open-e

OPEN-E JOVIANDSS CERTIFIED BY OPEN-E / CERTIFIED BY OPEN-E

NASdeluxe Z-Series

Benefit from scalable ZFS data storage with Starline Computer's NASdeluxe Z-series and Open-E JovianDSS. This software-defined storage solution is well-suited for a wide range of applications. It caters perfectly to the needs of enterprises that are looking to deploy a flexible storage configuration which can be expanded to a high availability cluster. Starline and Open-E can look back on a strategic partnership of more than 10 years. As the first partner with a Gold partnership level, Starline has always been working hand in hand with Open-E to develop and deliver innovative data storage solutions. In fact, Starline supports worldwide enterprises in managing and protecting their storage, with over 2,800 Open-E installations to date.

By partnering with Starline and Open-E, you receive highly efficient and reliable storage solutions that offer:

- **Great adaptability**
- **Tiered and all-flash storage systems**
- **High IOPS through RAM and SSD caching**
- **Superb expandability with Starline's high-density JBODs – without downtime**

Starline's NASdeluxe Z-Series offers not only great features, but also great flexibility – thanks to its modular architecture.

- › Enhanced Storage Performance
- › Tiered RAM and SSD cache
- › Data integrity check
- › Data compression and in-line data deduplication
- › Thin provisioning and unlimited number of snapshots and clones
- › Simplified management
- › Flexible scalability
- › Hardware independence

www.starline.de

But even with a standard configuration with nearline HDDs and SSDs for caching, you will be able to achieve high IOPS at a reasonable cost. Combined with high-performance Mellanox 40/56Gb Ethernet network cards (which were certified separately), the NASdeluxe Z-Series' modularity enables easy upgrading to high-availability cluster solutions.

Apart from great hardware and software, successful management of a storage environment depends on reliable technical support at every stage: from designing a solution and planning its implementation up to deployment and maintenance. Starline ensures that all your support needs are met thanks to a team of experienced technical engineers who are certified and trained for Open-E JovianDSS. Starline offers the following advanced support options for its NASdeluxe Z-Series:

- **Next-business-day on-site service for hardware**
- **Up to 5 years of warranty**
- **24/7 software support**
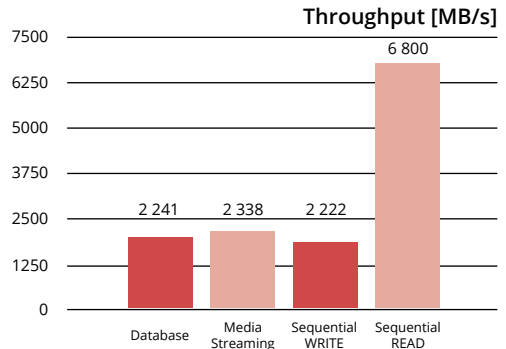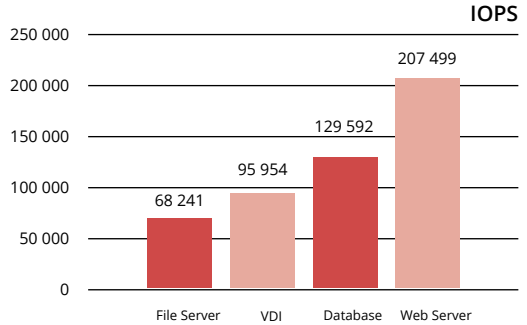
Enhanced storage performance

Today enterprise storage has to provide large capacities; it needs to be fast, affordable and include reliable support. This is exactly what Starline's NASdeluxe Z-Series offers: these Open-E JovianDSS based storage solutions are innovative Hybrid Storage Systems that can combine the capacity of HDDs with the performance of SSDs in a single solution. In doing so, they offer high performance while lowering cost. Starline's NASdeluxe Z-Series provides an overall efficiency boost and increased cache performance through capacity optimization technologies and advanced tiered SSD and RAM caching. Moreover, powerful tuning tools allow the NASdeluxe Z-Series systems to optimize performance equally for I/O heavy databases and high throughput videos.

The NASdeluxe Z-Series uses thin provisioning to improve storage utilization and eliminate the cost of unused storage space. You get a highly scalable solution that allows you to simply add physical disks as your data grows.

In addition, Starline's NASdeluxe Z-Series systems allow an unlimited number of snapshots and clones – greatly simplifying backups, replications and data recreation in case of accidental deletes and viruses. These are a must-have option for effective disaster recovery scenarios and provide scalability for virtual networks.

Simplified management

Managing Open-E JovianDSS and its extensive features is easy and intuitive compared to many competing solutions. The WebGUI provides a quick overview and simple management of all storage resources and features. After extensive analyses of storage usage and user interaction, the clicks per step in each functionality have been reduced to a minimum, i.e. when creating iSCSI targets or when expanding the size of your storage. This way, you are able to quickly and easily manage the NASdeluxe Z-Series with Open-E JovianDSS, keeping manual actions by the storage administrator at a minimum.

IOPS

File Server	68 241
VDI	95 954
Database	129 592
Web Server	207 499

Throughput [MB/s]

Database	2 241
Media Streaming	2 338
Sequential WRITE	2 222
Sequential READ	6 800

Hardware independence

Commodity hardware can save you a significant amount of money and it allows customizing a server system specifically to your needs. But you need to be an expert if you want to create a solution which is perfectly adapted to the requirements of your environment. With Open-E JovianDSS you benefit from the best hardware compatibility on the market and the NASdeluxe Z-Series uses hardware components which are ideal for performance, reliability and compatibility. This way, you can choose the hardware you need – depending on price, performance, quality and availability – and you won't waste money on unnecessary components. Since you are not tied to one manufacturer, the components can be easily upgraded or exchanged. That is true hardware independence.

Flexible scalability

The NASdeluxe Z-Series enables you to experience unlimited flexibility and to minimize the 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 zettabyte, 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 can easily control the total cost of ownership and expand your storage infrastructure as your data grows.

Service and support that you need

Data integrity check

The NASdeluxe Z-Series storage system effectively detects data corruption, as even minor integrity violations could cause loss of data. The NASdeluxe Z-Series ensures reliability by checksumming individual blocks of data. Once faulty blocks have been detected they are automatically rewritten. If the same error is found several times, the data blocks are moved to different parts of the HDD. Each read/write is checked automatically and you can schedule to perform additional checks on blocks that are not accessed. All actions are done in atomic writes to ensure consistency of your data and to avoid data loss, even during power outages.

Tiered RAM and SSD cache

The Open-E JovianDSS-based NASdeluxe Z-Series works as a tiered storage environment - significantly speeding up access to frequently accessed files. It uses a caching algorithm to cache "often used" and "recently used" data separately, and it provides the best performance for your storage by tiering hot data between RAM and SDD Cache. With the NASdeluxe Z-Series, data is always saved on HDDs and only hot data is stored in RAM and SSD to ensure data safety and to increase performance.

In-line data deduplication

Starline's NASdeluxe Z-Series based on Open-E Jovian DSS offers data compression for minimizing storage capacity usage. The systems offer resource-friendly compression protocols at medium compression rates (lz4) as well as protocols that are able to achieve very high compression rates for archiving or backup (such as gzip-9). Additionally the in-line deduplication feature allows to remove redundant. The software checks each block for redundancy and if it finds one, 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 on NASdeluxe Z-Series 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.

Thin provisioning and unlimited number of snapshots and clones

The Open-E JovianDSS-based NASdeluxe Z-Series uses thin provisioning to improve your storage utilization by allocating just the exact amount of server space at the time it is required. You'll eliminate the cost of unused storage space and never again have to pre-allocate storage up front and buy too much hardware. In the NASdeluxe Z-Series there is no need for evaluating storage requirements and take the risk of rebuilding the entire system when it runs out of space. With this system it is easy to manage storage capacity and set notifications when physical space shrinks. This is a highly scalable solution, just add physical disks as your data grows.

Table Hardware information

	Default configuration	Options
CPU	2 x Intel® Xeon® Processor E5-2630 v3 2.40GHz	Intel® E5-2600 v3 family (up to 18 cores per CPU)
RAM	128GB DDR4 2133 MHz	Up to 1TB DDR4 RAM
RAW Capacity	6.6 TB	Scalable to Petabytes
Read Cache	400GB	All certified SATA/SAS SSDs
Write Log	400GB mirrored	All certified SATA/SAS SSDs
Hard drive interface	SAS 6Gb/s	SAS 12Gb/s
Network Interface	4 x 10GbE	1/10/40/56 GbE optional (RJ-45 or SFP+ / QSFP)
Form factor	2U Rack (17.2" x 24.8" x 3.5")	different chassis sizes available
Weight	24 kg	-
Power	2 x 920W AC Platinum	-
Fan	3 x 80mm Hot-Swap fans	-

About Starline

Starline Computer has more than 30 years of professional experience with data storage systems – having been in the storage and server business since 1982. We are one of the first companies to completely dedicate ourselves to storage and server solutions. This guarantees our partners a maximum of competence.

Starline provides complete virtualization and storage solutions such as SAN, RAID, NAS, IP storage, servers, tape libraries and autoloaders, RAID controllers, FC switches, backup software, HBAs and more.

Contact Information:

Starline Computer GmbH
Carl-Zeiss-Strasse 27-29
73230 Kirchheim u. Teck
Germany

E-mail: solutions@starline.de
Website: www.starline.de
Tel.: +49 (0) 7021 487 200
Fax: +49 (0) 7021 487 400

About Open-E

Open-E is a well-established developer of IP-based storage management software. Open-E JovianDSS and Open-E DSS V7 are robust, award-winning enterprise storage applications which offer excellent compatibility with industry standards, and are the easiest to use and manage. Additionally, they are some of the most stable solutions on the market and undisputed price/performance leaders. Open-E accounts for over 27,000 installations world-wide and has received numerous industry awards and recognition. Thanks to our reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies.

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

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.