ARCHITECTURE AND COMPONENTS OF COMPUTER SYSTEMS.

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PERFORMED:

Topic: Architecture and components of computer systems.

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PLAN:

1. Review of computer systems. Evolution of computer systems.
2. Architecture and components of computer systems.
3. The Use of computer systems.

REVIEW OF COMPUTER SYSTEMS. EVOLUTION OF COMPUTER SYSTEMS.

1.Computer system is defined as the combination of hardware, software, user and data. A computer is a programmable device that can automatically perform a sequence of calculations or other operations on data without human aid. It can store, retrieve, and process data according to internal instructions.

A computer may be analog, digital, or hybrid, although most today are digital. Digital computers express variables as numbers, usually in the binary system. They are used for general purposes, whereas analog computers are built for specific tasks, typically scientific or technical. The term "computer" is usually synonymous with digital computer, and computers for business are exclusively digital.

The core of any computer is its central processing unit (CPU), commonlycalled a processor or a chip. The typical CPU consists of an arithmetic-logic unit to carry out calculations; main memory to store data temporarily for processing; and a control unit to control the transfer between memory, input and output sources, and the arithmetic-logic unit.

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2.Computer architecture deals with the logical and physical design of a computer system. The Instruction Set Architecture (ISA) defines the set of machine-code instructions that the computer's central processing unit can execute. The microarchitecture describes the design features and circuitry of the centraly processing unit it self. The main components required for a computer system are listed below.

1. Central processing unit (CPU)
2. Random access memory (RAM)
3. Read-only memory (ROM)
4. Input / output (I/O) ports
5. The system bus
6. A power supply unit (PSU)

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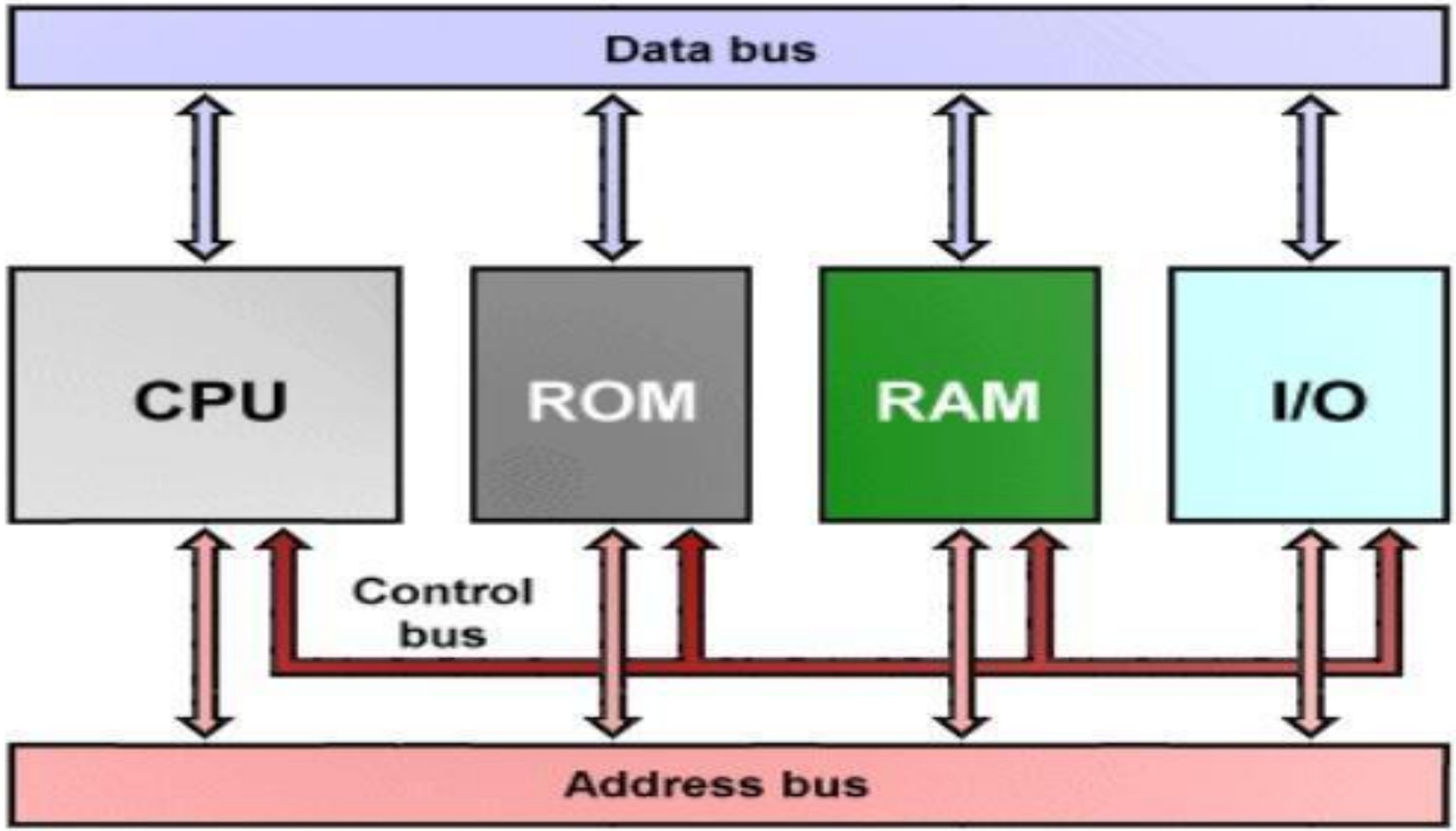
In addition to these core components, in order to extend the functionality of the system and to provide a computing environment with which a human operator can more easily interact, additional components are required. These could include:

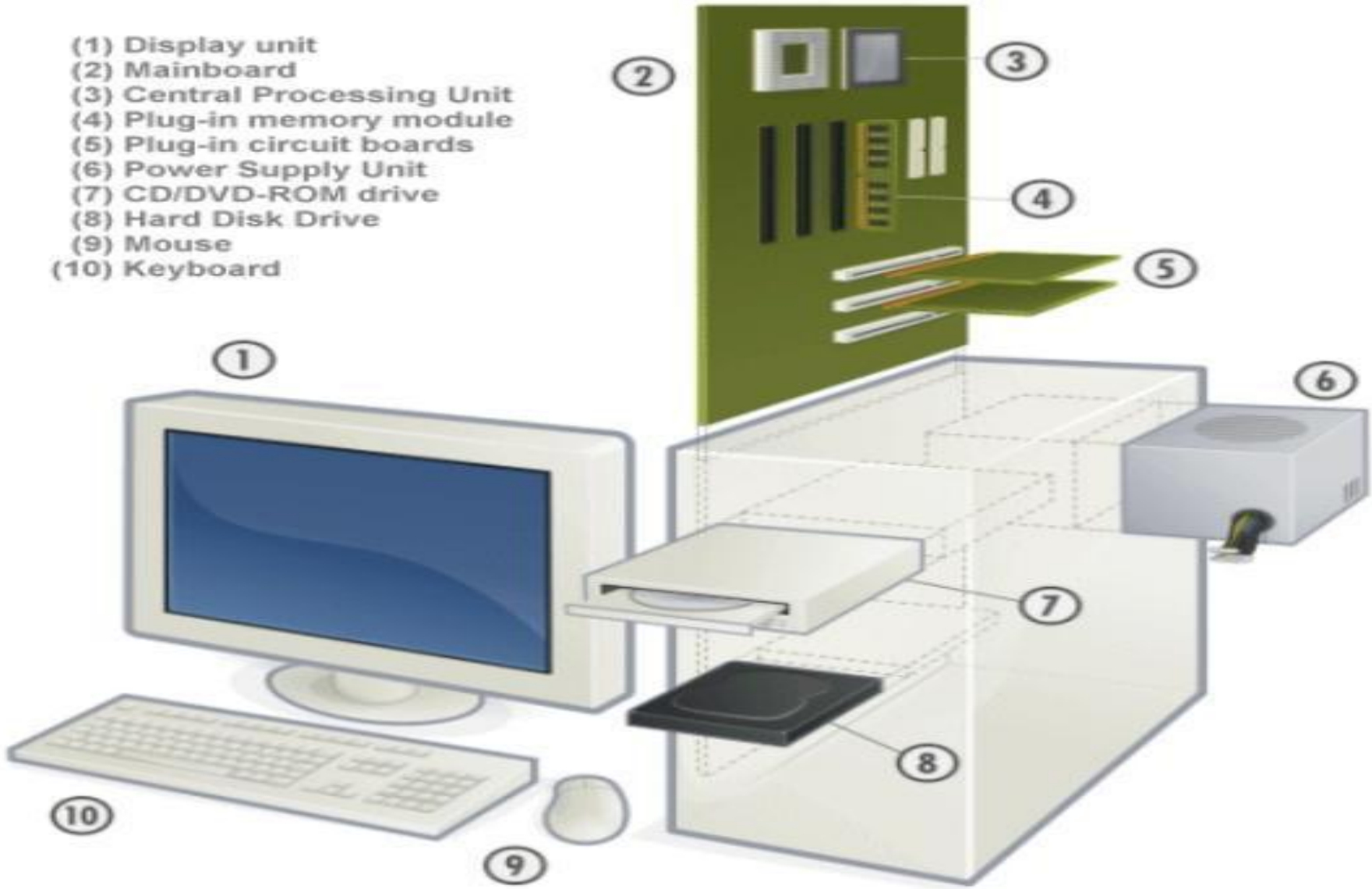
- Secondary storage devices (e.g. disk drives)
- Input devices (e.g. keyboard, mouse, scanner)
- Output devices (e.g. display adapter, monitor, printer)

A distinction is usually made between the internal components of the system (those normally located inside the main enclosure or case) and the externalcomponents (those that connect to the internal components via an external interface. Examples of such external components, usually referred to as peripherals, include the keyboard, video display unit (monitor) and mouse. Other peripherals can include printers, scanners, external speakers, external disk drives and webcams, to name but a few.



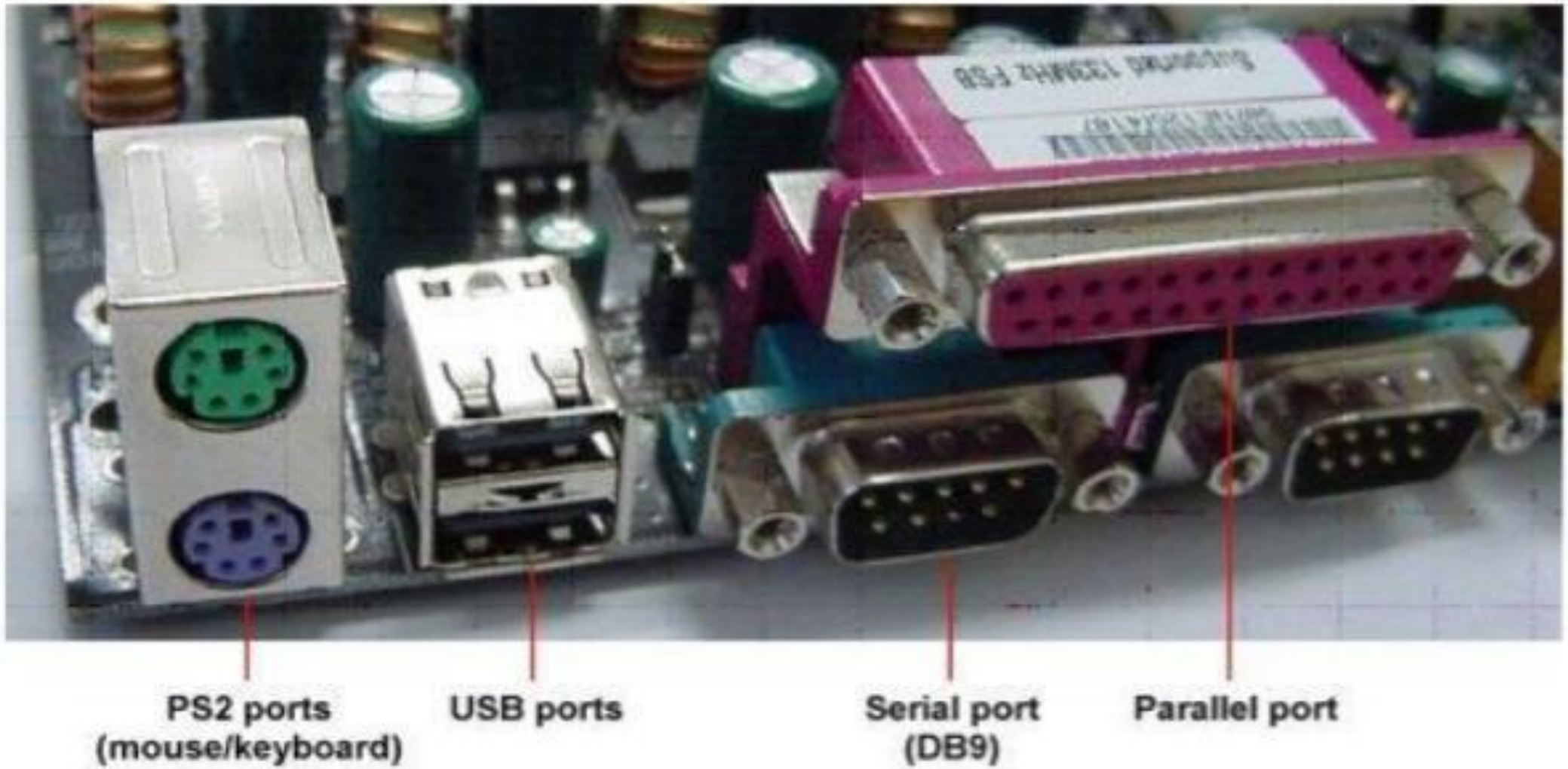
The core components in a personal computer

The core system components are mounted on a backplane, more commonly referred to as a mainboard (or motherboard). The mainboard is a relatively large printed circuit board that provides the electronic channels (buses) that carry data and control signals between the various components, as well as the necessary interfaces (in the form of slots or sockets) to allow the CPU, Memory cards and other components to be plugged into the system. In most cases, the ROM chip is built in to the mainboard, and the CPU and RAM must be compatible with the mainboard in terms of their physical format and electronic configuration. Internal I/O ports are provided on the mainboard for devices such as internal disk drives and optical drives.



Exploded view of personal computer system

External I/O ports are also provided on the mainboard to enable the system to be connected to external peripheral devices such as the keyboard, mouse, video display unit, and audio speakers. Both the video adaptor and audio card may be provided ?on-board? (i.e. built in to the mainboard), or as separate plug-in circuit boards that are mounted in an appropriate slot on the mainboard. The mainboard also provides much of the control circuitry required by the various system components, allowing the CPU to concentrate on its main role, which is to execute programs. We will be looking at the individual system components in detail in later sections.



Some of the external I/O ports found on a typical IBM PC

THE USE OF COMPUTER SYSTEMS

3. Computers have become an essential part of modern human life. Since the invention of computer they have evolved in terms of increased computing power and decreased size. Owing to the widespread use of computers in every sphere, Life in today's world would be unimaginable without computers. They have made human lives better and happier. There are many computer uses in different fields of work. Engineers, architects, jewelers, and filmmakers all use computers to design things. Teachers, writers, and most office workers use computers for research, word processing and emailing. Small businesses can use computers as a point of sale and for general record keeping.

Computers have its dominant use in the education field which can significantly enhance performance in learning. Even distance learning is made productive and effective through internet and video-based classes. Researchers have massive usage of these computers in their work from the starting to till the end of their scholarly work.

Most of the medical information can now be digitized from the prescription to reports. Computation in the field of medicine allows us tooffer varied miraculous therapies to the patients. ECG's, radiotherapy wasn't possible without computers. We know well that computers are being used by the financial institutions like banks for different purposes. The foremost important thing is to store information about different account holders in a database to be available at any time. Keeping the records of the cash flow, giving the information regarding your account.

Computers are now the major entertainers and the primary pass time machines. We can use computers for playing games, watching movies, listening to music, drawing pictures.ith internet on computers we can know the details of the buses or trains or the flight available to our desired destination. The timings and even the updates onthe delay also be known through these computers. We can book our tickets through online. Staff of the transport system will keep a track of the passengers, trains or flight details, departure and arrival timings by using computers.

Every single information shared can be recorded by using computer. Official deals and the issues were made even through online. We use mail system to exchange the information. It has wide uses in marketing, stock exchanges and bank. Even the departmental stores can't run effectively without computer.

Electronic mail is the revolutionary service offered by the computes. Video Conferencing is also another major advantage. Electronic shopping through online shopping added favor to purchaser and merchants. Electronic banking is now at your hand where every bank has online support for transaction of monetary issues.

You can easily transfer your money anywhere even from your home. As per the title, computers aid in designing buildings, magazines, prints, newspapers, books and many others. The construction layouts are designed beautifully on system using different tools and software's.