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

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/0	48 1/0 lines using 8255.
Keyboard	IBM PC compatible ASCII keyboard.
LCD Display	16x1 Liquid Crystal Display OR 16x2.
BUS	All address, data and control signal are available at edge connector as per Multi Bus
Serial Interface	RS-232-C through-SID/SOD lines with auto baud rate.
Power Supply	5V, 400 mA for kit and serial operations
Temperature	0 to 50 °C
Battery Backup	(Optional)

COMMANDS DESCRIPTION

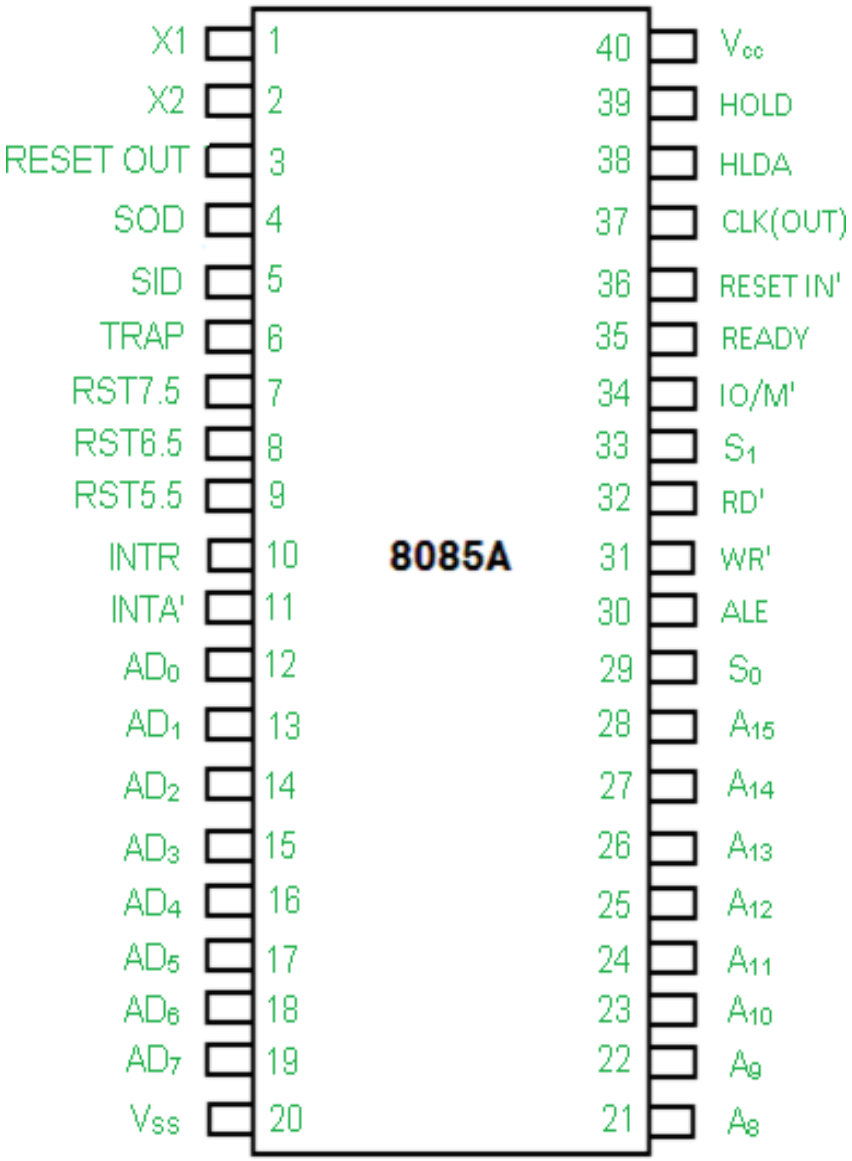
List of ASCII Keyboard Commands-

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

EXAMINE/MODIFY MEMORY-

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

8085μp 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 µP 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-

- PressG, 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

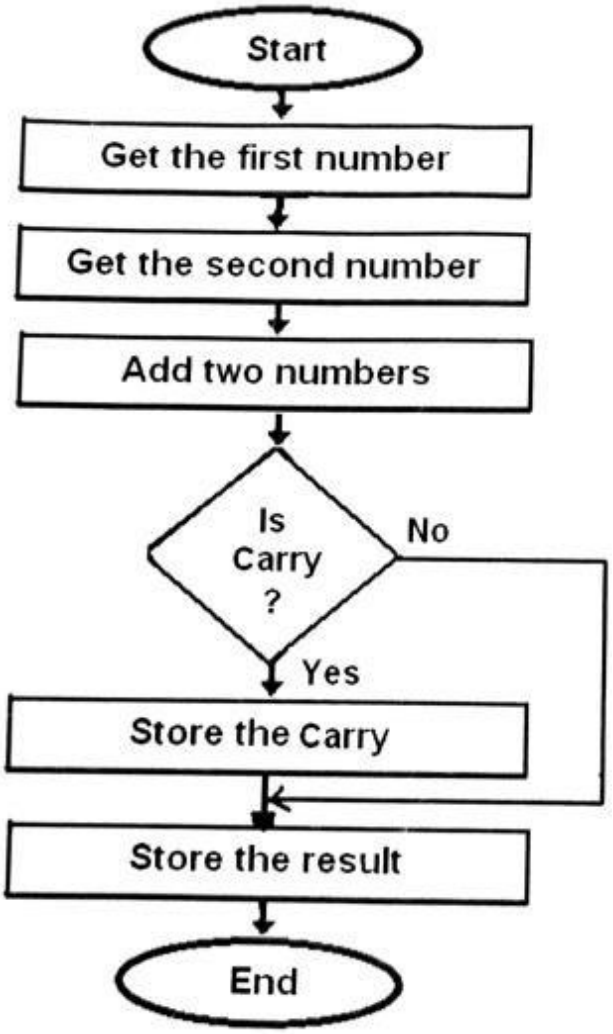
Note: A - To select Assembly Mode.
M - The M command allows you to examine and modify memory locations individually.
G - Go command is used to execute the program
DB - Define Byte.

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 G0 key and examine the result at location 2102. (Press G; enter the starting address of the program then press Shit and then 4)

PROGARM:

ROM (code)

ADDRESS	MACHNE CODE	LABEL	MNEMON	ICS	COMMENTS
			OPCODE	OPERAND	
2000H	21 00 21		LXI	H 2100H	Point to 1st no.
2003H	0E 00		MVI	C00H	Initialized the counter
2005H	7E		MOV	A, M	Load it in accumulator
2006H	23		INX	H	Point to 2nd 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

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