

Orangepi-3B rk3566 编译5.10.160内核panfrost驱动

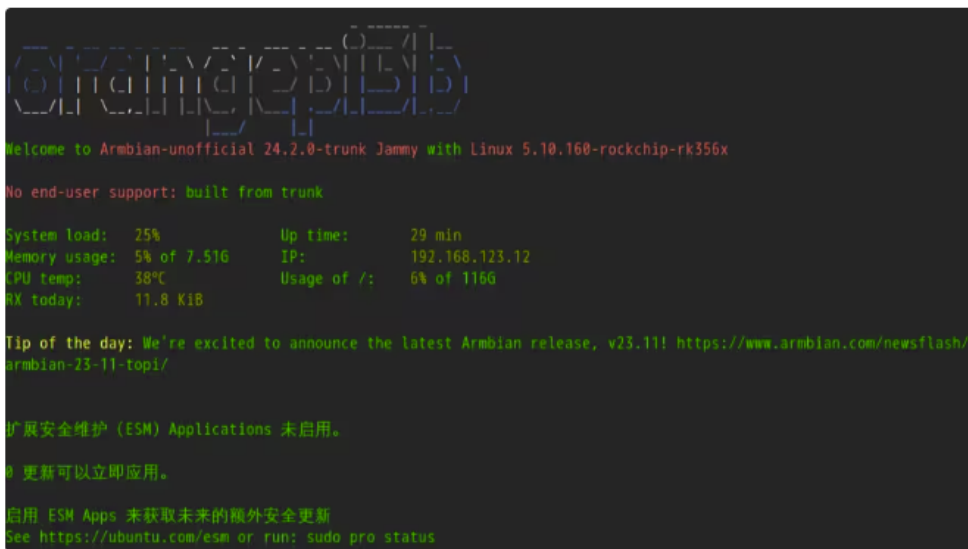
2023年12月28日 18:54 1016浏览 · 5点赞 · 53评论



成哥仔

粉丝: 25 文章: 6

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Recently, I bought an Orangepi-3B 8G ram board, plus an Orangepi-5B that I bought before, so I think I have a bit of experience.

The official linux-sdk given by the orange pie supports 5.10.160 and 6.6 kernels, 6.6 is the mainline kernel native with panfrost driver, but 6.6 currently does not support rk_mpp hardware video encoding and decoding, and the MIPI, edp, and 3.5 headphone jacks on the board are also not used. 5.10.160 is the most mature and stable kernel, but the official image does not support the panfrost driver.

- **注意:** orangepi-build需要在ubuntu 22.04下进行, 请自行安装系统或者虚拟机。首次运行orangepi-build需要联网下载内核原码, 需要科学上网技巧(完整编译后可以编辑userpatches/config-default.conf修改IGNORE_UPDATES="yes"关闭联网更新)
- **Note:** The official image of Orange Pie cannot be logged in Wayland from a certain commit, Panfrost needs to use Wayland environment, you may need to use a third-party image to enable Wayland environment, for example, Armbian has an image of OrangePi-3B Ubuntu 22.04.
- **Note:** If you don't want to compile the kernel yourself, I have a package for ubuntu 22.04 that is packaged at the end of the article.

1. 官方的orange-build和内核原码在github, 需要科学上网技巧:

```
git clone -b next https://github.com/orangepi-xunlong/orangepi-build.git
```

2. 通过orangepi-build 设置config和编译内核:

```
cd orangepi-build
sudo ./build.sh
```



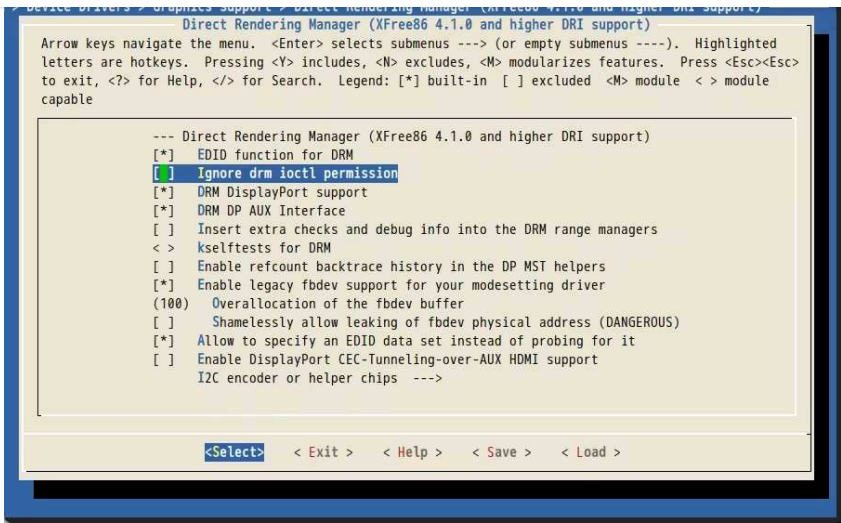
Kernel package



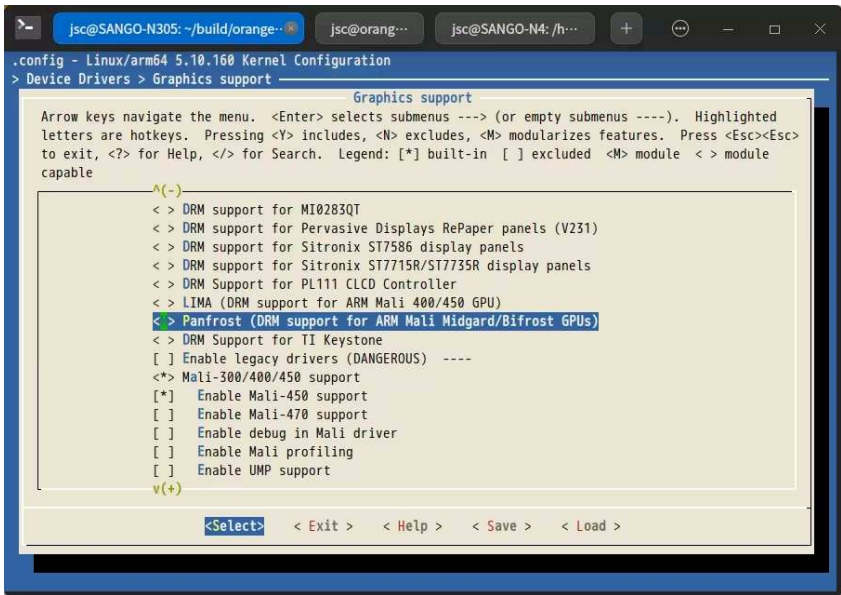
Show a kernel configuration menu before compilation

Next, the script will automatically download the dependency and cross-compilation toolchain, and after the download is complete, the menuconfig kernel compilation option will be automatically opened, here we need to mark (press the spacebar to mark the parentheses as M - that is, to mark the module, * - to mark as kernel integration):

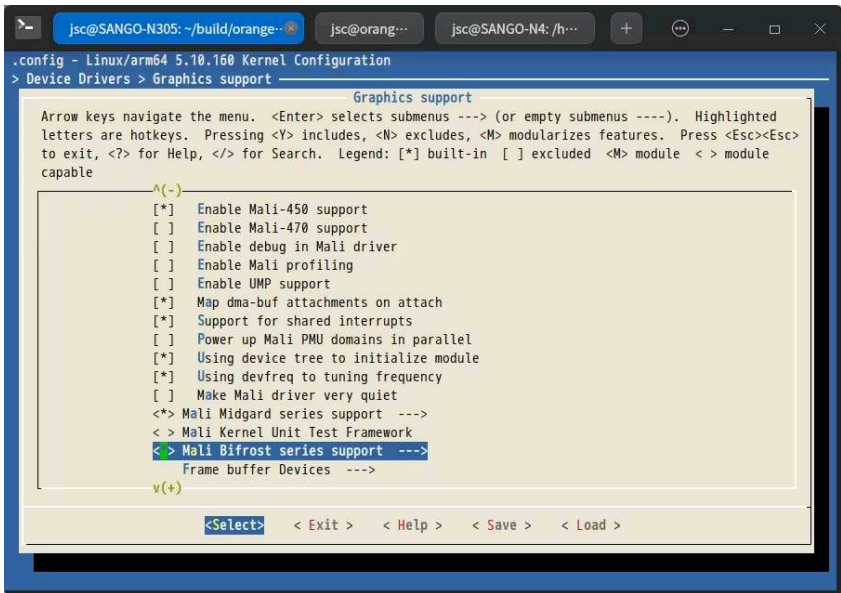
```
#进入下面目录:
Device Drivers ---> Graphics support --->
#标记:
<*> Direct Rendering Manager (XFree86 4.1.0 and higher DRI support) ---> [ ] Ignore
#返回上层继续向下翻查, 标记:
<M> Panfrost (DRM support for ARM Mali Midgard/Bifrost GPUs)
#继续向下翻查, 标记:
<*> Mali Bifrost series support ---> <*> Enable Mali CSF based GPU support
```



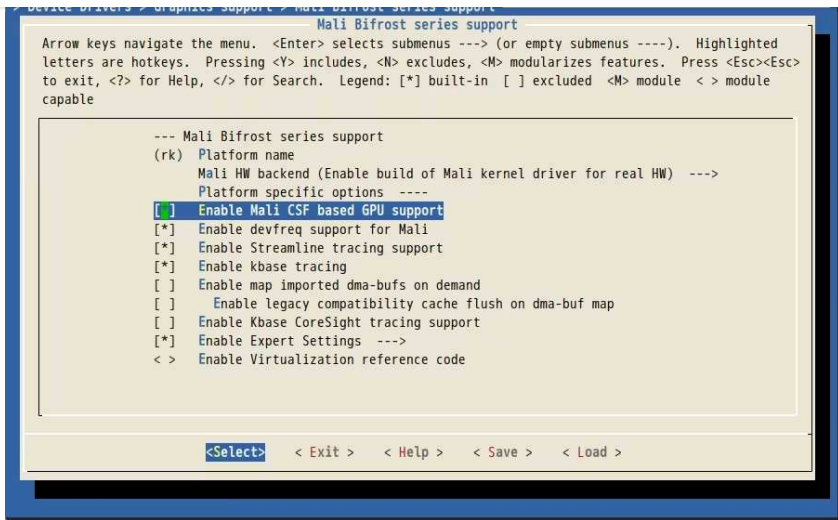
Ignore drm ioctl permission (取消标记)



Panfrost (DRM support for ARM Lali Midgard/bifrost GPUs)



Mali bifrost series support



Enable Mali CSF based GPU support

- **Note:** After marking all, select the "save" file name ".config", press "OK" to save, please **do not** exit first, please see the next step 3....

3. Modify the device tree file:

使用一个文件编辑器打开"kernel/orange-pi-5.10-rk35xx/arch/arm64/boot/dts/rockchip/rk3566-orangepi-3b.dts"修改如下:

```
删除第1075行: cursor-win-id = <ROCKCHIP_VOP2_CLUSTER0>;
在340行下面: &gpu {
增加第341行: clock-names = "gpu", "bus";
增加第342行: interrupt-names = "gpu", "mmu", "job";
-----
注意保存需要root权限
```

After saving, you can exit menuconfig, the script will be compiled automatically, and it will be displayed after it is successfully completed output/debs/下生成linux-image-legacy-xxx-rk356x.deb、linux-headers-legacy-xxx-rk356x.deb、linux-dtb-legacy-xxx-rk356x.deb三个包。

- **注意:** 这里orangepi-build有个坑, 它编译出来的rk3566-orangepi-3b.dtb文件有时会导致不能开机(可能与其交叉编译工具链有交), 请安装ubuntu22.04提供的交叉编译工具链gcc-11-aarch64-linux-gnu编译, 编译出来的rk3566-orangepi-3b.dtb放在kernel/orange-pi-5.10-rk35xx/arch/arm64/boot/dts/rockchip/中, 你可以将它覆盖镜像中的/boot/dtb/rockchip/rk3566-orangepi-3b.dtb:

```
sudo apt install gcc-11-aarch64-linux-gnu
cd kernel/orange-pi-5.10-rk35xx
sudo make clean ARCH=arm64
sudo make dtbs ARCH=arm64 CROSS_COMPILE=aarch64-linux-gnu-
```



4. Install the kernel deb package on the development board:

- **Note:** Please follow the steps with caution after backing up!!

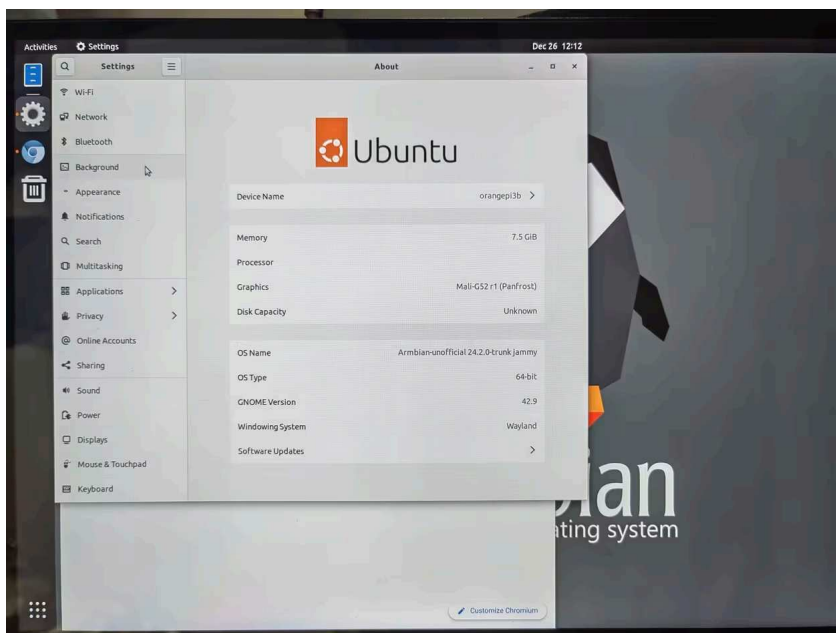
```
#搜索原内核包
apt list --installed |grep -e ^linux-image -e ^linux-dtb -e ^linux-headers
#将搜索到的包删除（具体包名根据实际填写）
sudo apt purge linux-image-xxx linux-dtb-xxx linux-headers-xxx
#安装（具体包名根据实际填写）
sudo dpkg -i linux-image-xxx linux-dtb-xxx linux-headers-xxx
#重启
sudo sync
sudo reboot
```

5. 重启后检查panfrost是否加载：

- **注意：**如启动失败，请尝试参考 **第3步** “**注意**” 中的处理方法

```
sudo cat /var/log/kern.log |grep panfrost
#或
sudo cat /var/log/syslog |grep panfrost
#以上日志应有panfrost加载信息
```

- **注意：**进入gnome或ubuntu-desktop，wayland环境，setting ----> about 应可看到gpu 已被识别为g52 panfrost字样。



使用glmark2测试：

```
sudo apt install glmark2 glmark2-es2
glmark2
```

用glmark2测试，正常分数约3XX分：

```

[buffer] columns=200:interleave=true:update-dispersion=0.9:update-fraction=0.5:u
pdate-method=map: FPS: 52 FrameTime: 19.231 ms
[ideas] speed=duration: FPS: 246 FrameTime: 4.065 ms
[jellyfish] <default>: FPS: 257 FrameTime: 3.891 ms
[terrain] <default>: FPS: 19 FrameTime: 52.632 ms
[shadow] <default>: FPS: 163 FrameTime: 6.135 ms
[refract] <default>: FPS: 22 FrameTime: 45.455 ms
[conditionals] fragment-steps=0:vertex-steps=0: FPS: 444 FrameTime: 2.252 ms
[conditionals] fragment-steps=5:vertex-steps=0: FPS: 440 FrameTime: 2.273 ms
[conditionals] fragment-steps=0:vertex-steps=5: FPS: 447 FrameTime: 2.237 ms
[function] fragment-complexity=low:fragment-steps=5: FPS: 440 FrameTime: 2.273 m
s
[function] fragment-complexity=medium:fragment-steps=5: FPS: 434 FrameTime: 2.30
4 ms
[loop] fragment-loop=false:fragment-steps=5:vertex-steps=5: FPS: 440 FrameTime:
2.273 ms
[loop] fragment-steps=5:fragment-uniform=false:vertex-steps=5: FPS: 440 FrameTim
e: 2.273 ms
[loop] fragment-steps=5:fragment-uniform=true:vertex-steps=5: FPS: 429 FrameTime
: 2.331 ms
=====
glmark2 Score: 374
=====
jsc@orangepi3b:~$

```

glmark2 Score: 374

6. Install the VPU hardware code:

- **Note:** You need to add the software in the PPA source to decode

Ubuntu 22.04 can install the hard debug configuration package directly:

```

sudo add-apt-repository ppa:liujianfeng1994/rockchip-multimedia
sudo apt dist-upgrade
sudo apt install rockchip-multimedia-config
#重启
sudo reboot

```

- **Note:** debian does not know if it can support the hardware encoder of rk, the above PPA source only supports ubuntu 22.04.
- 注意: 重启后检查/dev/video-enc0、/dev/video-dec0应存在所属组为"video", 同时所登陆的用户也应有"video"组权限才能进行硬件编、硬码。

添加了PPA源后可安装源里的ffmpeg、chromium、mpv、vlc均支持rk-mpp:

```

sudo apt install ffmpeg chromium-browser{,-l10n} chromium-codecs-ffmpeg-extra mpv vl

```

rk3566支持4KP60 H.265/H.264/VP9 video decoder、1080P60 H.264/H.265 video encoder请自行测试。

7. My own compiled package:

- The ARM64 is compiled by the gcc-11 compiler

链接: <https://pan.baidu.com/s/1gFynjqbPCpQX7ZegqLPTwQ?pwd=vi4w> 提取码: vi4w
复制这段内容后打开百度网盘手机App, 操作更方便哦



Unified reply, as you come across

panfrost fde60000.gpu: _of_add_opp_table_v2: no supported OPPs

GPU Init失败等报错,可能你用的是香橙派官方的内核,由于在本文发布之后没多久官方内核源码就更新了。香橙派的SDK中内核源码里面的rk3568.dtsi,需要用//注释掉1391、

In addition, there is a problem that the /var/log/ space is filled with logs.,For the time being, use chattr +i to prohibit the xorg.log from writing.,If there is a good solution, please leave a message to me.,Thank you very much!

linux 开发板 瑞芯微 rockchip rk3566 panfrost rk3568 rk3588 orangepi3b orangepi5b

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ENC--

Is there a tutorial for orange pie zero3?

2024-06-08 13:05



NGC7293123

Sedeme, pammass, nomachine, nomachines 600g52 g,000g52,000gme

2024-02-27 17:49 Reply



NGC7293123 Nomachine 远程桌面识别为llvmpipe

2024-02-27 17:51 Reply



Cheng Ge Zai Reply @NGC7293123 : Nomachine has not been used, I have tried xdrp and vnc to determine that hardware acceleration is not supported.

GNOME's built-in remote desktop is estimated to be OK (not sure), but GNOME's built-in remote desktop does not support remote login, which means that you need to log in locally in advance and then share the local user's desktop, which is more troublesome to use than soft.

2024-02-28 05:22



CLAY_OG

Hello, can I ask if there is any way to find that Panfrost still can't load after typing your package?

2024-02-03 17:23



成哥仔 The driver will be loaded by itself,It's okay to test the official Ubuntu22.04 and armbian of the orange pie..

What is your system environment and board model?

2024-02-04 13:03 1



CLAY_OG Orange Pie 3b, official 22.04jammy 5.10 kernel

2024-02-04 17:01



成哥仔 回复 @CLAY_OG :你先校验一下内核文件的md5

```
$ md5sum /boot/Image
```

```
$ md5sum /boot/vmlinuz-5.10.160-rockchip-rk356x
```

看看以上两个md5校验码是否相同

包里的内核md5是cb52783948c1db9e66718f2008654f2, 如果/boot/Image不是这个, 说明在使用的内核不是包里面的; 如果/boot/vmlinuz-5.10.160-rockchip-rk356x的md5是的话, 请将vmlinuz-5.10.160-rockchip-rk356x复制为/boot/Image, 然后运行sudo update-initramfs.

如果那两个文件的md5都不是cb52783948c1db9e66718f2008654f2的话, 那试试重新安装一下包吧。

2024-02-05 07:01 1