



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

SECP1513 – TECHNOLOGY AND INFORMATION SYSTEM

ASSIGNMENT:

PC ASSEMBLY

SECTION : 03 – 1 SECRH

COURSE NAME : BACHELOR OF COMPUTER SCIENCE –
NETWORK AND SYSTEM SECURITY

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Part A

1.0 Screwdrivers



The screwdrivers are used to tighten the screws on the components to hold them securely in place. They need to be used together because not all the components use the same type of screwdrivers.

2.0 Anti-Static Wrist Strap



An anti-static wrist strap (or band) is a bracelet-type device you wear on your wrist which connects to an electric socket, and if any electrical charge builds up between you and your hardware components, the charge is safely dissipated through to the socket (avoiding a spark and potentially causing damage to your parts). The importance of this tool is an easy way to discharge any electrical build up compared to using the gloves.

3.0 Cable or Twist Ties



Cable ties (also called zip ties) and twist ties are used to tie up any loose cables lying around in your case. This tool makes your finished build look clean and promotes better airflow within the case.

4.0 Flashlight (or Lamp)



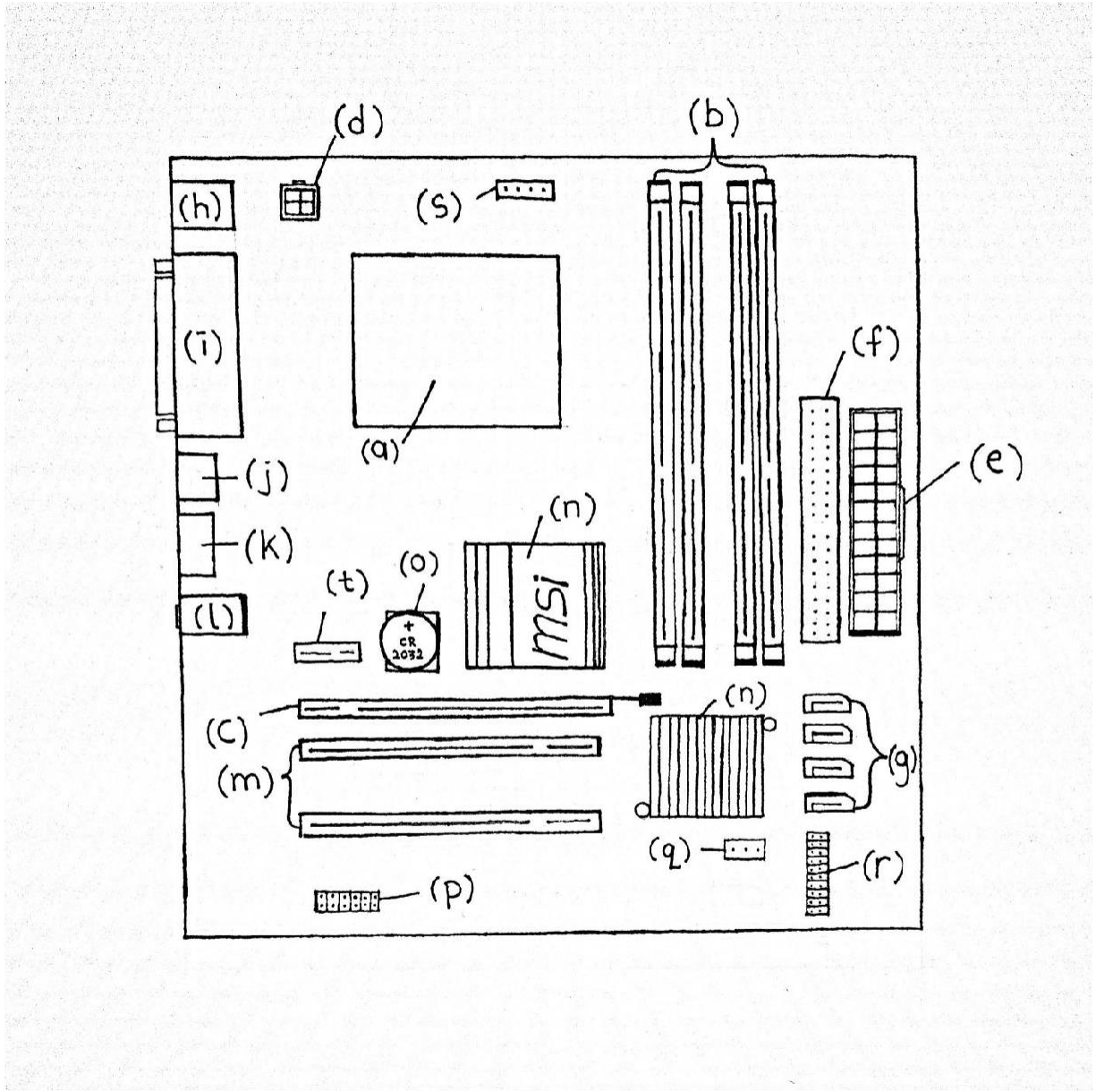
Flashlight will help you to get a better view of assembly things especially components that are small. It can prevent any misplacement of components.






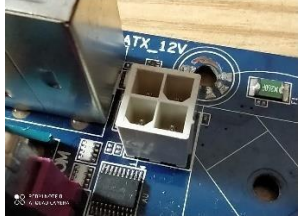
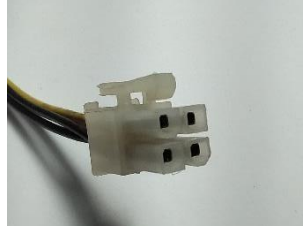
5.0 Glove


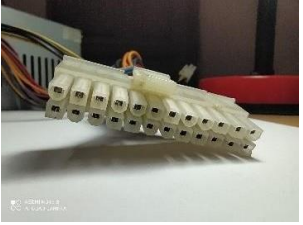


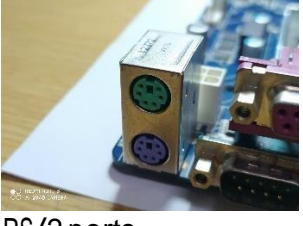











The gloves are used to hold any components with grip, especially small components. These are important to avoid injuries by sharp components.






PART B – Sketch of a motherboard layout



LABEL	LABEL NAME	FUNCTION	PICTURE(S)
(a)	CPU/Processor slot Example of CPU model: Intel Core i3-9100 9 th Generation	The processor is installed here.	 CPU slot
(b)	RAM slots Example of RAM model: Adata XPG Gammix D10 8GB RAM	RAM is installed here. Some motherboards have two and some have four.	 RAM slot  RAM module
(c)	GPU slot (PCIe x16) Example of GPU model: MSI GeForce GTX 650	Allows the GPU to be installed. Some motherboards have more than one GPU slots.	 GPU slot  GPU
(d)	4-pin CPU port	Connects the motherboard to the power supply to power up the CPU.	 4-pin port  4-pin connector

(e)	ATX 24-pin power supply port	Connects to the power supply to power up the whole motherboard.	 <p>24-pin port</p>  <p>24-pin connector</p>
(f)	IDE port	Connects hard disks to the motherboard so that the operating system can access them later. Used for older hard disk models.	 <p>IDE port</p>
(g)	SATA ports Example of solid-state drive model: Sandisk SSD Plus 240GB	Functions the same as IDE ports, but used for current generation hard disks and even solid-state drives. Have higher data transfer rates than IDE.	 <p>SATA ports</p>
(h)	PS/2 ports	To connect older generation mouse and keyboard.	 <p>PS/2 ports</p>
(i)	Display ports	Consists of combinations of either D-SUB, DVI, VGA, depending on the model of the motherboard.	 <p>Ex: 25-pin and 9-pin D-SUB, VGA</p>
(j),(k)	USB ports	Connects USB peripherals such as WiFi adapter, newer generation mouse and keyboard, USB flash drives.	

(l)	Audio ports	Consists of ports for speaker(green) and microphone(pink).	 <p>Audio ports</p>
(m)	PCI slot	Allows the installation of older generation GPUs or peripherals such as internal USB extension.	 <p>PCI slots (white)</p>  <p>PCI USB extension</p>  <p>Extension installed</p>
(n)	Heat sink	Allows dissipation of heat while the motherboard is running.	 <p>Heat sinks</p> 
(o)	CMOS battery slot	CMOS battery is placed there. The CMOS battery supplies low voltage and current to store a user's configuration of the motherboard like date, time and user settings.	 <p>CMOS slot</p>

(p)	Front panel audio port	Connects audio ports of the front panel of a computer case.	 <p>Labeled "F_AUDIO"</p>
(q)	Casing fan port	To connect and supply power to the fan installed inside a computer case.	 <p>Labeled "SYS_FAN"</p>
(r)	Front panel port	To connect the power button, reset button and LED indicator found on the front panel of a computer case.	 <p>Labeled "F_PANEL"</p>
(s)	CPU fan port	Connects and supplies power to the CPU fan, to cool the CPU itself.	 <p>Labeled "CPU_FAN"</p>
(t)	PCIe x1 slot Example: TP-Link 300Mbps Wireless PCI Express Adapter	Usually for the installation of an internal network adapter/WiFi cards.	 <p>TP-Link adapter</p>

PART C - “Step by Step PC Assembly”

Step 1: READY THE COMPONENT FOR THE PC ASSEMBLY

- Pc case
- Tool kit
- Electrostatic mat
- Hard disk drive
- CD ROM
- Power supply
- Core processing unit (CPU)
- Thermal paste
- CPU heat sink
- Fan
- Motherboard
- Graphic card
- RAM

Step 2: INSTALLATION OF CORE PROCESSING UNIT (CPU)

- **PRECAUTION:** Be careful as to not touch any pin at the bottom of the CPU in order to not damage the CPU
- Placed the CPU on the intended socket at the motherboard in the correct way
- Tighten the CPU with the clip
- Apply the thermal paste on the CPU after installing the CPU
 - TIPS: make sure not to apply the thermal paste in an excessive amount



Source: Youtube

<https://youtu.be/zoiIW-2DD8>

Step 3: INSTALLATION OF THE CPU HEAT SINK

- Position the heatsink on top of the CPU
- **PRECAUTION:** Make sure to NOT press the heat sink TOO STRONG

- Latch the clip of the heat sink after placing the heatsink on top of the CPU
- Make sure the heat sink is installed correctly and tidily

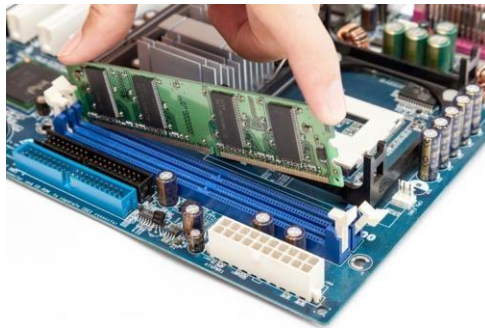


Source: Youtube

<https://youtu.be/JcQgZX-4W0o>

Step 4: INSTALLATION OF RAM

- Place the RAM in the intended slot on the motherboards
- Press down the RAM to make sure the RAM is secure in place
- Keep the RAM from moving by locking the RAM with the tab at the side of the slot



Source:

<https://www.google.com/url?sa=i&>

Step 5: INSTALLATION OF THE POWER SUPPLY TO THE PC CASE

- Mount the power supply in the PC case
- Screw the power supply in place
- Make sure the power supply is screwed properly and not loose



Source:

<https://www.google.com/url?sa=i&ur>

Step 6: INSTALLATION OF THE MOTHERBOARD INTO THE PC CASE

- Check the standoff screw in the PC case so that it matched the screw hole of the motherboard
- **PRECAUTION:** Handle the motherboard with care as it is easily damaged
- Place the motherboard at the intended position and screw the motherboard in place
- Check for any loose screw or any problem when installing the motherboard

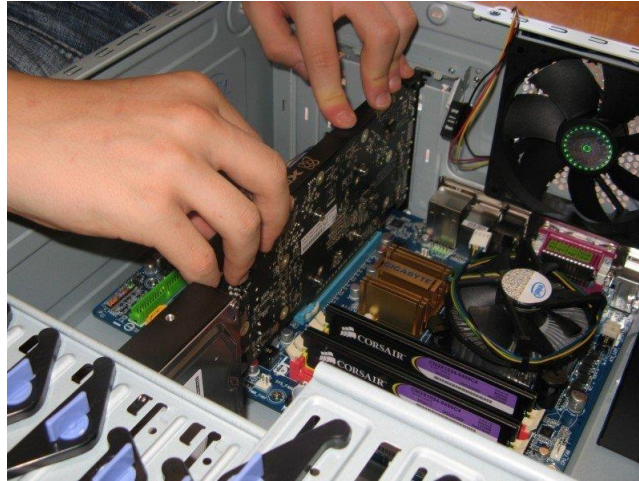


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Step 7: INSTALLATION OF GRAPHIC CARD

- Locate the peripheral component interconnect express (PCIe) slot dedicated for the graphic card on your motherboard
- Place the graphic card in the PCIe slot and press down the graphic card on the slot to secure it in place
- Screw the graphic card in place to prevent it from moving



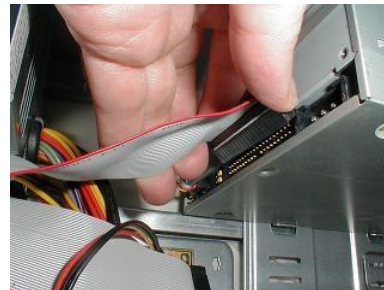
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Step 8: INSTALLATION OF CD ROM

- Put the CD ROM in the slot at the front of the PC case
- Connect the CD ROM to the power supply.
- Screw the CD ROM in place



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Step 9: INSTALLATION OF THE HARD DISK DRIVE

- Locate the slot to place the hard disk drive
- Place the hard disk drive in the slot
- Screw the hard disk drive in place
- **PRECAUTION:** Make sure the hard disk is secured in place to avoid any damage to the hard disk



Source:

<https://youtu.be/ctK58A71DTs>

Step 10: CONNECTING IDE CABLE, SATA CABLE AND POWER SUPPLY

- Connect the IDE cable to the CDROM
- Connect SATA cable to the hard disk drive
- Connect power supply to every driver (CD ROM, hard disk driver)
- Make sure that the cable is managed tidily to save room and decrease the heat accumulation inside the PC

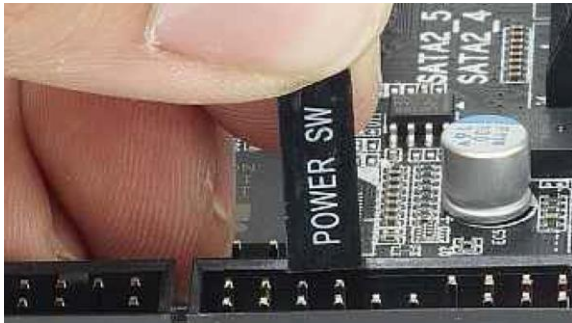


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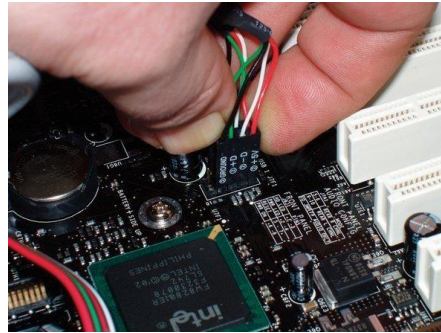
Step 11: CONNECTING SWITCH WIRE AND USB WIRE

- Connect the switch wire from the PC case to the motherboard
- Connect the USB wire from the PC case to the motherboard
- Please refer the motherboard manual to make sure the wire connection is done correctly



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Step 12: PC CASE INSTALLATION

- After all of the step above is done, it's time to close the PC case
- Close the panel of the PC case tightly and neatly
- Screw the panel down to make sure the panel do not fall off
- This is to ensure that no dust accumulated in the PC



Source:

<https://youtu.be/ctK58A71DTs>

Step 13: TESTING

- After all the assembly part is finished, testing of the PC can take place
- Connect the PC to the power supply and turn on the PC
- Check if the display on the monitor exist
- If there is a display on the monitor, the assembly is successful



Source:

<https://www.lifewire.com/thmb/gXBt>

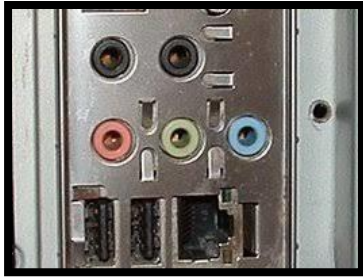
CLOSING THE CASE AND CONNECTING THE PERIPHERALS.



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



Complete Setup