**Handout-Computer Systems**

**What is a Computer System ?**

* A Computer System consists of CPU, memory and related electronics which are connected to it and its operating system.

**Computer Organization** -

* It is the operation units and their interconnection that realize architectural specification.

**Hardware Level -**

* Electrical & electronic components layer
* Digital Logic layer
* MIcroprogrammed layer
* Machine layer

**Software Level -**

* System Software Layer
* Application Software

Computing(9691) & Computer Science(9608) Resources. (2018). *Chapter 5: Computer System*. [online] Available at: https://eduvisionblog.wordpress.com/chapter-5-computer-system/ [Accessed 11 Nov. 2018].

**Subsystems of a Computer -**

* Control Unit (CU)

**It gives instructions to the processor by giving instructions to the arithmetic/logic unit and input and output devices as to what needs to be done.**

* ALU (Arithmetic Logic Unit)

**It performs calculations and logical operations, it also it the foundation of the CPU.**

* Memory or Storage Unit

**It where all the data is stores and what instructions are given for processing to the CPU.**

* Input/Output Devices (I/O)

**It communicates with the CPU and external sources ans with mass storage devices. (eg- USB, CD, network)**

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**Connections of a sub-systems -**

* **Bus Structure -** Electrical path between components of a computer.
* **Data Bus - Carries actual data, bidirectional.**
* **Address Bus - Carries memory locations for data or instruction, unidirectional.**
* **Control Bus - Carries timing and control functions from control unit to other units, unidirectional.**

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**What is a CPU ?**

* A CPU is the main component of a computer. It’s handles multiple tasks by performing logical,arithmetical and input/output operations.

*"The central processing unit (CPU) is the unit which performs most of the processing inside a computer. To control instructions and data flow to and from other parts of the computer, the CPU relies heavily on a chip-set, which is a group of microchips located on the motherboard"*

Techopedia.com. (2018). *What is a Central Processing Unit (CPU)? - Definition from Techopedia*. [online] Available at: https://www.techopedia.com/definition/2851/central-processing-unit-cpu [Accessed 11 Nov. 2018].

**CPU systems and subsystems -**

* **Computer System -**
* **Hardware - Physical parts of the computer system that we can touch.**
* **Software - Set of instructions consisting of complex codes that computer what to do.**
* **People - Computer operation also known as user.**
* **Data - Raw facts that are fed into the computer system. Computerized data are digitals, i.e, it has been reduced to digits or numbers.**

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**CPU Dependency and Performance with Computer Systems and Subsystems -**

|  |  |  |
| --- | --- | --- |
| **Computer Systems** | **Dependency** | **Performance** |
| **Hardware** | Power Supply | Low-voltage DC power for internal components |
| **Motherboard** | CPU | Integrated circuitry that connects with the computer |
| **Hard Disk** | CPU | Storing and retrieving digital information |
| **Software** | OS | Provides instructions for computer on what to do |
| **Keyboard** | Output Data | Used to input data by typing |
| **Mouse** | Output Data | Detecting 2-dimensional motion |
| **Monitor** | Input Data | Electronic visual display for computers |
| **Speaker** | Input Data | Disables the lower fidelity built-in speaker |

|  |  |  |
| --- | --- | --- |
| **Sub-Systems** | **Dependency** | **Performance** |
| **Control Unit** | CPU | Directs instructions sent to the processor |
| **ALU** | Processor | Arithmetic and logic operations |
| **Memory/Storage Unit** | Hard Disks | Storing , porting and extracting data files and objects |
| **Input/Output Devices** | Hardware | Sending data from a computer |