

PRACTICAL FILE
MICROPROCESSOR (KCS-452)
B.TECH (CSE) -4th SEMESTER
BATCH (2021-2025)



**KCC INSTITUTE OF TECHNOLOGY &
MANAGEMENT GREATER NOIDA
AKTU**

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INDEX

S.NO	TOPIC	SIGN
01.	Write a Program using 8085 μ p for Decimal, Hexadecimal addition and subtraction of two Numbers.	
02.	Write a Program using 8085 μ p for addition and subtraction of two BCD numbers.	
03.	To perform multiplication and division of two 8 bit numbers using 8085 Microprocessor	
04.	To find the largest and smallest number in an array of data using 8085 instruction set.	
05.	To write a program to arrange an array of data in ascending & descending order.	
06.	To convert given Hexadecimal number into its. gquivalent ASCII number and vice versa using 8085 μ p.	
07.	To write a program to initiate 8251 and to check the transmission and reception of character.	
08.	To interface 8253 programmable interval timer to 8085 p and verify the operation of 8253 N in six different modes.	
09.	To interface DAC with 8085 to demonstrate the generation of Square, Saw Tooth and Triangular wave.	
10.	Serial communication between two 8085 μ p through RS-232C port.	

Introduction of 8085 Microprocessor

DESCRIPTION-: 8085 is a Microprocessor Training/Development Kit configured around the most widely used Microprocessor of today's world. This kit has been designed to provide ease in interaction with the 8 bit processor to enable the students to learn about its architecture and capabilities.

SYSTEM SPECIFICATIONS (HARDWARE)-:

CPU	8 bit Microprocessor, the 8085
Memory	Total on board capacity of 64K bytes
RAM	8 K bytes
ROM	16 K bytes of EPROM loaded with powerful monitor Program.
TIMER/COUNTER	Three 16 bit Timer/Counter through 8253. I/O
Keyboard	48 I/O lines using 8255.
LCD Display	IBM PC compatible ASCII keyboard.
BUS	16x1 Liquid Crystal Display OR 16x2.
Serial Interface	All address, data and control signal are available at edge connector as per Multi Bus
Power Supply	RS-232-C through-SID/SOD lines with auto baud rate.
Temperature	5V, 400 mA for kit and serial operations
Battery Backup	0 to 50 °C
	(Optional)

COMMANDS DESCRIPTION

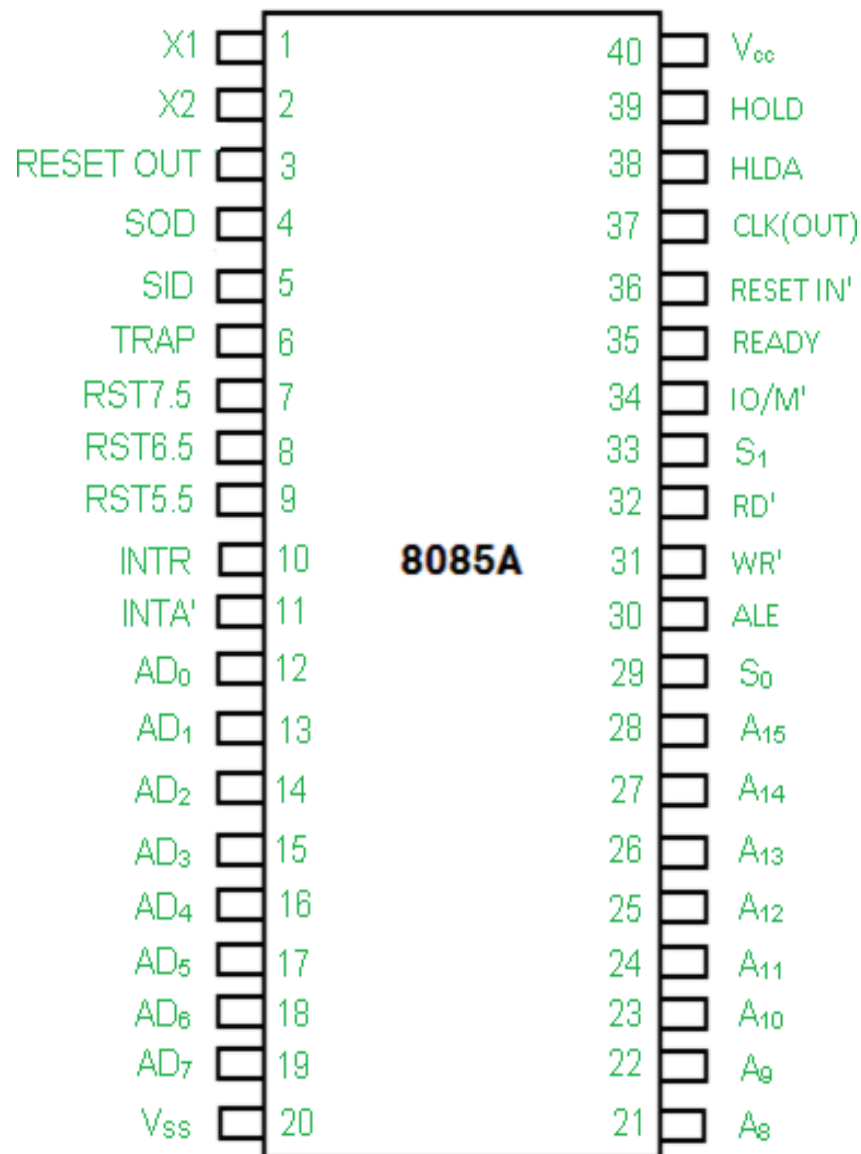
List of ASCII Keyboard Commands-

1. M	Examine/ Modify Memory	8. D	Delete
2. E	Enter a memory block	9. N	Insert data
3. R	Examine/Modify register	10. O	Delete Data
4. S	Single Step	11. F	Fill
5. G	Go	12. H	Relocate
6. B	Block Move	13. J	Memory Compare
7. I	Insert	14. K	String

EXAMINE/MODIFY MEMORY-

The M command allows you to examine and modify memory locations individually.
Format- M Address, (Data), ,

8085 μ p Pin Diagram:



ENTERA MEMORY BLOCK-

E command allows user to enter a program or a block of data in the RAM.

Format- E< Address: data>, <data. >\$

EXAMINE/MODIFY REGISTER-

Display & modification of CPU register is accomplished via R command.

Format- R<register identifier >\$

Type R following by a single alphabet register identifier. The contents may now be changed if so desired. In case you do not want to modify the contents, just enter a comma. The contents of the next register will be printed. The register identifiers for various CPU register are given below.

B

Register Identifier	Register
A	Register A
B	Register B
C	Register C
D	Register D
E	Register E
F	Flag Byte
I	Interrupt Mask
H	Register H
L	Register L
SP	Stack Pointer
PC	Program Counter

Procedure to work on 8085 μ P Trainer Kit

Step I

To enter the program-

1: Using Mnemonics

- » Press 1, press A and enter RAM address (starting address of the program where we want write the program for example 2000) then press enter.
- » Start writing the program from memory location 2000 to till the end of the program.

» For example-

Address	Mnemonic
2000	LXI H 2200
2003	MOV AM
2004	HLT

> After entering the whole program then press RESET.

2. Using Machine Code

> Press M, type the starting address of the program then press enter.

> Start writing the program from memory location 2000 to till the end of the program.

» For example-

Address	Machine Code
2000	21
2001	00
2002	22
2003	.

After entering the all mnemonics then press RESET.

Step 2

To enter the Data-

» Press 1, press A and enter RAM address (address of the data where we want enter, for example 2200) then press enter.

» For example-

2200	DB	First Data byte	Press two times enter
2201	DB	Second Data byte	Press two times enter
2202	Press RESET		

OR

Press M, type the data address then press enter.

For example-

Address	Data
2200	21 First data byte
2201	00 Second data byte
2202	Press RESET

Step 3

To execute the program-

Press G, type the starting address of the program (2000), press Shift and then press 4(\$).

G-2000-shift-4(\$).

After execution of the program press RESET.

Step 4

To check the result-

Press M, type memory location of the result then press enter

For example-

Address	Result
2300	21
2301	00

Note: A - To select Assembly Mode.

M - The M command allows you to examine and modify memory locations individually.

G - Go command is used to execute the program

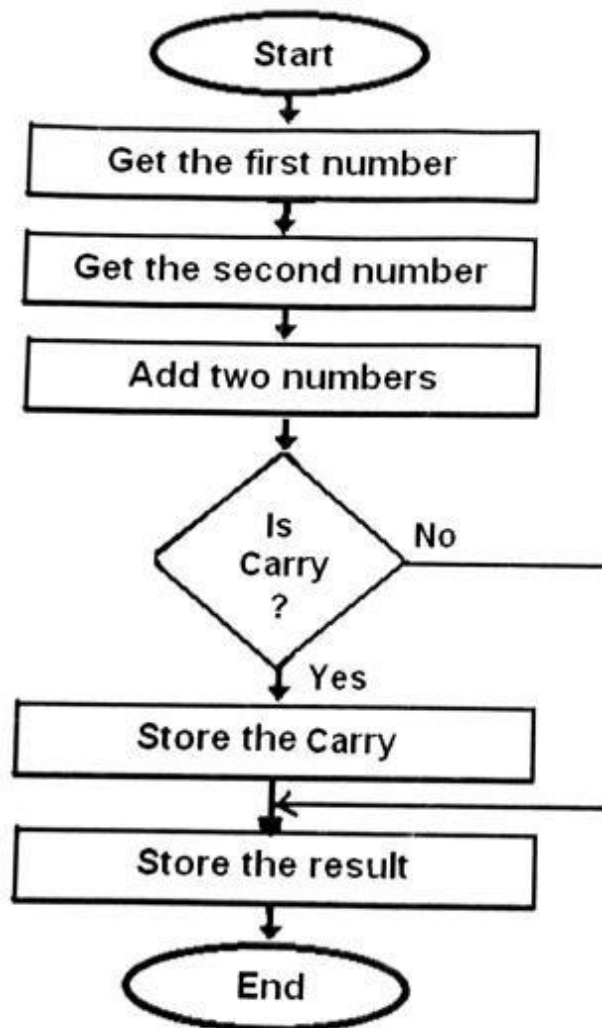
DB - Define Byte.

Experiment No.-1

AIM: Write a program for Hexadecimal addition of two numbers.

APPARATUS REQUIRED: 8085 Microprocessor Kit and HEX Keyboard.

FLOW CHART:



PROCEDURE:

1. Enter the program from location 2000 onward using EXMEM command. Also enter the data at locations 2100 and 2101.
2. Execute the program from 2000 using GO key and examine the result at location 2102. (Press G; enter the starting address of the program then press Shift and then 4)

PROGRAM:

ROM (code)

ADDRESS	MACHINE CODE	LABEL	MNEMONICS		COMMENTS
			OPCODE	OPERAND	
2000H	21 00 21		LXI	H 2100H	Point to 1 st no.
2003H	0E 00		MVI	C00H	Initialized the counter
2005H	7E		MOV	A, M	Load it in accumulator
2006H	23		INX	H	Point to 2 nd no.
2007H	86		ADD	M	Two HEX' no. to be added
2008H	D2 0C 20		INC	200C	Jump if no carry generate
200BH	0C		INR	C	Increment the counter
200CH	23		INX	H	Store the result
200DH	77		MOV	M, A	Increment memory pointer
200EH	23		INX	H	Store the carry
200FH	71		MOV	M, C	Stop the program
2010H	76		HLT		

Address Data

2100H FFH

2101H FFH

Result:

2102H FEH

2103H 01H

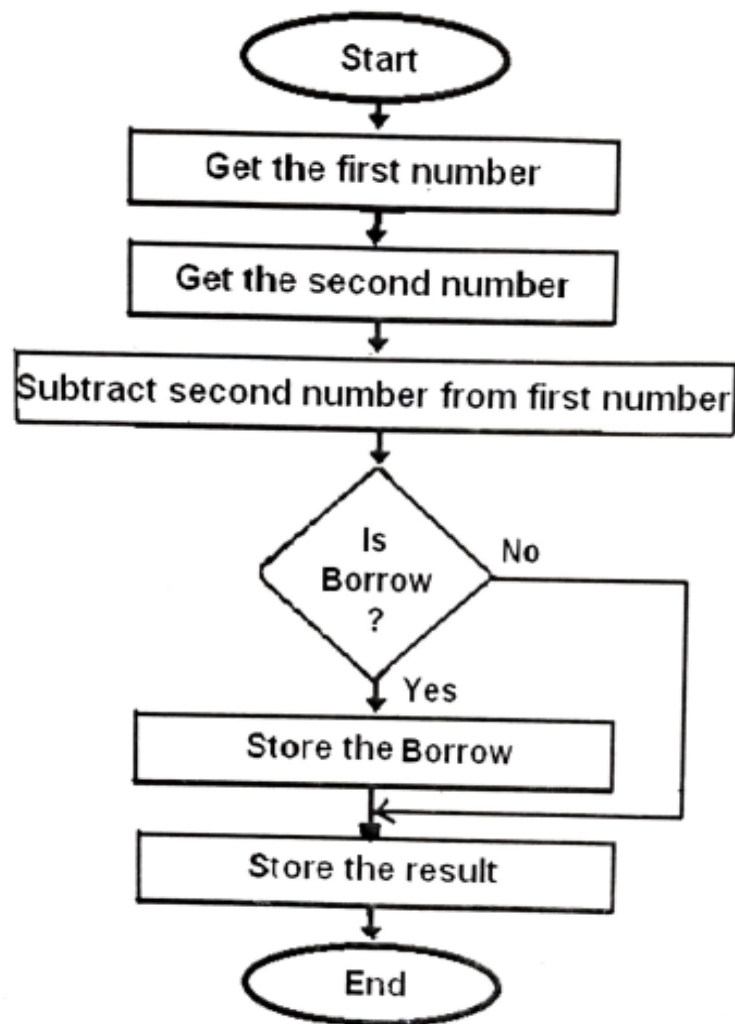
RESULT: FF H+FF H=01FE H

Experiment No.-2

AIM: Write a program for Hexadecimal subtraction of two numbers.

APPARATUS REQUIRED: 8085 Microprocessor Kit and HEX Keyboard.

FLOW CHART:



PROCEDURE:

1. Enter the program from location 2000 onward using EXMEM command. Also enter the data at locations 2100 and 2101.
2. Execute the program from 2000 using GO key and examine the result at location 2102. (Press G; enter the starting address of the program then press Shift and then 4)

PROGARM:

ADDRESS	MACHINE CODE	LABEL	MNEMONICS		COMMENTS
			OPCODE	OPERAND	
2000H	21 00 21	SKIP	LXI	H 2100H	Point to 1 st no.
2003H	0E 00		MVI	C00H	Initialized the counter
2005H	7E		MOV	A, M	Load it in accumulator
2006H	23		INX	H	Point to 2 nd no.
2007H	86		SUB	M	Two HEX' no. to be subtracted
2008H	D2 0C 20		INC	200C	Jump if no borrow generate
200BH	0C		INR	C	Increment the counter
200CH	23		INX	H	Store the result
200DH	77		MOV	M, A	Increment memory pointer
200EH	23		INX	H	Store the borrow
200FH	71		MOV	M, C	Stop the program
2010H	76		HLT		

Address**Data**

2100H

32 H

2101H

12 H

Result:

2102H

20 H (Difference)

2103H

00 H (Borrow)

RESULT: 32H-12H=20H
