

ANS Performance Report

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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)

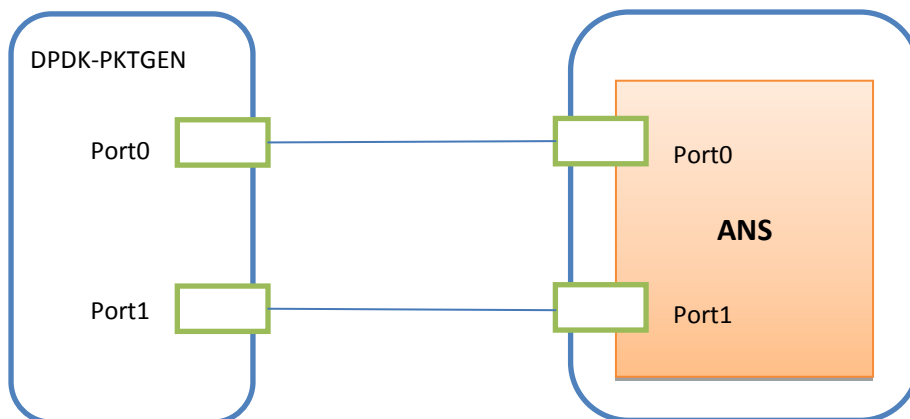
02:00.1 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)

➤ 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/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 -----

```

1.2.4. 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	6.51
256	Line Rate

=====64 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   :              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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```

=====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   :           0/0           6508975/6505996       6508975/6505996
      Max/Tx     :      8445911/8445905           0/0           8445911/8445905
MBits/s Rx/Tx   :           0/9999           7703/0           7703/9999
Broadcast       :           0             0
Multicast       :           0             0
  64 Bytes      :           0             0
  65-127        :           0             0
  128-255       :           0           305827869
  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           302573683
      Tx Pkts    :      392981893           0
      Rx MBs     :           0           358247
      Tx MBs     :      465290           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/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 (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)
---------------------	-------------------

ANS Performance Report

64	12.96
128	12.91
256	Line Rate

=====64 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     :      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

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```

=====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   : 6536336/6529551 6393020/6382614 12921273/12912165
      Max/Tx    : 8445928/8445908 8445947/8445932 16891869/16891840
MBits/s Rx/Tx   : 7730/9999 7557/9999 15288/19999
Broadcast       : 0 0
Multicast       : 0 0
  64 Bytes      : 0 0
  65-127        : 0 0
  128-255       : 417770573 408482405
  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   : 412060166 402898662
      Tx Pkts   : 533107232 533019590
      Rx MBs    : 487879 477032
      Tx MBs    : 631198 631095
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

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

```