

ECE 310 - Project 1

Wednesday, September 03, 2025 1:39 PM

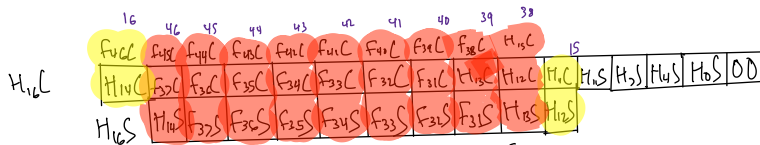
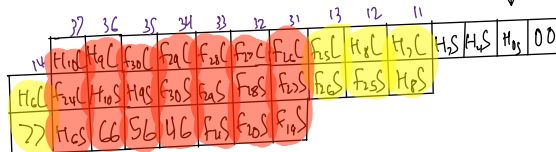
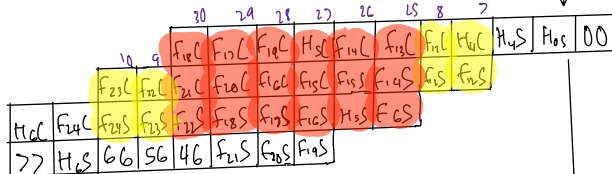
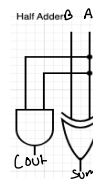
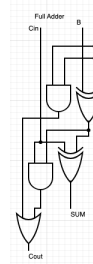
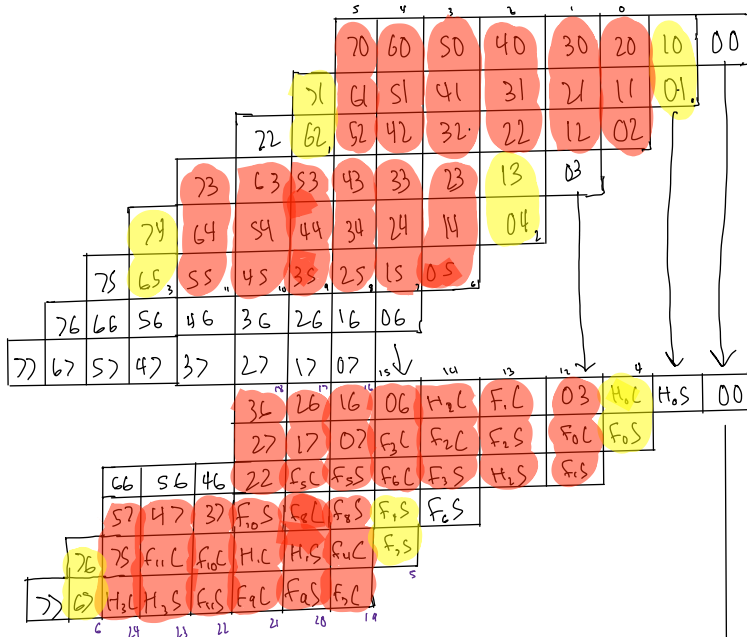
Reewaj Adhikari

The Red highlights are Full Adders and Yellow highlights are Half Adders.

The numbering for the adders start at 0 and go until 46 for Full Adders (47 total) and 16 for Half Adders (17 total). The Wallace Tree includes 15 Half Adders and 38 Full Adders and if we include the Ripple Carry Adders then we have 47 Full Adders and 17 Half Adders. The numberings for the adders also go from right to left in an ascending order. There are a total of 111 AND gates $((47*2)+17) = 111$

Format = 00 = Aco, Bco

P[A][B]: A 7 6 5 4 3 2 1 0
B 7 6 5 4 3 2 1 0



$H_{16}C$ doesn't matter.

Answer = $H_{16}C \ F_{46}S \ F_{45}S \ F_{44}S \ F_{43}S \ F_{42}S \ F_{41}S \ F_{40}S \ F_{39}S \ F_{38}S \ H_{15}S \ H_{14}S \ H_{13}S \ H_{12}S \ H_{11}S \ H_{10}S \ 00$

17 Half Adders and 47 Full Adders