module comparators(eq,neq,lt,lte,gt,gte,a,b);

parameter N = 8;

input [N-1:0] a, b;

output eq, neq;

output lt, lte;

output gt, gte;

assign eq = (a == b);

assign neq = (a != b);

assign lt = (a < b);

assign lte = (a <= b);

assign gt = (a > b);

assign gte = (a >= b);

endmodule

module tb\_p4();

parameter N=8;

reg[N-1:0] a, b;

wire eq, neq;

wire lt, lte;

wire gt, gte;

integer i;

comparators UUT (eq,neq,lt,lte,gt,gte,a,b);

initial

begin

#10 $monitor("a = ", a, " | b = ", b, " | eq = ", eq, " | neq = ", neq, " | lt = ", lt, " | lte = ", lte, " | gt = ", gt, " | gte = ", gte);

for( i = 1; i <= 30; i = i + 1)

begin

a=$urandom%2\*\*N-1;

b=$urandom%2\*\*N-1;

#10;

$display("-----------------------------------------");

end

end

endmodule

