IBM LinuxONE Midrange Rockhopper 4: A Modern Solution for Sustainable, Secure, and High-Performance IT Infrastructure

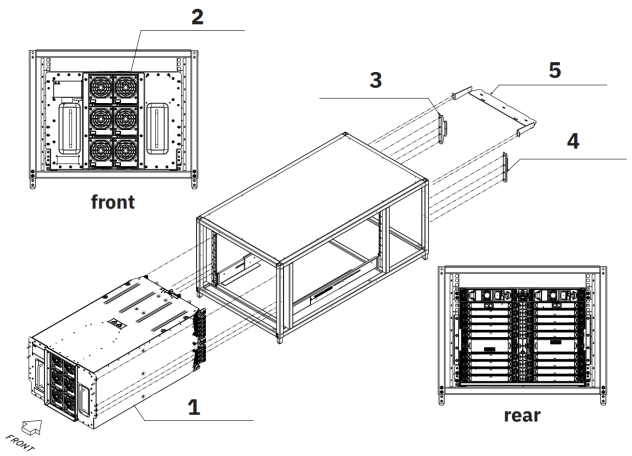
In today's rapidly evolving IT landscape, businesses face the growing challenge of maintaining robust, scalable, and environmentally responsible infrastructures. As industries continue to shift towards digital transformation, the demand for more efficient, secure, and sustainable computing solutions has never been greater. IBM's LinuxONE Midrange Rockhopper 4 offers a groundbreaking solution that integrates performance, security, and sustainability into one powerful platform. This paper delves into the features, advantages, and use cases of IBM LinuxONE Midrange Rockhopper 4, highlighting its transformative role in the world of enterprise IT.

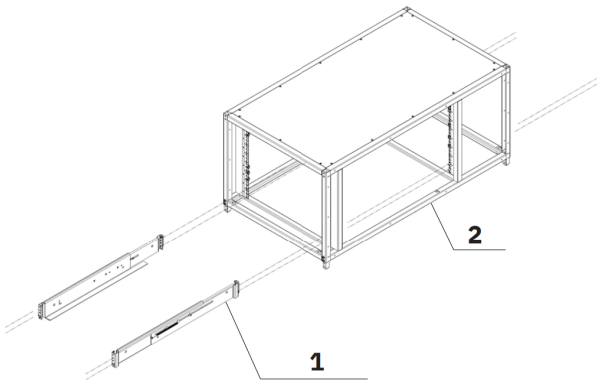
The IBM LinuxONE Midrange Rockhopper 4 is the latest offering in IBM's LinuxONE family, designed to meet the growing demands of modern businesses, especially in sectors like finance, healthcare, and public services. Powered by the IBM Telum Processor, this platform is optimized for handling demanding workloads, from high-performance computing (HPC) to AI and machine learning applications. With a focus on security, energy efficiency, and operational flexibility, the Rockhopper 4 is engineered to serve as a backbone for the next generation of enterprise workloads, including hybrid cloud environments.

1. Superior Security for the Digital Era

Security is paramount in today's digital-first world, where data breaches and cyberattacks are an ever-present threat. The IBM LinuxONE Midrange Rockhopper 4 offers robust security features that protect data at every stage, ensuring that enterprises can trust the platform with their most sensitive workloads.

One of the standout features is the quantum-safe encryption provided by the Telum processor. This forward-looking approach to encryption is designed to safeguard data from future quantum computing threats. As quantum computing advances, many existing cryptographic algorithms may become vulnerable, but IBM's quantum-safe algorithms ensure that the integrity and confidentiality of your data are maintained.



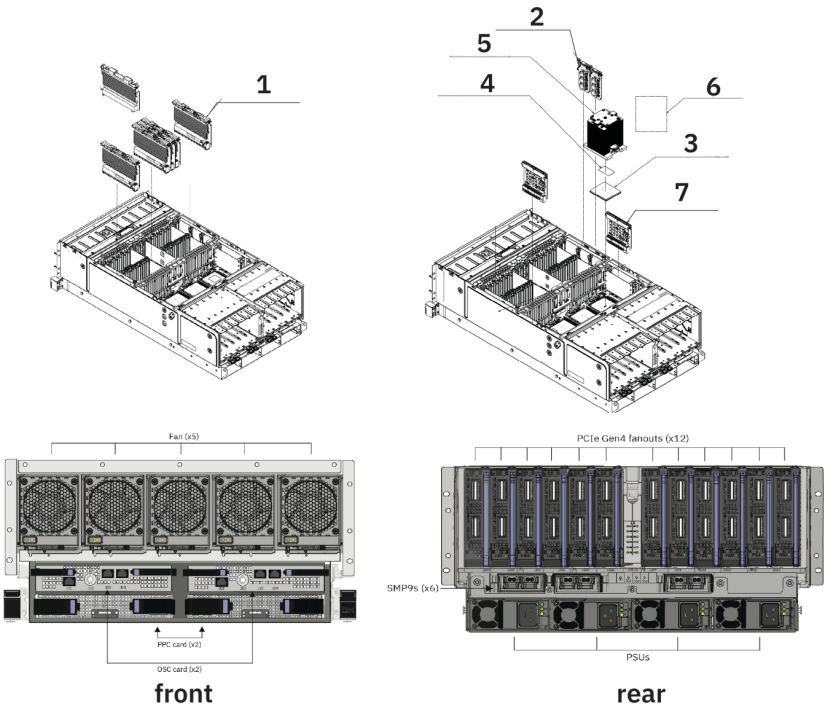


In addition to quantum-safe encryption, the platform supports comprehensive encryption of data both at rest and in transit. This feature is critical for industries such as finance and healthcare, where data protection is a legal and operational necessity. The multi-layer security architecture of LinuxONE provides the highest levels of protection for data, applications, and workloads, ensuring that businesses can confidently adopt cloud technologies without sacrificing security.

2. Sustainability and Energy Efficiency

IBM LinuxONE Midrange Rockhopper 4 is built with sustainability in mind. Traditional data centers consume vast amounts of energy, contributing to significant carbon footprints. The Rockhopper 4 changes this dynamic by offering up to 75% energy savings compared to typical x86 server infrastructures. This reduction is achieved through a combination of energy-efficient design and the Telum processor's ability to handle complex workloads with fewer resources.

By reducing energy consumption, the platform not only helps businesses lower their operational costs but also aligns with corporate sustainability goals. The compact form factor of the Rockhopper 4, coupled with high-density performance, ensures that businesses can maximize performance while minimizing environmental impact. This is particularly important for companies striving to meet net-zero carbon emissions targets or enhance their corporate social responsibility (CSR) profiles.



3. High Performance with AI Acceleration

One of the key differentiators of the IBM LinuxONE Midrange Rockhopper 4 is its integration of AI acceleration. The Telum processor, embedded with specialized AI inference capabilities, is optimized for real-time AI workloads. This functionality is crucial for businesses in industries like finance, retail, and public services, where the ability to process and analyze vast amounts of data in real time is becoming increasingly essential.

The AI capabilities enable faster insights, lower latency, and improved decision-making. This makes the Rockhopper 4 an excellent choice for applications such as fraud detection, predictive analytics, and real-time customer service optimization. With AI built directly into the platform, businesses can eliminate the need for separate AI processing hardware, simplifying their IT architecture and improving efficiency.

4. Flexibility and Scalability for Modern Workloads

In today's hybrid cloud world, businesses require infrastructure solutions that offer flexibility and scalability. IBM LinuxONE Midrange Rockhopper 4 delivers on this front with its ability to support a wide range of workloads across cloud environments, on-premises infrastructures, and edge deployments.

The system supports popular open-source and enterprise Linux distributions, including Ubuntu 22.04 LTS, and is fully compatible with containerized workloads using Docker and Kubernetes. This level of flexibility allows businesses to run both legacy applications and modern, cloud-native applications on the same platform. The Rockhopper 4 also supports virtualization technologies such as KVM and LXD, ensuring that organizations can deploy and manage virtual machines and containers with ease.

Additionally, IBM LinuxONE offers robust hybrid cloud capabilities, allowing businesses to seamlessly integrate their on-premises workloads with cloud environments. This enables efficient resource utilization, workload portability, and optimized performance.

5. Cost-Effective Operations

By consolidating workloads on a single, high-performance system, IBM LinuxONE Midrange Rockhopper 4 helps reduce operational costs. The platform's energy efficiency, reduced footprint, and ability to handle multiple workloads in parallel lower the overall total cost of ownership (TCO). Organizations can manage their workloads with fewer physical machines, resulting in lower hardware and maintenance costs.

6. Use Cases and Applications

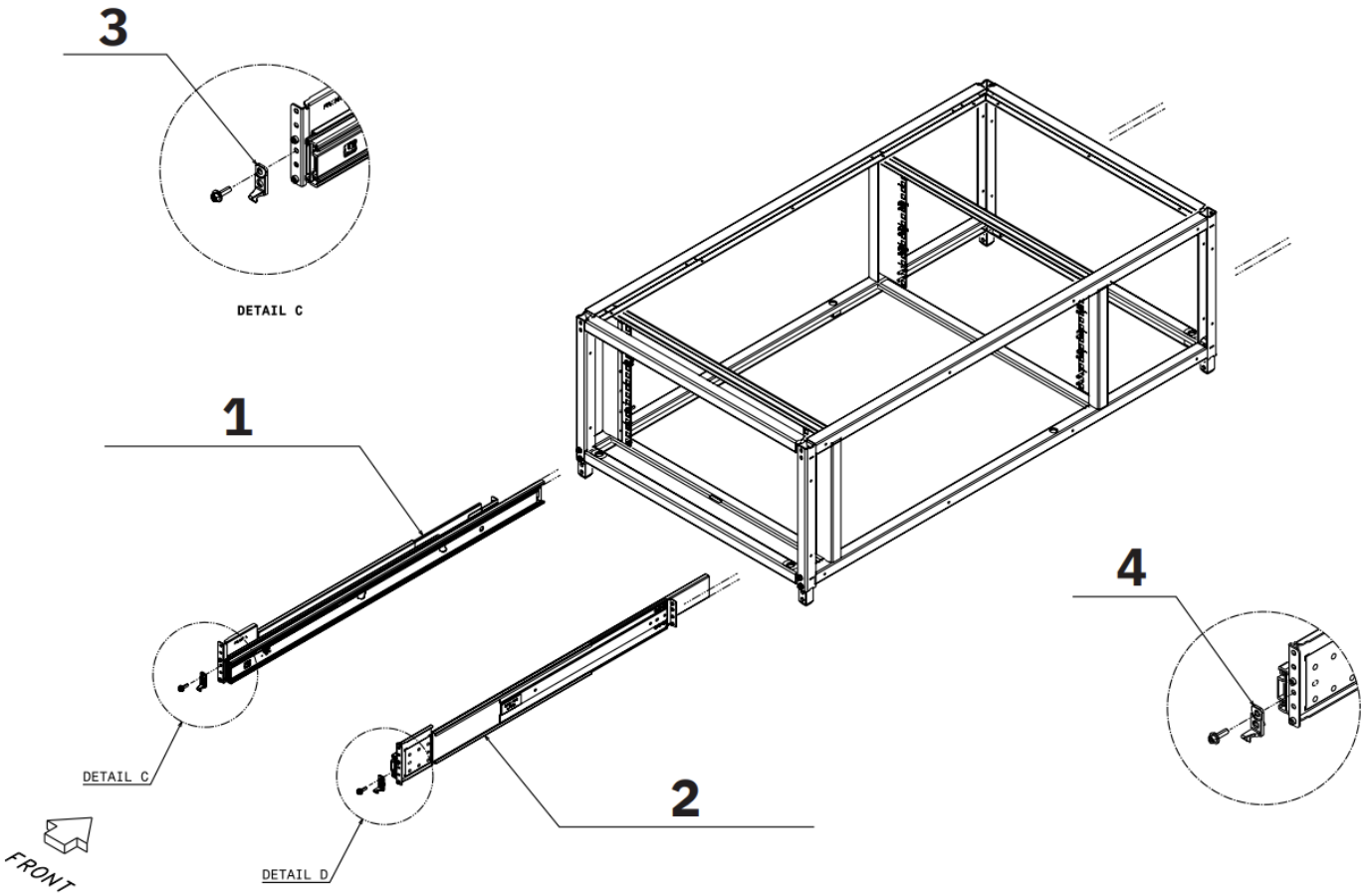
The IBM LinuxONE Midrange Rockhopper 4 is ideal for organizations in sectors where performance, security, and sustainability are paramount. Key use cases include:

• **Financial Services:** Real-time analytics for fraud detection, high-frequency trading, and risk management.

• **Healthcare:** Secure processing of sensitive patient data, supporting AI-driven diagnostics and personalized treatment.

• **Public Sector:** Ensuring data security, privacy, and compliance with regulations while enabling the integration of cloud technologies.

The platform is also beneficial for enterprises seeking to modernize their IT infrastructure while meeting their environmental and sustainability goals.



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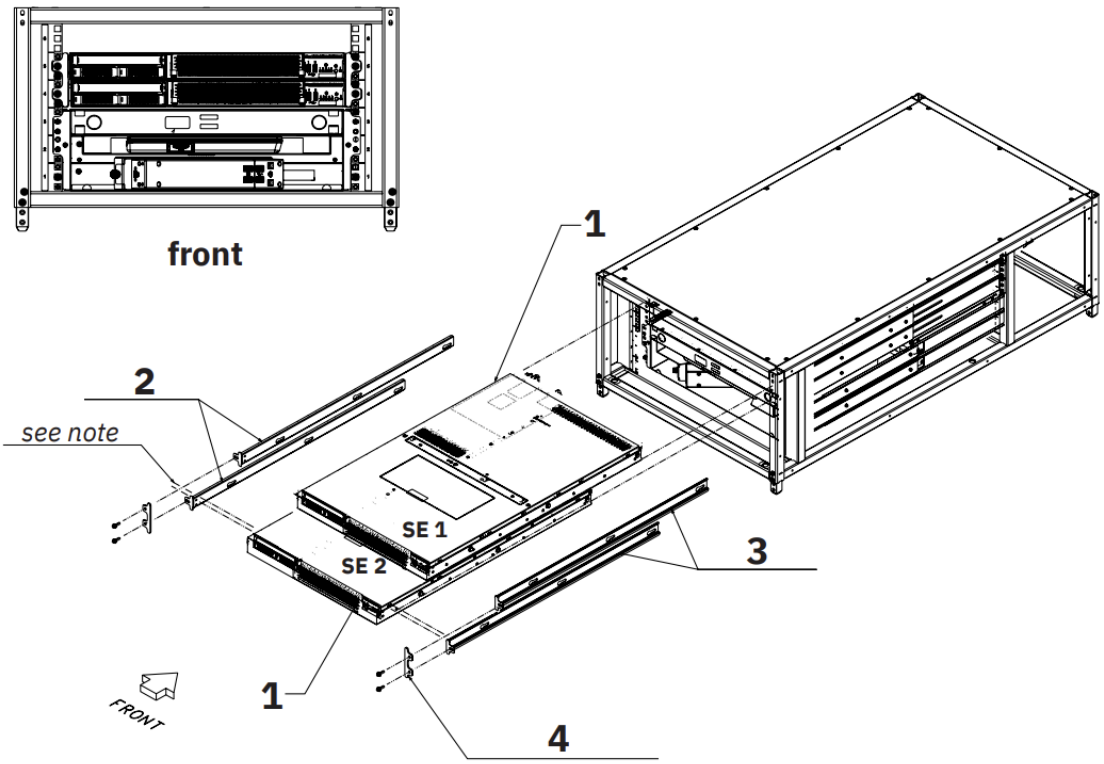
IBM LinuxONE Midrange Rockhopper 4 represents the next evolution in high-performance computing for the modern enterprise. With its emphasis on security, energy efficiency, AI capabilities, and flexibility, it stands out as a versatile solution for businesses in various industries. Whether addressing sustainability concerns or accelerating AI workloads, Rockhopper 4 provides the power and reliability organizations need to stay competitive in a fast-paced digital world.

By offering a green computing solution without compromising on performance, IBM LinuxONE Midrange Rockhopper 4 helps businesses achieve their technological and environmental goals simultaneously. As hybrid cloud, AI, and sustainability continue to shape the future of IT, IBM LinuxONE remains at the forefront of the next generation of secure, scalable, and sustainable infrastructure solutions.

Safety Notices and Installation Guidelines for IBM z16 and LinuxONE Rockhopper 4 Rack Mount Bundles

The installation of IBM z16 and LinuxONE Rockhopper 4 Rack Mount Bundles must be handled with care. The following safety instructions and product details are crucial for a safe and efficient setup.



Safety Notices

DANGER Notices:

• **Electrical Hazards:** Ensure proper safety procedures are followed when handling power connections or signal cables. Verify that the outlet is correctly wired and grounded before making any connections.

• **Power Supply:** Avoid attempting to open or service power supplies. Refrain from making connections or adjustments during an electrical storm to prevent risks.

• **Heavy Equipment:** Exercise caution when handling the system, as it may involve heavy components. Incorrect handling can lead to injury or damage to the equipment.

• **Hazardous Conditions:** Do not power on equipment that exhibits signs of fire, water damage, or other unsafe conditions. These could indicate underlying issues that compromise safety.

CAUTION Notices:

• **Laser Hazards:** Optical fiber cables and open receptacles may pose laser hazards. Never look directly into these, and always take necessary precautions when handling devices with laser components.

• **Battery Safety:** Lithium batteries should not be burned, charged, or disassembled. They should also be kept away from water and extreme heat.

• **Laser Products:** Some components of the system may emit Class 1 laser radiation, including optical drives and laser modules. Unauthorized adjustments or disassembly of these components may expose individuals to harmful radiation.

Laser Safety Compliance

IBM zSystems and LinuxONE models, including the Rockhopper 4, comply with Class 1 or Class 1M laser standards, ensuring the safety of users and technicians. All laser-based devices conform to DHHS 21 CFR Subchapter J and IEC 60825 standards, with careful attention to laser safety during handling.

Product Details: IBM z16 and LinuxONE Rockhopper 4 Rack Mount Bundles

This document also includes essential installation and maintenance information for the IBM z16 and LinuxONE Rockhopper 4 Rack Mount Bundles. The manual is intended for IBM customer service representatives involved in setup and repair procedures.

Rack Mount Configuration

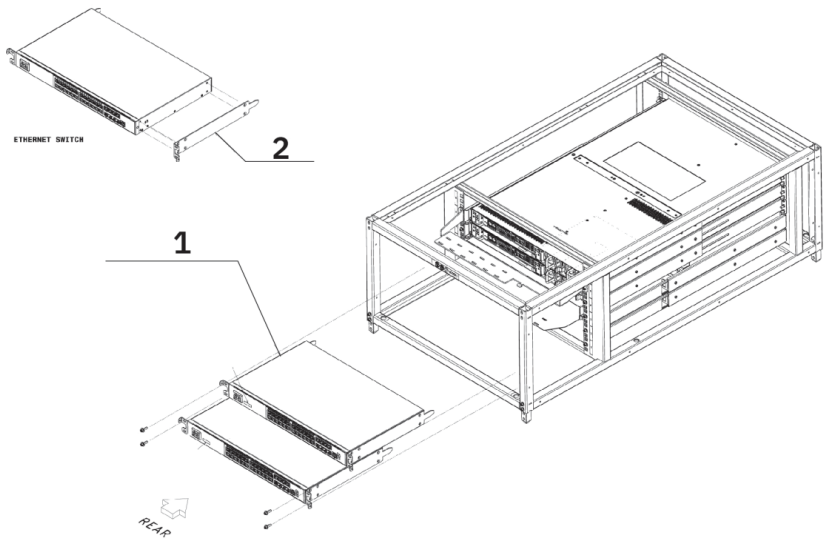
• IBM z16 and LinuxONE Rockhopper 4 are integrated within the rack mount configuration, replacing the IBM z15 T02 16U reserved space. This configuration ensures efficient use of space and optimized cooling.

Key Configuration Considerations

• Power and Service Planning: It is essential to plan for adequate power supply and service clearance during installation.

• Physical Dimensions: Ensure that physical dimensions, airflow considerations, and service clearances are properly accounted for.

• Warranty Coverage: Both IBM z16 and LinuxONE Rockhopper 4 are supported under a unified warranty identifier, simplifying support and repair.

For a seamless and optimal installation process, all guidelines and safety procedures outlined in this document should be followed. Ensuring that the physical space and service accessibility are carefully planned will enhance the performance and reliability of your LinuxONE Rockhopper 4 system.

By adhering to the safety protocols, configuration guidelines, and installation instructions, you can ensure that the IBM LinuxONE Rockhopper 4 will perform at its best, providing secure and scalable performance for your organization's needs. It's designed for easy integration, with advanced features and robust support, ensuring that it remains a reliable cornerstone of your infrastructure.