JORJIN TECHNOLOGIES **a module solution provider**

i.MX6Q Android6.0 + WL8 integration Release Note

Date: 2016/6/16

Version History

Date	Version	Remark
2016/06/16	Ver.0.1	The initial version
2016/06/30	Ver.0.2	Add function test

1. Preparation

This doc suppose you have followed TI's wiki to do HW rework for i.MX6 sabresd board.
Please refer
http://processors.wiki.ti.com/index.php/WL18xx_First_Time_Getting_Started_Guide_%28IMX6%29#Setup_your_SABRE_board

1.1. Set up your computer

Host OS: Ubuntu14.04 64bit
BSP Version: i.MX Android™ M6.0.1_1.0.0
GCC Version: arm-eabi-4.6
Kernel Version: Linux3.14.52
WL8 driver Version: R8.6

1.2. Get BSP from NXP's web site

Freescale Android6.0 BSP

Please follow document to set build environment and build image to boot the board.

2. Prepare Linux Kernel and Android layer

2.1. Change gcc version

In Android User's guide, the default version of gcc in BSP is 4.9. This will cause issue for wl8 driver. We need to use gcc4.6 to build kernel and wl8 driver.

See: **change_gcc_version.patch**

Get gcc4.6:

```
$ cd $MYDROID/prebuilts/gcc/linux-x86/arm
$ git clone
https://android.googlesource.com/platform/prebuilts/gcc/linux-x86/arm/arm-eabi-4.6
$ cd arm-eabi-4.6
$ git checkout android-4.4.3_r1
```

2.2. Integration of the wl18xx related package into the android repo

2.2.1. Get wl18xx compat wirless driver

```
cd $MYDROID/hardware/ti
tar xvf wlan.tar.bz2
```

2.2.2. Get user space bluetooth driver

```
cd $MYDROID/hardware/ti
tar xvf wpan.tar.bz2
```

2.2.3. Get wifi/BT firmware

```
cd $MYDROID/device
mkdir ti; cd ti
tar xvf proprietary-open.tar.bz2
```

2.2.4. Get crda

```
cd $MYDROID/external
tar xvf crda.tar.bz2
```

2.2.5. Replace wpa_supplicant

```
cd $MYDROID/external
rm -rf wpa_supplicant_8
tar xvf wpa_supplicant.tar.bz2
```

2.2.6. Patching the netd and core

See: **Enable_Softap.patch**

2.2.7. Patching the sabresd_sdq platform for enabling wl18xx

See: **sabresd_6dq_add_wl8_platform_support.patch**

2.3. Adding wilink8 related support to the android kernel

See: **imx_v7_android_defconfig.patch**
devicetree_support_for_wl8.patch
ti-st.patch
mmc_Add_SDIO_function_devicetree.patch

Rebuild the android kernel after applying the kernel patches using the following sequence:

```
cd $MYDROID/kernel_imx
make imx_v7_android_defconfig
make uImage LOADADDR=0x10008000
```

2.4. Building the wl18xx related module with the updated kernel

```
export ARCH=arm
export
CROSS_COMPILE=${MYDROID}/prebuilts/gcc/linux-x86/arm/arm-eabi-4.6/bin/arm-ea
bi-
```

```
export KERNEL_DIR=${YOUR_PATH}/kernel_imx/
export KLIB=${KERNEL_DIR}
export KLIB_BUILD=${KERNEL_DIR}
cd ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/
make defconfig-wl18xx
make
```

2.5. Installing the compiled modules into the android file system

Use the following sequence for copying the compiled drivers (.ko) into the android image system aread

Note: The modules are installed into /system/lib/modules and are loaded from init.rc when the android image is booting

```
cd $OUT/system/lib/
mkdir modules;cd modules
cp -fp ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/compat/compat.ko .
cp -fp ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/net/wireless/cfg80211.ko .
cp -fp ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/net/mac80211/mac80211.ko .
cp -fp ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/drivers/net/wireless/ti/wl18xx/wl18xx.ko .
cp -fp ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/drivers/net/wireless/ti/wlcore/wlcore.ko .
cp -fp ${MYDROID}/hardware/ti/wlan/mac80211/compat_wl18xx/drivers/net/wireless/ti/wlcore/wlcore_sdio.ko .
```

2.6. Patching for BT test tool

See: **bdt.patch**

```
cd ${MYDROID}
source build/envsetup.sh
lunch sabresd_6dq-user

cd ${MYDROID}/external/gtest
mm -B
cd ${MYDROID}/system/bt
mm -B
```

2.7. Build wlan RF tool

```
cd ${MYDROID}
source build/envsetup.sh
lunch sabresd_6dq-user

cd ${MYDROID}/external
tar xvf libnl-heasers.tar.bz2

cd ${MYDROID}/system/core
tar xvf libnl_2.tar.bz2
cd libnl_2
mm -B
cd ${MYDROID}/hardware/ti/wlan/mac80211
rm –rf ti_utils    #remove original one
tar xvf ti_utils.tar.bz2
cd ti_utils
mm –B
```

2.8. Rebuid Android final image

```
cd ${MYDROID}
source build/envsetup.sh
lunch sabresd_6dq-user
make
```

3. Function test

3.1. Station mode

1. Go to Settings→Wireless & networks→Wi-Fi
2. Turn on wifi
3. Scan and choose an AP to connect
4. Browse to internet

3.2. AP mode

1. Go to Settings→Wireless & networks→ More→ Tethering & portable hotspot
2. Enable Portable Wi-Fi hotspot
3. Use another device connect to i.MX6 as access point

3.3. P2P mode

1. Go to Settings→Wireless & networks→Wi-Fi→ Advanced→ Wi-Fi Direct
2. Scan and connect to another wifi direct peer

3.4. Miracast source mode

1. Go to Settings→ Device→ Display→ Cast
2. Enable wireless display
3. Scan and connect to another device as sink mode
4. You can see your device is streaming and display at sink device

3.5. Bluetooth

1. Go to Settings→ Wireless & networks→ Bluetooth
2. Enable Bluetooth
3. Scan and pair to another bluetooth device