module cla\_adder(a,b,cin,pp,gg,sum); //c1(a[3:0],b[3:0],cin,pp[0],gg[0],sum[3:0]);

input cin;

input [3:0]a,b;

output pp,gg;

output [3:0]sum;

wire p0,p1,p2,p3,g0,g1,g2,g3,c1,c2,c3;

assign#4 p0=a[0]^b[0];

assign#4 p1=a[1]^b[1];

assign#4 p2=a[2]^b[2];

assign#4 p3=a[3]^b[3];

assign#2 g0=a[0]&b[0];

assign#2 g1=a[1]&b[1];

assign#2 g2=a[2]&b[2];

assign#2 g3=a[3]&b[3];

assign#4 c1=g0 | (p0&cin);

assign#4 c1=g0 | (p0&cin);

assign#6 c2=g1 | (p1&g0) | (p1&p0&cin);

assign#6 c2=g1 | (p1&g0) | (p1&p0&cin);

assign#8 c3=g2 | (p2&g1) | (p2&g1&g0) | p2&p1&p0&cin;

assign#4 sum[0]=p0^cin;

assign#4 sum[1]=p1^c1;

assign#4 sum[2]=p2^c2;

assign#4 sum[3]=p3^c3;

assign#4 pp=p0&p1&p2&p3;

assign#8 gg=g3 | p3&g2 | p3&p2&g1 | p3&p2&p1&g0;

endmodule