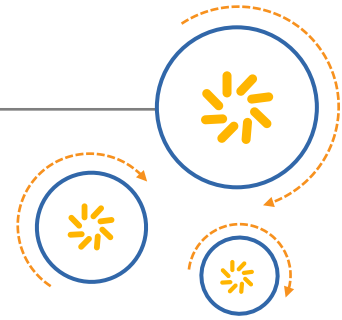




Qualcomm Technologies, Inc.



DragonBoard™ 410c based on Qualcomm® Snapdragon™ 410E processor

Connecting the UART to USB Adapter Application Note

September 2016

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Questions or comments: <https://www.96boards.org/DragonBoard410c/forum>

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LM80-P0436-24 Rev B

Revision history

Revision	Date	Description
B	September 2016	Update to 'E' part
A	August 3, 2015	Initial release

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1 Introduction

1.1 Purpose

The Console UART for the DragonBoard 410c is available on the low-speed expansion connector. The signals on this connector operate at 1.8 V signal levels and are mechanically at 2.0 mm spacing. Legacy single board computers used 3.3 V signaling and connectors with 2.54 mm spacing.

Tectona has designed a custom UART to USB adapter for use with the 96Boards compliant computers (see Appendix: Tectona UART to USB Adapter Mechanical Drawing on page 10 for a detailed mechanical drawing).



Figure 1-1 Tectona UART to USB adapter

1.2 Acronyms, abbreviations, and terms

Table 1-1 provides definitions for the acronyms, abbreviations, and terms used in this document.

Table 1-1 Acronyms, abbreviations, and terms

Term	Definition
COM	Communication
GND	Ground
OS	Operating System

Term	Definition
RxD	Receive Diversity
TTY	Transistor Transistor Logic
UART	Universal Asynchronous Receiver Transmitter
USB	Universal Serial Bus
TxD	Transmit Diversity
V	Volt

2 Connections and Installation

2.1 Electrical connections

Connect the cable as in Figure 2-1.

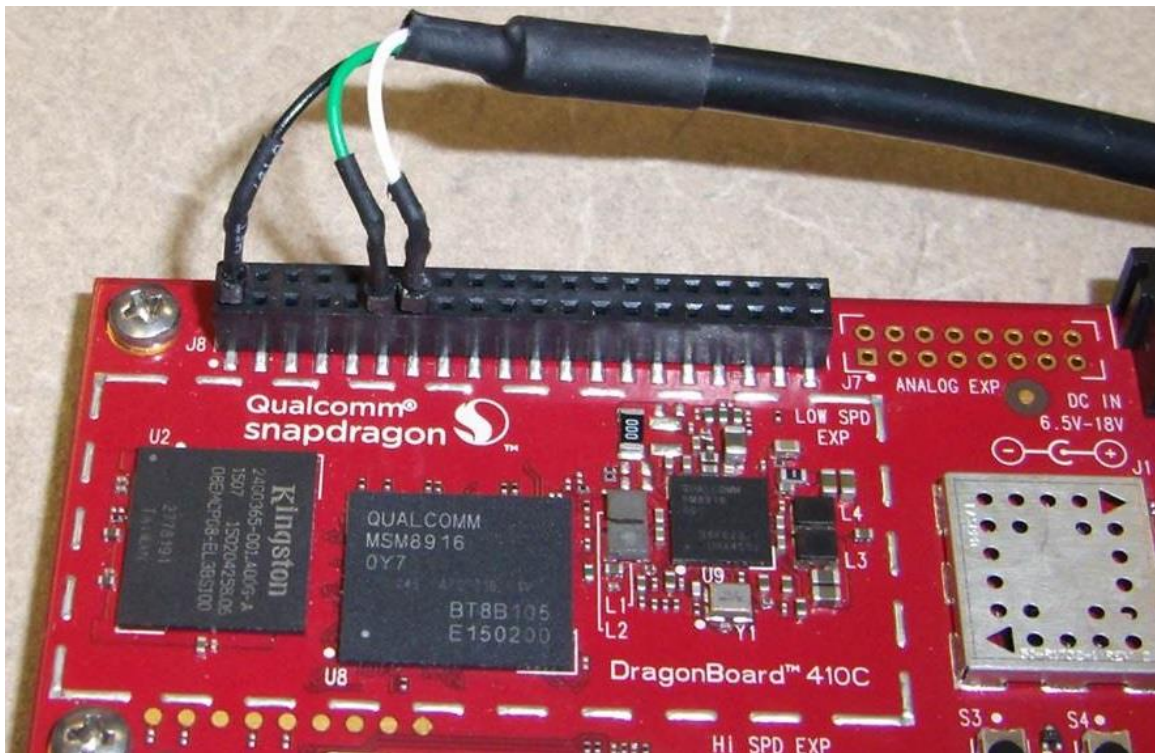


Figure 2-1 Cable connection

- Pin 1 black GND
- Pin 11 TxD -> green RxD
- Pin 13 RxD -> white TxD

The names TxD and RxD depend on your point of view (from the board or from the cable) and may be inputs or outputs. On the DragonBoard 410c pin 11 is UART_TxD and is an output. This gets connected to the green wire on the Tectona cable which is labeled RxD and is an input.

2.2 Drivers

Drivers are available at the following locations:

- Windows: http://www.prolific.com.tw/US/ShowProduct.aspx?p_id=225&pcid=41
- MAC OS X: http://www.prolific.com.tw/US/ShowProduct.aspx?p_id=229&pcid=41
- Android: http://www.prolific.com.tw/US/ShowProduct.aspx?p_id=230&pcid=41

2.3 Installing the software

1. Plug the Prolific adapter into a USB port on a laptop or computer. The software should auto install.
2. Click **Start** -> **Control Panel** -> **Device Manager** -> **Ports (COM and LPT)**.
3. Determine which COM port number has been assigned to the Prolific adapter (COM39 in this example).

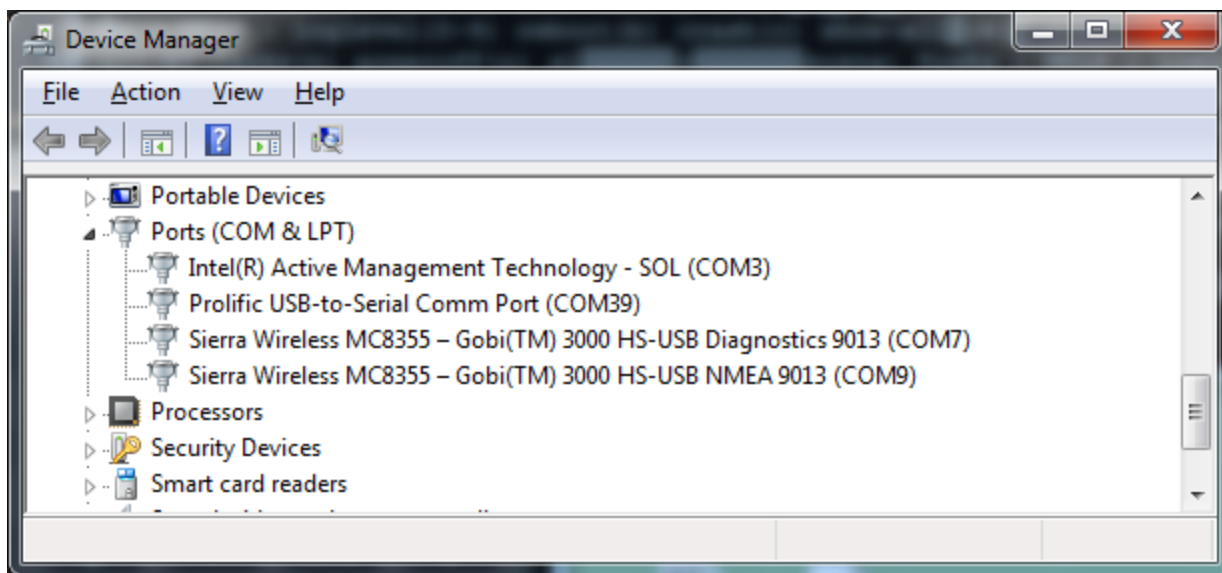


Figure 2-2 Prolific adapter COM port

4. Install PuTTY from <http://www.putty.org/>.
There are many other terminal emulator programs that will work, PuTTY is just one example.
5. Start PuTTY and set up the COM port.

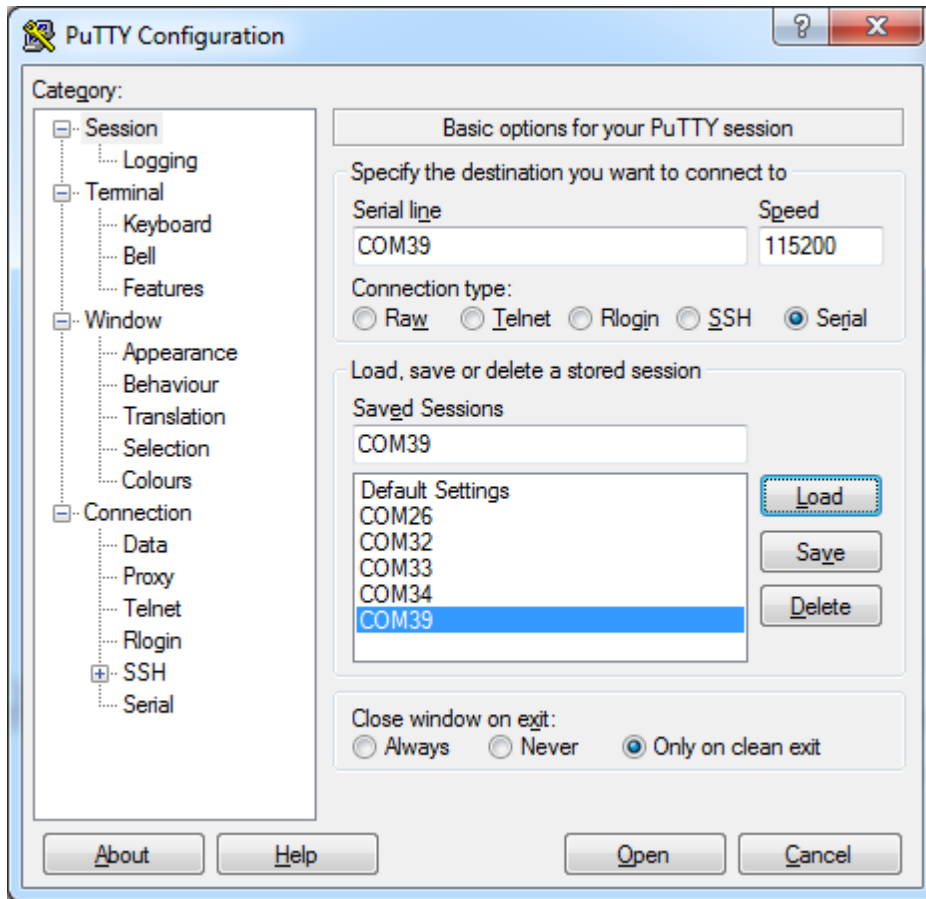
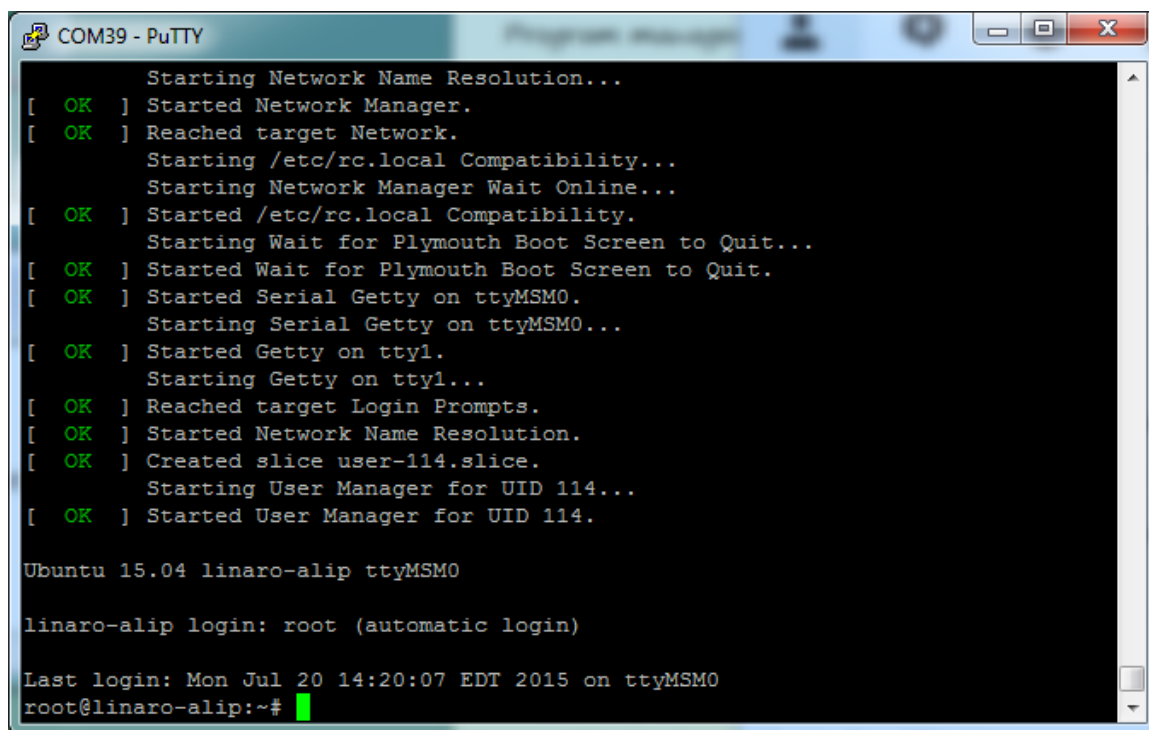


Figure 2-3 PuTTY COM port setup

6. Open the port and check for console messages when booting the board.



```
COM39 - PuTTY
Starting Network Name Resolution...
[ OK ] Started Network Manager.
[ OK ] Reached target Network.
Starting /etc/rc.local Compatibility...
Starting Network Manager Wait Online...
[ OK ] Started /etc/rc.local Compatibility.
Starting Wait for Plymouth Boot Screen to Quit...
[ OK ] Started Wait for Plymouth Boot Screen to Quit.
[ OK ] Started Serial Getty on ttyMSM0.
Starting Serial Getty on ttyMSM0...
[ OK ] Started Getty on tty1.
Starting Getty on tty1...
[ OK ] Reached target Login Prompts.
[ OK ] Started Network Name Resolution.
[ OK ] Created slice user-114.slice.
Starting User Manager for UID 114...
[ OK ] Started User Manager for UID 114.

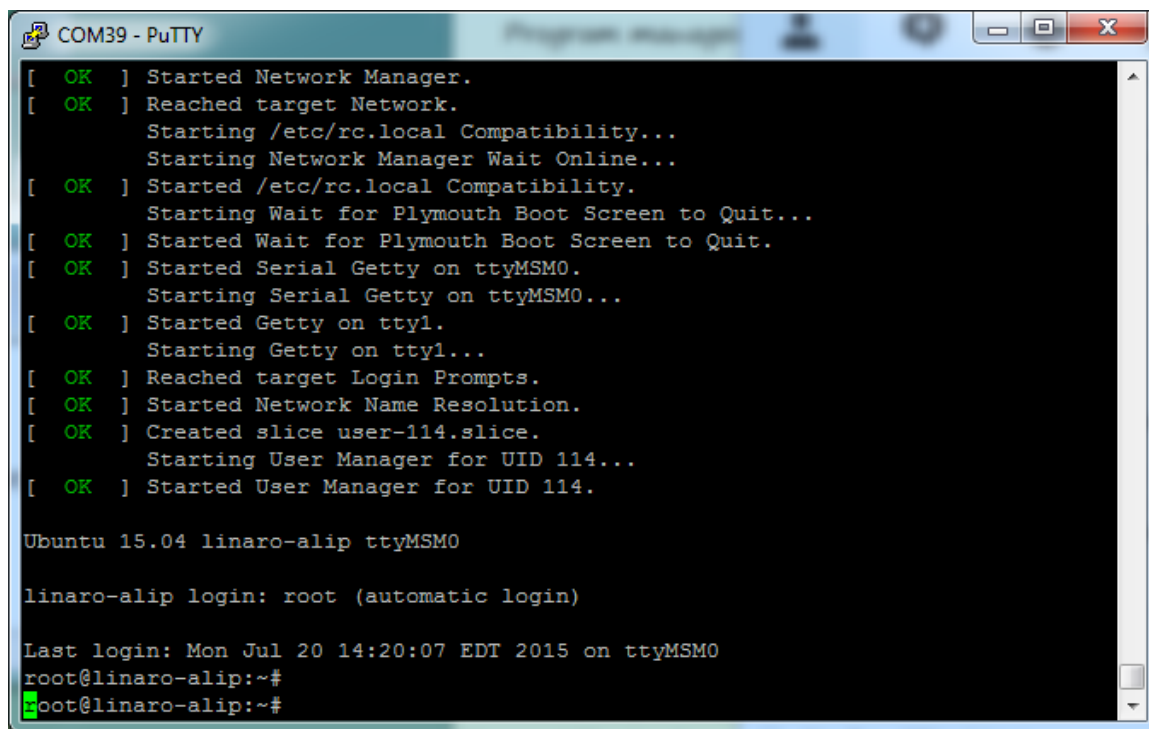
Ubuntu 15.04 linaro-alip ttyMSM0

linaro-alip login: root (automatic login)

Last login: Mon Jul 20 14:20:07 EDT 2015 on ttyMSM0
root@linaro-alip:~#
```

Figure 2-4 Check console messages

7. Press **Enter** and see that a new prompt is generated.



```
COM39 - PuTTY
[ OK ] Started Network Manager.
[ OK ] Reached target Network.
Starting /etc/rc.local Compatibility...
Starting Network Manager Wait Online...
[ OK ] Started /etc/rc.local Compatibility.
Starting Wait for Plymouth Boot Screen to Quit...
[ OK ] Started Wait for Plymouth Boot Screen to Quit.
[ OK ] Started Serial Getty on ttyMSM0.
Starting Serial Getty on ttyMSM0...
[ OK ] Started Getty on tty1.
Starting Getty on tty1...
[ OK ] Reached target Login Prompts.
[ OK ] Started Network Name Resolution.
[ OK ] Created slice user-114.slice.
Starting User Manager for UID 114...
[ OK ] Started User Manager for UID 114.

Ubuntu 15.04 linaro-alip ttyMSM0

linaro-alip login: root (automatic login)

Last login: Mon Jul 20 14:20:07 EDT 2015 on ttyMSM0
root@linaro-alip:~#
root@linaro-alip:~#
```

Figure 2-5 New prompt

A Appendix: Tectona UART to USB Adapter Mechanical Drawing

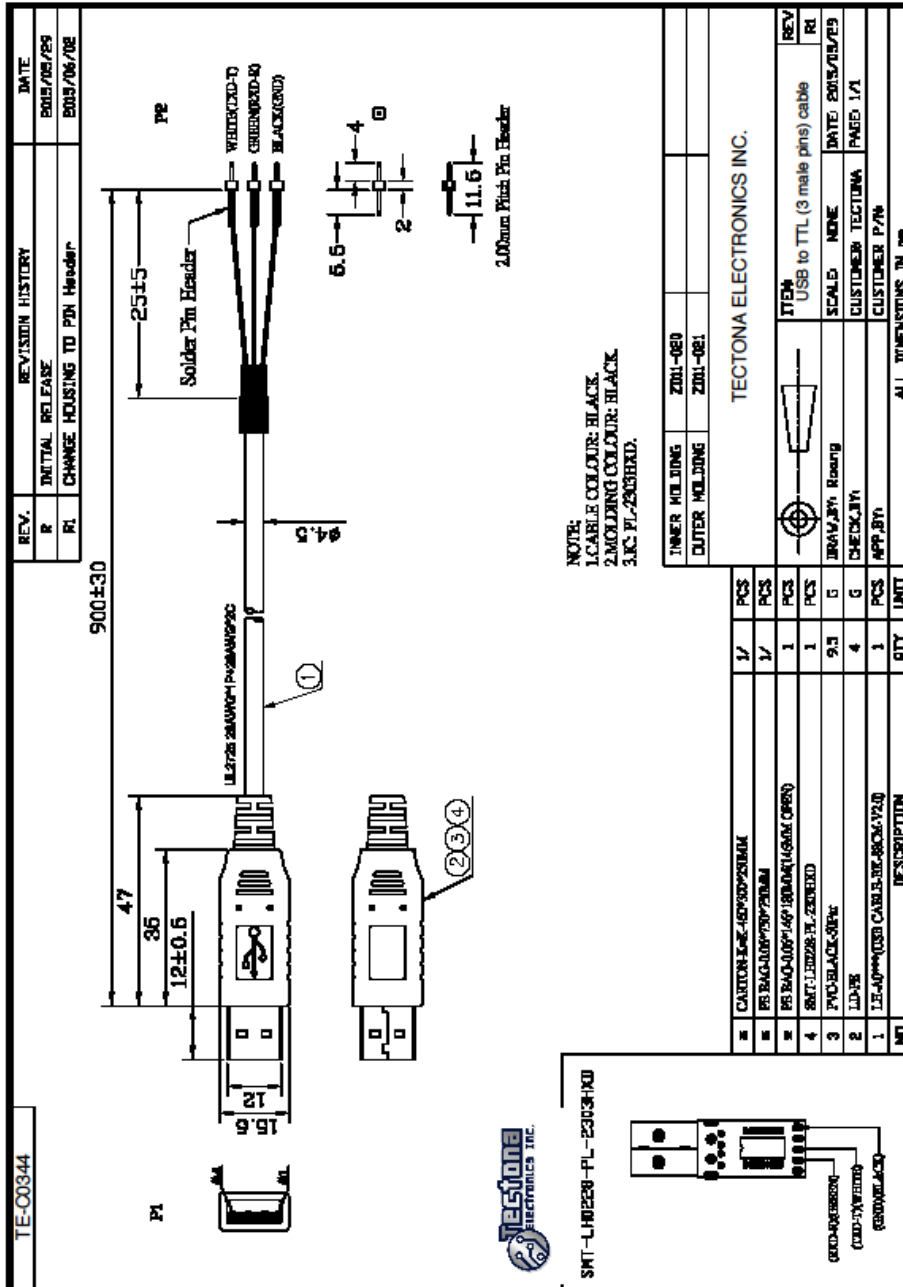


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