

EEE204 - Introduction to Embedded Systems

Experiment 2

Objectives

- Become familiar with the MSP430 instruction set data transfer instructions, arithmetic instructions, logic instructions, and the program control instructions.
- Learn to use bit set and bit clear instructions to set and clear individual bits within an operand.

Materials

- Code Composer Studio IDE
- MSP430F5529 USB LaunchPad development kit

Experimental Work

E1

- 1) Create a new Empty Assembly-only CCS project titled: **ASM_ADD**.
- 2) Type the following code into the `main.asm` file where the comments say "Main loop here".

```
main:
    mov.w    #371, R4
    mov.w    #465, R5
    add.w    R4, R5

    mov.w    #0FFFEH, R6
    add.w    #1h, R6

    mov.w    #0FFFFh, R7
    add.w    #1h, R7

    mov.b    #255, R8
    mov.b    #1, R9
    add.b    R8, R9

    mov.b    #-1, R10
    add.b    #1, R10

    mov.b    #127, R11
    add.b    #127, R11

    jmp main
```

3) Debug your program. If you have errors correct them and continue debugging until your program is successfully downloaded to the Launchpad board.

4) Open the Register Viewer and expand the Core Registers item to see the CPU registers. Expand the status register.

5) Step your program to observe the operation of each addition

