MIKROTIK

RouterOS enterprise Data Server

(RDS2216-2XG-4S+4XS-2XQ)

a high-performance, all-in-one storage, networking, and container platform designed for enterprise environments.

Powered by ROSE
A Special RouterOS Edition for Storage & Compute



"Traditional IT setups separate networking, storage, and compute, leading to inefficiencies, high costs, and increased power consumption. The RDS changes that."

Cloud services can spy on you. Algorithms decide what you see. With RDS, you can host your own services, even social media!



TAKE BACK CONTROL

Third parties control your data. Should they? Your business, your files, your future – handed over to external providers with unclear policies and unknown risks.

Stop relying on the cloud. Own your infrastructure.

Introducing the **Rose Data Server (RDS2216)** – a high-performance, all-in-one **storage, networking, and container** platform designed for enterprise environments. **Secure, scalable, and under your control.**



WANT TO LEARN MORE?





WHY CHOOSE RDS2216?

- **20 U.2 NVMe storage slots** – Ultra-fast, high-density storage for demanding workloads.
- **100G high-speed networking** – 2× 100G QSFP28 ports, 4× 25G SFP28 ports, 4× 10G SFP+ ports, 2× 10G Ethernet ports, and an extra SFF-8644 interface for flexible connectivity.
- **16-core 2 GHz ARM CPU + 32GB DDR4 RAM** – High-performance processing for networking, storage, and virtualization.
- **Massive energy savings** – Cut power consumption and heat output while maintaining high performance – an eco-friendly solution for data-heavy environments.
- **Runs RouterOS** – The most flexible, modular networking OS. Supports advanced storage capabilities, including exporting block devices over NVMe-TCP, encryption layers, and modular storage configurations for scalable infrastructure. No subscriptions. No paywalls.
- **Container-ready** – Run MinIO, Nextcloud, Shinobi, Frigate, and other OCI compliant containers with ease. We've added two USB ports for additional devices and further adaptability.
- **Includes dual hot-swappable power supplies** – Ensuring uninterrupted operation and quick replacement without unnecessary downtime.

REAL-WORLD APPLICATIONS

Self-hosted MinIO cloud storage

– S3-compatible, ultra-fast, no vendor lock-in. Your cloud. Your terms. No hidden fees or security risks – just enterprise-grade object storage you control.

Enterprise cloud hosting

– Secure document storage with full **NextCloud** support. **Built-in BTRFS enterprise features** – snapshots, compression, and subvolume transfers – ensure efficiency, scalability, and data integrity. Give your employees peace of mind when they create, edit and share important documents!

High-speed backup & database clusters

– RAID, iSCSI, NVMe-TCP, and TCG-Opal self-encrypting drives ensure secure, high-performance storage. Designed for PostgreSQL, MariaDB, and mission-critical workloads with near-instant failover and future-proof scalability as NVMe technology advances.

Containerized infrastructure

– Run VMs, automate workloads, and build scalable systems. For memory-intensive applications, **built-in swap support** prevents out-of-memory failures, ensuring smooth performance even under heavy workloads.

Branch office storage expansion

– Branch office routers (like hAP ax2) can mount NFS, SMB, or NVMe-TCP storage—no need for local USB/SD storage. Need fine-tuned control? RouterOS lets you encrypt, format, and share storage over multiple protocols—modular and scalable, just like your network. This enables hundreds of routers to run containerized apps, store logs, and access shared data—without requiring local storage.

Auto-encrypting storage

– TCG-Opal self-encrypting drives for hardware-level security. When hardware encryption isn't an option, built-in block device encryption ensures data protection without performance trade-offs—effortless **GDPR compliance.**

Private social media hosting

– Host your own Pixelfed, Loops, or Matrix network. No tracking. No ads. No external interference—true digital independence. The world is moving local for a reason.

ONE DEVICE. ENDLESS POSSIBILITIES.

It's a breakthrough in flexible networking and storage for the most demanding enterprise environments. Reliable 100-Gigabit connectivity. Ultra-fast NVMe storage support. Containers. Enterprise-grade performance.

No subscriptions. No paywalls. Just pure, future-proof performance.
You buy it – you own it. **Forever.** That's a core **MikroTik** principle.

MIKROTIK

The smarter way to build your infrastructure.



F.A.Q.

Q: Is PCIe Gen3 with 1-2 lanes per drive fast enough?

A: Each U.2 drive in the RDS is connected with **2× PCIe 3.0 lanes (16 Gbps per drive)**, and the **entire disk plane has a 16× PCIe 3.0 connection to the CPU (128 Gbps total)**.
In practical use, **CPU performance will be the limiting factor before PCIe bandwidth becomes a bottleneck**, especially with multiple drives handling parallel workloads. When writing large files over **NVMe-TCP**, the system can sustain up to **50 Gbps continuous write speeds**.
Additionally, **most SSDs can't fully saturate their theoretical interface speeds** due to NAND flash limitations, meaning **even high-end Gen4 drives won't always see a real-world advantage over Gen3 in practical workloads**.
As for drives, **PCIe Gen3 U.2 SSDs remain widely available** and are ideal for enterprise workloads where endurance, capacity, and cost-efficiency matter more than peak sequential speeds.

Q: Can the CPU handle 200G networking and 20 NVMe drives with PCIe 3.0?

A: The RDS isn't just storage—it's also a high-speed router. The network interfaces are designed for **routing, virtualization, and compute workloads, not just disk access**. While based on the bestselling CCR2216 router, the system has been **fine-tuned** for performance across networking, storage, and compute tasks.
Additionally, the **latest RouterOS includes optimizations like ROSE storage enhancements, improved multi-threading, and better RAID/disk management**, ensuring efficient workload distribution and **seamless operation of NVMe storage and high-speed networking**.

Q: What if I don't want to use U.2 drives? I already have an archive of SSDs.

A: No problem! The RDS supports **adapters for M.2**, allowing you to repurpose your existing drives. While U.2 drives offer **better durability and enterprise-grade endurance**, the flexibility to use different storage types ensures you can customize the system to fit your needs.

Q: What about single point of failure principles?

A: The RDS is designed with redundancy in mind to minimize risks:

- Dual hot-swappable power supplies ensure continuous operation even if one fails.
- RAID improves storage redundancy and helps maintain system stability, but unexpected drive failures can still impact overall operation.
- NVMe-TCP allows external storage integration, enabling data redundancy across multiple units.
- RouterOS features like VRRP and bonding can provide network failover.

Also, multiple RDS units can be used in a cluster.

Q: Does it have Layer 3 offloading?

A: Yes! It features the 98DX4310 switch chip, the same one used in the CRS510-8XS-2XQ and CRS504-4XQ, providing L3HW offloading capabilities.
For detailed specs on Layer 3 offloading, check here.

Q: Why is it green?

A: The green design reflects its energy efficiency and eco-friendly approach. The RDS is built to reduce power consumption while delivering high performance, making it a sustainable alternative to traditional power-hungry enterprise servers.
"Green is the prime color of the world, and that from which its loveliness arises." – Pedro Calderón de la Barca

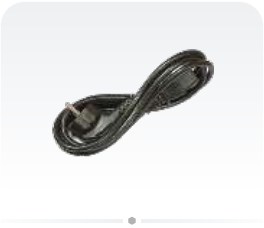
Specifications

Product code	RDS2216-2XG-4S+4XS-2XQ
CPU	AL73400 16-Core 2000 MHz
CPU architecture	ARM 64bit
Size of RAM	32 GB ECC
RAM type	DDR4
Storage	32 MB (Flash) soldered, non expandable, 128 MB (NAND)
Number of 1G Ethernet ports	1
Number of 1G/2.5G/5G/10G Ethernet ports	2
Number of 10G SFP+ ports	4
Number of 25G SFP28 ports	4
Number of 100G QSFP28 ports	2
Number of M.2 SATA slots	2
Disk bays	20 PCIe gen3 trays for U.2 SSD disks (max 7mm height supported)
Additional connectivity	SFF-8644 interface
Max. supported U.2 size	7 mm
USB slot	2 (USB 3.0 Type A and USB 2.0 Type A)
Switch chip model	98DX4310
Operating system	RouterOS v7 only, License level 6
Dimensions	476 x 443 x 44 mm
Operating temperature	-20°C to +50°C

Powering

Number of AC inputs	2 (dual-redundant hot-swap power supplies)
Nominal voltage	12 V
Nominal current	45 A
Max current	50 A
AC input range	100-240 V
Max power consumption (without attachments)	105 W
Max power consumption	286 W

Included parts



2 Power cords



Rackmount ears



Rackmount rear support ears



Rackmount rear support ears



K-90 Fastening set