;File: Wdt841.asm

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;Description of Software: Demonstrates Watchdog timer functions.

;Development progress: Wdt834.df

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extrn CODE (\_WdtCfg) ; \_WdtCfg in ADuC834.lib

extrn CODE (\_WdtKk) ; \_WdtKk )

extrn CODE (\_PllDly) ; \_PllDly )

NAME WDT834

$NOMOD51

$IC(..kei841.inc) ; Parameter passing registers for Keil .

$IC(..kei841.dat) ; SFR definition for Keil .

;

CSEG at 0000h

rstorg: ljmp amain

;

;Function Start======================================================Function Start

;==========Compiler Specifics:

;

;WdtInt==========Watchdog interrupt entry.

;C Function prototype: interrupt void WdtInt(void);

;Description of Function: On interrupt it calls user watchdog handler.

;User interface: User watchdog handler must be at WdtUInt.

;Robustness: No known problems.

;Side effects: Uses 2 stack levels.

;

CSEG at 0005bh ;WDT interrupt vector.

WdtInt: lcall WdtUint ;Jump to user watchdog interrupt handler.

reti

;

;WdtUint==========Watchdog user handler.

;C Function prototype: char WdtUint(void);

;Description of Function: User defined.

;User interface: User defined.

;Robustness: User defined.

;Side effects: User defined.

;

WdtUint:;insert watchdog handler here.

cpl P3.3 ;To show interrupt occured.

;setb WDS

ret

;

;Function End==========================================================Function End

;Assembler main program.===========================================================

;

; org 00140h

;

WdWas: lcall flick ;Flicker for 4s to indicate

lcall flick ; watchdog reset restart.

mov a,HOUR ;If HOUR=5

cjne a,#5,WdFrc

WdEnd: lcall flick ; we are done.

mov ip1l,#200 ;200ms delay should do nothing.

mov ip1h,#0

lcall \_PllDly

sjmp WdEnd

WdFrc: mov HOUR,#5 ;Else set HOUR as marker immune to reset.

clr P3.4

mov ip1l,#0b8h ;3s delay should do nothing.

mov ip1h,#00bh

lcall \_PllDly

mov cp1l,#082h ;Force reset.

lcall \_WdtCfg

nop

ljmp WdErr ;If no reset occured then error stop.

;

amain: clr P3.3 ;Mark start.

mov ip1l,#0b8h ;3s delay should do nothing.

mov ip1h,#00bh

lcall \_PllDly

clr P3.4 ;Signal 3s delay over.

jb WDS,WdWas ;If reset by watchdog, go to WdWas.

mov HOUR,#0 ;else mark for first boot.

mov MIN,#0

mov TIMECON,#1 ;Start timer else HOUR is lost by resets.

mov cp1l,#06ah ;Start watchdog for 1s interrupt.

lcall \_WdtCfg

mov ip1l,#058h ;Repeat 5 times: wait 600ms

mov ip1h,#002h

lcall \_PllDly

setb P3.4 ; flash 100ms

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk ; kick watchdog before interrupt.

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#04ch ;If in 1.1s

mov ip1h,#004h

lcall \_PllDly

; lcall WdtRd ; no interrupt occured

mov cp1l,WDCON

mov a,cp1l

cjne cp1l,#06ah,WdEr1 ; then error stop.

;; cjne cp1l,#06eh,WdEr1 ; then error stop.

sjmp WdFl1

WdEr1: ljmp WdErr

WdFl1: lcall flick ;else flicker.

mov cp1l,#062h ;Start watchdog for 1s reset.

lcall \_WdtCfg

mov ip1l,#058h ;Repeat 5 times: wait 600ms

mov ip1h,#00h

lcall \_PllDly

setb P3.4 ; flash 100ms

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk ; kick watchdog before interrupt.

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#058h

mov ip1h,#002h

lcall \_PllDly

setb P3.4

mov ip1l,#100

mov ip1h,#00

lcall \_PllDly

clr P3.4

lcall \_WdtKk

mov ip1l,#04ch ;If in 1.1s

mov ip1h,#004h

lcall \_PllDly

ljmp WdErr ; no reset occured then error stop.

;

WdErr: setb P3.4 ;Signal error

mov ip1l,#30 ; 100ms delay.

mov ip1h,#0

lcall \_PllDly

clr P3.4

mov ip1l,#0 ; ~2s delay.

mov ip1h,#8

lcall \_PllDly

sjmp WdErr ; continuously.

;

flick: mov r2,#33 ;Flicker P3.4 for 2 seconds.

flickL: mov ip1l,#30

mov ip1h,#00

lcall \_PllDly

setb P3.4

lcall \_WdtKk

mov ip1l,#30

mov ip1h,#00

lcall \_PllDly

clr P3.4

djnz r2,flickL

ret

END