MV 5422 Android 4.4.2

Compiling

Microvision Co., Ltd

Document Information

Version	1.0
File Name	MV5422 Android Compilation.doc
Date	2014. 11. 06
Satus	Working

Revision History

Date	Version	Update Descriptions	Editor
2014. 11. 06.	V1.0	First Edition	Microvision

1. Package for Development

The following packages are in the directory /SRC/Android in the CD:.

파일	설명	버전
u-boot.tar.gz	Bootloader	
linux-3.10.9-kitkat.tar.gz	Kernel	3.10.9
Android-4.4.2.tar.gz	KitKat	4.4.2
arm-eabi-4.4.3.zip	arm-eabi-	Q3 67
arm-eabi-4.7	arm-eabi-	4.7

Tool chain

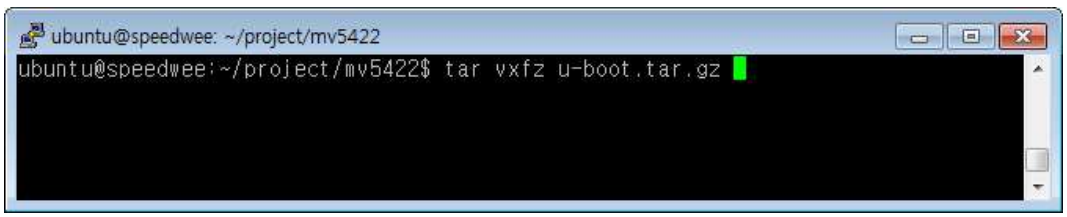
- compilation of u-boot is to use the arm-eabi-4.4.3, and the compilation.
- Kernel compilation by using the Toolchain that are included in the Android, will compile.

2. Bootloader Setup

2.1. u-boot Environment Setup

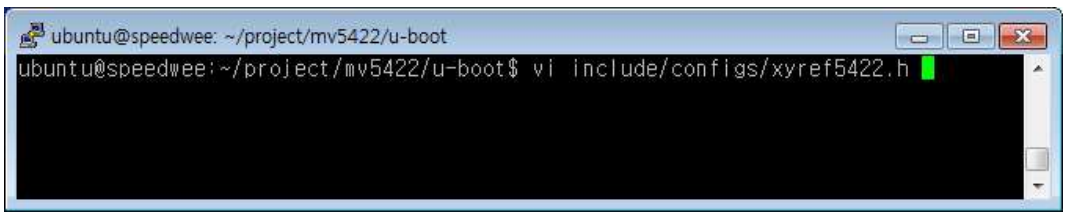
Generally, the Embedded Linux BSP is composed of 3 image files:
Embedded Linux BSP = Boot Loader + Kernel + File System
Boot Loader is the program necessary to load the kernel to the memory

Enter in the following for file decompression:
tar vxfz u-boot.tar.gz



As shown below using the "vi" editor, open the file "xyref5422.h" and you will find the basic environment at its default.(ex: TFTP, CPU clock, DDR Program Counter)

vi include/configs/xyref5422.h

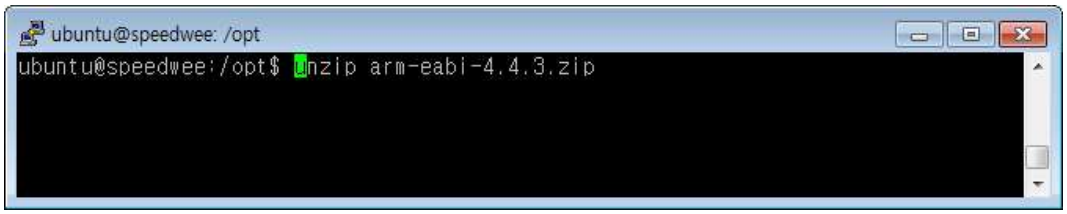


The prompt name on the mv5422 boot board after booting the new bootloader program:
#define CONFIG_SYS_PROMPT "MV5422 # "

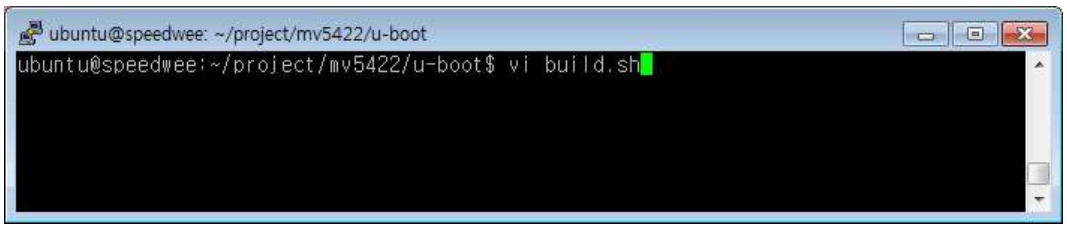
DRAM Program Counter address for Download
/* DRAM Base */
#define CONFIG_SYS_SDRAM_BASE 0x40000000

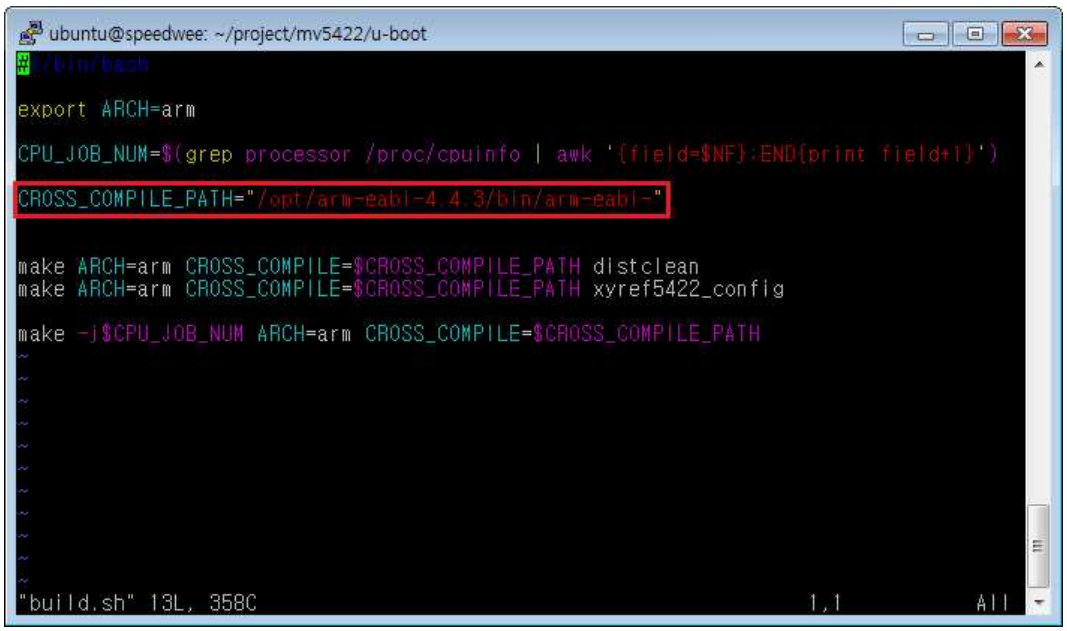
2.2. u-boot Compilation

#unzip arm-eabi-4.4.3.zip



#vi build.sh

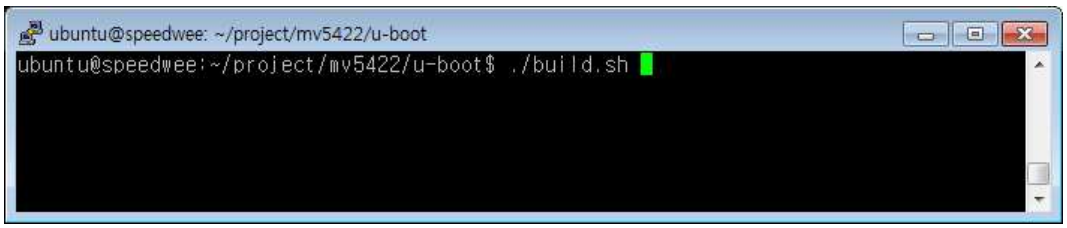




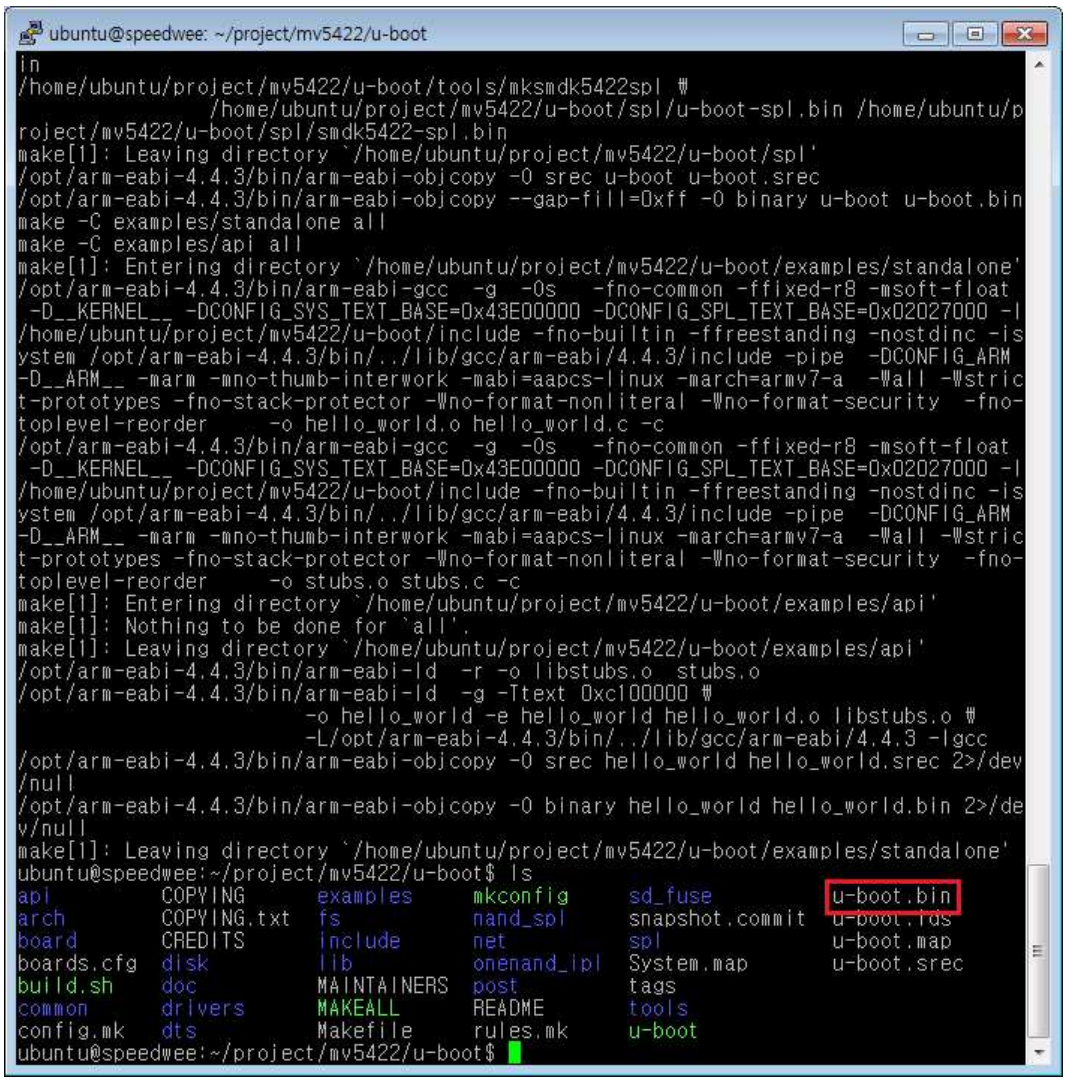
CROSS_COMPILE_PATH="/opt/arm-eabi-4.4.3/bin/arm-eabi-"

(Above path, you must do a set to the location of the folder where you unzipped the compression from customers.)

./build.sh



Compile complete look and “u-boot.bin” You can see that the file is created.

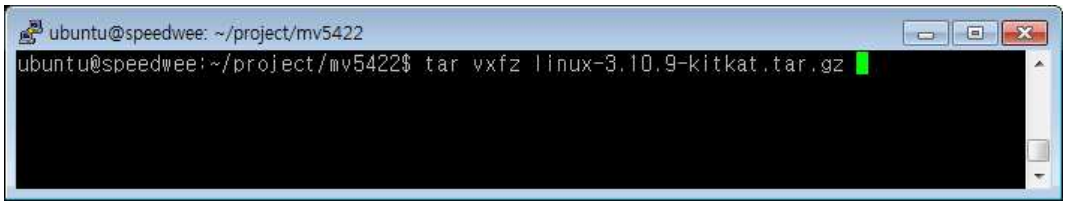


3. Kernel setup

3.1. How to compile

Enter in the following for file decompression

tar vxfz linux-3.10.9-kitkat.tar.gz



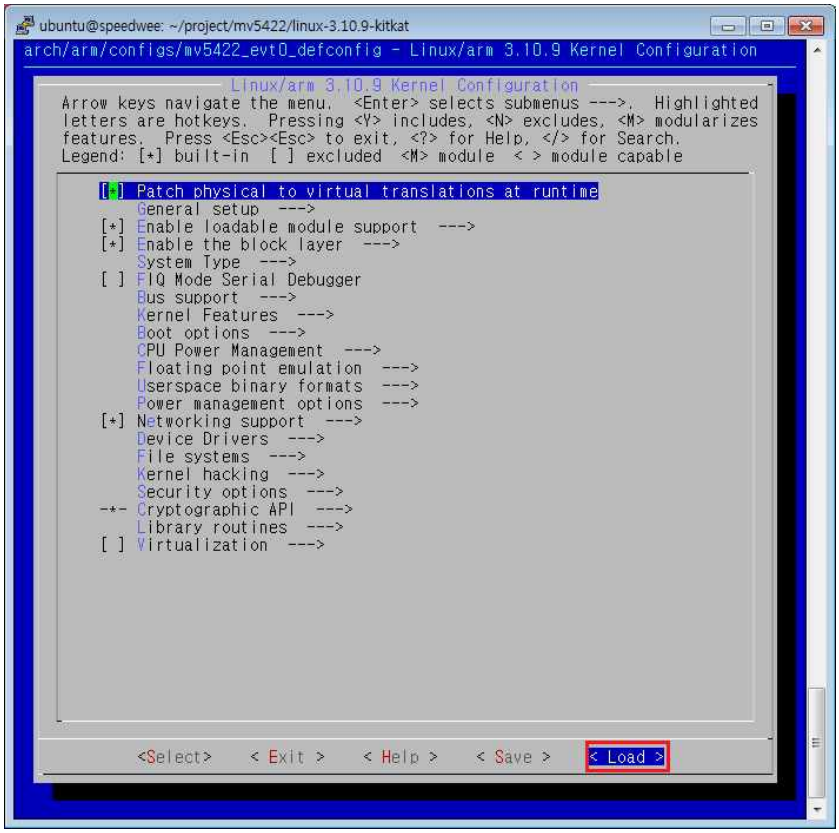
Put in the following commands for compilation to execute the kernel environment setup:.

make menuconfig

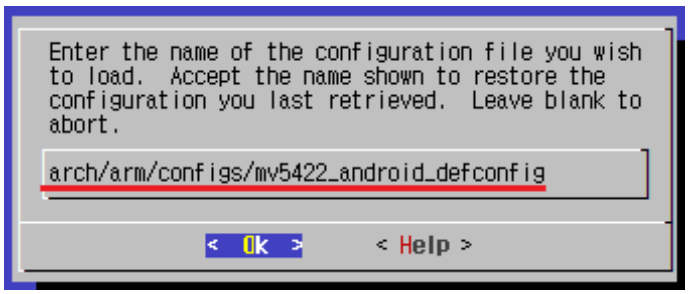
Besides make menuconfig there are kernel setting commands such as make config and make xconfig but the most popular one is the make menuconfig which is simple UI(User Interface) to use with the arrow keys known as the comsole(monitor) or telnet terminal is used for the Kernel Configuration.

If all the content of the setting menu is set, it doesn't have to be newly set in each time. So to save the previous configuration to a separate file, there is an option in the menu down below as "Save Configuration to an Alternate File". In opposite, previous setup configuration can be reloaded, Load and Kernel Configuration can be made by reading the file from "mv5422_android_defconfig" which is saved at arch/arm/configs/which is Kernel Source directory.

Therefore, make menuconfig "<Load>" on pages at the bottom of the screen, you can select the menu, enter the following screen.

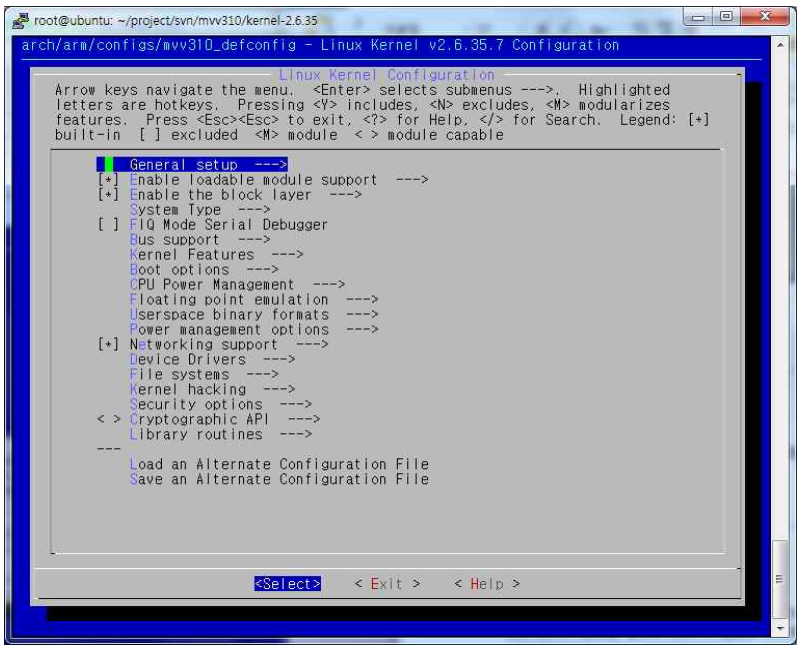


Load “arch/arm/configs/mv5422_android_defconfig”



The kernel configuration(make menuconfig) must be saved after the setup is complete. The kernel configuration is saved under the file name “.config” under the kernel source directory. The reason “.config” needs to be saved is that it will be checked during the “make dep” step, which is a crucial step for the compilation process. If a window asking to save pops up, make sure to answer “yes”

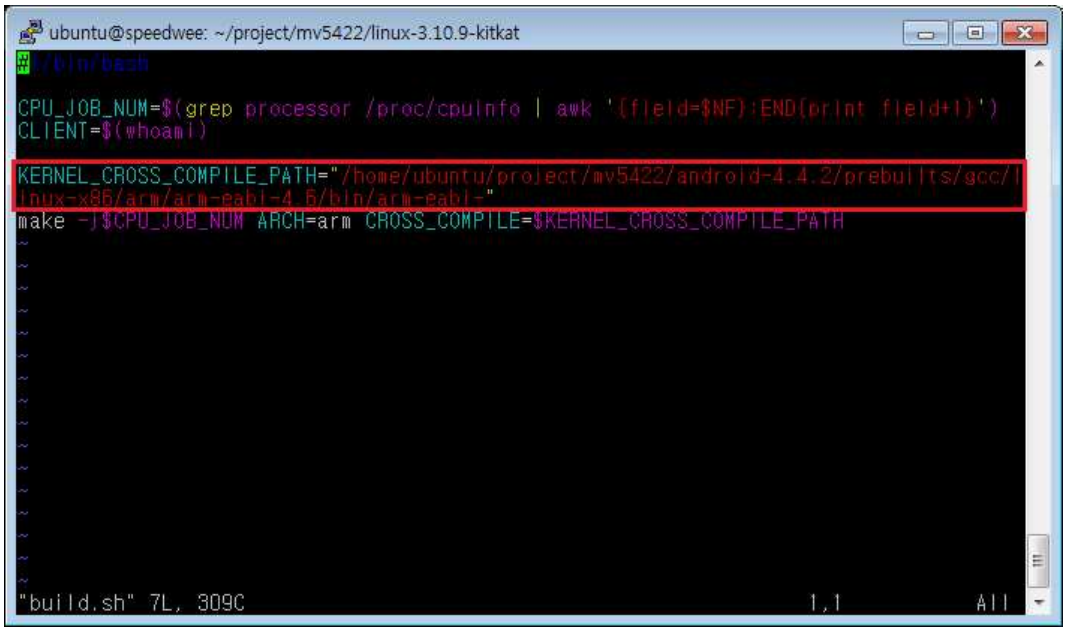
After loading is complete, exit



The Linux kernel image(zImage) making process is divided into compiling, linking, file type changing (ELF->BIN) by Binutil(objcopy), and file decompression (gzip). All of these combined make up the command “make” under Makefile.

For compiling kernel, you have to set up include in Android Toolchain.

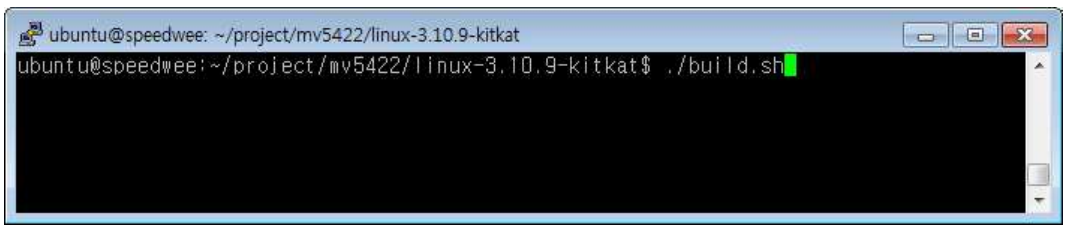
#vi build.sh

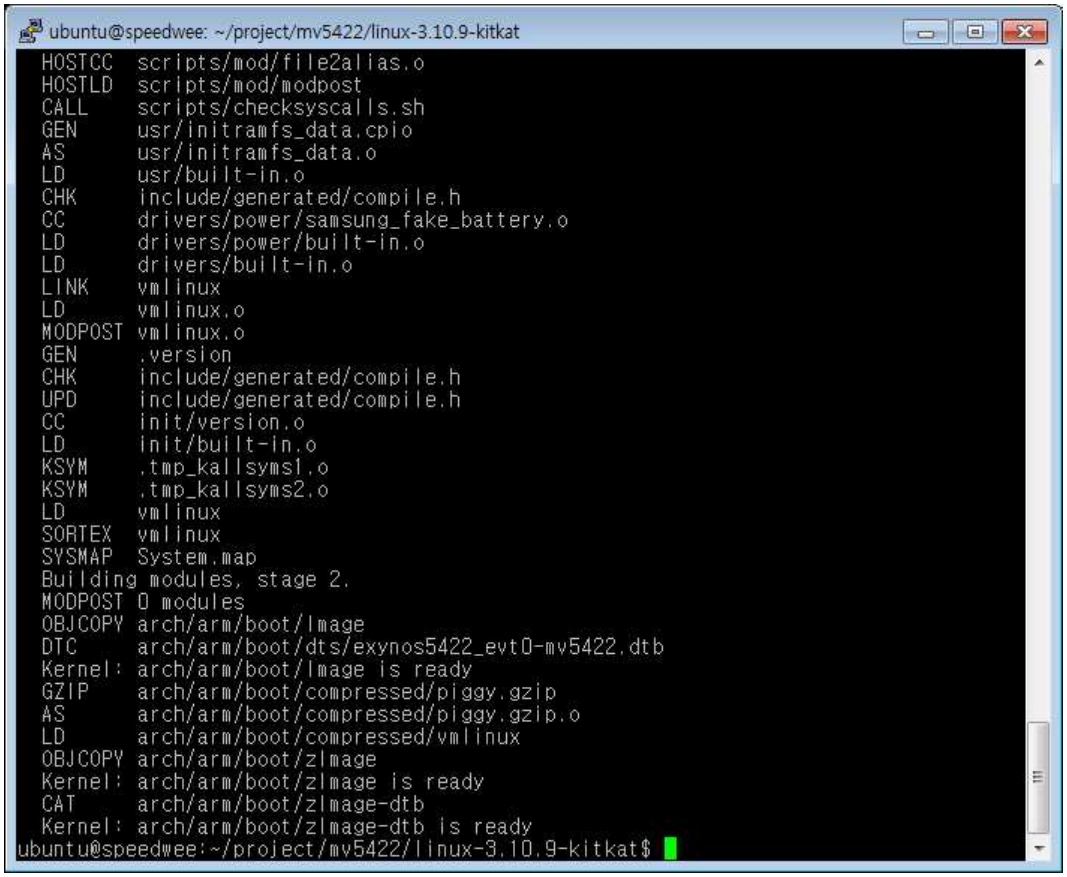


KERNEL_CROSS_COMPILE_PATH="/home/ubuntu/project/mv5422/android-4.4.2/prebuilts/gcc/linux-x86/arm/arm-eabi-4.6/bin/arm-eabi-"

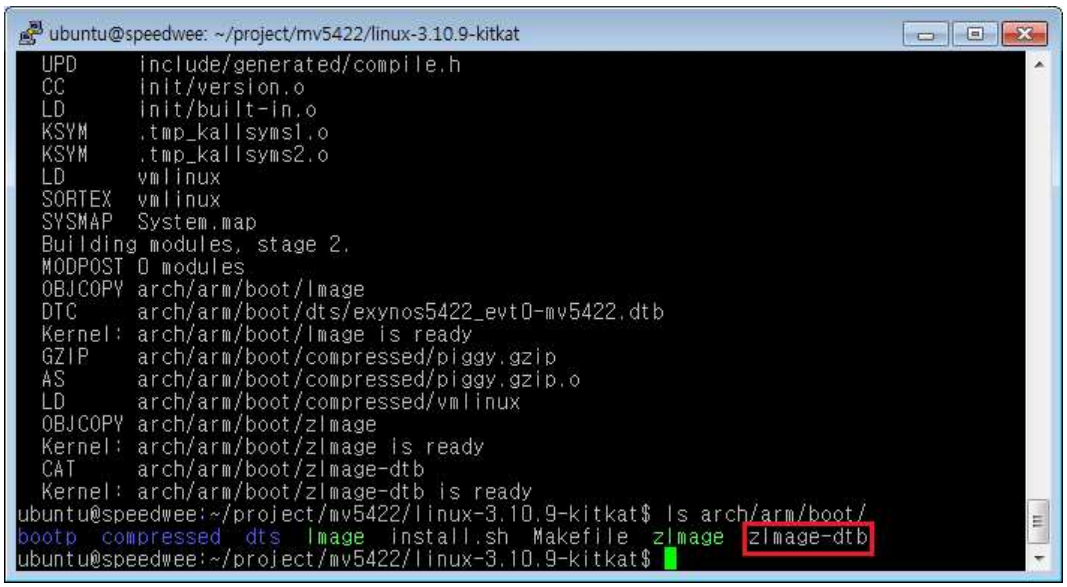
(Above path, you must do a set to the location of the folder where you unzipped the compression from customers.)

./build.sh





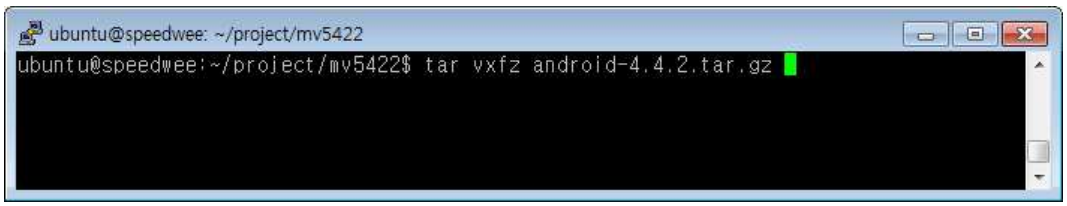
When compilation is complete, zImage-dtb file is generated in arch/arm/boot



4. KitKat Compilation

Enter in the following command:

tar vxfz android-4.4.2.tar.gz



This is command for compilation.

./build.sh mv5422 platform

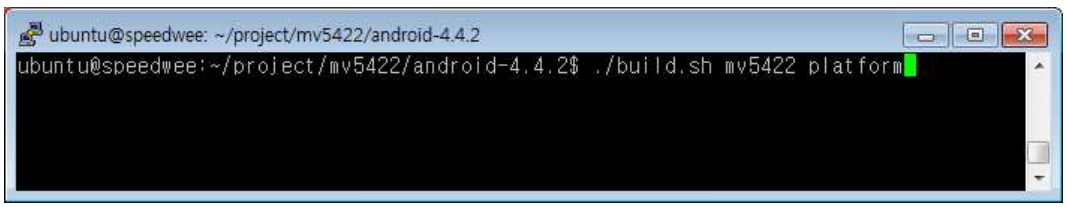


Image is in the folder Android/out/target/product/mv5422