





MSP – EE2920 Coding Guide (Dr. Johnson)

Last Updated 7/12/10

Coding Guide

- Coding
 - There are all kinds of coding styles
 - Which style you choose is up to you
 - Be consistent
- Comments are critical for good coding
 - Remind you what you did and why
 - Allow others to work with your code
 - Allow your instructor to evaluate your code

Coding Guide

- Coding
 - We will use the basic MSP structure names to access registers
 - `pinval = (P6->IN & 0x40) && 0x01; // read P6.2`
 - `CS->KEY = 0x02;`
 - We will not use shortcut keywords
 - BIT3  `0x08` 
 - P6DIR  `P6->DIR` 

Coding Guide

Header Example

```
/*  
 * wdt_led.c  
 *  
 * Created on: Sep 1, 2017  
 * Version: 1.0  
 * Author: Tim  
 *  
 * This program demonstrates the watchdog timer  
 *  
 * Using an LED, the program 1) holds the LED on for 4 sec at  
 * every reset, 2) flashes the LED at a 1Hz rate under normal  
 * program operation, 3) flashes the LED at a 5 Hz rate for 1 sec  
 * inside the interrupt service routine  
 *  
 * The WD timer is set to 8 sec in reset and interrupt mode.  
 * The program is put into an infinite loop with 1Hz flashes.  
 * On the first wd timeout it goes to the interrupt routine.  
 * On the second wd timeout it goes to reset (where the WD is  
 * reprogrammed and starts over).  
 *  
 */  
#include <stdio.h>  
#include "msp432.h"
```

File name

1 line description

Revision

Break up lines to prevent wrapping (hard to read)

General description

Technical description

Includes

* Code may be nonsense

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Main Example

Main should be used for high level coordination.
(primarily does function calls)

```
int main (void){  
    //  
    // Initialize LED and WDT  
    // Blink LED at 1 Hz rate  
    // Wait for the WD timer to interrupt/reset  
    //  
  
    //  
    // setup LED and WD Timer  
    //  
    LED_Init();  
    WDT_Init();  
  
    //  
    // blink led at 1 sec rate  
    //  
    blink(1.0);  
}
```

Comment on Main's function

Comment on what you are doing

* Code may be nonsense

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Function Example

```
void lcd_port_setup(void){  
    //  
    // Setup Ports for LCD  
    // P6 bits 4(enable),5(reg sel) are used to program the LCD  
    //           reg sel = 0 --> pgm,  reg sel = 1 --> data  
    // P6 bits 3-1 are used for data to the LCD  
    // All are outputs from the MSP432  
    //  
    uint8_t      i,  
                mant;           // most sig digit of mantissa  
    int8_t       exp;          // exponent  
    float        sci;         // shifted version of num in scientific notation  
  
    P6->OUT &= ~(0b00110000); // initialize the output to "0"  
    P4->DIR |= 0b00110000;    // configure the pins as outputs  
    P3->DIR |= 0b00001111;    // configure the pins as outputs  
    P3->OUT &= ~(0b00001111); // initialize the output to "0"  
}
```

Comment on function purpose

Break up lines to enhance readability

Identify modes

Reminder of why

Use space to enhance readability

* Code may be nonsense

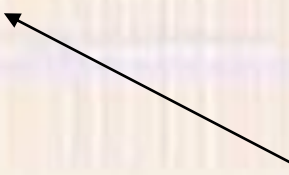
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ISR Example

```
WDT_A_IRQHandler(){  
    //  
    // Timeout ISR  
    // Turn on LED connected to P6.3  
    //  
    P6->OUT |= (1<< 3);  
}
```

Keep ISRs short
(don't want to miss another interrupt)

Avoid function calls if possible



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