CMPEN 472, The Pennsylvania State University

Homework 6

Due: Oct. 7, 2015 11:30pm

Objective

To learn how to use arithmetic instructions and write basic system I/O subroutines.

Instruction

1. Modify the Homework 5 with the following menu:

   L2: Turn on LED2
   F2: Turn off LED2
   S: Show the contents of memory location
   W: Write the data byte to memory location
   QUIT: Quit menu program, run 'Type writer' program.

2. Menu/Command S: this command **shows** the contents of memory location specified by the address in hexadecimal followed by the 'S' character. For example, if the data $6A is stored in memory location $3000, a user types in the first line ending with Enter/Return key and the following should be displayed on the HyperTerminal connected to the HCS12 board:

   ```
   >S3000
     $3000 = $6A    106
   >
   ```

   The data $6A is printed in both hexadecimal and decimal format. The character '>' is the prompt in this example.

3. Menu/Command W: this command **writes** data into the memory location specified by the address in hexadecimal followed by the 'W' character. The data to be written to the memory location is followed by a space and it can be specified by hexadecimal '$' or just decimal number. For example, if one wants to store the data $6A in memory location $3001, a user types in the first line ending with Enter/Return key and the following should be displayed on the HyperTerminal connected to the HCS12 board:

   ```
   >W3001 106
     $3001 = $6A    106
   >
   ```

   Or

   ```
   >W3001 $6A
     $3001 = $6A    106
   ```

>

As a result, the data $6A is stored in the memory location $3001 and it is shown with the 'S' command. The 'S' command accepts both '106' or '$6A' as an 8 bit number.

4. Make your program user-friendly, menu driven, and fool-proofed. Print detail guide on the terminal screen so that users will properly use your program. Once your program is running, everything must be self explanatory to user at the Hyper Terminal.

5. For this homework, you may do a minimum error checking or no error checking, assuming correct input entered by a user. You may display wrong output if user enters wrong input, this is OK (only for this Homework). However, in conclusion, your program must NOT crash or hang if a user enters wrong input.

6. Design the program to start at $3100 and data to start at $3000.

7. Be sure to put much comments so that grader and others can clearly and quickly understand your program. Comments are very important in assembly language programs.

8. Copy your 'main.asm' file to 'cmpen472hw6_YourLastName.asm'. For example, mine will be 'cmpen472hw6_choi.asm' Do not ZIP your file.

9. Turn-in your project source code file through Penn State ANGEL. Deposit your source code file into the Homework 6 DropBox under CLASS tab in CMPEN 472 Course.

Congratulations on your sixth CMPEN 472 homework completion!
