

ANS Performance Report

LIST

1.	ANS Routing Forwarding With NIC Performance	4
1.1.	Testing Environment.....	4
1.2.	Testing Report	4
1.2.1.	ANS (1 core) routing forward one way	4
1.2.2.	ANS (1 core) routing forward one way with 1000 route	5
1.2.3.	ANS (1 core) routing forward both way.....	6
1.2.4.	ANS (2 core) routing forward both way.....	7
1.2.5.	ANS (1 core) routing forward one way with 1000 ACL.....	8
1.2.6.	ANS (2 core) routing forward both way with 1000 ACL	9
2.	ANS Routing Forwarding With Vhost/Virtio Performance	11
2.1.	Testing Environment.....	11
2.2.	Testing Report	12
2.2.1.	ANS (1 core) routing forward one way	12
2.2.2.	ANS (2 core) routing forward one way	14
3.	ANS UDP APP Performance	16
3.1.	Testing Environment.....	16
3.2.	Testing Report	17
3.2.1.	ANS (1 core) UDP APP send throughput	17

1. ANS Routing Forwarding With NIC

Performance

1.1. Testing Environment

➤ CPU

Intel(R) Xeon(R) CPU E5-2683 v3 @ 2.00GHz

➤ NIC

02:00.0 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)

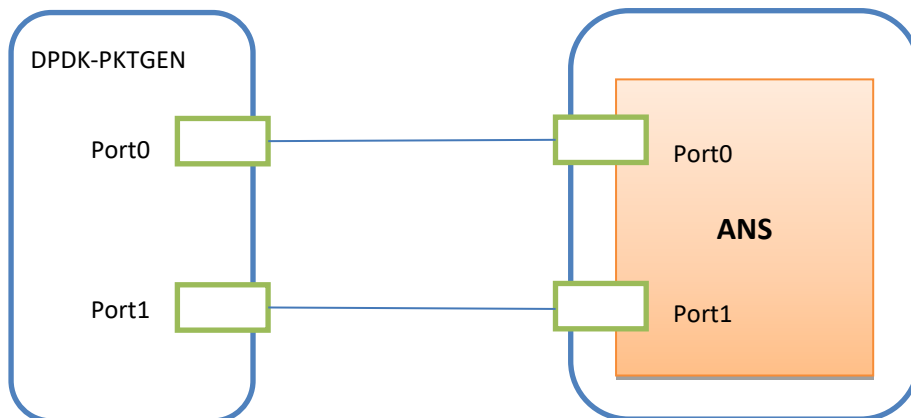
02:00.1 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)

➤ Version

dpdk-17.05.2.tar.xz

Pktgen Ver: 3.4.2 (DPDK 17.05.2)

➤ Network Topology



1.2. Testing Report

1.2.1. ANS (1 core) routing forward one way

Pktgen port 0 -> ans routing forward (1 core)-> pktgen port 1

➤ ANS startup command

```
# ./build/ans -c 0x2 -n 1 --base-virtaddr=0x2aaa2aa0000 --p 0x3 --config="(0,0,1), (1,0,1)"
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	11.78
128	Line Rate

```
\ Ports 0-3 of 5 <Main Page> Copyright (c) <2010-2017>, Intel
Flags:Port      : P-----I---g---:0 P-----I---g---:1
Link State      : <UP-10000-FD> <UP-10000-FD>
Pkts/s Max/Rx   : 0/0 11784571/11784404
                Max/Tx   : 14880872/14880855 1/0
Mbits/s Rx/Tx   : 0/9999 7919/0
Broadcast       : 0 0
Multicast       : 0 0
 64 Bytes       : 0 224795524
 65-127         : 0 0
128-255         : 0 0
256-511         : 0 0
512-1023        : 0 0
1024-1518       : 0 0
Runts/Jumbos    : 0/0 0/0
Errors Rx/Tx    : 0/0 0/0
Total Rx Pkts   : 0 215956828
  Tx Pkts       : 272637982 1
  Rx MBs        : 0 145122
  Tx MBs        : 183212 0
ARP/ICMP Pkts   : 0/0 5/0
Pattern Type    : abcd... abcd...
Tx Count/% Rate : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dst Port    : 1234 / 5678 1234 / 5678
Pkt Type:VLAN ID : IPv4 / TCP:0001 IPv4 / TCP:0001
Dst IP Address   : 10.1.0.10 10.0.0.10
Src IP Address   : 10.0.0.10/24 10.1.0.10/24
Dst MAC Address  : 90:e2:ba:92:cc:0c 90:e2:ba:92:cc:0e
Src MAC Address  : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr  : 8086:10fb/01:00.0 8086:10fb/01:00.1
```

1.2.2. ANS (1 core) routing forward one way with 1000 route

Pktgen port 0 -> ans routing forward (1 core)-> pktgen port 1

➤ ANS startup command

```
# ./build/ans -c 0x2 -n 1 --base-virtaddr=0x2aaa2aa0000 --p 0x3 --config="(0,0,1), (1,0,1)"
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	11.80
128	Line Rate

```

/ Ports 0-3 of 5    <Main Page> Copyright (c) <2010-2017>, Intel
Flags:Port         : P-----I---g---:0   P-----I---g---:1
Link State          : <UP-10000-FD>        <UP-10000-FD>
Pkts/s Max/Rx       : 0/0                  11801104/11800607
      Max/Tx         : 14881081/14880895      0/0
MBits/s Rx/Tx       : 0/9999                7930/0
Broadcast           : 0                    0
Multicast           : 0                    0
  64 Bytes          : 0                    236986066
  65-127            : 0                    0
  128-255           : 0                    0
  256-511           : 0                    0
  512-1023          : 0                    0
  1024-1518         : 0                    0
Runts/Jumbos        : 0/0                  0/0
Errors Rx/Tx        : 0/0                  0/0
Total Rx Pkts       : 0                    225188851
      Tx Pkts        : 283899445            0
      Rx MBs         : 0                    151326
      Tx MBs         : 190780              0
ARP/ICMP Pkts       : 0/0                  0/0
:
Pattern Type        : abcd...              abcd...
Tx Count/% Rate     : Forever /100%        Forever /100%
PktSize/Tx Burst    : 64 / 64              64 / 64
Src/Dst Port        : 1234 / 5678           1234 / 5678
Pkt Type:VLAN ID    : IPv4 / TCP:0001      IPv4 / TCP:0001
Dst IP Address      : 10.1.0.10            10.0.0.10
Src IP Address      : 10.0.0.10/24         10.1.0.10/24
Dst MAC Address     : 90:e2:ba:92:cc:0c    90:e2:ba:92:cc:0e
Src MAC Address     : 00:16:31:fb:00:58    00:16:31:fb:00:59
VendID/PCI Addr     : 8086:10fb/01:00.0    8086:10fb/01:00.1

```

1.2.3. ANS (1 core) routing forward both way

Pktgen port 0 <-> ans routing forward (1 core) <-> pktgen port 1

➤ ANS startup command

```
# ./build/ans -c 0x2 -n 1 -base-virtaddr=0x2aaa2aa0000 -- -p 0x3 -config="(0,0,1), (1,0,1)"
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	11.38
128	Line Rate

```

| Ports 0-3 of 5  <Main Page> Copyright (c) <2010-2017>, Intel
Flags:Port       : P-----I---g---:0   P-----I---g---:1
Link State       : <UP-10000-FD>         <UP-10000-FD>
Pkts/s Max/Rx    : 5689184/5688992       5771792/5688992
                  Max/Tx      : 14880888/14880845 14881042/14880831
Mbits/s Rx/Tx    : 3823/9999             3823/9999
Broadcast        : 0                     0
Multicast        : 0                     0
 64 Bytes        : 86182411              92012731
 65-127          : 0                     0
128-255          : 0                     0
256-511          : 0                     0
512-1023         : 0                     0
1024-1518        : 0                     0
Runts/Jumbos     : 0/0                   0/0
Errors Rx/Tx     : 0/0                   0/0
Total Rx Pkts    : 84760043              90590308
  Tx Pkts        : 231283812              234728106
  Rx MBs         : 56958                  60876
  Tx MBs         : 155422                 157737
ARP/ICMP Pkts    : 10/0                  0/0
:
Pattern Type     : abcd...                abcd...
Tx Count/% Rate  : Forever /100%          Forever /100%
PktSize/Tx Burst : 64 / 64                64 / 64
Src/Dst Port     : 1234 / 5678              1234 / 5678
Pkt Type:VLAN ID : IPv4 / TCP:0001         IPv4 / TCP:0001
Dst IP Address   : 10.1.0.10               10.0.0.10
Src IP Address   : 10.0.0.10/24            10.1.0.10/24
Dst MAC Address  : 90:e2:ba:92:cc:0c       90:e2:ba:92:cc:0e
Src MAC Address  : 00:16:31:fb:00:58       00:16:31:fb:00:59
VendID/PCI Addr  : 8086:10fb/01:00.0       8086:10fb/01:00.1

```

1.2.4. ANS (2 core) routing forward both way

Pktgen port 0 <-> ans routing forward (2 core) <-> pktgen port 1

➤ ANS startup command

```
#./build/ans -c 0x6 -n 1 -base-virtaddr=0x2aaa2aa0000 -- -p 0x3 -config="(0,0,1), (1,0,2)"
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	20.71
128	Line Rate

```

- Ports 0-3 of 5  <Main Page> Copyright (c) <2010-2017>, Intel Corporation
  Flags:Port      : P-----I---g---:0 P-----I---g---:1
Link State       : <UP-10000-FD> <UP-10000-FD> ----TotalRate----
Pkts/s Max/Rx   : 10356124/10355876 10356136/10355856 20712260/20711732
                  Max/Tx           : 14880927/14880870 14880939/14880858 29761866/29761728
MBits/s Rx/Tx   : 6959/9999 6959/9999 13918/19999
Broadcast       : 0 0
Multicast       : 0 0
  64 Bytes      : 828449435 828450948
  65-127        : 0 0
  128-255       : 0 0
  256-511       : 0 0
  512-1023      : 0 0
  1024-1518     : 0 0
Runts/Jumbos    : 0/0 0/0
Errors Rx/Tx    : 0/0 0/0
Total Rx Pkts   : 819388023 819389544
  Tx Pkts       : 1189461185 1189130630
  Rx MBs        : 550628 550629
  Tx MBs        : 799317 799095
ARP/ICMP Pkts   : 13/0 17/0
:
Pattern Type    : abcd... abcd...
Tx Count/% Rate : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dst Port    : 1234 / 5678 1234 / 5678
Pkt Type:VLAN ID : IPv4 / TCP:0001 IPv4 / TCP:0001
Dst IP Address  : 10.1.0.10 10.0.0.10
Src IP Address  : 10.0.0.10/24 10.1.0.10/24
Dst MAC Address : 90:e2:ba:92:cc:0c 90:e2:ba:92:cc:0e
Src MAC Address : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr : 8086:10fb/01:00.0 8086:10fb/01:00.1

-- Pktgen Ver: 3.4.2 (DPDK 17.05.2) Powered by DPDK -----

```

1.2.5. ANS (1 core) routing forward one way with 1000 ACL

Pktgen port 0 -> ans routing forward (1 core)-> pktgen port 1

➤ ANS startup command

```
# ./build/ans -c 0x2 -n 1 --base-virtaddr=0x2aaa2aa0000 -- -p 0x3 --config="(0,0,1), (1,0,1)"
```

```
ans> acl add index 1 srcaddr 2.0.0.0/24 dstaddr 3.0.0.0/24 srcportstart 0 srcportend 65535
dstportstart 1 dstportend 1 protocol 0 iface any drop
```

....

```
ans> acl add index 1000 srcaddr 2.0.0.0/24 dstaddr 3.0.0.0/24 srcportstart 0 srcportend 65535
dstportstart 1000 dstportend 1000 protocol 0 iface any drop
```


➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	8.43
128	Line Rate

=====64 byte =====

- Ports 0-3 of 5	<Main Page>	Copyright (c) <2010-2017>, Intel
Flags:Port	: P-----I---g---:0	P-----I---g---:1
Link State	: <UP-10000-FD>	<UP-10000-FD>
Pkts/s Max/Rx	: 0/0	8431616/8430312
Max/Tx	: 14880866/14880845	5/0
MBits/s Rx/Tx	: 0/9999	5665/0
Broadcast	: 0	0
Multicast	: 0	0
64 Bytes	: 0	211307305
65-127	: 0	0
128-255	: 0	0
256-511	: 0	0
512-1023	: 0	0
1024-1518	: 0	0
Runts/Jumbos	: 0/0	0/0
Errors Rx/Tx	: 0/0	0/0
Total Rx Pkts	: 0	207092063
Tx Pkts	: 365436172	5
Rx MBs	: 0	139165
Tx MBs	: 245573	0
ARP/ICMP Pkts	: 0/0	5/0
Pattern Type	: abcd...	abcd...
Tx Count/% Rate	: Forever /100%	Forever /100%
PktSize/Tx Burst	: 64 / 64	64 / 64
Src/Dst Port	: 1234 / 5678	1234 / 5678
Pkt Type:VLAN ID	: IPv4 / TCP:0001	IPv4 / TCP:0001
Dst IP Address	: 10.1.0.10	10.0.0.10
Src IP Address	: 10.0.0.10/24	10.1.0.10/24
Dst MAC Address	: 90:e2:ba:92:cc:0c	90:e2:ba:92:cc:0e
Src MAC Address	: 00:16:31:fb:00:58	00:16:31:fb:00:59
VendID/PCI Addr	: 8086:10fb/01:00.0	8086:10fb/01:00.1

1.2.6. ANS (2 core) routing forward both way with 1000 ACL

Pktgen port 0 <-> ans routing forward (2 core) <-> pktgen port 1

➤ ANS startup command

```
#./build/ans -c 0x6 -n 1 -base-virtaddr=0x2aaa2aa0000 -- -p 0x3 -config="(0,0,1), (1,0,2)"
```

```
ans> acl add index 1 srcaddr 2.0.0.0/24 dstaddr 3.0.0.0/24 srcportstart 0 srcportend 65535
dstportstart 1 dstportend 1 protocol 0 iface any drop
```

....

```
ans> acl add index 1000 srcaddr 2.0.0.0/24 dstaddr 3.0.0.0/24 srcportstart 0 srcportend 65535
dstportstart 1000 dstportend 1000 protocol 0 iface any drop
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	16.95
128	28.14
256	Line Rate

=====64 byte =====

```
/ Ports 0-3 of 5 <Main Page> Copyright (c) <2010-2017>, Int
Flags:Port      : P-----I---g---:0 P-----I---g---:1
Link State      : <UP-10000-FD> <UP-10000-FD>
Pkts/s Max/Rx   : 8461791/8456307 8495685/8492832
Max/Tx         : 14880911/14880816 14880928/14880834
Mbits/s Rx/Tx   : 5682/9999 5707/9999
Broadcast       : 0 0
Multicast       : 0 0
64 Bytes       : 177457584 178198296
65-127         : 0 0
128-255        : 0 0
256-511        : 0 0
512-1023       : 0 0
1024-1518      : 0 0
Runts/Jumbos    : 0/0 0/0
Errors Rx/Tx    : 0/0 0/0
Total Rx Pkts   : 173230418 173952863
Tx Pkts         : 304606307 304528961
Rx MBs          : 116410 116896
Tx MBs          : 204695 204643
ARP/ICMP Pkts   : 0/0 0/0
Pattern Type    : abcd... abcd...
Tx Count/% Rate : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dest Port   : 1234 / 5678 1234 / 5678
Pkt Type:VLAN ID : IPv4 / TCP:0001 IPv4 / TCP:0001
Dst IP Address  : 10.1.0.10 10.0.0.10
Src IP Address  : 10.0.0.10/24 10.1.0.10/24
Dst MAC Address  : 90:e2:ba:92:cc:0c 90:e2:ba:92:cc:0e
Src MAC Address  : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr : 8086:10fb/01:00.0 8086:10fb/01:00.1
```

=====128 byte =====

```

- Ports 0-3 of 5 <Main Page> Copyright (c) <2010-2017>, Intel Corporation
  Flags:Port      : P-----I---g---:0 P-----I---g---:1
Link State       : <UP-10000-FD> <UP-10000-FD> ----TotalRate----
Pkts/s Max/Rx    : 7986284/7985756 7985992/7985780 15971936/15971536
  Max/Tx         : 8445927/8445927 8445923/8445916 16891843/16891843
MBits/s Rx/Tx    : 9455/9999 9455/9999 18910/19999
Broadcast        : 0 0
Multicast        : 0 0
  64 Bytes       : 0 0
  65-127         : 0 0
  128-255        : 191783796 191820879
  256-511        : 0 0
  512-1023       : 0 0
  1024-1518      : 0 0
Runts/Jumbos     : 0/0 0/0
Errors Rx/Tx     : 0/0 0/0
Total Rx Pkts    : 184795984 184833095
  Tx Pkts        : 195468872 195424285
  Rx MBs         : 218798 218842
  Tx MBs         : 231435 231382
ARP/ICMP Pkts   : 0/0 0/0
Pattern Type     : abcd... abcd...
Tx Count/% Rate  : Forever /100% Forever /100%
PktSize/Tx Burst : 128 / 64 128 / 64
Src/Dest Port    : 1234 / 5678 1234 / 5678
Pkt Type:VLAN ID : IPv4 / TCP:0001 IPv4 / TCP:0001
Dst IP Address   : 10.1.0.10 10.0.0.10
Src IP Address   : 10.0.0.10/24 10.1.0.10/24
Dst MAC Address  : 90:e2:ba:92:cc:0c 90:e2:ba:92:cc:0e
Src MAC Address  : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr  : 8086:10fb/01:00.0 8086:10fb/01:00.1

```

2. ANS Routing Forwarding With Vhost/Virtio Performance

2.1. Testing Environment

➤ CPU

Intel(R) Xeon(R) CPU E5-2618L v4 @ 2.20GHz

➤ Vhost/virtio

net_vhost

net_virtio_user

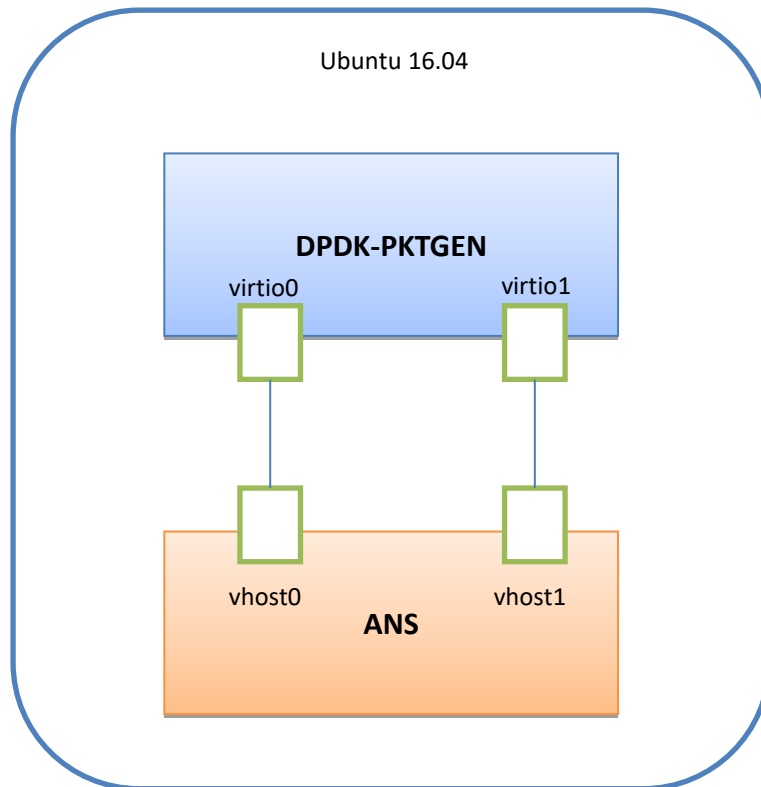
➤ Version

Copyright(c) 2017 Ansyun <anssupport@163.com>. All rights reserved.

dpdk-17.11.4.tar.xz

Pktgen Ver: 3.4.8 (DPDK 17.11.4)

➤ Network Topology



2.2. Testing Report

2.2.1. ANS (1 core) routing forward one way

Pktgen port 0 -> ans routing forward (1 core)-> pktgen port 1

➤ ANS startup command

```
# ./build/ans -l 11 -n 1 --socket-mem 1024,1024 --vdev
'eth_vhost0,iface=/tmp/sock0,queues=1' --vdev 'eth_vhost1,iface=/tmp/sock1,queues=1'
--file-prefix=host --no-pci -- -p 0x3 --config="(0,0,11), (1,0,11)"
```

➤ pktgen startup command

```
#./app/x86_64-native-linuxapp-gcc/pktgen -l 12-14 -n 1 --socket-mem 1024,1024 --vdev
'virtio_user0,path=/tmp/sock0,queues=1' --vdev 'virtio_user1,path=/tmp/sock1,queues=1'
--file-prefix=user --no-pci -- -P -m "[13].0, [14].1" --crc-strip
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	6.33

128	5.94
256	Line Rate

=== 64 字节

```
| Ports 0-1 of 2  <Main Page>  Copyright (c) <2010-2017>, In
  Flags:Port      :  P-----I---g---:0  P-----I---g---:1
Link State       :      <UP-10000-FD>      <UP-10000-FD>
Pkts/s Max/Rx   :              0/0        6352160/6329856
      Max/Tx     :      6352192/6329824        5/0
MBits/s Rx/Tx   :              0/4253        4253/0
Broadcast       :              0            0
Multicast       :              0            0
  64 Bytes      :              0        447873344
  65-127        :              0            0
  128-255       :              0            0
  256-511       :              0            0
  512-1023      :              0            0
  1024-1518     :              0            0
Runts/Jumbos    :              0/0        5/0
Errors Rx/Tx    :              0/0        0/0
Total Rx Pkts   :              0        443925477
      Tx Pkts    :      445595776        5
      Rx MBs     :              0        298317
      Tx MBs     :      299440        0
ARP/ICMP Pkts   :              0/0        5/0
:
Pattern Type    :              abcd...        abcd...
Tx Count/% Rate :      Forever /100%      Forever /100%
PktSize/Tx Burst :      64 / 64        64 / 64
Src/Dest Port   :      1234 / 5678        1234 / 5678
Pkt Type:VLAN ID :      IPv4 / TCP:0001      IPv4 / TCP:0001
802.1p CoS     :              0            0
ToS Value:     :              0            0
  - DSCP value  :              0            0
  - IPP  value  :              0            0
Dst IP Address  :      10.1.0.10        10.0.0.10
Src IP Address  :      10.0.0.10/24      10.1.0.10/24
Dst MAC Address :      56:48:4f:53:54:00  56:48:4f:53:54:01
Src MAC Address :      6e:ba:57:2f:4a:69  1e:d6:9e:39:46:e9
VendID/PCI Addr :      0000:0000/00:00.0  0000:0000/00:00.0

-- Pktgen Ver: 3.4.8 (DPDK 17.11.4)  Powered by DPDK -----
```

=== 128 bytes

```

\ Ports 0-1 of 2  <Main Page>  Copyright (c) <2010-2017>, Ir
  Flags:Port      :  P-----I---g---:0      P-----I---g---:1
Link State       :      <UP-10000-FD>      <UP-10000-FD>
Pkts/s Max/Rx    :              0/0      5943296/5943296
      Max/Tx      :      5943264/5943264      0/0
MBits/s Rx/Tx    :              0/7036      7036/0
Broadcast        :              0          0
Multicast        :              0          0
  64 Bytes       :              0          0
  65-127         :              0          0
  128-255        :              0      373179456
  256-511        :              0          0
  512-1023       :              0          0
  1024-1518      :              0          0
Runts/Jumbos     :              0/0      0/0
Errors Rx/Tx     :              0/0      0/0
Total Rx Pkts    :              0      372441344
      Tx Pkts     :      372441600          0
      Rx MBs      :              0      440970
      Tx MBs      :      440970          0
ARP/ICMP Pkts    :              0/0      0/0
:
Pattern Type     :              abcd...      abcd...
Tx Count/% Rate  :      Forever /100%      Forever /100%
PktSize/Tx Burst :      128 / 64      128 / 64
Src/Dest Port    :      1234 / 5678      1234 / 5678
Pkt Type:VLAN ID :      IPv4 / TCP:0001      IPv4 / TCP:0001
802.1p CoS       :              0          0
ToS Value:       :              0          0
  - DSCP value    :              0          0
  - IPP  value    :              0          0
Dst IP Address   :      10.1.0.10      10.0.0.10
Src IP Address   :      10.0.0.10/24      10.1.0.10/24
Dst MAC Address  :      56:48:4f:53:54:00  56:48:4f:53:54:01
Src MAC Address  :      6e:ba:57:2f:4a:69  1e:d6:9e:39:46:e9
VendID/PCI Addr  :      0000:0000/00:00.0  0000:0000/00:00.0

-- Pktgen Ver: 3.4.8 (DPDK 17.11.4)  Powered by DPDK -----

```

2.2.2. ANS (2 core) routing forward one way

Pktgen virtio 0 -> ans routing forward (2 core)-> pktgen virtio 1

➤ ANS startup command

```

# ./build/ans -l 11-12 -n 1 --socket-mem 1024,1024 --vdev
'eth_vhost0,iface=/tmp/sock0,queues=2' --vdev 'eth_vhost1,iface=/tmp/sock1,queues=2'
--file-prefix=host --no-pci -- -p 0x3 --config="(0,0,11),(0,1,12),(1,0,11),(1,1,12)"

```

➤ pktgen startup command

```
# ./app/x86_64-native-linuxapp-gcc/pktgen -l 13-15 -n 1 --socket-mem 1024,1024 --vdev
'virtio_user0,path=/tmp/sock0,queues=2' --vdev 'virtio_user1,path=/tmp/sock1,queues=2'
--file-prefix=user --no-pci -- -P -m "[14-15:14-15].0, [14-15:14-15].1" --crc-strip
```

➤ Testing result

Packet Size (Bytes)	Throughput (Mpps)
64	12.61
128	8.39
256	Line Rate

=== 64 bytes

```
| Ports 0-1 of 2 <Main Page> Copyright (c) <2010-2017>, Intel Corporation
  Flags:Port      : P-----I---g---:0 P-----I---g---:1
Link State       : <UP-10000-FD> <UP-10000-FD> -----TotalRate-----
Pkts/s Max/Rx    : 0/0 12768640/12605696 12768640/12605696
  Max/Tx         : 12768576/12605632 1/0 12768576/12605632
MBits/s Rx/Tx    : 0/8471 8471/0 8471/8471
Broadcast        : 0 0
Multicast        : 0 0
  64 Bytes       : 0 29123511960
  65-127         : 0 0
  128-255        : 0 0
  256-511        : 0 0
  512-1023       : 0 0
  1024-1518      : 0 0
Runts/Jumbos     : 0/0 3/0
Errors Rx/Tx     : 0/0 0/0
Total Rx Pkts    : 0 31243273507
  Tx Pkts        : 31243273792 2
  Rx MBs         : 0 20995479
  Tx MBs         : 20995479 0
ARP/ICMP Pkts    : 0/0 3/0
Pattern Type     : abcd... abcd...
Tx Count/% Rate  : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dest Port    : 1234 / 5678 1234 / 5678
Pkt Type:VLAN ID : IPv4 / TCP:0001 IPv4 / TCP:0001
802.1p CoS       : 0 0
ToS Value:       : 0 0
  - DSCP value    : 0 0
  - IPP value     : 0 0
Dst IP Address   : 10.1.0.10 10.0.0.10
Src IP Address   : 10.0.0.10/24 10.1.0.10/24
Dst MAC Address  : 56:48:4f:53:54:00 56:48:4f:53:54:01
Src MAC Address  : 4e:8d:0e:0b:aa:3b fe:13:d8:0f:a6:f2
VendID/PCI Addr  : 0000:0000/00:00.0 0000:0000/00:00.0

-- Pktgen Ver: 3.4.8 (DPDK 17.11.4) Powered by DPDK -----
```

==== 128 bytes

```
| Ports 0-1 of 2  <Main Page>  Copyright (c) <2010-2017>, Intel
  Flags:Port      :   P-----I---g---:0   P-----I---g---:1
Link State       :           <UP-10000-FD>           <UP-10000-FD>
Pkts/s Max/Rx   :                   0/0           8448864/8394208
      Max/Tx     :           8448896/8394112           0/0
MBits/s Rx/Tx   :                   0/9938           9938/0
Broadcast       :                   0                   0
Multicast       :                   0                   0
  64 Bytes      :                   0                   0
  65-127        :                   0                   0
  128-255       :                   0           584155227
  256-511       :                   0                   0
  512-1023      :                   0                   0
  1024-1518     :                   0                   0
Runts/Jumbos    :                   0/0           0/0
Errors Rx/Tx    :                   0/0           0/0
Total Rx Pkts   :                   0           603921504
      Tx Pkts    :           603921536           0
      Rx MBs     :                   0           715043
      Tx MBs     :           715043           0
ARP/ICMP Pkts   :                   0/0           0/0
:
Pattern Type    :                   abcd...           abcd...
Tx Count/% Rate :           Forever /100%           Forever /100%
PktSize/Tx Burst :           128 /   64           128 /   64
Src/Dest Port   :           1234 / 5678           1234 / 5678
Pkt Type:VLAN ID :           IPv4 / TCP:0001           IPv4 / TCP:0001
802.1p CoS      :                   0                   0
ToS Value:      :                   0                   0
  - DSCP value   :                   0                   0
  - IPP  value   :                   0                   0
Dst IP Address  :           10.1.0.10           10.0.0.10
Src IP Address  :           10.0.0.10/24           10.1.0.10/24
Dst MAC Address :           56:48:4f:53:54:00           56:48:4f:53:54:01
Src MAC Address :           4e:8d:0e:0b:aa:3b           fe:13:d8:0f:a6:f2
VendID/PCI Addr :           0000:0000/00:00.0           0000:0000/00:00.0

-- Pktgen Ver: 3.4.8 (DPDK 17.11.4)  Powered by DPDK -----
```

3. ANS UDP APP Performance

3.1. Testing Environment

➤ CPU

Intel(R) Xeon(R) CPU E5-2683 v3 @ 2.00GHz

➤ NIC

02:00.0 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)

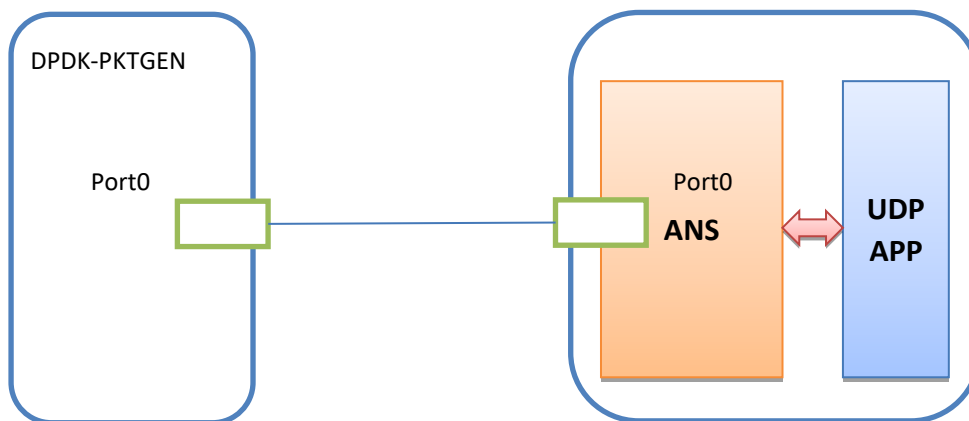
02:00.1 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)

➤ Version

dpdk-17.05.2.tar.xz

Pktgen Ver: 3.4.2 (DPDK 17.05.2)

➤ Network Topology



3.2. Testing Report

3.2.1. ANS (1 core) UDP APP send throughput

ans udp app(1 fd) -> ans L4/L3/L2(1 core)-> pktgen port 0

➤ ANS startup command

```
# ./build/ans -c 0x2 -n 1 --base-virtaddr=0x2aaa2aa0000 -- -p 0x3 --config="(0,0,1), (1,0,1)"
```

```
# ./build/dpdk_udp 4
```

➤ Testing result

Packet Size (Bytes)	Throughput (MBps)
64	3664
128	5971
256	10000

===64 bytes

```

\ Ports 0-3 of 5  <Main Page> Copyright (c) <2010-2017>, Intel Corporation
Flags:Port       : P-----I---g---:0 P-----:1
Link State       : <UP-10000-FD> <UP-10000-FD> ----TotalRate----
Pkts/s Max/Rx   : 5210681/5205704 0/0 5210681/5205704
Max/Tx          : 0/0 0/0 0/0
Mbits/s Rx/Tx   : 3664/0 0/0 3664/0
Broadcast       : 0 0
Multicast       : 0 0
  64 Bytes      : 0 0
  65-127        : 25823518 0
  128-255       : 0 0
  256-511       : 0 0
  512-1023      : 0 0
  1024-1518     : 0 0
Runts/Jumbos    : 0/0 0/0
Errors Rx/Tx    : 0/0 0/0
Total Rx Pkts   : 23869570 0
Tx Pkts        : 0 0
Rx MBs         : 16804 0
Tx MBs         : 0 0
ARP/ICMP Pkts  : 0/0 0/0
Pattern Type    : abcd... abcd...
Tx Count/% Rate : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dest Port   : 9999 / 8888 1234 / 5678
Pkt Type:VLAN ID : IPv4 / UDP:0001 IPv4 / TCP:0001
Dst IP Address  : 10.0.0.2 192.168.0.1
Src IP Address  : 10.0.0.10/24 192.168.1.1/24
Dst MAC Address : 90:e2:ba:92:cc:0c 00:16:31:fb:00:58
Src MAC Address : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr : 8086:10fb/01:00.0 8086:10fb/01:00.1
-- Pktgen Ver: 3.4.2 (DPDK 17.05.2) Powered by DPDK -----

```

=== 128 byte

```

/ Ports 0-3 of 5 <Main Page> Copyright (c) <2010-2017>, Intel Corporation
Flags:Port      : P-----I---g---:0 P-----:1
Link State      : <UP-10000-FD> <UP-10000-FD> ----TotalRate----
Pkts/s Max/Rx   : 4920384/4910858 0/0 4920384/4910858
Max/Tx          : 0/0 0/0 0/0
Mbits/s Rx/Tx   : 5971/0 0/0 5971/0
Broadcast       : 0 0
Multicast       : 0 0
64 Bytes        : 0 0
65-127          : 0 0
128-255         : 193424100 0
256-511         : 0 0
512-1023        : 0 0
1024-1518       : 0 0
Runts/Jumbos    : 0/0 0/0
Errors Rx/Tx    : 0/0 0/0
Total Rx Pkts   : 192808306 0
Tx Pkts         : 0 0
Rx MBs          : 234454 0
Tx MBs          : 0 0
ARP/ICMP Pkts   : 0/0 0/0
Pattern Type    : abcd... abcd...
Tx Count/% Rate : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dest Port   : 9999 / 8888 1234 / 5678
Pkt Type:VLAN ID : IPv4 / UDP:0001 IPv4 / TCP:0001
Dst IP Address  : 10.0.0.2 192.168.0.1
Src IP Address  : 10.0.0.10/24 192.168.1.1/24
Dst MAC Address : 90:e2:ba:92:cc:0c 00:16:31:fb:00:58
Src MAC Address : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr : 8086:10fb/01:00.0 8086:10fb/01:00.1

-- Pktgen Ver: 3.4.2 (DPDK 17.05.2) Powered by DPDK -----

```

=== 256 byte

```

| Ports 0-3 of 5  <Main Page> Copyright (c) <2010-2017>, Intel Corporation
  Flags:Port      : P-----I---g---:0 P-----:1
Link State       : <UP-10000-FD> <UP-10000-FD> ----TotalRate----
Pkts/s Max/Rx   : 4464334/4464332 0/0 4464334/4464332
  Max/Tx        : 0/0 0/0 0/0
MBits/s Rx/Tx   : 10000/0 0/0 10000/0
Broadcast       : 0 0
Multicast       : 0 0
  64 Bytes      : 0 0
  65-127        : 0 0
  128-255       : 0 0
  256-511       : 173572751 0
  512-1023      : 0 0
  1024-1518     : 0 0
Runts/Jumbos    : 0/0 0/0
Errors Rx/Tx    : 0/0 0/0
Total Rx Pkts   : 169666154 0
  Tx Pkts       : 0 0
  Rx MBs        : 380052 0
  Tx MBs        : 0 0
ARP/ICMP Pkts   : 0/0 0/0
:
Pattern Type    : abcd... abcd...
Tx Count/% Rate : Forever /100% Forever /100%
PktSize/Tx Burst : 64 / 64 64 / 64
Src/Dest Port   : 9999 / 8888 1234 / 5678
Pkt Type:VLAN ID : IPv4 / UDP:0001 IPv4 / TCP:0001
Dst IP Address  : 10.0.0.2 192.168.0.1
Src IP Address  : 10.0.0.10/24 192.168.1.1/24
Dst MAC Address : 90:e2:ba:92:cc:0c 00:16:31:fb:00:58
Src MAC Address : 00:16:31:fb:00:58 00:16:31:fb:00:59
VendID/PCI Addr : 8086:10fb/01:00.0 8086:10fb/01:00.1

-- Pktgen Ver: 3.4.2 (DPDK 17.05.2) Powered by DPDK -----

```