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**Task 00: Execute the provided code, no submission is required.**

**LAB03 Task00 :** [**https://www.youtube.com/watch?v=XZR5IBrrbQo**](https://www.youtube.com/watch?v=XZR5IBrrbQo)

**Task 01: Determine the current period and on-time of the LED blinking. Change the delay of the LED blink (approx. 0.425 sec) by changing the delay and clock source and configuration –determine the CLK frequency – verify the delay to be approx. 0.425 sec.**

**LAB03 Task01 :** [**https://www.youtube.com/watch?v=H6GVE0jz4qU**](https://www.youtube.com/watch?v=H6GVE0jz4qU)

Current Period = 1/40MHz = 25ns

On- time of LED blinking = 25 ns x (2\*106) = 0.05 sec.

In order to change the delay to 0.425 sec we need a clock of 4.7 MHz.

400MHz/2/42.5 = 4.7MHz

1/4.7MHz =0.213ns

0.213ns x (2\*106) = 0.426 sec.

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "inc/hw\_memmap.h"

**#include** "inc/hw\_types.h"

**#include** "driverlib/sysctl.h"

**#include** "driverlib/gpio.h"

uint8\_t ui8PinData=2;

**int** **main**(**void**)

{

//Set clock to 4.7 MHz

**SysCtlClockSet**(SYSCTL\_SYSDIV\_42\_5|SYSCTL\_USE\_PLL|SYSCTL\_XTAL\_16MHZ|SYSCTL\_OSC\_MAIN);

//Enable clock for peripheral

**SysCtlPeripheralEnable**(SYSCTL\_PERIPH\_GPIOF);

//Configure LED's as outputs

**GPIOPinTypeGPIOOutput**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3);

**while**(1)

{

//Turn on LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, ui8PinData);

**SysCtlDelay**(2000000);

//Turn off LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 0x00);

**SysCtlDelay**(2000000);

//Cycle through R, B, G, R, B, G ...

**if**(ui8PinData==8) {ui8PinData=2;} **else** {ui8PinData=ui8PinData\*2;}

}

}

**Task 02: Change the a) sequence of LED blinking(from BGR sequence to RGB), and b) blink one LED, two LED, and three LED at an instance and with a sequence (sequence of blinking with delay –R,G, B, RG, RB, GB, RGB, R, G, ...).**

LAB03 Task02 Part A : <https://www.youtube.com/watch?v=yGTKc6yYIgo>

LAB03 Task02 Part B : <https://www.youtube.com/watch?v=F--EYas9H48>

**Part A:**

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "inc/hw\_memmap.h"

**#include** "inc/hw\_types.h"

**#include** "driverlib/sysctl.h"

**#include** "driverlib/gpio.h"

//Integer variable used in LED's

uint8\_t ui8PinData=2;

**int** **main**(**void**)

{

//Set clock to 4.7MHz

**SysCtlClockSet**(SYSCTL\_SYSDIV\_42\_5|SYSCTL\_USE\_PLL|SYSCTL\_XTAL\_16MHZ|SYSCTL\_OSC\_MAIN);

//Enable clock for peripheral

**SysCtlPeripheralEnable**(SYSCTL\_PERIPH\_GPIOF);

//Configure LED's as outputs

**GPIOPinTypeGPIOOutput**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3);

**while**(1)

{

//Turn on LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, ui8PinData);

**SysCtlDelay**(2000000);

//Turn off LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 0x00);

**SysCtlDelay**(2000000);

//Cycle through B, R, G, B, R, G...

**if**(ui8PinData==2) {ui8PinData=8;} **else** {ui8PinData=ui8PinData/2;}

}

}

**Part B:**

//Integer Variable used in LED's

uint8\_t ui8PinData=2;

**int** **main**(**void**)

{

//Set clock to 4.7 MHz

**SysCtlClockSet**(SYSCTL\_SYSDIV\_42\_5|SYSCTL\_USE\_PLL|SYSCTL\_XTAL\_16MHZ|SYSCTL\_OSC\_MAIN);

//Enable clock for peripheral

**SysCtlPeripheralEnable**(SYSCTL\_PERIPH\_GPIOF);

//Configure LED's as outputs

**GPIOPinTypeGPIOOutput**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3);

**while**(1)

{

//Turn on LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, ui8PinData);

**SysCtlDelay**(2000000);

//Turn off LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 0x00);

**SysCtlDelay**(2000000);

//Cycle through R, G, B, RG, RB, GB, RGB...

**if**(ui8PinData==2) {ui8PinData=8;}

**else** **if** (ui8PinData==8) {ui8PinData=4;}

**else** **if** (ui8PinData==4) {ui8PinData=10;}

**else** **if** (ui8PinData==10) {ui8PinData=6;}

**else** **if** (ui8PinData==6) {ui8PinData=12;}

**else** **if** (ui8PinData==12) {ui8PinData=14;}

**else** {ui8PinData=2;}

}

}