

```

module erosion(clk,rst,i,y);
//i is input 3x3 matrix taken from 8x8 matrix
//y is the output after erosion of 3x3 matrix with structuring element
input clk,rst;
input [0:8]i;
output y;
reg y;
//structuring element with 9 values as all ones
wire [0:8]s;
assign s=9'b111_111_111;
always@(posedge clk or posedge rst)
begin
if(rst)
y<=1'b1;
else
begin
if(i[0]==s[0])
y<=1'b0;
else if(i[1]==s[1])
y<=1'b0;
else if(i[2]==s[2])
y<=1'b0;
else if(i[3]==s[3])
y<=1'b0;
else if(i[4]==s[4])
y<=1'b0;
else if(i[5]==s[5])
y<=1'b0;
else if(i[6]==s[6])
y<=1'b0;
else if(i[7]==s[7])
y<=1'b1;
else if(i[8]==s[8])
y<=1'b0;
else
y<=1'b1;
end
end
endmodule

```