THOMAS KRENN®

open-e

# Thomas-Krenn RA1436

## On & Offsite Data Protection Host

Thomas-Krenn RA1436 On & Offsite Data Protection Hos is a flexible server solution, which can be used as Single Node Storage or an On & Offsite Data Protection Host.

In order to create significant added value for customers, this solution was developed in close partnership with Open-E. Based on many years of expertise, we have analysed the needs & requirements of our customers and set ourselves the goal to match them perfectly together.

This 4U high capacity server with 36 slots is an ideal extension of Thomas-Krenn's portfolio.

Thanks to numerous configuration options, the system is completely suited for many different applications – in e.g. for virtualization, NAS storage, or backup and archive storage.

Thomas-Krenn.AG has been working successfully with Open-E for many years – and since 2018 with the status of Platinum Partner. The result of this great collaboration is, among others, the RA1436 Single Node or On & Offsite Data Protection Host. Benefit from the knowledge of both companies! Advantages of the RA1436 On & Offsite Data Protection Host at a glance:

- 4U with 36x HDD bays setup.
- No limitation of snapshots and clones.
- Improved performance with caching (Intel® Optane™).
- Powerful AMD single-socket CPU and Mellanox network.
- Data compression included.

In addition to the Open-E JovianDSS certified system, Thomas-Krenn also offers individually configured servers, specifically adapted to customer requirements.

- Guaranteed data protection
- Enhanced storage performance
- Optimal resource utilization
- Flexible scalability
- Data integrity check
- Data compression
- Advanced RAM and SSD cache
- Thin provisioning and unlimited number of snapshots

# Thomas-Krenn RA1436 On & Offsite Data Protection Host

## Guaranteed data protection

Data is your most important resource. This is why Open-E JovianDSS-based RA1436 includes several mechanisms for data protection. Automatic and scheduled multi-layer data integrity checks ensure data consistency, while unlimited snapshots and clones make it easy to implement a disaster protection strategy and to instantly roll back to a previous point-in-time. At the same time, a scheduled self-healing mechanism fixes malfunctions and automatically restores full data redundancy in the system. Even when a disk fails, the software-based spare function offers one disk to several RAID arrays, saving you money on extra hardware without compromising data safety.

## Flexible scalability

RA1436 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.

## Enhanced storage performance

Nowadays, enterprise storage has to provide big capacity while also being fast, affordable, and include reliable support. This is exactly what RA1436 has to offer. Open-E JovianDSS-based RA1436 is an innovative data storage system fusing the capacity of large HDDs with the performance of the 3D XPoint based Intel® Optane™ SSDs in a single solution that offers high write operations performance while lowering the cost. Additionally, by leveraging capacity optimization technologies and advanced RAM caching, the RA1436 provides an overall efficiency boost and increased read operations 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.

## Optimal resource utilization

RA1436 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 RA1436. This server fully leverages hybrid storage, combining high performance and high capacity at an affordable price.

## Data integrity check

The RA1436 storage system effectively detects data corruption, as even minor integrity violations could cause loss of data. RA1436 ensures reliability by check-summing individual blocks of data and 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 disks. Each read/write is checked automatically plus you can schedule to perform checks on not accessed blocks. All actions are done in atomic writes to ensure consistency of your data and to reduce data loss, even during power cuts.

## Data compression

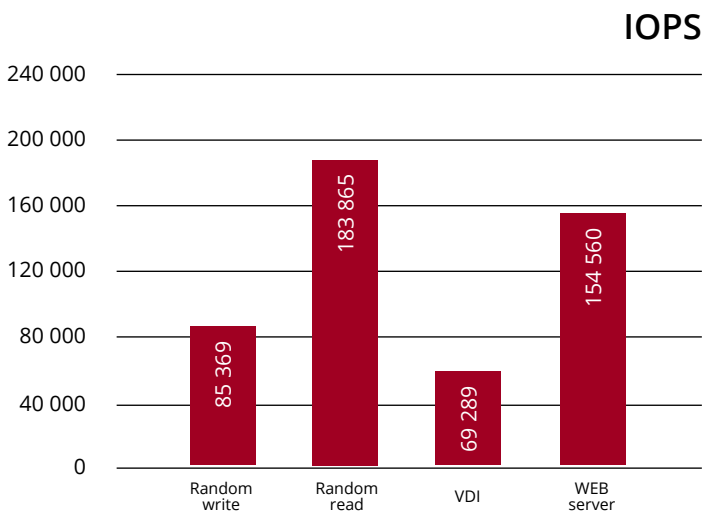
Open-E JovianDSS-based RA1436 offers data compression for minimizing your storage capacity usage. Smaller data blocks mean that the system can read and write quicker, ultimately boosting performance and taking less space on your storage. In RA1436 you will find resource-friendly compression protocols (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). Compression in combination with deduplication, virtualization, or high availability solutions further reduce acquisition costs, power and cooling costs, and rack space throughout the system life cycle.

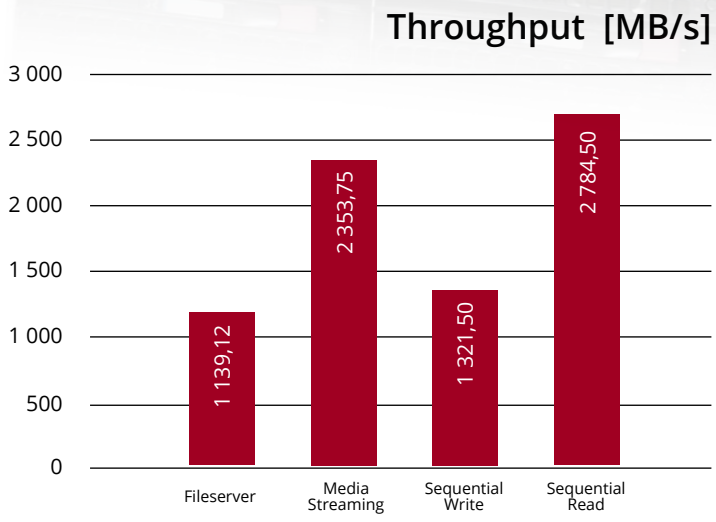
## Advanced RAM and SSD cache

Despite the fact that RA1436 is equipped with large and fast HDDs, the 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.

## Thin provisioning and unlimited number of snapshots

RA1436 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 RA1436 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.



# Hardware details

| | Default configuration | Options |
|---|---|---|
| Motherboard | Supermicro H11SSL-i | - |
| CPU | 1x AMD EPYC 7232P 8-Core Processor | 1x AMD EPYC 7252 8-core Processor<br>1x AMD EPYC 7302 16-core Processor<br>1x AMD EPYC 7343 16-core Processor |
| RAM | 4x 32GB Samsung ECC | 8x 64GB Samsung ECC<br>4x 64GB Samsung ECC<br>8x 32GB Samsung ECC |
| Storage raw capacity | 192TB | 144TB<br>288TB |
| Storage device | 24x 8TB HGST Ultrastar HUS728T8TAL5204 | 36x 4TB HGST Ultrastar HUS726T4TAL5204<br>36x 8TB HGST Ultrastar HUS728T8TAL5204 |
| Write log device | 2x 375GB Intel® Optane™ SSD DC P4800X | - |
| Network controller | 1x Intel® Ethernet Controller I210-AT<br>1x Mellanox ConnectX®-5 MCX512A-ACAT | - |
| Form factor | 4U | - |
| Boot medium | 2x 240GB Intel® SSDSC2KG240G8 | - |

## About Thomas-Krenn.AG

Thomas-Krenn.AG is a leading, fast growing manufacturer of individual server and storage systems. Since 2002, the company has been supplying end customers, resellers and data center operators with high-quality hardware according to the build-to-order principle. As a solution provider for individual customer projects, Thomas-Krenn.AG also stands for the highest service quality in the areas of hardware development, contract manufacturing, product refinement, and logistics. This makes it a recognized and reliable partner for industry, system houses, service providers, and medium-sized end customers from all sectors. Thomas-Krenn.AG currently employs around 160 people and produces all servers in Germany at its headquarter in Freyung, Bavaria.

## Partner Contact

**Thomas-Krenn.AG**
**Speltenbach-Steinäcker 1**
**94078 Freyung**
**Germany**

E-mail: info@thomas-krenn.com
Website: www.thomas-krenn.com
Phone: 0049 8551 9150 0

## 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 37,000 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/

## 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.