

# 组会报告

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## 1 本周工作内容

1. 实现基于 DPDK 传输的 LTE 编码调制仿真系统
2. 实现基于令牌的流量控制模块

## 2 实现基于 DPDK 传输的 LTE 编码调制仿真系统

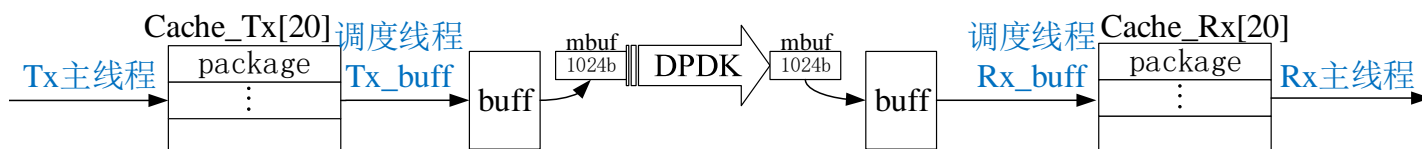


图 1: 分块传输系统

### 2.1 实现过程中的问题

1. 无法接收部分包

```
root@ubuntu: /home/xuyi/dataProcess_send

Port statistics =====
Statistics for port 0 -----
Packets sent:          11
Packets received:      10
Packets dropped:        0
Aggregate statistics =====
Total packets sent:      11
Total packets received:  10
Total packets dropped:    0
=====
root@ubuntu: /home/xuyi/dataProcess_send#
```

图 2: 无法接收部分包



```
root@ubuntu: /home/xuyi/dataProcess_receive
tdec[0]:12407
tdec[1]:0
tdec[2]:0
tdec[3]:0
tdec[4]:0
tdec[5]:0
tdec[6]:0
tdec[7]:0
tdec[8]:0
tdec[9]:0
tdec[10]:0
tdec[11]:0
tdec[12]:0
tdec[13]:0
tdec[14]:0
tdec[15]:0
tdec[16]:0
tdec[17]:0
tdec[18]:0
tdec[19]:0
tdec[20]:0
tdec[21]:0
tdec[22]:0
55,1 0%
```

图 5: 速率匹配错误

```
1 void srslte_rm_turbo_gentables();
```

## 2.2 实现结果

```
root@ubuntu: /home/xuyi/dataProcess_send
Port statistics =====
Statistics for port 0 -----
Packets sent:          10130300
Packets received:      10130299
Packets dropped:        0
Aggregate statistics =====
Total packets sent:     10130300
Total packets received: 10130299
Total packets dropped:  0
=====
root@ubuntu:/home/xuyi/dataProcess_send# make
CC main.o
In file included from /opt/intel/compilers_and_libraries_2018.2.199/linux/mkl/include/mkl.h:41:0,
                 from /home/xuyi/dataProcess_send/main.c:56:
/opt/intel/compilers_and_libraries_2018.2.199/linux/mkl/include/mkl_lapacke.h:16964:1: 警告: 函数声明不是一个原型 [-Wstrict-prototypes]
int LAPACKE_get_nancheck( );
^
In file included from /opt/intel/compilers_and_libraries_2018.2.199/linux/mkl/include/mkl.h:55:0,
                 from /home/xuyi/dataProcess_send/main.c:56:
/opt/intel/compilers_and_libraries_2018.2.199/linux/mkl/include/mkl_dnn.h:44:1: 警告: 函数声明不是一个原型 [-Wstrict-prototypes]
size_t dnnLayoutSerializationBufferSize_F32();
^

root@ubuntu: /home/xuyi/dataProcess_receive
-----Block Error statistics(SNR 15.00)-----
Block error : 1.000000(800/800)
Layer 0 Block error : 1.000000(100/100)
Layer 1 Block error : 1.000000(100/100)
Layer 2 Block error : 1.000000(100/100)
Layer 3 Block error : 1.000000(100/100)
Layer 4 Block error : 1.000000(100/100)
Layer 5 Block error : 1.000000(100/100)
Layer 6 Block error : 1.000000(100/100)
Layer 7 Block error : 1.000000(100/100)
-----Bits Error statistics(SNR 15.00)-----
Bits error : 0.184434(11797897/63968000)
Layer 0 Bits error : 0.115962(927232/7996000)
Layer 1 Bits error : 0.192736(1541120/7996000)
Layer 2 Bits error : 0.125552(1003916/7996000)
Layer 3 Bits error : 0.143960(1151101/7996000)
Layer 4 Bits error : 0.110258(881624/7996000)
Layer 5 Bits error : 0.114719(917294/7996000)
Layer 6 Bits error : 0.261319(2089508/7996000)
Layer 7 Bits error : 0.410968(3286102/7996000)
-----RX : Time statistics-----
Amount of information : 61.0046 Mbit
RX time : 17.2007 s
Throughput : 3.5466 Mbps
Package Count:5601
```

图 6: 接收端服务器显示

### 3 实现基于令牌的流量控制模块

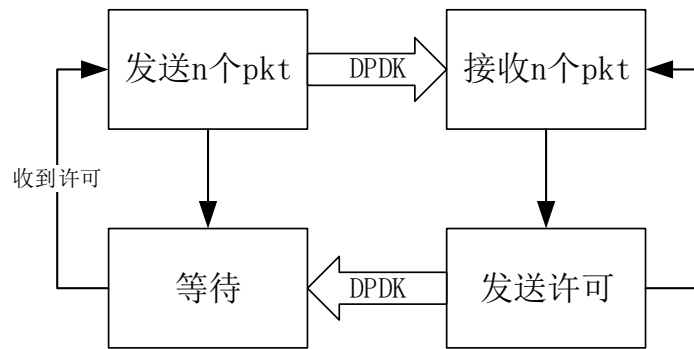


图 7: 原流量控制系统

表 1: 不同  $n$  下的  $R_X$  吞吐量

n	Throughput
原系统	8.8613Mbps
1	3.5951Mbps
2	4.2897Mbps
4	5.0046Mbps
8	5.8333Mbps
16	6.3745Mbps
32	7.1228Mbps

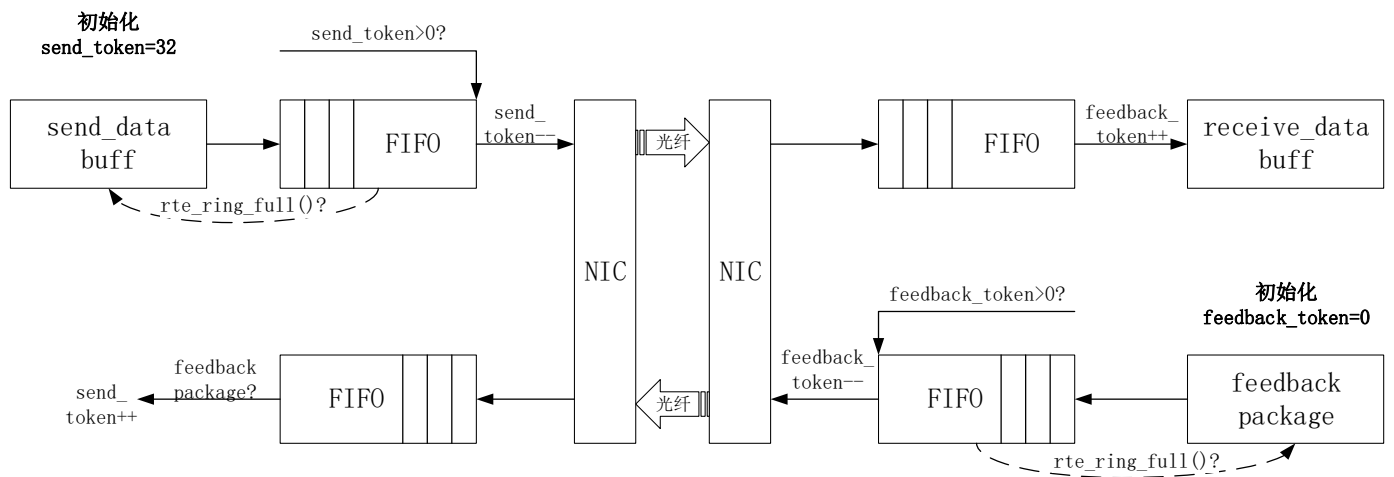


图 8: 基于令牌的流量控制系统

## 4 仍存在的问题

### 1. 内存溢出和丢包问题

```
root@ubuntu: /home/xuyi/dataProcess_receive

Port statistics =====
Statistics for port 0 -----
Packets sent:                214
Packets received:            54672
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          214
Total packets received:      54672
Total packets dropped:       0
=====
57
send_rate= 0.000031 Gb
receive_rate= 0.007857 Gb
CNT:32,tx_write:0,tx_read:0,rx_write:12,rx_read:11
      start_tx:0,ready_tx:0,start_rx:1,ready_rx:1,empty:1
Segmentation fault (core dumped)
root@ubuntu: /home/xuyi/dataProcess_receive#
```

图 9: 内存溢出报错

```
root@ubuntu: /home/xuyi/dataProcess_send
Port statistics =====
Statistics for port 0 -----
Packets sent:                25503
Packets received:            25502
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          25503
Total packets received:      25502
Total packets dropped:       0
=====
root@ubuntu: /home/xuyi/dataProcess_send#

root@ubuntu: /home/xuyi/dataProcess_receive
Port statistics =====
Statistics for port 0 -----
Packets sent:                25503
Packets received:            25503
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          25503
Total packets received:      25503
Total packets dropped:       0
=====
root@ubuntu: /home/xuyi/dataProcess_receive#
```

图 10: 丢包错误

### 2. 拷贝过程的简化

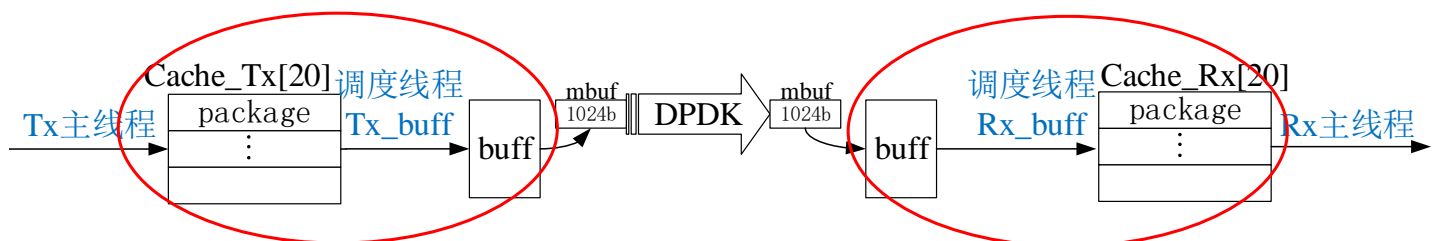


图 11: 分块传输系统

## 5 下周计划

1. 解决内存溢出错误
2. 实现拷贝过程的简化
3. 期末复习