Lab 2A Report

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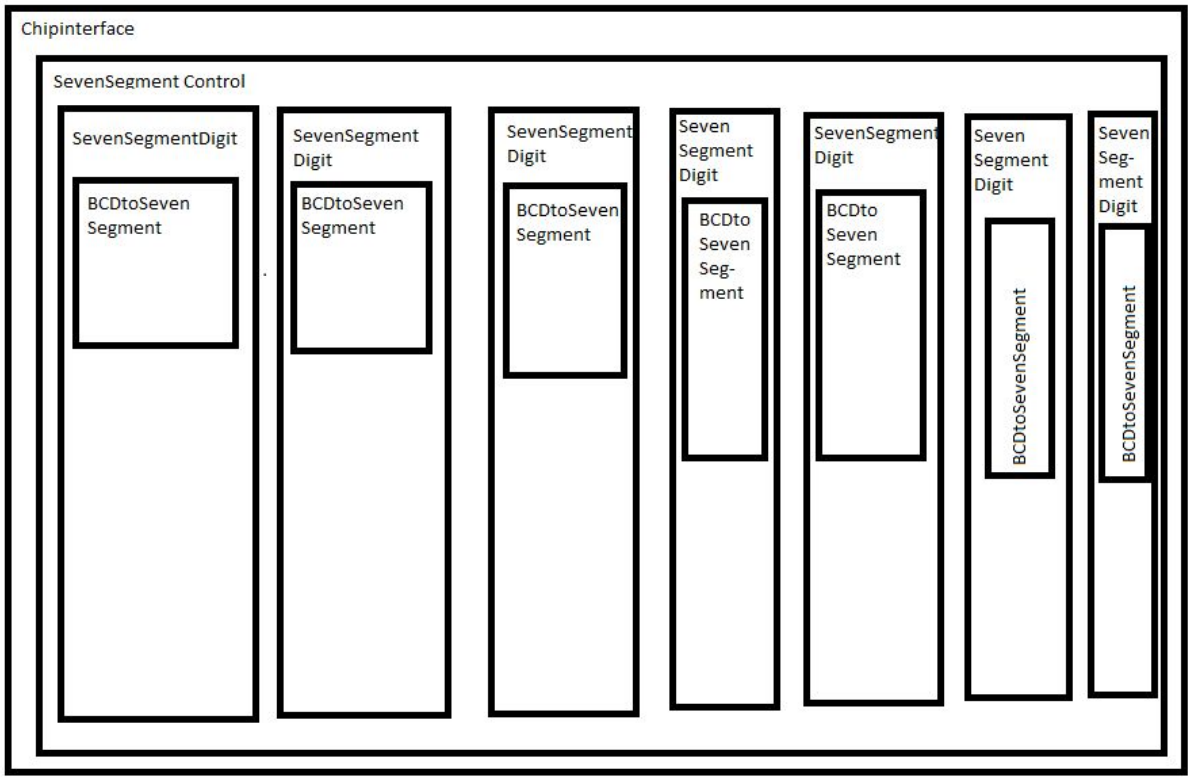
Objective & Overview

The objective of this lab is to design a circuit which will drive a series of seven segment displays, taking input from 9 switches and 3 keys. One display will show a “specific” number specified by the user, while all other displays will show a “default” number, also specified by the user. The keys will control which display to show the “specific” number on.

Hierarchy Diagram



Part 2 Simulation Results

(Errors highlighted)

0 out=1, a=1111, b=0000, c=1111, d=0000
10 out=0, a=0000, b=0001, c=0000, d=0000
20 out=1, a=0000, b=0000, c=0001, d=0000
30 out=0, a=0001, b=0000, c=0000, d=0000
40 out=1, a=0101, b=0110, c=1010, d=1001
V C S S i m u l a t i o n R e p o r t
Time: 40

Part 2 Testing Strategy

First, we looked through the code for Adder/Subtractor/Comparator, and compiled a list of 18 possible errors. From there, our initial strategy was to randomly select 4 values for a/b/c/d, then find out what the output should be for each of the 18 errors. We would then test those values and eliminate any errors for which the predicted output did not match the actual output.

Using this strategy, we completed only one test before realizing that after eliminations occur, we would not need to hand-simulate predicted outputs for errors that we had already ruled out. We decided to switch to a different approach: choose 4 random values, simulate it on the computer first, then go down the list of errors we haven't checked off, and continue eliminating. With this method, it took only 5 total tests to eliminate all but 1 possible error.