

CSE460: VLSI Design

Lab Assignment 1

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Sec: 09

1. unique bit ~~but~~ ^{1 is} ~~highest~~ ^{value}

From the timing diagram, we can see that at 0 ns the input, A is 0 i.e.

all the bits are 0 or equal. As a result, we get 3 as the output and

for the same reason there is no unique bit to show. At 5 ns, we

see A is 4. The binary representation turns out to be 100 and so,

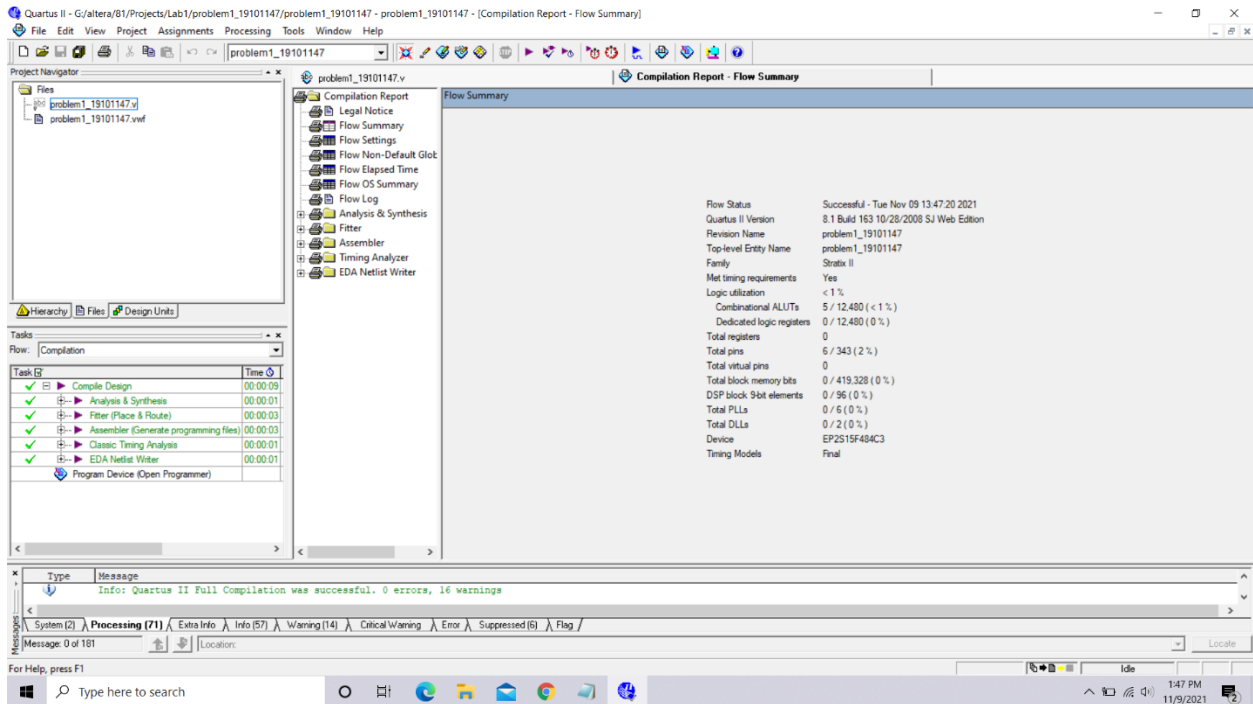
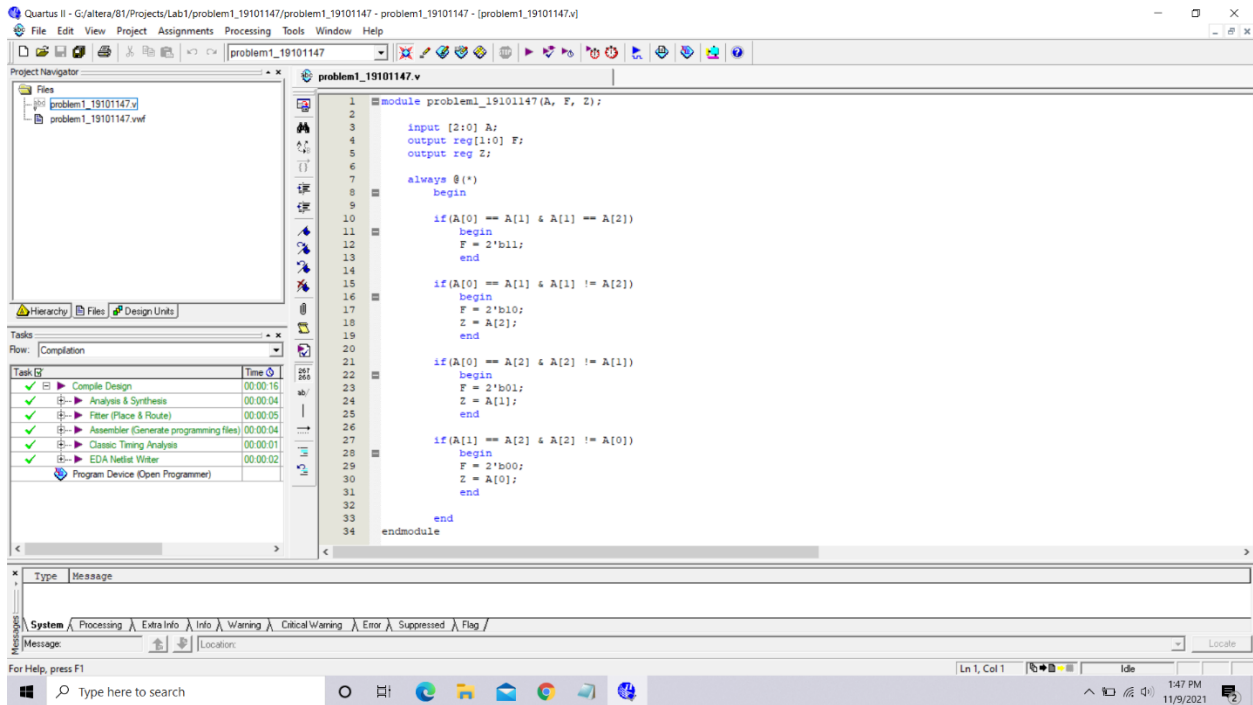
this combination gets us 2 as the output and the unique bit here

is 1. Again, at 20 ns the input is 1 (001) and so, the output is 0.



As a result, the ~~same~~ unique value here is 1. Lastly, at 40 ns the

input is 5 for which 101 is the binary value. As a result, here

the output is 1 and the unique value is 0.



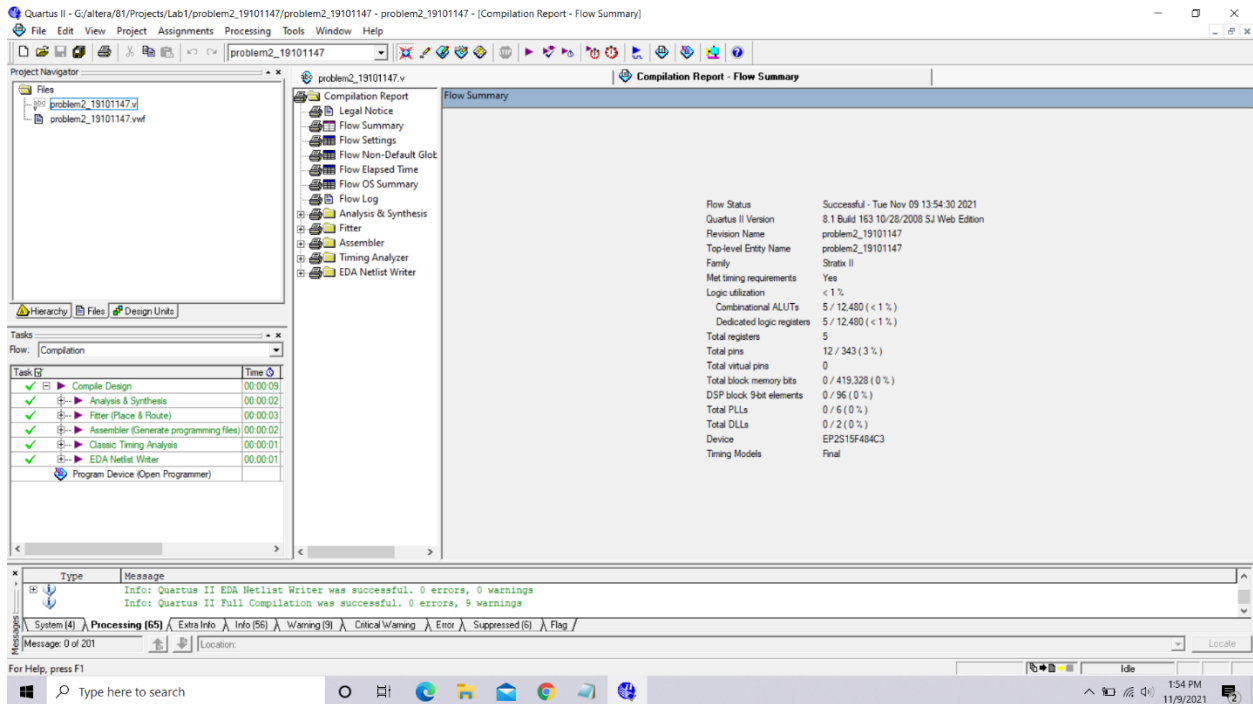
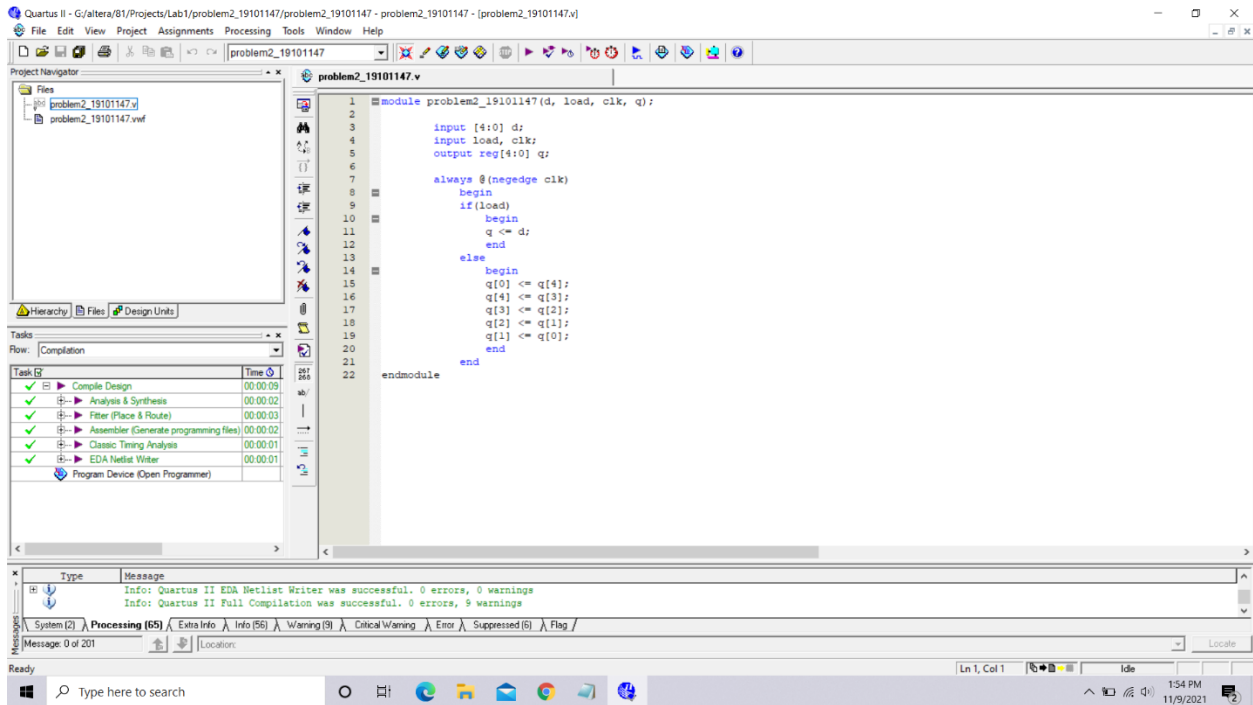
For Help, press F1

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2.

I performed the simulation for enough time to get at least two repetitions of 14 which was my initial input after the external load. From the

timing diagram I can see 14 was the input for the first time at 10 ns and the second time 14 was the input at 60 ns. So, it took 50 ns or 5 clock cycles for 14 to get one repetition of itself. The reason for the no of clock cycles being 5 is the input is of 5 bits. As a result, if there is an n bit input it will take n clock cycles to get one repetition of the initial input.



Quartus II - G:/altera/81/Projects/Lab1/problem2_19101147/problem2_19101147 - problem2_19101147 - [Simulation Report - Simulation Waveforms]

File Edit View Project Assignments Processing Tools Window Help

problem2_19101147

problem2_19101147.v

Simulation Report - Simulation Waveforms

Simulation mode: Functional

Master Time Bar: 19.125 ns | Pointer: 0 ps | Interval: -19.13 ns | Start: 0 ps | End: 0 ps

Value: 0 ps, 20.0 ns, 19.125 ns, 40.0 ns, 60.0 ns, 80.0 ns, 100.0 ns, 120.0 ns

clk U1

d[4] U1

d[3] U1

d[2] U1

d[1] U1

d[0] U1

load B

q A1

q[4] A1

q[3] A1

q[2] A1

q[1] A1

q[0] A1

0 [14] [28] [25] [19] [7] [14] [28] [25] [19] [7] [14] [28]

Info: Quartus II Simulator was successful. 0 errors, 0 warnings

System (8) Processing (9) Extra Info Info (9) Warning Critical Warning Error Suppressed Flag

Message: 0 of 16

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