CIT 3150 COMPUTER SYSTEM ARCHITECTURE

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1. CPU-Brain of the computer system
2. SYSTEM MEMORY

-RAM (volatile)-working space of the CPU

-ROM (non-volatile)

1. INPUT OUTPUT SUBSYSTEM (IO modules, peripheral devices)
2. BUS-The Interconnection system egg 64-bit,32 bit

Objective/goal

To maximize the performance of the computer while minimizing the overall cost.

Abstraction- Instance where the user is presented with essential details while hiding of the implementation details

Note: the external architecture must be as powerful as the internal architecture

Layers of system architecture (Black box view)

1. Application
2. Programming language
3. Operating system
4. Conventional machine
5. Microprogramming
6. Digital logic level

Concept of a Programmable machine

Program- a list of instructions to be executed by a computer,

These instructions are stored in the RAM

When the data is fetched by the CPU it must be paired with instructions

A machine that is not programmable is called a hardwired machine

A programmable machine:

* Must be able to accept data
* Performs processing (Arithmetic or logical)
* Gives output
* Processing done by a computer is determined by a program
* Versatile-Ability to multitask

Components of a programmable machine

1. General purpose arithmetic and logic unit- for execution
2. An instruction interpreter-Decodes instructions one after the other

**Advantages**

* Simpler and more flexible than hardwired machine
* Versatility- it can perform multiple tasks
* Ability to switch machine between various functions
* Complex computations can be expressed in very simple programs

**Programmable machine**

CPU – Instruction interpreter +General purpose alu

I/O Subsystem-Input unit+output unit

Instruction memory unit

Data memory unit (slide 21)