

IDO-EVB2708-V1 Android开发手册



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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	V1C	创建文档	FYZ	IDO	2024/09 /24

注意事项

源码的解压和编译使用普通用户即可，无需使用sudo或root用户。

1 源码获取

百度网盘/EVB2708–Android/4.软件资料/SDK

从网盘下载SDK源码文件到PC端的Linux主机中，如下图所示：

```
evb2708_sdk.md5      Industio_EVB2708_Android13.tar.gzac Industio_EVB2708_Android13.tar.gzaf
Industio_EVB2708_Android13.tar.gzaa Industio_EVB2708_Android13.tar.gzad Industio_EVB2708_Android13.tar.gzag
Industio_EVB2708_Android13.tar.gzab Industio_EVB2708_Android13.tar.gzae
```

校验下载文件的完整性，命令如下：

▼ Shell |

1 \$ md5sum -c evb2708_sdk.md5

结果如下图所示：

```
$ md5sum -c evb2708_sdk.md5
Industio_EVB2708_Android13.tar.gzaa: 成功
Industio_EVB2708_Android13.tar.gzab: 成功
Industio_EVB2708_Android13.tar.gzac: 成功
Industio_EVB2708_Android13.tar.gzad: 成功
Industio_EVB2708_Android13.tar.gzae: 成功
Industio_EVB2708_Android13.tar.gzaf: 成功
Industio_EVB2708_Android13.tar.gzag: 成功
Industio_EVB2708_Android13.tar.gzah: 成功
Industio_EVB2708_Android13.tar.gzai: 成功
```

创建一个文件夹（名字自拟），将下载的文件解压到 T527 目录，命令如下：

```
1 $ mkdir T527
2 $ cat Industio_EVB2708_Android13.tar.gza* | tar -xz -C T527
3 $ cd T527/Industio_EVB2708_Android13
```

解压后的目录下有.git隐藏文件，使用以下命令从.git中恢复SDK源码，命令如下：

```
1 $ git reset --hard
```

结果如下图所示：

```
Industio_EVB2708_Android13$ git reset --hard
正在更新文件: 100% (1056285/1056285), 完成.
HEAD 现在位于 f77dc92 ID0 EVB2708 SDK TAG V1.4
```

2 Android_SDK编译环境配置

推荐编译主机配置如下：

1. Ubuntu22.04 操作系统64位
2. 64 位 CPU
3. 16GB 物理内存+交换内存
4. 250GB 空闲的磁盘空间

开发环境搭建，在Ubuntu22.04上安装一些必要的开发依赖包，命令如下：

```
1 $ sudo apt-get update
2 $ sudo apt install -y git gnupg flex bison gperf build-essential zip curl l
  ibc6-de
3 v libncurses5-dev:i386 x11proto-core-dev libx11-dev:i386 libreadline6-dev:i
  386 lib
4 gl1-mesa-glx:i386 libgl1-mesa-dev g++-multilib tofrodos python markdown lib
  x
5 ml2-utils xsltproc zlib1g-dev:i386 gawk texinfo gettext build-essential gcc
  libncurs
6 es5-dev bison flex zlib1g-dev gettext libssl-dev autoconf libtool linux-lib
  c-dev:i38
7 6 wget patch dos2unix tree u-boot-tools libelf-dev libncurses5
```

3 SDK编译

3.1 longan配置

配置longan的版型，分别选择 android-> t527 -> demo -> default

```
1  $ cd <android_top_path>/longan
2  $ ./build.sh config
3  =====ACTION List: mk_config ;=====
4  options :
5  All available platform:
6      0. android
7      1. linux
8  ▾ Choice [android]: 0
9  All available ic:
10     0. a523
11     1. a527
12     2. t527
13 ▾ Choice [t527]: 2
14 All available board:
15     0. demo
16     1. demo_battery
17     2. demo_car
18     3. demo_fastboot
19     4. demo_linux_aiot
20     5. demo_linux_car
21 ▾ Choice [demo]: 0
22 All available flash:
23     0. default
24     1. nor
25 ▾ Choice [default]: 0
26
```

结果如下图所示：

```

/T527/Industio_EVB2708_Android13/longan$ ./build.sh config
=====ACTION List: mk_config ;=====
options :
All available platform:
  0. android
  1. linux
Choice [android]: 0
All available ic:
  0. a523
  1. a527
  2. t527
Choice [a523]: 2
All available board:
  0. demo
  1. demo_battery
  2. demo_car
  3. demo_fastboot
  4. demo_linux_aiot
  5. demo_linux_car
Choice [demo]: 0
All available flash:
  0. default
  1. nor
Choice [default]: 0
Setup BSP files
INFO: Prepare toolchain ...

```

3.2 编译longan

3.2.1 一键编译

执行build.sh 命令，编译uboot、kernel、dtbo镜像

```

▼ Shell |
1  $ cd <android_top_path>/longan
2  $ ./build.sh

```

结果如下图所示：

```

No init ramdisk file used!
sun55iw3p1 compile all(Kernel+modules+boot.img) successful
INFO: build dts ...
INFO: Prepare toolchain ...
Setup BSP files
INFO: build dts ...
INFO: build rootfs ...
INFO: skip make rootfs for android
INFO: build Tina OK.
INFO:

```

3.2.2 单独编译

编译uboot

```

1  $ cd <android_top_path>/longan
2  $ ./build.sh bootloader

```

结果如下图所示：

```

'sboot_nand_sun55iw3p1.bin' -> 'Industio_EVB2708_Android13/longan/brandy/brandy-2.0/spl-pub/out/sun55iw3p1/bin/sboot_nand_sun55iw3p1.bin'
'sboot_nand_sun55iw3p1.bin' -> '/T527/Industio_EVB2708_Android13/longan/device/config/chips/t527/bin/sboot_nand_sun55iw3p1.bin'
'sboot_nand_sun55iw3p1.bin' -> '/T527/Industio_EVB2708_Android13/longan/out/t527/demo/android/sboot_nand_sun55iw3p1.bin'
find: 'T527/Industio_EVB2708_Android13/longan/brandy/brandy-2.0/spl': No such file or directory
touch: cannot touch '/T527/Industio_EVB2708_Android13/longan/brandy/brandy-2.0/spl/.newest-1c4f44727b8a174fe87e4fcb3da2975a.patch': No such file or directory
INFO: build brandy OK

```

编译内核

```

1  $ cd <android_top_path>/longan
2  $ ./build.sh kernel

```

结果如下图所示：

```

No unit ramdisk file used!
sun55iw3p1 compile all(Kernel+modules+boot.img) successful
INFO: build dts ...
INFO: Prepare toolchain ...
Setup BSP files
T527/Industio_EVB2708_Android13/longan/out/t527/kernel/staging/sunxi.dtb -> 'T527/Industio_EVB2708_Android13/longan/out/t527/demo/android/sunxi.dtb'

```

编译dtbo

```

1  $ cd <android_top_path>/longan
2  $ ./build.sh dts

```

结果如下图所示：

```

sun55iw3p1 compile dts successful
'Industio_EVB2708_Android13/longan/out/t527/kernel/staging/sunxi.dtb' -> 'Industio_EVB2708_Android13/longan/out/t527/demo/android/sunxi.dtb'

```

3.3 编译Android

```

1 //切换目录到SDK的根目录
2 $ cd <android_top_path>
3 $ source build/envsetup.sh
4 $ lunch t527_demo_arm64-userdebug
5 $ make -j20

```

结果如下图所示：

```

[100% 162056/162056] Target super fs image for debug: out/target/product/t527-demo/super.img
2025-03-13 19:54:25 - build_super_image.py - INFO : Building super image from info dict...
2025-03-13 19:54:25 - common.py - INFO : Running: " /T527/Industio_EVB2708_Android13/out/host/linux-x86/bin/lpmake --metadata-size 65536 --super-name
super --metadata-slots 3 --virtual-ab --device super:3758096384 --group sb_a:3749707776 --group sb_b:3749707776 --partition system_a:readonly:980455424:sb_a --image system_a=out/target/
product/t527-demo/system.img --partition system_b:readonly:0:sb_b --partition vendor_a:readonly:135200768:sb_a --image vendor_a=out/target/product/t527-demo/vendor.img --partition vendo
r_b:readonly:0:sb_b --partition product_a:readonly:188899840:sb_a --image product_a=out/target/product/t527-demo/product.img --partition product_b:readonly:0:sb_b --partition vendor_dk
m_a:readonly:10747904:sb_a --image vendor_dk_m_a=out/target/product/t527-demo/vendor_dk_m.img --partition vendor_dk_m_b:readonly:0:sb_b --partition system_dk_m_a:readonly:348160:sb_a --
image system_dk_m_a=out/target/product/t527-demo/system_dk_m.img --partition system_dk_m_b:readonly:0:sb_b --sparse --output out/target/product/t527-demo/super.img"
2025-03-13 19:54:27 - build_super_image.py - INFO : Done writing image out/target/product/t527-demo/super.img
#### build completed successfully (01:22:48 (hh:mm:ss)) ####

```

3.4 镜像打包

在SDK的根目录执行pack命令打包固件

```

1 $ cd <android_top_path>
2 $ pack

```

结果如下图所示：

```

FileLength=1000Add partition vbmeta_vendor.fex VBMETA_VENDOR_FEX
Add partition very vbmeta_vendor.fex VBMETA_VENDOR_FEX
FilePath: vbmeta_vendor.fex
FileLength=1000Add partition dtbo.fex DTBO_FEX00000000
Add partition very dtbo.fex DTBO_FEX00000000
FilePath: dtbo.fex
FileLength=200000Add partition Reserve0.fex RESERVE0_FEX0000
Add partition very Reserve0.fex RESERVE0_FEX0000
FilePath: Reserve0.fex
FileLength=1000000BuildImg 0
Dragon execute image.cfg SUCCESS !
-----image is at-----
1.6G /longan/out/t527_android13_demo_uart0.img
pack finish

```

固件生成路径为 longan/out/t527_android13_demo_uart0.img

4 SDK修改

4.1 屏幕配置修改

以HDMI屏幕为例，在uboot和kernel的dts中，选择要配置的屏幕。

修改longan/device/config/chips/t527/configs/demo/uboot-board.dts

```
// #include "uboot_edp_1920x1080.dtsi"           //eDP 1920x1080 + HDMI
// #include "uboot_lvds0_1280x800.dtsi"         //LVDS 1280x800 + HDMI
// #include "uboot_dual_lvds_1920x1080.dtsi"    //Dual-LVDS 1920x1080 + HDMI
// #include "uboot_mipi_1200x1920.dtsi"         //MIPI 1200x1920 + HDMI
#include "uboot_hdmi.dtsi"                      //HDMI
```

longan/device/config/chips/t527/configs/demo/board.dts

```
/dts-v1/;

#include "sun5iw3p1.dtsi"
// #include "ido_edp_1920x1080.dtsi"           //eDP 1920x1080 + HDMI
// #include "ido_lvds_1280x800.dtsi"         //LVDS 1280x800 + HDMI
// #include "ido_dual_lvds_1920x1080.dtsi"    //Dual-LVDS 1920x1080 + HDMI
// #include "ido_dsi1_mipi1200x1920.dtsi"     //MIPI 1200x1920 + HDMI
#include "ido_hdmi.dtsi"                      //HDMI

/{
```

修改后需要重新编译uboot和dts，并重新生成镜像

4.2 内核Logo

longan/device/config/chips/t527/boot-resource/boot-resource/bootlogo.bmp

4.3 开机动画

device/softwinner/saturn/t527-demo/media/bootanimation/bootanimation.zip