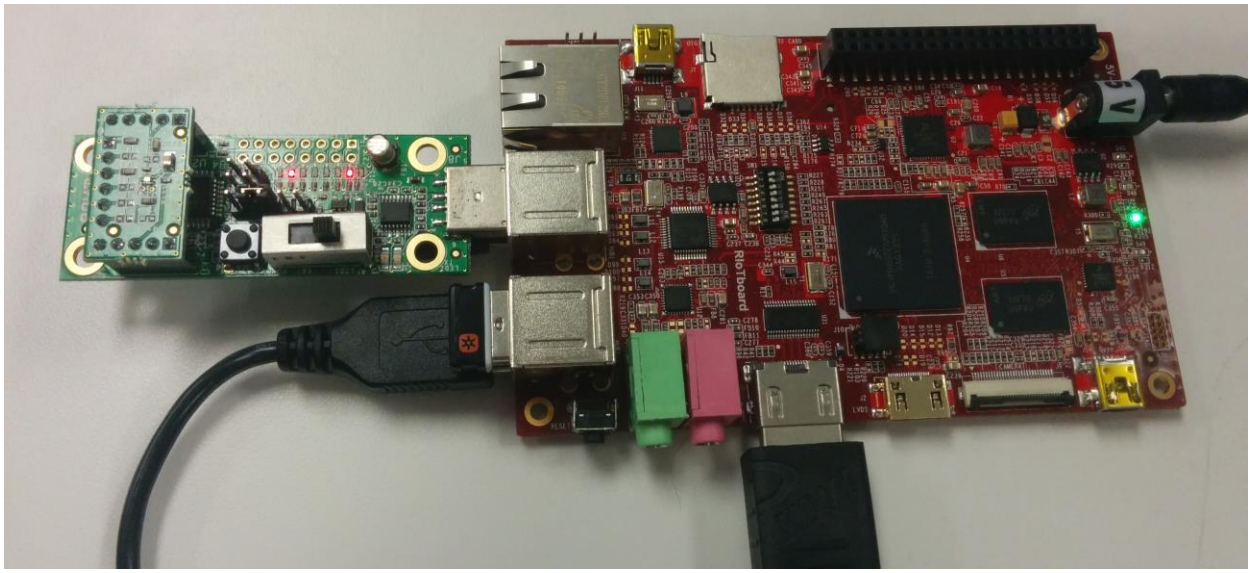
Connecting the Sensor Platform Kit to the RIoTboard



Above: ROHM Sensor Platform Base Board connected to the RIoTboard

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Revision History

Date	Description	Revision ID
12 January 2015	First Draft	A

Introduction

The following document was written to provide a brief connection guide and starting point for using ROHM's Sensor Platform Kit with the RIoTboard. This guide assumes that the user has basic functional knowledge of both the Sensor Platform Kit and the Riot Board itself. If this is not correct, please see the following links for other guides and information on these products.

ROHM's Sensor Platform Kit: https://github.com/ROHMUSDC/ROHMSensorPlatformEVK

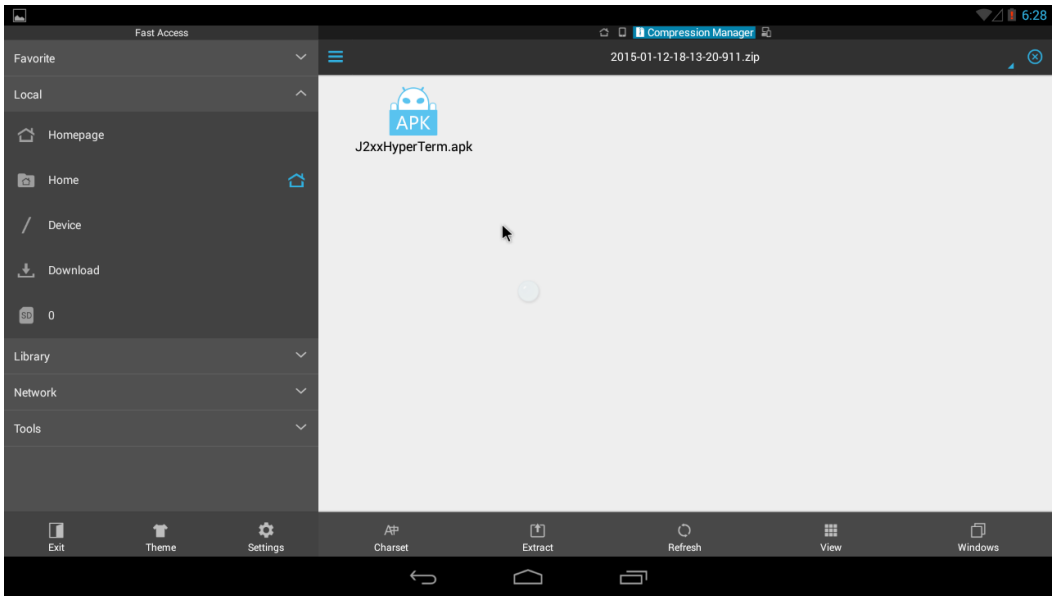
RIoTboard: http://riotboard.org/

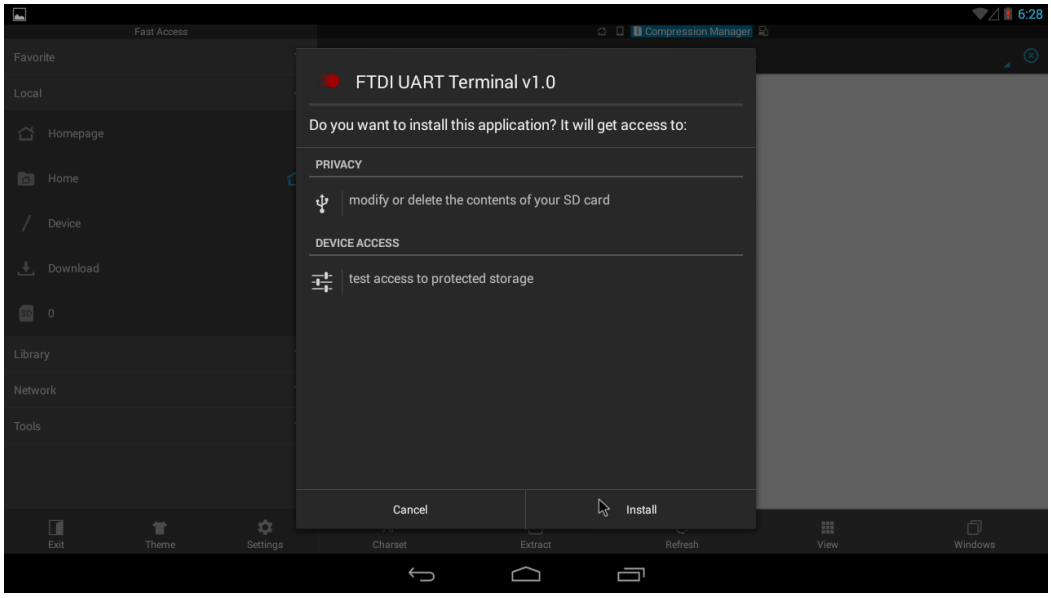
Getting Started

1. Initial Setup
    a. ROHM Sensor Platform Kit
        i. The Sensor Platform Base Board can be connected to the RIoTboard directly via USB; thus, there are no pre-requisites for this side of the system
        ii. We would recommend a USB-A to USB-B extender to allow for movement of the sensor base board while connected to the RIoTboard.
    b. The following are recommended for using the RIoTboard for this guide
        i. Barrel Connector for Power
        ii. HDMI Cable and Monitor for Display (Or LVDS)
        iii. USB Mouse and Keyboard for User Input
        iv. WiFi Dongle for Internet Connectivity

Connecting the Sensor Platform UART Output to the RIoTboard

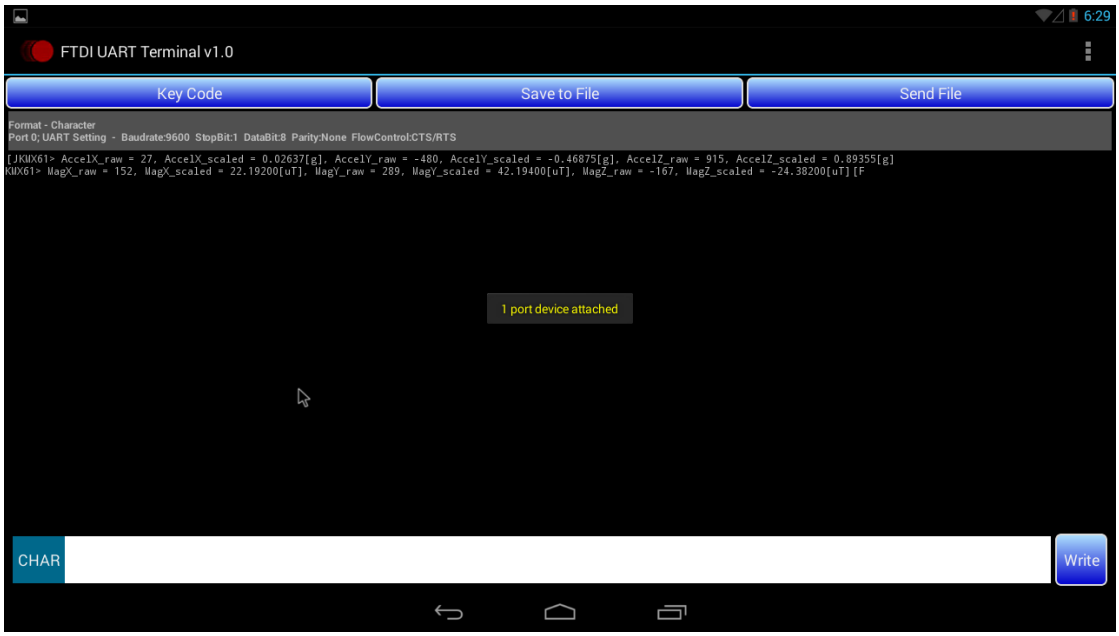
1. The Sensor Platform Board uses FTDI's FT230XS-R as the on board UART to USB Bridge for data transmission
2. FTDI has also built drivers and sample android applications that help to interface onto Android based operating systems.
    a. Download and install FTDI's "UART Terminal Application" APK from the following website (http://www.ftdichip.com/Android.htm)
        i. Source Code:
            1. http://www.ftdichip.com/Support/SoftwareExamples/Android/J2xxHyperTerm.7z
        ii. Direct Link to APK:
            1. http://www.ftdichip.com/Support/SoftwareExamples/Android/J2xxHyperTerm.zip
        iii. Link to Play Store:
            1. https://play.google.com/store/apps/details?id=com.ftdi.j2xx.hyperterm&hl=en

b. 

c. 

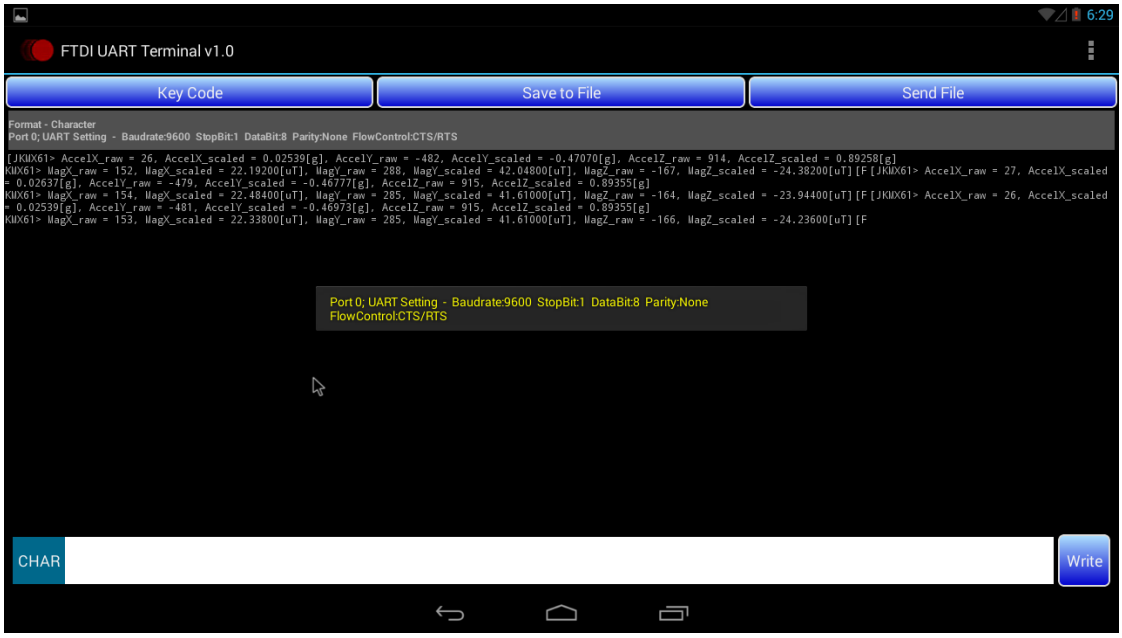
3. After completing the installation of this application, connect the Sensor platform Base board to the RIoTboard using one of the available USB Ports.
4. Open the "FTDI UART Terminal Application". Upon correct connection, you will see two messages flash on the screen:
    a. "1 port device attached"

i.



b. "Port 0; UART Setting – Baudrate:9600 StopBit:1 DataBit:8 Parity:None FlowControl:CTS/RTS"

i.



5. Edit the control settings by clicking the "settings button" (three dots on the upper right side of the application) and click "settings". Below the writing portion of the console, you will see additional UART settings
    a. Adjust these settings to the below options:

i. 

ii. Note: the only major change is the "flow control" set to "None"

b. Upon the Sensor Reset (pressing the PB on the board), firmware information along with additional sensor platform sensor information should be returned by the sensor platform itself.

Other Notes and Considerations

1. Please note that the FTDI UART application is not optimized for some of the special function commands sent via UART (such as the clear line, etc..); thus, you will see the sensor data return in a streaming format.
2. From this guide you can now generate your own applications using these sensor solutions by using and understanding the below three topics
    a. Building an Android App on the RIoTboard
        i. http://www.element14.com/community/community/designcenter/single-board-computers/riotboard//blog/2014/01/24/publishing-my-first-android-app-on-riotboard
    b. Source Code for FTDI Console:
        i. http://www.ftdichip.com/Support/SoftwareExamples/Android/J2xxHyperTerm.7z
    c. Source Code for ROHM's Sensor Platform Kit:
        i. https://github.com/ROHMUSDC/ROHMSensorPlatformEVK