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1 内核文件修改

1.1 参考文档《Quectel_WCDMA<E_Linux_USB_Driver_User_Guide_V1.5.pdf》

下载: <http://xstrive.tpddns.cn:5000/share.cgi?ssid=86be4bdf1c264491ae30c25f72b43444>

1.2 替换 qmi_wwan.c 文件

下载: <http://xstrive.tpddns.cn:5000/share.cgi?ssid=3e90ddb8f9054c909c39152d45957063>

将下载的 qmi_wwan.c 文件替换 kernel-4.4.94/drivers/net/usb/qmi_wwan.c

1.3 kernel-4.4.94/drivers/usb/serial/qcserial.c (注释下面一行代码)

- //{USB_DEVICE(0x05c6, 0x9215)}, /* Acer Gobi 2000 Modem device(VP413) */

2 内核配置

make menuconfig

(1)

Device Drivers

Network device support -->

USB Network Adapters -->

{*} Multi-purpose USB Networking Framework

(2)

Device Drivers

USB support -->

USB Serial Converter support -->

USB driver for GSM and CDMA modems

(3)

Device Drivers

USB support-->

USB Gadget Support -->

USB Gadget Drivers (Ethernet Gadget (with CDC Ethernet support))-->

3 内核编译

说明：当前的硬件上使用的是 i2c1 和 i2c3 作为 sensor 的连接，确认是 dts 设备树配置是否为 i2c1 : SDA_PA17, SCK_PA18 , i2c3 : SDA_PA21, SCK_PA22 。（参照开发板原理图）

路径：

kernel-4.4.94/arch/mips/boot/dts/ingenic/shark.dts

```
&i2c0 {
    pinctrl-0 = <&i2c0_pa>;
    pinctrl-names = "default";
    status = "okay";
};

&i2c1 {
    pinctrl-0 = <&i2c1_pa>;
    pinctrl-names = "default";
    status = "okay";
};

&i2c2 {
    pinctrl-0 = <&i2c2_pb>;
    pinctrl-names = "default";
    status = "disable";
};

&i2c3 {
    pinctrl-0 = <&i2c3_pa>;
    pinctrl-names = "default";
    status = "okay";
};
```

kernel-4.4.94/arch/mips/boot/dts/ingenic/t40-pinctrl.dtsi

```
l2c1_p0: l2c1-p0 {
    l2c1_pa: l2c1-pa {
        ingenic,pinmux = <0x01 07 10>;
        ingenic,pinmux-funcsel = <PINCTRL_FUNCTION0>;
    };
    l2c1_pb: l2c1-pb {
        ingenic,pinmux = <0x01 07 10>;
        ingenic,pinmux-funcsel = <PINCTRL_FUNCTION0>;
    };
    l2c1_pd: l2c1-pd {
        ingenic,pinmux = <0x01 07 10>;
        ingenic,pinmux-funcsel = <PINCTRL_FUNCTION0>;
    };
};
```

编译步骤：

第一步:使用相对配置好的板级文件 \$make isvp_shark_defconfig

第二步： 根据需求选择性编译 \$ make menuconfig (默认就行)

第三步： 编译内核文件 \$ make uImage

如果报错，执行 \$ make distclean ， 然后从第一步重新开始。

4 测试 4G

4.1 驱动下载

驱动下载: <http://xstrive.tpddns.cn:5000/share.cgi?ssid=012ee589068c469f8b9327efd0518ecd>

执行 make clean;make

quectel-CM 下载:

<http://xstrive.tpddns.cn:5000/share.cgi?ssid=98b92344adcb4e7abbc23684c0e332c1>

4.2 加载驱动

insmod GobiNet.ko

4.3 烧录完内核后执行 quectel-CM 即可

```
[1]- Done                               ./quectel-CM
[root@Ingenic-uc1_1:samples]#
[root@Ingenic-uc1_1:samples]#
[root@Ingenic-uc1_1:samples]#
[root@Ingenic-uc1_1:samples]#
[root@Ingenic-uc1_1:samples]#
[root@Ingenic-uc1_1:samples]# [01-01_00:01:35:384] Get clientWDS = 7
[01-01_00:01:35:416] Get clientDMS = 8
[01-01_00:01:35:448] Get clientNAS = 9
[01-01_00:01:35:480] Get clientUIM = 10
[01-01_00:01:35:513] Get clientWDA = 11
[01-01_00:01:35:545] requestBaseBandVersion EC20CEFILGR06A07M1G
[01-01_00:01:35:673] requestGetSIMStatus SIMStatus: SIM_READY
[01-01_00:01:35:704] requestGetProfile QMUXResult = 0x1, QMUXError = 0x1
[01-01_00:01:35:737] requestRegistrationState2 MCC: 460, MNC: 0, PS: Attached, DataCap: LTE
[01-01_00:01:35:768] requestQueryDataCall IPv4ConnectionStatus: DISCONNECTED
[01-01_00:01:35:768] ifconfig eth1 0.0.0.0
[01-01_00:01:35:773] ifconfig eth1 down
[01-01_00:01:36:056] requestSetupDataCall wdsConnectionIPv4Handle: 0x86de84b0
[01-01_00:01:36:217] ifconfig eth1 up
[01-01_00:01:36:222] busybox udhcpc -f -n -q -t 5 -i eth1
[01-01_00:01:36:226] udhcpc (v1.22.1) started
[01-01_00:01:36:270] Sending discover...
[01-01_00:01:36:340] Sending select for 10.52.232.109...
[01-01_00:01:36:400] Lease of 10.52.232.109 obtained, lease time 7200
[01-01_00:01:36:406] deleting routers
[01-01_00:01:36:419] adding dns 211.137.58.20
[01-01_00:01:36:419] adding dns 211.137.64.163
```