

```

1#include "sl_component_catalog.h"
2#include "sl_system_init.h"
3#include "app.h"
4#if defined(SL_CATALOG_POWER_MANAGER_PRESENT)
5#include "sl_power_manager.h"
6#endif
7#if defined(SL_CATALOG_KERNEL_PRESENT)
8#include "sl_system_kernel.h"
9#else // SL_CATALOG_KERNEL_PRESENT
10#include "sl_system_process_action.h"
11#endif // SL_CATALOG_KERNEL_PRESENT
12
13#include "FreeRTOS.h"
14#include "task.h"
15
16#include "em_device.h"
17#include "em_chip.h"
18
19/*****
20 * Extern Includes for Lab04
21 *****/
22extern void task_A(), task_B(), task_C(), task_D();
23
24TickType_t startTime = pdMS_TO_TICKS(10); //handles the hazard in RTOS
25
26void TaskA(void *params)
27{
28    const int period = pdMS_TO_TICKS(3); // period = 3ms
29    TickType_t prevWakeTime = 0;
30    (void) params; // suppress warning
31
32    // wait for first release
33    vTaskDelayUntil(&prevWakeTime, startTime);
34    for (;;)
35    {
36        task_A(); // perform actual task
37        vTaskDelayUntil(&prevWakeTime, period);
38    }
39}
40
41void TaskB(void *params)
42{
43    const int period = pdMS_TO_TICKS(5); // period = 5ms
44    TickType_t prevWakeTime = 0;
45    (void) params; // suppress warning
46
47    // wait for first release
48    vTaskDelayUntil(&prevWakeTime, startTime);
49    for (;;)
50    {
51        task_B(); // perform actual task
52        vTaskDelayUntil(&prevWakeTime, period);
53    }
54}
55
56void TaskC(void *params)
57{

```

```
58  const int period = pdMS_TO_TICKS(6); // period = 6ms
59  TickType_t prevWakeTime = 0;
60  (void) params; // suppress warning
61
62  // wait for first release
63  vTaskDelayUntil(&prevWakeTime, startTime);
64  for (;;)
65  {
66      task_C(); // perform actual task
67      vTaskDelayUntil(&prevWakeTime, period);
68  }
69 }
70
71 void TaskD(void *params)
72 {
73     const int period = pdMS_TO_TICKS(11); // period = 11ms
74     TickType_t prevWakeTime = 0;
75     (void) params; // suppress warning
76
77     // wait for first release
78     vTaskDelayUntil(&prevWakeTime, startTime);
79     for (;;)
80     {
81         task_D(); // perform actual task
82         vTaskDelayUntil(&prevWakeTime, period);
83     }
84 }
85
86 int main(void)
87 {
88     // Vendor function to work around bugs in some versions of the hardware
89     CHIP_Init();
90
91     //use xTaskCreate(function name, "string name", configMINIMAL_STACK_SIZE, NULL, PRIORITY,
92     NULL);
93     xTaskCreate(TaskA,
94                 "TaskA",
95                 configMINIMAL_STACK_SIZE,
96                 NULL,
97                 1,
98                 NULL);
99
100    xTaskCreate(TaskB,
101                "TaskB",
102                configMINIMAL_STACK_SIZE,
103                NULL,
104                2,
105                NULL);
106
107    xTaskCreate(TaskC,
108                "TaskC",
109                configMINIMAL_STACK_SIZE,
110                NULL,
111                3,
112                NULL);
113
```

main.c

Tuesday, October 17, 2023, 10:49 AM

```
114     xTaskCreate(TaskD,  
115                 "TaskD",  
116                 configMINIMAL_STACK_SIZE,  
117                 NULL,  
118                 4,  
119                 NULL);  
120  
121     vTaskStartScheduler();  
122  
123  
124     while (1) {  
125  
126     }  
127 }  
128
```