module repple\_carry\_adder(clk,rst,en,a,b,cin,cout,sum);

input clk;

input [7:0]a,b;

input rst,en,cin;

output reg [7:0]sum;

output reg cout;

reg [7:0]s;

reg [8:0]w;

reg k,r,m;

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

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

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

r=(a[i]&b[i]);

m=(w[i]&k);

w[i+1]=m|r;

end

end

end

cout<=w[8];

sum<=s;

end

endmodule