

WAVEFORM GENERATION USING SOD PIN

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WAVEFORM GENERATION USING SOD PIN

OBJECTIVE

Generating the square or rectangular waveform using SOD pin of 8085 Microprocessor kit.

APPARATUS REQUIRED

- 8085 Microprocessor kit (VI MICRO SYSTEMS)
- Power Supply (+5v)
- CRO

ALGORITHM

1. Get the data in accumulator and transferred in to any one of the register.
2. OR the accumulator content with 40_H immediately, in order to keep SDE bit always high.
3. By using SIM instruction data was transferred through SOD pin.
4. The data was right shifted once for continuous waveform.

SET INTERRUPT MASKS INSTRUCTION

D ₇	D ₆	D ₅	D ₄	D ₃	D ₂	D ₁	D ₀
SOD	SDE	X	R7.5	MSE	M7.5	M6.5	M5.5
Serial O/P Data Ignored If D ₆ =0	Serial Data Enable 0-disable 1-enable	Ignored	Reset RST7.5 Flip flop 0-not reset 1-reset	Mask Set Enable 0-bits 0 to 2 Ignored 1-mask is set	RST7.5 Mask	RST 6.5 Mask	RST 5.5 Mask

ASSEMBLY LANGUAGE PROGRAM

ADDRESS	LABEL	MNEMONICS	OPCODE/ OPERAND	COMMENT
4300		LXI H,4100 _H	21 00 41	Input data is loaded in to memory.
4303	YY	MOV A,M	7E	Memory content is moved to accumulator.
4304		MVI C,08 _H	0E 08	Initialize the no of bits
4306		MOV B,A	47	Accumulator content is moved to B register
4307		ORI 40 _H	F6 40	Check the SDE bit by ORing the accumulator content with 40 _H
4309		SIM	30	Set interrupt mask.
430A		CALL DELAY	CD 16 43	Call delay subprogram.
430D		MOV A,B	78	Move B register content to accumulator
430E		RAL	17	Rotate the bit left
430F		DCR C	0D	Decrement the no of bits
4310		JNZ XX	C2 06 43	Jump if not zero to label

				XX.
4313		JMP YY	C3 03 43	Repeat the process.
4316	DELAY	MVI D,FF_H	16 FF	Move FF_H in to D register
4318	WW	DCR D	15	Decrement D register content
4319		JNZ WW	C2 18 43	Jump if not zero to label WW.
431C		RET	C9	Return to main program

EXECUTION

Input = EE_H

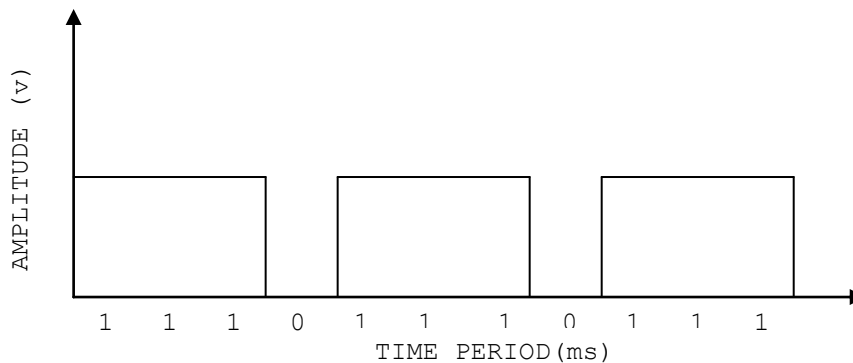
Output

Amplitude = 2*2=4V

T_{ON} = 3.6ms

T_{OFF} = 1.2ms

GRAPH



REFERENCE

1. Ramesh S.Gaonkar, Microprocessor Architecture, Programming, and Applications, Fourth Edition, Penram International Publishing (India), 2000.
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