UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

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Subject : Technology and Information Systems (SECP1513)

Section : 08

Assignment : Step by step PC Assembly

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PART A – List at least FOUR tools needed to assemble a PC.

1. Screwdriver

Screwdriver is used to tighten the screw or uninstall screw. Do not use too much pressure because it may break the motherboard. Just screw tight enough for the board to be secure. Do not use an electric screwdriver.

2. Antistatic wrist strap

Antistatic wrist strap is used to reduces inhibits electrostatic discharge. It is best to apply when plug up and unplug the power connector off motherboard. It prevent the user from accumulating static charge that could damage any electronic assembly or component that are using.

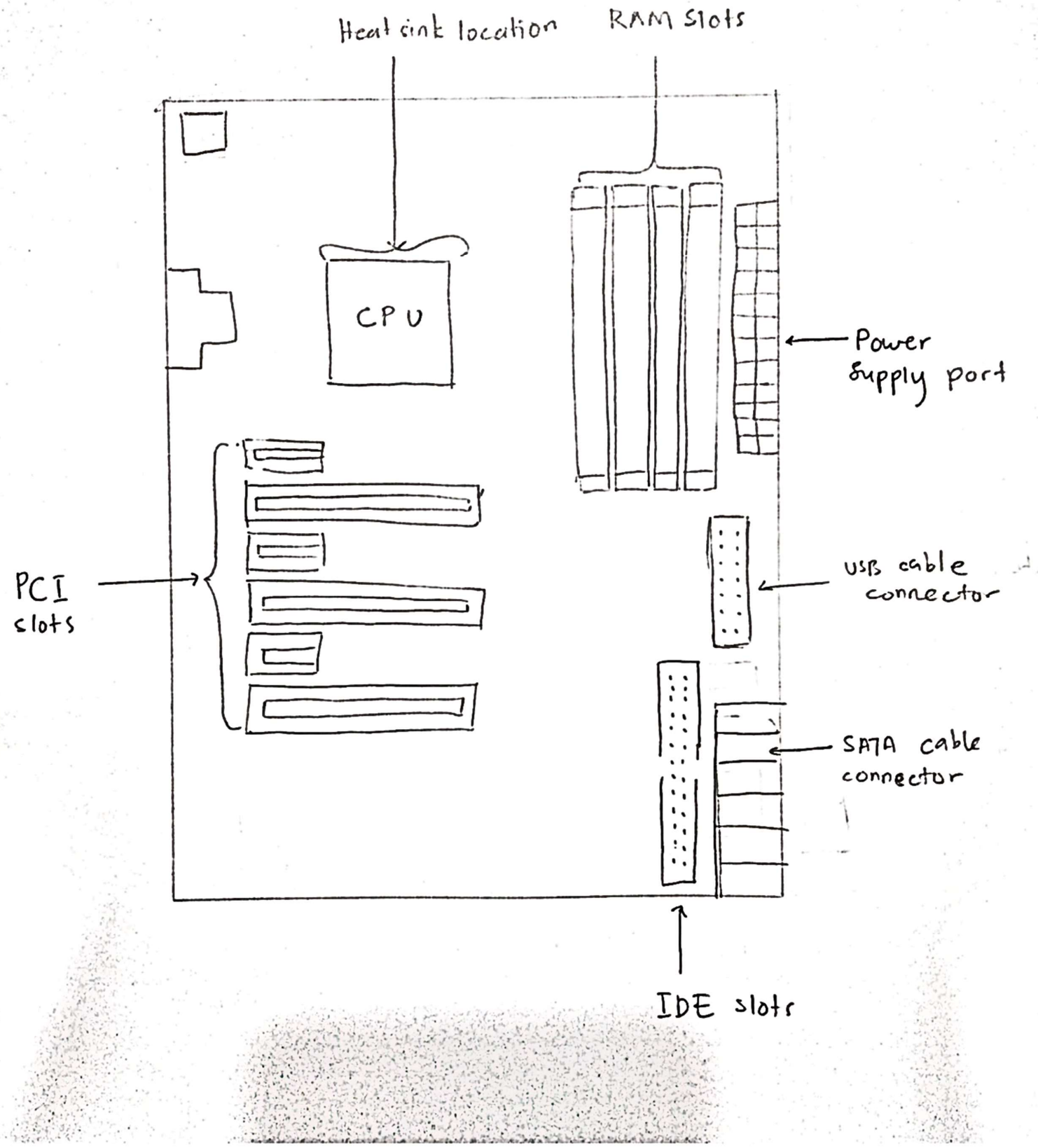
3. Antistatic gloves

   Antistatic gloves is used while handling electronics applications because static charges can destroy sensitive electronics parts. When working in electronics assembly, gloves are worn with the intention of keeping oils from skin off the circuit board.

4. Standoff screws

   Standoff screws is used to raise a printed-circuit board above a surface. Insulating standoffs keep two parts from touching each other to prevent electrical shorts. This prevents the motherboard from shorting out and helps cooling. Some motherboard will come with standoffs while others do not.

PART B – 1.0 SKETCH



PART B – 2.0 Keyword and Function

1.Graphic card

-for height quality of 3D graphic

2 type

-Integrated: Graphics built in the motherboard where no add in card use

-Discrete : Add in extra component of graphic card to the motherboard

- discrete graphics card is usually needed to speed up the image processing time.

2. USB cable

-USB stand for “universal serial bus”

-USB cable are “hot plunggable” means can connect and disconnect the cable to the computer without fear the computer will freeze.

-USB cable are fast transferring up to 480 Mbps.

-USB cable carry power so it can recharge other device and connect other devices.

3.IDE cable

-IDE(Integrated Drives Electronic) is a standard type of connection for a storage devices In the computer.

-IDE cable use to connect hard drives and optical drives to each other and the motherboard.

4.CPU/processor

-Contained on a single chip called a microprocessor

-The brain of the computer

-2 basic component of CPU

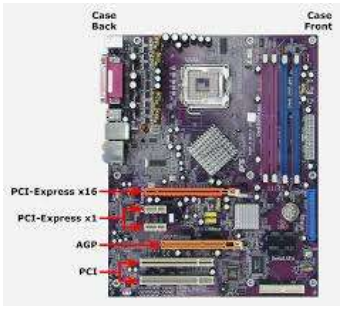
-Control unit

Tell Computer system to carry out program's instruction

-Arithmetic-logic unit

Perform arithmetic and logical operations.

5.Slot



-Provide a connection point for specialized cards or circuit boards

-provide expansion of capabilities of the computer

6.Power supply

-Convert AC to DC

-Provide DC voltage to the motherboard, adapters, and peripheral devices

-Provide cooling and facilitate air flow through the case

7.HEAT SINK

-heat sink is a component that increases the heat flow away from a hot device.

-heat sinks cool down processor after it run multiple programs at once

-The heat sink has a **thermal conductor** that carries heat away from the CPU into fins that provide a large surface area for the heat to dissipate throughout the rest of the computer

8.RAM

- random standard memory(RAM) hold program and data that the CPU currently running.

-volatile content are lost when the computer is turn off.

-Additional RAM can be added using an expansion module called a DIMM (Dual in-line memory module)

9.Hard disk

-hard disk is a non-volatile data storage device

-hard disk allow user to interact and use the computer.

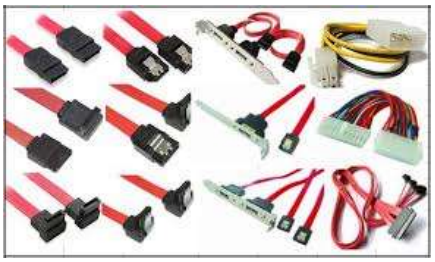
-Needed for installation software programme.

10.CD ROM

-Compact disk-read only memory an optical disk onto which data has been written via a laser, can store everything

-CD-ROM drive uses to read the CD.

11.SATA cable



-Serial Advanced Technology Attachment (**SATA**) or **Serial ATA cables** are used to connect devices in computer **cable** assemblies, such as storage devices.

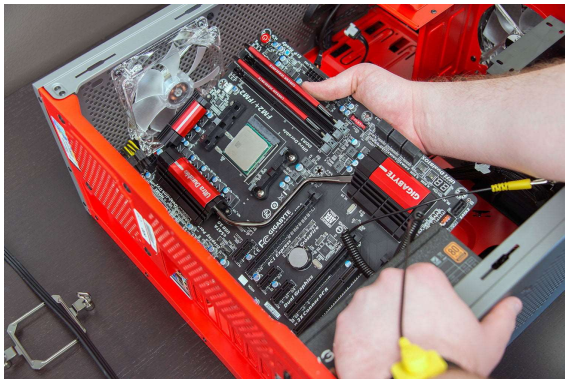
- cables are used to connect a mass **storage** device (e.g. hard disk drives, optical drives, solid-state memory drives) to a host bus adapter such as a **motherboard**.

PART C – “Step by Step PC Assembly”

STEP 1: INSTALLING POWER SUPPLY UNIT (PSU)

1. Stand the case.
2. Position PSU in its designated section in the case :
    a. power plug socket facing outside the case rear.
    b. it's fan side placed facing the inside of the case.
3. Fasten 4 screws that came with the case through rear of case into PSU to hold it in place.
4. Tighten the screws using fingertip force only to avoid potential damage.

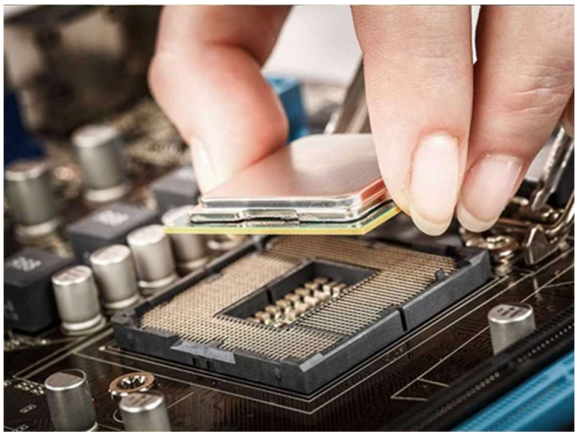
STEP 2 : INSTALLING MOTHERBOARD



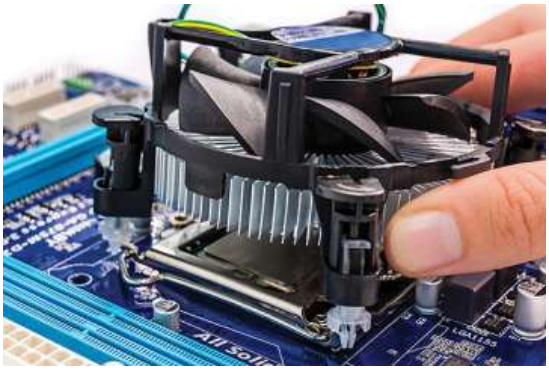
1. Lay the case on one side with the open side pointing upwards. Make sure the rear output sides is close to you
2. Find your motherboard’s rear I/O shield and push it into the rectangular slot in the back of your PC case.
3. Make sure it’s right side up by matching the pattern of cutouts to the arrangement of ports on the back of your motherboard.
4. Screw motherboard standoff screws, that came with the case into the case.
5. Lay your motherboard down inside the chases and carefully lining up its rear ports with the corresponding holes in the I/O shield you just installed-on top of the standoffs installed in your chassis.
6. Screw motherboard into the standoff screws to fasten motherboard to the case.

	7. Tighten the screws using fingertip force only to avoid potential damage

STEP 3: INSTALLING CPU

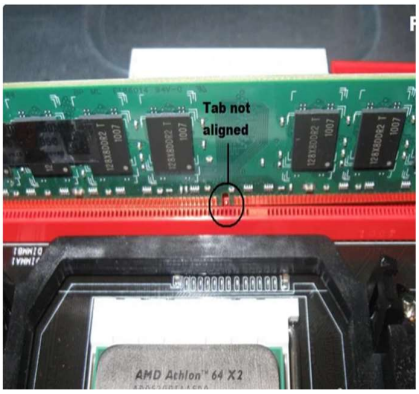
	1. Handle CPU with care. Touch only by the sides. 2. Unlock CPU socket lever on the motherboard and turn back the CPU socket plastic cap and metal bracket still together, exposing the CPU socket. 3. Align gold triangle on CPU with corner of CPU socket where triangle was noted, and also align the two notches on the CPU sides with CPU socket and place 4. Return CPU socket metal bracket over CPU making sure front of the metal bracket slides under the retention knob on the motherboard, then lock CPU lever to lock CPU in place. 5. This action will remove CPU plastic cap by snapping it off.

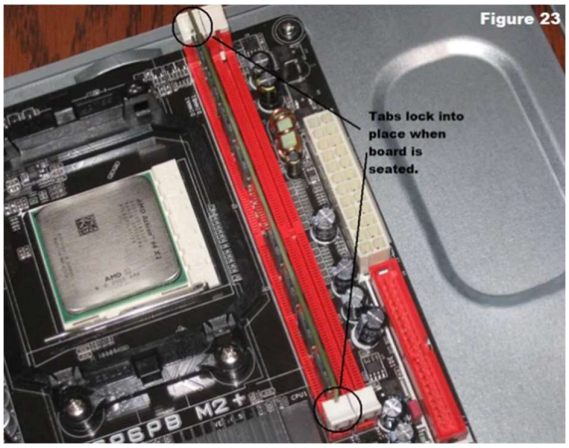
STEP 4: INSTALLING HEAT SINK



1. Align the CPU so that the Connection 1 indicator is lined up with Pin 1 on the CPU socket. Doing this ensures that the orientation notches on the CPU are aligned with the orientation keys on the CPU socket.
2. Place the CPU gently into the socket.
3. Close the CPU load plate and secure it in place by closing the load lever and moving it under the load lever retention tab.
4. Carefully apply a small amount of thermal compound to the CPU, and spread it evenly. Follow the application instructions provided by the manufacturer.
5. Align the heat sink assembly retainers with the holes on the motherboard
6. Place the heat sink assembly onto the CPU socket, being careful not to pinch the CPU fan wires.
7. Tighten the heat sink assembly retainers to secure the assembly in place.
8. Connect the heat sink/fan assembly power cable to the header on the motherboard.

STEP 5: INSTALLING RAM



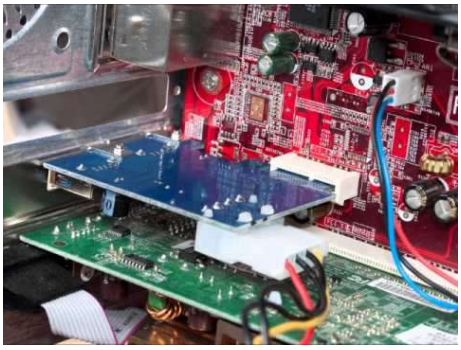


1. Set the RAM board in the socket as shown in figure . Check to see that the notch in the board is in the correct location. If it is not, turn it around 180º.
2. Press firmly on both ends of the board to set it into the socket. Make sure the tabs lock into place as shown in figure

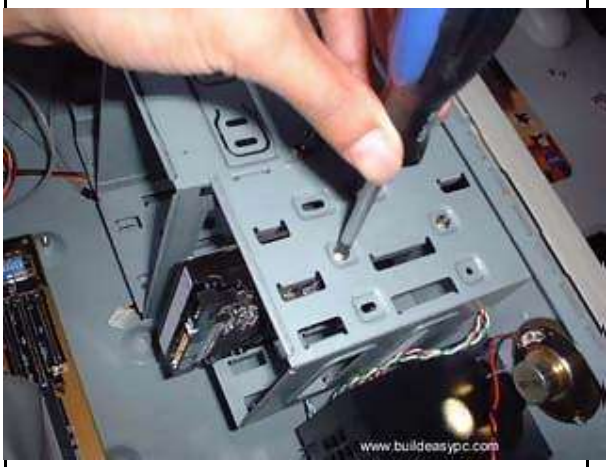
STEP 6: INSTALLING GRAPHICS CARD

	1. Hover the new GPU over PCI-e slot. 2. Push down on the GPU to slide the connector into the slot 3. Ensure the locks clicks into place 4. Screw the rear bracket down to secure the card into the chassis. 5. Connect any required PSU cables.

STEP 7: INSTALLING USB PORT

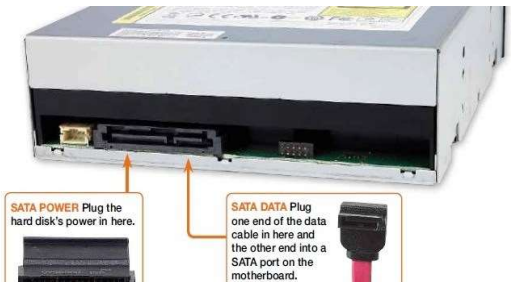
 	1. Hover the USB PCI-e to a PCI-e slots 2. Push down the USB PCI-e into the slots 3. Ensure the lock clicks into place 4. Connect any required PSU cables

STEP 7: MOUNT HARD DISK



1. Fit hard disk into bay until screw holes in the side of the drive line up with the holes in the drive bay.
2. Screw them tightly.
3. Plug in SATA power cable. Locate the correct connector from your power supply and plug it into the back of your hard disk. It goes in only one way and clicks when it's connected.
4. Plug in SATA data cable. Your motherboard will ship with several SATA cables, so take one of these from the box. Plug it gently into the rear of the hard disk. It will plug in only one way and will click when it's properly connected.
5. Plug in SATA data cable into motherboard. Plug it into one of the SATA ports in the motherboard. It will plug in only one way. It will click when the cable is connected properly.
6. IDE cable also can be used to connect your hard disk if you have IDE connectorinstallin

STEP 8: INSTALLING CD ROM



1. Insert the CD-ROM drive inside the drive bay. Make sure to insert it slowly smoothly, or else it will get stock.
2. Fasten the CD-ROM drive with the locking mechanism, to let it steady.
3. Connect the SATA power cable to the CD-ROM drive.
4. Connect the other end of the SATA power cable to the power supply.
5. Connect the SATA data cable to the CD-ROM drive.
6. Connect the other end of the SATA data cable to the motherboard.

Last STEP - CLOSING THE CASE AND CONNECTING THE PERIPHERALS

	Place the side cover back on and secure the side panels with case screws.
	Connect peripheral devices which include keyboard, mouse, wireless network dongle, printer and webcams with your CPU by plugging into USB port.
	Then, connect speakers and microphone into 2.5 mm sockets.

		Finally connect the CPU with monitor by plugging into display ports