



The Use of Peripherals in Working Area



Gede Krisnanda Juni Antara ^a

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Abstract

Peripherals are additional hardware who connected to the computer, usually with the aid of wires or now many wireless peripheral devices. These computer peripherals duty to help accomplish the task cannot be performed by hardware which is mounted inside the casing. These peripherals can be divided into 2 of the input and output peripherals. In daily activities, peripherals much help humanity though not much like the example Printer. Human previously prints using the typewriter that is very inefficient and after the invention of a machine that can print very fast then this machine that replaces the role of the previous cumbersome machine becomes very easy to use. In its development until now very much changed peripherals ranging in terms of composition and form very striking. For example, a mouse which only consists of 1 button until now that could be a wireless.

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Author correspondence:

Gede Krisnanda Juni Antara,

(STIMIK) STIKOM Bali-Indonesia,

Email address: krisnandajuniantara@gmail.com

1. Introduction

In daily life, we cannot be separated with a tool called a computer. Kim, Y. H. (2000), computers, in general, are tools used to process the data according to the procedures that have been formulated. The word computer was originally used to describe people who perform arithmetic calculations, with or without hearing aids, but the meaning of the word is then transferred to the machine itself.

Allen, D. P., Playfer, J. R., Aly, N. M., Duffey, P., Heald, A., Smith, S. L., & Halliday, D. M. (2007), computers can help people in many ways ranging from education to health. In the development of computer hardware or commonly known as peripherals began to change much, one of them like a hard drive or RAM. In their daily lives peripherals also helps people to facilitate the work. Research questions are what is peripherals, types, history, and examples in the peripherals and how to resolve the existing problems in the peripherals when the peripherals are having problems. The research aims are to know more about what it peripherals, to know what is included and what is not peripherals and to know how to overcome the problems that occur in the peripherals.

^a (STIMIK) STIKOM Bali-Indonesia

2. Research Methods

The present study applied qualitative methods. [Anderson, F., Annett, M., & Bischof, W. F. \(2010\)](#), all data is analyzed descriptively. It is used a paraphrase to explain, elaborate, and explore regarding the phenomenon belonging. The conclusion is the last remarked based on the previously description.

3. Results and Analysis

[Axelson, J. \(1999\)](#), peripherals are Additional hardware is connected to the computer, usually with help of a cable or now many wireless peripheral devices. These computer peripherals duty to help accomplish the task cannot be performed by hardware which is mounted inside the casing. Peripherals splinted into 2:

- a) Main Peripherals
Namely, equipment that must exist in operating a computer. Example main peripherals: monitor, keyboard, and mouse.
- b) Auxiliary peripheral
Namely, equipment that does not necessarily exist in operating a computer but it is required for certain activities. Examples are printers, scanners, modems, webcam, and others.

While based on the process works in favor of computer operation is divided into:

- a) The input device (input)
- b) Is a device used to enter data or commands into a computer? The devices include a keyboard, mouse, scanner, digitizer, digital camera, microphone, and other peripherals
- c) The output device (output)
- d) Is equipment that we use to display the results of data processing or orders made by the computer. Such devices include monitors, printers, plotters, speakers, and other others.
- e) Processing Device
- f) Is equipment that used to processing on CPU and works on processing data

3.1 The history, type, an example of peripheral

There are different types of types of peripherals, namely input devices, processing devices, and output devices. First, describing the input device.

a) Input Device

Input Device Is a device used to enter data or commands into a computer. There are several tools included in the input device:

1) Keyboard

A keyboard is an input tool used to type the data into the computer and run a variety of instructions or commands into a computer. The creator of computer keyboard inspired by creation the basic typewriter was drafted by Christopher Latham in 1868 and marketed in 1877 by Remington Company. [Littlehorn, S., & Franqui, E. A. \(2008\)](#), the first computer keyboards adapted from the pit cards (punch cards) and long-distance delivery technology writing (Teletype). In 1946 ENIAC computer using a card reader makers hole (punched card reader) as a means of input and output. When you hear the word "keyboard" then our minds can not be separated from the computer, because the keyboard is a board that consists of buttons to type in the phrase and other special symbols on the computer. On the keyboard there are keys letters A - Z, a - z, numbers 0-9, buttons and special characters such as: ` ~ @ # \$ % ^ & * () _ - + = < > / , . ? : " \ | as well as other special buttons that total number is 104 buttons. While at Typewriters number of buttons is 52 buttons. Keyboards generally rectangular shape, but the current model of the keyboard is very varied. The most famous Keyboard is a full QWERTY keyboard which has 101 pieces of the key (button).

Why keyboard set full QWERTY? According to the same source on the web, Common keyboard layout used today termed QWERTY. QWERTY term is taken from six letters on the top of a keyboard arrangement. The actual composition is one of the most inefficient arrangement. Because the arrangement is deliberately made that way so that we-we can type more slowly. This relates to the history of the typewriter

which was found first by Christopher Latham Sholes (1868). At first the keyboard layout of the original design of Christopher Latham Sholes is not QWERTY. This initial arrangement allows us to type faster. However, because it is too fast in typing, up - to frequent problems. Often when the button is pressed, the trunks of letters (slug) strikes the ribbon was interlocking / entangled with each other. Confused thinking about the solution at the time, Christopher Latham Sholes it ruffled the sequence of letters in such a way to find a combination that is considered the most difficult to use in typing. The aim is to avoid mechanical errors that often occur earlier. This means QWERTY arrangement is the arrangement most inefficient as intended so that we can type more slowly.

Garnier, S. F., Ton, R. B., Turner, V. S., Pilarski, J. K., Magill, M. R., & Murphy, A. J. (1990), finally in 1973 the arrangement of the typewriter it is derived on the computer keyboard as the input keyboard and subsequently formalized as a standard ISO (International Standards Organization).

Actually, there is some standard keyboard layout used today. Call it the ASK (American Simplified Keyboard), which is generally called Dvorak discovered by Dr. August Dvorak about 1940. Boldon, J., & Martz, D. (2003), the composition of Dvorak using five vowels and five consonants are the most commonly used is AOEUIDHTNS. Dvorak arrangement allows us to type more efficiently. But perhaps because of late, finally Dvorak should lose the QWERTY arrangement of letters already widely used in the world at that time.

Physically, the keyboard is divided into four parts, namely:

- (a) Keyboard Serial: Using DIN 5 male and usually used in an AT-type computer
- (b) Keyboard PS/2: Usually used on computer ATX and is currently the most widely used. Installation of this type of keyboard must be carried out carefully because the port is owned equally by the port for the mouse.
- (c) Keyboard Wireless: Like the name, this type does not use the keyboard as a liaison between the keyboard cables to the computer. Type of connection used is infrared, Wi-Fi or Bluetooth. To connect the keyboard to the computer, it takes the transmitter and receiver unit. The transmitter unit is usually found on the keyboard itself, while the receiver is usually installed on the USB or serial port on the CPU.
- (d) Keyboard USB: Recent computer now uses many types of USB connectors ensure faster data transfer

2) Mouse

Mouse, or "Rat" in terms of its basic Indonesian, is one of the hardware in a computer, which serves as the primary input device other than the keyboard. Mouse categorized as a Pointing Device (instrument pointer/selector). Cursor movement on the screen representing the movement of the mouse device itself. By pointing the mouse cursor on the icon / GUI (Graphic User Interface) specified, then execute commands by way of clicking on it, a user can execute certain commands on a computer program.

The mouse is an input apparatus that serves to move the pointer on the screen of the monitor to run a program or command icons that exist on the monitor screen by doing a left click, right click, double click, drag, and drop, or scroll lock.

Shah, N., & Keutzer, K. (2002, October), the mouse was first discovered in 1963, by an American inventor of the Stanford Research Institute, named Dr. Douglas C. Engelhard. The first mouse is a very simple device. Made of wood, it has a small button to the right of it, then had two small metal wheels on it. At that time, the tool is officially named "XY position indicator for a display system" (XY position indicator for a display system). Because of its shape which has a long cable, and resembles a mouse, this tool was then called "mouse" (Rat). The cursor on the screen was actually having the name "bug" (insects). But the name does not become too popular. At first, Douglas tried to find a Pointing Device (Pointer) to another, such as a tool that is moved by a chin or nose. However, the mouse was the one who was considered the simplest and easiest to use. Regarding the mouse, and then developed by computer company Apple, Inc. (Developer Macintosh operating system). Therefore, Apple was the one who finally gets a patent on the use of the mouse.

Judging from the types of mouse port, there are four kinds of the mouse:

(a) Serial Mouse

The mouse which is rarely used by the general public. Usually, this mouse used on computers Pentium 1 and Pentium 2.

- (b) Mouse PS / 2
A mouse used on computers Pentium 3 and Pentium 4.
- (c) USB Mouse
The mouse that is commonly used by the public. Used computer Pentium Pentium 3 and 4.
- (d) Mouse wireless
Latest cordless mouse. Wireless Mouse now already widespread among the community.

Judging from the sensor, there are three kinds of the mouse:

- (a) Mouse Mechanical (Mouse Ball)

Subsequent developments made by Bill English at Xerox PARC in early 1970. It uses a ball that can rotate in all directions, then the ball around the wheels detected by sensors inside the mouse. This type of development gave birth Trackball mouse type, which is a type of mouse upside down where the user moves the ball with the fingers, which is popular between 1980 and 1990. Xerox PARC also popularized the use QWERTY keyboard with two hands and use the mouse when needed.

- (b) Mouse Optical mechanic

In addition to the mouse ball, is currently widely used optical mouse. Optical Mouse ball is superior because it is more accurate and easier maintenance than the mouse ball. The optical mouse does not need to be cleaned, in contrast to the mouse ball to be cleaned frequently because of much dust on the ball. The first optical mouse made by Steve Kirsch of Mouse Systems Corporation. This type of mouse uses an LED (light emitting diode) and a photodiode to detect the movement of the mouse. The first optical mouse can be used on the pedestal (mousepad) specially colored striped metallic blue-gray.

- (c) Mouse Laser

Laser mouse was first introduced by Logitech, leading mouse companies that cooperate with Agilent Technologies in 2004, under the name Logitech claims that the Logitech MX 1000 laser mouse has an accuracy rate of 20 times greater than the optical mouse. Basic working optical mouse and laser mouse are almost the same, the only difference being the use of small lasers instead of LEDs used by the optical mouse. Laser mouse currently not widely used, perhaps because the price is still expensive.

Here are some mouse functions:

- (a) Entering commands to the computer where the workings of this mouse are by sliding - sliding the mouse on a flat surface of the board.
- (b) Drive pointer to indicate a specific location on the screen.
- (c) Used to perform activities that are called: click (select items), double-click (open a file), click and hold the slide/drag-drop (move the item) and right click (featuring a selection of menu commands).
- (d) Work to roll (scrolling) screen using the scroll wheel.
- (e) Detect 2-dimensional motion relative to its current position.
- (f) Making the job easier and faster. Especially those of us who frequently 7. The activity edits photos or creates a design.
- (g) Zoom in or too far to see worksheet.
- (h) Enable command button, and also perform a particular action on the applications.
- (i) For commands that do not provide a shortcut menu, right mouse button functions as the enter key.
- (j) The mouse can also function as a controller magnification of the object.
- (k) The mouse can also function to convert and instructions in the form of an electronic signal that can be understood by computers.

3) Pen tab

Graphics tablet or Pen tab is an input device that makes people can draw like a drawing on a piece of paper with a pencil. This device consists of a digital tablet and a cursor or a digital pen. Pentad has a flat surface as the base image consisting of electronic equipment that can detect the movement of a cursor or a digital pen and then translate them into digital signals that are sent directly to the computer. Results of images created using a graphics tablet by normally not displayed on the tablet itself, but is displayed on a computer monitor.

Of course, the pen tab form which was first created not as we often see today. Handwriting electronic tablet that was first created is *Telautograph*. *Telautograph* was the forerunner of the fax machine whose function is to transmit electrical impulses recorded by a potentiometer which is on the sender to the servo connected to a pen on the receiver, which makes the pen moves and produces images on paper as being sent by the sender. *Telautograph* is the first tool which transmits the image to a paper. This object patented by Elisha Gray in 1888.

4) Scanner

History of scanner development began in 1975 when Ray Kurzweil and his team create the Kurzweil Reading Machine along with Omni-font OCR software (Optical Character Recognition) technology. This software identifies the existing text in the scanned object and translates them into data in text form. From the early development of scanner technology that originated and eventually continues to grow until today with the technology becoming increasingly advanced. Now scanners are to be used to scan three-dimensional objects and film negatives.

The shape and size of the scanner assortment, there is the magnitude of the size of the paper folio there is also the size of a postcard, even the latest, the new pen-shaped launched by the company Wiz Com Technologies Inc. The pen-sized scanner can store up to 1,000 pages of text printed and then transfer them to a personal computer (PC). The pen-sized scanner called Quick link. The scanner pen measuring six inches long and weighs about three ounces. The scanners can perform the work at random faster than a flat-shaped scanner. Data that has been taken with the scanner, can be inserted directly into all computer applications that recognize ASCII text.

Scanner function is a tool that works by moving one or more objects that are above the lens scanner into computer storage memory. So if the above scanner lens there is a paper containing text or pictures, the content will exist on paper in question will be transferred 100% into our computer.

Based on the benefits and how it is used, the scanner can be divided into several types:

(a) Flatbed

This type is the type most often found because the price is relatively the cheapest, suitable for personal use. This type can be characterized by a rectangular shape. Having a board cover, and put a glass layer image. To use it you have to put the picture one by one for each shooting.

(b) Automatic Document Feeder

The advantage of this kind of ease of use. You can put images to be read, then the tool will automatically take his own pictures of them and read them, to be stored as a digital file. The price is certainly more expensive than the type of flatbed. This type is suitable for offices that have a lot of images to be scanned.

(c) Handheld

This type requires greater skills from its users. Users with this scanner will move his hand over the image to be read. Because the process of reading the data by the scanner is very sensitive, so the resulting image quality is not good, due to uneven movement speed. Generally, this type is a monochrome scanner, or rather can only produce black and white only.

(d) Drum

These types are the types that developed early. This type using photomultiplier tubes (PMT) to read image data. This type produces a better quality compared to other types. But because the price is relatively expensive, so this type is not widely used. Many people switch to using high-quality flatbed types. But this type is still being used by those who need good quality, such as museums or artists that will keep the work of art.

b) Processing Data

1) RAM

Random access memory, RAM is a type of computer storage whose contents can be accessed in a fixed time not considering the location data in memory. This is in contrast to sequential memory devices, such as magnetic tapes, disks, and drums, in which the mechanical movement of the storage medium forces the computer to access data sequentially.

First became known in the 60's. Only when the semiconductor memory has not been popular because the price is very expensive. It was more common to use magnetic main memory. Semiconductor companies such

as Intel debuted with producing RAM, more precisely the type of DRAM. Usually RAM can be written and read, as opposed to memory-read-only (read-only-memory, ROM), RAM is usually used for primary storage (main memory) in computers to use and modify the information actively, although some tools use some kind RAM to provide long-term secondary storage.

RAM's development is so fast that some computer experts are also participating in the grouping of the evolution of this RAM. This RAM evolution includes:

- (a) RAM (Random Access Memory). Discovered by Robert Dennard and produced on a large scale by Intel in 1968, long before the PC invented by IBM in 1981. From this stems the development of RAM. At the beginning of creation, RAM requires a voltage of 5.0 volts to run at a frequency 4,77MHz, with memory access time (access time) of about 200ns (1ns = 10⁻⁹ seconds).
- (b) DRAM. In 1970, IBM created a memory, called DRAM. DRAM itself stands for Dynamic Random Access Memory. Dynamic Named because this type of memory at any given time interval, always renew the validity of the information or its contents. DRAM has a working frequency varies, between 4,77MHz up to 40MHz.
- (c) FP RAM. Fast Page Mode DRAM or DRAM FPM found shortened by about 1987 or more commonly known by the name FPM. FPM allows faster data transfer on the line (row) of the same from the previous memory types. FPM works in the frequency range of 16MHz to 66MHz with an access time of about 50ns. In addition, FPM is able to process data transfer (bandwidth) of 188.71 MegaBytes (MB) per second.
- (d) EDO RAM. In 1995, was created memory type Extended Data Output Dynamic Random Access Memory (EDO DRAM) which is a refinement of the FPM. EDO memory may shorten its read cycle so as to improve its performance by about 20 percent. EDO has an access time that is quite varied, which is about 70ns to 50ns and works at a frequency of 33MHz to 75MHz. Although EDO is a refinement of the FPM, both can not be installed simultaneously, because of differences in ability. EDO DRAM memory used in systems based on Intel 486-compatible as well as early-generation Pentium.
- (e) SDRAM PC66. At the beginning of 1996 until the end of 1997 Synchronous Dynamic Random Access Memory (SDRAM). SDRAM is then known as PC66 because it works at a frequency of 66MHz bus, is usually found on a computer Pentium 2-3, and he has the property requires a large enough force. PC100 SDRAM. Same as SDRAM, PC100 SDRAM work for a computer Pentium II at 100MHz bus. Due to work on the system bus frequency of 100MHz while Intel still wants to use the system SDRAM memory, is developed SDRAM memory that can work at 100MHz bus frequency.
- (f) DR RAM. In 1999, Rambus memory system which was named Direct Rambus Dynamic Random Access Memory is able to stream data at 1,6GB per second! (1GB = 1000MHz).
- (g) RDRAM PC800. Still, in the same year, Rambus has also developed another memory type with the same ability to DRDRAM. The difference lies only in the necessary working voltage. If DRDRAM requires a voltage of 2.5 volts, the PC800 RDRAM work at a voltage of 3.3 volts. The fate of RDRAM memory is almost the same as DRDRAM, less desirable, if not utilized by Intel. Intel has managed to create a very high-speed processor requires a memory system that is able to keep up and work together well. SDRAM memory types are not worth it anymore. Intel requires more than that. By inserted Intel Pentium4, RDRAM name soar, and the longer the price is getting down.
- (h) SDRAM PC133. Memory was developed in 1999, SDRAM memory has not been abandoned, even by Viking, even more, enhanced. As the name implies, the PC133 SDRAM memory working at 133MHz frequency bus with an access time of 7,5ns. PC150 SDRAM. SDRAM memory development deepened after Mushkin, in 2000 successfully developed a memory chip that is capable of working at a frequency of 150MHz bus, although in fact there have been no official standards regarding the frequency of the bus system or chipset of this magnitude. Still, with a working voltage of 3.3 volts, have PC150 memory access time for 7NS and can stream data at 1,28GB per second. This memory is intentionally created for the purposes of overclockers, but users gaming applications and 3D graphics, desktop publishing, and server computers can take advantage of the presence of PC150 memory.
- (i) DDR SDRAM. In the same year, namely 2000, SDRAM reinforced until doubled. If the regular SDRAM is only able to run the command line or instruction once every unit time bus frequency, the DDR SDRAM is able to execute two instructions at the same time in the same time unit. The technique used is to use fully the wave frequency.
- (j) DDR RAM. In 1999 the two big company's microprocessor INTEL and AMD compete to increase the clock speed of the CPU. But confronted with obstacles, because when increasing the memory bus to 133

- MHz needs of Memory (RAM) will be greater. And to solve this problem then be made RAM DDR (double data rate transfer) which was originally used on a graphics card, because now you can use only 32 MB to 64 MB acquire capabilities. AMD is the first company to use DDR RAM on the motherboard.
- (k) DDR2 RAM. DDR2 memory is the most widely circulated today in the market, proven computer Pentium 4 up much use of this type of memory. This use much in use because the memory of this kind requires only electrical power 1,8Volt so it can save electrical performance/voltage into the computer, the RAM of this type was developed in 2005.
 - (l) DDR3 RAM. The DDR3 RAM has a power requirement is reduced by about 16% compared to DDR2. It is because DDR3 is already using 90 nm technology so that the power required to consume only 1.5v, much less when compared to DDR2 and DDR 2.5V 1.8v. In theory, the speed of which is owned by RAM is indeed quite stunning. He is able to transfer data at an effective clock of 800-1600 MHz. In the 400-800 MHz clock, much higher than DDR2 at 400-1066 MHz (200- 533 MHz) and 200-600 MHz for DDR (100-300 MHz). Prototypes of DDR3 which has 240 pins. This has actually been introduced a long time ago at the beginning of 2005. However, the product itself actually emerged in mid-2007 in conjunction with a motherboard that uses the Intel P35 Bearlike chipset and motherboard that supports DIMM slots.

RAM function

The so-called memory of the PC actually refers to the RAM (Random Access Memory). A computer takes up RAM to store data and instructions needed to complete a command (task). Data or instructions are available on the RAM allows the processor or CPU (Central Processing Unit) to access them quickly.

CPU when opening an application program from the disk-like word processing, spreadsheet, or games-he will me loading them into memory. It enables applications to work faster than having to access directly to the hard drive which is much slower. Because the disk is indeed served as storage of data, not as a memory.

By accessing data or applications are available in RAM, speed up your PC to complete the task. A simple analogy to understand this, it is easier if taking on real activity in daily life. For example in the work environment. Where there are a work desk and a file cabinet. Filing cabinets can be assumed like a hard drive, where available files and information needed.

When starting to work, the files will be excluded from the information in the closet to his desk. This is to facilitate and accelerate access to needed information. Thus, the work table can be analogized as a memory on a PC.

2) Processor

The microprocessor is an IC (Integrated Circuit) that is used as a brain / main processor in a computer system. Microprocessors are the result of the growth of the semiconductor. The first microprocessor was introduced in 1971 by Intel Corp.,

Namely the Intel 4004 microprocessor architecture that has 4 bit. For addition of some peripherals (memory, a device I / O, etc.) Microprocessor 4004 is converted into a small computer by Intel. The microprocessor then developed further into 8080 (*berasitektur* 8bit), 8085, and then 8086 (*berasitektur* 16bit). On the other hand, lean semiconductor company also introduced and developed the microprocessor include the Motorola M6800, and Zilog with Z80nya. Intel microprocessors are architecture 16 bit is mostly terminated by the number 86, but because the numbers can not be used to replace them with their trademarks for the name Pentium microprocessors trademarks of their fifth generation. This architecture has twice expanded to accommodate the larger word size. In 1985, Intel announced a draft-generation 32-bit 386 which replaces the draft 286 16-bit generation. 32-bit architecture is known as x86-32 or IA-32 (stands for Intel Architecture, 32-bit). Then in 2003, AMD introduced the Athlon 64, which apply further development of this architecture leading to a 64-bit architecture, known by several terms x86-64, AMD64 (AMD), EM64T or IA-32e (Intel), and x64 (Microsoft).

c) Output Device

1) Printer

A printer is a tool that displays the data in print, in the form of text and pictures/graphics, on paper. The printer is usually divided into several parts, the picker as a means of taking the paper from the tray. Is a

place to put the paper tray. Ink or powdered toner ink printer is a real tool, because there is something called the ink or toner powder used for writing/printing on paper. Ink and ink powder difference is the difference of the system; powdered ink or laser heating needs, while the ink or ink sprayed do not need heating, cleaning only in the upstream printer (print-head) is printing on paper, cloth, glass, white films, ebony, etc. There is also a flexible cable for the transmission of signals from the processor to the printer ink or toner powder. These cables are thin and flexible, yet powerful. On the back of the printer is usually a parallel or USB jack for connecting to a computer.

Johannes Gensfleisch zur Laden Zum Gutenberg (around 1398-3 February 1468) was a mechanicals and creator German who gained fame thanks to his contribution in the field of printing technology in the 1450s, including alloy metal letters (type of metal) and ink-based oil, print to print the letter accurately, and a new kind of printing machines based on printer used in making wine. Printer divided into 3:

(a) Dot Matrix Printer

Dot matrix printing or impact matrix printing is a type of computer printing which uses a print head that moves back-and-forth, or in an up-and-down motion, on the page and prints by impact, striking an ink-soaked cloth ribbon against the paper, much like the print mechanism on a typewriter. However, unlike a typewriter or daisy wheel printer, letters are drawn out of a dot matrix, and thus, varied fonts and arbitrary graphics can be produced. The Dot matrix printing uses on mini marker

(b) Ink Jet

Inkjet printing is a type of computer printing that recreates a digital image by propelling droplets of ink onto paper, plastic, or other substrates. Inkjet printers are the most commonly used type of printer and range from small inexpensive consumer models to expensive professional machines

The concept of inkjet printing originated in the 20th century, and the technology was first extensively developed in the early 1950s. Starting in the late 1970s inkjet printers that could reproduce digital images generated by computers were developed, mainly by Epson, Hewlett-Packard (HP), and Canon. In the worldwide consumer market, four manufacturers account for the majority of inkjet printer sales: Canon, HP, Epson, and Lexmark, a 1991 spin-off from IBM

The emerging inkjet material deposition market also uses inkjet technologies, typically print heads using piezoelectric crystals, to deposit materials directly on substrates. There are two main technologies in use in contemporary inkjet printers: continuous (CIJ) and Drop-on-demand (DOD)

(c) LaserJet

Laser printing is an electrostatic digital printing process. It produces high-quality text and graphics (and moderate-quality photographs) by repeatedly passing a laser beam back and forth over a negatively charged cylindrical drum to define a differentially-charged image. The drum then selectively collects electrically charged powdered ink (toner), and transfers the image to paper, which is then heated in order to permanently fuse the text and/or imagery. As with digital photocopiers and multifunction/all-in-one inkjet printers, laser printers employ a xerographic printing process. However, laser printing differs from analog photocopiers in that the image is produced by the direct scanning of the medium across the printer's photoreceptor. This enables laser printing to copy images more quickly than most photocopiers. Unfortunately LaserJet only detected black color only.

The history of LaserJet, in 1953, high-speed printer with first developed by Remington-Rand used in UNIVAC computer. In 1938, Chester Carlson introduced the wet printing process called electrophotography were later called Xerox, which then evolved into the invention of laser printer technology. The real laser printer called EARS developed at Xerox Palo Alto Research Center started in 1969 and completed in November 1971. Xerox experts, Gary Stark weather adopted a Xerox copy technology into a laser printer. Xerox 9700 is the first Xerox laser printer product with a xerographic laser technology in 1977. IBM's own release launch this technology with the IBM 3800 which first placed on the central accounting office in Woolworth's North American Data Center in Milwaukee, Wisconsin in 1976. The IBM 3800 is the industry's first high-speed printer system. Combines laser technology and electrophotography. In 1992, Hewlett-Packard introduced the famous LaserJet 4, using a resolution of 600 x 600 dot per inch (dpi).

2) Speaker

Speakers are transducers that convert electrical signals into audio frequencies (sound) by vibrating components that form the membrane. The transducer is a device that converts one form of energy into another form of power for a variety of purposes including changing the size or information (for example, pressure sensors). The transducer can include electrical appliances, electronic, electromechanical,

electromagnetic, photonic, or photovoltaic. In a broader sense, the transducer is sometimes also defined as a device that converts a signal form into a form other signals.

Speaker is one that has a computer output equipment such as a box or a round shape with a unique packaging that serves to release the results of computer processing such as voice. So that the speaker can function required hardware such as sound cards (processors audio/sound). Speaker has the form, features and size diversity. Currently, the speaker is an additional tool that can hardly be separated from the computer. In any sound producing system, determining the best sound quality depends on the speakers. The best recording encoded into a high-quality storage device and is played with a deck and upper-class speaker, nonetheless the result would sound ugly when associated with low-quality speakers. The speaker system is an electronic component that carries a signal store them in CDs, tapes, and DVDs, then returned again to the form of the actual sound that we can hear. Speaker is an amazing technology that gives an enormous impact on the culture.

In 1898, Horace Short announced a speaker design that uses an air compressor which is then sold to Charles Parsons. Then get some additional patents in the UK before 1910. In 1924 Dr. Walter H. Scotty find first ribbon loudspeaker. For the first time, the speakers using the electromagnet so that the sound produced is very hard. But at that time the speaker that uses magnets rarely used it because the price is expensive. Coil of an electromagnet called a field coil or coils connected basis through the two pairs energized to the driver. This turn usually provided in a dual role and also acts as an electrical filter of the loudspeaker amplifier connected with electricity. AC reactions have been weakened by winding electrical resistor. But the AC frequency tends to modulate the audio signal being sent to the voice coil so that the audible hum of the large magnitude of an audio device. It is clear that the function of the speakers to produce sound waves, but every type and brand of car audio speakers especially for the start of the tweeter, midrange, midbass to the subwoofer, each having different functions and duties in terms of producing sounds.

3) Monitor

The monitor can be defined Interface or visual screen that links between humans and computers. Monitor until now developed in two phases. The first phase in 1855 was marked by the invention of the cathode ray tube by scientists from Germany, Heinrich Geibler. He is the father of the tube monitor. Then, 33 years later, the Austrian chemist, Friedrich Reinitzer, laid the basis for the development of LCD technology to find liquid crystals. Tube technology since originally was developed to realize the monitor. However, the liquid crystal is still a chemical phenomenon during the next 80 years. At that time, the display frame rate or even not thought. That time which is the second phase of the development stage of computer monitors. During this time, many consider that Karl Ferdinand Braun as the inventor of the cathode ray tube. Actually, it is the first application for the maker of the tube, ie oscilloscopes in 1897. The device that is the basis for the development of other devices, such as televisions. In the same year, Joseph John Thomson discovered the electron, which accelerates the development of tube techniques. The monitor can divide into 3:

(a) Cathode Ray Tube

Brown tube technology (CRT Display) was discovered in 1897, but the new technology is adopted as a television broadcast receiver in 1926. The history of the discovery of CRT technology is already more than 100 years and have a very good picture quality. However, this technology has the disadvantage that the larger the display to be made, the greater the tube is used.

CRT monitors, screen viewer that is used in the form of a cathode ray tube. This technology led to the display on the monitor by emitting an electron beam to a point on the screen. The beam will be strengthened to show the bright side and weakened to the dark side. CRT technology is the cheapest technology compared with the other two technologies. Yet the resulting resolution is good enough for many purposes. The only electrical energy required is quite large and has a fairly strong electromagnetic radiation.

(b) Liquid Crystal Display (LCD) or Flat Panel Display (FDP)

LCD monitors are no longer using electron tubes but use a type of liquid crystal that can fluoresce. This technology produces a monitor known as the Flat Panel Display with shaped flat screens and the ability of higher resolution than the CRT. Because the shape is flat, the flat type monitor uses little energy and are widely used in portable computers.

Other advantages of LCD monitors is the brightness ratio that has touched the figure of 350: 1. Brightness ratio is the ratio between the darkest displays with the brightest display. Liquid Crystal Display using liquid crystals that can fluoresce. Liquid crystals are organic molecules thick that flow

like a liquid, but has a spatial structure such as crystal. (Found Botany expert Austria - Rjeinitzer) in 1888. By shining a light through the liquid crystal, the intensity of the light that comes out can be controlled electrically so as to form flat panels.

The layers in an LCD:

- (1) Polaroid back
- (2) Electrode back
- (3) Rear glass plate
- (4) Liquid Crystals
- (5) Plat windshield
- (6) Electrodes front
- (7) Polaroid front

Electrodes in the coating serve to create an electric field to liquid crystals, while the Polaroid is used to create a polarization. From the price, LCD monitors are much more expensive when compared to CRT monitors. And they still have some disadvantages such as less capable of being used for work in various resolutions, such as a monitor with a resolution of 1024 X 768 would seem somewhat opaque when employed at a resolution of 640 X 420. But lately, these weaknesses have started overcome by anti-techniques aliasing.

(c) Plasma Gas or Organic Light Emitting Diode (OLED)

Monitor this type combining CRT with LCD technology. With the resulting technology, capable of making the screen with thinness resembles viewing angle LCD and CRT can be as wide.

The plasma gas is also using phosphorus as well as on CRT technology, but the screen on the plasma gas can / without the aid of light behind the screen. It will make the absorbed energy is not as big as CRT monitors. The resulting color contrast was better than LCD. This gas plasma technology can often be encountered during musical performances or sporting events spectacular. There is giant monitor screen mounted on the corners of a particular arena. That monitor that uses gas plasma technology.

2.2 How to resolve the problem if one of these peripherals not working correctly

Computer peripherals are very susceptible to damage if the computer is not being used properly, whether intentional or unintentional. Here is how to overcome the problems faced by peripheral if it is damaged or not working

a) Peripherals can't detect the device

The first thing that often occurs in a peripheral device that is not the system detects the device. This resulted peripherals preinstalled become unusable. The solution checks whether the peripherals installed correctly or not. Second, if it is correct to install check in the system whether the supporting software has been installed or not, if not immediately installing the software.

b) CPU emits an alert beep continuously

There are several possibilities that may occur for example:

- 1) Installation Memory RAM or less that are not true, so the thing to do is double-check the installation of memory / RAM in its slot or fireplace (unplug it and plug) memory / RAM her.
- 2) Memory / RAM installed is damaged, so that one - the only way to resolve it is to replace it with a new RAM. But do not forget to always check the level of compatibility of RAM if it matches or not with our motherboard
- 3) Memory or RAM that is already installed on the computer is not compatible or in accordance with the needs of the motherboard such as the second explanation earlier.

Where if the noise issued by the computer and the short length of 1 time 2 times. This indicates that there is a problem in the Monitor or VGA installed in your motherboard. the solution is to try to check the VGA monitor cable or device that is installed in your motherboard, make sure that the installation is already in place, try to replace it with another VGA.

When the sound produced a short length of 1 time and 3 times. Usually, there is a problem on the keyboard or your mouse (input devices). try to check the condition of the cable, a USB port or PS / 2 that is behind the CPU. Make sure there are no loose or broken.

And if the conditions generating long beep 1 time and short-9 this time there is a problem on your motherboard BIOS ROM. try to check by replacing comes battery, if it can not, then you have to replace you with a new motherboard.

Well, this is last for fix the problem, if the computer you issue a short beep repeatedly is a sign there is something wrong with the voltage power on your computer. Try to check the power supply cable and wait for the temperature computer to cool and restart.

c) The monitor can't display anything

Before taking action to dismantle the monitor make sure the damage is derived from the monitor, instead of the computer, because many people generally assume the computer is turned on but not showing the pictures are immediately say if the monitor is problematic, if you have these problems try to turn on the computer and press Num Lock on the keyboard if the lights press once again live indicator lights off if the computer is a normal life, please disassemble the monitor.

Here are the steps to repair the monitor according to the type of damage:

1) No Picture or Raster.

If there are no images or raster, the problem is the monitor cable connected to the CPU and video card is not working properly, or damaged circuitry in the monitor. The solution is sure beforehand that the CPU and video card works fine. Check transistor horizontal, try turning on brightness and contrast. Start by checking the vertical and horizontal synchronization signals. If there is no signal, it will not appear raster. If there is a signal, most likely the problem lies in the high voltage regulator circuit or horizontal drive does not work with the handle it well. If one of the outputs of the power supply problem, we can fix this by checking the power supply circuit

2) Picture Not Appear

If the image does not appear indicates no image signals are detected to be raised to the monitor. The solution checks the video signal contained in the video adapter board CRT, since these components may be damaged or burnt.

3) Heater cable At CRT Open.

Each time the CRT is turned on, the heater will work. When the CRT is turned off, the heater also follows so cold. Heat change that repeatedly and for a long time will make the heater to be open and the heat seeping out of these cables.

The solution because the heater cable is composed of three types (red, green, blue) we can see the damage on the color will appear. However, this cable can not be changed unless you change the same cathode tube slake. If this cable is damaged, you practically have to replace your monitor with a new one.

4) Cathode Connected With Grid Control.

The cathode is a material made of corrosion-resistant metal, making it possible to connect to the grid control. When this occurs, the control grid will lose effectivity and will be colors that appear to be exhausted alias faded. In general, these symptoms often occur.

The first solution when it happens, nothing is impossible. It is best to prevent contact between the cathode and the control grid, by providing a barrier between the control grids with all Cathode. One or More Colors Looks Weak.

If one or more colors appear weak, then this problem generally occurs because the cathode to form a layer that inhibits the release of anionic electron to the screen. Symptoms of this kind make the cathode becomes less effective in the firing electrons, resulting in weak colors on the monitor screen. These symptoms will be seen where one of the colors produced on the screen looks weaker.

The second solution drives check your CRT video board, whether the solder on one tube lose or off. Solder bond. When a picture is too blurry, the only possibility is to replace the tube. However, usually, this kind of damage only occurs after the use long time. The phosphor in cathode tube Looks Dull. Phosphorus is a chemical compound that will bring a certain color when exposed to the high-energy electron beam. In the old monitor, we often see an image that looks dull, with color contrast can be adjusted optimally.

The solution there is no other way except to replace cathode ray tube, but the age of phosphorus can be saved by setting the brightness to the minimum level and you can put a screen saver on the monitor screen to reduce the circulation of phosphorus that is too long.

d) Printer Problems

If you are a user of the printer, you'll often find the printer you are having problems. With these problems, of course, there are some problems that often appear on the printer. Problems such as reduced print speed or discharge lines on the printer are one of the problems that often arise. With problems like this, you do not need to bring the printer to the service center. Some of the ways you can do to resolve the issue.

1) Print speed is too long

Do you ever have problems printing speed printer that can sometimes be very slow? If so, you do not need to be confused and in a hurry to bring your printer for servicing. Stay calm and try to do it this way. You can increase the speed of printing and save ink in the printing process by reducing print quality. When a decrease in print quality, automatic print speed becomes faster and the ink becomes more efficient spending. Perhaps the setting of each printer are very different, but in fact, the steps are the same. Choose your Print Properties menu and search settings to lower print quality. If you are the HP Photosmart 8450, you can set instantly by changing the settings Normal to Fast Draft. Another way that you can use to improve the print speed is that you can try to print a document from the web without using a chart, so only characters, as well as add RAM to your printer.

2) Windows always send print jobs to the wrong printer

It is uncommon to use a printer at home, but it is most common in use in the office. This is not because the office sometimes has more than one printer to print a variety of documents. Sometimes, Windows made a mistake in sending the data to be printed, so that the document you want to print is not printed using the printer in question.

Why did it happen? Windows always detect the latest printer as the printer will always be used when printing a document (the default printer). To fix this problem, you can press the Windows key on the keyboard, then select Devices and Printers menu. On the menu Printers and Faxes, right-click the printer you want, and select Set as default printer menu to make the printer as the main printer.

3) The print is thick, there are spots or horizontal lines

If the problem with the printer is the case, then the one thing we can be sure the print head is your deadlock. This problem often occurs in the type of inkjet printer. Types of inkjet printers are often experiencing problems deadlock head when rarely used or used with a low frequency of use. No confusion and doubt, because each printer has been equipped with a maintenance program (utility program). This treatment program is able to clean the ink is dry, and you can try to print a test page to determine whether the head is going according to their duties.

4) The printer runs out of ink warning, but the ink is not depleted

Sometimes the software from the printer runs out of ink warning, even though the ink is not depleted and there is still plenty of ink that can be used. Problems in these printers are often the case for inkjet printers and sometimes we are confused how to solve it. We give tips that might be dangerous but still does not hurt to try these tips. If this problem occurs on your printer, you can reset the ink cartridges. Reset the ink cartridges may make reload the printer initial settings on the printer.

5) Wireless printer print speed is very slow

Actually, this is a wireless printer problem when the printer is not met with the same connectivity. Relax, because the advantage of wireless printers is actually quite a lot, just that you need a little more effort to make the adjustment at first.

To get the best performance from a wireless printer there are some things you should consider, such as the number of users connected, the distance use of the printer and interface connections to be adjusted. Wireless printers may be more comfortable when used in the home or office, but keep in mind that wireless printers have a limited number of users, at least you have to set any user who can access this printer.

In addition to the number of users, the distance also affects the performance of the wireless printer. The farther the printer with the router or your PC, it will be the longer the data transfer occurs and the longer transfer existing data it will be the longer the print speed of the printer. Finally, the interface compatibility with the Wi-Fi router or PC printer also supports the print speed of the printer.

4. Conclusion

Peripheral is a tool that is very needed by the computer/computer system because without computer peripherals cannot stand alone. Besides Peripherals divided into three namely Input, Processing, and Output. Peripherals Input the peripherals that can enter data into the computer, Processing Peripherals is peripherals that can process data that has been inputted by Input Device and process them with the operating system and output peripherals are peripherals that can issue an information released by the processing peripherals shaped 2-dimensional or 3 dimensions.

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