**Date Submitted: 11/11/2019**

**------------------------------------------------------------------------------------**

**Task 01:**

Youtube Link: <https://www.youtube.com/watch?v=JN2XlcQcCqQ>

**Modified Schematic (if applicable): N/A**

**Modified Code:**

**//----------------------------------------**

**// BIOS header files**

**//----------------------------------------**

**#include <xdc/std.h> //mandatory - have to include first, for BIOS types**

**#include <ti/sysbios/BIOS.h> //mandatory - if you call APIs like BIOS\_start()**

**#include <xdc/runtime/Log.h> //needed for any Log\_info() call**

**#include <xdc/cfg/global.h> //header file for statically defined objects/handles**

**//------------------------------------------**

**// TivaWare Header Files**

**//------------------------------------------**

**#include <stdint.h>**

**#include <stdbool.h>**

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

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

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

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

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

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

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

**#include <time.h>**

**//----------------------------------------**

**// Prototypes**

**//----------------------------------------**

**void hardware\_init(void);**

**void ledToggle(void);**

**void delay(void);**

**//---------------------------------------**

**// Globals**

**//---------------------------------------**

**volatile int16\_t i16ToggleCount = 0;**

**//---------------------------------------------------------------------------**

**// main()**

**//---------------------------------------------------------------------------**

**void main(void)**

**{**

**hardware\_init(); // init hardware via Xware**

**BIOS\_start(); //Start BIOS scheduler**

**}**

**//---------------------------------------------------------------------------**

**// hardware\_init()**

**//**

**// inits GPIO pins for toggling the LED**

**//---------------------------------------------------------------------------**

**void hardware\_init(void)**

**{**

**//Set CPU Clock to 40MHz. 400MHz PLL/2 = 200 DIV 5 = 40MHz**

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

**// ADD Tiva-C GPIO setup - enables port, sets pins 1-3 (RGB) pins for output**

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

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

**// Turn on the LED**

**GPIOPinWrite(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 4);**

**}**

**//---------------------------------------------------------------------------**

**// ledToggle()**

**//**

**// toggles LED on Tiva-C LaunchPad**

**//---------------------------------------------------------------------------**

**void ledToggle(void)**

**{**

**// LED values - 2=RED, 4=BLUE, 8=GREEN**

**if(GPIOPinRead(GPIO\_PORTF\_BASE, GPIO\_PIN\_2))**

**{**

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

**}**

**else**

**{**

**GPIOPinWrite(GPIO\_PORTF\_BASE, GPIO\_PIN\_2, 4);**

**}**

**delay(); // create a delay of ~1/2sec**

**i16ToggleCount += 1; // keep track of #toggles**

**Log\_info1("LED TOGGLED [%u] times", i16ToggleCount); // send #toggles to Log Display**

**}**

**//---------------------------------------------------------------------------**

**// delay()**

**//**

**// Creates a 500ms delay via TivaWare fxn**

**//---------------------------------------------------------------------------**

**void delay(void)**

**{**

**SysCtlDelay(6700000); // creates ~500ms delay - TivaWare fxn**

**}**

**------------------------------------------------------------------------------------**