

MDM9x07&MDM9628 SDK COMPILE GUIDE

About the Document

本文档适用于 MDM9628 和 MDM9X07 平台

History

Revision	Date	Author	Description
1.0	2018-03-05	XXX	Initial

目录

MDM9x07&MDM9628 SDK COMPILE GUIDE..... 0

About the Document..... 1

1. 概述..... 3

2. SDK 编译..... 4

1. 概述

ql-ol-sdk 是 Quectel 为客户提供的 sdk 包，以便客户二次开发，包含以下内容：

目录	说明	编译生成文件
ql-ol-bootloader	BootLoader 源码	appsboot.mbn
ql-ol-crosstool	交叉编译工具	无
ql-ol-extsdk	应用例程源码	应用 app
ql-ol-kernel	内核源码	mdm9607-perf-boot.img
ql-ol-rootfs	根文件系统	mdm9607-perf-sysfs.ubi
ql-ol-usrdata	客户数据	usrdata.ubi

2. SDK 编译

(1) 环境变量配置

对于每个终端，在 ql-ol-sdk 目录，每次需执行以下指令

```
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/ql-ol-sdk$ source ql-ol-crosstool/ql-ol-crosstool-env-init
QUECTEL_PROJECT_NAME      =EC20CE_FAG
QUECTEL_PROJECT_REV       =EC20CEFAGR06A01M4G_OCPU_BETA0130
QUECTEL_FEATURE_OPENLINUX =0L
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/ql-ol-sdk$
```

(2) 安装 ncurses-dev

对于未安装过 ncurses-dev 的客户，需执行 `sudo apt-get install ncurses-dev` 指令
(内核配置的图像终端需要)

(3) ql-ol-bootloader

ql-ol-bootloader 是一段引导程序，设置基本的硬件参数，并引导内核启动

当修改 ql-ol-bootloader 目录下文件，可在 ql-ol-sdk 目录使用以下命令编译

build: `make about`, 在 ql-ol-sdk/target 目录下生成 appsboot.mbn

clean: `make about/clean`

```
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/ql-ol-sdk$ make about
cd /home/cullen/projects/sdk/ec20cefag/20180130/ql-ol-sdk/ql-ol-bootloader ; make -j 4 mdm9607 TOOLCHAIN_PREFIX=arm-oe-linux-gnueabi-
SIGNED_KERNEL=1 || exit ; \
cp build-mdm9607/appsboot.mbn /home/cullen/projects/sdk/ec20cefag/20180130/ql-ol-sdk/target
make[1]: Entering directory `/home/cullen/projects/sdk/ec20cefag/20180130/ql-ol-sdk/ql-ol-bootloader'
including app/about dev/keys dev/pmic/pm8x41 dev/vib lib/debug lib/heap lib/libc lib/libfdt lib/openssl lib/ptable
including lib/openssl/crypto lib/zlib_inflate
```

(4) ql-ol-extsdk

Quectel 提供的，应用参考例程

① 全部编译

当修改 ql-ol-extsdk 目录下文件，可在 ql-ol-sdk 目录使用以下命令编译

build: `make extsdk`, 在 ql-ol-extsdk/example 目录子文件里面生成对应的 app

clean: `make extsdk/clean`

```
rm -rf target/appsboot.mbn
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk$ make extsdk
cd /home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example ; make clean || exit ; make || exit
make[1]: Entering directory `/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example'
make[2]: Entering directory `/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/tts'
rm -rf example_tts *.o
make[2]: Leaving directory `/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/tts'
make[2]: Entering directory `/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/audio'
```

② 单个编译(以 ql-ol-extsdk/example/uart 为例)

进入对应目录, 执行以下指令

```
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk$ cd ql-ol-extsdk/example/uart/
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/uart$ ls
example_uart.c Makefile
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/uart$ make → 编译
arm-oe-linux-gnueabi-gcc -march=armv7-a -mfloat-abi=softfp -mfpu=neon -O2 -fexpensive-optimizations -frename-registers -fom
pointer -include quectel-features-config.h -I./ -I../include -I/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sd
rosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include -I/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sd
sstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include -I/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sd
tool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/data -I/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sd
osstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/dsutils -I/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sd
-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/qmi -I/home/cullen/projects/sdk/ec20cefag/20180130/temp/q
ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/qmi-framework -c -I./ -I../include -I/home/cullen
/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include -I/home/cullen/pro
dk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include -I/home/cullen/pro
/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/data -I/home/cullen/p
sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/dsutils -I/home/c
jects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/qmi -I/home
projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-crosstool/sysroots/armv7a-vfp-neon-oe-linux-gnueabi/usr/include/qmi-framev
/L/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/uart/../../lib -lrt -lpthread example_uart
arm-oe-linux-gnueabi-gcc -march=armv7-a -mfloat-abi=softfp -mfpu=neon -L./ -L/home/cullen/projects/sdk/ec20cefag/20180130/te
sdk/ql-ol-extsdk/example/uart/../../lib -lrt -lpthread *.o -L./ -L/home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sd
xtsdk/example/uart/../../lib -lrt -lpthread /home/cullen/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/
./lib/libq_peripheral.a -o example_uart → app
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/uart$ ls
example_uart example_uart.c example_uart.o Makefile
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/uart$ make clean → 清除
rm -rf example_uart *.o
cullen@cullen-pc:~/projects/sdk/ec20cefag/20180130/temp/ql-ol-sdk/ql-ol-extsdk/example/uart$
```

(5) ql-ol-kernel

① 配置

ql-ol-sdk 目录下执行 make kernel_menuconfig, 生成.config 文件, 对于使用 quectel 默认配置的客户, 直接 exit, 执行一次即可。

② 编译

当修改 ql-ol-kernel 目录下文件, 可在 ql-ol-sdk 目录使用以下命令编译

build: make kernel, 在 ql-ol-sdk/target 目录下生成 mdm9607-perf-boot.img

clean: make kernel/clean

(6) ql-ol-rootfs

当修改 ql-ol-rootfs 目录下文件, 如开机自启动, 可在 ql-ol-sdk 目录使用以下命令编译

build: make rootfs, 在 ql-ol-sdk/target 目录下生成 mdm9607-perf-sysfs.ubi

clean: make rootfs/clean

(7) ql-ol-usrdata

ql-ol-usrdata 为 quectel 预留的, 可用来存放客户数据, 如存放客户配置文件

当修改 ql-ol-usrdata 目录下文件, 可在 ql-ol-sdk 目录使用以下命令编译

build: make usrdata, 在 ql-ol-sdk/target 目录下生成 usrdata.ubi

clean: make usrdata/clean