

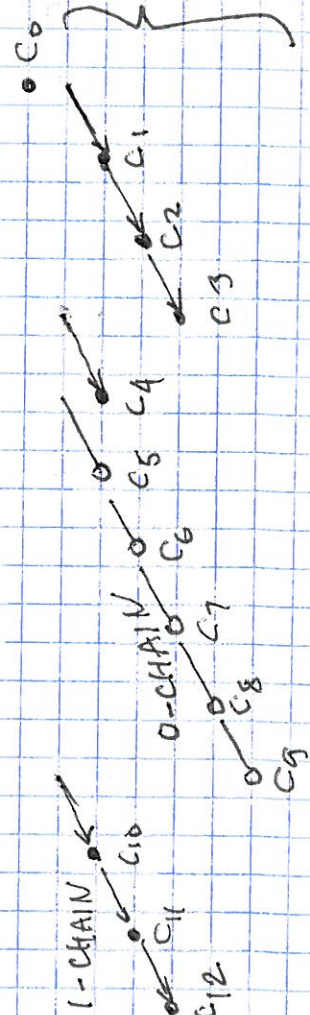
ABOUT CARRIES

i	11	10	9	8	7	6	5	4	3	2	1	0
x_i	1	0	1	0	1	1	0	0	1	1	0	1
y_i	0	1	1	0	0	0	1	0	1	0	1	0
p_i	1	1	0	0	1	1	1	0	0	1	1	1
g_i	0	0	1	0	0	0	0	0	0	0	0	0
c_i	1	1	0	0	0	0	0	1	1	1	1	① = c_{in}

CARRY CHAINS (PROPAGATE IN PARALLEL)

z_i 1 0 0 0 0 1 1 1 1 1 0 0 0

0 1 2 3 4 t



WHY CONSIDER 0-CARRY CHAINS?

16	32	64
32	64	128
4	5	6

WORST-CASE CARRY-CHAIN LENGTH: $\sim 2nt_g$
 AVERAGE MAX CARRY-CHAIN LENGTH: $\sim \log_2(n)t_g$
 \Rightarrow MUST DETECT WHEN ALL CARRY CHAINS ARE COMPLETED; SEQUENTIAL ADDER