ECE 375 PRELAB 4

Lab Time: Wednesday 12-2

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QUESTIONS

1. What is the stack pointer? How is the stack pointer used, and how do you initialize it? Provide pseudocode (not actual assembly code) that illustrates how to initialize the stack pointer.

   The Stack pointer is a pointer that will always point to the top of the stack. We use the stack pointer to add things onto the stack.

   - initialize the low bit of SRAM to SPL

   -initialize the high bit of SRAM to SPH.

   This is what was given in Lab 3.

2. What does the AVR instruction LPM do, and how do you use it? Provide pseudocode (not actual assembly code) that shows how to setup and use the LPM instruction.

   LPM is the Load Program Memory instruction that will load 1 byte pointing to the Z-register. We use this to check the values in flash memory.

   -call lpm and then the desired register (default r0)

3. Take a look at the definition file m128def.inc (This file can be found in the Solution Explorer → Dependencies folder in Atmel Studio, assuming you have an Assembler project open and you have already built an assembly program that includes this definition file. Two good examples of such a project would be your Lab 1 and Lab 3 projects.) What is contained within this definition file? What are some of the benefits of using a definition file like this? Please be specific, and give a couple examples if possible.

   The definition file contains the register bit names for all I/O. A definition file like this lets us see exactly what is being mapped in memory and what the compiler expects when we call these I/O. We could use this to more quickly identify a register if we needed to change a certain bit or wanted to check what was being outputted but didn't know the address.

REFERENCE

http://www.rjhcoding.com/avr-asm-functions.php