4-BIT RIPPLE CARRY ADDER

**PROGRAM:**

module full\_adder(in0, in1, cin, out, cout);

input in0, in1, cin;

output out, cout;

assign out = in0 ^ in1 ^ cin;

assign cout = ((in0 ^ in1) & cin) | (in0 & in1);

endmodule`

module ripple\_carry\_adder(in0, in1, out, cout);

input [3:0] in0;

input [3:0] in1;

output [3:0] out;

output cout;

wire c1, c2, c3;

full\_adder fa0(in0[0], in1[0], 0, out[0], c1);

full\_adder fa1(in0[1], in1[1], c1, out[1], c2);

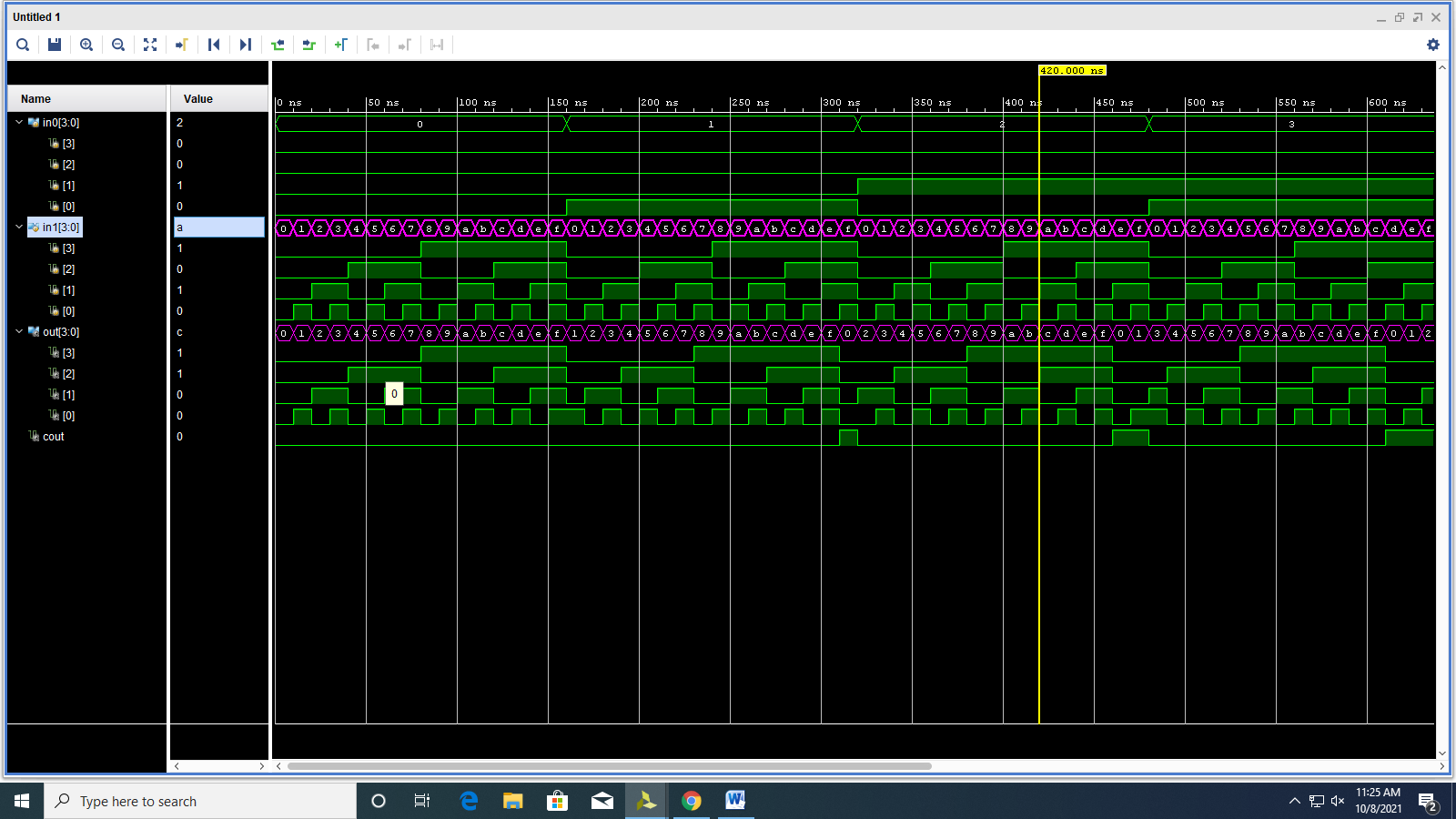
full\_adder fa2(in0[2], in1[2], c2, out[2], c3);

full\_adder fa3(in0[3], in1[3], c3, out[3], cout);

endmodule

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**WAVEFORMS:**



**RTL SIMULATION:**

