**Date Submitted: October 23, 2019**

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**Task 01:**

Youtube Link: https://youtu.be/UVrZKnKOIgs

**Modified Schematic (if applicable):**

**Modified Code:**

**#include <stdint.h>**

**#include <stdbool.h>**

**#include <math.h> //uses sinf function**

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

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

**#include "driverlib/fpu.h" //support floating point unit**

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

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

**#ifndef M\_PI //in case M\_PI is undefined, this bit of code takes care of it**

**#define M\_PI 3.14159265358979323846**

**#endif**

**#define SERIES\_LENGTH 100 //depth of data buffer**

**float gSeriesData[SERIES\_LENGTH]; //an array of floats series\_length long**

**int32\_t i32DataCount = 0; //counter for computation loop**

**int main(void)**

**{**

**float fRadians; //needed to calculate sine**

**/\*ROM\_\*/FPULazyStackingEnable(); //turns on Lazy Stacking**

**/\*ROM\_\*/FPUEnable(); //turns on FPU**

**/\*ROM\_\*/SysCtlClockSet(SYSCTL\_SYSDIV\_4 | SYSCTL\_USE\_PLL | SYSCTL\_XTAL\_16MHZ | SYSCTL\_OSC\_MAIN); //sets system clock for 50MHz**

**fRadians = ((2 \* M\_PI) / SERIES\_LENGTH); //full sine wave cycle is 2pi radians. divides 2pi by the depth of array**

**while(i32DataCount < SERIES\_LENGTH) //calculates sine value for each of the 100 values of the angle and places them in the array**

**{**

**gSeriesData[i32DataCount] = sinf(fRadians \* i32DataCount);**

**i32DataCount++;**

**}**

**while(1)**

**{**

**}**

**}**

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**Task 02:**

Youtube Link: https://youtu.be/zXwqzPat-\_I

**Modified Schematic (if applicable):**

**Modified Code:**

**#include <stdint.h>**

**#include <stdbool.h>**

**#include <math.h> //uses sinf function**

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

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

**#include "driverlib/fpu.h" //support floating point unit**

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

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

**#ifndef M\_PI //in case M\_PI is undefined, this bit of code takes care of it**

**#define M\_PI 3.14159265358979323846**

**#endif**

**#define SERIES\_LENGTH 1000 //depth of data buffer**

**float gSeriesData[SERIES\_LENGTH]; //an array of floats series\_length long**

**int32\_t i32DataCount = 0; //counter for computation loop**

**int main(void)**

**{**

**float fRadians; //needed to calculate sine**

**/\*ROM\_\*/FPULazyStackingEnable(); //turns on Lazy Stacking**

**/\*ROM\_\*/FPUEnable(); //turns on FPU**

**/\*ROM\_\*/SysCtlClockSet(SYSCTL\_SYSDIV\_4 | SYSCTL\_USE\_PLL | SYSCTL\_XTAL\_16MHZ | SYSCTL\_OSC\_MAIN); //sets system clock for 50MHz**

**fRadians = ((2 \* M\_PI) / SERIES\_LENGTH); //full sine wave cycle is 2pi radians. divides 2pi by the depth of array**

**while(i32DataCount < SERIES\_LENGTH) //calculates sine value for each of the 100 values of the angle and places them in the array**

**{**

**gSeriesData[i32DataCount] = 1.5 + sinf(fRadians \* 50 \* i32DataCount) + 0.5\*cosf(fRadians \* 200 \* i32DataCount);**

**i32DataCount++;**

**}**

**while(1)**

**{**

**}**

**}**

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