

Unit 1 - 8086 MICROPROCESSOR

1. **What is the word length of the 8086 microprocessor?**
 - The 8086 has a word length of 16 bits.
2. **List the operating modes of the 8086 microprocessor.**
 - Minimum mode and Maximum mode.
3. **Define pipelining in the context of the 8086 microprocessor.**
 - Pipelining in 8086 allows overlapping of instruction fetch and execution to improve performance.
4. **What is the function of the MN/MX# pin in 8086?**
 - It determines the operating mode: Minimum mode (MN/MX# = 1) or Maximum mode (MN/MX# = 0).
5. **Describe the role of the READY pin in the 8086 microprocessor.**
 - The READY pin is used to insert wait states when slow peripherals are interfaced, allowing the processor to synchronize with external devices.
6. **What is the significance of the ALE signal in 8086?**
 - The Address Latch Enable (ALE) signal indicates when the multiplexed address/data bus carries a valid address.
7. **Why is memory interfacing required in 8086?**
 - Memory interfacing is required to connect the processor to external memory for storing code and data.
8. **What are the two memory segments addressed by the 8086 microprocessor?**
 - Code Segment (CS) and Data Segment (DS).
9. **Differentiate between even and odd memory banks in 8086.**
 - Even memory banks store even-addressed bytes, while odd memory banks store odd-addressed bytes for 16-bit data transfer.
10. **What are the two main types of bus cycles in 8086?**
 - Memory bus cycle and I/O bus cycle.
11. **What happens during the T1 and T2 states of the 8086 bus cycle?**
 - During T1, the address is placed on the bus, and during T2, the data transfer begins.
12. **Name two important companion chips for the 8086 microprocessor.**
 - 8255 Programmable Peripheral Interface and 8259 Programmable Interrupt Controller.
13. **What is the purpose of the 8284 clock generator?**
 - It provides the clock signal and generates reset and ready signals for the 8086 microprocessor.
14. **What is the purpose of the S0, S1, and S2 status signals in maximum mode?**
 - These signals indicate the type of operation (e.g., memory read, write, etc.) being performed.
15. **List two features of the minimum mode of the 8086.**
 - Single processor configuration and simpler control signal generation.
16. **What are the two types of interrupts in 8086?**
 - Maskable interrupts and Non-maskable interrupts.
17. **What is the function of the Interrupt Vector Table (IVT) in 8086?**

- The IVT stores the starting addresses of the interrupt service routines for all interrupts.
18. **What is the role of the 8087 numeric data processor?**
- The 8087 performs arithmetic operations on floating-point and complex data types.
19. **List two data types supported by the 8087 numeric processor.**
- Real numbers and Packed decimal numbers.
20. **What is the significance of the FINIT instruction in the 8087?**
- FINIT initializes the 8087 processor and sets its control word to the default state.