SPECIAL PROGRAM IN TECHNICAL VOCATIONAL EDUCATION (SPTVE)
COMPUTER SYSTEMS SERVICING 8 Q3-W1

I.   Topic: **PROCESSOR / CENTRAL PROCESSING UNIT (CPU)**

II.   Objectives:
1. Identify object/s or component to be measured and CPU technologies.
2. Write the appropriate CPU specification and arrange the steps in configuring CPU in the computer system.
3. Value the importance of CPU in the computer system and the use of OHS when performing configuration.

III.   Brief Introduction of the Lesson

Processor is known as the brain of computer because it does the processing of the information you enter on it. It performs the basic arithmetical, logical, and input/output operations of a computer system. Aside from processing the information or data, it also performs calculation and interprets codes, commands or instructions given by the user.

CPU Technologies

- Hyperthreading Technology (HTT) - is when one physical CPU inside the system looks like there is two CPUs in the particular device having 15%-30% improvements in performance.
- CPU Cache - enables the CPU to access recently used information very quickly which reduces the average time to access data from the main memory.
- Multiple Cores - is a single computing component comprised of two or more CPUs that read and execute the actual program instructions.
- Bit Technology (32 bit vs. 64 bit) – Difference between 32-bit and 64-bit processors is the number of calculations per second they can perform, which affects the speed at which they can complete tasks and the maximum amount of memory (RAM) that is supported.
- Speed - The speed at which the CPU can carry out instructions is called the clock speed. Clock speed is measured in cycles per second, and one cycle per second is known as 1 hertz. In the computer we have what we call as real speed and actual speed.
- CPU Throttling - is commonly used to automatically slow down the computer when possible to use less energy and conserve battery, especially in laptops.
- Overclocking - refers the process of setting your CPU multiplier higher so the chip speeds up and increases your PC's overall performance.

CPU Specification: CPU Technologies (*like Core technology, with or without HTT, Bit technology, Cache memory, Speed*), Pin number, CPU type & housing, Brand, Model

Source: https://tinyurl.com/yy6jmpm5 on 1/-7/21

Specification based on the picture seen on the side

Brand: Intel
Technologies:
- w/ HTT
- 8Mb Cache
- Core technology: Core I7-950
- Speed: 3.06 GHz

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IV. Activities:
   Directions: Answer all the activities on a separate sheet of paper.

Activity 1
CPU Functions of Computer System

Diagram 1: Bus Architecture
Directions: Based on the diagram illustrated below, explain how data has been requested and received by the CPU in the computer system.
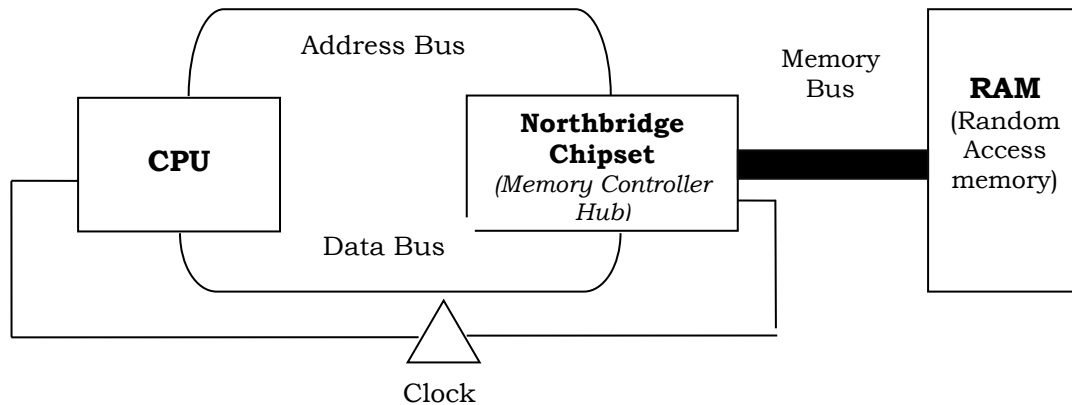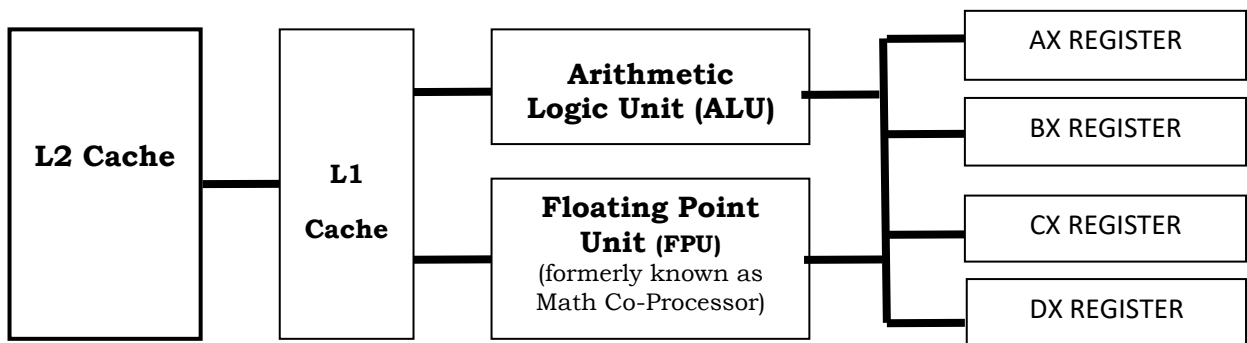

Diagram 2: CPU Architecture
Directions: Based on the diagram illustrated below, explain how data has been processed by the CPU after receiving the requested data.

Activity 2
CPU Technologies and Writing of Specification

Set A. *Directions:* Using what you have learned about CPU technologies, evaluate what will happen:
   a. To your computer if it uses a CPU with hyperthreading technology.
   b. If your computer is using a 64 bit instead of 32 - bit technology in both hardware and software part of the computer.
   c. If you are asking for a replacement of a CPU for a warranty service because it has been damaged due to overclocking, will the store replace it? Why?
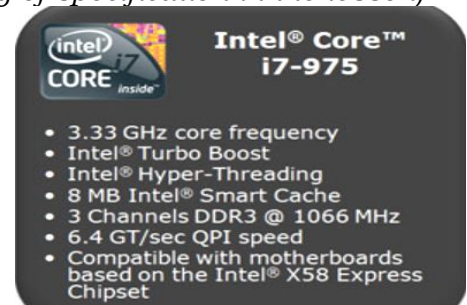
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Set B. *Directions:* Write all the specifications of CPU seen in the picture below. Specify what specification is shown in the picture. *(See the sample writing of specification in the lesson)*

System	
Manufacturer:	ASUSTek Computer Inc.
Processor:	Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz 1.80 GHz
Installed memory (RAM):	4.00 GB (3.88 GB usable)
System type:	64-bit Operating System, x64-based processor
Pen and Touch:	No Pen or Touch Input is available for this Display

1.

2.

intel CORE i7 inside — **Intel® Core™ i7-975**
- 3.33 GHz core frequency
- Intel® Turbo Boost
- Intel® Hyper-Threading
- 8 MB Intel® Smart Cache
- 3 Channels DDR3 @ 1066 MHz
- 6.4 GT/sec QPI speed
- Compatible with motherboards based on the Intel® X58 Express Chipset

Source: https://tinyurl.com/yy6jmpm5 on 1/-7/21

Activity 3
Detaching and Attaching CPU

Set A. *Directions:* Listed below are steps in disassembling and assembling CPU chip on CPU socket, arrange the letters/blocks to show the proper steps in doing the activity for items number 1 to 6.

A. Insert the CPU chip on the CPU socket. Make sure it is flat and no space in between the chip & socket.

B. Match and align the pin pattern of CPU chip on the CPU socket.

C. Unlock the CPU Socket in the motherboard by lifting the metal arm bar at its 90° angle.

D. Prepare all the materials needed in the activity. (CPU chip, Motherboard, Anti-static Mat)

E. Remove the CPU chip on the socket by lifting it out of the connection.

F. Lock the chip on the socket by pushing the metal arm bar down reaching its 180°

Set B. *Directions:* Answer the following questions briefly.

7. What will be the importance of central processing unit in the computer system? Evaluate what will happen if there is no CPU present in the computer? Will the computer work properly? Why?

Evaluate what will be the danger if you do not follow the OHS listed below when configuring CPU in the motherboard or computer system?

8. Holding the CPU chip on the edge.
9. Make sure pins are properly aligned before connecting CPU chip on the CPU socket.
10. Do not use excessive force if connecting CPU chip on the CPU socket.

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V. Assessment:

Directions: Choose and write only the letter of the correct answer on a separate sheet of paper.

1. The following are functions of CPU **EXCEPT:**
A. performing calculation
C. interpret codes and commands
B. processing information
D. displaying the output of data

2. Which of the following technology is commonly used to automatically slow down the computer when possible to use less energy and conserve battery?
A. CPU Cache   B.CPU Throttling   C. Bit technology   D.HTT

3. It enables the CPU to access recently used information very quickly.
A. CPU Cache   B.CPU Throttling   C. Bit technology   D.HTT

4. Which of the following is the appropriate specification referring to a CPU brand?
A. AMD   B.HTT   C. 3 GHz   D.32 bits

5. What is the unit of measurement use by speed?
A. bits   B. byte   C. hertz   D. megabyte

VI. Reflection:

Directions: Answer the following questions briefly on a separate sheet of paper

- What is the most interesting or important things you have learned today and why?
- What are the benefits of this lesson in your daily life or in the future?
- What do you want to learn more about CPU and why?
- What problems did you encounter in answering the activities?

References:

- CPU definition - *https://tinyurl.com/yahruays on 09/22/20*
- CPU Introduction and Concept (Bus & CPU Architecture)- Professor Messer's Free CompTIAA+ Certification Training Course=*https://www.youtube.com/watch?v=iaui8sPWEx4 on 09/22/20*
- Cache Memory- https://en.wikipedia.org/wiki/CPU_cache on 09/22/20
- Multicore definition - https://tinyurl.com/y3lv4jpy on 09/22/20
- CPU Technologies (Professor Messer's Free CompTIA A+ Certification Training Course) - https://tinyurl.com/y6s64ceu on 1/7/21
- 32 bit vs 64 bit technology -https://www.computerhope.com/issues/ch001498.htm on 1/7/21
- CPU Throttling - https://tinyurl.com/yy84zv8u on 1/7/21
- Overclocking - *https://tinyurl.com/rst6afr on 01/7/20*
- Speed(Clock Speed) - *https://tinyurl.com/y6x59qk2 on 1/7/21*

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