ThinkAgile VX650 V3 Sets World Record with New SAP BW Edition for SAP HANA (7.8B Records) Benchmark Result

Performance Benchmark Result

The Lenovo ThinkAgile VX650 V3 Certified Node, powered by VMware vSAN and using two Intel Xeon Platinum 8490H processors, delivers world record performance for the Throughput Phase for SAP® BW edition for SAP HANA® Standard Application Benchmark Version 3 with 7.8 billion initial records in a scale-up configuration.

The benchmark refers to the SAP Business Warehouse (SAP BW) application running on the SAP HANA database. The benchmark consists of three phases and the VX650 V3 server achieved the following performance results (1):

- **Phase 1: Data load phase = 15,738** (Runtime of last Data Set in seconds)
- **Phase 2: Query throughput phase = 4933** (Query Executions per Hour) (World Record)
- **Phase 3: Query runtime phase = 109.9** (Total Runtime of complex query phase in seconds)

This world record result for the Throughput Phase shows that the ThinkAgile VX650 V3 Certified Node offers a significant performance advantage compared to other vendors.

The ThinkAgile VX650 V3 Certified Node configuration for the benchmark was as follows:

- 2x Intel Xeon Platinum 8490H processors
  - 1.90 GHz base frequency
  - 80 KB L1 cache and 2048 KB L2 cache per core
  - 112.5 MB L3 cache per processor
  - 60 total cores / 120 total threads
- 4 TB DDR5 system memory
- VMware ESXi 8.0
- SUSE Linux Enterprise Server 15 SP4 for the virtual machine
- SAP HANA 2.0
- SAP NetWeaver® 7.50
- One VM with 240 vCPUs and 3968 GB DRAM

Results referenced are current as of July 24, 2023. For the latest SAP BW benchmark results, visit: https://www.sap.com/dmc/exp/2018-benchmark-directory/#/bwh.

(1) This benchmark fully complies with the SAP Benchmark Council regulations and has been audited and certified by SAP SE (certification number 2023030). Details can be obtained from Lenovo and SAP. The benchmark was performed at the Lenovo Data Center Performance Lab in Walldorf, Germany, by VMware engineers. Configuration: 1x ThinkAgile VX650 V3 Certified Node configured with 2 processor / 60 cores / 120 threads, Intel Xeon Platinum 8490H processors, 1.90 GHz, 80 KB L1 cache and 2048 KB L2 cache per core, 112.5 MB L3 cache per processor, 4 TB DRAM.

About the ThinkAgile VX650 V3 Certified Node

The Lenovo ThinkAgile VX650 V3 Integrated Systems and Certified Nodes are 2-socket 2U systems that feature the 4th Generation Intel Xeon Scalable processors. With up to 60 cores per processor and support for the new PCIe 5.0 standard for I/O, the VX650 V3 systems offer the ultimate in two-socket performance in a 2U form factor. The ThinkAgile VX650 V3, when combined with VMware vSAN and VMware vSphere offers a unique, software-defined approach to hyper convergence, leveraging the hypervisor to deliver compute, storage, and management in a tightly integrated software stack.

The ThinkAgile VX650 V3 Integrated System and Certified Node offer the following key features:

- Factory-integrated, pre-configured ready-to-go integrated systems built on proven and reliable Lenovo ThinkSystem servers that provide compute power for a variety of workloads and applications and powered by industry-leading hyperconverged infrastructure software from VMware.
- Provide quick and convenient path to implement a hyperconverged solution powered by VMware vSAN with "one stop shop" and a single point of contact provided by Lenovo for purchasing, deploying, and supporting the solution.
- Meet various workload demands with cost-efficient hybrid or performance-optimized all-flash storage configurations.
- Deliver fully validated and integrated hardware and firmware that is certified with VMware software.

About the SAP BW edition for SAP HANA Benchmark

The SAP BW, edition for SAP HANA Standard Application Benchmark, Version 3, is the latest addition to the list of benchmarks for SAP Business Warehouse. It utilizes the capabilities of SAP HANA to process the benchmark workload. Allowed data volumes are a multiple of 1.3 billion initial records and can be run in single-node and multi-node setups. This benchmark was released in July 2018.

The benchmark scenario represents typical mid-size customer scenario and volumes for SAP BW running on SAP HANA. The benchmark simulates a variety of users with different analytical requirements and measures the key performance indicator (KPI) relevant to each of the three benchmark phases.

The three benchmark phases are as follows:

1. Data load phase, testing data latency and load performance
2. Query throughput phase, testing query throughput with moderate complex queries
3. Query runtime phase, testing the performance of running very complex queries

For more information about the benchmark, go to https://www.sap.com/about/benchmark.html.

Learn more

To learn more about business warehouse and data analytics solutions for SAP applications running on Lenovo Servers visit, https://www.lenovo.com/us/en/data-center/solutions/sap/ or contact your Lenovo Customer Representative.

To learn more about the ThinkAgile VX650 V3 Certified Node, see the following web page:

- ThinkAgile VX650 V3 Certified Node Product Guide: https://lenovopress.lenovo.com/lp1673-thinkagile-vx650-v3-2u-integrated-system-and-certified-node

Related product families

Product families related to this document are the following:

- SAP Alliance
- SAP BW Benchmark Results
- ThinkAgile VX Series for VMware

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