ThinkSystem SR650 Sets World Record with New 30,000 Scale Factor TPCx-BB Result
Performance Benchmark Result (withdrawn product)

Lenovo has published a new world-record TPCx-BB benchmark result. The TPCx-BB benchmark measures the performance of Hadoop-based Big Data systems systems. The benchmark is designed to enable customers to objectively measure and compare the performance and price of various Big Data Analytic Systems (BDAS).

This new benchmark result, published in a new TPC report on July 14, 2019, demonstrate that the ThinkSystem SR650 and SR630 continue Lenovo's leadership with outstanding performance for the server industry.

The clustered configuration of 36x SR650 servers configured as worker nodes and 3x ThinkSystem SR630 servers configured as management nodes achieved the following score (1):

The ThinkSystem SR650 has achieved the following score (1):

- **Big Bench Queries per minute at Scale Factor 30,000 (BBQpm@SF30000): 3,767.91**

This Lenovo result (1) is the best TPCx-BB result at Scale Factor 30,000 and is 11.3 % better performance than the Sugon I620-G30 Cluster (2).

The cluster was configured as follows for the benchmark audit:

- 36x ThinkSystem SR650 servers as worker nodes
- 3x ThinkSystem SR630 servers as management nodes
- Total processing configuration: 78 processors, 1,404 processor cores, and 2,808 threads
- ThinkSystem NE10032 100GbE RackSwitch for cluster connectivity
- Red Hat Enterprise Linux Server 7.6
- Cloudera for Apache Hadoop (CDH) 5.12.1

Each ThinkSystem SR650 in the cluster was configured as follows:

- 2x Intel Xeon Gold 6240 processor (18 cores, 2.60 GHz)
- 384 GB memory (12x 32GB RDIMMs running at 2933 MHz)
- 3x ThinkSystem 430-8i SAS/SATA HBA
- 24x 1TB 7.2K rpm SATA 6Gbps HDD
- 2x 128GB SATA 6Gbps SSD for boot
- 1x ThinkSystem 4-port 10Gb Ethernet LOM Adapter

Each ThinkSystem SR630 in the cluster was configured as follows:

- 2x Intel Xeon Gold 6240 processor (18 cores, 2.60 GHz)
- 256 GB memory (8x 32GB RDIMMs running at 2933 MHz)

- 1x ThinkSystem RAID 930-16i Adapter
- 3x 480GB Intel S4500 Entry SATA 6Gbps SSD
- 2x 128GB SATA 6Gbps SSD for boot
- 1x ThinkSystem 4-port 10Gb Ethernet LOM Adapter

Results referenced are current as of July 14, 2019.

(1) The total solution availability for this TPCx-BB benchmark result is July 15, 2019. Details for the The new Lenovo benchmark result can be found at: http://www.tpc.org/3512

(2) Sugon 1620-G30 cluster result: http://www.tpc.org/3508

About the ThinkSystem SR650

The Lenovo ThinkSystem SR650 server now supports Intel Optane DC Persistent Memory and up to two second-generation Intel Xeon Scalable processors. It features up to 36% total performance improvement compared to the previous generation and supports two 300W high-performance GPUs and ML2 NIC adapters with shared management. Unique Lenovo AnyBay technology provides the flexibility to mix-and-match SAS/SATA HDDs/SSDs and NVMe SSDs in the same drive bays. Support is now available for up to 24 NVMe drives.

For medium to large enterprises, and managed and cloud service providers, Lenovo ThinkSystem SR650 is the optimum 2U, two-socket server—the most widely used server type worldwide. It's engineered to deliver high performance with 205W CPUs, low-latency NVMe drives, and high-power GPUs.

With Lenovo's history of reliability, the highly flexible and configurable SR650 is the ideal platform for hyper-converged infrastructure (HCI) or software-defined storage (SDS). It provides a solid foundation for:

- Transforming physical resources into services, using validated designs for hybrid cloud

- Performing analytics on streaming data, using validated designs for Big Data

- Increasing productivity of virtualized transactional systems, using validated designs for OLTP databases.

Lenovo XClarity Controller is an all-new hardware embedded management engine common in every ThinkSystem server. XClarity Controller features an uncluttered graphical user interface, industry standard Redfish-compliant REST APIs, and enables booting in half the time of prior generation servers, with up to 6x faster firmware updates.

Lenovo XClarity Administrator is a virtualized application that centrally manages ThinkSystem servers, storage, and networking. Via reusable patterns and policies, it ramps up and scales infrastructure provisioning and maintenance. It serves as a central integration point to extend your data center management processes to physical IT. Running XClarity Integrators in external IT applications, or integrating through REST APIs, helps you further speed services provisioning, streamline IT management, and contain costs.

About TPCx-BB

The TPCx-BB Express Benchmark BB (TPCx-BB) enables customers to objectively measure the performance of Hadoop-based Big Data systems. This TPC benchmark executes 30 frequently performed analytical queries in the context of retailers with both physical and online store presence to measure the performance of both hardware and software components installed on the server.

SQL queries are used for structured data and machine learning algorithms are used for semi-structured and unstructured data. The SQL queries can use Hive or Spark, while the machine learning algorithms use machine learning libraries, user defined functions, and procedural programs.

For more information about TPCx-BB, see http://www.tpc.org/tpcx-bb/.

Learn more

To learn more about solutions for Big Data applications, please contact your Lenovo Sales Representative.

To find out more about TPC, visit https://www.tpc.org

To learn more about the Lenovo ThinkSystem SR650 server, visit the SR650 product web page: https://www.lenovo.com/us/en/data-center/servers/racks/ThinkSystem-SR650/p/77XX7SRSR65

Related product families

Product families related to this document are the following:

- 2-Socket Rack Servers
- TPCx Benchmarks
- ThinkSystem SR650 Server

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