THOMAS KRENN®

open-e

2U Intel Dual-CPU RI2212 Server

OPEN-E JOVIANDSS CERTIFIED · CERTIFIED · open-e · HIGH AVAILABILITY READY

The RI2212 is one of the most powerful 2U rack servers in Thomas-Krenn's portfolio. Thanks to the numerous configuration options, the system is perfectly suited for many different applications – such as storage for virtualization, NAS storage or backup and archive storage. In addition, the RI2212 offers flexible storage configurations that can be upgraded to a High Availability Cluster.

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 RI2212. Benefit from the know-how of both companies with the RI2212!

Advantages of the RI2212 at a glance:

• Maximum HDD capacity at 2U

• Guaranteed data security

• Improved storage performance

• Flexibly scalable and highly available

• Data compression and inline deduplication included

• No limitation of snapshots and clones

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

› Guaranteed data protection

› Enhanced storage performance

› Flexible scalability

› Simplified management

› High Availability

› Tiered RAM and SSD Cache

› Unlimited number of snapshots and clones

› Data compression and in-line deduplication

Powerful high-density 2U rack server

Guaranteed data protection

Data is your most important resource. This is why the Open-E JovianDSS-based RI2212 includes several mechanisms for data protection. Automatic and scheduled multi-layer data integrity checks ensure data consistency, while unlimited snapshots and clones make it is 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

The RI2212 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 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 the RI2212 has to offer. The Open-E JovianDSS-based RI2212 is an innovative hybrid storage system fusing the capacity of HDDs with the performance of 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, the RI2212 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.

Simplified management

Managing Open-E JovianDSS and its extensive features is easy and intuitive compared to many competing solutions on the market. The WebGUI provides a quick overview and 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. in creating iSCSI targets or when expanding the size of your storage. This way, you are able to quickly and easily manage the RI2212 with Open-E JovianDSS, barely involving actions of a storage administrator.

Active-active failover resource switching time test results

Total number of targets	Switching time [seconds]	Performance test results [passed/failed]
2	51	passed
10	53	passed
20	57	passed

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

High Availability

The RI2212 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 RI2212 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.

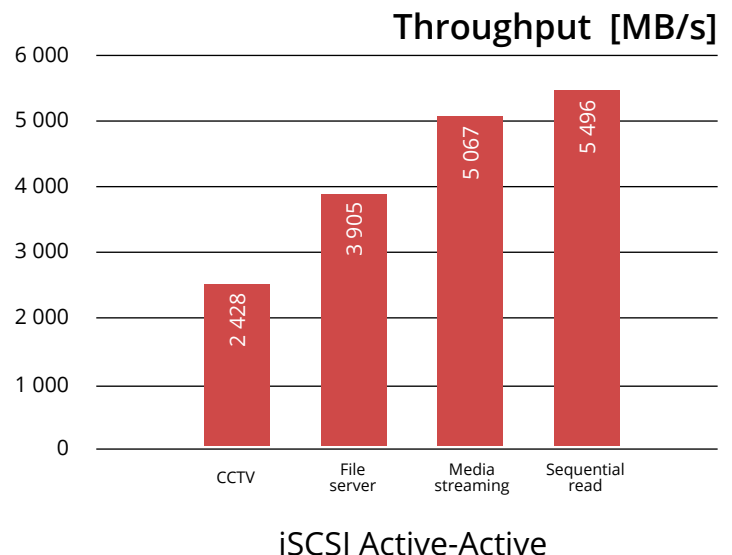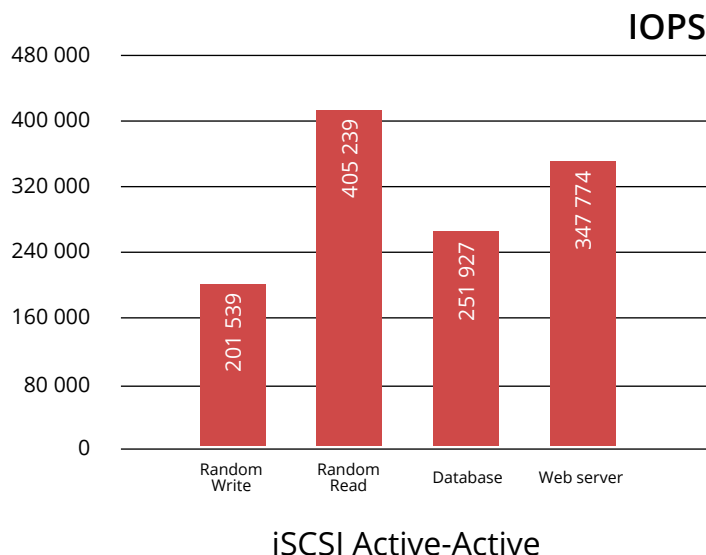## Unlimited number of snapshots and clones

Every Open-E JovianDSS-based RI2212 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 the RI2212 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.

Tiered RAM and SSD Cache

The Open-E JovianDSS-based RI2212 works as a tiered storage environment - dramatically speeding up access to frequently accessed files. It uses a caching algorithm to cache "often used" and "recently used" data separately, and provides the best performance for your storage by tiering hot data between RAM and SDD Cache. In the RI2212 data is always saved on HDDs and only Hot Data is stored in RAM and SSD to ensure data safety and increase performance.

Data compression and in-line deduplication

The RI2212 offers data compression tor 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 the RI2212 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

Random Write	Random Read	Database	Web server
201 539	405 239	251 927	347 774

iSCSI Active-Active

Throughput [MB/s]

CCTV	File server	Media streaming	Sequential read
2 428	3 905	5 067	5 496

iSCSI Active-Active

Hardware details

	Default configuration	Options
Motherboard	Supermicro X10DRi-T	-
CPU	2 x Intel® Xeon® Processor E5-2623 v4 2.60GHz	2 x Intel® Xeon® E5-2637v4 3,5GHz
RAM	4 x 32GB ATP 2400MHz ECC-REG	16 x 32GB ATP 2400MHz ECC-REG
HDDs	9 x 4TB HGST HUS726040AL5210	9 x 2TB HGST HUS726020AL5210 9 x 6TB HGST HUS726060AL5210 9 x 8TB HGST HUH721008AL5200 9 x 10TB HGST HUH721010AL5200 9 x 12TB HGST HUH721212AL5200
Read cache	1 x 800GB HGST Ultrastar SDLL1DLR800GCCA1	N/A
Write log	2 x 400GB HGST Ultrastar HUSMM3240ASS200	N/A
Hard drive controller	1 x LSI SAS 9300-8i Host Bus Adapter 1 x LSI SAS 9300-8e Host Bus Adapter	-
Network interface	1 x Intel® Ethernet Controller X540-AT2 1 x Intel® Ethernet Converged Network Adapter X710-4 1 x Emulex OneConnect OCe14102-NT	1 x Intel® 10Gigabit X550-T2 1 x Supermicro 10Gigabit AOC-STG-i4S
Form factor	2U	-
Power	2 x 920W	-
JBOD	Thomas-Krenn.AG 2HE disk extension unit JBOD Jx212+	-

Thomas-Krenn

Thomas-Krenn.AG is a leading provider of individual server- and storage-systems and data center solutions. The company serves more than 15,000 customers across Europe. These include large corporations, public services and government authorities, IT service providers and educational institutions as well as many small and medium-sized enterprises. Thomas-Krenn.AG allows customers to quickly configure custom-designed servers with proven components via its online shop. Most items can be delivered the very next day. The company assembles all of its servers in Freyung, Germany and has steadily grown to now over 150 employees since its founding in 2002.

Partner Contact

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

E-mail: info@thomas-krenn.com
Website: www.thomas-krenn.com
Phone: +49 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 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 30,000 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.