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DR. M. S. SHESHGIRI COLLEGE OF ENGINEERING AND TECHNOLOGY

**Belagavi  
Campus**

Department of Electronics and Communication  
Engineering

# RTOS Lab Review Report

## Group-14

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**Problem Statement:** Write a C program with three tasks, having task 3 waiting for an even from task 2 for a duration and flag bits of 0x000f and 0x0003

## Code:

```
#include<rtl.h>
```

```
#include<lpc21xx.h>
```

```
#include<stdio.h>
```

```
OS_TID tsk1, tsk2, tsk3; OS_RESULT
```

```
RE1, RE2, RE3;
```

```
int cnt1, cnt2, cnt3, i;
```

```
__task void job1(void);
```

```
__task void job2(void);
```

```
__task void job3(void);
```

```
__task void job1(void)
```

```
{
```

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```
os_tsk_prio_self(2); // assign priority to job1 as 2 tsk1 =
os_tsk_self(); // task id os_tsk_create(job2, 1); // create job2
and keep in ready state os_tsk_create(job3, 1); // create job3
and keep in ready state while (1)

{
RE1 = os_evt_wait_and(0x0001, 0x0001); if
(RE1 == OS_R_EVT)
{
for (i = 0; i < 15; i++)
{
cnt1++; for (i = 0; i <
65000; i++); for (i = 0; i <
65000; i++); for (i = 0; i <
65000; i++); for (i = 0; i <
65000; i++);
}
}
```

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```
os_dly_wait(0x03e8);  
}  
else if (RE1 == OS_R_TMO)  
{  
for (i = 0; i < 15; i++)  
{  
cnt3++; for (i = 0; i <  
65000; i++); for (i = 0; i <  
65000; i++); for (i = 0; i <  
65000; i++); for (i = 0; i <  
65000; i++);  
}  
os_dly_wait(0x03e8);  
}  
}  
}  
  
__task void job2(void)  
{
```

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```
while (1)
{ for (i = 0; i < 15;
i++)
{
cnt2++;
for (i = 0; i < 65000; i++); for
(i = 0; i < 65000; i++); for (i
= 0; i < 65000; i++); for (i =
0; i < 65000; i++);
}
os_dly_wait(0x03e8);

}

}

__task void job3(void)
```

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```
{  
while (1)  
{  
    RE3 = os_evt_wait_and(0x0003, 0x000f); // Wait for event with flag bits 0x0003  
    and 0x000f if (RE3 == OS_R_EVT)  
    {  
        for (i = 0; i < 65000; i++);  
        for (i = 0; i < 65000; i++);  
  
        for (i = 0; i < 65000; i++); for  
        (i = 0; i < 65000; i++);  
    }  
}  
  
int main()  
{  
    cnt1 = 0; cnt2 =  
    0; cnt3 = 0;
```



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```
os_sys_init(job1);
```

```
while (1)
```

```
; }
```

Implementation and Output:



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C:\Users\admin\Desktop\EEE015\review3.uvproj - uVision

File Edit View Project Flash Debug Peripherals Tools SVCS Window Help

Registers

Register	Value
Current	
R0	0x00000000
R1	0x00000000
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x00000000
CPSR	0x00000003
SPSR	0x00000000
User/System	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x00000000
Mode	Supervisor
States	0
Sec	0.00000000

```
1 #include<rtl.h>
2 #include<lpc21xx.h>
3 #include<stdio.h>
4
5 OS_TID tsk1, tsk2, tsk3;
6 OS_RESULT RE1, RE2, RE3;
7 int cnt1, cnt2, cnt3, i; // counter
8
9 __task void job1(void);
10 __task void job2(void);
11 __task void job3(void); // declare function for job3
12
13 __task void job1(void)
14 {
15     os_tsk_prio_self(2); // assign priority to job1 as 2
16     tsk1 = os_tsk_self(); // task id
17     os_tsk_create(job2, 1); // create job2 and keep in ready state
18     os_tsk_create(job3, 1); // create job3 and keep in ready state
19 }
20 while (1)
21 {
22     RE1 = os_evt_wait_and(0x0001, 0x0001); // wait for event
23     if (RE1 == OS_R_EVT)
24     {
25         for (i = 0; i < 15; i++)
26         {
27             cnt1++;
28             for (i = 0; i < 65000; i++);
29             for (i = 0; i < 65000; i++);
30             for (i = 0; i < 65000; i++);
31             for (i = 0; i < 65000; i++);
32         }
33     }
34 }
```

System and Thread Viewer

Property	Value
System	
Item	Value
Timer Number:	1
Tick Timer:	1,000 mSec
Round Robin Timeout:	5,000 mSec
Stack Size:	200
Tasks with User-provided Stack:	0
Stack Overflow Check:	Yes
Task Usage:	Available: 6, Used: 3
User Timers:	Available: 0, Used: 0

ID	Name	Priority	State	Delay	Event Value	Event Mask	Stack Usage
1	job1	2	Wait_DLY	517			32%
2	job2	1	Wait_DLY	626			32%
3	job3	1	Wait_AND	7	0x0000	0x0003	36%
255	os_idle_demon	0	Running				0%

Tasks

Command

\*\*\* Restricted Version with 32768 Byte Code Size Limit  
\*\*\* Currently used: 6500 Bytes (19%)

UART #1

ASSIGN BreakDisable BreakEnable BreakKill BreakList BreakSet BreakAccess COVERAGE DEFINE DIR

Call Stack - Locals

UART #1

Memory 1

Real-Time Agent: Not in target

Simulation

t1: 13.86826670 sec L: 87 C: 1 CAP. NUM. SCRL. OVR. R/W

29°C Sunny 14:19 11-01-2024