PSMON PAGE 1

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

2 ;

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

4 ;

5 ; Date : 28 May 1999

6 ;

7 ; File : PSMon.asm

8 ;

9 ; Hardware : ADuC812

10 ;

11 ; Description : Demonstrates use of on-chip power supply monitor.

12 ; In normal operation, this code flashes the LED at

13 ; approximately 5Hz. when Vdd drops below the user

14 ; specified trip-point (here 4.37V) the PSM interrupt

15 ; is executed. once inside this interrupt service

16 ; routine, this code waits until the PSM interrupt

17 ; bit becomes zero again, indicating that the power

18 ; supply is again above the trip point and has been

19 ; there for at least 256ms. at this point, a RETI

20 ; instruction is executed, and normal code execution

21 ; is resumed, indicated by the flashing LED.

22 ;

23 ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

24

25 $MOD812 ; Use 8052&ADuC812 predefined symbols

26

00B4 27 LED EQU P3.4 ; P3.4 drives red LED on eval board

28

29 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30 ; BEGINNING OF CODE

---- 31 CSEG

32

0000 33 ORG 0000h

34

0000 02004B 35 JMP MAIN ; jump to main program

36 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

37 ; INTERRUPT VECTOR SPACE

0043 38 ORG 0043h ; (PSM ISR)

39

0043 D2B4 40 SETB LED ; turn off the LED to indicate fault

41

42 ; most often, a routine would here be called to store critical values

43 ; in user Flash/EE space and wait in a "safe" state of code execution

44 ; until the PSM interrupt bit becomes zero indicating that adequate

45 ; power supply voltage has returned.

46

0045 E5DF 47 CHECK: MOV A,PSMCON ; PSMCON.5 is the PSM interrupt bit..

0047 20E5FB 48 JB ACC.5,CHECK ; ..it is cleared only when Vdd has

49 ; remained above the trip point for

50 ; 256ms or more.

004A 32 51 RETI ; return only when "all's well"

52

53 ;====================================================================

54 ; MAIN PROGRAM

004B 55 ORG 004Bh

56

004B 57 MAIN:

58

PSMON PAGE 2

004B 75DF05 59 MOV PSMCON,#005h ; enable PSM with 4.37V threshold

004E D2AF 60 SETB EA ; enable interrupts

0050 75A902 61 MOV IE2,#002h ; enable PSM interrupt

62

0053 B2B4 63 FLASH: CPL LED ; blink LED indicating norm operation

0055 12005A 64 CALL DELAY ; delay 100ms

0058 80F9 65 JMP FLASH ; loop

66

67 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68 ; SUBROUTINE

69

005A 70 DELAY: ; delay 100ms

71

005A 7FC8 72 MOV R7,#200 ; 200 \* 500us = 100ms

005C 7EE5 73 DLY1: MOV R6,#229 ; 229 \* 2.17us = 500us

005E DEFE 74 DJNZ R6,$ ; sit here for 500us

0060 DFFA 75 DJNZ R7,DLY1 ; repeat 200 times (100ms total)

0062 22 76 RET

77

78 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

79

80 END

VERSION 1.2h ASSEMBLY COMPLETE, 0 ERRORS FOUND

PSMON PAGE 3

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

CHECK. . . . . . . . . . . . . . C ADDR 0045H

DELAY. . . . . . . . . . . . . . C ADDR 005AH

DLY1 . . . . . . . . . . . . . . C ADDR 005CH

EA . . . . . . . . . . . . . . . B ADDR 00AFH PREDEFINED

FLASH. . . . . . . . . . . . . . C ADDR 0053H

IE2. . . . . . . . . . . . . . . D ADDR 00A9H PREDEFINED

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

MAIN . . . . . . . . . . . . . . C ADDR 004BH

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

PSMCON . . . . . . . . . . . . . D ADDR 00DFH PREDEFINED