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PreLab 3

1. The primary difference between run mode and debugging mode is that debugging mode will pause at each line of execution and wait for the user to move the program ahead manually. The run mode, on the other hand, simulates the way that a program runs on your chip – immediately, and without pause. It is useful if you are already fairly certain the the program will work, or to get a coarse idea of any bugs that may exist. It is also much faster than line-by-line debugging. On the other hand, going through the program line by line allows one to examine the fine detail of how memory is being handled, which instructions are getting executed and is much more useful for finding tricky bugs.
2. A breakpoint is a spot at which the run mode will pause and switch into debugging mode, if it reaches that line of execution. This is useful for skipping introductory or boilerplate code while debugging a program repeatedly, and as a quick and dirty way to see if a particular line is ever reached in execution.
3. The IO view allows the user to see each of the simulated input and output ports during the line-by-line debugging, and the user may change the value of an input port in order to simulate input. I found information on the processor view here: <http://www.atmel.com/webdoc/atmelstudio/atmelstudio.Debug.Views.ProcessorView.html>

Essentially, the processor view allows us to examine specifically those registers which are in use by the processor, such as the PC, the stack pointer, the XYZ registers, the status register, and so forth. These fields may be modified at run time in debug mode.

1. The Memory window allows us to access (e) all three types of memory (data, program, and EEPROM).