



UTM

UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING

SECP1513 – TECHNOLOGY AND INFORMATION SYSTEM

STEP BY STEP PC ASSEMBLY

SECTION : 11

COURSE NAME : BACHELOR OF COMPUTER SCIENCE

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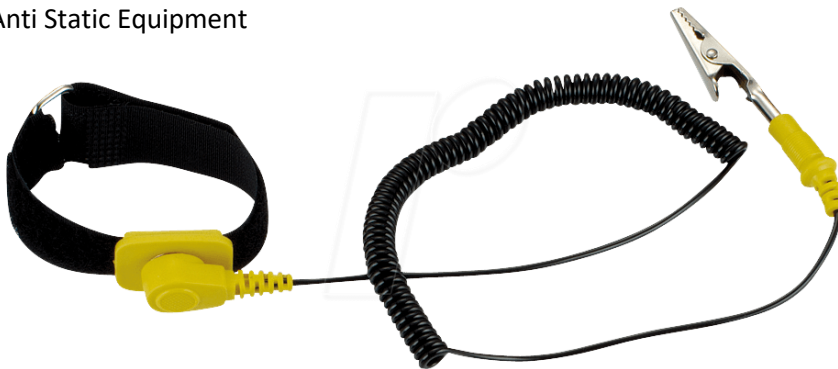
Part A - List at least FOUR tools needed to assemble a PC. For each tool, Provide picture(s), explanations of its functions and its importance

1.0 Screwdrivers



The screwdrivers is a tool used to tighten or loosen screws. The model of that stuff usually flat, and when viewed horizontally face forward with the letter min(-) << functions >> Inserting or unscrewing on a vehicle or electronic device << and importance >> opening and closing electronic devices

2.0 Anti Static Equipment



The Anti static equipment is a tool that has several parts and elastic << functions >> a device used to prevent electrostatic discharge by grounding someone who is working on an electronic device << and importance >> The bracelet part is an elastic woven with conductive fibers. The fibers are usually made of carbon or rubber filled with carbon, and the bracelet is fastened with a stainless steel plate or clamp. An antistatic wrist strap is usually used together with an antistatic mat on a work table, or a static-eliminating plastic layer on a work surface

3.0 Light Source



Light Source is a beam of light like a lamp that has various **forms** << functions illuminates the surroundings so as to facilitate viewing and activity in certain circumstances << and importance >> PC cases are full of shadows, and screws love to roll into the darkest corners. A bright desk lamp with a long, pose-able neck is handy, but nothing beats a cheap headlamp for direct illumination. It may look silly, but a headlamp will always point in the right direction, and it doesn't require an extra hand to hold it. A flashlight will work in a pinch, but it will also make multitasking much harder.

4.0 Cable Ties



Cable Ties is a type of fastener, for holding items together, primarily electrical cables or wires

<< functions >> for neatly bundling wires and cables away from fans and other components inside the computer << and importance >> only good for a single use. Cables that might be moved around in the future can be tidied-up with black twist ties, which are practically invisible, nearly as secure, and far easier to remove.

5.0 Pliers



The pliers is a tool that made by steel and the holder is covered with hard rubber << functions >> Cutting wire, bending metal-like objects, such as nails, holding an object / as a tool for holding something, especially construction tools and electrical installations, Rotating / as a tool for turning objects such as nuts, bolts and other similar objects.<< and importance >> Unfortunately, sometimes the heads of cheap screws get stripped. When this happens, sometimes the only option is to use a pair of pliers (carefully). Needlenose pliers have a wide variety of uses, and they often include a wire cutter, which can be used to snip the excess off of cable ties.

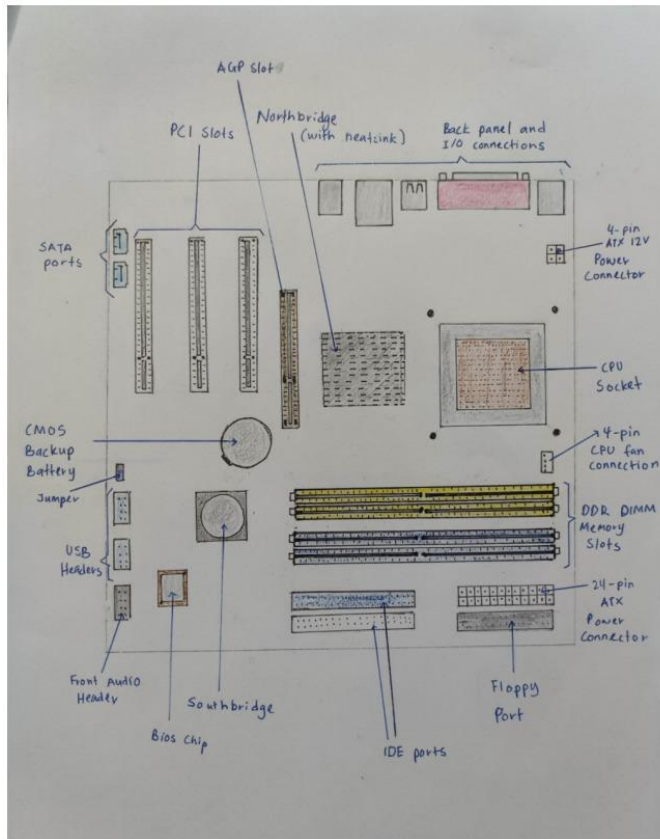
6.0 magnetic screw tray



Magnetic Screw Tray is a tool round magnetic trays and one large rectangular one << functions >> It holds more items (because of the larger magnets) and holds them more securely (because they're stronger) than the similar trays << and importance >> This one from Tekton has larger, stronger magnets

PART B – Sketch of a mother board layout

Description of Motherboard parts



RAM : RAM stands for random access memory. This is where a PC stores data before it's processed. A RAM DIMM or more simply thought of as a RAM stick, is made of up of memory chips that a PC can write (and rewrite) rapidly.

The BIOS : BIOS (basic input/output system) is the program a computer's microprocessor uses to start the computer system after it is powered on. It also manages data flow between the computer's operating system (OS) and attached devices, such as the hard disk, video adapter, keyboard, mouse and printer.

The CMOS Battery : Alternatively referred to as a RTC (real-time clock), NVRAM (non-volatile RAM) or CMOS RAM, CMOS is short for complementary metal-oxide

semiconductor. CMOS is an onboard, battery powered semiconductor chip inside computers that stores information

PCI e slots : PCIe (peripheral component interconnect express) is an interface standard for connecting high-speed components. Every desktop PC motherboard has a number of PCIe slots you can use to add GPUs (aka video cards aka graphics cards), RAID cards, Wi-Fi cards or SSD (solid-state drive) add-on cards.

CPU Socket : A CPU socket uses a series of pins to connect a CPU's processor to the PC's motherboard. If a CPU is connected via a CPU socket, it is not soldered and can therefore be replaced. CPU sockets are more common with desktop PCs than they are on laptops.

Part C – “Step by Step PC Assembly”

To get footage for clearer instructions we used a youtube video by Linus Tech Tips, titled “First Person View PC BUILD Guide! (POV)” with the link:

<https://www.youtube.com/watch?v=v7MYOpFONCU>

Step 1. Prepare the workstation to build the PC



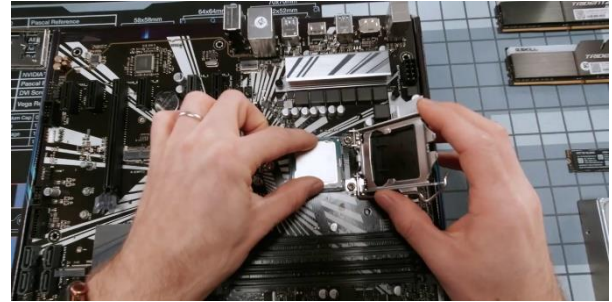
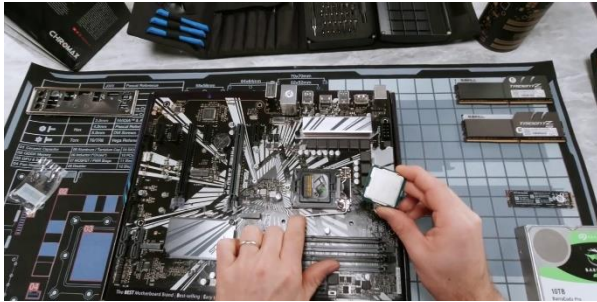
This means getting the tools ready and the computer parts close to you, this also means you should start wearing the anti-static bracelet. Some tip on how to use it you can just plug in your power supply to an outlet while in not turning it on then attach the end of your anti-static bracelet to the power supply.

Step 2. Prepare the Motherboard



Unbox carefully and take all the screws and peripherals out of it, use the screw tray if you have to. The box contains many screws to accommodate many types of casings and accessories that it might need, some screws may not be useful for you now, if so then you should keep it safe within the box. There will an i/o shield that will be used later, save it.

Step 3. Place The CPU

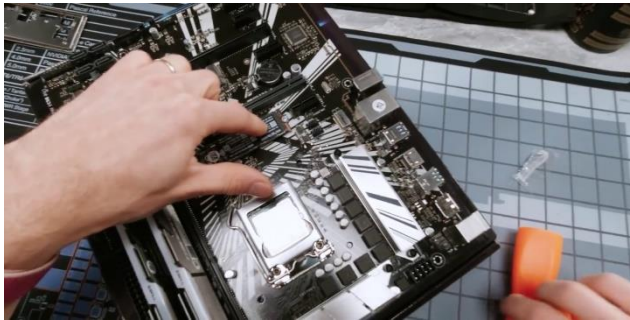
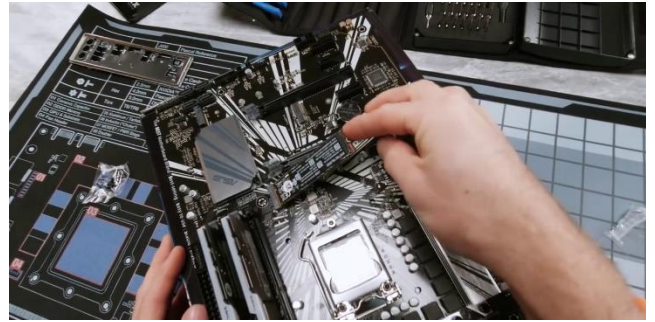
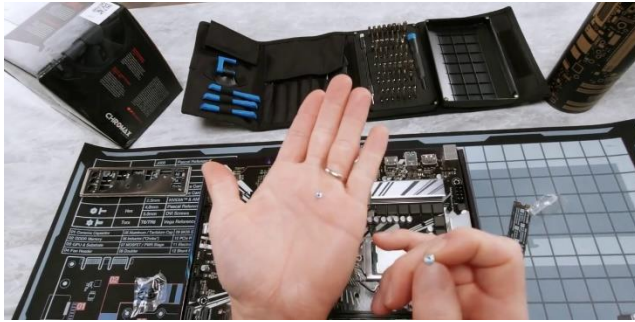


Open the lever to the CPU socket then put it aligning the golden triangle of the Processor to the golden triangle at the CPU socket (be aware that many manufactures uses a dot at the CPU socket to align instead), be gentle, put it with almost no force at all. Then carefully close the lever of the CPU socket. After closing the socket the CPU socket will pop its placeholder plate, **do not throw it off**, this plate will be asked by the manufacturer in the event we want to claim warranty for this motherboard.

Step 4. Insert RAM, SSD



Make sure that the RAM is positioned correctly by checking the port at the bottom of the RAM, pull back the tabs at the motherboard then push it into socket until you hear a click.



Inserting an M.2 SSD will make use of one the screws bundled with the motherboard. As the name implies you must slot it to an M.2 port with the right length. do note that on some motherboards the M.2 slot might be in the back side of the board, if this happens then must take care when flipping the board, **do not touch the board directly**, your hand might be greasy or rough that it might damage the board, touch the plastic and metal parts. First you screw the part on the motherboard, then you can slot the SSD diagonally then push it till it clicks. Then use the upper screw to secure the SSD.

Step 5. Install the CPU cooler and thermal paste

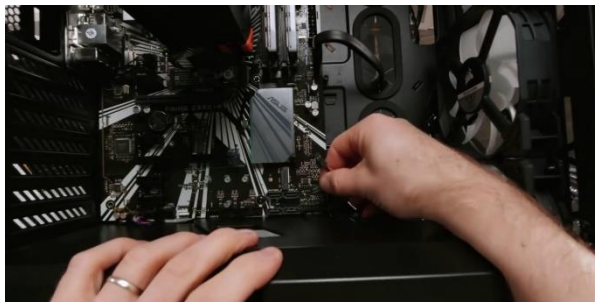


Apply only a small amount of thermal paste by pasting it to the upper side of the processor, zoom in to our picture to see how much is needed. Then install the fan by screwing the ports to the motherboard, then screw the heatsink to the port, and finally the fan to the heatsink. Plug in the fan cable to the motherboard. The heatsink port will define which way will the fan head towards, so you have to get an idea of how your PC casing can benefit the fan direction.

Step 6. Prepare the Casing and inserting the motherboard, connecting the internal cables to the motherboard



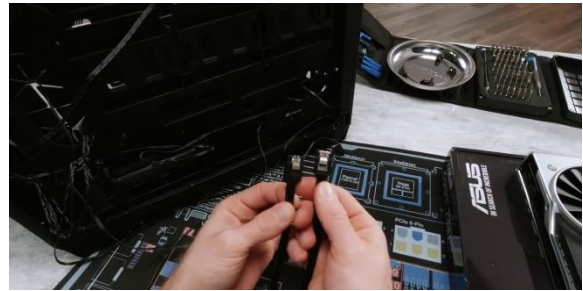
Open both side panels, prepare the wiring of the fans, save the screws for when you need it, rearrange the fans if see fit. Install the I/O shield from the motherboard to the casing at the large empty slot at the back panel carefully, make sure that it is set up right because this can damage the motherboard heavily if not done correctly. The I/O shield will be used to tuck in the motherboard.



Tuck the motherboard, then screw it to the case. Some motherboards don't use all of the screws, that's fine. Make sure to screw it gently, when you feel like it became heavier to screw, stop, don't apply pressure to the motherboard.

Then lastly plug the front panel USBs, built-in fans, RGB if you're into that sort of thing.

Step 7. Plug in Hard Disk, Power supply, and Graphics card



Plugging in the hard disk varies from case to case, but connecting the SATA cable to the motherboard remains the same.



Open up some of the casing back lid according to the size of your graphics card, slot the card according to the motherboard and casing. Press firmly until it clicks. Then attach cable to the motherboard



Slot the Power supply to the back panel, screw it, then connect the cable to the motherboard and the graphics card.

And you're technically done, close the lid of the case and then install the software and you're good to go.