



Industrial PC

Buildroot Linux Qt 5.15 OS on RK3568 User Manual

For RK3568 Products

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Buildroot Linux Qt 5.15 OS

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Flashing OS Image

Download Required Tools

If you want a fresh OS, you can flash your Chipsee industrial PC.

You need two tools to flash the Buildroot Linux Qt 5.15 OS image to the RK3568 PC. The first is *DriverAssistant_v5.1.1*, the second is *RKDevTool_v2.93*, you can [download all of them here](#).

These tools are Windows executables, please execute them on a Windows machine.

If you've been using a prior version of *DriverAssistant*, click uninstall before installing *DriverAssistant_v5.1.1*.

| Name | Date modified | Type | Size |
|---------------|--------------------|------------------------|--------|
| ADBDriver | 2/26/2023 9:21 AM | File folder | |
| bin | 2/26/2023 9:21 AM | File folder | |
| Driver | 2/26/2023 9:21 AM | File folder | |
| Log | 1/11/2023 11:24 AM | File folder | |
| config | 6/3/2014 3:38 PM | Configuration settings | 1 KB |
| DriverInstall | 11/10/2020 2:15 PM | Application | 490 KB |



Download Prebuilt OS Images

If you haven't downloaded the prebuilt OS images, you can [find one here](#).

Start Flashing

After installing the DriverAssistant, you can now start to flash an OS image to the RK3568 board with *RKDevTool*. Double click the program to start flashing. The tool has English and Chinese language support.

is PC > Downloads > RKDevTool_Release_v2.93 > RKDevTool_Release_v2.93

| Name | Date modified |
|-----------------------------------------------------------------------------------------------|---------------------|
| bin | 2/26/2023 9:21 AM |
| Language | 5/23/2023 8:10 AM |
| Log | 5/23/2023 8:10 AM |
| Android7_to_Android11 | 10/18/2022 10:57 AM |
| config.cfg | 5/23/2023 8:11 AM |
| config | 5/23/2023 8:11 AM |
| README | 10/18/2022 11:10 AM |
| revision | 1/19/2022 5:38 PM |
|  RKDevTool | 1/19/2022 5:37 PM |

STEP 1:

1. Connect the Type-C cable and power on the board. (If unexpected messages occur at any of the following steps, try plugging the Type-C cable again.)
2. Click **Upgrade Firmware** tab.
3. Click **Firmware** button to select a .img Buildroot Linux Qt 5.15 image file. The screenshots show a debian11 img file is selected, but this is applicable to other OSes as well.



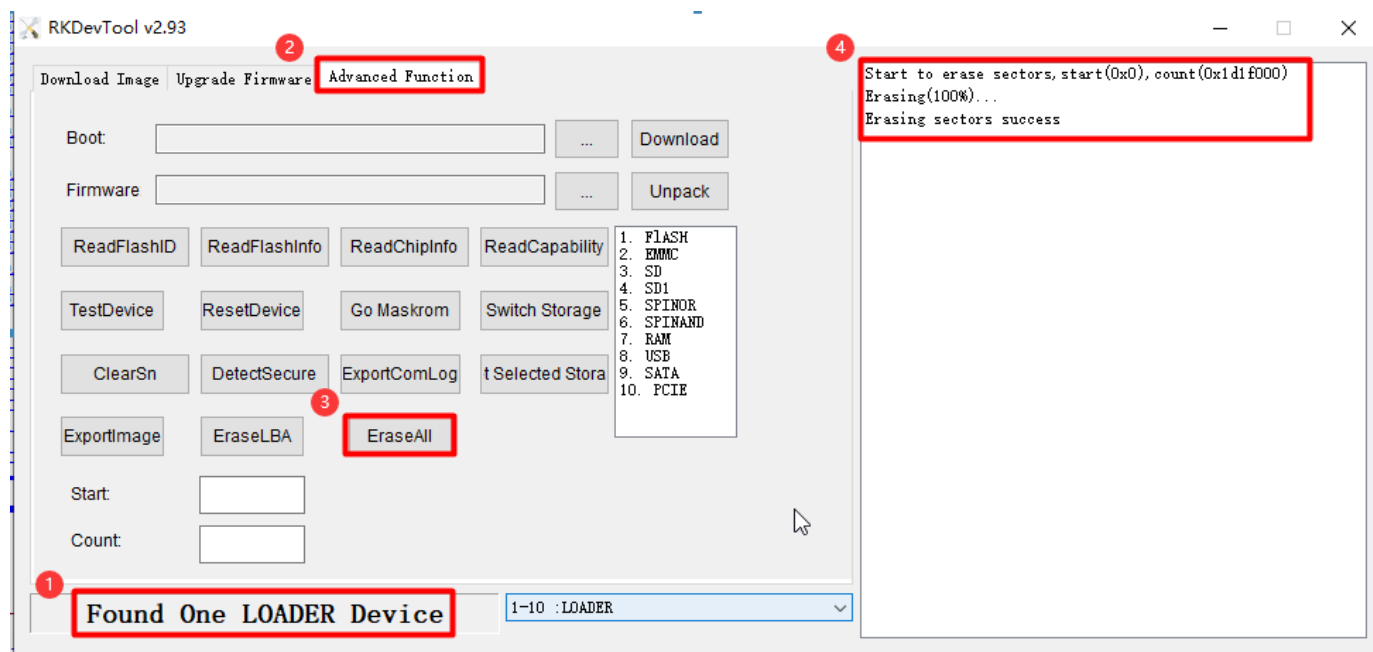
STEP 2:

1. Click **Switch** button to switch the device to a Loader device.



STEP 3:

1. You should see "Found One LOADER Device".
2. Click **Advanced Function** tab.
3. Click **EraseAll** button.
4. You should see "Erasing sectors success" on the right side logs.



STEP 4:

1. Click **Upgrade Firmware** tab.
2. Click **Upgrade** button.
3. You should see Download Firmware progress on the right side logs.



STEP 5:

1. After the download firmware progress goes to 100%, the board reboots itself automatically.
2. After a few minutes, you should see "Found One ADB Device".
3. Now your new OS is ready for use.



Video Tutorial for Flashing OS

Method 1: LOADER Mode

Here is a video tutorial we made demonstrating the OS installation process described above in Windows in the **LOADER** mode: <https://www.youtube.com/watch?v=ufKDCJ1hpf4>

The approach in the video above works best for devices that are still able to boot into the desktop, and when your workstation is a Windows machine. However, if you do not have a *Windows* machine in the room, you can use the approach below to flash an OS, in a Linux or Mac.

Method 2: MASKROM Mode

Apart from flashing in **LOADER** mode, when you're working on a *Linux(X86_64)* workstation or *MacOS(Intel and Apple Silicon)* machine, you can use another approach: **MASKROM** mode, to flash the OS. There is a PROG button on the Chipsee industrial PC, you can press the button before powering up the device, power up and hold the PROG button for 2~4 seconds, then use a *X86_64/darwin_64 upgrade_tool* program in the command line to flash the OS, here is a video we made to teach you how to do that in two minutes: <https://www.youtube.com/watch?v=TDIHoQ9AuX4>

The approach described in the second video works best for devices that are "bricked" (compared to the first approach), it can help rescue your device if your operating system is broken and cannot boot into the desktop. Even if your device is still functional, you can also use this approach to flash an OS, it works in Windows, Linux as well as MacOS.

The command used in the videos are:

For **Linux** workstation:

```
sudo ./upgrade_tool_linux_x86-64 ld # to list device
sudo ./upgrade_tool_linux_x86-64 uf ./prebuilt-rk3568-xxx.img # to upload
firmware
```

For **MacOS**:

```
./upgrade_tool_darwin64 ld # to list device
./upgrade_tool_darwin64 uf ./prebuilt-rk3568-xxx.img # to upload firmware
```

And that's all it takes.

The **upgrade_tool** used in the video can be download at:

1. **upgrade_tool_x86-64 (For Linux x86)**
2. **upgrade_tool_darwin64 (For MacOS Intel & Apple Silicon)**

We've tested that the MacOS upgrade_tool can execute in M1/Apple Silicon Macs, but you will need to install Rosetta to run this program. For Intel Macs, you do not need Rosetta, you can execute the binary program directly in your terminal.

Also, as noted in the video, do use a **absolute path** to the firmware file or **"./prebuilt-rk3568-xxx.img"**, rather than a relative path (e.g. your current directory contains the img file, and you directly use "upgrad_tool uf prebuilt-rk3568-xxx.img", this will not work). And make sure to use *sudo* in Linux.

Notice

(This Buildroot Linux Qt 5.15 OS User Manual is under active development as of July 20th, 2023)

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