module muc\_4bit(a, b,clk, asign, bsign, m, sign);

input [3:0]a;

input [3:0]b;

input clk;

input asign;

input bsign;

output [7:0]m;

output sign;

wire s1,s2,s3,s4;

wire [3:0]f1;

wire [3:0]f2;

wire [3:0]f3;

wire [3:0]f4;

wire c1,c2,c3,c4,c5,c6,c7,c8,c9,c10,c11,c12,c13,c14,s12;

muc\_new p1(a[1:0],b[1:0],clk,0,0,f1[3:0],s1);

muc\_new p2(a[3:2],b[1:0],clk,0,0,f2[3:0],s2);

muc\_new p3(a[1:0],b[3:2],clk,0,0,f3[3:0],s3);

muc\_new p4(a[3:2],b[3:2],clk,0,0,f4[3:0],s4);

buf(m[0],f1[0]);

buf(m[1],f1[1]);

wire v1,v2,v3,v4,v5,v6;

fa ff1(f2[0],f3[0],f1[2],m[2],c1);

fa ff2(f2[1],f3[1],f1[3],v1,c2);

hal hh5(v1,c1,m[3],c3);

hal hh6(c2,c3,c4,c5);

fa ff3(f2[2],f3[2],f4[0],v2,c6);

hal hh7(v2,c4,m[4],c7);

hal hh8(c6,c7,c8,c9);

fa ff4(f2[3],f3[3],f4[1],v3,c10);

fa ff5(v3,c5,c8,m[5],c11);

hal hh9(c10,c11,c12,c13);

fa ff6(f4[2],c9,c12,m[6],c14);

fa ff7(f4[3],c13,c14,m[7],s12);

xor (sign,asign,bsign);

endmodule