

The symbolic notation used to describe the micro operation transfers among register is called a register transfer language.

A register transfer language is a system for expressing in symbolic form the micro operation sequences among the register of a digital module.

For example,

$R1 \leftarrow R2$

- This statement denotes a transfer of the content of register R2 into register R1.
- Here, content of R1 is replaced by content of R2.
- Content of R2 is not affected by this transfer.

If there is a condition, such that.

If ($P = 1$) then ($R1 \leftarrow R2$)

Where P is a control signal generated by the control bus.

Above statement can be used as,

$P=1: R1 \leftarrow R2$

The control condition 'P=1' is terminated with a colon. It symbolizes the requirement that the transfer operation be executed by the hardware only if $P=1$.

Basic symbols for Register Transfer Language

Symbol	Description	Examples
Letters & numerals	Denotes a register	MAR, R2
Parenthesis ()	Denotes a part of a register	R2(0-7), R2(L)
Arrow \leftarrow	Denotes transfer of information	$R2 \leftarrow R1$
Comma ,	Separates two micro operations	$R2 \leftarrow R1, R1 \leftarrow R2$

For example,

T=1: $R2 \leftarrow R1, R1 \leftarrow R2$

- Registers (R1, R2) are denoted by capital letters, and numerals.
- Parentheses () are used to denote a part of a register.
- The arrow (\leftarrow) denotes a transfer of information and the direction of transfer.
- A comma (,) is used to separate two or more operations that are executed at the same time.

References:

1. William stalling , "Computer Architecture and Organization" PHI
2. Morris Mano , "Computer System Organization "PHI

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21. What is the format of Micro Instruction in Computer Architecture explain ?
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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 1'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 100ns, 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 multiply +5 and -15