ECE 375 PRELAB 3

Lab Time: Wednesday 12-2

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QUESTIONS

1. What are some differences between the debugging mode and run mode of the AVR simulator? What do you think are some benefits of each mode?

   The main difference is in debugging mode and run mode is that in run mode you can only see the inputs and outputs. You cannot change anything in run mode. In debugging mode, you can see the program running as if it were on the microcontroller. It allows you to more easily identify where an error may have occurred.

2. What are breakpoints, and why are they useful when you are simulating your code?

   Break points are places that the code will stop at if that are ever hit. They are useful in the same way that print statements are used for more software-oriented programming. You can put break points where you do not want your program to hit and just like the print statements it will tell you if it was hit. This makes them very useful for finding logic errors.

3. Explain what the I/O View and Processor windows are used for. Can you provide input to the simulation via these windows?

   The I/O view and processor windows are used to see a memory map of the registers and what the program counter currently holds. You can modify the contents of the registers during the simulation without restarting.

4. The ATmega128 microcontroller features three different types of memory: data memory, program memory, and EEPROM. Which of these memory types can you access by using the Memory window of the simulator?

   The memory window of the simulator can access all three types of memory.

REFERENCE

https://mansfield-devine.com/speculatrix/2017/10/debugging-avr-atmega-code-with-atmel-studio-and-ice/

http://atmel-studio-doc.s3-website-us-east-1.amazonaws.com/webhelp/GUID-54E8AE06-C4C4-430C-B316-1C19714D122B-en-US-1/index.html?GUID-8B95323F-DC46-41D1-B28A-0CD545A35B8B

http://www.rjhcoding.com/avr-asm-memory-types.php