Practical No:01

Aim :-

Identify and draw the motherboard layout of Intel i3 processor and understand
connection and layout of the H67 or P67chipset

Solution :-

Intel’s new Sandy Bridge architecture is certainly raising a few eyebrows since its launch back at the early part of the year, not only for the right reasons regarding the superb performance but also for the wrong reasons because of the SATA defect at launch time which has now thankfully been resolved.

In the past month a new eyebrow has risen regarding all the chipsets available for sandy bridge chips. There are no less than 4 chipsets available and the purpose of this article is to help you choose which chipset is right for your PC.

Before I start to break down each chipset, it is worth noting that performance wise they are all pretty much the same, it is just the features of each chipset vary.

H67

Introduced along with the P67 chipset at launch is the H67 chipset.

Each Socket 1155 CPU all have in built graphics, and to be able to utilise that embedded graphics card the motherboard must have a video output such as a VGA, DVI or HDMI port. All H67 motherboard have at least one video output so that the CPU GPU can be used. Whilst this is a great feature it is worth noting the integrated graphics are not much cop and only really suited to HD video playback and very basic gaming. The main advantage of this is to eliminate the need for a small sub £30 graphics card and to bring down the overall cost of a workstation PC or media Centre that does not require a dedicated graphics card. The H67 like all the other chipsets does support dedicated graphics cards too, so should the need to add a higher end graphics card arise, it is a straight forward procedure.

The downside of a H67 chipset is it supports very limited overclocking even if an unlocked ‘K’ Series CPU (i5 2500K & i7 2600K) is installed. To the overclockers, this is a completely no go chipset, but for everyone building a sandy bridge system on a budget it makes a great choice.

P67

The P67 chipset was also available at the launch of the Sandy Bridge CPU. The upside of this chipset is it supports the option of running two dedicated graphics cards in SLI or Crossfire and the option to overclock K series CPU’s.

The downside is not being able to support the integrated graphics on the CPU so a dedicated graphics card is a must. It makes it a popular choice for the enthusiast and gamer

Practical No:02

Aim :- Format, partition and install a Hard Disk Drive (HDD) and format a pen drive.

Solution :-

If you can't copy a file to your hard drive it likely isn't formatted for the operating system you are using. This is common with new drives which frequently come formatted for Windows computers in the NTFS format, which is not comparable with Mac OS. To copy files to the drive you must re-format it using a different type of formatting. This process only takes a few minutes **but will erase all files on the drive** so make sure you copy off any files you need before reformatting.

Choose your format

- **ExFAT** – Compatible with Windows and Mac Operating Systems. Good option if you use both platforms.
- **Mac OS Extended (Journaled)** – Standard MAC only format
- **NTFS** – Standard Windows only format

Format Drive Instructions

MAC Instructions

To reformat a hard drive or USB stick first open **Disk Utility**. To find it quickly, do a search for "Disk Utility" in the spotlight (magnify glass) icon on the upper right side of the screen.

Find and Open Disk Utility

Next, complete the following steps in Disk Utility

1. Select the drive you wish to format from the list.
2. Select the "Erase" tab.
3. Select the format type you wish to use and give the drive a name.
4. Click **erase**. It will take a short while to delete all the files and change the format of the disk.

PC Instructions

Use the start menu to search for and open the **disk management** utility – "Create and format hard disk partitions". Complete the following steps in Disk Management:

1. Select the drive you wish to format from the list.
2. Right click on the drive and select **Format**.

3. Enter a name for the drive in **Volume label** and select the format type in the **File system** dropdown box.

4. Click **OK**. It will take a short while to delete all the files and change the format of the disk.

Practical No:03

Aim :-

Understand layout, characteristics and functions of different components of
Hard Disk Drive (HDD) as a storage device.

Solution :-

The hard disk is a type of magnetic disk. It is also called a fixed disk because it is fixed in the system unit. A hard disk consists of several circular disks called platters sealed inside a container. The container contains a motor to rotate the disk. It also contains an access arm and a read and writes head to read and write data to the disk. The platters are used to store the data. A platter in a hard disk is coated with magnetic material.

The hard disk used in computers spin at the speed of 5400 to 15000 revolutions per minute. The speed at which the disk spins is a major factor in its overall performance. The high rotational speed allows more data to be recorded on the disk surface.

Characteristics of Hard Disk

Some important characteristics of the hard disk are as follows:

- The hard disk provides a large storage capacity. The capacity of a personal computer hard disk is from 160 GB to 2TB and more.
- It is much faster than the floppy disk.
- It is the primary media for storing data and programs.
- It is more reliable than a floppy disk.
- Data stored on the hard disk is safer than the floppy disk.

Hard disk performance

The following factors affect the performance of the hard disk:

Seek time: it is also called positioning performance. It is the time required by reading and writes head to the correct location on the disk.it is often used with rotational speed to compare the performance of hard drives. It is measured in milliseconds.

Spindle speed: it is also called transfer performance. It is the speed at which the driver transfers the data.

Latency: it is the time required by the spinning platter to bring the desired data to read and write head.

External and Removable Hard Disks

An external hard disk is a separate hard disk that is connected to the USB port on the CPU. Some hard disks can also communicate with the system unit wirelessly.

A remove able hard disk is a type of hard disk that can be connected to the system unit using the USB port or firewire port.

There are some advantages to removable hard disks as follows:

1. These can be used to transfer a large number of files from one place to another place.
2. These can be used to back up important files.
3. These can be used to store a large number of audio, and video.

Miniature hard disks

These disks are very small hard disks. These disks are available in a different size. The devices such as portable and smartphones have miniature hard disks. These

It provides more storage capacity than flash memory.

Hard disk controllers

It consists of chips and electronic circuits. It also controls the transfer of data, instructions, and information between system and system unit.

There are 4 types of hard disk interfaces for personal computer which are as follows:

1: SATA

SATA stands for serially advanced technology attachment. It used for serial signals to transfers data, instruction and information. The main advantage of SATA is that cables are thinner, longer and higher. The external hard disks can use the SATA interface that is much faster than USB.

2: EIDE

EIDE stands for Enhanced Integrated Drive Electronics. EIDE is a device interface that used signals parallelly to transfer the instructions and data etc. The approximate data transfer speed of EIDE is up to 133 Mbps.

3: SCSI

SCSI stands for Small Computer System Interface. It is used as a parallel signal and cannot support from 8 to 15 devices. SCSI can support hard disks, disk drives, printers, etc.

4: Disk cache

It is used to improve hard disk performance.it is a type of ram program instructions and data that the user is working with. When the CPU needs the information it first looks at the cache from the hard disk and if it doesn't need the information it retrieves information from the hard disk.

Difference between SATA and HDD

What is SATA?

SATA stands for Serial Advanced Technology Attachment. SATA is used for transferring data from hard disk drives to computer systems. SATA is a point of interface for communication with other storage devices like disk drives, optical drives, SSD etc. The cables of SATA are thinner and flexible.SATA has many advantages over the hard drive.

Advantage of SATA

- SATA Cables are flexible and thinner
- The transfer rate of SATA is very high than HHD.
- It is very easy to manage cables length.
- SATA manages RAID in an efficient way.
- It provides an internal-external interface.
- It is equipped with NCQ (Native Command Queuing)

SATA does not have jumper cables and due to this no fussing with Master/slave/cable select setting

Disadvantages of SATA

- Sate drives can be used only in an IDE.
- The computer can only use a cheap SATA to IDE reversible interface.
- if the cable length is too long, serial devices driven at high speed can be subject to interference

What is HDD?

In all PCs, the traditional hard disk used as a storage device. A typical hard drive contains a circular disc called a platter used to store data. The disc rotates, allowing the read-write arm to read data on the disc and write data to tithe working of platter affect the performance of hard disk like The faster the platter spins, the faster the hard drive works, which can depend on how quickly your operating system responds, and how long it takes applications installed on the drive to load and open. The Older hard drives use an IDE port to connect to the motherboard of a PC, but now many modern hard drives use a SATA connection. The new version of SATA, SATA III, is found on modern motherboards, and able to the fastest possible data transfers for an HDD.

Advantages of HDD

- It has a large capacity for storing data
- It is much faster than optical disks like DVD'S
- It has Persistent storage
- HDD easily replaced and upgraded.

Disadvantages of HDD

- It depends upon on moving parts
- The disk surface can be damaged easily.
- It consumes heavy power.
- It makes more noise.
- Its read/write speed is slower than RAM.

Comparison of HDD versus SSD

	SSD	HDD
Stands for	Solid State Drive	Hard Disk Drive
Heat, Electricity and Noise	Less rotation required. Uses less power. Less heat or noise.	More heat generation. More noise. More electricity to rotate the platters.
Speed	SSD has lower latency SSD has faster read/writes SSD has supported more input-output operations per second.	HDD supports fewer input-output operations per second. HDD has higher latency HDD has longer read/write times
Components	SSD architecture has NO moving parts.	HDD architecture has moving parts.
Defragmentation	Performance doesn't care about fragmentation. Defragmentation is not compulsory as in HDD.	The performance is not better and the main reason is disk fragmentation. We need frequent defragmentation.
Weight	Less in weight.	Heavy in weight.

Checking the health of Hard disk with HD TUNE

HD Tune is a software used to monitor the performance of the Hard Disk. This software has many features. This software can check the performance of the hard disk, provide information about the partition of the hard disk, provide the health check report of the HD. It also scans your whole disk and tells you if there is any sort of errors in your hard disk. This software is so useful if you wanna know about the temperature. I have discussed the core features of the HD tune application, now I will try to explain these features one by one will help the readers to understand how we can use this software and from where we can find what, etc.

Icons:

Before going into the detailed stage, let me tell you about some quick things we can perform through the icons available.

1. **Copy information:**

By pressing the icon I have mention number 1, you can copy all the information of any feature of your choice. For example, in the above pic If have press the number 1 icon, it will copy the details of BENCHMARK details to the clipboard and you can paste it anywhere. But first, we need to start the software by pressing the start icon then it will copy the details. We can copy the information on the rest of the features also.

2. **Screenshot:**

Number 2 icon is of the screenshot we can quickly take the screenshot of the application screen by pressing this icon, after that we can paste it in the word file or anywhere else where we can use the picture.

3. **Save Screenshot:**

This icon is also for taking a quick screenshot of the application screen but this icon will not copy the picture to the clipboard rather it will ask the location from you where you want to save the picture. We can save pictures of different times, we can compare those pictures for analyzing our hard disk.

4. **Option:**

The icon mention at number 4 is the options icon, we can change the setting of this software, we have furthermore options available in these option settings. Please find below the picture which pops up after pressing the options icon.

These were some short quick icons details we can use for our use. Now let's move to the detailed analysis of this software.

- **Benchmark:**
  After pressing the start icon, the HD tune software will start analyzing the hard disk and will show the results in graph mode as well as in the digital mode view. The transfer rate will be shown in MB per second rate. On the right side of the picture, we can see that my hard disk minimum speed is 0.7 megabytes per second, the maximum speed is 105.5 Megabytes per second and the average is 20.5 megabytes per second.

The blue line we can in the graph shows the read performance of my hard disk. We can also see the CPU utilization in percentage.

We can also change some of the settings of this benchmark analysis. Just press the options icon mention in the first picture of the document we can see settings we can change. We can change the test speed time, if we can the test to be completer quickly we can just increase the time from options but it is expected that if we make the speed at the highest level if won't give us some accurate results, so it is suggested not to make the speed at a higher level. Please see the below picture for more clearance.

How to check hard disk information with HD Tune

This part of the software provides us the information regarding the partiton of the hard disk. As you can see in below picture I have 3 done partitions of the hard disks, we can see the capacity, usage In percentage and some other information,

In supported features part of we can see which features are suported are which are not supported.

In the last part of the screen, we have the information regarding firmware version, serial number, capacity of the hard disk, my hard disk is of 1TB but I can use 930Gb approx.

how to check hard disk health with HD Tune?

This part of the application analyzes the hard disk and provides us the information about the health check of the HDD.

ID column shows which process is being measured, what's it's current value along with the worst value and the threshold hold value. Status shows the status of the process which was analyzed.

how to check hard disk bad sectors with HD Tune Error Scan?

This feature will scan the entire disk and it will let us know about the defects of the hard disk in the red blocks. If It's green entirely then it means that our hard disk has no defects, and we don't have to worry about the hard disk.

We can perform a quick scan of the disk also for that we need to mark the quick scan box icon, It will scan the entire disk in a minute and we won't have to wait, but for better results, we shouldn't do the quick scan as it may not be that much accurate.

Below is the snap after taking a quick scan of the hard disk.

- **Hard Disk:**

The part which I highlighted below picture shows the hard disk which we analyzing if there is more than one hard disk we can select the hard disk as the one we need to test.

how to check hard disk temperature with HD Tune?

The second thing is the temperature we can set the threshold for the temperature when that is crossed the font color will change, we can also set the unit in which we want to have the temperature i.e, Celsius or Fahrenheit, or even both of them as I have selected.

Practical No:04

Aim :-

Install Video Graphics Array (VGA) or Super Video Graphics Array (SVGA)
display cards.

Solution :-

Installing the Super VGA Drivers If you ordered your VXIpc-486 with the Super VGA option installed, you only need to modify the system settings according to the instructions later in this document. If the Super VGA option was not installed at the factory, follow these instructions to install the Super VGA drivers onto the VXIpc-486.

1. Insert the VXIpc-486/500 SVGA Drivers Disk 1 of 3 into drive A of the VXIpc-486.

2. Change to drive A by typing the following command at the C:\> prompt in the root directory. A:

3. From the A:\> prompt, type the following command. setup

4. Press any key when directed by the following prompt. << Press Any Key to Continue >>

5. The main menu appears. At this point you can select the appropriate graphics driver. For instance, to install the Windows 3.1 Super VGA driver, use the cursor keys to highlight the selection Windows Version 3.1, then press .

6. Once you have selected a driver, a screen appears prompting you to select a video resolution to install. The default is All Resolutions. Press to install.

7. To install the Super VGA driver, press . 8. The program prompts you to insert the remaining installation diskettes as needed. After the installation completes, press to exit the installation program.

Practical No:05

Aim :- Install and understand the working of printer.

Solution :-

Most printers are easy to set up by following the manufacturer's instructions and using the installation disc. The process is a little trickier if you're new to computing and don't have the CD or instructions any more. This beginner's guide will show you how to get your printer up and running.

Use the Manufacturer's Instructions and Installation Disc

Always default to the instructions and use the disc that came with the printer. If you've lost your printer's manual, try doing a Google search for the name and model of your printer (which you can find by looking at your printer) plus the word "manual" (e.g., "HP Deskjet 3050 manual"). Manuals Online also has a collection of printer manuals that may help.

The set up process is usually the same for most printers:

1. Install the cartridges in the printer and add paper to the tray.
2. Insert installation CD and run the printer set up application (usually "setup.exe"), which will install the printer drivers.
3. Connect your printer to the PC using the USB cable and turn it on.
4. Look in your printers folder on your computer (on Windows XP, go to "Start" then "Printers and Faxes". On Vista and WIndows 7, hit the Windows key and type "printers" into the search box to quickly get to the Printers section. For Mac, go to System Preferences and select "Print & Fax".)
5. Print a test page. In Windows, right-click on the printer and go to "Properties" then click the "Print Test Page" button. On Mac, click on the "Options & Supplies" button, then the "Utility" tab and click "Print Test Page"

If all goes well, your test page will print and your printer will now be set up.

Download Printer Drivers from the Manufacturer

If you don't have the CD or DVD from the manufacturer any more, you'll need to download it from the manufacturer's website. As with finding the printer manual, you can do a Google search for the name and model of your printer plus the word "driver" (e.g., "HP Deskjet 3050 driver").

Here are some links to the driver downloads sections of major printer manufacturers.

- HP: Select your printer category or type in the name and model in HP's search box.
- Canon: Click on "Consumer & Home Office" then "Printers & Multifunction" then your printer series and finally "Drivers & Software" beside your printer model.
- Epson: Choose your printer category then select the model, or type in the product name in Epson's search box.

Make sure you download the driver specifically for your operating system (e.g., Windows XP or Windows 7).

Then follow the instructions above, replacing the part with the installation CD and using the downloaded driver instead.

Installing a Printer Shared on Your Network

If you want to add a printer that's connected to another computer on your network, first make sure the printer is shared. In Windows, right-click on the printer name in and select "Sharing..." to get to the option to share the printer. On Mac, check the "Share this printer on the network" option in the Print & Fax section.

Then, use the "Add a printer" wizard to find the printer on your network. In Windows, go to the Printers folder (see step 4 above) and click "Add a printer". In the Add Printer wizard, click "Add a network, wireless or Bluetooth printer" and follow the prompts to select and install the printer.

Another way to add the shared printer is to go to the networked computer in Windows Explorer and right-click on the printer and select the option to add the printer for your computer.

On Mac, add a new printer in the Print & Fax section. Click on the "+" sign beneath the printers list, which will bring up a window showing available network printers. Choose the printer from the list, click "Add" and follow the rest of the wizard to install the printer.

Setting a Printer as the Default Printer

If you have more than one printer, you can set one as the default by right-clicking on the printer name and choosing "Set as default printer" in Windows, or in the Print & Fax settings section on Mac using the "Default printer" drop-down option.

Practical No:06

Aim :-

Install and understand the working of Input/output devices such as
scanner
and modem.

Solution :-

What is Scanner?

A scanner is an electrical device that reads and converts documents such as photos and pages of text into a digital signal. This changes the documents in a form that can be viewed and or modified on a computer system by using software applications. There are numerous kinds of scanners available in the market that have different resolutions.

Most scanners have a flat scanning surface as they are flatbed devices, which are mainly used for scanning magazines, photographs, and numerous documents. Furthermore, because most flatbed scanners have a cover that lifts up, they can scan books and other heavy things. A sheet-fed scanner is another type of scanner that is only able to accept paper documents. Although sheet-fed scanners have no capability of scanning books, some of their models include a feature of an automatic document feeder (ADF) that allows various pages to be scanned in sequence.

The scanner interacts with computer software applications to execute tasks. The data from the scanner is imported into these apps. Most of the scanners contain basic scanning software that makes users capable of configuring, initiating, and importing scans. Scanners are also able to import scanned images directly through various software. The software accomplishes this by scanning the computer's installed plug-ins. If a scanner plug-in for Adobe Photoshop is installed, for example, users can create new photos directly from the linked scanner.

Although some programs like OmniPage and Acrobat can identify scanned text, the scanned images can also be edited by Photoshop. It is done by a technology, which is known as optical character recognition (OCR). Scanning software that includes optical character recognition has the ability to convert scanned text documents into digital text in a form that can be viewed and modified with the help of a word processor. Some OCR programs also have the ability to capture page and text formatting that led to possible of generating electronic copies of physical documents. Scanning is also the most dependable and cost-effective method of delivering images in the world of electronic data transmission.

Types of Scanner

There are various types of scanners that are used with a computer for different functions. Such are as follows:

Flatbed Scanners

The most popular type of optical scanner is a flatbed scanner, which scans documents on a flat surface. These scanners do not require the document to be moved and are capable of capturing all of the document's elements. Flatbed scanners come in a couple of different sizes for standard paper and are effective for delicate materials, like documents that are fragile, including also vintage photographs and papers. There are also some models of scanners available that help to reduce the size of desk space. For example, you can minimize the amount of desk space required by purchasing all-in-one models, which include a scanner and a printer. A flatbed scanner looks like as shown in the below picture.

These scanners are also effective for scanning books, articles, newspapers, and even DVD cases. If you have purchased a high-resolution scanner, they are also better for scanning photos as well. Because each object to be scanned must be put onto the flatbed and processed on this scanner, it is a time-consuming option. It is a superior option for individuals who need to scan a large number of papers.

Unlike other types of scanners, the process of scanning documents of the flatbed scanner is very easy. Users merely need to place the paper on the glass and close the lid to scan the document. Additionally, some other models of flatbed scanners can include advanced features such as Bluetooth or wireless connectivity as well as automatic document feeders.

Flatbed scanners are more versatile than sheet-fed scanners because they can scan thicker objects. Furthermore, unlike drum or handheld scanners, it does not necessitate document movement, resulting in a significant reduction in the danger of document damage during scanning. It also has the disadvantage; flatbed scanners can also be expensive, and they take more space as compared to other scanners.

Sheetfed Scanners

A scanner that allows the only paper to be scanned, known as sheetfed scanners. These scanners are a little smaller than regular flatbed scanners, and they feature a lesser image resolution. They are great for scanning enormous amounts of paper. These scanners are useful if you have a limited amount of room to deal with. They are commonly used by businesses to scan office papers, but they are less commonly used by archives and libraries to scan books, and they're built specifically for scanning loose sheets of paper. These scanners have duplex capabilities, are capable of handling, have a duty cycle rating, and are fast in terms of paperweight and size (pages per minute). The sheetfed scanner is shown in the image below.

Sheetfed scanners allow you to scan multiple documents at once instead of turning pages manually after each scan. Like photocopiers, these scanners allow you to insert papers into a feeder tray and then scan one page at a time. Also, comparing other kinds of scanners, Sheetfed document scanners can be a bit more costly. But the extra investment could be beneficial if time is of concern.

Handheld Scanner

A portable scanner is a compact manual scanning device that functions similarly to a flatbed scanner. It is positioned above the thing to be scanned. You must place the document inside the scanner for flatback and sheetfed scanners to scan it. The handheld scanner, on the other hand, is dragged over the page to be scanned. It scans physical documents into their digital forms, which makes it capable of storing, modifying, forward, and emailing digitally. As flatbed scanners take up more space; therefore, when space is concerned, the handheld scanner is a mainly useful device. The below image is an example of a handheld scanner.

When utilising a portable scanner, the hand must remain firm at all times, making it a difficult operation. Even a little bit of movement of the hand can cause deformation of the scanning pictures. Typically, it is mainly used to evaluate goods in shopping stores. Also, the barcode scanner is one of the great advantages of a handheld scanner. These scanners are very popular, despite considering lower quality scanners. As compared to flatbed counterparts, they are less expensive and small in size. Additionally, they have the potential to scan items that would not fit in a flatbed scanner owing to size or placement. There are some models of handheld scanners available on the market that include additional features such as storing and sending scanned content to computers and other devices, including translations, definitions, and reading printed text aloud.

Drum Scanner

A scanner that uses a photomultiplier tube to capture the highest resolution from an image is known as a photomultiplier tube scanner. It scans with a photomultiplier tube rather than a charge-coupled device. A charge-coupled device is a gadget that is commonly seen in flatbed scanners. The photomultiplier tubes used by drum scanners are vacuum tubes that are excessively sensitive to light. A glass tube is available in the drum scanner, and

the image is mounted on that. When the scanner starts to scan the image, the beam of light moves over the image, and photomultiplier tubes (PMT) pick up its reflection and process it.

Drum scanners are noted for their high resolution, which may reach more than 10,000 dots per inch (dpi). Furthermore, due to their cost and large size, they are not more popular than flatbed scanners in the market.

Photo Scanner

A type of optical scanner that is mainly used to scan photographs. Photo scanners provide high resolution and color depth. They are smaller as compared to general-purpose scanners. Typically, a photo scanner has the ability to scan 3x5-inch or 4x6-inch photographs with higher resolution. Also, the negatives and slides can also be scanned by high-end photo scanners. Some photo scanners come with software that can help you clean and restore outdated photos. A photo scanner is shown in the image below.

Film Scanner

A film scanner is a device that scans photographic film and transfers it to a computer. It scans without the need of any printmaking intermediates. As compared to a flatbed scanner, it offers different benefits to scan in a print of any size; the photographer directly can perform certain aspects like a ratio of the original image on the film, cropping, adjusting, unmolested image on film, and more. Also, many film scanners can remove film grain and scratches and improve color reproduction from film through special software or hardware.

Portable Scanners

Portable scanners are designed in a way that can be easily carried around as they are small in size. Even some can be carried in the pockets, too, as they are as small as your PDAs. They are effective for text document scanning. They have limitations in terms of resolution. They are also available with a wireless facility. The below picture is an example of a cabled portable scanner.

These are not capable of scanning photographs as well as applications that need high-resolution scanning. Now you do not even need to desktop to get your work done because many smartphones come with a lot of applications that enable your smartphone into a pocket-sized scanner. These applications can be used for scanning pictures and editing them, scanning documents and converting them into PDFs, including scan bar codes. If you want to scan a sharp and detailed image, however, a flatbed or drum scanner is the way to go. Otherwise, you can get complete your work with the help of these productivity apps.

Advantages of scanner

There are many advantages of using a scanner; today's multifunction printers are designed in a way that includes capable scanners, allowing you to scan documents without buying anything separately. They also do not take more space. Some advantages are given below, which are included of prominent benefits.

- **Reliability:** Unlike some modes of data transmission, scanning simply involves the conversion of physical images to digital ones. In the case of scanning, the role of the end-user is limited. They can also assist in the transmission or storage of crucial information because they are not reliant on two-way communication.
- **Quality:** Scanners are capable of reproducing images with high resolution and accuracy. Scanning, as opposed to fax machines, ensures the highest possible resolution for digital photos, whereas fax machines may struggle to replicate correct details. Scanners are also more useful in the photography and engineering fields.
- **Efficiency:** Modern scanners comes with ease of use as well as convenience. And, they are designed to offer better speed and efficiency.
- **Cost-saving:** The conversion of physical files into digital forms is one of the biggest advantages of scanning. Using a scanner offers environmental benefits as well, since it helps to conserve physical space that would otherwise be utilised for storage.
- **Ease of use:** Scanners are electronic devices that are very easy to use. In modern times, the scanners that are built into multifunction printers can be used freely without instruction or worry. Users only need to select basic options like document or photograph or color versus black and white because most settings are automatically adjusted and fine-tuned. You can also send the file to an email account or a computer after scanning is completed. Furthermore, users can also save the scanned file in a different format, such as PDF documents.

Disadvantages of scanner

Although there are multiple benefits to using a scanner, they also have their disadvantages as well. If you are using a desktop scanner for your home and office, it can be a valuable tool to get complete your work. In addition, both desktop and high-volume scanners might be useful for business. Before investing in a pricey scanning system, both home users and company owners should be aware of all scanner limits. The major drawbacks are listed below:

1. Scanned Output Quality Can Vary

Depending on the number of factors, the quality of the scanned output can be different. These factors include the quality of the scanner's lens, the condition of the original documents and scanner glass, and the cleanliness of the scanner glass. If the original papers are in electronic format, a tool like Adobe Acrobat is usually the best option. This program will help out to convert these files to a PDF format, which can be read by anyone who has internet access or connection.

2. Scanner Maintenance Can be Expensive

In terms of Maintenance, the use of a scanner can be expensive as there are numerous companies that need a large amount of paperwork. To deal with this, they use high-volume scanners, which can be more expensive. Although these high-volume scanners can be useful tools, owners must replace the lamps on a regular basis to maintain them working at their best. Also, need to perform maintenance on the camera and lens as well. Thus, the maintenance cost can be much costly.

3. Scanners are Relatively Slow

Individuals and companies' users need to think about the time taken in scanning their paperwork as scanners are also relatively slow. Although automatic feeders can help to save time, it can still take more time to scan a collection of documents. Also, scanner operators need to check out all pages to make sure that each page has been imaged. While going through the automatic document feeder, it is not unusual for pages to stick together. Therefore, operators need to concentrate on these problems carefully.

What Are the Uses of Scanners?

A scanner captures images using reflected light and converts them into files that the computer can read and interpret in order to show them. Scanners can scan images in black-and-white or colour, and they come in high- and low-resolution models. The scanner can be used for a wide variety on the basis of users' requirements.

Copying

Copying is one of the most common uses of a scanner. A scanner can be used to make multiple copies of a poster, brochure, worksheet, or other document so that it can be printed as many times as necessary. It will function as if your PC were connected to a printer. In addition, in contrast to a copier, a scanner offers users the benefit of modifying their documents before they print their copies.

Research

Scanners are also played an important role in research projects. Long-term research projects, whether for school or business, nearly always need acquiring information from borrowed library books or other privately held sources. The information is necessary for later research if it is collected from these sources. As a result, it can be referred to at a later time without having to scan the original document into your computer. This enables users to return the source without the need for losing the information found in it.

Archiving

Digital archiving is another one of the popular uses of the scanner. It's a method for making and saving digital copies of hard copies of documents. Business records, personal documents, and tax paperwork, as well as family letters, are examples of these documents. It contains many copies of important papers to aid recovery in the event that the originals are lost, stolen, or destroyed.

Sharing Photos

Through the internet, scanners can also be used by users to share hard copy photos with friends and relatives. Although professional and amateur photographers commonly use digital photography with the prevalent format, many people still have old family pictures that were never recorded digitally because these photos were captured with traditional film cameras.

How is a scanner connected to the computer?

Although today's USB cable is most interface used to connect a scanner to the computer, there are many different interfaces that can be used. They are as follows:

- Firewire
- Parallel
- USB
- SCSI

Firewire connection: It is the fastest method as compared to others, which is referred to as IEEE-1394. It was developed by Apple in 1995 and has been introduced in the latest high-end scanners. It deals with scanning high-resolution images as it is a digital bus with a bandwidth of more than 400-800 Mbps. It is hot-swappable and can transfer data at a maximum speed of 800 MBPS and handle up to 63 units on the same bus.

Parallel Connection: This is the oldest and slowest method of connecting a scanner to a computer, and it's also known as the Centronics interface, Centronics port, or Centronics connection after the firm that invented it. Epson later turned it into a 25-pin (type DB-25) computer interface. It has a data transfer rate of 70 kbps and is often used to connect printers to computers.

Universal Serial Bus (USB) Connection: It is the most economical and latest method of data transfer, which stands for universal serial bus. It is a simple plug-and-play interface that connects to the scanner quickly. It also enables a computer to communicate with peripherals and other devices at speeds of up to 60 megabits per second.

Small Computer System Interface (SCSI) Connection:

A SCSI interface card, pronounced "Scuzzy," can be used to implement this strategy. A specialized SCSI card was used in older scanners. It was completed for the first time in 1982, and it can accommodate eight or sixteen devices using Wide SCSI.

Working of Flatbed Scanner

The basic difference in how old scanners and modern scanners work is the sort of image sensor they use. Modern scanners use a Charge-coupled device, whereas old scanners were used a photomultiplier tube. A CCD sensor's principal job is to capture light from a scanner and convert it into proportional electrons. The charge created will be higher if the intensity of light that hits the sensor is higher. A flatbed scanner incorporates a number of devices, including the following:

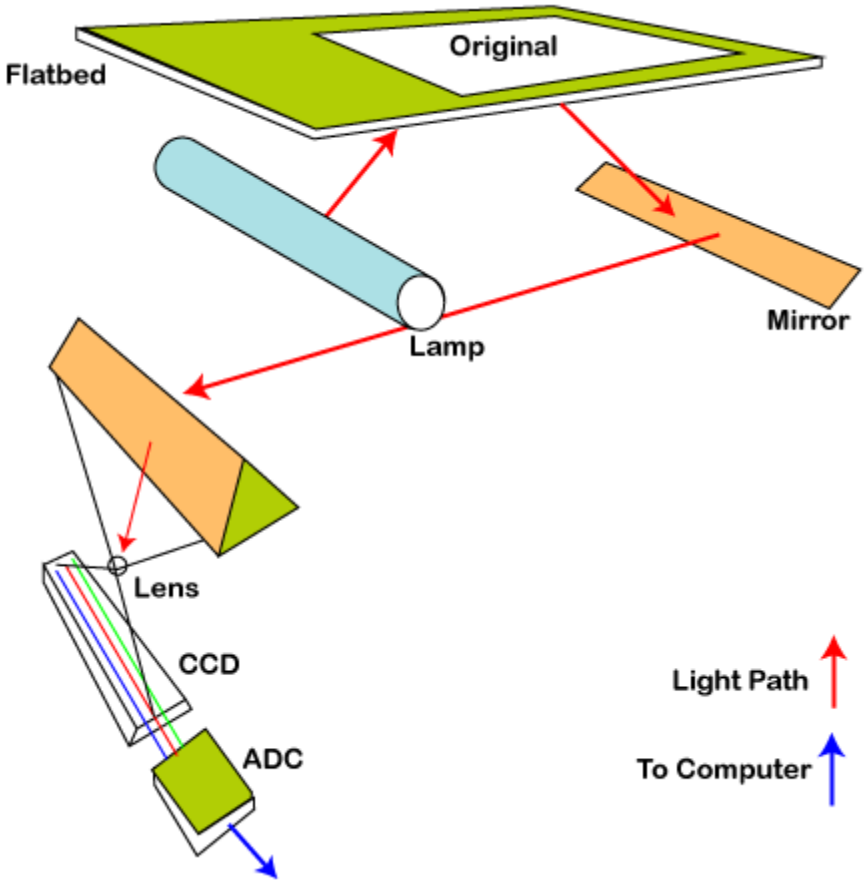
- Charge-coupled device (CCD) array
- Lens
- Power supply
- Scan head
- Stepper motor
- Glass plate
- Lamp
- Filters
- Stabilizer bar
- Belt
- Cover
- Control circuitry
- Interface ports
- Mirrors

Although, according to the manufacturer's design, the configuration of the above components is different, the basic functioning is almost the same.

A flat transparent glass bed is included in the scanner, and under it, the lenses, lamp, filters, CCD sensors, and mirrors are built. When a document is to be scanned, it is needed to place on the glass bed. A scanner also comes with a cover, which can be white or black and is used to close the scanner. The color of this cover helps to offer uniformity in the background. And, this uniformity helps to analyze the size of the document, which is to be scanned. You may not be able to use the cover if you are going to scan a page from a book due to its heavier size. Most of the scanners utilize a CCFL (cold cathode fluorescent lamp).

A stepper motor is included in the scanner, which moves the scanner head from one end to the other. The scanner head compresses CCD sponsors, mirrors, filters, and lenses. The scan head, in a constant path, moves parallel to the glass bed. A stabilizer bar will be offered to compromise it as deviation may occur in its motion. The scanning is dependent on the scan head. The scanning of the document is completed when it reaches the other end of the machine as the scan head goes from one end to the other. For some scanners, a two-way scan is performed when the scan head needs to return to its original location before doing a complete scan.

When the scan head slides under the glass bed, the lamp's light strikes the paper and is reflected back using angled mirrors. On the basis of the device's design, there may be either 2-way or 3-way mirrors. The mirrors will be angled according to the reflected image, which will be meeting the smaller surface. Finally, the picture will pass through a filter before reaching a lens, which will cause the image to be focused on CCD sensors. Then, the light is converted into electrical signals by CCD sensors. Below is given a picture that may help out to understand the working of the scanner.



The electrical signals will then be translated into picture format inside the computer. This reception may differ as a result of differences in lens and filter design. A method that is employed is three-pass scanning. In this technology, each composite colour is communicated between the lens and the CCD sensors with each movement of the scan

head from one end to the other. The scanner software converts the three filtered images into one single-color image after the three composite colours are scanned.

Another method is also used, which is a single-pass scanning method. In this method, the image will be split into three pieces, which image is captured by the lens. Any of the color composite filters help to pass these pieces. Then, CCD sensors receive the output. Thus, with the help of a scanner, the single-color image will be combined.

In some recent scanners, **the CCD** sensor has been replaced by the contact image sensor **(CIS).** Although, as compared to the CCD scanner, this method is not more costly, it offers lower quality and resolution of the image.

When was the first scanner created?

Modern scanners are modeled around early telephotography and fax input devices. The pantelegraph, invented by Giovanni Caselli, was an early type of facsimile machine that transmitted over standard telegraph lines. It was the apparatus that was employed for the first time in practical service in the 1860s. It employed electromagnets to drive and synchronize pendulum movement and scanned and reproduced images from afar. It was capable of transmitting drawings up to 150 by 100 mm in size, including signatures and handwriting.

By scanning with the help of a photocell and transmitting over standard phone lines, Édouard Belin's Belinograph of 1913 laid the groundwork for the AT&T Wirephoto service. From the 1920s through the mid-1990s, a Belino, a service similar to a wirephoto, was utilized in Europe. It was used by news organisations and consisted of a rotating drum with a single photodetector. It rotated at 60 to 120 rotations per minute on average. They send a linear analogue AM signal to receptors, which may print the proportionate intensity on special paper using conventional phone lines. Color photographs were delivered in three distinct RGB filtered images due to transmission expenses.

The first scanners were invented in the 1860s. However, at the National Bureau of Standards in the United States, a guy named Russell Kirsch developed a scanner that is still in use today. For the first time, this gadget scanned a photograph of Kirsch's son. This black and white graphic had a resolution of 176 pixels on each side and sized only 5x5 cm.

Why is a scanner an input device?

A computer scanner, often known as a digitizer, is a type of input device. It takes data from a document or a photograph and converts it to digital data. A scanner, like a printer (which is an output device), cannot receive data from the computer and can only give data to the computer. Therefore, it is known as an input device.

What are the parameters of a Scanner?

- One of the main parameters of the scanner is the resolution of the image. According to resolution and cost, each scanner varies. The resolution may be represented with the help of samples per inch and also pixels per inch. Manufacturers typically define the scanner's interpolated resolution rather than the scanner's exact optical resolution. The latest flatbed scanners have interpolated resolutions of 5400 ppi and even 12,000 ppi for drums.
- Interpolated resolution expresses to increase the resolution of the picture through scanning software. This is done with the help of increasing additional pixels between the document or image that one actually scanned by the CCD array. But only as an average of the adjacent pixels can be added to these extra pixels. For example, the manufacturer declared the interpolated resolution of a scanner is 600×300 dpi and has a true resolution of 300×300 dpi. Thus, with the help of software, an extra pixel is added in each row of the CCD sensor. The size of the file increases when the resolution increases. Lossy compression techniques such as JPEG can help to reduce the file size. This method offers the benefit of reducing the quality of the picture to a small amount.
- At least, a scanner contains a resolution of approx. 300×300 dots per inch (dpi). It improves with the help of the stepper motor's precision, as well as an increase in the number of CCD sensors row by row.

- When the scanner's lamp brightness is increased in conjunction with the use of high-quality optics, the image clarity improves. Another setting is the density range, which aids scanning in reproducing small shadow and brightness details.
- Another parameter is colour depth, which refers to the amount of colours in colour scanning. The scanner is capable of reproducing it. Despite the fact that scanners with 30 and 36 bits are available on the market, a 24 bit/pixel scanner will suffice.

Practical No:07

Aim :- Find faults related to Monitor.

Solution :-

Symptoms

The troubleshooting steps in this article help resolve common video or display issues with a Dell monitor connected to a desktop or laptop. Some symptoms that indicate an LCD display or video issue include:

- A blank or black screen
- Color fade
- Fuzzy, blurry, distorted, or stretched image
- Geometric distortion
- Light leakage or light bleeding
- Flickering
- Horizontal or vertical lines
- Light or dark patches
- Dead or bright pixel

To learn more, expand and follow each troubleshooting step below.

To learn how to troubleshoot LCD display or video issue on a Dell laptop, see the Dell knowledge base article How to Troubleshoot Display or Video Issues on a Dell Laptop.

Cause

The LCD display or video issue can occur due to outdated drivers such as BIOS, video card (GPU), chipset, and monitor driver, video, or graphic settings in the operating system, faulty video cable, outdated operating system updates.

Run the automated tools in SupportAssist to ensure that the drivers and BIOS are up to date and your computer is optimized

Dell recommends ensuring that the device drivers and BIOS are up to date using the SupportAssist application for optimal video performance and to help resolve common video-related issues.

To run the SupportAssist application, perform the following steps.

1. Press and hold the Windows key ( ), and then press the q key.
2. In the search box type *SupportAssist*.
3. Select SupportAssist (App) in the list of results.

NOTE: When SupportAssist does not show up in the search results, go to the SupportAssist for PCs and tablets page for information about downloading and installing SupportAssist.

4. Touch or click **Start Now** to run the tests.

   NOTE: You can touch or click the **down arrow** and then run the individual test. Dell recommends running a full computer test.

5. SupportAssist runs the tests one by one and provides the results and suggested actions.

Optimize your System using SupportAssist

Duration: 00:32
Closed captions: Available in multiple languages. Click the Closed Caption icon and select the language that you want.

To learn how to manually download and install a device driver such as Chipset, Video card (GPU), and Monitor driver (if required, most monitor drivers are delivered automatically through Windows Update) on your Dell computer, see the Dell knowledge base article How to Download and Install Dell Drivers.

To learn how to download and update the BIOS on your Dell computer, see the Dell knowledge base Dell BIOS Updates.

NOTE: Dell recommends restarting the computer after installing the driver updates.

Update your System Setup (BIOS)

Duration: 02:06
Closed captions: Available in multiple languages. Click the Closed Caption icon and select the language that you want.

If the issue persists, go to the next step.

Verify display or video issue on a known-good monitor

It is essential to verify if the problem is inherent with the monitor, video card (GPU) or video settings on your computer. A straightforward way to identify this is to connect the computer to a known-good external monitor or TV and ensure that the display cable (S-video, VGA, DVI, HDMI, DisplayPort, USB-C, or Thunderbolt 3) is firmly connected to the video port on the computer and the monitor.

To learn more about connecting your Dell computer to a monitor or TV, see the Dell knowledge base article How to Connect a Monitor to a PC.

If the issue persists on the other monitor it may be due to the video card (GPU) or video settings and not the monitor, go to the step Verify display or video issue in Windows Safe Mode. Else go to the next step.

Check for physical damage

Performance issues may occur if there is any type of damage that is caused to the display cables or the LCD screen. LCD screen may show symptoms like LCD screen stops working, work intermittently, color mismatch, flickering, display horizontal or vertical lines if there is damage to the display cables or the LCD screen.

If you do notice a physical damage, contact Dell Technical Support to learn more about repair options that are available in your region. If there is no damage, go to the next step.

Run hardware diagnostics on the Dell monitor

Dell monitors provide a self-test feature check (SFTC) and an integrated self-test (BIST) or integrated diagnostic (BID) tool that helps determine if the screen abnormality you are experiencing is an inherent problem with the Dell monitor or with the video card (GPU) and computer settings.

When you notice screen abnormalities like flickering, distortion, clarity issues, fuzzy or blurry image, horizontal or vertical lines, color fade, it is a good practice to isolate the monitor by running a diagnostic test on the Dell monitor.

To learn more about running a diagnostic test on your Dell monitor, see the Dell knowledge base article How to Run a Diagnostic Test on a Dell Monitor.

NOTE: Self-test feature check (SFTC) helps check if the Dell monitor is working normally as a stand-alone device. To check for screen abnormalities such as flickering, distortion, clarity issues, fuzzy or blurry image, horizontal or vertical lines, color fade, and so on, run the integrated self-test (BIST) or integrated diagnostic (BID) test.

NOTE: In certain Dell monitors, the integrated self-test (BIST) or integrated diagnostics (BID) can be run only when one or more video cables are unplugged and the Dell monitor is in self-test mode.

Reset the monitor to factory settings

Dell monitors can be reset to factory default settings using the on-screen display (OSD) menu. This can be accessed using the buttons or joystick that is available on the Dell monitor. For step-by-step instructions to reset a Dell monitor to factory default settings, see the User Guide of your Dell monitor at the Dell Manuals website.

1. Browse to Dell Manuals website.
2. Identify your Dell monitor.
    1. Enter the model number or Service Tag of the monitor, and then click **Search**.
    2. Or, click **Browse all products**, select **Electronics & Accessories**, **Monitors & Accessories**, and select your Dell monitor from the catalog.
3. Under the **Documentation** tab, scroll to the **Manuals and Documents** section and click **View PDF** next to the monitors User Guide.
4. In the User Guide, under the **Operating the Monitor** section, see the **Using the On-Screen Display (OSD) Menu**.
5. Follow the menu computer to find and use the **Factory Reset** option in the **On-Screen Display Menu**.

Verify display or video issue in Windows Safe Mode

Windows Safe Mode allows us to identify if the issue is related to the operating system, video settings, device drivers, or a third-party software. To learn more about how to boot your Dell computer into Safe Mode, see the Dell knowledge base article that is listed below based on the operating system that is installed on your computer:

- Microsoft Windows 10
- Microsoft Windows 8 or 8.1
- Microsoft Windows 7

If the issue persists in safe mode of Microsoft Windows, go to the next step. Else, go to Perform a Windows System Restore.

How to boot in Safe Mode with Networking

Duration: 0:50
Closed captions: English only

Download and install Microsoft Windows updates

Windows updates can support your Windows operating system in many ways. Windows updates can solve specific problems, provide protection from malicious attacks, or even add new features to the operating system.

How to run Windows Updates on Microsoft Windows 10?

1. Right-click **Start** and click **Settings**.
2. In the Settings panel, click **Update and Security**.
3. In the left panel, select **Windows Update**.
4. On the right panel, click **Check for updates**.
5. Restart the personal computer after downloading and installing the updates.

Change the video or display settings and adjust the brightness

Display settings like brightness, refresh rate, resolution, and power management may affect the performance of your Dell monitor. Changing the display settings can help resolve several types of video issues.

To learn more about changing the brightness, refresh rate and resolution on a Dell computer, see the Dell knowledge base article How to Change the Video Settings or Improve Text in Windows 10.

Touchscreen troubleshooting (*touch-capable monitors only*)

If you find that the Dell touch-capable monitor is unresponsive to touch or touch works intermittently, you can try some common troubleshooting steps to help fix the issue.

To learn more about troubleshooting touch screen issues, see the Dell knowledge base article How to Troubleshoot Touch Screen or Touch Panel Issues.

NOTE: Before you begin troubleshooting touch screen issues, verify that your Dell monitor is touch-capable.

NOTE: Connect the USB upstream cable from your Dell touch-capable monitor to a working USB port on the computer. This is essential for the touch feature to work.

Run a Video Stress Test using Dell SupportAssist

Stress Test can thoroughly diagnose the video card (GPU) on your computer and report any potential hardware problem. Running a stress test on your computer can verify if the hardware components are stable and thus reliable.

To run a stress test on the video card:

1. Go to video card stress test powered by SupportAssist.
2. If SupportAssist app is not available on the Dell computer, you will be prompted to install the SupportAssist app.
3. Follow the onscreen instructions to install SupportAssist and complete the stress test.
4. If the test fails, contact Dell Technical Support.

Dell SupportAssist Diagnostic Tests (Official Dell Tech Support on YouTube)

Duration: 01:30
Closed captions: English only

Perform a Windows System Restore

System Restore is an integrated Windows tool that is designed to protect and repair the operating system. When something goes wrong with your computer, System Restore must be used before restoring the computer to factory defaults or reinstalling the operating system.

Select the operating system that is installed on your computer to find more information about how to perform System Restore:

- Microsoft Windows 10

- Microsoft Windows 8 or 8.1
- Microsoft Windows 7

Restore your computer to factory defaults

If the diagnostic tests on the Dell monitor and video card (GPU) passed, it is most definitely an issue that is related to software that is installed on your computer. If the above troubleshooting steps did not resolve the issue, to restore your computer to factory defaults as a last resort.

Dell computers are built with a small amount of hard disk space that is reserved for reinstalling your operating system. This method is the easiest way to restore your computer to factory condition. The restoration process deletes all user data from the computer, back up all your files before starting this process.

Select the operating system that is installed on your computer to find more information about how to restore your Dell computer to factory defaults:

- Microsoft Windows 10
- Microsoft Windows 8 or 8.1
- Microsoft Windows 7

Practical No:08

Aim :- Find faults related to CPU.

Solution :-

Understanding CPU (Processor) Failure Symptoms

The Central Processing Unit (CPU), the brain of a computer, controls all the actions that take place inside your computer. Also known as a processor, the CPU has small transistors, and even a minor issue with any of the transistors can cause the main processor to fail. Bad capacitors, usage for an extended time, voltage issues all can cause CPU failure. The good news is that CPUs give you signs that trouble is coming. Diagnosing these signs and fixing the issue on time can enhance the processor's life for long years. Let's hear out our Perth IT helpdesk on what are the signs of CPU failure and how to decode them.

What are the Signs of CPU Failure

Consider taking immediate action whenever you come across these symptoms, or you can end up with a dead CPU. Some of the CPU failure symptoms you need to be aware of are –

Computer Freezes

One of the most common signs of CPU failure is the random freezing of your computer, usually after just logging into the operating system. The system won't respond to any of your instructions. The mouse freezes on the screen and any attempt to use the keyboard will result in a series of short beeps. Restarting the system may not solve the issue. This may also indicate that the motherboards are in critical condition.

Booting Issues

Normally you will hear a beep sound when your computer is powered on. However, in case of a CPU failure, there can be booting issues such as – blank screens, no beep after the boot and no response on pressing keyboard keys or clicking the mouse. If you are comfortable opening up the computer, check for the motherboard LEDs. If they are lighting up, but the system refuses to boot, then it's a clear sign of processor failure.

Computer Automatically Turns Off

If your computer has been working for a long time, the processor can get heated up. In such a condition, the motherboard shuts down the PC to cool down the processor. By shutting down, the processor is saved from getting permanently damaged. If you are experiencing a frequent shutdown issue, it can be due to CPU issues. Drop in your computer at our **24-hour computer repair centre** in Belmont to identify and repair CPU issues.

A Blue Screen with Error Code

Referred to as a Blue Screen of Death (BSoD), this can happen due to multiple factors, including RAM, motherboard and CPU failures. If your screen displays the error code 0x00000, then it is an indication of processor failure.

Beep alerts

Each time the computer is booted, it checks whether all the components of the PC are functioning properly. This is called the POST test. If you hear irregular beep sounds, a failing CPU can be one of the reasons. A CPU issue will usually cause a series of 5-7 beeps. However, a trained technician will be able to help you better at decoding the beeps.

External Appearances of Damage

A computer can show signs of CPU damage even without booting it up. Overheating can cause damages that may be visible externally. Any burnt marks on and around the CPU socket indicates that the CPU has undergone extreme overheating. In such situations, a replacement may be the only option.

Understanding what the symptoms of CPU failure are can help to prevent extensive damage. However, computers can sometimes throw symptoms at you that need trained eyes and ears to be decoded. If you ever find yourself in such a situation, you can reach us at **helpdesk@computingaustralia.group** for **24-hour helpdesk** service.

Jargon Buster

Motherboard – is a printed circuit board that connects all key components and allows communication between them for smooth system operation.
Error codes – are codes displayed on a blue screen during unsuccessful booting. Each error code signifies a particular problem.
POST test – Power On Self Test is a series of test run by a computer at the start of the booting process to check if all hardware is working properly.

Practical No:09

Aim :- A Find faults related to Hard disk.

Solution :-

Search

- Product Quicklinks
- Quick Download
- Quick Buy

30 day money back guarantee

- PRODUCTS
- DOWNLOADS
- ORDER
- DEVELOPERS
- SUPPORT CENTER
- COMPANY
- PARTNERS

7 Common Problems on Hard Disk Drives (HDDs)

Leave a Comment Data Recovery, Outlook Data Recovery April 17, 2017

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  - *As we all know, hard disk drive is vulnerable. In order to safeguard your drive data, you should make efforts to protect the drive. This article will expose the 7 common problems on hard disk drives.*

    In my previous article – "4 Most Common Physical Damages on Hard Disk Drives (HDDs)", you can learn the 4 top physical failures on HDDs. In addition to them, there are a lot of other annoying troubles on HDDs, which can also lead to drive corruption and serious data loss, in face of which, you will attempt data recovery like PST recovery and so on. Although sometimes recovery can be successful, it is still frustrating to suffer data loss. Thus, in order to better prevent it, you had better figure out them firstly. So here we will unveil the 7 other common issues on HDDs.

7 Common Problems

1. Deleted files

Accidental file deletion is one of the most common problems on HDDs, which can lead to drive data loss in a flash. Moreover, it's since users can frequently make such mistakes that in some degree it is inevitable. However, in order to prevent it, the unique way is to build a good habit of repeatedly confirming before deleting any files.

2. Damaged file structure

If file structure gets corrupted, of course the file will get inaccessible too. This can result from various reasons, like virus infection, human improper handlings like incorrect closing Outlook leading to the corruption of PST file structure.

3. File system corruption

Not only file is prone to corruption, but also file system can get compromised. At worst, if file system gets corrupted, all the data stored based on the system will be damaged surely. In such cases, you'll be required to fix the file system, which can be quite complex.

4. Formatted hard drive

Formatting drive can be beneficial and fix many drive issues at times. But if you perform the formatting mistakenly, such as formatting the wrong drive or not backing up your data before formatting or formatting course get interrupted, it will cause serious logical troubles on HDDs.

5. Bad sectors

The hard disk drive is divided into several tracks, which are further divided into multiple sectors, where your data are stored. Thus, if the sectors become invalid for some reason, such as sector mark error or address information error, the data on the bad sectors will be unavailable too.

6. Corrupt track servo information

This means that the servo information of the specific physical tracks is corrupted or invalid for some reasons. In this case, the physical tracks will be unable to be accessed. Of course, you will fail to access the data located on these tracks.

7. System information area error

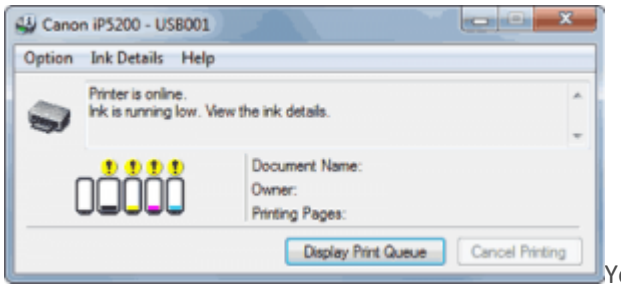
So-called system information area is a system reserved area inside a hard drive. It is separated into many modules to store multiple drive default configurations, parameters, settings and other system information. Therefore, if some errors occur to this area, drive will not work as normal. Of course, you will not be able to access the drive data.

Practical No:10

Aim :- Find faults related to Printer and other peripherals.

Solution :-

Common Printer Problem 1: Printer Tells Me to Stop Printing Because Ink Is Low



You can’t have used a printer without facing the common printer problem of low ink warnings. Every single printer in the world today had become so advanced that it comes with an early warning system for low ink levels.

Basically, the ***low ink warning*** is designed to give you enough time to get a replacement cartridge because if the ink runs out completely, it will cause your printer to get damaged.

Such damage can range from being either irreversible or extremely expensive to fix. Still, you need to keep in mind the fact that Original Equipment Manufacturers (OEMs) overcompensate in their bid to prevent this damage.

What this means is that your low ink warnings actually start showing up really early. So, if you just received such a warning, then it's possible that your cartridges still have 50 percent of their original capacity.

Inkjet Wholesale's recommendation is to order a new cartridge as soon as this common printer problem rears its head. However, it all depends on how often you print. If you print frequently, then you should order the replacements immediately but if you don't then you can afford to wait a little while longer.

Common Printer Problem 2: Paper Jams or Multiple Sheets Are Drawn

 This is debatably the most common printer problem. It's actually a two headed problem. The first is that paper gets stuck in your printer's rollers while the second is that the rollers of your printer draw two or more sheets at the same time.

If you face lots of paper jams, then it's likely that you haven't been aligning your reams properly or loading up the tray with too many sheets. If the sheets aren't aligned properly i.e. some sheets are jutting out, then you will face this problem.

If your printer is drawing too many sheets at one go, then the problem is with the quality of the paper. Poor quality sheets tend to stick together. So, it might be a good idea to get better quality paper next time.

Common Printer Problem 3: Printer Is Too Slow When I Give Commands from My Mobile Device

A lot of the common printer problems of today are associated with the use of mobile devices like smartphones and tablets. The most common printer problem within this category is people not knowing how to send a print command from their mobile devices in the first place. Fortunately, we've dealt with this common printer problem in a ***separate post*** for you.

Another common printer problem associated with the use of mobile devices is that the printer is too slow when the command to print comes from a mobile device. You need to understand that if your printer is

slower than its normal speed of printing while handling mobile print tasks, then the problem is most probably connectivity related.

What this means is that your printer is working slowly with mobile printing tasks because either it or the mobile isn't connected to the wireless network properly. This problem can be fixed by various ways such as bring the router closer and installing a repeater.

Common Printer Problem 4: The Printer Is Too Slow

Some printers are like a Ferrari while others are like a bullock cart and it is the latter that can be bull-headed. Still, what if your printer isn't even operating at its normal speed? In other words, what if your printer is slower than it is rated to be?

There are obviously reasons why this is happening, which means that there are solutions to this common printer problem. The first thing you should try if your printer is behaving like a stubborn mule and moving slowly is to switch from high quality print settings to lower quality print settings.

Another way to resolve this common printer problem is to uncheck the automatic duplex setting. Duplex settings will always take time because they require the printer to flip each paper that is being printed.

Common Printer Problem 5: A Print Image Is Being Superseded Over Another

Suppose you take a printout with your printer but when it comes to the next print, you see a slight image of the same print being visible in the next print.

This common printer problem is referred to as ghosting in the printing industry.

If this is happening with your printer, then it's likely that your printer has lived a long and healthy life.

It also means that it now needs a facelift. Specifically speaking, this common printer problem occurs when the ink kit of the printer or its drum is getting old.

The best way to fix this problem is to have your printer services wherein the offending component will be replaced.

Common Printer Problem 6: The Print Quality Has Gone Down the Drain

Easily one of the most common printer problems faced by people in the country today, poor print quality has the potential to make anyone pull their hair out. This common printer problem can take two roles. The first is poor text print quality and the other is poor photo print quality.

Regardless of which one you are facing, the very first thing you need to check is if the printer is setup for the best quality output in the settings or not. Both photo printing and text printing have their highest quality settings that you should look at.

Following this, you should also check the quality of paper you are using. A lot of people choose third party paper to save money. This can often result in drop in quality of the final print.

Similarly, if you're using third party cartridges, they may be the culprits for poor print quality. If one of your cartridges is approaching empty, then that could cause colour deviations and faded prints too.

In the case of laser printers, this common printer problem could be a result of the toner powder in the cartridge settling down too much. So, the solution is for you to take the cartridge out and shake it around.

For inkjet printers, you may want to try cleaning the nozzles and printer head through its internal mechanism as well before trying other solutions to ***clean the clogged printer head***.

Common Printer Problem 7: It's Costing Too Much

At the end of the day, every printer owner has this problem which is why we consider it to be the most common printer problem since OEMs started selling printers at throwaway prices.

The cartridges are priced very highly nowadays and this can really push your operation costs through the roof. The answer obviously is to give OEM cartridges a wide birth.

However, that doesn't mean you resort to refilled cartridges because they are never reliable. It means that you find a reliable supplier and buy generic or compatible cartridges.

Needless to say, we refer you to us because we provide 100 percent lifetime guarantee on our compatible cartridges, ink or toner. Moreover, by buying from us, you can save up to 70 percent of the money you would otherwise spend on OEM cartridges.

Practical No:11

Aim :- Assemble PC and install an operating system.

Solution :-

How to build your own PC in 8 steps

Building a PC - Table of Contents

What do I need to build a PC?

Building a PC is like putting together a large puzzle. What tools do you absolutely need to have before you start? Aside from the regular tools (screwdriver, pliers, etc.), the key to success lies in selecting the right PC components and operating system. So what components do you need?

- Processor and potentially CPU heatsink
- Motherboard
- System memory
- Graphics card
- SSD or HDD drives
- Power supply
- Computer case and cooler

How to select the components for your PC

Choosing the right components is crucial and we strongly recommend that you carefully consider various processor and graphics card setups. If you want to build a gaming PC for example, you can check our special Alza GameBox systems to see what gaming systems often look like. Once you receive your components, you can start building. If you are building your first PC, make sure to clear at least one afternoon for the task, so you don’t have to hurry. Just take your time and be careful. As the old saying goes, better safe than sorry.

PC assembly step by step

- Place the processor in the socket
- Insert the system memory
- Install the CPU heatsink
- Connect the dedicated graphics card
- Connect the SSD
- Plug the power cables from the PSU into the motherboard, graphics card, SSD and cooler
- Install the components in the PC case

Getting started

There are many ways how to build a PC, but let’s make one thing clear: We do not recommend mounting the components straight into the case. If you don’t have much experience with this, it’s better to first put the key computer components together and check if everything works as it should. It’s more time-consuming and you're essentially building the computer twice, but in the end, it can make things easier for you—you won’t have to disassemble the whole PC system if anything goes wrong. Mounted components are easier to check and adjust if they are outside the case. Cardboard makes for a good work surface, so you can start by unfolding the box your motherboard came in and placing the motherboard on it. Before that, make sure unpack all the necessary accessories, including the manual.

Assembling the PC components.

Step 1: Install the processor in the socket

How to plug an Intel processor in the motherboard socket | How to build a PC - step 1

This is probably the hardest part of the whole assembly process. The socket pins are very sensitive and you have to make sure you don’t damage them in any way (don’t bend, pull or break them under any circumstances). A damaged socket is very difficult to repair and you will lose the warranty on the motherboard. First, open the socket using the locking mechanism (see the motherboard manual for details). If you look at the socket and processor more closely, you will find that both components have matching notches.

These notches ensure that that there is only one possible way to install the processor correctly. Note that there is a small arrow on both the processor and the socket. The arrow tells you how you should orient the processor in the socket. The processor must be inserted gently, so that it snaps into the socket on your first attempt. Don’t even think about adjusting it inside the socket; if you feel it doesn’t fit, simply remove it and try again.

Some motherboards have a CPU installation tool, most commonly found on Z170 and Z270 chipsets. Once the processor has been properly inserted, relatch the socket cover and you are done.

Assembling the PC components.

Step 2: Install the CPU heatsink

The first part of the PC assembly process is done. Now you should install the CPU heatsink. Follow the instructions as specified in the manual. With Intel 6th and 7th gen processors, be extra careful to make sure all the bolts are tightened evenly. Take your time, pay close attention to what you are doing, and tighten the bolts in a crosswise pattern. These processors have very thin printed connections and tend to bend at the corners. Once you're done, it's time for the Step 3 - installing the RAM.

Assembling the PC components.

Step 3: Install memory modules in the motherboard

The installation process may vary depending on the motherboard type and model. Some motherboards have only two memory slots, others four. With dual-slot motherboards, you just fill them all; with four-slot motherboards, you have to mount at least two RAM sticks to ensure dual-channel operation. Check the manual for details.

In the figure, you see the correct procedure for installing a RAM module in the DIMM slot. The module must fit into the slot securely; sometimes you may even need to apply a slight force to snap the toggle in place (see figure). In the next step, we'll show you how to install GPUs.

Assembling the PC components.

Step 4: Install the graphics card

The next step in building your PC is to install the graphics card. Most modern graphics cards are rather hefty, so you need to hold up the card during installation. In most cases, you use the first PCI-E 16x slot to mount the card—it’s the one closest to the CPU socket. If you have any questions or doubts, check the motherboard manual. Next, it's time to plug in an SSD or HDD.

Assembling the PC components.

Step 5: Connect the SSD/HDD drive

This figure shows the proper way to plug a HDD into the SATA connectors. The same procedure applies to optical drives as well.

Assembling the PC components.

Step 6: Connect the PSU to the motherboard

To see if everything is working as it should, plug in the motherboard power supply (24-pin ATX) and the processor power supply (8-pin EPS). The corresponding LED on the bottom of the board should light up. Some boards require only 4-pin EPS, others 8 + 4 EPS or even 2X8 16-pin EPS.

Assembling the PC components.

Step 7: Test the assembled PC components

If your motherboard doesn’t have a dedicated "Power" or "Start" switch, you have to connect two PWRSW contacts to turn the board on. It’s not that hard, so just use a screwdriver. If you get a picture and can get into UEFI, then everything is probably fine. At this stage, you can either install the operating system or mount the components in the PC case and leave the OS installation for later. It’s up to you.

Assembling the PC components.

Step 8: Install the motherboard in the PC case with the components aleady mounted

Our "How to build a PC" guide is nearing the end and this step is the last time we have to work with the hardware. Now disconnect the power supply, SSD, and graphics card, and you can begin installing the motherboard in your PC case. Some coolers also allow you to install the motherboard with the cooler already mounted.

Start by installing the motherboard I/O panel | How to build a PC - step 8

First, you have to install the so-called I/O shield, which is the back panel of the motherboard and comes included with other motherboard accessories.

Assembling the PC components - installing the motherboard in the case.

How to install the motherboard in the PC case | How to build a PC - step 8

Insert the motherboard into the case by snapping the rear part (the one with the connectors) into the I/O panel. Make sure you align it correctly and check if the holes on the motherboard fit with the standoff locations on the case.

Carefully tighten all the screws to firmly attach the motherboard to the case.

Cable management | How to build a PC - step 8

We recommend reading the manual that came with your PC case, as it will give you some idea how cable management is supposed to work in this particular case. Cable management and the way power supply cables are laid out has a significant impact on the overall design and airflow efficiency. The manual will also tell you where and how you should place the disks (SSD/HDD) or optical drives, which is important, because every PC case model is different.

Plugging in the cables (connectors, switches, etc.) | How to build a PC - step 8

Once you have the motherboard installed, plug in the rest of the connectors, such as USB, AUDIO, FAN connectors, and PC case cabling.

The figure shows how you should connect the USB connectors to the case. Keep in mind that every motherboard has a slightly different connector layout, so always follow the instructions as specified in the manual included in the packaging. Now your PC is pretty much complete; the only thing left are the peripherals such as a keyboard, mouse and monitor.

Connecting the peripherals (keyboard, mouse, monitor, etc.) | How to build a PC - step 8

Once everything is plugged in, you can attach both side panels. Then connect the power cord to the power supply and connect the LAN cable

to the rear I/O panel equipped with the keyboard, mouse, headphone, or audio connectors. If you don’t have a dedicated graphics card, connect the monitor to the appropriate connector (HDMI/DisplayPort) on the I/O panel; otherwise, connect it to the graphics card.

Now your PC is complete and ready for work. Turn it on and enjoy.