RK3399 Linux Buildroot System Development Guide

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福州瑞芯微电子股份有限公司

Fuzhou　Rockchips　Semiconductor　Co . , Ltd

Revision History

Date	Version No.	Revision Note	Author	Checker
2017-01-09	V1.0	Initial version	hgc	lby
2017-02-27	V1.1	Add Linux PC download tool	hgc	lby

Content

一 、 Compilation

1、 uboot compilation

make rk3399_linux_defconfig && make ARCHV=aarch64 -j12

2 、 kernel compilation

make ARCH=arm64 rockchip_linux_defconfig && make ARCH=arm64 rk3399-sapphire-excavator-linux.img -j12

3、 rootfs system and app compilation

cd buildroot && make rockchip_rk3399_defconfig && cd .. &&   ./build_all.sh
 && ./mkfirmware.sh

4、 final image under rockimg directory

Note：

1、cross-compile environment setup:

Cross-compile tool is under buildroot/output/host/usr/ directory. Need to set tool bin/ directory and arm-rockchip-linux-gnueabihf/bin/ directory as environment variables. Or you can directly "source envsetup.sh" in top directory to config environment variable automatically. But it is only effective for current console.

2、system compile

Run "./build_all.sh", it will find rk_make_first.sh and rk_make.sh automatically in the system, and then execute compiling command. If only need to compile single module, you can enter the module directory and execute rk_make.sh or rk_make_first.sh command.

二、 Flashing image

1、 Connect power cable and usb download cable

RK3399 excavator device

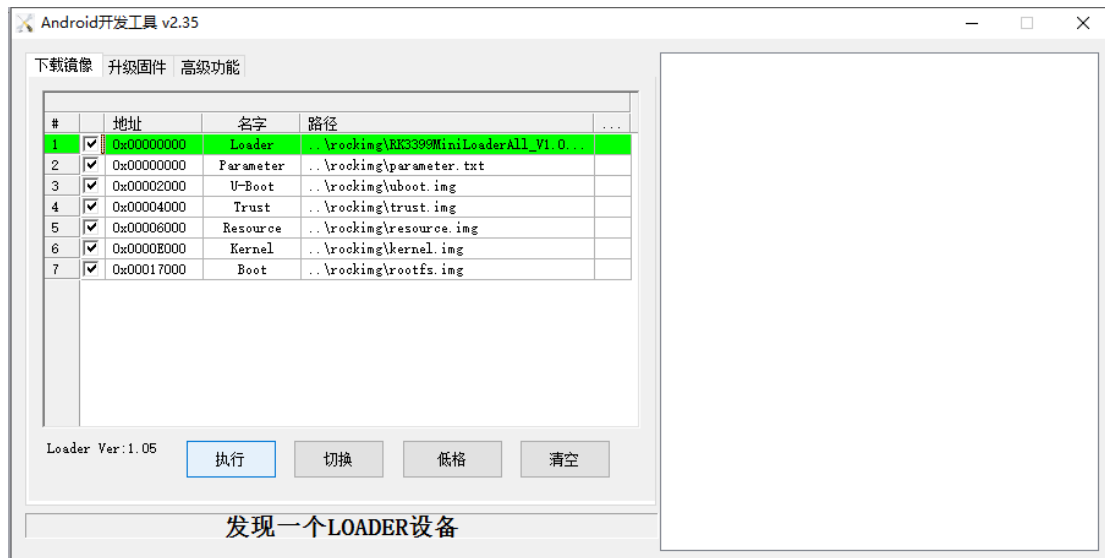## 2、Press and hold vol+ button and then press rst button

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3、Running flashing tool with PC

3.1 Window PC

Tool is in tools/windows. Run AndroidTool.exe, choose the target image and then click "Run" button as shown in below picture.

Windows flashing tool operation interface

Note:

1、boot partition in tool is corresponding to rootfs partition in Linux project.

2、Windows platform needs to install driver which is under tool directory: USB

deriver\DriverAssitant_v4.4\DriverAssitant_v4.4, directly right-click to use
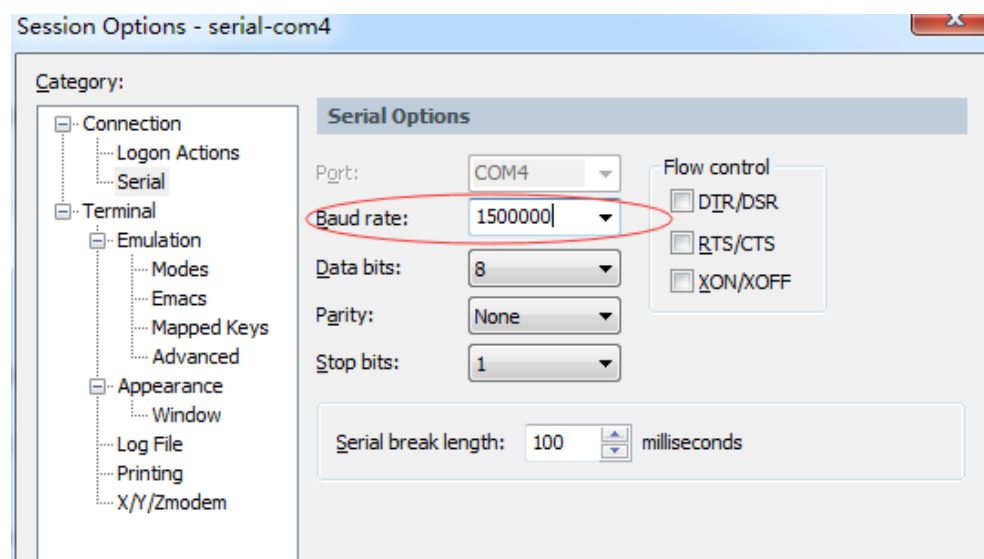admin ID to run "DriverInstall.exe" to install.

3.2 Linux PC
    Tool is in tools/linux/Linux_Upgrade_Tool. Detailed usage method refer to tool
        package document《Linux Development Tool User Manual_v1.0.pdf》.
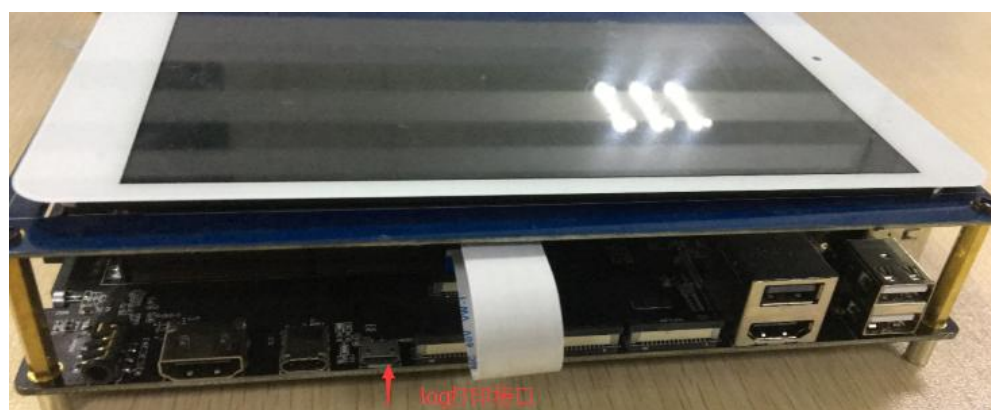   **Note:** boot partition in tool is corresponding to rootfs partition in Linux
project.

三、SecureCRT

1、baud rate parameters configuration

2、debugging information print interface

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四、Project directory introduction

There are buildroot、app、kernel、u-boot、device、common、config、docs、external、
prebuilts、rockimg、rootfs、tools etc. directories under the project directory. Each

directory or its subdirectory corresponds to one git project and submit needs to be done within respective directory.

1）buildroot：used for compiling buildroot root file system

2）rootfs：deposit debian related files

3）app: deposit upper level app, mainly for Carmachin and some testing applications.

4）external: relative libs, such as audio, video, network etc.

5）kernel：kernel code.

6）device/rockchip/rk3399：deposit boot-up initialization script, 3rd party lib, bin,alsa/wifi etc. configuration files. Also deposit compiling script. System root directory's several sh scripts are all copied from this directory when repo sync, so if want to submit revised script, need to operate under the directory of device/rockchip/rk3399.

    build_all.sh : compile all 3rd party libs and applications.

    mkfirmware.sh：pack the final target image.

    envsetup.sh：terminal environment variable setting.

7）docs：deposit project help document.

8）prebuilts：deposit gcc and cross-compile tools chain needed for compiling kernel.

9）rockimg：deposit compiling output image.

10）tools：deposit flashing tool.