

EE 308 – Homework 1
Due January 25, 2010

1. Explain what the command BF 2000 20FF AA of the D-Bug 12 monitor does. (You may need to look in the manual [Reference Guide for D-Bug12](#).)
2. Consider the following MC9S12 program:

```

; MC9S12 demo program
; EE 308
; 14 January 2010

; This is a program to add four numbers in memory from $1000 through $1003,
; divide the sum by four, and store the result in address $1004

prog:   equ     $2000       ; Starting address for program
data:   equ     $1000       ; Starting address for data

        org     prog       ; Set initial program counter value

        ldaa   input1      ; Load first number into ACC A
        adda   input2      ; add second number
        adda   input3      ; add third number
        adda   input4      ; add fourth number
        lsra                   ; divide by 2
        lsra                   ; divide by 2 again
        staa   average     ; save result in memory
        swi

        org     data       ; Put data starting at this location
input1: dc.b   $32         ; First number
input2: dc.b   $45         ; Second number
input3: dc.b   $3c         ; Third number
input4: dc.b   $2f         ; Fourth number

average: ds.b   1         ; Reserve one byte for result

```

What is the value of Register A after each instruction of the program has executed? (E.g., after the instruction `ldaa input1`, Register A will have a 0x15 in it.) You do not need to consider the `swi` instruction.

3. What are the address of RAM in the MC9S12 which are available to you for your program and data?
4. What are the address of EEPROM in the MC9S12 which are available for your use?
5. How much flash EEPROM does the 9S12DP256 chip have?