DACSINE PAGE 1

1 ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

2 ;

3 ; Author : ADI - Apps www.analog.com/MicroConverter

4 ;

5 ; Date : October 2003

6 ;

7 ; File : DACsine.asm

8 ;

9 ; Hardware : ADuC841

10 ;

11 ; Description : Outputs a sine waves on DAC0 at 5.41kHz.

12 ; Rate calculations assume an 11.0592MHz Mclk.

13 ;

14 ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

15

16 $MOD841 ; Use 8052&ADuC841 predefined symbols

17

00B4 18 LED EQU P3.4 ; P3.4 drives red LED on eval board

19

20 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21 ; BEGINNING OF CODE

---- 22 CSEG

23

0000 24 ORG 0000h

0000 75EF80 25 MOV ADCCON1,#80H

0003 75FD0D 26 MOV DACCON,#00Dh ; DAC0 on, 12bit, asynchronous

0006 75FA08 27 MOV DAC0H,#008h

0009 75F900 28 MOV DAC0L,#000h ; DAC0 to mid-scale

29

000C 901000 30 MOV DPTR,#TABLE

31

000F E4 32 STEP: CLR A ;

0010 93 33 MOVC A,@A+DPTR ; get high data byte from table..

0011 F5FA 34 MOV DAC0H,A ; ..and move it into DAC register

0013 A3 35 INC DPTR ; move on to get low byte

36

0014 E4 37 CLR A ;

0015 93 38 MOVC A,@A+DPTR ; get low data byte from table..

0016 F5F9 39 MOV DAC0L,A ; ..and update DAC output

0018 A3 40 INC DPTR ; move on for next data point

41

0019 53827F 42 ANL DPL,#07Fh ; wrap around at end of table

43

001C E5FA 44 MOV A,DAC0H ;

001E A2E3 45 MOV C,ACC.3 ; MSB of DAC0 value

0020 92B4 46 MOV LED,C ; LED = MSB of DAC0

47

0022 80EB 48 JMP STEP ;

49

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51 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

52 ; SINE LOOKUP TABLE

1000 53 ORG 01000h

54

1000 55 TABLE:

56

1000 07FF 57 DB 007h, 0FFh

1002 08C8 58 DB 008h, 0C8h

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1004 098E 59 DB 009h, 08Eh

1006 0A51 60 DB 00Ah, 051h

1008 0B0F 61 DB 00Bh, 00Fh

100A 0BC4 62 DB 00Bh, 0C4h

100C 0C71 63 DB 00Ch, 071h

100E 0D12 64 DB 00Dh, 012h

1010 0DA7 65 DB 00Dh, 0A7h

1012 0E2E 66 DB 00Eh, 02Eh

1014 0EA5 67 DB 00Eh, 0A5h

1016 0F0D 68 DB 00Fh, 00Dh

1018 0F63 69 DB 00Fh, 063h

101A 0FA6 70 DB 00Fh, 0A6h

101C 0FD7 71 DB 00Fh, 0D7h

101E 0FF5 72 DB 00Fh, 0F5h

1020 0FFF 73 DB 00Fh, 0FFh

1022 0FF5 74 DB 00Fh, 0F5h

1024 0FD7 75 DB 00Fh, 0D7h

1026 0FA6 76 DB 00Fh, 0A6h

1028 0F63 77 DB 00Fh, 063h

102A 0F0D 78 DB 00Fh, 00Dh

102C 0EA5 79 DB 00Eh, 0A5h

102E 0E2E 80 DB 00Eh, 02Eh

1030 0DA7 81 DB 00Dh, 0A7h

1032 0D12 82 DB 00Dh, 012h

1034 0C71 83 DB 00Ch, 071h

1036 0BC4 84 DB 00Bh, 0C4h

1038 0B0F 85 DB 00Bh, 00Fh

103A 0A51 86 DB 00Ah, 051h

103C 098E 87 DB 009h, 08Eh

103E 08C8 88 DB 008h, 0C8h

1040 07FF 89 DB 007h, 0FFh

1042 0736 90 DB 007h, 036h

1044 0670 91 DB 006h, 070h

1046 05AD 92 DB 005h, 0ADh

1048 04EF 93 DB 004h, 0EFh

104A 043A 94 DB 004h, 03Ah

104C 038D 95 DB 003h, 08Dh

104E 02EC 96 DB 002h, 0ECh

1050 0257 97 DB 002h, 057h

1052 01D0 98 DB 001h, 0D0h

1054 0159 99 DB 001h, 059h

1056 00F1 100 DB 000h, 0F1h

1058 009B 101 DB 000h, 09Bh

105A 0058 102 DB 000h, 058h

105C 0027 103 DB 000h, 027h

105E 0009 104 DB 000h, 009h

1060 0000 105 DB 000h, 000h

1062 0009 106 DB 000h, 009h

1064 0027 107 DB 000h, 027h

1066 0058 108 DB 000h, 058h

1068 009B 109 DB 000h, 09Bh

106A 00F1 110 DB 000h, 0F1h

106C 0159 111 DB 001h, 059h

106E 01D0 112 DB 001h, 0D0h

1070 0257 113 DB 002h, 057h

1072 02EC 114 DB 002h, 0ECh

1074 038D 115 DB 003h, 08Dh

1076 043A 116 DB 004h, 03Ah

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1078 04EF 117 DB 004h, 0EFh

107A 05AD 118 DB 005h, 0ADh

107C 0670 119 DB 006h, 070h

107E 0736 120 DB 007h, 036h ; end of table

121

122 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

123

124 END

VERSION 1.2h ASSEMBLY COMPLETE, 0 ERRORS FOUND

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ACC. . . . . . . . . . . . . . . D ADDR 00E0H PREDEFINED

ADCCON1. . . . . . . . . . . . . D ADDR 00EFH PREDEFINED

DAC0H. . . . . . . . . . . . . . D ADDR 00FAH PREDEFINED

DAC0L. . . . . . . . . . . . . . D ADDR 00F9H PREDEFINED

DACCON . . . . . . . . . . . . . D ADDR 00FDH PREDEFINED

DPL. . . . . . . . . . . . . . . D ADDR 0082H PREDEFINED

LED. . . . . . . . . . . . . . . NUMB 00B4H

P3 . . . . . . . . . . . . . . . D ADDR 00B0H PREDEFINED

STEP . . . . . . . . . . . . . . C ADDR 000FH

TABLE. . . . . . . . . . . . . . C ADDR 1000H