Faculty of Engineering and Technology

Electrical and Computer Engineering Department

DIGITAL ELECTRONICS AND COMPUTER ORGANIZATION LABORATORY

ENCS2110

Post lab8

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Student ID: 1210737

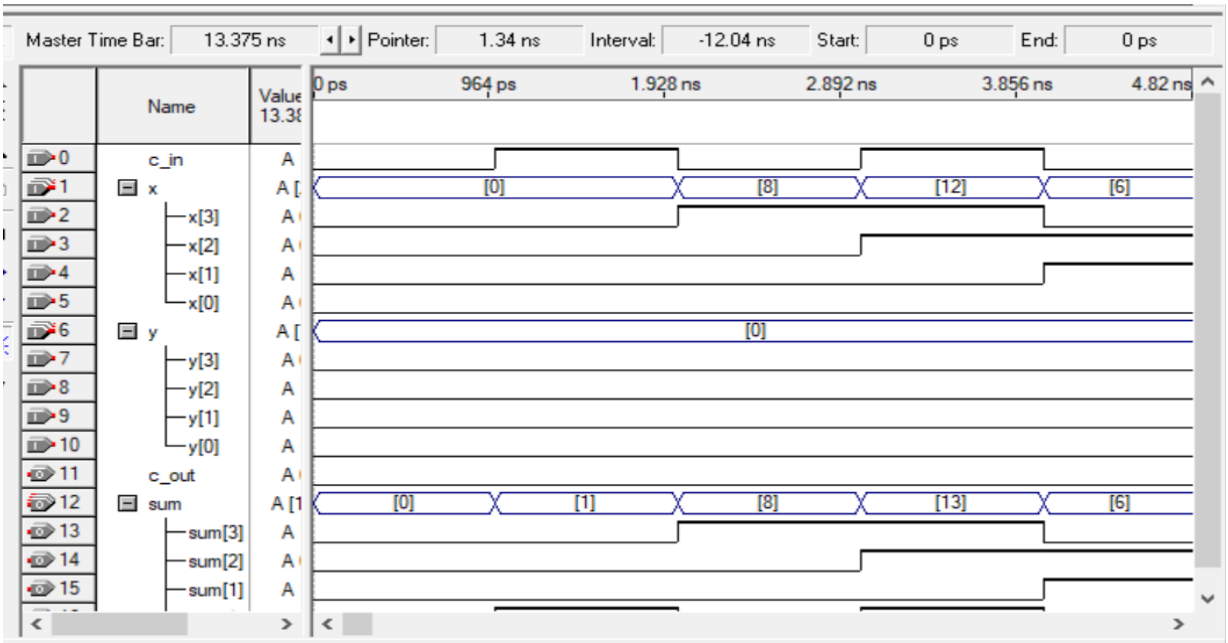
Instructor name: Bilal Karaki

Teacher name: katy sadi

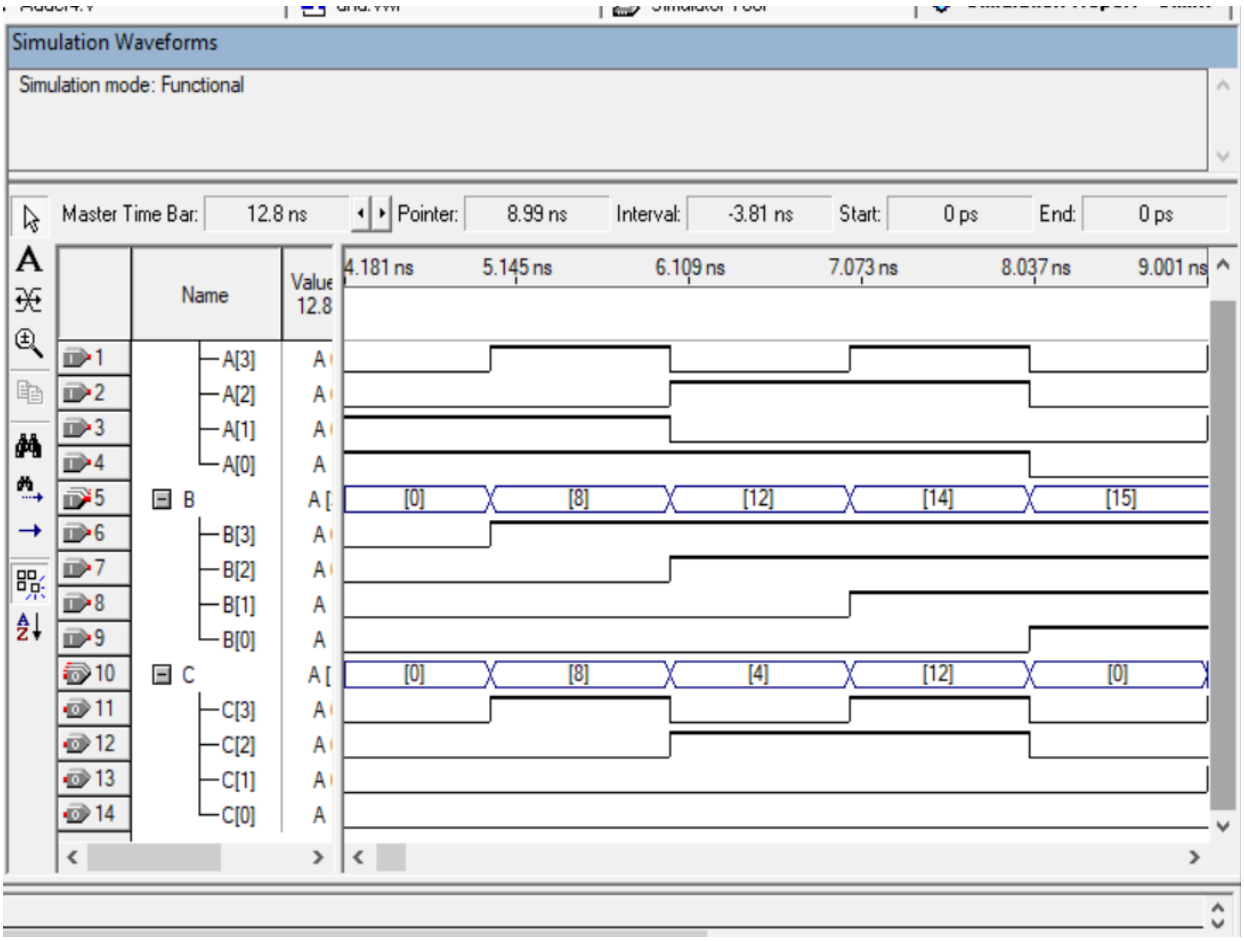
Section number:8

-Design the Circuit page 133 in lab manual:

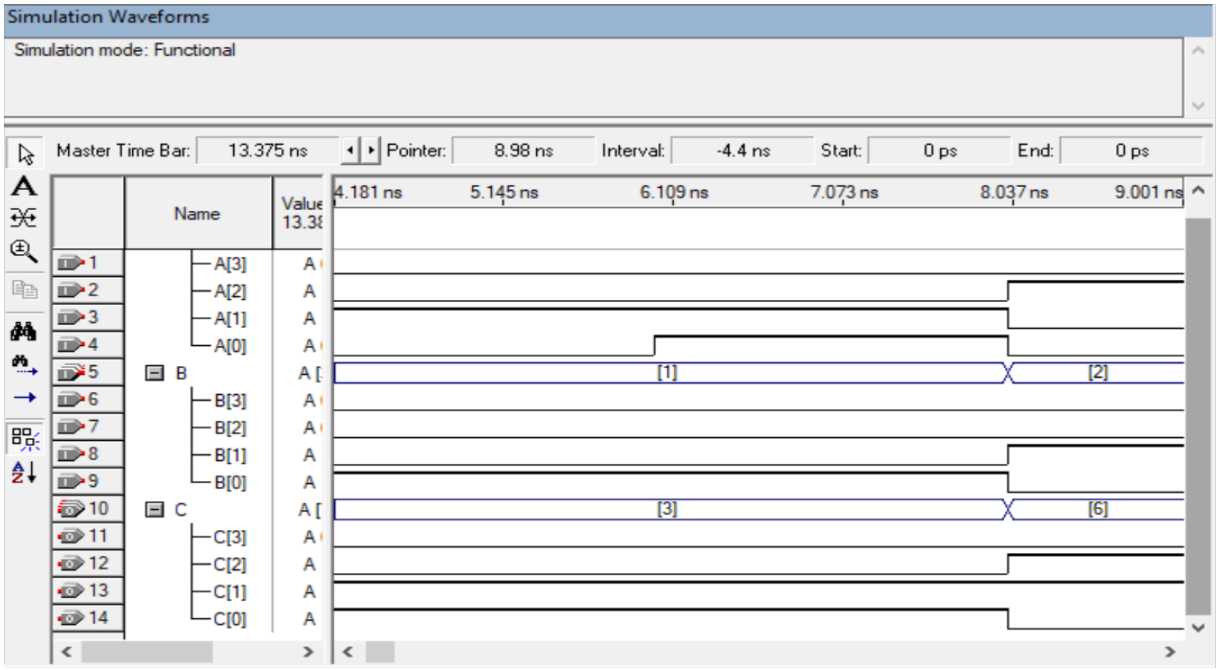
```
1  module Adder4(input[3:0]y,x,input c_in,output[3:0] sum,output c_out);
2  assign {c_out,sum}=y+x+c_in;
3  endmodule
```



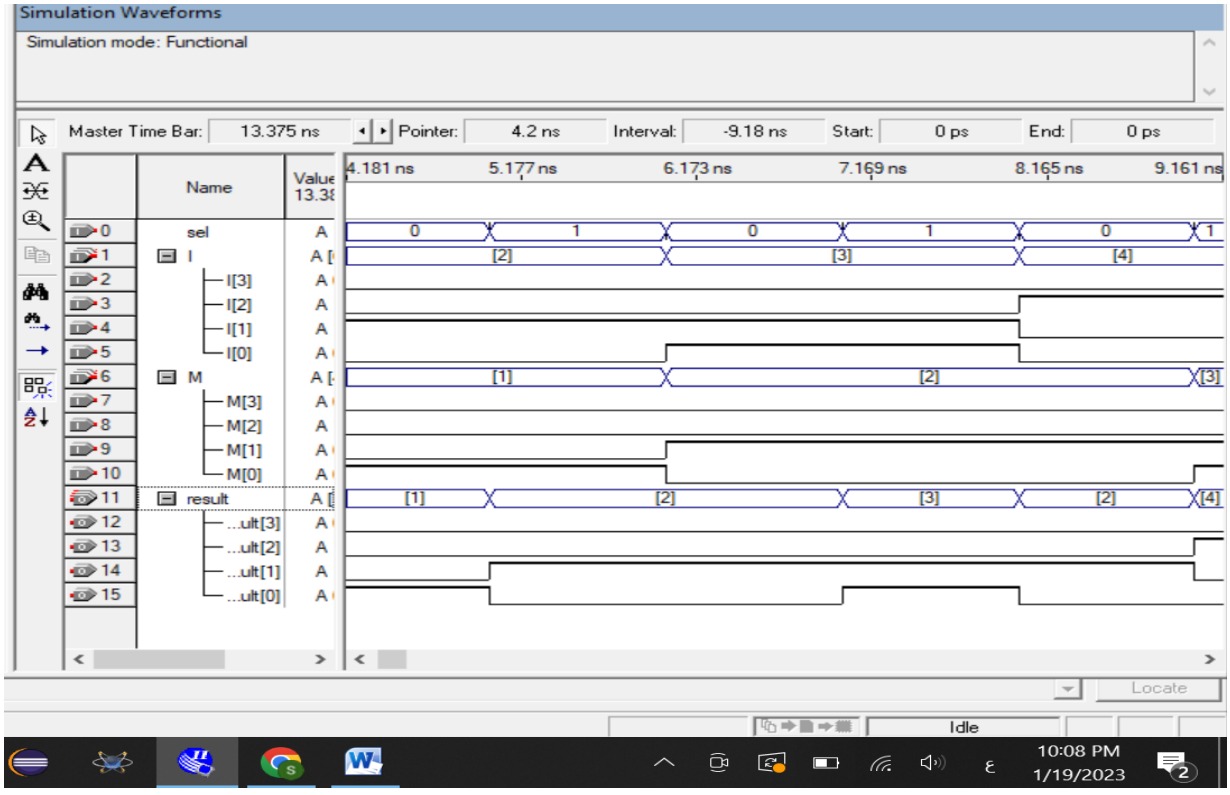

```
1  module Fourbit_And_Array(input[3:0] B,A,output [3:0]C);
2    assign C[0]= A[0] & B [0];
3    assign C[1]= A[1] & B [1];
4    assign C[2]= A[2] & B [2];
5    assign C[3]= A[3] & B [3];
6    endmodule
```

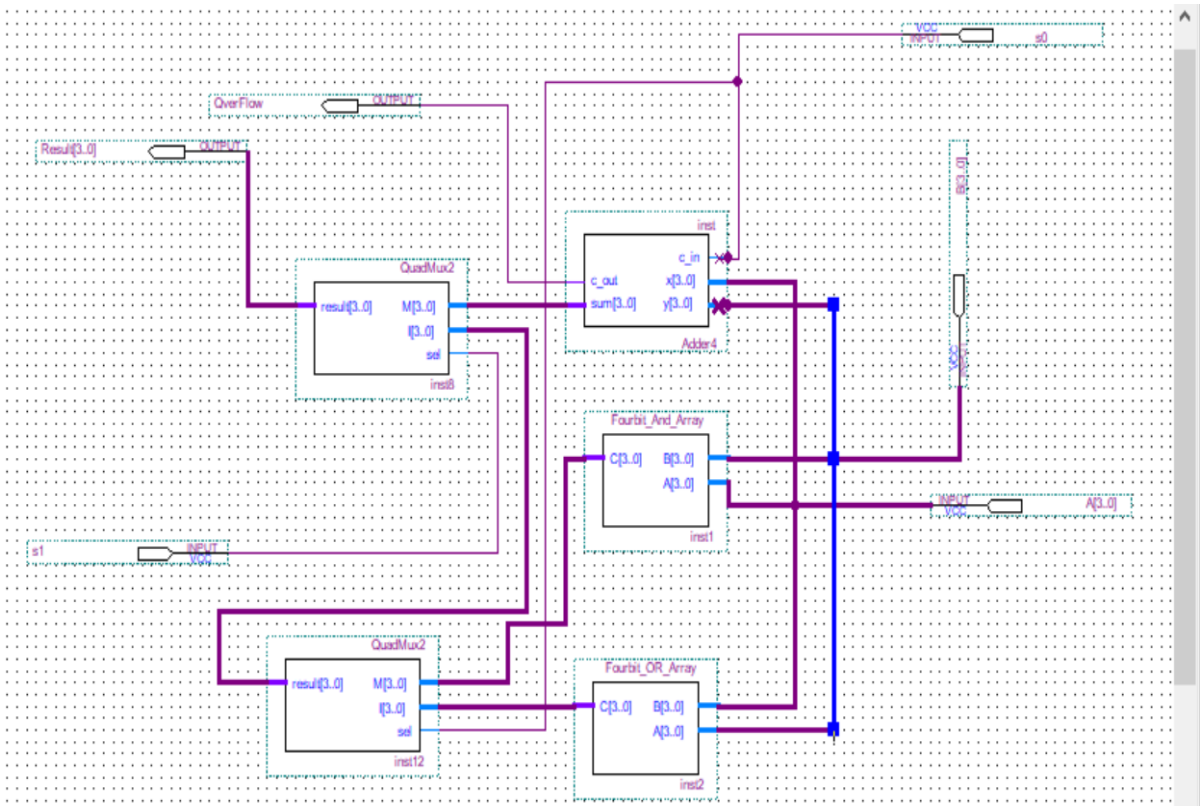


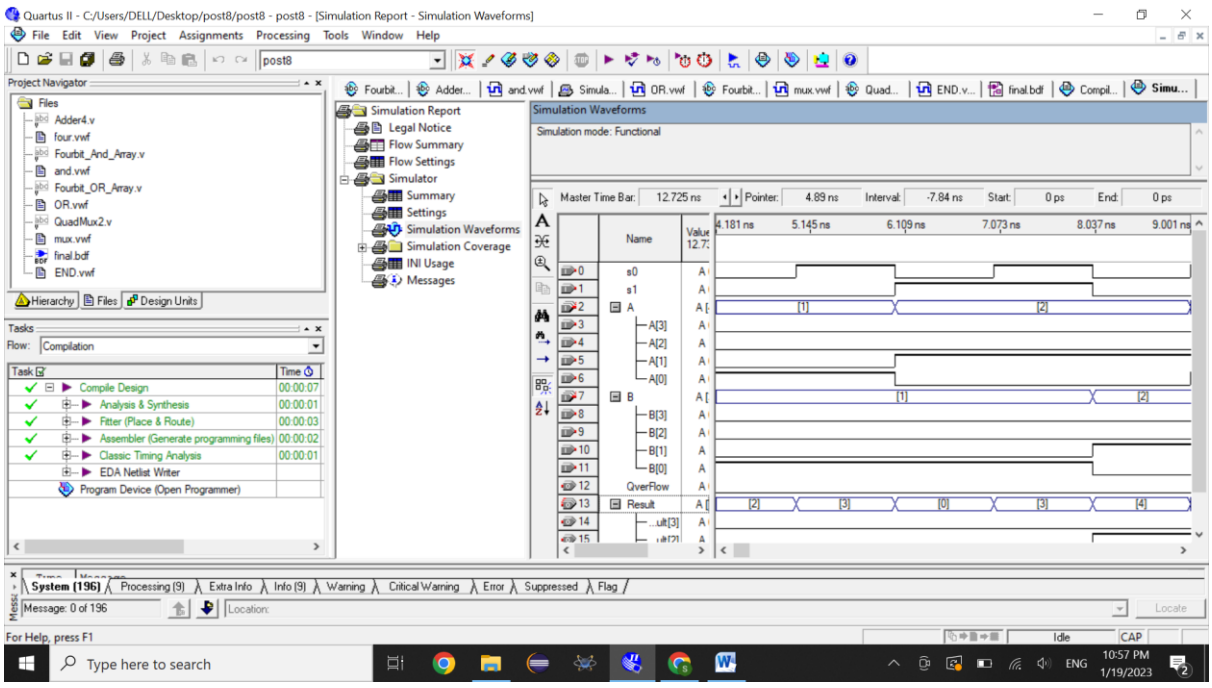

```
1  module Fourbit_OR_Array(input[3:0] B,A,output [3:0]C);
2  assign C[0] = A[0] | B[0];
3  assign C[1] = A[1] | B[1];
4  assign C[2] = A[2] | B[2];
5  assign C[3] = A[3] | B[3];
6  endmodule
```

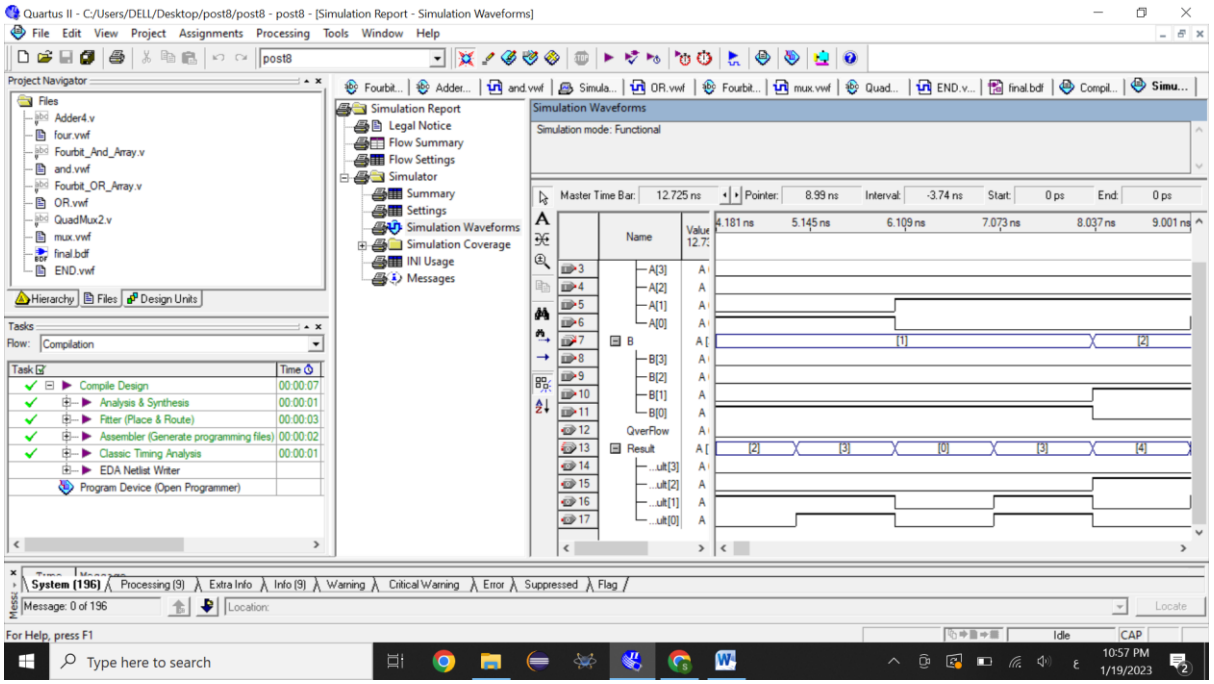



```
module QuadMux2(input [3:0] M,I,input sel,output [3:0] result);
assign result =(sel==0)?M:I;
endmodule
```




VCC
INPUT
s0
QverFlow
OUTPUT
Result[3..0]
OUTPUT
inst
c_in
QuadMux2
c_out
x[3..0]
result[3..0]
M[3..0]
sum[3..0]
y[3..0]
I[3..0]
sel
inst8
Adder4
Fourbit_And_Array
C[3..0]
B[3..0]
A[3..0]
inst1
INPUT
A[3..0]
s1
INPUT
QuadMux2
result[3..0]
M[3..0]
I[3..0]
sel
inst12
Fourbit_OR_Array
C[3..0]
B[3..0]
A[3..0]
inst2


Quartus II - C:/Users/DELL/Desktop/post8/post8 - post8 - [Simulation Report - Simulation Waveforms]
File Edit View Project Assignments Processing Tools Window Help
post8
Project Navigator
Files
Adder4.v
four.vwf
Fourbit_And_Array.v
and.vwf
Fourbit_OR_Array.v
OR.vwf
QuadMux2.v
mux.vwf
final.bdf
END.vwf
Hierarchy
Files
Design Units
Tasks
Flow: Compilation
Task
Time
Compile Design 00:00:07
Analysis & Synthesis 00:00:01
Fitter (Place & Route) 00:00:03
Assembler (Generate programming files) 00:00:02
Classic Timing Analysis 00:00:01
EDA Netlist Writer
Program Device (Open Programmer)
Simulation Report
Legal Notice
Flow Summary
Flow Settings
Simulator
Summary
Settings
Simulation Waveforms
Simulation Coverage
INI Usage
Messages
Simulation Waveforms
Simulation mode: Functional
Master Time Bar: 12.725 ns
Pointer: 4.89 ns
Interval: -7.84 ns
Start: 0 ps
End: 0 ps
Name
4.181 ns
5.145 ns
6.109 ns
7.073 ns
8.037 ns
9.001 ns
s0
s1
A
A[3]
A[2]
A[1]
A[0]
B
B[3]
B[2]
B[1]
B[0]
QverFlow
Result
System (196) Processing (9) Extra Info Info (9) Warning Critical Warning Error Suppressed Flag
Message: 0 of 196
Location:
Locate
For Help, press F1
Idle
CAP
Type here to search
ENG
10:57 PM
1/19/2023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INI Usage
Messages
Simulation Waveforms
Simulation mode: Functional
Master Time Bar: 12.725 ns
Pointer: 8.99 ns
Interval: -3.74 ns
Start: 0 ps
End: 0 ps
Name
4.181 ns
5.145 ns
6.109 ns
7.073 ns
8.037 ns
9.001 ns
A[3]
A[2]
A[1]
A[0]
B
B[3]
B[2]
B[1]
B[0]
QverFlow
Result
System (196)
Processing (9)
Extra Info
Info (9)
Warning
Critical Warning
Error
Suppressed
Flag
Message: 0 of 196
Location:
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