module carry\_look\_ahead(clk,rst,en,a,b,cin,cout,sum);

input clk,rst;

input [7:0]a,b;

input en,cin;

output reg [7:0]sum;

output reg cout;

reg [8:0]w,p,g;

reg [7:0]s;

integer i;

always@(posedge clk)

begin

if(rst)

begin

s=8'b0;

w=8'b0;

end

else

begin

if(en)

begin

w[0]=cin;

for(i=0;i<8;i=i+1)

begin

p[i]=a[i]^b[i];

g[i]=a[i]&b[i];

s[i]=p[i]^w[i];

w[i+1]=(w[i]&p[i])|(g[i]);

end

end

end

cout=w[8];

sum=s;

end

endmodule