ECE 375 PRELAB 1

Lab Time: Tuesday 4-6

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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 should be a reference to where the stack begins, so that it can be found and accessed later. It can get incremented and decremented then things are “pushed” or “popped”.

   Initialization:

   Include m128def.inc
   write low byte of end SRAM address LOW RAMEND > SPL
   write high byte of end SRAM address HIGH RAMEND > SPH

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 short for Load Program Memory. This brings in bytes from memory.

   Example:
   LPM to R12 from *Z

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.

   It looks like there’s a lot of keywords here with “.equ” accompanying them. This looks like it’s there so that we can use these “shortcuts” instead of remembering the exact reference numbers. This would make the process of coding much easier. Just use ‘.include “m128def.inc”’ in the file you’re writing.

REFERENCE

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