CARRY LOOK AHEAD ADDER ARCHITECTURE

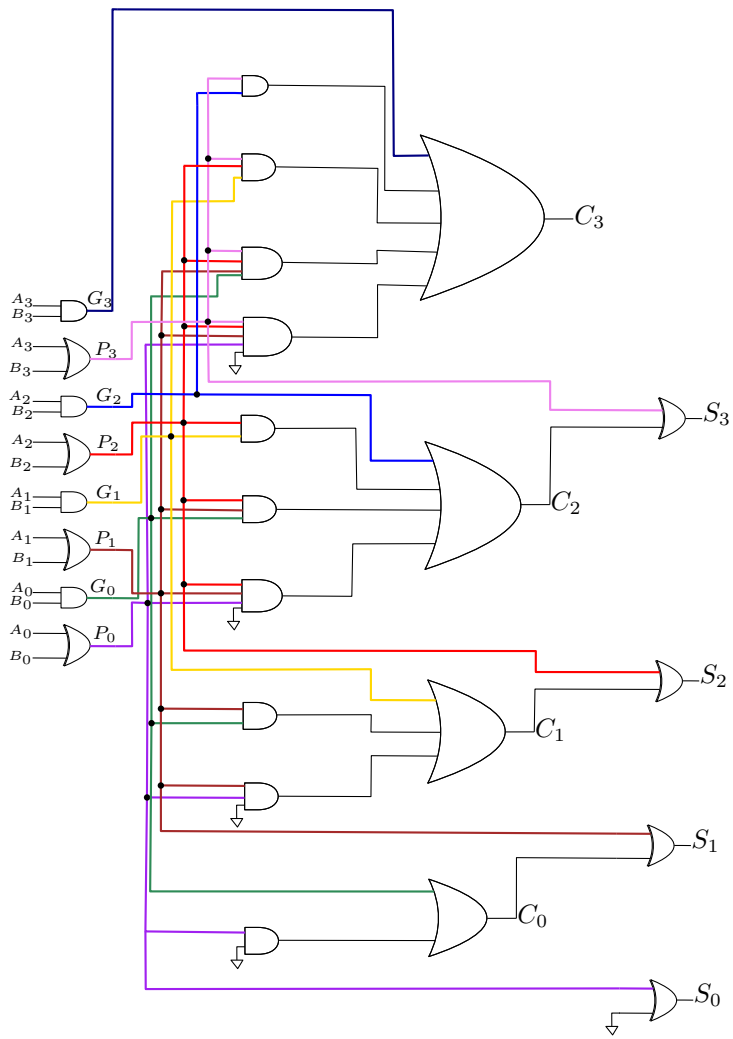
$G = AB, P = A \oplus B$

$C_{out} = G_0 + P_0 C_{in}\,, C_1 = G_1 + P_1 C_0$

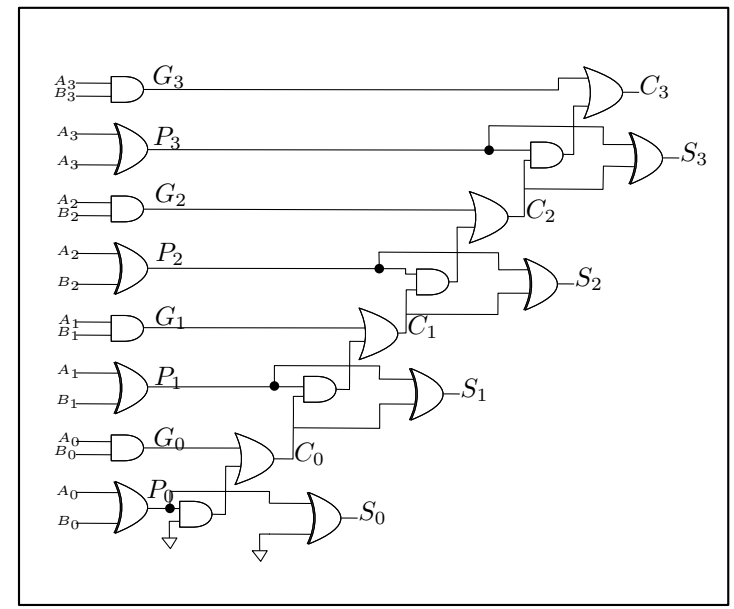
$\longrightarrow C_1 = G_1 + P_1 G_0 + P_1 P_0 C_{in}$

$\longrightarrow C_N = G_N + P_N G_{N-1} + P_N P_{N-1} G_{N-2} + \ldots\ldots\ldots\ldots + P_N P_{N-1} P_{N-2} \ldots\ldots P_0 C_{in}$

$\longrightarrow C_3 = G_3 + P_3 G2 + P_3 P_2 G_1 + P_3 P_2 P_1 G_0 + P_3 P_2 P_1 P_0 C_{in}$



4-bit CLA architecture takes 3 levels to generate C_{out}, and 4-levels to generate S.



4-bit RCA architecture takes 9 levels to generate C_{out}, and 8-levels to generate S.

P_0 P_1 P_2 P_3

G_0 G_1 G_2 G_3