

Compare and contrast DMA and I/O processors ?

DMA (Direct Memory Access) and I/O (Input/Output) processors are both specialized hardware components used to manage data transfer between different devices in a computer system. While they share some similarities, there are also significant differences between the two.

DMA is a technique used to transfer data directly between memory and a peripheral device without the involvement of the CPU. The DMA controller manages the transfer of data between the peripheral device and memory, freeing up the CPU to perform other tasks. DMA is used for high-speed data transfer, such as transferring data to or from a hard disk or network card. DMA is typically used for block transfer, where a large amount of data is transferred in a single operation.

On the other hand, I/O processors are dedicated processors that handle the data transfer and management for multiple I/O devices. An I/O processor is a microprocessor that is specifically designed to perform I/O operations. An I/O processor can handle multiple I/O devices simultaneously and can perform various I/O operations, such as data transfer, data conversion, and protocol conversion. I/O processors are often used in high-performance computing environments where many I/O devices need to be managed.

The key difference between DMA and I/O processors is that DMA is a technique for data transfer, while I/O processors are dedicated hardware components designed to handle I/O operations. DMA is typically used for high-speed block transfer, while I/O processors are used to handle multiple I/O devices simultaneously. DMA is a relatively simple technique that can be implemented in hardware, while I/O processors are complex processors that require software to control their operation.

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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. What is Multiprocessor ? Explain inter process communication in detail ?
29. Briefly explain the concept of pipelining in detail ?
30. Discuss the following in detail: RISC architecture, Vector processing ?
31. Define the instruction format ? Explain I/O System in detail ?
32. Explain the design of arithmetic and logic unit by taking an example ?
33. Explain how addition and subtraction are performed in fixed point number ?
34. Explain different modes of data transfer between the central computer and I/O device ?
35. Differentiate between Serial and parallel data transfer ?
36. Explain signed magnitude, signed 1's complement and signed 2's complement representation of numbers. Find the range of numbers in all three representations for 8 bit register.
37. If cache access time is 100 ns, main memory access time is 1000 ns and the hit ratio is 0.9. Find the average access time and also define hit ratio.
38. Explain hardwired microprogrammed control unit ? What is address sequencer circuit ?
39. Explain how a stack organized computer executes instructions? What is Stack?
40. Draw and explain the memory hierarchy in a digital computer. What are advantages of cache memory over main memory?
41. What is Associative memory? Explain the concept of address space and memory space in Virtual memory.
42. What is Paging? Explain how paging can be implemented in CPU to access virtual memory.
43. Explain SIMD array processor along with its architectural diagram ?
44. Write short notes on
45. Draw the functional and structural views of a computer system and explain in detail ?
46. Explain general register organization.
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 multiply +5 and -15