内核移植:

0.准备工作

> 将自己的网络桥接到WiFi, 连接外网, 下载安装两个界面相关软件, 安装完成后再切回桥接有线网
>
> **hqyj@ubuntu:~$** sudo apt-get update //更新软件
>
> **hqyj@ubuntu:~$** sudo apt-get install exuberant-ctags
> **hqyj@ubuntu:~$** sudo apt-get install libncurses5-dev
>
> 将 linux-3.14.tar.xz 移动到Ubuntu用户目录下, 进行解压
> **hqyj@ubuntu:~$** tar -xvf linux-3.14.tar.xz
>
> 进入 linux-3.14 文件夹内进行操作
> **hqyj@ubuntu:~$** cd linux-3.14/

1.修改编译工具

进入Makefile文件，修改参数:
linux-3.14$ vi Makefile +198

```
修改:
198 ARCH         ?= $(SUBARCH)
199 CROSS_COMPILE   ?= $(CONFIG_CROSS_COMPILE:"%"=%)
为:
198 ARCH             ?= arm
199 CROSS_COMPILE   ?= arm-none-linux-gnueabi-
```

2.生成默认配置

导入默认配置，配置文件放在 arch/arm/configs下

linux-3.14$ make exynos_defconfig

3.配置内核

配置内核: 正常执行，会弹出一个菜单选项，我们可以去选择需要配置的内核;

如果没有弹出来, 尝试将ubuntu字体调小(CTRL + '-')

linux-3.14$ make menuconfig

```
在菜单界面选中 dm9000 网卡驱动
Device Drivers  --->
    [*] Network device support  --->
        [*]   Ethernet driver support  --->
            <*>   DM9000 support

回车键选择进入，空格键改变选择，上下左右方向键改变选择
```

```
内核中选配必要的网络协议栈支持
[*] Networking support  --->
    Networking options  --->
        <*> Packet socket
        <*>Unix domain sockets
        [*] TCP/IP networking
        [*]   IP: kernel level autoconfiguration
```

```
选择NFS支持
File systems  --->
    [*] Network File Systems (NEW)  --->
        <*>   NFS client support
        [*]     NFS client support for NFS version 3
        [*]       NFS client support for the NFSv3 ACL protocol extension
        [*]   Root file system on NFS
```

```
选择USB支持
Device Drivers  --->
    [*] USB support  --->
        <*>     EHCI HCD (USB 2.0) support
        <*>EHCI support for Samsung S5P/EXYNOS SoC Series
        <*>     USB Mass Storage support
        <*>   USB3503 HSIC to USB20 Driver
        USB Physical Layer drivers  --->
            <*> Samsung USB 2.0 PHY controller Driver
    SCSI device support  --->
        <*> SCSI device support
        <*> SCSI disk support
        <*> SCSI generic support
```

4.编译生成内核镜像

编译内核镜像会用到"mkimage"命令，需要提前配置一下, 这个工具在 u-boot 文件夹下

首先将u-boot-2013.01文件夹下的mkimage命令复制到用户系统命令文件夹下

linux-3.14$　sudo　cp　../u-boot-2013.01/tools/mkimage　/usr/local/bin/

接下来就可以编译内核了:

linux-3.14$　make　uImage

编译成功会生成一个经过压缩后的镜像文件uImage，其生成的文件路径为：arch/arm/boot/uImage

将生成的 uImage 移动到 tftp 共享 路径下,

linux-3.14$ cp　　arch/arm/boot/uImage　　/home/hqyj/tftpboot/my_uImage

设备树制作:

1.抄板

修改设备树文件, 参考板origen的设备数文件为参考:
linux-3.14$ cp arch/arm/boot/dts/exynos4412-origen.dts arch/arm/boot/dts/exynos4412-fs4412.dts

修改Makefile，添加编译项:
linux-3.14$ vim arch/arm/boot/dts/Makefile

```
在
69   exynos4412-origen.dtb \
下添加如下内容
70   exynos4412-fs4412.dtb \

yy复制, p粘贴, 修改 origen 为 fs4412
```

2.添加设备

修改设备树文件, 添加网卡驱动:

linux-3.14$ vim arch/arm/boot/dts/exynos4412-fs4412.dts

```
// 在527行后添加如下内容, 也就是倒数第二行:
    srom-cs1@5000000 {
        compatible = "simple-bus";
        #address-cells = <1>;
        #size-cells = <1>;
        reg = <0x5000000 0x1000000>;
        ranges;

        ethernet@5000000 {
            compatible = "davicom,dm9000";
            reg = <0x5000000 0x2 0x5000004 0x2>;
            interrupt-parent = <&gpx0>;
            interrupts = <6 4>;
            davicom,no-eeprom;
            mac-address = [00 0a 2d a6 55 a2];
        };
    };
```

修改设备树文件, 添加USB驱动:

linux-3.14$ vim arch/arm/boot/dts/exynos4412-fs4412.dts

```
usbphy: usbphy@125B0000 {
    #address-cells = <1>;
    #size-cells = <1>;
        compatible = "samsung,exynos4x12-usb2phy";
        reg = <0x125B0000 0x100>;
        ranges;

        clocks = <&clock 2>, <&clock 305>;
        clock-names = "xusbxti", "otg";

        usbphy-sys {
```

```
            reg = <0x10020704 0x8 0x1001021c 0x4>;
        };
    };

    ehci@12580000 {
        status = "okay";
        usbphy = <&usbphy>;
    };
    usb3503@08 {
        compatible = "smsc,usb3503";
        reg = <0x08 0x4>;
        connect-gpios = <&gpm3 3 1>;
        intn-gpios = <&gpx2 3 1>;
        reset-gpios = <&gpm2 4 1>;
        initial-mode = <1>;
    };
```

3.编译

编译设备树文件：
hqyj@ubuntu:~/linux-3.14$ make dtbs

拷贝编译的设备树到tftp共享文件中:
hqyj@ubuntu:~/linux-3.14$ cp arch/arm/boot/dts/exynos4412-fs4412.dtb /home/hqyj/tftpboot/my_exynos4412-fs4412.dtb