

Enable BDE-BW3301NP1 with AM335x

1. Description

This guide describes how to enable the BDE-BW3301NP1 module with TI's microprocessor AM335x.

2. Get Ready

2.1. Software and Tools

- Ubuntu 18.04
- [Processor SDK Linux for AM335x](#)
- [SD card image](#)
- [balenaEtcher](#)
- cc33xx-linux-package (Need to gain access from BDE or TI)

2.2. Hardware

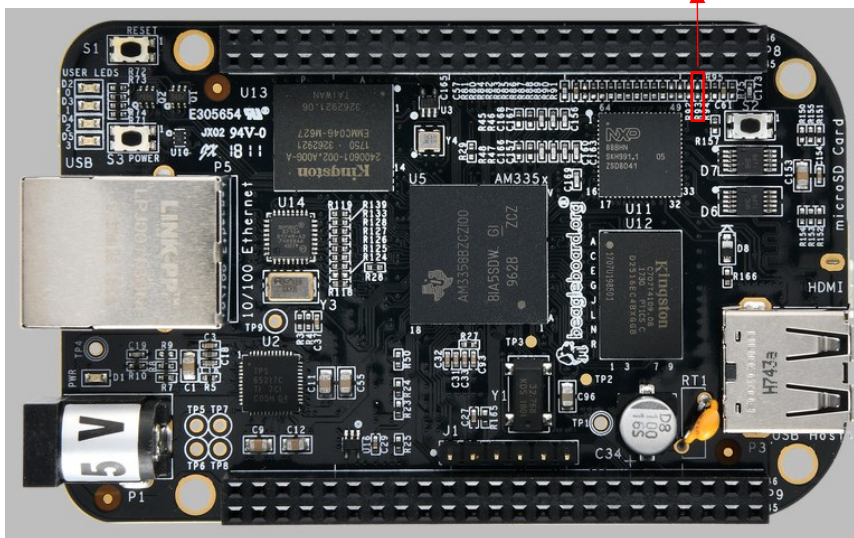
- [BDE-BW3301NP1](#) module
- BDE-EVM-3301NP1 (Evaluation module for BDE-BW3301NP1)
- BDE-ADP-BBB (Adaptor board for BeagleBone® Black to BDE-EVM-3301NP1)
- [BeagleBone® Black](#)
- Micro-SD card (16GB or larger)
- 5V 3A power supply for BeagleBone® Black
- FTDI or other USB to Serial Converter for BeagleBone® Black console logs

2.3. Rework

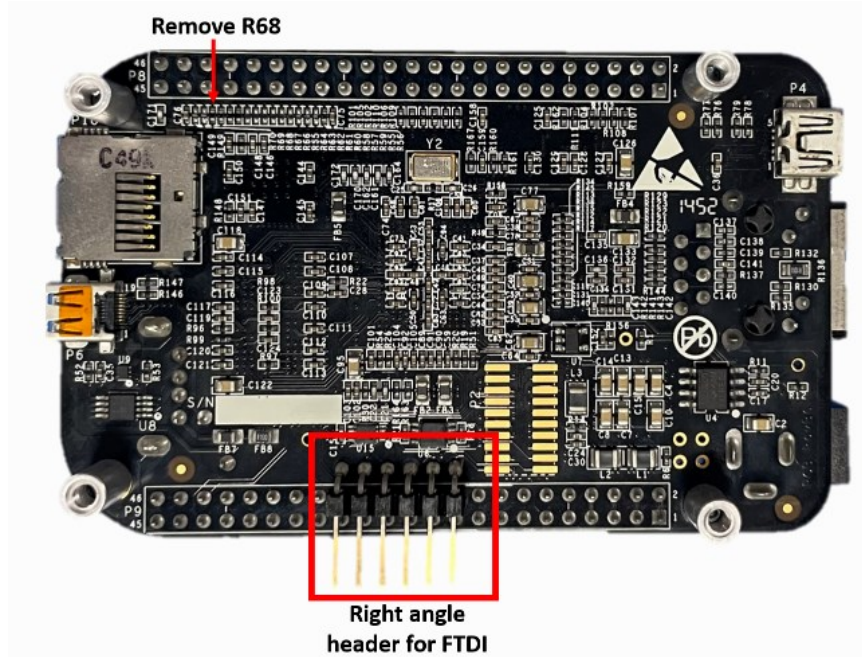
Rework is required to the BeagleBone® Black board to work with BDE-EVM-3301NP1.

- Place a 100K ohm to R93;

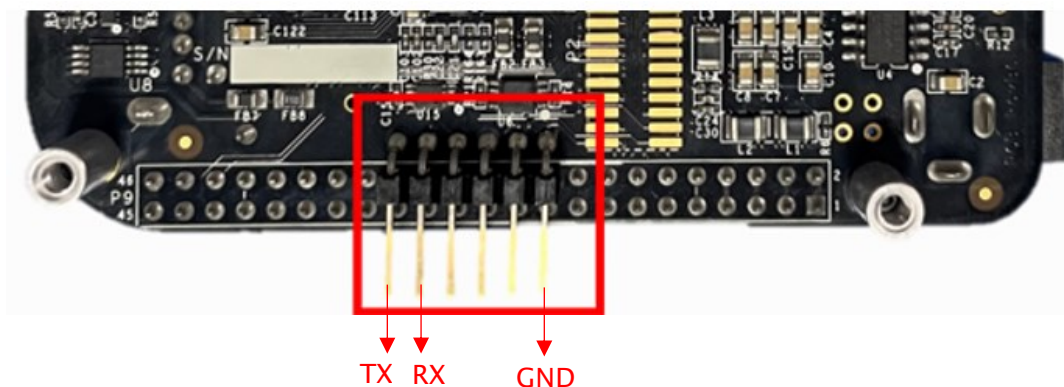
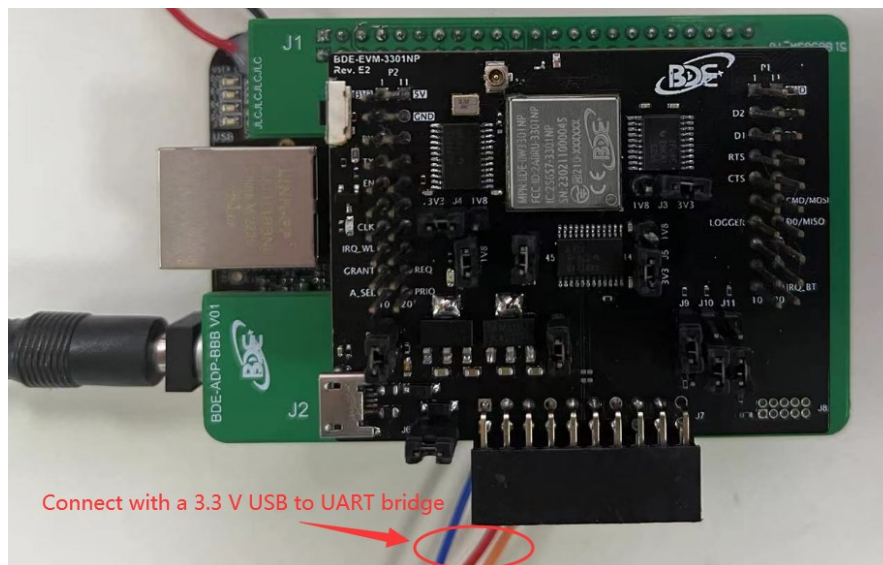
Place a 100K ohm to R93



- Remove R68 and add a header for UART communication with FTDI or other USB to UART Bridge.



2.4. Hardware Set Up



3. Steps

TI provides a Linux Installer allowing a user to re-build and install the CC33xx Linux drivers, firmware and related binaries. This installer is used in conjunction with TI AM335 Processor SDK.

Follow below steps to bring up the hardware.

3.1. Install the processor SDK Linux for AM335x

Install the ti-processor-sdk-linux-am335x-evm-08.02.00.24-Linux-x86-Install.bin from:
<https://www.ti.com/tool/download/PROCESSOR-SDK-LINUX-AM335X/08.02.00.24>

3.2. Run the CC33xx Linux Installer (Need to request access to this installer from BDE or TI)

Make sure you have execution permission for the file. Install the contents at the processor SDK root folder (i.e. where the Processor SDK is installed).

- Execute the following commands:

```
- $ ./cc33xx-linux-package-R1.3.2-linux-x64-installer.run
```

3.3. Apply the kernel patches, build the kernel and then install the binaries

- Execute the following commands:

```
- $ cd <processor SDK root folder>/cc33xx
- $ ./build_cc33xx.sh patch_kernel
- $ ./build_cc33xx.sh build_kernel
- $ ./build_cc33xx.sh install_kernel
```

3.4. Create SD Card

Flash the micro SD card (minimum 16GB) with pre-built default processor SDK binaries. Run the create-sdcard.sh script, and it will format the SD card, flash the binaries and unmount the card. For full steps and information, read section 1.1.2.4 of [Linux SD Card Creation Guide](#).

- Execute the following commands:

```
- $ cd <PATH>/ti-processor-sdk-linux-am335x-evm-<version>/bin/
- $ sudo ./create-sdcard.sh
```

3.5. Copy the rootfs to the SD Card

Un-plug and re-plug micro SD card. Mount rootfs/ partition of the SD card, then copy and paste rootfs/ binaries with contents of cc33xx/cc33xx_rootfs.

➤ Execute the following commands:

- \$ cd <processor SDK root folder>/cc33xx
- \$ sudo cp -r cc33xx_rootfs/* /media/<user>/rootfs/
- \$ sync

3.6. Power Up and Boot

Plug SD card into the BeagleBone Black and power on the BeagleBone Black. By now, you should have successfully enabled the module on BeagleBone Black.

```
root@am335x-evm:~# ifconfig
eth0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500 metric 1
    ether f4:b8:98:7a:9d:43 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536 metric 1
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 82 bytes 6220 (6.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 82 bytes 6220 (6.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500 metric 1
    ether f0:f8:f2:2f:12:b4 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

4. Revision History

Revision	Date	Description
V0.1	24-July-2023	Preliminary version, draft
V0.2	7-Aug-2023	Modified commands in Section 3.4

You can find the latest documentations with this [Link](#).

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Contact

BDE Technology Inc.

USA: 67 E Madison St, # 1603A, Chicago, IL 60603, US

Tel: +1-312-379-9589

Website: <http://www.bdecomm.com> Email: info@bdecomm.com

China: B2-403, 162 Science Avenue, Huangpu District, Guangzhou 510663, China

Tel: +86-20-28065335

Website: <http://www.bdecomm.com> Email: shu@bdecomm.com