Theory of Computer Sciece: Homework #2 - NandToTetris

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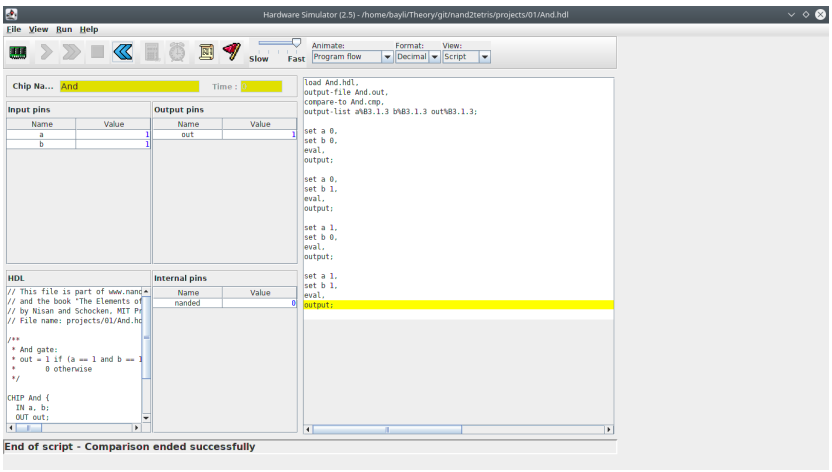
Bayli Boston

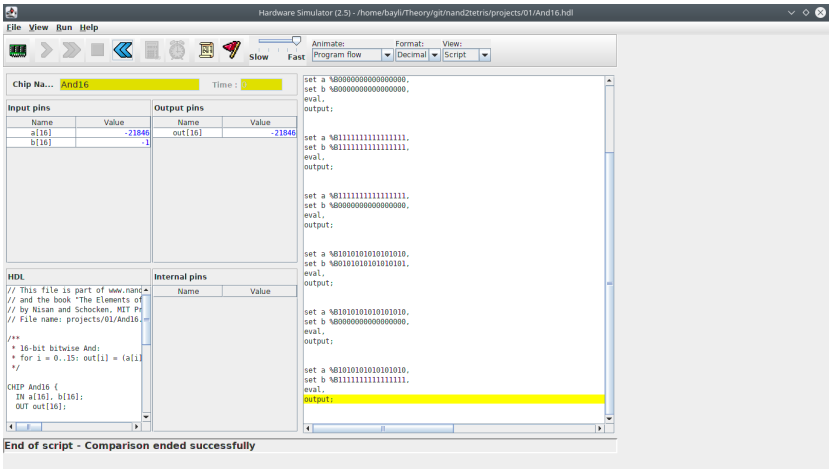
September 20, 2018

1 Project 1

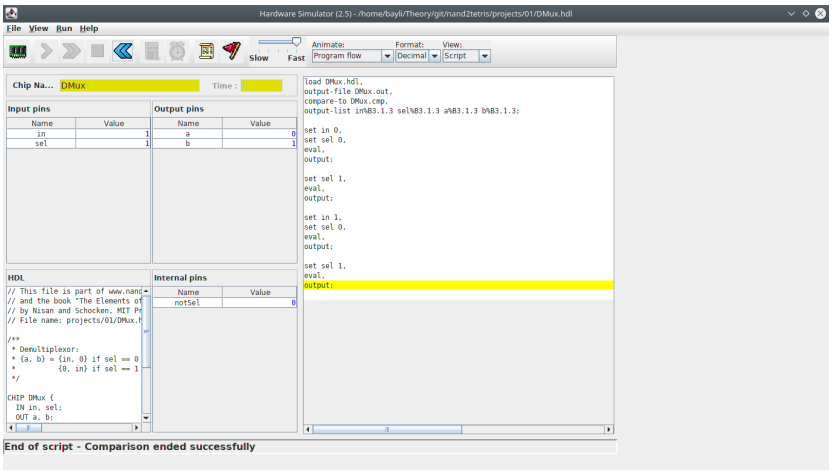
And All test passed



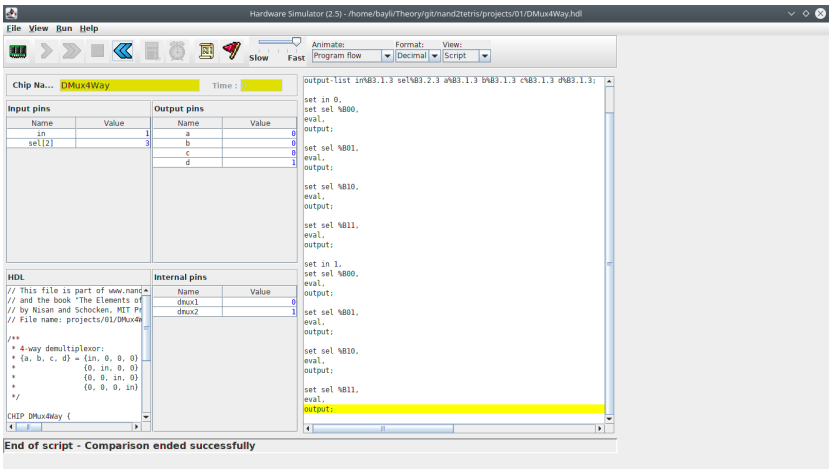
And16 All test passed



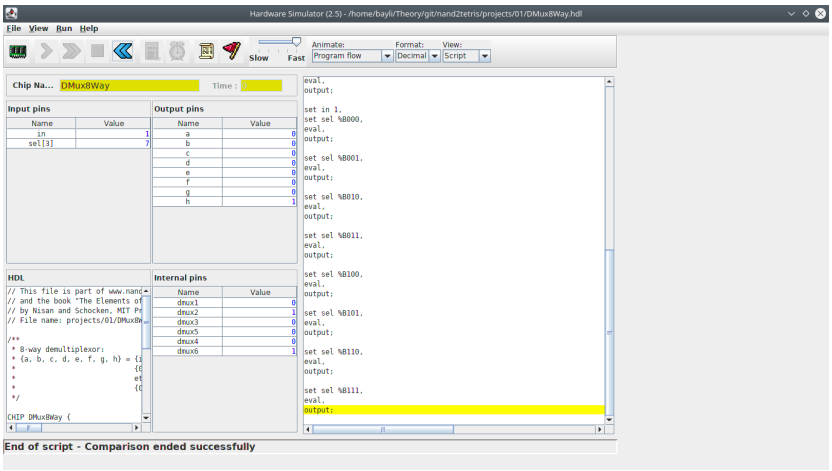
DMux All test passed



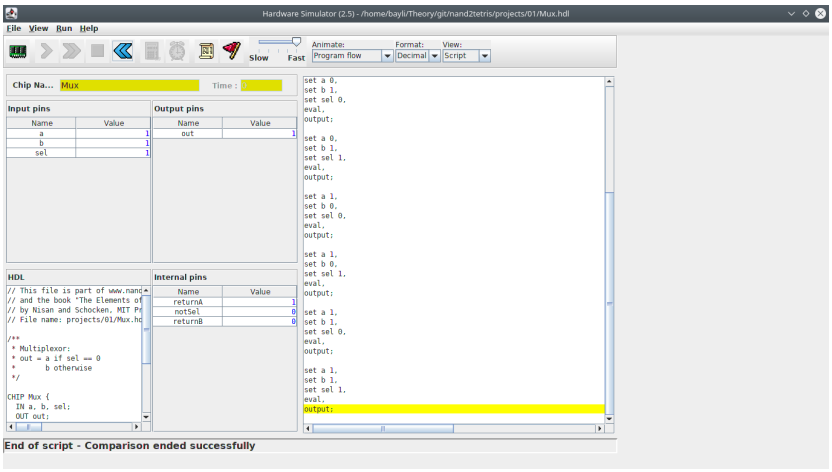
DMux4Way All test passed



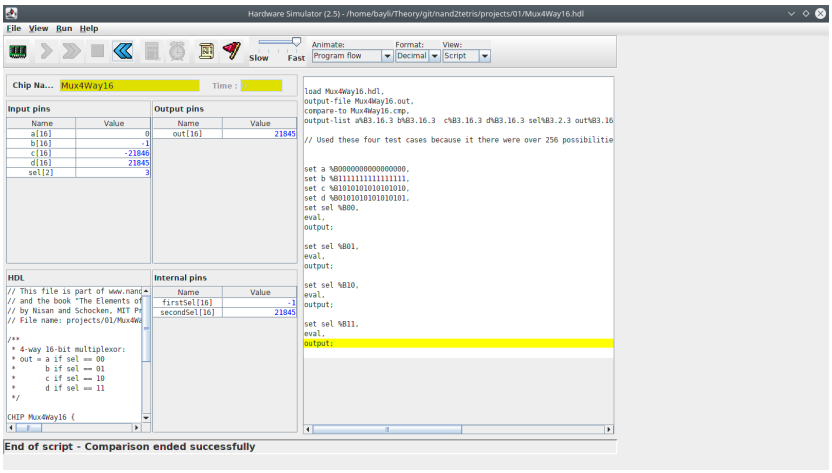
DMux8Way All test passed



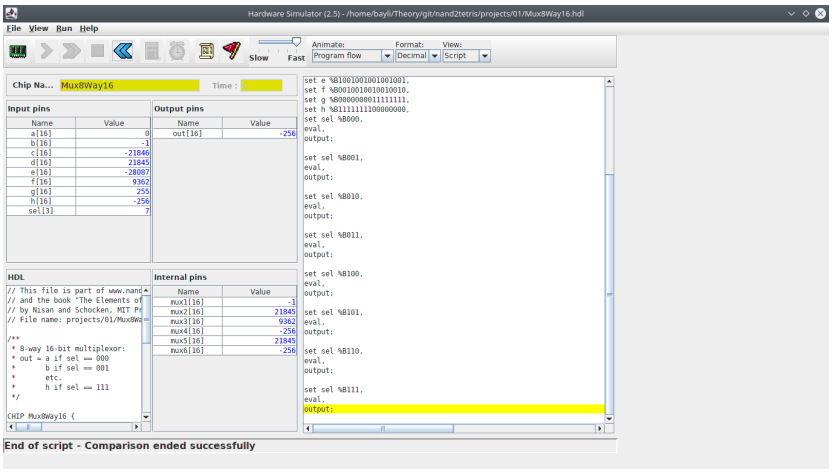
Mux All test passed



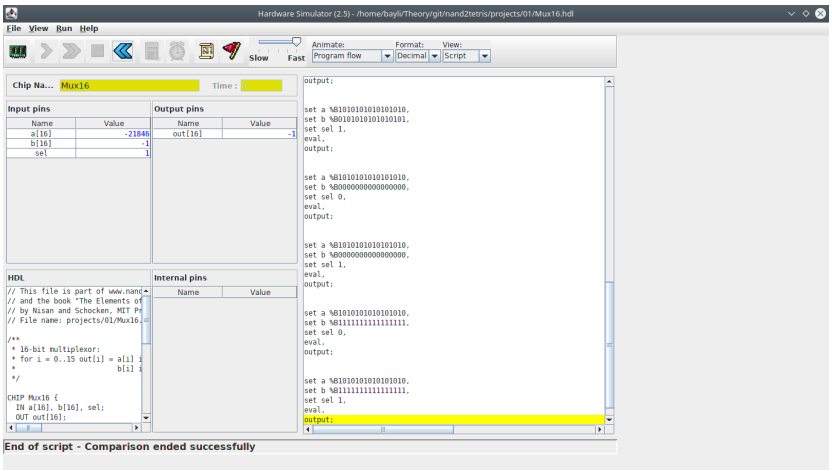
Mux4Way16 All test passed



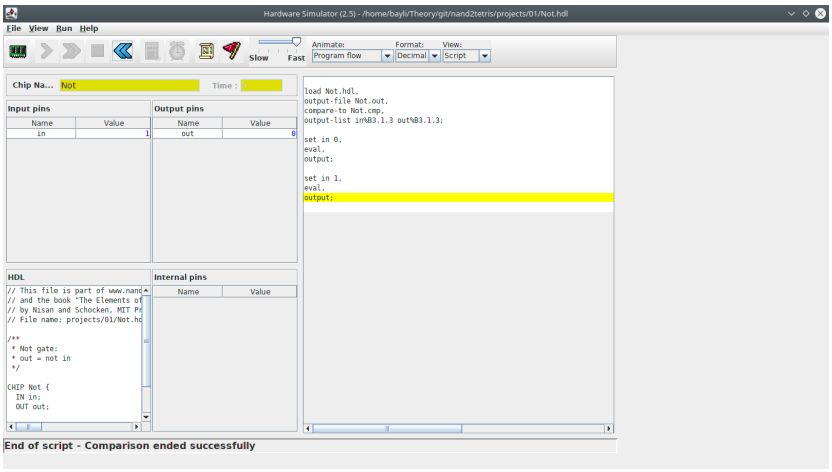
Mux8Way16 All test passed



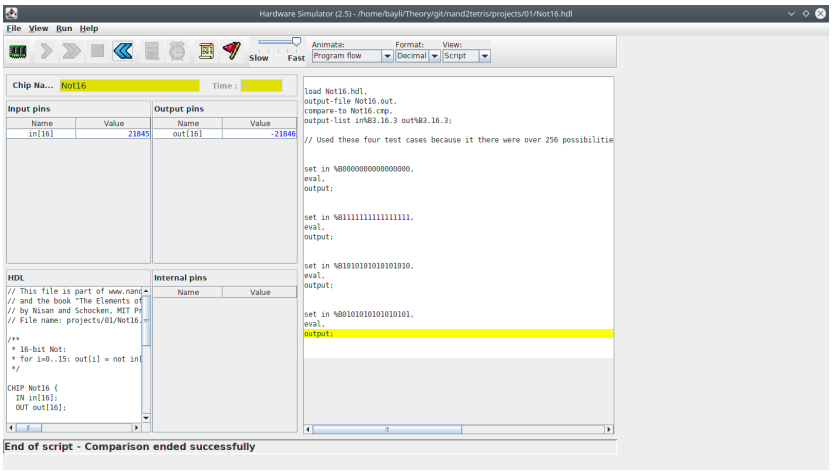
Mux16 All test passed



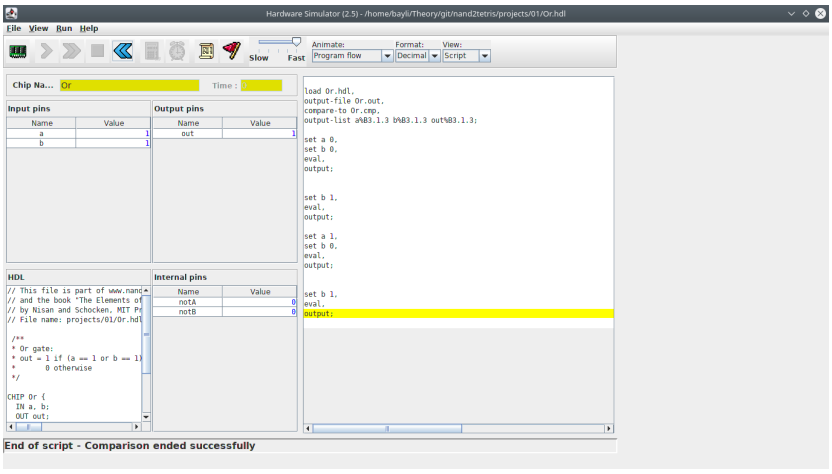
Not All test passed



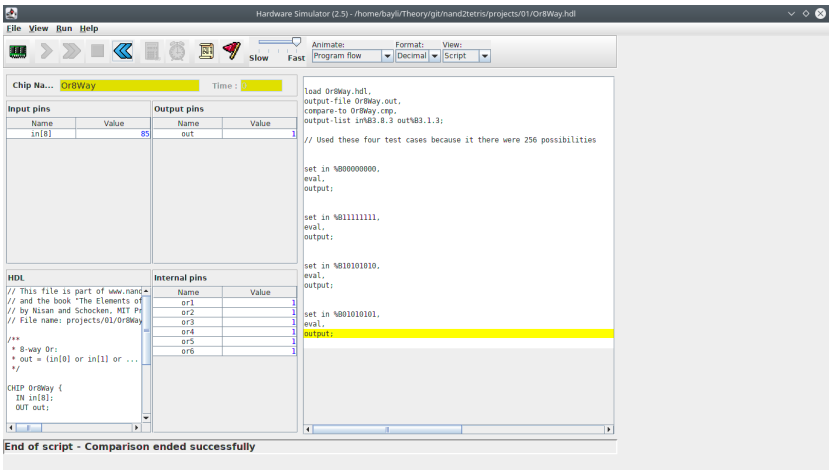
Not16 All test passed



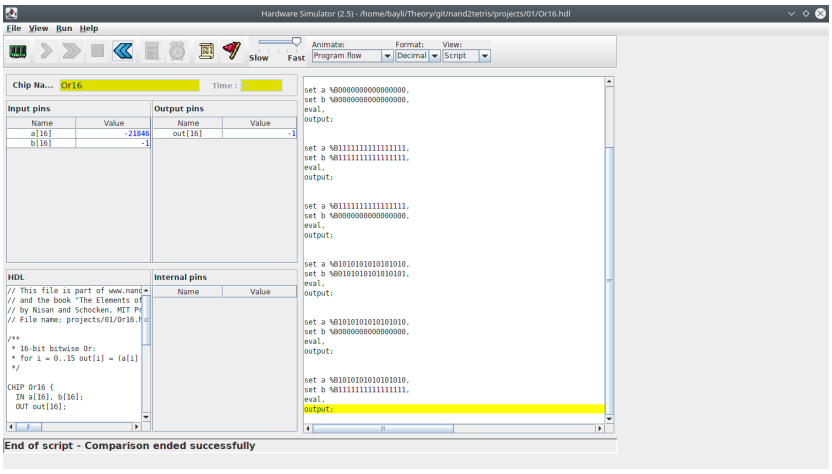
Or All test passed



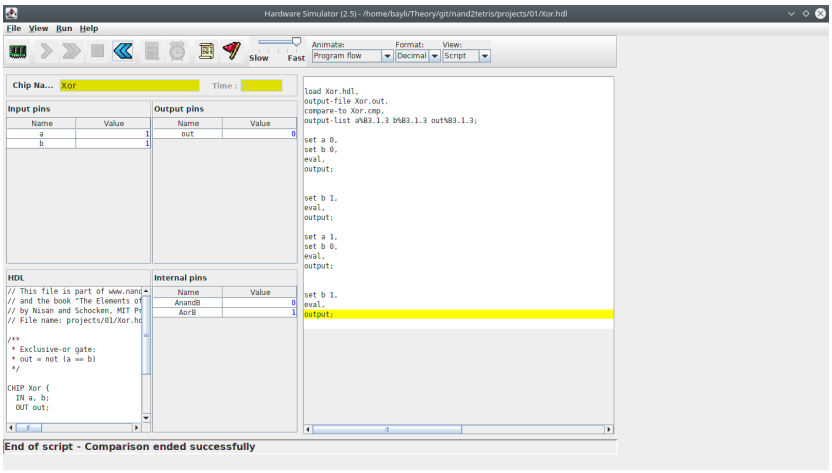
Or8Way All test passed



Or16 All test passed

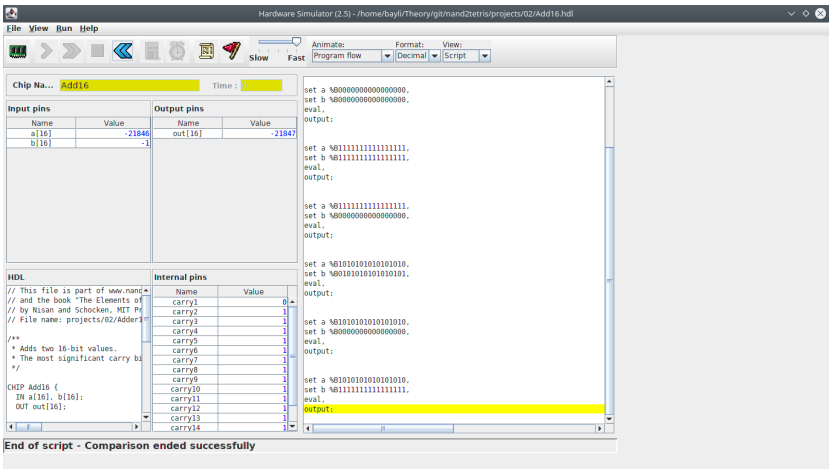


Xor All test passed

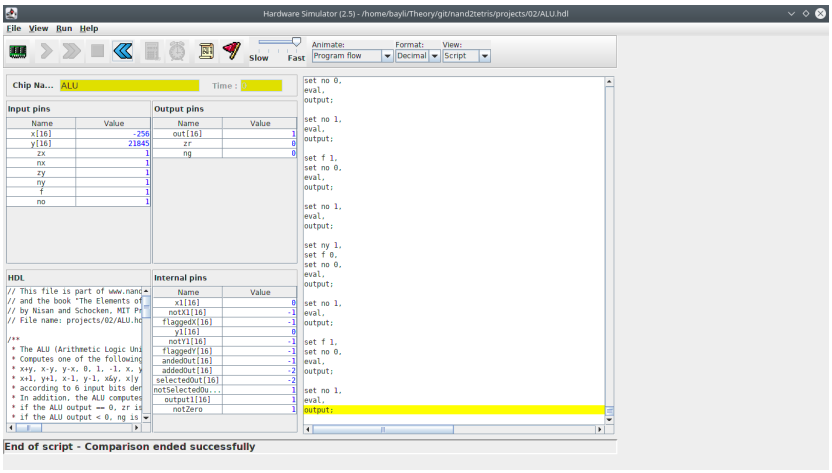


2 Project 2

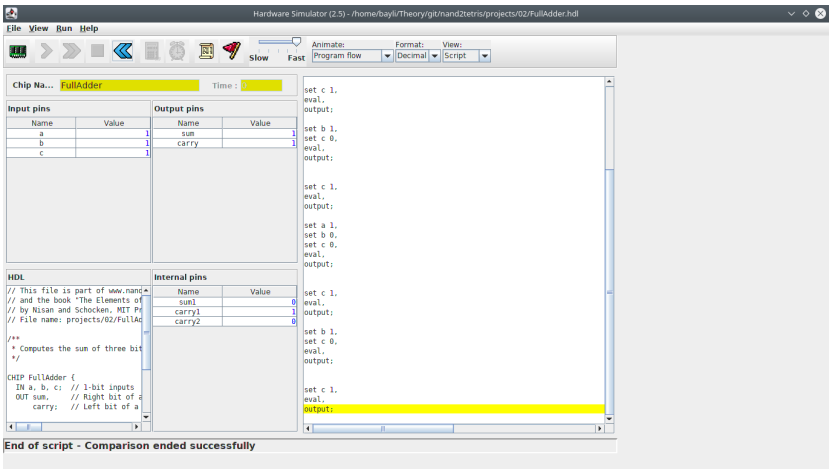
Add16 All test passed



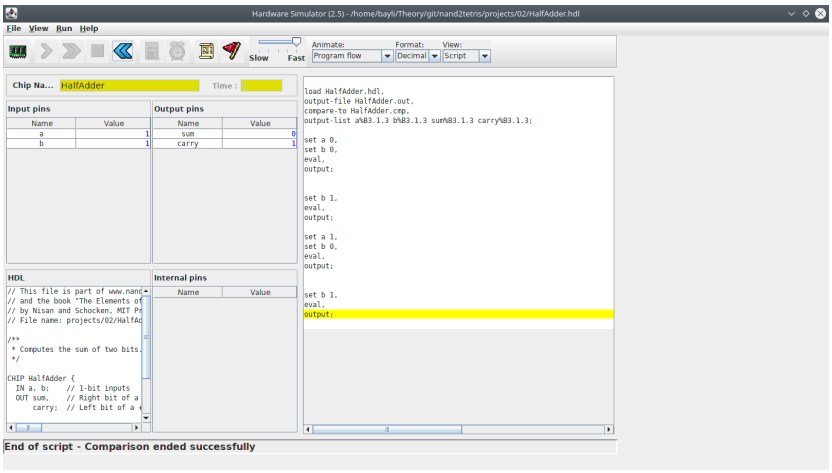
ALU All test passed



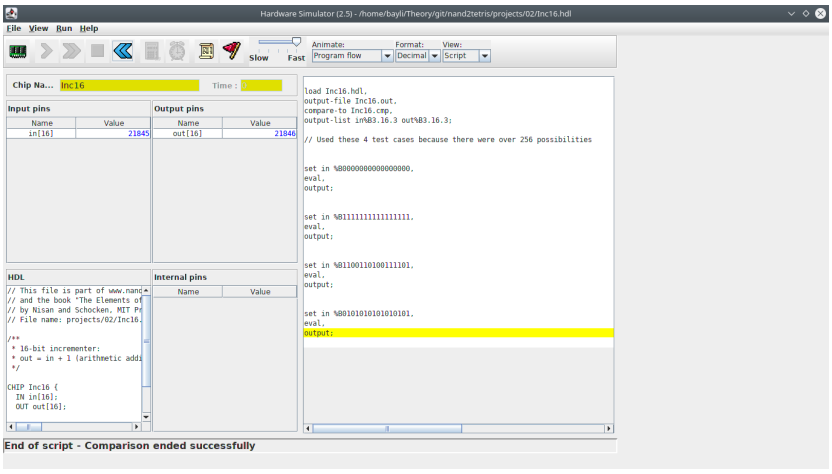
FullAdder All test passed



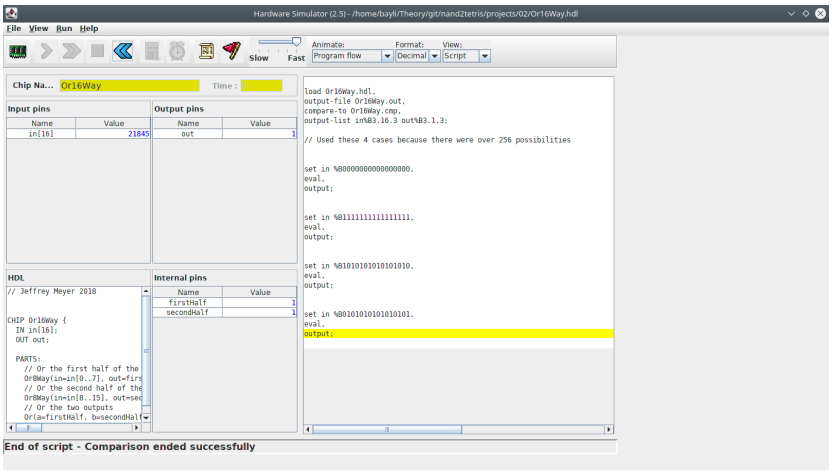
HalfAdder All test passed



Inc16 All test passed



Or16Way All test passed



3 Project 3

(a) The ALU has 6 bit flags and 2 16 bit inputs in total giving

$$2^6 \times 2^16 \times 2^16 = 274,877,906,944$$

(b) There are 36 test cases in the original test file.

(c) For our version of the no-stat test file, we ended up with 641 test cases. We decided the flags were the largest likely source of error and to exhaustively test each flag with only a few edge case inputs.

(d) The no-stat ALU is the same without the need to compare output cases for if the output is negative or zero. So $274,877,906,944$

(e) There are 36 test cases provided.

(f) The same as the no-stat file, we decided to exhaustively test all the flags with a few inputs.