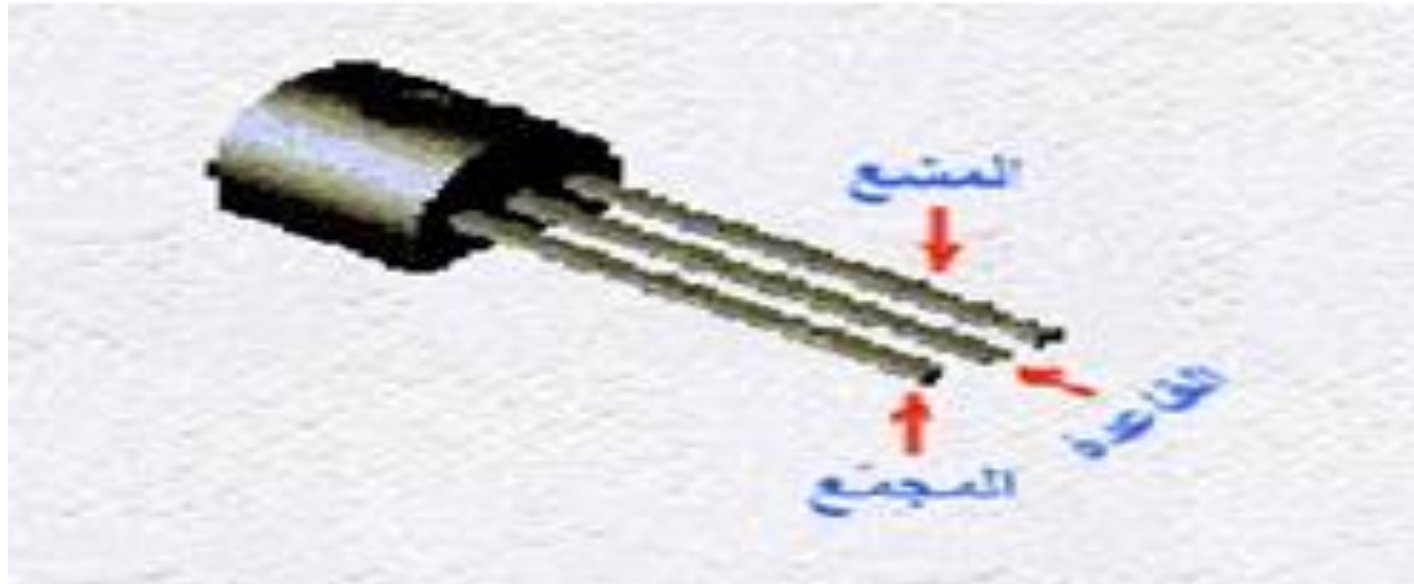


SECOND GENERATION

The computers of the second generation (1959-1963), were characterized by transistors (fig. 2-1) instead of vacuum tubes.

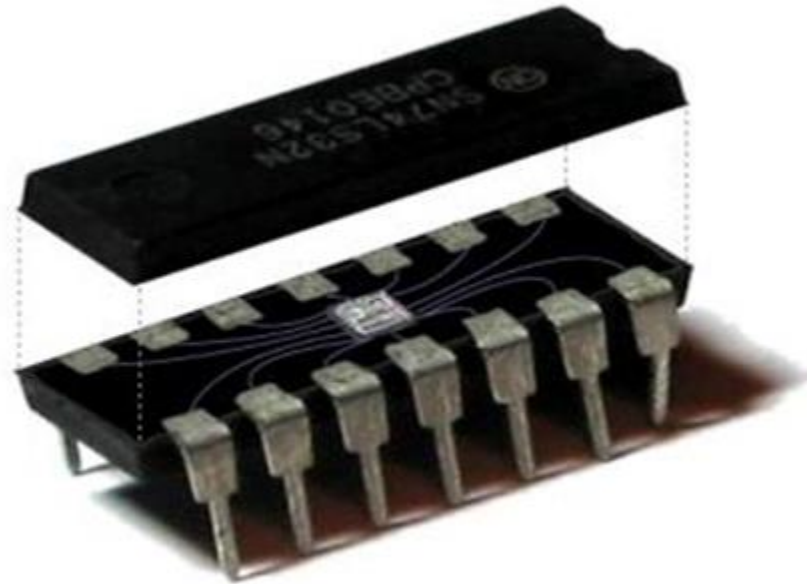


- Transistors were smaller, less expensive, Thus second generation computers were smaller, required less power, and produced a lot less heat. Increased processing speeds and reliability. Cost performance also improved. The storage capacity was greatly increased with the introduction of magnetic disk storage and the use of *magnetic cores* for main storage. High speed card readers, printers, and magnetic tape units were also introduced. Internal processing speeds increased. Functions were measured in millionths of a second (microseconds).. The software was also improved. Symbolic machine languages or assembly languages were used instead of actual machine languages. This allowed the programmer to use mnemonic operation codes for instruction operations and symbolic names for storage locations or stored variables. Compiler languages were also developed for the second generation computers. Commercial applications were developed during this period. Eighty percent of these computers were used in business and industries

THIRD GENERATIONS

- The computers of this generation (1964-1970), are characterized replaced transistors with Integrated Circuits. These Integrated Circuits are also known as chips. The size of main memory was increased and reached about 4 megabytes. Magnetic disk technology had been improved and drive having capacity up to 100 MB came into existence. The CPU become more powerful with the capacity of carrying out 1 million instructions per second, internal processing speeds are measured in billionths of a second (nanoseconds). This generation computers were relatively inexpensive and faster. Applications using online processing, real-time processing, time sharing, multiprogramming, multiprocessing.

Most third generation systems are designed to handle both scientific and business data processing applications. Improved program and operating software has been designed to provide better control, resulting in faster processing.



FOURTH GENERATION AND BEYOND

- The computers of the fourth generation are not easily distinguished from earlier generations, yet there are some striking and important differences. The manufacturing of integrated circuits has advanced to the point where *thousands of circuits (active components) can be placed on a silicon wafer only a fraction of an inch in size (the computer on a chip)*. This has led to what is called large scale integration (LSI) and very large scale integration (VLSI). As a result of this technology, computers are significantly smaller in physical size and lower in cost. Yet they have retained large memory capacities and are ultra fast.. (fig. 4-1)

Fifth Generation - Present and Beyond: Artificial Intelligence

- Mankind along with the advancement in science and technology is working hard to bring the Vth Generation of computer. These computers will have the capability of thinking on their own like an man with the help of Artificial Intelligence (AI). the 21st century will see better, faster, smaller and smarter computers.

Classification of computer

Personal Computers •

- When most people think about computers, they picture a personal computer, or PC. This type of computer is called personal because it is designed for only one person to use at a time. Personal computers fall into several categories that are differentiated from one another by their sizes. The most common sizes are:

- ■ Desktop PC:

A computer designed to be used at a desk, and seldom moved. This type of computer consists of a large metal box called a system unit that contains most of the essential components, with a separate monitor, keyboard, and mouse that all plug into the system unit .

- Notebook PC:

A portable computer designed to fold up like a notebook for carrying, as shown in Figure 1.3. The cover opens up to reveal a built-in screen, keyboard, and pointing device, which substitutes for a mouse. This type of computer is sometimes called a laptop. A smaller version of a notebook PC is sometimes referred to as a netbook (which is short for Internet book, implying that this type of computer is primarily for accessing the Internet rather than running applications

- ■ Tablet PC:

A portable computer that consists of a touch-sensitive display screen mounted on a tablet-size plastic frame with a small computer inside, as in Figure 1.4. There is no built-in keyboard or pointing device; a software based keyboard pops up onscreen when needed, and your finger sliding on the screen serves as a pointing device.

- ■ Smartphone:

A mobile phone that can run computer applications and has Internet access capability Smartphones usually have a touch-sensitive screen, and provide voice calls, text messaging, and Internet access. Many have a variety of location aware applications, such as a global positioning system (GPS) and mapping program and a local business guide

Multi-User Computers

- ■ Server:

A computer dedicated to serving and supporting a network, a group of network users, and/or their information needs. Many networks employ servers to provide a centrally accessible storage space for data, and share common devices like printers and scanners. A small network server may look similar to a desktop PC, but may have a different operating system, such as Windows Server or Linux. A large server that manages a wide-ranging network may look similar to a mainframe. A group of servers located together in a single room or facility is called a **server farm**, or server cluster. Large Internet service provider (ISP) companies maintain extensive server farms.

- ■ Mainframe:

A large and powerful computer capable of processing and storing large amounts of business data. For example, a mainframe might collect all the sales data from hundreds of cash registers in a large department store and make it available to executives. The modern mainframe unit itself is a large cabinet, or a series of cabinets, each about the size of a refrigerator (see Figure 1.6). A mainframe may be stored in its own air-conditioned room in a business or school, and may have multiple employees monitoring and maintaining it. In earlier decades, smaller and less expensive multiuser computers called minicomputers were employed in many businesses, but minicomputers are no longer widely used.

- **Supercomputer:**

A supercomputer is the largest and most powerful type of computer available, occupying large rooms and even entire floors of a building. Supercomputers are often employed in fields such as cryptanalysis (code breaking), molecular modeling, weather forecasting, and climate mapping. Supercomputers typically are used in high-tech academic, governmental, and scientific research facilities. Figure 1.7 shows a supercomputer.