

Quartus II - c:/altera/81/quartus/Problem1 - Problem1 - [Compilation Report - Flow Summary]

File Edit View Project Assignments Processing Tools Window Help

Problem1.v

Compilation Report - Flow Summary

Waveform1.vwf

Simulation Report - Simulation Waveforms

Entity FLEX10KE: AUTO Log

Problem1 2 (2)

Tasks

Flow: Compilation

Task

- Compile Design
- Analysis & Synthesis
- Fitter (Place & Route)
- Assembler (Generate)
- Classic Timing /
- EDA Netlist Writer
- Program Device (Open)

Flow Summary

Flow Status: Successful - Mon Mar 07 23:00:19 2022

Quartus II Version: 8.1 Build 163 10/28/2008 SJ Web Edition

Revision Name: Problem1

Top-level Entity Name: Problem1

Family: FLEX10KE

Met timing requirements: Yes

Total logic elements: 2 / 1,728 (< 1 %)

Total pins: 6 / 102 (6 %)

Total memory bits: 0 / 24,576 (0 %)

Total PLLs: 0

Device: EPF10K30ETC144-1

Timing Models: Final

Message: 0 of 124

Location:

For Help, press F1

ENG US 11:02 PM 3/7/2022

Quartus II - c:/altera/81/quartus/Problem1 - Problem1 - [Problem1.v]

File Edit View Project Assignments Processing Tools Window Help

Project Navigator

Entity

FLEX10K10E: AUTO

Problem1 2 (2)

Tasks

Flow: Compilation

Task

Compile Design

Analysis & Synthesis

Fitter (Place & Route)

Assembler (Generate)

Classic Timing /

EDA Netlist Writer

Program Device (Open)

Problem1.v

```
1 module Problem1(o,i);
2   output reg [1:0]o;
3   input [3:0]i;
4   always @(*)
5   begin
6     case(i)
7       4'b0001: o= 2'b11;
8       4'b001x: o= 2'b10;
9       4'b01xx: o= 2'b00;
10      4'b1xxx: o= 2'b01;
11      default : o= 2'bxx;
12    endcase
13  end
14 endmodule
```

Messages

Type Message

Info: Ended Functional Simulation Netlist Generation at Mon Mar 07 23:02:16 2022 Bangladesh Standard Time

Info: Started Simulator at Mon Mar 07 23:02:21 2022 Bangladesh Standard Time

Info: Ended Simulator at Mon Mar 07 23:02:23 2022 Bangladesh Standard Time

Warning: Waveform settings file c:/altera/81/quartus/db/wed.wsf at (line:1164, col:18) has warning : no such channel in waveform file, ignore display line settings for this signal

Warning: Waveform settings file c:/altera/81/quartus/db/wed.wsf at (line:1172, col:18) has warning : no such channel in waveform file, ignore display line settings for this signal

System (124) Processing(9) Extra Info Info(9) Warning Critical/Warning Error Suppressed Flag

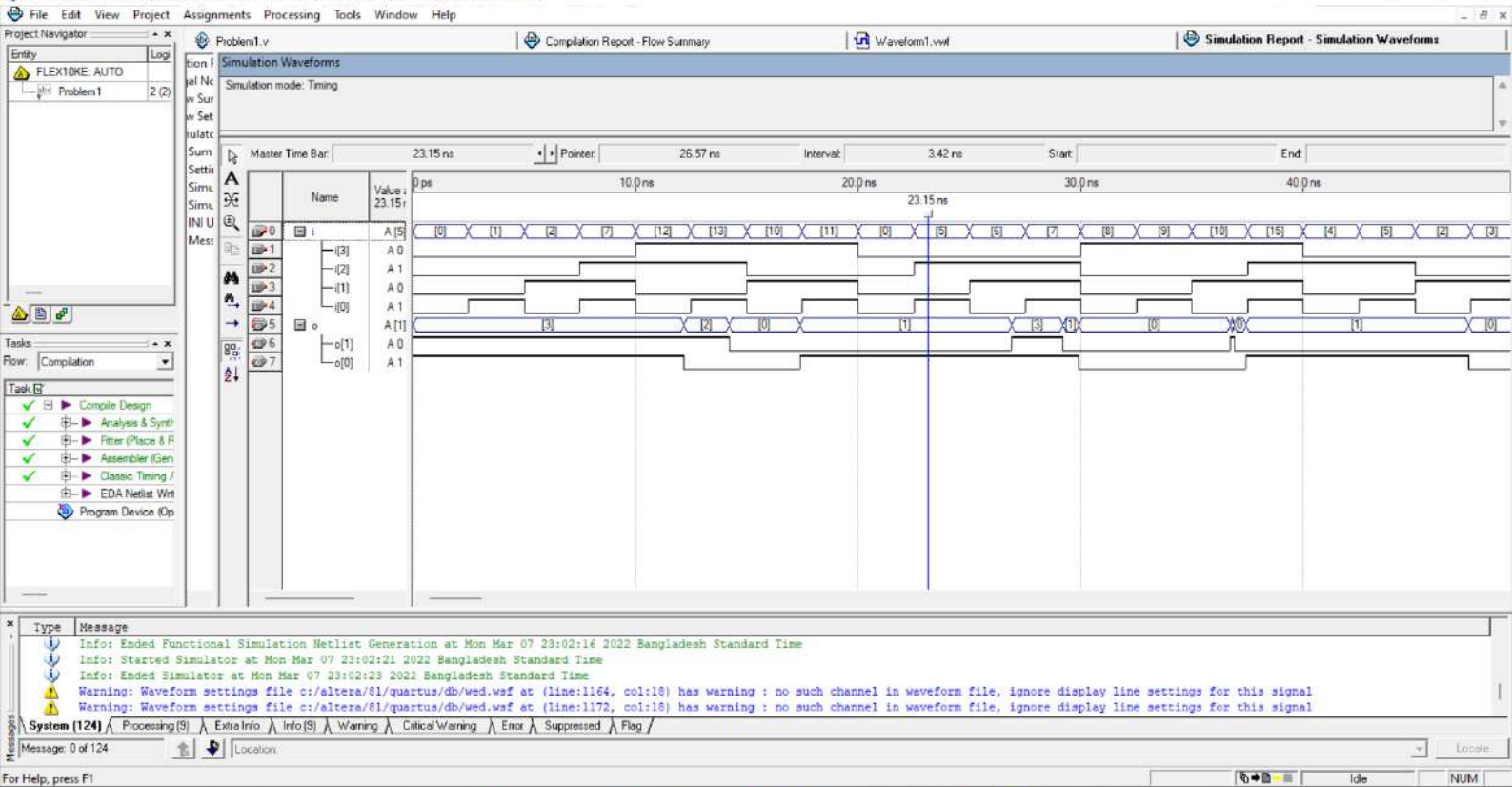
Message: 0 of 124

Location:

Ln 1, Col 1

ENG US

11:02 PM 3/7/2022



FARIHA (19101038)

Problem 1

Priority $0 > 1 > 2 > 3$

When I_3 and I_0 are high it will not care for I_3 as the priority is more on 0 than 3.

So,

I_3	I_2	I_1	I_0	O_1	O_0
1	0	0	1	0	0

I_3	I_2	I_1	I_0	O_1	O_0
1	0	0	1	X	X
1	0	X	1	0	0
1	X	1	0	0	1
1	1	0	0	1	0
1	0	0	0	0	1

It will be 0 as it has higher priority. So others will be don't care (X)

Quartus II - c:/altera/81/quartus/Experiment1 - Experiment1 - [Compilation Report - Flow Summary]

File Edit View Project Assignments Processing Tools Window Help

Experiment1.v

Compilation Report - Flow Summary

Waveform1.vwf

Simulation Report - Simulation Waveforms

Flow Summary

Flow Status	Successful - Mon Mar 07 21:14:59 2022
Quartus II Version	8.1 Build 163 10/28/2008 SJ Web Edition
Revision Name	Experiment1
Top-level Entity Name	Experiment1
Family	FLEX10KE
Met timing requirements	Yes
Total logic elements	1 / 1,728 (< 1 %)
Total pins	4 / 102 (4 %)
Total memory bits	0 / 24,576 (0 %)
Total PLLs	0
Device	EPF10K30ETC144-1
Timing Models	Final

Task List

Type	Message
Info	Simulation partitioned into 1 sub-simulations
Info	Simulation coverage is 100.00 %
Info	Number of transitions in simulation is 2092
Info	Quartus II Simulator was successful. 0 errors, 0 warnings

System (30) Processing (9) Extra Info Info (9) Warning Critical Warning Error Suppressed Flag

Message: 0 of 16

Location:

For Help, press F1

ENG US 9:16 PM 3/7/2022

Quartus II - c:/altera/81/quartus/Experiment1 - Experiment1 - [Experiment1.v]

File Edit View Project Assignments Processing Tools Window Help

Project Name: x Experiment1.v Compilation Report - Flow Summary Waveform1.vwf Simulation Report - Simulation Waveforms

Entity FLEX10K10 Exp

```
1 module Experiment1(f,x1,x2,x3);
2 input x1,x2,x3;
3 output f;
4 nand(i,x1,x2);
5 not(g,x1);
6 nand(j,g,x3);
7 not(h,x3);
8 nand(k,h,x1);
9 nand(l,i,j,k);
10
11 endmodule
12
```

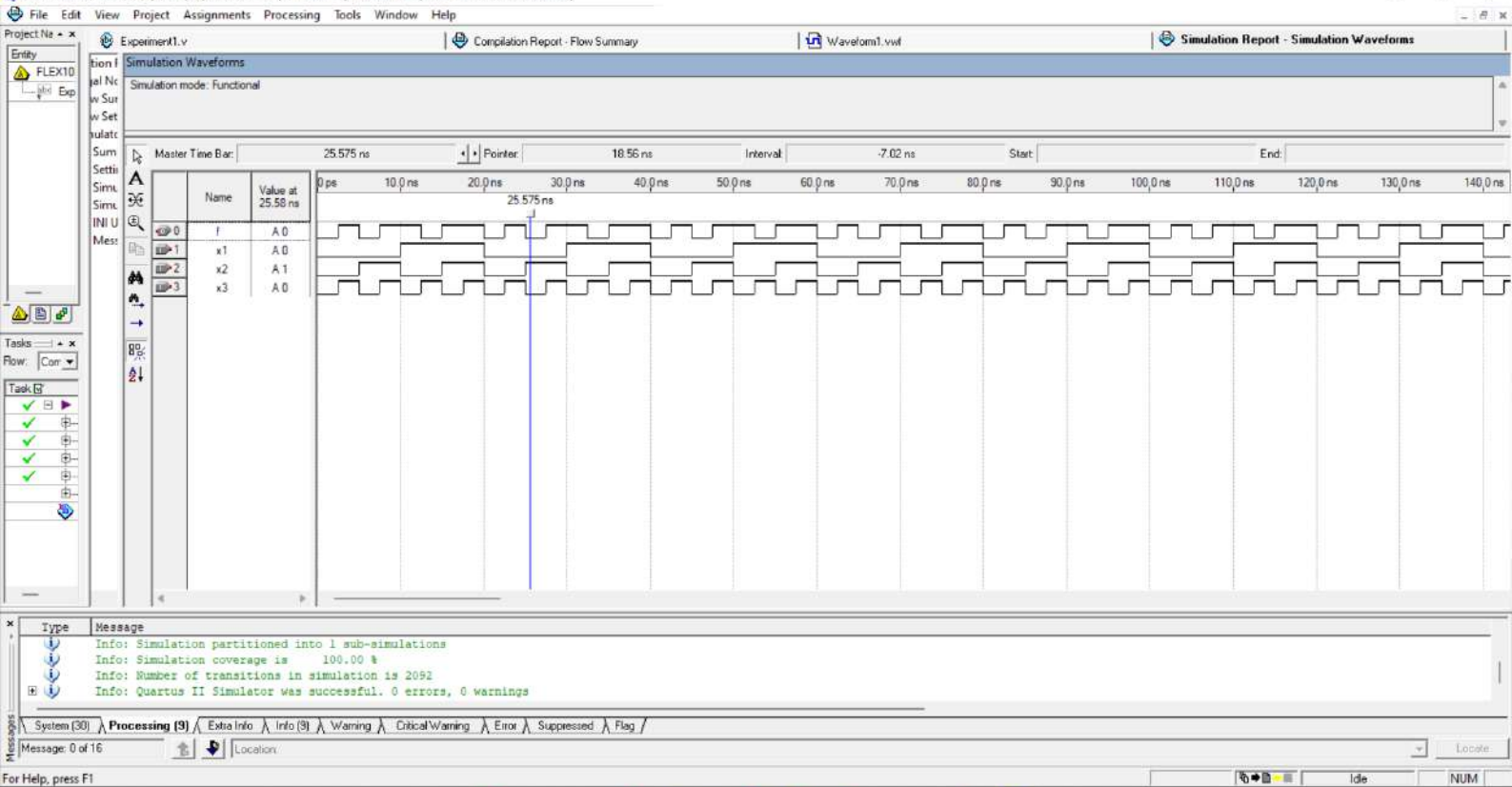
Tasks: x Flow: Cor Task

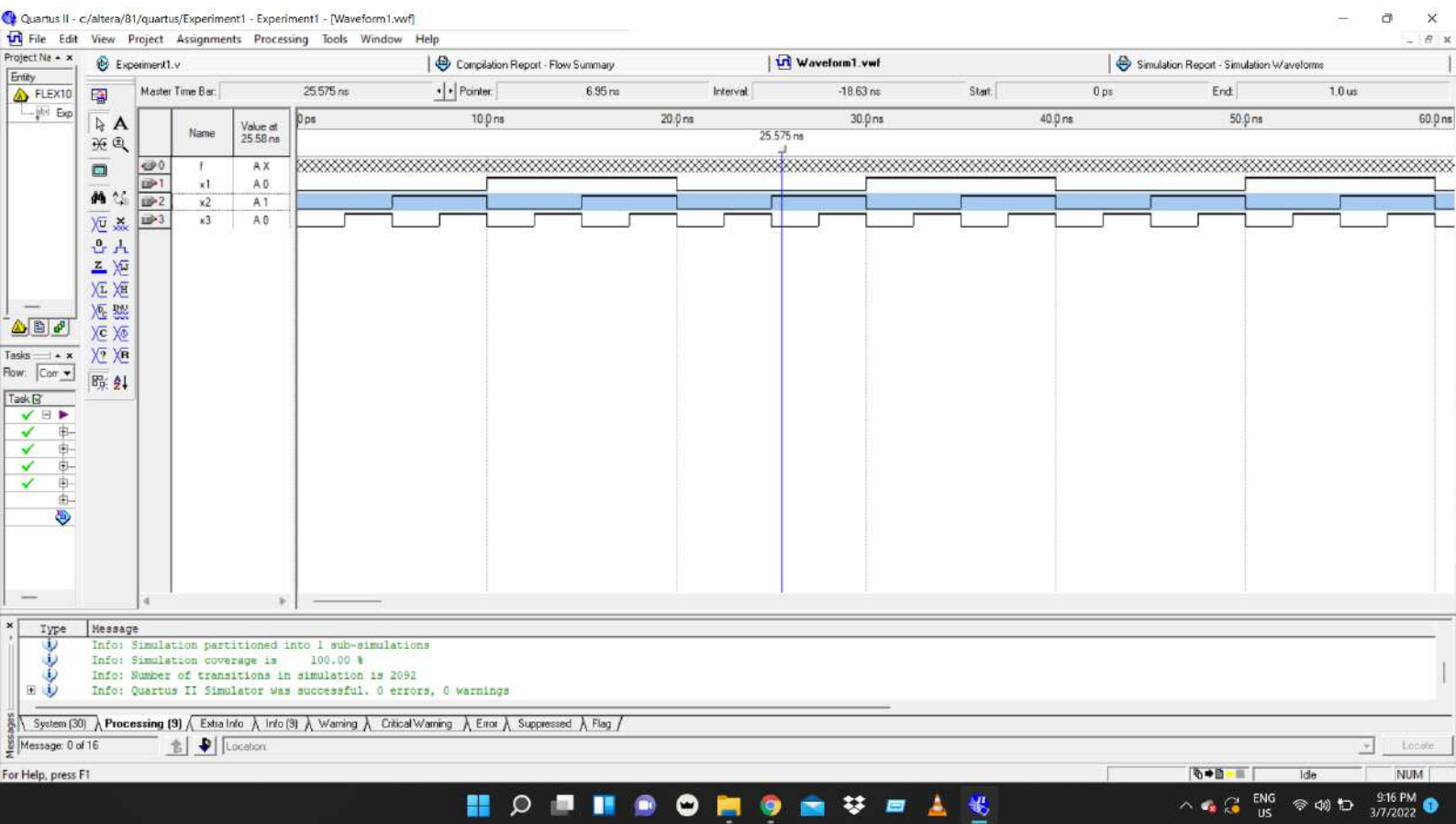
Message

Type	Message
Info	Simulation partitioned into 1 sub-simulations
Info	Simulation coverage is 100.00 %
Info	Number of transitions in simulation is 2092
Info	Quartus II Simulator was successful. 0 errors, 0 warnings

System (30) Processing (9) Extra Info Info (3) Warning Critical Warning Error Suppressed Flag

Message: 0 of 16 Location: Ln 1, Col 32 Ide NUM 9:16 PM 3/7/2022





Quartus II - c:\altera\81\quartus\Problem2_Procedural - Problem2_Procedural - [Problem2_Procedural.vwf]

File Edit View Project Assignments Processing Tools Window Help

Problem2_Procedural.v Problem2_Procedural.vwf Simulation Report - Simulation Waveforms

Master Time Bar: 23.15 ns Pointer: 250 ps Interval: -22.9 ns Start: 0 ps End: 1.0 us

Name	Value at 23.15 ns
f	A X
x1	A 0
x2	A 0
x3	A 1

0 ps 10.0 ns 20.0 ns 23.15 ns 30.0 ns 40.0 ns 50.0 ns

Tasks: Row: Compilation

Task List

- Compile Design
- Analysis & Synthesis
- Fitter (Place & Route)
- Assembler (Generate)
- Classic Timing
- EDA Netlist Writer
- Program Device (Open)

Messages

Type	Message
Info	Simulation partitioned into 1 sub-simulations
Info	Simulation coverage is 100.00 %
Info	Number of transitions in simulation is 2291
Info	Quartus II Simulator was successful. 0 errors, 0 warnings

System (33) Processing (9) Extra Info Info (3) Warning Critical Warning Error Suppressed Flag

Message: 0 of 16 Location: Locate

For Help, press F1

ENG US 11:48 PM 3/7/2022

Quartus II - c:/altera/81/quartus/Problem2_Procedural - Problem2_Procedural - [Simulation Report - Simulation Waveforms]

File Edit View Project Assignments Processing Tools Window Help

Problem2_Procedural.v Problem2_Procedural.vwf Simulation Report - Simulation Waveforms

Simulation Waveforms

Simulation mode: Functional

Master Time Bar: 23.15 ns Interval: Start End

0 ps 10.0 ns 20.0 ns 30.0 ns 40.0 ns

Name	Value at 23.15 ns
f	A 1
x1	A 0
x2	A 0
x3	A 1

Tasks

Flow: Compilation

Task

- Compile Design
- Analysis & Synthesis
- Fitter (Place & Route)
- Assembler (Generate Verilog)
- Classic Timing Analysis
- EDA Netlist Writer
- Program Device (Open)

Messages

Type Message

- Info: Simulation partitioned into 1 sub-simulations
- Info: Simulation coverage is 100.00 %
- Info: Number of transitions in simulation is 2291
- Info: Quartus II Simulator was successful. 0 errors, 0 warnings

System (33) Processing (9) Extra Info Info (3) Warning Critical Warning Error Suppressed Flag

Message: 0 of 16 Location

For Help, press F1

ENG US 11:48 PM 3/7/2022

Quartus II - c:/altera/81/quartus/Problem2_Procedural - Problem2_Procedural - [Problem2_Procedural.v]

File Edit View Project Assignments Processing Tools Window Help

Project Navigator

Entity

FLEX10KE_AUTO

Problem2_Proce... 1 (1)

Tasks

Row: Compilation

Task

261/366

Problem2_Procedural.v

Compilation Report - Flow Summary

```
1 module Problem2_Procedural(f,x1,x2,x3);
2
3 input x1,x2,x3;
4 output f;
5
6 assign f=~(x1 & x2) & ~(~x1 & x3) & ~(~x3 & x1));
7
8 endmodule
9
```

Type Message

Info: Delay annotation completed successfully

Info: Longest tpd from source pin "x1" to destination pin "f" is 7.100 ns

Info: Quartus II Classic Timing Analyzer was successful. 0 errors, 0 warnings

Info: Quartus II Full Compilation was successful. 0 errors, 0 warnings

System (28) Processing (35) Extra Info Info (35) Warning Critical Warning Error Suppressed Flag

Message: 0 of 72

Location

Ln 7, Col 1

ENG US

11:47 PM 3/7/2022

File

Edit

View

Project

Assignments

Processing

Tools

Window

Help

Project Navigator

Entity

Log

FLEX10KE: AUTO

Problem2_Proce... 1 (1)

Tasks

Flow: Compilation

Task

Compile Design

Analysis & Synthesis

Fitter (Place & Route)

Assembler (Generate Netlist)

Classic Timing Analysis

EDA Netlist Writer

Program Device (Open)

Problem2_Procedural.v

Compilation Report - Flow Summary

Flow Summary

Flow Status

Successful - Mon Mar 07 23:47:09 2022

Quartus II Version

8.1 Build 163 10/28/2009 SJ Web Edition

Revision Name

Problem2_Procedural

Top-level Entity Name

Problem2_Procedural

Family

FLEX10KE

Met timing requirements

Yes

Total logic elements

1 / 1,728 (< 1 %)

Total pins

4 / 102 (4 %)

Total memory bits

0 / 24,576 (0 %)

Total PLLs

0

Device

EPF10K30ETC144-1

Timing Models

Final

Type

Message

Info: Delay annotation completed successfully

Info: Longest tpd from source pin "x2" to destination pin "f" is 7.100 ns

Info: Quartus II Classic Timing Analyzer was successful. 0 errors, 0 warnings

Info: Quartus II Full Compilation was successful. 0 errors, 0 warnings

System (28)

Processing (35)

Extra Info

Info (35)

Warning

Critical Warning

Error

Suppressed

Flag

Message: 0 of 72

Location:

Locate

For Help, press F1

ENG

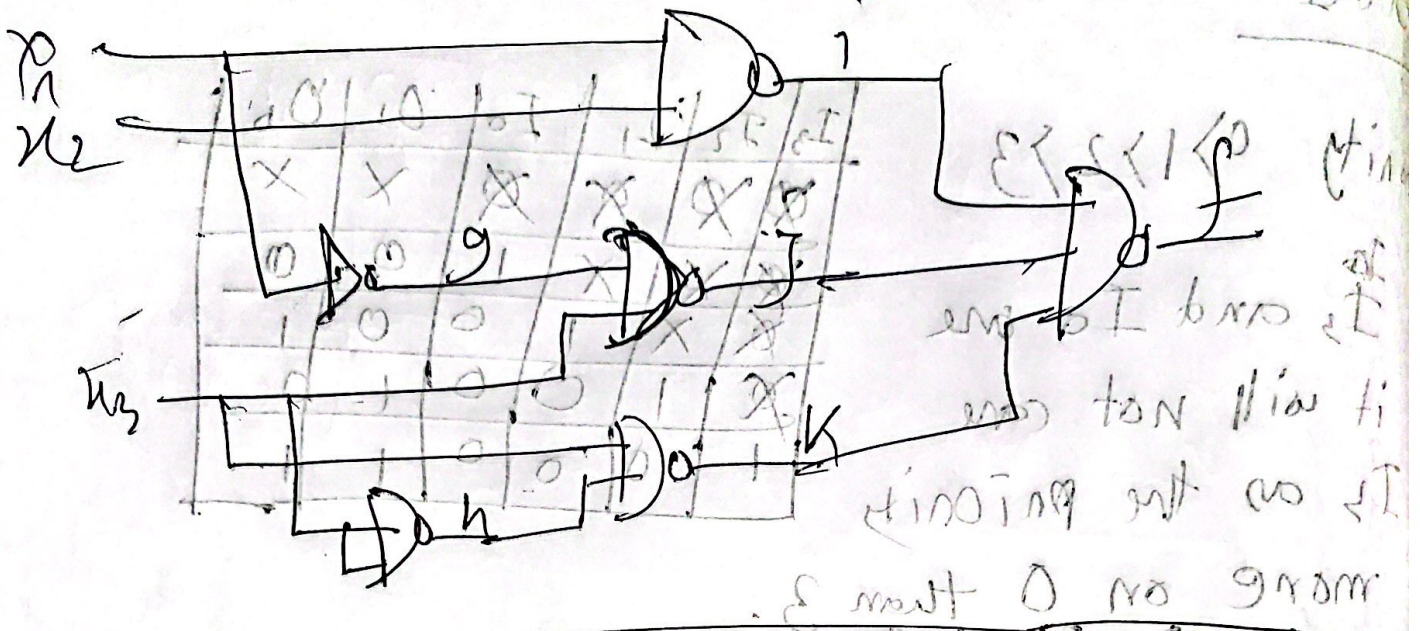
US

11:47 PM

3/7/2022

Problem-2

x_1	x_2	x_3	g	h	i	j	n	w f
0	0	0	1	1	1	1	1	0
0	0	1	1	0	1	0	1	1
0	1	0	1	1	1	1	1	0
0	1	1	1	0	1	1	1	1
1	0	0	0	1	1	1	0	1
1	0	1	0	0	1	1	1	0
1	1	0	0	1	0	1	0	1
1	1	1	0	0	0	1	1	1



$$f = (\overline{x_1} \cdot \overline{x_2}) \cdot (\overline{x_1} \cdot x_3) \cdot (x_3 \cdot x_1)$$

will be 1 only for 4 cases
 $(x) \Rightarrow$

x_1	x_2	x_3	f
0	0	1	1
0	1	0	1
1	0	0	1
1	1	1	1
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	0

As we can see from the timing diagram ~~the~~ when input (u_1, u_2, u_3) is low ~~it~~ is also Low (0). When $u_1 = \text{high}$ both u_2 and u_3 are low $f = \text{high}$. and all the inputs are high f is also high.