Beaglebone Black Quick Start Guide

Setup requirements

- Beagle Bone Black Kit (BBB+USB Cable)
- USB2TTL Cable
- 4GB or more uSD
- uSD Reader
- Linux Machine (Preferred) or VM with Ubuntu 18.04 or higher

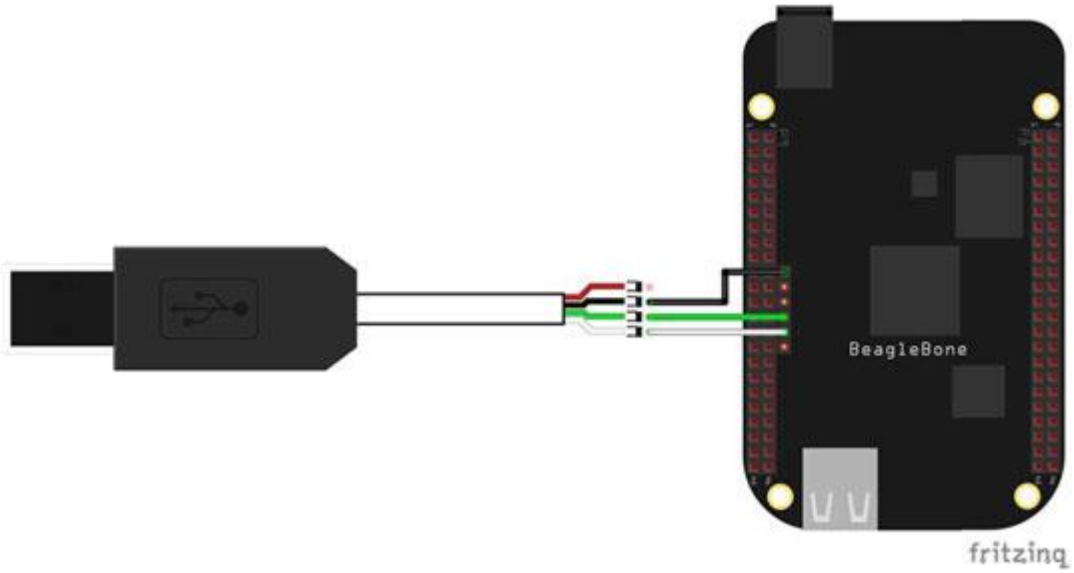
Default Bootup Setup (One time)

Connect USB2TTL cable

Connect USB2TTL cable to BBB and System as per below steps - Do not power BBB

1. Connect the USB side of the TTL cable to your computer.
2. Connect the wires to the J1 headers on your BeagleBone Black as shown:

    - Black wire to Pin 1
    - Green wire to Pin 4
    - White wire to Pin 5



Getting the serial console messages

On Linux system (install the minicom package if not already there):

- sudo minicom -s and do the setup for baud 115200 bits 8n1 hw & sw flow control off
- sudo minicom -o
- Power on BBB to boot into Linux
- Login into BBB as root
- uname -r # Verify your original kernel version
    - df -h /boot/uboot | tail -1 | awk '{print $6}' # Determine / or /boot/uboot
    - poweroff

Setting up the Ethernet access

On the Linux system, set the ip address of the USB ethernet interface to 192.168.7.3

Installing toolchain & required packages

Follow the below steps:

```
$ cd
$ mkdir LKI
$ cd LKI
$ tar -xvf bbb-builds.tgz (bbb-builds.tgz is shared as a part of package)
$ cd bbb-builds
```

Steps to setup the toolchain (from the bbb-builds folder):

```
    $ make install_toolchain
```

Then, logout and login back for its PATH activation.

Steps to install additional libraries (from the bbb-builds folder):

```
    $ make install_libs
```

Setting up the Beaglebone Black

On Linux system (inside the bbb-builds folder):

```
  $ make generate_prepare_usd
  $ cd Utils
  $ Connect uSD w/ Linux System
  $ /prepare_usd [-d] <usd_device_file> # -d for raw dump of MLO & u-boot.img
```

Insert uSD into BBB and boot BBB w/ uSD

- Login into BBB as root
- Check for "4.19" or latest kernel using uname -r

Building the Kernel for BBB

```
$ cd bb-builds/OS
$ wget https://mirrors.edge.kernel.org/pub/linux/kernel/v4.x/linux-4.19.103.tar.gz
$ tar -xvf linux-4.19.103.tar.gz
$ cd linux-4.19.103/
$ cp bbb-builds/OS/Configs/config.4.19.103.default .config
Add following in Makefile
  - CROSS_COMPILE=arm-linux-gnueabihf-
  - ARCH=arm
$ make zImage
$ mount /dev/mmcblk0p1 /mnt (On board)
$ scp arch/arm/boot/zImage root@<board_ip>:/mnt/
$ reboot (On board)
```