Computer Design and Organization

Assignment #4

Due: Wednesday November 13

The purpose of this fourth assignment is to test thoroughly your understanding of Tomasulo's algorithm within the context of single and multiple issue processors. This assignment can be done in groups of two.

Your assignment is to write programs in any language you wish to simulate Tomasulo's algorithm with the specifications and the input as in **Problem 3.6 (c)** in your textbook (i.e., the second part of Assignment #3). The new twist is that you have to do it for the case where only one instruction is issued at any given cycle (as in Assignment #3) and when two instructions can be issued at the same time.

For the two-issue case, you should set-up some priorities in case the two instructions want to reserve reservation stations for the same functional unit in the same cycle (i.e., there is a structural hazard). There might be other cases of structural hazards. Note also that two instructions can be committed in any cycle if two of them are ready of course and that there are two CDB's.

If there are still some possibilities left for misinterpretation or confusion, please holler

In order to help you, Stefan has provided you with a "parser" for the input DAXPY program as well as the unrolled loop in:
/projects/cse/courses/cse471/02au/ass4

Please read *readme.txt* in that directory before proceeding further.

The outputs of your programs should be similar to the output of Assignment #3.