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## Highlights

- **OPEN:** Choose the tools and applications you know and love
  - **FLEXIBLE:** Meet demand with virtually limitless scale
  - **SIMPLE:** Fewer servers, less complexity, lower cost
  - **EFFICIENT:** Get unparalleled utilization and speed
  - **TRUSTED:** Embedded security and designed to never stop
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# IBM LinuxONE Rockhopper

Linux has been the world's fastest growing server operating system for a number of years and is now a major player in the global IT market, driving a multitude of new solutions. To be competitive in the market, the Linux infrastructure has to be efficient, secure, adaptive, and integrated. It must be designed to handle the explosive growth of mobile clients, be able to leverage vast amounts of data, and provide deep real-time insight at the point of greatest business impact. And it must be deployable within a secure and resilient cloud ready environment.

The IBM® LinuxONE Rockhopper™ system is designed as an entry point for LinuxONE™ portfolio. It embodies the same innovation and value, flexible growth options, industry- leading virtualization, trusted resiliency, secure cloud, enterprise mobility and operational analytics capabilities as the massively scalable IBM LinuxONE Emperor.



## Scalability and Performance

The LinuxONE Rockhopper allows for a simple Linux infrastructure approach. It is available with up to 20 cores, running at 4.3 GHz, and 4 TBs of memory for performance and scaling advantages. It is capable of supporting nearly a thousand virtual Linux servers on a single footprint. Its memory hierarchy, execution processing, and prefetch instructions are all designed to optimize throughput for many workloads. This means in the few square meters it takes up, one Rockhopper can result in a less complex Linux infrastructure with fewer components, less management efforts and less software costs, giving it the ability to be a much more economical and flexible solution when compared to x86 servers.

Rockhopper is a responsive service delivery platform capable of starting up hundreds of new virtual Linux servers in minutes. It allows you to share and over-commit system resources to meet your client expectations for unlimited access to existing and new services. Rockhopper supports multiple Linux Distributions such as Red Hat (RHEL), SUSE (SLES) and Canonical (Ubuntu). Virtualization capabilities are delivered by KVM or IBM z/VM hypervisors. The OpenStack support for KVM and IBM z/VM allows for cloud like management, with 3rd party tools such as by VMware vRealize™ Automation™.

Impressive scalability is provided by the virtualization alternatives to fully exploit the Rockhopper's capabilities to meet your mobile and analytic demands. It can run at utilization rates as high as 100 percent for extended periods of time, and you can scale your capacity on demand. Having your Linux environment all in one server also means less time is spent on managing your Linux infrastructure.

## Trustful, reliable and secure for less risk

Within a single footprint, the Rockhopper is designed to avoid or recover from failures to minimize business disruptions. High availability is realized through component reliability, redundancy, and features that assist in providing fault avoidance and tolerance, as well as permitting concurrent maintenance and repair.

Rockhopper provides privacy for transactions and sensitive data by employing a dedicated cryptographic coprocessor, the CP Assist for Cryptographic Function (CPACF), which delivers cryptographic and hashing capabilities in support of clear-key operations. Exclusive to CPACF is the protected key support which provides the speed of processor based cryptography while helping to keep sensitive keys private from applications and the operating system.

Rockhopper also offers a cryptographic acceleration feature, the Crypto Express5S, providing a state of the art tamper resistant cryptographic coprocessor for secure-key operations along with new hardware assists for fast data encryption. Rockhopper with Crypto Express5S offers asymmetric key support for constrained environments using hardware assisted Elliptic Curve Cryptography (ECC), providing algorithms with much shorter key lengths than RSA keys for similar cryptographic strength—making ECC cryptography ideal for mobile and smartcards where performance constraints may be a consideration.

Rockhopper is a highly securable commercial server,<sup>1</sup> built using groundbreaking technology you can trust. Without risk you can run many Linux virtual servers concurrently, leveraging LinuxONE Rockhopper's ability to isolate and protect each Linux virtual server, as if they were running on physically separated servers.

## Enterprise qualities of service

Rockhopper enables enterprise grade Linux, one that is more robust and trusted for critical workloads, has higher performance and throughput to deliver a low cost per transaction.

Resiliency analytics for LinuxONE is designed to offer near real time diagnostics to help identifying potential problems in the Linux environment. It is an analytics solution executed in firmware, which intelligently examines message logs for potential inconsistencies or anomalies. With this capability organizations can address IT problems quickly, minimize availability lapses and intervene in IT problems before they become severe.

The IBM GDPS® Virtual Appliance can deliver multiplatform resiliency capabilities for Rockhopper. It is intended to provide high availability and disaster recovery benefits in case of system, application, or network failure.

IBM Spectrum Scale™ for Rockhopper, based on IBM GPFS™ technology, is designed to provide high availability through advanced clustering technologies, dynamic file system management and data replication. Spectrum Scale can continue to provide data access even if the cluster experiences storage or node malfunctions. Its scalability and performance are designed to meet the needs of your most data intensive applications.



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When your IT infrastructure needs to be expanded, the efficiency, flexibility and qualities of Rockhopper are best in class. Its consolidated design allows you to grow capacity inside the server—on the fly—without affecting the running environment. Eliminating the need to constantly buy, configure, and manage new services to handle growth.

**IBM Systems**  
**Data Sheet**

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**IBM LinuxONE Rockhopper (2965) at a glance**

	Processors per Model	Processor Memory per Model
<b>Rockhopper Models</b>	Minimum – Maximum	Minimum – Maximum
L10	2 – 10	64 GB – 1.0 TB*
L20 (1 Drawer)	2 – 20	64 GB – 2.0 TB*
L20 (2 Drawer)	2 – 20	64 GB – 4.0 TB*
<b>Cryptography</b>		
Crypto Express5S	Minimum order 2 features; Maximum order 16 features	
<b>Disk Connectivity</b>		
FICON Express16S	Maximum: 128	
<b>NIC – Connectivity</b>		
OSA-Express5S	Maximum: 96	
<b>High Speed 'Virtual' LANS</b>		
HiperSockets	Up to 32	
<b>Supported Linux distributors</b>		
Red Hat	Red Hat Enterprise Linux (RHEL) 6, and 7	
SUSE	SUSE Linux Enterprise Server (SLES) 11 and 12	
Canonical	Canonical (Ubuntu) and IBM announced plans to create a distribution	

**IBM Systems**  
**Data Sheet**

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**IBM LinuxONE Rockhopper (2965) at a glance**

	Processors per Model	Processor Memory per Model
<b>Supported Hypervisors</b>		
IBM z/VM	z/VM 6.3, z/VM 6.2 (toleration)	
KVM	KVM 1.1 running on IBM LinuxONE with SUSE SLES SP1 guests	
IBM LPAR technology	Included in Rockhopper	
<b>Physical Configuration Air Cooled</b>		
Max weight with Internal Battery Feature (IBF)	L20 minimum system 1758 lbs (797 kg) With overhead cabling 1836 lbs (833 kg)	
Max weight without Internal Battery Feature (IBF)	L20 minimum system 1535 lbs (696 kg) With overhead cabling 1613 lbs (732 kg)	
Product Dimensions (W x D x H) without overhead cabling	36.6 x 63.0 x 84.8 inches (96.0 x 160.0 x 215.3 cm)	
Product Dimensions (W x D x H) with overhead cabling	31.0 x 63.0 x 79.3 inches (78.7 x 160.0 x 201.3 cm)	
Airflow (Capacity of Exhaust)	3050 cubic meters / hour (1820 CFM)	

## Why IBM?

IBM understands your goals to drive top line growth and to enhance customer experience and loyalty. We understand your desire to use smart, efficient and robust technology solutions to achieve this. IBM provides expertise in systems, software, services and financing, that can help you optimize your Linux environments for the constant flow of opportunities and challenges. Rockhopper helps you address the velocity of your business while helping to keep users and data secure and budgets in check.

## For more information

To learn more about the IBM LinuxONE Rockhopper, please contact your IBM representative or IBM Business Partner, or visit the following website: [ibm.com/systems/linuxone/enterprise-linux-systems/rockhopper.html](http://ibm.com/systems/linuxone/enterprise-linux-systems/rockhopper.html)

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IBM Systems  
Route 100  
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Produced in the United States of America  
January 2016

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Statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

\* Provides the minimum physical memory required to hold base purchase memory plus 40 GB HSA

<sup>1</sup> Hardware security certification in progress for EAL5+



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