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muj975

[Code Documentation]

- The code uses three timers. Timer 0 for blinking the LED, timer 1 for debouncing SW1 and timer 2 for debouncing SW2

- Timer 0 counts down. Timeout is detected using the RIS register

- Timers 1 and 2 count up and are reset to 0 after timeout

- The button debouncing algorithm is documented in detail in the check_sw1() function. Basically, after the first button release is detected, all signals from that button are ignored for 5ms

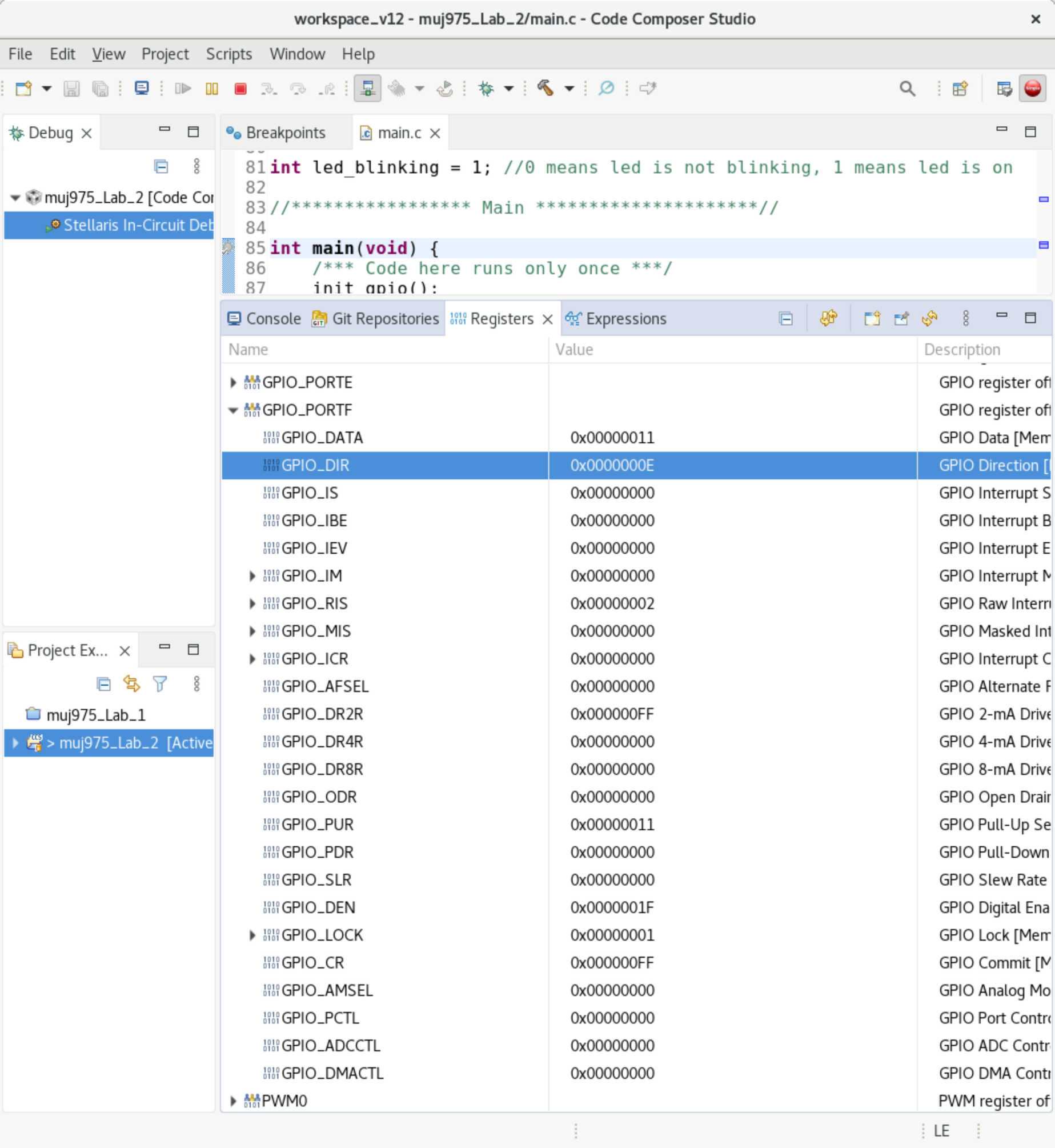
[2b]

Blocking code is code that prevents execution of any other code even when its not doing anything useful. Busy waiting or waiting on I/O would be examples of blocking code.

Non-blocking code allows other code to run when it can't proceed. Non-blocking I/O for example would initiate I/O and then allow other code to run while it waits for the I/O to complete.

[2d]

For a 80MHz clock, 1/80E6 = 12.5 ns would pass per clock tick.
16 bit timer would reach max value in (2^16 - 1) / 80E6 = 0.819 ms
32 bit timer would reach max value in (2^32 - 1) / 80E6 = 53687 ms
64 bit timer would reach max value in (2^64 - 1) / 80E6 = 7311.78 years


workspace_v12 - muj975_Lab_2/main.c - Code Composer Studio
File Edit View Project Scripts Window Help
Debug
muj975_Lab_2 [Code Cor
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Project Ex...
muj975_Lab_1
> muj975_Lab_2 [Active
Breakpoints
main.c
81 int led_blinking = 1; //0 means led is not blinking, 1 means led is on
82
83 //****************** Main *********************//
84
85 int main(void) {
86 /*** Code here runs only once ***/
87 init_gpio();
Console
Git Repositories
Registers
Expressions
Name
Value
Description
GPIO_PORTE
GPIO register off
GPIO_PORTF
GPIO register off
GPIO_DATA 0x00000011 GPIO Data [Mem
GPIO_DIR 0x0000000E GPIO Direction [
GPIO_IS 0x00000000 GPIO Interrupt S
GPIO_IBE 0x00000000 GPIO Interrupt B
GPIO_IEV 0x00000000 GPIO Interrupt E
GPIO_IM 0x00000000 GPIO Interrupt M
GPIO_RIS 0x00000002 GPIO Raw Interr
GPIO_MIS 0x00000000 GPIO Masked Int
GPIO_ICR 0x00000000 GPIO Interrupt C
GPIO_AFSEL 0x00000000 GPIO Alternate F
GPIO_DR2R 0x000000FF GPIO 2-mA Drive
GPIO_DR4R 0x00000000 GPIO 4-mA Drive
GPIO_DR8R 0x00000000 GPIO 8-mA Drive
GPIO_ODR 0x00000000 GPIO Open Drain
GPIO_PUR 0x00000011 GPIO Pull-Up Se
GPIO_PDR 0x00000000 GPIO Pull-Down
GPIO_SLR 0x00000000 GPIO Slew Rate
GPIO_DEN 0x0000001F GPIO Digital Ena
GPIO_LOCK 0x00000001 GPIO Lock [Mem
GPIO_CR 0x000000FF GPIO Commit [M
GPIO_AMSEL 0x00000000 GPIO Analog Mo
GPIO_PCTL 0x00000000 GPIO Port Contro
GPIO_ADCCTL 0x00000000 GPIO ADC Contr
GPIO_DMACTL 0x00000000 GPIO DMA Contr
PWM0
PWM register of
LE