

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_021/project_1/project_1.srscs/sources_1/new/N_bit_comparator.v



```
1  `timescale 1ns / 1ps
2  ///////////////////////////////////////////////////////////////////
3  // Engineer: Anjan Prasad
4  // Create Date: 10/12/2024 06:40:15 AM
5  // Module Name: N_bit_comparator
6  ///////////////////////////////////////////////////////////////////
7
8
9  `timescale 1ns / 1ps
10
11 module N_bit_comparator(a, b, Lesser, Greater, Equal);
12     parameter N = 8;
13     input [N-1:0] a, b;
14     output reg Lesser, Greater, Equal;
15
16     always @(*) begin
17         Lesser = (a < b);
18         Greater = (a > b);
19         Equal = (a == b);
20     end
21
22 endmodule
23
```

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_021/project_1/project_1.srscs/sim_1/new/N_bit_comp_tb.v



```
1 `timescale 1ns / 1ps
2 //////////////////////////////////////
3 // Engineer: Anjan Prasad
4 // Create Date: 10/12/2024 06:40:15 AM
5 // Module Name: N_bit_comparator_tb
6 //////////////////////////////////////
7
8
9 module N_bit_comp_tb;
10 reg [7:0] a,b;
11 wire Lesser,Greater,Equal;
12 N_bit_comparator DUT (a,b,Lesser,Greater,Equal);
13 initial begin
14     $display("in between a and b A_lessThan_B A_greaterThan_B A_equalTo_B ");
15     $monitor(" %d %d %b %b %b ", a, b,Lesser,Greater,Equal);
16 repeat(10) begin
17     #10
18     a= $random %8 ;
19     b= $random %8 ;
20
21 end
22 $finish;
23 end
24
25 endmodule
```



run 1000ns

in between a and b A_lessThan_B A_greaterThan_B A_equalTo_B

x	x	x	x	x
4	249	1	0	0
249	251	1	0	0
5	5	0	0	1
253	250	0	1	0
1	5	1	0	0
6	5	0	1	0
5	4	0	1	0
1	254	1	0	0
253	250	0	1	0

\$finish called at time : 100 ns : File "/home/itzzinfinity/Cozy Drive/100daysofRTL/day_021/project_1/project_1.srscs/sim_1/new/N_bit_comp_tb.v" Line 36

INFO: [USF-XSim-96] XSim completed. Design snapshot 'N_bit_comp_tb_behav' loaded.

INFO: [USF-XSim-97] XSim simulation ran for 1000ns

launch_simulation: Time (s): cpu = 00:00:09 ; elapsed = 00:00:06 . Memory (MB): peak = 9184.488 ; gain = 8.000 ; free physical = 205 ; free virtual = 1534





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