



Course Name: EMBEDDED SYSTEMS I / III

Course Number and Section: 14:332:493:03 / 16:332:579:05

Year: Spring 2024

Lab Report #: 3

Lab Instructor: Milton Diaz

Student Name and RUID: Ruben Alias 207005068

Date Submitted: 03/22/2024

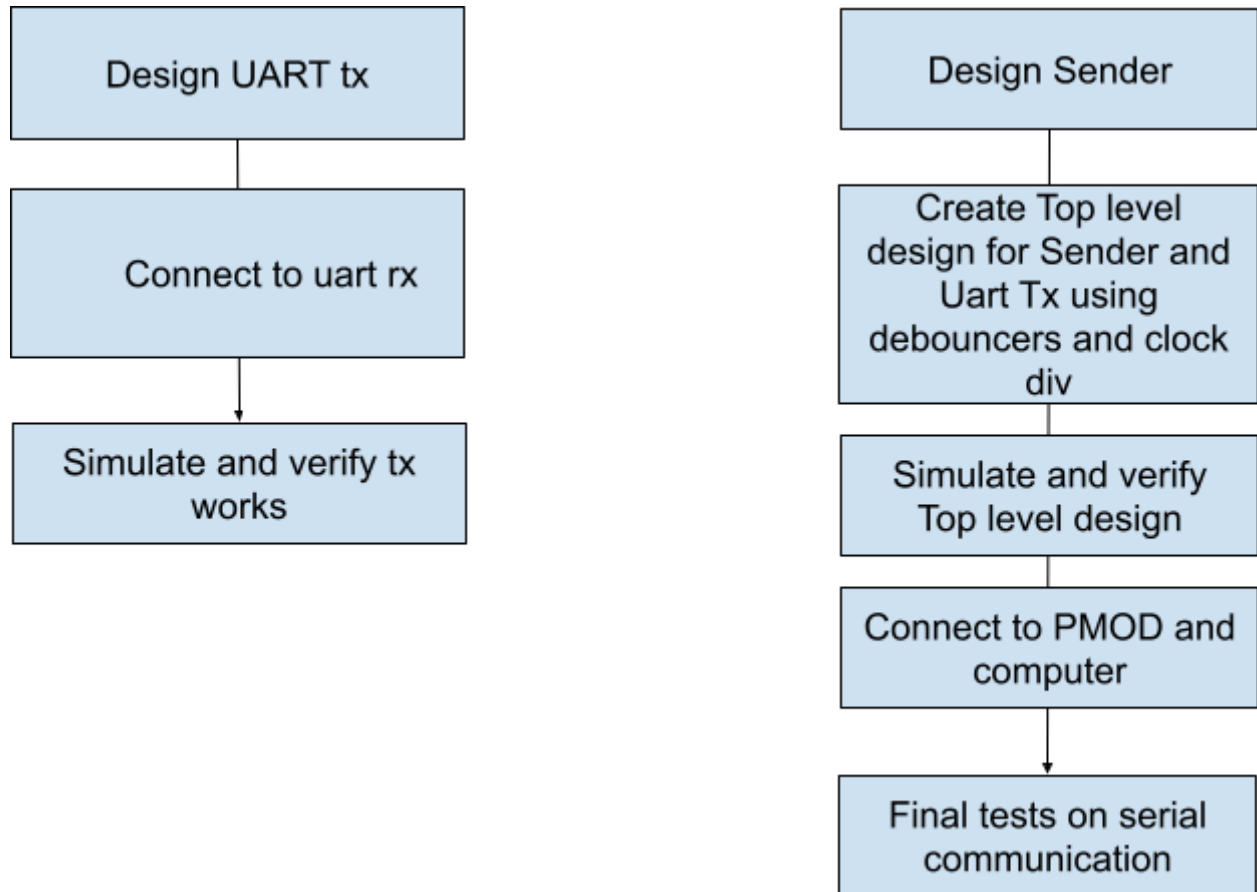
GitHub Link:

<https://github.com/embedded-systems-1-spring-2024-labs/lab-3-Herxity>

Purpose/Objective:

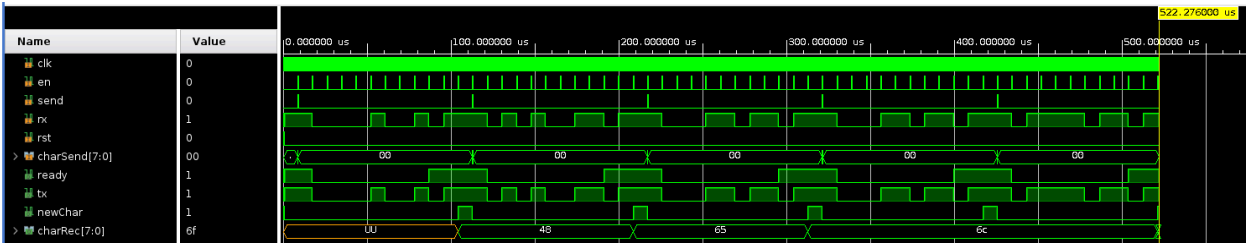
The purpose of this lab was to create a successful transport unit for the UART protocol to enable sending of data to the computer over serial communication.

Theory of Operation:

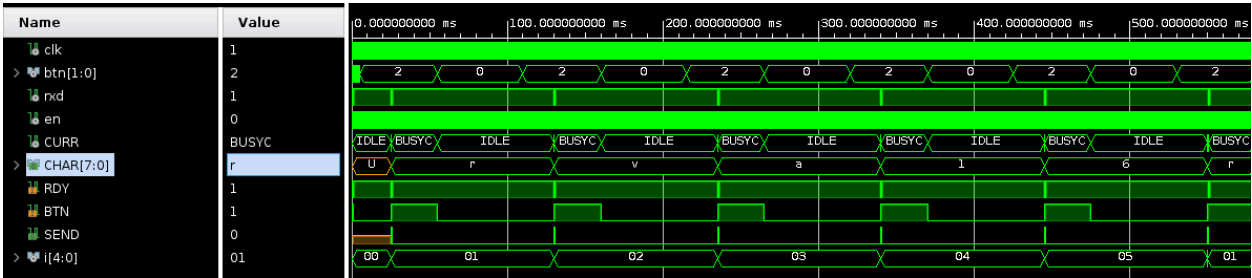


Simulation Waveforms:

uart_tb

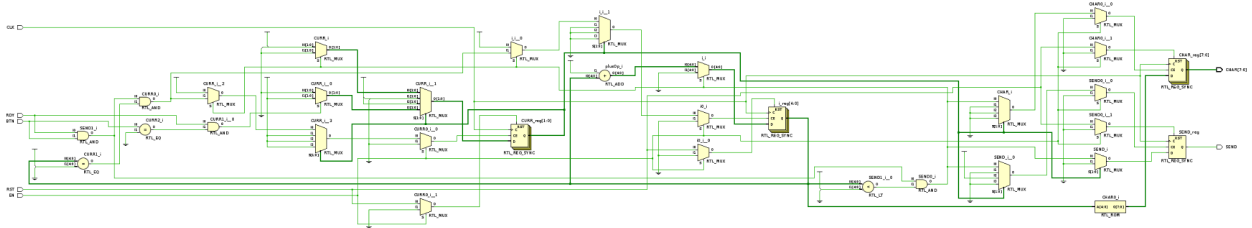


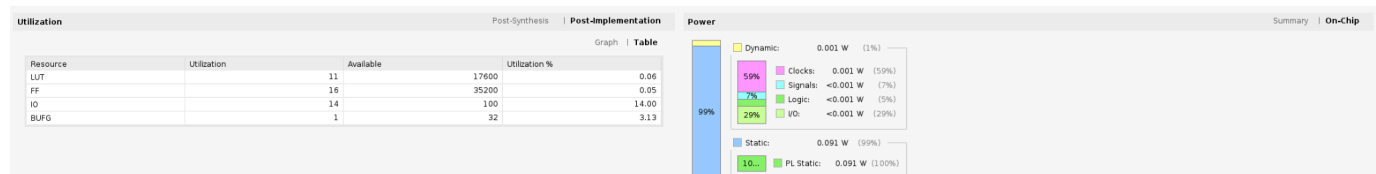
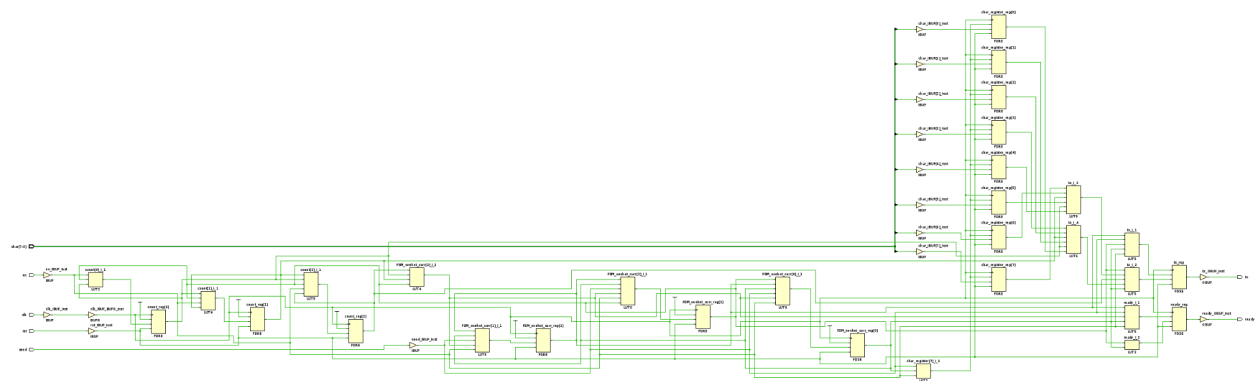
sender_top_tb



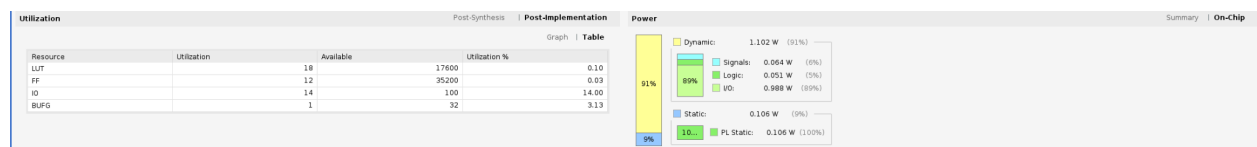
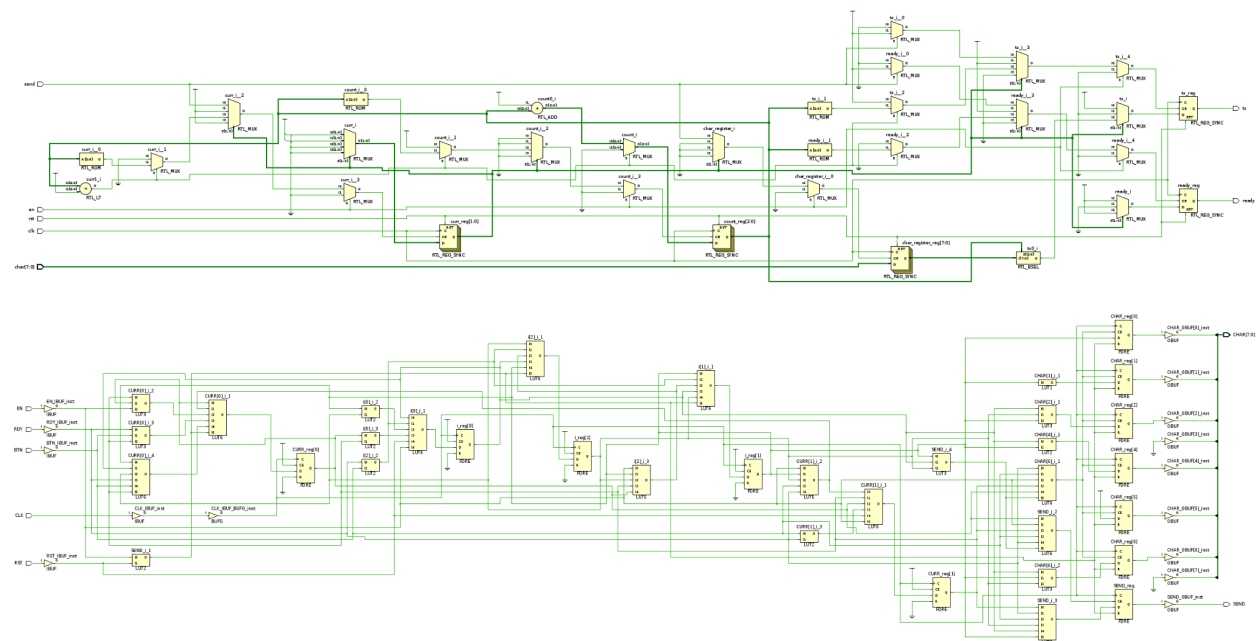
Vivado Schematics, Power Diagrams, and Utilization:

uart_tx

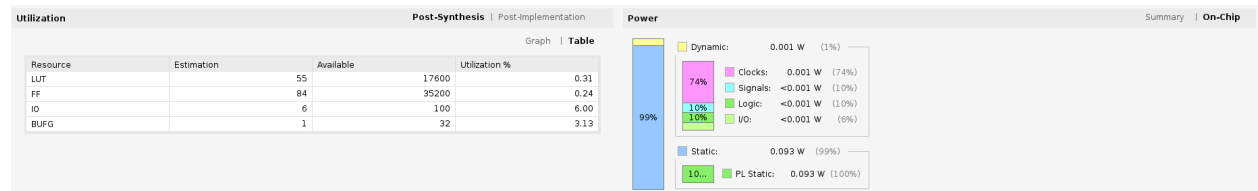
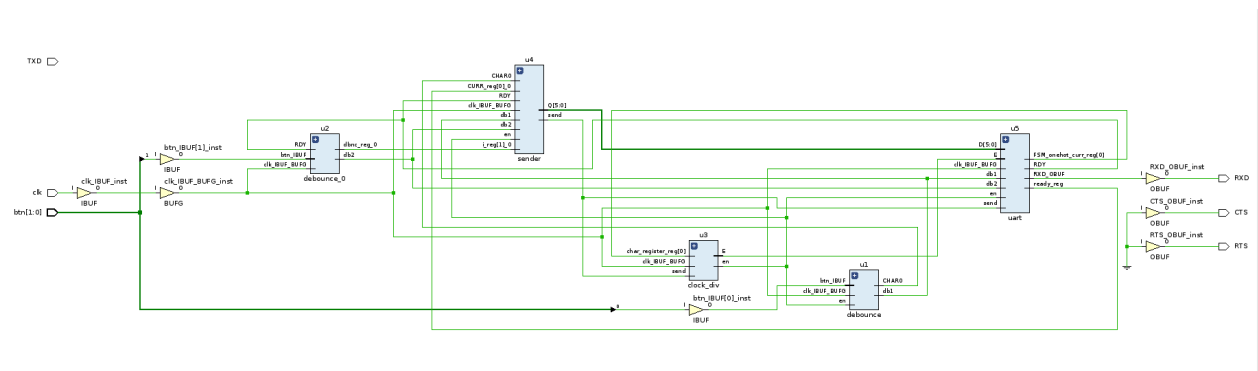
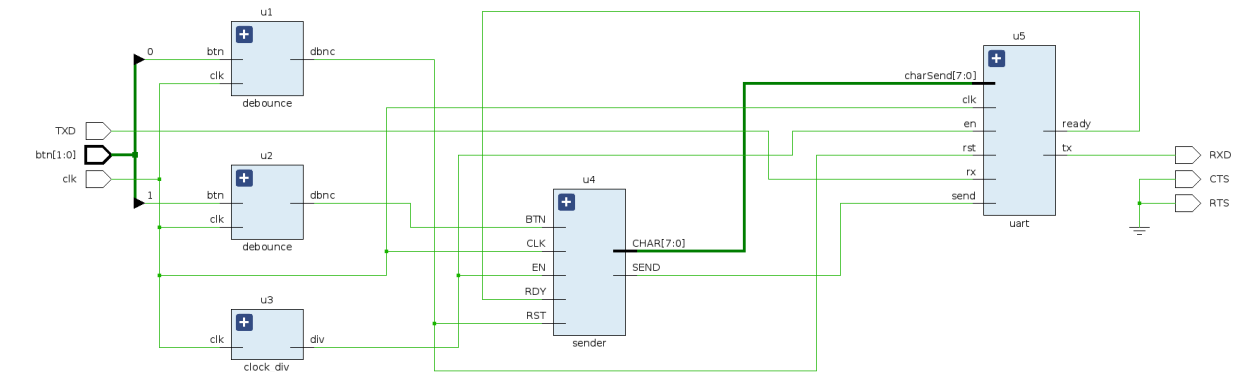




sender

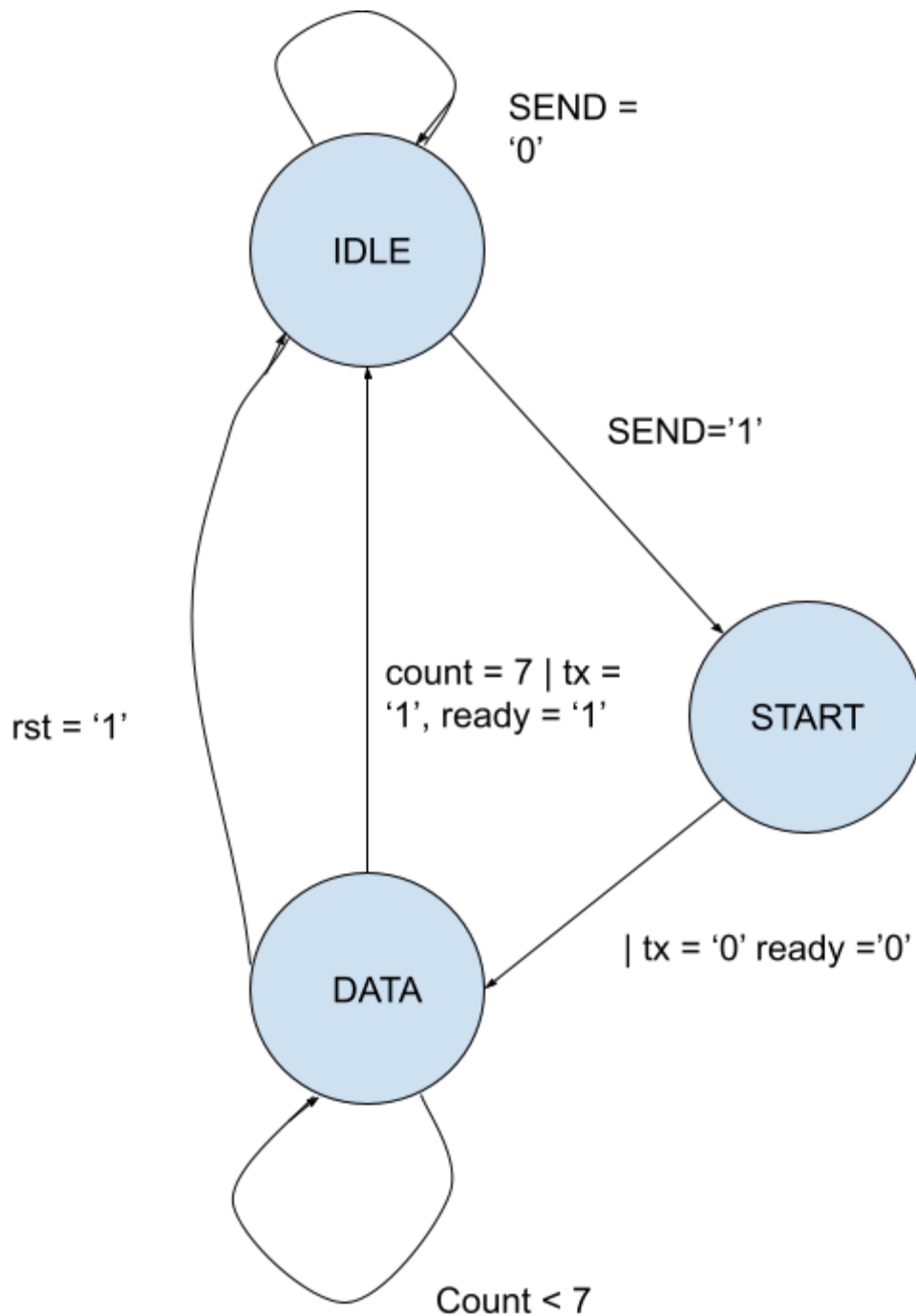


sender_top



Answers to Additional Questions and Extra Credit:

PRE-LAB:



Conclusion

In this lab I learned how to implement the UART protocol, and the importance of it. I later learned how to connect to the Zybo over a UART port and receive serially communicated output.

Follow up

I wanted to learn more about better ways to deal with timing desynchronizations more systematically. Most of my work was trial and error, without much real direction.