Digital Electronics & Microprocessors Laboratory (EC2P006)

EXPERIMENT-9

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Aim:

- Interfacing of DAC through 8255 Peripheral interface and write a program for generation of Triangular Waveform, which will be obtained on a CRO.

Interfacing Strategy:

- The connection of the 8085-Microprocessor with the Dual port Digital to Analog Converter is done through the 8255 Peripheral Interface.
- The Dual DAC has two separate ports call it, A and B that help in obtaining the outputs at the CRO according to the instruction fed in the 8085 hardware. When the output is taken at A, the command entered was OUT 40H. And when the output is to be obtained at Port B, the command has to be OUT 41H.
- The Dual DAC has a connector board with 26 pins to connect with the 8085 hardware.
- The Commands are to be entered manually, at the memory locations. We enter the memory location and the corresponding opcode for the instructions.
- Once the program feeding is done, the program is executed and the output is verified.

Components Used:

- 8085 Microprocessor Kit.
- Cathode Ray Oscilloscope.
- Dual DAC Kit.

Program:

Memory	Opcode	Label	Mnemonics	Comments
8000	3E 80		MVI A,80H	Initializing 8085 with mode 0
8002	D3 43		OUT 43H	Port A and Port B Output Port
8004	3E 00		MVI A,00H	Making Accumulator 0
8006	D3 40	JUMP 1	OUT 40H	Port A as Output Port
8008	3C		INR A	Increasing A by 1
8009	FE FF		CPI FFH	Compare immediate with FFH
800B	C2 06 80		JNZ JUMP1	If Z not equal to 0, Jump to JUMP 1
800E	D3 40	JUMP 2	OUT 40H	Port A as Output Port
8010	3D		DCR A	Decrease A by 1
8011	C2 0E 80		JNZ JUMP 2	If Z not equal to 0, jump to JUMP 2
8014	C3 06 80		JNZ JUMP 1	If Z not equal to 0, jump to JUMP 1
8017	76		HLT	End

Conclusion

So, we successfully generated triangular waves using the above code and obtained the output. The output was obtained at the CRO and it was a triangular wave for the port at which output is taken across and a straight line with zero output.

We learned about entering the program into an 8085-Microprocessor that how we go to the memory location and enter the required opcode. We also learned about the program execution and the steps involved in using an 8085-Microprocessor.