Laboratory 06: Circular Buffers and AVR128DB48 USART Module in Asynchronous Serial (RS232) Mode

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Questions

1. After reset, index `USART_RxHead` has the value 0. Why is the first byte of data received placed in the `USART_RxBuf[1]` rather than `USART_RxBuf[1]` ?

To protect the buffer from true overflow and protect the buffer.

2. Why is it that when 5 characters are typed into Termite for transmission, 7 characters are actu-ally sent? What are the extra two characters and where did they come from?

One of them is pressing “enter” or send. And the other is string terminate or the end character. Both come from termite.

3. For Task 3, if the receive and transmit buffer sizes are set to 8 bytes, does the system work when you type in 6 bytes and send them? If not, why not.

Yes it will send

4. For Task 3, if the receive and transmit buffer sizes are set to 8 bytes, does the system work when you type in 7 bytes and send them? If not, why not.

It will work fine

5. What can you conclude from the answers to questions 3 and 4 about the required relationship between the number of characters you type in and the required size of the buffers for the system to work?

The size of the buffer will affect how many characters we can take in at once as the characters are output only once we press the pushbutton. We will loose

1 character less as we start at 0. Overwriting the contents of the buffer every time we type, so we'll only have enough room in respect to the buffer.