



Tarox ParX R2242i G6 HA Metro Cluster



TAROX ParX R2242i G6 is a high-performing Enterprise platform that supports Private Cloud environments and data centers.

In a cluster setup with Open-E's ZFS- and Linux-based Software Defined Storage solution JovianDSS, the system is an ideal combination of performance and High Availability, at the same time offering exceptional efficiency and flexibility.

The innovative symbiosis of TAROX ParX R2242i G6 is, Intel Optane and Open-E JovianDSS offers customers the opportunity

to deploy a High Availability storage solution that is state-of-the-art in regards to computing, RAM, storage, I/O and network components as well as reduced latency.

Based on the long-term partnership of TAROX and Open-E, customers can rest assured that a storage cluster with TAROX ParX R2242i G6 is supported from A to Z – from the initial installation to everyday tasks and maintenance.

- › Enhanced storage performance
- › Flexible scalability
- › Optimal resource utilization
- › Optimized for Data Centers
- › High Availability
- › Caching of read and write operations
- › Unlimited number of snapshots and clones
- › Data compression and in-line deduplication

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Enhanced storage performance

Nowadays, enterprise storage has to provide big capacity while also being fast, affordable, and include reliable support. This is exactly what ParX R2242i G6 has to offer. Open-E JovianDSS-based ParX R2242i G6 is an innovative data storage system fusing the capacity of large QLC 3D NAND based SSDs with the performance of the 3D XPoint based Intel® Optane™ SSDs in a single solution that offers high performance while lowering cost. Additionally, by leveraging capacity optimization technologies and advanced tiered SSD and RAM caching, ParX R2242i G6 provides an overall efficiency boost and increased cache performance. On top of that, powerful tuning tools allow the system to optimize on I/O heavy databases or high throughput video editing equally well and predefined profiles save annoying testing time.



Active-active failover resource switching time test results

Total number of targets	Switching time [seconds]	Performance test results [passed/failed]
2	21	Passed
10	25	Passed
20	27	Passed

Optimal resource utilization

ParX R2242i G6 fully utilizes your storage resources thanks to many high-end features included in Open-E JovianDSS. These features are especially crucial when deploying virtual environments. With deduplication and compression, you are able to virtually increase your storage size and use thin provisioning to easily grow physical storage capacity without downtime. More efficient use of disk space also allows for longer disk retention periods. Tiered caching will allow reaching high performance values from all disks which can be managed and monitored in ParX R2242i G6. This server fully leverages hybrid storage, combining high performance and high capacity at an affordable price.

Flexible scalability

The ParX R2242i G6 will let you experience unlimited flexibility and minimize unappreciated downtime. Open-E JovianDSS uses a 128-bit file system that includes unlimited snapshots for easy backup, unlimited clones for easy duplication, unlimited capacity with volume sizes up to one Zetabyte, as well as an unlimited amount of disks which can be increased on the fly without effort by using thin provisioning. There are no limitations and you may easily control the total cost of ownership and expand your storage infrastructure as data grows.

Optimized for Data Centers

ParX R2242i G6 is optimized for the modern data center and ready for compute-intensive applications that involve big data, intensive virtualization workloads and higher-density server configurations. The server allows administrators an intuitive management of storage infrastructures and maintaining continuous operations during updates or refreshes. By choosing ParX R2242i G6 you benefit from flexible CPU power, networks running 1, 10 or 40 Gb Ethernet, as well as knowledge and experience of Tarox in ParX R2242i G6 and developing servers specialized for datacenter.

High Availability solution functionality test results

Functionality test name	Functionality test results [passed/failed]
Manual Failover	Passed
Automatic Failover triggering after network failure	Passed
Automatic Failover triggering after shutdown test	Passed
Automatic Failover triggering after reboot test	Passed
Automatic Failover triggering after power-off	Passed
Automatic Failover triggering after I/O test	Passed

Incredible high performance with Intel Optane

High Availability

The ParX R2242i G6 is a perfect option if you are looking to deploy a High Availability cluster setup with NFS or iSCSI for storing business-critical data. With the Open-E JovianDSS High Availability Cluster Feature Pack the ParX R2242i G6 ensures reliability and redundancy through failover in case of a failure. By using the cluster management software, all features related to the cluster setup can be quickly accessed and maintained - everything is in one place and guarantees ease of use for the storage administrator. Moreover, Open-E JovianDSS includes an independent Virtual IP (VIP) addresses feature. With this, VIPs can be used by multiple servers and flexibly switched at all times. When a hardware failure is detected, VIPs are automatically moved from the primary to the secondary node without the client servers noticing a timeout

Caching of read and write operations

Despite the fact that the ParX R2242i G6 is an all-flash system built from very fast NVMe drives, the write and read operations are additionally cached in RAM to achieve even greater performance. The read caching algorithms collect "often used" and "recently used" data separately to provide the best performance for your storage. In case of write operations, the caching is supported with ultra-fast and ultra-stable Intel® Optane™ SSDs. The application of the best-in-class Intel® Optane™ SSD drive that is based on 3D XPoint technology allows obtaining very high and stable IOPS. It allowed also to achieve extremely low and stable latency over all the time of using the disk which results in an excellent level of Quality of Service (QoS) factor.

Unlimited number of snapshots and clones

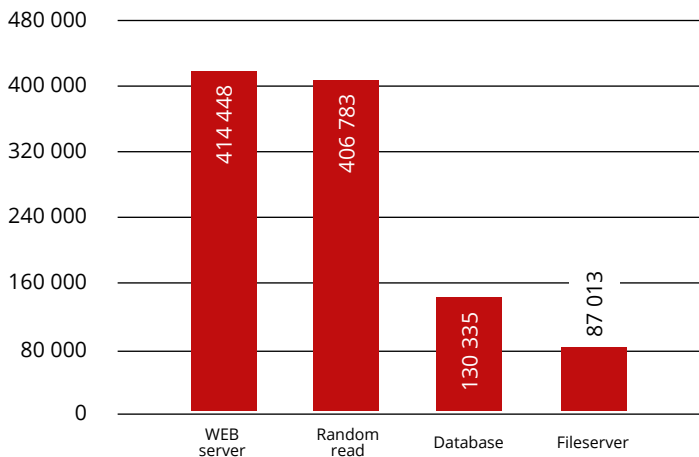
Every Open-E JovianDSS-based ParX R2242i G6 allows an unlimited number of snapshots and clones – greatly simplifying back-ups, replications and data recreation in case of accidental deletes or viruses. Snapshots are read-only points-in-time and allow for easy roll-back. They are a must-have option for effective disaster recovery scenarios and in ParX R2242i G6 you may schedule snapshots for months, weeks, hours, or even minutes. Whereas a clone is a writable copy of a snapshot and allows to easily duplicate virtual machines and scale out for virtual networks instantly and without duplicating data.

Data compression and in-line deduplication

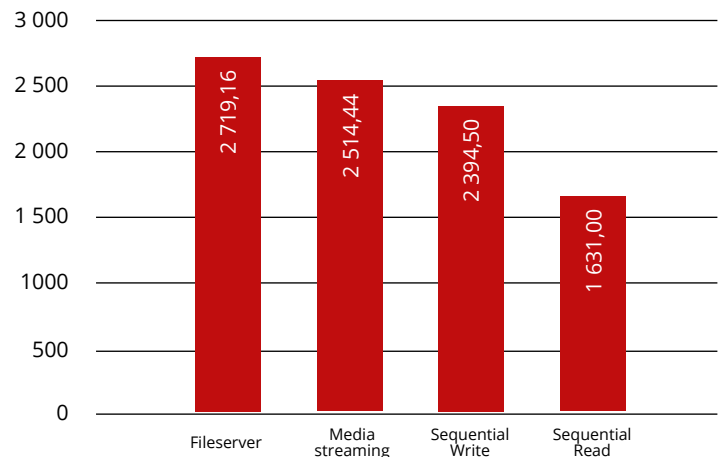
ParX R2242i G6 offers data compression for minimizing storage capacity usage and ultimately boosting performance and taking less space on your storage. Find resource-friendly compression protocols (lz4) with low system resource utilization at medium compression rates, but also protocols that are able to achieve very high rates for archiving or backup (as gzip-9). The in-line deduplication feature in ParX R2242i G6 removes redundant data and minimizes storage capacity usage. The software checks each block for redundancy in the system and if it finds a match, the new block isn't written; instead, a shortcut leading to the original block is created. Such a system can reach a deduplication ratio of 3:1 or more, which means that if you place 3TB of data it will only use 1TB of physical disc space. This feature is especially interesting for highly repetitive data, i.e. in VDI, server virtualization or backup, where much higher deduplication ratios can be reached.



IOPS



Throughput [MB/s]



Hardware details

For each of the 2 servers

	Default configuration	Options
Motherboard	Intel® Server Board S2600WFT	-
CPU	2x Intel® Xeon® Silver 4208R CPU 2.20GHz	-
RAM	24x 8GB Micron 9ASF1G72PZ-2G9E1	-
Storage raw capacity	180TB	-
Storage device	12x 15TB Intel® SSD D5-P4326	-
Write log device	2x 375GB Intel® Optane™ SSD DC P4800	2x 100GB Intel® Optane™ P4801X
Network controller	1x Intel® Ethernet Server Adapter I350-T2 2x Intel® Ethernet Network OCP X557-T2 (X722 for 10GbE) 1x Intel® Ethernet Converged Network Adapter X550-T2	-
Form factor	2U	-
Boot medium	2x 480GB Intel® SSD D3-S4510	-



About TAROX AG

TAROX AG is a medium-sized enterprise based in North Rhine-Westphalia, which operates in the IT industry. TAROX stands for high quality in-house production, an additional diverse distribution network and serious services in the field of consulting and support.

With the five columns – Machines, Distribution, Consulting, Data and Services – TAROX combines its five business units into one total product and offers a wide-ranging portfolio to its clients in order to fulfill their desires.

TAROX's main objectives are a high-level quality of work and proximity to its customers.

About Open-E

Open-E, founded in 1998, is a well-established developer of IP-based storage management software. Its flagship product Open-E JovianDSS is a robust, award-winning storage application which offers excellent compatibility with industry standards, and is the easiest to use and manage. Additionally, it is one of the most stable solutions on the market and undisputed price performance leader.

Thanks to its reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies. Open-E accounts for over 35,000 installations world-wide and has received numerous industry awards and recognition, also with its product Open-E DSS V7.

For further information about Open-E, its products and partners, visit <http://www.open-e.com/>

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About the Open-E JovianDSS Server Certification

Open-E JovianDSS delivers software-defined storage which results in a wide variety of different hardware requirements such as performance, range, capacity, capability, and connectivity. To ensure compatibility and robust storage environments, all selected partners offer storage systems which are tested, benchmarked, and certified by Open-E. This way, customers are able to use solutions that require exceptional security and redundancy, without compromising performance.