

Name: KEY

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COE 205, Term 051
Computer Organization & Assembly Programming

Quiz# 1

Date: Monday, Sep. 26, 2005

Q1. Fill the blank in each of the following questions:

1. The *Instruction Pointer (IP)* register holds the address of the next instruction to be fetched from memory.
2. The *Instruction (IR)* register holds the fetched instruction to be executed.
3. The *Memory Address (MAR)* register is connected to the **address bus** in the CPU memory interface.
4. The *Memory Data (MDR)* register is connected to the **data bus** in the CPU memory interface.
5. The **Instruction Set Architecture (ISA)** of a computer consists of *Instruction Set*, *Memory*, and *Programmer-accessible registers*.
6. The size of the **address bus** in the **8086** processor is **20** bits while in the **Pentium** Processor it is **32** bits.
7. The size of the **data bus** in the **8086** processor is **16** bits while in the **Pentium** Processor it is **64** bits.
8. **Reading an instruction** from Memory is performed in the *Fetch* phase.
9. **Reading operands** from Memory is performed in the *Execute* phase.
10. **Incrementing the Instruction Pointer** is performed in the *Fetch* phase.

11. **Decoding an instruction** is performed in the *Execute* phase.
12. With an **address bus size** equal to **32 bits**, the memory address space is **4G** Bytes.
13. With a **data bus size** equal to **32 bits**, the maximum number of bytes that is transferred between the CPU and memory per a read/write cycle is **4** Bytes.
14. After reading an instruction whose size is **16 bits**, the **instruction pointer** is incremented by **2**
15. The CPU is divided into two main units called *Control Unit* and *Data Path Unit*
16. Two of the reasons for why it is important to program in Assembly Language are *it gives us full control of the machine resources which allows us to do things that could not be done with high-level languages* and *for writing very efficient code for certain functions*.
17. The **Cache memory** is faster than the **RAM** and slower than the **Registers**.
18. The program that translates assembly language into machine language is called *Assembler*.