



# RAMA UNIVERSITY

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## FACULTY OF ENGINEERING & TECHNOLOGY

### CSPS-106 Computer Organization

#### Lecture-07

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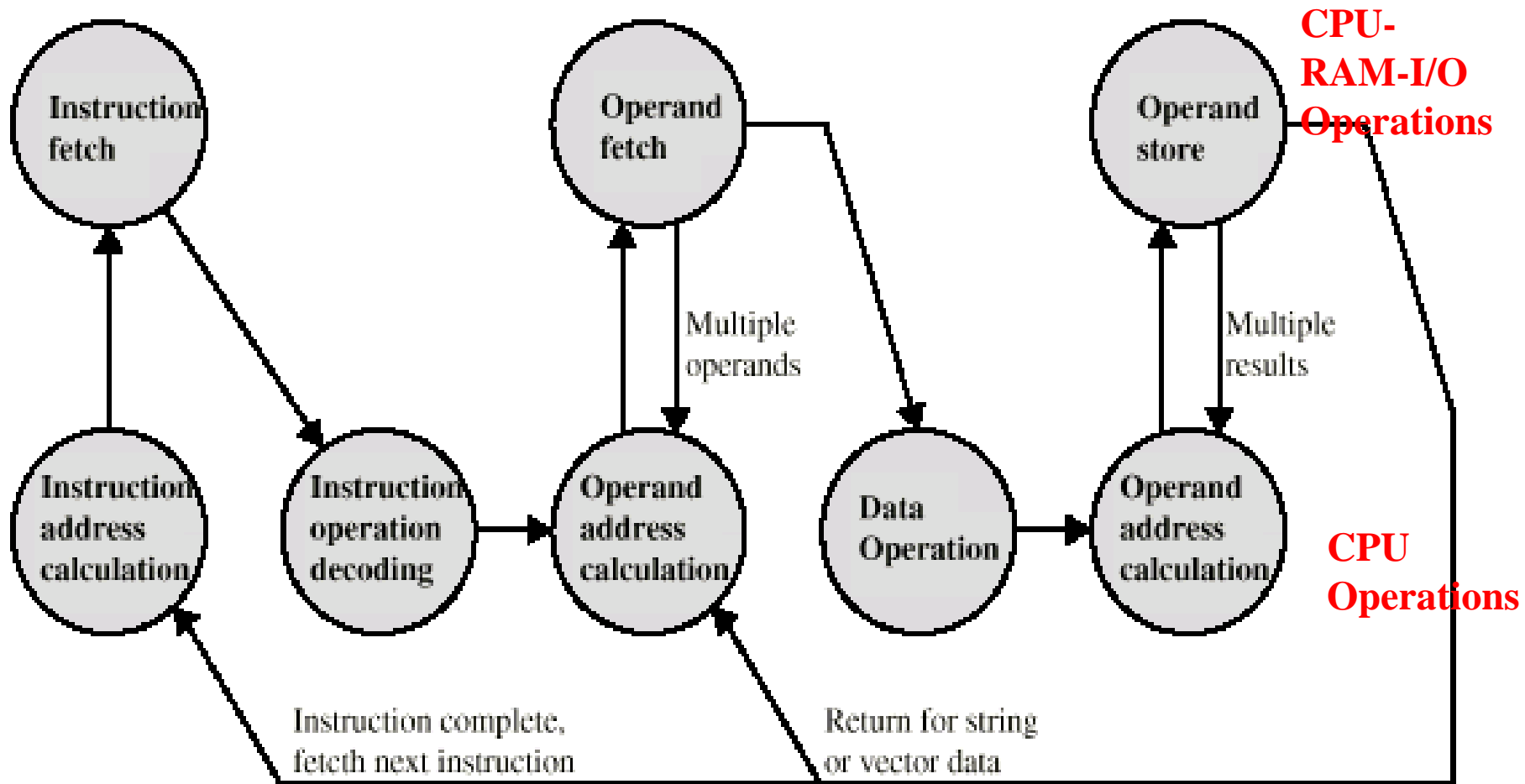
Computer Science & Engineering

# OUTLINE

- ENIAC – BACKGROUND
- STRUCTURE OF VON NEUMANN MACHINE
- STRUCTURE OF IAS
- GENERATIONS OF COMPUTER
- PENTIUM EVOLUTION



# INSTRUCTION CYCLE - STATE DIAGRAM

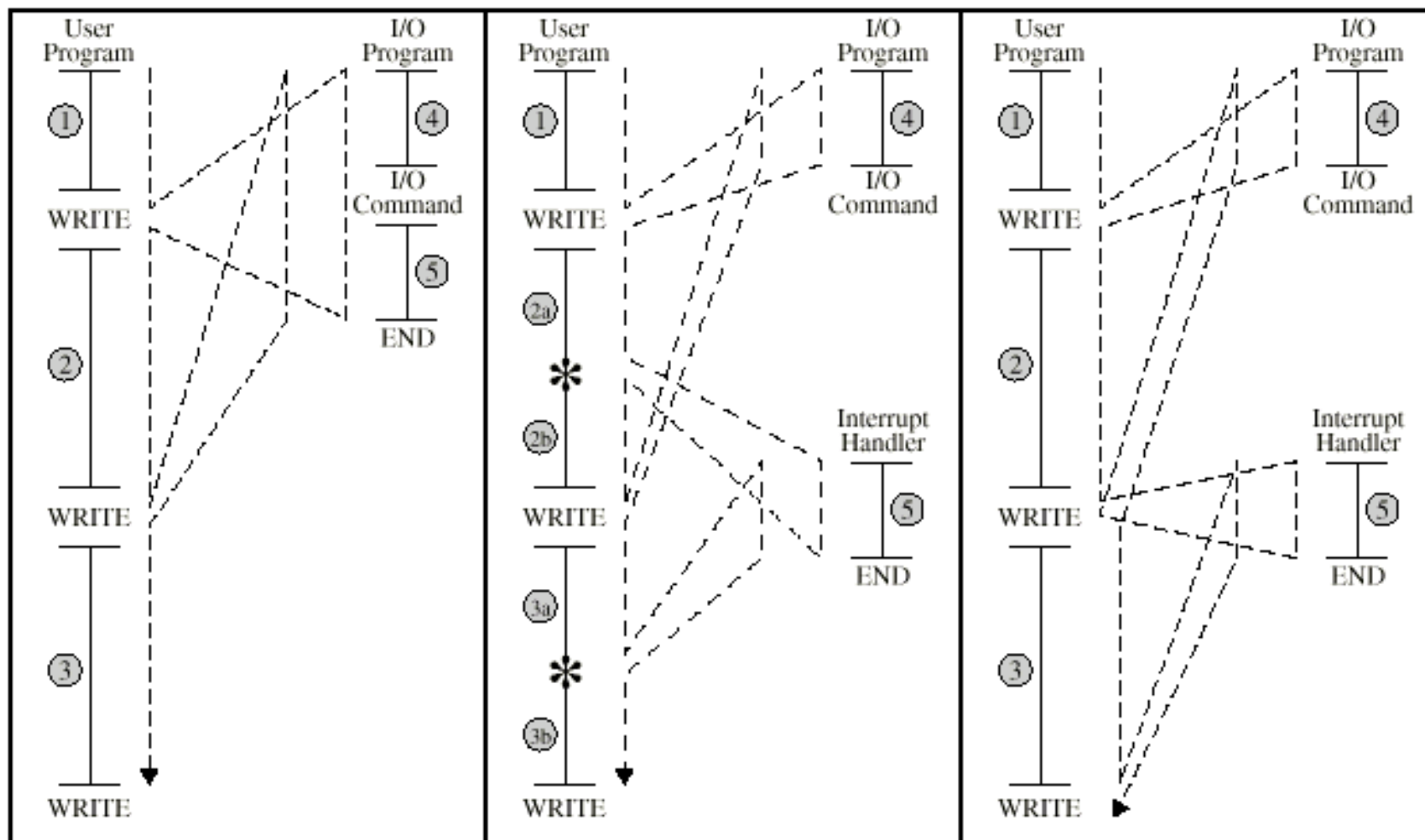


# INTERRUPTS

- Mechanism by which other modules (e.g. I/O) may interrupt normal sequence of processing
- Program
  - e.g. overflow, division by zero
- Timer
  - Generated by internal processor timer
  - Used in pre-emptive multi-tasking
- I/O
  - from I/O controller
- Hardware failure
  - e.g. memory parity error



# PROGRAM FLOW CONTROL



(a) No interrupts

(b) Interrupts; short I/O wait

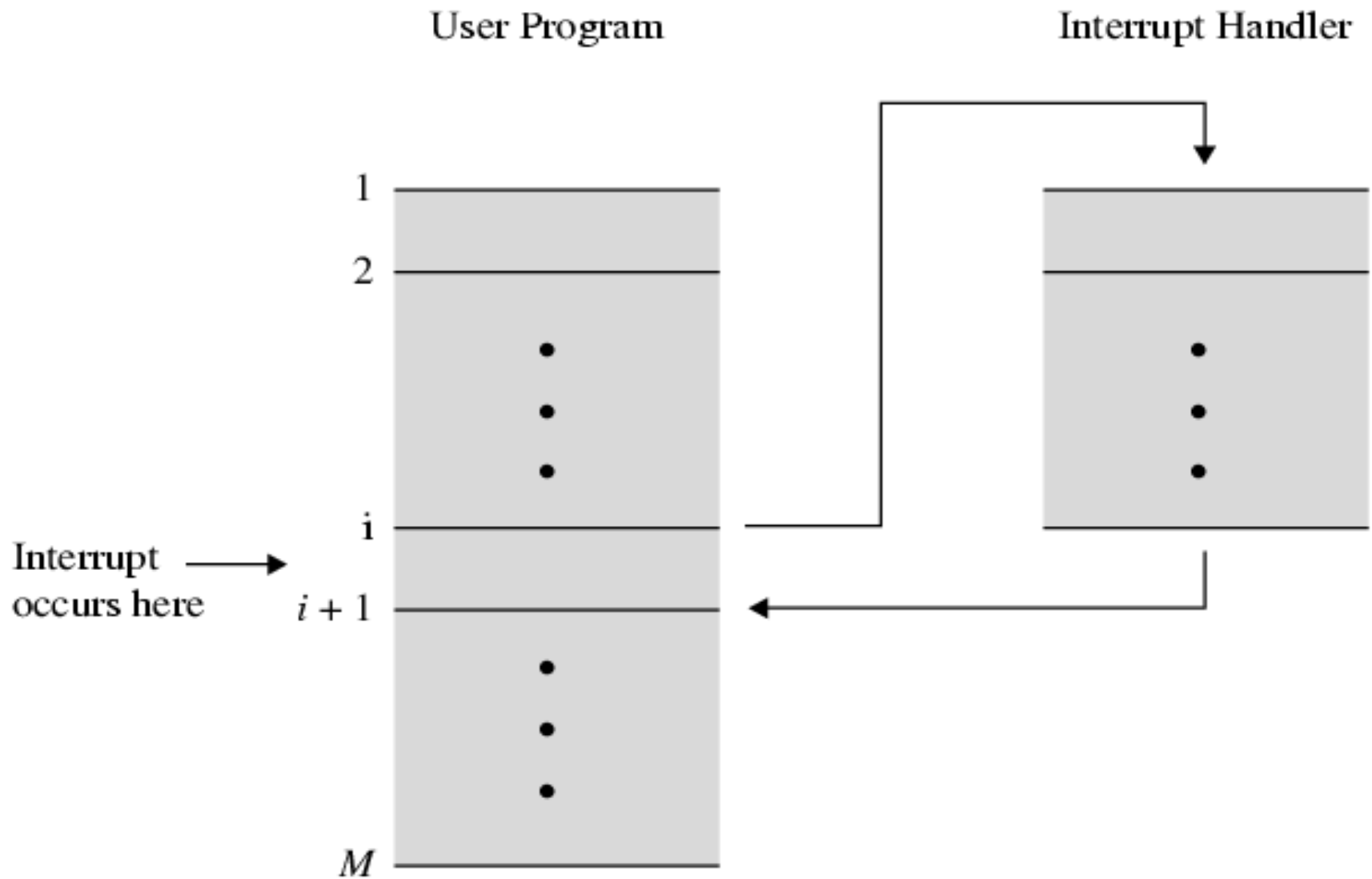
(c) Interrupts; long I/O wait

# INTERRUPT CYCLE

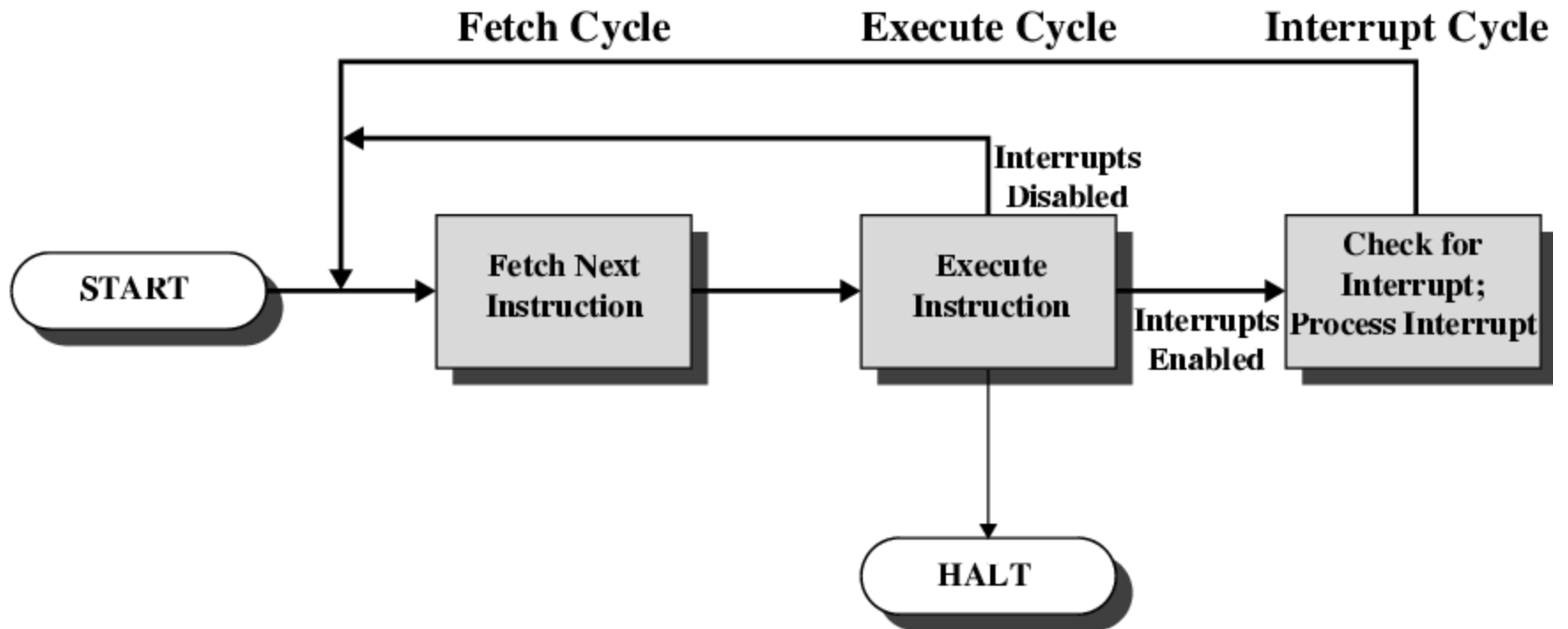
- Added to instruction cycle
- Processor checks for interrupt
  - Indicated by an interrupt signal
- If no interrupt, fetch next instruction
- If interrupt pending:
  - Suspend execution of current program
  - Save context
  - Set PC to start address of interrupt handler routine
  - Process interrupt
  - Restore context and continue interrupted program



# TRANSFER OF CONTROL VIA INTERRUPTS



# INSTRUCTION CYCLE WITH INTERRUPTS







# Multiple Choice Question

## MUTIPLE CHOICE QUESTIONS:

Sr no	Question	Option A	Option B	OptionC	OptionD
1	Which representation is most efficient to perform arithmetic operations on the numbers?	Sign-magnitude	1's complement	2'S complement	None of the mentioned
2	Which method of representation has two representations for '0'?	Sign-magnitude	1's complement	2's complement	None of the mentioned
3	When we perform subtraction on -7 and 1 the answer in 2's complement form is _____	1000	1001	1010	101
4	When we perform subtraction on -7 and -5 the answer in 2's complement form is _____	1110	1010	1111	1000
5	When we subtract -3 from 2 , the answer in 2's complement form is _____	1010	1110	1111	1011

# REFERENCES

- <http://www.engppt.com/search/label/Computer%20Organization%20and%20Architecture>
- <http://www.engppt.com/search/label/Computer%20Architecture%20ppt>

