PDOWN PAGE 1

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

2 ;

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

4 ;

5 ; Date : November 1999

6 ;

7 ; File : PDown.asm

8 ;

9 ; Hardware : ADuC824

10 ;

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

12 ; wake the ADuC824 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 ADuC824 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 $MOD824 ; Use 8052&ADuC824 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

34

0000 35 ORG 0000h

36

0000 020060 37 JMP MAIN ; jump to main program

38

39

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

41 ; EXTERNAL INTERRUPT VECTOR SPACE

0003 42 ORG 0003h

0003 32 43 RETI

44

45 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

46 ; TIC INTERRUPT VECTOR SPACE

0053 47 ORG 0053h

0053 32 48 RETI

49 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

50

0060 51 ORG 0060h

52

0060 53 MAIN:

0060 75A9A4 54 MOV IEIP2, #0A4h ; enable time interval interrupt

55

0063 D288 56 SETB IT0 ; INT0 edge triggered

0065 D2A8 57 SETB EX0 ; enable INT0 (button on eval board)

0067 D2AF 58 SETB EA ; enable interrupts

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59

0069 75A614 60 MOV INTVAL, #14h ; initialise intval to 20

61 ; => 20 unit delay

62

006C 7832 63 BLINK: MOV R0, #50

64

006E 7401 65 LOOP: MOV A, #01 ; Blink light 50 times at 10Hz =>5s

0070 120084 66 CALL DELAY

0073 B2B4 67 CPL LED

0075 D8F7 68 DJNZ R0, LOOP

69

0077 75A113 70 MOV TIMECON, #13h ; initialise timecon to

71 ; -count in secs

72 ; -start all time counters

73

007A C2B4 74 CLR LED ; turn off light when in power down

007C 758722 75 MOV PCON, #22h ; power down the ADuC824

76 ; Execution stops here until the ADuC

77 ; is powered up again by either an

78 ; external interrupt or a Time Interval

79 ; Interrupt (20s)

80 ; Note: if using external data mem

81 ; make sure ALE remains toggling after

82 ; you power up again. i.e. PCON.4=0

83

007F 75A112 84 MOV TIMECON, #12h ; disable TCEN to reset counter to 0

85 ; and to temporarily stop counter

0082 80E8 86 JMP BLINK

87

88

89 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

90 ; DELAY

91

0084 92 DELAY: ; Delays by 100ms \* A

93 ; 100mSec based on 1.573MHZ Core Clock

94

95

0084 FA 96 MOV R2,A ; Acc holds delay variable

0085 7B32 97 DLY0: MOV R3,#50 ; Set up delay loop0

0087 7C83 98 DLY1: MOV R4,#131 ; Set up delay loop1

0089 DCFE 99 DJNZ R4,$ ; Dec R4 & Jump here until R4 is 0

100 ; wait here for 131\*15.3us=2ms

008B DBFA 101 DJNZ R3,DLY1 ; Dec R3 & Jump DLY1 until R3 is 0

102 ; Wait for 50\*2ms

008D DAF6 103 DJNZ R2,DLY0 ; Dec R2 & Jump DLY0 until R2 is 0

104 ; wait for ACC\*100ms

008F 22 105 RET ; Return from subroutine

106

107

108 ;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

109

110 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