Third Grade

Lecturer Namar A. Taha

Computer architecture

Syllabus

1. Classification of computer architecture
2. Van Neumann machines & Non Van Neumann machines
3. Memory system architecture
4. Memory device characteristics
5. RAM unit components
6. RAM organization
7. Semiconductors RAMs
8. RAM design
9. Cache design
10. Principles of locality of reference
11. Structure of cache memory
12. Basic operation of cache
13. Mapping function
14. Examples replacement algorithms
15. Virtual memory translation look aside buffer
16. Page replacement policies
17. Segmentation technique
18. Segmentation with paging
19. Input output system Programmed IO & Direct memory access
20. DMA controller
21. Types of DMA
22. DMA transfer
23. CPU structure
24. Register organization
25. Control unit
26. Hardwired cu
27. Micro programmed cu
28. Von Neumann machine cycle
29. Central processing unit
30. Execution of a complete instruction Example
31. Branching
32. Types of Microinstruction ((Horizontal Microinstruction & Vertical Microinstruction))
33. Pipelining
34. Cycle time of pipelining

Reference
1- Morris Mano , "computer System Architecture," University of California, prentice Hall, 3rd Ed.,1993
2- Schaum'series," Computer Architecture", Nicholas Carter,2001.
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