


OAI install (compression)


#PHY patch from OAI


 phy_E.zip 3.4KB

#configure file from OAI

 mwc_20899_newfhi_E_3450.zip 3.5KB

 usecase_du_3450.zip 1.0KB

 config_o_du_3450_E.dat 5.7KB

 config_o_du_3450_E.dat 5.7KB

#ptp configure file

 default.cfg 1.8KB

doc/ORAN_FHI7.2_Tutorial.md · fhidriver_E · oai / openairinterfac...

Openairinterface 5G Wireless Implementation

 https://gitlab.eurecom.fr/oai/openairinterface5g/-/blob/fhidriver_E/doc/ORA...



doc/ORAN_FHI7.2_Tutorial.md · use_msgq_new_fhdriver_build_fi...

Openairinterface 5G Wireless Implementation

 https://gitlab.eurecom.fr/oai/openairinterface5g/-/blob/use_msgq_new_fhdriver_build_fi...



▼ cpu

```
[liteon@localhost ~]$ lscpu
```

```
Architecture:      x86_64
```

```
CPU op-mode(s):    32-bit, 64-bit
```

```
Address sizes:     46 bits physical, 48 bits virtual
```

```
Byte Order:        Little Endian
```

```
CPU(s):            32
```

```
On-line CPU(s) list: 0-31
```

```
Vendor ID:          GenuineIntel
```

```
Model name:         Intel(R) Xeon(R) Silver 4216 CPU @ 2.10GHz
```

```
CPU family:         6
```

```
Model:              85
```

```
Thread(s) per core: 1
```

```
Core(s) per socket: 16
```

```
Socket(s):          2
```

```
Stepping:           7
```

```
CPU max MHz:        3200.0000
```

```
CPU min MHz:        800.0000
```

```
BogoMIPS:           4200.00
```

▼ os and original kernel

```
[liteon@localhost ~]$ cat /etc/redhat-release
Red Hat Enterprise Linux release 9.2 (Plow)
[liteon@localhost ~]$ uname -a
Linux localhost.localdomain 5.14.0-284.11.1.el9_2.x86_64 #1 SMP PREEMPT_DYNAMIC Wed
Apr 12 10:45:03 EDT 2023 x86_64 x86_64 x86_64 GNU/Linux
```

▼ nic

```
[liteon@localhost ~]$ ethtool -i ens1f0
driver: ice
version: 5.14.0-284.11.1.el9_2.x86_64
firmware-version: 4.01 0x800135e7 1.3256.0
expansion-rom-version:
bus-info: 0000:12:00.0
supports-statistics: yes
supports-test: yes
supports-eeprom-access: yes
supports-register-dump: yes
supports-priv-flags: yes
```

▼ Add sudoer

[How to enable sudo on Red Hat Enterprise Linux | Red Hat Developer](#)

```
su usermod -aG wheel your_user_id # logout
```

▼ register redhat

```
subscription-manager register
```

Reference : <https://kknews.cc/code/nenqkq5.html>

▼ install RT kernel

[Installing RHEL 8 for Real Time Red Hat Enterprise Linux for Real Time 8 | Red Hat Customer Portal](#)

```
subscription-manager repos --enable rhel-9-for-x86_64-rt-rpms
```

```
dnf groupinstall RT
```

▼ RT kernel version

4.18.0-477.27.1.rt7.290.el8_8

▼ Add RT profile

```
sudo tuned-adm profile realtime
```

▼ install gcc11

```
sudo yum remove --skip-broken gcc
```

```
yum install gcc-toolset-11
```

▼ install python3 and meson

```
sudo dnf install python3-requests
```

```
sudo dnf install python3-pip
```

```
sudo pip3 install meson
```

▼ install ninja

<https://github.com/ninja-build/ninja/tree/v1.11.1>

```
git clone https://github.com/ninja-build/ninja.git
```

```
cd ninja
```

```
sudo dnf install cmake
```

```
cmake -Bbuild-cmake
```

```
cd build-cmake
```

```
sudo make install
```

- Move ninja from /usr/local/bin to /usr/bin allow

- ```
sudo cp /usr/local/bin/ninja /usr/bin/
```

- ▶ configs - config\_o\_du\_3450\_E.dat
- ▶ configs - mwc\_20899\_newfhi\_E\_3450.conf
- ▶ configs - usecase\_du\_3450.cfg

## gcc 11

```
sudo scl enable gcc-toolset-11 bash
```

## PTP

```
git clone http://git.code.sf.net/p/linuxptp/code linuxptp cd linuxptp git
checkout v2.0 make sudo ./ptp4l -i ens1f2 -m -H -2 -s -f configs/default.cfg
sudo ./phc2sys -w -m -s ens1f2 -R 8 -f configs/default.cfg sudo ./ptp4l -i
ens1f0 -m -H -2 -f configs/default.cfg
```

## DPDK install

```
wget http://fast.dpdk.org/rel/dpdk-20.11.7.tar.xz tar xvf dpdk-20.11.7.tar.xz &&
cd dpdk-stable-20.11.7 # use gcc 11 environment sudo scl enable gcc-toolset-11
bash /usr/local/bin/meson build ninja -C build sudo ninja install -C build
```

On Fedora-based OS, you may not have the `/usr/local/lib` or `/usr/local/lib64` paths in the `LD_LIBRARY_PATH`:

```
sudo echo "/usr/local/lib" > /etc/ld.so.conf.d/local-lib.conf sudo echo
"/usr/local/lib64" >> /etc/ld.so.conf.d/local-lib.conf sudo ldconfig -v | grep
rte_
```

Check if the PDK-CONFIG tool discovers the libraries:

```
command pkg-config --libs libdpdk --static # result -lrte_node -lrte_graph -
lrte_bpf -lrte_flow_classify -lrte_pipeline -lrte_table -lrte_port -lrte_fib -
lrte_ipsec -lrte_vhost -lrte_stack -lrte_security -lrte_sched -lrte_reorder -
lrte_rib -lrte_rawdev -lrte_pdump -lrte_power -lrte_member -lrte_lpm -
lrte_latencystats -lrte_kni -lrte_jobstats -lrte_ip_frag -lrte_gso -lrte_gro -
lrte_eventdev -lrte_efd -lrte_distributor -lrte_cryptodev -lrte_compressdev -
lrte_cfgfile -lrte_bitratestats -lrte_bbdev -lrte_acl -lrte_timer -lrte_hash -
lrte_metrics -lrte_cmdline -lrte_pci -lrte_ethdev -lrte_meter -lrte_net -
lrte_mbuf -lrte_mempool -lrte_rcu -lrte_ring -lrte_eal -lrte_telemetry -
lrte_kvargs -Wl,--whole-archive -lrte_common_cpt -lrte_common_dpaa -
lrte_common_iavf -lrte_common_octeontx -lrte_common_octeontx2 -lrte_bus_dpaa -
lrte_bus_fslmc -lrte_bus_ifpga -lrte_bus_pci -lrte_bus_vdev -lrte_bus_vmbus -
lrte_mempool_bucket -lrte_mempool_dpaa -lrte_mempool_dpaa2 -
lrte_mempool_octeontx -lrte_mempool_octeontx2 -lrte_mempool_ring -
lrte_mempool_stack -lrte_pmd_af_packet -lrte_pmd_ark -lrte_pmd_atlantic -
lrte_pmd_avp -lrte_pmd_axgbe -lrte_pmd_bond -lrte_pmd_bnxt -lrte_pmd_cxgbe -
lrte_pmd_dpaa -lrte_pmd_dpaa2 -lrte_pmd_e1000 -lrte_pmd_ena -lrte_pmd_enetc -
lrte_pmd_enic -lrte_pmd_failsafe -lrte_pmd_fm10k -lrte_pmd_i40e -lrte_pmd_hinic -
lrte_pmd_hns3 -lrte_pmd_iavf -lrte_pmd_ice -lrte_pmd_igc -lrte_pmd_ixgbe -
lrte_pmd_kni -lrte_pmd_liquidio -lrte_pmd_memif -lrte_pmd_netvsc -lrte_pmd_nfp -
lrte_pmd_null -lrte_pmd_octeontx -lrte_pmd_octeontx2 -lrte_pmd_pfe -
lrte_pmd_qede -lrte_pmd_ring -lrte_pmd_sfc -lrte_pmd_softnic -lrte_pmd_tap -
lrte_pmd_thunderx -lrte_pmd_vdev_netvsc -lrte_pmd_vhost -lrte_pmd_virtio -
lrte_pmd_vmxnet3 -lrte_rawdev_dpaa2_cmdif -lrte_rawdev_dpaa2_qdma -
lrte_rawdev_ioat -lrte_rawdev_ntb -lrte_rawdev_octeontx2_dma -
lrte_rawdev_octeontx2_ep -lrte_rawdev_skeleton -lrte_pmd_caam_jr -
lrte_pmd_dpaa_sec -lrte_pmd_dpaa2_sec -lrte_pmd_nitrox -lrte_pmd_null_crypto -
lrte_pmd_octeontx_crypto -lrte_pmd_octeontx2_crypto -lrte_pmd_crypto_scheduler -
lrte_pmd_virtio_crypto -lrte_pmd_octeontx_compress -lrte_pmd_qat -lrte_pmd_ifc -
```



```
lrte_pmd_dpaa_event -lrte_pmd_dpaa2_event -lrte_pmd_octeontx2_event -
lrte_pmd_opdl_event -lrte_pmd_skeleton_event -lrte_pmd_sw_event -
lrte_pmd_dsw_event -lrte_pmd_octeontx_event -lrte_pmd_bbdev_null -
lrte_pmd_bbdev_turbo_sw -lrte_pmd_bbdev_fpga_lte_fec -
lrte_pmd_bbdev_fpga_5gnr_fec -Wl,--no-whole-archive -lrte_node -lrte_graph -
lrte_bpf -lrte_flow_classify -lrte_pipeline -lrte_table -lrte_port -lrte_fib -
lrte_ipsec -lrte_vhost -lrte_stack -lrte_security -lrte_sched -lrte_reorder -
lrte_rib -lrte_rawdev -lrte_pdump -lrte_power -lrte_member -lrte_lpm -
lrte_latencystats -lrte_kni -lrte_jobstats -lrte_ip_frag -lrte_gso -lrte_gro -
lrte_eventdev -lrte_efd -lrte_distributor -lrte_cryptodev -lrte_compressdev -
lrte_cfgfile -lrte_bitratestats -lrte_bbdev -lrte_acl -lrte_timer -lrte_hash -
lrte_metrics -lrte_cmdline -lrte_pci -lrte_ethdev -lrte_meter -lrte_net -
lrte_mbuf -lrte_mempool -lrte_rcu -lrte_ring -lrte_eal -lrte_telemetry -
lrte_kvargs -Wl,-Bdynamic -pthread -lm -ldl
```

Once again on Fedora-based OS, you may not have the `/usr/local/lib` or `/usr/local/lib64` paths in the `PKG_CONFIG_PATH`:

```
export PKG_CONFIG_PATH=$PKG_CONFIG_PATH:/usr/local/lib64/pkgconfig/ pkg-config -
-libs libdpdk --static
```

## PHY

```
export XRAN_LIB_DIR=/home/liteon/phy/fhi_lib/lib/build export
XRAN_DIR=/home/liteon/phy/fhi_lib export RTE_SDK=/home/liteon/dpdk-stable-
20.11.7 export RTE_TARGET=x86_64-native-linuxapp-gcc export
RTE_INCLUDE=/usr/local/include
```

[gerrit.o-ran-sc Code Review - o-du/phy.git/summary](https://gerrit.o-ran-sc.org/r/o-du/phy.git/summary)

```
git clone https://gerrit.o-ran-sc.org/r/o-du/phy.git cd phy git checkout oran_e_
maintenance_release_v1.0 git apply phy_E.patch # install gcc 11 sudo yum remove
--skip-broken gcc sudo yum install gcc-toolset-11
```

```
cd ~/phy/fhi_lib/lib make XRAN_LIB_SO=1
```

## install openairinterface5g

```

git clone https://gitlab.eurecom.fr/oai/openairinterface5g.git git checkout
remotes/origin/fhdriver_E cd ~/openairinterface5g/cmake_targets ./build_oai --
gNB --ninja -t oran_fhlib_5g (Add, -I if you are building for the first time on
server for installing external dependencies) # if it occurs error message when
doing command "./build_oai --gNB --ninja -t oran_fhlib_5g" # and the error
message is about "No asn1c found!", doing the following commands. sudo dnf
install libtool sudo dnf install blas sudo dnf install lapack cd ~ git clone
https://github.com/vlm/asn1c.git cd asn1c test -f configure || autoreconf -iv
./configure make sudo make install cd ~/openairinterface5g/cmake_targets
./build_oai --gNB --ninja -t oran_fhlib_5g --cmake-opt -
DASN1C_EXEC=/opt/asn1c/bin/asn1c # install lack lib from build rpm...
https://rpmfind.net/linux/rpm2html/search.php?query=epel-release download epel-
release-8-19.el8.noarch.rpm sudo yum localinstall epel-release-8-
19.el8.noarch.rpm wget
https://vault.centos.org/centos/8/PowerTools/x86_64/os/Packages/libconfig-devel-
1.5-9.el8.x86_64.rpm sudo yum localinstall libconfig-devel-1.5-9.el8.x86_64.rpm
wget https://vault.centos.org/centos/8/PowerTools/x86_64/os/Packages/lapack-
devel-3.8.0-8.el8.x86_64.rpm sudo yum localinstall lapack-devel-3.8.0-
8.el8.x86_64.rpm wget
https://vault.centos.org/centos/8/PowerTools/x86_64/os/Packages/ninja-build-
1.8.2-1.el8.x86_64.rpm sudo yum localinstall ninja-build-1.8.2-1.el8.x86_64.rpm
wget https://vault.centos.org/centos/8/PowerTools/x86_64/os/Packages/guile-
devel-2.0.14-7.el8.x86_64.rpm sudo yum localinstall guile-devel-2.0.14-
7 el8 x86 64 rpm wget

```