









decoder\_5\_to\_32.v

x decoder\_tb.v

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/home/itzzinfinity/Cozy Drive/100daysofRTL/day\_037/project\_1/project\_1.srscs/sources\_1/new/decoder\_5\_to\_32.v



```
1  `timescale 1ns / 1ps
2  ///////////////////////////////////////////////////////////////////
3  // Engineer: Anjan Prasad
4  // Create Date: 10/28/2024 05:02:41 AM
5  // Module Name: decoder_5_to_32
6  ///////////////////////////////////////////////////////////////////
7
8
9  module decoder_5_to_32(
10     input [4:0]in,
11     input enable,
12     output reg [31:0]out);
13     integer i;
14
15     always@(*) begin
16         if(enable == 1'b0)
17             out = 32'd0;
18         else begin
19             out = 32'd1;
20             for(i = 0; i < 32; i = i+1)
21                 begin
22                     case(in)
23                         i:out = 2**i;
24                     endcase
25                 end
26             end
27         end
28     endmodule
29
```

/home/itzzinfinity/Cozy Drive/100daysofRTL/day\_037/project\_1/project\_1.srscs/sim\_1/new/decoder\_tb.v

```
1  `timescale 1ns / 1ps
2  //////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
3  // Engineer: Anjan Prasad
4  // Create Date: 10/28/2024 05:21:13 AM
5  // Module Name: decoder_tb
6  //////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
7
8
9  module decoder_tb;
10     reg [4:0] in;
11     reg enable;
12     wire [31:0] out;
13
14
15     decoder_5_to_32 DUT(in, enable, out);
16
17     initial begin
18         $monitor("in = %b, enable = %b, out = %b", in, enable, out);
19         $dumpfile("dump.vcd"); $dumpvars;
20         enable = 1'b1;
21         in=32'd0;
22         #5;
23         if(out==2**in)
24             $display("correct");
25         else
26             $display("wrong");
27
28         repeat(50) begin
29             in=in+1;
30             #2;
31             if(out==2**in)
32                 $display("correct");
33             else
34                 $display("wrong");
35         end
36     end
37 endmodule
```