PDOWN PAGE 1

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

2 ;

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

4 ;

5 ; Date : January 2001

6 ;

7 ; File : PDown.asm

8 ;

9 ; Hardware : ADuC816

10 ;

11 ; Description : Demonstrates a use of a timer interval counter to

12 ; wake the ADuC816 out of Power down mode after a user

13 ; specified Power down time.

14 ;

15 ; The LED will, on power up, flash at 10Hz. After 5s

16 ; the ADuC816 will enter power down mode (the LED will

17 ; stop flashing in the off position).

18 ;

19 ; By pressing the external interrupt 0 button (INT0) or

20 ; when the user specified time runs out (20s in this

21 ; example) the ADuC824 will wake up and continue

22 ; blinking as before for 5s before entering power down

23 ; mode again.

24 ;

25 ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

26

27 $MOD816 ; Use 8052&ADuC816 predefined symbols

28

00B4 29 LED EQU P3.4 ; P3.4 drives red LED on eval board

30

31 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32 ; BEGINNING OF CODE

---- 33 CSEG

0000 34 ORG 0000h

0000 020060 35 JMP MAIN ; jump to main program

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

37 ; EXTERNAL INTERRUPT VECTOR SPACE

0003 38 ORG 0003h

0003 32 39 RETI

40 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

41 ; TII INTERRUPT VECTOR SPACE

0053 42 ORG 0053h

0053 32 43 RETI

44 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

45

0060 46 ORG 0060h

47

0060 48 MAIN:

0060 75A9A4 49 MOV IEIP2, #0A4h ; enable TIC interrupt

50

0063 D288 51 SETB IT0 ; INT0 edge triggered

0065 D2A8 52 SETB EX0 ; enable INT0 (button on eval board)

0067 D2AF 53 SETB EA ; enable interrupts

54

0069 75A614 55 MOV INTVAL, #14h ; initialise intval to 20

56 ; => 20 unit delay

57

006C 7832 58 BLINK: MOV R0, #50

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59

006E 7401 60 LOOP: MOV A, #01 ; Blink light 50 times at 10Hz =>5s

0070 120084 61 CALL DELAY

0073 B2B4 62 CPL LED

0075 D8F7 63 DJNZ R0, LOOP

64

0077 75A113 65 MOV TIMECON, #13h ; initialise timecon to

66 ; -count in secs

67 ; -start all time counters

68

007A C2B4 69 CLR LED ; turn off light when in power down

007C 758722 70 MOV PCON, #22h ; power down the ADuC824

71 ; Execution stops here until the ADuC

72 ; is powered up again by either an

73 ; external interrupt or a Time Interval

74 ; Interrupt (20s)

75 ; Note: if using external data mem

76 ; make sure ALE remains toggling.

77 ; i.e. PCON.4=0

78

007F 75A112 79 MOV TIMECON, #12h ; disable TCEN to reset counter to 0

80 ; and to temporarily stop counter

0082 80E8 81 JMP BLINK

82

83

84 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

85 ; SUBROUTINES

0084 86 DELAY: ; Delays by 13,000 \* A instructions (approx)

87 ; 100mSec based on 1.5728MHZ Core Clock (default)

88

0084 F8 89 MOV R0,A ; Acc holds delay variable

0085 7941 90 DLY0: MOV R1,#65 ; Set up delay loop0

0087 7AC8 91 DLY1: MOV R2,#200 ; Set up delay loop1

0089 DAFE 92 DJNZ R2,$ ; Dec R2 200 times

008B D9FA 93 DJNZ R1,DLY1 ; Dec R1 65 times

008D D8F6 94 DJNZ R0,DLY0 ; Dec R0 #ACC times

008F 22 95 RET ; Return from subroutine

96

97 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

98

99 END

VERSION 1.2h ASSEMBLY COMPLETE, 0 ERRORS FOUND

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BLINK. . . . . . . . . . . . . . C ADDR 006CH

DELAY. . . . . . . . . . . . . . C ADDR 0084H

DLY0 . . . . . . . . . . . . . . C ADDR 0085H

DLY1 . . . . . . . . . . . . . . C ADDR 0087H

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

EX0. . . . . . . . . . . . . . . B ADDR 00A8H PREDEFINED

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

INTVAL . . . . . . . . . . . . . D ADDR 00A6H PREDEFINED

IT0. . . . . . . . . . . . . . . B ADDR 0088H PREDEFINED

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

LOOP . . . . . . . . . . . . . . C ADDR 006EH

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

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

PCON . . . . . . . . . . . . . . D ADDR 0087H PREDEFINED

TIMECON. . . . . . . . . . . . . D ADDR 00A1H PREDEFINED