Homework #1—Using Data Flow method to describe circuits

Assignment:

1. Write a VHDL program to implement circuits specified in page#2, using DATA FLOW method.

Lab Report To Be Submitted, includes:

1. Lab Report According to Template with the information below

2. Description of your implementation for the circuits and how you feel about this data flow method of VHDL (advantage and disadvantage if any, see template).

3. VHDL Code

4. Final wave simulation results of the circuits. (This may simply be a screenshot of the final wave diagram.)

5. Description of your simulation (What simulations you carry out and what results you get; Brief analysis of the waveform)

6. Signoff Sheet

a. Given the code of 8 bits register, use ModelSim to show how to load

1010 0101 to the register and then carry data to output port.

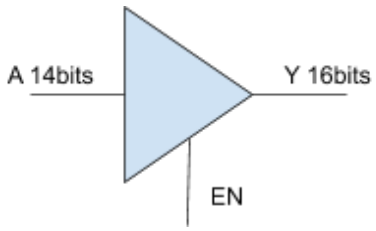
Interface Specification

Name	Bit-Length	Mode	Description
Data	8	Input	Input of the register
Load	1	Input	Load of the register
Clk	1	Input	Clock Signal
Q	8	Output	Output of the register

b. Implement a 8-bit 4-to-1 Mux,

Second, please implement a 4-to-1 Mux and decide how many SEL bits should be used.

c. Modify the code in lecture slides, transfer a 14-bit Tri-State buffer to a 16-bit Tri-State buffer. (Hint: Padding with “00” at the most significant two bits)



Structured Digital Design

ECE 316

HW#_____

Name_____

C#_____

University of Miami

Date_____

Homework #1: Dataflow Description of Circuits

Student Name	Student C #	Student Signature

MODELSIM Due Date:
Simulation Due: Next Class

To Be Simulated:

- Simulation results of 8-bit register
- Simulation results of 8-bit 4 to 1 MUX
- Simulation results of 14 bits to 16 bits Tri-State buffer

Comments:

Sign Off Date	Sign Off Time	Signature