EXPERIMENT-1

- **AIM:** Familiarization of different keys of 8085 microprocessor kit and its memory map.
- **APPARATUS**: 8085 kit.
- **DIAGRAM**:

Reset	VCT INT	Shift	C	D	E	F
RTG SI	INSD	DELD	8	9	A	B
DEL GO	INS BM	REL EMEM	4	5	6	7
STRG PRG	MEMC NEXT	FILL	0	1	2	3

Keyboard of 8085 kit

- **THRORY:-**

KEYBOARD DESCRIPTION:

Vinytics 8085 kit has 28 keys and six-seven segment display to communicate with the outside world. As kit is switches ON ,a message –'UP 85' is displayed on the display and all keys are in command mode. The keyboard is as shown below:

- RESET:- Reset the system.
- VCT INT:- Hardware interrupt via keyboard, RST 7.5.
- SHIFT:- Provides a second level command to all keys.
- GO:- To execute a program.
- SI:- To execute the program on single step mode.
- EXREG:- EXAMINE REGISTER; allows user to examine and modify the contents of different register.
- PRE:- Previous is used as an intermediate terminator in case of examine memory.
- DEL:- DELETE the part of the program or data with relocation, by one or more bytes.
- INS:- Inserts the part of the program or data with relocation, by one or more bytes.
- B.M:- BLOCK MOVE allows user to move a block of memory to any RAM area.
- FILL:- Allows user to fill RAM area with a constant.
- REL:- RELOCATES a program written for some memory area and to be transferred to other memory area.

- INS DATA:- INSERT DATA insert one or more data bytes in the user's program/data area.
- STRING:- Finds out the string of data lying at s particular address or addresses.
- MEMC:- MEMORY COMPARE: compare two blocks of memory for equality.
- O TO F:- Hexadecimal keys.

Memory Map of kit:

0000H	TO	OFFFH	=	ERROM(2732)
1000H	TO	17FFH	=	RAM#1(6 1/6)
1800H	TO	1FFFH	=	RAM#2(6 1/6)
2000H	TO	27FFH	=	RAM#3(6 1/6)
2800H	TO	2FFMH	=	RAM#4(6 1/6)
309FH	TO	300FH	=	256bytes of user stop
30AOH	TO	3FFFH	=	fold back memory
4000H	TO	FFFFH	=	expendable memory

EXPERIMENT-2

- **AIM**:- Exercise the steps to enter program and to execute a program on 8085 micro processor kit.
- **APPARATUS**:- 8085 up kit.
- **PROCEDURE:-**
  1) Switch on the power supply and kit will display “UP 8085”.
  2) Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on upto the end of program opcodes
  3) To execute the program press Reset ~ go ~ starting address ~ execute buttons
  4) To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.

Experiment:-3(A)

- **Aim**:- Writing and execution of ALP for the addition of two 8-bit numbers.
- **Apparatus**:- 8085 kit.
- **Program:**

Memory address.	Opcode(HEX)	Mnemonics	Comment
2000 2001	3E 56 .	MVI A 56H	Place 1st number in accumulator
2002 2003	06 49	MVI B 49H	Place 2nd number in B register
2004	80	ADD B	Add the contents of A &B registers
2005 2006 2007	32 03 25	STA 2503H	Store the contents of Accumulator at 2503 H memory address
2008	76	STOP	End of Program

- **PROCEDURE:**
    1. Switch on the power supply and kit will display "UP 8085".
    2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
    3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
    4. To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.
- **Result:** We have seen the result 9F H which is the addition of 56H and 49H at the memory address 2503H

Experiment:-3(B)

- Aim:- Writing and execution of ALP for the Subtraction of two 8-bit numbers.
- Apparatus:- 8085 kit.
- Program:

Memory address.	Opcode (HEX)	Mnemonics	Comment
2000 2001	3E 56 .	MVI A 56H	Place 1st number in accumulator
2002 2003	06 49	MVI B 49H	Place 2nd number in B register
2004	90	SUB B	Subtract the contents of A &B registers
2005 2006 2007	32 03 25	STA 2503H	Store the contents of Accumulator at 2503 H memory address
2008	76	STOP	End of Program

- PROCEDURE:
    1. Switch on the power supply and kit will display "UP 8085".
    2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
    3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
    4. To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.

- Result: We have seen the result 0D H which is the subtraction of 56H and 49H at the memory address 2503H

EXPERIMENT-4(A)

- Aim:- Write a program for the multiplication of two 8-bit numbers.
- Apparatus:- 8085 kit.
- Program:

Memory Address	OPCODE (Hex)	Mnemonics	Comments
2000 2001	26 02	MVI H, 02H	Place the 1st number in H register
2002 2003	2E 03	MVI L, 03H	Place the 2nd number in L register
2004 2005	3E 00	MVI A, 00H	Initialize the accumulator to 00H
2006	84(X)	ADDH	Add the contents of H and A register
2007	2D	DCRL	Decrement the contents of L register by 1
2008 2009 200A	C2 06 20	JNZ (X)	Jump to 'X (2006H)' if contents of above register (L register) is not zero
200B 200C 200D	32 02 22	STA 2202H	Store the contents of Accumulator to 2202H Memory address
200E	76	HLT	End of Program

- PROCEDURE:
  1. Switch on the power supply and kit will display "UP 8085".
  2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
  3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
  4. To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.

- Result: We have seen the result 06 H which is the multiplication of 02H and 03H at the memory address 2202H

EXPERIMENT-4(B)

- AIM:- Write a program for the division of two 8- bit numbers.
- Apparatus:- 8085 kit.
- Program:

Memory Address	OPCODE (Hex)	Mnemonics	Comments
2000-01	3E, 08	MVI A, 08H	Place the 1st number in accumulator
2002-2003	06,02	MVIB,02H	Place the 2nd number in B register
2004-2005	0E, 00	MVIC, 00H	Initialize the C register (which will store the value for quotient) to 00H
2006	90 (Y)	SUBB	Subtract the contents of B register from Accumulator
2007-09	FA,0E,20	JM (X)	Jump to 'X (200EH)' if the result of above subtraction has minus sign
200A	OC	INRC	Increment the contents of Register C
200B-OD	C3,06,20	JMP (Y)	Jump to 'Y (2006H)'
200E	80 (X)	ADDB	Add the contents of B register & accumulator
2OOF-11	32,03,25	STA,2503H	Store the contents (Remainder of Division) of Accumulator at 2503H memory address
2012	79	MOVA, C	Move the contents (Quotient) in C register to A register
2013-15	32,02,25	STA,2502H	Store the contents of Accumulator at 2502H memory address
2016	76	HLT	End of the Program

- **PROCEDURE:**
  1. Switch on the power supply and kit will display "UP 8085".
  2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
  3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
  4. To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.

- **Result:** We have seen the result 04 H (quotient) & 00H (remainder) of division of 08H & 02H at the memory address 2502H & 2503H respectively.

EXPERIMENT-5(A)

- **Aim:-** Writing and execution of ALP for arranging the elements of array in ascending order.
- **Apparatus:-** 8085 kit.
- **Program:**

Memory Address	OPCODE (Hex)	Mnemonics	Comments
2000-01	16,05	MVI D,05H	Set the counter (in D register) at the total no. of elements you have to arrange in ascending order
2002-2004	21,00,25 (Z)	LXI H,2500H	Load the H-L register pair with the starting address of the elements to be arranged
2005-2006	0E,09	MVI L,04H	Set one more counter in L register which indicate the total no. of elements still left to arrange
2007	7E(Y)	MOVA,M	Move the contents of Memory addressed by H-L pair into A register
2008	23	INX H	Increment the contents of H-L pair
2009	BE	CMP M	Compare the contents of Accumulator & memory addressed by H-L Register pair
200A-OC	DA,12,20	JC (X)	Jump to ‘X (2012H) if carry produced after the execution of previous instrucion
200D	46	MOV B,M	Move the contents of Memory addressed by H-L pair into B register
200E	77	MOVM,A	Move the contents of A register into Memory addressed by H-L register pair
200F	2B	DCX H	Decrement the contents of H-L register pair by 1
2010	70	MOVM,B	Move the contents of B register into Memory addressed by H-L pair
2011	23	INXH	Increment the contents of H-L register pair by 1
2012	OD (X)	DCRC	Decrement the contents of C register pair by 1
2013-15	C2,07,20	JNZ (Y)	Jump to “Y(2007) if the result produced after the execution of previous instruction is not Zero
2016	15	DCRD	Decrement the contents of D register pair by 1
2017-19	C2,02,20	JNZ (Z)	Jump to “Z(2002) if the result produced after the execution of previous instruction is not Zero
201A	76	HLT	End of Program

- **PROCEDURE:**
  1. Switch on the power supply and kit will display “UP 8085”.
  2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
  3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
  4. To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.
- **Result:** We have seen all the five numbers arranged in ascending order which are stored at memory locations from 2500H to 2504H

EXPERIMENT-5(B)

- **Aim:-** Writing and execution of ALP for arranging the elements of array in descending order.
- **Apparatus:-** 8085 kit.
- **Program:**

MemoryAddress	OPCODE (Hex)	Mnemonics	Comments
2000-01	16,05	MVI D,05H	Set the counter (in D register) at the total no. of elements you have to arrange in ascending order
2002-2004	21,00,25 (Z)	LXI H,2500H	Load the H-L register pair with the starting address of the elements to be arranged
2005-2006	0E,09	MVI L,04H	Set one more counter in L register which indicate the total no. of elements still left to arrange
2007	7E(Y)	MOVA,M	Move the contents of Memory addressed by H-L pair into A register
2008	23	INX H	Increment the contents of H-L pair
2009	BE	CMP M	Compare the contents of Accumulator & memory addressed by H-L Register pair
200A-OC	DA,12,20	JNC (X)	Jump to ‘X (2012H) if no carry produced after the execution of previous instruction
200D	46	MOV B,M	Move the contents of Memory addressed by H-L pair into B register
200E	77	MOVM,A	Move the contents of A register into Memory addressed by H-L register pair
200F	2B	DCX H	Decrement the contents of H-L register pair by 1
2010	70	MOVM,B	Move the contents of B register into Memory addressed by H-L pair
2011	23	INXH	Increment the contents of H-L register pair by 1
2012	OD (X)	DCRC	Decrement the contents of C register pair by 1
2013-15	C2,07,20	JNZ (Y)	Jump to “Y(2007) if the result produced after the execution of previous instruction is not Zero
2016	15	DCRD	Decrement the contents of D register pair by 1
2017-19	C2,02,20	JNZ (Z)	Jump to “Z(2002) if the result produced after the execution of previous instruction is not Zero
201A	76	HLT	End of Program

- **PROCEDURE:**
  1. Switch on the power supply and kit will display “UP 8085”.
  2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
  3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
  4. To check the result press Reset ~ examine memory~Memory address(where the result has been stored in program) ~Next.
- **Result:** We have seen all the five numbers arranged in descending order which are stored at memory locations from 2500H to 2504H

EXPERIMENT-6

- **Aim:-** Write and execution of ALP for 0-9 BCD counter (up/down counter).
- **Apparatus:-** 8085 kit.
- **Program:**

Memory Address	OPCODE (Hex)	Mnemonics	Comments
2000-01	3E,00	MVIA,00H	Initialize the counter at 00H
2002-2004	21,00,22	LXIH,2200H	Load H-L register pair with 2200H Memory address
2005	77(X)	MOVM,A	Move the contents of A Register into memory addressed by H-L pair
2006	3C	INR A	Increment the contents of A register by 1
2007	23	INXH	Increment the contents of H-L register pair by 1
2008-09	FE,0A	CPI,0A	Compare the immediate data '0A' with the contents of accumulator
200A-DC	C2,05,20	JNZ (X)	Jump to 'X(2005H) if the result after the execution of previous instruction is not zero
2OOD-OE	3E,09	MVIA,09	Move the immediate data '09H' into Accumulator
200F	3D	DCR A (Y)	Decrement the contents of A register by 1
2010	77	MOVM,A	Move the contents of A register to Memory addressed by H-L pair
2011	23	INX H	Increment the contents of H-L register pair
2012-13	FE,00	CPI,00	Compare the immediate data '00H' with the contents of accumulator
2014-16	CE,0F,20	JNZ (Y)	Jump to 'X(200FH) if the result after the execution of previous instruction is not zero
2017	76	HLT	End of Program

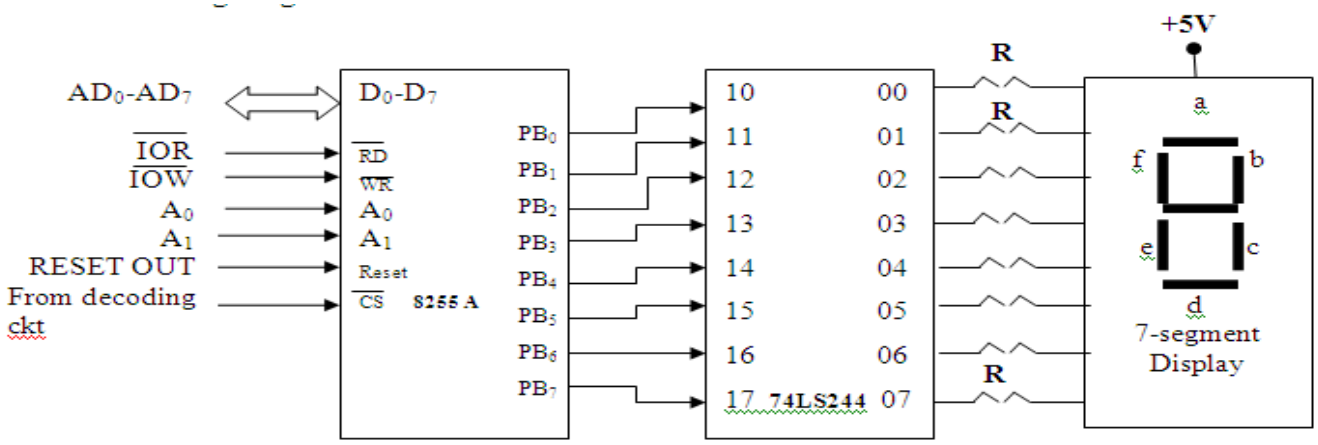
- **PROCEDURE:**
  1. Switch on the power supply and kit will display “UP 8085”.
  2. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
  3. To execute the program press Reset ~ go ~ starting address ~ execute buttons
  4. To check the result press Reset ~ examine memory ~Memory address(where the result has been stored in program) ~Next.
- **Result:** We have seen the numbers from 0-9 and then from 9-0 starting from the memory address 2200H

EXPERIMENT – 7

- **AIM:-** Interface the seven segment display to 8085 with the help of 8255
- **Apparatus:-** 8085 kit, 8255 interfacing card, 50 pin FRC cable.
- **Theory:-** The interfacing details are shown in fig. Port B is used to drive the seven segment display through PB_0 to PB_7 lines respectively. The data required to display the number is calculated and stored in memory from address 2050H as shown in figure.

Display Number.	PB_7 dp	PB_6 g	PB_5 f	PB_4 e	PB_3 d	PB_2 c	PB_1 b	PB_0 a	HEX data	Memory address
0	1	1	0	0	0	0	0	0	COH	2050
1	1	1	1	1	1	0	0	1	F9H	2051
2	1	0	0	0	0	1	0	0	A4H	2052
3	1	0	1	1	0	0	0	0	BOH	2053
4	1	0	0	1	1	0	0	1	99H	2054
5	1	0	0	0	0	0	1	0	92H	2055
6	1	0	0	1	0	0	1	1	89H	2056
7	1	1	1	0	1	0	0	0	F8H	2057
8	1	0	0	1	0	0	0	0	89H	2058
9	1	0	1	0	1	0	0	0	98H	2059

- **Interfacing Diagram:**



- **Program:**

Memory Address	OPCODE (Hex)	Mnemonics	Comments
2000-01	3E,80	MVIA,80H	Move 80H (Code to make Port B as O/P Port) into Accumulator
2002-2003	D3,28	OUT,2BH	Out the contents of Accumulator to the control word register of microprocessor having address 2BH
2004-2005	OE,OA (Y)	MVIC,OAH	Move the Counter Value 0AH into C register
2006-08	21,50,20	LXIH,2050H	Load the H-L register with memory Address 2050H at which the first code to display digit '0' is stored
2009	7E (X)	MOVA,M	Move the contents C0H of memory 2050H into Accumulator
200A-0B	D3,29	OUT 29H	Out the contents of Accumulator on Port B whose address is 29H
200C-0E	CD,17,20	CALL DELAY	Call the Delay Sub Program (Starting from Memory address 2017H)
200F	23	INXH	Increment the contents of H-L Pair
2010	0D	DCRC	Decrement the contents of C Register
2011-13	C2,09,20	JNZ(X)	Jump to Memory address 2009H if the Result after the execution of previous Instruction is not Zero
2014-16	C3,04,20	JNP(Y)	Jump to Memory address 2004H if after the execution of previous Instruction there is no parity or parity Flag is set to '0'
2017-18	16FF (DELAY)	MVID,FFH	Move the Delay counter FFH into D Register
2019-1A	1E,FF	MVIE,FFH	Move the Delay counter FFH into E Register to create desired Delay in Whole Program
201B	1D,(DL1)	DCRE	Decrement the contents of E Register
2010-1E	C2.IB,20	JNZ,DL1	Jump to Memory address 201BH if the Result after the execution of previous Instruction is not Zero
201F	15(DL 2)	DCRD	Decrement the contents of D Register
2020-22	C2,19,20	JNZ,DL2	Jump to Memory address 201BH if the Result after the execution of previous Instruction is not Zero
2023	C1	RET	Return to 200FH Memory address

- **PROCEDURE:-**

1) Connect the 8255 peripheral card to the kit by 50 pin.
2) Keep the switch S1 in OFF position to enable single stepping.
3) Now ON the kit and enter the program as given for each experiment starting address for entering the program is 2000H

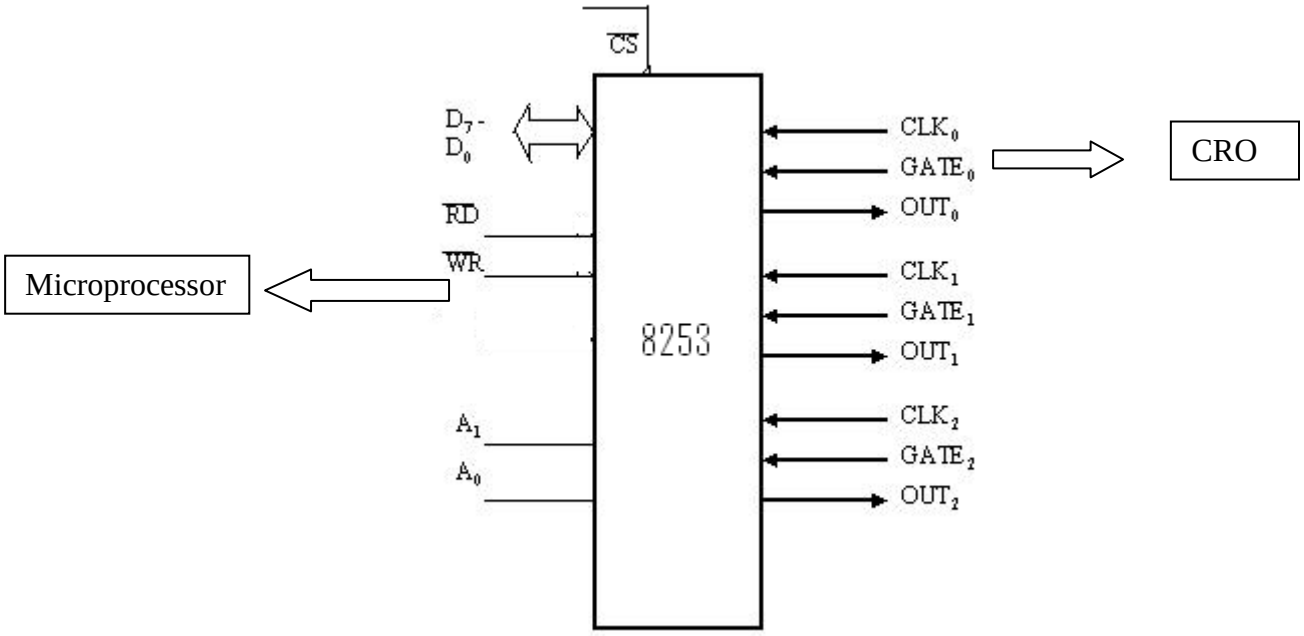
Steps to enter the program:-

4. Switch on the power supply and kit will display "UP 8085".
5. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
6. To execute the program press Reset ~ go ~ starting address ~ execute buttons
7. To check the result press Reset ~ examine memory ~Memory address(where the result has been stored in program) ~Next.

- **Result:** We have seen the digit 0-9 blinking on seven segment display provided on the kit

EXPERIMENT-8

- **AIM**- Interfacing of 8253 (Programmable interval Timer) to microprocessor 8085 to generate square wave of 1ms period. If input clock frequency to 8253 is 1 MHz.
- **APPARATUS**- 8085 microprocessor kit ,8253 interfacing card , connecting leads, 50 pin FRC cable and CRO.
- **DIAGRAM:**



- **THEORY**- 8253 is named as programmable interval Timer. So it consist of three identical 16 bit counter or Timer. These Timer/counter can work as counter or can provide accurate time delay.The 8253 can be used in 6 modes as given below:

  MODE 0 : Interrupt on terminal count.

  MODE 1 : Programmable line-shot.

  MODE 2 : Pulse generator.

  MODE 3 : Squarewave generator.

  MODE 4 : Software triggered strobe.

  MODE 5 : Hardware triggered strobe.

To generate the square wave 8253 is operated in mode 3. Counter 0 can be used for this purpose.

The count value which should be loaded in counter 0 to generate the square wave of 1ms can be calculated as:

Count Value = $\frac{Required\ period}{Input\ period}$

$\frac{1ms}{1MHz} = 10^{-3}/10^{6} = 1000H$

Each counter of 8253 is to be initialized separately by transferring separate control word for each counter to control word register.

Format of control word register

D_7	D_6	D_5	D_4	D_3	D_2	D_1	D_0
SC1	**SC0**	**RL1**	**RL0**	**M2**	**M1**	**M0**	**Binary or BCD counter**

- SC1 and SC0 are used for selecting the counter.
- RL1 & RL2 are used to select counter Read Load Operation.
- The M2, M1 and M0 are for mode selection.
- D_0 bit is used to select type of counter i.e BCD or Binary Counter.

To generate square wave with the help of 8253, required control word is 00110111 = 37H. The port address for control word register & Counter 0 of 8253 are given below.

CWR = 2BH

Counter 0 = 28H

- **PROGRAM:**

Memory Address	**Opcode (Hex)**	**Mnemonics**	**Comments**
2000-01	3E , 37	MVI A ,37H	Place 37H in accumulator to initialize counter 0 , in mode 3
2002-03	D3 , 33	OUT ,33H	Place control word in control register
2004-05	3E , 00	MVI A ,00H	Load LSB count value to Accumulator
2006-07	D3 , 30	OUT ,30H	Move LSB count value to counter 0
2008-09	3E , 10	MVI A, 10H	Load MSB count value to accumulator
200A-0B	D3 , 30	OUT , 30H	Move MSB count value to counter 0
200C	CF	RET	Return to starting address

- **PROCEDURE:-**

1) Connect the 8253 card to 8085 kit with the 50 pins.

2) Enter the program for select of mode as given below from memory location 2000H.

   i. Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on upto the end of program opcodes

   ii. To execute the program press Reset ~ go ~ starting address ~ execute button

3) Connect the probe of oscillator to the required pins.

4) Give the +5v to gate and give the clock 1 to clock 0.

5) Execute the program and see the waveform on CRO at out 0 pin of 8253.

- **RESULT**: We have seen the square wave of period 1ms on CRO

EXPERIMENT-9

AIM- Interfacing of 4×4 Matrix key board with an 8085 microprocessor using 8279 programmable keyboard/display controller to display the hex code of the key pressed on display of microprocessor.

APPARATUS- 4×4 matrix key board, IC 8279, connecting wires, microprocessor 8085 kit.

THEORY- 8279 is a programmable keyboard or display controller designed specifically for 8 bit intel microprocessor. It has two sections. A) **Keyboard section** b) **display section.**

Keyboard section is used to interface the keyboard with the microprocessor as input device. The display section is used to drive the alphanumeric display and indicator lights. This section is directly connected with microprocessor bus.

On pressing any key of the keyboard , the keyboard entry is stored in the internal FIFO memory of 8279. Unique interrupt signal is generated by each keyboard entry.

The 8279 can be used in two modes: .

A) 2-KEY LOCKOUT

B) N-KEY ROLLOVER

A) 2-Key lockout:- In this mode the key must be relased before another key press. Code of that key will store to the FIFO RAM.

B) N-Key rollover:- In this mode if 2 keys are pressed simultaneously both keys are recognized and their codes are stored to internal buffer in order in which they were pressed. We will use polling to read the keycode from the 8279 FIFO whenever the key is pressed. Here , the keys are named such that keycodes will be equl to their hex value i.e. keycode of the key E is 0EH. The position of the key in the keyboard matrix decides its key code. Key '2' is placed at the junction of the row 0 and column 2. Hence its code will be 02H as calculated below:

0	0	0	0	0	0	1	0

CNTL & Shift Key Status ← Row Code → ← Return Code →

Which is equal to (00000010) = 02H

Interfacing details: 8- Return Lines **(RL_0** – RL_7) of 8279 are connected to the columns of matrix keyboard and output lines (A_0- A_3 and B_0 – B_3) are connected to drive the LED segments. 3 – scan lines (SL_0 – SL_2) are connected to the decoder (74LS156) , to generate 8 – decoded signals. 6 output lines of the decoder are connected to six seven segment LEDS. Two output lines of the decoder are not used.

Diagram:

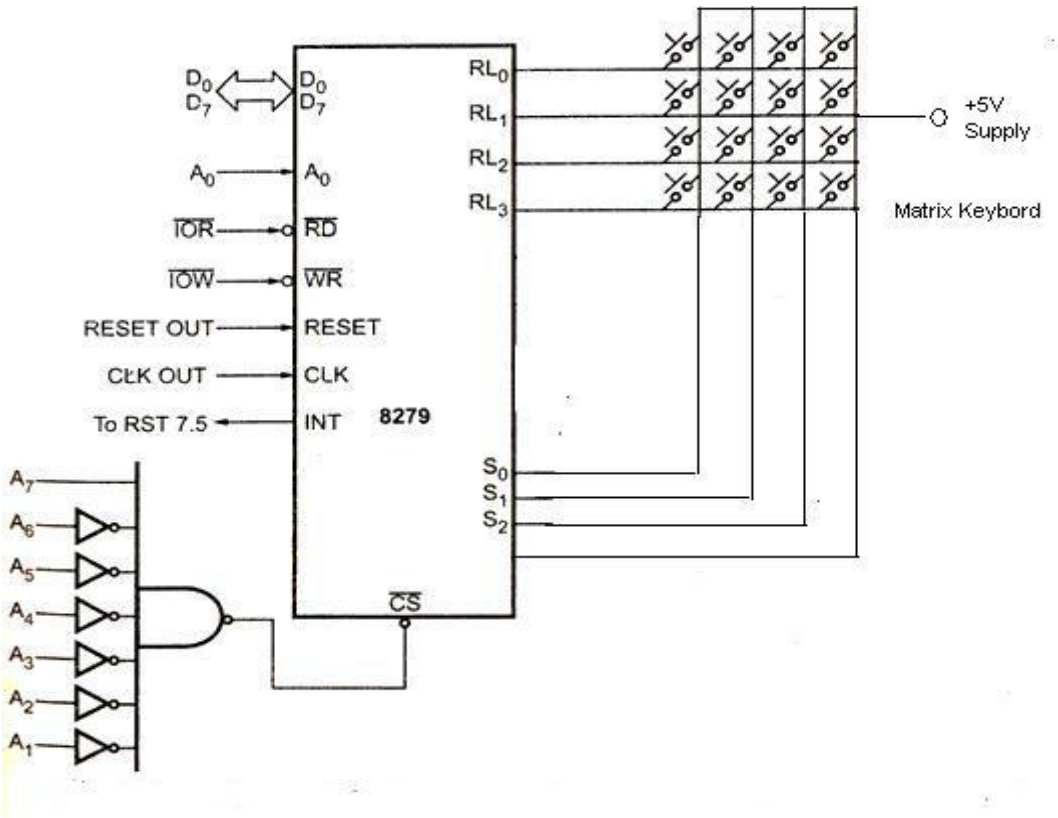


Figure: Interfacing of 4×4 Keyboard with 8279

Program:

Memory Address	Opcode (HEX)	Mnemonics	Comments
2000-01	3E,01	MVI A,01H	Load mode word in accumulator, having 2 key lockout, decoded scan keyboard.
2002-03	D3, 0F	OUT 0FH	Write the mode set word on given port address
2004-05	3E,39	MVI A , 39H	Load clock word in accumulator used for "divide by 25"
2006-07	D3,0F	OUT 0FH	Write the clock word
2008-09	3E,C3	MVI A , C3H	Clear word to clear only FIFO
200A-0B	D3,0F	OUT 0FH	Write the clear word

200C-0D(x)	DB, 0F	IN 0FH	Read the status word
200E-0F	E6 , 07	ANI 07H	AND immediately accumulator contents with 07H
2010-12	C5,0C,20	JZ (x)	If key is not pressed, then read the status again
2013-14	3E , 40	MVI A,40H	Read FIFO control word
2015-16	D3, 0F	OUT 0FH	Output control word to control port
2017-18	DB , 0E	IN 0EH	Read keycode from FIFO, at the data port of 8279
2019-1B	32,50,20	STA 2050H	Save the result
201C	76	HLT	Stop

PROCEDURE:-

1) Connect the 8279 peripheral card to the 8085 kit by 50 pin.
2) Keep the switch S1 in OFF position to enable single stepping.
3) Now ON the kit and enter the program as given for each experiment starting address for entering the program is 2000H
4) **Steps to enter the program:-**
   - Switch on the power supply and kit will display "UP 8085".
   - Press reset ~ examine memory ~ program starting memory address ~ next ~ opcode ~ next and so on up to the end of program opcodes
   - To execute the program press Reset ~ go ~ starting address ~ execute buttons
   - To check the result press Reset ~ examine memory ~Memory address(where the result has been stored in program) ~Next.

RESULT: We have seen the Hex code of the key pressed from matrix keyboard on display