

Essential parts of computer and how it works

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



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However, while the majority of people know how to use computer, they don't know how the machine works; the technical stuff. It becomes a problem when the technical stuff got broken and almost everybody does not get a clue. To improve our business means that we need to improve our consciousness to computer itself. So, with this guide, I hope we can understand the system of our computer, not just by its advantages, but by its personality too. Enjoy a new relationship with your computer. Computers For this matter, these are some of essential parts from computer that support its function A.

Central Processing Unit (CPU) B. Storage devices C. Peripherals CPU Central Processing Unit (CPU), or called as processor, is the central part of computer, which accepts and processes data into information and maintaining its system (Gilster, 2000). In comparison, a brain to human is the same for CPU to computer. It stabilizes and ensuring computer to run normal. Moursund (1978) says that CPU consists of two units: control unit and arithmetic/logic unit. The control unit gives instructions to the system for executing

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programs. The control unit doesn't do the tasks, but just giving orders to other units to do its jobs.

The arithmetic/logic unit execute arithmetic and mathematical equations in the system, like addition, subtraction, multiplication, and division. To work in a constant and stable period of time, CPU uses a small quartz crystal called the clock system (Shelly, Cashman, Vermaat, 2008). The system clock produces electronic pulses, or ticks, that set the operating period to the components of the system unit. The clock system speed is measured by the number of ticks per second or Hertz unit. Hertz (Hz) is the measurement of speed in data processing. The faster the clock speed, the more instructions the processor can execute per second.

For usage in our computer schools, there are two brand options, AMD & Intel. AMD's Athlon X2 Dual Core, and Intel's Pentium D 925, both of them have 3 GHz clock speeds which are compatible for our student's needs in computer. I recommend Intel's for our school since it has lower price than AMD. AMD has lower heat though in its operation, but this problem can be maintained by putting a fine working fan to cool the processor. Memory storage Extra There are terms of measure we need to know that used in byte (B) and hertz (Hz). They are: 1 Kilo (KB/ KHz) = 1000 (B/Hz) 1 Mega (MB/MHz) = 1000 Kilo = 1, 000, 000 (B/Hz) Giga (GB/GHz) = 1, 000, 000 = 1, 000, 000, 000 (B/Hz) 1 Tera (TB/THz) = 1000 Giga = 1, 000, 000 Mega = 1, 000, 000, 000 Kilo = 1000, 000, 000, 000 (B/Hz) (Shelly et al. , 2008) Memory storage is the place where computer store all data and information in the machine. To measure memory storage, we use Byte unit. Byte is the measurement of space,

determines the quantity of data that memory can save. There are two kinds of memory storage: primary storage & secondary storage. Primary storage RAM Random Access Memory (RAM), is used to open up programs, images, or any details when the computer is on.

Its function is to accelerate the speed of processing programs. When the computer is off, the memory loses its data too and will be restarting when the computer is on again. That's why RAM also called as temporary memory (Stokes, 2008). ROM Read-Only Memory (ROM) is used to store essential programs for computer, such as system operation (Smith, 2011). Data in ROMs cannot be changed again or written, unless for some types of ROM like EPROM (erasable programme read-only memory) or using some technique like exposing ROM to sunlight. Cache Cache located between CPU and RAM.

It is a high-speed memory that accelerates CPU to exchange information from RAM (Shelly, et al, 2008). Cache works in a frequently accessible files and programs in the computer so it can be processed in shorter time. For example, a secretary's computer which used for typing a lot will have its word-processing program opened faster than the other staffs' computer.

Secondary storage * Stokes (2008) states that secondary storage is used for saving files and information in the matter of capacity. When programs are installed into the computer or files are inserted, secondary memory is the place where all the stuffs are put into.

It gives information about how much computer can store data in its system. Files, programs, and other stuffs that put in secondary storage are saved permanently in the system. So, when the computer is off, the stuffs will stay

at the same state and condition without having any lost parts. Picture 2. 1 Secondary storage works like cloth drawers for computers. As long as there is a space, it is fine to put more things. Image source: <http://corriehaffly.wordpress.com> There are various forms of secondary storage. Some attached in CPU and some is separated from computer.

These are the kinds of it. Hard Disk Picture 2. 2 Physical appearance of a hard disk. Image source: <http://www.pcguide.com> A hard disk is a metal platter coated with magnetic oxide that can be magnetized to represent data (Shelly, et al, 2008). The large disk has top side and bottom side which used for recording and storing data in computer. To be used, hard disk must be attached in computer. Optical Disc Picture 2. 3 Physical appearance of optical disc. Image source: <http://www.digitalmatrix.us> An optical disc is a flat, round, portable, disc made of metal, plastic, and lacquer.

These discs usually have 4. 75 inches in diameter and less than one-twentieth of an inch thick (Shelly, et al, 2008). Optical disc commonly used for storing music, pictures, or programs depend on its capacity. There are many types of optical discs. Some types can be used for reading and recording files in it, some can only be used for read. CD-ROM A CD-ROM (Compact Disc Read-Only Memory), is a type of optical disc that can only be used for read the files in it (Shelly, et al. , 2008). The disc's content cannot be write-able or erase-able anymore.

A typical CD-ROM has capacity from 650 MB to 1 GB of data, instructions, and information. To read a CD-ROM, you can use CD-ROM drive or CD-ROM player. Commonly, CD-ROM is used in licensed application, programs, music

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albums, or encyclopaedias so it cannot be pirated. CD-R and CD-RW A CD-R (Compact Disc Recordable) is a multisession optical disc which users can write, but cannot erase the items in it, like text, graphic, or audio.

Multisession means you can write on part of the disc one time and another part at a later time (Shelly, et al. , 2008). Write in this term means to record files.

A CD-R can only be written once and the content cannot be erased. To write and read a CD-R, you need a CD-R drive. DVD-ROM and DVD-R A DVD-ROM (Digital Versatile Disc Read-Only Memory or Digital Video Disc Read-Only Memory) is a high capacity optical disc on which users can read but not write or erase (Shelly, et al. , 2008). To read a DVD-ROM, you need DVD-ROM software. DVD-R has the same characteristic as CD-R, only with bigger capacity. DVDs usually has 4 GB capacity. Flash Memory Picture 2. 4 Physical appearance of flash memory. Image source: <http://techcrunch.com>

Flash memory is a small, portable stick which implanted electrical chips that used to store files in computer (Shelly, et al. , 2008). Its size is none bigger than adult human thumb. It connects to a computer via an USB port. Its files can be read and written in multiple times. Flash memory has various capacities, from 256 MB until 32 GB are available in stores. Peripherals Peripherals are electronic devices that support computer functions to more useful and understandable (Gilster, 2000). Peripherals commonly consist of computer screen, speaker, printer, keyboard, and mouse.

Each device is connected through port cables that inserted into CPU ports. In this handout, I would like to discuss the function of printer itself. Since it is a

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primary office need, so it is nice to know and be aware for this machine.

Printer is an electronic device that used for printing images and texts in computer file, usually using papers as its medium (Gilster, 2000). There are many types of printers which available in the market and usually used for business and office work. Ink-jets (bubble-jets) printers Picture 3. 1 Bubble jet printer. Image source: <http://www.inkjet-laser.com>

Ink-jet printer sprays ionized tiny inks on the paper. The printing pattern is organized by using magnetized plates in printer (Shelly et al. , 2008). It can produce high quality images that frequently used for photography. There are models that designed to black and white (B/W) colour printings too. Laserjet printers Picture 3. 2 Laser printer. Image source: <http://www.hypercup.org> Laser printers works by using lasers that melts powdered inks in cartridges, then the ink putted on a paper by desired pattern (Shelly et al. , 2008).

Photocopy services usually use this type due to its fast process.

Here are the comparisons of bubble jet printer and laser printers as shown below.

Ink-jet Printer	Laserjet Printer
1. Print by spraying inks into paper, which makes the ink is more liquid on paper. If the paper is touched or get heated, the ink can melt and smear the paper	1. Print by heated powdered inks with laser. The ink is fast to dry.
2. Printing process are quiet and does not cause any mechanical noise	2. Printing process causes mechanical noise.
3. Many models come in portable sizes, which are suitable for home and personal use that do not demand frequent printing.	3. There are portable sizes and large sizes. Portable size are suitable for home and personal use, while large sizes are suitable for office or business use that

demands frequent printing. | 4. The quality of printing can be adjusted for faster printing process| 4. The quality of printing cannot be adjusted| Ink-jet Printer vs. Laser Jet Printer (Frost, 2010) Connecting To Internet To obtain much information, internet is always helpful for providing sources anywhere and anytime. Connecting our computer to internet means that open the access of our computer through signals.

To make it do so, computers are needed to be included in a network.

Network is a group of computers and devices that connected together through communication devices and transmission media (Sosinsky, 2009). It is used in houses, cafes, libraries, or offices for many purposes, even for personal or business purposes. The ability of network allows people to communicate through each other (in verbal or in visual), sharing files, transfer money, etc. As Sosinsky (2009) states, network's patterns are divided into two categories: client/server and peer-to-peer. 1. Client/server

One computer works as a server, then the other computers or devices in network work as client. A server controls access to the hardware, software, and other resources in network. It makes a server the centre storage of programs, data, and information. The clients are other computers and devices that rely on a server for its resources. 2. Peer-to-peer Peer-to-peer

system is like two friends sharing stories to each other. One has useful information that the other one did not know, and vice-versa. In this network, each computer, called a peer, has different responsibility and capability, sharing hardware (e. printer), data, or information with other computers.

Each computer has its files in own storage, but also have the same operating

system and application software that allows them to be connected to each other. For creating networks, computers need some equipment to make them connected through each other. Here are some services which make our computer available to internet.

1. Dial-Up Modems Dial-up modems are working by using telephone devices. When a computer connects to internet, computer transmits digital signals which are converted into analog signal then it is transmitted over standard telephone lines (Shelly, et al. 2008). The internet speed is up to 56 kilobyte/second. Many people do not really interested in using dial-up modems now because it requires one telephone line for working and other services have faster speed.
2. Broadband Services Broadband internet is a high-speed internet that is connected through a wire (Shelly, et al. , 2008). Broadband internet services are provided through various methods. Some known methods are: a) DSL (digital subscriber line), using telephone lines but does not interfere telephone connection; b) A cable modem that uses cable television network) A Wi-Fi (wireless fidelity) network uses radio signals to provide internet connection to computers and devices.

Conclusion CPU plays the part of accepting data and processing it into relevant and understandable information based on logic and arithmetic way of work. Data and information that has been processed comes in the shape of programs and files. The computer's program and files are kept in memory storage. Some memory storage is attached in computer, like hard disks, RAMs, ROMs, Registers, and Caches. Some are separated from computer for its portability, like optical discs and thumb drives.

Printers are machines that are used for printing and photocopying documents and images in computer. This can be used for printing in colour and

black/white printings. Connecting computer to internet means to put it into a network. In a network, computer users can obtain information from many other sources and communicate with other computer users. Internet can be accessible through these two services, dial-up modem and broadband internet services. Through this guide, I delighted if you feel informed and become more common to computers. Knowing new things means to get to you into new insights.

I hope the knowledge you read here can be useful for now and the future.

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