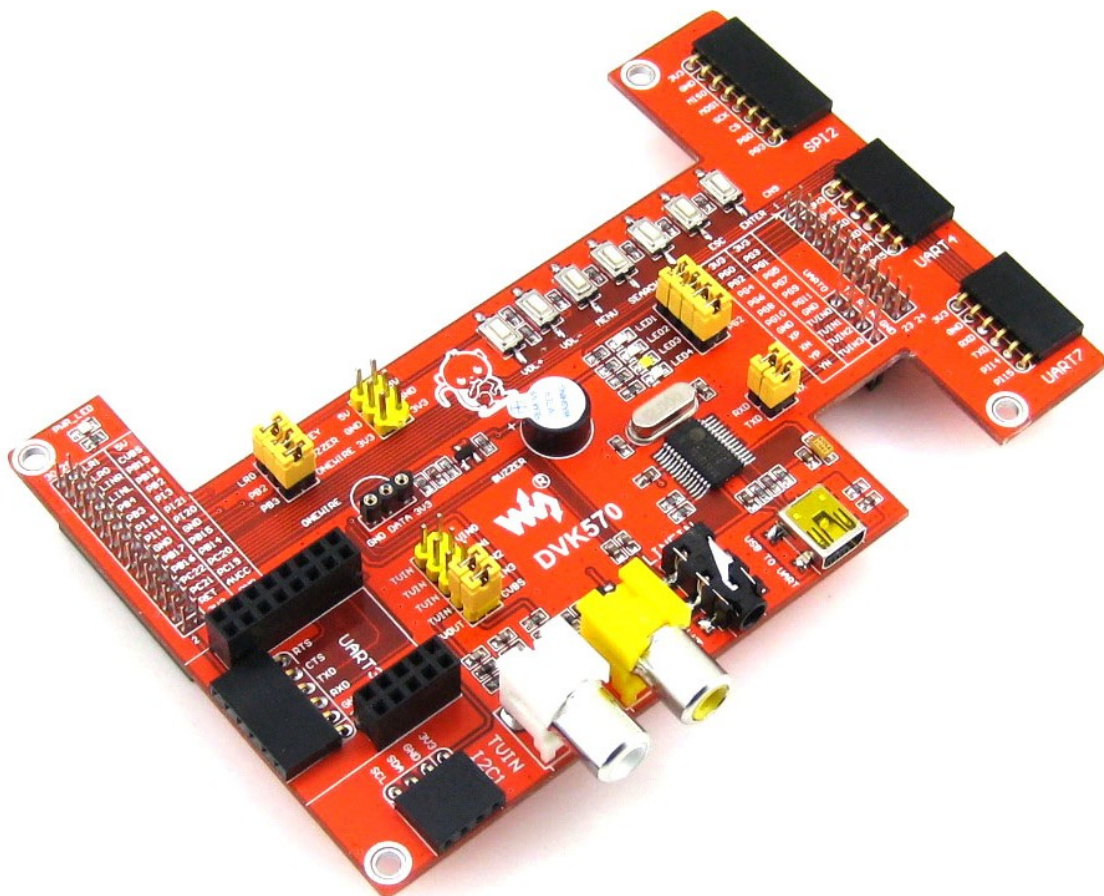


DVK570 Expansion Board

User Manual

2014.04.12 V1.0



Waveshare Electronics

www.wvshare.com

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Version update records

Version	Date	Description
V1.0	2014.04.12	Initial Release

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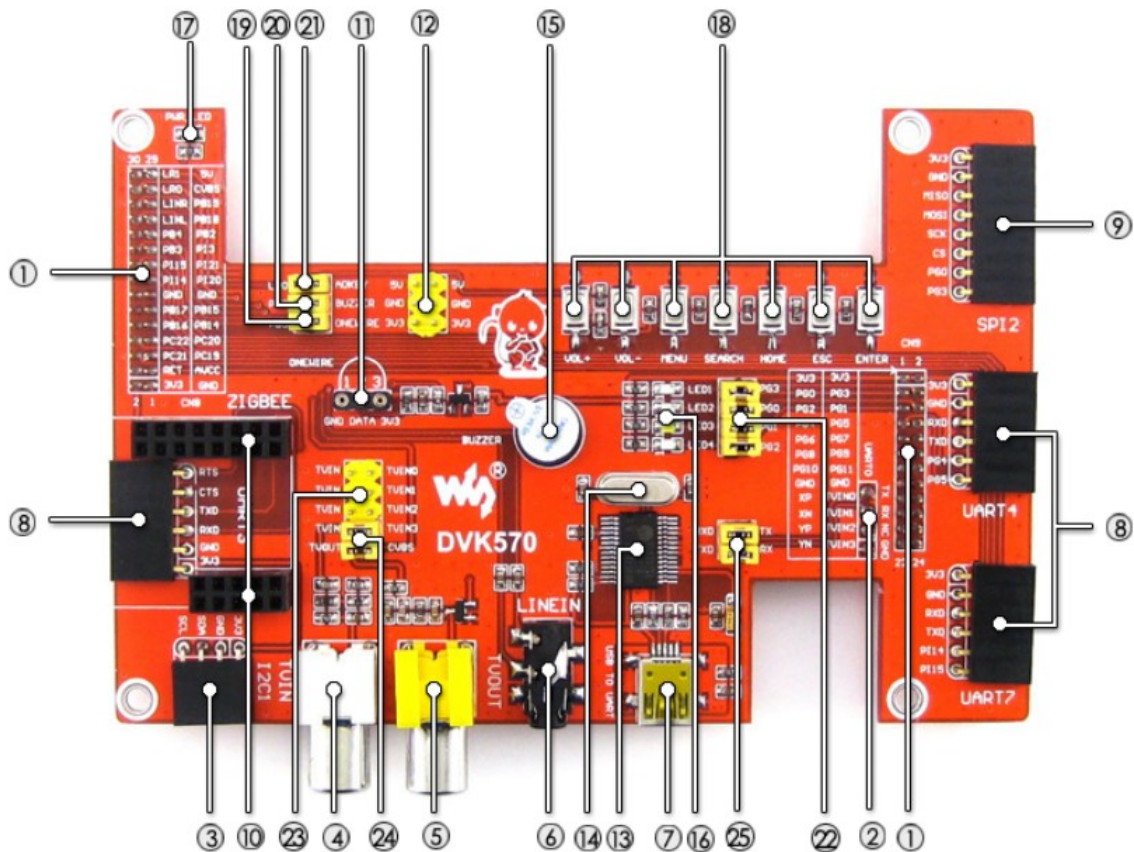
Document formatting convention

- Commands on PC ubuntu terminal: formatted in red, preceding with '#'
- Commands on SD card linaro terminal: formatted in red, preceding with '\$'

1. Overview

DVK570 is an expansion board designed for Cubietruck, integrates various interfaces for connecting external accessory boards, supports complete sample codes, users can easily develop their own products.

2. What's on Board



2.1. Interfaces

- 1) CUBIETRUCK interface:
For connecting CUBIETRUCK
- 2) UART0 interface :
For easily connecting various serial port modules
- 3) I2C interface:

easily connects to I2C modules such as PCF8563 RTC Module, MAG3110 Board Module, etc

- 4) TVIN interface:
For video input
- 5) TVOUT interface:
For video CVBS output, can connect to devices such as TV, etc
- 6) LINEIN interface:
For audio input
- 7) USB interface:
USB TO UART (PL2303TA)
- 8) UART interface:
Easily connects to various modules with UART peripherals, such as RS485 Board (3.3V)、GPS modules, etc
- 9) SPI interface:
Easily connects to all kinds of modules with SPI peripherals, such as AT45DBXX Dataflash modules, etc
- 10) ZIGBEE interface:
For easily connecting to core board Core2530, used with ZB500.
- 11) ONEWIRE interface:
Easily connects to ONE-WIRE devices (TO-92 package), such as temperature sensor (DS18B20), electronic registration number (DS2401), etc.
- 12) 5V/3.3 V power input/output:
Usually used as power output, also common-grounding with other user board

2.2. Component

- 13) PL2303TA
USB TO UART MCU
- 14) 12M crystal oscillator
PL2303TA crystal oscillator
- 15) Buzzer
- 16) User LED
4 different color user LEDs
- 17) Power LED
- 18) AD Keypad
7 ANDROID common keypads:
VOL+、VOL-、MENU、SEARCH、HOME、ESC、ENTER

2.3. Jumper

- 19) ONEWIRE jumper
- 20) Buzzer jumper

21) AD keypad jumper

22) User LED jumper

23) TVIN jumper

Users can choose video input of 4 channels, factory default is the forth channel.

24) TVOUT jumper

25) UART0 jumper

3.Preparation

3.1Firmware burning

Burning corresponding firmware: ct-dvk-xxxx.img is needed when testing DVK570 ,Click:

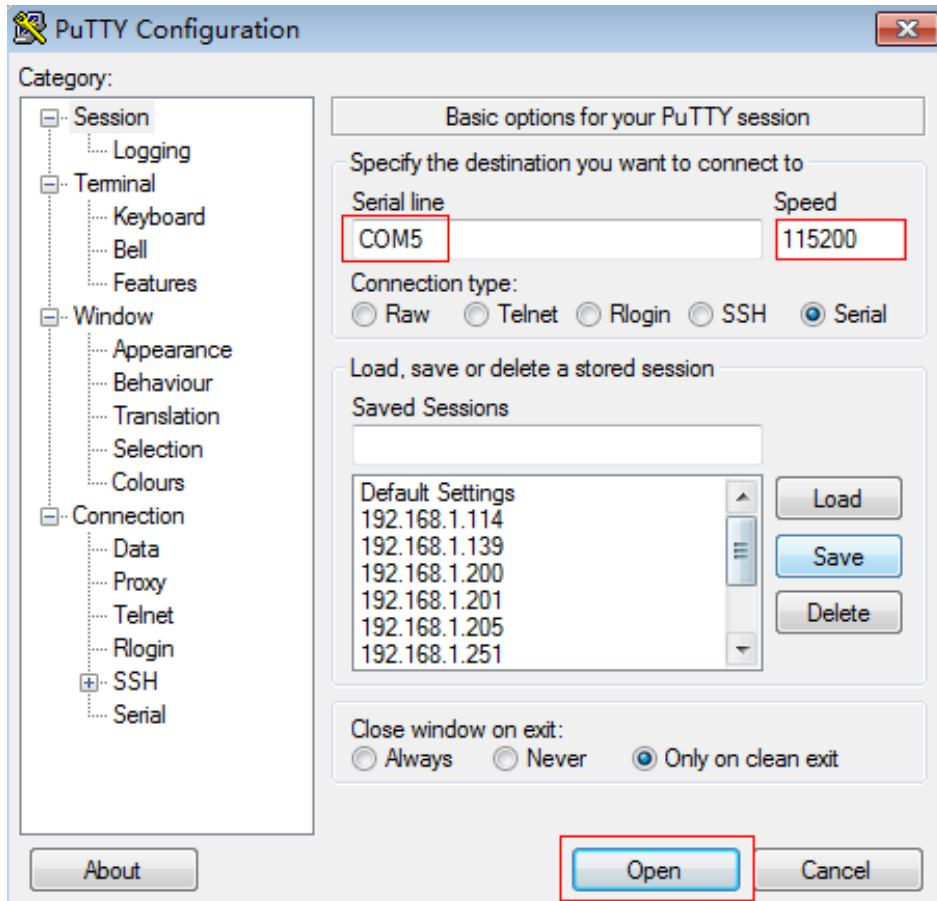
<http://dl.cubieboard.org/parteners/waveshare/Image/> to download, details please refer to “Burning Firmware”.

Note: Firmware with “sdcard” marking is TF card firmware; with “nand” marking is nand firmware.

3.2USB to serial port driver installation

Connect DVK570 to Cubietruck, then connect it to PC using a mini USB wire via USB TO UART connector.

Launch **PL2303_Prolific_DriverInstaller_v1.8.0.exe** to install the driver. After installed, launch the serial debugging assistant and check putty.exe, configure like below, then click “open”.



Note: Check your computer's "Device Manager" to see what the COM is.

4.Starting mode

4.1. TF Card starting

Insert the burned firmware TF card to the CARD0 slot of the Cubietruck, connect electricity for starting.

4.2. Nand starting

After burned firmware, connect to electricity for starting directly.

5.Type of system

5.1 Lubuntu

Input "enter" at the terminal to enter Bash Shell development environment with root user privileges.

```
COM5 - PuTTY
h 4 timing SD-HS(SDR25) dt B
<6>[mmc-msg] sdc3 set round clock 42857143, src 600000000
<6>[mmc-msg] sdc3 set ios: clk 500000000Hz bm PP pm ON vdd 3.3V widt
h 4 timing SD-HS(SDR25) dt B

dhd_bus_devreset: == WLAN ON ==
Fl signature read @0x18000000=0x1591a962
bcmsdh_config_hw_oob_intr: Enter
DHD: dongle ram size is set to 245760(orig 245760)
dhd_bus_select_firmware_name_by_chip: firmware_path=/lib/firmware/a
p6210/fw_bcm40181a2.bin
Final fw_path=/lib/firmware/ap6210/fw_bcm40181a2.bin
Final nv_path=/lib/firmware/ap6210/nvram_ap6210.txt
bcmsdh_set_irq Flag = 1
  Driver: 1.28.23.3 (r)
  Firmware: wl0: Apr 22 2013 14:50:00 version 5.90.195.89.6 FWID 01
-b30a427d
wl_android_wifi_on: Success
<6>CFG80211-ERROR) wl_cfg80211_attach_post : p2p0: p2p_dev_addr=02:
22:f4:f2:f6:29
<6>ADDRCONF(NETDEV_UP): bond0: link is not ready
<7>eth0: no IPv6 routers present

root@cubietruck:~#
```

5.2 Debian

Reboot the system, input user name and password:

User: **root**

Password: **chird**

Then enter Bash Shell development environment with root user privileges.

Note: If it is not root user privilege, switch to root user !

6. Demos

Note:

1.Ensure the system firmware is provided by us, otherwise the test could not be operated!

2.Reboot the system, find all the testing sample under root of /home/waveshare_demo/API.

6.1. LED Demo

Short the onboard LED jumper (set by default, following are the same)

Enter the following command:

\$ test_led

4 different color led blinking:


```
root@cubietruck:~# test_led
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
all leds-----> off
all leds-----> on
^C
root@cubietruck:~#
```

Press “Ctrl+C” to stop.

6.2. Buzzer Demo

Short the onboard BUZZER jumper

Enter the following command:

\$test_pwm

The buzzer will start to make sound and stop later.

```
root@cubietruck:~# test_pwm
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
pwm0-----> off
pwm0-----> on
root@cubietruck:~#
```

6.3. DS18B20 Demo

Insert the DS18B20 into the 1-WIRE socket, short the onboard 1-WIRE jumper (ensure that the AT45DBXX DataFlash Board has been disconnected).

Enter the following command:

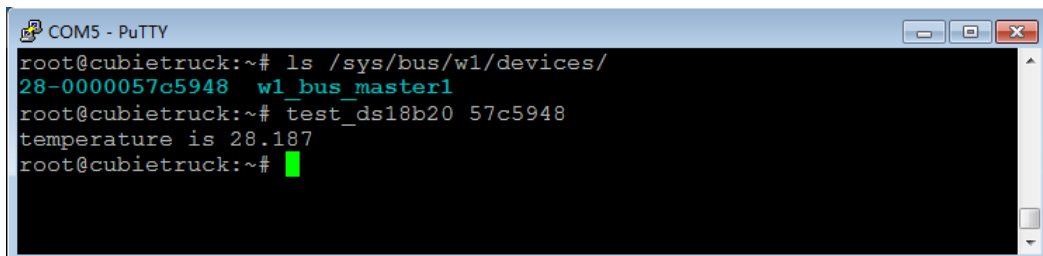
```
$ls /sys/bus/w1/devices/
```

There's a folder with the name looks like "28-0000054a5bec " (the last 7 characters is an unique device ID of every different DS18B20, in this case, the device ID is 54a5bec)

Enter the following command:

```
$test_ds18b20 57c5948
```

The current environment temperature will be displayed on the console terminal. As shown in the figure below:



```
COM5 - PuTTY
root@cubietruck:~# ls /sys/bus/w1/devices/
28-0000057c5948 w1_bus_master1
root@cubietruck:~# test_ds18b20 57c5948
temperature is 28.187
root@cubietruck:~#
```

6.4. AD Keypad Demo

Short the ADKEY jumper

Enter the following command:

```
$ test_key event3
```

Note:

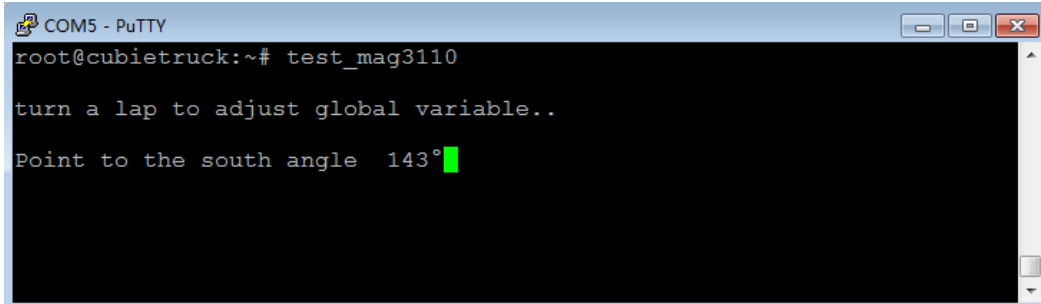
- 1.What the event* is depended on the actual situation, please check directory "/dev/input";
2. Please perform: modprobe sun4i-keyboard and put sun4i-keyboard into listing /etc/modules if the keypad driver is not insmod.

Press 7 keypads respectively, then related key value that were pressed or released will be displayed on the console terminal:

Enter the following command:

```
$test_mag3110
```

Rotate the module for a circle in the same plane to record the maximum and minimum mean parameter. When the correction finished, the correct guide angle will be displayed on the console terminal:



```
COM5 - PuTTY
root@cubietruck:~# test_mag3110

turn a lap to adjust global variable..

Point to the south angle 143°
```

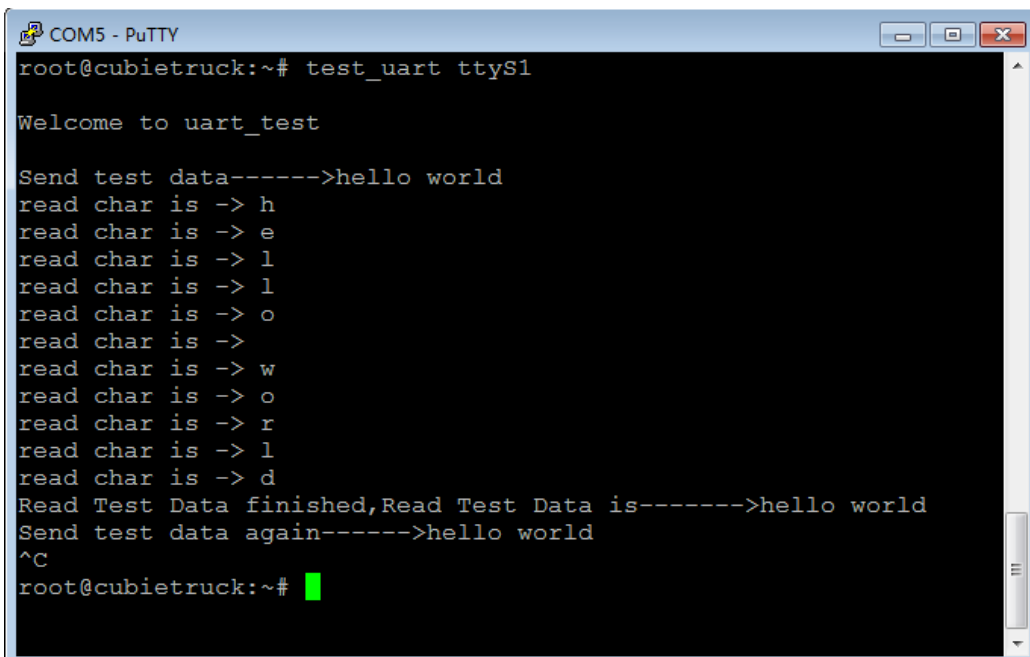
Press “ Ctrl+C ” to stop.

6.7. UART Interface Demo

Short RXD and TXD of the UART

Enter the following command:

```
$ test_uart ttyS1
```



```
COM5 - PuTTY
root@cubietruck:~# test_uart ttyS1

Welcome to uart_test

Send test data----->hello world
read char is -> h
read char is -> e
read char is -> l
read char is -> l
read char is -> o
read char is ->
read char is -> w
read char is -> o
read char is -> r
read char is -> l
read char is -> d
Read Test Data finished,Read Test Data is----->hello world
Send test data again----->hello world
^C
root@cubietruck:~#
```

If the serial port can receive and send automatically, it means the UART can work normally.

Note:

- UART3 interface corresponds to ttyS1,
- UART4 interface corresponds to ttyS2,
- UART7 interface corresponds to ttyS3.

6.8. RS485 Demo

Connect the two RS485 Boards to the onboard UART4 and UART7 interface. Connect the A, B side of one RS485 module to the A, B side of the other RS485 module using connecting wires. Users can also use their own RS485 for testing.

The two RS485 devices can optionally regarded as a receiver or transmitter, the receiver should firstly be in receiving status, then the transmitter begin to send.

Open two console terminals, one enter the following command:

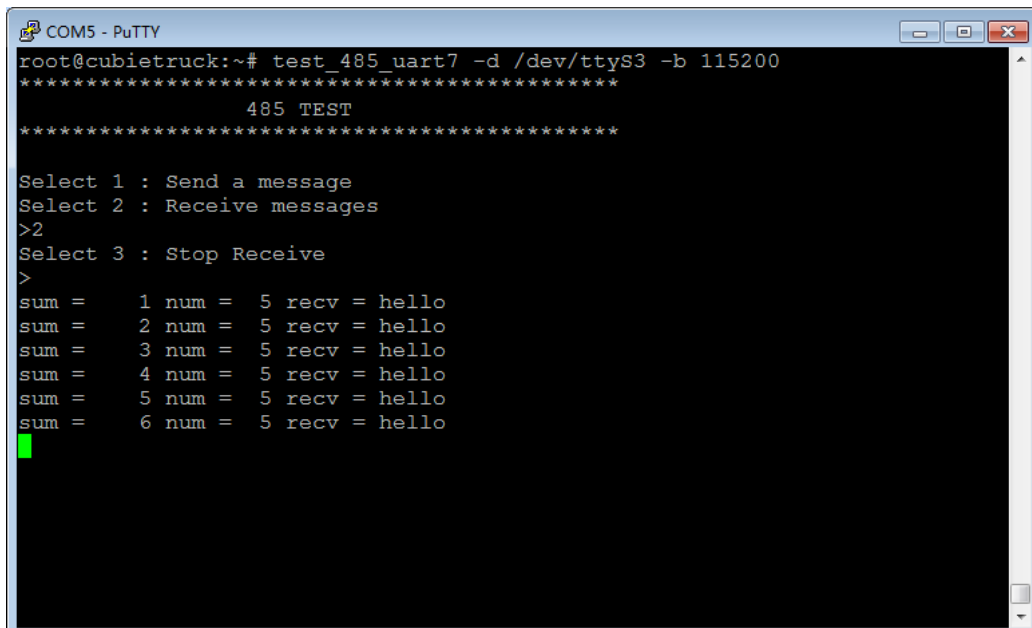
```
$ test_485_uart7 -d /dev/ttyS3 -b 115200
```

The other enter the following command:

```
$ test_485_uart4 -d /dev/ttyS2 -b 115200
```

- 1) Select "2" for the receiver, before select "3" to stop receiving, the receiver remain in the status of receiving ,

As shown in the figure below:



```
COM5 - PuTTY
root@cubietruck:~# test_485_uart7 -d /dev/ttyS3 -b 115200
*****
                        485 TEST
*****

Select 1 : Send a message
Select 2 : Receive messages
>2
Select 3 : Stop Receive
>
sum = 1 num = 5 recv = hello
sum = 2 num = 5 recv = hello
sum = 3 num = 5 recv = hello
sum = 4 num = 5 recv = hello
sum = 5 num = 5 recv = hello
sum = 6 num = 5 recv = hello
█
```

- 2) Select "1" for the receiver, enter information that you want to send, such as "hello", before select "3" to stop sending, the transmitter remain in the status of loop sending, keep sending data,

As shown in the figure below:

```
root@cubietruck: ~
root@cubietruck:~# test_485_uart4 -d /dev/ttyS2 -b 115200
*****
                        485 TEST
*****

Select 1 : Send a message
Select 2 : Receive messages
>1
    Please enter the information to be sent off!
hello
message = hello
len = 5
Information is sent.....
Select 3 : Stop Send
>sum = 1 num = 5 send = hello
sum = 2 num = 5 send = hello
sum = 3 num = 5 send = hello
sum = 4 num = 5 send = hello
sum = 5 num = 5 send = hello
sum = 6 num = 5 send = hello
3

Select 1 : Send a message
Select 2 : Receive messages
>
```

Press Ctrl+C to stop.

6.9. GPS Demo

Connect the UART GPS NEO-6M module to the onboard UART3 interface,
Enter the following command:

Note:

1.The GPS module demo must be operated outdoor, otherwise it can not receive the satellite data.

2.The testing program is compatible with GPS module with baud rate 9600.

\$ test_gps ttyS1

User can analyze corresponding data according to their needs. Press Ctrl+C to stop.

Detail for how to use the UART GPS NEO-6M module please refer to:

<http://www.wvshare.com/product/UART-GPS-NEO-6M.htm>

6.10. ZIGBEE Demo

Interfaces of onboard ZIGBEE only compatible with configured Core2530 board.

When burning program for the core board or other corresponding configure, it may need support from ZB500. Detail development package please refer to:

<http://www.wvshare.com/product/Core2530-Acce.htm>

6.11. USB Camera Demo

Connect our standard USB Camera to the onboard Cubietruck USB Host interface, connect the network cable(to ensure access to the Internet), enter corresponding command:

Note: Users can directly start from step 5) as the firmware we provided already finished step 1)- step 4).

1) Install corresponding tool

```
$apt-get install libv4l-dev  
$apt-get install libjpeg8-dev  
$apt-get install subversion  
$apt-get install imagemagick  
$apt-get install make  
$apt-get install vim
```

2) Download mjpg-streamer source code

```
$cd /  
$svn co https://svn.code.sf.net/p/mjpg-streamer/code/ mjpg-streamer
```

It will download automatically after executed the command, after finish download, the mjpg-streamer document will appeared in the current directory.

3) Modify the configuration file

```
$vi mjpg-streamer/mjpg-streamer/plugins/input_uvc/input_uvc.c
```

Modify

```
int width = 640, height = 480, fps = 5, format = V4L2_PIX_FMT_MJPEG, i;  
to:  
int width = 640, height = 480, fps = 5, format = V4L2_PIX_FMT_YUYV, i;
```

Exit after save it.

4) Compile

```
$cd /mjpg-streamer/mjpg-streamer  
$make clean  
$make
```

5) Check the assigned ip address:

```
$ ifconfig eth0
```

```
COM5 - PuTTY
root@cubietruck:~# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 02:ca:08:01:d0:fb
          inet addr:192.168.1.205  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::ca:8ff:fe01:d0fb/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1055 errors:0 dropped:0 overruns:0 frame:0
          TX packets:45 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:85924 (85.9 KB)  TX bytes:4039 (4.0 KB)
          Interrupt:117 Base address:0x4000

root@cubietruck:~# █
```

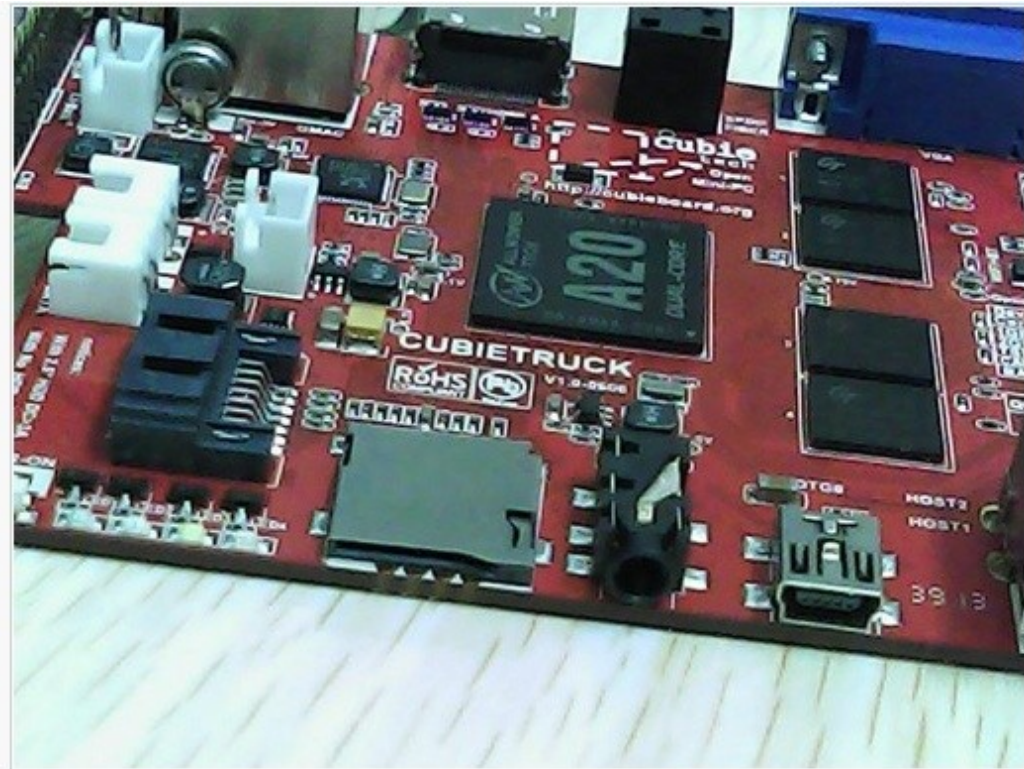
The ip address is 192.168.1.205.

6) Start the video streamer server:

```
$cd /mjpg-streamer/mjpg-streamer
$ ./ start.sh
```

```
COM5 - PuTTY
Adding control for Tilt Reset
UVCIOC_CTRL_ADD - Error: Inappropriate ioctl for device
Adding control for Pan/tilt Reset
UVCIOC_CTRL_ADD - Error: Inappropriate ioctl for device
Adding control for Focus (absolute)
UVCIOC_CTRL_ADD - Error: Inappropriate ioctl for device
mapping control for Pan (relative)
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Tilt (relative)
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Pan Reset
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Tilt Reset
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Pan/tilt Reset
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Focus (absolute)
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for LED1 Mode
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for LED1 Frequency
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Disable video processing
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
mapping control for Raw bits per pixel
UVCIOC_CTRL_MAP - Error: Inappropriate ioctl for device
o: www-folder-path...: ./www/
o: HTTP TCP port.....: 8080
o: username:password.: disabled
o: commands.....: enabled
█
```

7) Open the browser on a computer which is connected to the same subnet(or directly on the display which is connected to Cubietruck), enter the following address: <http://192.168.1.205:8080/javascript.html>
You can see the captured video stream. Press Ctrl+C to stop.

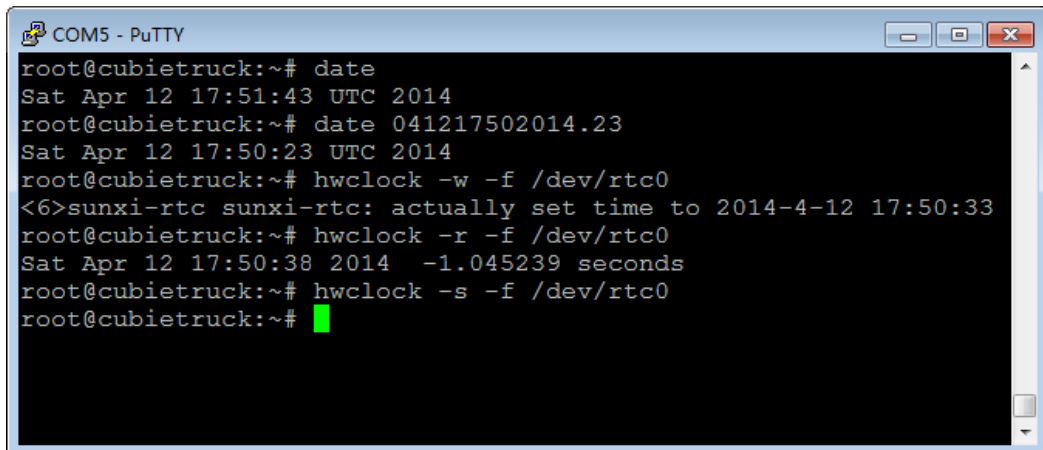


© The **MJPEG-streamer team** | Design by **Andreas Viklund**

6.12. RTC Demo

Test onboard Cubietruck RTC, enter corresponding demand on the console terminal:

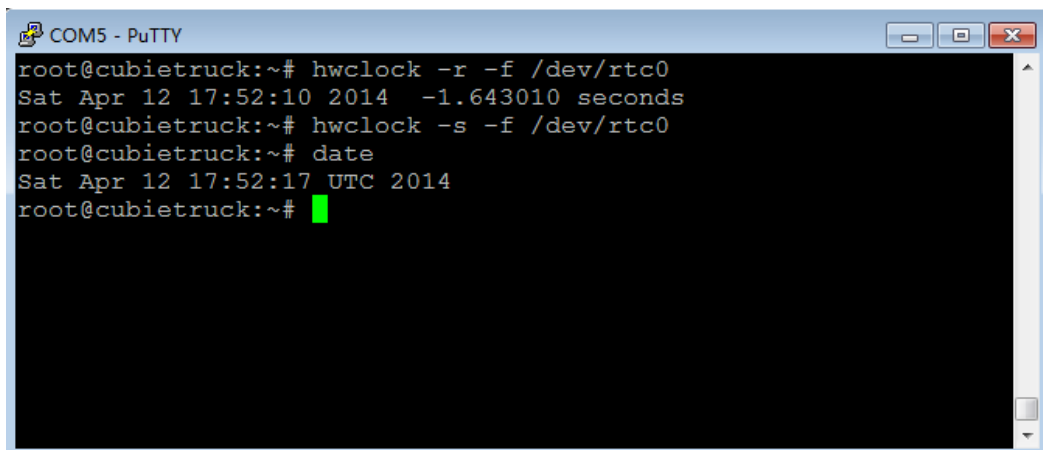
- 1) Read the system time:
`$ date`
- 2) Configure the system time:
`$ date 041217502014.23`
- 3) Set the hardware of RTC time:
`$ hwclock -w -f /dev/rtc0`
- 4) Read time of RTC hardware:
`$ hwclock -r -f /dev/rtc0`
- 5) Time of RTC hardware synchronized to the system time:
`$ hwclock -s -f /dev/rtc0`



```
COM5 - PuTTY
root@cubietruck:~# date
Sat Apr 12 17:51:43 UTC 2014
root@cubietruck:~# date 041217502014.23
Sat Apr 12 17:50:23 UTC 2014
root@cubietruck:~# hwclock -w -f /dev/rtc0
<6>sunxi-rtc sunxi-rtc: actually set time to 2014-4-12 17:50:33
root@cubietruck:~# hwclock -r -f /dev/rtc0
Sat Apr 12 17:50:38 2014 -1.045239 seconds
root@cubietruck:~# hwclock -s -f /dev/rtc0
root@cubietruck:~#
```

- 6) Cut off the power and restart, read the time of RTC hardware and synchronized to the system time, enter the following command:

```
$ hwclock -r -f /dev/rtc0
$ hwclock -s -f /dev/rtc0
$ date
```



```
COM5 - PuTTY
root@cubietruck:~# hwclock -r -f /dev/rtc0
Sat Apr 12 17:52:10 2014 -1.643010 seconds
root@cubietruck:~# hwclock -s -f /dev/rtc0
root@cubietruck:~# date
Sat Apr 12 17:52:17 UTC 2014
root@cubietruck:~#
```

Now, time of the software and hardware are synchronized, the RTC works normally.

6.13. WIFI Demo

Test the onboard Cubietruck WIFI module, enter corresponding command on the console terminal:

Note: Please execute command: "modprobe bcm43xx" and add "bcm43xx" to list of /etc/modules if the WIFI driver did no insmod.

- 1) Install corresponding tools

```
$ apt-get install wifi-radar
$ apt-get install linux-firmware
```

When finished, reboot the system.

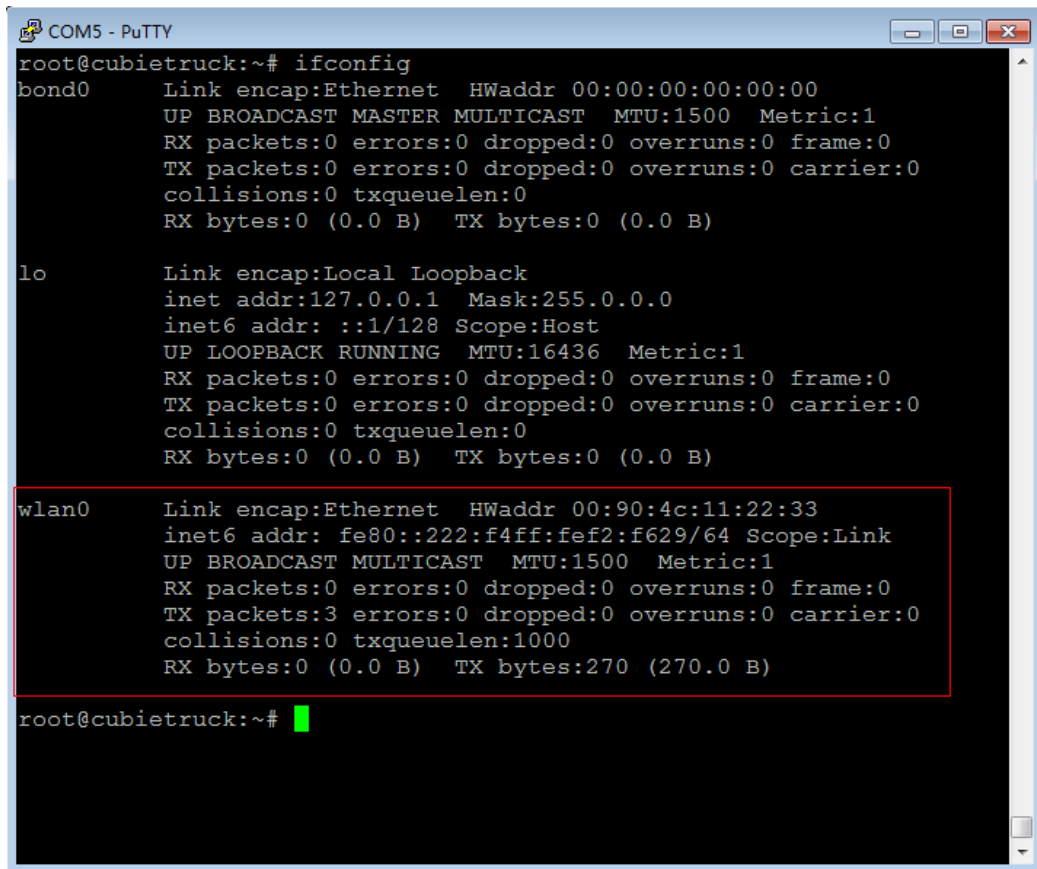
- 2) After rebooted the system, turn off the Ethernet card and open WIFI card.

```
$ ifconfig eth0 down
$ ifconfig wlan0 up
```

Note: It may be “wlan1” in different system, according to the actual situation.

3) Check the network status:

`$ifconfig`



```
root@cubietruck:~# ifconfig
bond0    Link encap:Ethernet  HWaddr 00:00:00:00:00:00
          UP BROADCAST MASTER MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

wlan0    Link encap:Ethernet  HWaddr 00:90:4c:11:22:33
          inet6 addr: fe80::222:f4ff:fef2:f629/64 Scope:Link
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:270 (270.0 B)

root@cubietruck:~#
```

4) Scan the wireless router:

`$ iwlist wlan0 scan`

to find available wireless network.

```

COM5 - PuTTY
Group Cipher : TKIP
Pairwise Ciphers (2) : CCMP TKIP
Authentication Suites (1) : PSK
Encryption key:on
Bit Rates:1 Mb/s; 2 Mb/s; 5.5 Mb/s; 11 Mb/s; 6 Mb/s
          9 Mb/s; 12 Mb/s; 18 Mb/s; 24 Mb/s; 36 Mb/s
          48 Mb/s; 54 Mb/s
Cell 06 - Address: 00:1E:E5:86:87:2E
ESSID:"Lin zhi hui"
Mode:Managed
Frequency:2.437 GHz (Channel 6)
Quality:1/5  Signal level:-83 dBm  Noise level:-92 dBm
IE: IEEE 802.11i/WPA2 Version 1
Group Cipher : TKIP
Pairwise Ciphers (2) : CCMP TKIP
Authentication Suites (1) : PSK
Encryption key:on
Bit Rates:1 Mb/s; 2 Mb/s; 5.5 Mb/s; 11 Mb/s; 18 Mb/s
          24 Mb/s; 36 Mb/s; 54 Mb/s; 6 Mb/s; 9 Mb/s
          12 Mb/s; 48 Mb/s
Cell 07 - Address: 5C:63:BF:46:EA:B8
ESSID:"WaveshareNet"
Mode:Managed
Frequency:2.442 GHz (Channel 7)
Quality:5/5  Signal level:-57 dBm  Noise level:-92 dBm
IE: IEEE 802.11i/WPA2 Version 1
Group Cipher : CCMP
Pairwise Ciphers (1) : CCMP
Authentication Suites (1) : PSK
IE: Unknown: DD810050F204104A0001101044000102103B00010
310470010000000000000100000005C63BF46EAB81021000754502D4C494E4B10230009544
C2D57523834304E10240003312E3010420003312E301054000800060050F20400011011001
9576972656C65737320526F7574657220544C2D57523834304E100800020086103C000101
Encryption key:on
Bit Rates:1 Mb/s; 2 Mb/s; 5.5 Mb/s; 11 Mb/s; 6 Mb/s
          9 Mb/s; 12 Mb/s; 18 Mb/s; 24 Mb/s; 36 Mb/s
          48 Mb/s; 54 Mb/s
root@cubietruck:~#

```

5) Configure wlan0:

`$vi /etc/network/interfaces`

Acquire the IP configuration dynamically as following:

```

#auto lo eth0
#iface lo inet loopback
#iface eth0 inet dhcp

auto wlan0
iface wlan0 inet dhcp
pre-up ip link set wlan0 up
pre-up iwconfig wlan0 essid waveshareNet
wpa-ssid waveshareNet
wpa-psk 123456

```

Acquire the IP configuration statically as following:

```

#auto lo eth0
#iface lo inet loopback
#iface eth0 inet dhcp

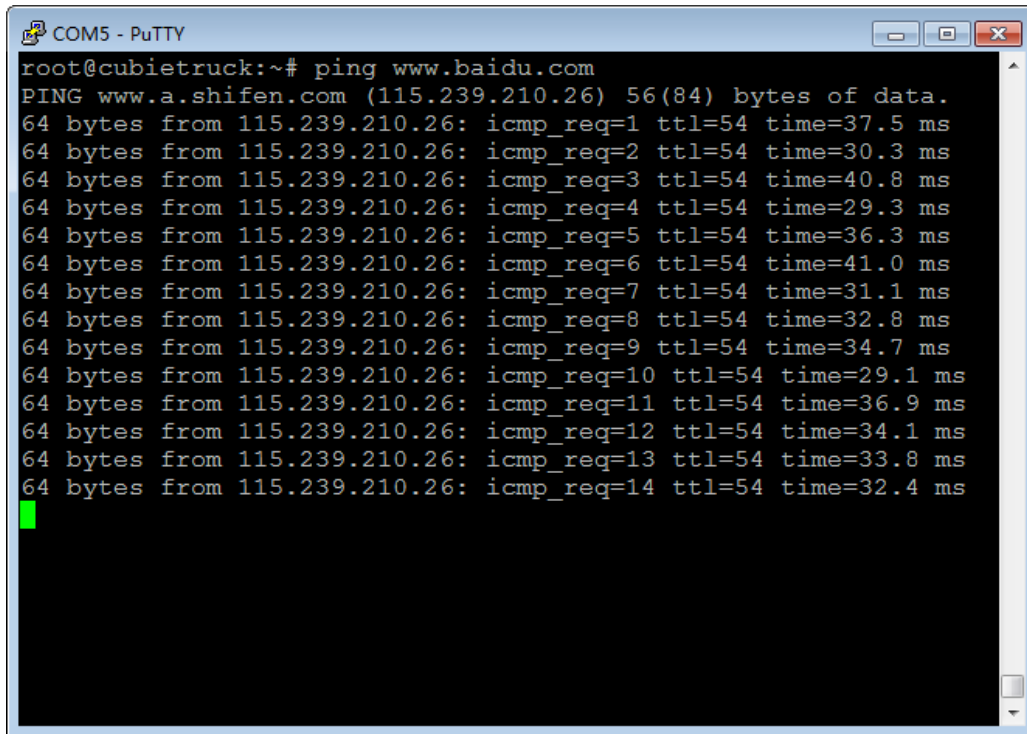
```

```
auto wlan0
iface wlan0 inet static
address 192.168.1.121
netmask 255.255.255.0
gateway 192.168.1.1
pre-up ip link set wlan0 up
pre-up iwconfig wlan0 essid waveshareNet
wpa-ssid waveshareNet
wpa-psk 123456
```

Exit after save it.

Note: Configure ESSID and PSK properly according to the scan result.

- 6) Restart the network:
`$/etc/init.d/networking restart`
- 7) Network Demo:
`$ ping www.baidu.com`



```
COM5 - PuTTY
root@cubietruck:~# ping www.baidu.com
PING www.a.shifen.com (115.239.210.26) 56(84) bytes of data.
64 bytes from 115.239.210.26: icmp_req=1 ttl=54 time=37.5 ms
64 bytes from 115.239.210.26: icmp_req=2 ttl=54 time=30.3 ms
64 bytes from 115.239.210.26: icmp_req=3 ttl=54 time=40.8 ms
64 bytes from 115.239.210.26: icmp_req=4 ttl=54 time=29.3 ms
64 bytes from 115.239.210.26: icmp_req=5 ttl=54 time=36.3 ms
64 bytes from 115.239.210.26: icmp_req=6 ttl=54 time=41.0 ms
64 bytes from 115.239.210.26: icmp_req=7 ttl=54 time=31.1 ms
64 bytes from 115.239.210.26: icmp_req=8 ttl=54 time=32.8 ms
64 bytes from 115.239.210.26: icmp_req=9 ttl=54 time=34.7 ms
64 bytes from 115.239.210.26: icmp_req=10 ttl=54 time=29.1 ms
64 bytes from 115.239.210.26: icmp_req=11 ttl=54 time=36.9 ms
64 bytes from 115.239.210.26: icmp_req=12 ttl=54 time=34.1 ms
64 bytes from 115.239.210.26: icmp_req=13 ttl=54 time=33.8 ms
64 bytes from 115.239.210.26: icmp_req=14 ttl=54 time=32.4 ms
```

Note:

If the below print message appear:

```
CFG80211-ERROR) wl_escan_handler : Couldn't find P2PIE in probe
response/beacon
```

Press the following command:

```
$/ifconfig wlan0 down
$/ifconfig wlan0 up
$/etc/init.d/networking restart
```