



BB-Config



Table of contents

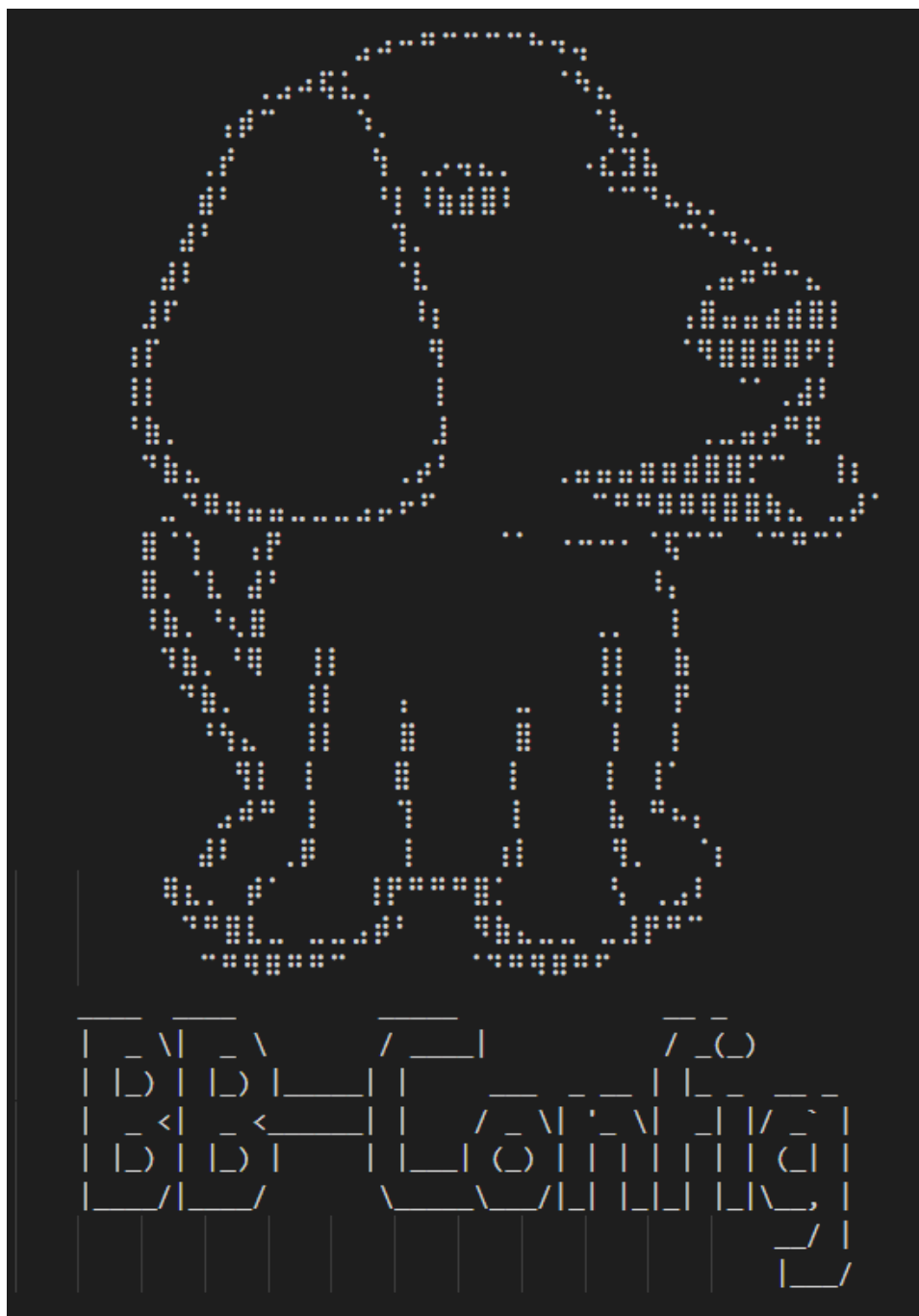
1 BB-Config Detail	1
1.1 What is BB-Config	2
2 Build from Source	5
2.1 Dependencies	5
2.2 Build	5
2.3 Install	5
3 Features	7
3.1 BB-Config v1.x	7
3.1.1 PRU Enable/Disable	7
3.1.2 GPIO	7
3.1.3 EMMC and MicroSD Stats	8
3.1.4 LEDs	9
3.1.5 Password	9
3.1.6 SSH	10
3.1.7 WiFi	10
3.1.8 Internet Sharing and Client Config	11
3.1.9 About	12
3.2 BB-Config v2.x	12
3.2.1 ADC (Graph)	12
3.2.2 DAC (PWM)	13
3.2.3 uEnv	13
3.2.4 services	14
3.2.5 PINMUX	14
3.2.6 Overlay (dts)	16
3.2.7 WiFi (D-Bus)	16
4 Version	19
4.1 GSOC@21 BB-Config v1.x	19
4.2 GSOC@22 BB-Config v2.x	19

Chapter 1

BB-Config Detail

Configure your beagle devices easily.

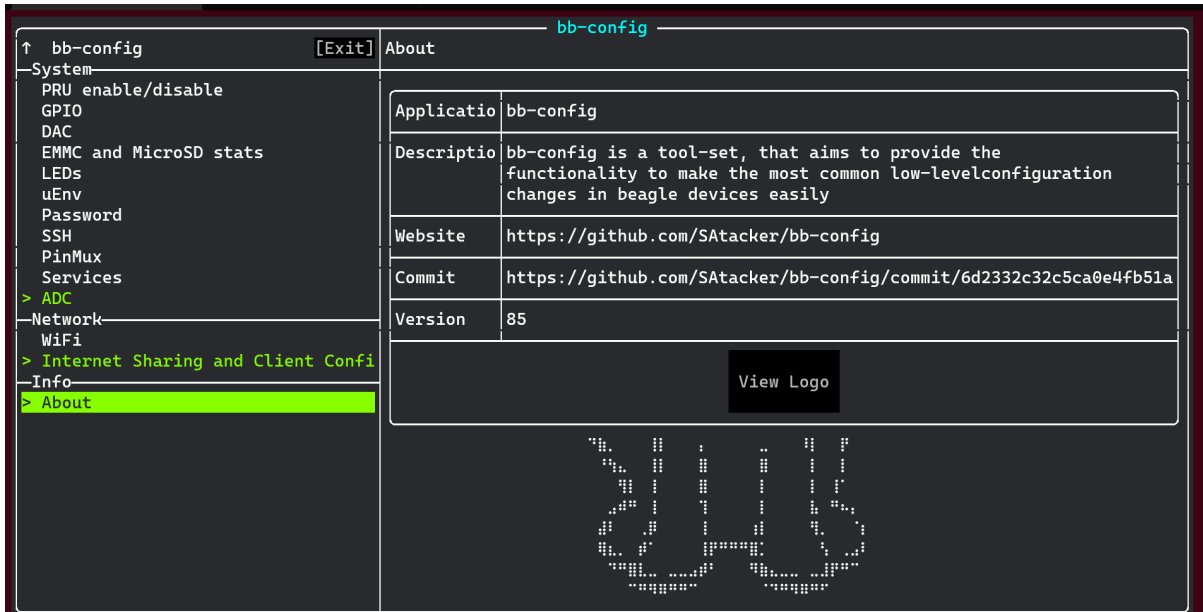
[Github](#)



1.1 What is BB-Config

BB-Config is software that makes the most common low-level configuration changes of beagle devices easily and provides a terminal UI.

BB-Config is using [FTXUI](#) (C++ Functional Terminal User Interface) which provides a simple and elegant looking UI.



Chapter 2

Build from Source

2.1 Dependencies

- g++
- cmake
- glib-2.0
- libnm

2.2 Build

```
git clone https://git.beagleboard.org/gsoc/bb-config
cd bb-config
mkdir build
cd build
cmake ..
make -j$(nproc)
```

2.3 Install

```
sudo make install
```

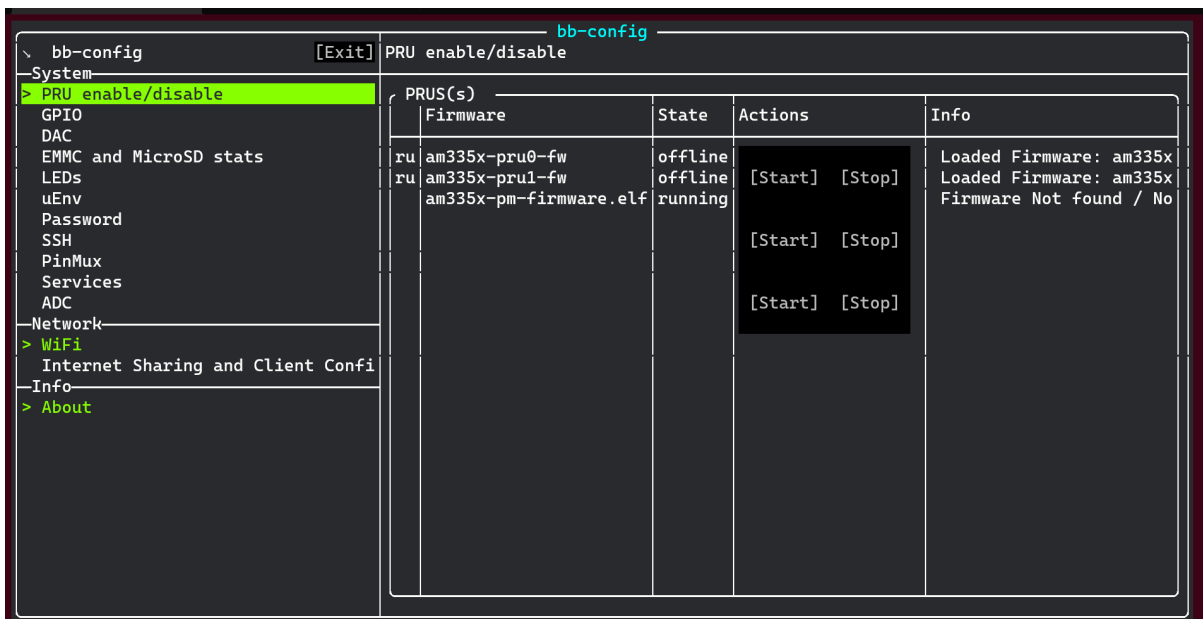

Chapter 3

Features

3.1 BB-Config v1.x

3.1.1 PRU Enable/Disable

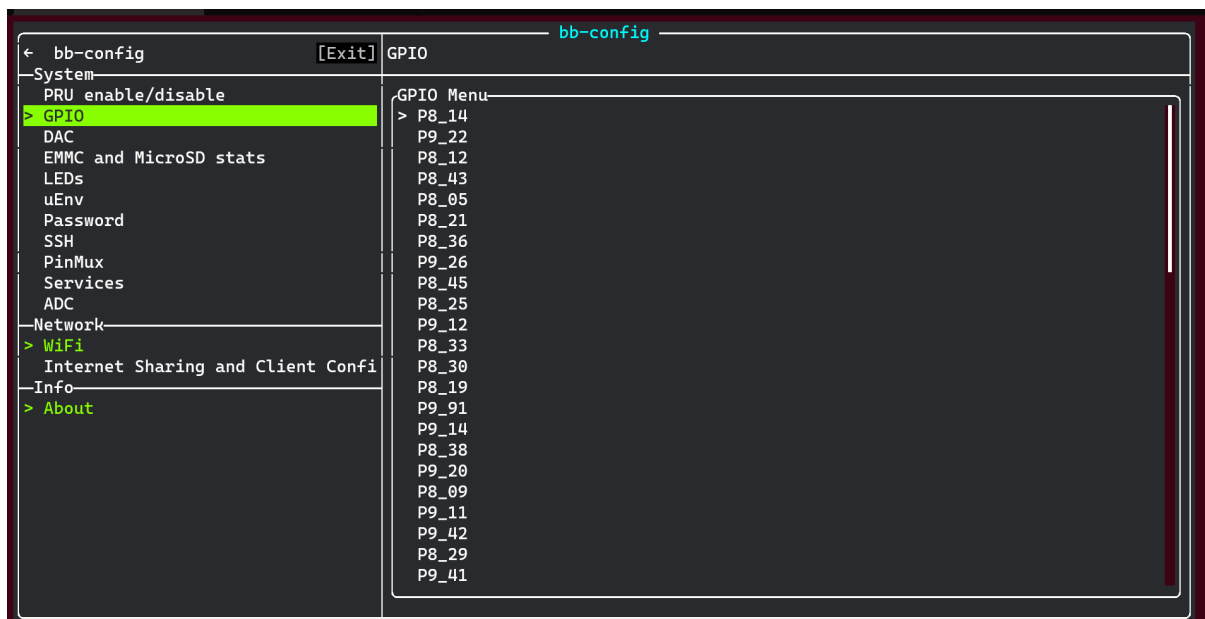
- Enable/Disable PRU



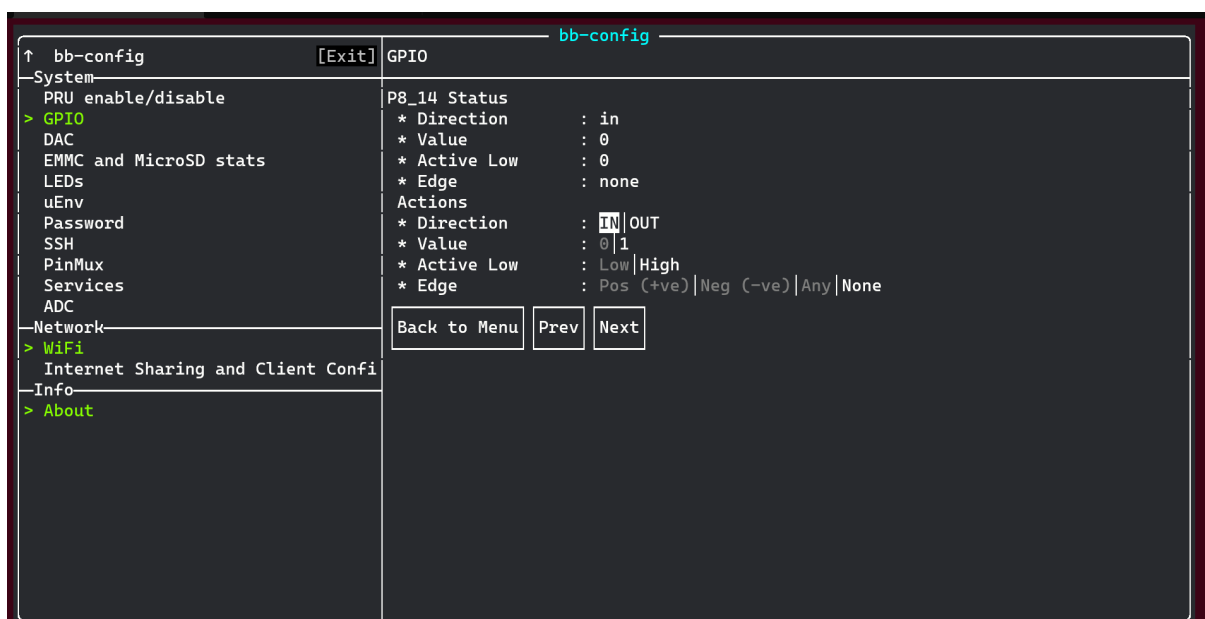
3.1.2 GPIO

- Turn On/Off gpio

GPIO Menu

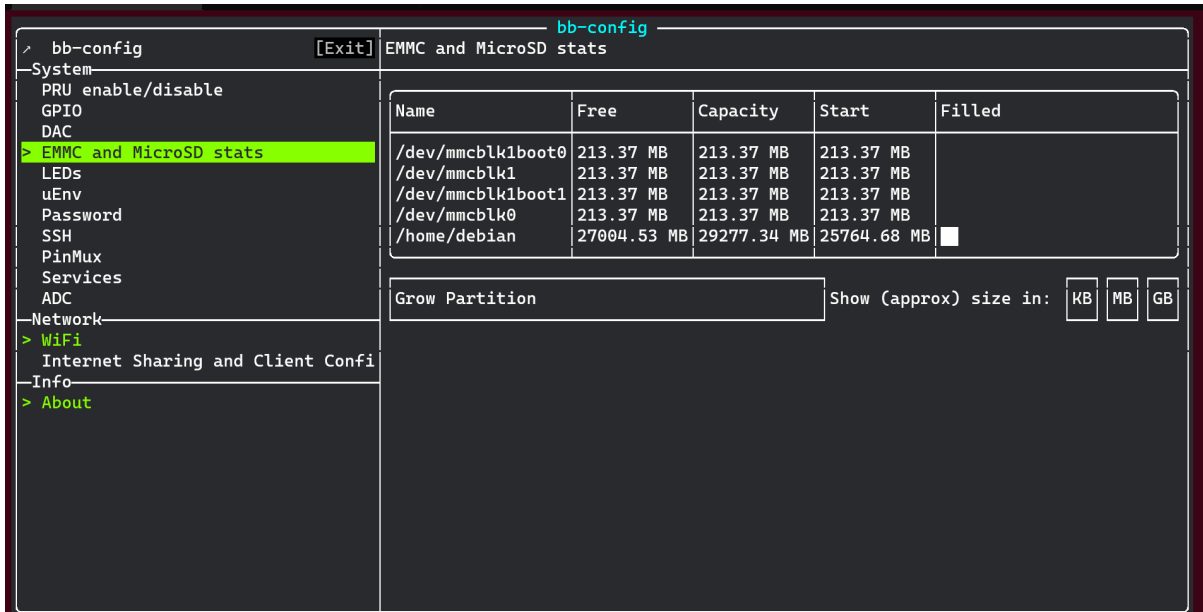


GPIO Setting



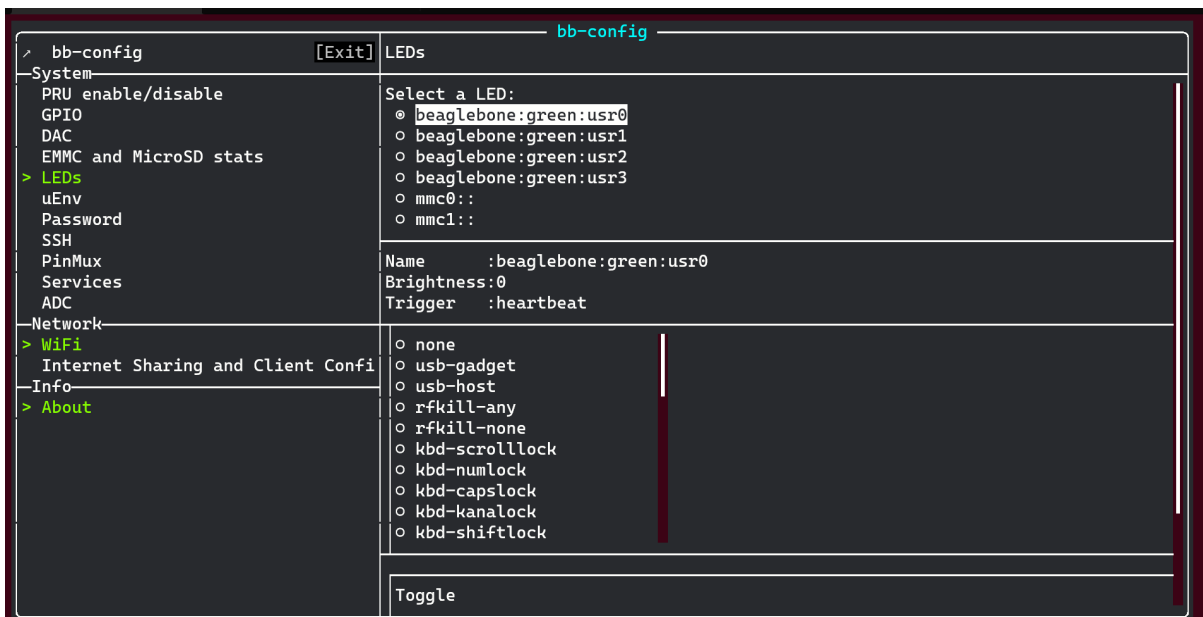
3.1.3 EMMC and MicroSD Stats

- Storage stats & grow partition



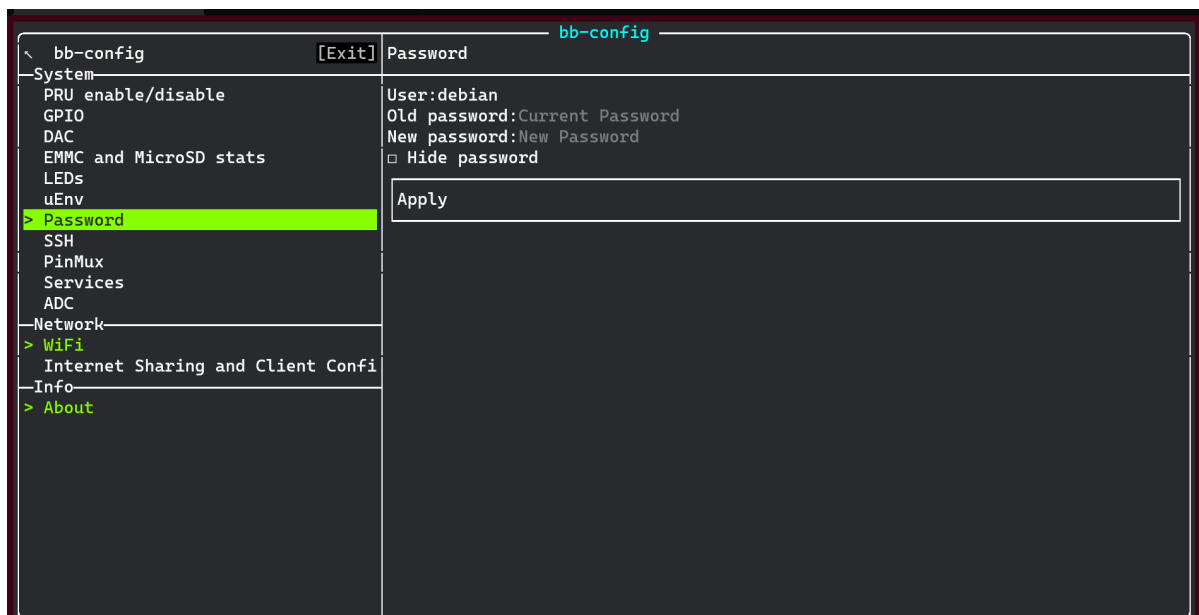
3.1.4 LEDs

- Config board build in LEDs



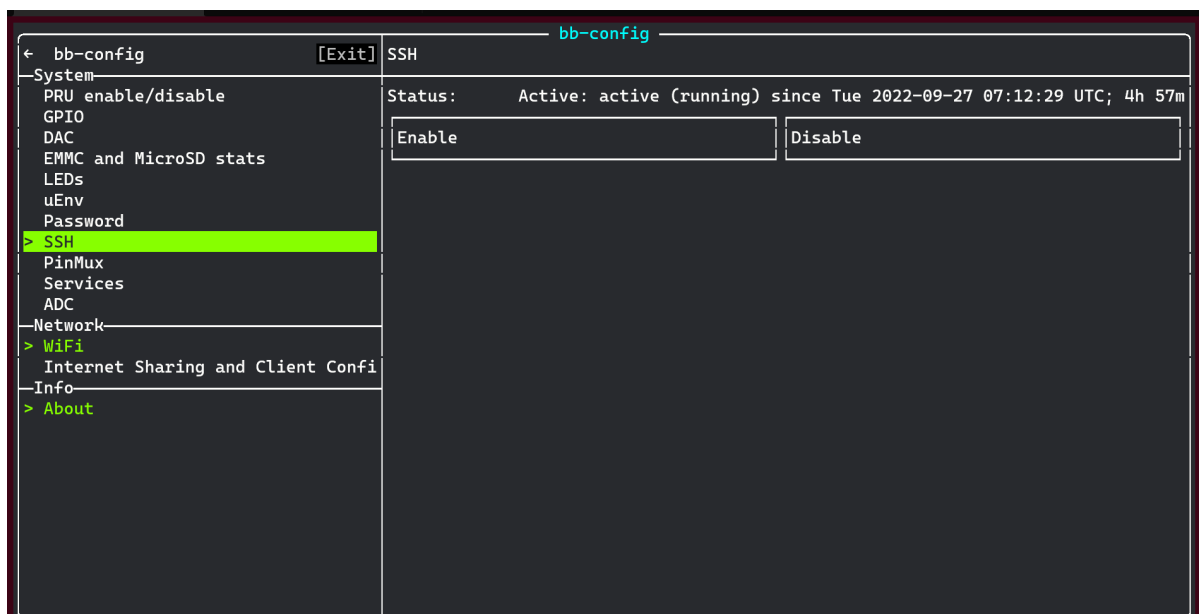
3.1.5 Password

- Change users password



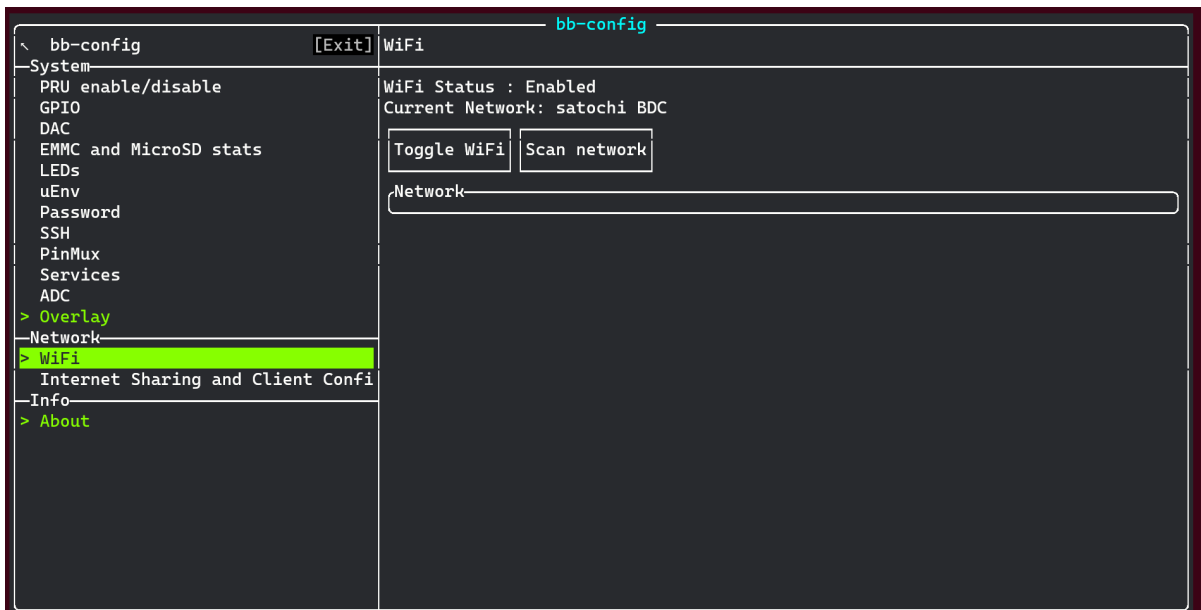
3.1.6 SSH

- Enable/Disable SSH

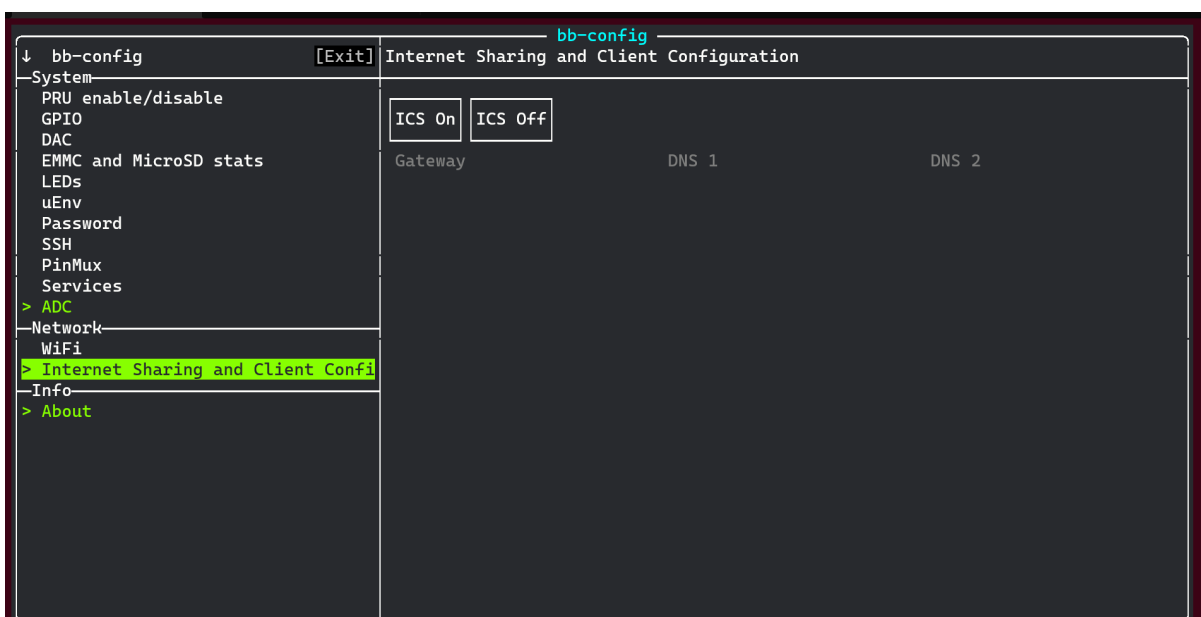


3.1.7 WiFi

- Connect to Wi-Fi



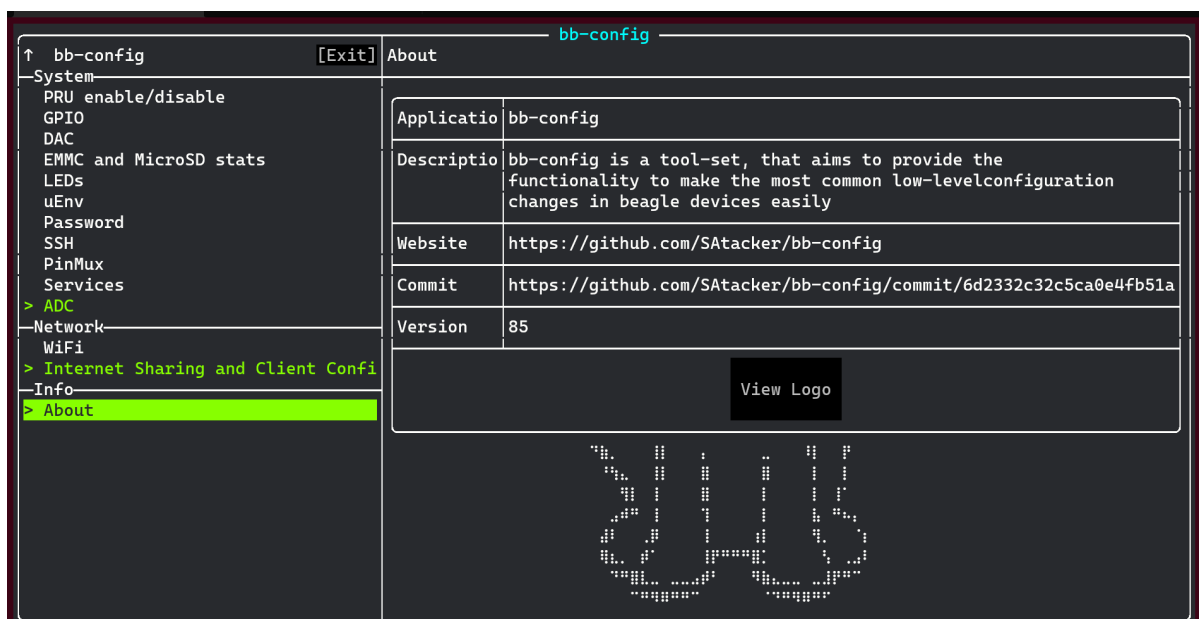
3.1.8 Internet Sharing and Client Config



- Note: You'll have to configure your host Following is an example script:

```
echo 1 > /proc/sys/net/ipv4/ip_forward
iptables --table nat --append POSTROUTING --out-interface wlp4s0 -j MASQUERADE
iptables --append FORWARD --in-interface wlp4s0 -j ACCEPT
```

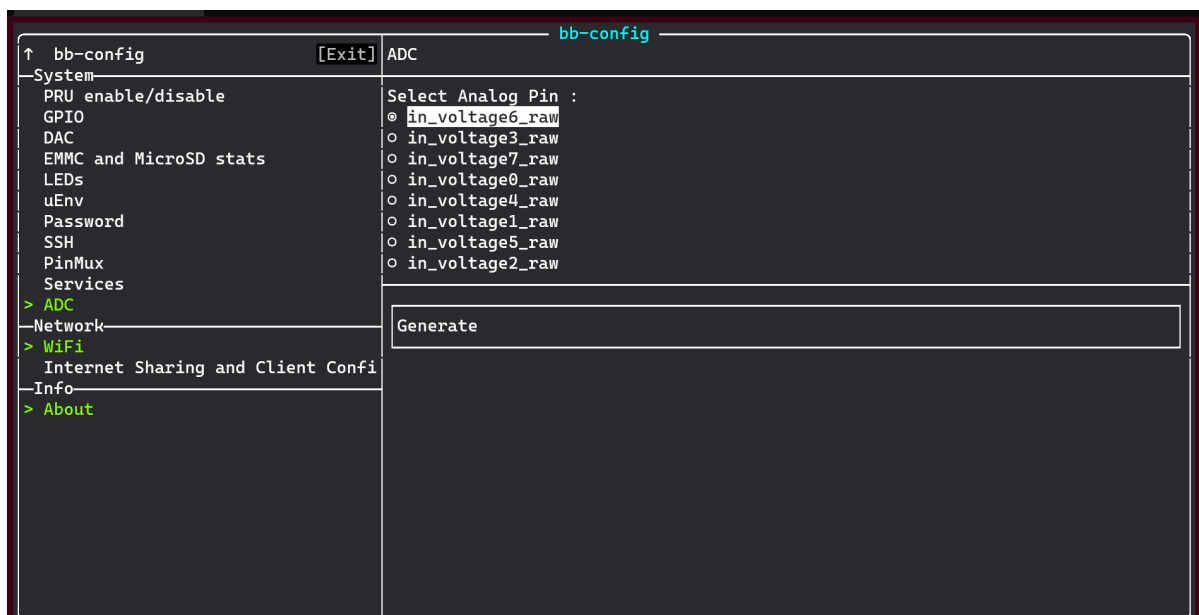
3.1.9 About

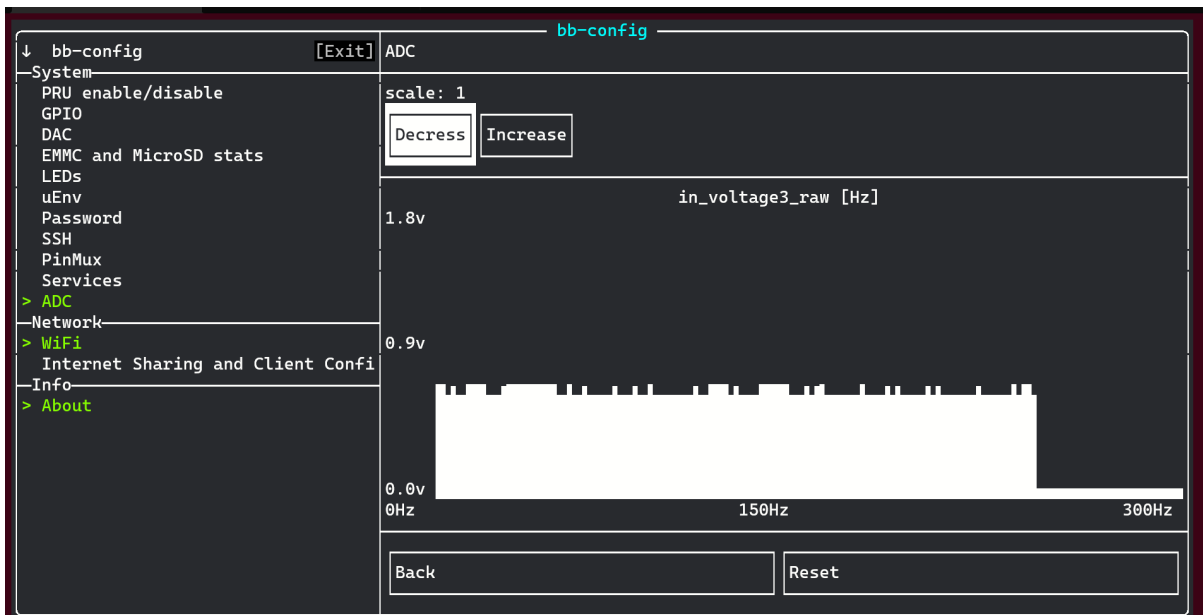


3.2 BB-Config v2.x

3.2.1 ADC (Graph)

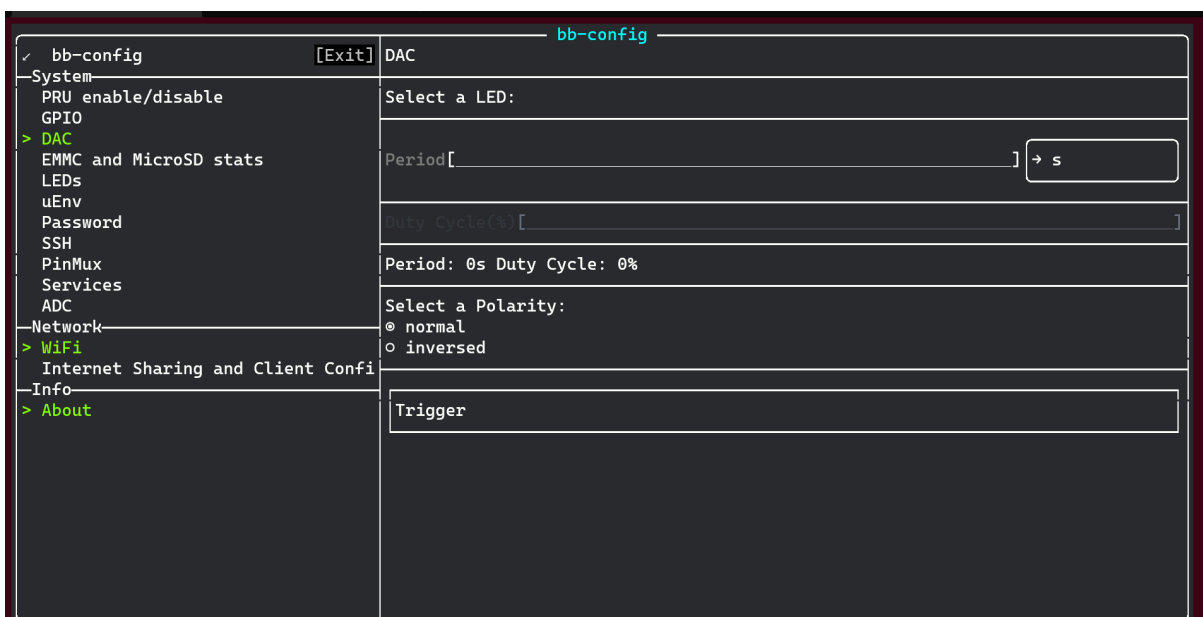
- Plot graph for Analogue pin





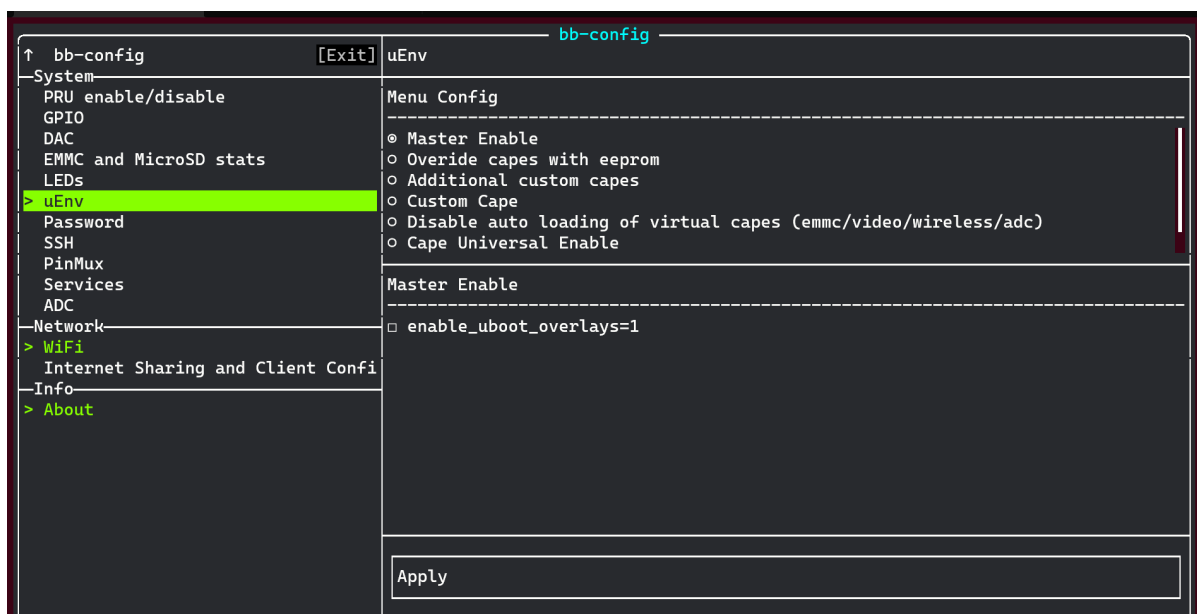
3.2.2 DAC (PWM)

- Generate PWM waveform



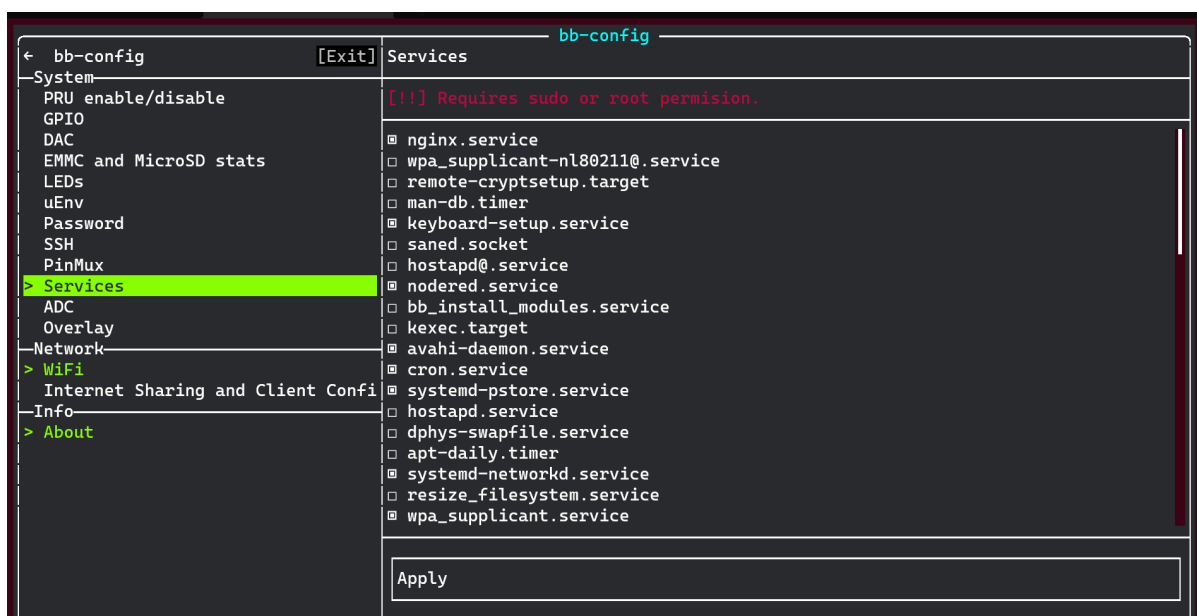
3.2.3 uEnv

- Enable/Disable boot configuration



3.2.4 services

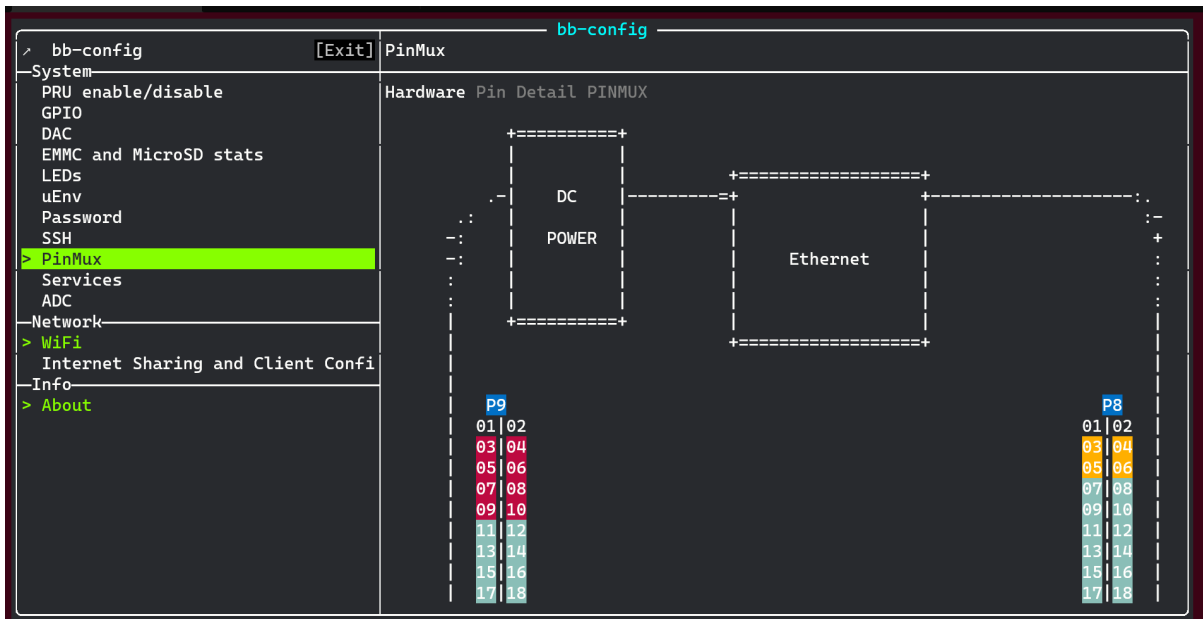
- Enable/Disable services startup at boot



3.2.5 PINMUX

- Display PIN I/O detail
- Config PINMUX

Hardware Display

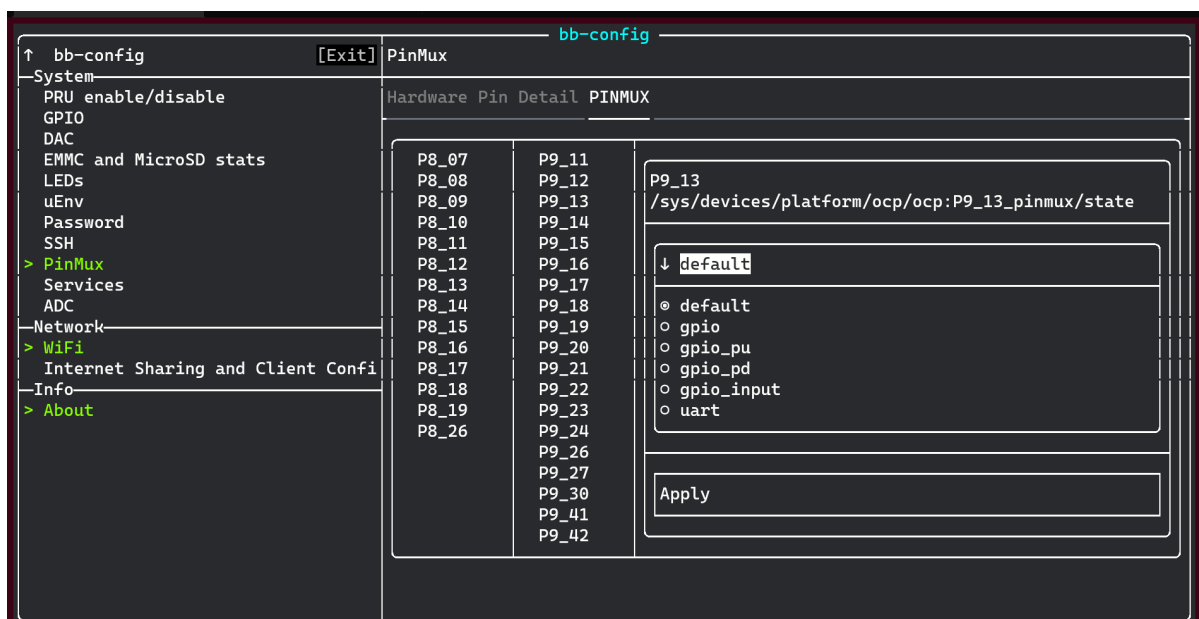


Pin Table References

The screenshot shows the 'bb-config' interface with the 'PinMux' menu selected. The left sidebar is the same as in the previous image. The main display area shows 'Hardware Pin Detail PINMUX' with a detailed pin table. The table has columns for pin numbers (1-44) and functions (gnd, emmc, gpio, hdmi, power, system, i2c, audio, adc). The content of the table is as follows:

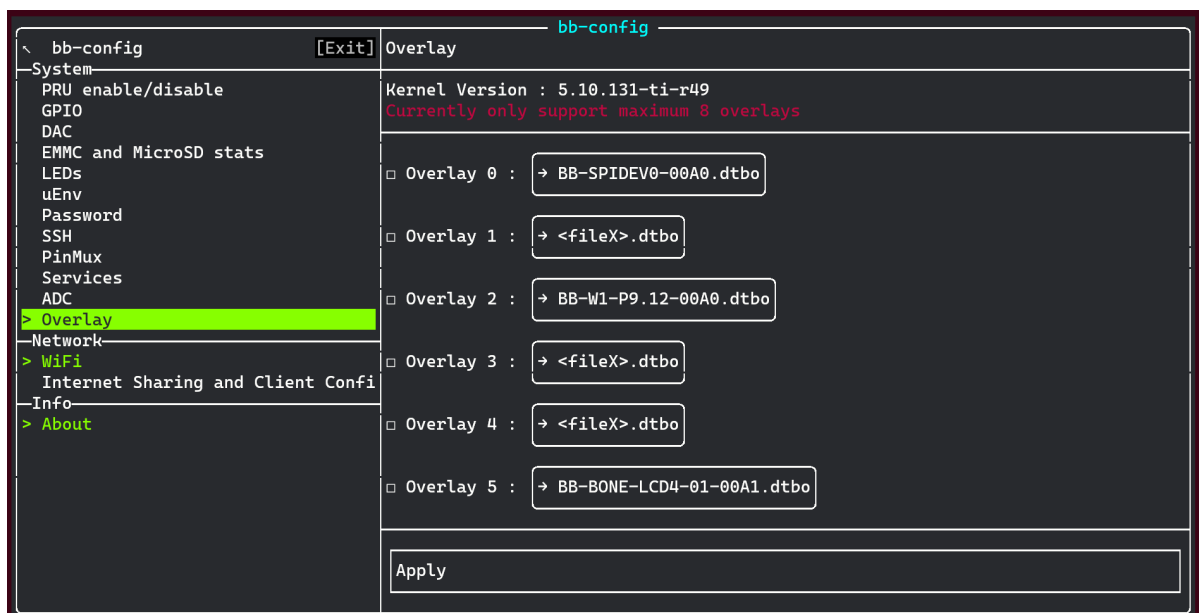
Pin	Function	Pin	Function	Content	Pin	Function	Pin	Function
1	gnd	2	gnd	Content : P8_01 Name : gnd	1	gnd	2	gnd
3	emmc	4	emmc		3	power	4	power
5	emmc	6	emmc	5	power	6	power	
7	gpio	8	gpio	7	power	8	power	
9	gpio	10	gpio	9	system	10	system	
11	gpio	12	gpio	11	gpio	12	gpio	
13	gpio	14	gpio	13	gpio	14	gpio	
15	gpio	16	gpio	15	gpio	16	gpio	
17	gpio	18	gpio	17	gpio	18	gpio	
19	gpio	20	emmc	19	i2c	20	i2c	
21	emmc	22	emmc	21	gpio	22	gpio	
23	emmc	24	emmc	23	gpio	24	gpio	
25	emmc	26	gpio	25	audio	26	gpio	
27	hdmi	28	hdmi	27	gpio	28	audio	
29	hdmi	30	hdmi	29	audio	30	gpio	
31	hdmi	32	hdmi	31	audio	32	power	
33	hdmi	34	hdmi	33	adc	34	gnd	
35	hdmi	36	hdmi	35	adc	36	adc	
37	hdmi	38	hdmi	37	adc	38	adc	
39	hdmi	40	hdmi	39	adc	40	adc	
41	hdmi	42	hdmi	41	gpio	42	gpio	
43	hdmi	44	hdmi	43	gnd	44	gnd	

Pin Config



3.2.6 Overlay (dts)

- Enable/Disable Device Tree Overlay in Boot option
- Select dtbo file and automate update in uEnv.txt



3.2.7 WiFi (D-Bus)

- Connect to WiFi with wpa_supplicant
- Support for Debian 11



Chapter 4

Version

4.1 GSOC@21 BB-Config v1.x

- Name: Shreyas Atre
- Mentors: Arthur Sonzogni, Abhishek Kumar, Deepak Khatri.
- Organization: BeagleBoard.org
- Code: <https://github.com/SAtacker/beagle-config>
- Project Page: <https://summerofcode.withgoogle.com/projects/#6718016412188672>
- Progress Log: <https://satacker.github.io/gsoc-log/>
- Kanban: <https://github.com/SAtacker/beagle-config/projects/1>
- Initial Video: <https://youtu.be/vFUWCzqE6xl>

4.2 GSOC@22 BB-Config v2.x

- Name: Seak Jian De
- Mentors: Shreyas Atre, Vedant Paranjape, Vaishnav Achath.
- Organization: BeagleBoard.org
- Code: <https://git.beagleboard.org/gsoc/bb-config>
- Project Page: <https://summerofcode.withgoogle.com/programs/2022/projects/2DbiYPIY>
- Progress Log: <https://forum.beagleboard.org/t/weekly-progress-report-bb-config-improvements-gpio-benchmark/32357/2>
- Initial Video: https://youtu.be/V_Euk5uWY1o