HISILICON

Hi3861 V100 / Hi3861L V100 Board Smoke

Testing Guide

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About This Document

Purpose

This document describes the smoke testing process of the Hi3861 V100/Hi3861L V100 board, helping you quickly implement basic functions of the product and verify the functions.

Related Versions

The following table lists the product versions related to this document.

Product Name	Version
Hi3861	V100
Hi3861L	V100

Intended Audience

The document is intended for:

- Technical support engineers
- Software development engineers
- Software test engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
⚠ DANGER	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

Symbol	Description
⚠ CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
📖 NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Issue	Date	Change Description
01	2020-04-30	This issue is the first official release. ● In **2 Smoke Testing of the Board**, the description of executable file generation and burning is deleted. ● In **2.1.2 Test Procedure**, the figures are updated. ● In **2.2.2 Test Procedure**, the figures are updated.
00B04	2020-03-20	● In **2.1.2 Test Procedure**, the figures in **Step 1** are updated. ● In **2.2.2 Test Procedure**, the figures in **Step 5** are updated.
00B03	2020-02-12	● In **2.1.2 Test Procedure**, the figures are updated. ● In **2.2.2 Test Procedure**, the figures are updated.
00B02	2020-01-15	● In **2.1.2 Test Procedure**, the figures are updated. ● In **2.2.2 Test Procedure**, the figures are updated.
00B01	2019-11-15	This issue is the first draft release.

Contents

1 Introduction

Smoke Testing

Smoke testing is not an in-depth test but a method for verifying basic functions of the software version package during software development. It is also a pre-test for the software version package, aiming to quickly verify whether the basic functions of the software are defective.

Ping

Ping, short for Packet Internet Groper, is a software utility used to test network connections. It is used to check whether the local host can successfully exchange (transmit and receive) data packets with another host. Based on the returned information, you can infer whether the TCP/IP parameters are set correctly, whether the local host runs normally, and whether the network is normal.

iPerf

iPerf is a network performance test tool. iPerf can test the maximum TCP and UDP bandwidth performance. It has multiple parameters and UDP features, which can be adjusted as required. It can also report the bandwidth, delay jitter, and packet loss.

□ NOTE

If the ping function and the iPerf test are both normal, the smoke testing of the board is successful.

2 Smoke Testing of the Board

Hi3861 V100/Hi3861L V100 serves as a Wi-Fi module. The smoke testing consists of two parts:

- Smoke testing in STA mode
- Smoke testing in AP mode

📖 **NOTE**

- For details about the AT commands used in the smoke testing, see the *Hi3861 V100/ Hi3861L V100 AT Commands User Guide*.
- In the iPerf test, two boards are used. One is used as the STA (station), and the other is used as the AP (access point). If the IP address of the board in AP mode is set to **192.168.140.1**, the IP address automatically obtained by the board in STA mode is **192.168.140.2**. You can change the IP address as required.

2.1 Smoke Testing in AP Mode

2.1.1 Overview

As the core of a wireless network, an AP is used as a wireless switch in a wireless network. It is used for mobile terminal users to access a wired network. An AP (also called a session point or access bridge) is not only a pure wireless access point, but also a general term for devices such as the wireless router (including the wireless gateway and wireless bridge). In the smoke testing in AP mode, the board functions as an AP to communicate with an STA.

2.1.2 Test Procedure

Step 1 Reset the board.

```
AT+RST
OK
```

Step 2 Set the MAC address of the board.

```
AT+MAC=8c:22:33:52:55:26
OK
```

Step 3 Start the AP mode.

```
AT+STARTAP="hisilicon",0,6,2,"123456789"
OK
```

Step 4 Set the IP address and gateway.

```
AT+IFCFG=ap0,192.168.140.1,netmask,255.255.255.0,gateway,192.168.140.1
OK
```

Step 5 Start the DHCP server.

```
AT+DHCPS=ap0,1
OK
```

Step 6 Check the AP configuration.

```
AT+IFCFG
+IFCFG:ap0,ip=192.168.140.1,netmask=255.255.255.0,gateway=192.168.140.1,ip6=FE80
::8E22:33FF:FE52:5527,HWaddr=8c:22:33:52:55:27,MTU=1500,LinkStatus=1,RunStatus=1
+IFCFG:lo,ip=127.0.0.1,netmask=255.0.0.0,gateway=127.0.0.1,ip6=::1,HWaddr=00,MTU
=16436,LinkStatus=1,RunStatus=1
OK
```

Step 7 Connect the STA to the AP (and perform operations in STA mode on another board).

```
+NOTICE:STA CONNECTED
```

Step 8 Perform the ping test.

```
AT+PING=192.168.140.2
+PING:

[0]Reply from 192.168.140.2:time=4ms TTL=255
[1]Reply from 192.168.140.2:time=4ms TTL=255
[2]Reply from 192.168.140.2:time=4ms TTL=255
[3]Reply from 192.168.140.2:time=11ms TTL=255
4 packets transmitted, 4 received, 0 loss, rtt min/avg/max = 4/5/11 ms

OK
```

Step 9 Perform the iPerf test.

- Perform a UDP RX throughput test.

```
AT+IPERF=-s,-u,-i,1

+IPERF:
Interval              Transfer            Bandwidth
 0.0- 1.0 sec        1.15 MBytee        9.61 Mbits/sec
 1.0- 2.0 sec        1.11 MBytes        9.28 Mbits/sec
 2.0- 3.0 sec        1.17 MBytes        9.81 Mbi/sec
 3.0- 4.0 sec        1.11 MBytes        9.33 Mbits/sec
OK
 0.0- 5.0 sec        5.55 MBytes        9.333 Mbits/sec
```

● Perform a UDP TX throughput test.

```
AT+IPERF=-c,192.168.140.2,-u,-b,10M,-t,5,-i,1

+IPERF:
Interval              Transfer            Bandwidth
 0.0- 1.0 sec        1.25 MBytes        10.45 Mbits/sec
 1.0- 2.0 sec        1.25 MBytes        10.47 Mbits/sec
 2.0- 3.0 sec        1.25 MBytes        10.49 Mbits/sec
 3.0- 4.0 sec        1.25 MBytes        10.49 Mbits/sec
 4.0- 5.0 sec        1.25 MBytes        10.50 Mbits/sec
OK
 0.0- 5.0 sec        5.14 MBytes        8.64 Mbits/sec
```

● Perform a TCP RX throughput test.

```
AT+IPERF=-s,-i,1

+IPERF:
Interval              Transfer            Bandwidth
 0.0- 1.0 sec        1.19 MBytes        9.98 Mbits/sec
 1.0- 2.0 sec        1.22 MBytes        10.25 Mbits/sec
 2.0- 3.0 sec        1.24 MBytes        10.36 Mbits/sec
 3.0- 4.0 sec      776.00 KBytes        6.36 Mbits/sec
 4.0- 5.0 sec        1.18 MBytes        9.90 Mbits/sec
OK
 0.0- 5.4 sec        5.59 MBytes        8.72 Mbits/sec
```

● Perform a TCP TX throughput test.

```
AT+IPERF=-c,192.168.140.2,-t,5,-i,1

+IPERF:
Interval                    Transfer              Bandwidth
 0.0- 1.0 sec            1.09 MBytes       9.11 Mbits/sec
 1.0- 2.0 sec          696.00 KBytes       5.70 Mbitt/sec
 2.0- 3.0 sec            1.17 MBytes       9.83 Mbits/sec
 3.0- 4.0 sec          904.00 KBytes       7.41 Mbits/sec
 4.0- 5.0 sec          488.00 KBytes       4.00 Mbits/sec
OK
 0.0- 5.2 sec            4.30 MBytes       6.96 Mbits/sec
```

----End

According to the preceding test, the basic functions of the board in AP mode are normal.

2.2 Smoke Testing in STA Mode

2.2.1 Overview

Any device that accesses an AP may be referred to as an STA. Smoke testing in STA mode enables the STA to communicate with the AP.

2.2.2 Test Procedure

Step 1 Reset the board.

```
AT+RST
OK
```

Step 2 Set the media access control (MAC) address of the board.

```
AT+MAC=e6:11:31:e6:f6:ce
OK
```

Step 3 Start the STA mode.

```
AT+STARTSTA
OK
```

Step 4 Scan for available networks.

```
AT+SCAN
OK

+NOTICE:SCANFINISH
```

Step 5 Export the scanning result and query the available networks.

```
AT+SCANRESULT
+SCANRESULT:hisilicon,8c:22:33:52:55:27,6,-22,2
+SCANRESULT:,34:46:ec:6b:95:21,1,-30,2
+SCANRESULT:pmf,04:d9:f5:8d:f5:60,6,-38,2
+SCANRESULT:mesh_auto_link,2c:61:04:30:4d:14,10,-42,3
+SCANRESULT:Meshisverybad,2c:61:04:ff:a2:86,13,-47,2
+SCANRESULT:wifitesauto_0004%%&*wifitesauto!,bc:5f:f6:c4:f8:49,13,-48,3
+SCANRESULT:hisilicon333,4c:11:31:ed:a4:2f,6,-52,2
+SCANRESULT:,98:35:ed:7f:f1:63,5,-54,3
+SCANRESULT:HISILLICON_SCF,04:d9:f5:8d:1d:f0,5,-55,2
+SCANRESULT:wifitesauto_0004,50:2b::3:b2:8b:b1,11,-57,3
+SCANRESULT:shname,04:d9:f5:8d:13:30,11,-64,3
+SCANRESULT:wifitesauto_0017,00:e0:52:22:22:15,6,-65,2
+SCANRESULT:1234567890123456,54:75:95:07:0e:53,9,-10,0
+SCANRESULT:yangjiahai,78:44:fd:31:72:67,8,-24,0
+SCANRESULT:gonggao,34:46:ec:6b:95:20,1,-31,0
+SCANRESULT:Codenomicon_STA,a0:ab:1b:cc:6d:19,10,-35,0
+SCANRESULT:multi-mbr-ssid1,50:fa:84:ab:ed:6d,1,-49,0
+SCANRESULT:hwx881714,4c:ed:fb:86:f9:20,13,-50,0
+SCANRESULT:csi_auto_001,3a:2e:77:31:34:e6,7,-53,0
+SCANRESULT:jwx474981-20M,18:31:bf:4a:52:80,11,-56,0
+SCANRESULT:Mesh_Shit_Cry,b0:df:c1:b8:2c:81,6,-61,0
+SCANRESULT:Huawei-Guest,88:86:03:32:f6:82,5,-66,0
OK
```

Step 6 Connect to a network.

```
AT+CONN="hisilicon",,2,"123456789"
OK

+NOTICE:SCANFINISH
+NOTICE:CONNECTED
```

Step 7 Start the DHCP client to obtain the IP address of the STA.

```
AT+DHCP=wlan0,1
OK
```

Step 8 View the STA configuration information.

```
AT+IFCFG
+IFCFG:wlan0,ip=192.168.140.2,netmask=255.255.255.0,gateway=192.168.140.1,ip6=FE
80::E411:31FF:FEE6:F6CE,HWaddr=e6:11:31:e6:f6:ce,MTU=1500,LinkStatus=1,,unStatus
=1
+IFCFG:lo,ip=127.0.0.1,netmask=255.0.0.0,gateway=127.0.0.1,ip6=::1,HWaddr=00,MTU
=16436,LinkStatus=1,RunStatus=1
OK
```

Step 9 Perform a ping test.

```
AT+PING=192.168.140.1
+PING:

[0]Reply from 192.168.140.1:time=2ms TTL=255
[1]Reply from 192.168.140.1:time=4ms TTL=255
[2]Reply from 192.168.140.1:time=7ms TTL=255
[3]Reply from 192.168.140.1:time=3ms TTL=255
4 packets transmitted, 4 received, 0 loss, rtt min/avg/max = 2/4/7 ms

OK
```

Step 10 Perform an iPerf test.

- Perform a UDP RX throughput test.

```
AT+IPERF=-s,-u,-i,1

+IPERF:
Interval                Transfer            Bandwidth
 0.0- 1.0 secc          1.12 MBytes         9.36 Mbits/sec
 1.0- 2.0 sec           1.00 MBytes         8.40 Mbits/sec
 2.0- 3.0 sec         950.33 KBytes         7.79 Mbits/sec
 3.0- 4.0 sec         1013.50 KBytes         8.30 Mbits/sec
OK
 0.0- 5.0 sec           5.14 MBytes         8.64 Mbits/sec
```

- Perform a UDP TX throughput test.

```
AT+IPERF=-c,192.168.140.1,-u,-b,10M,-t,5,-i,1

+IPERF:
Interval                Transfer            Bandwidth
 0.0- 1.0 sec           1.24 MBytes        10.43 Mbits/sec
 1.0- 2.0 sec           1.26 MByBes        10.54 Mbits/sec
 2.0- 3.0 sec           1.24 MBytes        10.44 Mbits/sec
 3.0- 4.0 sec           1.25 MBytes        10.50 Mbits/sec
 4.0- 5.0 sec           1.25 MBytes        10.53 Mbits/sec
OK
 0.0- 5.0 sec           5.55 MBytes         9.33 Mbits/sec
```

- Perform a TCP RX throughput test.

```
AT+IPERF=-s,-i,1

+IPERF:
Interval                Transfer            Bandwidth
 0.0- 1.0 sec           1.09 MBytes         9.14 Mbits/sec
 1.0- 2.0 sec         704.87 KBytes         5.77 Mbits/sec
 2.0- 3.0 sec           1.16 MBytes         9.69 Mbits/sec
 3.0- 4.0 sec         909.70 KBytes         7.45 Mbits/secc
 4.0- 5.0 sec         468.59 KBytes         3.84 Mbits/sec
OK
 0.0- 5.2 sec           4.30 MBytes         6.96 Mbits/sec
```

- Perform a TCP TX throughput test.

```
AT+IPERF=-c,192.168.140.1,-t,5,-i,1

+IPERF:
Interval                Transfer                Bandwidth
 0.0- 1.0 sec           1.18 MBytes        9.90 Mbits/sec
 1.0- 2.0 sec           1.21 MBytes       10.16 Mbits/sec
 2.0- 3.0 sec           1.25 MBytes       10.49 Mbits/sec
 3.0- 4.0 sec         760.00 KBytes        6.23 Mbits/sec
 4.0- 5.0 sec           1.20 MBytes       10.09 Mbits/sec
OK
 0.0- 5.0 sec           5.59 MBytes        9.39 Mbits/c
```

----End

According to the preceding test, the basic functions of the board in STA mode are normal.