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1  .include "Equates.s"
2
3  .global InitButton
4  .global CheckButton
5  .global Init_EXTI0
6  .global Reset_EXTI0
7
8  .syntax unified
9  .section .text.ButtonDriver
10
11 // GPIO initialization for button
12 InitButton:
13     ldr r0,=RCC //RCC register block
14     ldr r1,[r0,#AHBENR] //read RCC_AHB1ENR
15     orr r1,#GPIOAEN // enable GPIOA clock
16     str r1,[r0,#AHBENR] // update AHB1ENR
17     ldr r0,=GPIOA //GPIOA register block
18     ldr r1,[r0,#MODER] //current mode register
19     bic r1,#0x03 //MODER[1:0] = 00 for PA0 input
20     str r1,[r0,#MODER] //update mode register
21     bx lr //return
22
23 // CheckButton - return state of push button
24 // r0 = return value of 0 or 1
25 CheckButton:
26     ldr r0,=GPIOA //GPIO port A
27     ldrh r0,[r0,#IDR] //set bit
28     and r0,#0x01 //mask all but bit 0
29     bx r14 //return
30
31 Init_EXTI0:
32     //select PA0 as EXTI0
33     ldr r1,=SYSCFG
34     ldrh r2,[r1,#EXTICR1] //EXTI priorities for EXTI0
35     bic r2,#0x0f //bits 3-0 = 0000 to select PA0 = EXTI0
36     strh r2,[r1,#EXTICR1] //EXTI priorities for EXTI0
37     //configure EXTI0 as rising edge triggered
38     ldr r1,=EXTI
39     mov r2,#1 //bit #0 for EXTI0
40     str r2,[r1,#FTSR] //select falling edge trigger
41     str r2,[r1,#PR] //clear any pending event
42     str r2,[r1,#IMR] //enable EXTI0
43     //configure NVIC to enable EXTI0 as priority 1
44     ldr r1,=NVIC_ISER0
45     mov r2,#0x40 //EXTI0 is IRQ 6
46     str r2,[r1] //Set enable IRQ 6
47     ldr r1,=NVIC_IPR1
48     mov r2,#0x00100000 //Make EXTI0 priority 1
49     str r2,[r1] //Write IPR1 3rd byte
50     bx lr
51
52 Reset_EXTI0:
53     // Reset EXTI0 pending bit in EXTI
54     ldr r0,=EXTI //point to EXTI registers
55     mov r1,#0x01 //bit 0 = EXTI0 pending bit
56     str r1,[r0,#PR] //reset EXTI0 pending bit (write 1 to it)
57     // Reset EXTI0 pending bit in NVIC (in case triggered by bounce)

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58     ldr r0,=NVIC_ICPR0 //clear Interrupt Pending Register
59     mov r1,#0x40 //EXTI0 = bit 6 of that register
60     str r1,[r0]
61     bx lr
62
63     .end
64
65
```