

Introduction

For homework 5, we had to create a program that uses the asynchronous serial communications interface (SCI) to send and receive data to a PC. The program must also make use of the LCD display and push button from homework 4.

Once the program is run, it must wait until the user pushes the button. After the button is pressed, the 6811 should be able to *transmit* a string ending with a '#' sign to the serial port. The PC-side script will respond by displaying the string and prompting for a string to send back. When the 6811 *receives* the string, it must display the message on the LCD.

Preliminary Work

I started programming by cutting down the previous homework. Then, I started playing around with the registers. I was really stumped on how the PC knows to send the next character. Clearing the register worked, so the PC must continuously send data as long as the receive enable is on. The process flow on in Figure 1 describes how the entire serial communication works, without going in-depth with string manipulation. Figure 2 contains the transmit and receive subroutines used in Figure 1.

Results & Conclusion

I was able to send and receive a string. I have edited the code since Friday and have attached it to this report. I haven't tested the code attached (my display doesn't work and have opted to use a friend's, which limits the time to test the program). Other than the confusion of how the PC knows to send the next character, the program was easy to understand, especially with the PowerPoint.

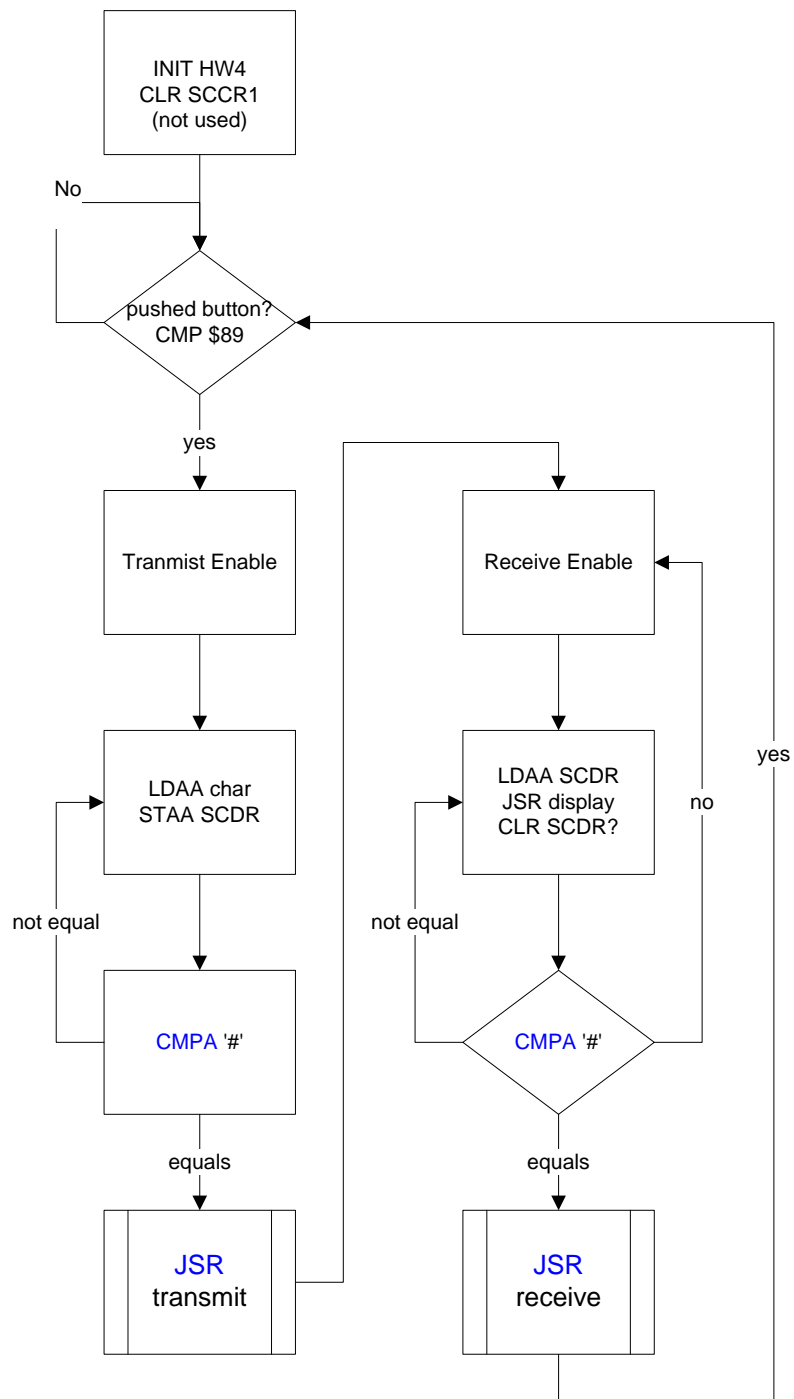


Figure 1. Serial Port Communication

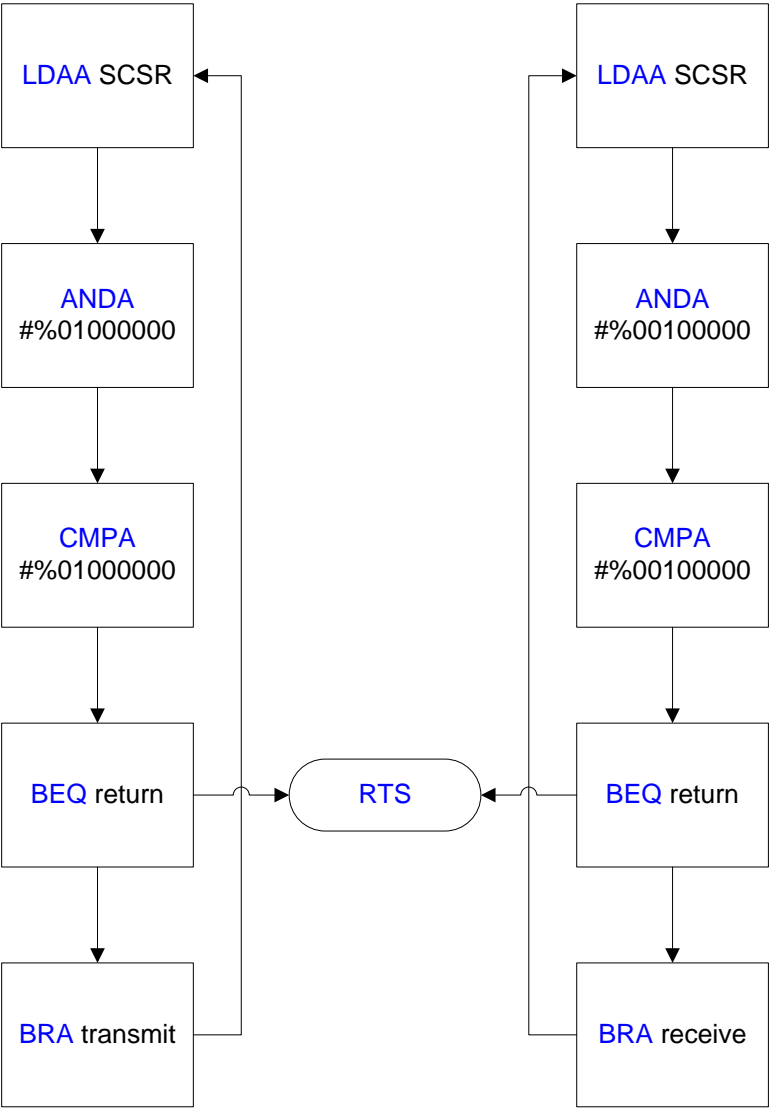


Figure 2. Transmit & Receive