

Exercise 9 Thread Flags

In this exercise we will look at using thread flags to trigger activity between two threads. Whilst this is a simple program it introduces the concept of synchronizing the activity of threads together.

In the Pack Installer select “Ex 9 Thread Flags” and copy it to your tutorial directory.

This is a modified version of the led flasher program one of the threads calls the same led function and uses `osDelay()` to pause the task. In addition it sets a thread flag to wake up the second led task.

```
void led_Thread2 (void *argument) {  
  
    for (;;) {  
  
        LED_On(2);  
  
        oThreadFlagSet (T_led_ID1,0x01);  
  
        osDelay(500);  
  
        LED_Off(2);  
  
        osThreadFlagSet (T_led_ID1,0x01);  
  
        osDelay(500);}}
```

The second led function waits for the signal flags to be set before calling the led functions.

```
void led_Thread1 (void *argument) {  
  
    for (;;) {  
  
        osThreadFlagsWait (0x01,osWaitForever);  
  
        LED_On(1);  
  
        osSignalWait (0x01,osWaitForever);  
  
        LED_Off(1);  
  
    }}
```

Build the project and start the debugger

Open the GPIOB peripheral window and start the code running

Now the port pins will appear to be switching on and off together. Synchronizing the threads gives the illusion that both threads are running in parallel.

This is a simple exercise but it illustrates the key concept of synchronizing activity between threads in an RTOS based application.