

Intel Ethernet' s Performance Report with DPDK 25.11

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Revision History

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Audience and Purpose

The primary audience for this test report is architects and engineers implementing the Data Plane Development Kit (DPDK). This report provides information on packet processing performance testing for the specified DPDK release on Intel® architecture. The initial report may be viewed as the baseline for future releases and provides system configuration and test cases based on DPDK examples.

The purpose of reporting these tests is not to imply a single “correct” approach, but rather to provide a baseline of well-tested configurations and procedures with reproducible results. This will help guide architects and engineers who are evaluating and implementing DPDK solutions on Intel® architecture and can assist in achieving optimal system performance.

Test Description

The device under test (DUT) consists of a system with an Intel® architecture motherboard populated with the following;

- A single or dual processor and PCH chip, except for System on Chip (SoC) cases
- DRAM memory size and frequency (normally single DIMM per channel)
- Specific Intel Network Interface Cards (NICs)
- BIOS settings noting those that updated from the basic settings
- DPDK build configuration settings, and commands used for tests

Connected to the DUT is an IXIA, a hardware test and simulation platform to generate packet traffic to the DUT ports and determine the throughput at the tester side. The IXIA is used to implement RFC2544 on the DUT.

Benchmarking a DPDK system requires knowledge of networking technologies including knowledge of network protocols and hands-on experience with relevant open-source software, such as Linux, and the DPDK. Engineers also need benchmarking and debugging skills, as well as a good understanding of the device-under-test (DUT) across compute and networking domains.

DPDK L3fwd Test Case: Documentation may be found at
http://www.dpdk.org/doc/guides/sample_app_ug/l3_forward.html.

The application demonstrates the use of the hash and LPM libraries in the DPDK to implement packet forwarding. The lookup method is either hash-based or LPM-based and is selected at compile time. In this test case, the selected lookup method is the default LPM-based without modification, an LPM object is used to emulate the forwarding stage for IPv4 packets. The LPM object is used as the routing table to identify the next hop for each input packet at runtime.

The LPM lookup key is represented by the Destination IP Address field read from the input packet. The ID of the output interface for the input packet is the next hop returned by the LPM lookup. The set of

LPM rules used by the application is statically configured and loaded into the LPM object at initialization time.

In the sample application, hash-based forwarding supports IPv4 and IPv6. LPM-based forwarding supports IPv4 only.

DPDK Testpmd Test Case: Documentation may be found at http://www.dpdk.org/doc/guides/testpmd_app Ug/index.html.

The testpmd application can be used to test the DPDK in a packet forwarding mode and also to access NIC hardware features. Note in the Testpmd example if the `-i` argument is used, the first core is used for the command language interface (CLI).

Below is an example setup topology for the performance test. Generally, NIC ports in DUT connect to the traffic generator ports directly. And we will send bi-directional traffic from traffic generators and calculate the aggregated throughputs at the traffic generator side for the overall throughput. Please note the NIC port connections to traffic generator would vary from case to case.

Figure 1: DPDK NIC performance test setup (1 port per NIC)

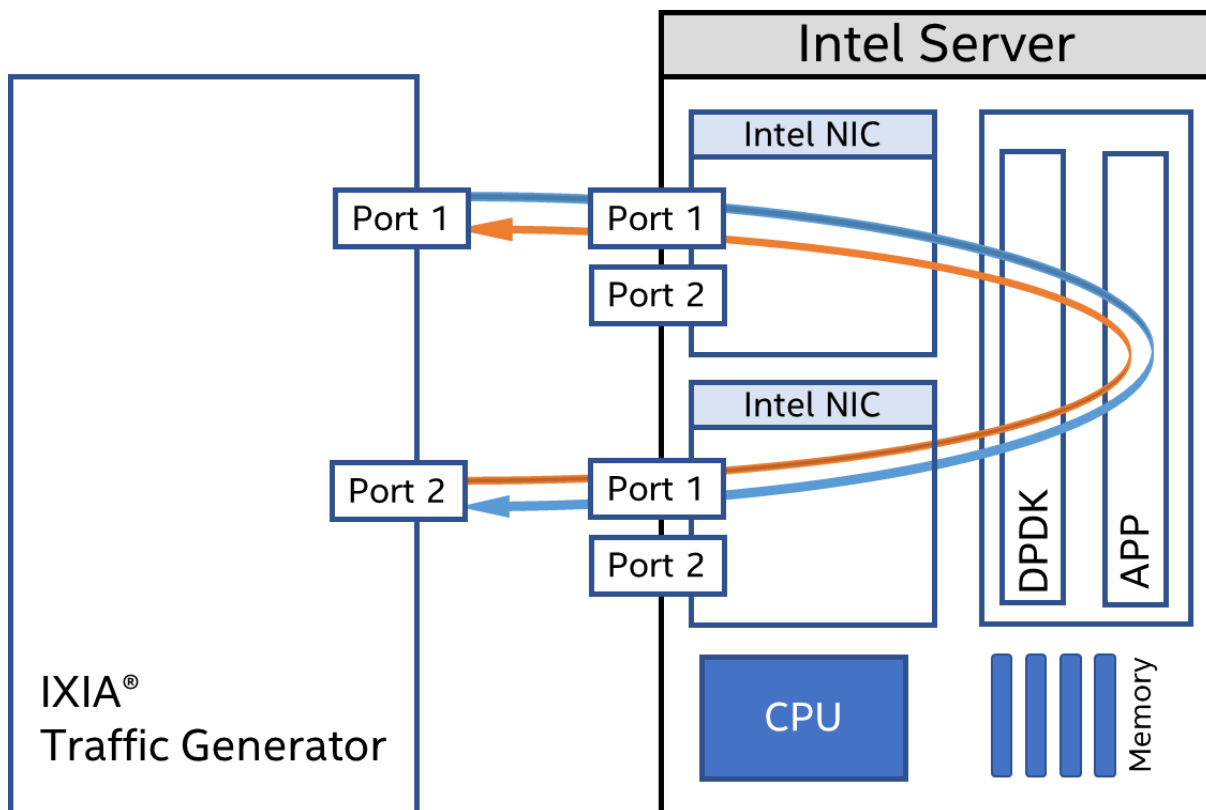
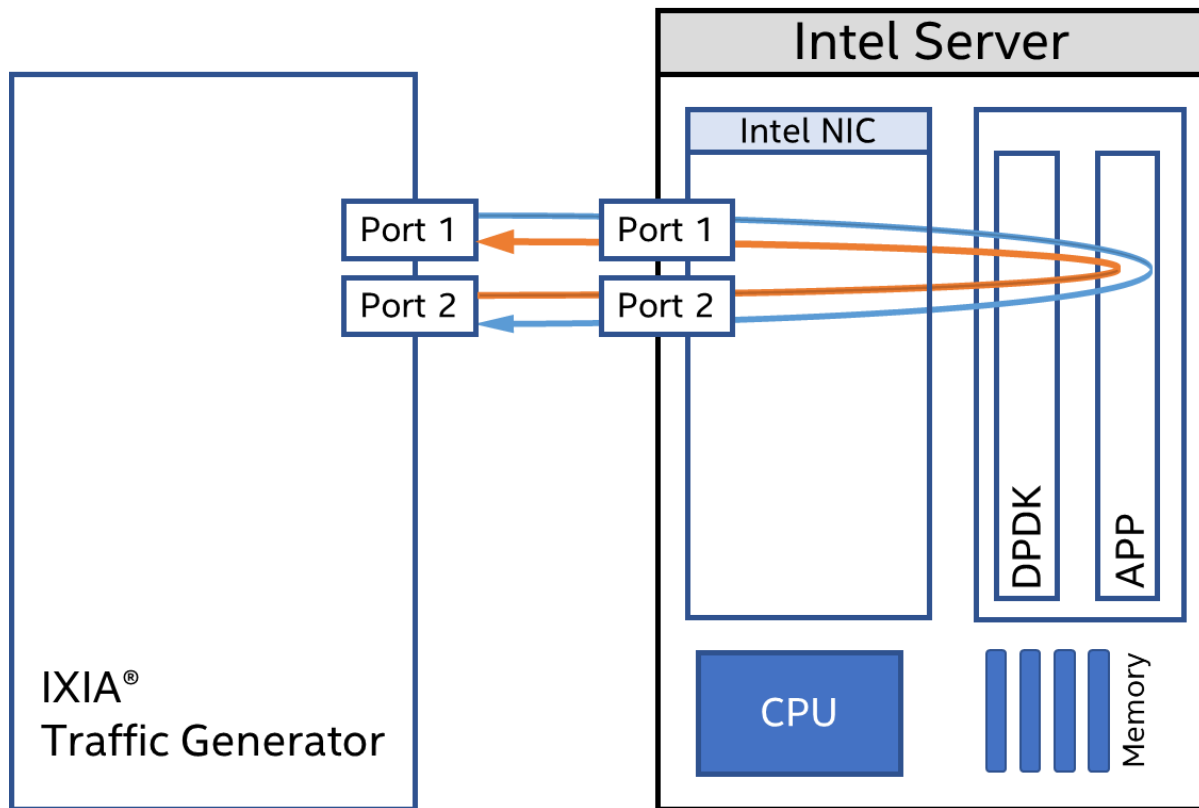


Figure 2: DPDK NIC performance test setup (2 ports on 1NIC)



RFC2544 Zero packet loss test case: Used to determine the DUT throughput as defined in RFC1242(<https://www.ietf.org/rfc/rfc1242.txt>). Note RFC6201 <https://www.ietf.org/rfc/rfc6201.txt> has updated RFC2544 and RFC1242. Please check the link for more details. In this report, RFC2544 test uses DPDK l3fwd as test application.

Procedure: Send a specific number of frames at a specific rate through the DUT and then count the frames that are transmitted by the DUT. If the count of offered frames is not equal to the count of received frames, the rate of the offered stream is reduced and the test is rerun. The throughput is the fastest rate at which the count of test frames transmitted by the DUT is equal to the number of test frames sent to it by the test equipment.

Test settings: IxNetwork 9.0 is used here for the test execution. The duration for each round is 60 seconds, and the acceptable packet loss rate is 0. The traffic is 256 flows per port.

Single core test case: Used to check the maximum IO throughput for a single core. The case requires at least 1x 100GbE ports for the ice DPDK Poll Mode Driver (PMD). In this case, we don't calculate the packet loss rate but record the average throughput within 60 seconds.

More details about the DPDK setup and BIOS information can be found at http://dpdk.org/doc/guides/linux_gsg/nic_perf_intel_platform.html

To enhance readability, the main abbreviations used in this report and their corresponding full names (with supplementary notes) are summarized below:

Table: List of Abbreviations

Abbreviation	Full Name
IPU	Infrastructure Processing Unit
ACC	Arm Compute Complex
IMC	Integrated Management Complex
APF	Adaptive Physical Function (data plane PF driver)
AVF	Adaptive Virtual Function (data plane VF driver)
CPF	Control Plane Physical Function driver
MCMQ	Multiple Cores Multiple Queues
MRR	Maximum Receive Rate

Note: Abbreviations are always used in this report to maintain conciseness.

This table serves as a quick reference for readers to understand technical terminology without disrupting the flow of the report.

Test#1 RFC2544 zero packet loss test on 2x Intel® Ethernet Network Adapter XXV710-DA2

Table 1: Test #1 Setup

Item	Description
Test Case	Test#1 RFC2544 zero packet loss test on 2x Intel® Ethernet Network Adapter XXV710-DA2
Server Platform	Inspur® Server Board NF5280M6
CPU	Intel® Xeon® Platinum 8380 CPU @ 2.30GHz 40 CPU cores * 2 NUMA nodes
Memory	128GB: 32GB x 2 DIMMs x 2 NUMA nodes @ 3200MHz
NIC	2x Intel® Ethernet Network Adapter XXV710-DA2; PCIe 3.0 x8
BIOS	04.12.02
Microcode	0xd0003f5
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
Intel NIC Device ID	0x158b
Intel NIC Firmware version	9.55
DPDK version	25.11
Test configuration	2 NIC cards attached to the first processor only 1st port used of each NIC. Each port has 2 queues assigned for a total of 4 queues 1 queue assigned per logical core. Totaling 4 logical cores, 4 queues for 2 ports

Figure 3: Test #1 Setup – 2x Intel® Ethernet Network Adapter XXV710-DA2 connected to IXIA (1 port per NIC)

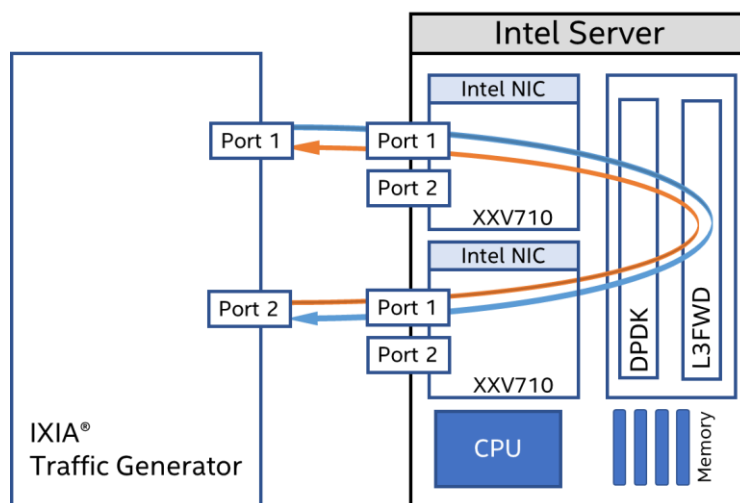


Table 2: Test #1 Setting

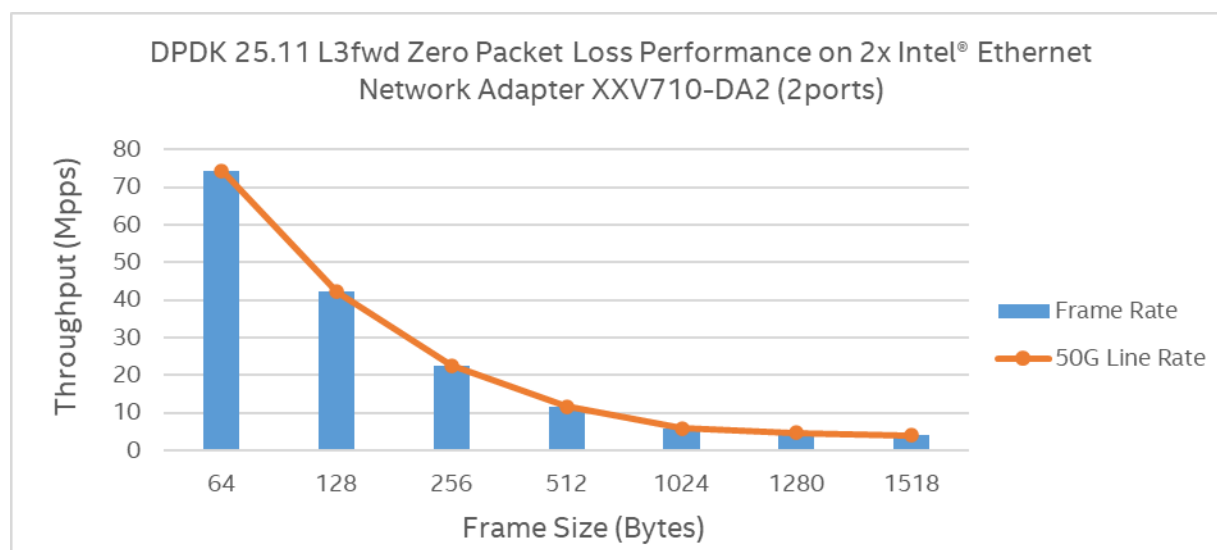
Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Disabled Intel® Hyper-Threading Tech Enabled Turbo Boost Disabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=40 intel_iommu=on iommu=pt isolcpus=1-35,41-75 nohz_full=1-35,41-75 rcu_nocbs=1-35,41-75
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line	dpdk-l3fwd -l 45,46,125,126 -a b1:00:0 -a ca:00:0 -- -p 0x3 --config '(0,0,45),(0,1,46),(1,0,125),(1,1,126)' --tx-queue-size 2048 --rx-queue-size 2048

Test Results

Table 3: Test #1 Result

Frame Size (Bytes)	Line Rate[2x25G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	74.40	74.40	100
128	42.23	42.23	100
256	22.65	22.65	100
512	11.75	11.75	100
1024	5.99	5.99	100
1280	4.81	4.81	100
1518	4.06	4.06	100

Figure 4: RFC2544 zero packet Loss test for 2x Intel® Ethernet Network Adapter XXV710-DA2



Test#2 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter XXV710-DA2

Table 4: Test #2 setup

Item	Description
Test Case	Test#2 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter XXV710-DA2
Server Platform	Inspur® Server Board NF5280M6
CPU	Intel® Xeon® Platinum 8380 CPU @ 2.30GHz 40 CPU cores * 2 NUMA nodes
Memory	128GB: 32GB x 2 DIMMs x 2 NUMA nodes @ 3200MHz
NIC	1x Intel® Ethernet Network Adapter XXV710-DA2; PCIe 3.0 x8
BIOS	04.12.02
Microcode	0xd0003f5
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250521 (Red Hat 15.1.1-2)
Intel NIC Device ID	0x158b
Intel NIC Firmware version	9.55
DPDK version	25.11
Test configuration	1 NIC cards attached to the first processor and 2 ports of the NIC are used. Each port has 1 queue assigned for a total of 2 queues 1 queue assigned per logical core. Totaling 2 logical cores, 2 queues for 2 ports

Figure 5: Test #2 Setup – 1x Intel® Ethernet Network Adapter XXV710-DA2 connected to IXIA (2 ports used on 1 NIC)

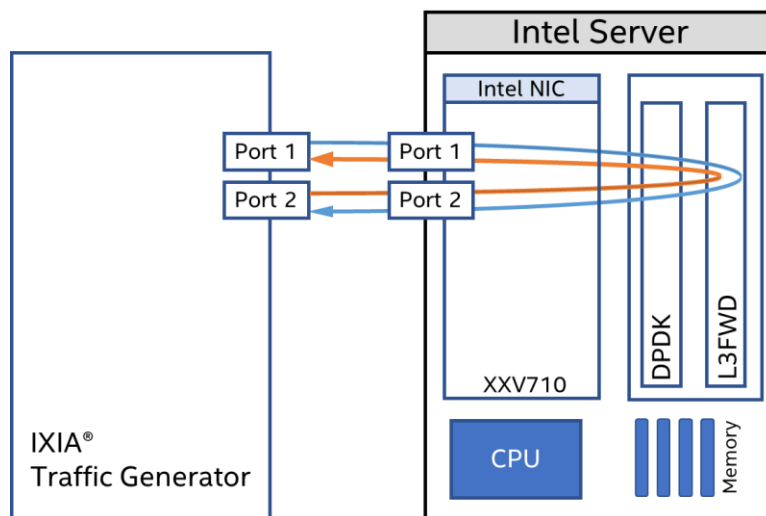


Table 5: Test #2 Setting

Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Disabled Intel® Hyper-Threading Tech Enabled Turbo Boost Disabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=40 intel_iommu=on iommu=pt isolcpus=1-35,41-75 nohz_full=1-35,41-75 rcu_nocbs=1-35,41-75
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line	dpdk-l3fwd -l 45,125 -a b1:00:0 -a b1:00:1 -- -p 0x3 --config '(0,0,45),(1,0,125)' --tx-queue-size 2048 --rx-queue-size 2048

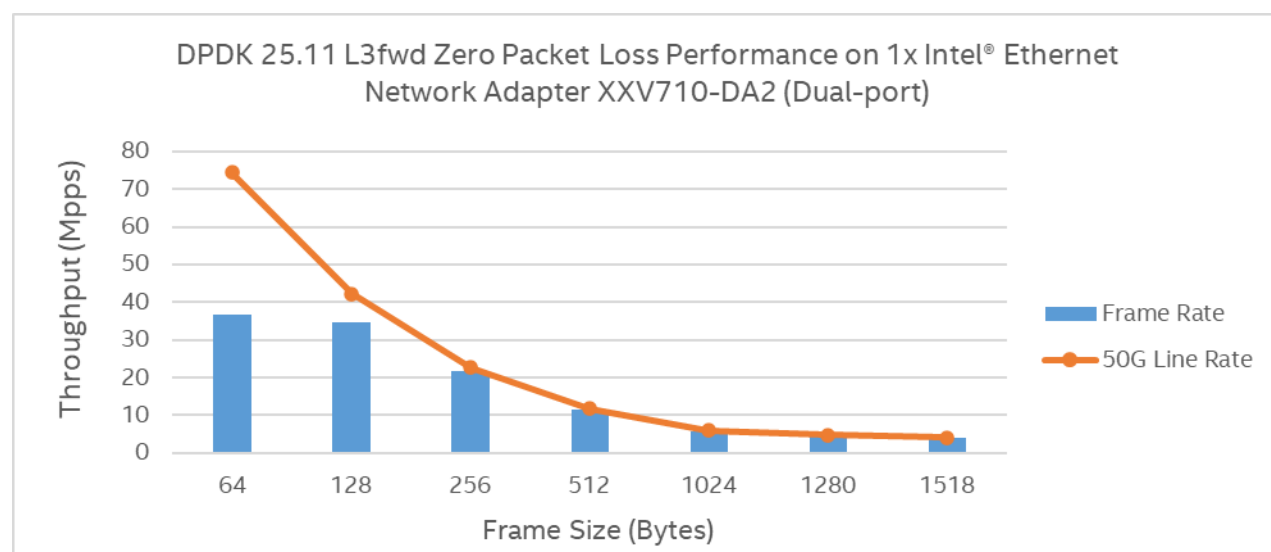
Test Results

Table 6: Test #2 Result

Frame Size (Bytes)	Line Rate[2x25G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	74.40	37.26	50.08
128	42.23	34.51	81.72
256	22.65	21.69	95.78
512	11.75	11.42	97.21
1024	5.99	5.86	97.88
1280	4.81	4.71	97.98
1518	4.06	3.98	96.88

Note: Due to hardware limitation, the throughput at large packets can only reach 95%-97% line rate.

Figure 6: RFC2544 zero packet Loss test for 1x Intel® Ethernet Network Adapter XXV710-DA2



Test#3 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-CQDA2

Table 7: Test #3 Setup

Item	Description
Test Case	Test#3 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-CQDA2
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	1x Intel® Ethernet Network Adapter E810-CQDA2; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
Intel NIC Device ID	0x1592
Intel NIC Firmware version	4.90
Intel NIC Package	1.3.50
DPDK version	25.11
Test configuration	1 NIC card attached to the processor, and 1 port used. Each port has 4 queues assigned for a total of 4 queues 1 queue assigned per logical core. Totaling 4 logical cores, 4 queues for 1 port.

Figure 7: Test #3 Setup – 1x Intel® Ethernet Network Adapter E810-CQDA2 connected to IXIA (Single port)

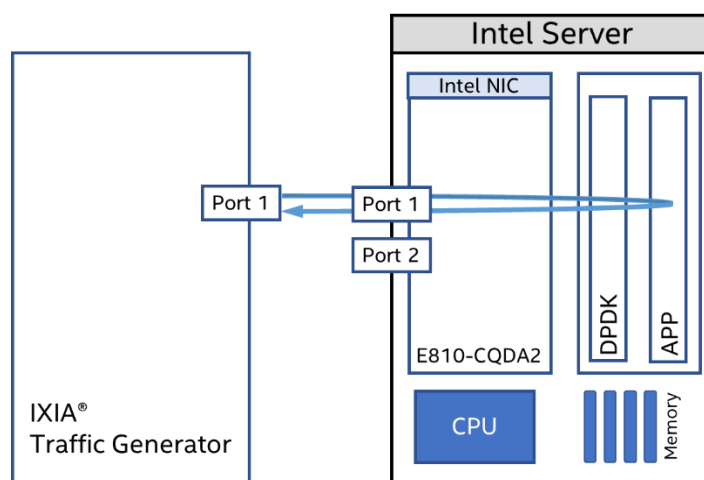


Table 8: Test #3 Setting

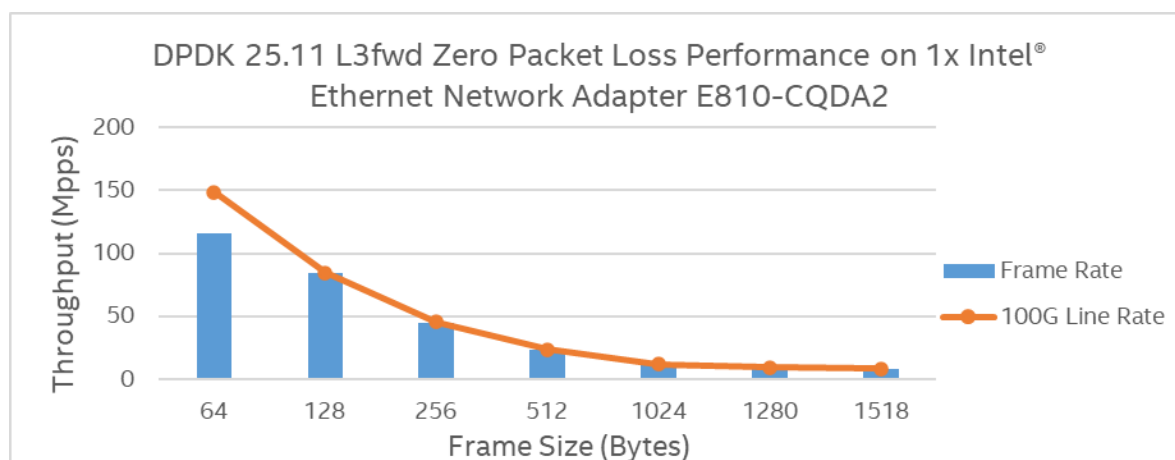
Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line	dpdk-l3fwd -l 5-8 -a 45:00.0 -- -p 0x1 --config '(0,0,5),(0,1,6),(0,2,7),(0,3,8)' --tx-queue-size 2048 --rx-queue-size 2048

Test Results

Table 9: Test #3 Result

Frame Size (Bytes)	Line Rate[100G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	148.81	116.37	78.20
128	84.46	83.87	99.30
256	45.29	44.97	99.29
512	23.5	23.5	100
1024	11.97	11.97	100
1280	9.62	9.62	100
1518	8.13	8.13	100

Figure 8: RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-CQDA2



Test#4 ice PMD Single core performance test on 2x Intel® Ethernet Network Adapter E810- CQDA2

Table 10: Test #4 Setup

Item	Description
Test Case	Test#4 ice PMD Single core performance test on 2x Intel® Ethernet Network Adapter E810-CQDA2
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	2x Intel® Ethernet Network Adapter E810-CQDA2; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
Intel NIC Device ID	0x1592
Intel NIC Firmware version	4.90
Intel NIC Package	1.3.50
DPDK version	25.11
Test configuration	2 NIC cards attached to the same processor and 1 port used of each NIC. Each port has 1 queue assigned for a total of 2 queues All queues are assigned to the same core.

Figure 9: Test #4 Setup – 2x Intel® Ethernet Network Adapter E810-CQDA2 connected to IXIA

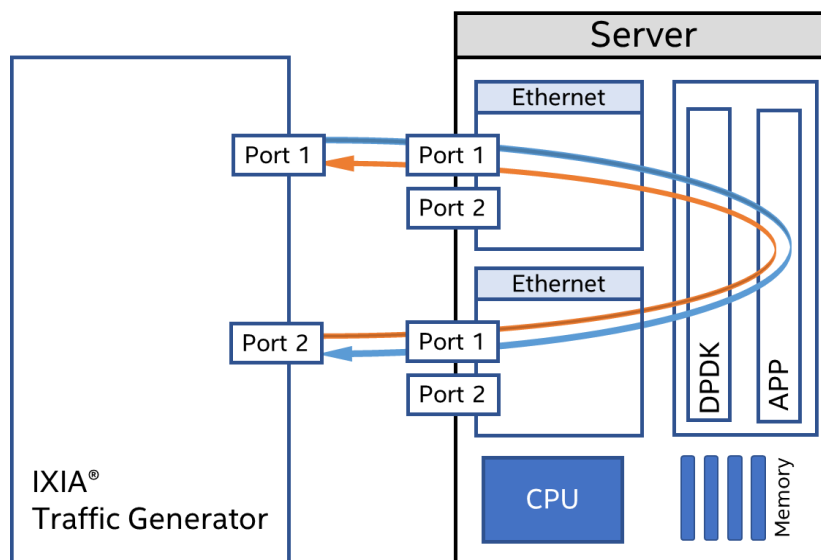


Table 11: Test #4 Setting

Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Disabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson --default-library=static build ninja -C build -j 100

Test Results

Subcase #1: Turbo boost comparison

Advanced setting:

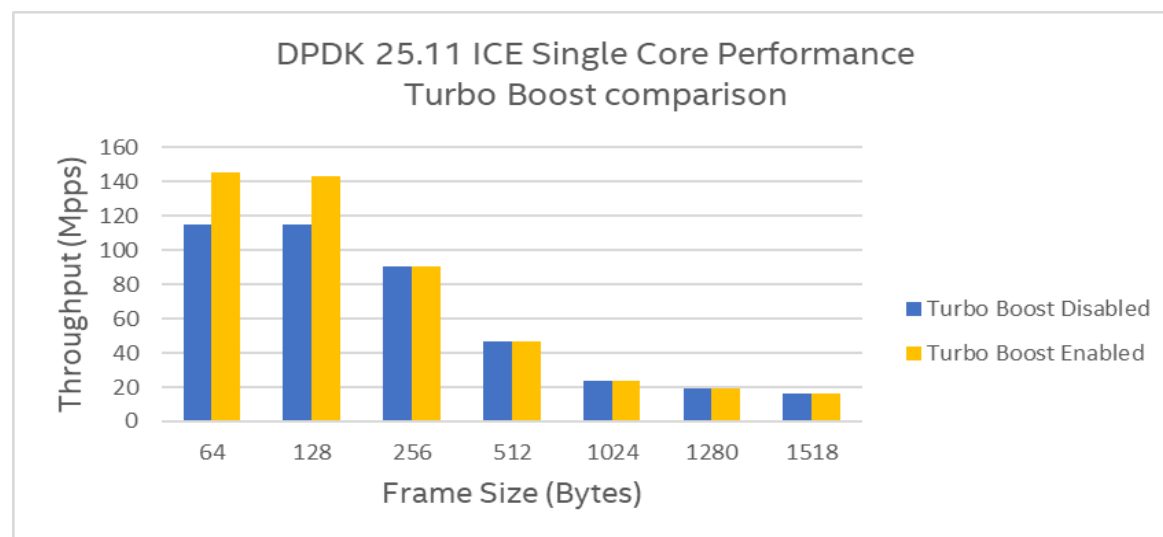
Item	Description
BIOS	Intel® Hyper-Threading Tech Disabled Turbo Boost changed in the test
Command line	dpdk-testpmd -l 5,6 -a 1f:00:00 -a 45:00:00 -- -i --portmask=0x3 --rxq=1 --txq=1 --txd=1024 - -rxd=1024 --forward=io -a

Table 12: Test #4 Subcase #1 Result

Frame Size (Bytes)	Line Rate [2*100G] (Mpps)	Turbo Boost Disabled		Turbo Boost Enabled		Disable vs. Enable %
		CPU Freq	1.9	CPU Freq	2.9	
		Frame Rate (Mpps)	Cycles per Packet=CPU_freq/Frame_rate	Frame Rate (Mpps)	Cycles per Packet=CPU_freq/Frame_rate	
64	297.62	114.60	17	145.05	20	26.57
128	168.92	114.57	17	143.45	20	25.21
256	90.58	90.58	-	90.58	-	-
512	46.99	46.99	-	46.99	-	-
1024	23.95	23.95	-	23.95	-	-
1280	19.23	19.23	-	19.23	-	-
1518	16.26	16.26	-	16.26	-	-

Note: All packet sizes over 256B reach line rate, so the single core is not fully stressed.

Figure 10: ice PMD Single core performance on 2x Intel® Ethernet Network Adapter E810-QCDA2 with turbo boost comparison



Subcase #2: Hyper-threading comparison

Advanced setting:

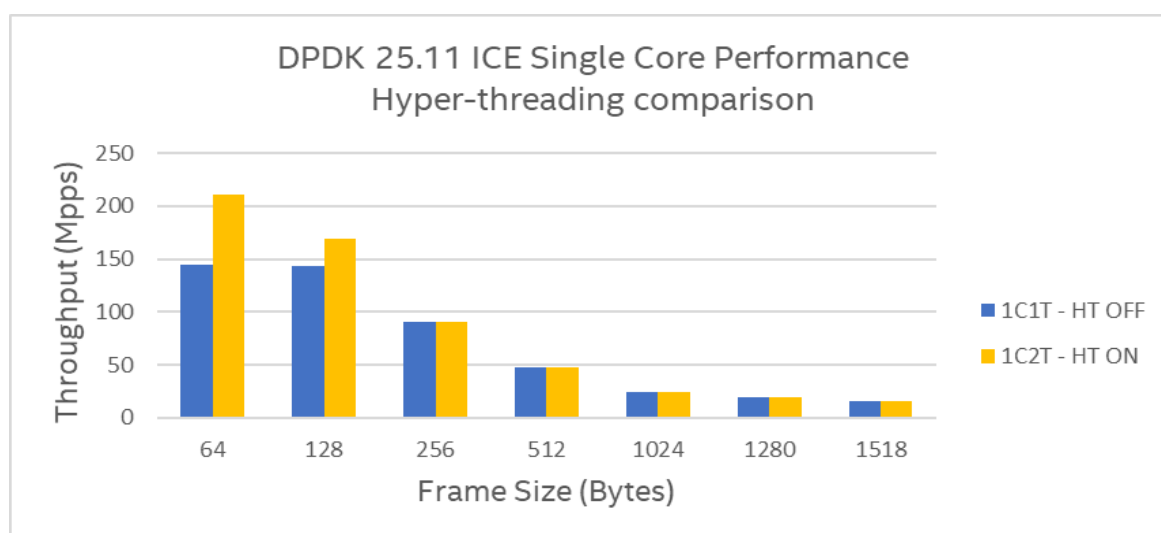
Item	Description
BIOS	Intel® Hyper-Threading Tech changed in the test Turbo Boost Enabled
Command line	1C1T: dpdk-testpmd -l 5,6 -a 1f:00:0 -a 45:00:0 -- -i --portmask=0x3 --rxq=1 --txq=1 --txd=1024 --rxd=1024 --forward=io -a 1C2T: dpdk-testpmd -l 5,6,126 -a 1f:00:0 -a 45:00:0 -- -i --portmask=0x3 --rxq=1 --txq=1 --txd=1024 --rxd=1024 --forward=io -a --nb-cores=2 Note: 6 and 126 come from the same physical core.

Table 13: Test #4 Subcase #2 Result

Frame Size (Bytes)	Line Rate [2*100G] (Mpps)	1C1T	1C2T	1C2T vs. 1C1T %
		Frame Rate (Mpps)	Frame Rate (Mpps)	
64	297.62	145.05	211.22	45.62
128	168.92	143.45	168.92	17.76
256	90.58	90.58	90.58	-
512	46.99	46.99	46.99	-
1024	23.95	23.95	23.95	-
1280	19.23	19.23	19.23	-
1518	16.26	16.26	16.26	-

Note: All packet sizes over 256B reach line rate, so the single core is not fully stressed.

Figure 11: ice PMD Single core performance on 2x Intel® Ethernet Network Adapter E810-QCDA2 with hyper-threading comparison



Test#5 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-CQDA2 using SR-IOV over KVM

Table 14: Test #5 Setup

Item	Description
Test Case	Test#5 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-CQDA2 using SRIOV over KVM
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	1x Intel® Ethernet Network Adapter E810-CQDA2; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Hypervisor	Fedora 42 QEMU emulator version 9.2.4 (qemu-9.2.4-2.fc42)
Hypervisor kernel version	6.14.5-300.fc42.x86_64
Hypervisor Intel Driver	ice-2.3.14
Guest Operating System	Fedora 42
Guest kernel version	6.14.5-300.fc42.x86_64
Guest GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
Intel NIC Device ID	0x1592
Intel NIC Firmware version	4.90
Intel NIC Package	1.3.50.0
DPDK version	25.11
Test configuration	1 NIC card attached to the processor and 1 port used to generate 1 VF. VF has 4 queues, 1 queue per logical core. Totaling 4 logical cores, 4 queues for 1VF.

Figure 12: Test #5 Setup – 1x Intel® Ethernet Network Adapter E810-CQDA2 connected to IXIA (Single port)

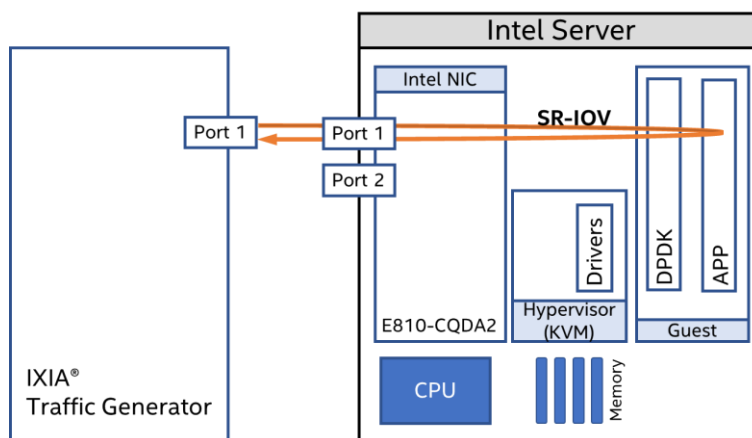


Table 15: Test #5 Setting

Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled Intel® Virtualization Technology Enabled Intel® VT for Directed I/O Enabled
Hypervisor Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 intel_pstate=disable idle=poll
Hypervisor settings	<pre> 1, creating VF echo 1 >/sys/bus/pci/devices/0000\:1f\:00.0/sriov_numvfs 2, setting VF MAC ip link set ens785f0 vf 0 mac A6:9C:BB:07:55:C0 3, binding VF to vfio-pci ./usertools/dpdk-devbind.py -b vfio-pci 0000:1f:01.0 4, mount hugepage mount -t hugetlbfs nodev /mnt/huge 5, launch qemu qemu-system-x86_64 -name vm0 -enable-kvm --monitor stdio -monitor unix:/tmp/vm0_monitor.sock,server,nowait -device e1000,netdev=nttsip1 -netdev user,id=nttsip1,hostfwd=tcp:127.0.0.1:6013-:22 -device vfio- pci,host=0000:1f:01.0,id=pt_0 -cpu host -m 32768 -object memory-backend- file,id=mem,size=32768M,mem-path=/mnt/huge,share=on -numa node,memdev=mem -mem-prealloc -smp cores=10,sockets=1 -chardev socket,path=/tmp/vm0_qga0.sock,server=on,wait=off,id=vm0_qga0 -device virtio-serial -device virtserialport,chardev=vm0_qga0,name=org.qemu.guest_agent.0 -vnc :10 -drive file=/home/image/fedora42.img,if=virtio,index=0,media=disk 6, vcpu pinning 6.1 get vcpu thread ids by qemu monitor (qemu) info cpus * CPU #0: thread_id=6106 CPU #1: thread_id=6107 CPU #2: thread_id=6108 CPU #3: thread_id=6109 CPU #4: thread_id=6110 CPU #5: thread_id=6111 CPU #6: thread_id=6112 CPU #7: thread_id=6113 CPU #8: thread_id=6114 CPU #9: thread_id=6115 6.2 pin thread ids to logical cores taskset -pc 9 6115 taskset -pc 8 6114 taskset -pc 7 6113 taskset -pc 6 6112 </pre>

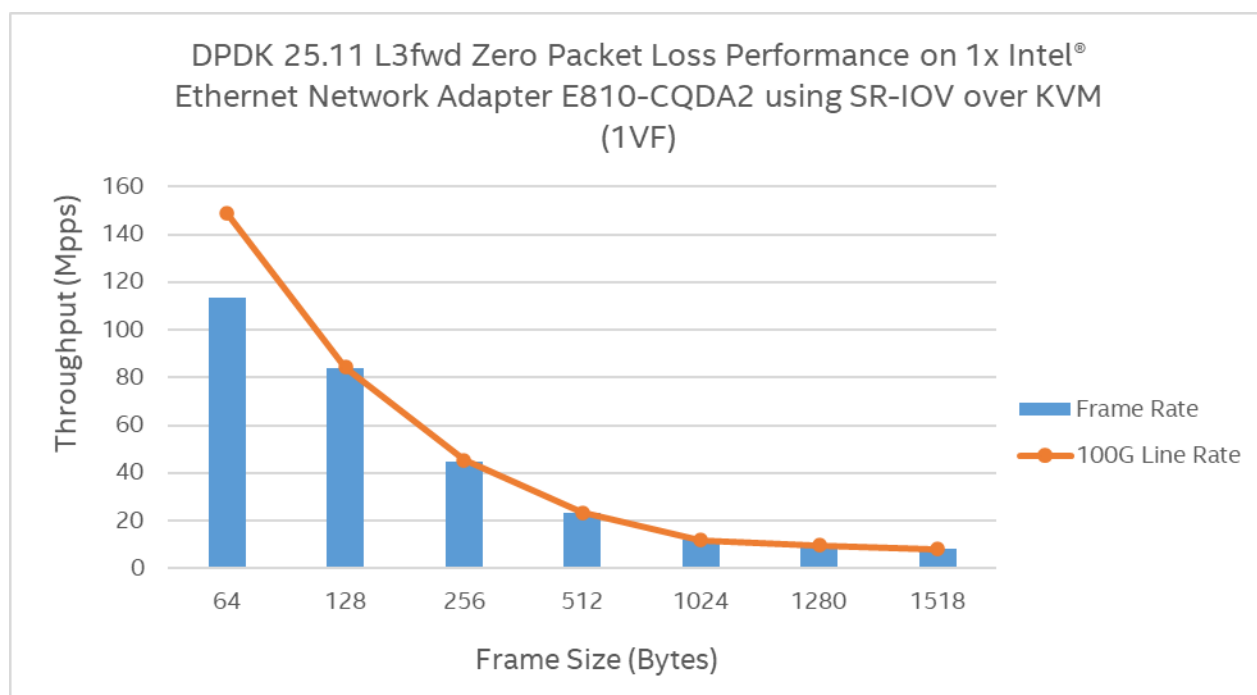
	taskset -pc 5 6111 taskset -pc 4 6110 taskset -pc 13 6109 taskset -pc 12 6108 taskset -pc 11 6107 taskset -pc 10 6106
Other optimizations on Hypervisor	echo -1 > /proc/sys/kernel/sched_rt_period_us echo -1 > /proc/sys/kernel/sched_rt_runtime_us echo 10 > /proc/sys/vm/stat_interval echo 0 > /proc/sys/kernel/watchdog_thresh
Guest Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=4-9 nohz_full=4-9 rcu_nocbs=4-9 intel_pstate=disable idle=poll processor.max_cstate=0 intel_idle.max_cstate=0
Other optimizations on Guest	echo 1 > /sys/module/vfio/parameters/enable_unsafe_noiommu_mode echo -1 > /proc/sys/kernel/sched_rt_period_us echo -1 > /proc/sys/kernel/sched_rt_runtime_us echo 10 > /proc/sys/vm/stat_interval echo 0 > /proc/sys/kernel/watchdog_thresh
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line on Guest	dpdk-l3fwd -l 4-7 -a 00:04:0 -- -p 0x1 --config '(0,0,5),(0,1,6),(0,2,7),(0,3,4)' --parse-ptype

Test Results

Table 16: Test #5 Result

Frame Size (Bytes)	Line Rate[100G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	148.81	113.23	76.09
128	84.46	83.87	99.30
256	45.29	44.97	99.29
512	23.5	23.5	100
1024	11.97	11.97	100
1280	9.62	9.62	100
1518	8.13	8.13	100

Figure 13: RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-CQDA2 using SRIOV over KVM



Test#6 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-XXVDA4

Table 17: Test #6 Setup

Item	Description
Test Case	Test#6 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-XXVDA4
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	1x Intel® Ethernet Network Adapter E810-XXVDA4; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
Intel NIC Device ID	0x1593
Intel NIC Firmware version	4.90
Intel NIC Package	1.3.50.0
DPDK version	25.11
Test configuration	1 NIC card attached to the processor and 4 ports used. Each port assigned 1 core and using 1 queue. Totalling 4 logical core, 4 queues for 4 ports.

Figure 14: Test #6 Setup – 1x Intel® Ethernet Network Adapter E810-XXVDA4 connected to IXIA (4 ports of 1 NIC)

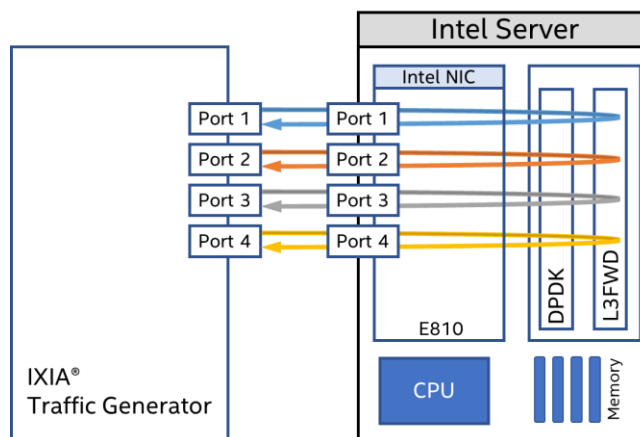


Table 18: Test #6 Setting

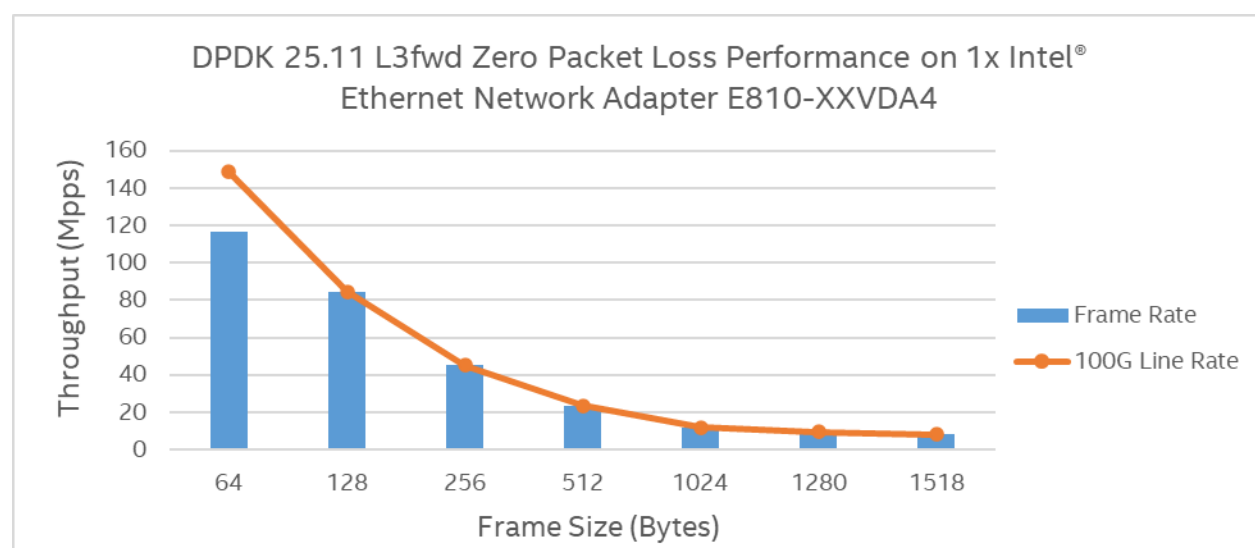
Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line	dpdk-l3fwd -l 5-8 -- -p 0xf --config '(0,0,5),(1,0,6),(2,0,7),(3,0,8)'

Test Results

Table 19: Test #6 Result

Frame Size (Bytes)	Line Rate[4*25G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	148.81	116.37	78.20
128	84.46	84.46	100
256	45.29	45.29	100
512	23.5	23.5	100
1024	11.97	11.97	100
1280	9.62	9.62	100
1518	8.13	8.13	100

Figure 15: RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E810-XXVDA4



Test#7 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E830-CQDA2

Table 20: Test #7 Setup

Item	Description
Test Case	Test#7 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E830-CQDA2
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	1x Intel® Ethernet Network Adapter E830-CQDA2; PCIe 5.0 x8
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
Intel NIC Device ID	0x12d2
Intel NIC Firmware version	1.20
Intel NIC Package	1.3.50.0
DPDK version	25.11
Test configuration	1 NIC card attached to the processor, and 1 port used. Each port has 4 queues assigned for a total of 4 queues 1 queue assigned per logical core. Totaling 4 logical cores, 4 queues for 1 port.

Figure 16: Test #7 Setup – 1x Intel® Ethernet Network Adapter E830-CQDA2 connected to IXIA (2 ports used on 1 NIC)

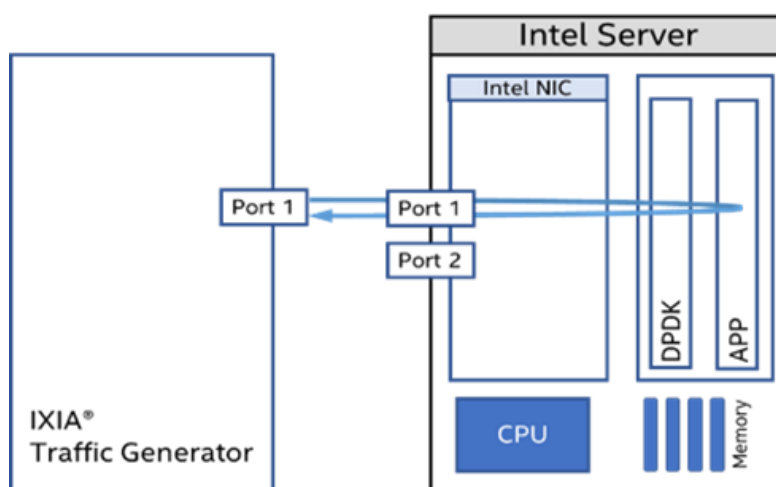


Table 21: Test #7 Setting

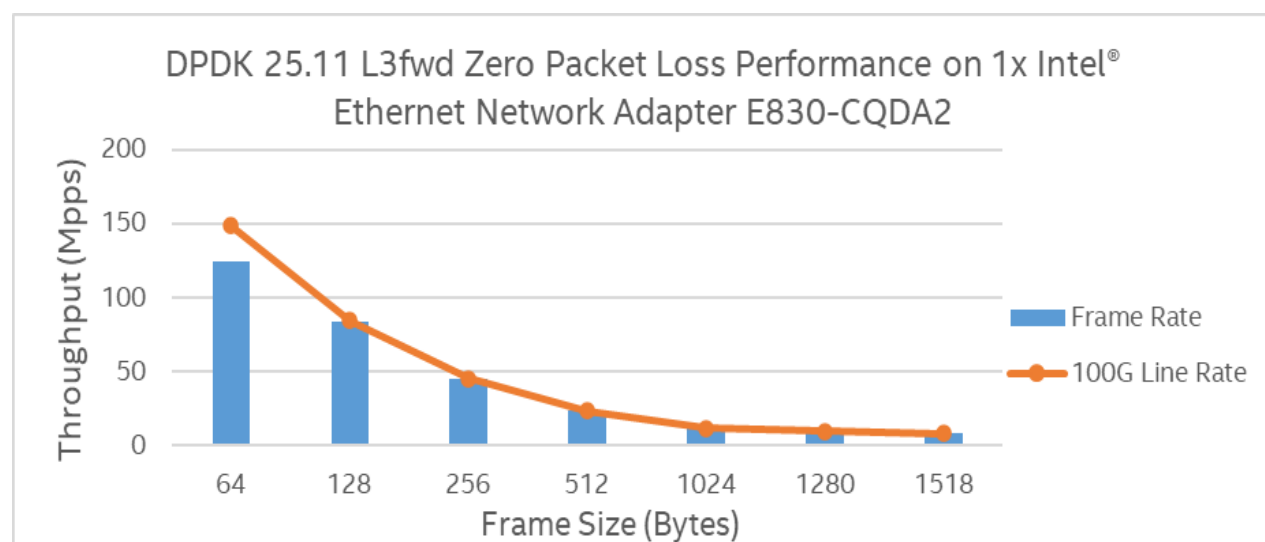
Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line	dpdk-l3fwd -l 5-8 -a 45:00.0 -- -p 0x1 --config '(0,0,5),(0,1,6),(0,2,7),(0,3,8)' --rx-queue-size 2048 --tx-queue-size 2048

Test Results

Table 22: Test #7 Result

Frame Size (Bytes)	Line Rate[100G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	148.81	124.74	83.83
128	84.46	83.87	99.30
256	45.29	44.97	99.30
512	23.5	23.33	99.30
1024	11.97	11.89	99.30
1280	9.62	9.62	100.00
1518	8.13	8.13	100.00

Figure 17: RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E830-CQDA2



Test#8 ice PMD Single core performance test on 2x Intel® Ethernet Network Adapter E830-CQDA2

Table 23: Test #8 Setup

Item	Description
Test Case	Test#8 ice PMD Single core performance test on 2x Intel® Ethernet controller Adapter E830-CQDA2
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	2x Intel® Ethernet Network Adapter E830-CQDA2; PCIe 5.0 x8
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
Intel NIC Device ID	0x12d2
Intel NIC Firmware version	1.20
DPDK version	25.11
Test configuration	2 NIC cards attached to the same processor and 1 port used of each NIC. Each port has 1 queue assigned for a total of 2 queues. All queues are assigned to the same core.

Figure 18: Test #8 Setup – 2x Intel® Ethernet Network Adapter E830-CQDA2 connected to IXIA

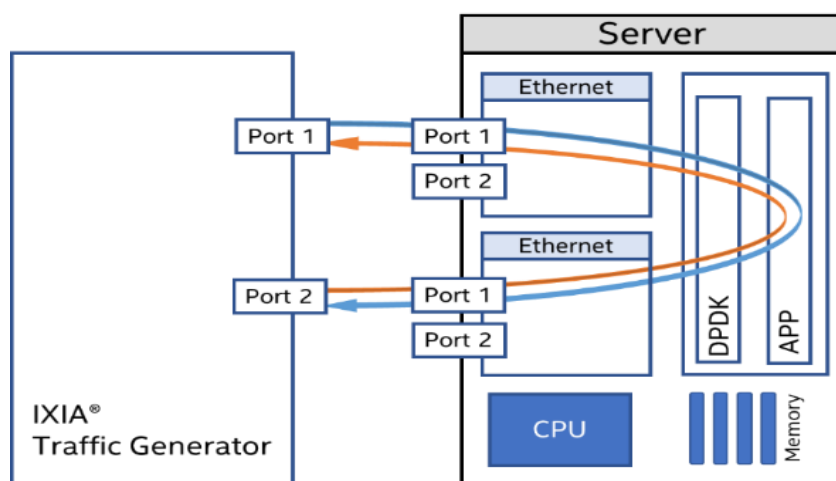


Table 24: Test #8 Setting

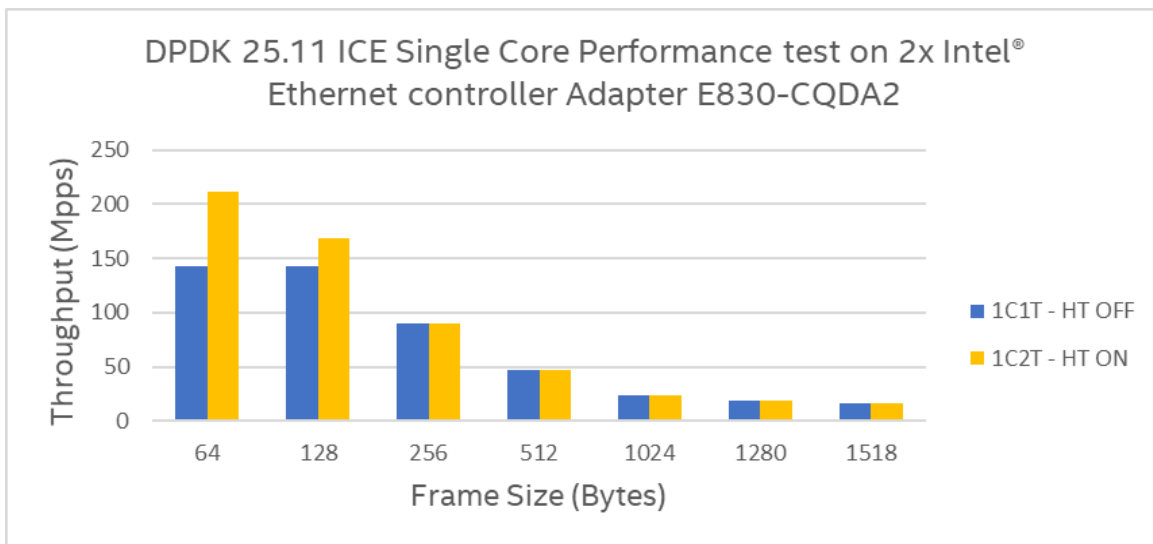
Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson --default-library=static build ninja -C build -j 100
Command line	1C1T: dpdk-testpmd -l 5,6 -a 1f:00.0 -a 45:00.0 -- -i --portmask=0x3 --rxq=1 -- txq=1 --txd=1024 --rxd=1024 --forward=io -a 1C2T: dpdk-testpmd -l 5,6,126 -a 1f:00.0 -a 45:00.0 -- -i --portmask=0x3 --rxq=1 -- txq=1 --txd=1024 --rxd=1024 --forward=io -a --nb-cores=2 Note: 6 and 126 come from the same physical core.

Test Results

Table 25: Test #8 Result

Frame Size (Bytes)	Line Rate [2*100G] (Mpps)	1C1T	1C2T	1C2T vs. 1C1T %
		Frame Rate (Mpps)	Frame Rate (Mpps)	
64	297.62	142.42	210.98	48.14
128	168.92	142.61	168.92	18.45
256	90.58	90.58	90.58	-
512	46.99	46.99	46.99	-
1024	23.95	23.95	23.95	-
1280	19.23	19.23	19.23	-
1518	16.26	16.26	16.26	-

Figure 19: ice PMD Single core performance on 2x Intel® Ethernet Network Adapter E830-CQDA2



Test#9 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E825-C

Table 26: Test #9 Setup

Item	Description
Test Case	Test#9 RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E825-C
Server Platform	Intel® Server Board KVL XRP
CPU	INTEL(R) XEON(R) 6553P-B CPU @ 2.6GHz 36 CPU cores * 1 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	1x Intel® Ethernet Network Adapter E825-C; PCIe 4.0 x16
BIOS	KVLD CRB1.IPC.3038.P17.2510170717
Microcode	0x10002b3
Operating System	Ubuntu 24.04.3 LTS
Linux kernel version	6.8.0-84-generic
GCC version	gcc (Ubuntu 13.3.0-6ubuntu2~24.04) 13.3.0
Intel NIC Device ID	0x579d
Intel NIC Firmware version	4.04
DPDK version	25.11
Test configuration	1 NIC card attached to the processor, and 1 port used. Each port has 2 queues assigned for a total of 2 queues 1 queue assigned per logical core. Totaling 2 logical cores, 2 queues for 1 port.

Figure 20: Test #9 Setup – 1x Intel® Ethernet Network Adapter E825-C connected to IXIA

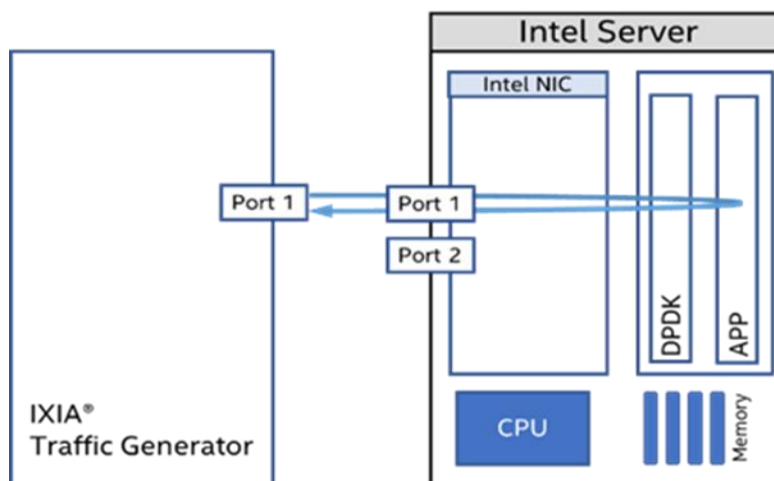


Table 27: Test #9 Setting

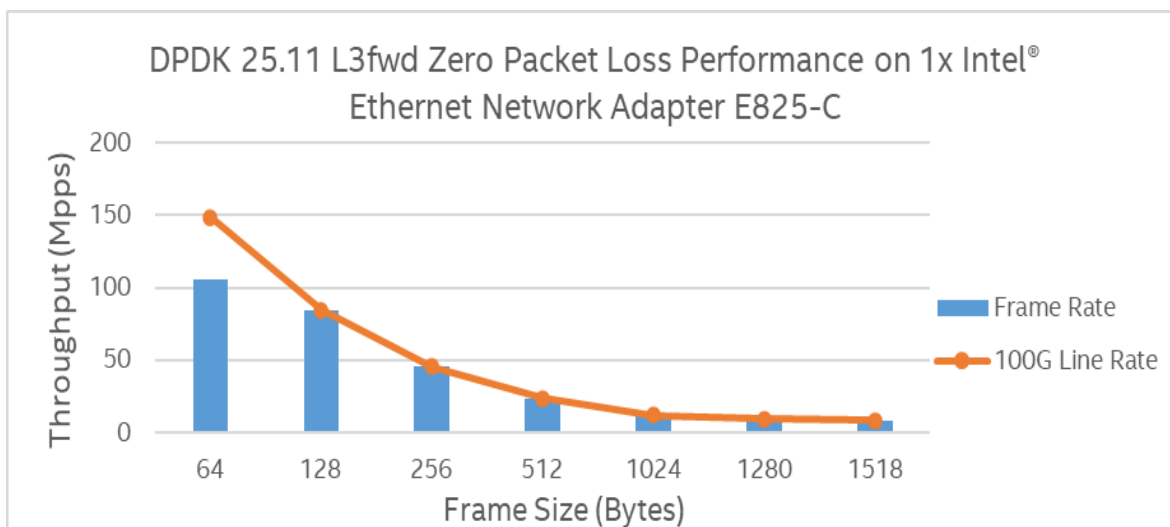
Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson -Dexamples=l3fwd --default-library=static build ninja -C build -j 100
Command line	dpdk-l3fwd -l 5,6 -a 0a:00:0 -- -p 0x1 --config '(0,0,5),(0,1,6)' --tx-queue-size 2048 - -rx-queue-size 2048

Test Results

Table 28: Test #9 Result

Frame Size (Bytes)	Line Rate[100G] (Mpps)	Frame Rate (Mpps)	% Line Rate
64	148.81	105.91	71.17
128	84.46	84.46	100
256	45.29	45.29	100
512	23.5	23.5	100
1024	11.97	11.97	100
1280	9.62	9.62	100
1518	8.13	8.13	100

Figure 21: RFC2544 zero packet loss test on 1x Intel® Ethernet Network Adapter E825-C



Test#10 Intel® IPU Adapter E2100-CCQDA2 throughput performance test on Xeon Host

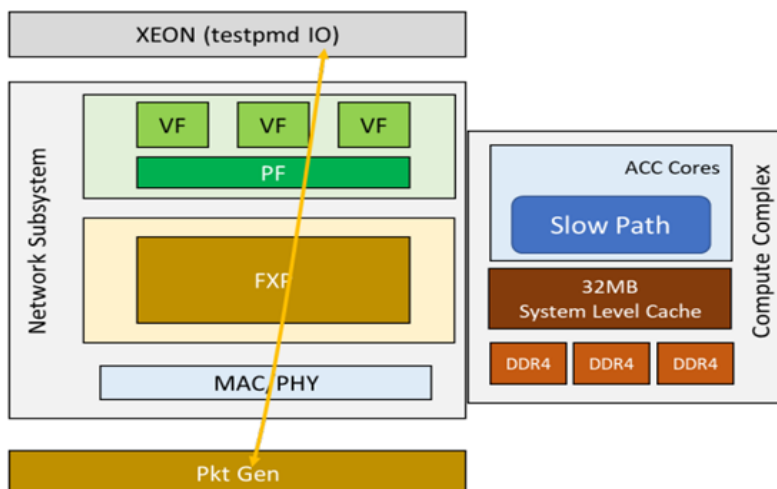
Table 29: Test #10 Setup

Item	Description
Test Case	Test#10 Intel® IPU Adapter E2100-CCQDA2 throughput performance test on Xeon Host
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	Intel® IPU Adapter E2100-CCQDA2; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
CI version	ci-ts.release.2.0.0.11127
DPDK version	25.11

Table 30: Test #10 Setting

Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson --default-library=static build ninja -C build -j 100

Figure 22: Test #10 Setup – 1x Intel® IPU Adapter E2100-CCQDA2 connected to IXIA



Test Results

Subcase #1: IPU_APF_Xeon_split_queue_mcmq_mrr

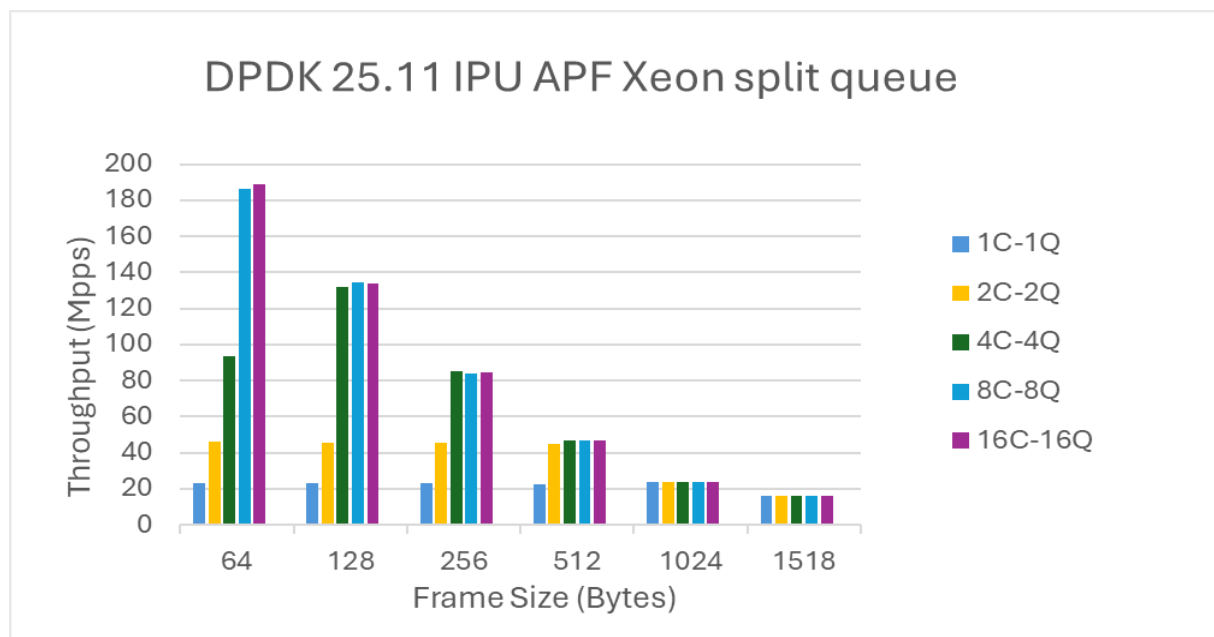
Advanced setting:

Item	Description
DPDK Command on Xeon	1C1Q: ./dpdk-testpmd -l 61,62 -a 99:00.0,vport=0 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 61,62-63 -a 99:00.0,vport=0 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 61,62-65 -a 99:00.0,vport=0 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 61,62-69 -a 99:00.0,vport=0 -- -i -a --txq=8 --rxq=8 --nb-cores=8 16C16Q: ./dpdk-testpmd -l 61,62-77 -a 99:00.0,vport=0 -- -i -a --txq=16 --rxq=16 --nb-cores=16
Traffic Generator Configuration	Transmit rate: 100% of line rate Packet: any mac/ fixed dst ip, random src ip

Table 31: Test #10 Subcase #1 Result

Frame size (Bytes)	Line Rate[200G] (Mpps)	1C-1Q	2C-2Q	4C-4Q	8C-8Q	16C-16Q
64	297.62	23.28	46.14	93.51	186.25	189.15
128	168.92	23.08	45.79	132.21	134.58	133.67
256	90.58	23.10	45.57	84.94	83.76	84.31
512	46.99	22.84	45.14	46.99	46.99	46.99
1024	23.95	23.95	23.95	23.95	23.95	23.95
1518	16.25	16.25	16.25	16.25	16.25	16.25

Figure 23: Xeon split queue on 1x Intel® IPU Adapter E2100-CCQDA2



Subcase #2: IPU_APF_Xeon_non-split_queue_mcmq_mrr

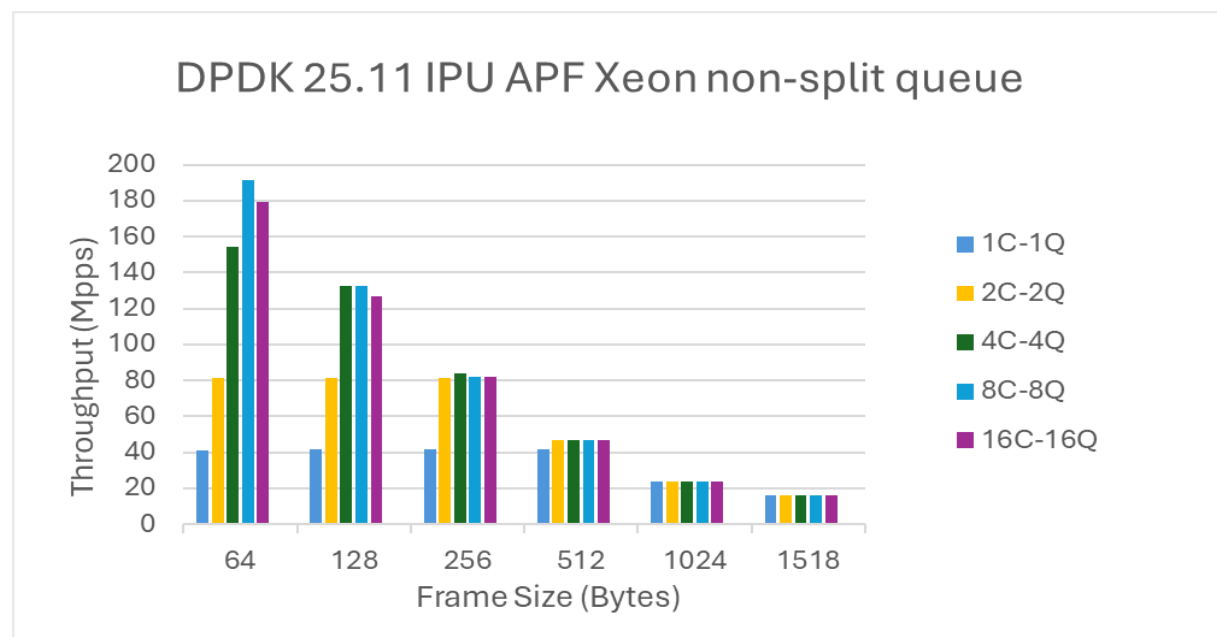
Advanced setting:

Item	Description
DPDK Command on Xeon	1C1Q: ./dpdk-testpmd -l 61,62 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 61,62-63 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 61,62-65 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 61,62-69 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=8 --rxq=8 --nb-cores=8 16C16Q: ./dpdk-testpmd -l 61,62-77 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=16 --rxq=16 --nb-cores=16
Traffic Generator Configuration	Transmit rate: 100% of line rate Packet: any mac/ fixed dst ip, random src ip

Table 32: Test #10 Subcase #2 Result

Frame size (Bytes)	Line Rate[200G] (Mpps)	1C-1Q	2C-2Q	4C-4Q	8C-8Q	16C-16Q
64	297.62	41.36	81.34	154.53	191.34	179.33
128	168.92	41.62	81.23	132.53	132.43	126.94
256	90.58	41.81	81.48	83.82	82.08	82.04
512	46.99	41.59	46.99	46.99	46.99	46.99
1024	23.95	23.95	23.95	23.95	23.95	23.95
1518	16.25	16.25	16.25	16.25	16.25	16.25

Figure 24: Xeon non-split queue on 1x Intel® IPU Adapter E2100-CCQDA2



Test#11 Intel® IPU Adapter E2100-CCQDA2 throughput performance test on ACC

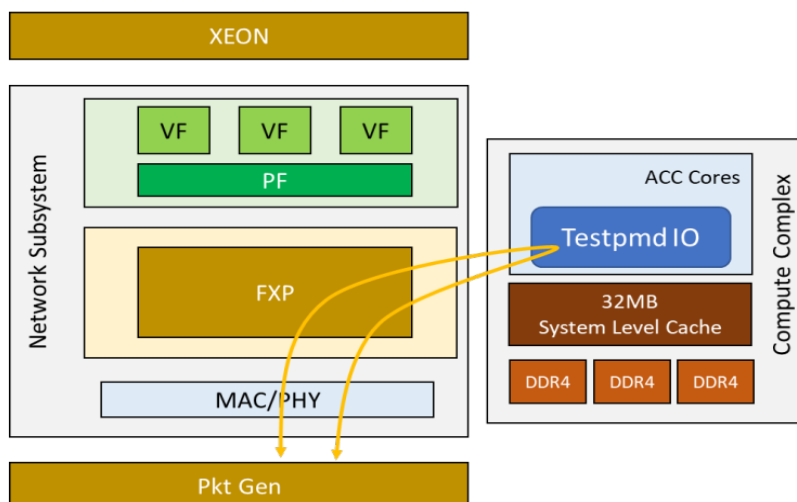
Table 33: Test #11 Setup

Item	Description
Test Case	Test#11 Intel® IPU Adapter E2100-CCQDA2 throughput performance test on ACC
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	Intel® IPU Adapter E2100-CCQDA2; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
CI version	ci-ts.release.2.0.0.11127
DPDK version	25.11

Table 34: Test #11 Setting

Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson --default-library=static build ninja -C build -j 100

Figure 25: Test #11 Setup – 1x Intel® IPU Adapter E2100-CCQDA2 connected to IXIA



Test Results

Subcase #1: IPU_CPF_ACC_split_queue_mcmq_mrr

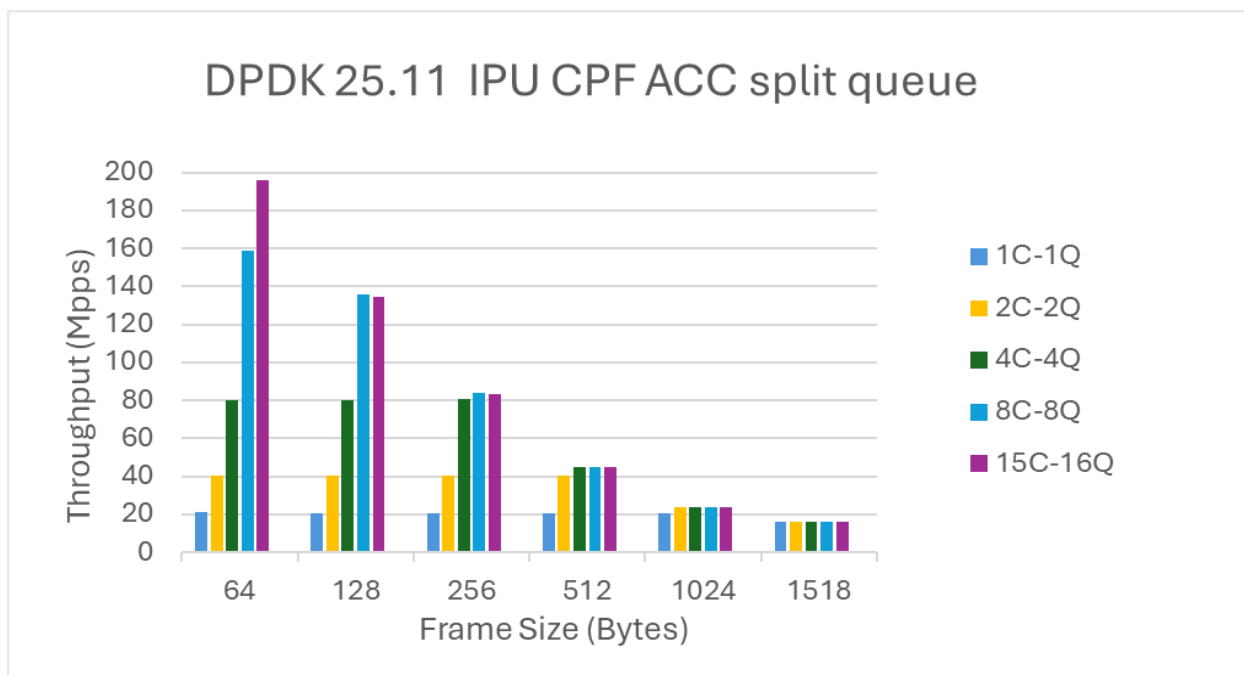
Advanced setting:

Item	Description
DPDK Command on ACC	1C1Q: ./dpdk-testpmd -l 0,1 -a 00:01.6,vport=0 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 0,1-2 -a 00:01.6,vport=0 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 0,1-4 -a 00:01.6,vport=0 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 0,1-8 -a 00:01.6,vport=0 -- -i -a --txq=8 --rxq=8 --nb-cores=8 15C16Q: ./dpdk-testpmd -l 0,1-15 -a 00:01.6,vport=0 -- -i -a --txq=16 --rxq=16 --nb-cores=16
Traffic Generator Configuration	Transmit rate: 100% of line rate Packet: any mac/ fixed dst ip, random src ip

Table 35: Test #11 Subcase #1 Result

Frame size (Bytes)	Line Rate[200G] (Mpps)	1C-1Q	2C-2Q	4C-4Q	8C-8Q	15C-16Q
64	297.62	21.37	40.18	80.21	158.56	195.68
128	168.92	20.65	40.15	80.21	135.82	134.72
256	90.58	20.70	40.18	80.53	83.88	83.50
512	46.99	20.57	40.74	45.23	45.05	45.12
1024	23.95	20.56	23.95	23.95	23.95	23.95
1518	16.25	16.25	16.25	16.25	16.25	16.25

Figure 26: ACC split queue on 1x Intel® IPU Adapter E2100-CCQDA2



Subcase #2: IPU_CPF_ACC_non-split_queue_mcmq_mrr

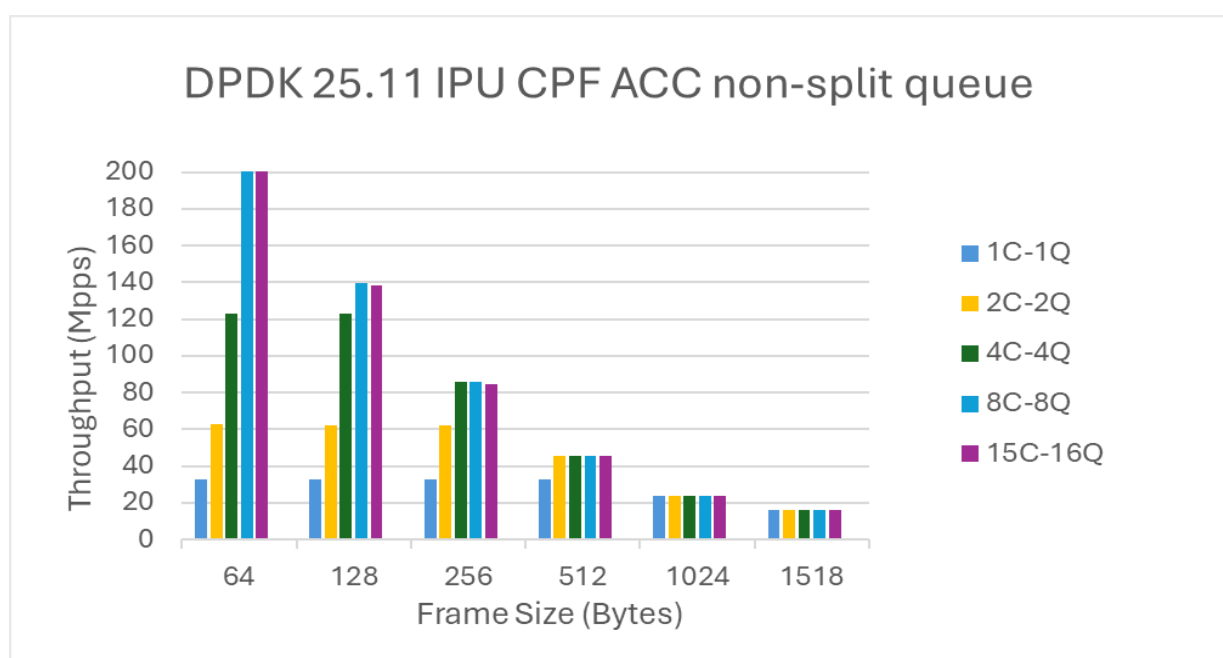
Advanced setting:

Item	Description
DPDK Command on ACC	1C1Q: ./dpdk-testpmd -l 0,1 -a 00:01:6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 0,1-2 -a 00:01:6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 0,1-4 -a 00:01:6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 0,1-8 -a 00:01:6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=8 --rxq=8 --nb-cores=8 16C16Q: ./dpdk-testpmd -l 0,1-15 -a 00:01:6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=16 --rxq=16 --nb-cores=16
Traffic Generator Configuration	Transmit rate: 100% of line rate Packet: any mac/ fixed dst ip, random src ip

Table 36: Test #11 Subcase #2 Result

Frame size (Bytes)	Line Rate[200G] (Mpps)	1C-1Q	2C-2Q	4C-4Q	8C-8Q	15C-16Q
64	297.62	32.79	62.76	122.89	206.32	205.02
128	168.92	32.79	62.23	122.86	139.82	138.43
256	90.58	32.51	62.48	85.93	85.65	84.43
512	46.99	32.77	45.82	45.55	45.53	45.39
1024	23.95	23.95	23.95	23.95	23.95	23.95
1518	16.25	16.25	16.25	16.25	16.25	16.25

Figure 27: ACC non-split queue on 1x Intel® IPU Adapter E2100-CCQDA2



Test#12 Intel® IPU Adapter E2100-CCQDA2 throughput performance test between Xeon Host and ACC

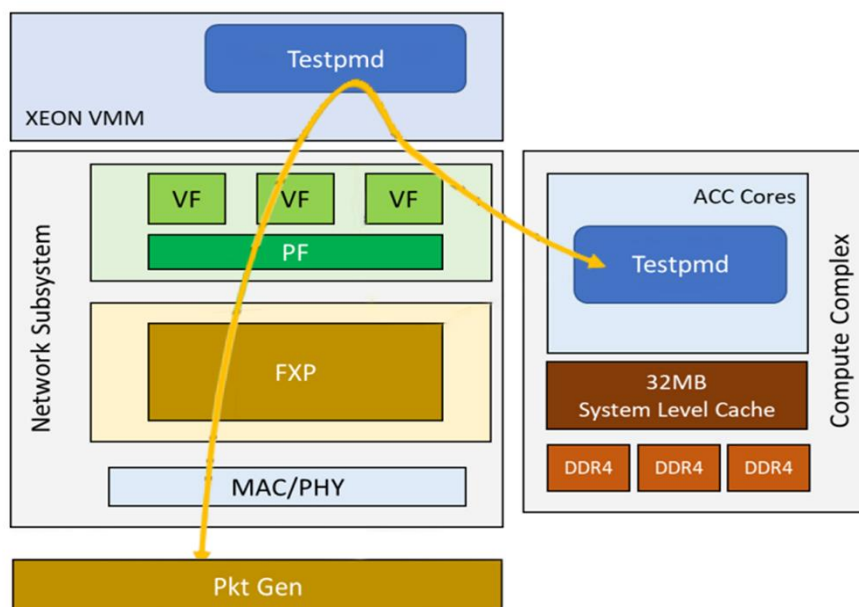
Table 37: Test #12 Setup

Item	Description
Test Case	Test#12 Intel® IPU Adapter E2100-CCQDA2 throughput performance test between Xeon Host and ACC
Server Platform	Inspur® Server Board NF5280M7
CPU	Intel(R) Xeon(R) Platinum 8490H@1.9GHz 60 CPU cores * 2 NUMA nodes
Memory	256GB: 16GB x 8 DIMMs x 2 NUMA nodes @ 4800MHz
NIC	Intel® IPU Adapter E2100-CCQDA2; PCIe 4.0 x16
BIOS	02.00.00
Microcode	0x2b0000a1
Operating System	Fedora 42
Linux kernel version	6.14.5-300.fc42.x86_64
GCC version	gcc (GCC) 15.1.1 20250425 (Red Hat 15.1.1-1)
CI version	ci-ts.release.2.0.0.11127
DPDK version	25.11

Table 38: Test #12 Setting

Item	Description
BIOS	CPU Power and Performance Policy <Performance> CPU C-state Disabled CPU P-state Enabled Intel® Hyper-Threading Tech Disabled Turbo Boost Enabled
Boot settings	default_hugepagesz=1G hugepagesz=1G hugepages=16 intel_iommu=on iommu=pt isolcpus=1-21 nohz_full=1-21 rcu_nocbs=1-21 idle=poll nmi_watchdog=0 audit=0 nosoftlockup processor.max_cstate=0 intel_idle.max_cstate=0 hpet=disable mce=off tsc=reliable numa_balancing=disable
DPDK compilation	CC=gcc meson --default-library=static build ninja -C build -j 100

Figure 28: Test #12 Setup – 1x Intel® IPU Adapter E2100-CCQDA2 connected to IXIA



Test Results

Subcase #1: IPU_Xeon_ACC_split_queue_mcmq_mrr

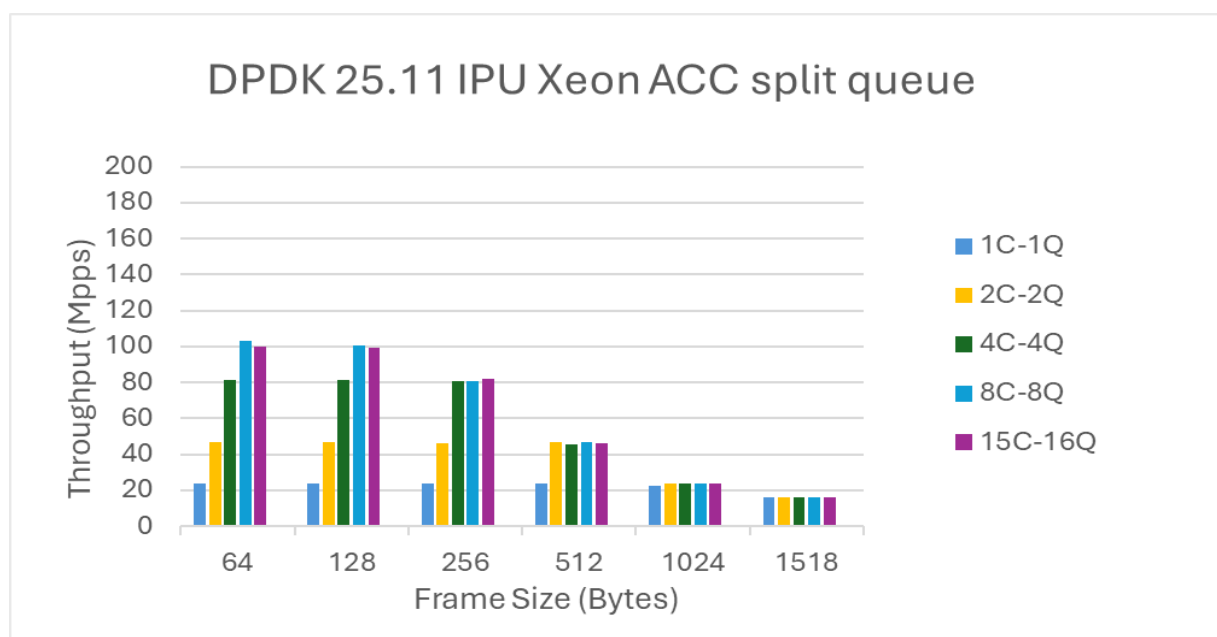
Advanced setting:

Item	Description
DPDK Command on Xeon	1C1Q: ./dpdk-testpmd -l 61,62 -a 99:00.0,vport=0 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 61,62-63 -a 99:00.0,vport=0 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 61,62-65 -a 99:00.0,vport=0 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 61,62-69 -a 99:00.0,vport=0 -- -i -a --txq=8 --rxq=8 --nb-cores=8 16C16Q: ./dpdk-testpmd -l 61,62-77 -a 99:00.0,vport=0 -- -i -a --txq=16 --rxq=16 --nb-cores=16
DPDK Command on ACC	1C1Q: ./dpdk-testpmd -l 0,1 -a 00:01.6,vport=0 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 0,1-2 -a 00:01.6,vport=0 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 0,1-4 -a 00:01.6,vport=0 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 0,1-8 -a 00:01.6,vport=0 -- -i -a --txq=8 --rxq=8 --nb-cores=8 15C16Q: ./dpdk-testpmd -l 0,1-15 -a 00:01.6,vport=0 -- -i -a --txq=16 --rxq=16 --nb-cores=16
Traffic Generator Configuration	Transmit rate: 100% of line rate Packet: any mac/ fixed dst ip, random src ip

Table 39: Test #12 Subcase #1 Result

Frame size (Bytes)	Line Rate[200G] (Mpps)	1C-1Q	2C-2Q	4C-4Q	8C-8Q	15C-16Q
64	297.62	24.15	47.13	81.39	103.22	99.63
128	168.92	23.93	46.98	81.65	100.75	99.16
256	90.58	23.77	46.23	80.87	80.67	82.12
512	46.99	23.72	46.70	45.38	46.59	46.27
1024	23.95	22.29	23.95	23.95	23.95	23.95
1518	16.25	16.25	16.25	16.25	16.25	16.25

Figure 29: split queue on 1x Intel® IPU Adapter E2100-CCQDA2



Subcase #2: IPU_Xeon_ACC_non-split_queue_mcmq_mrr

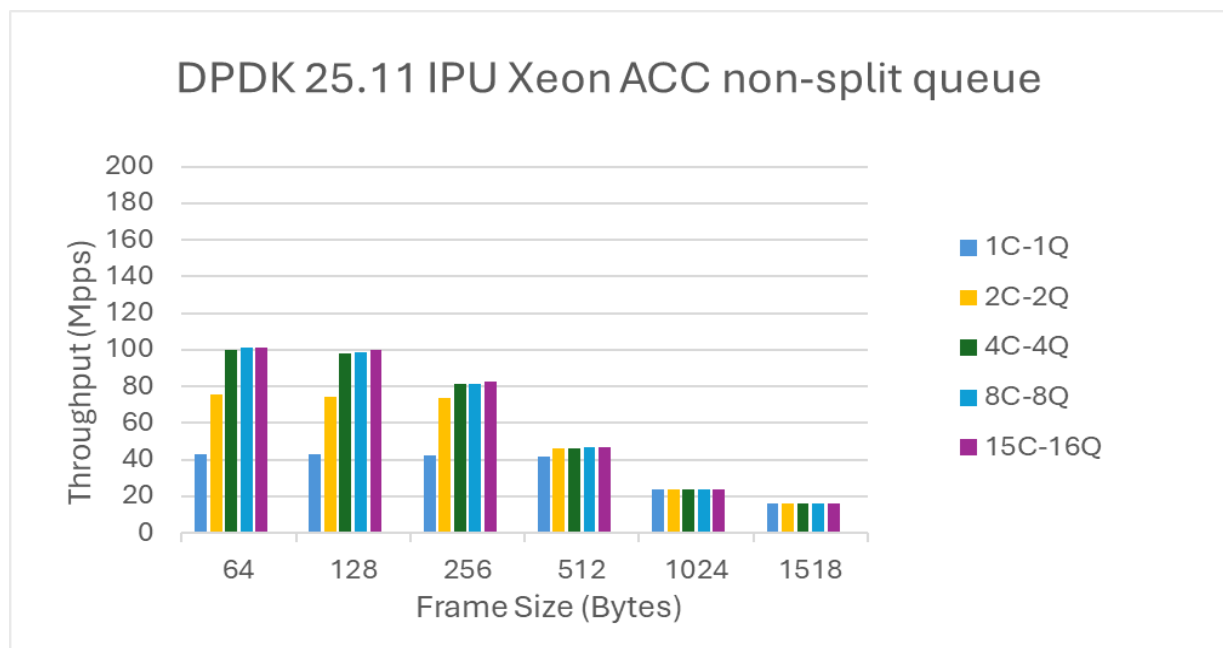
Advanced setting:

Item	Description
DPDK Command on Xeon	1C1Q: ./dpdk-testpmd -l 61,62 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 61,62-63 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 61,62-65 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 61,62-69 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=8 --rxq=8 --nb-cores=8 16C16Q: ./dpdk-testpmd -l 61,62-77 -a 99:00.0,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=16 --rxq=16 --nb-cores=16
DPDK Command on ACC	1C1Q: ./dpdk-testpmd -l 0,1 -a 00:01.6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=1 --rxq=1 --nb-cores=1 2C2Q: ./dpdk-testpmd -l 0,1-2 -a 00:01.6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=2 --rxq=2 --nb-cores=2 4C4Q: ./dpdk-testpmd -l 0,1-4 -a 00:01.6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=4 --rxq=4 --nb-cores=4 8C8Q: ./dpdk-testpmd -l 0,1-8 -a 00:01.6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=8 --rxq=8 --nb-cores=8 16C16Q: ./dpdk-testpmd -l 0,1-15 -a 00:01.6,vport=0,rx_single=1,tx_single=1 -- -i -a --txq=16 --rxq=16 --nb-cores=16
Traffic Generator Configuration	Transmit rate: 100% of line rate Packet: any mac/ fixed dst ip, random src ip

Table 40: Test #12 Subcase #2 Result

Frame size (Bytes)	Line Rate[200G] (Mpps)	1C-1Q	2C-2Q	4C-4Q	8C-8Q	15C-16Q
64	297.62	43.26	75.93	99.88	101.44	101.17
128	168.92	42.70	74.26	98.05	98.98	99.82
256	90.58	42.69	74.02	81.12	81.32	82.66
512	46.99	41.58	46.46	46.35	46.54	46.59
1024	23.95	23.95	23.95	23.95	23.95	23.95
1518	16.25	16.25	16.25	16.25	16.25	16.25

Figure 30: non-split queue on 1x Intel® IPU Adapter E2100-CCQDA2





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