GF-RK3399-KIT Android7.1

Functional Description and Testing Manual

Ver.:2.0

2021.04

QIYANG TECHNOLOGY Co., Ltd

Version Record

Version	Hardware Platform	Description	Date	Revisor
1.0	GF-RK3399-MB-V2_01	Initial Version	2021-02	yangcx
2.0	GF-RK3399-MB-V2_01	Add dual Ethernet functional testing	2021-04	yangcx

Catalogue

Notice: This manual introduces the interfaces' functional testing for GF-RK3399-KIT development kit on Android 7.1.

I. Preface

Company Profile

Zhejiang Qiyang Intelligent Technology Co., Ltd., established in 2007, which locates in Hangzhou, Zhejiang, PRC. It is a high-end technological enterprise that specializes in exploitation, fabrication, and selling embedded computer mainboards. With 10 years of experiences, Qiyang has established the completed service chain from the design concept to mass production successfully.

The R&D team is organized by 30 more technical engineers. Qiyang focus on providing functional embedded hardware, software tool and customization solutions. It has been applied to Industrial Control, Internet of Things, New Retail, Smart Medical, Electricity Device, Environmental Surveillance, Charging Pile etc.

With the growth of the business, Qiyang has set up a SMT factory in Zhuji, Zhejiang province, which is 5000 ㎡, with a 2xSMT production lines. The SMT factory performs the ISO9001 Quality Management System strictly. Relying on the solid production ability, the SMT factory's annual capacity is about a million sets, which totally guarantee the delivery date.

Qiyang has a thorough sales marketing network, professional sales, and after-sales team to provide full technical support and service. The business has spread over 120 countries and areas, it helps the clients to introduce the products into the market efficiently and successfully. The combination and extension of research and development, production capacity, and market, that provide a solid foundation for Qiyang to provide specialized, globalized embedded hardware and software.

We offer:

I. Software/Hardware Mainboard

Based on the CPU solution from NXP, Rockchip, MTK, Renesas, TI, Atmel, Cirrus Logic, etc. Qiyang provides the ARM development kit/system on

module/industrial board and periphery products, paired tools and software for the user do further exploitation.

2. Customization Service

Fully taking the advantage of the technical accumulation on the ARM platform and Linux, Android, Ubuntu OS. Qiyang provides the efficient OEM/ODM service to the users.

Sincerely thanks for using Qiyang's product, we will try our best to offer you the technical supports!

Preparation

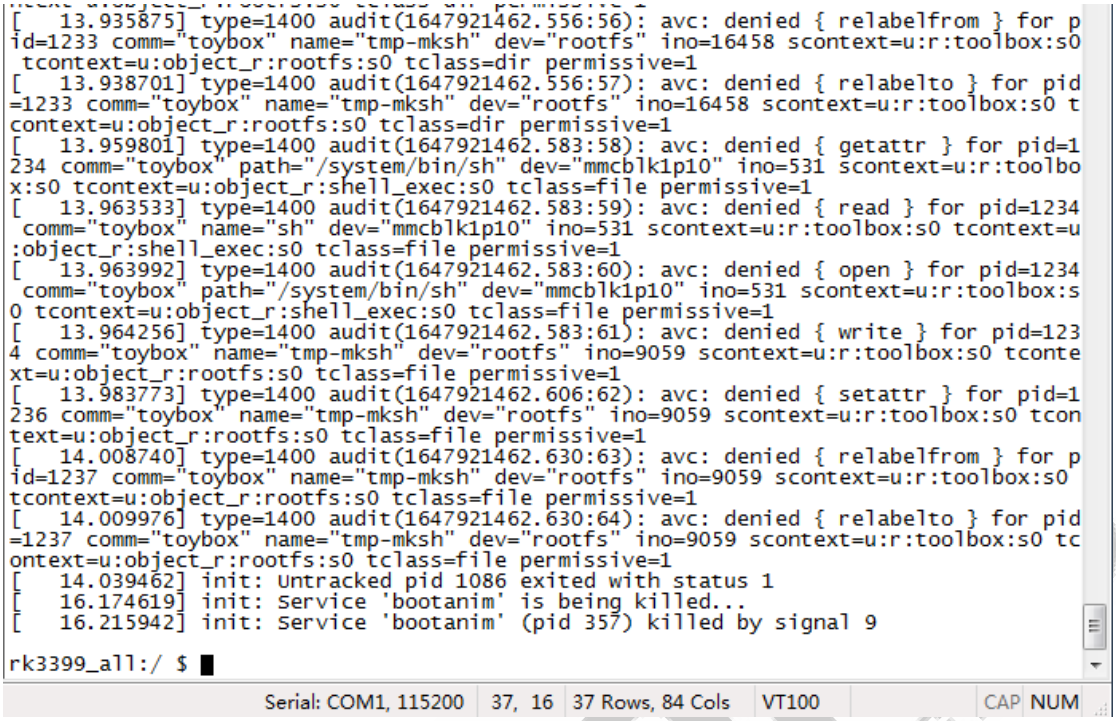
Please read ***GF-RK3399-Kit Hardware Manual***, ***GF-RK3399-Kit Android User Manual*** before using the development kit.

The development kit has flashed firmware, you can test directly.

Serial Debugging

Please debug serial port by referring to ***GF-RK3399-Kit Android User Manual***

Power on, then connect the debug port normally, enter the file system by debug port.



ADB Debug:

To do ADB debug by referring to ***GF-RK3399-Kit Android User Manual***.

Ⅱ.Mainboard Test

2.1. Monitor Test

Support LVDS & HDMI.

7 Inch LVDS screen test:

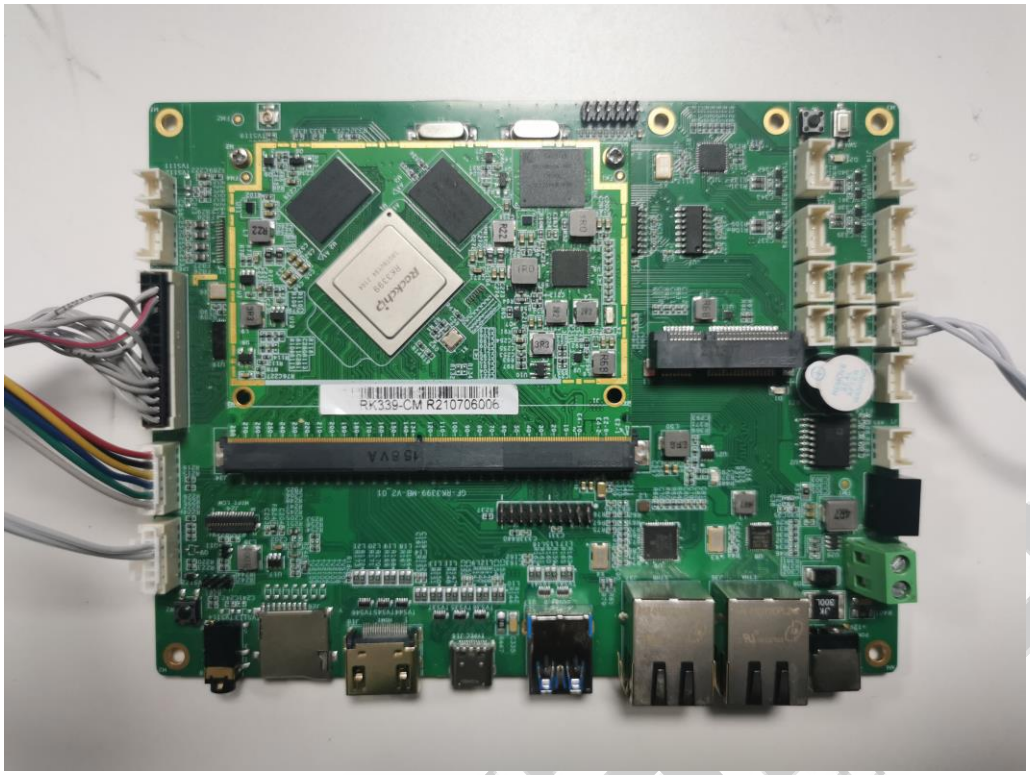
It supports paired 7-inch LVDS screen, model no: QY-HJ070NA-V1.2, pixel:1024*600

LVDS signal connector -J20,

LVDS backboard power Connector-J22,

I2C Capacitive Touch Panel-J21,

Connection between mainboard with 7-inch LVDS screen:



The screen will display the Android system when the board boots.

If you didn't purchase 7-inch LVDS screen, please use HDMI monitor to test.

2.2. Serial Port Test

The development kit provides 8-ch UART(Including 1-ch debug port, 1-ch RS485); including SPI1 expansion port is matching device node [ttysWK10~13], SPI2 expansion UART port is matching device node [ttysWK20~23].

Corresponding Node:

UART	Location	Device Node
DBG(Debug Port)	J7(PIN1-TX; PIN2-RX; PIN3-GND)	
COM1(RS232)	J2 (PIN1-TX;PIN2-RX;PIN3-GND)	/dev/ttysWK11
COM2(RS232)	J3 (PIN1-TX; PIN2-RX; PIN3-GND)	/dev/ttysWK12
COM3(RS232)	J4 (PIN1-TX; PIN2-RX; PIN3-GND)	/dev/ttysWK13
COM4(RS232)	J5 (PIN1-TX;PIN2-RX;PIN3-GND）	/dev/ttysWK21
COM5(RS232)	J6 (PIN1-TX;PIN2-RX;PIN3-GND)	/dev/ttysWK22
RS485	J1(PIN1-B;PIN2-A;PIN3-GND)	/dev/ttysWK10
UART-TTL	J8(PIN1-GND;PIN2-TX;PIN3-RX;PIN4-3V3)	/dev/ttysWK23

Test Tool: serial_test.apk or other UART test apk.

Remark: When testing RS485, the baud rate hardware limitation <115200bps.

2.3.USB Test

Development kit provides 4-ch USB-HOST(USB2.0),J12~J15. Need to use the provided USB patch cord.

Mouse usage: Use USB port to connect mouse to operate.

USB Flash Disk Test:

Insert USB flash disk, Android system recognize device automatically;

Enter ‘Menu’ interface, open ‘Resource Manager’, to check the content of the memory disk.

2.4.TF Card Test

TF Card Socket:J26, insert TF card, Android system recognize device automatically;

Enter ‘Menu’ interface, open resource manager->SD Card, to check the content of the memory disk.

2.5.Audio & Video Test

The development kit provides 1-ch binaural audio output port (Earphone), 2-ch amplifier output port-J29,1-ch MIC record port-J27

Audio Play:

Put the audio file (mp3 format) to the USB flash disk;

Open ‘Music’ player in ‘Menu’ interface;

Select audio file to play, then use amplifier output (amplifier) to play music.

Video Play:

Put the video file (mp4 format) to the USB flash disk;

Open ‘Video player’ in ‘Menu’ interface to play;

Record Test:

If record testing is needed, you can test through J127-MIC port.

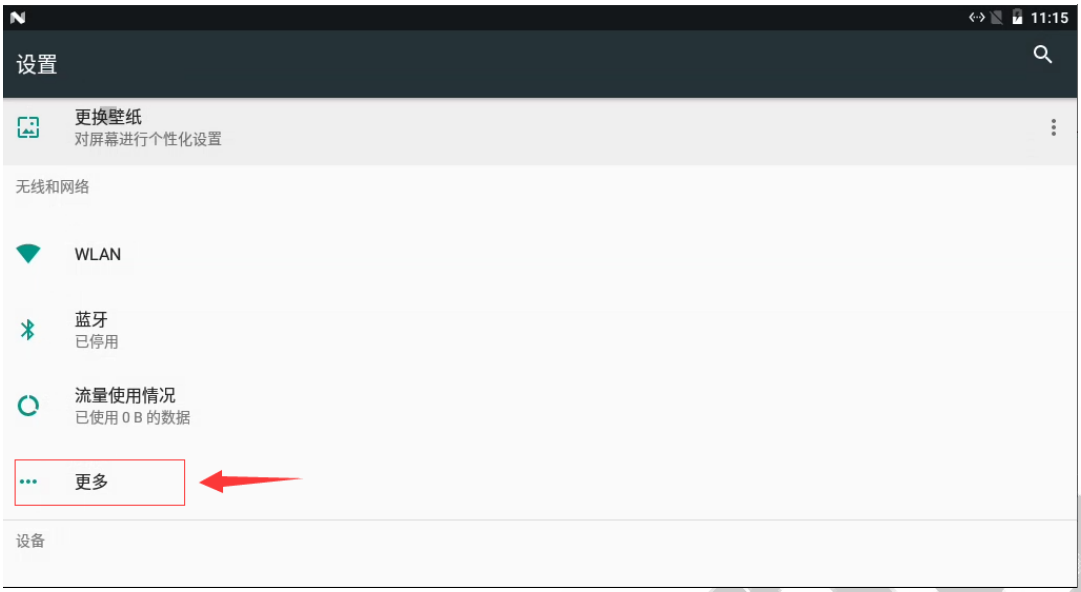
Open ‘Recorder’ in ‘Menu’ interface to do record and play test;

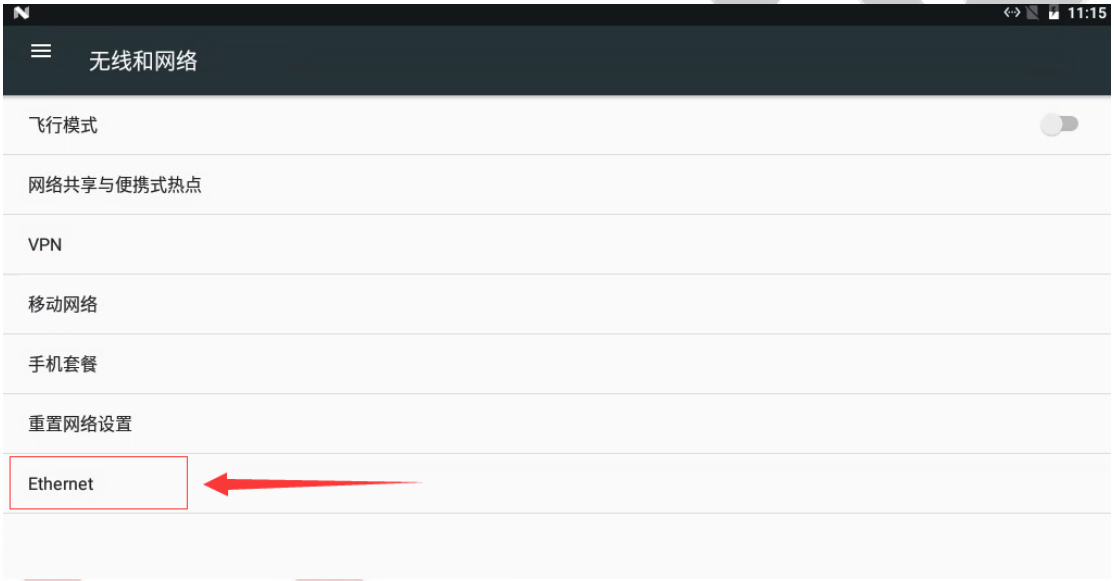
2.6. Ethernet Test

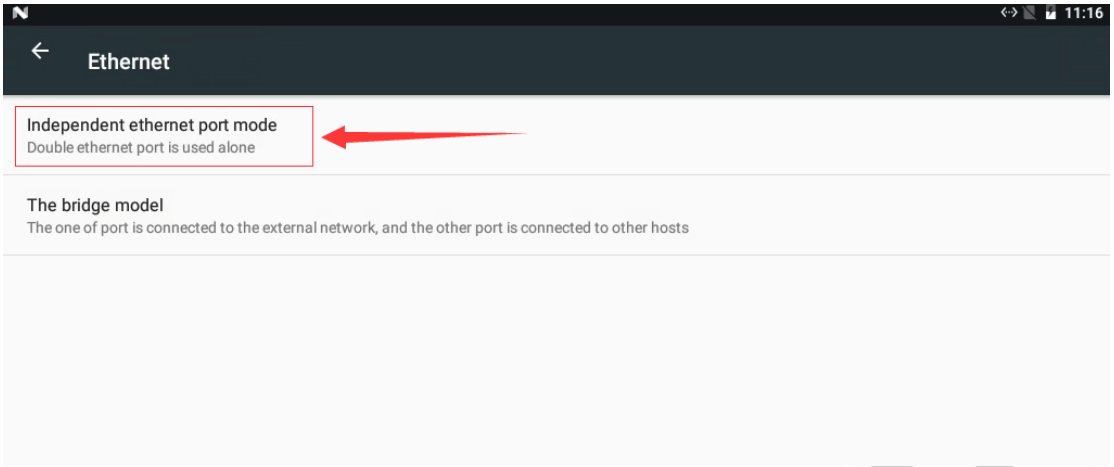
The development kit provides 2-ch Gigabit Ethernet, 2-ch Gigabit Ethernet can be used independently.

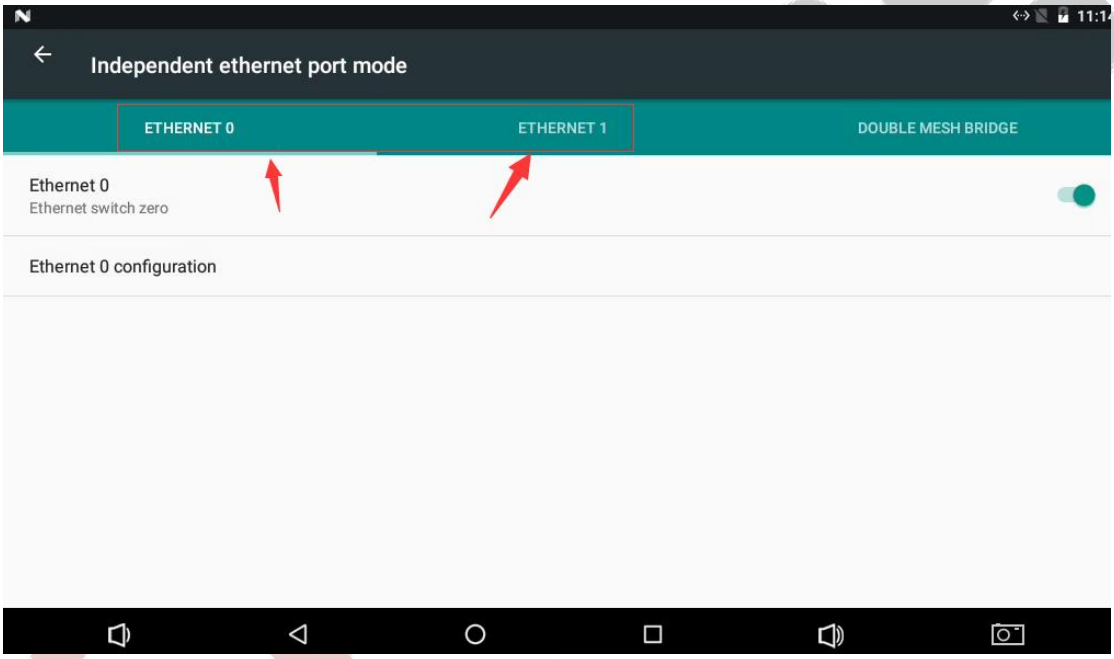
Corresponding Node: (Ethernet0 -J36 &Ethernet1 -J37)

Set->More->Ethernet-> Independent ethernet port mode->Ethernet 0/1

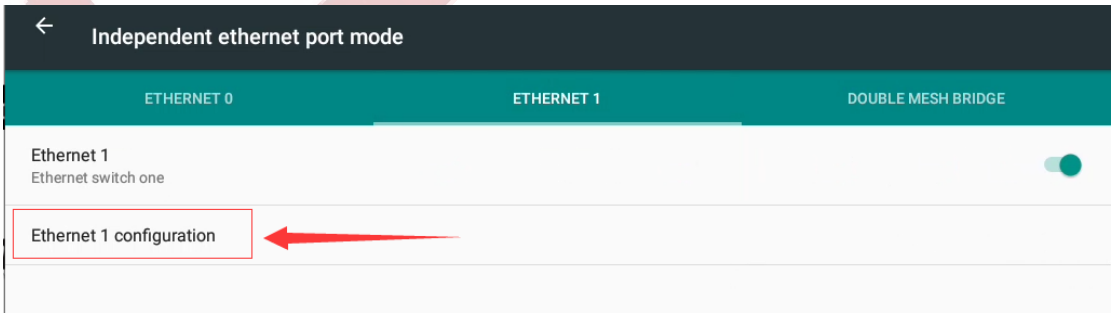




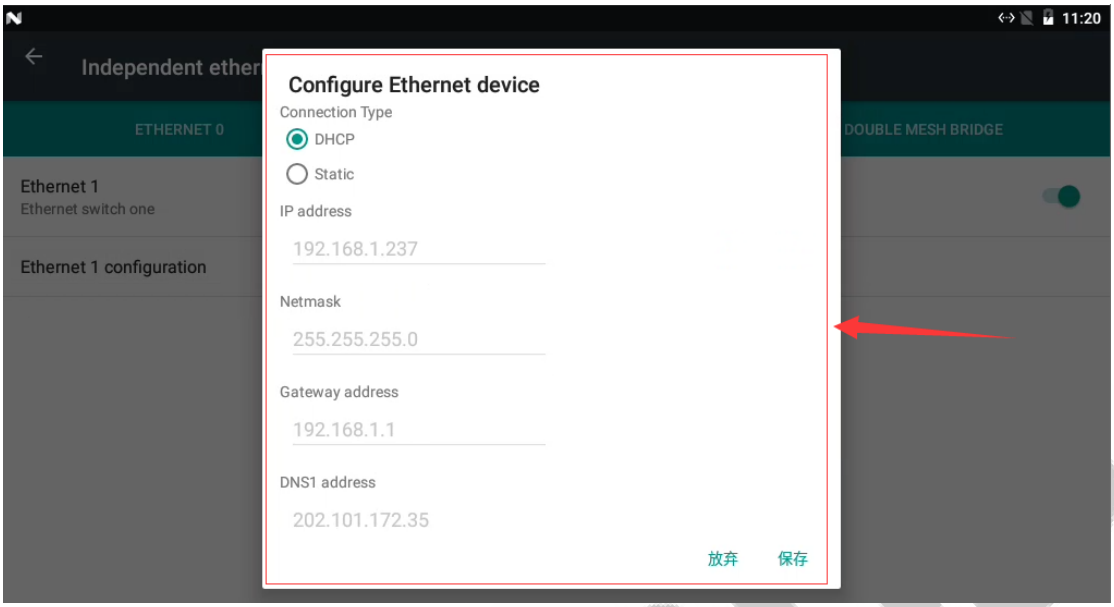




Each Ethernet could be configured independently: DHCP & Static IP

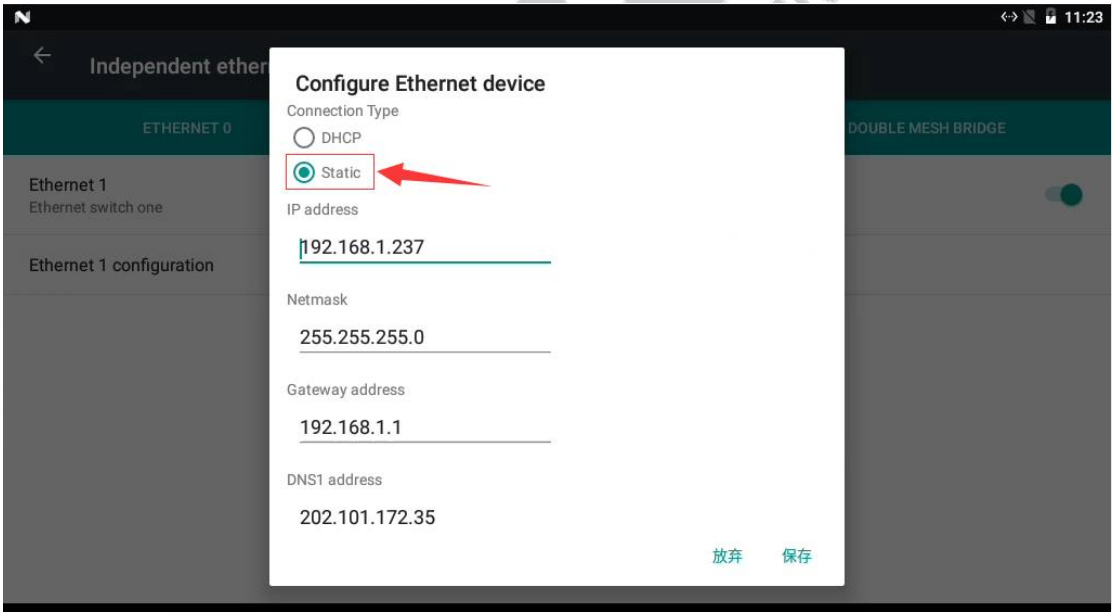


By defualt, the system obtians IP address by DHCP.



In ‘Connection Type’ column, the Ethernet connection mode- DHCP & Static, in ‘Static’ mode, the Ethernet could be configured:

Note: IP address segment could be configured by your testing segment.



Set IP information correctly, it could do ‘Connection Test’ through Android main interface ‘Explorer ‘

2.7. WIFI Test

The development kit is onboard with WIFI module, supports 802.11a/b/g/n/ac protocol.

It needs external antenna for testing WIFI function, onboard with WIFI-IPEX antenna socket which needs to connect WIFI antenna externally.

Disconnect ‘Ethernet’ while testing WIFI;

Open ‘WIFI’ in ‘Setting’

Open ‘Search’ in menu interface, to do connection test.

2.8. Bluetooth Test

The development kit is onboard with Bluetooth module, it supports Bluetooth 4.0.

Open Bluetooth in ‘Setting’, then do Bluetooth connection test.

2.9. 4G Test

The development kit is onboard with MINI-PCIE socket, it is used for connecting 4G module (USB2.0); It needs to connect 4G module, here, take an example of EC20 module.

Insert 4G module and SIM card;

Disconnect WIFI, Ethernet;

Open ‘Search’ in Menu interface, to do connection test.

2.10. Language & Input Method Setting

Android comes with language setting.

Find out ‘Language and Input Method’ option in ‘Setting’, then you can set.

2.11.Time Setting

Find ‘Date and Time’ option, to do time setting in ‘Setting ‘in Android Interface.

Automatically obtains the time from the network and automatically sets the time zone when the network connection is valid.

You can also manually set the date, time and format.

Ⅲ.Summary

Till now, the functional test is finished.

If any errors occurred in the documentation, please correct us.

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