
CS 371
Assignment #5
Simple Design

Due 10/30/09, in class

The goal of this assignment is to build some “real” circuits.

Labs

The following labs are to be done in pairs on the breadboards and shown to either me or the system administrator.

- (1) Wire up the following circuit and check the truth table. Use only two chips, a 7408 and a 7486.

$$F(A, B, C, D) = \sum(5, 6, 9, 10)$$

- (2) Build a circuit which generates a parity bit which is 1 if the number of 1's in a 4 bit word is odd and 0 if the number of 1's in the word is even (even parity). Check the truth table. Use a single 7486 chip.
- (3) Build an XOR gate with four 2-input NAND gates. Prove it is an XOR gate by showing that the two truth tables are the same.

Book Problems

Individually, do problems 15 and 16 from Pages 91-96, and 2, 6(hard), 8, 15a, from Pages 140-145 of Mano and Kime 4th edition.