

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

Associative memory

Associative memory is a type of computer memory that allows data to be accessed based on its content rather than its address.

In other words, associative memory allows a computer to retrieve data by searching for a key value or tag that is associated with it.

Address space and memory space are important concepts in virtual memory systems. In a virtual memory system, the computer's operating system divides the available physical memory into smaller sections called pages. Each page has a unique address in the virtual address space. When a program accesses memory, it uses virtual addresses, which are then translated by the memory management unit (MMU) into physical addresses.

Address space

The address space is the set of all possible virtual addresses that a program can use. Each process has its own address space, which is isolated from other processes. This allows each process to use virtual addresses as if it had its own physical memory, even if the physical memory is being shared among multiple processes.

Memory space

The memory space, on the other hand, is the set of all possible physical memory addresses. In a virtual memory system, the memory space is divided into pages, each of which has a fixed size. The MMU maps virtual addresses to physical addresses by using a page table, which is a data structure that stores the mapping between virtual addresses and physical addresses.

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

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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 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.

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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 multiply +5 and -15