Rockchip RK3566_RK3568 Linux5.10 SDK Release Note

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Preface

Overview

The document presents Rockchip RK3566_RK3568 Linux SDK release notes, aiming to help engineers get started with RK3566/RK3568 Linux SDK development and debugging faster.

Intended Audience

This document (this guide) is mainly intended for:

Technical support engineers

Software development engineers

Chipset and System Support

Chipset	Buildroot	Debian	Yocto
RK3566	Y	Y	Y
RK3568	Y	Y	Y

Revision History

Date	Version	Author	Revision History
2022-09-20	V1.0.0	Caesar Wang	Initial version
2022-10-20	V1.0.1	Caesar Wang	Update to V1.0.1。
2022-11-20	V1.0.2	Caesar Wang	Update to V1.0.2。
2022-12-20	V1.0.3	Caesar Wang	Update to V1.0.3。
2023-04-20	V1.1.0	Caesar Wang	Update to V1.1.0。
2023-05-20	V1.1.1	Caesar Wang	Update to V1.1.1。
2023-06-20	V1.2.0	Caesar Wang	Update to V1.2.0。
2023-07-20	V1.2.1	Caesar Wang	Update to V1.2.1。
2023-09-20	V1.3.0	Caesar Wang	Update to V1.3.0。
2023-12-20	V1.4.0	Caesar Wang	Update to V1.4.0。
2024-06-20	V1.5.0	Caesar Wang	Update to V1.5.0。

Contents

1. Overview

This SDK supports three systems, each based on Buildroot 2021.11, Debian 11, and Yocto 4.0, with the kernel based on Kernel 5.10 and booting based on U-boot v2017.09. It is suitable for RK3566/RK3568 EVB development boards and all Linux products that are secondarily developed based on these boards.

The development package is applicable but not limited to cloud terminals/industrial motherboards and other AIoT products, providing a flexible data pathway combination interface to meet customers' customized needs for free combination. For specific function debugging and interface descriptions, please read the documents in the docs/ directory of the project.

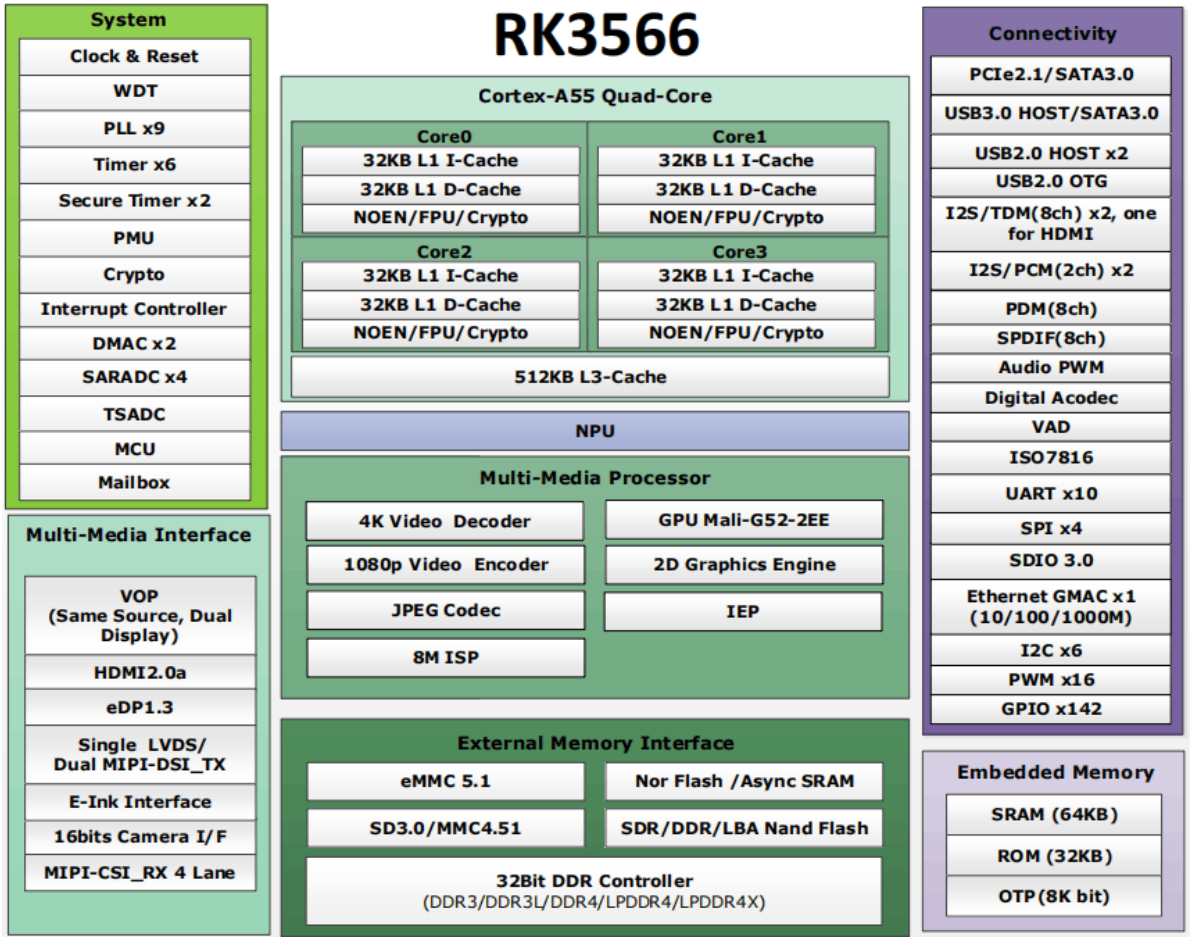
2. Main Supported Features

Feature	ModuleName
System	Debian, Yocto, Buildroot
Partition Table	U-Boot, Misc, Boot, Recovery, Rootfs, OEM, UserData
Filesystem Types	EXT2/3/4, VFAT, NTFS, UBIFS, SquashFS
Upgrade Recovery	OTA, AB, Recovery
Secure Boot	SecureBoot
Stress Test Tools	ROCKCHIP_TEST
Data Communication	Wi-Fi, Ethernet Card, USB, SD Card, SATA, PCI-e Interface
Applications	Multimedia Playback, Camera Browsing, Desktop UI, Browser

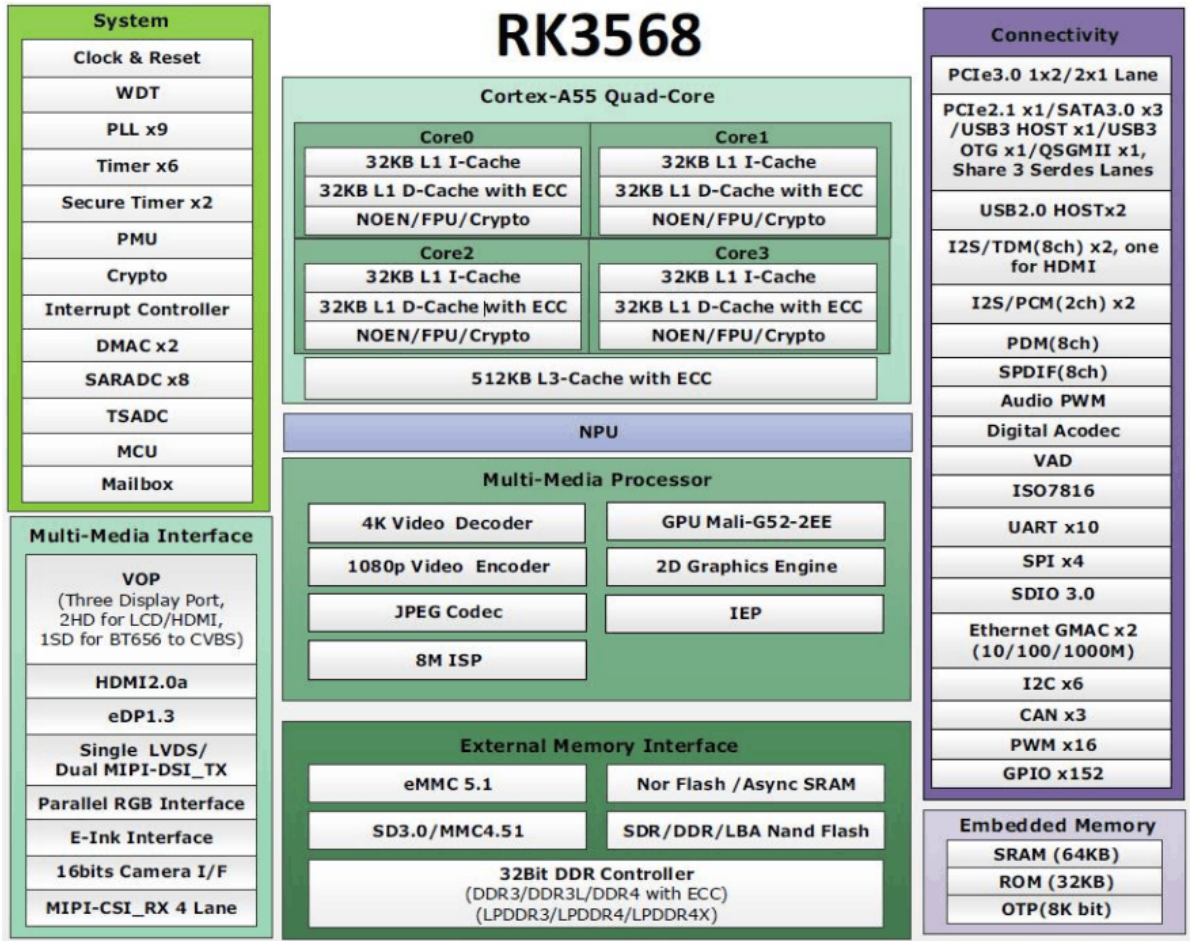
2.1 Hardware Functionality

Specific interface functions of the hardware,

- For RK3566 chips, please refer to the following chip block diagram:



- For RK3568 chips, please refer to the following chip block diagram:



3. SDK Acquisition Guide

The SDK is released and obtained through the Rockchip code server. For its compilation and development environment, refer to Chapter 4 Software Development Guide.

3.1 Method for Obtaining Linux Universal Software Packages for RK3566 and RK3568

3.1.1 Downloading via Code Server

To obtain the RK3566_RK3568 Linux software package, access to Rockchip's source code repository is required, which necessitates an account. Customers should apply for the SDK from the Rockchip technical support window and provide an SSH public key for server authentication and authorization. Once authorized, synchronization of the code is possible. For details on SSH public key authorization for Rockchip's code server, refer to Section 6 SSH Public Key Operation Instructions.

The command to download the RK3566_RK3568 Linux SDK is as follows:

```
repo init --repo-url ssh://git@www.rockchip.com.cn/repo/rk/tools/repo -u
ssh://git@www.rockchip.com.cn/linux/rockchip/platform/manifests -b linux -m
rk356x_linux5.10_release.xml
```

The `repo` is a Python script written by Google to invoke git, primarily used for downloading and managing the software repositories of projects. The download address is as follows:

```
git clone ssh://git@www.rockchip.com.cn/repo/rk/tools/repo
```

Subsequently, developers can synchronize updates according to the update instructions regularly published by the FAE window using the command `.repo/repo/repo sync -c`. If there are issues with repository downloads, the --force-sync parameter can be used for forced updates, such as `.repo/repo/repo sync -c --force-sync`. Before doing so, ensure that local modifications have been backed up.

After updating the SDK code, a clean operation is necessary, for example: `./build.sh cleanall`

> Explanation:
> The software release version can be viewed through the project xml, with the specific method as follows:

```
.repo/manifests$ realpath rk356x_linux5.10_release.xml
For example: The printed version number is v1.5.0, and the update time is
20240620
<SDK>/.repo/manifests/rk356x_linux/rk356x_linux5.10_release_v1.5.0_20240620.xml
```

3.1.2 Obtaining SDK Source Code through Local Decompression

For the convenience of customers to quickly obtain the SDK source code, Rockchip's technical support usually provides an initial compressed package of the corresponding version of the SDK. Developers can obtain the initial compressed package of the SDK code through this method. The source code obtained after decompression is consistent with the source code downloaded through repo synchronization.

Take the example of RK3566_RK3568_LINUX5.10_SDK_RELEASE_V1.5.0_20240620.tgz, after copying to the initialization package, the source code can be checked out with the following commands:

```
mkdir rk3566_rk3568
tar xvf RK3566_RK3568_LINUX5.10_SDK_RELEASE_V1.5.0_20240620.tgz -C rk3566_rk3568
cd rk3566_rk3568
.repo/repo/repo sync -l
.repo/repo/repo sync -c
```

Subsequently, developers can synchronize updates according to the update instructions regularly published by the FAE window using the command `.repo/repo/repo sync -c`.

4. Software Development Guide

For software development related to the project, please refer to the Quick Start document in the project directory:

```
<SDK>/docs/en/RK3566_RK3568/Quick-start/Rockchip_RK356X_Quick_Start_Linux_EN.pdf
```

5. Hardware Development Guide

Hardware-related development can refer to the user guide documents in the project directory:

```
<SDK>/docs/en/RK3566_RK3568/Hardware/
├── Rockchip_RK3566_EVB2_User_Guide_V1.1_EN.pdf
├── Rockchip_RK3566_Hardware_Design_Guide_V1.1_20220206_EN.pdf
├── Rockchip_RK3568_EVB_User_Guide_V1.2_EN.pdf
└── Rockchip_RK3568_Hardware_Design_Guide_V1.2_20220126_EN.pdf
```

6. SSH Public Key Operation Instructions

Please follow the instructions in the "Rockchip_User_Guide_SDK_Application_And_Synchronization_EN" document to generate an SSH public key and send an email to fae@rock-chips.com to apply for SDK code access. This document will be released for customer use during the process of applying for access rights.

6.1 Key Permission Management

The server can monitor the download count and IP information of a specific key in real time, and if any anomalies are detected, the download permission for the corresponding key will be disabled.
Please keep the private key file in a safe place and do not authorize it for use by a third party again.

6.2 Reference Documentation

For more detailed instructions, please refer to the document at `<SDK>/docs/en/Others/Rockchip_User_Guide_SDK_Application_And_Synchronization_EN.pdf`.