

## UDP DL Low Throughput

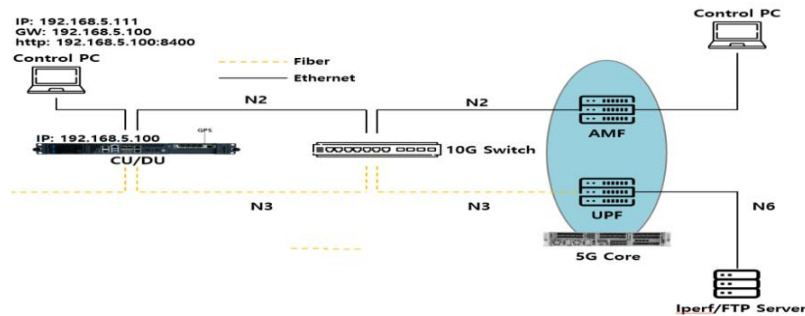
**Country/Region:** A/K, T

**Equipment:** nCell-T5000 +EU+RU4240

**Version:** BBU: 5GNR\_ax.tdd.fr1.2.2.3\_422\_r50381\_i19\_20221028\_085555+EU:

V0.05.05+RRU:V0.05.05+Acceleration Card: FGAF2.2.0\_220811\_R

**Networking:**



### 1. Issue Description:

Run Iperf test from Core server after network setup done and UE registered, both TCP and UDP Downlink speed is limited at around 500Mbps, PDSCH schedule times is low.

Iperf test for DL TCP:

```
last s: DL tput (Mbps[MAC/RLC]: RBs(slice0-3)/Times: Ratio: AvgMcs: AvgLayers: UdpSdu/AllSdu) UL tput (Mbps[MAC/RLC]: RBs(slice0-3)/Times: AvgMcs: AvgLayers)
20: 597.6830/590.5521 (232559/232559/0/0/0)/1365: 60.8475% :21.0000: 4.0000: 0/53376 4.2496/3.8846 (2669/2669/0/0/0)/159: 28.0000: 2.0000
19: 554.8823/547.3582 (217367/217367/0/0/0)/1364: 56.8726% :21.0000: 4.0000: 0/49472 4.0784/3.6718 (2568/2568/0/0/0)/149: 28.0000: 2.0000
18: 502.9008/496.3200 (200758/200758/0/0/0)/1362: 52.5269% :20.9841: 4.0000: 0/44859 3.6118/3.2731 (2249/2249/0/0/0)/163: 28.0000: 2.0000
17: 507.0441/500.8009 (204744/204744/0/0/0)/1366: 53.5699% :20.0000: 4.0000: 0/45264 3.6890/3.3622 (2295/2295/0/0/0)/159: 28.0000: 2.0000
16: 580.5993/572.6616 (228673/228673/0/0/0)/1355: 59.8307% :20.2121: 4.0000: 0/51759 4.0765/3.7175 (2553/2553/0/0/0)/161: 28.0000: 2.0000
15: 577.6739/572.2000 (224105/224105/0/0/0)/1367: 58.6355% :21.0000: 4.0000: 0/51718 4.2013/3.7901 (2649/2649/0/0/0)/146: 28.0000: 2.0000
14: 584.4677/576.5672 (230191/230191/0/0/0)/1369: 60.2279% :21.0000: 4.0000: 0/52112 4.0579/3.7027 (2527/2527/0/0/0)/158: 28.0000: 2.0000
13: 580.3027/573.0267 (225928/225928/0/0/0)/1364: 59.1125% :21.0000: 4.0000: 0/51792 4.1330/3.7592 (2608/2608/0/0/0)/154: 28.0000: 2.0000
12: 565.0471/556.5635 (218689/218689/0/0/0)/1371: 57.2185% :21.0000: 4.0000: 0/50304 4.1300/3.7511 (2585/2585/0/0/0)/157: 28.0000: 2.0000
11: 494.3452/487.7011 (201775/201775/0/0/0)/1347: 52.7930% :21.0000: 4.0000: 0/44080 3.6461/3.2695 (2270/2270/0/0/0)/146: 28.0000: 2.0000
10: 500.1429/491.9497 (203000/203000/0/0/0)/1352: 53.1136% :21.0000: 4.0000: 0/44464 3.6712/3.3071 (2284/2284/0/0/0)/151: 28.0000: 2.0000
9: 507.0415/501.0996 (203789/203789/0/0/0)/1365: 53.3197% :21.1923: 4.0000: 0/45291 3.4728/3.1208 (2165/2165/0/0/0)/154: 28.0000: 2.0000
8: 489.9263/481.9146 (204706/204706/0/0/0)/1342: 53.5599% :20.5198: 4.0000: 0/43557 3.7826/3.3636 (2395/2395/0/0/0)/138: 28.0000: 2.0000
7: 510.5435/503.6333 (205422/205422/0/0/0)/1359: 53.7473% :20.0000: 4.0000: 0/45520 3.5703/3.2583 (2215/2215/0/0/0)/162: 28.0000: 2.0000
6: 511.5758/502.8477 (202844/202844/0/0/0)/1363: 53.0727% :20.2093: 4.0000: 0/45449 3.5003/3.1965 (2197/2197/0/0/0)/162: 28.0000: 2.0000
5: 578.9804/572.5731 (226181/226181/0/0/0)/1380: 59.1787% :21.0000: 4.0000: 0/51751 4.1356/3.7601 (2578/2578/0/0/0)/154: 28.0000: 2.0000
4: 529.7728/523.3715 (205656/205656/0/0/0)/1364: 53.8085% :21.0000: 4.0000: 0/47304 3.6672/3.3452 (2309/2309/0/0/0)/166: 28.0000: 2.0000
3: 509.4409/500.3583 (208020/208020/0/0/0)/1366: 54.4291% :21.2981: 4.0000: 0/45224 3.4792/3.1351 (2186/2186/0/0/0)/153: 28.0000: 2.0000
2: 497.9181/492.4808 (203046/203046/0/0/0)/1353: 53.1256% :21.0000: 4.0000: 0/44512 3.6583/3.3134 (2282/2282/0/0/0)/159: 28.0000: 2.0000
1: 580.1886/572.4956 (223546/223546/0/0/0)/1360: 58.4893% :21.0000: 4.0000: 0/51744 4.0593/3.6821 (2521/2521/0/0/0)/163: 28.0000: 2.0000
Start Idx: 111 end Idx: 111
```

Iperf test for DL UDP:

```
odi: dest processor is: 192.0.2.1
odi: tx 47 bytes to port 49574 on 192.0.2.1
Displaying MAC throughput from the oldest second to last full second
Histogram size is: 301
last s: DL tput (Mbps[MAC/RLC]: RBs(slice0-3)/Times: Ratio: AvgMcs: AvgLayers: UdpSdu/AllSdu) UL tput (Mbps[MAC/RLC]: RBs(slice0-3)/Times: AvgMcs: AvgLayers)
20: 549.1379/541.8601 (210645/210645/0/0/0)/1356: 54.3568% :21.0000: 4.0000: 50889/50889 0.3136/0.0046 (196/196/0/0/0)/49: 28.0000: 2.0000
19: 547.3847/541.9235 (213705/213705/0/0/0)/1348: 55.9144% :21.0000: 4.0000: 50885/50885 0.3072/0.0046 (192/192/0/0/0)/48: 28.0000: 2.0000
18: 546.5096/541.0355 (210136/210136/0/0/0)/1334: 54.9806% :21.0000: 4.0000: 50811/50811 0.3136/0.0046 (196/196/0/0/0)/49: 28.0000: 2.0000
17: 550.7372/544.8369 (212766/212766/0/0/0)/1364: 55.8022% :21.0000: 4.0000: 51168/51168 0.3200/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
16: 551.0106/545.3906 (212766/212766/0/0/0)/1349: 55.6888% :21.0000: 4.0000: 51220/51220 0.3200/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
15: 549.8922/541.5573 (213528/213528/0/0/0)/1355: 55.8681% :21.0000: 4.0000: 50880/50880 0.3136/0.0046 (196/196/0/0/0)/49: 28.0000: 2.0000
14: 544.5304/539.2147 (209231/209231/0/0/0)/1357: 54.7439% :21.0000: 4.0000: 50640/50640 0.3200/0.0046 (204/204/0/0/0)/51: 28.0000: 2.0000
13: 544.6040/539.5342 (212761/212761/0/0/0)/1352: 55.4675% :21.0000: 4.0000: 50670/50670 0.3200/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
12: 551.7620/546.7322 (212117/212117/0/0/0)/1355: 55.4990% :21.0000: 4.0000: 51346/51346 0.3200/0.0046 (196/196/0/0/0)/49: 28.0000: 2.0000
11: 554.7076/547.2220 (213474/213474/0/0/0)/1351: 55.8540% :21.0000: 4.0000: 51392/51392 0.3136/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
10: 546.8662/541.0888 (212795/212795/0/0/0)/1359: 55.6763% :21.0000: 4.0000: 50816/50816 0.3200/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
9: 546.4296/539.7258 (212977/212977/0/0/0)/1363: 55.7240% :21.0000: 4.0000: 50688/50688 0.3136/0.0046 (196/196/0/0/0)/49: 28.0000: 2.0000
8: 553.3800/548.1803 (213471/213471/0/0/0)/1353: 55.8532% :21.0000: 4.0000: 51482/51482 0.3200/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
7: 551.6277/545.2415 (213022/213022/0/0/0)/1362: 55.7357% :21.0000: 4.0000: 51296/51296 0.3200/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
6: 550.1674/545.8591 (214423/214423/0/0/0)/1351: 56.1023% :21.0000: 4.0000: 51264/51264 0.3072/0.0046 (192/192/0/0/0)/48: 28.0000: 2.0000
5: 552.7425/546.1998 (212357/212357/0/0/0)/1348: 55.5617% :21.0000: 4.0000: 51296/51296 0.3264/0.0046 (200/200/0/0/0)/50: 28.0000: 2.0000
4: 545.3733/539.7258 (211900/211900/0/0/0)/1344: 55.4422% :21.0000: 4.0000: 50688/50688 0.3136/0.0046 (196/196/0/0/0)/49: 28.0000: 2.0000
3: 545.7898/539.3851 (209383/209383/0/0/0)/1345: 54.7836% :21.0000: 4.0000: 50656/50656 0.3264/0.0057 (204/204/0/0/0)/51: 28.0000: 2.0000
2: 547.0961/541.0888 (210350/210350/0/0/0)/1347: 55.0366% :21.0000: 4.0000: 50816/50816 0.3136/0.0052 (196/196/0/0/0)/49: 28.0000: 2.0000
1: 554.2925/546.3702 (215290/215290/0/0/0)/1364: 56.3291% :21.0000: 4.0000: 51312/51312 0.3200/0.0058 (200/200/0/0/0)/50: 28.0000: 2.0000
Start Idx: 158 end Idx: 158
```

### 2. Suggested Troubleshooting Methods:

Check why the RB dispatch is low:

- Check if the radio environment good.
- Check if signed AMBR and QCI is restricted.
- Check if income traffic insufficient.
- Check if MAC/RLC/PDCP Layer issue

### 3. Troubleshooting Procedures:

Padding traffic at air interface, it can reach more than 800Mbps and the scheduled times is full.

```

Displaying MAC throughput from the oldest second to last full second
Histogram size is: 301
last s:  DL tput (Mbps[MAC/RLC]): RBs(slice0-3)/Times: Ratio: AvgMcs: AvgLayers: UdpSdu/AllSdu    UL tput (Mbps[MAC/RLC]): RBs(slice0-3)/Times: AvgM
20: 846.4498/0.0000 (375122(0/0/0/0)/1401: 98.1481% :18.0000: 4.0000: 0/0) 240.6888/0.0000 (158088(132540/0/0/0)/600: 28.0000: 2.0000)
19: 840.7764/0.0000 (375071(0/0/0/0)/1401: 98.1347% :18.3581: 4.0000: 0/0) 242.3941/0.0000 (158100(112788/0/0/0)/600: 28.0000: 2.0000)
18: 844.6296/0.0000 (375173(0/0/0/0)/1401: 98.1614% :18.0000: 4.0000: 0/0) 236.4254/0.0000 (158352(111180/0/0/0)/601: 28.0000: 2.0000)
17: 844.6607/0.0000 (374849(0/0/0/0)/1400: 98.0767% :18.1039: 4.0000: 0/0) 240.2624/0.0000 (158088(117516/0/0/0)/600: 28.0000: 2.0000)
16: 847.7789/0.0000 (375122(0/0/0/0)/1401: 98.1481% :18.2543: 4.0000: 0/0) 242.3941/0.0000 (158352(136236/0/0/0)/601: 28.0000: 2.0000)
15: 838.2932/0.0000 (375122(0/0/0/0)/1401: 98.1481% :18.3571: 4.0000: 0/0) 250.0682/0.0000 (158100(139932/0/0/0)/600: 28.0000: 2.0000)
14: 843.8715/0.0000 (375122(0/0/0/0)/1401: 98.1481% :18.2481: 4.0000: 0/0) 251.3472/0.0000 (158100(158100/0/0/0)/600: 28.0000: 2.0000)
13: 842.1061/0.0000 (374849(0/0/0/0)/1400: 98.0767% :18.2155: 4.0000: 0/0) 248.7892/0.0000 (158100(109356/0/0/0)/600: 28.0000: 2.0000)
12: 844.6562/0.0000 (374900(0/0/0/0)/1400: 98.0900% :18.2524: 4.0000: 0/0) 252.6262/0.0000 (158100(144132/0/0/0)/600: 28.0000: 2.0000)
11: 839.3998/0.0000 (374976(0/0/0/0)/1401: 98.1099% :18.3550: 4.0000: 0/0) 245.8048/0.0000 (158340(123576/0/0/0)/601: 28.0000: 2.0000)
10: 845.2244/0.0000 (375173(0/0/0/0)/1401: 98.1614% :18.2496: 4.0000: 0/0) 243.2468/0.0000 (158076(119616/0/0/0)/600: 28.0000: 2.0000)
9: 844.2629/0.0000 (375173(0/0/0/0)/1401: 98.1614% :18.2144: 4.0000: 0/0) 249.2155/0.0000 (158100(158100/0/0/0)/600: 28.0000: 2.0000)
8: 860.0945/0.0000 (375020(0/0/0/0)/1401: 98.1214% :19.0000: 4.0000: 0/0) 248.7892/0.0000 (158364(152556/0/0/0)/601: 28.0000: 2.0000)
7: 845.8180/0.0000 (374849(0/0/0/0)/1400: 98.0767% :18.3955: 4.0000: 0/0) 247.5102/0.0000 (158100(140712/0/0/0)/600: 28.0000: 2.0000)
6: 848.9085/0.0000 (375071(0/0/0/0)/1401: 98.1347% :18.3581: 4.0000: 0/0) 250.4945/0.0000 (158364(158364/0/0/0)/601: 28.0000: 2.0000)
5: 846.2611/0.0000 (375122(0/0/0/0)/1401: 98.1481% :18.3567: 4.0000: 0/0) 249.3628/0.0000 (158100(151512/0/0/0)/600: 28.0000: 2.0000)
4: 843.5308/0.0000 (375071(0/0/0/0)/1401: 98.1347% :18.3581: 4.0000: 0/0) 249.2155/0.0000 (158100(156516/0/0/0)/600: 28.0000: 2.0000)
3: 844.6378/0.0000 (374798(0/0/0/0)/1400: 98.0633% :18.3569: 4.0000: 0/0) 250.0682/0.0000 (158064(139644/0/0/0)/600: 28.0000: 2.0000)
2: 844.6296/0.0000 (374900(0/0/0/0)/1400: 98.0900% :18.0000: 4.0000: 0/0) 247.5102/0.0000 (158100(138084/0/0/0)/600: 28.0000: 2.0000)
1: 840.9893/0.0000 (375173(0/0/0/0)/1401: 98.1614% :18.0000: 4.0000: 0/0) 241.9678/0.0000 (158340(122244/0/0/0)/601: 28.0000: 2.0000)
Start Idx: 287   End Idx: 287

```

Check the AMBR and QCI of UE, maximum 5Gbps and 5QI-9, no restriction.

```

value
  UEAggregateMaximumBitRate
    ueAggregateMaximumBitRateDL: 5000000000bits/s
    ueAggregateMaximumBitRateUL: 5000000000bits/s

QosFlowSetupRequestList: 1 item
  Item 0
    QosFlowSetupRequestItem
      qosFlowIdentifier: 1
      qosFlowLevelQosParameters
        qosCharacteristics: nonDynamic5QI (0)
        nonDynamic5QI
          fiveQI: 9

```

Check the Tx/Rx speed rate of interface in Iperf server and gNB, it shows the income traffic is sufficient and

Iperf server N6/N3 interface:

```

05:17:09 AM  IFACE  rxpck/s  txpck/s  rxkB/s  txkB/s  rxcmp/s  txcmp/s  rxmst/s
05:17:11 AM  eno52    0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  tun_local 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  eno1     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  eno2     1.00    1.50    0.08    0.16    0.00    0.00    0.50
05:17:11 AM  eno3     2.00    2.50    0.12    0.48    0.00    0.00    0.50
05:17:11 AM  eno4     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  eno49    0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  tun_lms  0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  eno51    0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  lo      105.00  105.00  10.25  10.25  0.00    0.00    0.00
05:17:11 AM  ens1f0   0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:17:11 AM  ens1f1   2.00  96155.50  0.83  130147.97  0.00    0.00    0.00
05:17:11 AM  tun_host 1.50  96158.50  0.59  124705.55  0.00    0.00    0.00
05:17:11 AM  eno50    0.00    0.00    0.00    0.00    0.00    0.00    0.00

```

Sending 900Mbps

gNB N3 Interface:

```

05:15:53 PM  IFACE  rxpck/s  txpck/s  rxkB/s  txkB/s  rxcmp/s  txcmp/s  rxmst/s
05:15:55 PM  enp23s0f3 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp184s0f1 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp23s0f0 1.00    0.00    0.06    0.00    0.00    0.00    0.00
05:15:55 PM  enp184s0f2 96139.50 1.00  130126.32  0.62  0.00    0.00    0.00
05:15:55 PM  enp23s0f2 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp184s0f3 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  lo      12.50  12.50    3.25  3.25    0.00    0.00    0.00
05:15:55 PM  enp23s0f4 0.50    0.50    0.05  0.03    0.00    0.00    0.00
05:15:55 PM  enp3s0    1.50    1.50    0.13  0.19    0.00    0.00    0.00
05:15:55 PM  enp184s2 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp4s0    0.50    0.50    0.05  0.05    0.00    0.00    0.00
05:15:55 PM  tap0     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  tap1     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  tap2     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  tap3     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  tap4     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  tap5     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  tap6     0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp184s6 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp23s0f1 0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  bh0      0.00    0.00    0.00    0.00    0.00    0.00    0.00
05:15:55 PM  enp184s0f0 0.00    0.00    0.00    0.00    0.00    0.00    0.00

```

recieve 900Mbps

Check the PDCP layer throughput, it's same with MAC layer. Check the user-plane data and see there is a lot UDP data stacking which is not extracted, suspect CPU core assignment improperly.

```
[root@sg-gnb phy]# netstat -anlp | grep up
tcp        0      0 127.0.0.1:27154    127.0.0.1:27149    ESTABLISHED 108564/cupproxy
udp        0      0 0.0.0.0:33057     0.0.0.0:*          108564/cupproxy
udp 268436864      0 0.0.0.0:2152      0.0.0.0:*          107718/upapp
udp        0      0 192.0.2.2:3006    0.0.0.0:*          108564/cupproxy
udp        0      0 0.0.0.0:56093     0.0.0.0:*          107718/upapp
udp        0      0 0.0.0.0:27103     0.0.0.0:*          108564/cupproxy
udp        0      0 0.0.0.0:27130     0.0.0.0:*          108564/cupproxy
udp        0      0 127.0.0.1:27143    0.0.0.0:*          107718/upapp
udp        0      0 127.0.0.1:27147    0.0.0.0:*          107718/upapp
udp        0      0 0.0.0.0:43748     0.0.0.0:*          108564/cupproxy
udp6       0      0 :::2152           :::*                107718/upapp
unix 2      [ ACC ] STREAM LISTENING 21059 2192/master public/cleanup
unix 2      [ ] DGRAM 1318 1/systemd /run/systemd/cgroups-agent
unix 2      [ ] DGRAM 30249 108564/cupproxy /tmp/pdcp_ctrl_msg_SRC.sock
unix 2      [ ACC ] STREAM LISTENING 21055 2192/master public/pickup
unix 2      [ ] DGRAM 62413027 107718/upapp /tmp/pdcp_ctrl_msg_dst.sock
unix 2      [ ] DGRAM 30241 108564/cupproxy
unix 2      [ ] DGRAM 61899943 91665/pickup
```

Check the Core Assignment files (CoreAssignment.conf 、 protStackCfg.sh 、 dataplane\_env) under /opt/bbu/oam/cm, it's not correct. Modify those files as per below:

Modify "CoreAssignment.conf"

```
4  # nformation for LTE thread
5  # CoreId[n]=m means core m is assigned to thread n
6  # the m should be assigned in ascending order
7  {LteCpuInfo->}
8  CoreNumForLteRt = 14; # number of core for LTE RT thread
9  # lld use 1, 25, 27
10 # core id for LTE RT thread
11 CoreId[0] = 3;
12 CoreId[1] = 4;
13 CoreId[2] = 5;
14 CoreId[3] = 6;
15 CoreId[4] = 7;
16 CoreId[5] = 8;
17 CoreId[6] = 9;
18 CoreId[7] = 17;
19 CoreId[8] = 18;
20 CoreId[9] = 19;
21 CoreId[10] = 20;
22 CoreId[11] = 21;
23 CoreId[12] = 22;
24 CoreId[13] = 23;
25 {/LteCpuInfo}
26
27 # CPU information for Front end interface
28 {FeIfCpuInfo->}
29 CoreNumForIf = 1; # number of core for front end interface
30 # core id for front end interface
31 CoreId[0] = 1;
32 {/FeIfCpuInfo}
33
34 # CPU information for hardware control
35 {HwCtrlCpuInfo->}
36 CoreNumForHwCtrl = 4; # number of core for LDPC hardware control
37 # core id for hardware control
38 CoreId[0] = 2;
39 CoreId[1] = 2;
40 CoreId[2] = 2;
41 CoreId[3] = 2;
42 {/HwCtrlCpuInfo}
43
44 # CPU information for CPRI card interface
45 {CpriCtrlCpuInfo->}
46 CoreNumForCpriCtrl = 0; # number of core for cpri card control
47 # core id for hardware control
48 # try one virtual core
49 CoreId[0] = 6;
50 CoreId[1] = 8;
51 CoreId[2] = 10;
52 # same physical core as bbuio
53 #CoreId[0] = 30;
```



Modify “dataplane\_env”

```

109 #
110 # If no hugepages reserved, then ...
111 #
112 OFF_2M_SZ_HUGE_PAGES_RSV=2048
113
114 export OFF_2M_SZ_HUGE_PAGES_RSV
115
116 #
117 # CPU resources
118 #
119 #
120 # Put available cores here
121 cpus=(14 12 13 26 27)
122
123 #
124 # CPU core assignment
125 #
126 #
127 # UP Cores
128 PDCP_SYS_TIMER_CORE=${cpus[0]}
129 BH_IO_DISPATCH_CORE=${cpus[1]}
130 BH_WORKER_CORE=${cpus[2]}, ${cpus[4]}
131 BH_CORE_MASK=0x03000000
132 BH_WORKER_QDISC=1
133
134 export PDCP_SYS_TIMER_CORE BH_IO_DISPATCH_CORE BH_WORKER_CORE BH_CORE_MASK BH_WORKER_QDISC
135
136 # OFF PKT I/O Cores
137 OFF_BH_PKIO_CORE=${cpus[1]}, ${cpus[2]}
138
139 export OFF_BH_PKIO_CORE
140
141 # OFF APP Cores
142 #OFF_APP_CORE=${cpus[0]}
143
144 #export OFF_BH_APP_CORE
145
146 # FCH aysnc
147 BH_FCH_ASYNC_IO_CORE=${cpus[3]}
148
149 export BH_FCH_ASYNC_IO_CORE
150
151 # Comment the two lines out, and use internal NGU IP if vGateway is enabled.
152 OFF_IPADDR=10.88.130.92/24
153 OFF_HOP=1
154
155 # Internal NGU IP while vGateway is enabled.

```

Modify “protStackCfg.sh”

```

7 oamprocess_filter=7
8 odsnameserver_filter=7
9 callp_filter=7
0 gnb_filter=7
1 gtpctrl_filter=7
2 l2_filter=7
3 bh_loglevel=6
4 oamprocess_LOG_MAX_NUM=10
5 odsnameserver_LOG_MAX_NUM=10
6 callp_LOG_MAX_NUM=10
7 gnb_LOG_MAX_NUM=10
8 gtpctrl_LOG_MAX_NUM=10
9 l2_LOG_MAX_NUM=10
0 bh_LOG_MAX_NUM=10
1 pyacs_port=8400
2 OAM_CPU=14
3 ODSNAMESESERVER_CPU=14
4 CTRL_CPU_0=24
5 CTRL_CPU_1=25
6 CTRL_CPU_2=26
7 CTRL_CPU_3=27
8 TTI_CPU_0=10
9 TTI_CPU_1=11
0 TTI_CPU_2=12
1 TTI_CPU_3=13
2 RLC_RX_THRD_CPU_MAC0=10
3 RLC_RX_THRD_CPU_MAC1=11
4 RLC_RX_THRD_CPU_MAC2=12
5 RLC_RX_THRD_CPU_MAC3=13
6 RLC_GR_THRD_OFFSET=0
7 cellNum=2
8 phyNum=1
9 cell0_merge_num=1
0 cell1_merge_num=1
1 run_phy_flag=true
2 cu_du_mode=None
3 du_id_start=1
4 du_id_end=2
5 cell0_phy_startccci=0
6 cell1_phy_startccci=1
7 cell2_phy_startccci=2
8 cell3_phy_startccci=3
9 ipcMsgSize_srs_ind=0
0 ipcMsgSize_srs_data=0
1 LAUNCH_INTERVAL=15
2 DP_ENV_LOAD_FILE=/opt/bbu/bts/scripts/dataplane_env
3 LOG_UPLOAD_DOWNLOAD_CPU=14
4 ENABLE_WATCHDOG=true
5 AUTO_RECOVER=0
6 ENABLE_PHY_LOST_TIMING=0

```

Restart protocol stack and disable the switch of security and integrity, restart UE and do iperf test again, dispatch is full and both tcp&udp throughput improved.

```
odi: dest processor is: 192.0.2.1
odi: tx 47 bytes to port 32908 on 192.0.2.1

Displaying MAC throughput from the oldest second to last full second
Histogram size is: 301
last s:  DL tput (Mbps[MAC/RLC]: RBs(slice0-3)/Times: Ratio: AvgMcs: AvgLayers: UdpSdu/AllSdu)  UL tput (Mbps[MAC/RLC]: RBs(slice0-3)/Times: AvgMcs: AvgLayers)
20: 726.7523/722.1049 (375027/375027/0/0/0) /1481: 98.1232% :16.0993: 4.0000: 0/65352) 4.4992/4.0723 (2797/2797/0/0/0)/149: 28.0000: 2.0000)
19: 713.0059/709.7997 (375027/375027/0/0/0) /1401: 98.1232% :16.1884: 4.0000: 0/64226) 4.6532/4.2969 (2937/2937/0/0/0)/150: 28.0000: 2.0000)
18: 702.8238/698.7508 (375122/375122/0/0/0) /1401: 98.1481% :16.2875: 4.0000: 0/63212) 4.4806/4.0972 (2776/2776/0/0/0)/149: 28.0000: 2.0000)
17: 738.9424/735.9645 (374900/374900/0/0/0) /1400: 98.0900% :16.0000: 4.0000: 0/66593) 4.5954/4.2036 (2880/2880/0/0/0)/150: 28.0000: 2.0000)
16: 678.6889/676.2826 (364665/364665/0/0/0) /1370: 95.4121% :16.2963: 4.0000: 0/61102) 4.3400/3.9385 (2734/2734/0/0/0)/145: 28.0000: 2.0000)
15: 679.7845/675.6044 (361950/361950/0/0/0) /1359: 94.7017% :16.2973: 4.0000: 0/61143) 4.3463/3.9532 (2731/2731/0/0/0)/144: 28.0000: 2.0000)
14: 715.7822/712.5405 (364016/364016/0/0/0) /1365: 95.2423% :16.0000: 4.0000: 0/64482) 4.4656/4.0595 (2784/2784/0/0/0)/145: 28.0000: 2.0000)
13: 681.8403/678.0343 (365861/365861/0/0/0) /1373: 95.7259% :16.2879: 4.0000: 0/61363) 4.3817/3.9868 (2741/2741/0/0/0)/146: 28.0000: 2.0000)
12: 705.5692/698.9636 (374932/374932/0/0/0) /1401: 98.0984% :16.2840: 4.0000: 0/63237) 4.4025/4.0266 (2762/2762/0/0/0)/150: 28.0000: 2.0000)
11: 675.4573/671.9708 (362085/362085/0/0/0) /1360: 94.7370% :16.2939: 4.0000: 0/60801) 4.3442/3.9585 (2716/2716/0/0/0)/143: 28.0000: 2.0000)
10: 701.9278/699.8399 (374976/374976/0/0/0) /1401: 98.1099% :16.2529: 4.0000: 0/63321) 4.3100/3.9415 (2690/2690/0/0/0)/150: 28.0000: 2.0000)
9: 719.0670/719.8166 (374976/374976/0/0/0) /1401: 98.1099% :16.1440: 4.0000: 0/65116) 4.3063/3.9375 (2676/2676/0/0/0)/149: 28.0000: 2.0000)
8: 694.4692/687.5285 (365618/365618/0/0/0) /1373: 95.6614% :16.1760: 4.0000: 0/62220) 4.2781/3.8886 (2695/2695/0/0/0)/145: 28.0000: 2.0000)
7: 739.5571/736.0008 (374900/374900/0/0/0) /1400: 98.0600% :16.0000: 4.0000: 0/66592) 4.6030/4.2109 (2870/2870/0/0/0)/150: 28.0000: 2.0000)
6: 671.4613/641.4052 (357092/357092/0/0/0) /1347: 93.4307% :16.3003: 4.0000: 0/58042) 4.1056/3.6977 (2569/2569/0/0/0)/138: 28.0000: 2.0000)
5: 665.0267/685.0008 (359386/359386/0/0/0) /1356: 94.0309% :16.2972: 4.0000: 0/61999) 4.3370/3.9473 (2737/2737/0/0/0)/145: 28.0000: 2.0000)
4: 691.4196/690.8752 (364942/364942/0/0/0) /1372: 95.4848% :16.2888: 4.0000: 0/62514) 4.3915/3.9948 (2738/2738/0/0/0)/145: 28.0000: 2.0000)
3: 707.7399/704.0761 (374932/374932/0/0/0) /1401: 98.0984% :16.2796: 4.0000: 0/63701) 4.3602/3.9814 (2722/2722/0/0/0)/146: 28.0000: 2.0000)
2: 729.6496/723.6505 (375173/375173/0/0/0) /1401: 98.1614% :16.1457: 4.0000: 0/65475) 4.5635/4.1749 (2856/2856/0/0/0)/150: 28.0000: 2.0000)
1: 688.1046/687.0508 (360204/360204/0/0/0) /1352: 94.2449% :16.1544: 4.0000: 0/62182) 4.4618/4.0621 (2794/2794/0/0/0)/143: 28.0000: 2.0000)
Start Idx: 86 end Idx: 86

odi: rx 3124 bytes (1 msg) from port 32908 on 192.0.2.1
```

#### 4. Conclusion:

- Security and integrity impacts throughput, need be disabled.
- CPU core assignment issue impact RB dispatch, related core files (CoreAssignment.conf, protStackCfg.sh, dataplane\_env) need be aligned as per latest solution.