ANS Performance Report

LIST

1. Routing Forwarding 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)
```
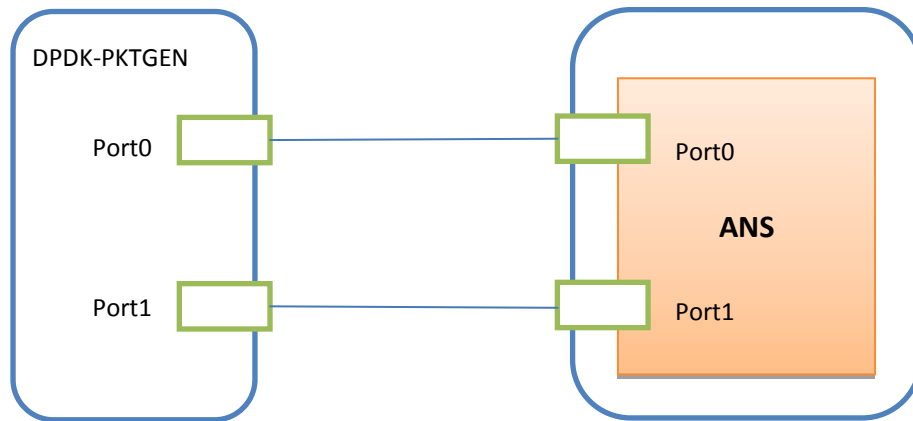

➢ Version

`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	8.27
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      :          4646758/0      8281945/8272868     8281945/8272868
       Max/Tx      :    14881176/14880873    14880946/0      29761844/14880873
MBits/s Rx/Tx      :              0/9999              5559/0            5559/9999
Broadcast          :                  0                   0
Multicast          :                  0                   0
   64 Bytes        :         1719209386         12576441085
   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      :         1719209386         12574372177
      Tx Pkts      :        29339205528          8753857297
      Rx MBs       :            1155308             8449978
      Tx MBs       :           19715946             5882592
ARP/ICMP Pkts      :              15/0                20/0
                   :
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

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

1.2.2. 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	8.15
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       :     4076914/4075049     4076925/4075042       8153839/8150091
      Max/Tx        :   14880923/14880860   14880966/14880877     29761889/29761737
MBits/s Rx/Tx       :           2738/9999           2738/9999           5476/19999
Broadcast           :                   0                   0
Multicast           :                   0                   0
   64 Bytes         :           170962034           171130282
   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       :           168924440           169092628
      Tx Pkts       :           647251234           646897301
      Rx MBs        :              113517              113630
      Tx MBs        :              434952              434714
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

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```

1.2.3. 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	16.39
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        :      8293348/8291523      8104392/8100768    16395930/16392291
        Max/Tx       :    14881060/14880917    14881370/14880877    29762308/29761794
MBits/s Rx/Tx        :            5571/9999            5443/9999          11015/19999
Broadcast            :                    0                    0
Multicast            :                    0                    0
   64 Bytes          :            835361694            828926796
   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        :            831220013            824874932
        Tx Pkts      :           1562155188           1565539252
        Rx MBs       :               558579               554315
        Tx MBs       :              1049768              1052042
ARP/ICMP Pkts        :                 25/0                 13/0
                     :
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

-- Pktgen Ver: 3.4.2 (DPDK 17.05.2)   Powered by DPDK -------------------------
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1.2.4. 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	6.42
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     :                   0/0   6423552/6422656       6423552/6422656
       Max/Tx     :   14880891/14880852               0/0   14880891/14880852
MBits/s Rx/Tx     :                0/9999            4316/0           4316/9999
Broadcast         :                     0                 0
Multicast         :                     0                 0
  64 Bytes        :                     0         603422298
  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         597807337
      Tx Pkts     :            1385429982                 0
      Rx MBs      :                     0            401726
      Tx MBs      :                931008                 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     :            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

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1.2.5. 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	12.96
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      :       6533060/6516609        6454242/6442643       12981405/12959252
      Max/Tx       :     14880928/14880892      14880966/14880894       29761875/29761786
MBits/s Rx/Tx      :           4379/9999              4329/9999             8708/19999
Broadcast          :                     0                     0
Multicast          :                     0                     0
   64 Bytes        :            1145358227            1131952414
   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      :            1139655904            1126312085
      Tx Pkts      :            2628200319            2627939254
      Rx MBs       :                765848                756881
      Tx MBs       :               1766150               1765975
ARP/ICMP Pkts      :                  20/0                  20/0
                   :
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

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