

Connecting the Sensor Platform Kit to the BeagleBone Black Platform



Above: ROHM Sensor Platform Base Board connected to the BeagleBone Black



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Please note that all references to ROHM's Sensor Platform Kit are also shared under open source guidelines under the GNU General Public License, Version 3. Details can be found at the following link: <https://github.com/ROHMUSDC/ROHMSensorPlatformEVK>.

Revision History

Date	Description	Revision ID
19 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 BeagleBone Black platform of boards. This guide assumes that the user has basic functional knowledge of both the Sensor Platform Kit and the BeagleBone Black 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>

BeagleBone Black Platform: <http://beagleboard.org/getting-started>

Getting Started

1. Initial Setup
 - a. ROHM Sensor Platform Kit
 - i. The Sensor Platform Base Board can be connected to the BeagleBone Black Platform 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 BeagleBone Black.
 - b. The following are recommended for using the BeagleBone Black for this guide
 - i. Need to be able to access the linux console for the BeagleBone Black (this guide uses the console access provided in the cloud9 ide.

Connecting the Sensor Platform UART Output to the BeagleBone Black (Using the Console)

1. The Sensor Platform Board uses FTDI's FT230XS-R as the on board UART to USB Bridge for data transmission.
2. For this guide, we will explain how to connect the sensor platform kit to BeagleBone Black's Linux OS using the VCP drivers built into the linux kernel. For additional support on D2XX driver, please see FTDI's installation guide for Linux.
 - a. http://www.ftdichip.com/Support/Documents/AppNotes/AN_220_FTDI_Drivers_Installation_Guide_for_Linux%20.pdf
3. Connect the sensor platform base kit and any sensor to the BeagleBone Black hardware using any USB slot connector.
4. Next, check to see if the VCP drivers are working correctly by entering the following into the command line:
 - a. In the Cloud9 console window, navigate to root (using "cd .." command)
 - b. Once at the root, type in the following message to check if the VCP drivers are working correctly

- i. “dmesg | grep FTDI”
- c. The message should return with the information in the picture below



```
bash - "beaglebo x Immediate (Debu x /BlinkLed_Testjs x bash - "beaglebc x + x
root@beaglebone:/var/lib/cloud9# cd ..
root@beaglebone:/var/lib# cd ..
root@beaglebone:/var# cd ..
root@beaglebone:/# dmesg | grep FTDI
[ 1.273925] usb 1-1: Manufacturer: FTDI
[ 5.980496] usbserial: USB Serial support registered for FTDI USB Serial Device
[ 5.980671] ftdi_sio 1-1:1.0: FTDI USB Serial Device converter detected
[ 5.995735] usb 1-1: FTDI USB Serial Device converter now attached to ttyUSB0
root@beaglebone:/#
```

- i.
- 5. Since this FTDI chip is essentially a COM port, we can easily view the data stream through the console using “screen” application by typing the following command
 - a. “screen /dev/ttyUSB0”
 - i. *Note, please use whichever USB device returned from the above “dmesg | grep FTDI” command instead of ttyUSB0
 - b. If done correctly, a new console window will open showing the streaming data from the device. See below for a picture



```
bash - "beaglebo x Immediate (Debu x /BlinkLed_Testjs x bash - "beaglebc x + x
root@beaglebone:/var/lib/cloud9# cd ..
root@beaglebone:/var/lib# cd ..
root@beaglebone:/var# cd ..
root@beaglebone:/# dmesg | grep FTDI
[ 1.273925] usb 1-1: Manufacturer: FTDI
[ 5.980496] usbserial: USB Serial support registered for FTDI USB Serial Device
[ 5.980671] ftdi_sio 1-1:1.0: FTDI USB Serial Device converter detected
[ 5.995735] usb 1-1: FTDI USB Serial Device converter now attached to ttyUSB0
root@beaglebone:/# screen /dev/ttyUSB0
```

- c.

- d.
 - i. Note: you can return to the terminal by using the keyboard command “ctrl + A + D”. You can then return to this screen output via terminal by using the command “screen -rd”