ThinkSystem SR650 V4 Sets World Record with New SAP Q2C 2 units Benchmark Result

Performance Benchmark Result

The Lenovo ThinkSystem SR650 V4, using two Intel Xeon Platinum 6787P processors, has set a world record on SAP's new Quote-to-Cash (Q2C) benchmark. The server has achieved best performance using 86 core 6787P processor with the SAP Q2C benchmark.

A Q2C landscape consists of three components:

- SAP HANA database (scaleup or scaleout landscape) including a shipped HANA backup with Q2C content
- SAP ABAP application server(s) based on S/4HANA 2021 (ABAP Kernel: 789 PL201)
- Q2C driver (OS environment with tools for simulating the SAP GUI frontend)

The ThinkSystem SR650 V4 server achieved the following certified Q2C performance result (1):

- **121,400 aSAPS (Advanced SAPS)** with 20 million initial documents (2-tier)
- Throughput:
  - 2,428,624 fully processed order line items per hour
  - 8,257,3232 dialog steps per hour
  - 24,700 SAP Q2C benchmark users
  - 0.77s average dialog response time

The ThinkSystem SR650 V4 server that achieved this record level of SAP performance was configured in a 2-tier configuration as follows:

- 2x Intel Xeon Platinum 6787P 86-core 2.00GHz processors
  - 2 processors, 172 cores, 344 threads in total
  - 112 KB L1 cache and 2048 KB L2 cache per core, 336 MB L3 cache per processor
- 1,024 GB of Lenovo TruDDR5 memory - 16 x 64GB DDR MRDIMM, 8000MT/s
- SUSE Linux Enterprise Server 15 SP5
- SAP HANA 2.0 Revision 82
- SAP S/4HANA Server 2021

Results referenced are current as of March 21, 2025. For the latest SAP Q2C benchmark results, visit: https://www.sap.com/dmc/exp/2018-benchmark-directory/#/q2c.

(1) This benchmark fully complies with the SAP Benchmark Council regulations and has been audited and certified by SAP SE. Details are available at https://www.sap.com/dmc/benchmark/2025/Cert25012.pdf. The benchmark was performed in Bucharest, Romania by Lenovo engineers.

About the ThinkSystem SR650 V4

The Lenovo ThinkSystem SR650 V4 is an ideal 2-socket 2U rack server for customers that need industry-leading reliability, management, and security, as well as maximizing performance and flexibility for future growth. The SR650 V4 is based on two Intel Xeon 6700-series or Xeon 6500-series processors, with Performance-cores (P-cores).

The SR650 V4 is designed to handle a wide range of workloads, such as databases, virtualization and cloud computing, virtual desktop infrastructure (VDI), infrastructure security, systems management, enterprise applications, collaboration/email, streaming media and web.

Combining performance and flexibility, the SR650 V4 server is a great choice for enterprises of all sizes. The server offers a broad selection of drive and slot configurations and offers numerous high-performance features. Outstanding reliability, availability, and serviceability (RAS) and high-efficiency design can improve your business environment and can help save operational costs, read RAS Features of the Lenovo ThinkSystem Intel Servers.

About SAP Q2C Quote-To-Cash

Q2C (Quote-to-Cash) is a load test tool used to execute a representative modern-day production SQL load on S/4HANA. The load simulation is a balanced mix of a transactional order-to-cash workload (OLTP) with a reporting component (OLAP).

For benchmarking, it is used with the Q2C scenario in a 2-tier environment, where SAP HANA and ABAP application server components are running on the same server.

Q2C results are reported in aSAPS (Advanced SAPS), where 100 aSAPS is defined as 2,000 fully business processed order line items per hour in combination with the throughput of 2 OLAP queries per hour. SAP Q2C is therefore using an advanced throughput metric which contains OLTP and OLAP to calculate aSAPS. For further information on SAPS and aSAPS, see https://www.sap.com/about/benchmark/measuring.html.

Q2Ctest result metrics include a throughput number (business transactions per hour - tph) as well as database request times (in ms) for transactional (OLTP) and analytical (OLAP) components of the workload,
and the system's CPU load (utilization). All numbers are averages over an interval of constant high load. The typical main goal in the load test is to increase the concurrent number of users until the throughput gets to a saturation point. It is also possible to compare database request times for similar setups, but this requires a low or medium load.

For more information about the benchmark, see https://www.sap.com/about/benchmark/appbm/q2c.html.

Learn more

To learn more about SAP solutions on Lenovo servers visit the following page:
https://www.lenovo.com/us/en/data-center/solutions/sap/

To learn more about the Lenovo ThinkSystem SR650 V4 server, visit the SR650 V4 product web page:
https://www.lenovo.com/us/en/p/servers-storage/servers/racks/lenovo-thinksystem-sr650-v4/len21ts0042

Related product families

Product families related to this document are the following:

- SAP Alliance
- ThinkSystem SR650 V4 Server

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