**Date Submitted: 10/01/2019**

**Task 00:**

**Youtube Link:**

[**https://youtu.be/7s8CKtjaIw0**](https://youtu.be/7s8CKtjaIw0)

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**Task 01:**

Youtube Link:

[**https://youtu.be/qMn-0ot5\_34**](https://youtu.be/qMn-0ot5_34)

**Modified Code:**

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\inc\hw\_memmap.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\inc\hw\_types.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\inc\hw\_gpio.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\sysctl.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\gpio.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\debug.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\pwm.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\pin\_map.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\rom.h"

**#define** PWM\_FREQUENCY 50

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

{

**volatile** uint32\_t ui32Load;

**volatile** uint32\_t ui32PWMClock;

**volatile** uint8\_t ui8Adjust;

ui8Adjust = 75;

ROM\_SysCtlClockSet(SYSCTL\_SYSDIV\_5|SYSCTL\_USE\_PLL|SYSCTL\_OSC\_MAIN|SYSCTL\_XTAL\_16MHZ);

ROM\_SysCtlPWMClockSet(SYSCTL\_PWMDIV\_64);

ROM\_SysCtlPeripheralEnable(SYSCTL\_PERIPH\_PWM1);

ROM\_SysCtlPeripheralEnable(SYSCTL\_PERIPH\_GPIOD);

ROM\_SysCtlPeripheralEnable(SYSCTL\_PERIPH\_GPIOF);

ROM\_GPIOPinTypePWM(GPIO\_PORTD\_BASE, GPIO\_PIN\_0);

ROM\_GPIOPinConfigure(GPIO\_PD0\_M1PWM0);

HWREG(GPIO\_PORTF\_BASE + GPIO\_O\_LOCK) = GPIO\_LOCK\_KEY;

HWREG(GPIO\_PORTF\_BASE + GPIO\_O\_CR) |= 0x01;

HWREG(GPIO\_PORTF\_BASE + GPIO\_O\_LOCK) = 0;

ROM\_GPIODirModeSet(GPIO\_PORTF\_BASE, GPIO\_PIN\_4|GPIO\_PIN\_0, GPIO\_DIR\_MODE\_IN);

ROM\_GPIOPadConfigSet(GPIO\_PORTF\_BASE, GPIO\_PIN\_4|GPIO\_PIN\_0, GPIO\_STRENGTH\_2MA, GPIO\_PIN\_TYPE\_STD\_WPU);

ui32PWMClock = **SysCtlClockGet**() / 64;

ui32Load = (ui32PWMClock / PWM\_FREQUENCY) - 1;

**PWMGenConfigure**(PWM1\_BASE, PWM\_GEN\_0, PWM\_GEN\_MODE\_DOWN);

**PWMGenPeriodSet**(PWM1\_BASE, PWM\_GEN\_0, ui32Load);

ROM\_PWMPulseWidthSet(PWM1\_BASE, PWM\_OUT\_0, ui8Adjust \* ui32Load / 2000);

ROM\_PWMOutputState(PWM1\_BASE, PWM\_OUT\_0\_BIT, true);

ROM\_PWMGenEnable(PWM1\_BASE, PWM\_GEN\_0);

**while**(1)

{

**if** (ROM\_GPIOPinRead(GPIO\_PORTF\_BASE,GPIO\_PIN\_4)==0x00) { //SW1

ui8Adjust--;

**if** (ui8Adjust < 50) {

ui8Adjust = 50;

}

ROM\_PWMPulseWidthSet(PWM1\_BASE, PWM\_OUT\_0, ui8Adjust \* ui32Load / 2000);

}

**if** (ROM\_GPIOPinRead(GPIO\_PORTF\_BASE,GPIO\_PIN\_0)==0x00) {

ui8Adjust++;

**if** (ui8Adjust > 100) {

ui8Adjust = 100;

}

ROM\_PWMPulseWidthSet(PWM1\_BASE, PWM\_OUT\_0, ui8Adjust \* ui32Load / 500);

}

ROM\_SysCtlDelay(100000);

}

}

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**Task 02:**

Youtube Link:

[**https://youtu.be/1u4mqThubIU**](https://youtu.be/1u4mqThubIU)

**Modified Code:**

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\inc\hw\_memmap.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\inc\hw\_types.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\inc\hw\_gpio.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\sysctl.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\gpio.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\debug.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\pwm.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\pin\_map.h"

**#include** "\ti\tivaware\_c\_series\_2\_1\_4\_178\driverlib\rom.h"

**#define** PWM\_FREQUENCY 100

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

{

**volatile** uint32\_t ui32Load;

**volatile** uint32\_t ui32PWMClock;

**volatile** uint8\_t ui8Adjust;

ui8Adjust = 1;

ROM\_SysCtlClockSet(SYSCTL\_SYSDIV\_5|SYSCTL\_USE\_PLL|SYSCTL\_OSC\_MAIN|SYSCTL\_XTAL\_16MHZ);

ROM\_SysCtlPWMClockSet(SYSCTL\_PWMDIV\_64);

ROM\_SysCtlPeripheralEnable(SYSCTL\_PERIPH\_PWM1);

ROM\_SysCtlPeripheralEnable(SYSCTL\_PERIPH\_GPIOD);

ROM\_SysCtlPeripheralEnable(SYSCTL\_PERIPH\_GPIOF);

ROM\_GPIOPinTypePWM(GPIO\_PORTF\_BASE, GPIO\_PIN\_1); //set pf1 to pwm out

ROM\_GPIOPinConfigure(GPIO\_PF1\_M1PWM5);

HWREG(GPIO\_PORTF\_BASE + GPIO\_O\_LOCK) = GPIO\_LOCK\_KEY;

HWREG(GPIO\_PORTF\_BASE + GPIO\_O\_CR) |= 0x01;

HWREG(GPIO\_PORTF\_BASE + GPIO\_O\_LOCK) = 0;

ROM\_GPIODirModeSet(GPIO\_PORTF\_BASE, GPIO\_PIN\_4|GPIO\_PIN\_0, GPIO\_DIR\_MODE\_IN);

ROM\_GPIOPadConfigSet(GPIO\_PORTF\_BASE, GPIO\_PIN\_4|GPIO\_PIN\_0, GPIO\_STRENGTH\_2MA, GPIO\_PIN\_TYPE\_STD\_WPU);

ui32PWMClock = **SysCtlClockGet**() / 64;

ui32Load = (ui32PWMClock / PWM\_FREQUENCY) - 1;

ROM\_PWMGenConfigure(PWM1\_BASE, PWM\_GEN\_2, PWM\_GEN\_MODE\_DOWN); //config module for count dowm mode

ROM\_PWMGenPeriodSet(PWM1\_BASE, PWM\_GEN\_2, ui32Load); //load the counter

ROM\_PWMPulseWidthSet(PWM1\_BASE, PWM\_OUT\_5, ui8Adjust \* ui32Load / 100); //set width for pf3

ROM\_PWMOutputState(PWM1\_BASE, PWM\_OUT\_5\_BIT, true); //enable output

ROM\_PWMGenEnable(PWM1\_BASE, PWM\_GEN\_2); //enable pwm generator

**while**(1)

{

**if** (ROM\_GPIOPinRead(GPIO\_PORTF\_BASE,GPIO\_PIN\_4)==0x00) { //SW1

ui8Adjust--;

**if** (ui8Adjust < 10) {

ui8Adjust = 10;

}

ROM\_PWMPulseWidthSet(PWM1\_BASE, PWM\_OUT\_5, ui8Adjust \* ui32Load / 100);

}

**if** (ROM\_GPIOPinRead(GPIO\_PORTF\_BASE,GPIO\_PIN\_0)==0x00) {

ui8Adjust++;

**if** (ui8Adjust > 90) {

ui8Adjust = 90;

}

ROM\_PWMPulseWidthSet(PWM1\_BASE, PWM\_OUT\_5, ui8Adjust \* ui32Load / 100);

}

ROM\_SysCtlDelay(100000);

}

}

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