PSMON PAGE 1

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

2 ;

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

4 ;

5 ; Date : October 2003

6 ;

7 ; File : PSMonS.asm

8 ;

9 ; Hardware : ADuC842/ADuC843

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 $MOD842

25

00B4 26 LED EQU P3.4 ; P3.4 drives red LED on eval board

27

28 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29 ; BEGINNING OF CODE

---- 30 CSEG

31

0000 32 ORG 0000h

33

0000 020060 34 JMP MAIN ; jump to main program

35 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

36 ; INTERRUPT VECTOR SPACE

0043 37 ORG 0043h ; (PSM ISR)

38

0043 D2B4 39 SETB LED ; turn off the LED to indicate fault

40

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

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

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

44 ; power supply voltage has returned.

45

0045 E5DF 46 CHECK: MOV A,PSMCON ; PSMCON.5 is the PSM interrupt bit..

0047 20E5FB 47 JB ACC.5,CHECK ; ..it is cleared only when Vdd has

48 ; remained above the trip point for

49 ; 256ms or more.

004A 75D700 50 MOV PLLCON,#0

004D 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 75DF41 59 MOV PSMCON, #041H ; enable PSM with

60 ; Vdd 4.63V threshold

0063 75A922 61 MOV IEIP2, #22H ; enable PSM interrupt

62 ; high priority for PSM interrupt

0066 D2AF 63 SETB EA ; enable interrupts

0068 740A 64 MOV A,#10

006A 65 FLASH: ; Main Routine would go here

006A B2B4 66 CPL LED ; blink LED indicating norm operation

006C 120071 67 CALL DELAY ; delay 100ms

006F 80F9 68 JMP FLASH ; loop

69

70 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

71 ; SUBROUTINE

72 ; 10ms DELAY

0071 73 DELAY: ; Delays by 100ms

74 ; 10mSec based on 2.097152MHZ

75 ; Core Clock

76 ; i.e. default ADuC842 Clock

77

0071 F9 78 MOV R1,A

0072 7A1B 79 DLY0: MOV R2,#01Bh ; Set up delay loop0

0074 7BFF 80 DLY1: MOV R3,#0FFh ; Set up delay loop1

0076 DBFE 81 DJNZ R3,$ ; Dec R3 & Jump here until R3 is 0

0078 DAFA 82 DJNZ R2,DLY1 ; Dec R2 & Jump DLY1 until R2 is 0

007A D9F6 83 DJNZ R1,DLY0

007C 22 84 RET ; Return from subroutine

85

86 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

87

88 END

VERSION 1.2h ASSEMBLY COMPLETE, 0 ERRORS FOUND

PSMON PAGE 3

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

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

DELAY. . . . . . . . . . . . . . C ADDR 0071H

DLY0 . . . . . . . . . . . . . . C ADDR 0072H

DLY1 . . . . . . . . . . . . . . C ADDR 0074H

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

FLASH. . . . . . . . . . . . . . C ADDR 006AH

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

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

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

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

PLLCON . . . . . . . . . . . . . D ADDR 00D7H PREDEFINED

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