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

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; Date : 5 November 2001

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; File : 847uart1.asm

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; Hardware : ADuC847

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; Description : sample program that performs ADC conversions in

; continuous mode and sends results to a PC via the

; UART. Ain channel is Ain1 -> AinCom, Unipolar Mode

; Connect a potentiometer between Vref & Agnd. Connect

; the wiper to Ain1.

; The results of the ADC operation can be viewed using

; a Hyperterminal window configured to the appropriate

; serial port and using 9600 Baud Rate.

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$MOD847 ; Use 8052 predefined symbols

LED EQU P3.4 ; P3.4 drives red LED on eval board

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; BEGINNING OF CODE

CSEG

ORG 0000h

JMP MAIN

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; INTERRUPT VECTOR SPACE

ORG 0033h ; (ADC ISR)

Clr EA

CPL LED

MOV DPTR,#SEPERATOR ; send linefeed+CR out UART

CALL SENDSTRING

MOV A,ADC0H ; send ADC data via UART

CALL SENDVAL

MOV A,ADC0M

CALL SENDVAL

MOV A,ADC0L

CALL SENDVAL

CLR RDY0

SETB EA

RETI

;====================================================================

; MAIN PROGRAM

ORG 0100h

MAIN:

MOV SP,#127

; CONFIGURE UART....

MOV T3CON,#83h ;9600 Baud

MOV T3FD,#12h

MOV SCON,#52h

; CONFIGURE ADC....

CLR RDY0

MOV SF,#45h ;

MOV ADC0CON1, #07h ; Buf enabled, Unipolar, Range +2.56V

MOV ADC0CON2, #40h ; Ref+/- enabled, Ain1 -> Aincom

MOV ADCMODE, #34h ; Ofs Calibration on Ain1 -> AinCom

MOV ADCMODE, #35h ; Gain Calibration on Ain1 -> AinCom

MOV A, OF0H ; Write OFFSET calibration values to UART

call SENDVAL

MOV A, OF0M

call SENDVAL

MOV A, OF0L

Call SENDVAL

MOV DPTR,#SEPERATOR ; send linefeed+CR out UART

CALL SENDSTRING

MOV A, GN0H ; Write GAIN calibration values to UART

call SENDVAL

MOV A, GN0M

call SENDVAL

MOV A, GN0L

call SENDVAL

MOV DPTR,#SEPERATOR ; send linefeed+CR out UART

CALL SENDSTRING

; jmp $ ;Used only if Cal values alone are required

SETB EADC ; enable ADC interrupt (trig on RDY0)

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; START CONVERTING & WAIT FOR INTERRUPTS OR INCOMING UART COMS....

WAIT: SETB EA

MOV ADCMODE,#033h ; Cont conversion mode, Chop enabled

JMP $ ; Wait here for ADC interrupt

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$INCLUDE(UARTIO.asm)

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; TEXT DATA TABLES

SEPERATOR: DB 10,13,0

CALZSMSG: DB 'Z',0

CALGNMSG: DB 'G',0

CALDONEMSG: DB 'x',0

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END