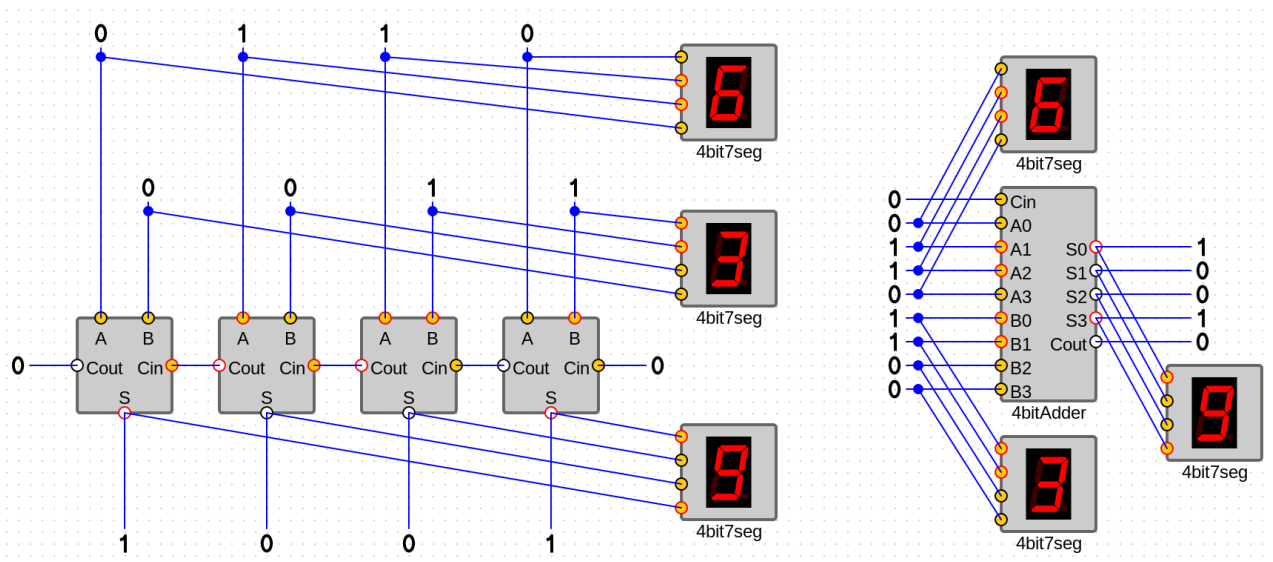




The circuit you have built is the same circuit that a computer uses to add two numbers together. Whenever you add two numbers together using a computer, somewhere in the computer an adder circuit like this is doing the job for you. Think of the path we have followed to this point. We started with bits and switches, then logic gates, then an XOR gate, a half adder, a full adder and now this 4-bit adder. You understood each of those steps along the way didn't you? You now understand how a computer does arithmetic, all the way down to the level of a simple on/off switch! If you had the time, you could build yourself a part of a computer by using only switches!

How do you think you might add together larger numbers that are more than 4 bits in length, say an 8-bit number, a 15-bit number or a 64-bit number? It's easy: just add more full adders to the chain, linking the carry inputs and outputs together as you go. You now know how a computer adds numbers of any size.

How do you think a computer adds more than one number together? It adds the first two numbers together then runs the answer through the adder again, each time adding one more number. In this way, you can use you adder to add as many numbers as you like together.