ECE 375 PRELAB 3

Lab Time: Wednesday 10-12

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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?

Debugging mode can be describe as going on a line-by-line simulation to find how the program is executing. Run mode on the other hand is running the program continuously. The benefit of using the debugging mode is that it let user take control of the simulation, which mean that they can verify data in registers and memory line-by-line. The benefit of run mode is there not much as debugging is best case to use more than run mode.

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

Breakpoints are used to halt the simulation at the area known to be buggy. This is very useful in simulating your code as instead of using the debugging mode going through line-by-line to find the problem, adding the breakpoint to jump to a specific area you know is buggy. This way it is efficient, and less time consuming for you to sit there and find where the problem is.

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 is a tab that contains all the configuration registers associated with the simulated chip, while the Processor tab is displays the current contents of the Program Counter, Stack Pointer, the 16-bit pointer registers X, Y, and Z, and the Status Register. By using these windows, you can provide input to the simulation on the ports.

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?

(a) Data memory only

(b) Program memory only

(c) Data and program memory

(d) EEPROM only

(e) All three types

The answer this would be *e* as all three types of memory: the EEPROM, data memory, and program memory would be accessible by using the Memory window in the simulation.

REFERENCE

Computer Organization and Assembly Language Programming: Embedded Systems Perspective by Ben Lee