

Discussion :

We compared the waveform to our truth table. The results are the same, Our system is fine according to our bench-test.

Our major difficulty was to navigate through the software. The way we must create/navigate through the tabs and the files are very precise. Sometime, we misunderstood an English word so we were lost. This difficulty may disappear when we will be use to xilinks.

Even though our system is simple, there are plenty of ways to improve it:

- We can improve the code part: We can create integers and use loops to increment them so we don't copy-paste a hundred of times the same lines. This also allows changing the numbers of input way more easily.

- We can build our circuit in a lower level. Especially we can verify the 4-input AND gates. How are they done? Are they a smart 2 Levels 2-input AND gates combination or a less smart 3 levels? Our system is quite little, it allows us to go deeper: Is there a way to simplify some Pmos and Nmos?

Conclusion :

In addition to creating our system, xilinks allows us to test them. The code is very similar to the C language. For now we have learned to compare visually with the waveform. One can imagine creating a program that tests all the input possibilities of a system and compares them to a truth-table itself. Even if the xilinks software is sometimes a little mysterious, Its great potential is no doubt

The Multiplexer allows you to select an input to output it.

The decoder makes it possible to turn an output to 1 according to an input combination.

We can easily see that we have done on a small scale what happens in a memory register.

Questions :

Waveform: A graphic representation of the shape of a wave that indicates its characteristics. For our system, our waveform is equivalent to a truth table. We use the x ax, witch represent time, to test every possible entry. On the y ax there is only two value, 0-1 according to the line's value.

Test-bench: A protocol testing if a machine or device is working properly. It consists in testing all the entries possible value and comparing practical results to theoretical result. This is what we do. Our waveform shows us our practical values, to complete our test-bench, we have to compare our waveform to our theoretical truth-table.

Can we replace the 4-input AND gates in the circuit with the 2-input AND gates?

Yes we can, with a combination of 3 2-input AND. There is multiple ways to to it, but the smarter is to do it with a 2 lever circuit. The two outputs of the first two AND gates should go in input in the third AND gate.

