multiplier.v | multiplier_tb.v | IC7483.v | full_adder.v | Untitled 4*

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_010/project_1/project_1.srcs/sources_1/new/multiplier.v

```
1  `timescale 1ns / 1ps
2  //////////////////////////////////////////////////////////////////////////////////
3  // Create Date: 10/02/2024 11:10:41 AM
4  // Module Name: multiplier
5  //////////////////////////////////////////////////////////////////////////////////
6  module multiplier(
7      input [3:0] X, Y,
8      output [7:0] P
9  );
10     wire [3:0] C, D;
11     wire [3:0] And_0, And_1, And_2, And_3;
12
13     IC7483 ic1 (
14         .A0(And_0[1]), .A1(And_0[2]), .A2(And_0[3]), .A3(0),
15         .B0(And_1[0]), .B1(And_1[1]), .B2(And_1[2]), .B3(And_1[3]),
16         .S0(P[1]), .S1(C[0]), .S2(C[1]), .S3(C[2]), .Cin(0), .Cout(C[3])
17     );
18
19     IC7483 ic2 (
20         .A0(C[0]), .A1(C[1]), .A2(C[2]), .A3(C[3]),
21         .B0(And_2[0]), .B1(And_2[1]), .B2(And_2[2]), .B3(And_2[3]),
22         .S0(P[2]), .S1(D[0]), .S2(D[1]), .S3(D[2]), .Cin(0), .Cout(D[3])
23     );
24
25     IC7483 ic3 (
26         .A0(D[0]), .A1(D[1]), .A2(D[2]), .A3(D[3]),
27         .B0(And_3[0]), .B1(And_3[1]), .B2(And_3[2]), .B3(And_3[3]),
28         .S0(P[3]), .S1(P[4]), .S2(P[5]), .S3(P[6]), .Cin(0), .Cout(P[7])
29     );
30
31     assign P[0] = And_0[0];
32
33     assign And_0 = {{4{Y[0]}} & X};
34     assign And_1 = {{4{Y[1]}} & X};
35     assign And_2 = {{4{Y[2]}} & X};
36     assign And_3 = {{4{Y[3]}} & X};
37
38 endmodule
39
```

multiplier.v | multiplier_tb.v | IC7483.v | full_adder.v | Untitled 4*

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_010/project_1/project_1.srcs/sources_1/new/IC7483.v

```
1
2  //////////////////////////////////////////////////////////////////////////////////
3  // Create Date: 10/02/2024 11:10:41 AM
4  // Module Name: multiplier
5  //////////////////////////////////////////////////////////////////////////////////
6
7  module IC7483(
8  input A0,
9  input A1,
10 input A2,
11 input A3,
12 input B0,
13 input B1,
14 input B2,
15 input B3,
16 input Cin,
17 output S0,
18 output S1,
19 output S2,
20 output S3,
21 output Cout);
22 wire C1,C2,C3;
23 full_adder FA1(.a(A0), .b(B0), .cin(Cin), .sum(S0), .cout(C1));
24 full_adder FA2(.a(A1), .b(B1), .cin(C1), .sum(S1), .cout(C2));
25 full_adder FA3(.a(A2), .b(B2), .cin(C2), .sum(S2), .cout(C3));
26 full_adder FA4(.a(A3), .b(B3), .cin(C3), .sum(S3), .cout(Cout));
27 endmodule
```

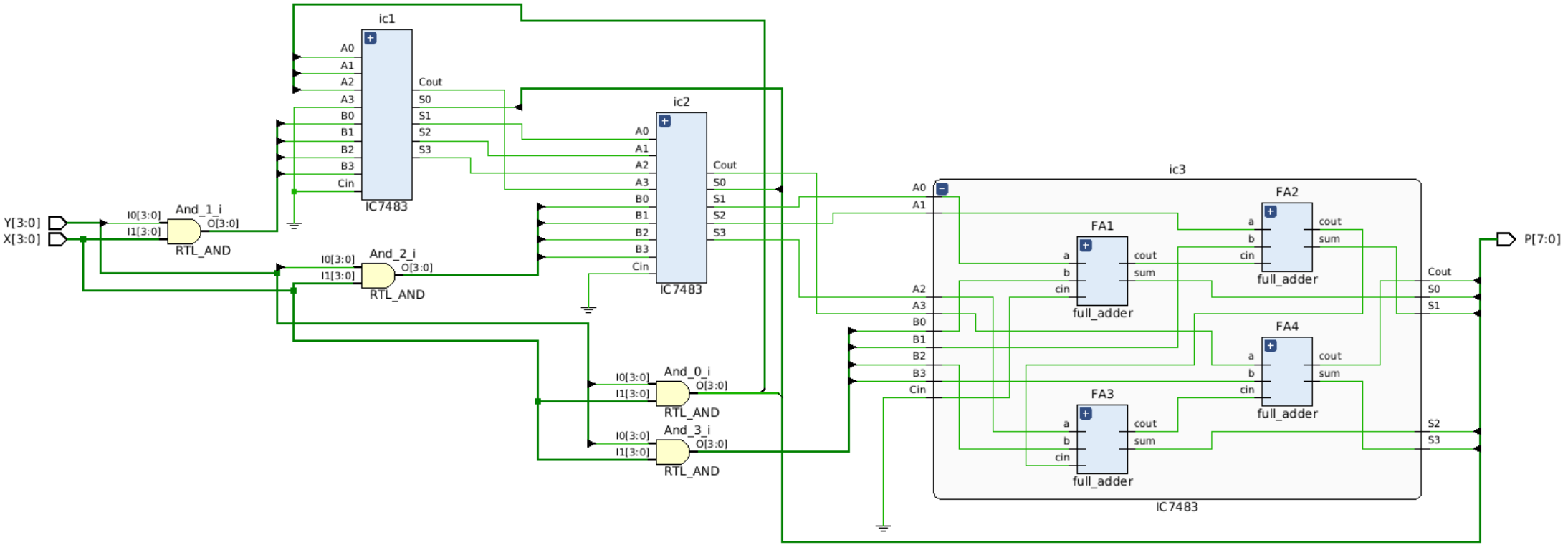
multiplier.v | multiplier_tb.v | IC7483.v | full_adder.v | Untitled 4*

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_010/project_1/project_1.srcs/sim_1/new/multiplier_tb.v

```
1   `timescale 1ns / 1ps
2   //////////////////////////////////////////////////////////////////////////////////
3   // Engineer: Anjan Prasad
4   // Create Date: 10/02/2024 11:10:41 AM
5   // Module Name: multiplier
6   //////////////////////////////////////////////////////////////////////////////////
7
8   module multiplier_tb;
9   reg [3:0] X,Y;
10  wire [7:0] P;
11  multiplier DUT (X,Y,P);
12  initial begin
13          $display("X    Y    | P");
14          $monitor("%d  %d    | %d ", X, Y, P);
15  repeat(10) begin
16  #10
17          X= $random %16 ;
18          Y= $random %16 ;
19
20  end
21  $finish;
22  end
23
24  endmodule
25
```

Project Summary | Schematic | multiplier.v | multiplier_tb.v | IC7483.v | full_adder.v

19 Cells 16 I/O Ports 91 Nets



multiplier.v | multiplier_tb.v | IC7483.v | full_adder.v | Untitled 4*