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

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doc/ORAN_FHI7.2_Tutorial.md · fhidriver_E · oai / o…

Openairinterface 5G Wireless Implementation

🦊 https://gitlab.eurecom.fr/oai/openairinterface5g/-/blob/fhidr…

OPEN AIR 5G INTERFACE

▼ 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/
    ```

DPDK install

```
#Download DPDK version 20.05.0 wget http://fast.dpdk.org/rel/dpdk-
20.05.tar.xz #DPDK Compilation tar -xvf dpdk-20.05.tar.xz cd dpdk-
20.05 meson build cd build ninja sudo ninja install sudo dnf
install numactl sudo dnf install numactl-devel make install
T=x86_64-native-linuxapp-gcc
```

```
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
```

```
export XRAN_LIB_DIR=~/phy/fhi_lib/lib/build export
XRAN_DIR=~/phy/fhi_lib export RTE_SDK=~/dpdk-20.05 export
RTE_TARGET=x86_64-native-linuxapp-gcc export
RTE_INCLUDE=${RTE_SDK}/${RTE_TARGET}/include export
XRAN_LIB_DIR=~/phy/fhi_lib/lib/build export XRAN_DIR=~/phy/fhi_lib
export RTE_SDK=~/dpdk-stable-20.11.7 export RTE_TARGET=x86_64-
native-linuxapp-gcc export RTE_INCLUDE=/usr/local/include # root
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-
20.05 export RTE_TARGET=x86_64-native-linuxapp-gcc export
RTE_INCLUDE=${RTE_SDK}/${RTE_TARGET}/include 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
```

PHY

gerrit.o-ran-sc Code Review - o-du/phy.git/summary

```
git clone https://gerrit.o-ran-sc.org/r/o-du/phy.git cd phy git che
ckout oran_e_maintenance_release_v1.0 git apply phy_E.patch # insta
ll gcc 11 sudo yum remove --skip-broken gcc sudo yum install gcc-to
olset-11 # make gcc version is 11 (origin gcc version is 8.5) sudo
mv /usr/bin/gcc /usr/bin/gcc_backup sudo mv /usr/bin/g++ /usr/bin/g
++_backup sudo mv /usr/bin/gcov /usr/bin/gcov_backup sudo ln -s /op
t/rh/gcc-toolset-11/root/usr/bin/gcc /usr/bin/gcc-11 sudo ln -s /op
t/rh/gcc-toolset-11/root/usr/bin/g++ /usr/bin/g++-11 sudo update-al
ternatives --install /usr/bin/gcc gcc /usr/bin/gcc-11 50 sudo updat
e-alternatives --install /usr/bin/g++ g++ /usr/bin/g++-11 50 sudo u
pdate-alternatives --install /usr/bin/gcov gcov /opt/rh/gcc-toolset
-11/root/usr/bin/gcov 50 sudo update-alternatives --config gcc # ch
oose gcc 11 gcc -v # check gcc version whether it is 11 g++ -v # ch
eck g++ version whether it is 11 # recover gcc version to 8.5 sudo
mv /usr/bin/gcc_backup /usr/bin/gcc sudo mv /usr/bin/g++_backup /us
r/bin/g++ sudo mv /usr/bin/gcov_backup /usr/bin/gcov gcc -v # check
gcc version whether it is 8.5 g++ -v # check g++ version whether it
is 8.5
```

```
# Modify /home/liteon/phy/fhi_lib/lib/Makefile
############################################################### #
Tools configuration
############################################################### CC
:= /opt/rh/gcc-toolset-11/root/usr/bin/gcc #icc CPP := /opt/rh/gcc-
toolset-11/root/usr/bin/g++ #icpc
```

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

gcc-11

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

openairinterface

```
git clone https://gitlab.eurecom.fr/oai/openairinterface5g.git git
checkout remotes/origin/fhidriver_E source oaienv cd
~/openairinterface5g/cmake_targets ./build_oai --gNB --ninja -t
oran_fhlib_5g (Add, -I if you are building for the first time on serve
for installing external dependencies) # if it occurs error message whe
doing command "./build_oai --gNB --ninja -t oran_fhlib_5g" # and the e
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 sudo ./nr-
softmodem -O mwc_20899_newfhi_E_3450.conf --sa --reorder-thread-disabl
install lack lib from build rpm...
https://rpmfind.net/linux/rpm2html/search.php?query=epel-release downl
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/libcon
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
https://vault.centos.org/centos/8/PowerTools/x86_64/os/Packages/blas-
devel-3.8.0-8.el8.x86_64.rpm sudo yum localinstall blas-devel-3.8.0-
8.el8.x86_64.rpm
```

wget http://fast.dpdk.org/rel/dpdk-20.11.7.tar.xz