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How to program stepper motor in microprocessor 8086 assembly language

By **Jaseem** 3 Comments

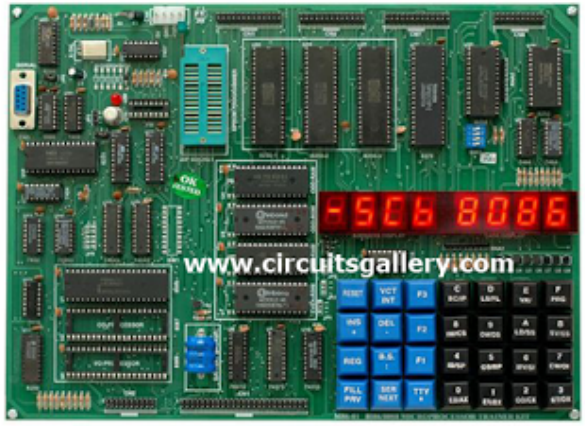
How to Control **stepper** motor using **Microprocessor 8086** by assembly language program? As we all know that stepper motor driver plays an important role in automatic control system.We can create a stepper motor controller using 8086 microprocessor and **8255** Programmable Peripheral Interface IC. Here is the assembly language program for 8086 microprocessor.

This **stepper motor assembly language program** is quite simple and easy. Here we had described the functions of each code for better understanding.

Basically this assembly program is a beginner guide to those who like to study 8086

programming.

Read Also: Check Prime number is Assembly language



Notations used For representing different types of numbers

We are using some notations here.

B: – used to indicate Binary Number

H: – used to represent Hexa Decimal Number

CW used to represent Control Word register

You must know!

- Stepper motor is interfaced to 8086 with the help of 8255 IC (Programmable Peripheral Interface).
- 8255 has two modes of operation BSR (Bit Set Reset) mode & IO (Input Output) mode.
- The mode is determined by the Control Word (CW) register; (here the CW address is 26).

- Initialize the CW with (0000 0000)B=(00)H for BSR mode & (1000 0000)B=(80)H for IO mode
- Stepper motor is IO device so CW should be (80)H There are 4 poles in a typical stepper motor A1, A2, B1, B2
- Energize the poles for anticlockwise rotation we have to apply the following to the poles

A_1	A_2	B_1	B_2	Hex Value
1	0	1	0	0A
0	1	1	0	06
0	1	0	1	05
1	0	0	1	09

So we, out these set of values to the IO port of 8255

8086 assembly language programming code for beginners

The below program shows the interfacing of Stepper motor

```
1    1000  MOV AL,80    /*Move 80(hex) to AL*/
2    1002  OUT 26,AL    /*Move 80(Hex) to PPI, 26 is the CW of PPI*/
3    1004  MOV AL,0A    /*Energizing the poles*/
4    1006  OUT 20,AL
5    1008  CALL 2000    /*Give some delay to rotate Motor*/
6    1010  MOV AL,06
7    1012  OUT 20,AL
8    1014  CALL 2000
```

```
9    1016  MOV AL,05
10   1018  OUT 20,AL
11   1020  CALL 2000
12   1022  MOV AL,09
13   1024  OUT 20,AL
14   1026  CALL 2000
15   1028  JMP 1004   /*Repeat the steps*/
16   1030  HLT
```

In the memory location 2000, we should give Delay program. You can choose any memory location other than 2000 as you like.

The delay Program is shown below

```
1   2000  MOV BX,1000  /*Move a value to BX*/
2   2002  DEC BX       /*Decrementing the value*/s
3   2004  MP BX,0000   /*Check whether the value reach 0000*/
4   2006  JNZ 2002     /*If not 0000, Decrement again*/
5   2008  RET         /*Return to the Motor program*/
```

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3 thoughts on “How to program stepper motor in microprocessor 8086 assembly language”

Anonymous

April 1, 2012 at 9:44 am

bro please complete it soon!!!!!!!!!!!

Reply

Jaseem

April 1, 2012 at 2:56 pm

Sorry for the Late completion of Program. Now it is completed

Reply

shubakara ps

May 11, 2014 at 3:48 pm

Why we are using 80,0a,06,05,09

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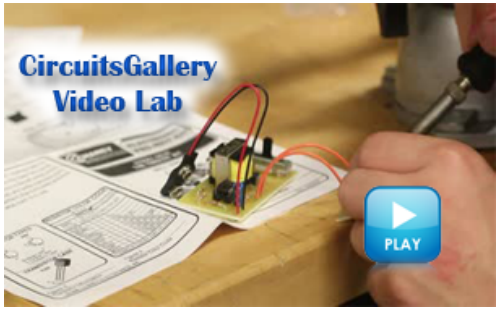

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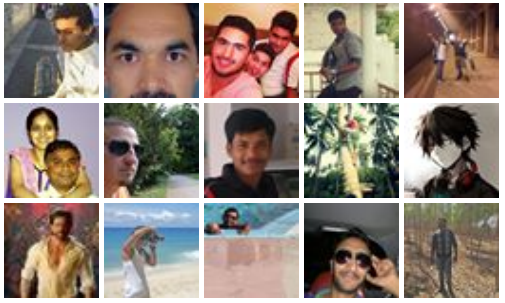

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About me

I am Jaseem, part time blogger & Graduated Engineer in Electronics and Communication from reputed university in India. Computer and technology has been my passion since I was a child.

Professionally I am working in one of the Middle East country in the field of Telecommunication and system administration.

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