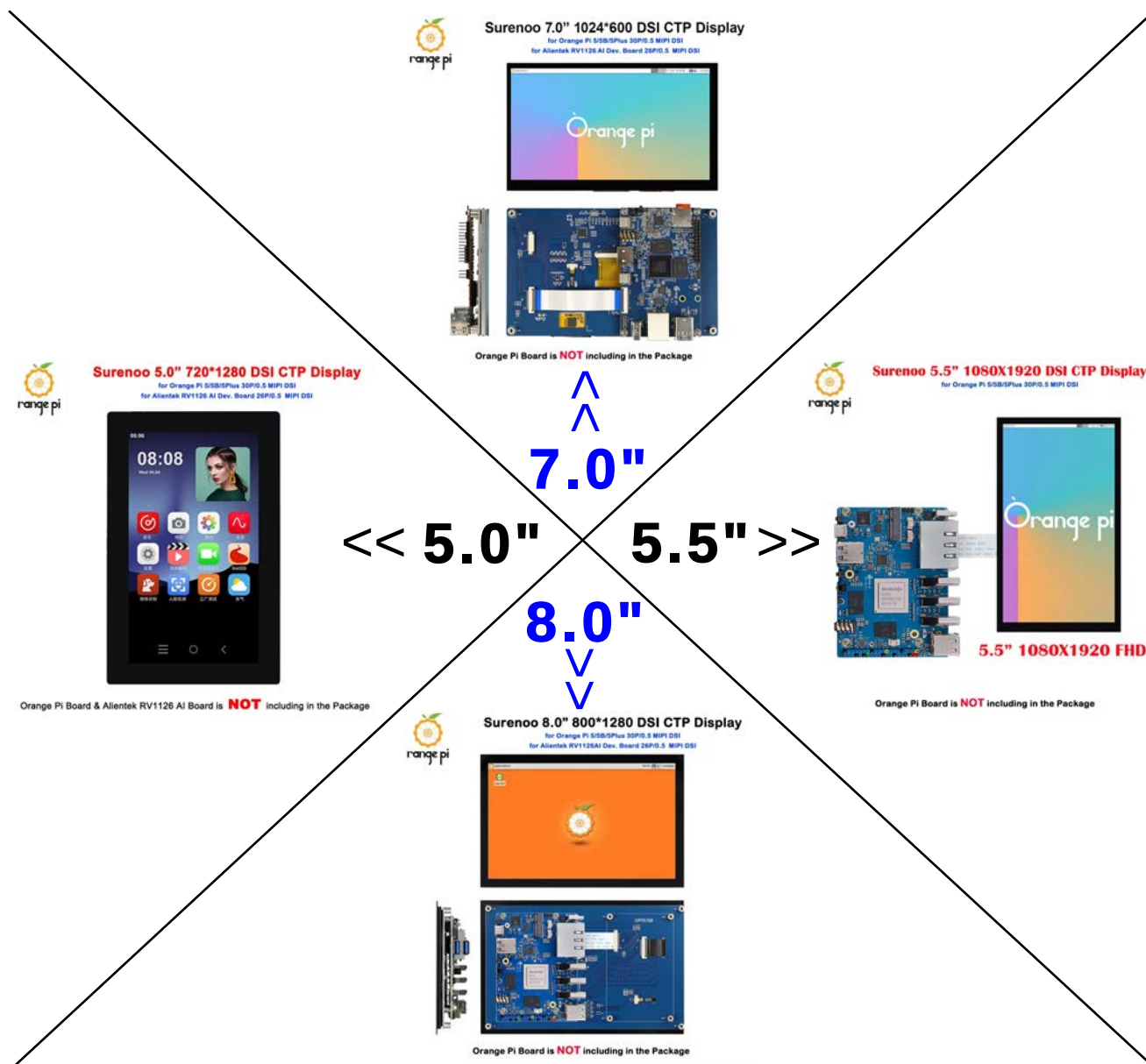


Surennoo User Manual V1.3

for OPI 5/5B/5Plus/5Pro DSI Display



Version	Date	Contents	Mark
1.0	2024-03-05	Initial release	
1.1	2024-03-14	Add instructions for 5.5 inch DSI Display	
1.2	2024-03-24	Add Instructions for Support Linux6.1 Core	
1.3	2024-06-08	Add Instructions for Support Orange pi 5Pro Board	

Surennoo User Manual V1.3

for OPI 5/5B/5Plus/5Pro DSI Display

>> Precautions

- (1) Before connecting DSI display to OPI Board, be sure not to operate with power on.
Ensure that OPI Board power is disconnected before plugging and unplugging the FFC ribbon cable.
(Otherwise, it may burn the OPI Board or Display).
- (2) Before connecting the ribbon cables, please ensure that the direction of the ribbon cables is correct.
For flip over type bottom contact connectors, the ribbon cables are made of metal Face down connection;
For drawer type up contact connectors, connect the ribbon cable with the metal side facing upwards.
DSI_5.0 5.5 7.0 come with bottom contact connectors;
DSI_8.0 Display come with top contact connectors.
Pay attention to controlling the force during operation, to avoid damaging the connector.
- (3) The Orange Pi Official OS cannot be used directly for DSI Display, and kernel drivers need to be updated.

>> Images Download Link

We can supply Image link for Surennoo buyer only.

1. Please supply the following information to our E-mail address: info@surennoo.com
 - 1.1 Order No. on Surennoo Official Store(Aliexpress) or "www.surennoo.com".
 - 1.2 Order Screen Shot, so that we can supply Password for the ZIP fie.
2. [Image Download Link](#).
3. We'll supply the Password of the download ZIP file within 24 hours.

Tips: If you buy from other Store, please ask the seller to supply these Image files, we don't any Customer Service for your order also.

>> Purchase Link

1. [5.0" 720*1280 MIPI DSI Display with CTP for Orange Pi 5/5B/5Plus/5Pro](#)
2. [5.5" 1080*1920 MIPI DSI Display with CTP for Orange Pi 5/5B/5Plus/5Pro](#)
3. [7.0" 1024*600 MIPI DSI Display with CTP for Orange Pi 5/5B/5Plus/5Pro](#)
4. [8.0" 800*1280 MIPI DSI Display with CTP for Orange Pi 5/5B/5Plus/5Pro](#)

>> Ubuntu System Instructions

For Ubuntu systems, there are 3 methods to update LCD drivers, and the method A is recommended.

A. Update the kernel and kernel modules of the Linux system on the development board.

If you has installed the official system image, we recommend using this method to update the kernel driver!

A1 Install the official Ubuntu image or Debian image.

A2 Download the kernel deb package(xxx. deb) from Surenoo Download link you request.

Note: Our company has two versions of the kernel deb package in current, Linux5.10 and Linux6.1.

If you have installed the system image of V5.10, please download the Linux V5.10 deb;

If you have installed the system image of V6.1, please download the Linux V6.1 deb.

A3 Upload the compiled Linux kernel deb package to the Linux system of the development board.

5.0"- 720*1280 Portrait Display / 5.5"-1080*1920 Portrait Display / 7.0"-1024*600 Landscape Display / 8.0"-800*1280 Portrait Display

Orange pi 5:

linux5.10 Core: adb push linux-image-legacy-rockchip-rk3588_1.1.8_arm64.deb /root

linux6.1 Core: adb push linux-image-current-rockchip-rk3588_1.1.8_arm64.deb /root

Orange pi 5B:

linux5.10 Core: adb push linux-image-legacy-rockchip-rk3588_1.0.8_arm64.deb /root

linux6.1 Core: adb push linux-image-current-rockchip-rk3588_1.0.8_arm64.deb /root

Orange pi 5Plus:

linux5.10 Core: adb push linux-image-legacy-rockchip-rk3588_1.0.8_arm64.deb /root

linux6.1 Core: adb push linux-image-current-rockchip-rk3588_1.0.8_arm64.deb /root

Orange pi 5Pro:

linux5.10 Core: adb push linux-image-legacy-rockchip-rk3588_1.0.2_arm64.deb /root

linux6.1 Core: adb push linux-image-current-rockchip-rk3588_1.0.2_arm64.deb /root

A4 Log in to the development board and uninstall the installed Linux kernel deb package.

linux5.10 Core: apt purge -y linux-image-legacy-rockchip-rk3588

linux6.1 Core: apt purge -y linux-image-current-rockchip-rk3588

A5 Install the newly uploaded Linux kernel deb package again

5.0"- 720*1280 Portrait Display / 5.5"-1080*1920 Portrait Display / 7.0"-1024*600 Landscape Display / 8.0"-800*1280 Portrait Display

Orange pi 5:	
linux5.10 Core:	dpkg -i linux-image-legacy-rockchip-rk3588_1.1.8_arm64.deb
linux6.1 Core:	dpkg -i linux-image-current-rockchip-rk3588_1.1.8_arm64.deb
Orange pi 5B:	
linux5.10 Core:	dpkg -i linux-image-legacy-rockchip-rk3588_1.0.8_arm64.deb
linux6.1 Core:	dpkg -i linux-image-current-rockchip-rk3588_1.0.8_arm64.deb
Orange pi 5Plus:	
linux5.10 Core:	dpkg -i linux-image-legacy-rockchip-rk3588_1.0.8_arm64.deb
linux6.1 Core:	dpkg -i linux-image-current-rockchip-rk3588_1.0.8_arm64.deb
Orange pi 5Pro:	
linux5.10 Core:	dpkg -i linux-image-legacy-rockchip-rk3588_1.0.2_arm64.deb
linux6.1 Core:	dpkg -i linux-image-current-rockchip-rk3588_1.0.2_arm64.deb

A6 Open MIPI DSI output

The default configuration for Linux images is not to open the MIPI Display, which needs to be manually opened. For Orange Pi 5 and 5B have two MIPI Display interfaces.

(1) Open DSI output method for Orange Pi 5:

Use MIPI LCD1 interface: vim/boot/orangepiEnv.txt, then add overlays=lcd1.

Use MIPI LCD2 interface: vim/boot/orangepiEnv.txt, then add overlays=lcd2.



(1) Open DSI output method for Orange Pi 5B:

Use MIPI LCD1 interface: vim/boot/orangepiEnv.txt, then add overlays=lcd1.

Use MIPI LCD2 interface: vim/boot/orangepiEnv.txt, then add overlays=lcd2.



(3) Open DSI output method for Orange Pi 5plus:

Vim/boot/orangepiEnv.txt, then add overlays=opi5plus lcd.

A7 Adjust Backlight (For DSI 7.0" Display only)

Log in to the development board and switch to the root user:

```
root@orangepi:~# cd /sys/class/backlight/backlight_1
```

```
root@orangepi:~# echo 255 > brightness
```

```
root@orangepi:~# cd /sys/class/backlight/backlight
```

```
root@orangepi:~# echo 255 > brightness
```

A8 Replace the .dtb file of the development board (this operation is only applicable to DSI 5.5" Display only)

The .dtb file of the development board is located in the "/boot/dtb/Rockchip" directory

Orange pi 5:

Replace the rk3588s-orangepi-5.dtb file in the "/boot/dtb/Rockchip" directory of OPI-5 Board

Orange pi 5B:

Replace the rk3588s-orangepi-5b.dtb file in the "/boot/dtb/Rockchip" directory of OPI-5B Board

Orange pi 5Plus:

Replace the rk3588s-orangepi-5-plus.dtb file in the "/boot/dtb/Rockchip" directory of OPI-5Plus Board

Orange pi 5Pro:

Replace the rk3588s-orangepi-5-pro.dtb file in the "/boot/dtb/Rockchip" directory of OPI-5Pro Board

A9 Reboot development board

```
root@orangepi:~# reboot
```

B. Install the Linux system image provided by Surenoo Technology.

If you are installing the system image provided by our company, after installing the image, you need to open DSI output only. Open DSI output method reference A6.

C. Compile Linux images yourself.

C1 5.0"- 720*1280 Portrait Display / 7.0"-1024*600 Landscape Display / 8.0"-800*1280 Portrait Display

Drive path:

/orangepi-build-next/kernel/orange-pi-5.10-rk3588/drivers/gpu/drm/panel/panel-innolux-afj101-ba2131.c

Replace panel-innolux-afj101-ba2131.c file with the file from the request download link, then compile it, About the body compilation method refers to the official user manual of Orange Pi.

C2 5.5"-1080*1920 Portrait Display

Replace the panel-innolux-afj101-ba2131. c file.

1. Orange Pi 5/5B: Replace the rk3588s-orangepi-5-lcd.dtsi file.
2. Orange Pi 5Plus: Replace the rk3588-orangepi-5-plus-lcd.dtsi file.
3. Orange Pi 5Pro: Replace the rk3588s-orangepi-5-pro.dtsi file.

Drive path: (Replace the panel-innolux-afj101-ba2131.c file in the following directory)

/orangepi-build-next/kernel/orange-pi-5.10-rk3588/drivers/gpu/drm/panel/panel-innolux-afj101-ba2131.c

Device tree path:

Orange pi 5: Replace "rk3588s-orangepi-5-lcd.dtsi" in the following directory

/orangepi-build-next/kernel/orange-pi-5.10-rk3588/arch/arm64/boot/dts/rockchip/rk3588s-orangepi-5-lcd.dtsi

Orange pi 5B: Replace "rk3588s-orangepi-5-lcd.dtsi" in the following directory

/orangepi-build-next/kernel/orange-pi-5.10-rk3588/arch/arm64/boot/dts/rockchip/rk3588s-orangepi-5-lcd.dtsi

Orange pi 5Plus: Replace "rk3588-orangepi-5-plus-lcd.dtsi" in the following directory

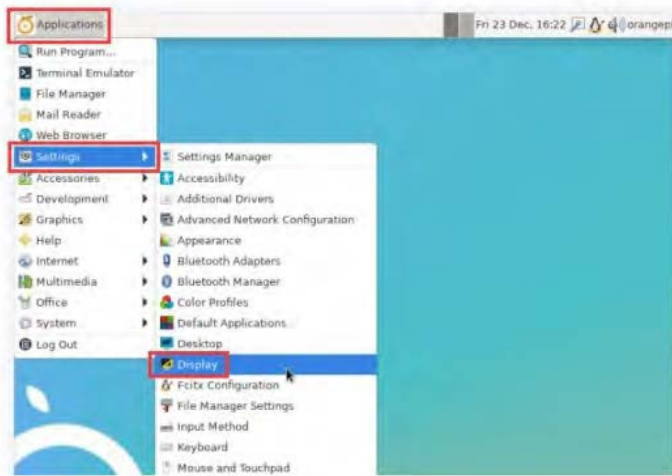
/orangepi-build-next/kernel/orange-pi-5.10-rk3588/arch/arm64/boot/dts/rockchip/rk3588-orangepi-5-plus-lcd.dtsi

Orange pi 5Pro: Replace "rk3588-orangepi-5-pro-lcd.dtsi" in the following directory

/orangepi-build-next/kernel/orange-pi-5.10-rk3588/arch/arm64/boot/dts/rockchip/rk3588s-orangepi-5-pro.dts

D. How to rotate display and touch in Linux system?

1) First, open "Display" settings in the Linux system



2) Then select the direction you want to rotate in the Rotation

- a. None: No rotation
- b. Left: Rotate 90 degrees to the left
- c. Inverted: Flip up and down, equivalent to rotating 180 degrees
- d. Right: Rotate 90 degrees to the right

3) Then click "Apply"

4) Then select "Keep this configuration"

5) At this point, the screen rotation is complete, and then close the Display program.

6) The above steps select the display direction only and do not rotate the touch direction. Use The `set_lcd_rate.sh` script can rotate the touch direction, and after setting it, it will automatically restart You can test whether the touch has been used normally.

a. None: No rotation

```
orangeypi@orangeypi:~$ set_lcd_rotate.sh none
```

b. Left: Rotate 90 degrees to the left

```
orangeypi@orangeypi:~$ set_lcd_rotate.sh left
```

c. Inverted: Flip up and down, equivalent to rotating 180 degrees

```
orangeypi@orangeypi:~$ set_lcd_rotate.sh inverted
```

d. Right: Rotate 90 degrees to the right

```
orangeypi@orangeypi:~$ set_lcd_rotate.sh right
```

>> Android OS System Instructions

For Android systems, there are 2 methods to update LCD drivers.

(1) Install the Android system image provided by Surenoo Technology.

Our company provides 2 Android images.

[update.img](#) is the TF card boot image,

[update_spi_nvme.img](#) is the NVME SSD boot image.

(2) Compile your own Android image.

[2.1 5.0"- 720*1280 Portrait Display / 7.0"-1024*600 Landscape Display / 8.0"-800*1280 Portrait Display](#)

Drive path:

/Android_12/kernel-5.10/drivers/gpu/drm/panel/panel-innolux-afj101-ba2131.c

Replace panel-innolux-afj101-ba2131.c file with the file from the download link, then compile it, with

The body compilation method refers to the official user manual of Orange Pi.

[2.2 5.5"-1080*1920 Portrait Display](#)

Replace the panel-innolux-afj101-ba2131. c file.

1. Orange Pi 5/5B: Replace the rk3588s-orangepi-5-lcd.dtsi file.

2. Orange Pi 5Plus: Replace the rk3588-orangepi-5-plus-lcd.dtsi file.

3. Orange Pi 5Pro: Replace the rk3588s-orangepi-5-pro.dtsi file.

Drive path: [\(Replace the panel-innolux-afj101-ba2131.c file in the following directory\)](#)

Android_12/kernel-5.10/drivers/gpu/drm/panel/panel-innolux-afj101-ba2131.c

Device tree path:

Orange pi 5: Replace "rk3588s-orangepi-5-lcd.dtsi" in the following directory
Android_12/kernel-5.10/arch/arm64/boot/dts/rockchip/rk3588s-orangepi-5-lcd.dtsi
Orange pi 5B: Replace "rk3588s-orangepi-5-lcd.dtsi" in the following directory
Android_12/kernel-5.10/arch/arm64/boot/dts/rockchip/rk3588s-orangepi-5-lcd.dtsi
Orange pi 5Plus: Replace "rk3588-orangepi-5-plus-lcd.dtsi" in the following directory
Android_12/kernel-5.10/arch/arm64/boot/dts/rockchip/rk3588-orangepi-5-plus-lcd.dtsi
Orange pi 5Pro: Replace "rk3588-orangepi-5-pro-lcd.dtsi" in the following directory
Android_12/kernel-5.10/arch/arm64/boot/dts/rockchip/rk3588s-orangepi-5-plus-lcd.dtsi

2.3 The command to compile and support LCD display images is as follows:

Orange pi 5:

```
test@test:~$ cd Android_12
test@test:~/Android_12$ export DUAL_LCD=true
test@test:~/Android_12$ source build/envsetup.sh
test@test:~/Android_12$ lunch rk3588s_s-userdebug
test@test:~/Android_12$ ./build.sh -AUKu
```

The final generated image file will be placed in the directory: **rockdev/Image-rk3588s_s.update.img** is the TF card boot image,
update_spi_nvme.img is the NVME SSD boot image.

Orange pi 5B:

```
test@test:~$ cd Android_12
test@test:~/Android_12$ export BOARD=orangepi5
test@test:~/Android_12$ export DUAL_LCD=true
test@test:~/Android_12$ source build/envsetup.sh
test@test:~/Android_12$ lunch rk3588s_s-userdebug
test@test:~/Android_12$ ./build.sh -AUKu
```

The final generated image file will be placed in the directory: **rockdev/Image-rk3588s_s.update.img** is the TF card boot image,
update_spi_nvme.img is the NVME SSD boot image.

Orange pi 5Plus:

```
test@test:~$ cd Android_12
test@test:~/Android_12$ export DUAL_LCD=true
test@test:~/Android_12$ source build/envsetup.sh
test@test:~/Android_12$ lunch rk3588_s-userdebug
test@test:~/Android_12$ ./build.sh -AUKu
```

The final generated image file will be placed in the directory: **rockdev/Image-rk3588s_s.update.img** is the TF card boot image,
update_spi_nvme.img is the NVME SSD boot image.

Orange pi 5Pro:

```
test@test:~$ cd Android_12
test@test:~/Android_12$ ./make.sh -FMu --board orangepi5pro --nvme --gapps --lcd
```

The final generated image file will be placed in the directory: **rockdev/Image-rk3588s_s.update.img** is the TF card boot image,
update_spi_nvme.img is the NVME SSD boot image.