Microsoft and Lenovo ThinkSystem SR950 – A Perfect Match

Article

The Lenovo ThinkSystem SR950 is Lenovo's flagship Mission Critical server. The SR950 running Microsoft Windows Server and Microsoft SQL Server is key to an Enterprise Data Center implementation. Lenovo and Microsoft have two database Solutions for the SR950 as well as World Record Benchmark performance results with TPC and SAP benchmarks.

Microsoft and Lenovo Partnership

The Lenovo and Microsoft partnership has been forged over many years. One of the goals of that partnership is to ensure that the latest Microsoft technologies are a perfect fit with Lenovo servers. Built with proven Lenovo innovation around industry-standard components, Lenovo servers help enhance and extend Microsoft's operating systems, virtualization technologies, and infrastructure platforms so you can build a highly productive IT environment that can help your business achieve true innovation.

Pair your Lenovo SR950 with trusted operating system solutions from Microsoft such as Windows Server 2016—tested and proven for compatibility. Lenovo offers the Windows Server operating system, factory preloaded or as Reseller Option Kit.

Microsoft & SR950 World Record Performance

The ThinkSystem SR950 delivered a leadership 4-processor result on Microsoft Windows for the two-tier SAP Sales and Distribution (SD) standard application benchmark. The Lenovo ThinkSystem SR950 with 8-processors also delivered world record results for the SAP SD 2-tier standard application benchmark in a Microsoft Windows environment on IBM Db2.

SAP Sales and Distribution (SD) Standard Application Benchmarks test the hardware and database performance of SAP applications and components. This benchmark shows a server's capability in enterprise resource planning environments processing business line items.

Microsoft Server and ThinkSystem SR950 delivers unparalleled performance and security to power your most demanding transactional systems and data warehouses. Blazing-fast performance is key to ensuring you can deliver a flawless transactional experience while at the same time supporting real-time operational analytics of in-flight data. Integrated business intelligence and advanced analytics solutions are leveraged for building intelligent applications.

The ThinkSystem SR950 also holds the world's best TPC-E performance result for *any* server plus the world's best price/performance result for a four-processor server. The SR950 achieved this record level of OLTP performance using Microsoft SQL Server 2017 Enterprise Edition and Microsoft Windows Server 2016 Standard Edition.

The TPC Benchmark E (TPC-E) is an On-Line Transaction Processing (OLTP) workload designed to enable customers to objectively measure and compare the performance and price of various OLTP and database systems. TPC-E is a mixture of read-only and update intensive transactions that simulate the activities found in complex OLTP application environments.

To read more about these world record results:

- SAP Sales and Distribution 4S Report – new
- SAP Sales and Distribution 8S Report – new
- TPC-E 4S Performance Report – maintained

Database Solutions on Lenovo SR950

The rapid growth of technology means the ability to collect vast amounts of data and support high rate online transactions. As the volume and velocity of data increases, extracting meaningful insight in a timely manner or supporting online transactions has become more complex.

Microsoft and SR950 solutions help reduce time to value with pretested ThinkSystem SR950 hardware configurations with Microsoft Certification and detailed performance data. This provides a reduced TCO through better performance, rapid deployment and advanced hardware.

Data Warehouse Fast Track (DWFT) configuration

The Microsoft Data Warehouse Fast Track (DWFT) configuration for SQL Server 2017 improves time-to-value for data warehousing needs with a new scalable architecture. This solution uses the Lenovo ThinkSystem SR950 server combined with Lenovo NVMe Enterprise Mainstream Flash Adapters to solve SQL database warehouse needs up to 90 TB in size. Read the Lenovo Solution Brief for Microsoft SQL Server DWFT – 200TB.

Online Transaction Processing (OLTP) configuration

The Microsoft Online Transaction Processing (OLTP) configuration for SQL Server 2017 improves time-to-value for transactional needs with a new scalable architecture. This high performance solution in the Lenovo portfolio uses the Lenovo ThinkSystem SR950 server combined with Lenovo ThinkSystem NVMe Enterprise Mainstream Flash Adapter storage to solve SQL database transactional needs of up to 60 TB in size and 10 million transactions per minute (TPM) based on Hammerdb TPC-C testing results.

Microsoft SR950 Solution Benefits

DWFT and OLTP for SQL Server 2017 for Lenovo solution offerings are methodically tested and tuned to save you months of configuration, setup, testing, and tuning to complete the following tasks:

- Buy all the hardware that you need from only one vendor including servers, storage, and networking
- Pre-optimized system tuned and tested with Microsoft certification and deploy with confidence for your demanding transactional database performance needs
- Select from different levels of performance, scalability, and price to suit your business needs
- Run mission critical transactional workloads with small random IOPs with low latency requirements
- Eliminate bottlenecks with optimized rapid data reads and query aggregations

XClarity for Microsoft System Center

The Lenovo XClarity family of software tools and applications used with the SR950 helps you standardize, simplify, and automate foundation infrastructure processes, free up time to deploy agile development methodologies, and ramp up delivery times of infrastructure and services.

XClarity Integrator for Microsoft System Center includes a Hardware PRO Pack for System Center Virtual Machine Manager. This extends XClarity Administrator features to Microsoft System Center, consolidating infrastructure resource management in your familiar tool. Users gain the ability to visualize Lenovo infrastructure status and health, configure and update systems, get Advisory PRO tips for existing and predictive hardware problems, and eliminate VM downtime by automatically utilizing Live Migration during rolling host reboots and updates as well as proactively on predictive hardware failure alerts.

XClarity Integrator for Microsoft System Center also includes a Deployment Pack, System Updates, Configuration Pack, and Inventory Tool for Microsoft System Center Configuration Manager. This extends XClarity Administrator features to Microsoft System Center, consolidating infrastructure resource management in your familiar tool. Users gain the ability to create custom OS images with Lenovo drivers, configure systems, and apply firmware updates using Windows Server Update Service.

Conclusion

As you can see, the combination of the ThinkSystem SR950 running Microsoft Windows Server and Microsoft SQL Server can provide World Record database performance with solutions and software tools to help simplify planning and implementation.

Further reading

For further reading, see these resources

- Lenovo Press product guide on the SR950
- SR950 product web page

This article is one in a series on the ThinkSystem SR950 and SR850 servers:

- Five Highlights of the ThinkSystem SR950
- Five Highlights of the ThinkSystem SR850
- Choosing between Lenovo ThinkSystem SR850 and SR950
- Workloads for 4-Socket and 8-Socket Servers
- Usability in the Design of the ThinkSystem SR950
- The Value of Refreshing Your 4-Socket Servers with the ThinkSystem SR950
- ThinkSystem SR950 Memory Decisions
- ThinkSystem SR950 Server Configurations
- The Value of Refreshing Your 8-Socket Servers with the ThinkSystem SR950
- Lenovo ThinkSystem SR950 New Options and Features - December 2017
- ThinkSystem SR950 Performance Leadership
- Lenovo Servers for Mission Critical Workloads
- **Microsoft and Lenovo ThinkSystem SR950 – A Perfect Match**
- Accelerate Your 4- and 8-Socket Server Refresh Cycle
- SAP Business Process Applications and Lenovo ThinkSystem SR950 – A Perfect Match
- ThinkSystem SR950 New Options - March 2018
- SAP HANA and Lenovo ThinkSystem SR950 – A Perfect Match
- ThinkSystem SR950 Performance Leadership Continues
- New Solution for SAP HANA - Lenovo ThinkAgile HX
- The Advantages of Keeping Mission Critical Workloads On-Premises vs Going to the Cloud
- SQL Server Migration and Lenovo ThinkSystem SR950

About the author

Randall Lundin is a Senior Product Manager in the Lenovo Infrastructure Solution Group. He is responsible for planning and managing ThinkSystem servers. Randall has also authored and contributed to numerous Lenovo Press publications on ThinkSystem products.

Related product families

Product families related to this document are the following:

- 4-Socket Rack Servers
- Microsoft Alliance
- Microsoft SQL Server
- Mission Critical Servers
- ThinkSystem SR950 Server

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