WiFi driver Compilation Test

1. **Linux kernel**

① **L6.1.55**

   https://mirrors.edge.kernel.org/pub/linux/kernel/v6.x/linux-6.1.55.tar.gz

② **L5.10.211**

   https://mirrors.edge.kernel.org/pub/linux/kernel/v5.x/linux-5.10.211.tar.gz

③ **L6.1.80**

   https://mirrors.edge.kernel.org/pub/linux/kernel/v6.x/linux-6.1.80.tar.gz

2. **WiFi driver version**

   #git clone https://github.com/nxp-imx/mwifiex.git

   #cd mwifiex

   #git tag

   #git checkout lf-6.6.3_1.0.0

   Version: 17.92.1.p149.131-17.92.1.p149.131-MM6X17437.P3-GPL

3. **CPU ARCH**

   For x86

4. **Compilation**

(1) **For L6.1.55 kernel**

① **Building Kernel**

weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-6.1.55$ make menuconfig

   Save & Exit

   To avoid compilation errors, run the following commands before building kernel

```
   CC        certs/system_keyring.o
make[2]: *** No rule to make target 'debian/canonical-certs.pem', needed by 'certs/x509_certificate_list'.   Stop.
make[1]: *** [scripts/Makefile.build:500: certs] Error 2
make: *** [Makefile:2014: .] Error 2
```

weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-6.1.55$ scripts/config --disable SYSTEM_TRUSTED_KEYS

weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-6.1.55$ scripts/config --disable SYSTEM_REVOCATION_KEYS

weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-6.1.55$ make -j4

   if encountering the inquiries below, press Enter Key. Then wait until compilation is done.

   OK, done.

② Building FP92 driver for the kernel version

cd ~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src

    Tune Makefile using geditor

gedit Makefile

```
……

#CONFIG_COMPATDIR=n

#ifeq ($(CONFIG_COMPATDIR), y)

#COMPATDIR=/lib/modules/$(KERNELVERSION_X86)/build/compat-wireless-3.2-rc1-1/include

#CC ?=          $(CROSS_COMPILE)gcc -I$(COMPATDIR)

#endif


#LD ?=          $(CROSS_COMPILE)ld

CC=gcc

LD=ld


BACKUP=              /root/backup

YMD=          `date +%Y%m%d%H%M`

……

default:

#      $(MAKE) -C $(KERNELDIR) M=$(PWD) ARCH=$(ARCH) CROSS_COMPILE=$(CROSS_COMPILE) modules

       $(MAKE) -C $(KERNELDIR) M=$(PWD) modules

……
```

    Save & Exit.

export KERNELDIR=/home/weidong/Linux-Open-Source-Kernel/linux-6.1.55

make build

    OK, done. No errors occurred.

```
make[1]: Leaving directory '/home/weidong/Linux-Open-Source-Kernel/linux-6.1.55'
cp -f mlan.ko ../bin_wlan/mlan.ko
cp -f moal.ko ../bin_wlan/moal.ko
cp -rpf script/load ../bin_wlan/
cp -rpf script/unload ../bin_wlan/
cp -f README ../bin_wlan
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$ ls
Makefile  mlan  mlan.ko  mlan.mod  mlan.mod.c  mlan.mod.o  mlan.o  mlinux  moal.ko  moal.mod  moal.mod.c  moal.mod.o  moal.o  modules.order  Module.symvers  README  script
bin_wlan  wlan_src
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$ ls ../
bin_wlan  wlan_src
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$ ls ../bin_wlan/
load  mlan.ko  moal.ko  README  unload
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$ file ../bin_wlan/mlan.ko
../bin_wlan/mlan.ko: ELF 64-bit LSB relocatable, x86-64, version 1 (SYSV), BuildID[sha1]=18e8b2c1f5bcb3fdc23044789e94c5f56bd4da52, with debug_info, not stripped
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$
```

    bin_wlan directory will be created in wlan_src. Check it, we can find 2 .ko files: mlan.ko & moal.ko, which are driver's binary files.

So building the version of Wi-Fi driver for L6.1.55 is no problem.

(2) For Kernel L5.10.211
① Building Kernel
cd ~/Linux-Open-Source-Kernel/linux-5.10.211

make menuconfig

    Save & Exit

scripts/config --disable SYSTEM_TRUSTED_KEYS

scripts/config --disable SYSTEM_REVOCATION_KEYS

make -j4

```
weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-5.10.211$ make -j4
  SYNC    include/config/auto.conf.cmd
  HOSTCC  scripts/basic/fixdep
  HOSTCC  scripts/kconfig/conf.o
  HOSTCC  scripts/kconfig/confdata.o
  HOSTCC  scripts/kconfig/expr.o
  LEX     scripts/kconfig/lexer.lex.c
  YACC    scripts/kconfig/parser.tab.[ch]
  HOSTCC  scripts/kconfig/preprocess.o
  HOSTCC  scripts/kconfig/symbol.o
  HOSTCC  scripts/kconfig/util.o
  HOSTCC  scripts/kconfig/lexer.lex.o
  HOSTCC  scripts/kconfig/parser.tab.o
  HOSTLD  scripts/kconfig/conf
*
* Restart config...
*
*
* Certificates for signature checking
*
File name or PKCS#11 URI of module signing key (MODULE_SIG_KEY) [certs/signing_key.pem] certs/signing_key.pem
Provide system-wide ring of trusted keys (SYSTEM_TRUSTED_KEYRING) [Y/?] y
  Additional X.509 keys for default system keyring (SYSTEM_TRUSTED_KEYS) [] (NEW)
```

    Press Enter Key to continue. Then wait until compilation is done.

    OK, done.

```
weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-5.10.211$ ls
arch   COPYING  Documentation  include  ipc     kernel   MAINTAINERS  modules.builtin          modules.order     README    security   tools    vmlinux        vmlinux.symvers
block  CREDITS  drivers        init     Kbuild  lib      Makefile     modules.builtin.modinfo  Module.symvers    samples   sound      usr      vmlinux-gdb.py
certs  crypto   fs             io_uring Kconfig LICENSES mm           modules-only.symvers     net               scripts   System.map virt     vmlinux.o
weidong@ubuntu:~/Linux-Open-Source-Kernel/linux-5.10.211$
```

② Building FP92 driver for the kernel version
cd ~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src

    Modification of Makefile has been ready, so don't need to tune it again.

export KERNELDIR=/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211

make clean

rm -rf ../bin_wlan

make build

```
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$ make build
make -C /home/weidong/Linux-Open-Source-Kernel/linux-5.10.211 M=/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src modules
make[1]: Entering directory '/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211'
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_shim.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_init.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_txrx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_cmdevt.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_misc.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_cfp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_module.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_wmm.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sdio.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_pcie.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_aggr.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_rxreorder.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ac.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ax.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11d.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11h.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_meas.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_scan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_rx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_tx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_event.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmd.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmdresp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_join.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_cmdevent.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_txrx.o
  LD [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_main.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.o
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.c: In function 'moal_recv_event':
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.c:2850:12: error: invalid application of 'sizeof' to incomplete type 'char[]'
 2850 |        sizeof(wrqu.ap_addr.sa_data));
      |            ^
make[2]: *** [scripts/Makefile.build:286: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.o] Error 1
make[1]: *** [Makefile:1832: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src] Error 2
make[1]: Leaving directory '/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211'
make: *** [Makefile:595: default] Error 2
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$
```

```
weidong@ubuntu:~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src$ make build
make -C /home/weidong/Linux-Open-Source-Kernel/linux-5.10.211 M=/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src modules
make[1]: Entering directory '/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211'
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_shim.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_init.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_txrx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_cmdevt.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_misc.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_cfp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_module.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_wmm.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sdio.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_pcie.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_aggr.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_rxreorder.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ac.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ax.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11d.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11h.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_meas.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_scan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_rx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_tx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_event.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmd.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmdresp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_join.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_cmdevent.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_txrx.o
  LD [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_main.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_eth_ioctl.o
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_eth_ioctl.c: In function 'woal_priv_get_ap':
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_eth_ioctl.c:6189:11: error: invalid application of 'sizeof' to incomplete type 'char[]'
 6189 |     sizeof(mwr->u.ap_addr.sa_data));
      |
make[2]: *** [scripts/Makefile.build:286: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_eth_ioctl.o] Error 1
make[1]: *** [Makefile:1832: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src] Error 2
make[1]: Leaving directory '/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211'
make: *** [Makefile:595: default] Error 2
```

```
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_misc.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_cfp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_module.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_wmm.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sdio.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_pcie.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_aggr.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_rxreorder.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ac.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ax.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11d.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11h.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_meas.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_scan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_rx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_tx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_event.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmd.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmdresp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_join.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_cmdevent.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_txrx.o
  LD [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_main.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_eth_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_init.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_priv.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.o
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.c: In function 'woal_get_wap':
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.c:591:33: error: invalid application of 'sizeof' to incomplete type 'char[]'
  591 |       MLAN_MAC_ADDR_LENGTH, sizeof(awrq->sa_data));
      |
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.c: In function 'woal_get_scan':
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.c:3038:11: error: invalid application of 'sizeof' to incomplete type 'char[]'
 3038 |     sizeof(iwe.u.ap_addr.sa_data));
      |
make[2]: *** [scripts/Makefile.build:286: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.o] Error 1
make[1]: *** [Makefile:1832: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src] Error 2
make[1]: Leaving directory '/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211'
make: *** [Makefile:595: default] Error 2
```

```
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_module.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_wmm.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sdio.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_pcie.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_aggr.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n_rxreorder.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11n.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ac.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11ax.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11d.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_11h.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_meas.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_scan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_rx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_tx.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_event.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmd.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_sta_cmdresp.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_join.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_cmdevent.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan/mlan_uap_txrx.o
  LD [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlan.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_main.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_shim.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_eth_ioctl.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_init.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_priv.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_wext.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_uap.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_uap_priv.o
  CC [M]  /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_uap_wext.o
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_uap_wext.c: In function 'woal_get_wap':
/home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_uap_wext.c:234:11: error: invalid application of 'sizeof' to incomplete type 'char[]'
  234 |     sizeof(awrq->sa_data));
      |
make[2]: *** [scripts/Makefile.build:286: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src/mlinux/moal_uap_wext.o] Error 1
make[1]: *** [Makefile:1832: /home/weidong/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src] Error 2
make[1]: Leaving directory '/home/weidong/Linux-Open-Source-Kernel/linux-5.10.211'
make: *** [Makefile:595: default] Error 2
```

So there are conditional compilation errors in these files:

- mlinux/moal_shim.c:2850

```
2847 /*#if LINUX_VERSION_CODE >= KERNEL_VERSION(6, 2, 0)*/
2848 #if LINUX_VERSION_CODE >= KERNEL_VERSION(5, 10, 211)
2849                                 sizeof(wrqu.ap_addr.sa_data_min));
2850 #else
2851                                 sizeof(wrqu.ap_addr.sa_data));
2852 #endif
```

- mlinux/moal_eth_ioctl.c:6189

```
6186 /*#if LINUX_VERSION_CODE >= KERNEL_VERSION(6, 2, 0)*/
6187 #if LINUX_VERSION_CODE >= KERNEL_VERSION(5, 10, 211)
6188                             sizeof(mwr->u.ap_addr.sa_data_min));
6189 #else
6190                             sizeof(mwr->u.ap_addr.sa_data));
6191 #endif
```

- mlinux/moal_wext.c:591

```
587 /*#if LINUX_VERSION_CODE >= KERNEL_VERSION(6, 2, 0)*/
588 #if LINUX_VERSION_CODE >= KERNEL_VERSION(5, 10, 211)
589                         MLAN_MAC_ADDR_LENGTH,
590                         sizeof(awrq->sa_data_min));
591 #else
592                 MLAN_MAC_ADDR_LENGTH, sizeof(awrq->sa_data));
593 #endif
```

- mlinux/moal_wext.c:3038

```
3036 /*#if LINUX_VERSION_CODE >= KERNEL_VERSION(6, 2, 0)*/
3037 #if LINUX_VERSION_CODE >= KERNEL_VERSION(5, 10, 211)
3038                             sizeof(iwe.u.ap_addr.sa_data_min));
3039 #else
3040                             sizeof(iwe.u.ap_addr.sa_data));
3041 #endif
```

- mlinux/moal_uap_wext.c:234

```
231 /*#if LINUX_VERSION_CODE >= KERNEL_VERSION(6, 2, 0)*/
232 #if LINUX_VERSION_CODE >= KERNEL_VERSION(5, 10, 211)
233                             sizeof(awrq->sa_data_min));
234 #else
235                             sizeof(awrq->sa_data));
236 #endif
```

Change KERNEL_VERSION(6, 2, 0) to KERNEL_VERSION(5, 10, 211), then compilation was successful.

(3) For Kernel L6.1.80
① Building Kernel
cd ~/Linux-Open-Source-Kernel/linux-6.1.80
make menuconfig

Save & Exit

scripts/config --disable SYSTEM_TRUSTED_KEYS
scripts/config --disable SYSTEM_REVOCATION_KEYS
make -j4

Press Enter key to continue. Then wait until compilation is done.

OK, done.

② Building FP92 driver for the kernel version

\# cd ~/Wifi-driver/mxm-lf-6.6.3_1.0.0/mwifiex/mxm_wifiex/wlan_src

Modification of Makefile has been ready, so don't need to tune it again. And based on the previously modified conditional compilation parts.

\# export KERNELDIR=/home/weidong/Linux-Open-Source-Kernel/linux-6.1.80

\# make clean

\# rm -rf ../bin_wlan

\# make build

According to the previous compilation test, it is a compilation error caused by conditional compilation.

<div align="right">

Connectivity Team of NXP TIC

Weidong Sun

07-May-2024

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