DPDK performance measurement using SZEDATA2 PMD
(11. 9. 2015)

Information about used machine

CPUs:	2x Xeon(R) CPU E5-2660 v3 @ 2.60GHz
OS:	Scientific Linux release 6.5 (Carbon)
Kernel:	2.6.32-431.1.2.el6.x86_64
Hyper-Threading:	ON
Cores:	2x 10 (2x 20)

Card:	COMBO-100G
Firmware:	NIC_100G1_LR4
Firmware version:	0x41c10701 2015/09/02 20:45:32

DPDK version:	2.1.0
libsze2 version:	1.1.4

Kernel modules (combov3, szedata2_cv3) version: 0.9.2

We have used Spirent Testcenter hardware tester for generating the packets and testpmd application for receiving, transmitting and forwarding the packets.

We have run testpmd as follows:

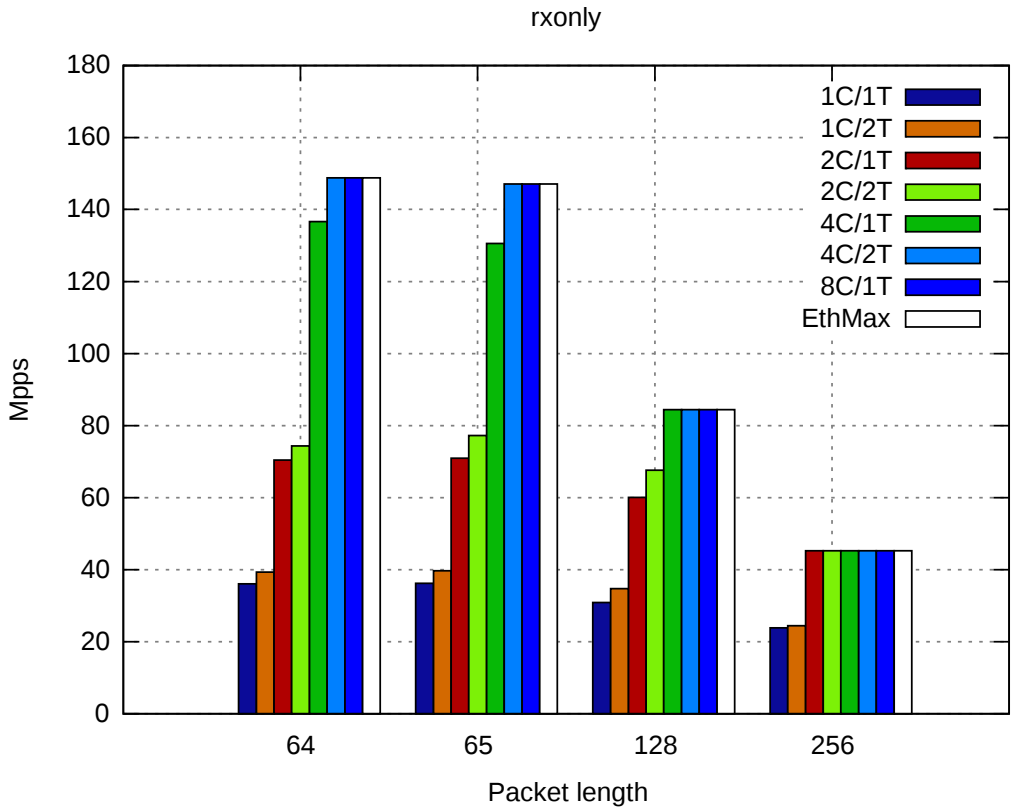
```
./testpmd -c 0xfffffffffff  --master-lcore 38 -n 4 \
--vdev "eth_szedata20,dev_path=/dev/szedataII0,rx_ifaces=IFACES,tx_ifaces=IFACES" -- \
--rxq=QUEUES --txq=QUEUES --coremask=COREMASK \
--rxd=512 --txd=512 --burst=128 --txfreet=32 --rxfreet=64 --mbcache=128 \
--rxpt=4 --rxht=4 --rxwt=16 --txpt=36 --txht=0 --txwt=0 --txrst=32 \
--total-num-mbufs=65535 --no-flush-rx --port-topology=chained --forward-mode=MODE \
--txpkts=SIZE
```

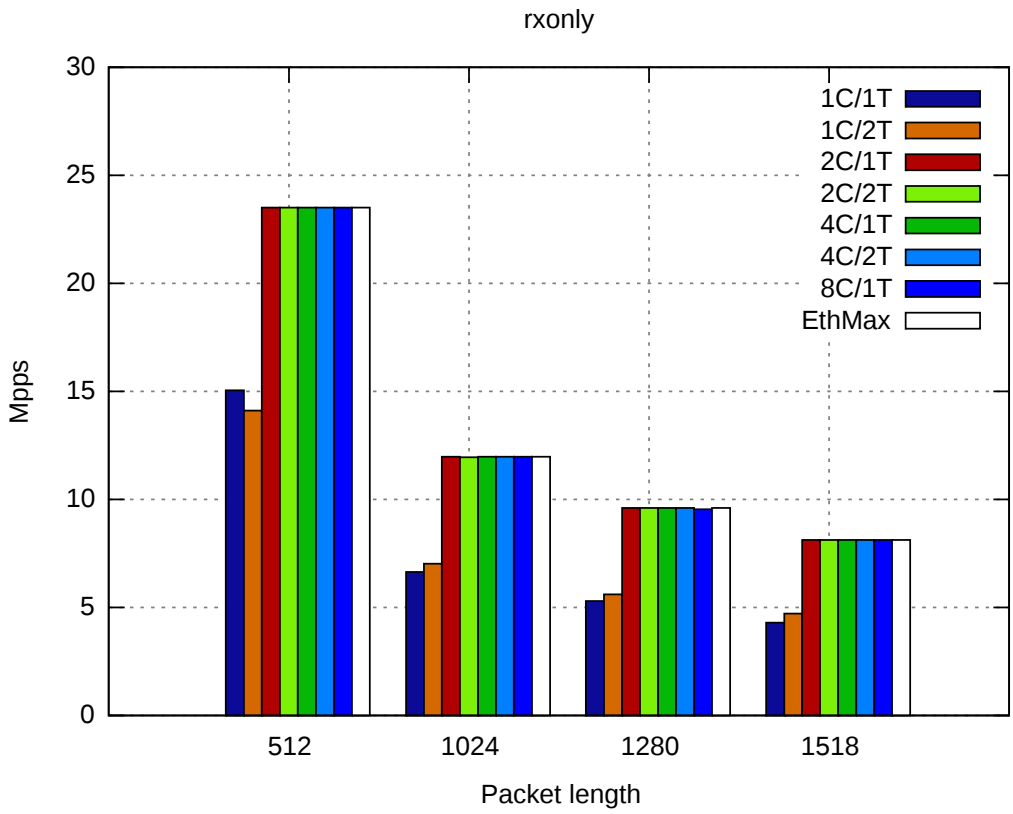
Measured configurations of cores and queues are described as in DPDK test suite:

1. 1C/1T IFACES=0x1, QUEUES=1, COREMASK=0x0000000001
   1 physical core, 1 used logical core per physical core
2. 1C/2T IFACES=0x3, QUEUES=2, COREMASK=0x0000100001
   1 physical core, 2 used logical cores per physical core
3. 2C/1T IFACES=0x3, QUEUES=2, COREMASK=0x0000000005
   2 physical cores, 1 used logical core per physical core
4. 2C/2T IFACES=0xf, QUEUES=4, COREMASK=0x0000500005
   2 physical cores, 2 used logical cores per physical core
5. 4C/1T IFACES=0xf, QUEUES=4, COREMASK=0x0000000055
   4 physical cores, 1 used logical core per physical core
6. 4C/2T IFACES=0xff,QUEUES=8, COREMASK=0x0005500055
   4 physical cores, 2 used logical cores per physical core
7. 8C/1T IFACES=0xff,QUEUES=8, COREMASK=0x0000005555
   8 physical cores, 1 used logical core per physical core

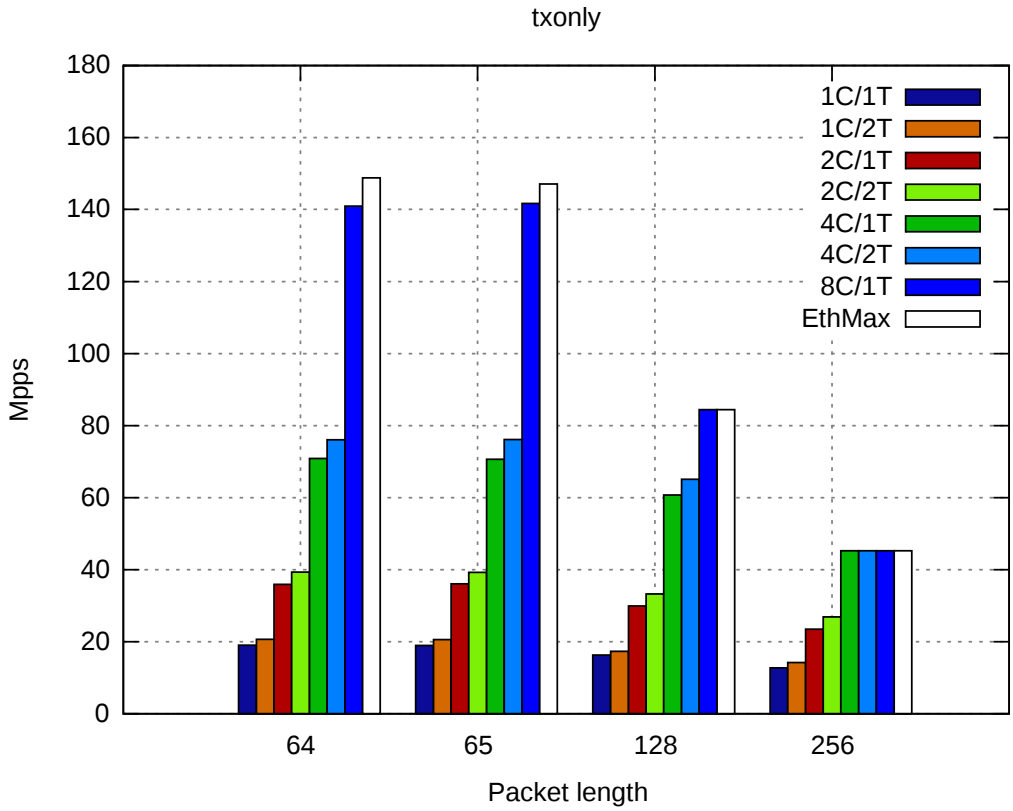
Packet length in the following graphs is length of Layer 2 Ethernet frame including Frame Check Sequence.
EthMax is maximal number of packets per second allowed by 100 GbE standard.

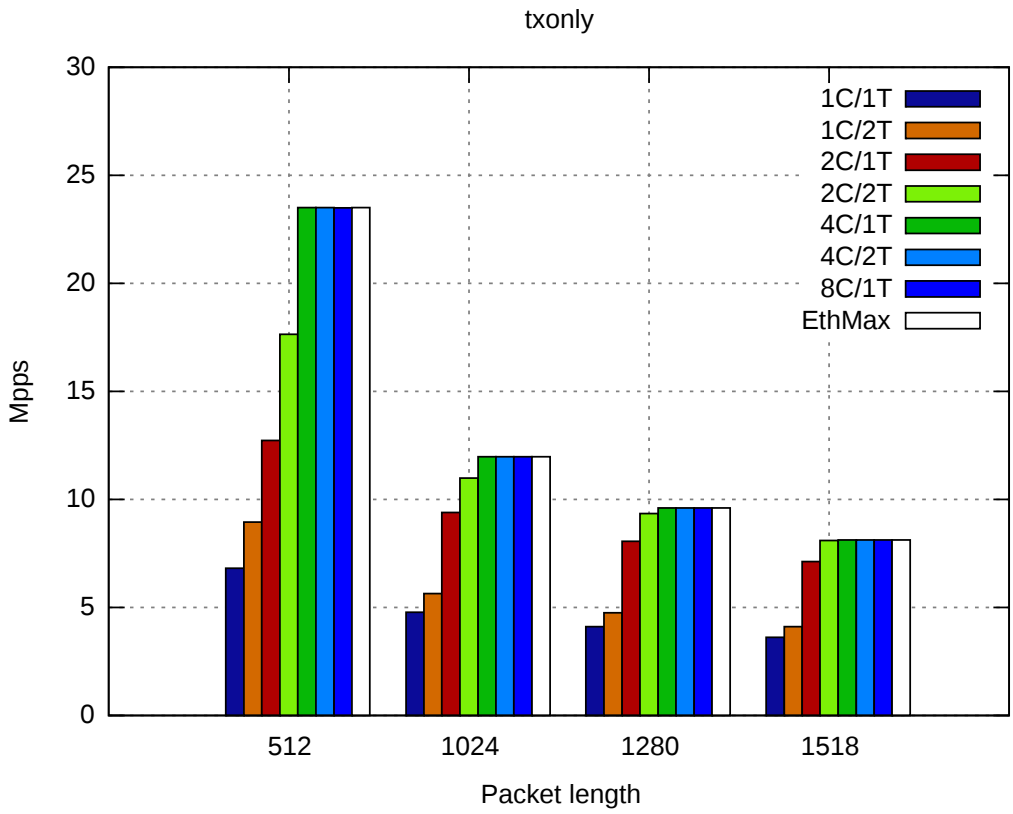
Receiving packets (`--forward-mode=rxonly`)





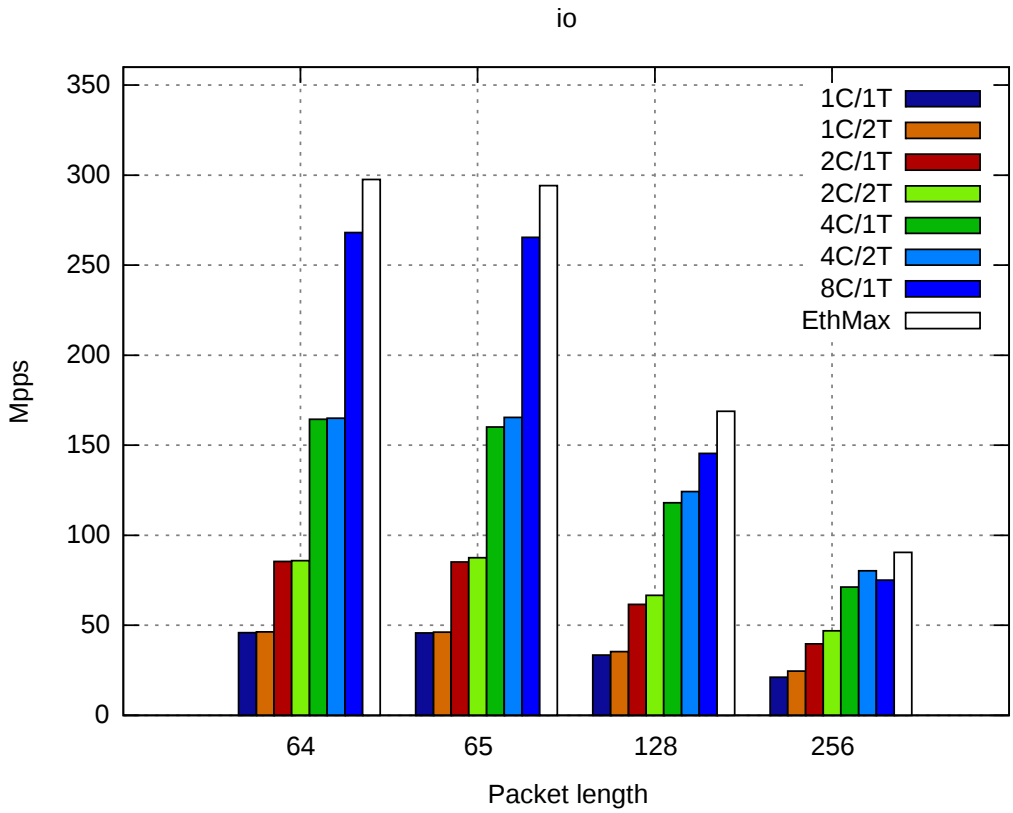
Transmitting packets (`--forward-mode=txonly`)

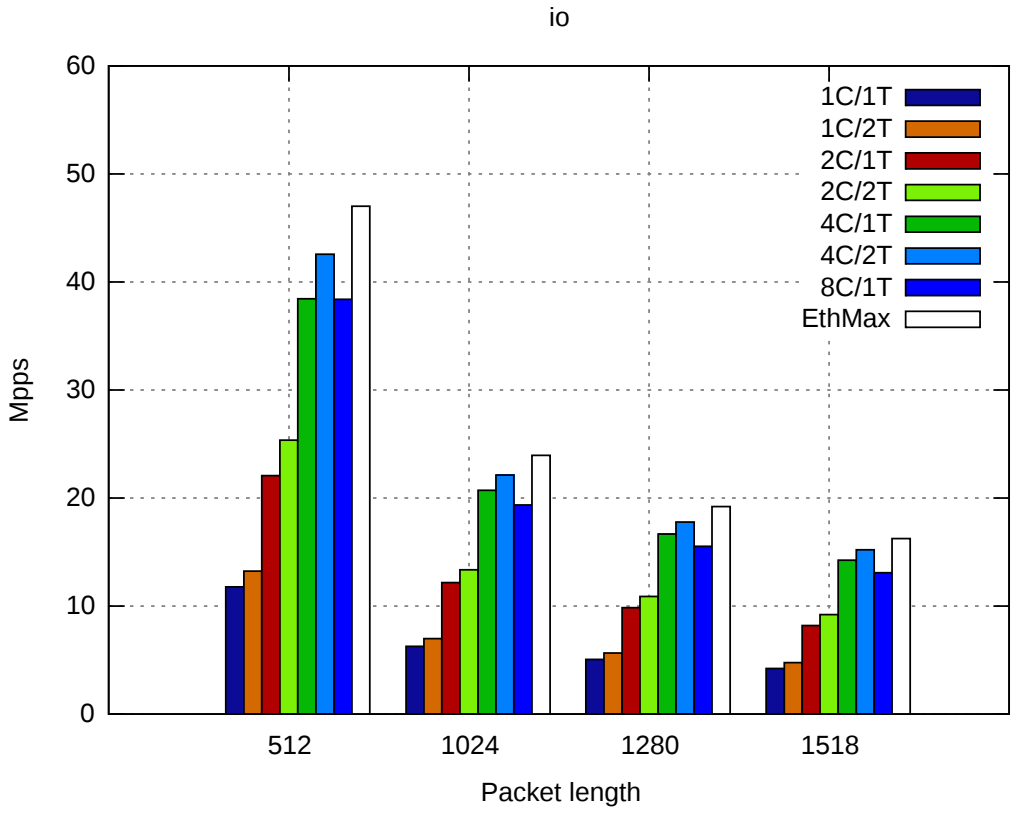




Forwarding packets (`--forward-mode=io`)

Numbers in following graphs are aggregated rx and tx packets.





Numerical values in tables

rxonly	64	65	128	256	512	1024	1280	1518
	Mpps	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**
1C/1T	**36,09**	**36,26**	**30,93**	**23,92**	**15,04**	**6,65**	**5,30**	**4,30**
1C/2T	**39,34**	**39,68**	**34,75**	**24,49**	**14,11**	**7,03**	**5,61**	**4,73**
2C/1T	**70,44**	**70,96**	**60,07**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
2C/2T	**74,34**	**77,27**	**67,65**	**45,29**	**23,50**	**11,95**	**9,62**	**8,13**
4C/1T	**136,66**	**130,54**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
4C/2T	**148,81**	**147,06**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
8C/1T	**148,81**	**147,06**	**84,46**	**45,29**	**23,50**	**11,97**	**9,53**	**8,13**
EthMax	**148,81**	**147,06**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**

txonly	64	65	128	256	512	1024	1280	1518
	Mpps	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**
1C/1T	**19,05**	**19,02**	**16,34**	**12,77**	**6,82**	**4,78**	**4,11**	**3,62**
1C/2T	**20,69**	**20,58**	**17,33**	**14,26**	**8,95**	**5,64**	**4,76**	**4,12**
2C/1T	**35,92**	**36,05**	**29,90**	**23,52**	**12,72**	**9,39**	**8,07**	**7,12**
2C/2T	**39,36**	**39,27**	**33,29**	**26,93**	**17,65**	**10,99**	**9,35**	**8,10**
4C/1T	**70,92**	**70,69**	**60,75**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
4C/2T	**76,11**	**76,14**	**65,11**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
8C/1T	**140,96**	**141,67**	**84,46**	**45,28**	**23,49**	**11,97**	**9,62**	**8,13**
EthMax	**148,81**	**147,06**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**

Numbers in following table are aggregated rx and tx packets.

io	64	65	128	256	512	1024	1280	1518
	Mpps	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**
1C/1T	**45,92**	**45,84**	**33,49**	**21,24**	**11,78**	**6,27**	**5,07**	**4,24**
1C/2T	**46,31**	**46,21**	**35,46**	**24,67**	**13,23**	**6,99**	**5,65**	**4,77**
2C/1T	**85,44**	**85,14**	**61,71**	**39,64**	**22,07**	**12,18**	**9,86**	**8,21**
2C/2T	**86,02**	**87,59**	**66,69**	**47,01**	**25,35**	**13,36**	**10,89**	**9,20**
4C/1T	**164,45**	**160,07**	**118,03**	**71,25**	**38,43**	**20,72**	**16,67**	**14,24**
4C/2T	**165,10**	**165,49**	**124,32**	**80,34**	**42,54**	**22,13**	**17,77**	**15,22**
8C/1T	**268,12**	**265,37**	**145,58**	**75,14**	**38,40**	**19,35**	**15,52**	**13,09**
EthMax	**297,62**	**294,12**	**168,92**	**90,58**	**46,99**	**23,95**	**19,23**	**16,25**