

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

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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	PCBA版本	修订内容	修订	审核	日期
V1.0	V1A	创建文档	TOCA	IDO	2023/04/06
V1.1	V1A	优化文档	TOCA	IDO	2023/04/26
V1.2	V1A	添加OpenHarmony3.2补丁	HJT	IDO	2023/05/13
V1.3	V1A	增加OpenHarmony 4.0 SDK	TOCA	IDO	2023/10/30
V1.4	V1A	修复开机不进桌面BUG	TOCA	IDO	2023/11/02
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V1.6	V1A	优化文档	LZR	IDO	2024/05/15
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1 环境搭建

推荐编译主机配置如下：

1. Ubuntu20.04 LTS搭建开发环境
2. 64 位 CPU
3. DDR至少16GB
4. 至少120GB的硬盘空间

安装工具包，在编译主机执行以下命令：

```
▼ Bash |  
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 zlibg-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 libdwarf-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 grsync 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
```

注意：如果直接用完整的虚拟机环境参考下篇文章3.2sdk下载链接里面的
ubuntu20_purple_pi_industio.ova

2 OpenHarmony4.1 SDK编译

2.1 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-0H$ 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-0H
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-0H
industio@ubuntu22:~/Purple-Pi-0H$
industio@ubuntu22:~/Purple-Pi-0H$ repo sync -c
Fetching: 100% (481/481), done in 29m7.019s
正在更新文件: 100% (14849/14849), 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% (358/358), 完成.
正在更新文件: 100% (481/481), 完成.soc_beken正在更新文件: 44% (13170/70931)
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% (8460/8460), 完成.ty_rust_linux-raw-sys正在更新文件: 51% (14315/8460)
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: 88% (137294/54844)
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-0H$ repo forall -c 'git lfs pull'
industio@ubuntu22:~/Purple-Pi-0H$ ls
applications base build.py commonlibrary device_downloads Foundation interface napi_generator qemu-run third_party
arkcompiler build build.sh development_ool drivers ide kernel productionline test vendor
industio@ubuntu22:~/Purple-Pi-0H$
```

2.2 打补丁

直接下载：

[📎IDO_PurplePi0H_V1A_OHOS4.1r_Patch_20240624.tar](#)

网盘下载：

链接：https://pan.baidu.com/s/1l_UvsKL44TPOODv-n6mzkg?pwd=1234

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：

```
rainiaoc1@dell-PowerEdge-R740xd: /mnt/ssd1/hwc/ohos/ido_ohos_4.1r_office$ ls
.
device
applications
arkcompiler
base
build
build.py
build.sh
rainiaoc1
commonlibrary
developertools
docs
domains
drivers
foundation
ide
ID0_PurplePiOH_V1A_OHOS4.1r_Patch_20240624
ID0_PurplePiOH_V1A_OHOS4.1r_Patch_20240624.tar
interface
kernel
napi_generator
out
prebuilts
productdefine
qemu-run
test
third_party
vendor
```

然后执行如下命令：

```
Bash |
1 $ tar -xvf ID0_PurplePiOH_V1A_OHOS4.1r_Patch_20240624.tar
2 $ cd ID0_PurplePiOH_V1A_OHOS4.1r_Patch_20240624/
3 $ ./ido_patch.sh
```

打入补丁成功后如下图所示：

```
rainiaoc1@dell-PowerEdge-R740xd: /mnt/ssd1/hwc/ohos/ido_ohos_4.1r_office/ID0_PurplePiOH_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

2.3 OHOS4.1 SDK编译

2.3.1 SDK完整编译

```
Bash |
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/

2.3.2 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"

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

3 OpenHarmony4.0 SDK编译

3.1 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。

```
Bash |
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-OH$ 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.myquest.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-OH
industio@ubuntu22:~/Purplr-Pi-OH$ repo sync -c
Fetching: 100% (474/474), done in 22m5.841s
正在更新文件: 100% (12795/12798), 完成.play_manager正在更新文件: 68% (8703/12798)
正在更新文件: 100% (3978/3978), 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_valwk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% (51761/54815)
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-OH$ git pull --rebase
>
> ^C
industio@ubuntu22:~/Purplr-Pi-OH$ 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-OH$ repo forall -c 'git lfs pull'
industio@ubuntu22:~/Purplr-Pi-OH$ ls
applications base build.py commonlibrary device biosarea foundation interface hapi_generation purple-pi-oh-patch.zip test vendor
arkcompiler build build.sh deoptools docs drivers ide kernel productdefine qemu-run test third_party
industio@ubuntu22:~/Purplr-Pi-OH$
```

3.2 打补丁

直接下载:

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

网盘下载:

链接: https://pan.baidu.com/s/14HMKFxyfwmTJWJS_Xv08mQ?pwd=1234

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-OH$ ls
applications base build.py commonlibrary device biosarea foundation interface hapi_generation purple-pi-oh-patch.zip test vendor
arkcompiler build build.sh deoptools docs drivers ide kernel productdefine qemu-run test third_party
industio@ubuntu22:~/Purplr-Pi-OH$
```

然后执行如下命令:

```
▼ | Bash |
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:~/Purple-Pi-OH/purple-pi-oh-patch$ ls
ido_device  ido_others  ido_patch.sh  ido_vendor
industio@Ubuntu22:~/Purple-Pi-OH/purple-pi-oh-patch$
industio@Ubuntu22:~/Purple-Pi-OH/purple-pi-oh-patch$ ./ido_patch.sh
patch complete!
industio@Ubuntu22:~/Purple-Pi-OH/purple-pi-oh-patch$
```

3.3 SDK编译

3.3.1 SDK完整编译

```
▼ | Bash |
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/

3.3.2 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-0H-HDMI $RAMDISK_ARG ${ENABLE_LTO_00}
2 eval $MAKE_OHOS_ENV ./make-ohos.sh ID0-PurPle-Pi-0H-MIPI $RAMDISK_ARG ${ENABLE_LTO_00}
```

4 FAQ

4.1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";
};
```

4.2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：https://pan.baidu.com/s/1G5C0lq3_P6RWbffsV5iMFg?pwd=1234

提取码：1234

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

4.3 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

4.4 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>
