Multiprocessor

Multiprocessor refers to a computer system that uses multiple processors or CPUs to execute tasks in parallel, thus improving the overall system performance. Each processor in a multiprocessor system has its own local memory, and the processors communicate with each other using various interconnection networks.

Interprocess communication (IPC)

Interprocess communication (IPC) refers to the exchange of data between different processes in a computer system. In a multiprocessor system, IPC is essential for enabling communication and synchronization between the different processors and ensuring that they work together efficiently.

Some common methods of IPC in multiprocessor systems:

1. Shared Memory
2. Message Passing
3. Synchronization Primitives
4. Premote Procedure Calls

1. Shared Memory:

Shared memory is a popular method of IPC in multiprocessor systems. In this method, multiple processors share a common region of memory, and each processor can read and write data to this region. Shared memory is fast and efficient but requires careful synchronization to ensure that multiple processors do not access the same memory location at the same time.

2. Message Passing:

Message passing is another common method of IPC in multiprocessor systems. In this method, processes communicate with each other by sending and receiving messages through a communication network. Each message contains a specific set of data and a destination process identifier. Message passing is flexible and can handle both synchronous and asynchronous communication but can be slower than shared memory.

3. Synchronization Primitives:

Synchronization primitives, such as locks, semaphores, and barriers, are used to coordinate the activities of different processes in a multiprocessor system. These primitives ensure that only one process can access a shared resource at a time, and they prevent conflicts and deadlocks in the system.

4. Remote Procedure Calls:

Remote procedure calls (RPCs) allow processes to invoke procedures or functions that are located in a different process or processor. In this method, the calling process sends a message to the remote process, which executes the requested procedure and returns the results to the calling process.

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13. Cache Memory

14. Principle of Cache Memory

15. Cache Mapping

16. Addition and subtraction in fixed point numbers

17. PCI Bus

18. Booths Algorithm

19. Write a short note on design of arithmetic unit ?

20. Write a short note on Array processors ?

21. Write a short note on LRU algorithm ?

22. What is the format of Micro Instruction in Computer Architecture explain ?

23. What is the layout of pipelined instruction in Computer Architecture ?

24. Explain the following interfaces in Detail:PCI Bus, SCSI Bus, USB Bus

25. What is Memory Organization ? Discuss different types of Memory Organization in Computer System.

26. Computer Organization Q and A

27. Write short note on improving cache performance methods in detail ?

28. Briefly explain the concept of pipelining in detail ?

29. Discuss the following in detail: RISC architecture, Vector processing ?

30. Define the instruction format ? Explain I/O System in detail ?

31. Explain the design of arithmetic and logic unit by taking on example ?

32. Explain how addition and subtraction are performed in fixed point number ?

33. Explain different modes of data transfer between the central computer and I/O device ?

34. Differentiate between Serial and parallel data transfer ?

35. Explain signed magnitude, signed l's complement and signed 2's complement representation of numbers. Find the range of numbers in all three representations for 8 bit register.

36. If cache access time is lOOns, main memory access time is 1000 ns and the hit ratio is 0.9. Find the average access time and also define hit ratio.

37. Explain hardwired microprogrammed control unit ? What is address sequencer circuit ?

38. Explain how a stack organized computer executes instructions? What is Stack?

39. Draw and explain the memory hierarchy in a digital computer. What are advantages of cache memory over main memory?

40. What is Associative memory? Explain the concept of address space and memory space in Virtual memory.

41. What is Paging? Explain how paging can be implemented in CPU to access virtual memory.

42. Explain SIMD array processor along with its architectural diagram ?

43. Write short notes on

44. Draw the functional and structural views of a computer system and explain in detail ?

45. Explain general register organization.

46. Compare and contrast DMA and I/O processors ?

47. Define the following: a) Flynn's taxonomy b) Replacement algorithm

48. Explain the various pipeline vector processing methods ?

49. Describe the language features for parallelism ?

50. What are different addressing modes? Explain them.

51. Explain any page replacement algorithm with the help of example ?
52. What is mapping? Name all the types of cache mapping and explain anyone in detail.
53. Explain arithmetic pipeline ?
54. Write short notes on, a) SIMD, b) Matrix multiplication c) Instruction format
55. Differentiate: a) Maskable and non-maskable interrupt b) RISC and CISC
56. Computer Organization Previous Years Solved Questions
57. Booths algorithm to muliyiply +5 and -15