```
 1 /*****************************************************************************
 2 * SysTick_Handler
 3 * Interrupt Service Routine for system tick counter
 4 * The name of this function cannot be changed - it establishes the linkage
 5 *****************************************************************************/
 6     .equ TIMER3_CMD,      0x40010C04
 7     .equ GPIO_PD_DOUTCLR, 0x40006080
 8
 9     .syntax unified
10     .text
11     .thumb
12     .thumb_func
13     .align      4
14     .globl      SysTick_Handler
15     .type       SysTick_Handler, %function
16 SysTick_Handler:
17     push   {r4-r11, lr}
18
19     ldr r8,=TIMER3_CMD      // timer 3 command register
20     ldr r0,=2               // stop timer command
21     str r0,[r8]             // timer 3 now stopped
22
23     ldr    r6,=SystemTick  // r6 is address of SystemTick
24     ldr    r7,[r6]         // r7 is current tick
25     add    r7,r7,#1        // increment tick
26     str    r7,[r6]         // save new tick
27     //keep this below
28     ldr    r4,=CurrentTask // r4 is address of current task
29     ldr    r5,[r4]         // r5 is current task
30     str    sp,[r5,#0]      // stack pointer is first thing in TCB
31     bl     scheduler
32     str    r0,[r4]         // save new CurrentTask
33     ldr    sp,[r0,#0]      // get sp from new current task
34
35     ldr r1,[r0,#4]          // get timer3_on value
36     str r1,[r8]             // start timer 3 if appropriate
37
38     pop    {r4-r11, pc}
39
40     .thumb_func
41     .align      4
42     .globl      SVC_Handler
43     .type       SVC_Handler, %function
44 SVC_Handler:
45     push   {r4-r11, lr}
46
47     ldr r8,=TIMER3_CMD      // timer 3 command register
48     ldr r0,=2               // stop timer command
49     str r0,[r8]             // timer 3 now stopped
50
51     ldr    r4,=CurrentTask  // r4 is address of current task
52     ldr    r5,[r4]          // r5 is current task
53     str    sp,[r5,#0]       // stack pointer is first thing in TCB
54     bl     scheduler
55     str    r0,[r4]          // save new CurrentTask
56     ldr    sp,[r0,#0]       // get sp from new current task
57
```

```
58      ldr r9,=GPIO_PD_DOUTCLR  // Port D “clear” register
59      ldr r10,=0x1f           // clear bits 0-4
60      str r10,[r9]            // and clear
61      add r9,#-4              // point to Port D “set” register
62      ldr r10,=0x20           // set bit 5 (context switch bit)
63      str r10,[r9]            // and it is set
64                              // save sp into current TCB, call the scheduler, etc.
65      ldr r1,[r0,#8]          // get task_mask from current TCB
66      str r1,[r9]             // set task_mask bits on port D
67      add r9,#4               // point to port D “clear” register
68      str r10,[r9]            // clear bit 5 (context switch bit)
69                              // possibly start timer 3
70
71      ldr r1,[r0,#4]          // get timer3_on value
72      str r1,[r8]             // start timer 3 if appropriate
73
74      pop    {r4-r11, pc}
75
76      .thumb_func
77      .align      4
78      .globl      Yield
79      .type       Yield, %function
80  Yield:
81      svc #0 // raise SVC interrupt
82      bx lr  // return from subroutine
83
84      .end
85
```