

IDO-Purple Pi OH RK3566-V1 OpenHarmony开发手册



IDO-Purple Pi OH RK3566-V1

OpenHarmony开发手册

深圳触觉智能科技有限公司

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文档修订历史

版本	修订内容	修订	审核	日期
V1.0	创建文档	TOCA	IDO	2023/04/06
V1.1	优化文档	TOCA	IDO	2023/04/26
V1.2	添加OpenHarmony3.2补丁	HJT	IDO	2023/05/13
V1.3	增加OpenHarmony 4.0 SDK	TOCA	IDO	2023/10/30
V1.4	修复开机不进桌面BUG	TOCA	IDO	2023/11/02
v1.5	增加OpenHarmony 4.1 SDK	HWC	IDO	2024/04/22
V1.6	优化文档	LZR	IDO	2024/05/15
V1.7	增加OpenHarmony5.0 SDK	HWC	IDO	2024/10/28
V1.8	增加OpenHarmony5.1 SDK	LZR	IDO	2025/05/23
V1.9	增加OpenHarmony6.0 SDK	LZR	IDO	2025/10/28
V1.9	增加OpenHarmony6.1 SDK	HWC	IDO	2026/04/13

1. 环境搭建

推荐编译主机配置如下：

- Ubuntu22.04 LTS搭建开发环境
- DDR至少16GB
- 至少250GB的硬盘空间

安装工具包，在编译主机执行以下命令：

```

1 $ sudo apt-get install aptitude
2 $ sudo aptitude install -y binutils binutils-dev git git-lfs gnupg flex bis
  on gperf build-essential zip curl zlib1g-dev gcc-multilib g++-multilib gcc-
  arm-none-eabi gcc-arm-linux-gnueabi x11proto-core-dev libx11-dev lib32z1-de
  v ccache libgl1-mesa-dev libxml2-utils xsltproc unzip m4 bc gnutls-bin pyth
  on3-pip ruby genext2fs device-tree-compiler make libffi-dev e2fsprogs pkg-c
  onfig perl openssl libssl-dev libelf-dev libdw-dev u-boot-tools mtd-util
  s cpio doxygen liblz4-tool openjdk-8-jre gcc g++ texinfo dosfstools mtools
  default-jre default-jdk libncurses5 apt-utils wget scons tar rsync git-cor
  e libxml2-dev lib32z-dev gsync xxd libglib2.0-dev libpixmap-1-dev kmod jfs
  utils reiserfsprogs xfsprogs squashfs-tools git-lfs
3 $ sudo apt-get install -y pcmciautils quota ppp libtinfo-dev libtinfo5 libn
  curses5-dev libncursesw5 libstdc++6 vim ssh locales gcc-arm-linux-gnueabi

```

2. OpenHarmony 6.1 SDK编译

2.1. OHOS6.1 源码获取

OpenHarmony6.1 Release版本特性说明：

<https://gitcode.com/openharmony/docs/blob/master/zh-cn/release-notes/OpenHarmony-v6.1-release.md>

2.2. OHOS6.1 官方源码获取

在Linux主机执行以下命令，获取的是与版本发布时完全一致的源码

```

1 repo init -u https://gitcode.com/openharmony/manifest -b refs/tags/OpenHarm
  ony-v6.1-Release --no-repo-verify
2 repo sync -c
3 repo forall -c 'git lfs pull'

```

SDK目录文件如下图所示：

```

applications  base  build.py  commonlibrary  device  domains  foundation  interface  napi_generator  prebuilts  qemu-run  third_part
arkcompiler  build  build.sh  developeptools  docs  drivers  ide  kernel  out  productdefine  test  vendor

```

2.3. 打补丁

此补丁支持ov5648 mipi摄像头，本地下载：

[ID0_Purple_Pi_OH_V1C_OHOS6.1r_Patch_260519.tar.gz](#)

此补丁支持gc8034 mipi摄像头，本地下载：

[ID0_Purple_Pi_OH_V1C_OHOS6.1r_Patch_260410.tar.gz](#)

下载后将补丁压缩包放到当前代码根目录下，如下图所示：

applications	commonlibrary	foundation	mkboot_rk3568.sh	qemu-run
arkcompiler	developtools	ide	napi_generator	test
base	device	ID0_Purple_Pi_OH_V1C_OHOS6.1r_Patch_260410	oh_venv	third_party
build	docs	ID0_Purple_Pi_OH_V1C_OHOS6.1r_Patch_260410.tar.gz	out-y	updateimg
build.py	domains	interface	prebuilts-y	vendor
build.sh	drivers	kernel	productdefine	

▼ Plain Text |

```
1 //解压补丁包
2 $ tar -zxvf ID0_Purple_Pi_OH_V1C_OHOS6.1r_Patch_260410.tar.gz
3
4 //进入补丁目录，把该目录下所有文件拷贝到根目录做部分文件覆盖
5 $ cd ID0_Purple_Pi_OH_V1C_OHOS6.1r_Patch_260410
6 $ cp -rf ./* ../
7
8 //回根目录查看，如有以下产品目录则copy成功
9 $ ls device/board/industio/
10 purple_pi_oh
```

2.4. OHOS6.1 SDK编译

2.4.1. SDK完整编译

先下载工具链，然后再执行编译命令(默认编译为64位系统)

▼ Plain Text |

```
1 $ bash build/prebuilts_download.sh
2 $ ./build.sh --product-name purple_pi_oh --ccache
```

失败时log索引位置：./out/purple_pi_oh/error.log

固件索引位置：./out/purple_pi_oh/packages/phone/images/

2.4.2. 编译HDMI固件

默认编译出来的是MIPI竖屏固件，如果需要编译HDMI固件则修改：

▼

Bash

1 device/board/industio/purple_pi_oh/kernel/build_kernel.sh

▼

Bash

1 ▼ 注释: #eval \$MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI \$RAMDISK_ARG \${ENABLE_LTO_00}
2 ▼ 使用: eval \$MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI \$RAMDISK_ARG \${ENABLE_LTO_00}

```
#eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}  
eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
```

3. OpenHarmony 6.0 SDK编译

3.1. OHOS6.0 源码获取

OpenHarmony6.0 Release版本特性说明：

<https://gitee.com/openharmony/docs/blob/master/zh-cn/release-notes/OpenHarmony-v6.0-release.md>

3.1.1. OHOS6.0 官方源码获取

在Linux主机执行以下命令，获取的是与版本发布时完全一致的源码

▼

Plain Text

1 repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v6.0-Release --no-repo-verify
2 repo sync -c
3 repo forall -c 'git lfs pull'

SDK目录文件如下图所示：

3.2. 打补丁

本地下载：[IDO_Purple_Pi_OH_V1C_OHOS6.0r_Patch_251015.tar.gz](#)

载后将补丁压缩包放到当前代码根目录下，如下图所示：



Plain Text |

```
1 //解压补丁包
2 $ tar -zxvf IDO_Purple_Pi_OH_V1C_OHOS6.0r_Patch_251015.tar.gz
3 $ cd IDO_Purple_Pi_OH_V1C_OHOS6.0r_Patch_251015/
4 $ ./ido_patch.sh
```

补丁合并成功，如下图所示：

```
~/IDO_Purple_Pi_OH_V1C_OHOS6.0r_Patch_251015$ ./ido_patch.sh
ido_device Patch successfully inserted!
ido_vendor Patch successfully inserted!
ido_foundation Patch successfully inserted!
ido_build Patch successfully inserted!
arm64 deconfig Patch successfully inserted!
ido_base Patch successfully inserted!
All patches have been successfully inserted!
```

注：如果编译有如下报错，

```
OHOS ERROR] [NINJA] [49823/104528] CC obj/device/soc/rockchip/rk3568/hardware/omx_il/osal/RkOMX_OSAL/Rockchip_OSAL_RGA_Process.o
OHOS ERROR] [NINJA] FAILED: obj/device/soc/rockchip/rk3568/hardware/omx_il/osal/RkOMX_OSAL/Rockchip_OSAL_RGA_Process.o
OHOS ERROR] [NINJA] /usr/bin/ccache ../../prebuilts/clang/ohos/linux-x86_64/llvm/bin/clang -MMO -MF obj/device/soc/rockchip/rk3568/hardware/omx_il/osal/
osal/Rockchip_OSAL_RGA_Process.o.d -DAVS100 -DOHOS -DSUPPORT_AFBC -DRCKCHIP_GPU_LIB_ENABLE -DSUPPORT_RGA -DAVS00 -DOHOS_BUFFER_HANDLE -DV8_DEPRECATED
GS -D_GNU_SOURCE -DHAVE_SYS_IOCTL_H -D_MUSL_ -D_LIBCPP_HAS_MUSL_LIBC -D_BUILD_LINUX_WITH_CLANG -D_STDC_CONSTANT_MACROS -D_STDC_FORMAT_MACROS -DCOMPON
TLD -D_GNU_SOURCE=1 -DCHROMIUM_CXX_TWEAK_INLINE -DDEBUG -DNOVALGRIND -DDYNAMIC_ANNOTATIONS_ENABLED=0 -DOHOS_PLATFORM -D_OHOS_USER_ -D_OHOS_STANDARD
```

需要手动在 device\soc\rockchip\rk3568\hardware\omx_il\osal\Rockchip_OSAL_RGA_Process.c加

```
#include "rga_ioctl.h"
```

3.3. OHOS6.0 SDK编译

3.3.1. SDK完整编译

先下载工具链，然后再执行编译命令(默认编译为32位系统)



Plain Text |

```
1 $ bash build/prebuilts_download.sh
2 $ ./build.sh --product-name purple_pi_oh --ccache
```

编译结果如下图所示：

```
lzm@lzm:~/openharmony/develop/tools/startup_guard/rules/N0-Config-Cmds-In-Init/README.md$ ./build.sh
Please refer to: https://gitee.com/openharmony/develop/tools/startup_guard/rules/N0-Config-Cmds-In-Init/README.md
Do NO-Config-SystemParameter-In-INIT rule checking now:
[NOT ALLOWED]: DAC overallocated memory
Please refer to: https://gitee.com/openharmony/develop/tools/startup_guard/rules/N0-Config-SystemParameter-In-INIT/README.md
Do NO-User-Group-In-Init rule checking now:
[NOT ALLOWED]: quickfix has different passwd and group values
Please refer to: https://gitee.com/openharmony/develop/tools/startup_guard/rules/N0-User-Group-In-Init/README.md
Do NO-Plug-In Module-Init rule checking now:
[NOT ALLOWED]: the dependent shared library libhisyserv.z.so of librebootmodule.z.so is not in whitelist
[NOT ALLOWED]: libmodule_update_init.z.so is not in whitelists
Please refer to: https://gitee.com/openharmony/develop/tools/startup_guard/rules/N0-Plug-In Module-Init/README.md
Please modify according to README.md
[OHOS INFO] purple_pi_oh build success
[OHOS INFO] Cost Time: 0:34:42
====build successful====
2025-10-28 10:53:23
lzm@lzm:~/openharmony/develop/tools/startup_guard/rules/N0-Config-Cmds-In-Init/README.md$
```

失败时log索引位置：./out/purple_pi_oh/error.log

固件索引位置：./out/purple_pi_oh/packages/phone/images/

3.3.2. 编译MIPI固件

默认编译出来的是HDMI固件，如果需要编译MIPI固件则修改：

▼

Bash

1 device/board/industio/purple_pi_oh/kernel/build_kernel.sh

```
#Industio Patch
eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
#eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}
```

▼

Bash

1 注释：#eval \$MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI \$RAMDISK_ARG \${ENABLE_LTO_00}

2 使用：eval \$MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI \$RAMDISK_ARG \${ENABLE_LTO_00}

```
#Industio Patch
#eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}
```

4. OpenHarmony 5.1 SDK编译

4.1. OHOS5.1 源码获取

OpenHarmony5.1 Release版本特性说明:

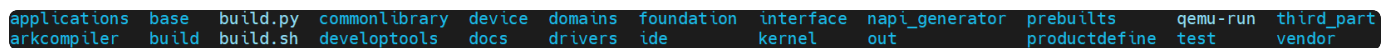
<https://gitee.com/openharmony/docs/blob/master/zh-cn/release-notes/OpenHarmony-v5.1.0-release.md>

4.1.1. OHOS5.1 官方源码获取

在Linux主机执行以下命令，获取的是与版本发布时完全一致的源码

```
1  repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v5.1.0-Release --no-repo-verify
2  repo sync -c
3  repo forall -c 'git lfs pull'
```

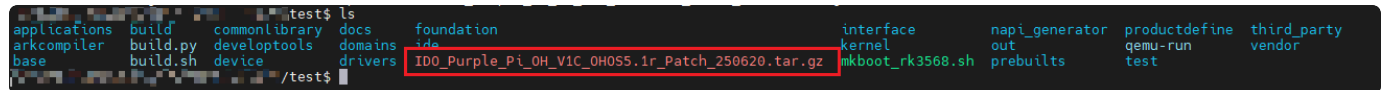
SDK目录文件如下图所示:



4.2. 打补丁

本地下载: [IDO_Purple_Pi_OH_V1C_OHOS5.1r_Patch_250620.tar.gz](#)

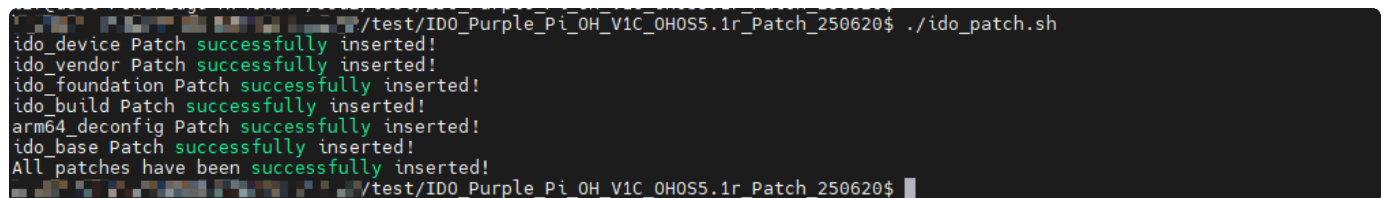
载后将补丁压缩包放到当前代码根目录下，如下图所示:



然后执行命令:

```
1  //解压补丁包
2  $ tar -zxvf IDO_Purple_Pi_OH_V1C_OHOS5.1r_Patch_250620.tar.gz
3  $ cd IDO_Purple_Pi_OH_V1C_OHOS5.1r_Patch_250620/
4  $ ./ido_patch.sh
```

补丁合并成功，如下图所示:



4.3. OHOS5.1 SDK编译

4.3.1. SDK完整编译

先下载工具链，然后再执行编译命令(默认编译为32位系统)

```
▼ Bash |
1  $ bash build/prebuilts_download.sh
2  $ ./build.sh --product-name purple_pi_oh --ccache
```

编译结果如下图所示：

```
Please refer to: https://gitee.com/openharmony/developtools_integration_verification/tree/master/tools/star
Do NO-Config-SystemParameter-In-INIT rule checking now:
[NOT ALLOWED]: DAC overallocated memory
Please refer to: https://gitee.com/openharmony/developtools_integration_verification/tree/master/tools/star
Do NO-User-Group_In-Init rule checking now:
[NOT ALLOWED]: quickfix has different passwd and group values
Please refer to: https://gitee.com/openharmony/developtools_integration_verification/tree/master/tools/star
Do NO-Plug-In_Module-Init rule checking now:
[NOT ALLOWED]: the dependent shared library libhisysevent.z.so of librebootmodule.z.so is not in whitelist
[NOT ALLOWED]: libmodule_update_init.z.so is not in whitelists
Please refer to: https://gitee.com/openharmony/developtools_integration_verification/tree/master/tools/star
Please modify according to README.md
[OHOS INFO] purple_pi_oh build success
[OHOS INFO] Cost Time: 0:21:33
====build successful====
2025-05-23 10:57:16
+++++
```

失败时log索引位置：./out/purple_pi_oh/error.log

固件索引位置：./out/purple_pi_oh/packages/phone/images/

4.3.2. 编译MIPI固件

默认编译出来的是HDMI固件，如果需要编译MIPI固件则修改：

```
▼ Bash |
1  device/board/industio/purple_pi_oh/kernel/build_kernel.sh

#Industio Patch
eval $MAKE_OHOS_ENV ./make-ohos.sh IDO-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
#eval $MAKE_OHOS_ENV ./make-ohos.sh IDO-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}
```

- 1 ▾ 注释: #eval \$MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI \$RAMDISK_ARG \${ENABLE_LTO_00}
- 2 ▾ 使用: eval \$MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI \$RAMDISK_ARG \${ENABLE_LTO_00}

```
#Industio Patch
#eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}
```

5. OpenHarmony 5.0 SDK编译

5.1. OHOS5.0 源码获取

OpenHarmony5.0Release版本特性说明:

<https://gitee.com/openharmony/docs/blob/master/zh-cn/release-notes/OpenHarmony-v5.0.0-release.md>

5.1.1. 全量SDK获取

链接:



提取码: 1234

下载后解压前先核对md5sum是否正确, 成功后才能正常解压完成。

- 1 \$ md5sum -c md5sum.txt
- 2 Purple-Pi-OH-5.0.tar.gz:成功
- 3 \$ tar xzvf Purple-Pi-OH-5.0.tar.gz -C .

注意: 全量代码无需再次打补丁, 只需按2.3章节编译即可

5.1.2. OHOS5.0 官方源码获取

在Linux主机执行以下命令，获取的是与版本发布时完全一致的源码

```
1 $ repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v5.0.0-Release --no-repo-verify
2 $ repo sync -c
3 $ repo forall -c 'git lfs pull'
```

SDK代码文件目录如下图所示：

```
IDO_Purple_Pi_OH_OHOS5.0r_1017$ ls
applications  build.py      device  foundation  napi_generator  qemu-run
arkcompiler   build.sh      docs    ide         out             test
base          commonlibrary domains  interface  prebuilts     third_party
build         developtools drivers  kernel     productdefine vendor
```

5.2. 打补丁

本地下载：[IDO_PurplePiOH_V1A_OHOS5.0r_Patch_241017.zip](#)

下载后将补丁放到当前代码根目录下，如下图所示：

```
IDO_Purple_Pi_OH_OHOS5.0r_1017$ ls
applications  developtools  IDO_PurplePiOH_V1A_OHOS5.0r_Patch_241017  qemu-run
arkcompiler   device        interface                                     test
base          docs          kernel                                       third_party
build         domains       napi_generator                             vendor
build.py      drivers       out
build.sh      foundation    prebuilts
commonlibrary ide            productdefine
```

然后进入该补丁内执行命令：

```
1 $ unzip IDO_PurplePiOH_V1A_OHOS5.0r_Patch_241017.zip
2 $ cd IDO_PurplePiOH_V1A_OHOS5.0r_Patch_241017/
3 $ ./ido_patch.sh
```

补丁合并成功，如下图所示：

```
IDO_Purple_Pi_OH_OHOS5.0r_1017/IDO_PurplePiOH_V1A_OHOS5.0r_Patch_241017$ ./ido_patch.sh
drivers patch complete!
```

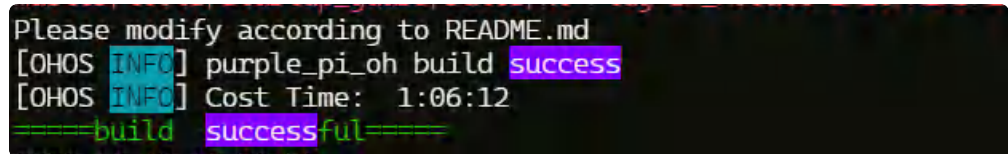
5.3. OHOS5.0 SDK编译

5.3.1. SDK完整编译

先下载工具链，然后再执行编译命令(默认编译为32位系统)

```
▼ Bash |
1 $ bash build/prebuilts_download.sh
2 $ ./build.sh --product-name purple_pi_oh --ccache
```

编译结果如下图所示：



失败时log索引位置：./out/purple_pi_oh/error.log

固件索引位置：./out/purple_pi_oh/packages/phone/images/

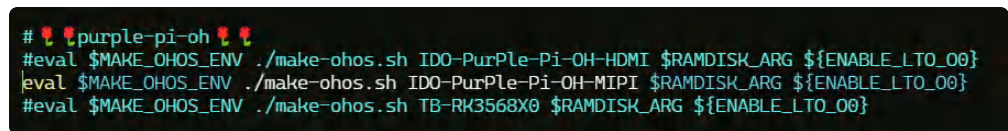
5.3.2. 编译MIPI固件

默认编译出来的是HDMI固件，如果需要编译MIPI固件则修改：

```
▼ Bash |
1 device/board/industio/purple_pi_oh/kernel/build_kernel.sh

▼ Bash |
1 注释：#eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
2 使用：eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}
```

如下图所示：



5.4. full-sdk下载链接

链接：



提取码: 1234

5.5. 更新Uboot

Uboot压缩包： [Uboot.zip](#)

新的Uboot是为了提高DDR的兼容性，从而更好的兼容Purple Pi OH。如果在使用过程中遇到死机或无法启动等问题，可以尝试使用新的Uboot进行测试。

解压压缩包如下图所示：

	MiniLoaderAll.bin	2025/5/22 21:00	BIN 文件	471 KB
	README.txt	2025/6/19 18:38	文本文档	1 KB
	uboot.img	2025/6/19 18:23	光盘映像文件	4,096 KB

5.5.1. 散包状态下更新Uboot

散包状态下更新Uboot时要将MiniLoaderAll.bin和Uboot一起选中，否则会出现无法烧录的情况：



将Purple Pi OH重新按【Recovery键】上电将MiniLoaderAll.bin和Uboot。img一并勾选，进行烧录即可：



5.5.2. 整包状态下的Uboot

更新过Uboot的固件，在之后的烧录中，烧录软件底部显示发现了一个MaskRom设备，这是正常现象，直接点击“升级”即可。



5.5.3. Uboot在SDK中的路径

MiniLoaderAll.bin和uboot.img位置如下图：

```

/Purple-Pi-0H-5.0.0/OpenHarmony/device/board/industio/purple_pi_oh/loader$ pwd
/Purple-Pi-0H-5.0.0/OpenHarmony/device/board/industio/purple_pi_oh/loader
/Purple-Pi-0H-5.0.0/OpenHarmony/device/board/industio/purple_pi_oh/loader$ ls
config_ab.cfg  config.cfg  MiniLoaderAll.bin  parameter_ab.txt  parameter.txt  README.md  uboot.img
/Purple-Pi-0H-5.0.0/OpenHarmony/device/board/industio/purple_pi_oh/loader$

```

可以将压缩包中的文件进行替换，替换完成后重新编译

```
1 $ ./build.sh --product-name purple_pi_oh --fast-rebuild
```

散包烧录教程参考链接：<https://industio.yuque.com/bx4amg/twek0i/eo144p7eddpoy8xg?singleDoc>

6. OpenHarmony 4.1 SDK编译

6.1. OHOS4.1 源码获取

OpenHarmony4.1Release版本特性说明：

<https://gitee.com/openharmony/docs/blob/master/zh-cn/release-notes/OpenHarmony-v4.1-release.md>

在PC端的Linux主机执行以下命令，获取的是与版本发布时完全一致的源码。

```
Bash
```

```
1 # git在线下载最新SDK源码
2 $ repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v4.1-Release --no-repo-verify
3 $ repo sync -c
4 $ repo forall -c 'git lfs pull'
```

SDK代码文件目录如下图所示：

```
industio@Ubuntu22:~/Purple-Pi-OH$ repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v4.1-Release --no-repo-verify
repo: reusing existing repo client checkout in /home/industio/Purple-Pi-OH

Your Name [industio]: industio
Your Email [industio@ubuntu22]: industio@ubuntu22
Your identity is: industio
is this correct [y/N]? y

repo has been initialized in /home/industio/Purple-Pi-OH
industio@Ubuntu22:~/Purple-Pi-OH$
industio@Ubuntu22:~/Purple-Pi-OH$ repo sync -c
Fetching: 100% (481/481), done in 29m7.019s
正在更新文件: 100% (14949/14949), 完成.play_manager正在更新文件: 61% (9119/14949)
正在更新文件: 100% (2168/2168), 完成.
正在更新文件: 100% (3970/3970), 完成.
正在更新文件: 100% (3894/3894), 完成.tion_config_policy正在更新文件: 81% (3189/3894)
正在更新文件: 100% (108/108), 完成.
正在更新文件: 100% (1081/1081), 完成.
正在更新文件: 100% (350/350), 完成.
正在更新文件: 100% (481/481), 完成.soc_beken正在更新文件: 44% (31210/70931)
正在更新文件: 100% (70931/70931), 完成.player_framework正在更新文件: 56% (19967/35655)
正在更新文件: 100% (35655/35655), 完成.
正在更新文件: 100% (10397/10397), 完成._exfatprogs正在更新文件: 61% (12288/20144)
正在更新文件: 100% (8469/8469), 完成.ty_rust_linux-raw-sys正在更新文件: 51% (4315/8460)
正在更新文件: 100% (127/127), 完成.
正在更新文件: 100% (20144/20144), 完成.
正在更新文件: 100% (69/69), 完成.
正在更新文件: 100% (2609/2609), 完成.
正在更新文件: 100% (23208/23208), 完成._libjpeg-turbo正在更新文件: 24% (13675/54844)
正在更新文件: 100% (1517/1517), 完成.
正在更新文件: 100% (67691/67691), 完成.
正在更新文件: 100% (3152/3152), 完成.ty_optimized_routines正在更新文件: 68% (37294/54844)
正在更新文件: 100% (54844/54844), 完成.
正在更新文件: 100% (7789/7789), 完成.ty_spirv-tools正在更新文件: 3% (234/7789)
Checking out: 99% (479/481), done in 35.507s
repo sync has finished successfully
industio@Ubuntu22:~/Purple-Pi-OH$ repo forall -c 'git lfs pull'
industio@Ubuntu22:~/Purple-Pi-OH$ ls
applications  base      build.py  commonlibrary  device  domains  foundation  interface  napi_generator  qemu-run  third_party
arkcompiler  build  build.sh  devloptools  docs    drivers  ide          kernel     productdefine  test      vendor
industio@Ubuntu22:~/Purple-Pi-OH$
```

6.2. 打补丁

直接下载：

[ID0_PurplePi0H_V1A_OHOS4.1r_Patch_20240624.tar](#)

网盘下载：



链接：

提取码：1234

下载后将补丁放到当前代码根目录下，如下图所示：

```
cainiaocl@dell-PowerEdge-R740xd:/mnt/ssd1/hwc/ohos/ido_ohos_4.1r_office$ ls
device                                napi_generator
applications                          docs                                out
arkcompiler                          domains                            prebuilts
base                                 drivers                            productdefine
build                                foundation                         qemu-run
build.py                             ide                                test
build.sh                             ID0_PurplePi0H_V1A_OHOS4.1r_Patch_20240624  third_party
cainiaocl                            ID0_PurplePi0H_V1A_OHOS4.1r_Patch_20240624.tar  vendor
commonlibrary                        interface
developertools                       kernel
```

然后执行如下命令：

```
1 $ tar -xvf ID0_PurplePi0H_V1A_OHOS4.1r_Patch_20240624.tar
2 $ cd ID0_PurplePi0H_V1A_OHOS4.1r_Patch_20240624/
3 $ ./ido_patch.sh
```

打入补丁成功后如下图所示：

```
cainiaocl@dell-PowerEdge-R740xd:/mnt/ssd1/hwc/ohos/ido_ohos_4.1r_office/ID0_PurplePi0H_V1A_OHOS4.1r_Patch_20240624$ ./ido_patch.sh
drivers patch complete!
```

注意：一定要用命令解压，不能直接window本地解压，否则解压出来的文件会有问题

6.3. OHOS4.1 SDK编译

6.3.1. SDK完整编译

```
1 $ bash build/prebuilts_download.sh
2 $ ./build.sh --product-name purple_pi_oh --ccache --no-prebuilt-sdk
```

编译结果如下图所示：

```
All rules passed
[OHOS INFO] purple_pi_oh build success
[OHOS INFO] Cost time: 5:01:32
====build successful====
2024-05-22 00:02:48
+++++
```

失败时log索引位置：./out/purple_pi_oh/error.log

固件索引位置：./out/purple_pi_oh/packages/phone/images/

6.3.2. 编译不同dts

修改device/board/industio/purple_pi_oh/kernel/build_kernel.sh中的"IDO-PurPle-Pi-OH-HDMI"

编译为MIPI固件则改为："IDO-PurPle-Pi-OH-MIPI"

```
1 #eval $MAKE_OHOS_ENV ./make-ohos.sh IDO-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${ENABLE_LT0_00}
2 eval $MAKE_OHOS_ENV ./make-ohos.sh IDO-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENABLE_LT0_00}
```

7. OpenHarmony 4.0 SDK编译

7.1. OHOS4.0 源码获取

OpenHarmony4.0Release版本特性说明：

<https://gitee.com/openharmony/docs/blob/master/zh-cn/release-notes/OpenHarmony-v4.0-release.md>

在PC端的Linux主机执行以下命令，git在线下载最新SDK源码：

注意：获取的是与版本发布时完全一致的源码。

```

1 $ repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v4.0-Release --no-repo-verify
2 $ repo sync -c
3 $ repo forall -c 'git lfs pull'

```

获取到的SDK文件如下图所示：

```

industio@Ubuntu22:~/Purplr-Pi-0H$ repo init -u https://gitee.com/openharmony/manifest -b refs/tags/OpenHarmony-v4.0-Release --no-repo-verify
Downloading Repo source from https://mirrors.tuna.tsinghua.edu.cn/git/git-repo/
remote: Enumerating objects: 8841, done.
remote: Counting objects: 100% (5037/5037), done.
remote: Compressing objects: 100% (2530/2530), done.
remote: Total 8841 (delta 4821), reused 2507 (delta 2507), pack-reused 3804
repo: warning: verification of repo code has been disabled;
repo will not be able to verify the integrity of itself.

Your Name [industio]: industio
Your Email [industio@Ubuntu22.04.mygquest.virtualbox.org]: 2166452894@qq.com

Your identity is: industio <2166452894@qq.com>
is this correct [y/N]? y

repo has been initialized in /home/industio/Purplr-Pi-0H
industio@Ubuntu22:~/Purplr-Pi-0H$ repo sync -c
Fetching: 100% (474/474), done in 22m5.841s
正在更新文件: 100% (12798/12798), 完成。play_manager正在更新文件: 68% (8703/12798)
正在更新文件: 100% (3970/3970), 完成。
正在更新文件: 100% (1901/1901), 完成。
正在更新文件: 100% (716/716), 完成。zation_config_policy正在更新文件: 77% (557/716)
正在更新文件: 100% (3891/3891), 完成。
正在更新文件: 100% (107/107), 完成。bilitymgr_safwk正在更新文件: 39% (27655/70910)
正在更新文件: 100% (70910/70910), 完成。esp正在更新文件: 56% (15463/27612)
正在更新文件: 100% (27612/27612), 完成。
正在更新文件: 100% (10203/10203), 完成。_grpc正在更新文件: 77% (10258/13322)
正在更新文件: 100% (13322/13322), 完成。
正在更新文件: 100% (8460/8460), 完成。
正在更新文件: 100% (24037/24037), 完成。
正在更新文件: 100% (12687/12687), 完成。_pyyaml正在更新文件: 53% (1402/2609)
正在更新文件: 100% (2609/2609), 完成。lity正在更新文件: 42% (54/127)
正在更新文件: 100% (127/127), 完成。
正在更新文件: 100% (24455/24455), 完成。_rust_pkg-config-rs正在更新文件: 21% (11761/54815)
正在更新文件: 100% (54815/54815), 完成。_rust_bitflags正在更新文件: 53% (29052/54815)
正在更新文件: 100% (59035/59035), 完成。
正在更新文件: 100% (6429/6429), 完成。
Checking out: 99% (472/474), done in 27.688s
repo sync has finished successfully.
industio@Ubuntu22:~/Purplr-Pi-0H$
>
> ^C
industio@Ubuntu22:~/Purplr-Pi-0H$ repo sync -c
Fetching: 100% (474/474), done in 3.994s
Checking out: 99% (472/474), done in 1.224s
repo sync has finished successfully.
industio@Ubuntu22:~/Purplr-Pi-0H$ repo forall -c 'git lfs pull'
industio@Ubuntu22:~/Purplr-Pi-0H$ ls
applications  base      build.py  commonlibrary  device  domains  foundation  interface  napi_generator  qemu-run  third_party
arkcompiler   build    build.sh  devloptools    docs    drivers  ide         kernel     productdefine   test      vendor
industio@Ubuntu22:~/Purplr-Pi-0H$

```

7.2. 打补丁

直接下载：

 [purple-pi-oh-patch.zip](#)

网盘下载：



链接：

提取码：1234

下载后将补丁放到当前代码根目录下，如下图所示：

```

industio@Ubuntu22:~/Purplr-Pi-0H$ ls
applications  base      build.py  commonlibrary  device  domains  foundation  interface  napi_generator  purple-pi-oh-patch.zip  test  third_party  vendor
arkcompiler   build    build.sh  devloptools    docs    drivers  ide         kernel     productdefine   qemu-run                test   third_party  vendor
industio@Ubuntu22:~/Purplr-Pi-0H$

```

然后执行如下命令：

```

1 $ unzip purple-pi-oh-patch.zip
2 $ cd purple-pi-oh-patch/
3 $ ./ido_patch.sh

```

打入补丁成功后如下图所示：

```

industio@Ubuntu22:~/Purplr-Pi-OH/purple-pi-oh-patch$ ls
ido_device  ido_others  ido_patch.sh  ido_vendor
industio@Ubuntu22:~/Purplr-Pi-OH/purple-pi-oh-patch$
industio@Ubuntu22:~/Purplr-Pi-OH/purple-pi-oh-patch$ ./ido_patch.sh
patch complete!
industio@Ubuntu22:~/Purplr-Pi-OH/purple-pi-oh-patch$

```

7.3. OHOS4.0 SDK编译

7.3.1. SDK完整编译

```

1 $ bash build/prebuilts_download.sh
2 $ ./build.sh --product-name purple_pi_oh --ccache --no-prebuilt-sdk

```

SDK编译成功如下图所示：

```

Please modify according to README.md
[OHOS INFO] purple_pi_oh build success
[OHOS INFO] Cost time: 2:59:51
====build successful====
2024-05-22 14:20:55
+++++

```

失败时log索引位置：./out/purple_pi_oh/error.log

固件索引位置：./out/purple_pi_oh/packages/phone/images/

7.3.2. 编译不同dts

修改device/board/industio/purple_pi_oh/kernel/build_kernel.sh中的"IDO-PurPle-Pi-OH-HDMI"

编译为MIPI固件则改为："IDO-PurPle-Pi-OH-MIPI"

```

1  #eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-HDMI $RAMDISK_ARG ${EN
    ABLE_LT0_00}
2  eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-OH-MIPI $RAMDISK_ARG ${ENA
    BLE_LT0_00}

```

8. FAQ

8.1. 烧录MIPI固件系统一直重启

没有接I2C触摸屏，系统开机后检测不到会重启；如果触摸坏了，可以在ido-pi-oh3566-mipi-v1.dts里关闭2c1

```

&i2c1 {
    status = "disabled";
};

```

8.2. 系统启动后进入不到桌面

ohos4.0系统有 bug,当出现此种问题时，需要执行 killall com.ohos.launcher。

此问题可以下载：



链接：

提取码：1234

里面的hap文件替换applications\standard\hap\下的同名文件。

8.3. 双频WiFi模块蓝牙打不开

双频WiFi模块为AW-NM256需要更换hcd文件：

把vendor\industio\purple_pi_oh\bluetooth\src\hardware.c中的"BCM43430A1.hcd"改为

"BCM4345C0.hcd"再编译

8.4. 怎样编译full-sdk

./build.sh --product-name ohos-sdk

编译完成后在out\sdk\packages\ohos-sdk则为不同平台的full-sdk

注：其它FAQ问题可以进入FAQ专区查找对应问题：

<https://ask.industio.com/questions/OpenHarmony>

8.5. OpenHarmony 设置应用开机自启动

相关文章链接：<https://laval.csdn.net/671914a5522b003a545d9796.html>

8.6. OpenHarmony 4.1 Release 去除锁屏

相关文章链接：<https://industio.yuque.com/bx4amg/twek0i/lquqtfszrcxk9270?singleDoc>

8.7. OpenHarmony 6.0 Release 因third_party编译失败

报错提示：

```
[OHOS INFO] [GN] user@ubuntu:~/OpenHarmony$ ./build.sh --product-name ohos-sdk
[OHOS INFO] [GN] ERROR at //third_party/libnl/BUILD.gn:13:1: Script returned non-zero exit code.
[OHOS INFO] [GN] exec_script("install.sh", [ "$libnl_path" ])
[OHOS INFO] [GN] ^-----
[OHOS INFO] [GN] Current dir: /mnt/hdd2/lzr/RK3566/Purple-Pi-0H-6.0/out/rk3566/
[OHOS INFO] [GN] Command: /usr/bin/env /mnt/hdd2/lzr/RK3566/Purple-Pi-0H-6.0/third_party/libnl/install.sh /mnt/hdd2/lzr/RK3566/Purple-Pi-0H-6.0/third_party/libnl
[OHOS INFO] [GN] Returned 100 and printed out:
[OHOS INFO] [GN]
[OHOS INFO] [GN] libnl-libnl3 11 0/
```

解决办法：

隐藏红框注释两行，重新编译测试

```
#!/bin/bash
# This library is free software; you can redistribute it and/or
# modify it under the terms of the GNU Lesser General Public
# License as published by the Free Software Foundation version 2.1
# of the License.
#
# Copyright(c) 2023 Huawei Device Co., Ltd.

set -e
cd $1
if [ -d "libn1" ];then
|   rm -rf libn1
fi
tar xvf libn1-libn13_11_0.tar.gz
mv libn1-libn13_11_0 libn1
cd $1/libn1
apt-get update
apt-get install autoconf automake libtool -y
./autogen.sh
./configure
patch -p1 < $1/solve-oh-compile-problem3_11_0.patch --fuzz=0 --no-backup-if-mismatch
exit 0
```

8.8 app demo那里有?

https://gitcode.com/openharmony/applications_app_samples

9. 增加锁屏方法

系统没有锁屏时候，应用自启动会遇到“ErrorCode:00402027 ErrorDescription:屏幕已锁定，请解锁屏幕并重试。”，如果只是自己调试应用，可以手动鼠标点击应用图标解决，如需应用测试，可参考如下方法，添加锁屏进系统：

(1)确保锁屏hap编译进系统

"applications\standard\hap\BUILD.gn"

#为注释键，去掉#键

```

    "//applications/standard/hap:music_demo_hap",
    "//applications/standard/hap:navigationBar_hap",
    "//applications/standard/hap:note_hap",
    "//applications/standard/hap:notificationManagement_hap",
    "//applications/standard/hap:photos_hap",
    # "//applications/standard/hap:screenLock_hap",
    "//applications/standard/hap:screen_shot_hap",
    "//applications/standard/hap:settingsData_hap",
    "//applications/standard/hap:settings_faceauth_hap",
    "//applications/standard/hap:settings_hap",
    "//applications/standard/hap:statusBar_hap",
    "//applications/standard/hap:systemui_hap",
    "//applications/standard/hap:volumePanel_hap",
  ]
  if (defined(product name) && product name == "watchos") {

```

(2)增加锁屏判定

"\foundation\systemabilitymgr\safwk\etc\profile\foundation.cfg",

```

"kernel_permission": {
  "ohos.permission.kernel.READ_PROTECT_RANGE": true,
  "ohos.permission.kernel.ALLOW_APP_CODE_DECRYPT": 17
},
"gid": ["system", "appspawn", "update", "data_reserve", "app_install"],
"writepid": ["/dev/memcg/perf_sensitive/cgroup.procs"],
"caps": ["SYS_PTRACE", "KILL"],
"bootevents": [
  "bootevent.bms.main.bundles.ready",
  "bootevent.wms.fullscreen.ready",
  "bootevent.appfwk.ready",
  "bootevent.lockscreen.ready",
  "bootevent.launcher.ready",
  "bootevent.wms.ready"
],
"jobs": {
  "on-start": "services:foundation",
  "on-restart": "services:restartfoundation"
},
"secon": "u:r:foundation:s0"

```

可参考文章：

<https://laval.csdn.net/user/discuss/6a2a9f61662f9a54cb7d3808>

