

8085 PROGRAMMING

ADD 2 8-BIT NUMBERS

**Q1) Add 2 8-bit numbers stored at 2000H and 2001H.
Store Sum at 2002H and carry at 2003H.**

Solution: Without using M

	MVI C, 00H	; Assume Carry = 0
	LDA 2000H	; A = 1 st number
	MOV B, A	; B = 1 st number
	LDA 2001H	; A = 2 nd number
	ADD B	; A = Sum
	JNC SKIP	; Check for carry
	INR C	; Increment C register if Carry Flag = 1
SKIP:	STA 2002H	; Store Sum at 2002
	MOV A, C	; A = Carry from C Register
	STA 2003H	; Store Carry at 2003H
	HLT	; End of program

Solution: Using M

	MVI C, 00H	; Assume Carry = 0
	LXI H, 2000H	; HL = 2000H; M = 1 st number
	MOV A, M	; A = 1 st number
	INX H	; HL = 2001H; M = 2 nd number
	ADD M	; A = Sum
	JNC SKIP	; Check for carry
	INR C	; Increment C register if Carry Flag = 1
SKIP:	INX H	; HL = 2002H
	MOV M, A	; Store Sum at 200H
	INX H	; HL = 2003H
	MOV M, C	; Store Carry at 200H
	HLT	; End of program

Special Note:

Please refer our videos for full explanation of the programs and the diagram of the logic.



| BLOCK TRANSFER PROGRAM

Q2) Transfer a Block of 10 bytes form 2000H to 3000H.

Solution:

	LXI B, 2000H	; Source pointer at 2000H
	LXI D, 3000H	; Destination pointer at 3000H
	MVI L, 0AH	; Count of 10d = 0AH
BACK:	LDAX B	; A gets Source data
	STAX D	; A stored at Destination
	INX B	; Increment Source pointer
	INX D	; Increment Destination pointer
	DCR L	; Decrement Count register
	JNZ BACK	; Loop if count is not zero
	HLT	; End of program

| INVERTED BLOCK TRANSFER PROGRAM

Q3) Perform inverted block transfer of 10 bytes form 2000H to 3000H.

Solution:

	LXI B, 2000H	; Source pointer at 2000H
	LXI D, 3009H	; Destination pointer at 3009H
	MVI L, 0AH	; Count of 10d = 0AH
BACK:	LDAX B	; A gets Source data
	STAX D	; A stored at Destination
	INX B	; Increment Source pointer
	DCX D	; Decrement Destination pointer
	DCR L	; Decrement Count register
	JNZ BACK	; Loop if count is not zero
	HLT	; End of program

| BLOCK EXCHANGE PROGRAM

Q4) Exchange two blocks of 10 bytes stored at 2000H and 3000H

Solution:

LXI B, 2000H	; Pointer to 1 st Block at 2000H
LXI D, 3000H	; Pointer to 2 nd Block at 3000H
MVI L, 0AH	; Count of 10d = 0AH
BACK: LDAX B	; A = data from Block 1 (Eg: "p" from our video)
MOV H, A	; H = p
LDAX D	; A = data from Block 2 (Eg: "q" from our video)
STAX B	; 1 st Block gets q
MOV A, H	; A = p
STAX D	; 2 nd Block gets p
INX B	; Increment Source pointer
INX D	; Increment Destination pointer
DCR L	; Decrement Count register
JNZ BACK	; Loop if count is not zero
HLT	; End of program

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