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ECEC 355

Project 4

Summarization of Experiment

Throughout project 4, our task is to divide the single-cycle core into the five stages. To do this, we first separated our single-cycle program into 5 sets of functions (IF_Stage, ID_Stage, EX_Stage, MEM_Stage, and WB_Stage). Every stage has its own “tick function” which is responsible executing the corresponding stage each time that stage is called. This makes it so each corresponding stage does not run if the previous stage has not run yet. Using this tick function makes it possible to implement pipelining within our program. We implemented a queue (of struct INST) which held pointers to each of the five stages. After every iteration of the pipeline, the queue shifts right so that different instructions can run different stages at the same time, imitating a pipeline. Once the queue is empty, there are no more instructions to run through and the code is done simulating. Based on the instructions given, we obtained values of register files of:

x10 = -63

x11 = 25

x12 = 5

x13 = 63

x14 = -5