



ION SR-71mach4 SpeedServer™ system



Executive summary

After performing all tests, the ION SR-71mach4 SpeedServer™ has been officially certified according to the [Open-E Hardware Certification Program Guide 2.1](#).

During the tests, it was found that the system is functional and efficient. With the [Open-E DSS V7](#) operating system installed, the ION SR-71mach4 SpeedServer™ is stable and performs well.

In general, the system can be used for many different applications, but the following are recommended:

✓ Storage for database

The following features decides that ION SR-71mach4 SpeedServer™ is a great Storage for databases:

- Hardware RAID10 for high performance, best I/Ops ratio and data safety.
- Twentyfour high class, enterprise SSD drives combined with three RAID controllers ensure the best performance.
- Ten 10GbE interfaces which can be aggregated for improved fault tolerance and increased performance for fast, multiple database connections.
- Good amount of RAM for caching

✓ NAS filer

The following features make ION SR-71mach4 SpeedServer™ a great NAS filer solution:

- Twentyfour high capacity SSD drivers in conjunction with high RAID levels and three fast RAID controllers ensure a lot of safe and extremely fast storage space for Enterprise-scale implementations.
- Four 1GbE and ten 10GbE interfaces for an aggregated, independent connection to different networks.
- Redundant power supply for system reliability.

✓ Storage for Virtualization

For this application the following can be used:

- Multiple hardware RAID controllers with fast SSD drives, RAID10, RAID5, RAID50, RAID6 or RAID60 for high virtual machine density and data safety.
- Four 1GbE interfaces for flexible network topology or fast MPIO connection.
- Ten 10GbE interfaces for efficient network connections to multiple virtualization platforms.

Certification notes

To unleash server full potential, certification procedure was exceptionally modified. iSCSI Target test was performed using 3x RAID5 logical disks, created on separate RAID controllers, with separate volume group on each. Every VG contained 8 targets (for 24 targets total). Four Windows clients were doing I/O operations via MPIO connection, so all 10GbE interfaces were used in this test. Jumbo frames were set to 9014 on both sides. All NICs in the windows system was stripped down to only have the following:

- Link-Layer Topology Discover Mapper I/O Driver
- Link-Layer Topology Discover Responder

In the Advanced settings for IPv4 in the DNS tab “Register this connection’s addresses in DNS” was removed. Target Configuration on Open-E DSS V7 was as follows:

- maxRecvDataSegmentLen=65536
- MaxBurstLength= 262144
- Maxxmitdatasegment=65536
- FirstBurstLength=65536
- DataDigest=None



- **maxoutstandingr2t=1**
- **InitialR2T=Yes**
- **ImmediateData=No**
- **headerDigest=None**

Windows system iSCSI initiator registry was match with the Open-E DSS V7 Targets.





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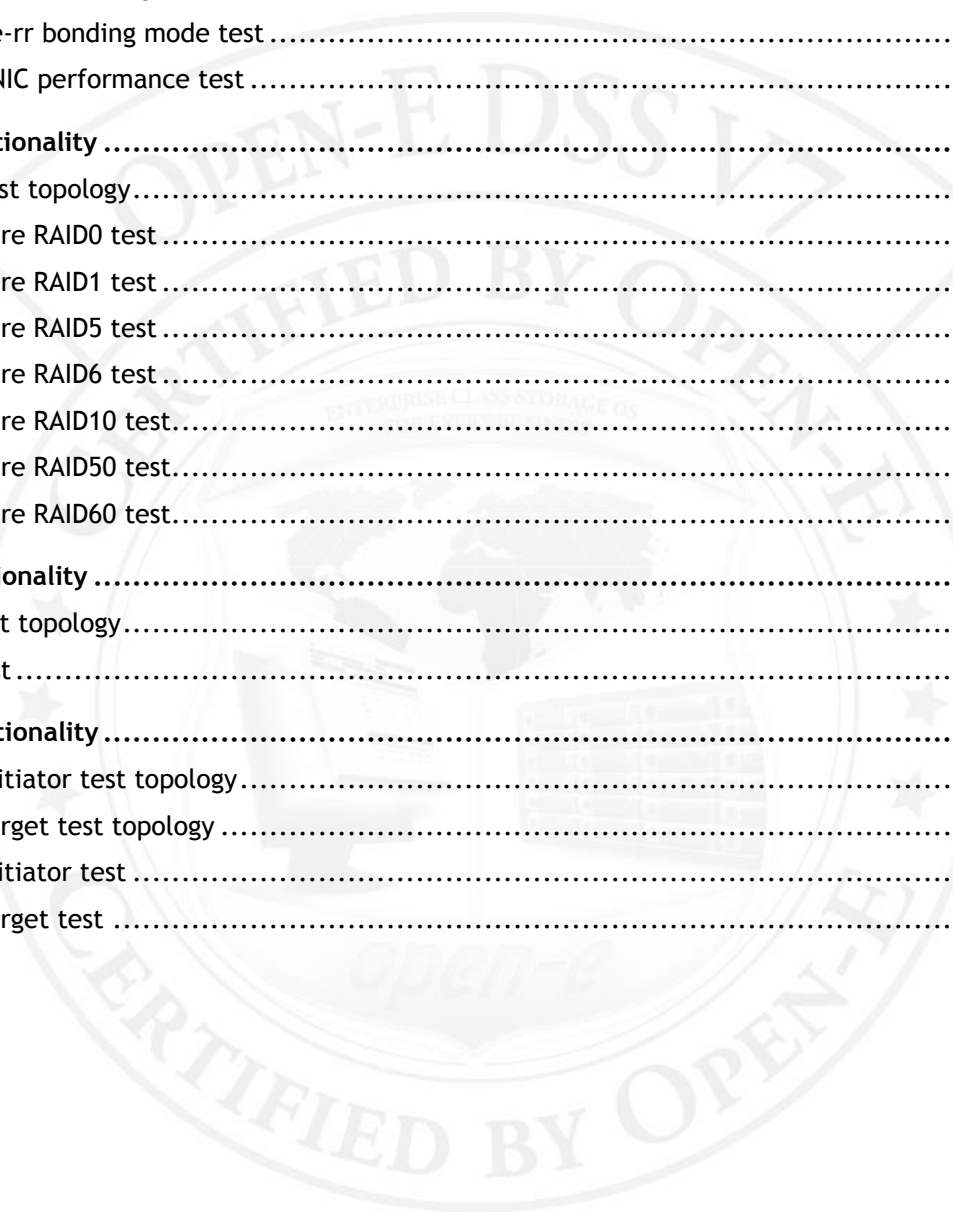
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ION SR-71mach4 SpeedServer™ hardware components

Technical specifications about the certified system are listed below:

Model	ION SR-71mach4 SpeedServer™
Operating system	Open-E DSS V7 build 10529
Enclosure/chassis	Intel® R2224GZ4GC4 2U Chassis
CPU	2x Intel® 10-Core Xeon® Processor E5-2690 v2
Motherboard	Intel® Server Board S2600GZ4
Memory	8x 8GB Crucial DDR3 1866 RDIMM (CT8G3ERSDD8186D)
Network	Intel® Ethernet Server Adapter I350-T4
Network	4x Intel® Ethernet Converged Network Adapter X520-DA2
Network	Dual Port Intel® X540 10GbE I/O Module AXX10GBTWLIOM
HW RAID	1x Intel® Integrated RAID Module RMS25CB080
HW RAID	2x Intel® Integrated RAID Module RMS25PB080
Hard disk drives	24x 800GB Intel® Solid-State Drive DC S3500 (SSDSC2BB800G4)

TABLE 1: Hardware components list of Certified System with Open-E DSS V7



ION SR-71mach4 SpeedServer™ photos



FIGURE 1: Front photo



FIGURE 2: Rear photo

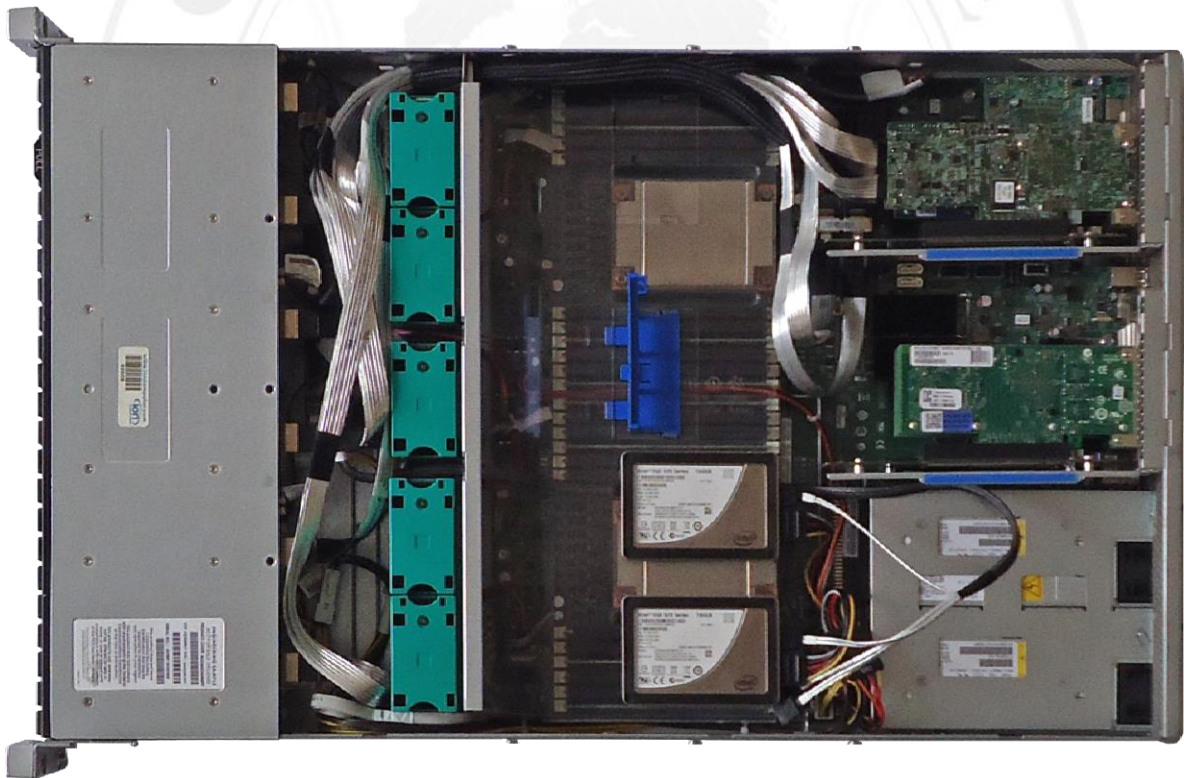


FIGURE 3: Top photo

Auxiliary systems hardware components

Auxiliary systems with MS Windows or Open-E DSS V7 installed, used in Open-E Hardware Certification Process.

Model	Custom
Operating system	MS Windows Server 2012 R2
Enclosure/chassis	Inter-Tech IPC 4088 4HE
Motherboard	Asus P8B-E/4L
CPU	Intel® Xeon® E3-1230 3.20 GHz
Memory	3x 4GB DDR3 Kingston KVR1333D3E9S/4G
Network	4x Intel® 82574L Gigabit Ethernet Controller
Network	2x Intel® Ethernet Converged Network Adapter X520-DA2
Hard disk drives	1TB Hitachi Ultrastar A7K2000 HUA722010CLA330

TABLE 2: Hardware components of first Workstation with MS Windows

Model	Custom
Operating system	MS Windows Server 2012 R2
Enclosure/chassis	Inter-Tech IPC 4088 4HE
Motherboard	Asus P8B-E/4L
CPU	Intel® Xeon® E3-1230 3.20 GHz
Memory	3x 4GB DDR3 Kingston KVR1333D3E9S/4G
Network	4x Intel® 82574L Gigabit Ethernet Controller
Network	2x Intel® Ethernet Converged Network Adapter X520-DA2
Hard disk drives	1TB Hitachi Ultrastar A7K2000 HUA722010CLA330

TABLE 3: Hardware components of second Workstation with MS Windows

Model	Custom
Operating system	MS Windows Server 2012 R2
Enclosure/chassis	Inter-Tech IPC 4088 4HE
Motherboard	Asus P8B-E/4L
CPU	Intel® Xeon® E3-1230 3.20 GHz
Memory	3x 4GB DDR3 Kingston KVR1333D3E9S/4G
Network	4x Intel® 82574L Gigabit Ethernet Controller
Network	2x Intel® Ethernet Converged Network Adapter X520-DA2
Hard disk drives	1TB Hitachi Ultrastar A7K2000 HUA722010CLA330

TABLE 4: Hardware components of third Workstation with MS Windows

Model	Custom
Operating system	MS Windows Server 2012 R2
Enclosure/chassis	Inter-Tech IPC 4088 4HE
Motherboard	Asus P8B-E/4L
CPU	Intel® Xeon® E3-1230 3.20 GHz
Memory	3x 4GB DDR3 Kingston KVR1333D3E9S/4G
Network	4x Intel® 82574L Gigabit Ethernet Controller
Network	2x Intel® Ethernet Converged Network Adapter X520-DA2
Hard disk drives	1TB Hitachi Ultrastar A7K2000 HUA722010CLA330

TABLE 5: Hardware components of fourth Workstation with MS Windows

Model	Custom
Operating system	Open-E DSS V7 build 10529
Enclosure/chassis	Inter-Tech IPC 4088 4HE
Motherboard	Asus P8B-E/4L
CPU	Intel® Xeon® E3-1230 3.20 GHz
Memory	3x 4GB DDR3 Kingston KVR1333D3E9S/4G
Network	4x Intel® 82574L Gigabit Ethernet Controller
Network	2x Intel® Ethernet Converged Network Adapter X520-DA2
Hard disk controller	Intel® RAID Controller RS2WC080
Hard disk drives	500GB Hitachi Deskstar 7K1000.C HDS721050CLA362
Hard disk drives	8x 1TB Hitachi Ultrastar A7K2000 HUA722010CLA330

TABLE 6: Hardware components of Workstation with Open-E DSS V7

Model	Netgear® M7300
Description	24x 10GbE SFP+ ports with 4 ports exchangeable to 10GbE RJ45

TABLE 7: Network switch details

Administration functionality

The following functionality has been tested.

Drive identifier	OK
Power button	OK
Front and rear LEDs	OK

TABLE 8: Administration functionality test results

Network functionality

Tests performed in this section check the functionality, performance and stability of the network solutions available in the Open-E DSS V7 product on the certified system.

The tests rely on configuring the iSCSI targets and copying the data from many *Workstations with MS Windows* through various network connections with big block size using appropriate testing tools.

Network test topology

Network topology for Network testing is shown below.

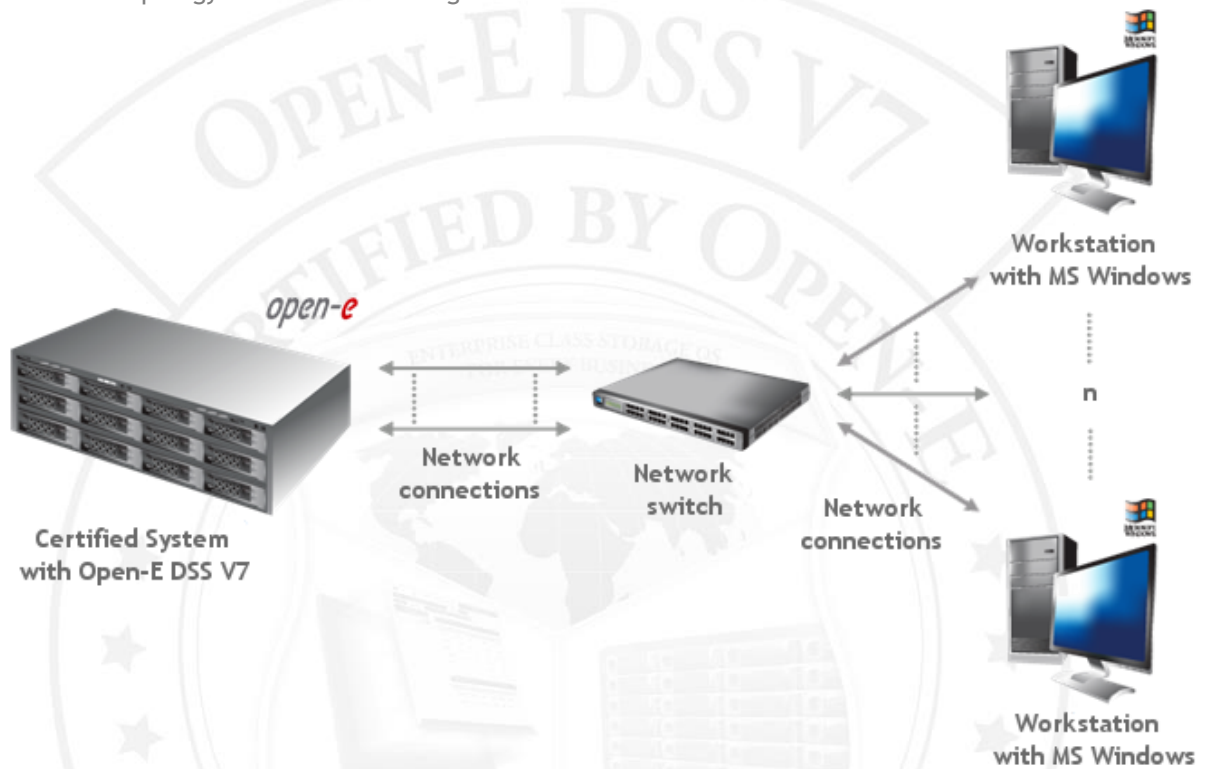


FIGURE 4: Network topology for Network testing

802.3ad bonding mode test

1. Test description

The test relies on configuring the iSCSI targets and copying the data from many Workstations with MS Windows through an 802.3ad bonding mode network connection with a 4MB block size using the Iometer testing tool.

2. Test results for 802.3ad bonding mode test performed on Intel® Ethernet Converged Network Adapter X520-DA2

802.3ad bonding mode performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X520		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	605.96	978.75	passed
2 nd Workstation	609.94	637.18	passed

TABLE 9: 802.3ad bonding mode performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

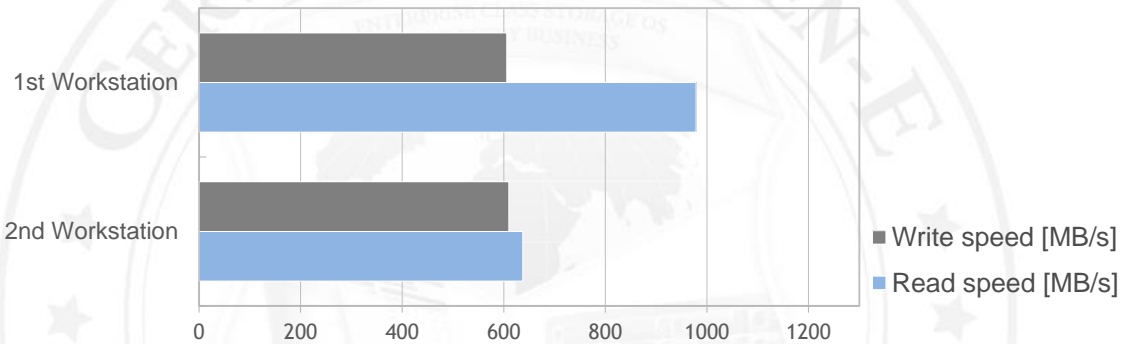


FIGURE 5: 802.3ad bonding mode performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

3. Test results for 802.3ad bonding mode test performed on Intel® Ethernet Converged Network Adapter X540-T2

802.3ad bonding mode performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X540		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	669.56	993.74	passed
2 nd Workstation	699.58	501.88	passed

TABLE 10: 802.3ad bonding mode performance test results table for Intel® Ethernet Converged Network Adapter X540-T2

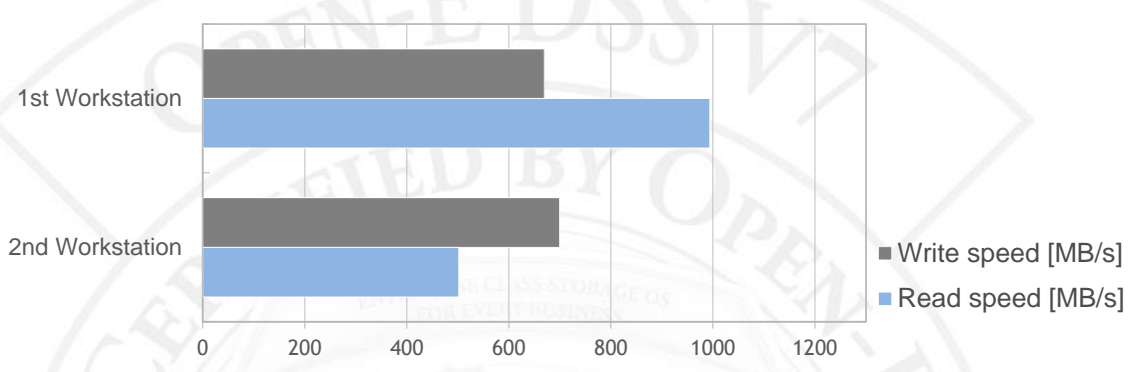


FIGURE 6: 802.3ad bonding mode performance test results chart for Intel® Ethernet Converged Network Adapter X540-T2

4. Test results for 802.3ad bonding mode test performed on Intel® Ethernet Server Adapter I350-T4

802.3ad bonding mode performance test results			
NIC model	Intel® Ethernet Server Adapter I350-T4		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	107.03	55.88	passed
2 nd Workstation	106.11	99.33	passed
3 rd Workstation	106.00	57.89	passed
4 th Workstation	112.69	112.44	passed

TABLE 11: 802.3ad bonding mode performance test results table for Intel® Ethernet Server Adapter I350-T4

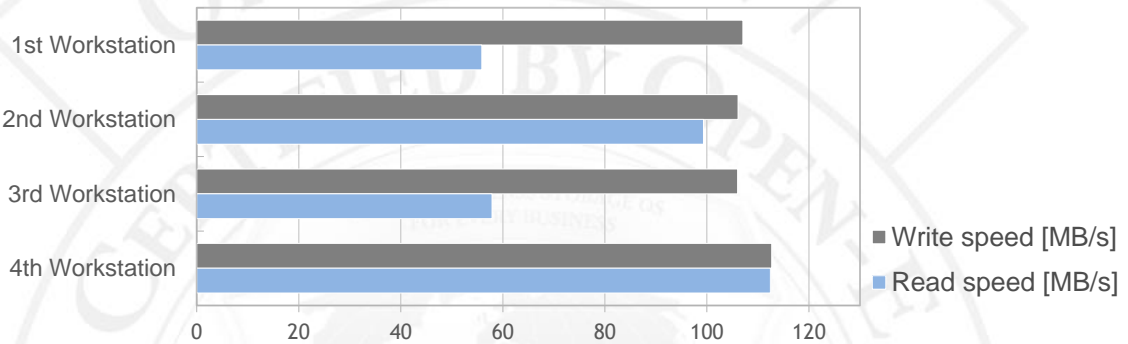


FIGURE 7: 802.3ad bonding mode performance test results chart for Intel® Ethernet Server Adapter I350-T4

Balance-alb bonding mode test

1. Test description

The test relies on configuring the iSCSI targets and copying the data from many *Workstations with MS Windows* through a Balance-alb bonding mode network connection with a 4MB block size using the iometer testing tool.

2. Test results for Balance-alb bonding mode test performed on Intel® Ethernet Converged Network Adapter X520-DA2

Balance-alb bonding mode performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X520		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	817.92	964.53	passed
2 nd Workstation	826.37	507.93	passed

TABLE 12: Balance-alb bonding mode performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

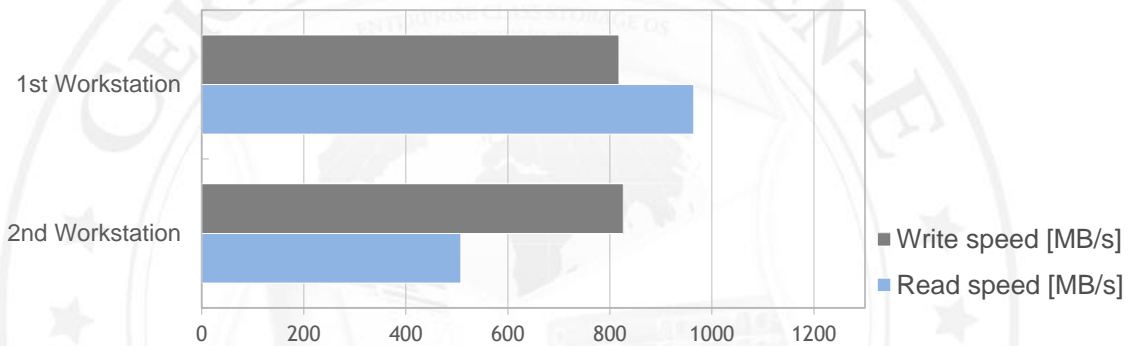


FIGURE 8: Balance-alb bonding mode performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

3. Test results for Balance-alb bonding mode test performed on Intel® Ethernet Converged Network Adapter X540-T2

Balance-alb bonding mode performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X540		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	856.86	1015.46	passed
2 nd Workstation	849.60	648.05	passed

TABLE 13: Balance-alb bonding mode performance test results table for Intel® Ethernet Converged Network Adapter X540-T2

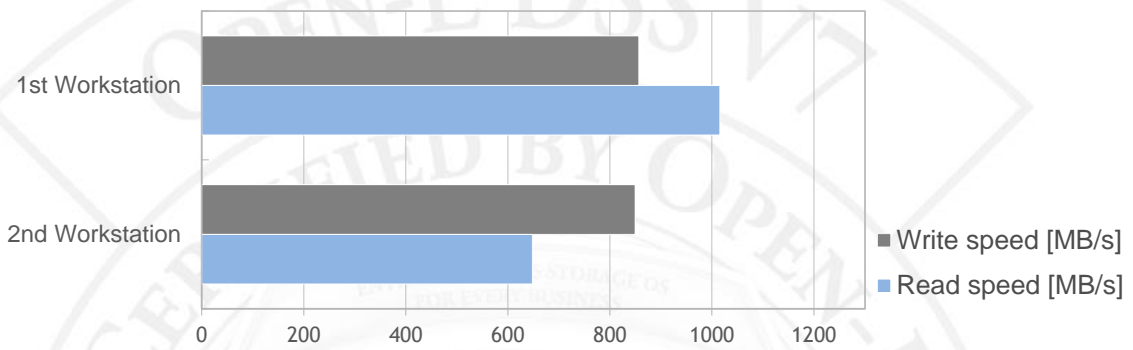


FIGURE 9: Balance-alb bonding mode performance test results chart for Intel® Ethernet Converged Network Adapter X540-T2

4. Test results for Balance-alb bonding mode test performed on Intel® Ethernet Server Adapter I350-T4

Balance-alb bonding mode performance test results			
NIC model	Intel® Ethernet Server Adapter I350-T4		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	112.23	112.20	passed
2 nd Workstation	112.40	111.73	passed
3 rd Workstation	111.79	111.72	passed
4 th Workstation	111.51	112.11	passed

TABLE 14: Balance-alb bonding mode performance test results table for Intel® Ethernet Server Adapter I350-T4

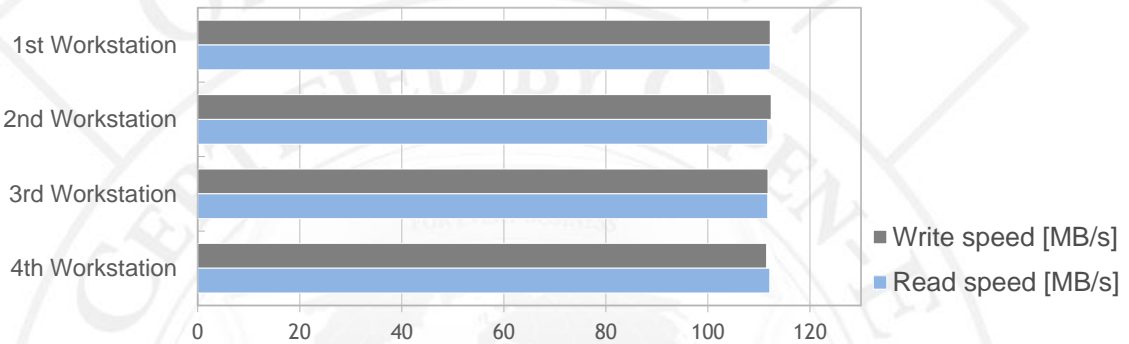


FIGURE 10: Balance-alb bonding mode performance test results chart for Intel® Ethernet Server Adapter I350-T4

Balance-rr bonding mode test

1. Test description

The test relies on configuring the iSCSI targets and copying the data from many *Workstations with MS Windows* through a Balance-rr bonding mode network connection with a 4MB block size using the Iometer testing tool.

2. Test results for Balance-rr bonding mode test performed on Intel® Ethernet Converged Network Adapter X520-DA2

Balance-rr bonding mode performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X520		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	651.28	252.09	passed
2 nd Workstation	737.36	289.36	passed

TABLE 15: Balance-rr bonding mode performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

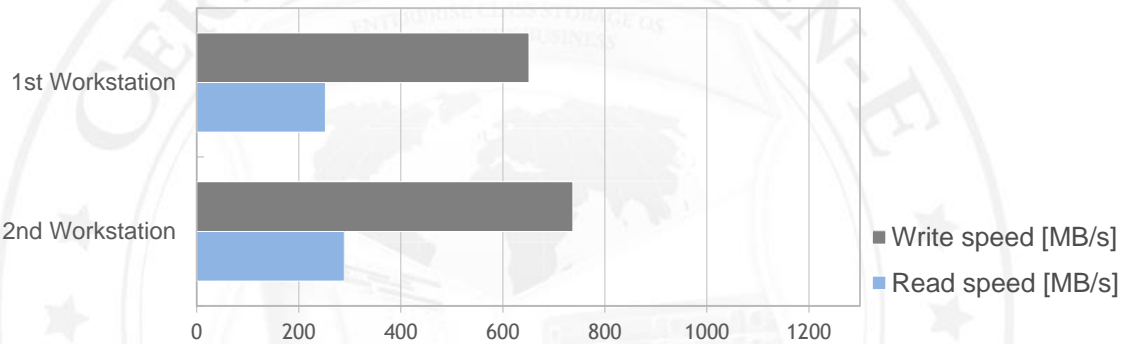


FIGURE 11: Balance-rr bonding mode performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

3. Test results for Balance-rr bonding mode test performed on Intel® Ethernet Converged Network Adapter X540-T2

Balance-rr bonding mode performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X540		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	764.75	239.83	passed
2 nd Workstation	761.26	286.56	passed

TABLE 16: Balance-rr bonding mode performance test results table for Intel® Ethernet Converged Network Adapter X540-T2

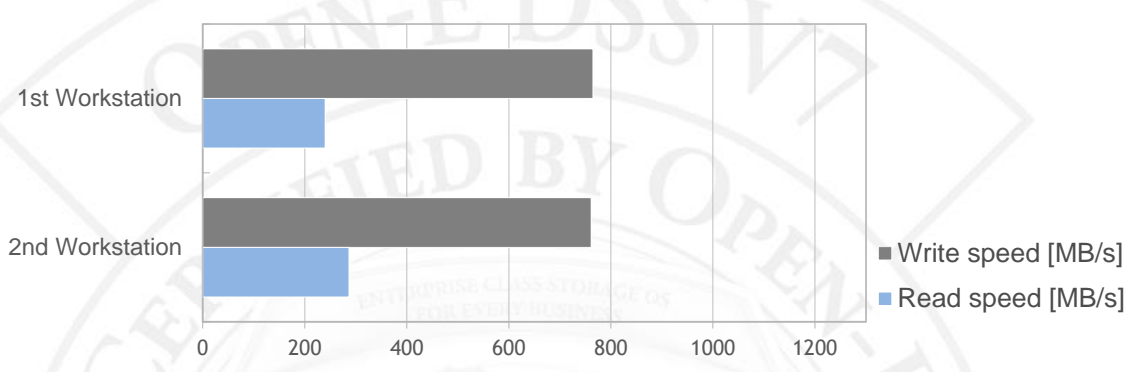


FIGURE 12: Balance-rr bonding mode performance test results chart for Intel® Ethernet Converged Network Adapter X540-T2

4. Test results for Balance-rr bonding mode test performed on Intel® Ethernet Server Adapter I350-T4

Balance-rr bonding mode performance test results			
NIC model	Intel® Ethernet Server Adapter I350-T4		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	112.52	68.71	passed
2 nd Workstation	111.36	74.83	passed
3 rd Workstation	112.25	69.83	passed
4 th Workstation	109.68	70.82	passed

TABLE 17: Balance-rr bonding mode performance test results table for Intel® Ethernet Server Adapter I350-T4

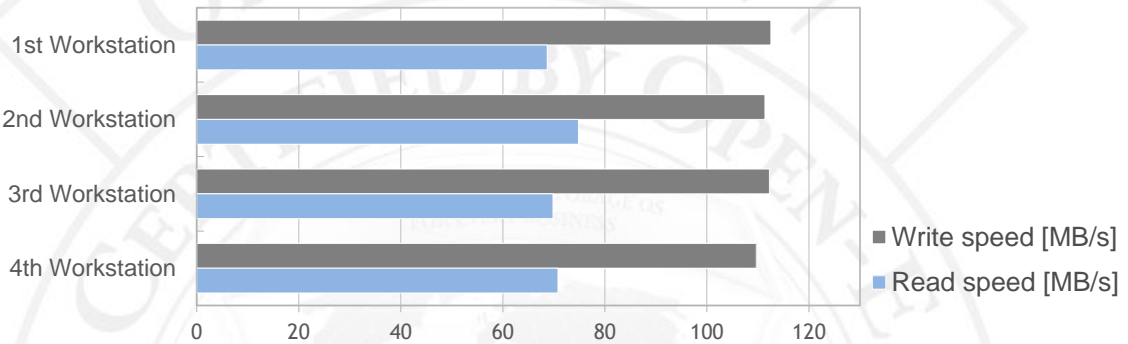


FIGURE 13: Balance-rr bonding mode performance test results chart for Intel® Ethernet Server Adapter I350-T4

Single NIC performance test

1. Test description

The test relies on configuring the iSCSI targets and copying the data from *Workstations with MS Windows* through single NIC with a 4MB block size using the iometer testing tool.

2. Test results for single NIC test performed on Intel® Ethernet Converged Network Adapter X520-DA2

Single NIC performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X520		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	554.78	946.12	passed

TABLE 18: Single NIC performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

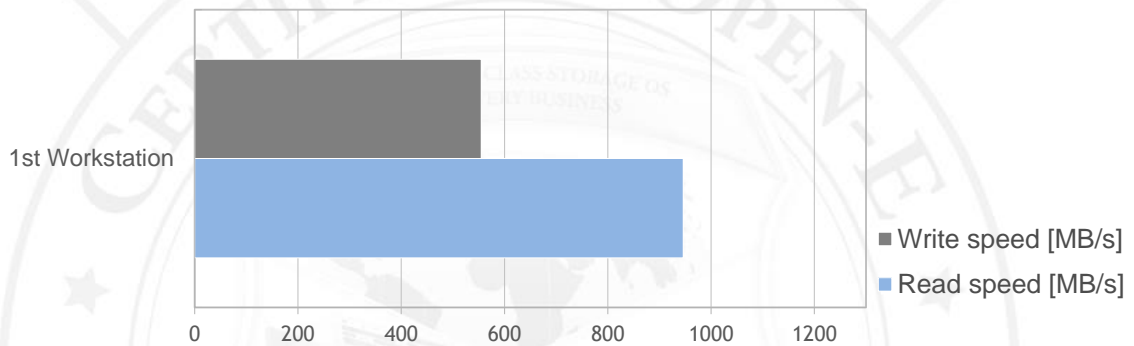


FIGURE 14: Single NIC performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

3. Test results for single NIC test performed on Intel® Ethernet Converged Network Adapter X540-T2

Single NIC performance test results			
NIC model	Intel® Ethernet Converged Network Adapter X540		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	609.46	984.61	passed

TABLE 19: Single NIC performance test results table for Intel® Ethernet Converged Network Adapter X540-T2

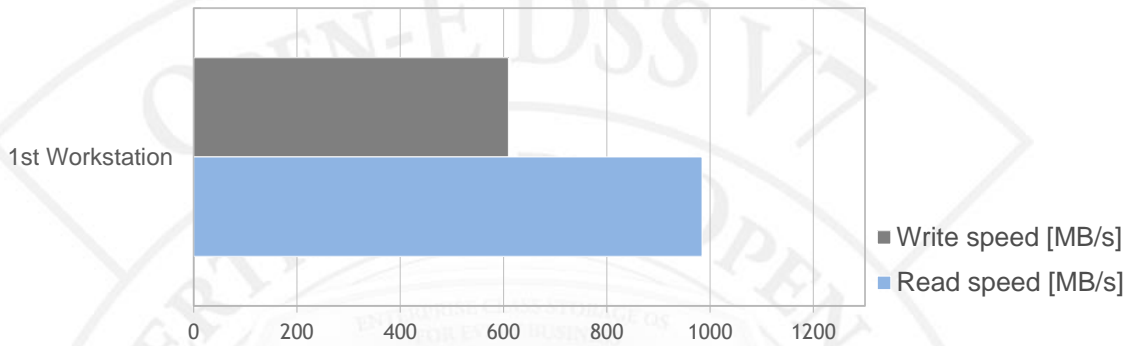


FIGURE 15: Single NIC performance test results chart for Intel® Ethernet Converged Network Adapter X540-T2

4. Test results for single NIC test performed on Intel® Ethernet Server Adapter I350-T4

Single NIC performance test results			
NIC model	Intel® Ethernet Server Adapter I350-T4		
Workstations with MS Windows	Write speed [MB/s]	Read speed [MB/s]	Performance test results
1 st Workstation	109.00	112.26	passed

TABLE 20: Single NIC performance test results table for Intel® Ethernet Server Adapter I350-T4

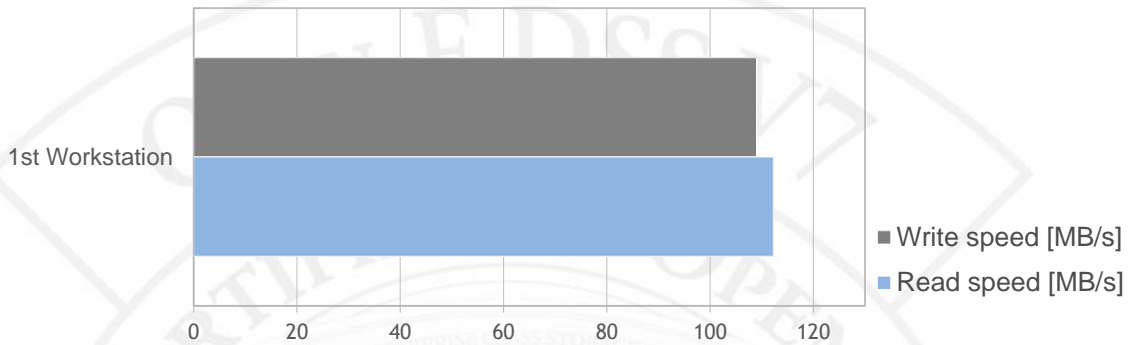
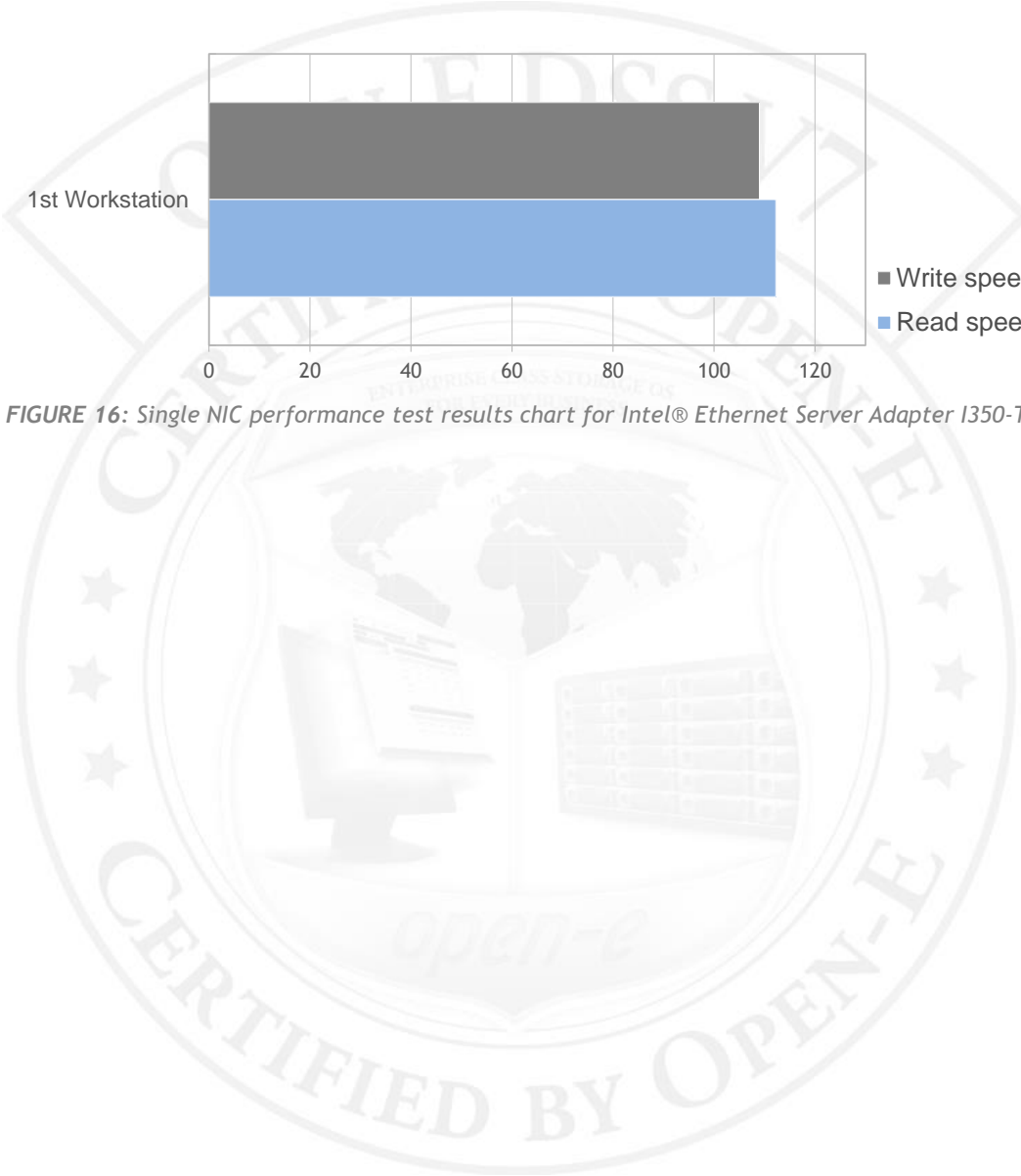


FIGURE 16: Single NIC performance test results chart for Intel® Ethernet Server Adapter I350-T4



RAID functionality

Tests performed in this section check the functionality, performance and stability of Open-E DSS V7 storage devices on the certified system.

Tests in this section rely on the creation of the RAID units on 0, 1, 5, 6, 10, 50 and 60 levels, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the lometer testing tool.

RAID test topology

Network test topology for RAID testing is shown below

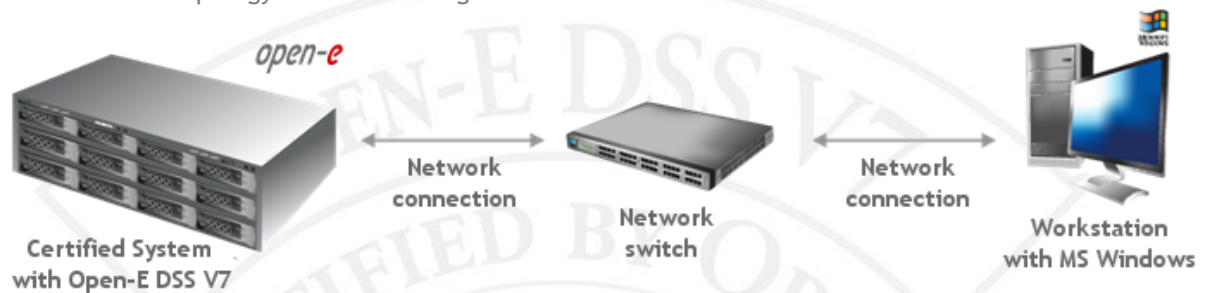


FIGURE 17: Network test topology for RAID testing

Hardware RAID0 test

1. Test description

The test relies on creation of the RAID0 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the iometer testing tool.

2. Test results for RAID0 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID0 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	62.01	85.31	passed
32	326.20	441.76	passed
64	455.70	891.67	passed
128	711.09	1093.40	passed
256	1054.70	1111.79	passed
512	1044.31	1057.73	passed
1024	1044.80	995.81	passed
4096	1069.38	981.94	passed

TABLE 21: RAID0 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

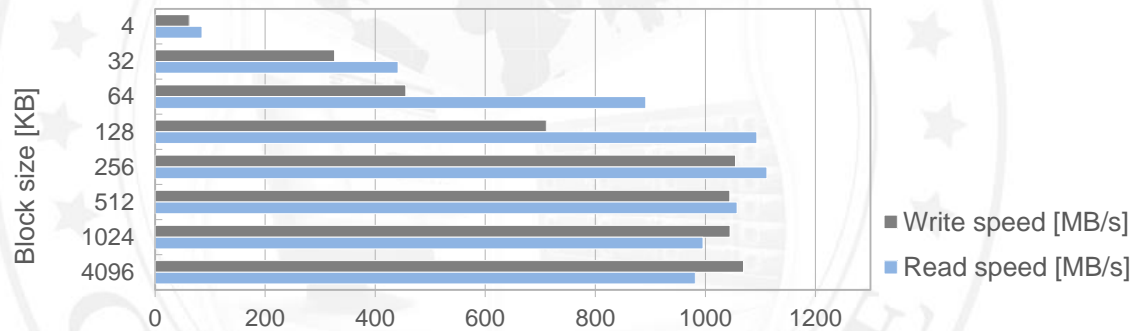


FIGURE 18: RAID0 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

Hardware RAID1 test

1. Test description

The test relies on creation of the RAID1 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the iometer testing tool.

2. Test results for RAID1 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID1 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	64.17	105.58	passed
32	330.17	623.47	passed
64	417.54	922.60	passed
128	569.57	1005.20	passed
256	764.19	1086.02	passed
512	807.39	1022.88	passed
1024	957.84	996.43	passed
4096	1031.72	999.19	passed

TABLE 22: RAID1 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

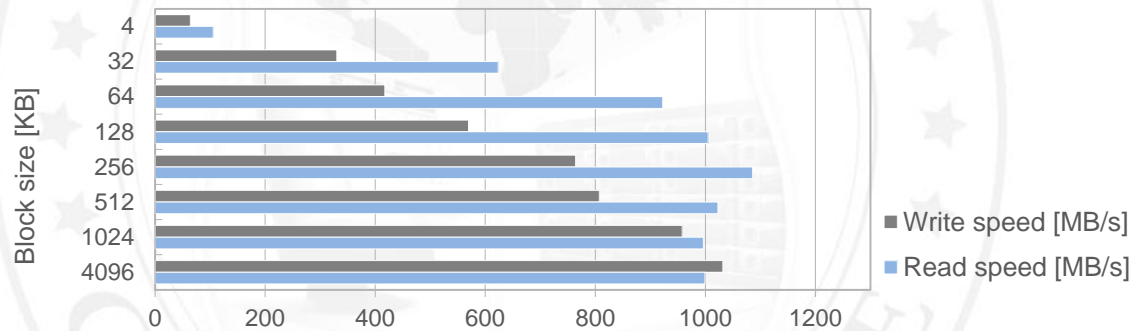


FIGURE 19: RAID1 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

Hardware RAID5 test

1. Test description

The test relies on creation of the RAID5 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the Iometer testing tool.

2. Test results for RAID5 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID5 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	60.15	86.18	passed
32	347.13	451.74	passed
64	438.97	621.57	passed
128	644.77	921.23	passed
256	796.72	1112.84	passed
512	841.15	1089.13	passed
1024	829.01	1054.55	passed
4096	785.81	1042.92	passed

TABLE 23: RAID5 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

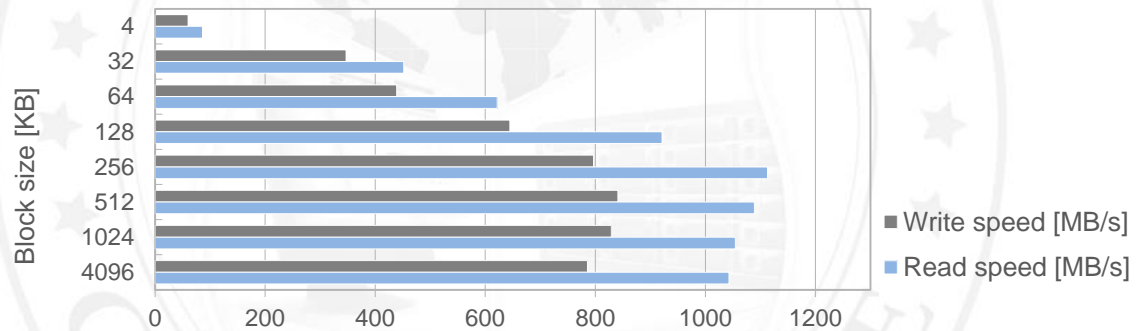


FIGURE 20: RAID5 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

Hardware RAID6 test

1. Test description

The test relies on creation of the RAID6 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the lometer testing tool.

2. Test results for RAID6 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID6 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	65.18	90.51	passed
32	315.68	631.95	passed
64	398.17	745.09	passed
128	541.37	1046.16	passed
256	609.98	1121.45	passed
512	616.91	1087.45	passed
1024	617.05	1049.26	passed
4096	608.02	1043.10	passed

TABLE 24: RAID6 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

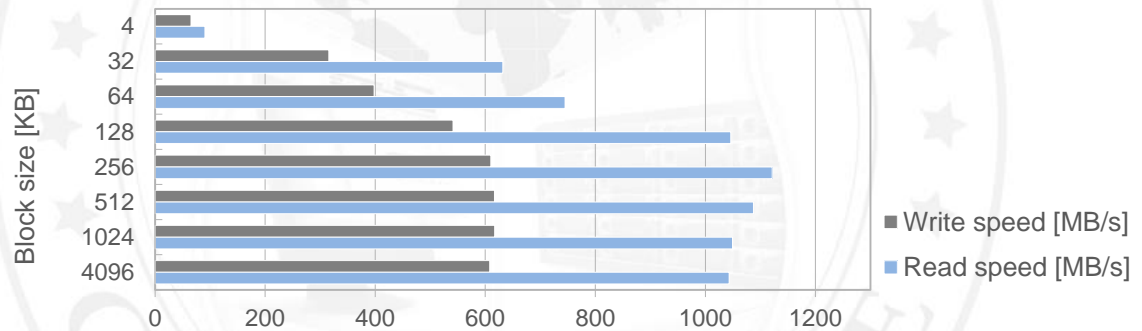


FIGURE 21: RAID6 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

Hardware RAID10 test

1. Test description

The test relies on creation of the RAID10 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the lometer testing tool.

2. Test results for RAID10 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID10 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	63.63	79.62	passed
32	319.71	449.03	passed
64	409.00	659.29	passed
128	537.52	1040.91	passed
256	612.24	1113.82	passed
512	608.19	1082.63	passed
1024	533.75	1017.15	passed
4096	698.77	1033.07	passed

TABLE 25: RAID10 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

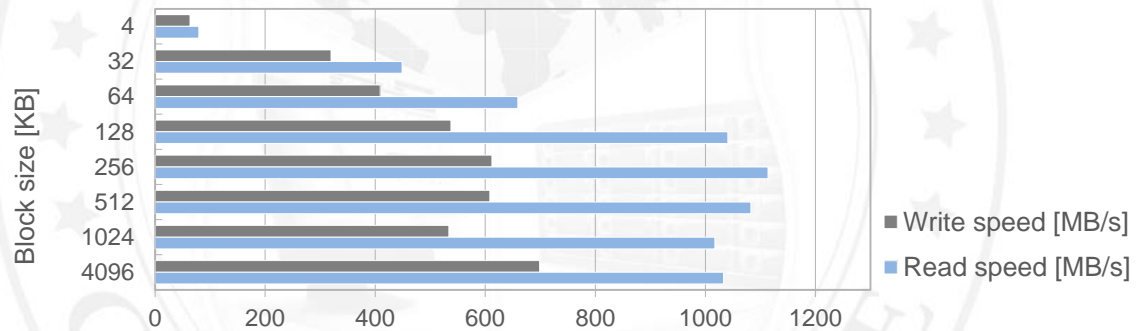


FIGURE 22: RAID10 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

Hardware RAID50 test

1. Test description

The test relies on creation of the RAID50 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the lometer testing tool.

2. Test results for RAID50 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID50 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	64.04	104.05	passed
32	320.64	621.82	passed
64	407.64	948.51	passed
128	546.99	1021.32	passed
256	770.32	1112.97	passed
512	808.16	1120.79	passed
1024	731.95	1073.45	passed
4096	792.14	969.64	passed

TABLE 26: RAID50 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

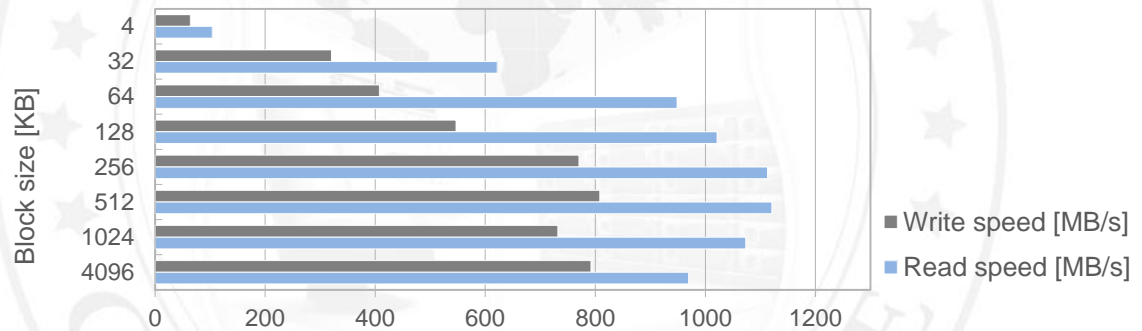


FIGURE 23: RAID50 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

Hardware RAID60 test

1. Test description

The test relies on creation of the RAID60 unit on all hard disk drives, configuring the iSCSI target and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the lometer testing tool.

2. Test results for RAID60 and Intel® Ethernet Converged Network Adapter X520-DA2

RAID60 performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	64.41	82.21	passed
32	335.92	422.61	passed
64	396.29	624.09	passed
128	530.99	926.75	passed
256	591.33	1006.41	passed
512	543.50	1015.77	passed
1024	564.82	997.09	passed
4096	664.62	1002.96	passed

TABLE 27: RAID60 performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

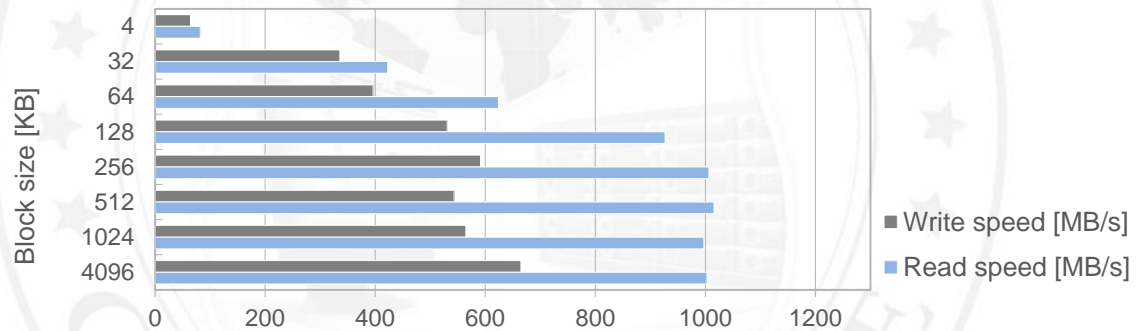


FIGURE 24: RAID60 performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

NAS functionality

Tests performed in this section check the functionality, performance and stability of the NAS protocols in the Open-E DSS V7 product on the certified system.

The tests rely on creating NAS shares and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the Iometer testing tool.

NAS test topology

Network topology for NAS testing is shown below.

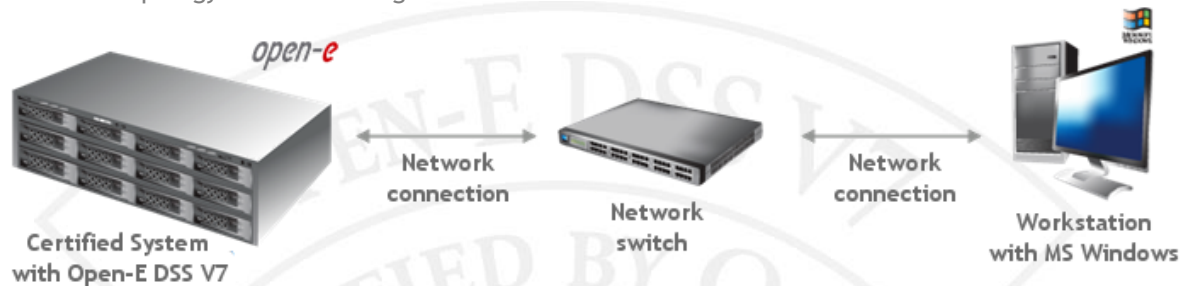


FIGURE 25: Network topology for NAS testing

SMB test

1. Test description

The tests rely on creating NAS shares and copying the data from a *Workstation with MS Windows* via network connection with various block sizes using the lometer testing tool.

2. Test results for SMB and Intel® Ethernet Converged Network Adapter X520-DA2

SMB performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	102.44	92.64	passed
32	598.74	636.64	passed
64	817.77	653.03	passed
128	882.08	837.04	passed
256	1006.15	973.01	passed
512	739.62	1046.88	passed
1024	1036.00	1004.89	passed
4096	835.29	1018.32	passed

TABLE 28: SMB performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

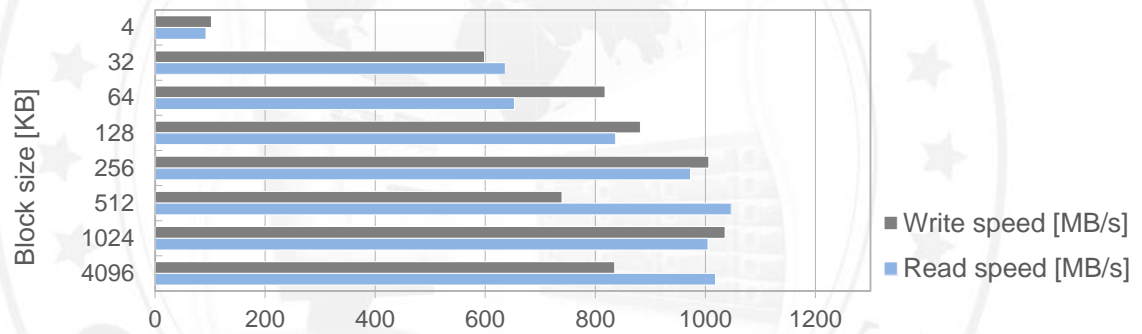


FIGURE 26: SMB performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

iSCSI functionality

Tests performed in this section check the functionality, performance and stability of the iSCSI protocol in the Open-E DSS V7 product on the certified system.

iSCSI Initiator test topology

Network topology for iSCSI Initiator testing is shown below.

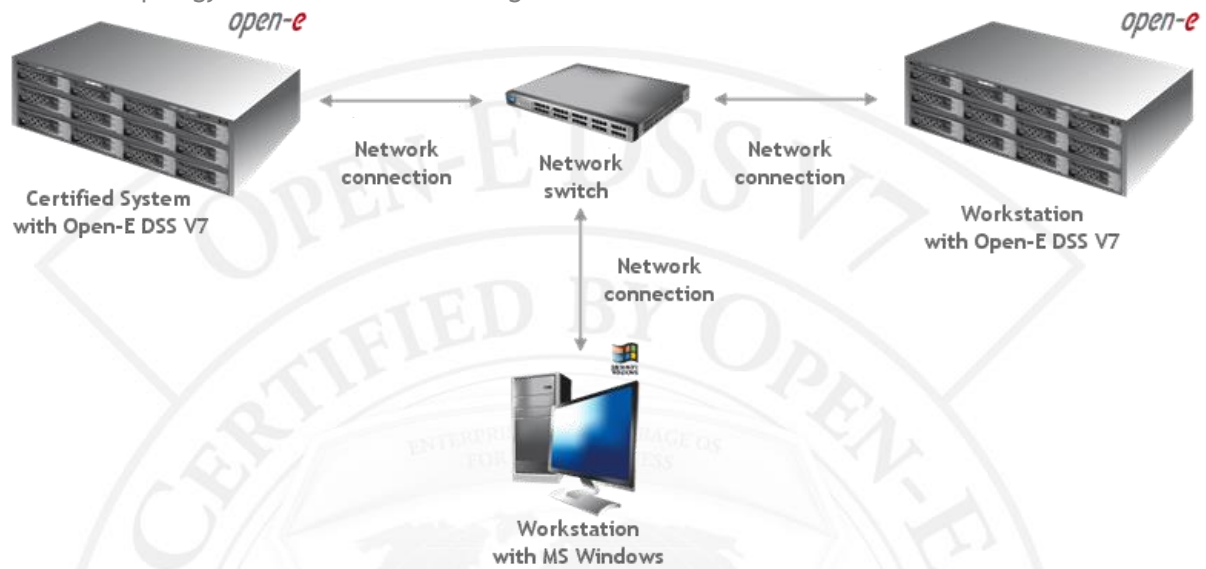


FIGURE 27: Network topology for iSCSI Initiator testing

iSCSI Target test topology

Network topology for iSCSI Target testing is shown below.

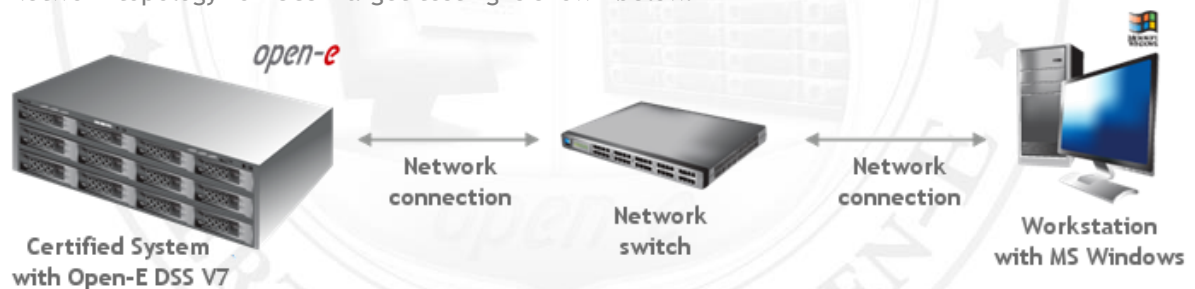


FIGURE 28: Network topology for iSCSI Target testing

iSCSI Initiator test

1. Test description

The test relies on using the storage connected via the built-in iSCSI Initiator for NAS volumes, creating SMB shares on these NAS volumes and copying data from a *Workstation with MS Windows* to them with various block sizes using the lometer testing tool.

2. Test results for iSCSI Initiator and Intel® Ethernet Converged Network Adapter X520-DA2

iSCSI Initiator performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	63.84	87.38	passed
32	327.50	443.68	passed
64	406.47	924.20	passed
128	526.60	850.97	passed
256	692.67	1102.55	passed
512	671.17	1121.13	passed
1024	824.71	1081.41	passed
4096	787.29	1040.17	passed

TABLE 29: iSCSI Initiator performance test results table for Intel® Ethernet Converged Network Adapter X520-DA2

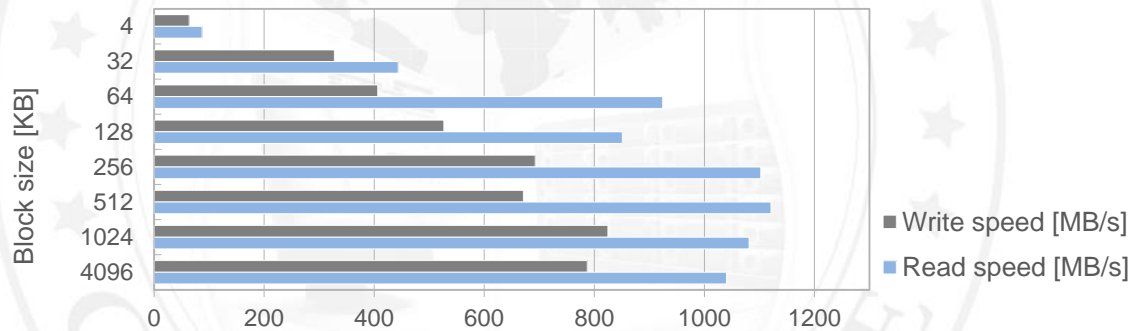


FIGURE 29: iSCSI Initiator performance test results chart for Intel® Ethernet Converged Network Adapter X520-DA2

iSCSI Target test

1. Test description

The test relies on creating the iSCSI target on the certified system and copying the data from a *Workstation with MS Windows* to it with various block sizes using the *lometer* tool.

2. Test results for iSCSI Target using all Intel® 10GbE network interfaces in certified system

iSCSI Target performance test results			
Block size [KB]	Write speed [MB/s]	Read speed [MB/s]	Performance test results
4	364.81	1296.87	passed
32	1192.96	3869.10	passed
64	1372.88	4289.24	passed
128	1355.49	4497.32	passed
256	2013.52	4568.15	passed
512	2008.88	4572.60	passed
1024	2018.02	4575.48	passed
4096	1988.85	4597.70	passed

TABLE 30: iSCSI Target performance test results table for all Intel® 10GbE network interfaces in certified system

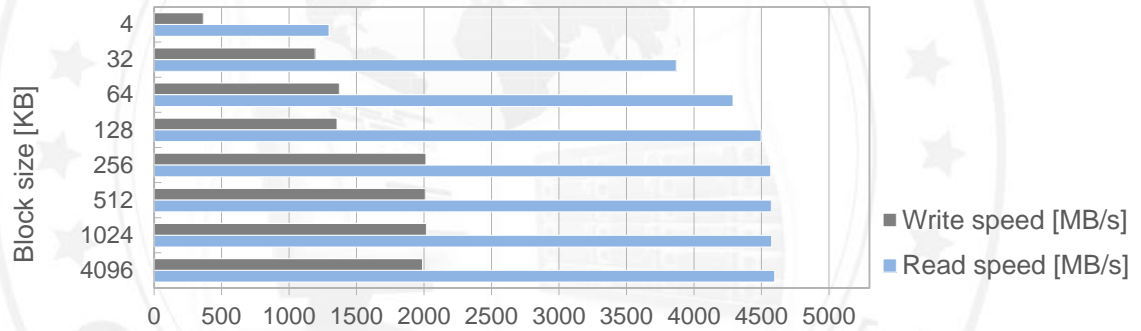


FIGURE 30: iSCSI Target performance test results chart for all Intel® 10GbE network interfaces in certified system