ECE253 Abridged

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Chapter 1

Review: Bit Manipulation

Have you ever wanted to be a cool computer person who does things with ones and zero's instead of actual letters and numbers like a normal person? If so, this is the right chapter for you!

1.1 Converting to and from Different Bases

Base 10, 2, and 16 are most commonly used. Base 16 is just a way to read base 2 in a more efficient manner. In order to work with bits it's pretty important to know how to convert back and forth because the test is all on paper.

1.1.1 Converting from base 10 $\rightarrow$ base 2

You keep dividing by two, keeping track of the remainder. Eventually the number you will be trying to divide by two will be 1. You keep going until it's zero + remainder(1). Then you read the reaminders upward from that final 1.

1.1.2 Converting from base 2 $\rightarrow$ base 16

Any hex number can be expressed as 4 binary digits. Make a correspondence table between quadruplets of binary numbers and hex (1-f, inclusive). To convert to base 16 subdivide from right to left in groups of four binary digits. Pad the leftmost part with leading zeros and convert using the table.

1.1.3 Converting from base 10 $\rightarrow$ base 16 (and vice versa)

Just go through base 2 fam.

Chapter 2

Logic Functions and Logic Gates

2.1 Or Gate

1. Symbols
2. Switch structure
3. Truth table

2.2 And Gate

2.3 Inverter

2.4 XOR

2.5 Boolean Algebra