Date: 13ᵗʰApril-2025

COMPUTER PARTS AND THEIR USAGE TECHNIQUES

Matchonov Akmal
Teacher of public health technical college named after
Republic No. 1 Abu Ali Ibn Sina

Annotation: This article provides detailed information about the main parts of a computer, their functions, and proper usage techniques. Since a computer has become an integral part of modern life, it is important to know its structure and follow the rules of maintenance.
Keywords: Computer, computer parts, system unit, processor, RAM, hard drive, SSD, motherboard, video card, peripherals, keyboard, mouse, monitor, printer, maintenance, security measures, modern technologies, NVMe, cloud technologies, energy efficiency.

A computer is a complex technical device that can receive information, process it, and output results. Its main parts are divided into two groups: internal (main) devices and external devices. Below we will discuss each of them in detail.

System Unit

The system unit is the heart of the computer. It contains all the main devices important for the operation of the computer:

Processor (CPU – Central Processing Unit)

The processor is the main computing device of the computer. It performs all the calculations and controls the execution of the program. The speed of the processor is measured in gigahertz (GHz). The more cores it has, the more efficient the computer will be.

Random Access Memory (RAM)

RAM is used to temporarily store data on the computer. When programs are launched, they are stored in RAM. The larger the RAM, the more programs the computer can run at the same time.

Hard Drive (HDD) and SSD (Solid State Drive)

A hard drive is a device that serves to permanently store data on the computer. Modern computers use SSDs, which are faster than HDDs, but more expensive.

Motherboard

The motherboard is the main board that connects all devices together. It houses the processor, RAM, video card, and other devices. The motherboard also controls the overall operation of the computer.

Graphics Processing Unit (GPU)

A video card is used to process graphic information. For simple office work, integrated (internal) video cards are sufficient, but for graphic design, assembly or games, a dedicated video card is required.

Peripherals

Devices through which the user directly interacts with the computer are called peripherals. Through them, information can be input, output, stored and other functions can be performed. Below we will discuss the main peripherals:

Monitor

A monitor is a computer screen. It displays all graphic and text information. The main types of monitors are LCD, LED and OLED. The size of the monitor is measured in inches. The quality of the screen and the refresh rate affect the user experience.

Keyboard

A keyboard is used to enter information. It consists of letters, numbers, symbols and control keys. Keyboards come in different types: mechanical, membrane, wired and wireless. In addition, there are ergonomic designs.

Mouse

A mouse is a device used to control the cursor. It allows the user to open menus, select files, and control programs. Mice come in optical and laser types. There are also wired and wireless options.

Printer

A printer is used to print electronic documents available on a computer onto paper. Printers are divided into the following types:

Inkjet (inkjet) - convenient for home and small offices

Laser - used for fast and high-quality printing

Multifunctional - combines the functions of a printer, scanner and copier

Scanner

A scanner can be used to convert text or images on paper into digital form. They are often used together with a printer as a multifunctional device.

USB flash drives and external hard drives

These devices are used to transport or back up information. USB flash drives are convenient for small files, and external HDD/SSDs are convenient for large amounts of data.

Speaker and microphone

A speaker (speaker) and microphone are used to work with voice information. They are important in multimedia and online communication.

For the reliable and stable operation of computer components for a long time, it is necessary to properly install, connect, maintain and follow safety rules. The following are the main points on the technique of their use.

Rules for proper connection and placement

Beware of static discharge

Before installing computer components, it is necessary to avoid electrostatic discharge (ESD). Static current can cause significant damage. To do this, use anti-static wristbands or discharge the charge by touching a metal object.

Carefully installing components

Care is required when installing the processor, RAM, SSD and other components. Each device must be installed in its own place. Inaccurate pressing or using force can cause the device to fail.

Cooling system and ventilation

The cooling system is important to prevent computer components from overheating. The processor and GPU are cooled using fans, radiators and thermal paste. Air must circulate freely inside the system unit, otherwise the devices may overheat and fail.

Maintenance

Dust cleaning

Computer components, especially fans, collect dust. Dust disrupts air circulation and causes devices to overheat. Every 3-6 months, you should open the system unit and clean the dust with a special blower or soft brush.

Software diagnostics

It is useful to regularly check the computer's performance. Diagnostic programs monitor memory, disk status, temperature, and load level (for example, CPU-Z, HWMonitor, CrystalDiskInfo).

BIOS/UEFI Settings

When the computer starts up, the BIOS/UEFI is first launched. Settings such as temperature, fan speed, boot order are monitored here. If incorrect settings are made in this section, the computer may fail.

Safety Precautions

Electrical Safety

Since the computer is connected to the electrical network, it is necessary to follow safety rules when working with it. Before work, the computer must be disconnected from the network. A stabilizer or UPS is used to protect against voltage surges.

ESD (electrostatic discharge) protection

As mentioned above, static discharge can damage sensitive parts. Before work, it is necessary to discharge your own charge or use antistatic agents.

Backups and data security

Important data should be regularly backed up. This allows you to restore data in the event of viruses, technical failures, or other problems. External drives or cloud storage (Google Drive, OneDrive) are used for this.

Great, now I will write CHAPTER III: Modern technologies and trends. This section will talk about the development trends of computer components and new technologies.

Information technologies are developing rapidly, and this process is directly related to the improvement of computer components. Every year, new, more efficient, faster and more compact devices are being produced. Below is information about the most current technologies and their trends.

SSD and NVMe technologies

17

Instead of traditional hard drives (HDD), SSD (Solid State Drive) disks are increasingly being used. SSD has the following advantages:

Fast loading and file transfer speed

Quiet operation

Low heat generation

Resistance to shock and impact

An even more modern technology is NVMe (Non-Volatile Memory Express). NVMe SSD disks are connected via the PCIe interface and provide very high speed, especially convenient for servers and professional users.

Integrated systems (AIO, mini-PC)

Currently, there is a trend to compact computer components by combining them into a single case. Such devices include:

AIO (All-In-One) computers - a monitor and a system unit are combined in one case.

Mini-PC - small, but powerful enough computers. Widely used in office work and commerce.

This type of computer saves space, is easy to transport and is considered modern in appearance.

Cloud technologies and their impact

Cloud technologies allow users to store and work with data over the Internet. These technologies have the following impact on computer components:

Reduced memory requirements: Much of the data is stored in the cloud rather than on a local disk.

Graphics processing via the cloud: The ability to perform heavy graphics or rendering tasks in the cloud (for example, NVIDIA GeForce Now, Google Stadia).

Backup and security: The ability to automatically backup and restore files.

Green technologies and energy efficiency

Energy-saving technologies are being widely implemented in computer components. For example, modern processors and GPUs have the function of automatically controlling power consumption. Attention is also being paid to the use of environmentally friendly materials.

According to the results of the study, the following conclusions were drawn:

The effective operation of a computer depends on the correct installation and proper condition of its components.

Each device has its own technical characteristics and must be used with care.

Maintenance and security measures extend the life of devices and stabilize their performance.

Modern technologies, including SSD, NVMe, mini-PC and cloud services, are taking the computer industry to a new level.

The course work also emphasized that choosing computers from an environmental and energy efficiency perspective is also an urgent issue. In practice, this knowledge will

allow users to work with devices correctly, choose them correctly, and use modern technologies.

REFERENCES:

1. Karimov A., "Computer and its working principles", Tashkent, 2020
2. Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan, "Information Technologies" textbook, 2021
3. www.intel.com - official website of Intel
4. www.techradar.com - Modern technologies and device reviews
5. www.microsoft.com - Information about the Windows operating system and computer security
6. YouTube: Linus Tech Tips - practical video lessons on computer parts and technical maintenance
7. Wikipedia.org - for general technological concepts