

CS201P

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Priority Encoder code:

```
Priority_Encoder.v
1  module Priority_Encoder(
2
3      input [15:0] p,
4      input En,
5
6      output reg VALID,
7      {
8      output reg [3:0] y
9      };
10
11     reg [3:0] y1;
12
13     always @ (p)
14     begin
15
16         case(p)
17             16'b1xxxxxxxxxxxxxxx : y=4'b0000;
18             16'b01xxxxxxxxxxxxxx : y=4'b0010;
19             16'b001xxxxxxxxxxxxx : y=4'b0100;
20             16'b0001xxxxxxxxxxxx : y=4'b0110;
21             16'b00001xxxxxxxxxxx : y=4'b1000;
22             16'b000001xxxxxxxxxx : y=4'b1010;
23             16'b0000001xxxxxxxxx : y=4'b1100;
24             16'b00000001xxxxxxxx : y=4'b1110;
25             16'b000000001xxxxxxx : y=4'b1111;
26             16'b0000000001xxxxxx : y=4'b1101;
27             16'b00000000001xxxxx : y=4'b1011;
28             16'b000000000001xxxx : y=4'b1001;
29             16'b0000000000001xxx : y=4'b0111;
30             16'b00000000000001xx : y=4'b0101;
31             16'b000000000000001x : y=4'b0011;
32             16'b0000000000000001 : y=4'b0001;
33             default : y = 4'b1111;
34         endcase
35
36     begin
37         if (En==1'b0)
38         begin
39             y = 4'b1111;
40             VALID <= 1'b0;
41         end
42
43         else
44         begin
45
46             VALID <= 1'b1;
47         end
48
49     end
50
51 end
52 endmodule
53
54
55
```

Output:

