

Lab 2 Read Me

Your names

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Any information that the TA should know when evaluating your design

- For the shifter module, we implemented both a left and right shift so that we could use the same module in the future if necessary even though this lab only requires a right shift.

What was your testing strategy? How did you prove to yourself that your design completely satisfied the lab's requirements? Did any of your tests catch bugs you weren't previously aware of?

- Our general testing strategy was to identify all edge cases and ensure we had test cases that took them into consideration. For float-add, we made sure all our outputs matched hand calculations and tested every variation of inputs we could think of (namely the 3 different output scenarios + when InB is larger than InA). When it was necessary, we even went as far as to test all the cases possible, like in adder. To make sure we don't mistake a failed test for a positive one, we added flag functionality where the program would compare the expected output to the actual output, and set the flag to 1. The flag is then used to print an overall "all tests passed" or "tests failed" message.

An explanation of why we shift the input with the smaller exponent to the right as opposed to shifting the input with the larger exponent to the left.

- If we were to shift the larger exponent to the left instead of shifting the smaller exponent to the right then our output would produce a result that is higher than the actual result instead of outputting a smaller number. This is because when we shift left, the mantissa becomes smaller. It is probably better to output a lower number than the output rather than the higher number so you know that the result is "at least that big" rather than outputting a higher number and not knowing how much less your actual result is. Also, if we shifted the input with the larger exponent to the left, the mantissa would get larger and this might result in more saturated outputs.