOGUE COMPUTER

- Analog computers were the earliest computer machines developed and were among the most complicated machines for analog computation and process control.
- Analog data is not discrete, but rather is of a continuous nature.
- Examples of such data are pressure, temperature, voltage, speed and weight



DIGITAL COMPUTER

- Digital computer is the most commonly used type of computer and is used to process information with quantities using digits, usually using the binary number system
- Examples of Digital Computers
 - Calculator. A digital calculator is an electronic gadget designed to perform calculations including simple mathematics, complex algebra, logical analysis, etc. ...
 - Digital Clock. ...
 - Weighing Machine. ...
 - Smart Phones. ...
 - Laptop/Personal Computer. ...
 - ATM.



DIGITAL COMPUTER

VS

ANALOG COMPUTER



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HYBRID COMPUTER

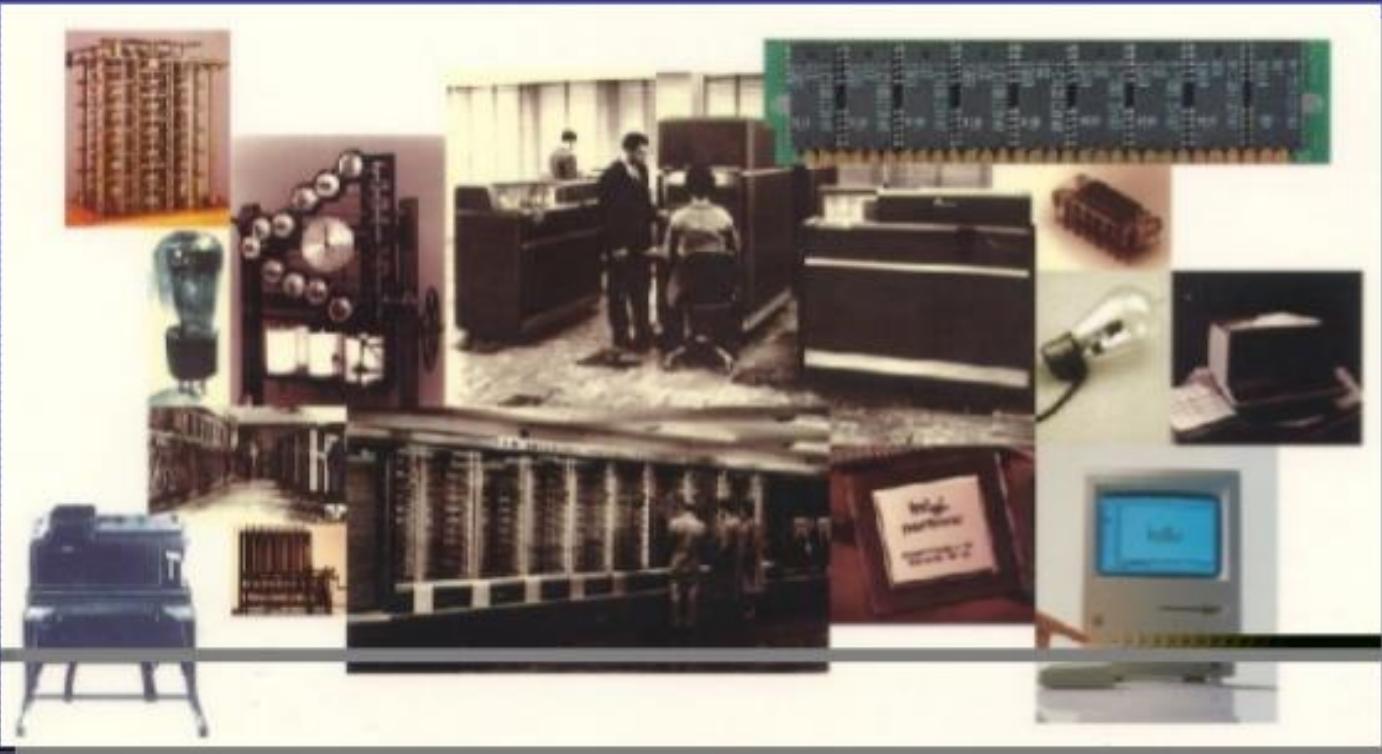
- Hybrid computers are computers that exhibit features of analog computers and digital computers.
- The digital component normally serves as the controller and provides logical and numerical operations, while the analog component often serves as a solver of differential equations and other mathematically complex problem

▪ Examples of Hybrid Computers

- Gasoline Station. The fuel vending machine at a gas station measures the amount of fuel via analogue technology and displays the information regarding cost in digital form.
- Electrocardiogram Machine.
- Ultrasound Machine.
- Monitoring Machine.
- Research and Production Industries.
- Forensic.
- Defense.



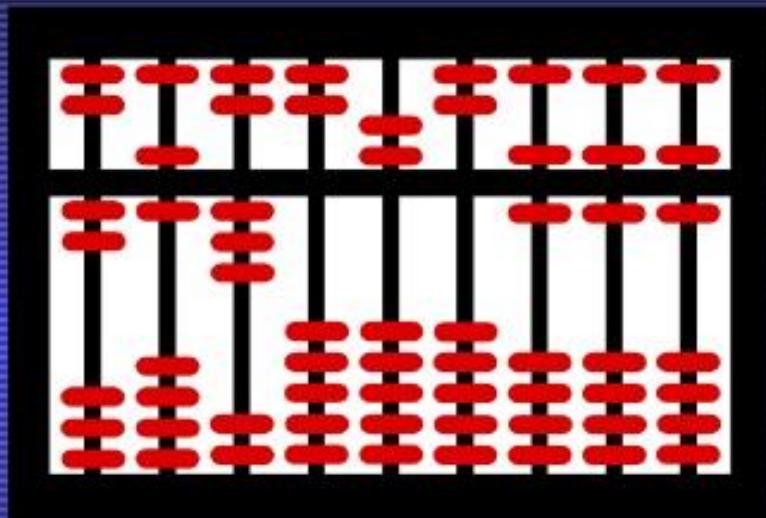
The History of Computers



I- Ancient Counting Machines

1- The **Abacus** (base 5)

(in ancient Babylon,
China, Europe)



Ancient Time

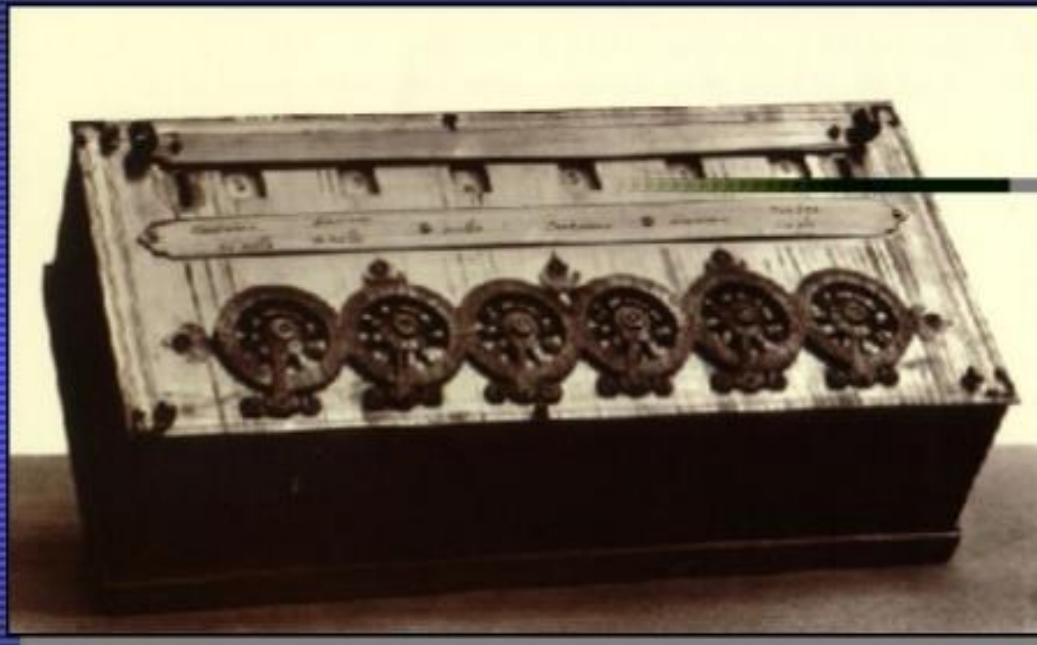
2- The **Roman Numerals**

I II III IV V VI VII VIII IX X

3- The **Arabic Numerals** (base 10)

0 1 2 3 4 5 6 7 8 9 10

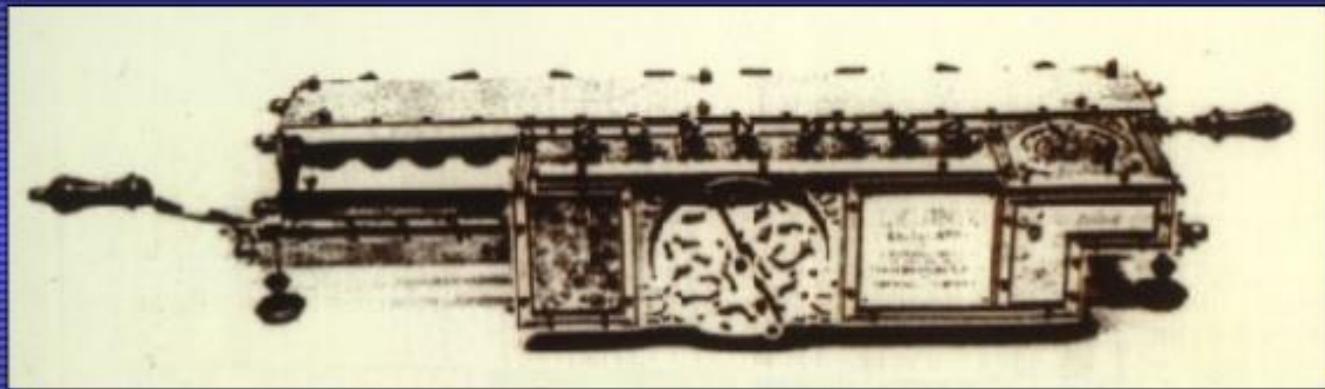
II- Mechanical Counting Machines



1642

4- The Pascaline is a mechanical calculating device invented by the French philosopher and mathematician Blaise Pascal in 1642. (+)

II- Mechanical Counting Machines

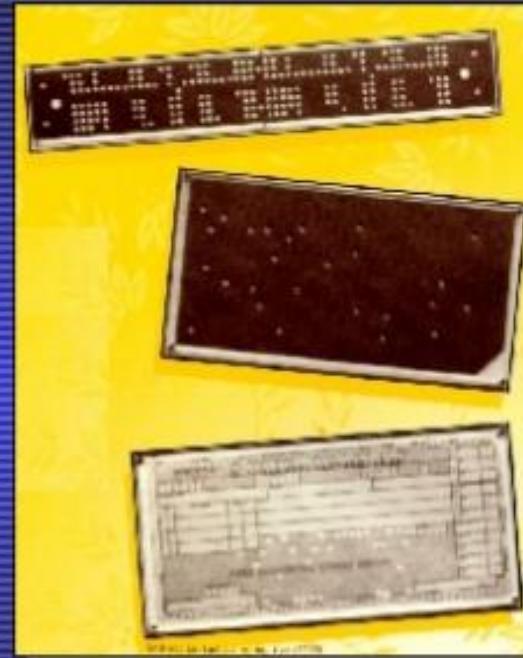
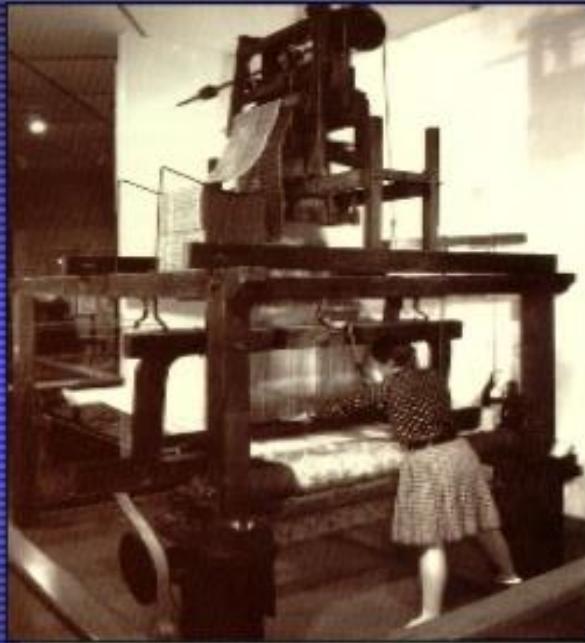


1673

5- The Leibniz Wheel was invented by the famous mathematician Leibniz in 1673.

(+ , - , * , /)

II- Mechanical Counting Machines

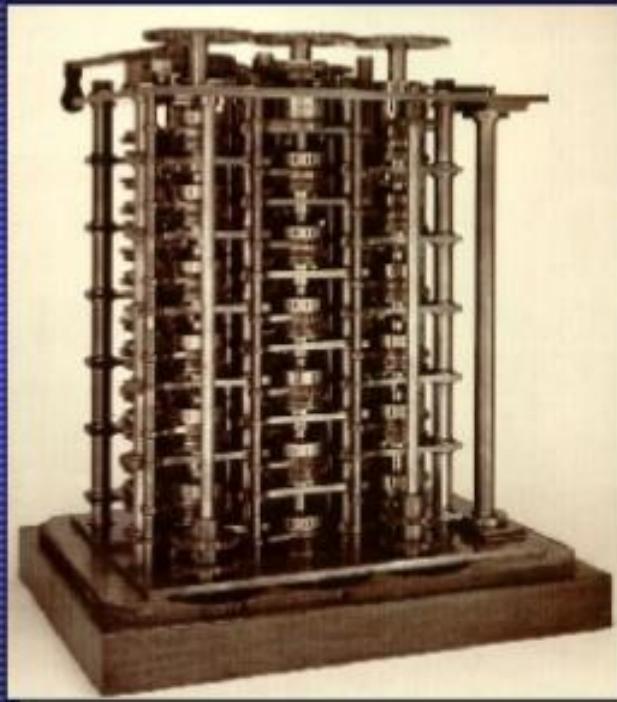


1810

6- Punched Cards were used by the French weaver Joseph Jacquard in 1810. The cards carried weaving instructions for the looms, later this idea offered a great use for storing info.

II- Mechanical Counting Machines

7- Babbage's Difference Engines were calculating machines made by Charles Babbage to produce tables of numbers that would be used by ship's navigators.



1832

1852

This device had mechanical problems similar to those that plagued Pascal and Leibniz.

The Invention of the Vacuum Tube

8- Initially discovered by Thomas Edison, the **vacuum tube** formed the building block for the entire electronics industry.

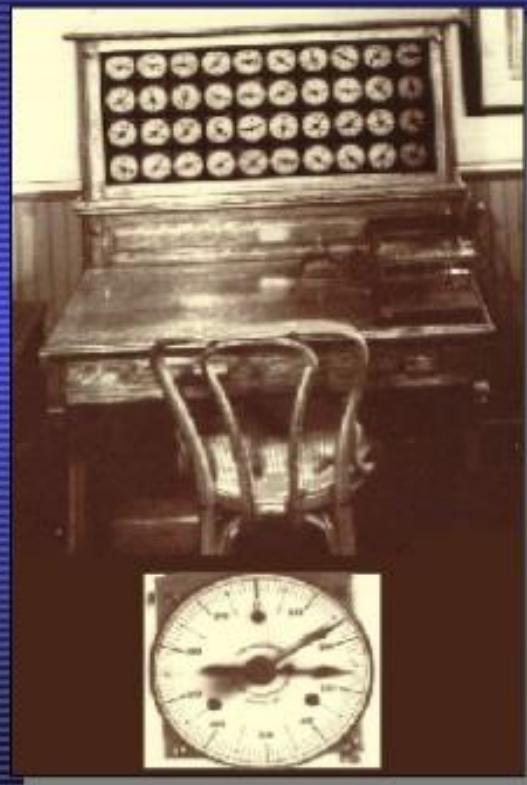
*Vacuum tubes were later used as **electron valves** in the 20th century to build the first electronic computers.



1883

III- Electrical Counting Machines

9- The US census of the 1880 took 9 years to compile and led to inaccurate figures. To solve the problem, **Herman Hollerith** invented a calculating machine that used electricity along with punched cards instead of mechanical gears.



1888

III- Electrical Counting Machines

- Hollerith's machine was immensely successful. The general count of the population, then 63 million, took only 6 weeks to calculate!

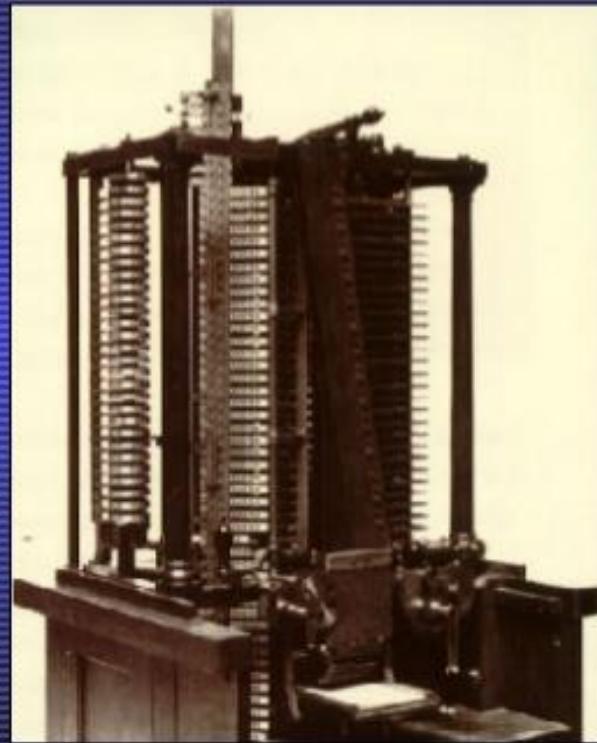
1888

- Based on the success of his invention, Herman Hollerith and some friends formed a company that sold his invention all over the world. The company eventually became known as:

International Business Machines IBM

II- Mechanical Counting Machines

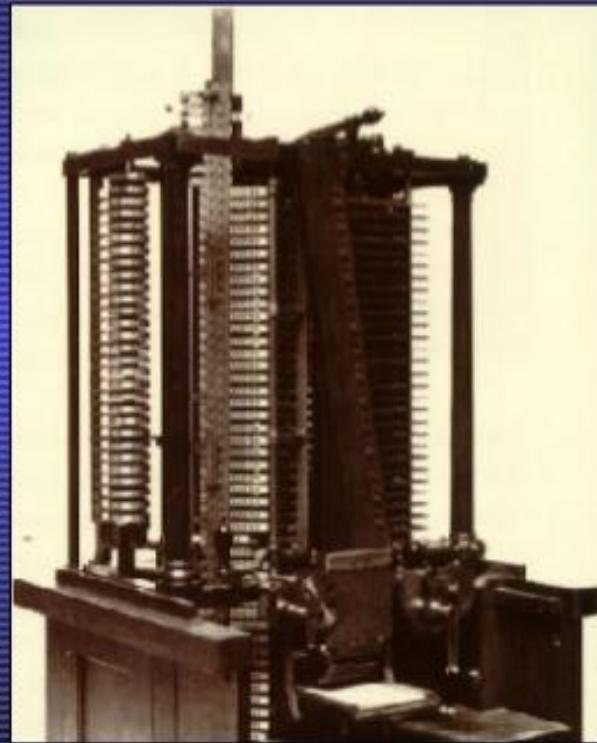
10- A partial working model of Babbage's **Analytical Engine** was completed in 1910 by his son... used punched cards to store numbers. The design was no more successful than its predecessors.



1910

II- Mechanical Counting Machines

10- A partial working model of Babbage's **Analytical Engine** was completed in 1910 by his son... used punched cards to store numbers. The design was no more successful than its predecessors.



1910

III- Electrical Counting Machines



11- MARK I was built by a team from IBM and Harvard University. Mark I used **mechanical** telephone switches to store information. It accepted data on punched cards, processed it and then output the new data.

IV- Electronic Counting Machines



1946

12- The **ENIAC** was the **first** US-built all-
electronic computer built to perform ballistics
calculations. (*Away from IBM*)

IV- Electronic Counting Machines

- * It was 1000X faster than Mark I, but it drew a lot of power that dimmed the lights of Philadelphia when it was switched on due to the use of Vacuum Tubes.

1946

- * Mark I: 5 Additions / sec.
- * ENIAC: 5,000 Additions / sec.
- * ENIAC was made of 18,000 vacuum tubes.

IV- Electronic Counting Machines

ENIAC's Problems:

- 1- short life of vacuum tubes
- 2- It runs a single program, which means rewiring by a group of technicians is needed to change the program!!!

Solution: the same group of researchers worked on another version of ENIAC that can store programs on punched cards that are much easier to manage and they came up with: ➤

IV- Electronic Counting Machines



1946

12- The ENIAC was the ~~first~~ US-built all-electronic computer built to perform ballistics calculations. (*Away from IBM*)

The Effect of World War II

Back in time to the days of war...

- * During WWII, the German Navy developed a cipher machine named **Enigma**. The Enigma machine could automatically encode a message in such a way that only another Enigma machine could read decode it.



1938

The Effect of World War II

- * In 1938 the Polish Secret Service managed to steal an Enigma machine that was smuggled to England.

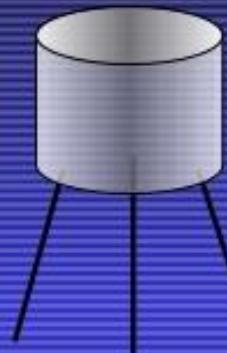
1938

- * Secretly the British developed a computer named **Colossus** that could decipher as many as 2,000 messages per day. That computer used Vacuum tubes and was the world's first entirely digital computer. Surprisingly, though Colossus presented a similar technology to that of ENIAC, it had only 2,400 compared to 18,000 in ENIAC!!!

Two Inventions that changed the way computers are built!!

1- The Transistor

The most significant single invention of the modern era. It was invented by 3 scientists at At&T's Bell Labs.

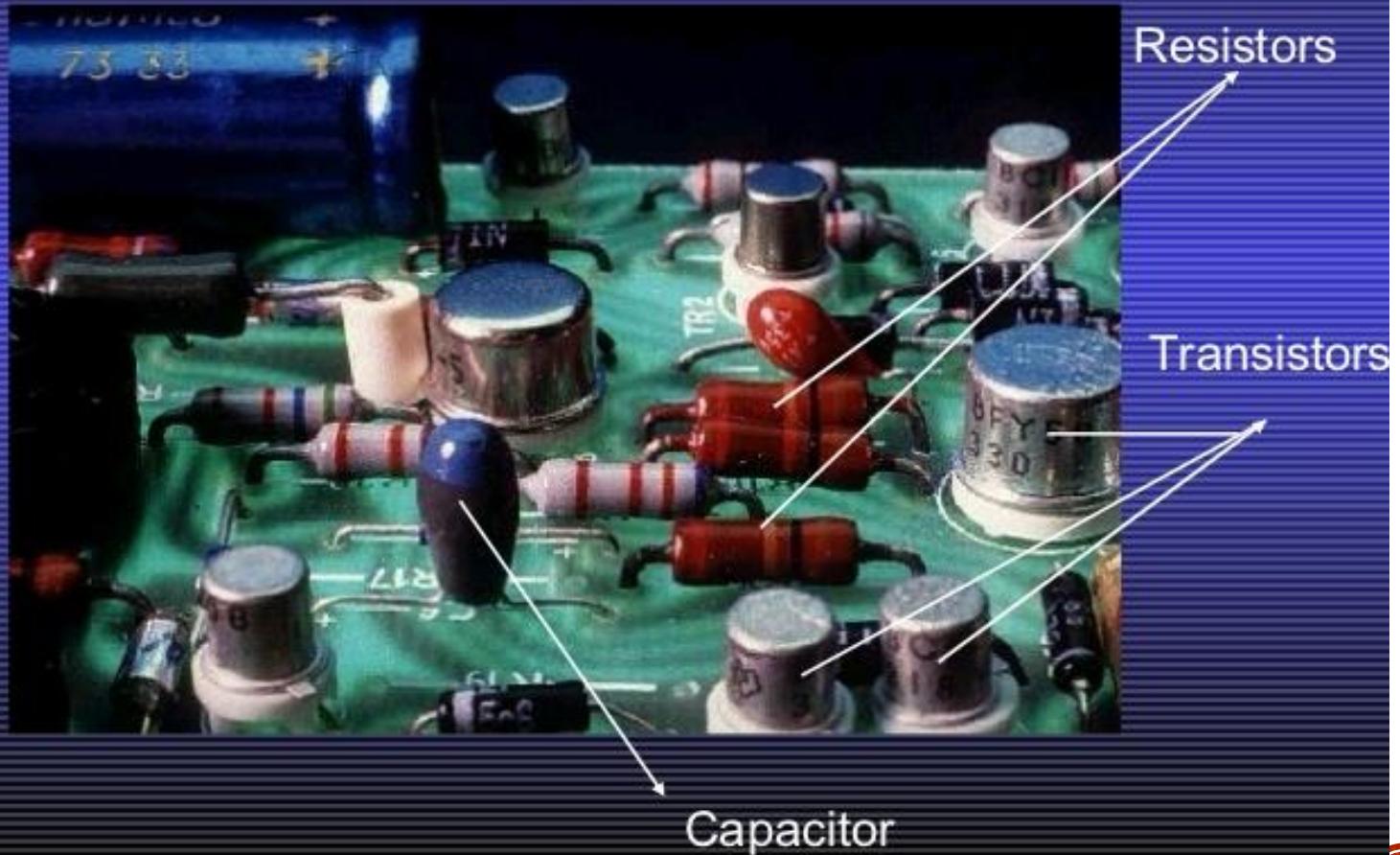


1946

One of the first overseas companies was a Japanese company called Tokyo Telecommunications Laboratory. The company had troubles paying the license fee (\$25,000) that company became in 1956 what's called now Sony! it replaced the Vacuum tube.

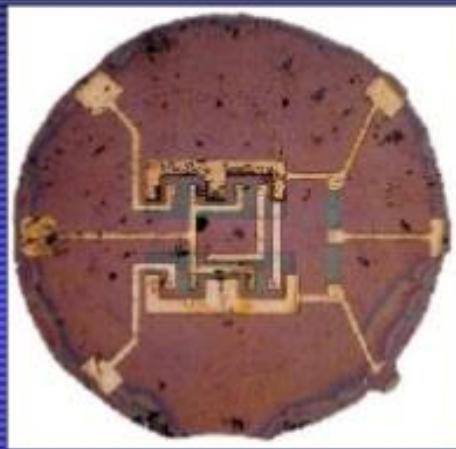
- * Transistors are smaller (*sometimes microscopic*)
- * Fast and don't need to warm up

Transistors on a circuit board

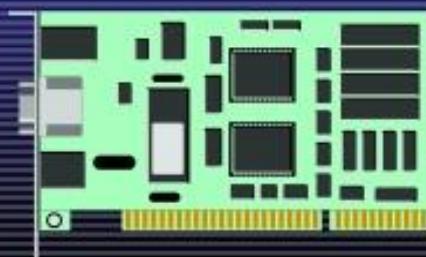
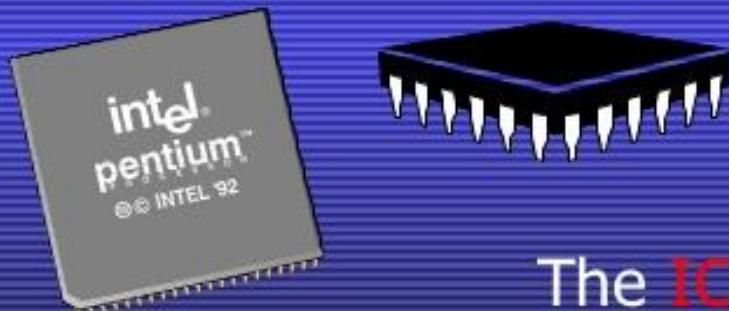


Two Inventions that changed the way computers are built!!

2- The (IC) Integrated Circuit

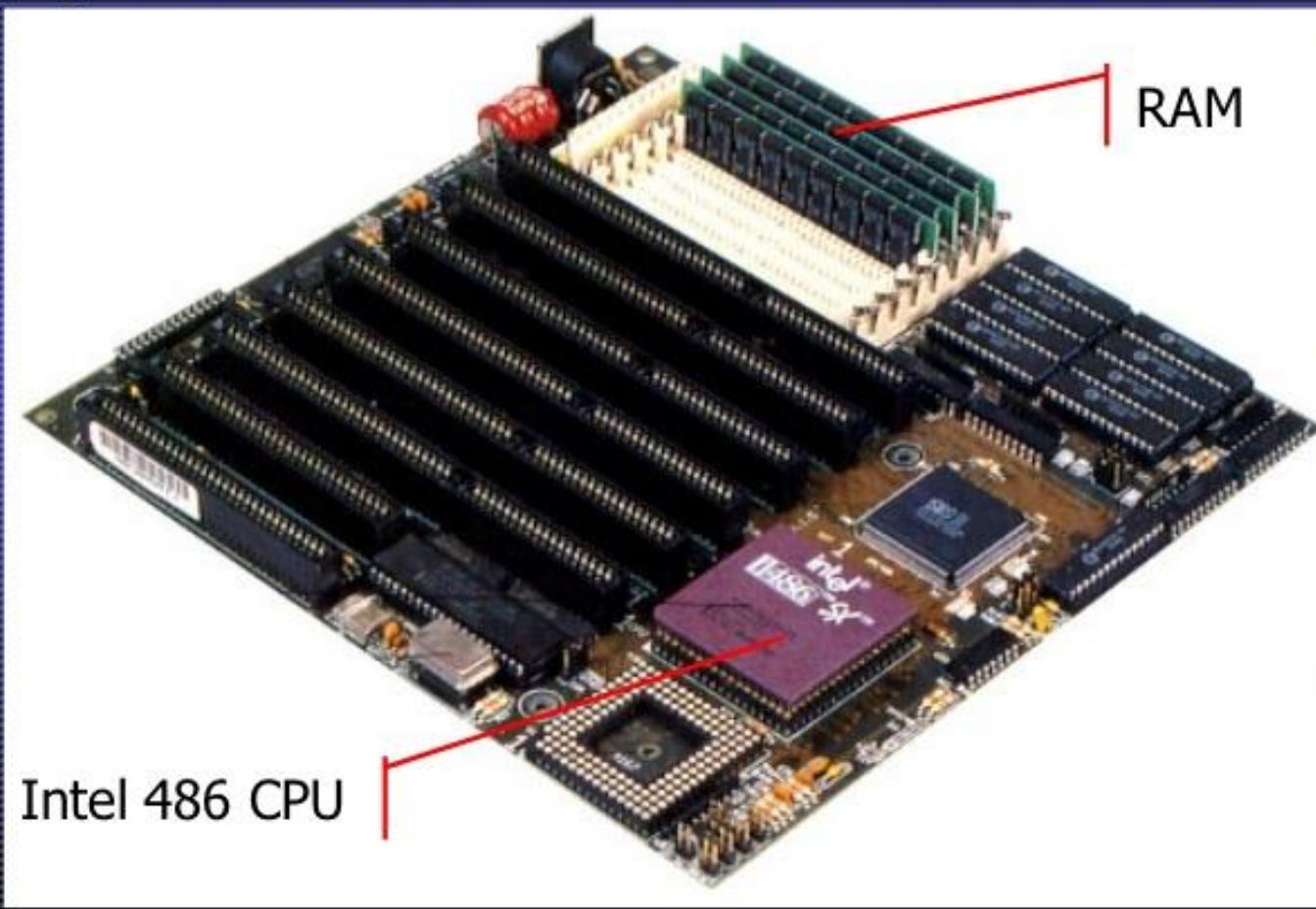


1961



The IC revolutionized the entire electronic technology.
Ex: The Pentium Processor contains 3.1 Million Transistors in 1.5 inch square!

How the processor (CPU) is placed on the Motherboard



1975 - 1981

THE EVOLUTION OF PERSONAL COMPUTING

Personal computers have come a long way in a short time. Computers easy and inexpensive enough for individuals to buy were first developed in the mid-1970s. Since then, they have become smaller, faster, and more powerful.



1975

The Altair

1976

The Apple I

1978

The Floppy
Disk

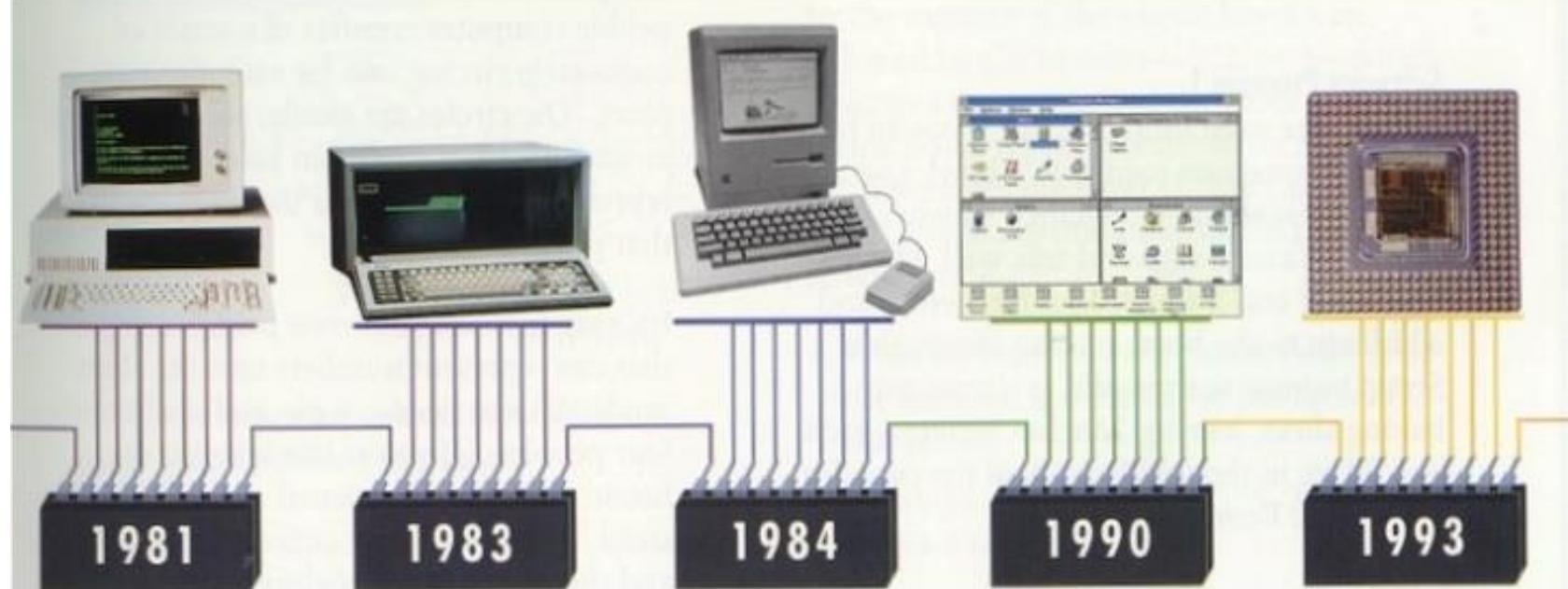
1980

The Hard
Disk

1981

MS-DOS

1981 - 1993



The IBM PC

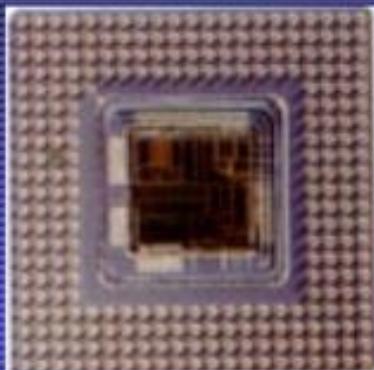
**The Compaq
portable Computer**

**The Apple
Macintosh**

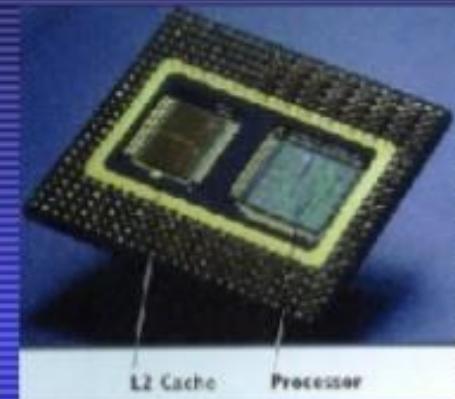
MS-Windows 3.0

**The Pentium
Chip**

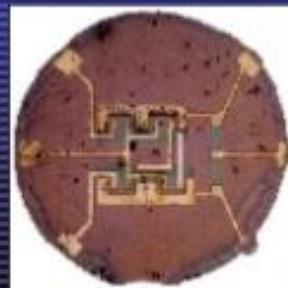
Intel Pentium Processors



PENTIUM



PENTIUM Pro

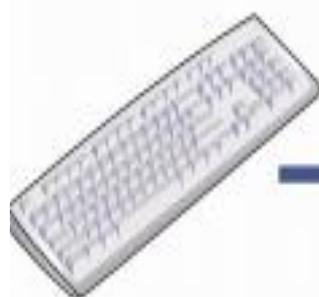


PENTIUM II

INTRODUCTION TO COMPUTERS

- A computer is a machine or device that performs processes, calculations and operations based on instructions provided by a software or hardware program.
- It has the ability to accept data (input), process it, and then produce outputs.
- Accepts input, processes data, stores data, and produces output
- ***Input*** refers to whatever is sent to a Computer system
- ***Data*** refers to the symbols that represent facts, objects, and ideas
- ***Processing*** is the way that a computer manipulates data
- A computer processes data in a device called the ***central processing unit*** (CPU)

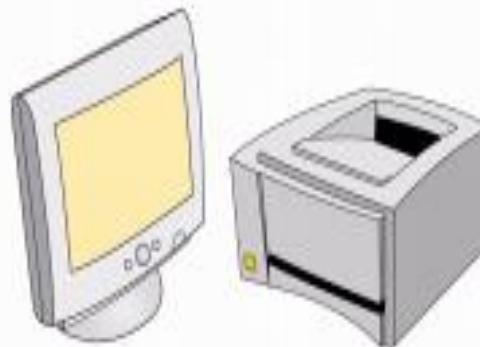
Introduction To Computers Cont..



A computer accepts input from an input device, such as a keyboard, mouse, scanner, or digital camera.



Data is processed in the CPU according to instructions that have been loaded into the computer's memory.



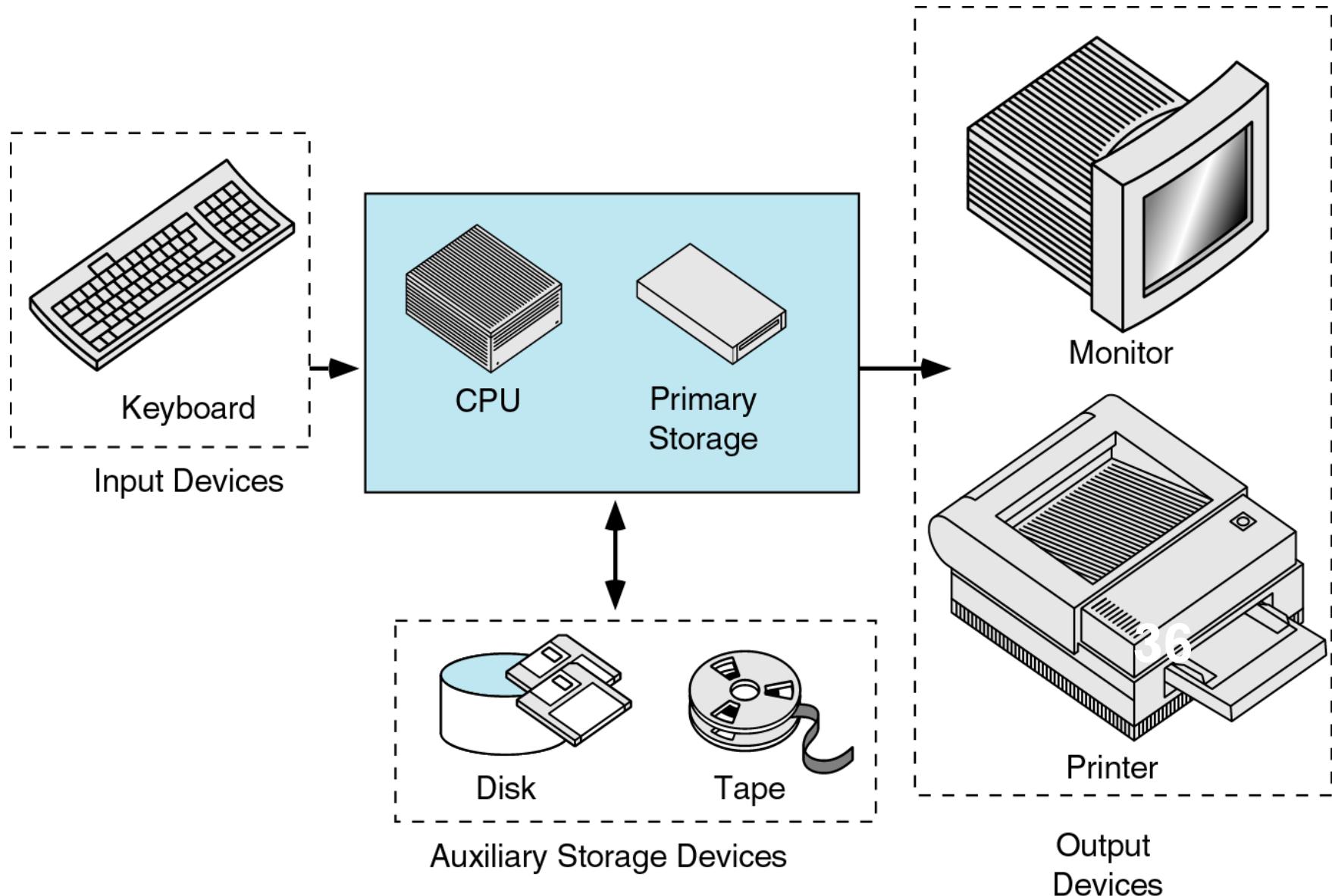
Computers produce output on devices such as screens and printers.



A computer uses disks, CDs, and DVDs to permanently store data.

INTRODUCTION CONT..

- **Computer**
 - Performs computations and makes logical decisions
 - Millions / billions times faster than human beings
- **Computer programs**
 - Sets of instructions for which computer processes data
- **Hardware**
 - Physical devices of computer system
- **Software**
 - Programs that run on computers



CAPABILITIES OF COMPUTERS

- **The capabilities of a computer system are**
 - speed,
 - reliability,
 - adaptability,
 - storage,
 - accuracy,
 - Input and Output, and
 - Processing

COMPUTER CHARACTERISTICS

- 1. Speed :** Computer can do any tasks in fractions of second. The speed of the computer is based on its hardware configuration.
- 2. Storage Capacity :** A computer can store a huge amount of data in many different formats.
- 3. Accuracy :** A computer carries out any calculation with a 100% accuracy. However, this depends on the configuration of the system and instruction from the user.
- 4. Reliability :** A computer processes results with 0 error. Mostly the error generated in the computer is due to user's fault.
- 5. Diligence :** Computer can be set to perform repetitive tasks for numerous times and the result will always be displayed with the same accuracy and efficiency. Computers aren't affected by human traits like dizziness, fatigue, distraction, tiredness, etc.
- 6. Versatility :** The same computer can be used for many different tasks for many different purposes.

COMPUTER GENERATION

Five Generations of Computers		
Generations of computers	Generations timeline	Evolving hardware
First generation	1940s-1950s	Vacuum tube based
Second generation	1950s-1960s	Transistor based
Third generation	1960s-1970s	Integrated circuit based
Fourth generation	1970s-present	Microprocessor based
Fifth generation	The present and the future	Artificial intelligence based

First Generation Computers

Time Period : 1951 to 1959
Size : Very Large System

Technology : Vacuum Tubes
Processing : Very Slow



First Generation Computers

Characterized By:-
Magnetic Drums

- Magnetic Tapes
- Difficult to program
- Used machine language & assembly language

THE MAIN CHARACTERISTICS OF FIRST GENERATION OF COMPUTERS (1940S-1950S)

- **Main electronic component** – vacuum tube
- **Main memory** – magnetic drums and magnetic tapes
- **Programming language** – machine language
- **Power** – consume a lot of electricity and generate a lot of heat.
- **Speed and size** – very slow and very large in size (often taking up entire room).
- **Input/output devices** – punched cards and paper tape.
- **Examples** – ENIAC, UNIVAC1, IBM 650, IBM 701, etc.
- **Quantity** – there were about 100 different vacuum tube computers produced between 1942 and 1963

Second Generation Computers

Time Period : 1959 to 1963
Size : Smaller

Technology : Transistors
Processing : Faster



Second Generation Computers

Characterized By:-

- Magnetic Cores
- Magnetic Disk
- Used high level language
- Easier to program

THE MAIN CHARACTERISTICS OF SECOND GENERATION OF COMPUTERS (1950S-1960S)

- **Main electronic component** – transistor
- **Memory** – magnetic core and magnetic tape / disk
- **Programming language** – assembly language
- **Power and size** – low power consumption, generated less heat, and smaller in size (in comparison with the first generation computers).
- **Speed** – improvement of speed and reliability (in comparison with the first generation computers).
- **Input/output devices** – punched cards and magnetic tape.
- **Examples** – IBM 1401, IBM 7090 and 7094, UNIVAC 1107, etc

Third Generation Computers

Time Period	: 1963 to 1975
Technology	: ICs (Integrated Circuits) Incorporated many transistors & electronic circuits on a single chip
Size	: Small as compared to 2nd generation computers
Processing	: Faster than 2nd generation computers



IC (Integrated Circuit)

Characterized by:-

- Minicomputers accessible by multiple users from remote terminals.

THE MAIN CHARACTERISTICS OF THIRD GENERATION OF COMPUTERS (1960S-1970S)

- **Main electronic component** – integrated circuits (ICs)
- **Memory** – large magnetic core, magnetic tape / disk
- **Programming language** – high level language (FORTRAN, BASIC, Pascal, COBOL, C, etc.)
- **Size** – smaller, cheaper, and more efficient than second generation computers (they were called minicomputers).
- **Speed** – improvement of speed and reliability (in comparison with the second generation computers).
- **Input / output devices** – magnetic tape, keyboard, monitor, printer, etc.
- **Examples** – IBM 360, IBM 370, PDP-11, UNIVAC 1108, etc

Fourth Generation Computers

Time Period	: 1975 to Today
Technology	: VLSI (Very Large Scale Integration) Incorporated many millions of transistors & electronic circuits on a single chip
Size	: Small as compared to first generation computer
Processing	: Faster than first generation computer



VLSI (Very Large Scale Integration)

Characterized by:

The personal computer and user friendly micro-programs, very fast processor chip high level language, OOP (Object Oriented Programming)

THE MAIN CHARACTERISTICS OF FOURTH GENERATION OF COMPUTERS (1970S-PRESENT)

- **Main electronic component** – very large-scale integration (VLSI) and microprocessor.
- **VLSI** – thousands of transistors on a single microchip.
- **Memory** – semiconductor memory (such as RAM, ROM, etc.)
- **RAM (random-access memory)** – a type of data storage (memory element) used in computers that temporary stores of programs and data (volatile: its contents are lost when the computer is turned off).
- **ROM (read-only memory)** – a type of data storage used in computers that permanently stores data and programs (non-volatile: its contents are retained even when the computer is turned off).
- **Programming language** – high level language (Python, C#, Java, JavaScript, Rust, Kotlin, etc.).
- **A mix of both third- and fourth-generation languages**
- **Size** – smaller, cheaper and more efficient than third generation computers.
- **Speed** – improvement of speed, accuracy, and reliability (in comparison with the third generation computers).
- **Input / output devices** – keyboard, pointing devices, optical scanning, monitor, printer, etc.
- **Network** – a group of two or more computer systems linked together.
- **Examples** – IBM PC, STAR 1000, APPLE II, Apple Macintosh, etc

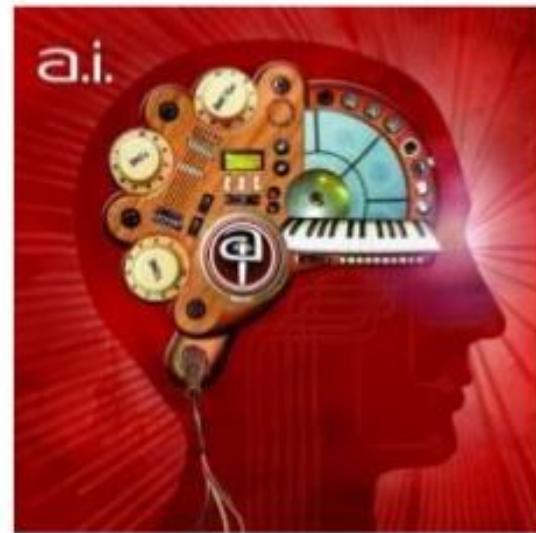
Fifth Generation Computers

Time Period
Technology

: Future Technology
: AI (Artificial Intelligence)



Fifth Generation Computer



AI (Artificial Intelligence)

THE MAIN CHARACTERISTICS OF FIFTH GENERATION OF COMPUTERS (THE PRESENT AND THE FUTURE)

- Main electronic component: based on artificial intelligence, uses the Ultra Large-Scale Integration (**ULSI**) technology and parallel processing method.
- **ULSI** – millions of transistors on a single microchip
- **Parallel processing method** – use two or more microprocessors to run tasks simultaneously.
- **Language** – understand natural language (human language).
- **Power** – consume less power and generate less heat.
- **Speed** – remarkable improvement of speed, accuracy and reliability (in comparison with the fourth generation computers).
- **Size** – portable and small in size, and have a huge storage capacity.
- **Input / output device** – keyboard, monitor, mouse, trackpad (or touchpad), touchscreen, pen, speech input (recognise voice / speech), light scanner, printer, etc.
- **Example** – desktops, laptops, tablets, smartphones, etc

TYPES OF COMPUTER SYSTEM

- Depending upon the internal structure and subsequent features and applicability, computer system is categorized as follows –
 - **Super Computer**
 - This category of computer is the fastest and also very expensive. A typical supercomputer can solve up to ten trillion individual calculations per second.
 - **Mainframe Computer**
 - It is high capacity and costly computer. It is largely used by big organizations where many people can use it simultaneously.
 - **Workstation Computer**
 - The computer of this category is a high-end and expensive one. It is exclusively made for complex work purpose.

Types of Computers



Micro Computer



Mini Computer



Mainframe Computer



Super Computer

Size and Speed



TYPES OF COMPUTER SYSTEM CONT..

- Personal Computer (PC)**

- It is a low capacity computer developed for single users.

- Apple Macintosh (Mac)**

- It is a sort of personal computer manufactured by Apple company.

- Laptop computer (notebook)**

- It is a handy computer that can be easily carried anywhere.

- Tablet and Smartphone**

- Modern technology has advanced further. It has helped develop computers that are pocket-friendly. Tablets and smartphones are the best examples of such computer.

TYPES OF COMPUTER SYSTEM CONT..



TYPES OF COMPUTER SYSTEM CONT..



Tablet



Smartphone

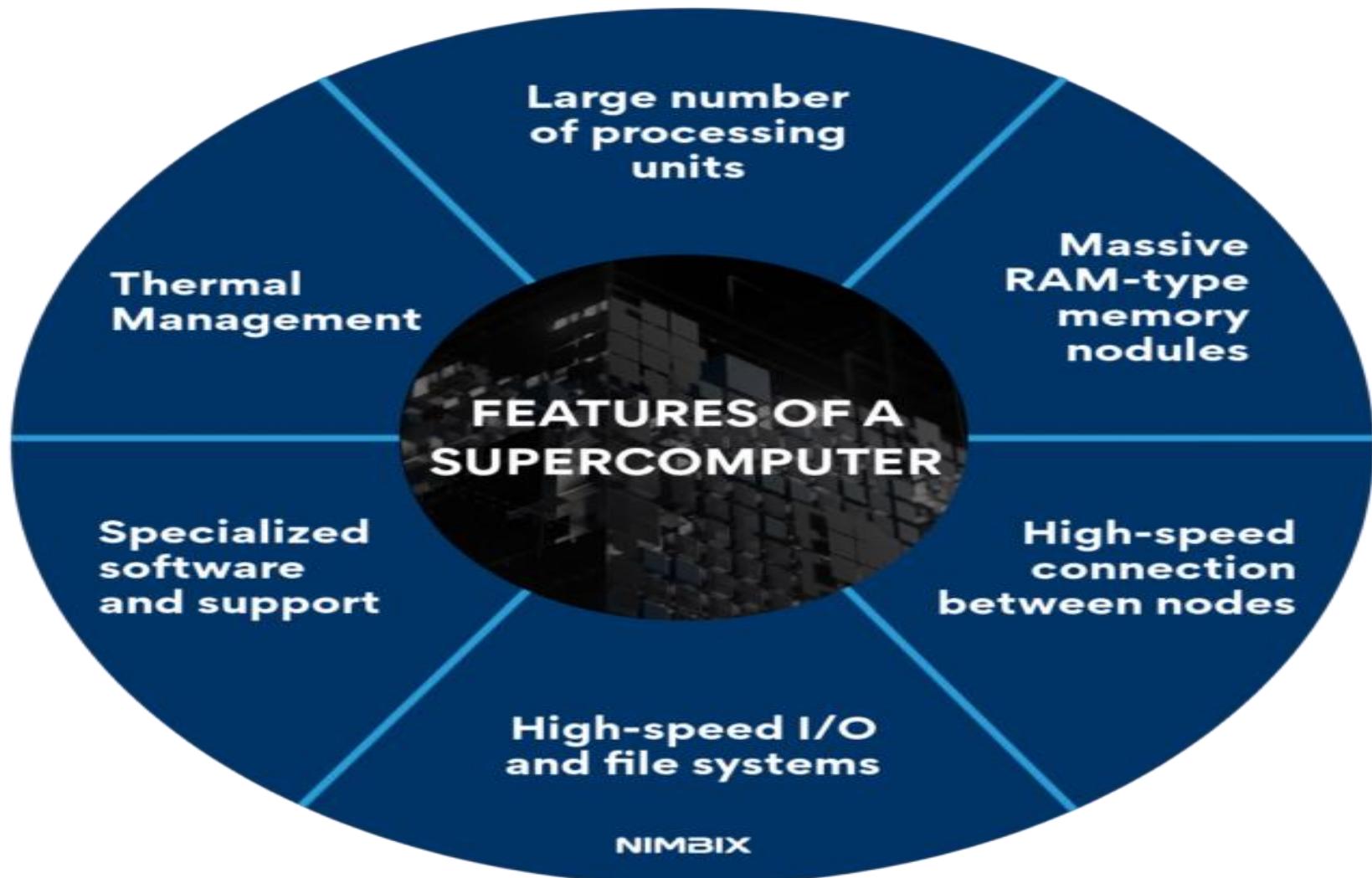
SUPER COMPUTER

- The biggest in size, the most expensive in price than any other is classified and known as super computer.
- It can process trillions of instructions in seconds.
- Governments specially use this type of computer for their different calculations and heavy jobs.
- Different industries also use this huge computer for designing their products.
- Common applications for supercomputers include testing mathematical models for complex physical phenomena or designs, such as climate and weather, evolution of the cosmos, nuclear weapons and reactors, new chemical compounds (especially for pharmaceutical purposes), and cryptology.

SUPER COMPUTER CONT..



FEATURES OF SUPER COMPUTERS



Supercomputer Applications

Typical application areas

- Military research (nuclear weapons, cryptography)
- Scientific research
- Weather forecasting
- Oil exploration
- Industrial design (car crash simulation)

All involve huge computations on large data sets

In 70s-80s, Supercomputer = Vector Machine

MAINFRAME COMPUTER

- A mainframe computer, informally called a mainframe or big iron, is a computer used primarily by large organizations for critical applications like bulk data processing for tasks such as censuses, industry and consumer statistics, enterprise resource planning, and large-scale transaction processing.
- mainframe, digital computer designed for **high-speed data processing with heavy use of input/output units such as large-capacity disks and printers.**
- Mainframes have been used for such applications as **payroll computations, accounting, business transactions, information retrieval, airline seat reservations, and scientific and engineering computations.**



MainFrame Computer

MINICOMPUTER

- A minicomputer is a type of computer that possesses most of the features and capabilities of a large computer but is smaller in physical size.
- A minicomputer fills the space between the mainframe and microcomputer, and is smaller than the former but larger than the latter
- Minicomputers were used for scientific and engineering computations, business transaction processing, file handling, and database management.
- Minicomputers as a distinct class of computers emerged in the late 1950s and reached their peak in the 1960s and '70s before declining in popularity in the 1980s and '90s.

MINICOMPUTER CONT..



PERSONAL COMPUTER

- A personal computer is a multi-purpose microcomputer whose size, capabilities, and price make it feasible for individual use.
- Personal computers are intended to be operated directly by an end user, rather than by a computer expert or technician
- Software applications for most personal computers include, but are not limited to, **word processing, spreadsheets, databases, web browsers and e-mail clients, digital media playback, games and myriad personal productivity and special-purpose software applications.**

PERSONAL COMPUTER CONT..



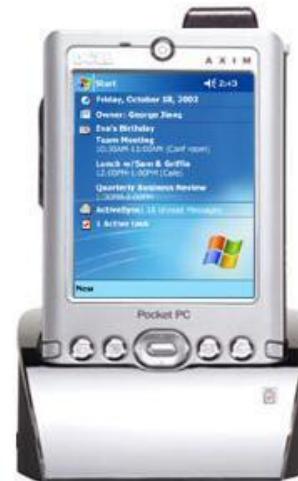
Notebook / Laptop

- Having a small size and low weight the notebook is easy to carry to anywhere. A student can take it with him/her to his/her school in his/her bag with his/her book.
- This is easy to carry around and preferred by students and business people to meet their assignments and other necessary tasks.
- The approach of this computer is also the same as the Personal computer.
- It can store the same amount of data and having a memory of the same size as that of a personal computer. One can say that it is the replacement of personal desktop computer.



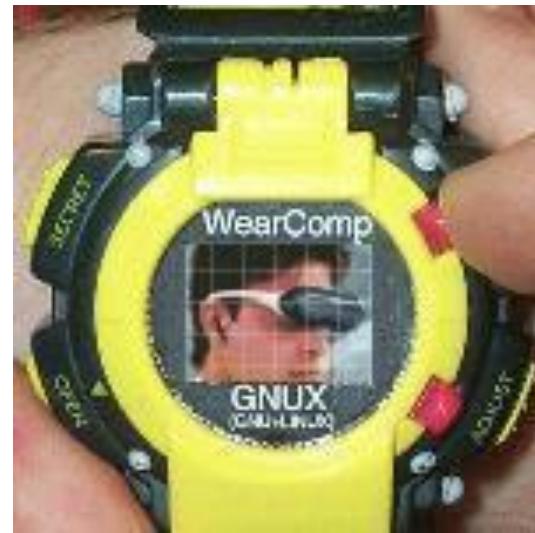
Palmtop

- More commonly known as Personal Digital Assistants (PDAs), palmtops are tightly integrated computers that often use flash memory instead of a hard drive for storage.
- These computers usually do not have keyboards but rely on touchscreen technology for user input.
- Palmtops are typically smaller than a paperback novel, very lightweight with a reasonable battery life.
- A slightly larger and heavier version of the palmtop is the **handheld computer**.



Wearable Computers

- The latest trend in computing is wearable computers. Essentially, common computer applications (e-mail, database, multimedia, calendar/scheduler) are integrated into watches, cell phones, visors and even clothing!
- A wearable computer is a very personal computer. It should be worn like a piece of clothing, as unobtrusive as possible.
- A user should interact with the computer based upon context.
- It could be a communications device (immediate or store and forward), a recorder (visual, audio, other sensors) or a reference device (local or remote resources).



Comparisons between different types of computers:

Type	Components	Physical Size and Capacity	Cost	Usage
Microcomputer	All components in a single unit	Smallest	Cheapest	At homes, in schools and offices
Minicomputer	Several functional units	Small	Cheap	In universities, medium-sized companies, departments of large companies
Mainframe computer	Several separate units	Large	Expensive	In large organizations, universities, government
Supercomputer	Several separate units	Largest	Most expensive	In scientific research, weather forecasting, space exploration, military defense

CAPABILITIES OF COMPUTERS

- **The capabilities of a computer system are**
- speed,
- reliability,
- adaptability,
- storage,
- accuracy,
- Input and Output, and
- Processing

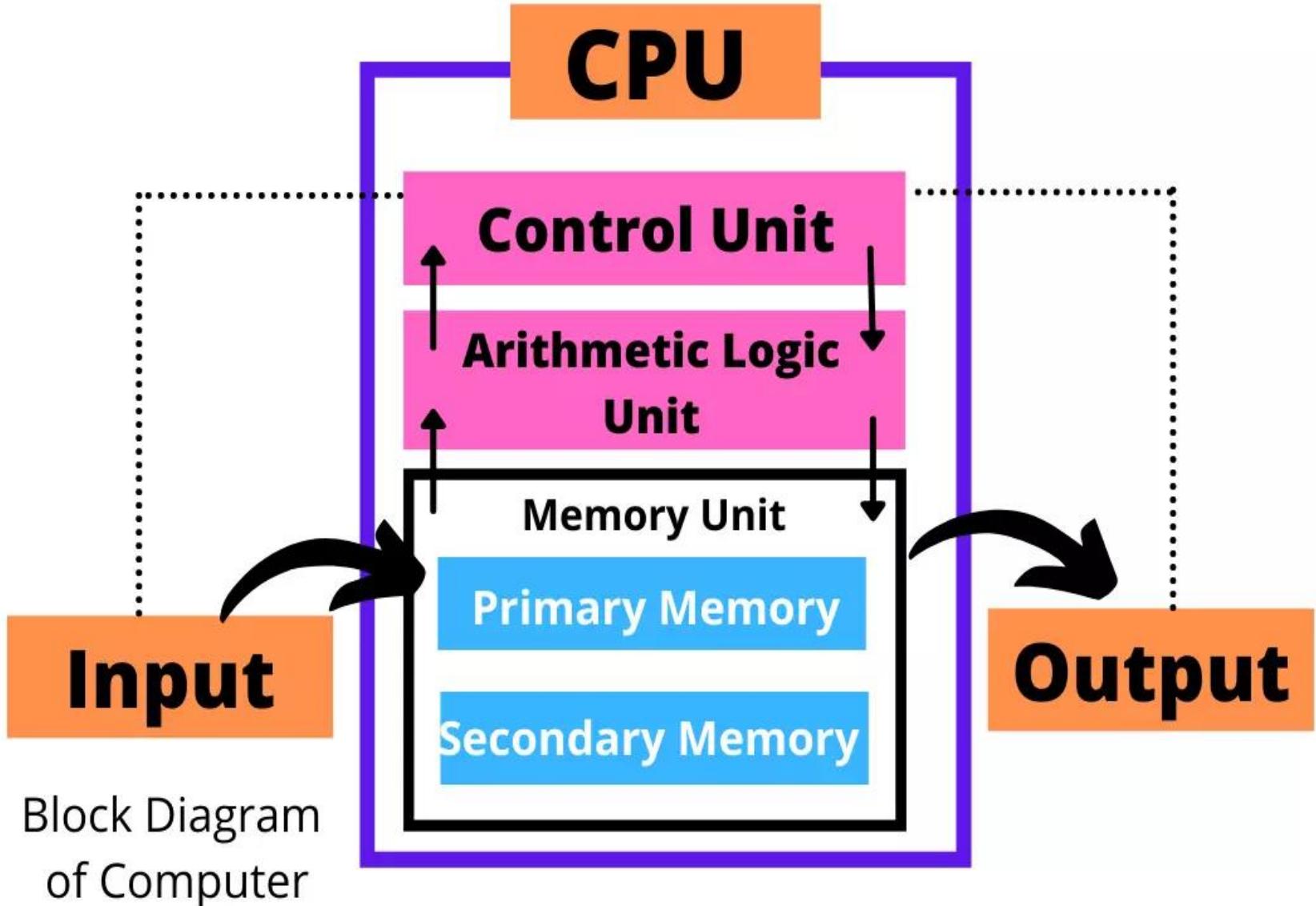
WHAT IS COMPUTER SYSTEM

The diagram shows a person with red hair and glasses sitting at a desk, facing a computer monitor. A red arrow points from a box labeled "USER" above the person's head down to their head. Another red arrow points from a box labeled "HARDWARE" above the monitor down to the monitor itself. A third red arrow points from a box labeled "SOFTWARE" to the right of the monitor up to the monitor screen, which displays a blue bar chart.

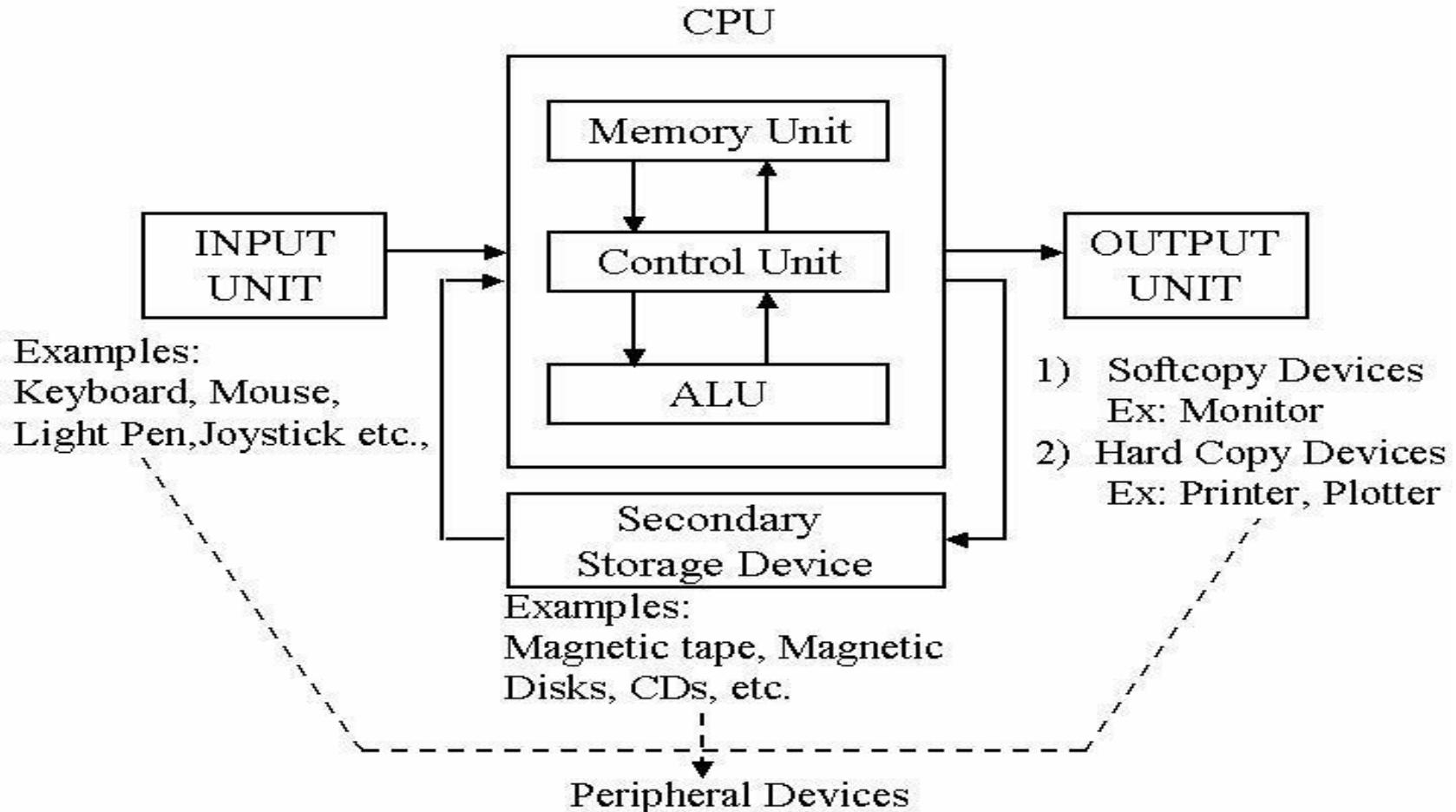
- A computer system is defined as **combination of components designed to process data and store files**.
- A computer system requires **hardware, software** and a **user** to fully function.

COMPUTER SYSTEM CONCEPTS

- A computer system is a set of integrated devices that input, output, process, and store data and information.
- Computer systems are currently built around at least one digital processing device.
- There are five main hardware components in a computer system: Input, Processing, Storage, Output and Communication devices.



BLOCK DIAGRAM OF DIGITAL COMPUTER CONT..



CENTRAL PROCESSING UNIT (CPU)

- The component of a computer system that performs the basic operations (such as processing data) of the system, that exchanges data with the system's memory or peripherals, and that manages the system's other components. — called also processor.
- A central processing unit, also called a central processor, main processor or just processor, is the electronic circuitry that executes instructions comprising a computer program.
- The CPU performs basic arithmetic, logic, controlling, and input/output operations specified by the instructions in the program.
- **Central processing unit (CPU)**, principal part of any digital computer system, generally composed of the main memory, control unit, and arithmetic-logic unit.

ARITHMETIC/ LOGICAL UNIT

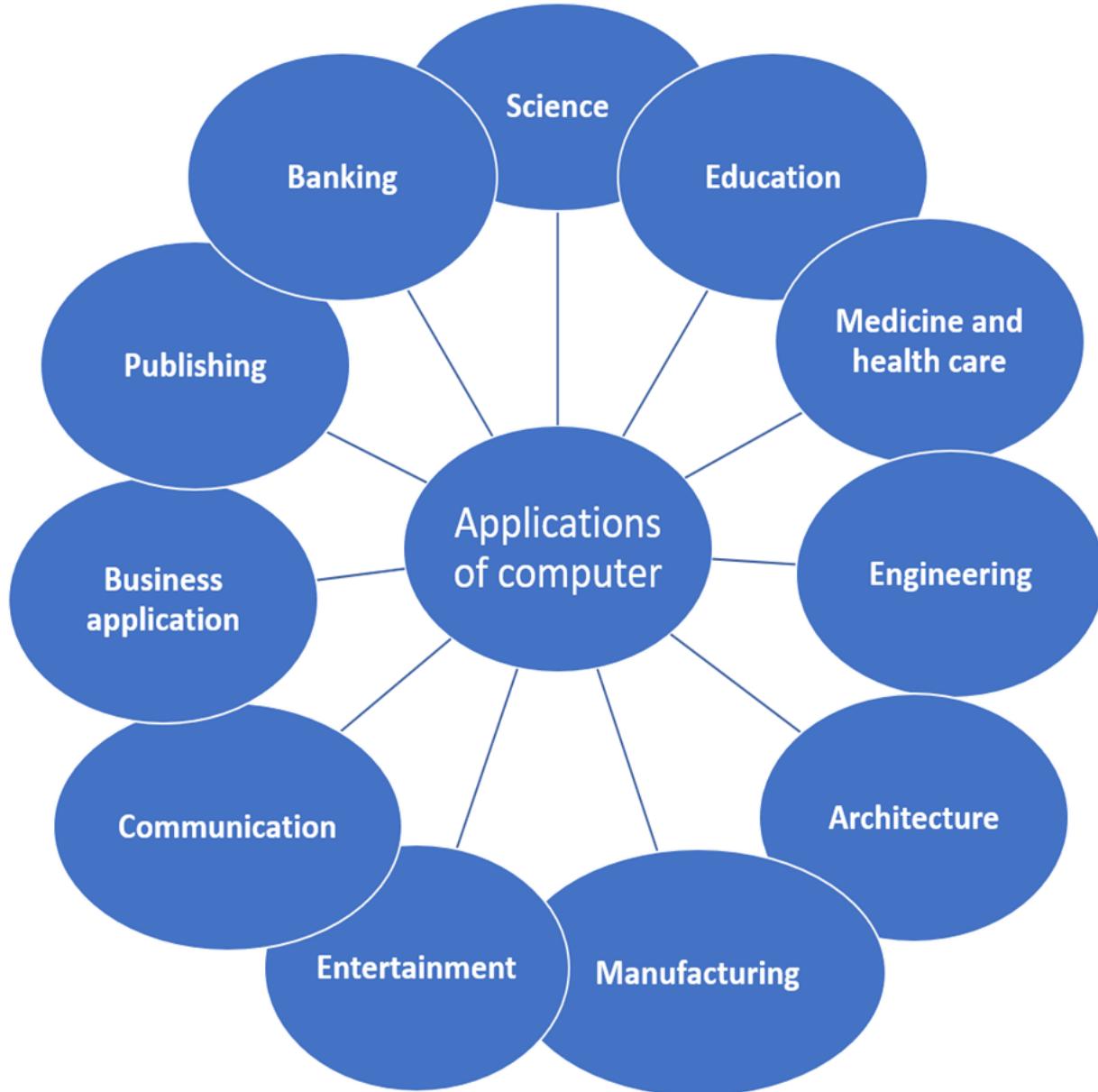
- **What is an arithmetic-logic unit (ALU)?**
- An arithmetic-logic unit is the part of a central processing unit that carries out arithmetic and logic operations on the operands in computer instruction words.
- **How does an arithmetic-logic unit work?**
- Typically, the ALU has direct input and output access to the processor controller, main memory (random access memory or RAM in a personal computer) and input/output devices.
- Inputs and outputs flow along an electronic path that is called a bus.

CONTROL UNIT

- This unit of CPU controls the flow of data and information.
- It maintains the sequence of operation being performed by the CPU.
- The control unit fetched instruction from storage area, decode the instructions and transmit the corresponding signal to ALU and the storage registers.

WHAT IS COMPUTER MEMORY?

- **Computer memory** is also known as “**Computer Storage Device**” help to store or saves of all important data such as songs, movies, pictures, software, and more.
- Those all data are saved in two different modes it can either temporary or permanent nature.
- All data are stored in **computer memory (computer storage device)** in the digital form such as binary form like as 0 and 1.
- Users can retrieves of saved instruction or information anytime when they are needed



Computer in Banks

- Customer Information
- Products
- Reports and Profits
- Transactions and Goals
- Credit Applications
- Delinquency
- Miscellaneous



Automatic Teller Machine



Using an ATM, customers can access their bank accounts in order to make cash withdrawals, credit card cash advances, and check their account balances as well as purchase prepaid cellphone credit. If the currency being withdrawn from the ATM is different from that which the bank account is denominated in (e.g.: Withdrawing Japanese Yen from a bank account containing US Dollars), the money will be converted at a wholesale exchange rate. Thus, ATMs often provide the best possible exchange rate for foreign travelers and are heavily used for this purpose as well.

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Computers In Engineering



The use of computer to engineering is by helping it to create some of the important factors or simply using a computer to create an image about their plan by means of using programming languages. To control their Machines and Many More.....

Computers In The Government Offices



- Email Functions
- Distributing Payments
- Record Keeping
- Direct-Mail Promotions
- And Many More.....

Computer In Business

- Accounting
- Customer Interaction
- Scheduling
- Communication
- Web site and Many More.....



Computer In Hospitals



They are used for doctors orders, charting notes, documenting vital signs, So Many use.....

Computer @ Home



A great advantage of home computers is that they allow individuals and families to achieve a variety of tasks at home. Families can use word processing programs for homework, spreadsheets to manage bills, and the Internet for social networking and entertainment. While students can use computers at home, and adults at work, the convenience of being able to use a computer at home is a great advantage in itself. Many businesses also allow their employees to work from home via computer, thus saving travel expenses to and from the office, as well as saving company resources.

Computers In Manufacturing



Computer Integrated Manufacturing (CIM) ...
CAD techniques make use of group technology
to create similar geometries for quick retrieval.
Electronic files and Many More.....

Computers In School



- Research
- Data Entry
- Intervention
- Virtual
- Teacher Resource
- Learning



thank you!