UTM UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
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Section : 04

Assignment : Step by step PC Assembly

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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 with Philips-head with a big bit can avoid stripping the head which is helpful to assembly the PC. It also has a long shaft in keeping the handle out of the way when working in tight spaces. For the flat-bladed screwdrivers, they are great for extra leverage and prying things. The importance for screwdrivers is that we can easily assemble or disassemble the PC. The flat-bladed could be useful for hexagonal motherboard standoff screws or some CPU cooler screws to assemble it.

2.0 Anti-static Equipment

The anti-static equipment must be used for any serious PC assembly because it can eliminate the risk of electrostatic discharge when metal object reacts with electric. The importance for this tool is that it will discharge the electricity.

3.0 Light Source

The light source will help the assembler to confront the shadows because of PC cases and screws at the darkest corner. It will provide lights for viewing sides.

4.0 Zip or Twist Ties

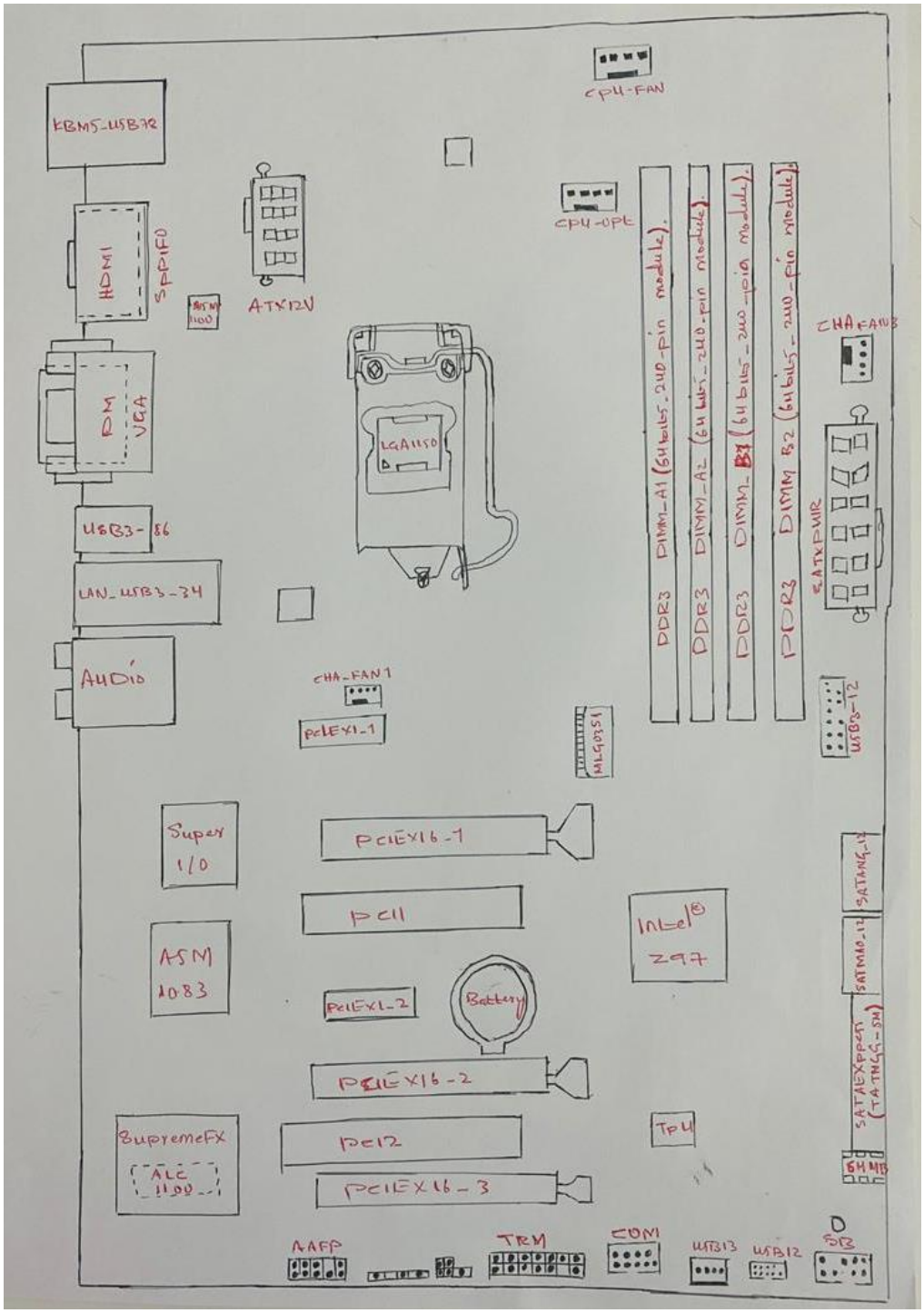
The zip or twist ties is one of the cable management that keep dust accumulation low and airflow high. Also, they make things look neat and nice. They are good and one of the best ways to keep the cable in place that might be moved in the future.

5.0 Pliers

The pliers will help the assembler to unscrew the heads of cheap screws that get stripped. Needle nose pliers that provide variety of uses can be used to snip the excess off cable ties.

PART B- Sketch of a mother board layout

1.0 Sketch manually (using handwriting) a simple diagram of a motherboard layout that consists ALL keywords included in Table 1.0. Label each of the keyword.



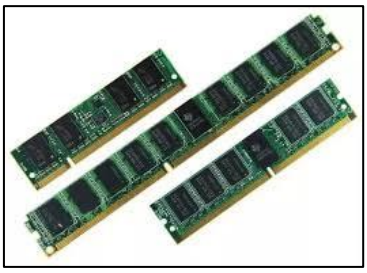
Sketching of a mother board

2.0 For each keyword in Table 1.0. Provide picture(s), explanations of its functions and example of models.

1. Heat sink

- Remove away all heat from important components in CPU
- Model: Quad-core ARM A57 CPU

2. RAM



- Help applications to store data and memories on a short-term basis

3. Hard disk

- Store memories and data permanently in a computer, and also known as Secondary Storage Device
- Model: Seagate BarraCuda, Toshiba X300, WD Blue Dekstop

4. CD ROM

- A compact disc that is used to store pictures or videos, and it is not used to record.
- CD ROM can store up to 650-700 MB data

5. SATA cable

- SATA cable is used to connect big storage devices such as hard disk drives and RAM drives to a motherboard.
- Model: SATA 3Gb/s, SATA 6Gb/s, External SATA, miniSATA

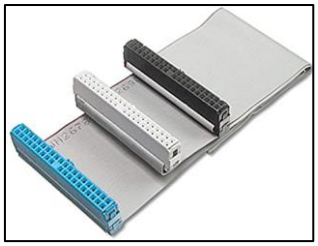
6. Graphic card

- The function for graphic card is that they will rendering an image to our monitor by converting the data into a signal that can understand by the monitor. The better the graphic card, the better and smoother the image will be produced.
- Example: NVIDA Quadro 5000M, AMD Radeon Graphics

7. USB cable

- The USB cable is a plug and play interface that allows a computer to communicate with another device such as handphone. Its function is that they can transfer data from one device to another device such as to connect the keyboard and mouse or to read data from handphone. Sometimes USB cable are use to send power to certain device.
- Example: USB Type-C cable, USB Type-A cable

8. IDE cable



- Integrated Drive Electronics (IDE) cable are used to connect some hard drives and optical drives to each other and to the motherboard. It is also known as a connection for storage devices in computers.
- Example: IDE and ATA-1, EIDE and ATA-2

9. CPU/ Processor

- Central Processing Unit (CPU) is the brain of computers. It performs the basic arithmetical, logical and input or output of a computer systems by every instruction must go through the CPU.
- Example: Intel i7, AMD Ryzen 3

10. Slots (IDE, PCI)

- Peripheral Component Interconnect (PCI) slots is used to connect add-on devices such as network cards, video card, sound cards, tv tuners, graphic cards and many other extension cards.
- Example: PCI Express

11. Power supply

- Power Supply Unit (PSU) are used to convert mains AC to low voltage regulated DC power for the internal components for PC.
- Example: IBM Model 5150

PART C- "Step by Step PC Assembly"

Based on the given video and keywords in Table 1.0, prepare a report on "Step by Step PC Assembly" that provide guided instructions on how to Assemble a PC. Assumed that in front of you is an opened computer case (without the side panels). Number of steps should not exceed the number of keywords.

STEP 1 – Central Processor Unit (CPU) installation

- Put the CPU neatly on the socket before it is tightened using clips.
- Use a little bit of thermal paste onto the processor.

STEP 2 – Processor fan installation

- Install fixing and the fan neatly onto the processor.
- Make sure fixing and the fan are clipped tight.

STEP 3 – Random Access Memory (RAM) installation

- Install the RAM into the RAM slot.
- Make sure RAM is installed correctly.

STEP 4 – Power supply installation

- Install the power supply to the computer casing.
- Install and tighten the screws onto each section.

STEP 5 – Motherboard installation

- Put the motherboard into the computer casing.
- Install and tighten the screws onto each section.

STEP 6 – Graphic card installation

- Install graphic card on PCI slot.
- Screw the graphic card holder to ensure that it is attached well.

STEP 7 – CD/DVD ROM driver installation

- Install CD ROM driver into the computer casing.

STEP 8 – Hard disk driver installation

- Install hard disk into the computer casing.
- Make sure the hard disk and CD ROM are not loose.

STEP 9 – IDE and SATA cable, and power supply installation

- Connect the IDE cable to CD ROM driver, and SATA cable to hard disk driver.
- Connect the power supply to each driver.
- Arrange IDE and power supply cables neatly to save space and avoid heat accumulation in the computer casing.

STEP 10 – Switch wire and Universal Serial Bus (USB) connection to motherboard

- Install the switch wires and USB cable that are in the computer casing onto the motherboard.
- Refer to the motherboard installation manual book to ensure that the installation is installed well.

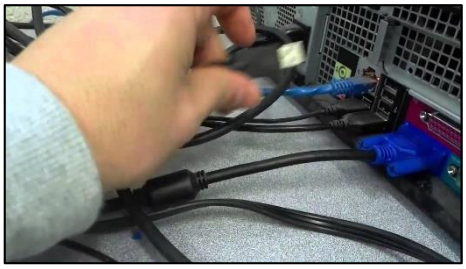
STEP 11 – Computer casing installation

- Close and tighten the computer casing neatly.
- Screw the remaining sections to avoid dust collection into the casing.
- Install the CPU to the power supply and monitor.
- Switch ON the CPU, and if there is a display on the monitor screen, the installation has succeeded.

Complete these steps by inserting relevant photo(s) which illustrate the given descriptions.

Place the side cover back on and secure the side panels with case screws.

Mouse USB port



Printer USB port

Wireless network dongle USB port

Connect peripheral devices, which include keyboard, mouse, wireless network dongle, printer and webcams with your CPU by plugging into USB port.

Speakers into green port

Microphone into green port

Then, connect speakers and microphone into 2.5 mm sockets.

Monitor USB port

Finally connect the CPU with monitor by plugging into display ports.

REFERENCES:

1. Table 1.0

Graphic card	USB Cable	IDE Cable
CPU/ Processor	Slots (IDE, PCI)	Power supply
Heat sink	RAM	Hard disk (jumper setting either master/ slave)
CD Rom	SATA cable	

2. https://blog.nzxt.com/tools-need-build-pc/
3. https://www.techspot.com/
4. https://www.youtube.com/watch?v=ctK58A71DTs
5. https://www.youtube.com/watch?v=m_-G9Cacx2U
6. https://www.instructables.com/Computer-Assembly/
7. https://edu.gcfglobal.org/en/computerbasics/getting-started-with-your-first-computer/1/
8. https://www.arrow.com/en/research-and-events/articles/understanding-heat-sinks-functions-types-and-more#:~:text=A%20heat%20sink%20is%20a,across%20its%20enlarged%20surface%20area.
9. https://www.techradar.com/sg/news/10-best-internal-desktop-and-laptop-hard-disk-drives-2016
10. https://cp-techusa.com/industrial-computers/sata-overview/