

Rockchip Battery IPC Introduction

ID: RK-SM-YF-390

Release Version: V1.1.0

Release Date: 2021-02-03

Security Level: Top-Secret Secret Internal Public

DISCLAIMER

THIS DOCUMENT IS PROVIDED "AS IS". ROCKCHIP ELECTRONICS CO., LTD. ("ROCKCHIP") DOES NOT PROVIDE ANY WARRANTY OF ANY KIND, EXPRESSED, IMPLIED OR OTHERWISE, WITH RESPECT TO THE ACCURACY, RELIABILITY, COMPLETENESS, MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR NON-INFRINGEMENT OF ANY REPRESENTATION, INFORMATION AND CONTENT IN THIS DOCUMENT. THIS DOCUMENT IS FOR REFERENCE ONLY. THIS DOCUMENT MAY BE UPDATED OR CHANGED WITHOUT ANY NOTICE AT ANY TIME DUE TO THE UPGRADES OF THE PRODUCT OR ANY OTHER REASONS.

Trademark Statement

"Rockchip", "瑞芯微", "瑞芯" shall be Rockchip's registered trademarks and owned by Rockchip. All the other trademarks or registered trademarks mentioned in this document shall be owned by their respective owners.

All rights reserved. ©2021. Rockchip Electronics Co., Ltd.

Beyond the scope of fair use, neither any entity nor individual shall extract, copy, or distribute this document in any form in whole or in part without the written approval of Rockchip.

Rockchip Electronics Co., Ltd.

No.18 Building, A District, No.89, software Boulevard Fuzhou, Fujian, PRC

Website: www.rock-chips.com

Customer service Tel: +86-4007-700-590

Customer service Fax: +86-591-83951833

Customer service e-Mail: fae@rock-chips.com

Preface

Overview

This document is going to introduce the usage instructions of battery IPC.

Product Version

Chipset	Kernel Version
RV1126/RV1109	Linux 4.19

Intended Audience

This document (this guide) is mainly intended for:

Technical support engineers

Software development engineers

Version	Author	Date	Change Description
V0.0.1	LLDM,HZH	2020-10-20	Initial version
V0.0.2	CTF	2020-11-12	Add video push introduction
V1.0.0	LLDM,CTF	2020-11-25	Add numbering process and update app introduction
V1.1.0	WZH	2021-02-03	Add binocular introduction
V1.1.1	ZXL	2021-08-17	Update document ID and product version

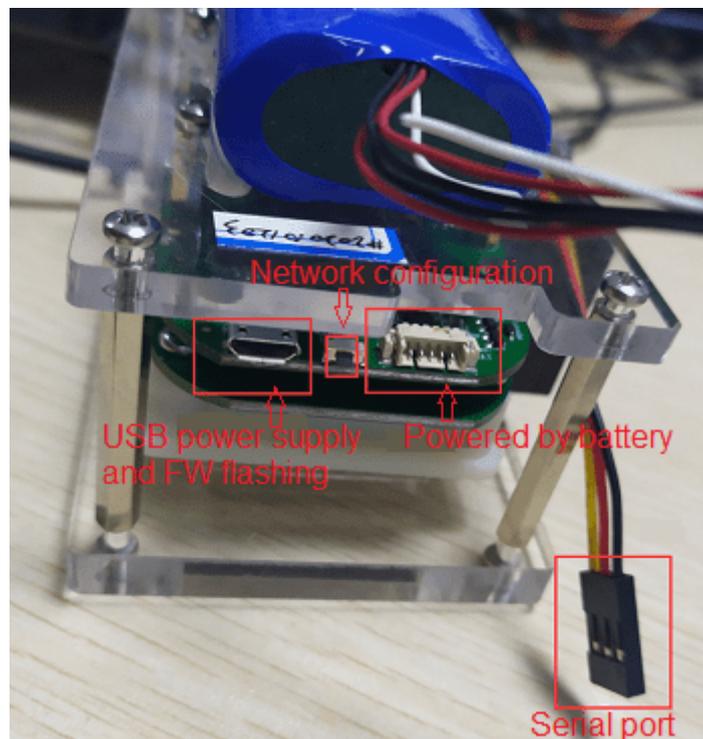
Contents

Rockchip Battery IPC Introduction

1. Hardware Introduction
 - 1.1 Power-on Introduction
 - 1.2 Flashing Introduction
 - 1.3 Keys Introduction
 - 1.4 PIR Introduction
 - 1.5 Status Indicator Light Introduction
2. Certification Process
3. Network Configuration Process
 - 3.1 QR Code Network Configuration
 - 3.2 Command Line Configuration Network
4. Binding Process
 - 4.1 Scan Local Devices
 - 4.2 Scan the QR Code to Bind
5. Shutdown Process
6. Wake-up Process
 - 6.1 APP Wake Up
 - 6.2 Key to wake up
7. Two-way Intercom
8. Video Stream Push
9. LAN Preview (RTSP)
10. Binocular Preview
11. Frequently Used Script
 - 11.1 Network Configuration Script
 - 11.2 Shutdown Script
12. Notices
13. Debug

1. Hardware Introduction

1.1 Power-on Introduction



It can be powered by USB or battery. **However, only using USB power supply may be unstable, for it may cause restart probably, on the other hand, using USB power supply cannot enter sleep mode.**

1.2 Flashing Introduction

You have to connect a serial port cable and micro-USB cable to the board, with the serial port baud rate is 1500000, enter the reboot loader command, (or press and hold the network button, and then press the RESET button) to enter the flashing mode, and flashing by RKDevTool.

About how to use RKDevTool, please refer to SDK\tools\windows\RKDevTool\RKDevTool_Release\
《RKDevTool_manual_v1.2_cn》

1.3 Keys Introduction

The network configuration key is used to enter [Network Configuration Process](#).

KEY WAKE button (next to the mipi cable of the camera), used to wake up manually.

The RESET button (next to the SD card slot) is used to restart.

1.4 PIR Introduction

PIR is triggered when someone passes by within a certain distance. If the device is in a sleep state, the device will be awakened. At present, you can use the command line to input the following commands to control the sensitivity:

```
echo xxx> /proc/pir/sensibility
```

1.5 Status Indicator Light Introduction

Red light: always on means the device is operating normally; flashing means it is going to sleep.

Blue light: always on means that the device is connected to the Internet, flashing means it is entering the network configuration mode.

Indicator light	Device is running(network is not configured)	Device is entering sleep mode	Device is slept	Device is running(network is configured)	Device is configuring network
Red light	Always on	Flashing	off	Always on	Always on
Blue light	off	Always on	off	Always on	Flashing

Note: Demo currently without the function of network disconnection detection, so sometimes the blue light may still be on when the network is disconnected with a small probability;

2. Certification Process

Currently, Alibaba Cloud IoT devices should be bound with a quadruple certificate to connect to the cloud. The quadruple certificate is currently stored in the Vendor partition.

There are two ways to write this number. **Ensure that the quadruple of each device is unique and has been added to the cloud.**

1. Use tools\windows\RKDevInfoWriteTool in the SDK directory. In the settings, set the ID of the custom item to 255, make the device enter the loader or maskrom mode, and then write the following string, note: the quadruple should be replaced with an actual one.

```
1 | {"product_key":"a139oQFoEu6","product_secret":"LKDL0I0nJmp8m7aH","device_name":"rk-test","device_secret":"0d112ef86309f06ac0b606b06d56eae1"}
```

2. Use the serial port or ADB, enter the following command on the device side, note: the quadruple should be replaced with an actual one.

```
1 | vendor_storage -w VENDOR_CUSTOM_ID_FF -t string -i {"product_key\" : \"a139oQFoEu6\", \"product_secret\" : \"LKDL0I0nJmp8m7aH\", \"device_name\" : \"rk-test\", \"device_secret\" : \"0d112ef86309f06ac0b606b06d56eae1\"}
```

3. Network Configuration Process

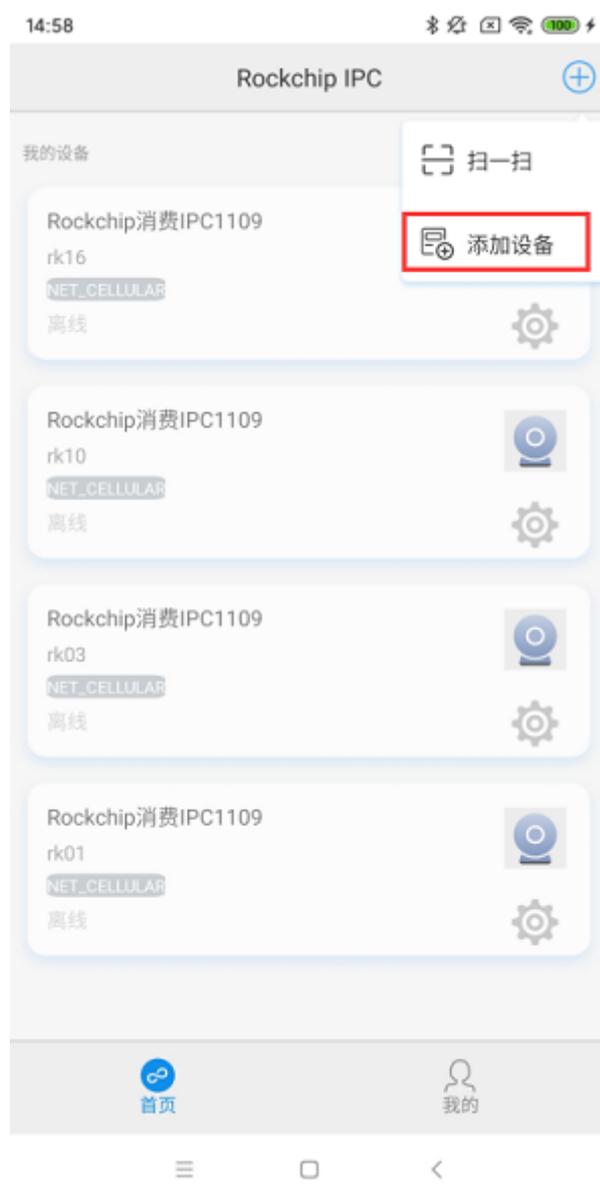
APP: RockchipBatteryIPC_1.1.4.apk

APP version is 1.1.4

3.1 QR Code Network Configuration

When entering the APP, you have to register an Alibaba Cloud IoT account. For details, please see the app login interface.

1. Enters the main interface of the APP, click the "+" icon in the upper right corner to add device.



2. Then click "Add Method--->QR Code Add" in the upper right corner.



3. Entering the network configuration interface will automatically obtain the WiFi currently connected to the phone. If the phone is not connected to a WiFi, you need to manually enter the ssid, then enter the WiFi password, and click OK to generate a QR code.



4. Short press the network configuration button next to the USB interface of the board to enter the network configuration process for 5 seconds. **Note: It is necessary to ensure that the red light of the device is always on and not entering shutdown process.** See [Shutdown Process](#) for details.
5. Face the QR code directly to the camera, with the distance about 20~30 cm.
6. **If the camera recognize the QR code, the blue light will start to flash**, indicating that it is connecting to WiFi.
7. **If the network configuration is successful, the blue light is always on.**

Notice:

If the blue light stays off, it means that the device is not connected to the Internet. Please make sure that the red light is always on and the board has not entered the shutdown state, and then retry steps 4~7.

Change network:

The basic steps are the same as the network configuration process. It should be noted that after the network is successfully changed, the [Network Configuration Script](#) will restart the mediaserver and reconnect to Alibaba Cloud.

3.2 Command Line Configuration Network

Enter the following command through the serial port:

```
1 killall tb_start_wifi.sh # first stop the previous network configuration
  script
2 tb_start_wifi.sh ssid passwd true # ssid and passwd are the wifi name and
  password
```

4. Binding Process

It requires that the device is connected to the Internet before binding.

4.1 Scan Local Devices

The phone and the device need to be connected to the same WiFi, click to add a device in the upper right corner, and then discover the device locally.

扫描本地设备...

本地发现设备



hzhzhz

绑定

支持添加的设备



Rockchip消费IPC1109

连接



Rockchip行业IPCRV1109

连接



瑞星我的第一个摄像头rv11...

连接



第二个摄像头第二个摄像头...

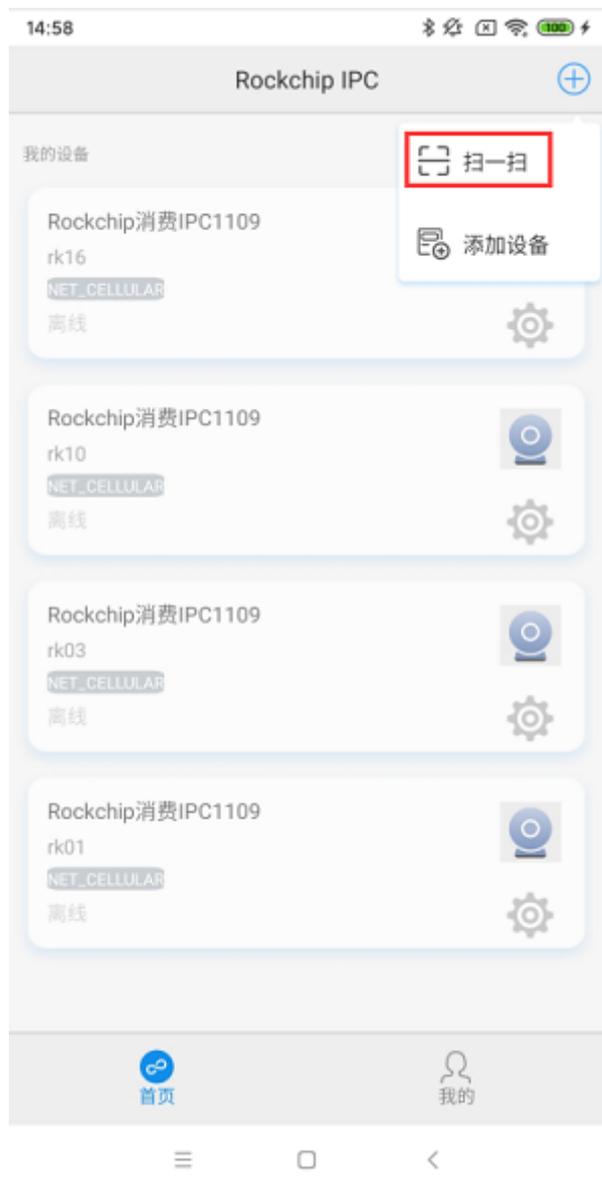
连接





4.2 Scan the QR Code to Bind

If there is a QR code on the device, click the "+" icon--->scan in the upper right corner of the APP main interface, scan the QR code to bind.



5. Shutdown Process

There are currently two conditions for triggering shutdown:

1. No one previews within 90 seconds after booting up.
2. 5 seconds after the preview exits.

If the red light flashes, it means it is shutting down. Please do not operate the APP at this time, otherwise the status may be wrong.

If the red light is off, it means it has entered the shutdown state.

The shutdown time can be modified through [Shutdown script](#).

Notice:

It cannot enter sleep mode when powered by USB.

6. Wake-up Process

6.1 APP Wake Up

1. Clicks the device on the APP to enter the preview interface. If the device is in sleep state at this time, APP will automatically send a wake-up command.

Note: Due to network problems, the APP may not be able to obtain the media stream in time after waking up. You need to return to the main interface and click the device again to enter.

6.2 Key to wake up

Please refer to [Hardware Introduction](#)

7. Two-way Intercom

Enters the preview interface on the APP, click on the intercom icon to start two-way intercom.

Please make sure the microphone and speakers of the device are normal



8. Video Stream Push

1. Enters the preview interface on the APP, click the setting button on the far right at the bottom to enter the setting interface
2. Get free cloud storage

Alibaba IOT platform provides a certain amount of free cloud storage, and each device can only be used once. By default, you can get 3 months of 7-day cyclic event cloud storage monthly package for free. Repeated getting will prompt "no enough quota or exceed three users limit"

After the device is successfully bound, it will automatically receive 3 months of free cloud storage; you can find the details of the free cloud storage and package expiration time from the device's setting interface---->Cloud storage details--->Query free cloud storage details, etc.



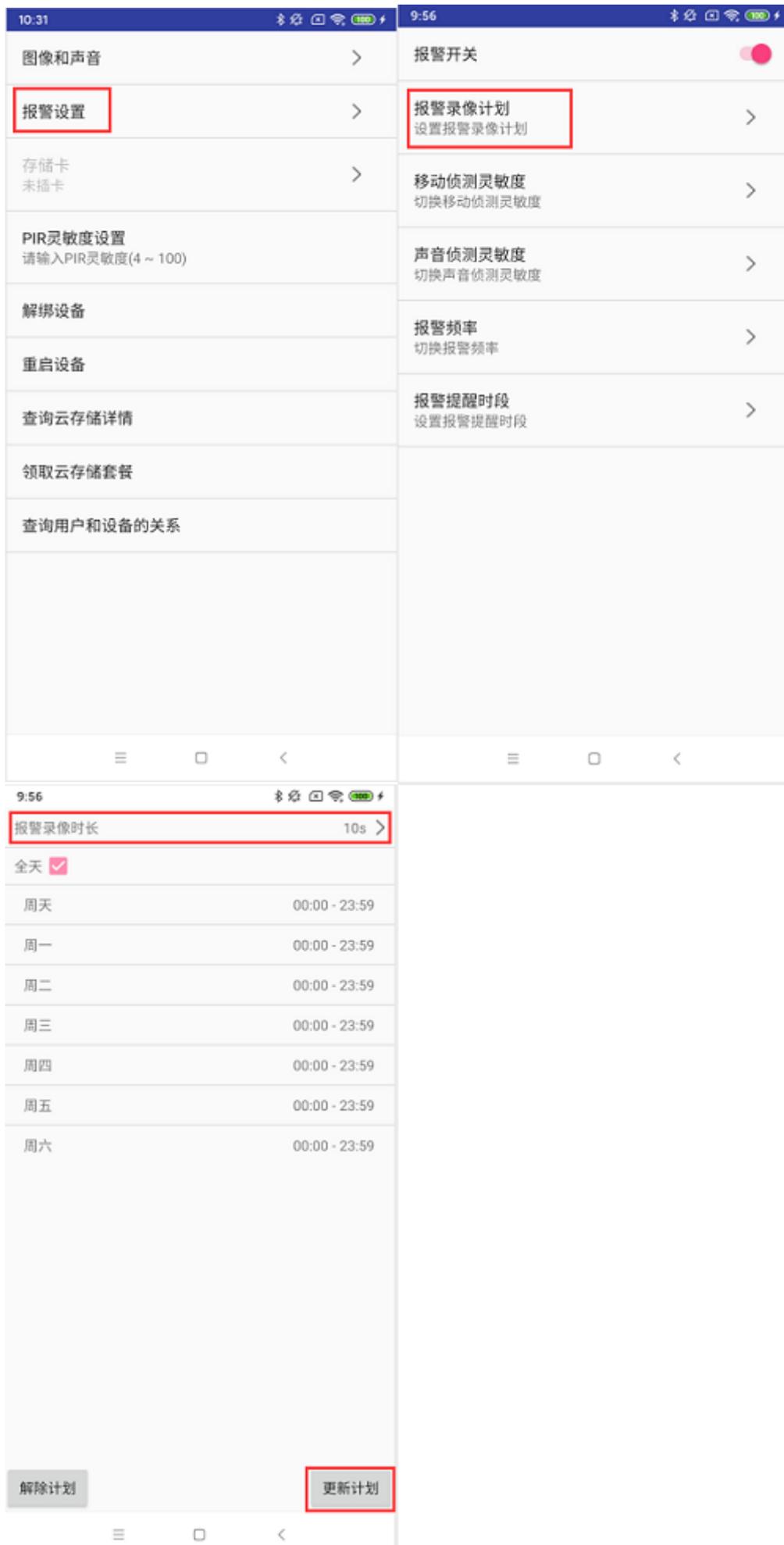
3. Check the relationship between the user and the device

Only the Owner has the authority to set the alarm recording plan. The current sharing method is: the first user to connect to the device is Owner, and the later users to connect are Sharers.



4. Set alarm recording plan

Click Alarm Settings--->Alarm Recording Plan to enter the setting interface, you can configure the recording duration (10s, 20s, 30s), all-day recording or time-by-time recording; after configuration, update the plan to take effect. After setting the recording plan, when the event reported by the device falls within the planned range, the device will be notified to push the stream and save it as cloud storage recording.



5. Alarm on the device side

At present, after the device's application is started, it will actively report an alarm event to trigger the recording.

6. View alarm recording

Short press the exclamation mark icon on the far left at the bottom of the preview interface to view the cloud recording timestamp, long press to view the cloud recording list.

9. LAN Preview (RTSP)

It is supported to preview the device in the same local area network. After the device is connected to the Internet, use the PC's RTSP software to open the network stream and enter:

```
1 | rtsp://(IP address of your device)/live/video0
```



You can preview the image of the camera:



10. Binocular Preview

Using BoardConfig-dualcam-tb-v13.mk to build. After that, use rkmedia_vi_double_cameras_test to preview.

Usage:

```
1 | rkmedia_vi_double_cameras_test -a /etc/iqfiles/ -u 0
```

For detailed introduction of rkmedia_vi_double_cameras_test, please refer to the document "Rockchip_Developer_Guide_Linux_RKMedia_CN.pdf".

11. Frequently Used Script

11.1 Network Configuration Script

The network configuration script is located in /usr/bin/tb_start_wifi.sh

11.2 Shutdown Script

The shutdown script is located in /usr/bin/auto_poweroff.sh

12. Notices

1. Please ensure that the connection between the network and the Alibaba Cloud server is normal. Some networks may restrict access to Alibaba websites such as Taobao, which may cause errors in the APP operation process.

2. **If the device is not in use, please unplug the battery. Prevent the battery from over-discharging due to frequent wake-up of PIR.**
3. **After the device is shut down, the video stream waits a long time after the APP wakes up the device. This is caused by the slow connection of the Alibaba Cloud program to the cloud, which will be updated later.**
4. **The app exits the preview within 10s, will cause slower to enter the sleep mode, and the app wake up for a longer time next time. This is also due to a problem with the Alibaba Cloud program, which will be updated later.**
5. **As there are too many types of routers, there may be unknown compatibility issues. It is recommended to use a personal router for testing.**

13. Debug

In order to save power consumption and reduce boot time, log printing is turned off by default. If you encounter unknown problems, you can connect to the serial port (baud rate 1500000) and enter the following command:

```
echo "7 4 1 7"> /proc/sys/kernel/printk
```

Reproduce the problem and save the log, commit it to Rockchip's redmine system, our FAE will assign the corresponding engineer to follow up.