

What is a computer? essay sample

[Technology](#), [Computer](#)



A computer is a general purpose device that can be programmed to carry out a set of arithmetic or logical operations automatically. Since a sequence of operations can be readily changed, the computer can solve more than one kind of problem. Conventionally, a computer consists of at least one processing element, typically a central processing unit (CPU), and some form of memory. The processing element carries out arithmetic and logic operations, and a sequencing and control unit can change the order of operations in response to stored information. Peripheral devices allow information to be retrieved from an external source, and the result of operations saved and retrieved. In World War II, mechanical analog computers were used for specialized military applications. During this time the first electronic digital computers were developed. Originally they were the size of a large room, consuming as much power as several hundred modern personal computers. Modern computers based on integrate circuits are millions to billions of times more capable than the early machines, and occupy a fraction of the space. Simple computers are small enough to fit into mobile devices, and mobile computers can be powered by small batteries. Personal computers in their various forms are icones of the information ages and are what most people think of as “ computers.” However, the emdended computers found in many devices from MP3 playes to fighter aircraft and from toys to industrial robots are the most numerous.

Where can we use computer.

Computer is used in:

schools

colleges

<https://assignbuster.com/what-is-a-computer-essay-sample/>

banks

hospitals

railway stations

airport

by children

accounts

projects

doctors

transport

offices

computer shops

houses

mall

3. What are the kinds of computer.?

Different kinds of computers are:

PC : Personal Computer

Mainframe : Computers with large Hard Drives, lots of Memory (RAM), multiple CPU running together, does lots of computing depending upon the speed of processors used and memory used. Super Computer : A computer with lots of processors, ALU's, Memory (RAM), etc. Usually in scientific research work. Capability of 14, 000 micro computers. Laptop : Compact, portable version of a PC. Usually in a notebook shape. Micro Computer : A very small computer, usually used in cameras. PDA : Personal Digital Assistant or Palmtop

Analog : Old, out dated computers. They calculate physical Quantities. eg. ammeter, voltage meter, etc. Digital : They use binary digits for processing. eg. PC Hybrid : They comprise the best of capabilities of digital and analog computers.

4. What are the components of a computer system.?

Computers are made of the following basic components:

Case with hardware inside:

Power Supply – The power supply comes with the case, but this component is mentioned separately since there are various types of power supplies. The one you should get depends on the requirements of your system. This will be discussed in more detail later
Motherboard – This is where the core components of your computer reside which are listed below. Also the support cards for video, sound, networking and more are mounted into this board.

Microprocessor – This is the brain of your computer. It performs commands and instructions and controls the operation of the computer.
Memory – The RAM in your system is mounted on the motherboard. This is memory that must be powered on to retain its contents.
Drive controllers – The drive controllers control the interface of your system to your hard drives. The controllers let your hard drives work by controlling their operation. On most systems, they are included on the motherboard, however you may add additional controllers for faster or other types of drives.

Hard disk drive(s) – This is where your files are permanently stored on your computer. Also, normally, your operating system is installed here.
CD-ROM drive(s) – This is normally a read only drive where files are permanently

stored. There are now read/write CD-ROM drives that use special software to allow users to read from and write to these drives. Floppy drive(s) – A floppy is a small disk storage device that today typically has about 1.4 Megabytes of memory capacity. Other possible file storage devices include DVD devices, Tape backup devices, and some others. Monitor – This device which operates like a TV set lets the user see how the computer is responding to their commands. Keyboard – This is where the user enters text commands into the computer. Mouse – A point and click interface for entering commands which works well in graphical environments.

5. The PC system case and case system.

A computer case also known as a “ computer chassis”, “ tower”, “ system unit”, “ base unit” or simply “ case” and sometimes incorrectly referred to as the “ CPU” or “ hard drive” is the enclosure that contains most of the components of a computer (usually excluding the display, keyboard and mouse). Cases are usually constructed from steel (often SECC — Steel, electrogalvanized, cold-rolled, coil) or aluminium. Plastic is sometimes used, and other materials such as glass, wood and even Lego blocks have appeared in home-built cases.

6. What is the power supply and does it do?

A power supply unit (PSU) converts mains AC to low-voltage regulated DC power for the internal components of a computer. Modern personal computers universally use a switched-mode power supply. Some power supplies have a manual selector for input voltage, while others automatically adapt to the supply voltage. Most modern desktop personal computer power

supplies conform to the ATX specification, which includes form factor and voltage tolerances. While an ATX power supply is connected to the mains supply, it always provides a 5 V standby (5VSB) voltage so that the standby functions on the computer and certain peripherals are powered. ATX power supplies are turned on and off by a signal from the motherboard. They also provide a signal to the motherboard to indicate when the DC voltages are in spec, so that the computer is able to safely power up and boot.

7. What is a mother board?.

A motherboard (sometimes alternatively known as the mainboard, system board, planar board or logic board, or colloquially, a mobo) is the main printed circuit board (PCB) found in computers and other expandable systems. It holds many of the crucial electronic components of the system, such as the central processing unit (CPU) and memory, and provides connectors for other peripherals. Unlike a backplane, a motherboard contains significant sub-systems such as the processor and other components. Motherboard specifically refers to a PCB with expansion capability and as the name suggests, this board is the “mother” of all components attached to it, which often include sound cards, video cards, network cards, hard drives, or other forms of persistent storage; TV tuner cards, cards providing extra USB or FireWire slots and a variety of other custom components (the term mainboard is applied to devices with a single board and no additional expansions or capability, such as controlling boards in televisions, washing machines and other embedded systems).

8. Component of a motherboard.

1. Back Panel Connectors & Ports

Connectors and ports for connecting the computer to external devices such as display ports, audio ports, USB ports, Ethernet ports, PS/2 ports etc. See image below for a close-up view.

2. PCI Slots

PCI: Peripheral Component Interconnect

Slot for older expansion cards such as sound cards, network cards, connector cards. Have been largely replaced by PCI-Express x1 slots (see motherboard parts #3 below).

3. PCI Express x1 Slots

Slot for modern expansion cards such as sound cards, network cards (Wi-Fi, Ethernet, Bluetooth), connector cards (USB, FireWire, eSATA) and certain low-end graphics cards.

4. PCI Express x16 Slot
Slot for discrete graphic cards and high bandwidth devices such as top-end solid state drives.

5. Northbridge

Also known as Memory Controller Hub (MCH).

Chipset that allows the CPU to communicate with the RAM and graphics card. Beginning from the Sandy Bridge generation of Intel CPUs, motherboards no longer have this component as it has been integrated within the CPU itself.

6. CPU Socket

Insert CPU here. To learn how to install a CPU.

7. ATX 12V Power Connector Connects to the 4-pin power cable of a power supply unit which supplies power to the CPU.

8. Front Panel USB 2.0 Connectors.

Connects to USB 2.0 ports at the front or top of a computer case. 9. Front Panel Connectors

Connects to the power switch, reset switch, power LED, hard drive LED and front audio ports of a computer case. 10. IDE Connector

Connects to older hard drive disks and optical drives for data transfer. 11.

CMOS Battery

Supplies power to store BIOS settings and keep the real-time clock running.

The CMOS battery found on most motherboards is the CR2032 lithium coin cell. 12. Southbridge

Also known as the Input/Output Controller Hub (ICH).

Chipset that allows the CPU to communicate with PCI slots, PCI-Express x 1 slots (expansion cards), SATA connectors (hard drives, optical drives), USB ports (USB devices), Ethernet ports and on-board audio. 13. SATA Connectors

Connects to modern hard disk drives, solid state drives and optical drives for data transfer. 14. Fan Headers

Supplies power to the CPU heat sink fan and computer case fans. 15. RAM

Slots

Insert RAM here. To learn how to install RAM.

16. ATX Power Connector

Connects to the 24-pin ATX power cable of a power supply unit which supplies power to the motherboard.

17. mSATA Connector

Connects to a mSATA solid state drive. In most cases, this SSD is used as cache to speed up hard disk drives, but it's possible to re-purpose it as a regular hard drive.

18. Front Panel USB 3.0 Connector

Connects to USB 3.0 ports at the front or top of the computer case

19. Power & Reset Button

Onboard button to turn on, turn off and reboot the computer.

This motherboard component is more common among high end boards.

9. What is a CPU – Central processing unit.

A central processing unit (CPU) (formerly also referred to as a central processor unit) is the hardware within a computer that carries out the instructions of a computer program by performing the basic arithmetical, logical, and input/output operations of the system. The term has been in use in the computer industry at least since the early 1960s. The form, design, and implementation of CPUs have changed over the course of their history, but their fundamental operation remains much the same. A computer can have more than one CPU; this is called multiprocessing. All modern CPUs are microprocessors, meaning contained on a single chip. Some integrated circuits (ICs) can contain multiple CPUs on a single chip; those ICs are called multi-core processors. An IC containing a CPU can also contain peripheral devices, and other components of a computer system; this is called a system

on a chip (SoC). Two typical components of a CPU are the arithmetic logic unit (ALU), which performs arithmetic and logical operations, and the control unit (CU), which extracts instructions from memory and decodes and executes them, calling on the ALU when necessary. Not all computational systems rely on a central processing unit. An array processor or vector processor has multiple parallel computing elements, with no one unit considered the “center”. In the distributed computing model, problems are solved by a distributed interconnected set of processors.

An Intel 80486DX2 CPU, An Intel 80486DX2, as seen from above. as seen from below .

10. The evolution of the PC Microprocessor.

4-bit Microprocessors

The first microprocessor was introduced in 1971 by Intel Corp. It was named Intel 4004 as it was a 4 bit processor. It was a processor on a single chip. It could perform simple arithmetic and logic operations such as addition, subtraction, boolean AND and boolean OR. It had a control unit capable of performing control functions like fetching an instruction from memory, decoding it, and generating control pulses to execute it. It was able to operate on 4 bits of data at a time. This first microprocessor was quite a success in industry. Soon other microprocessors were also introduced. Intel introduced the enhanced version of 4004, the 4040. Some other 4 bit processors are International's PPS4 and Thoshiba's T3472. 8-bit

Microprocessors

The first 8 bit microprocessor which could perform arithmetic and logic operations on 8 bit words was introduced in 1973 again by Intel. This was Intel 8008 and was later followed by an improved version, Intel 8088. Some other 8 bit processors are Zilog-80 and Motorola M6800. 16-bit

Microprocessors

The 8-bit processors were followed by 16 bit processors. They are Intel 8086 and 80286.

32-bit Microprocessors

The 32 bit microprocessors were introduced by several companies but the most popular one is Intel 80386. Pentium Series Instead of 80586, Intel came out with a new processor namely Pentium processor. Its performance is closer to RISC performance. Pentium was followed by Pentium Pro CPU. Pentium Pro allows allow multiple CPUs in a single system in order to achive multiprocessing. The MMX extension was added to Pentium Pro and the result was Pentium II. The low cost version of Pentium II is celeron. The Pentium III provided high performance floating point operations for certain types of computations by using the SIMD extensions to the instruction set. These new instructions makes the Pentium III faster than high-end RISC CPUs. Interestingly Pentium IV could not execute code faster than the Pentium III when running at the same clock frequency. So Pentium IV had to speed up by executing at a much higher clock frequency.