

Rockchip RK3576 Linux6.1 SDK Beta Note

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Preface

Overview

The document presents Rockchip RK3576 Linux6.1 SDK release notes, aiming to help engineers get started with RK3576 Linux6.1 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 |
|---------|-----------|--------|-------|
| RK3576 | Y | Y | Y |

Revision History

| Date | Version | Author | Revision History |
|------------|---------|-------------|------------------|
| 2024-04-20 | V0.1.0 | Caesar Wang | Beta version |
| 2024-06-20 | V1.0.0 | Caesar Wang | Release version |

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1. Overview

This SDK supports three systems based on Buildroot 2024.02, Debian 12, and Yocto5.0, with the kernel based on Kernel 6.1 and the bootloader based on U-boot v2017.09. It is suitable for RK3576 EVB development boards and all Linux products developed based on this board.

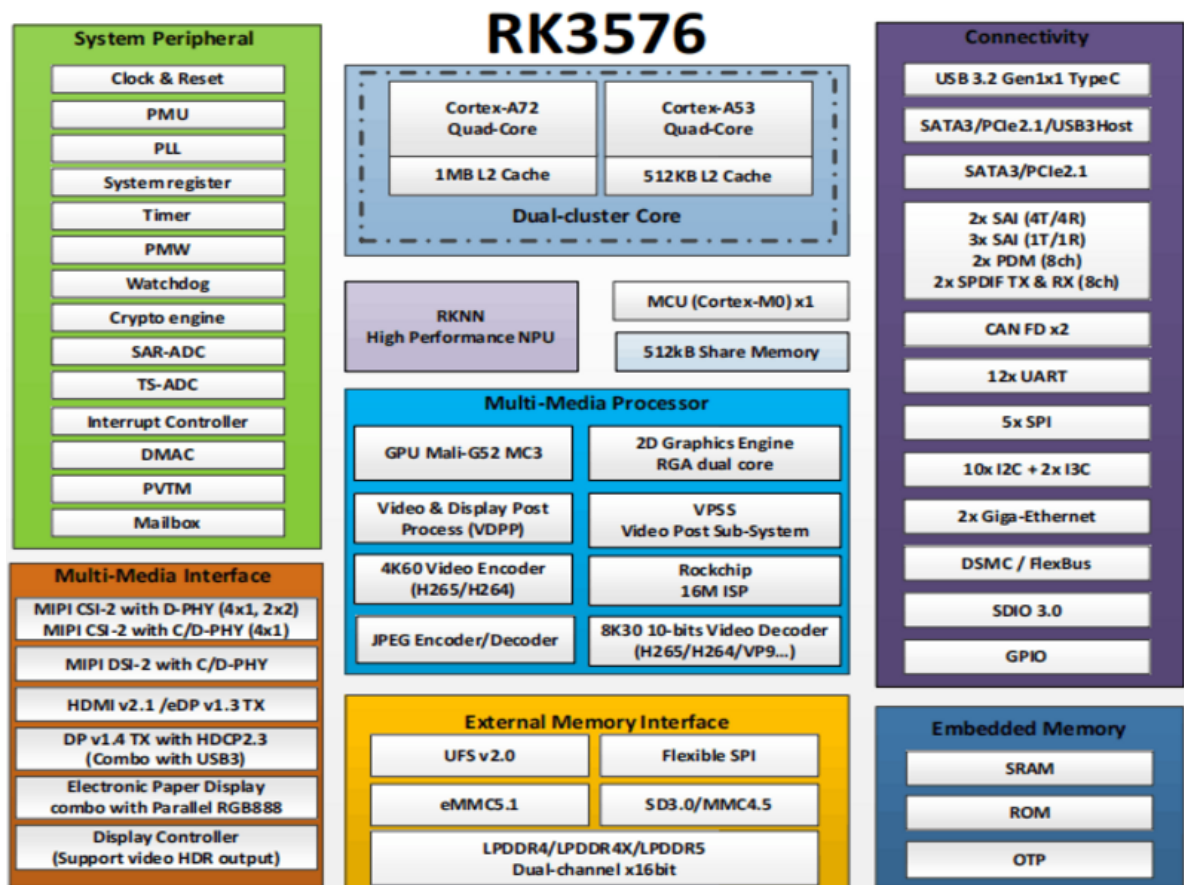
This SDK is suitable for application scenario products related to AIoT solutions, providing flexible data path combination interfaces to meet the customized requirements for free combination, please refer to the documents under the project's docs/ directory.

2. Main Functions

| Function | Module Name |
|--------------------|---|
| System | Debian, Buildroot, Yocto |
| Partition table | uboot, misc, boot, recovery, rootfs, oem, userdata |
| File System Type | EXT2/3/4, VFAT, NTFS, UBIFS, SquashFS |
| Upgrade Recovery | OTA, AB,Recovery |
| Secure Boot | SecureBoot |
| Stress Test Tool | ROCKCHIP_TEST |
| Data communication | Wi-Fi, Ethernet card, USB, SD card, SATA, PCI-e interface |
| Applications | Multimedia Playback, Camera Preview, Desktop UI, Browser |

2.1 Hardware functions

For specific hardware interface functions, please refer to the RK3576 chip diagram below



3. How to Get the SDK

The SDK is released by Rockchip server. Please refer to Chapter 4 [Software Development Guide](#) to build a development environment.

3.1 Get Source Code from Rockchip Code Server

To get RK3576 Linux SDK software package, customers need an account to access the source code repository provided by Rockchip. In order to be able to obtain code synchronization, please provide SSH public key for server authentication and authorization when apply for SDK from Rockchip technical window. About Rockchip server SSH public key authorization, please refer to Chapter 6 [SSH Public Key Operation Introduction](#).

RK3576 Linux SDK download command is as follows:

```
repo init --repo-url https://gerrit.rock-chips.com:8443/repo-release/tools/repo \
-u https://gerrit.rock-chips.com:8443/linux/rockchip/platform/manifests -b \
rk3576 -m rk3576_linux6.1_release.xml
```

Repo, a tool built on Python script by Google to help manage git repositories, is mainly used to download and manage software repository of projects. The download address is as follows:

```
git clone https://gerrit.rock-chips.com:8443/repo-release/tools/repo
```

3.2 Get Source Code from Local Compression Package

For quick access to SDK source code, Rockchip Technical Window usually provides corresponding version of SDK initial compression package. In this way, developers can get SDK source code through decompressing the initial compression package, which is the same as the one downloaded by repo.

Take RK3576_LINUX6.1_SDK_RELEASE_V1.0.0_20240620.tgz as an example. After getting a initialization package, you can get source code by running the following command:

```
mkdir rk3576
tar xvf RK3576_LINUX6.1_SDK_RELEASE_V1.0.0_20240620.tgz -C rk3576
cd rk3576
.repo/repo/repo sync -l
.repo/repo/repo sync -c
```

Developers can update via `.repo/repo/repo sync -c` command according to update introductions that are regularly released by FAE window.

If you encounter issues downloading the repository, you can use the `--force-sync` parameter to force an update, as in `.repo/repo/repo sync -c --force-sync`. Before doing so, please ensure that any local modifications have been backed up.

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

Note:

The software release version can be viewed through engineering XML, as follows:

```
.repo/manifests$ realpath rk3576_linux_release.xml
e.g., the printed version is v1.0.0 and the update time is 20240620
<SDK>/.repo/manifests/release/rk3576_linux6.1_release_v1.0.0_20240620.xml
```

4. Software Development Guide

For software development, please refer to the quick start documents in the project directory:

```
<SDK>/docs/en/RK3576/Quick-start/Rockchip_RK3576_Quick_Start_Linux_EN.pdf
```

5. Hardware Development Guide

For hardware development, please refer to the following documents in the project directory:

```
<SDK>/docs/en/Socs/RK3576/Hardware$
├─ RK3576_Hardware_Design_Guide_V1.1_EN.pdf
├─ RK3576_PinOut_V1.0_20240302.xlsx
├─ RK3576_Production_Process_Requirements_V10_20240522_CN.pdf
├─ Rockchip_RK3576_EVB1_User_Guide_V1.0_EN.pdf
```

6. SSH Public Key Operation Introduction

Please follow the introduction in the “Rockchip_User_Guide_SDK_Application_And_Synchronization_EN” to generate an SSH public key and send the email to fae@rock-chips.com, to get the SDK code. This document will be released to customers during the process of applying for permission.

6.1 Key Authority Management

Server can monitor download times and IP information of a key in real time. If an abnormality is found, download permission of the corresponding key will be disabled.

Keep the private key file properly. Do not grant second authorization to third parties.

6.2 Reference Documents

For more details, please refer to document

“/docs/en/Others/Rockchip_User_Guide_SDK_Application_And_Synchronization_EN.pdf”