



Industrial PC

# Buildroot Linux Qt 5.15 OS on RK3568 User Manual

For RK3568 Products

Content can change at anytime, check [documentation website](http://www.chipsee.com) for latest information.  
[www.chipsee.com](http://www.chipsee.com)

# Contents

---

1. Buildroot Linux Qt 5.15 OS	3
1.1. Flashing OS Image	3
1.1.1. Download Required Tools	3
1.1.2. Download Prebuilt OS Images	4
1.1.3. Start Flashing	4
1.1.4. Video Tutorial for Flashing OS	8
1.2. Notice	9
1.3. Disclaimer	10
1.4. Technical Support	10

# Buildroot Linux Qt 5.15 OS

## Buildroot Linux Qt 5.15 OS on RK3568 User Manual



## 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.

- 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:

- 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

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.

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)*

## Disclaimer

**This document is provided strictly for informational purposes. Its contents are subject to change without notice. Chipsee assumes no responsibility for any errors that may occur in this document. Furthermore, Chipsee reserves the right to alter the hardware, software, and/or specifications set forth herein at any time without prior notice and undertakes no obligation to update the information contained in this document.**

**While every effort has been made to ensure the accuracy of the information contained herein, this document is not guaranteed to be error-free. Further, it does not offer any warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document.**

**Despite our best efforts to maintain the accuracy of the information in this document, we assume no responsibility for errors or omissions, nor for damages resulting from the use of the information herein. Please note that Chipsee products are not authorized for use as critical components in life support devices or systems.**

## Technical Support

If you encounter any difficulties or have questions related to this document, we encourage you to refer to our other documentation for potential solutions. If you cannot find the solution you're looking for, feel free to contact us. Please email Chipsee Technical Support at [support@chipsee.com](mailto:support@chipsee.com), providing all relevant information. We value your queries and suggestions and are committed to providing you with the assistance you require.