# Two-Way Serial Communication with MinnowBoard Max in Windows

This tutorial explains how to set up two-way serial communication between a MinnowBoard Max and a host computer running a Windows 7 environment to aid in the software development and debugging of the MinnowBoard Max platform. This tutorial uses TeraTerm as the serial terminal (downloaded from http://ttssh2.sourceforge.jp/), but other terminal applications with comparable functionality are also available to perform the same task.

Connection between Host and Target
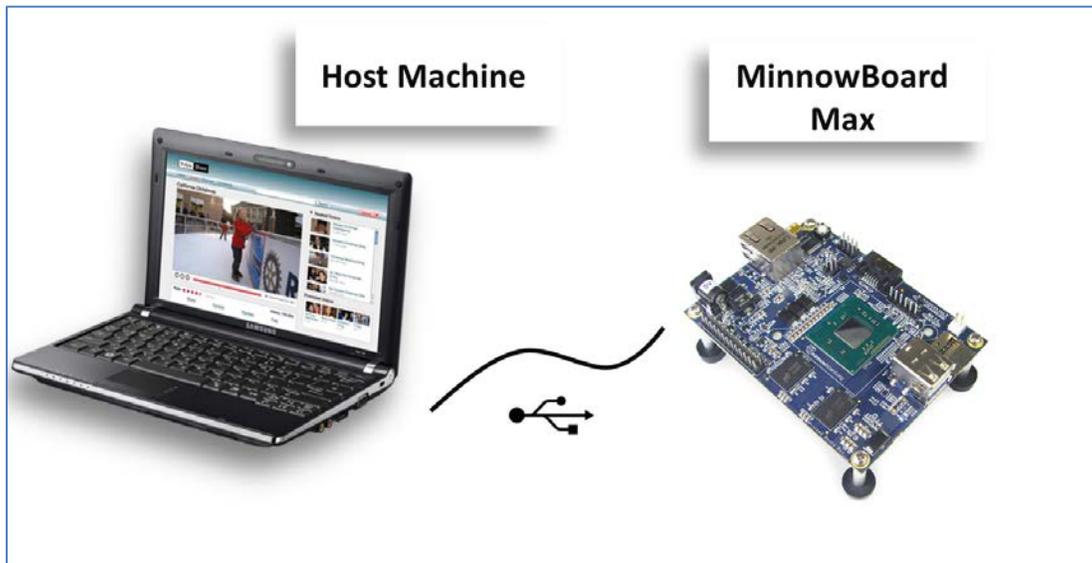
Serial Cable to USB

1. You must have the appropriate USB 6 pin header cable to connect to the MinnowBoard Max. This is a USB to 3.3V TTL Header. You can purchase on the web by searching for the following part number: SS-TTL3VT . The cost is approximately $20 USD.

2. You must download and install the latest VCP (virtual COM port) driver from the FTDI website. (A CD may be included with the purchase of your Cable).

   Virtual COM port drivers cause the USB device to appear as an additional COM port available to the PC. Application software can then access the USB device in the same way as it accesses a standard COM port.

   • **Go to** http://www.ftdichip.com/Drivers/D2XX.htm
   • **Download the most recent currently supported driver.**
   • **Unzip the download.**
   • **Place the folder in the destination of your choice**.

3. The 6 pin header on the MinnowBoard Max serves as the serial port output:
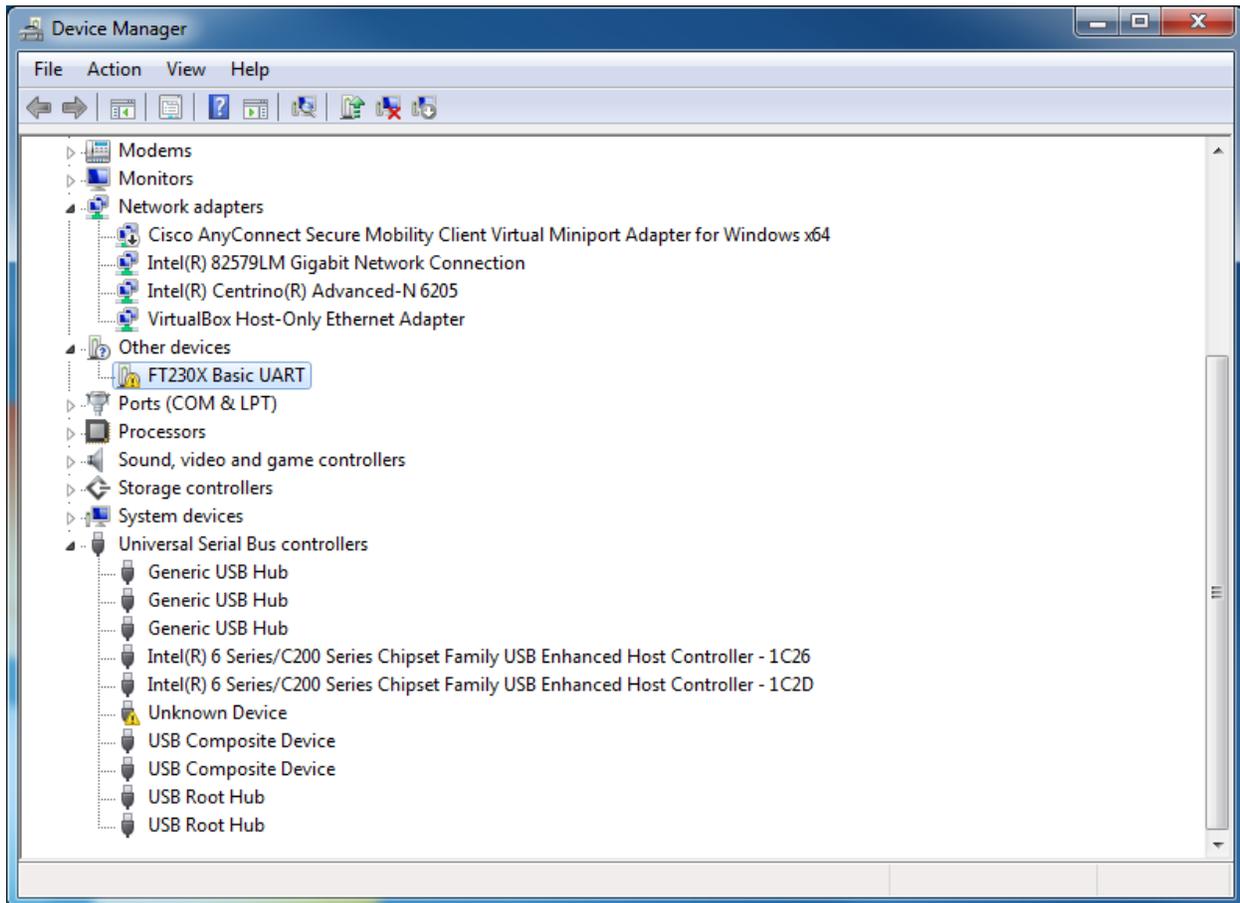
   • **Connect the other end (USB Type A) to the USB port of your computer**.
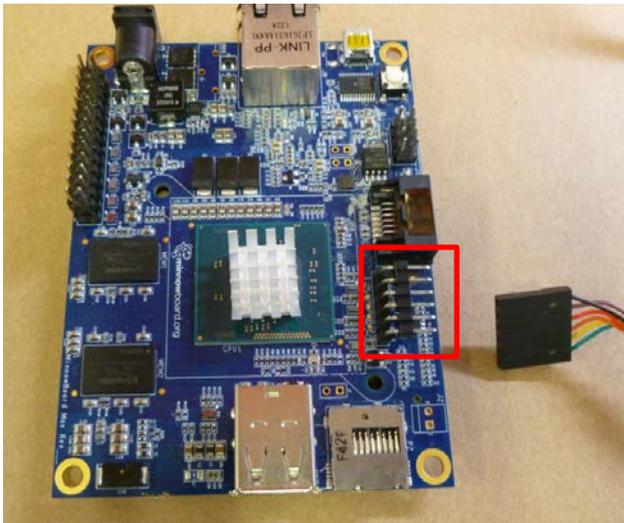
NOTE: Pin 1 of the Header is closest to the SATA connector. Pin 1 of the SS-TTL3VT cable is the Black lead wire.
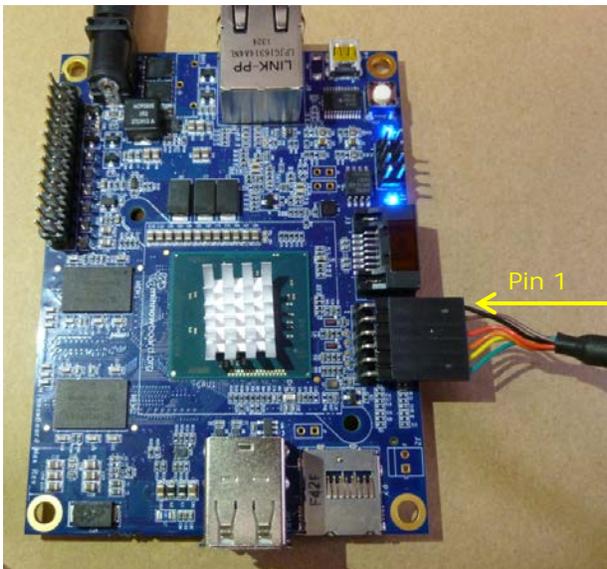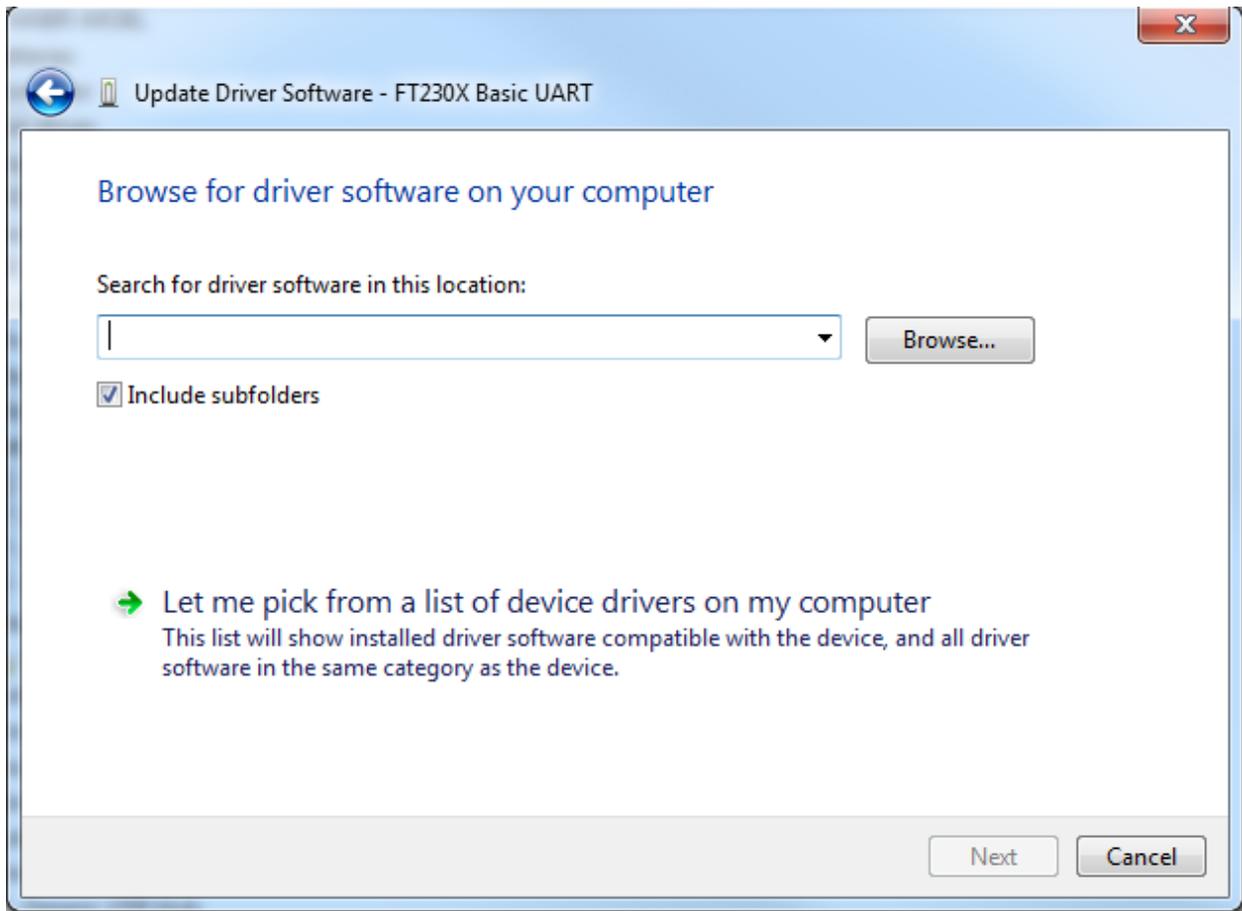
4. **Go to the device manager in the control panel**. Under the "Other devices" category you will see a yellow "!" with a warning icon next to it.
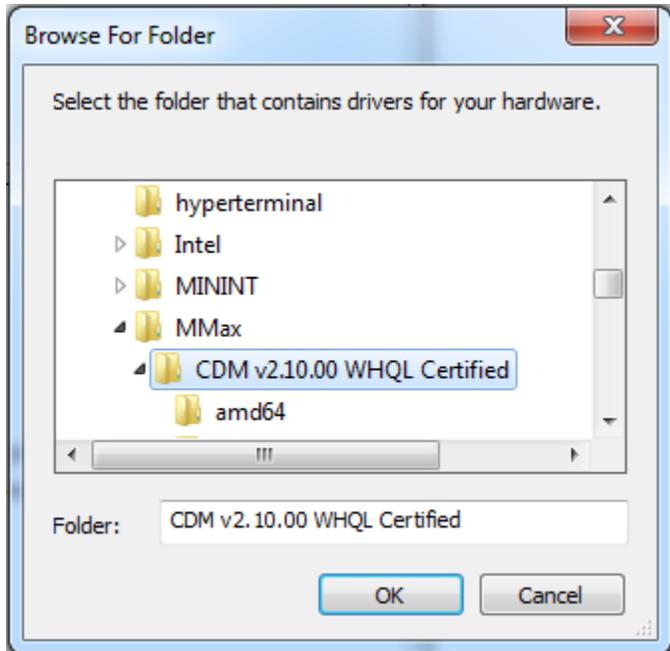
- **Right click on this and select** "Update Driver Software".
- **Select** "Browse my computer for driver software".
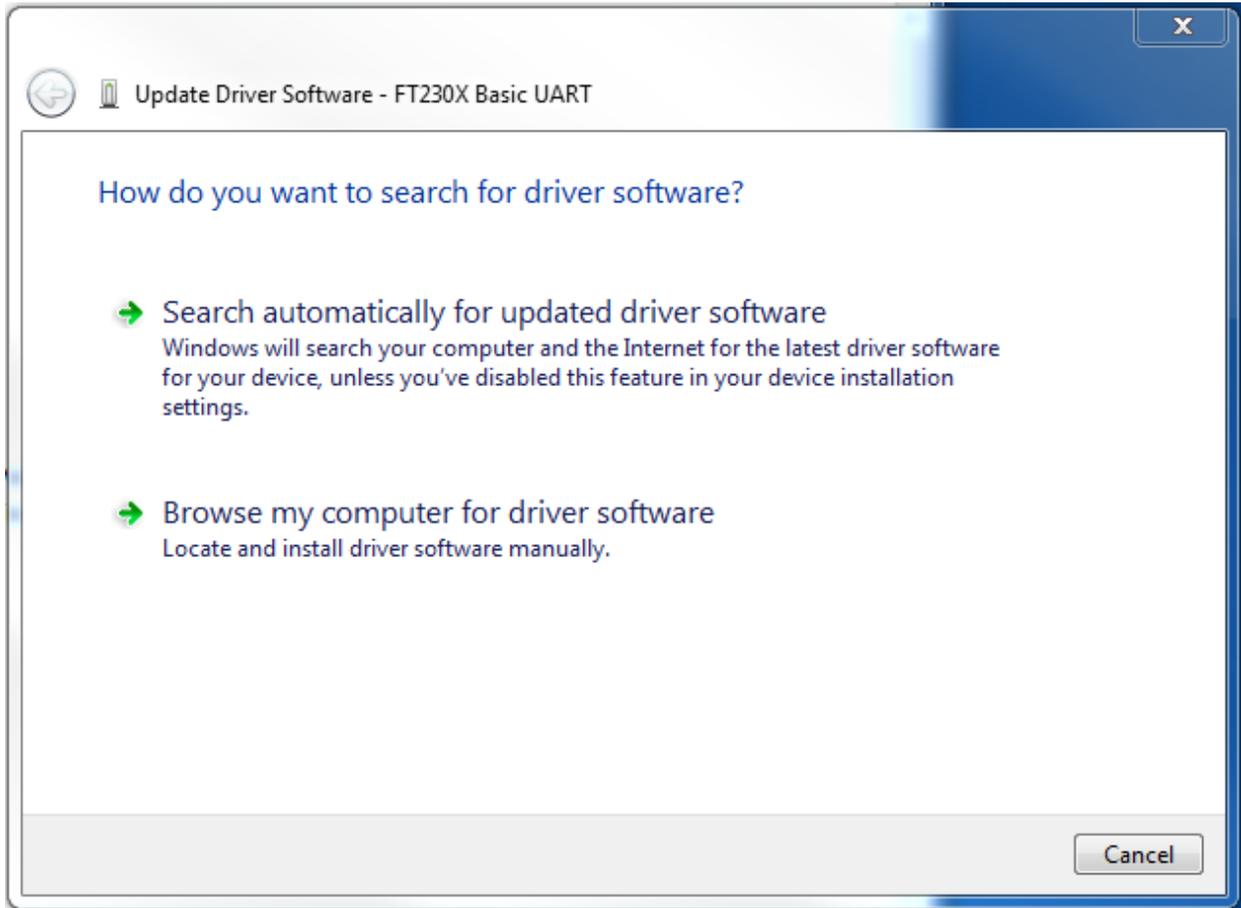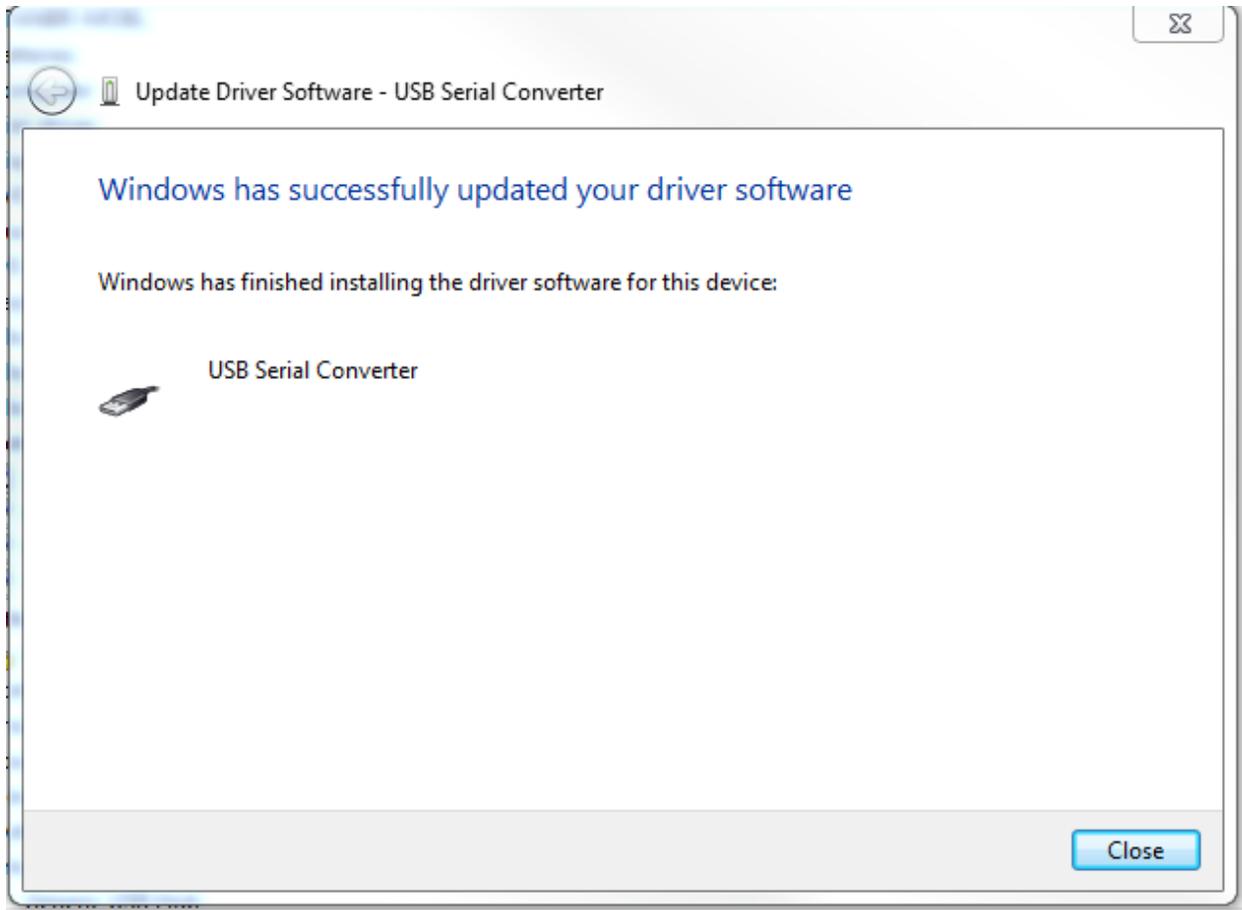
- **Click the Browse button**.

- **Browse to the location of the folder** you unzipped earlier in step 2 or CD that came with your cable.

- **Click on the folder** and **press OK**.

- **Verify that the "Include subfolders" checkbox is checked**.

- **Press next**.

NOTE: You will then see a window that says "Windows has successfully updated your driver software." You may also see the following message in the lower right-hand location of your screen: "Device driver not successfully installed." This is normal, indicating that the installation process has not finished.

Update Driver Software - USB Serial Converter

Windows has successfully updated your driver software

Windows has finished installing the driver software for this device:

USB Serial Converter

Close

5. Under the "Other devices" category of the device manager you will see "USB Serial Port" with a warning icon next to it:

- **Follow exactly the same process as in step 4 above.**

- **Update the driver software**.
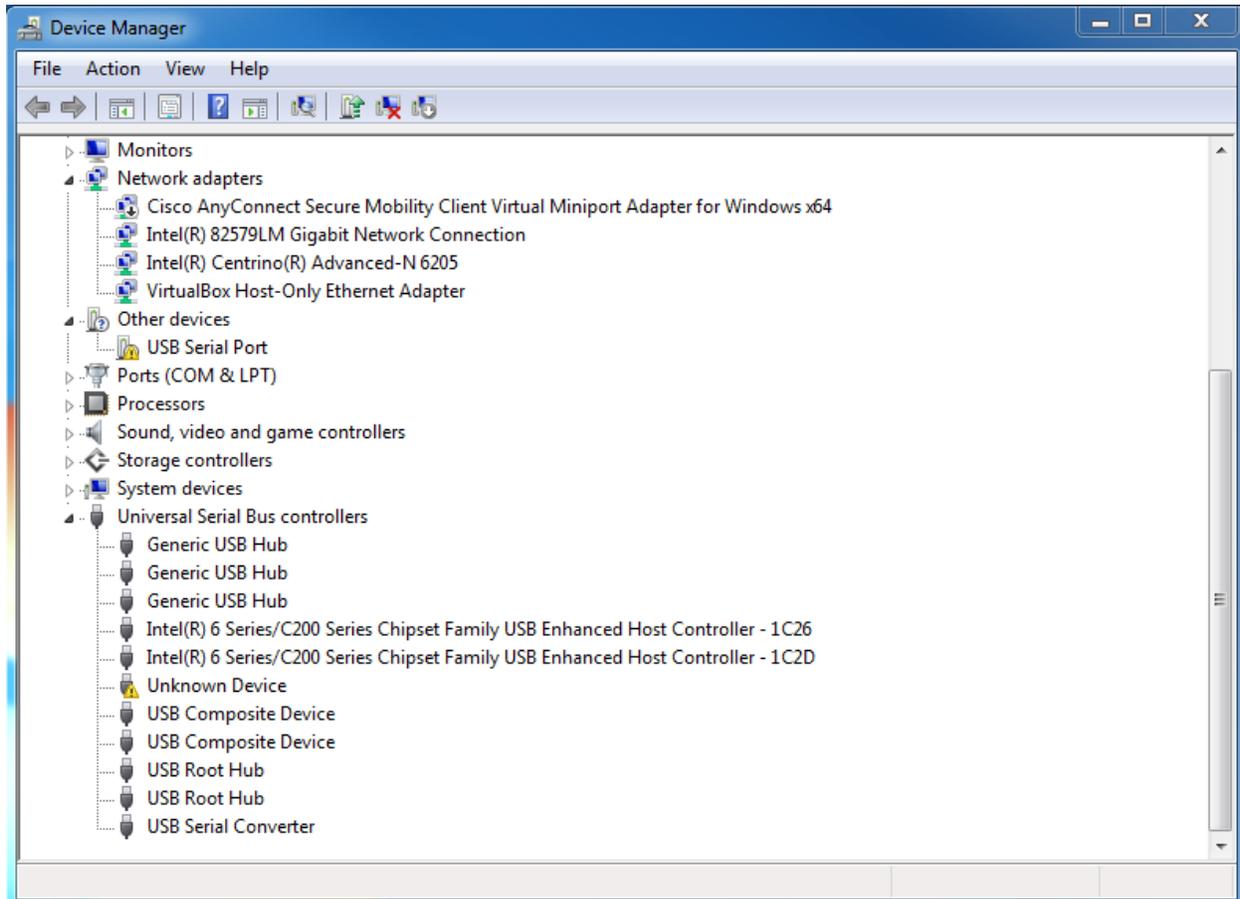
After you have finished, you should have a new device named "USB Serial Port (COMx)" under your "Ports (COM & LPT)" section of the device manager.

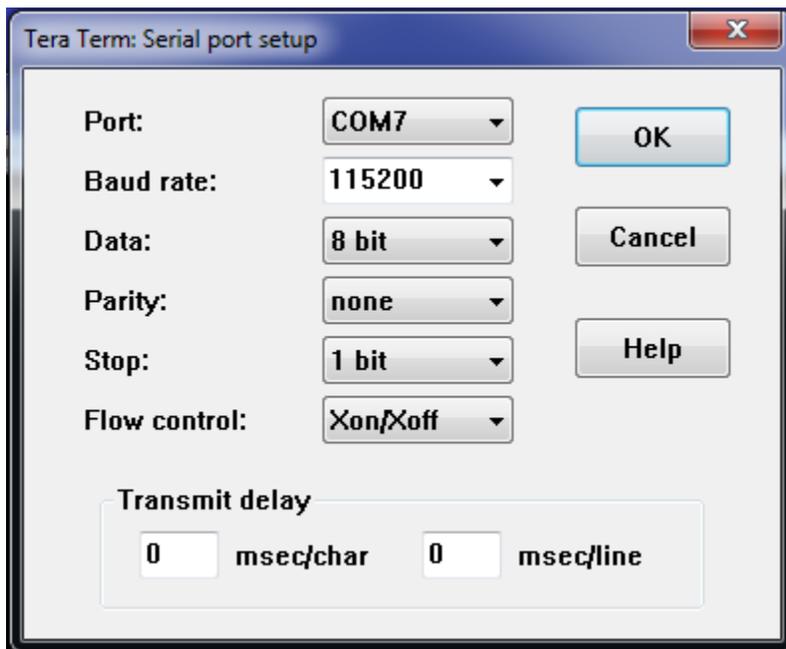*NOTE:* In this example the assigned port is COM7, although the number may differ from system to system.
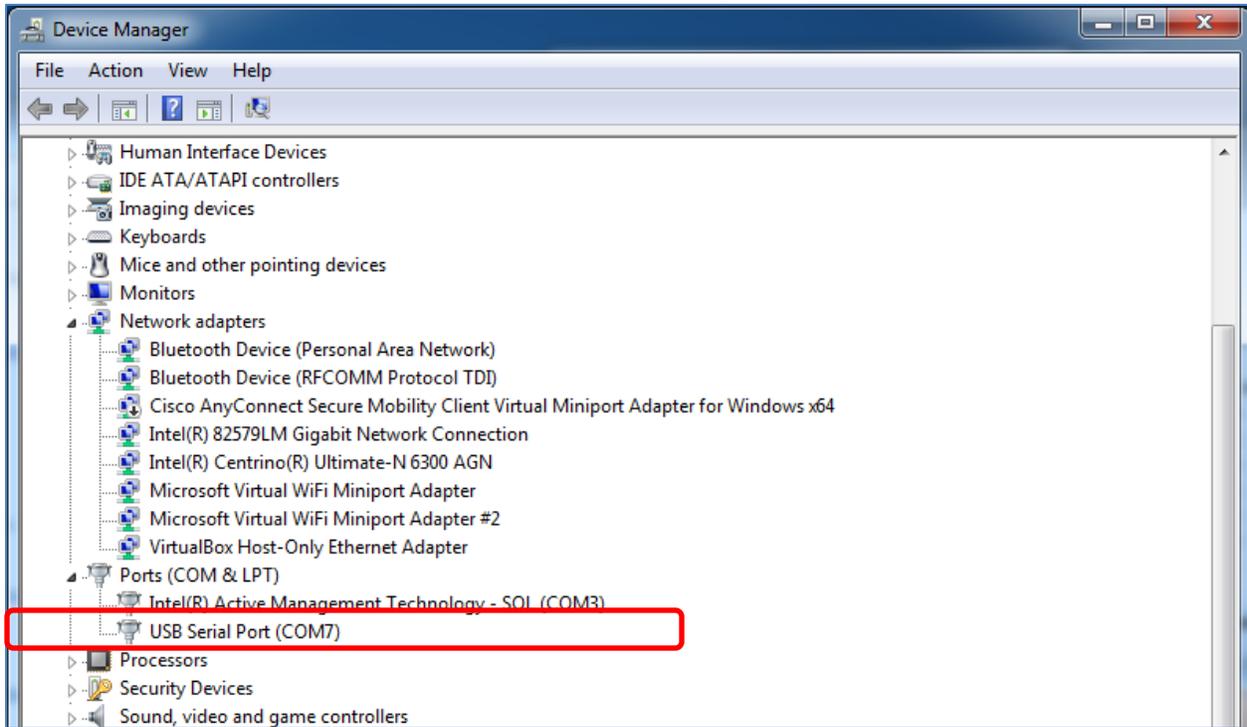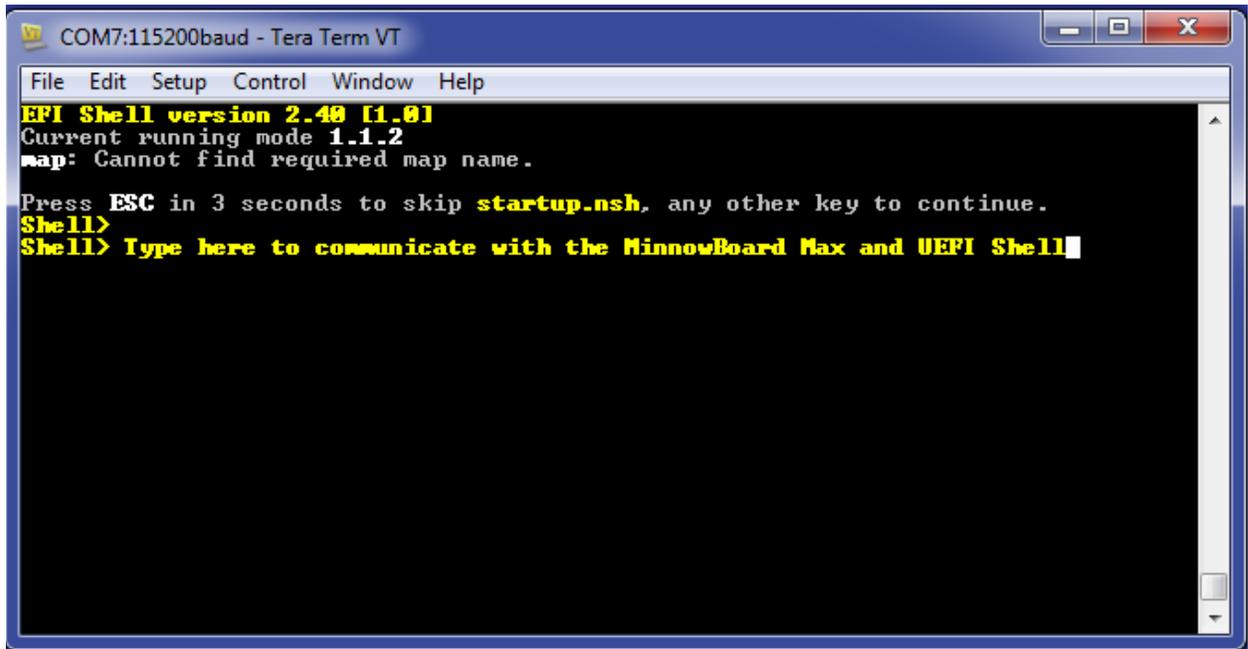
Terminal Device Setup

1. **Open up your terminal software**.

2. **Select the serial port that was assigned in step 4**.
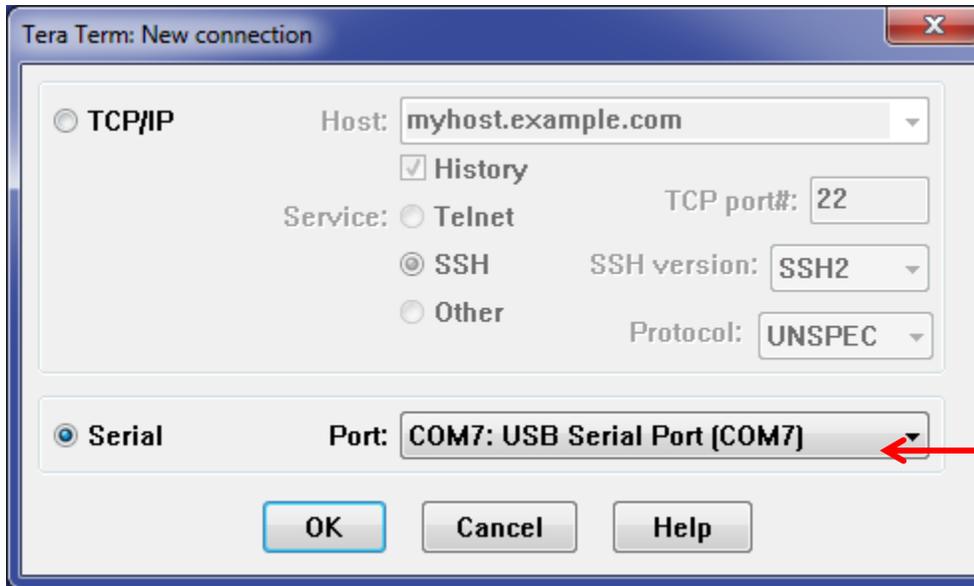
Choose the correct COM Port number

3. **Go to Setup->Serial Port and set the following**:
   — Baud: 115200
   — Parity: None
   — Data Bits: 8
   — Stop Bits: 1
   — Flow Control: Xon/Xoff

Two-way communication should now be established between the host computer and the MinnowBoard Max. Type into the terminal to communicate with the MinnowBoard Max UEFI Shell.