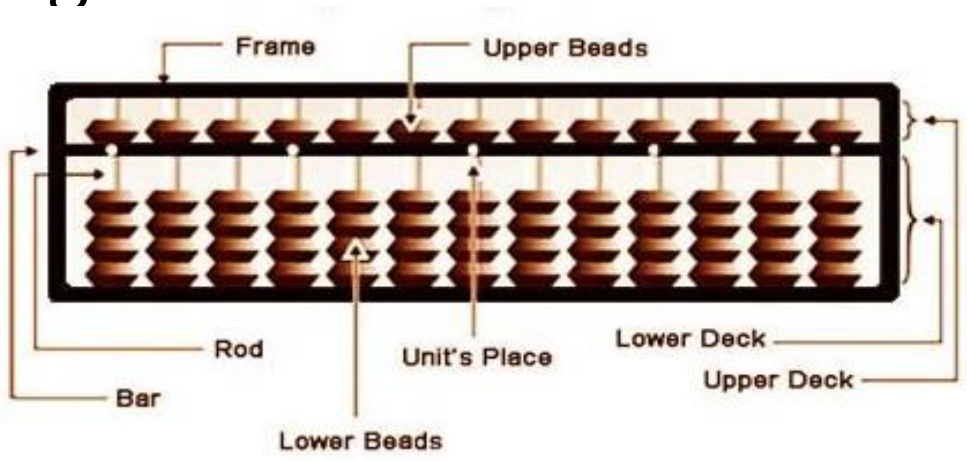
Module-II

- What Basic knowledge should you process about Information Technology?
- What are the challenges IT do pose for business professionals?

History of Computers

- The Abacus: The earliest reference to abacus dates back to 2700-300 BCE in Mesopotamian civilization. Used for Simple calculations like addition, subtraction etc.
- Teaching arithmetic to blind students.



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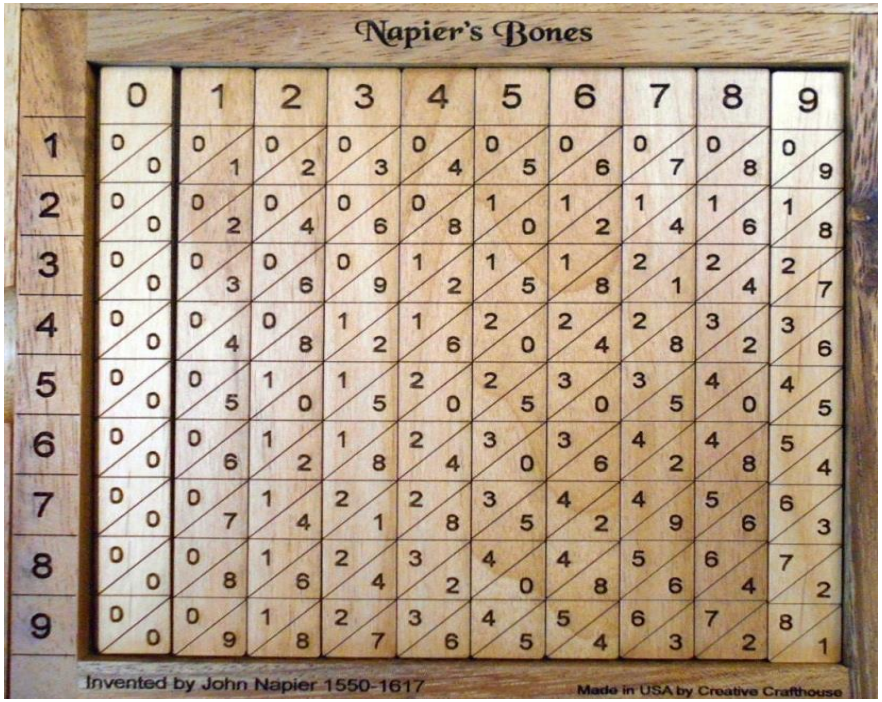
- Napier's Bones- In 1616, Sir John Napier made this device to perform addition, subtraction, multiplication and division.
- The numbers carved on bones or on strips of wood.



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- Pascaline- It was the first mechanical computer and was invented by Blaise Pascal in 1641 which was used for addition, subtraction, multiplication and division of numbers up to hundreds and thousands.

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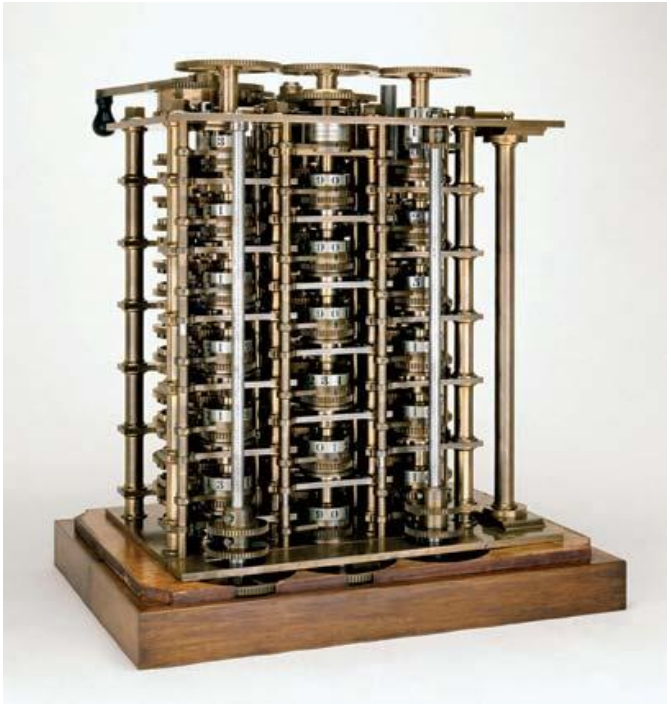
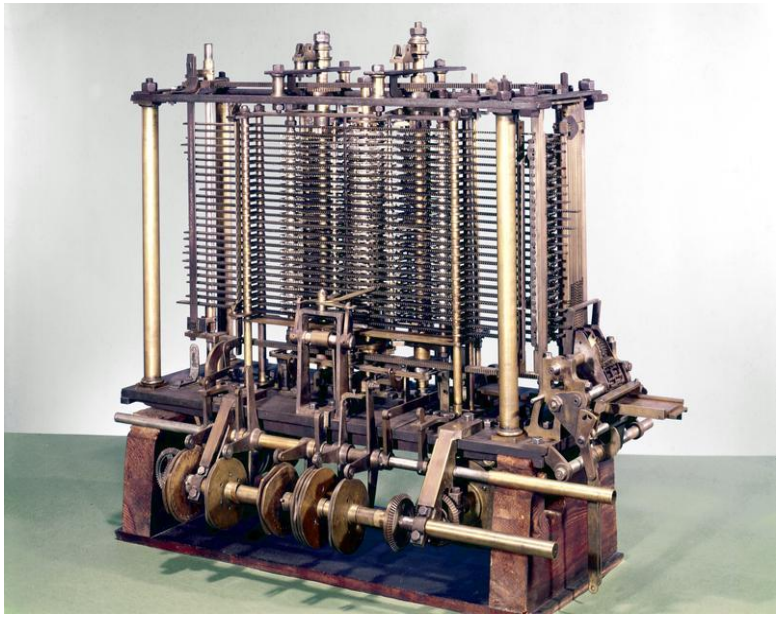
- Difference Engine- invented by Charles Babbage in 19th century. It was first mechanical computer.



- Analytical Engine- Invented by Charles Babbage. He is also known as father of modern computers.



Evolution of Computers

- First Generation Computers-
- They use Vacuum Tubes
- Very large in size with small storage & very expensive.
- Inputs are based on punched cards and paper tapes.
- Mark-I- designed by Howard H. Aiken in 1944.
- 15 metre long. It was the fully automatic calculator.
- Drawback- Slow, takes 3-5 seconds per calculation.

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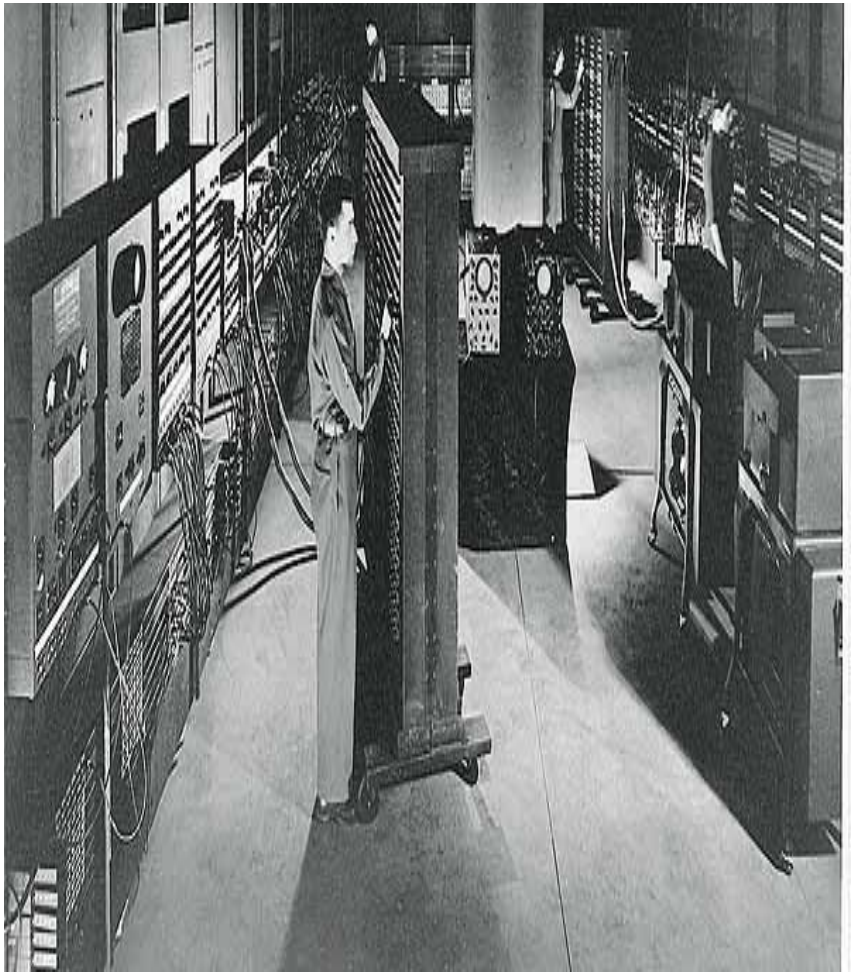
Contd.

- ENIAC (Electronic Numerical Integrator and Computer)- Developed by John Presper Eckert & John W. Mauchly in 1946.
- It was the first fully electronic digital computer.
- Consisted 18,000 vacuum tubes, occupied an area of 63 sq. meters and weighed more than 27,000 kgs.
- It can perform large arithmetic operations within 200 micro seconds.
- Didn't have stored programms



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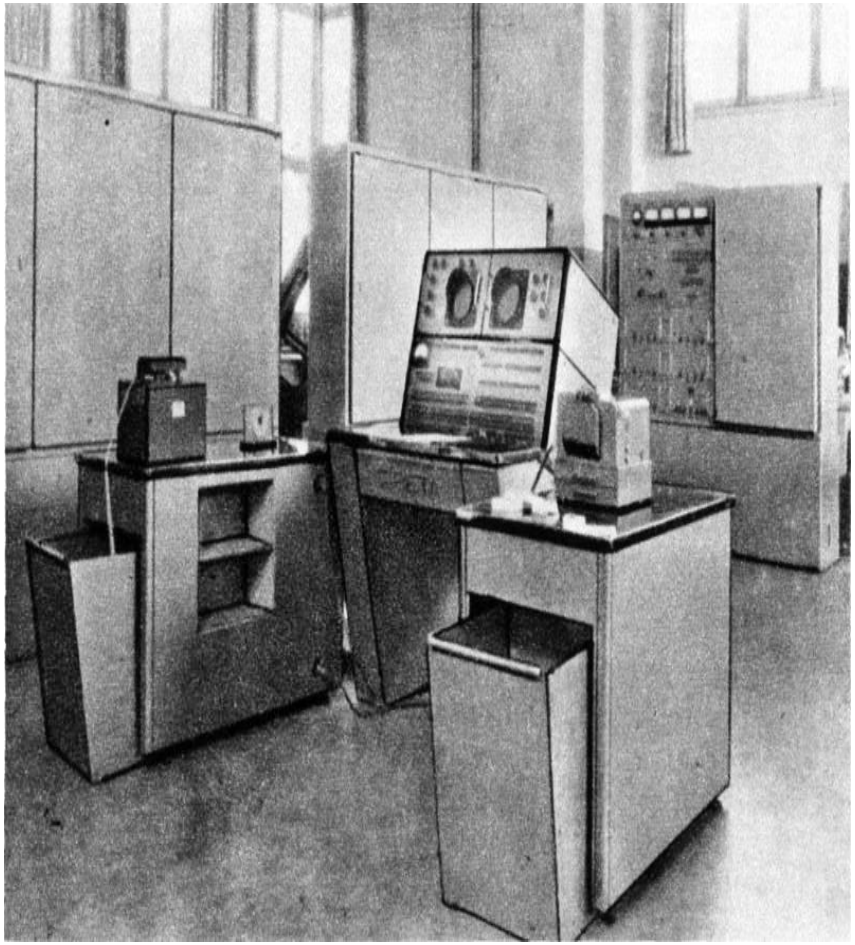
- UNIVAC-I: Developed by J. Presper Eckert & John Mauchly in 1951
- Weight approx. 13,000 kgs.
- Occupied an area of 35.5 sq. meters.
- It was first commercially available computer
- It can handle both text & numeric data

Contd.

- Second Generation Computers (1959-1964)-
- They are most faster & smaller
- Transistors are used as main component.
- Programing languages like FORTRAN & COBOL are introduced.
- IBM 1401 & RCA501



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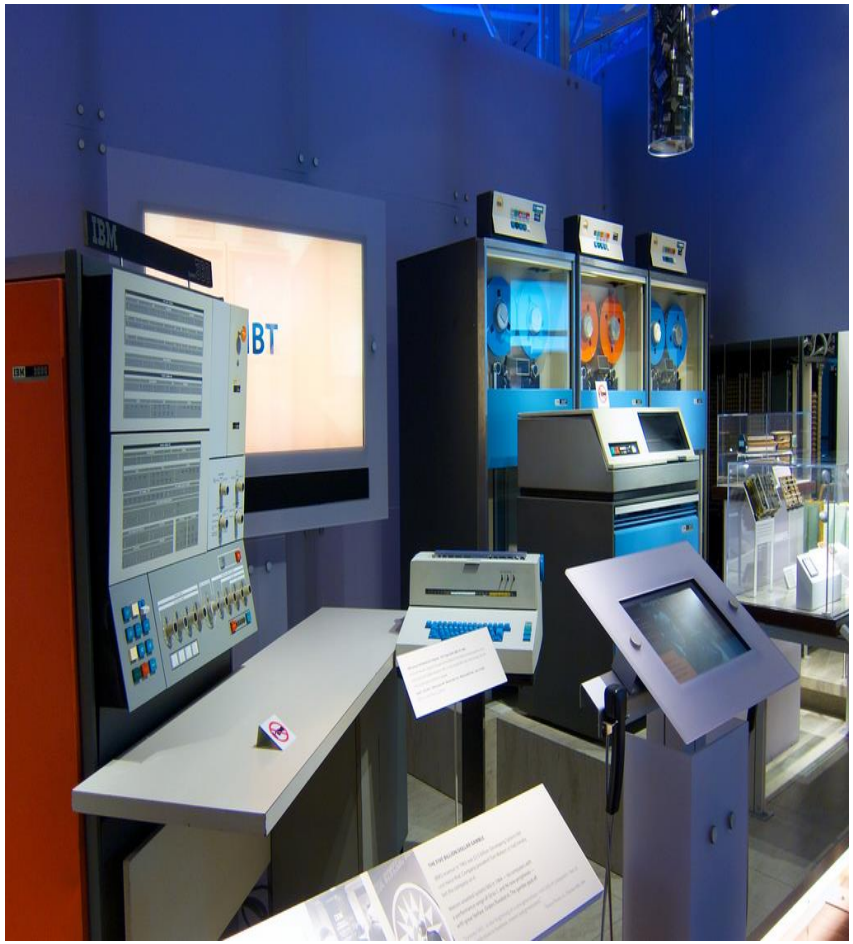
- Third Generation Computers (1964-1970)- much faster & smaller than previous.
- Used Integrated Circuits as main component.
- Memory was capacity greatly enlarged.
- Used operating systems to run many programs simultaneously.
- Used Keyboard as input and Monitor to display output.
- IBM 360 & 370



Contd.

- Fourth Generation Computers (1971-Present)- Use of Microprocessors as main component.
- Improved storage with network connectivity.
- Greater computing power.
- IBM PC & Apple Macintosh.

Contd.

- Fifth generation Computers (1990-present) – they are also called Super computers.
- High speed with high storage.
- Artificial Intelligence as main component.
- CRAY CS300, PARAM 8000 etc.

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Functions & Operations of Computer

- Based on structure & tradition, Computers are divided into 3 categories.
- Analogue Computer
  - To measure temperature, Atmospheric pressure etc.
- Digital Computer
  - Modern Computers. Works on Binary number system
- Hybrid Computer
  - Combination of Analog & Digital Computer

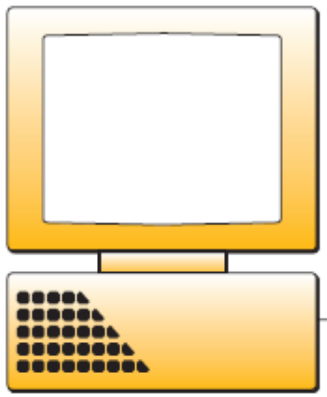
Contd.

- In terms of efficiency, price, size there are 4 types of computers
- Main Frame Computer
  - IBM 5390, CRAY etc.
- Mini Computer
  - DEC10, VAXII
- Micro Computer
  - PCs
- Super Computer
  - PARAM 8000

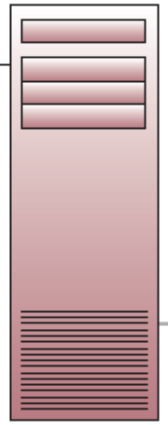
Features of Computer

- Speed- 1 nanosecond- 10^{-9} second
- Data Storage- 4 bit – 1 nibble
  - 8 bit – 1 byte
  - 1024 byte – 1 Kb
  - 1024 Kb – 1Mb
  - 1024 Mb – 1 Gb
  - 1024 Gb – 1 Tb
  - 1024 Tb – 1 Pt
- Accuracy
- Storage

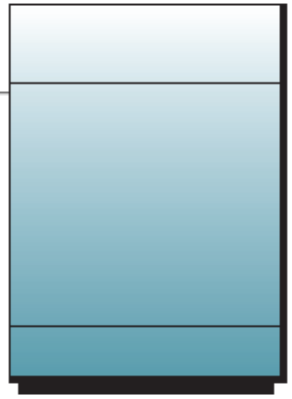
Types of Computer Systems



■ **Microcomputer Systems**
Personal computers, network computers, technical workstations, personal digital assistants, information appliances, etc.



■ **Midrange Systems**
Network servers, minicomputers, Web servers, multiuser systems, etc.



■ **Mainframe Systems**
Enterprise systems, superservers, transaction processors, supercomputers, etc.

Features of PCs for Corporate Use

- Good performance at a reasonable price
- Pre-Installed Operating systems
- Connectivity
- Security Equipped

Micro-Computer Systems

A Window To the Internet

- Mostly known as *personal computers* & used as a communicating device.
- Powerful micro-computers known as *workstations* to support heavy mathematical computing & graphic display demands such as Computer Aided Design(CAD) in engineering.
- More powerful micro-computers used as *network servers* which manages resource sharing in LANs, Internet & Intranet websites.

Contd.

Business Pro	Multimedia Heavy or Gamer	Newcomer
To track products, customers, and firm performance, more than just a fast machine is necessary: • 3–4 GHz dual-core processor • 4–8 GB RAM • 500 GB hard drive • Up to 19-inch flat-panel display • CD-RW/DVD+RW • Network interface card • Color laser printer	Media pros and dedicated gamers will want at least a Mac G4 or a 2–3 GHz Intel dual-core chip, and • 4–8 GB RAM • 250+ GB hard drive • 19-inch or better flat-panel display • 16× or better DVD+RW • Video cards (as fast and as powerful as budget permits) • Sound cards • Laser printer (color or B&W)	Save some money with a Celeron processor in the 2–3 GHz range while looking for • 2 GB RAM • 120–160 GB hard drive • 15- to 17-inch flat panel or wide screen • CD-RW/DVD • USB port • Inkjet printer

Recommended features based on the 3 types of PC users

Contd.

- Computer Terminals
  - Dumb Terminals
    - Keyboard, Mouse, Monitor etc.
  - Network Terminals
  - Transaction Terminals/Intelligent Terminals
    - ATMs, Retail POS [point of sale]

Contd.

- Network Computers
  - Is a candidate of micro-computer category
  - Primarily designed to use Internet & Corporate Intranets.
  - No/minimal disk space that are linked to a network
  - Depends on network servers.
  - Minimized TCO[Total Cost of Ownership]
  - Limited computing applications
  - Platform standardization, software distribution and licencing etc.

Information Appliances

- *PCs aren't the only option: A host of smart gadgets and information appliances—from cellular phones and pagers to handheld PCs and Web-based game machines—promise Internet access and the ability to perform basic computational chores* .
- Handheld microcomputer devices known as **personal digital assistants** (PDAs) are most popular in this category.
- *Ex- Iphone, Blackberry etc.*

Midrange Systems

- Primarily high-end network servers and other types of servers that can handle the large-scale processing of many business applications.
- Less costly to buy, operate & maintain.
- Meets the need of computing of many organisations.
- First became popular as minicomputers for scientific research, process monitoring etc.
- Became popular as network servers.
- CAM & CAD to assist mainframe computers.

Mainframe Computer Systems

- Mainframe systems are large, fast, and powerful computer systems.
- High storage
- MIPS etc.

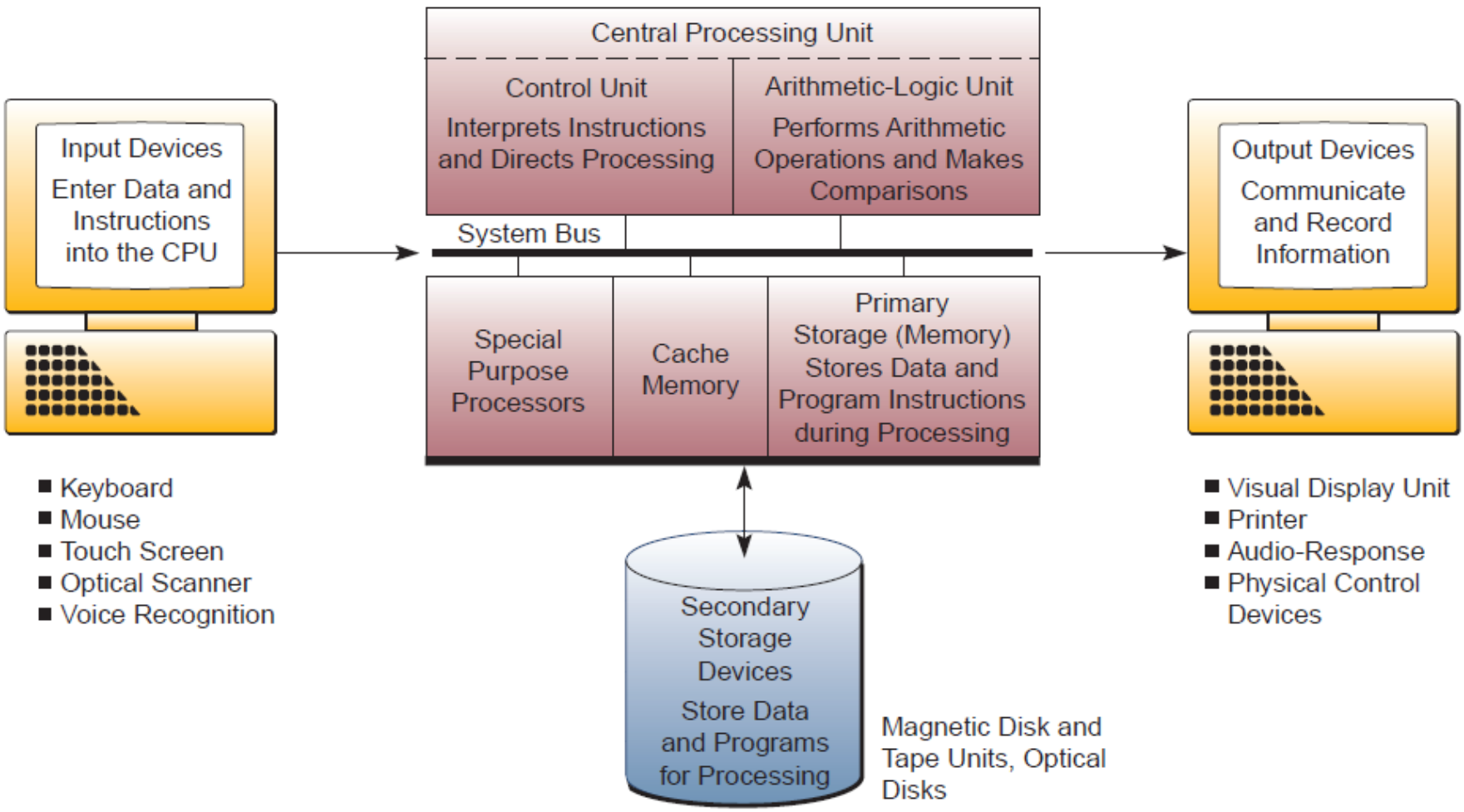
Supercomputer Systems

- Supercomputer describes a category of extremely powerful computer systems specifically designed for scientific, engineering, and business applications requiring extremely high speeds for massive numeric computations.
- Parallel processing architecture
- Teraflops(trillions of floating point operations per second)

The Next Wave of Computing

- Distributed or grid computing
  - Cloud Computing etc.

Computer System



Computer Peripheral Device

Peripherals Checklist
• **Monitors.** Bigger is better for computer screens. Consider a high-definition 19-inch or 21-inch flat screen CRT monitor, or LCD flat-panel display. That gives you much more room to display spreadsheets, Web pages, lines of text, open windows, and so on. An increasingly popular setup uses two monitors that allow multiple applications to be used simultaneously.
• **Printers.** Your choice is between laser printers and color inkjet printers. Lasers are better suited for high-volume business use. Moderately priced color inkjets provide high-quality images and are well suited for reproducing photographs; per-page costs are higher than for laser printers.
• **Scanners.** You'll have to decide between a compact, sheet-fed scanner and a flatbed model. Sheet-fed scanners will save desktop space, while bulkier flatbed models provide higher speed and resolution.
• **Hard Disk Drives.** Bigger is better; as with closet space, you can always use the extra capacity. So go for 80 gigabytes at the minimum to 160 gigabytes and more.
• **CD and DVD Drives.** CD and DVD drives are a necessity for software installation and multimedia applications. Common today is a built-in CD-RW/DVD drive that both reads and writes CDs and plays DVDs.
• **Backup Systems.** Essential. Don't compute without them. Removable mag disk drives and even CD-RW and DVD-RW drives are convenient and versatile for backing up your hard drive's contents.

Computer Software