Rubric for Grading Homework #4

This rubric is meant to cover most responses. Highly unusual answers that are not covered by this rubric will be graded at the discretion of the TAs.

Helping the Graders to Find Partial Credit for You: If you know your processor is not fully correct/implemented, include the instructions you have tested and believe to work in your README, along with instructions that do not work and why they do not work if you know.

Following the Rules: For each type of disallowed component that is taken from the Logisim library (e.g., an adder or decoder), 10 points will be deducted. (If you take 3 Logisim decoders, the penalty is still 10 points, not 30 points.)

Case 1: Processors that Successfully Run Tough Test Program

Score: 150/150 unless there are penalties for using disallowed Logisim components (see above).

Case 2: Processors that Fail Tough Test Program but Fetch/Execute At Least One Instruction

[80 points] Instruction Execution: 5 points/instruction * 16 instructions
> 5: Instruction is implemented fully and correctly
> 4: Minor mistake such as unhandled edge case (works most of the time)
> 2: Major mistake with implementation such as unhandled control (works rarely or never)
> 1: Attempt at implementation
> 0: Instruction absent

[10 points] Processor Reset Functionality
> 10: Reset functions correctly in all cases
> 5: Reset does not clear all modules specified in the assignment (works most of the time)
> 0: Reset is absent or completely non-functional

[20 points] Instruction Decoding--mechanism for generating control signals based on instruction and correctly extracts rS, rT, etc. from instruction
> 20: Works correctly for all instructions
> 15: Minor bug extracting certain instruction components but otherwise functional
> 8: Issues with control generation or instruction components incorrectly extracted
> 0: Very broken or absent; see notes on non-functional submissions

[20 points] PC and Fetch Logic
> 20: PC correct in general case (non-jumps) and instrs fetched correctly from memory
> 15: Minor error with either maintaining PC or fetching instructions
> 8: Major error with both PC and fetching instructions

0: Very broken or absent; see notes on non-functional submissions

[20 points] ALU
20: ALU outputs correct result for all input values and operation types
15: Minor bug outputting correct results for certain operation type(s)
8: Major issues with outputting correct results
0: Absent or never outputs correct result
Note this is separate from the points for instruction implementation

Case 3: Processors that Fail to Fetch and/or Execute Any Instructions

Maximum Possible Score: 70/150

Here, all possible points for instructions (80) are lost. However, points for each component (Decoder, ALU, etc.) are awarded according to Case 2 above.