Problem Set 9 Date: June 15, 2023

Serial Communication using UART Adapter with Pt-51

In this question, you will understand and use a program for communicating between Pt-51 and a computer using UART. This program will take inputs from the computer's keyboard that can be used in programs running on the kit, to perform appropriate operations.

Pre-requisites:

1. To connect the kit to a computer, you will be using the USB-to-UART adapter Prolific PL2303 (Figure. 1) that was provided with the kit. After installing the software, connect the PL2303 adapter to one of the USB ports of your PC.The driver software for this adapter and the instructions for installing it can be found at the following link: "http://www.miklor.com/COM/UV_Drivers.php"

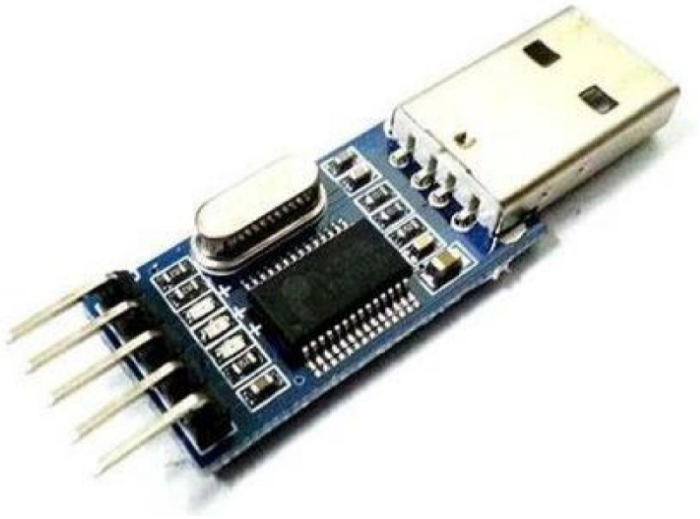

Figure 1: USB to UART adapter

2. Connect the Pt-51 kit to the USB-to-UART adapter using F-F wires as described next. In the Pt-51 kit, port pin P3.0 is the serial data input and P3.1 is the serial data output. Connect P3.0 of the kit to transmit data line (TxD) of the adapter. Connect P3.1 of the kit to receive data line (RxD) of the adapter. Connect the GND pin of the kit to GND pin of adapter.

3. For recognizing keyboard inputs on the computer and transmitting to the kit, through the serial terminal, you need to use the Realterm software (or any equivalent software). This software will also be used to display the messages received from the Pt-51 kit on the PC. A screenshot of Realterm window is shown in Figure 2. For Windows, download Realterm at: "https://realterm.i2cchip.com/"For Linux, you can download putty.

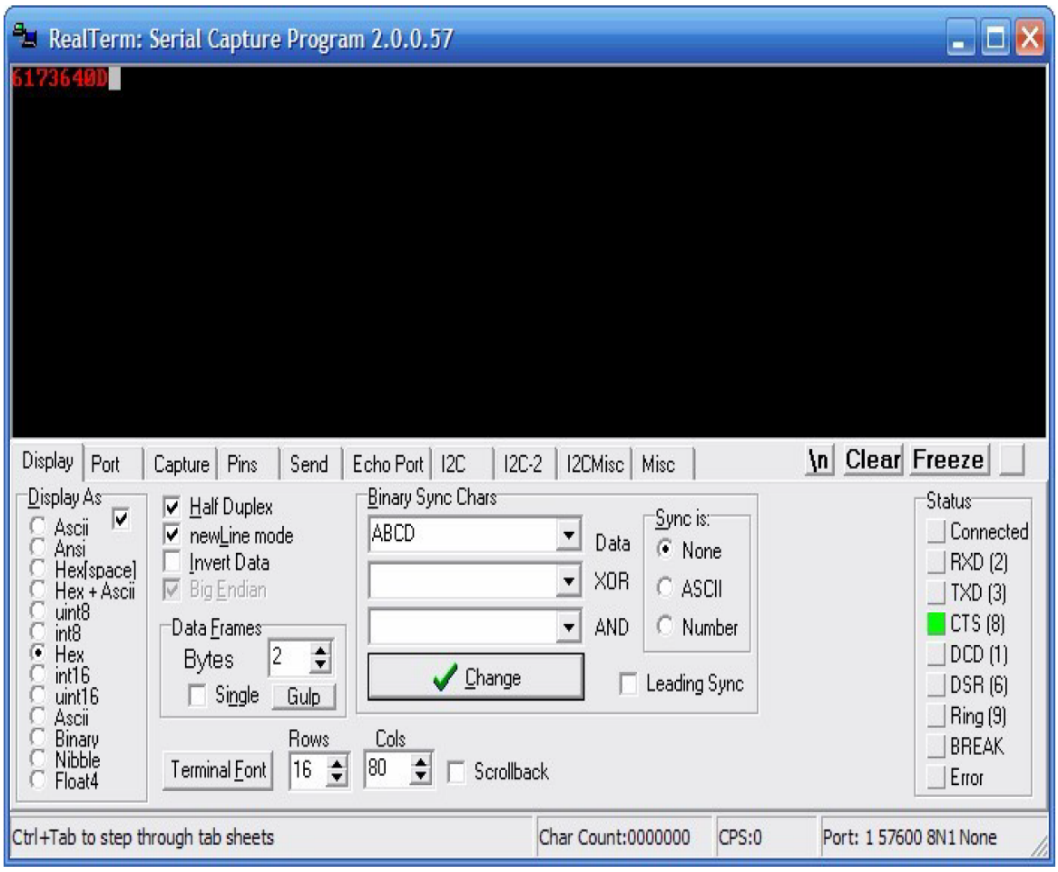

Figure 2: RealTerm: Serial/TCP Terminal

4. Configure Realterm (or equivalent tool) to use the appropriate COM port and baud rate. This can be done by clicking on Serial Port/ Port tab and choosing appropriate COM port as the port to which the USB-to-UART adapter is connected. Set the baud rate to 4800 (or that used in your program). Then click on Open.