PSMON PAGE 1

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

2 ;

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

4 ;

5 ; Date : January 2001

6 ;

7 ; File : PSMon.asm

8 ;

9 ; Hardware : ADuC816

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 4.63V) 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 $MOD816 ; Use 8052&ADuC816 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 020060 35 JMP MAIN ; jump to main program

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

37 ; INTERRUPT VECTOR SPACE

0043 38 ORG 0043h ; (PSM ISR)

39

0043 C2B4 40 CLR 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

0060 55 ORG 0060h ; start program above interrupts

56

0060 57 MAIN:

58

PSMON PAGE 2

0060 75DFC1 59 MOV PSMCON, #0C1H ; enable PSM with

60 ; AVdd 4.63V threshold

61 ; DVdd 4.63V threshold

0063 75A922 62 MOV IEIP2, #22H ; enable PSM interrupt

63 ; high priority for PSM interrupt

0066 D2AF 64 SETB EA ; enable interrupts

65

0068 66 FLASH: ; Main Routine would go here

0068 B2B4 67 CPL LED ; blink LED indicating norm operation

006A 12006F 68 CALL DELAY ; delay 100ms

006D 80F9 69 JMP FLASH ; loop

70

71 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

72 ; SUBROUTINE

73

006F 74 DELAY: ; delay 100ms

75

006F 7A32 76 MOV R2,#50 ; 50 \* 2000us = 100ms

0071 7B84 77 DLY1: MOV R3,#132 ; 132 \* 15.62us = 2000us

0073 DBFE 78 DJNZ R3,$ ; sit here for 2000us

0075 DAFA 79 DJNZ R2,DLY1 ; repeat 50 times (100ms total)

0077 22 80 RET

81

82 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

83

84 END

VERSION 1.2h ASSEMBLY COMPLETE, 0 ERRORS FOUND

PSMON PAGE 3

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

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

DELAY. . . . . . . . . . . . . . C ADDR 006FH

DLY1 . . . . . . . . . . . . . . C ADDR 0071H

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

FLASH. . . . . . . . . . . . . . C ADDR 0068H

IEIP2. . . . . . . . . . . . . . D ADDR 00A9H PREDEFINED

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

MAIN . . . . . . . . . . . . . . C ADDR 0060H

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

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