



CUBIEBOARD
<http://cubieboard.org>

MF210_3G Module debugging

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Version	Author	Modification	Check
V-0.1-20150415	Payne	Init version	



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1. Drive version instructions

1.1. directory structure

```
├── script
│   ├── chat.c
│   ├── init.gprs-pppd
│   ├── ip-down-ppp0.c
│   ├── ip-up-ppp0.c
│   └── The results of the source file compiled
│       ├── chat
│       ├── ip-down-ppp0
│       ├── ip-up-ppp0
│       └── readme.txt
├── so
│   └── Android4.x
│       └── libreference-ril.so
└── userguide
    ├── Android system RIL adaptation user reference -V0.8.pdf
    └── Additional instructions .pdf
```

1.2. Document describing

Driver version document describing

/script	Phone script
/so	To transplant the ril library
/userguide	Use the reference documents

The document instructions : The Green part is the code of increase,
the red part is reducing code.

2. Add the kernel module

2.1. Add the driver

The add of Module driven need to configure android kernel,
configuration method is as follows:

```
cd kernel/allwinner/common/  
make ARCH=arm menuconfig  
  
device drivers--->usb support--->usb serial converter support
```

Selected the following components :

USB driver for GSM and CDMA modems

2.2. Add equipment VID and PID

Modify the kernel source file option.c

(Path:kernel/allwinner/common/drivers/usb/serial/option.c)

```
diff --git a/kernel/allwinner/common/drivers/usb/serial/option.c
```

```
b/kernel/allwinner/common/drivers/usb/serial/option.c
```

```
index 87fcb74..c155329 100755
```

```
--- a/kernel/allwinner/common/drivers/usb/serial/option.c
+++ b/kernel/allwinner/common/drivers/usb/serial/option.c
@@ -626,6 +626,7 @@ static const struct option_blacklist_info
telit_1e920_blacklist = {
};

static const struct usb_device_id option_ids[] = {
+   { USB_DEVICE(0x19d2, 0x0117) }, //by Cesc. iball 3.5G, India .
0x05c60016_0x19d20117,

{ USB_DEVICE(OPTION_VENDOR_ID, OPTION_PRODUCT_COLT) },
  { USB_DEVICE(OPTION_VENDOR_ID, OPTION_PRODUCT_RICOLA) },
  { USB_DEVICE(OPTION_VENDOR_ID,
```

note:

0 x19d2 for ZTE vendor ID

0 x0117 for MF210V2 device ID

The above ID to be decided according to the specific module, different module ID.

2.3.Add the PPP components

Ril drive networking layer using the PPP protocol to create a data link,so you need to support for the PPP protocol in the kernel configuration. Configuration as follows:

```
cd kernel/allwinner/common/
make ARCH=arm menuconfig
device drivers--->network device support--->ppp surport
```

Selected the following components :

```
ppp filtering
ppp support for async serial ports
ppp support for sync tty ports
```

```
ppp deflate compression
ppp BSD-compress compression
```

3. Integrated driver file

3.1. Integrated dial scripts

3.1.1. Copying files

Copy chat, ip-down-ppp0, ip-up-ppp0, libreference-ril.so into
../device/third_part/zte (need to create zte).

3.1.2. Packaging file into the system

Modify the device/allwinner/cubieboard/cubieboard.mk

```
diff --git a/device/allwinner/cubieboard/cubieboard.mk
b/device/allwinner/cubieboard/cubieboard.mk
```

```
index 860e2d3..26493c8 100755
```

```
--- a/device/allwinner/cubieboard/cubieboard.mk
```

```
+++ b/device/allwinner/cubieboard/cubieboard.mk
```

```
@@ -46,10 +46,26 @@ PRODUCT_COPY_FILES += \
```

```
device/allwinner/cubieboard/vold.fstab:system/etc/vold.fstab
```

```
PRODUCT_PACKAGES += \
```

```
+ Phone \
```

```
TvdLauncher \
```

```
Bluetooth
```

```
# TSCalibration2
```



```
+PRODUCT_PACKAGES += \  
+ ip-up-ppp0 \  
+ chat \  
+ Stk \  
+ rild \  
+ pppd \  
+ ip-down-ppp0 \  
+PRODUCT_COPY_FILES += \  
+ device/third_part/zte/init.gprs-pppd:system/etc/init.gprs-pppd \  
+ device/third_part/zte/ip-up-ppp0:system/etc/ppp/ip-up-ppp0 \  
+ device/third_part/zte/chat:system/bin/chat \  
+ device/third_part/zte/ip-down-ppp0:system/etc/ppp/ip-down-ppp0 \  
+ device/third_part/zte/libreference-  
ril.so:system/lib/libreference-ril.so  
  
# wifi & bt config file  
PRODUCT_COPY_FILES += \  
frameworks/native/data/etc/android.hardware.wifi.xml:system/etc/perm  
issions/android.hardware.wifi.xml \  

```

note: When the system is compiled, you can find `init.gprs-pppd` in the out directory corresponding to the platform of the `system/etc/` ;

you can find `ip-up-ppp0` and `ip-down-ppp0` in the out directory corresponding to the platform of the `system/etc/ppp` ;

you can find `libreference-ril.so` in the out directory corresponding to the platform of the `system/lib` ;

If the file is not found that source not packaged into the system, please check whether the related configuration is correct.

3.2. Modify the system configuration

3.2.1. Open the system voice telephone access and text messaging

```
vim device/allwinner/cubieboard/overlay/frameworks/base/core/res/
res/values/config.xml

diff --git
a/device/allwinner/cubieboard/overlay/frameworks/base/core/res/res/v
alues/config.xml
b/device/allwinner/cubieboard/overlay/frameworks/base/core/res/res/v
alues/config.xml

index edf0cfd..73acb6c 100755
---a/device/allwinner/cubieboard/overlay/frameworks/base/core/res/
res/values/config.xml
+++b/device/allwinner/cubieboard/overlay/frameworks/base/core/res/
res/values/config.xml
@@ -45,7 +45,7 @@
        <item>"wifi_p2p,13,1,0,-1,true"</item>
    </string-array>
-->
+   <bool name="config_voice_capable">true</bool>
    <!-- Array of ConnectivityManager.TYPE_xxxx values allowable
for tethering -->
    <!-- Common options are [1, 4] for TYPE_WIFI and
TYPE_MOBILE_DUN or
```



Replacing the original call apk and text messages apk, copy the Contacts.apk and Mms.apk to device/allwinner/crane — common/googleservice/

Modified as follows:

```
diff --git a/packages/apps/Contacts/AndroidManifest.xml
b/packages/apps/Contacts/AndroidManifest.xml
```

```
index d06feld..c80d502 100644
```

```
--- a/packages/apps/Contacts/AndroidManifest.xml
```

```
+++ b/packages/apps/Contacts/AndroidManifest.xml
```

```
@@ -23,6 +23,8 @@
```

```
    <uses-permission
```

```
android:name="android.permission.CALL_PRIVILEGED" />
```

```
    <uses-permission
```

```
android:name="android.permission.READ_CONTACTS" />
```

```
    <uses-permission
```

```
android:name="android.permission.WRITE_CONTACTS" />
```

```
+    <uses-permission
```

```
android:name="android.permission.READ_CALL_LOG" />
```

```
+    <uses-permission
```

```
android:name="android.permission.WRITE_CALL_LOG" />
```

```
    <uses-permission
```

```
android:name="android.permission.MANAGE_ACCOUNTS" />
```

```
    <uses-permission android:name="android.permission.GET_ACCOUNTS"
```

```
/>
```



```
<uses-permission  
android:name="android.permission.ACCESS_FINE_LOCATION" />
```

```
@@ -45,6 +47,7 @@
```

```
<uses-permission  
android:name="com.android.voicemail.permission.ADD_VOICEMAIL" />
```

```
<uses-permission  
android:name="com.android.voicemail.permission.READ_WRITE_ALL_VOICEMAIL" />
```

```
<uses-permission  
android:name="android.permission.ALLOW_ANY_CODEC_FOR_PLAYBACK" />
```

```
+ <uses-permission  
android:name="com.android.launcher.permission.INSTALL_SHORTCUT"/>
```

```
<!-- allow broadcasting secret code intents that reboot the  
phone -->
```

```
<uses-permission android:name="android.permission.REBOOT" />
```

```
<uses-permission  
android:name="android.permission.RECEIVE_BOOT_COMPLETED" />
```

```
@@ -610,7 +613,8 @@
```

```
android:resource="@xml/social_widget_info" />
```

```
</receiver>
```

```
- <receiver android:name=".calllog.CallLogReceiver">
```

```
+ <receiver android:name=".calllog.CallLogReceiver"
```

```
+ android:enabled="@*android:bool/config_voice_capable">
```

```
<intent-filter>
```

```
<action android:name="android.intent.action.NEW_VOICEMAIL" />
```

```
<data
```

```
vim build/target/product/generic_no_telephony.mk (Need to send SMS  
add Mms)
```

```
diff --git a/build/target/product/generic_no_telephony.mk  
b/build/target/product/generic_no_telephony.mk
```

```
index 8671deb..7ee1dc 100755
```

```
--- a/build/target/product/generic_no_telephony.mk
```

```
+++ b/build/target/product/generic_no_telephony.mk
```

```
@@ -33,6 +33,7 @@ PRODUCT_PACKAGES := \
```

```
MusicFX \
```

```
Provision \
```

```
- Phone \
```

```
+ Mms \
```

```
Settings \
```

```
SystemUI \
```

```
bluetooth-health \
```

3.2.2.To specify system rild library path

```
vim device/allwinner/crane-common/ProductCommon.mk
```

```
diff --git a/device/allwinner/crane-common/ProductCommon.mk  
b/device/allwinner/crane-common/ProductCommon.mk
```

```
index 0f13874..7af799c 100755
```

```
--- a/device/allwinner/crane-common/ProductCommon.mk
```



```
+++ b/device/allwinner/crane-common/ProductCommon.mk
@@ -123,15 +123,15 @@ PRODUCT_COPY_FILES += \
PRODUCT_PROPERTY_OVERRIDES += \
    ro.kernel.android.checkjni=0 \
    persist.sys.timezone=Asia/Shanghai \
+    rild.libpath=/system/lib/libreference-ril.so \
wifi.interface=wlan0 \
    wifi.supPLICANT_scan_interval=15 \
    debug.egl.hw=1 \
```

3.2.3. Modify the drive device file permissions, add rild service

(-d said module receives the AT port parameters of service , - u said DATA port)

```
diff --git a/device/allwinner/crane-common/init.rc
b/allwinner/crane-common/wing-comm
index 7f1105f..548b43c 100755
--- a/device/allwinner/crane-common/init.rc
+++ b/device/allwinner/crane-common/init.rc
@@ -437,12 +455,21 @@ service netd /system/bin/netd
service debuggerd /system/bin/debuggerd
    class main
-    service ril-daemon /system/bin/rild
+service ril-daemon /system/bin/rild -l /system/lib/libreference-
ril.so -- -d /dev/ttyUSB2 -u /dev/ttyUSB1
    class main
```



```
socket rild stream 660 root radio
```

```
socket rild-debug stream 660 radio system
```

```
user root
```

```
group radio cache inet misc audio sdcard_rw
```

```
+ ###-----leo start-----###
```

```
+ on property:ril.reset.rild=1
```

```
+ stop ril-daemon
```

```
+ start ril-daemon
```

```
+ setprop ril.reset.rild 0
```

```
+ ###-----leo add-----###
```

```
+ on property:ril.reset.modem=1
```

```
+ /system/bin/ResetModem:
```

```
+ ###-----add pppd_gprs-----###
```

```
+service pppd_gprs /system/etc/init.gprs-pppd
```

```
+ user root
```

```
+ group radio cache inet misc
```

```
+ disabled
```

```
+ oneshot
```

```
service preinstall /system/bin/busybox sh /system/bin/preinstall.sh
```

```
user root
```

```
group root
```

3.2.4.Modify android_filesystem_config.h

```
diff --git a/system/core/include/private/android_filesystem_config.h  
b/system/co
```



```
index 7e34da8..3d38c1f 100644
```

```
--- a/system/core/include/private/android_filesystem_config.h
```

```
+++ b/system/core/include/private/android_filesystem_config.h
```

```
@@ -194,7 +194,8 @@ static struct fs_path_config android_files[] = {
```

```
    { 00550, AID_DHCP,      AID_SHELL,  
      "system/etc/dhccpd/dhccpd-run-hooks"
```

```
    { 00440, AID_BLUETOOTH, AID_BLUETOOTH,
```

```
      "system/etc/dbus.conf" },
```

```
    { 00444, AID_RADIO,     AID_AUDIO,  
      "system/etc/AudioPara4.csv" },
```

```
-    { 00555, AID_ROOT,     AID_ROOT,     "system/etc/ppp/*" },
```

```
+    { 00777, AID_ROOT,     AID_SHELL,  "system/etc/init.gprs-pppd" },
```

```
+    { 00777, AID_ROOT,     AID_ROOT,     "system/etc/ppp/*" },
```

```
    { 00555, AID_ROOT,     AID_ROOT,     "system/etc/rc.*" },
```

```
    { 00644, AID_SYSTEM,   AID_SYSTEM,   "data/app/*" },
```

```
    { 00644, AID_MEDIA_RW, AID_MEDIA_RW, "data/media/*" },
```

3.2.5.Modify property_service.c

```
diff --git a/system/core/init/property_service.c
```

```
b/system/core/init/property_ser
```

```
index dfe62ed..a6cc76a 100755
```

```
--- a/system/core/init/property_service.c
```

```
+++ b/system/core/init/property_service.c
```

```
@@ -65,6 +65,7 @@ struct {
```

```
    } property_perms[] = {
```

```
    { "net.rmnet0.",      AID_RADIO,    0 },
```



```

    { "net.gprs.",          AID_RADIO,    0 },
+   { "net.ppp0.",         AID_RADIO,    0 },
    { "net.ppp",           AID_RADIO,    0 },
    { "net.qmi",           AID_RADIO,    0 },
    { "ril.pcui",          AID_RADIO,    0 },

```

```

@@ -112,8 +113,9 @@ struct {
    unsigned int uid;
    unsigned int gid;
} control_perms[] = {
-   { "dumpstate", AID_SHELL, AID_LOG },
-   { "ril-daemon", AID_RADIO, AID_RADIO },
+   { "pppd_gprs", AID_RADIO, AID_LOG },
    {NULL, 0, 0 }
};

```

3.2.6.Modify ueventd.rc

```

diff --git a/system/core/rootdir/ueventd.rc
b/system/core/rootdir/ueventd.rc

```

```

index b1664f4..c12da8d 100644
--- a/system/core/rootdir/ueventd.rc
+++ b/system/core/rootdir/ueventd.rc
@@ -7,6 +7,11 @@
 /dev/urandom          0666   root    root
 /dev/ashmem           0666   root    root
 /dev/binder           0666   root    root

```




```
+/dev/ttyUSB0          0660  radio  radio
```

```
+/dev/ttyUSB1          0660  radio  radio
```

```
+/dev/ttyUSB2          0660  radio  radio
```

```
# Anyone can read the logs, but if they're not in the "logs"  
# group, then they'll only see log entries for their UID.
```

The AT command

```
at+cgmi                To find the manufacturer name
```

```
ZTE WELINK CORPORATION
```

```
OK
```

```
at+cgmm                To find the module type
```

```
MF210V2
```

```
OK
```

```
at+csq                Returns 0 is no signal, return 28 express signals is strong(typically around 6 to  
normal access to the Internet)
```

```
+CSQ: 28,99
```

```
OK
```

```
atd13631286255;       Phone
```

```
OK                    Success Phone return OK
```

```
RINGBACK
```

View the RIL logs

```
Use logcat program to view the system log.
```

```
Logcat log output classification:
```

```
Logcat: look at all the LOG
```

```
logcat -b radio: view the system log radio module
```



```
logcat -b radio -s RILD: Check ZTEMT RIL driver log
```