EXPERIMENT-1.2

Student Name: **UID:**

Branch: BE-CSE **Section:**

Semester: 2nd

Objective: Write down the steps to install a window on a newly assembled personal computer. Include the Scanned Images of all the steps in the worksheet.

Material Required: Plain A-4 size Sheet, Pen.

Steps to install Windows:

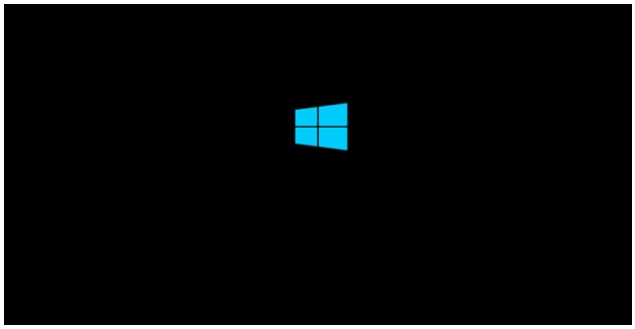
You can perform a clean installation of Windows 8.1 if you purchased Windows 8.1 on DVD or purchased a download of Windows 8.1. A clean installation typically means formatting your hard drive before installing Windows, so make sure that you have backed up your files and created recovery disc by MSI Burn Recovery tool before proceeding.

To perform a clean installation using a DVD or USB flash drive

If you bought Windows 8.1 on DVD or created a DVD or USB flash drive when you purchased and downloaded Windows 8.1, follow these steps to perform a clean installation.

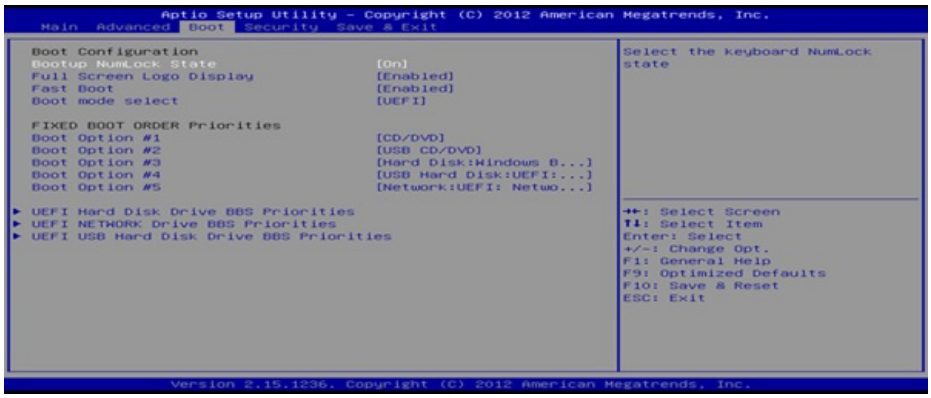
1. Turn on your PC so that Windows starts normally, insert the Windows 8.1 DVD or USB flash drive, and then shut down your PC.

2. Restart your PC. Your laptop will boot from Windows 8.1 DVD or USB flash drive. Press any key when prompted by message “Press any key to boot from CD or DVD…”.



If you restart your PC and your current version of Windows starts, you might have to change the boot order in your PC's BIOS settings so that your PC boots from the media.

To change the boot order, you'll generally press Delete key immediately after you turn on your PC. When you get into BIOS Setup Menu, please select Boot tab and set your media as the first boot order



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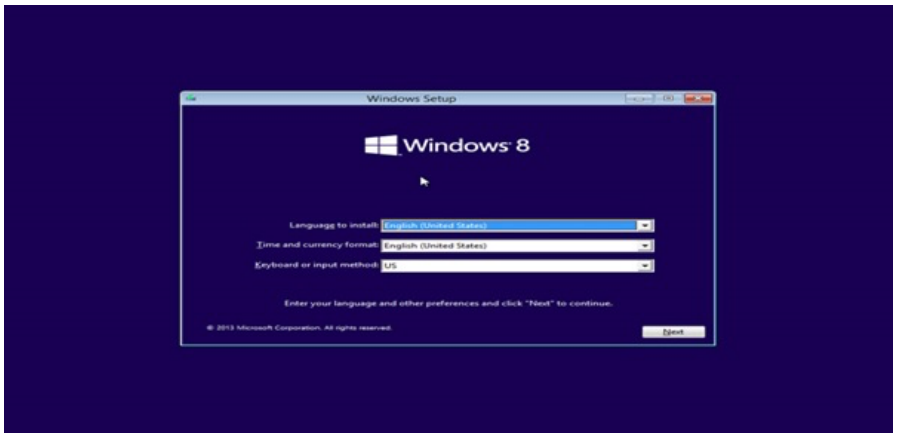
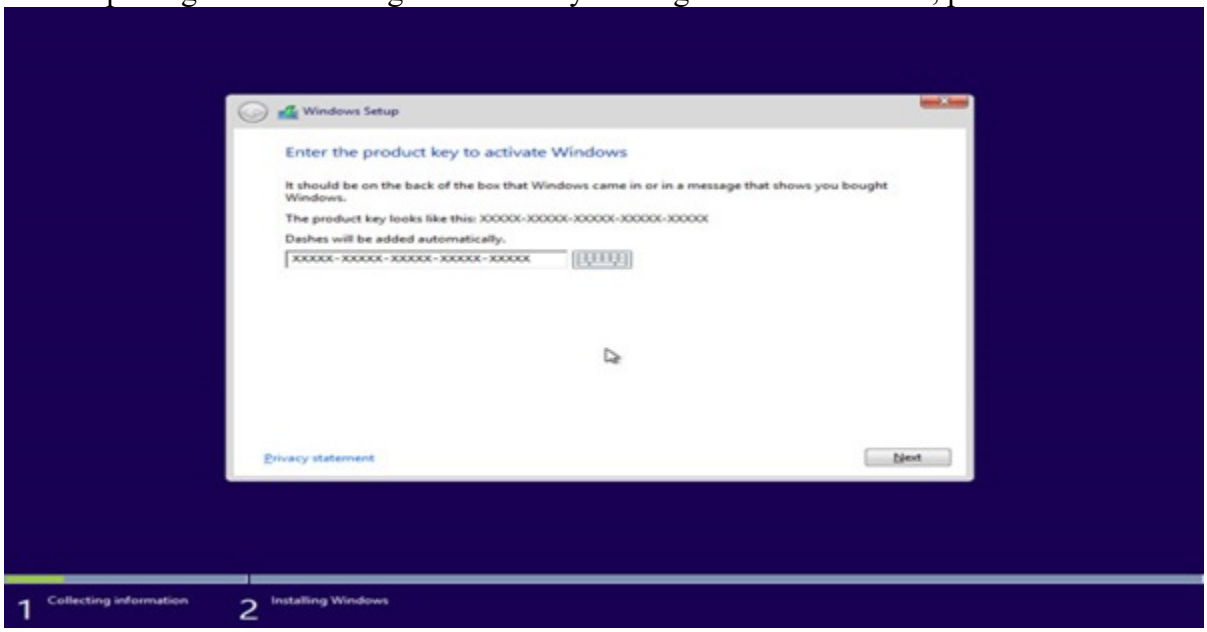
Move to Save & Exit tab, select [Save Changes and Reset] and leave BIOS Setup Menu.

3. Please setup language along with other preferences and click [Next].



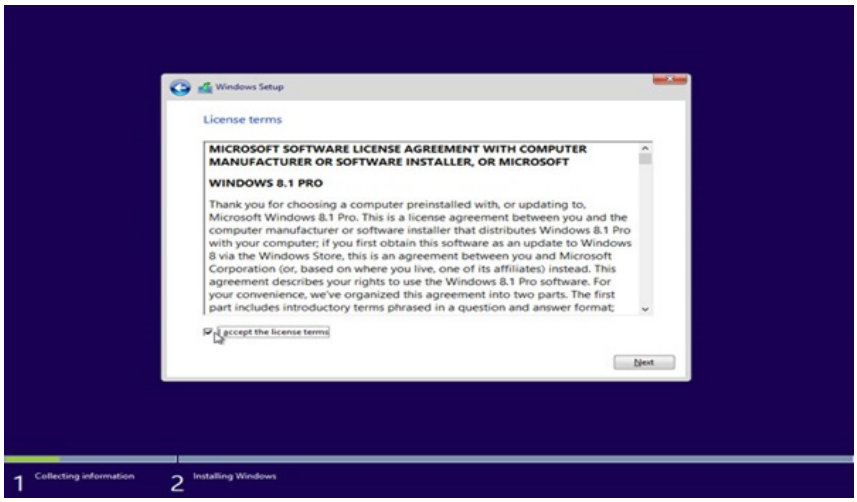
4. Click [Install now] to start the process.

5. Enter the product key to activate Windows 8.1 and click [Next]. (You should find the key in the disc package or in a message that shows you bought Windows. If not, please contact disc

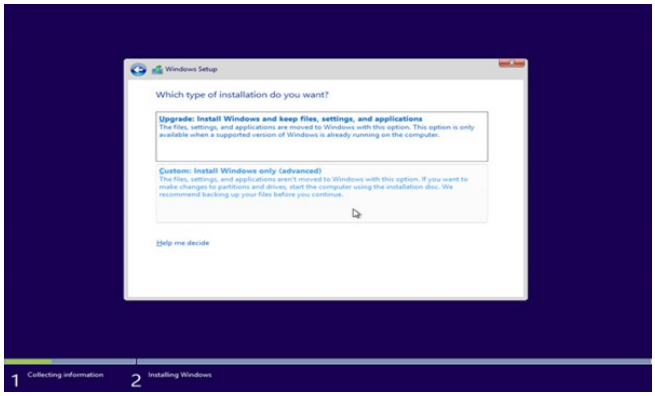


provider.)

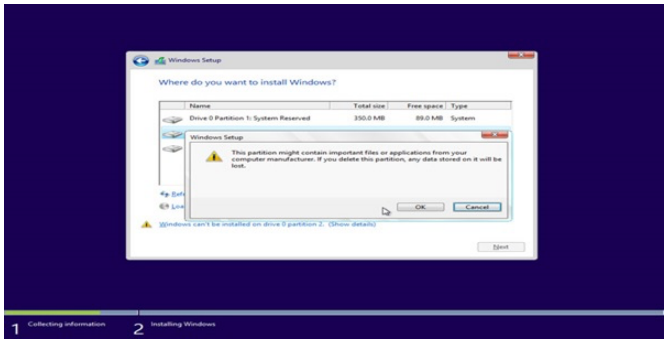
6. Accept the license terms and click [Next].



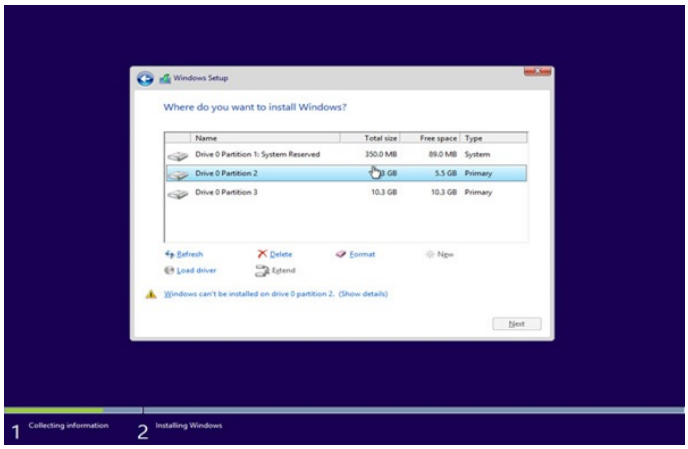
7. Choose the installation type you want. MSI recommend [Custom: Install Windows only (advanced)].



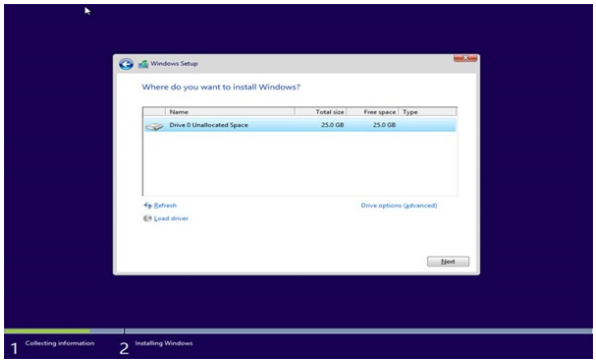
8. Delete all existing partitions by selecting one partition at a time and then click [Delete] link.



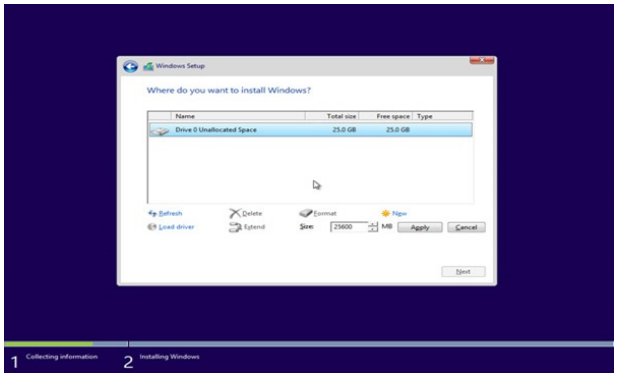
9. Press [OK] when prompted by the message.



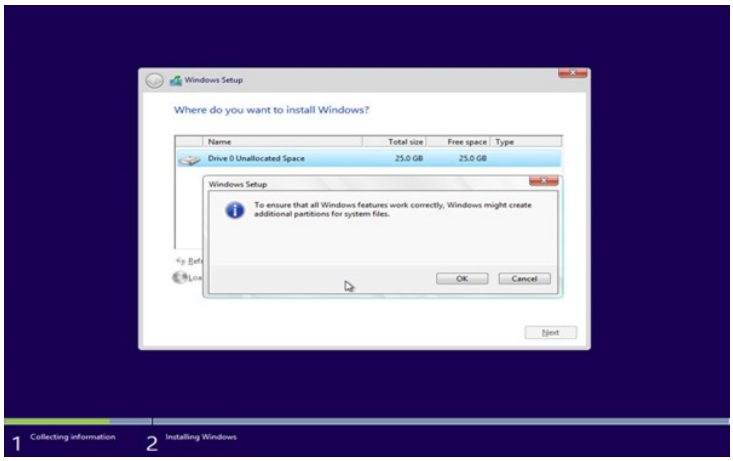
10. All the space on the hard drive is now unallocated. Please create partitions by clicking [Drive options (advanced)].



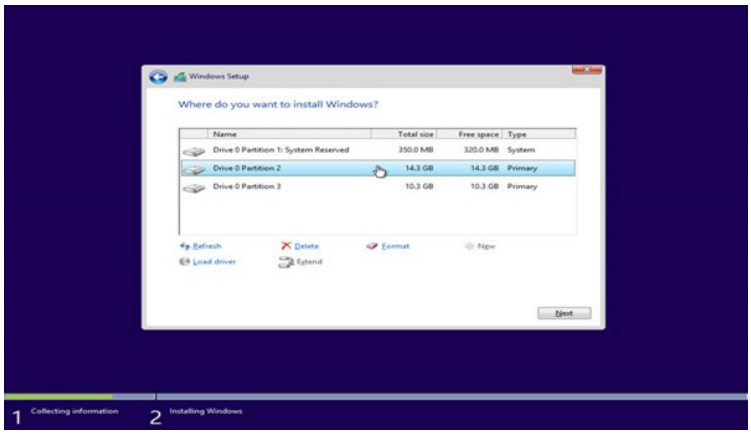
11. Click [New] and decide a proper partition size for the partition.



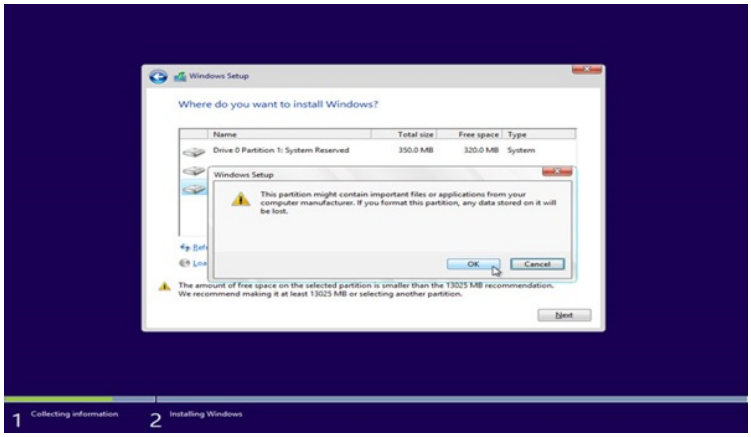
12. Windows will create another partition to store system files in. Please press [OK]. Follow step 10 to create partitions for the rest of unallocated space if required.



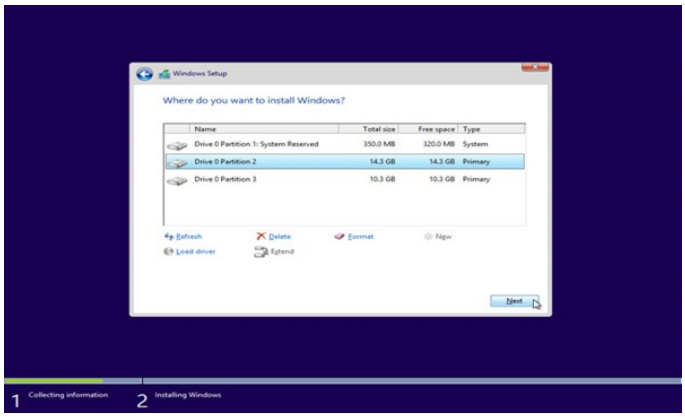
13. Select one partition and click [Format] link to perform partition format.



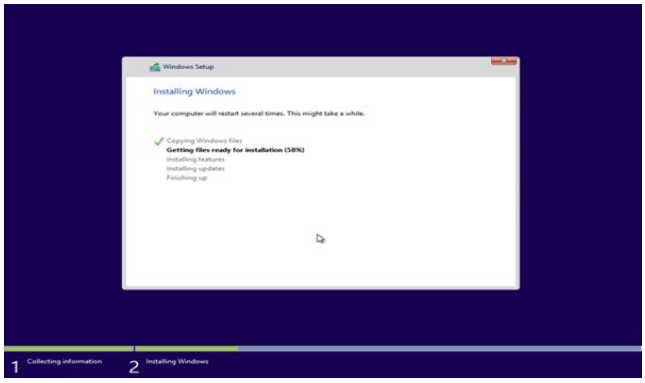
14. You will be prompted to confirm the process. Press [OK]. Format other partitions as well except the one reserved for system files.



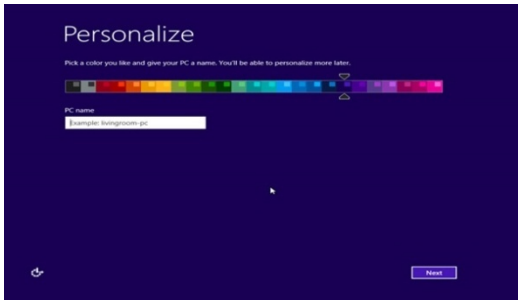
15. Select the partition where you want to install Windows to and press [Next].



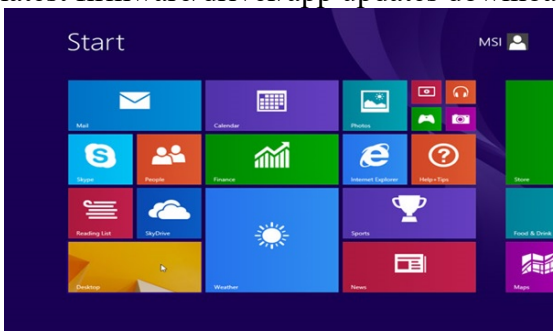
16. Windows 8.1 is being installed and it will require several reboots during the process.



17. Please follow onscreen instructions to personalize computer settings.



18. Windows 8.1 is now installed successfully. Please perform Windows update and install the latest firmware/driver/app updates downloaded from MSI website.



Experiment-II (a)

Objective: Write down the steps to assemble/disassemble the Personal Computer.

Material Required: Plain A-4 size Sheet, Pen.

Disassembling:

Disassembling means parting the different components of a computer from the system unit. To perform disassembling, the tasks goes like unplugging, unscrewing and then lifting the adapters, drives & other components.

STEPS TO DISASSEMBLE A PC:

1. Unplug every cable:

Wear a grounding strap or touch an unpainted metal part of the computer to discharge any static electricity. If you walk across a carpet at any point, touch an unpainted metal part of the computer again to discharge the built up static electricity. The first thing we have to do, is unplug every cable that's plugged in to computer. That includes the following cables:

• Power

• USB

• Mouse

• Keyboard

• Internet

• Ethernet

• Modem

• AM\FM Antenna

• Cable TV, etc.

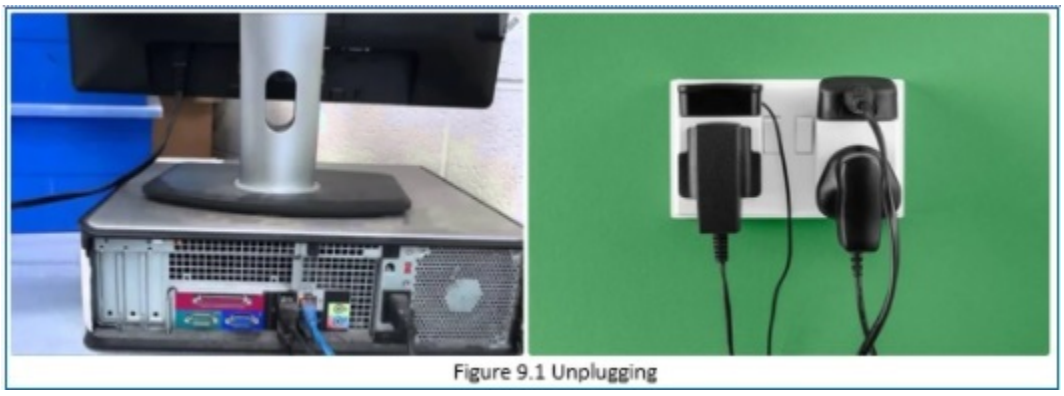


Figure 9.1 Unplugging

1. Remove the Cover:The standard way of removing tower cases used to be to undo the screws on the back of the case, slide the cover back about an inch and lift it off. The screwdrivers as per the type of screw are required to do the task.

Figure 9.2 Remove Cabinet case

3.Remove the adapter cards:

Make sure if the card has any cables or wires that might be attached and decide if it would be easier to remove them before or after you remove the card. Remove the screw, if any, which holds the card in place. Grab the card by its edges, front and back, and gently rock it lengthwise to release it.

4.Remove the power supply:

The power supply is attached into tower cabinet at the top back end of the tower. Make sure the power connector is detached from the switchboard. Start removing the power connector connected to motherboard including CPU fan power connector, cabinet fan, the front panel of cabinet power buttons and all the remaining drives if not detached yet. Now remove the screws of SMPS from the back of the cabinet and the SMPS can be detached from the tower cabinet.

Figure 9.3 Remove Power Supply

The Power Supply is a large metal box located in the top left corner.

The power supply supplies power to every component in a computer, therefore it has the most wires out of every other component in the computer. The first thing you do is unplug every wire coming from the power supply. The list below is everything that you have to disconnect:

• Motherboard (very large connector/plug)

• CD/DVD drive[s] power

• Internal hard drive power

• Portable hard drive slot power

Once everything is unplugged, unscrew the screws holding the power supply in place, on the back of the computer. Next, push the power supply from the outside, then lift it out.

Keep the screws/bolt aside in a bag so when you assembling it back, it will be easier.

5.Remove the drives:

Removing drives is easier. There can be possibly three types of drives present in your computer system, Hard disk drive, CD/DVD/Blue-ray drives, floppy disk drives (almost absolute now a day). They usually have a power connector and a data cable attached from the device to a controller card or a connector on the motherboard. CD/DVD/Blue Ray drive may have an analog cable connected to the sound card for direct audio output. The power may be attached using one of two connectors, a Molex connector or a Berg connector for the drive. The Molex connector may require to be wiggled slightly from side to side and apply gentle pressure outwards. The Berg connector may just pull out or it may have a small tab which has to be lifted with a screwdriver.

Figure 9.4 Remove drives

Now pull data cables off from the drive as well as motherboard connector. The hard disk drive and CD/DVD drives have two types of data cables. IDE and SATA cables. The IDE cables need better care while being removed as it may cause the damage to drive connector pins. Gently wiggle the cable sideways and remove it. The SATA cables can be removed easily by pressing the tab and pulling the connector straight back.

Now remove the screws and slide the drive out the back of the bay.

6.Remove the system FAN:

Most computers have two fans: the system fan, the one blowing air into the computer, and the CPU fan, the one blowing air onto the CPU heat sink.

The system fan is located at the back side of the computer, the side with all the component plugins. First, unplug the fan from the motherboard. You can find the plug by following the wire from the fan. It should be labelled "SYS_FAN1". Next, you will have to unscrew the fan from the outside.

You should now be able to lift the fan out of the PC.

Keep the screws/bolt aside in a bag so when you assembling it back, it will be easier.

Figure 9.5 Remove System FAN

7.Remove the memory module:

Memory modules are mounted on the motherboard as the chips that can be damaged by manual force if applied improperly. Be careful and handle the chip only by the edges. SIMMs and DIMMs are removed in a different way:

1. SIMM - gently push back the metal tabs while holding the SIMM chips in the socket. Tilt the SIMM chip away from the tabs until a 45% angle. It will now lift out of the socket. Put SIMM in a safe place.

2. DIMM- There are plastic tabs on the end of the DIMM sockets. Press the tabs down and away from the socket. The DIMM will lift slightly. Now grab it by the edges and place it safely. Do not let the chips get dust at all.

Figure 9.6 Remove RAM chips

8.Remove the motherboard:

Before removing all the connectors from the motherboard, make sure u memorize the connectors for assembling the computer if required, as that may require connecting the connectors at its place.

Remove the screws from the back of the motherboard and you will be able to detach it from the cabinet. Now remove the CPU fan from the motherboard. The heat sink will be visible now which can be removed by the pulling the tab upward. Finally, the processor is visible now, which can be removed by the plastic tab which can be pulled back one stretching it side way.

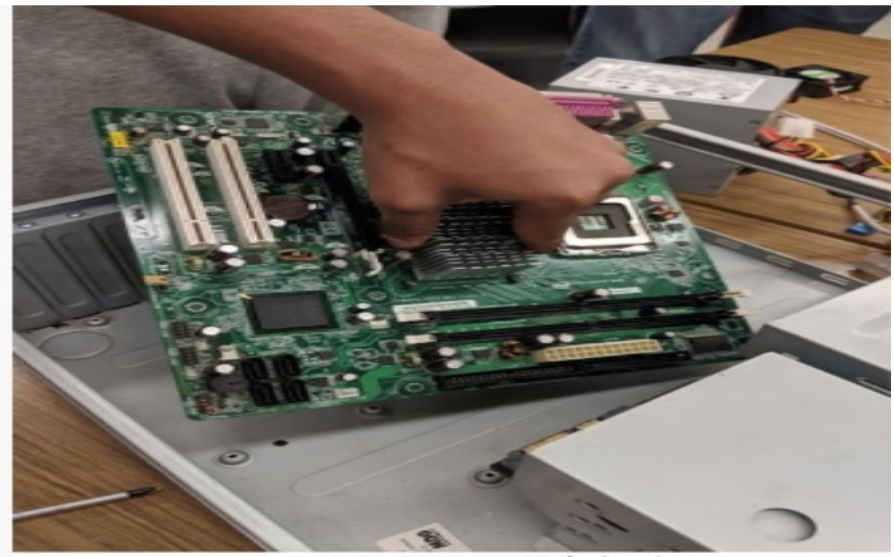


Figure 9.7 Remove Motherboard

ASSEMBLING A PC

1. INSTALL POWERSUPPLY

Power supply installation steps include the following:

· Insert the power supply into the case

· Align the holes in the power supply with the holes in the case

· Secure the power supply to the case using the proper screws

1. ATTACH CPU ONMOTHERBOARD

· Align the CPU so that the Connection 1 indicator is lined up with Pin 1 on the CPU socket.

· Place the CPU gently into the socket.

· Close the CPU load plate and secure it by closing the load lever and moving it under the load lever retention tab.

CAUTION:

· When handling a CPU, do not touch the CPU contacts.

· The CPU is secured to the socket on the motherboard with a locking assembly.

· The CPU and motherboard are sensitive to electrostatic discharge

· Use a grounded anti-static mat and wear an anti-static wrist strap.

1. THERMAL COMPOUND

Thermal compound helps to keep the CPU cool. To install a used CPU,

· Clean the base of the heat sink with isopropyl alcohol to remove the old thermal compound.

· Follow manufacturer's recommendations about applying the thermal compound.

· Apply a small amount of thermal compound to the CPU and spread it evenly.

1. HEAT SINK/FANASSEMBLY

The Heat Sink/Fan Assembly is a two-part cooling device.

· The heat sink draws heat away from the CPU.

· The fan moves the heat away from the heat sink.

· The heat sink/fan assembly usually has a 3-pin power connector.

· Line up the heat sink/fan assembly retainers to the holes on the motherboard.

· Place the heat sink/fan assembly onto the CPU socket, being careful not to pinch the CPU fan wires.

· Tighten the heat sink/fan assembly retainers to secure the assembly in place.

· Connect the heat sink/fan assembly power cable to the header on the motherboard.

1. INSTALL RAM MEMORYMODULES

· RAM provides temporary data storage for the CPU while the computer is operating.

· RAM should be installed in the motherboard before the motherboard is placed in the computer case.

RAM installation steps:

· Align the notches on the RAM module to the keys in the slot and press down until the side tabs click into place.

· Make sure that the side tabs have locked the RAM module and visually check for exposed contacts.

1. INSTALL THEMOTHERBOARD

The motherboard is now ready to install in the computer case.

CAUTION:

· Plastic and metal standoffs are used to mount the motherboard and to prevent it from touching the metal portions of the case.

· Install only the standoffs that align with the holes in the motherboard.

· Installing any additional standoffs may prevent the motherboard from being seated properly in the computer case.

STEPS TO INSTALL THE MOTHERBOARD:

· Install standoffs in the computer case.

· Align the I/O connectors on the back of the motherboard with the openings in the back of the case.

· Align the screw holes of the motherboard with the standoffs.

· Insert all of the motherboard screws.

· Tighten all of the motherboard screws.

1. INSTALL INTERNAL DRIVES

· Drives that are installed in internal bays are called internal drives.

· A hard disk drive (HDD) is an example of an internal drive.

HDD installation steps:

· Position the HDD so that it aligns with the 3.5-inch drive bay.

· Insert the HDD into the drive bay so that the screw holes in the drive line up with the screw holes in the case.

· Secure the HDD to the case using the proper screws.

Drives, such as optical drives (CD and DVD) and floppy drives, are installed in drive bays that are accessed from the

front of the case.

· Optical drives and floppy drives store data on removable media.

· Drives in external bays allow access to the media without opening the case.

1. Installing OPTICALDrive:

An optical drive is a storage device that reads and writes information to CDs or DVDs.

· Position the optical drive to align with the 5.25 inch drive bay.

· Insert the optical drive into the drive bay so that the optical drive screw holes align with the screw holes in the case.

· Secure the optical drive to the case using the proper screws.

1. INSTALL ADAPTERCARDS

Adapter cards are installed to add functionality to a computer. Adapter cards must be compatible with the expansion slot.

Some adapter cards:

· PCIe x1 NIC

· PCI Wireless NIC

· PCIe x16 video adapter card

Installing Network Interface Card (NIC):

A NIC enables a computer to connect to a network. NICs use PCI and PCIe expansion slots on the motherboard.

· Align the NIC to the appropriate slot on the motherboard.

· Press down gently on the NIC until the card is seated.

· Secure the NIC PC mounting bracket to the case with the appropriate screw.

1. CONNECT INTERNAL CABLES

Power cables are used to distribute electricity from the power supply to the motherboard and other components.

· Data cables transmit data between the motherboard and storage devices, such as hard drives.

· Additional cables connect the buttons and link lights on the front of the computer case to the motherboard.

Power Connector Installation Steps:

· Plug the SATA power connector into the HDD.

· Plug the Molex power connector into the optical drive.

· Plug the 4-pin Berg power connector into the FDD.

· Connect the 3-pin fan power connector into the appropriate fan header on the motherboard, according to the motherboard manual.

· Plug the additional cables from the case into the appropriate connectors according to the motherboard manual.

SATA Cable:

The SATA data cable has a 7-pin connector.

· One end of the cable is connected to the motherboard.

· The other end is connected to any drive that has a SATA data connector.

Connect External Cables:

· Attach the monitor cable to the video port.

· Secure the cable by tightening the screws on the connector.

· Plug the keyboard cable into the PS/2 keyboard port.

· Plug the mouse cable into the PS/2 mouse port.

· Plug the USB cable into a USB port.

· Plug the network cable into the network port.

· Connect the wireless antenna to the antenna connector.

· Plug the power cable into the power supply.

1. **BOOT COMPUTER**

When the computer is booted, the basic input/output system (BIOS) will perform a power-on self test (POST) to check on all of the internal components.

· A special key or combination of keys on the keyboard is used to enter the BIOS setup program.

· The BIOS setup program displays information about all of the components in the computer.

Identify Beep Codes for any hardware connection error

· POST checks to see that all of the hardware in the computer is operating correctly.

· If a device is malfunctioning, an error or a beep code alerts the technician that there is a problem.

· Typically, a single beep denotes that the computer is functioning properly.

· If there is a hardware problem, the computer may emit a series of beeps.

· Each BIOS manufacturer uses different codes to indicate hardware problems.

· Consult the motherboard documentation to view beep codes for your computer.