DPDK performance measurement using SZEDATA2 PMD

Information about used machine:

CPU:	Xeon(R) CPU E5-2670 0 @ 2.60GHz
OS:	Scientific Linux 6.5
Kernel:	2.6.32-431.1.2.el6.x86_64
Hyper-Threading:	ON
Cores:	8 (16)

Card:	COMBO-100G
Firmware:	HANIC_100G1_LR4
Firmware version:	0xa41c0301 2015/03/16

DPKD version: 2.0.0
libsze2 version: 1.1.3
Kernel modules (combov3, szedata2_cv3) version: 0.8.6

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:

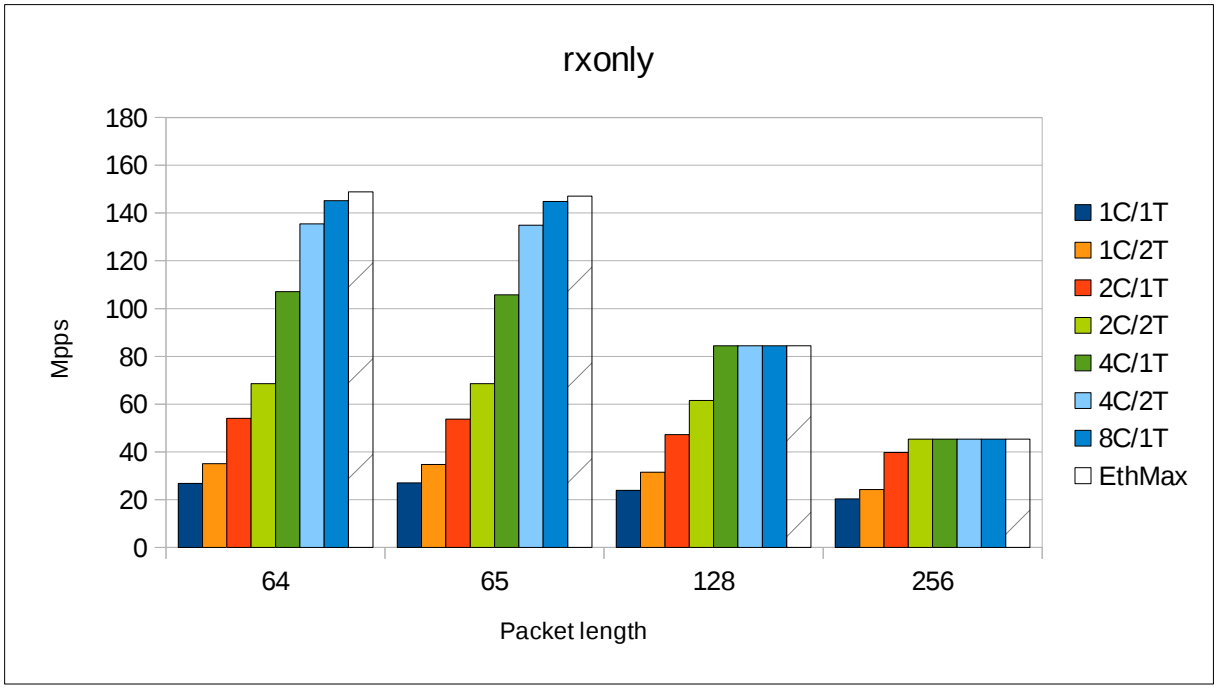
```
./testpmd -c 0xffff  --master-lcore 15 -n 3 \
--vdev "eth_szedata20,dev_path=/dev/szedataII0,rx_ifaces=IFACES,tx_ifaces=IFACES" -- \
--rxq=QUEUES --txq=QUEUES --coremask=COREMASK \
--rxd=512 --txd=512 --burst=128 --txfreet=32 --rxfreet=64 --mbcache=128 \
--rxpt=4 --rxht=4 --rxwt=16 --txpt=36 --txht=0 --txwt=0 --txrst=32 \
--total-num-mbufs=65535 --no-flush-rx --port-topology=chained --forward-mode=MODE \
--txpkts=SIZE
```

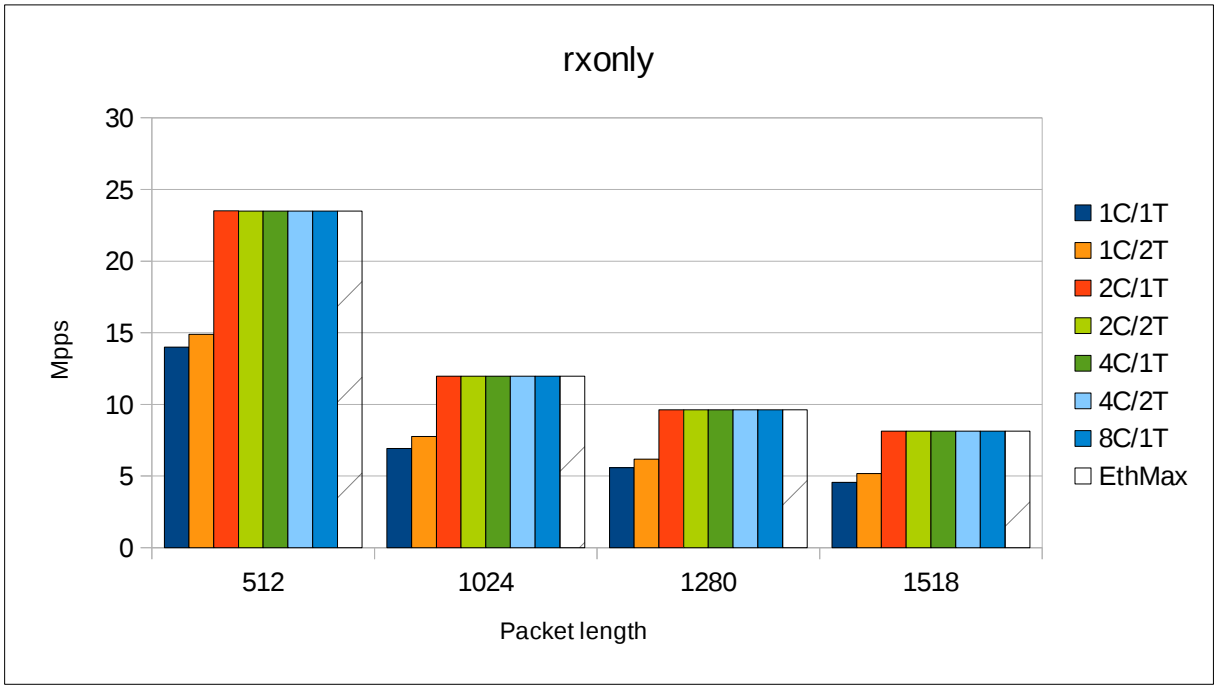
Measured configurations of cores and queues are described as in DPDK test suite:

1. 1C/1T IFACES=0x1, QUEUES=1, COREMASK=0x1
   1 physical core, 1 used logical core per physical core
2. 1C/2T IFACES=0x3, QUEUES=2, COREMASK=0x0101
   1 physical core, 2 used logical cores per physical core
3. 2C/1T IFACES=0x3, QUEUES=2, COREMASK=0x3
   2 physical cores, 1 used logical core per physical core
4. 2C/2T IFACES=0xf, QUEUES=4, COREMASK=0x0303
   2 physical cores, 2 used logical cores per physical core
5. 4C/1T IFACES=0xf, QUEUES=4, COREMASK=0xf
   4 physical cores, 1 used logical core per physical core
6. 4C/2T IFACES=0xff,QUEUES=8, COREMASK=0x0f0f
   4 physical cores, 2 used logical cores per physical core
7. 8C/1T IFACES=0xff,QUEUES=8, COREMASK=0xff
   8 physical cores, 1 used logical core per physical core

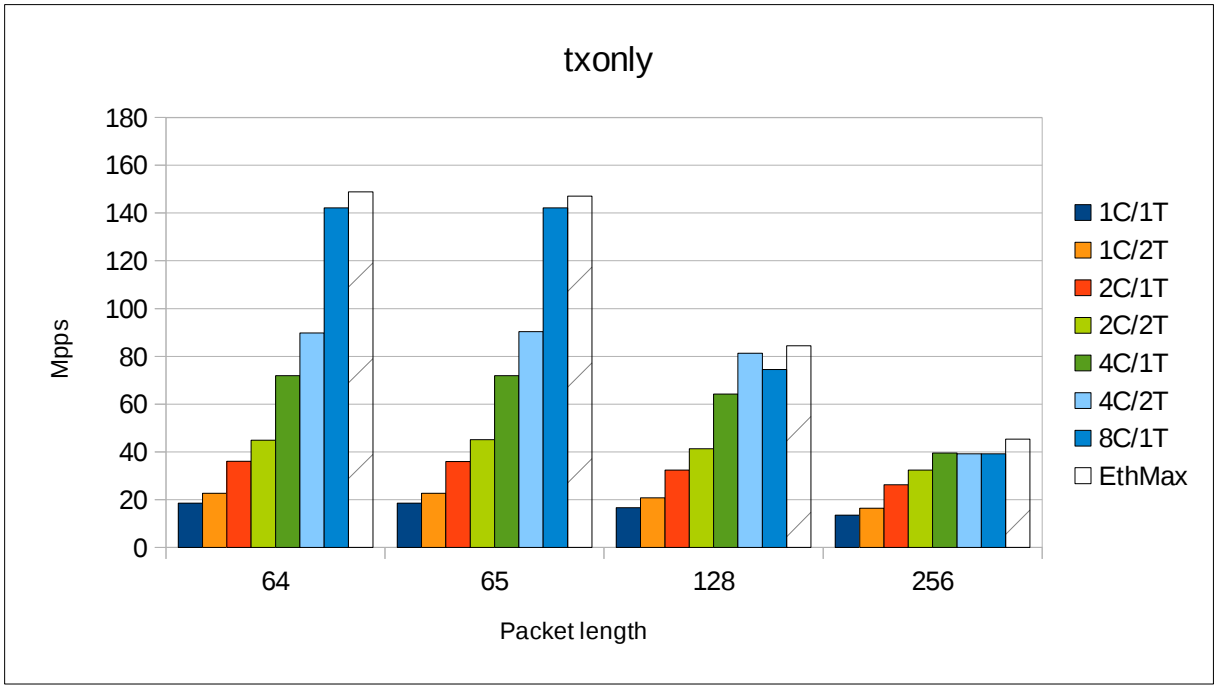
Packet length in the following graphs is length of Layer 2 Ethernet frame including Frame Check Sequence.
EthMax is maximal number of packets per second allowed by 100 GbE standard.

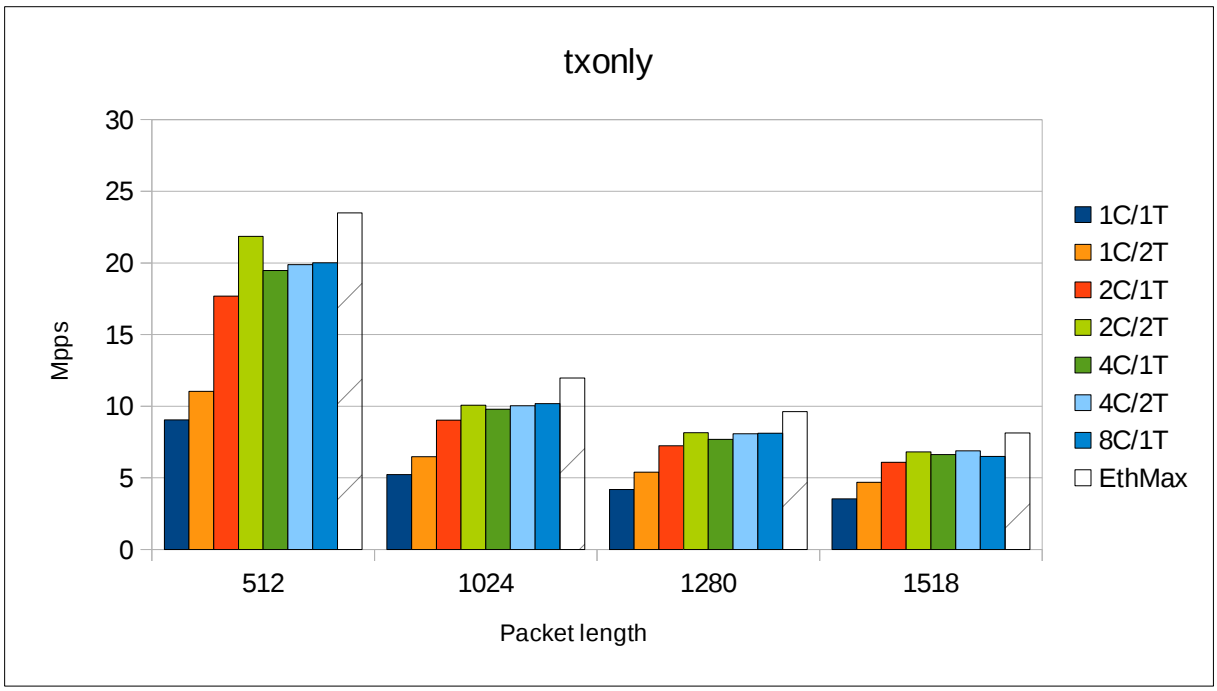
Receiving packets (`--forward-mode=rxonly`)





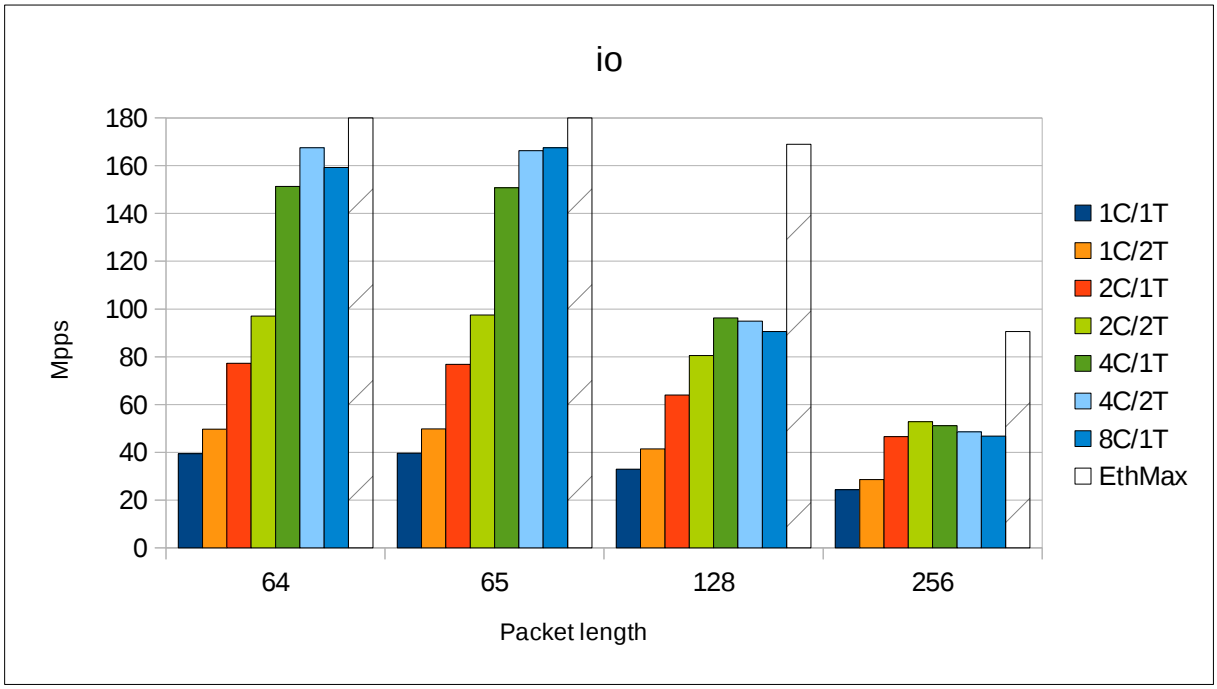
Transmitting packets (`--forward-mode=txonly`)

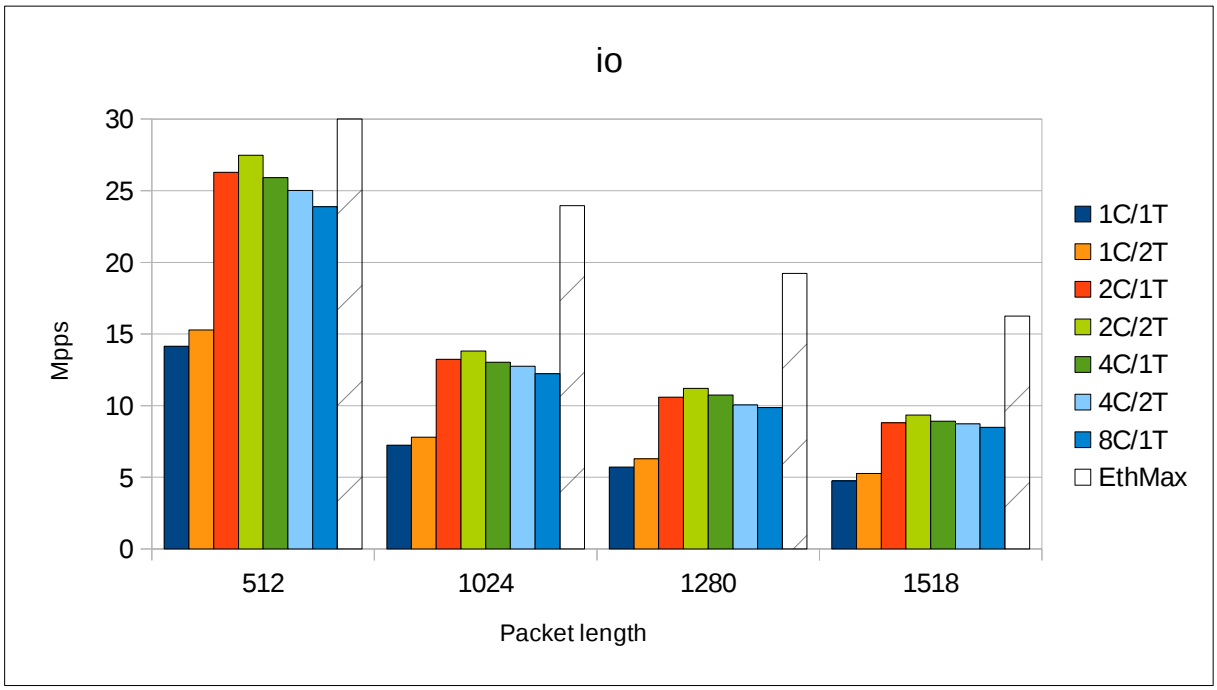




Forwarding packets (`--forward-mode=io`)

Numbers in following graphs are aggregated rx and tx packets. EthMax for lengths 64, 65 and 512 is cut off for clarity.





Numerical values in tables

rxonly	64	65	128	256	512	1024	1280	1518
	Mpps	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**
1C/1T	**26,77**	**26,98**	**23,93**	**20,38**	**13,99**	**6,92**	**5,59**	**4,57**
1C/2T	**35,05**	**34,71**	**31,48**	**24,27**	**14,88**	**7,76**	**6,17**	**5,18**
2C/1T	**53,99**	**53,66**	**47,27**	**39,78**	**23,50**	**11,97**	**9,62**	**8,13**
2C/2T	**68,58**	**68,54**	**61,52**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
4C/1T	**107,16**	**105,73**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
4C/2T	**135,51**	**134,91**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**
8C/1T	**145,16**	**144,86**	**84,46**	**45,29**	**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**

txonly	64	65	128	256	512	1024	1280	1518
	Mpps	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**
1C/1T	**18,48**	**18,49**	**16,57**	**13,48**	**9,04**	**5,22**	**4,18**	**3,53**
1C/2T	**22,73**	**22,67**	**20,73**	**16,41**	**11,03**	**6,48**	**5,40**	**4,68**
2C/1T	**36,13**	**35,99**	**32,41**	**26,29**	**17,68**	**9,02**	**7,23**	**6,09**
2C/2T	**44,91**	**45,17**	**41,37**	**32,41**	**21,86**	**10,06**	**8,14**	**6,80**
4C/1T	**71,86**	**71,89**	**64,20**	**39,55**	**19,47**	**9,78**	**7,68**	**6,63**
4C/2T	**89,79**	**90,30**	**81,32**	**39,14**	**19,88**	**10,02**	**8,09**	**6,89**
8C/1T	**142,19**	**142,17**	**74,54**	**39,19**	**20,01**	**10,18**	**8,10**	**6,49**
EthMax	**148,81**	**147,06**	**84,46**	**45,29**	**23,50**	**11,97**	**9,62**	**8,13**

io	64	65	128	256	512	1024	1280	1518
	Mpps	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**	**Mpps**
1C/1T	**39,43**	**39,61**	**32,99**	**24,32**	**14,14**	**7,24**	**5,72**	**4,74**
1C/2T	**49,67**	**49,85**	**41,38**	**28,64**	**15,27**	**7,80**	**6,29**	**5,27**
2C/1T	**77,32**	**76,88**	**64,03**	**46,51**	**26,28**	**13,22**	**10,58**	**8,80**
2C/2T	**97,00**	**97,53**	**80,55**	**52,81**	**27,48**	**13,82**	**11,20**	**9,35**
4C/1T	**151,32**	**150,82**	**96,26**	**51,09**	**25,91**	**13,03**	**10,74**	**8,92**
4C/2T	**167,57**	**166,25**	**94,98**	**48,60**	**25,02**	**12,75**	**10,05**	**8,73**
8C/1T	**159,32**	**167,57**	**90,54**	**46,81**	**23,88**	**12,22**	**9,86**	**8,48**
EthMax	**297,62**	**294,12**	**168,92**	**90,58**	**46,99**	**23,95**	**19,23**	**16,25**