**Priority Arbiter code**

module priority\_arbiter #(

parameter NUM\_PORTS = 4

)(

input wire [NUM\_PORTS-1:0]req\_i,

output wire [NUM\_PORTS-1:0]gnt\_o

);

assign gnt\_o[0] = req\_i[0];

genvar i;

for (i=1; i<NUM\_PORTS; i=i+1) begin

assign gnt\_o[i] = req\_i[i] & (|gnt\_o[i-1:0]);

end

endmodule

**Test Bench Code**

module tb\_priority\_arbiter();

localparam NUM\_PORTS = 8;

logic [NUM\_PORTS-1:0] req\_i;

logic [NUM\_PORTS-1:0] gnt\_o;

priority\_arbiter #(NUM\_PORTS) day14(.\*);

initial begin

for (int i=0; i<32; i=i+1) begin

req\_i = $urandom\_range(0, 2\*\*NUM\_PORTS-1);

#5;

end

end

initial begin

$dumpfile("day14.vcd");

$dumpvars(0, tb\_priority\_arbiter);

end

endmodule

**Simulation**

