Research Preview

PROWESS

Remarkable SAP® Benchmark Performance Results for Dell™ PowerEdge™ R760 Servers

New 2-socket Dell PowerEdge servers outperformed 2-, 4-, and even 8-socket competitors on SAP® BW edition for SAP HANA® Standard Application Benchmarks for load time, query executions per hour, and complex query runtimes.

It's not unusual to see a new server appear on the SAP® Standard Application Benchmarks directory and outperform earlier servers on that leaderboard. When the Dell™ PowerEdge™ R760 server showed up recently, however, its superior performance caught our attention. Not only does the 2-socket PowerEdge R760 server outperform other 2-socket servers, it also outperformed 4-socket and 8-socket servers that have twice or four times the number of processors.[1] Some of this can be explained by the fact that the PowerEdge R760 server is using the latest 4th Gen Intel® Xeon® Scalable processors, while the 4-socket and 8-socket servers are using 2nd Gen Intel Xeon Scalable processors. But even when we compared these results to other 4th Gen Intel Xeon processor–powered server results, such as for the 2-socket Fujitsu® PRIMERGY® RX2540 M7 server, the Dell™ system still came out ahead.

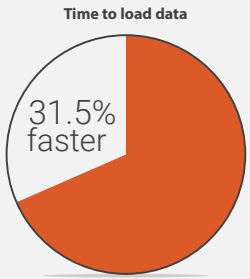
Prowess Consulting decided to take a closer look at these results. This is a preview of our findings.

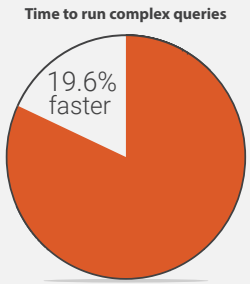
The Benchmark

The SAP® BW edition for SAP HANA® Standard Application Benchmark scenario represents a typical mid-size customer scenario and volumes for SAP BW running on the SAP HANA platform. The benchmark simulates a variety of users with different analytical requirements, and it measures the key performance indicators (KPIs) relevant to each of three benchmark phases:

- **Phase 1**: Data load phase, testing data latency and load performance
- **Phase 2**: Query throughput phase, testing query throughput with moderately complex queries
- **Phase 3**: Query runtime phase, testing the performance of running very complex queries

The 2-socket Dell™ PowerEdge™ R760 server beats an 8-socket Fujitsu® server on SAP® benchmarks:[1]





The PowerEdge R760 server is faster than the Fujitsu® PRIMEQUEST® 3800B2 server when processing 5.2 billion records.[1]

Best 2-Socket Server Performance

The 2-socket PowerEdge R760 server outperformed the previous 2-socket top performer, the Fujitsu PRIMERGY RX2540 M7 server, across the board. Figures 1 and 2 show normalized benchmark results, with the PowerEdge R760 server outperforming the 2-socket Fujitsu server in all three phases of testing with both 2.6B and 3.9B records.[2]

Normalized Performance Metrics for SAP® Benchmarks with 2.6 Billion Initial Records:
2-Socket Dell™ PowerEdge™ R760 Server vs. 2-Socket Fujitsu® PRIMERGY® RX2540 M7 Server

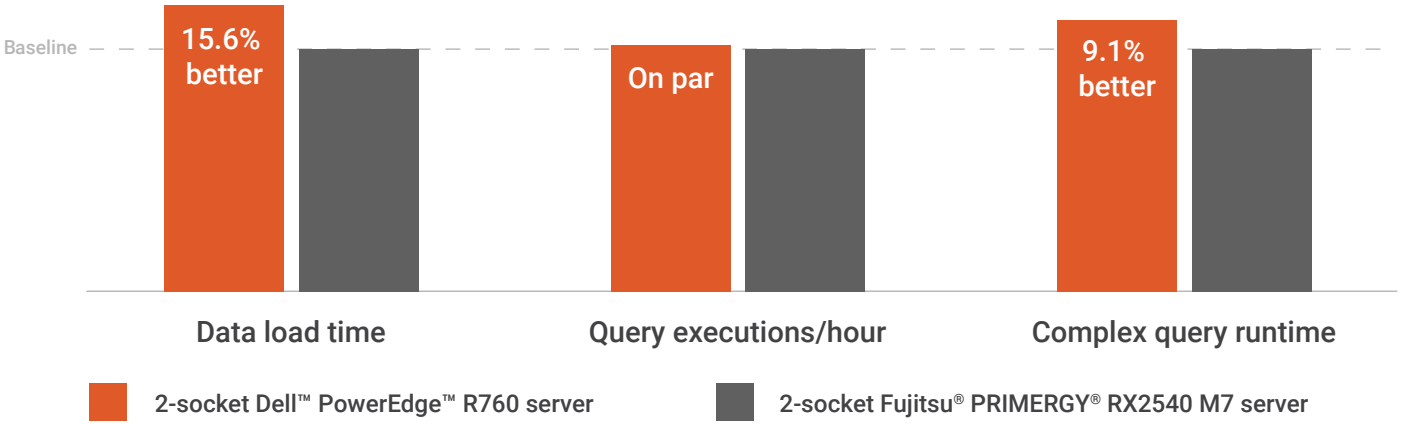


Figure 1. The 2-socket Dell™ PowerEdge™ R760 server performed better than the 2-socket Fujitsu® PRIMERGY® RX2540 M7 server on all three benchmark metrics when processing 2.6B records[2]

Normalized Performance Metrics for SAP® Benchmarks with 3.9 Billion Initial Records:
2-Socket Dell™ PowerEdge™ R760 Server vs. 2-Socket Fujitsu® PRIMERGY® RX2540 M7 Server

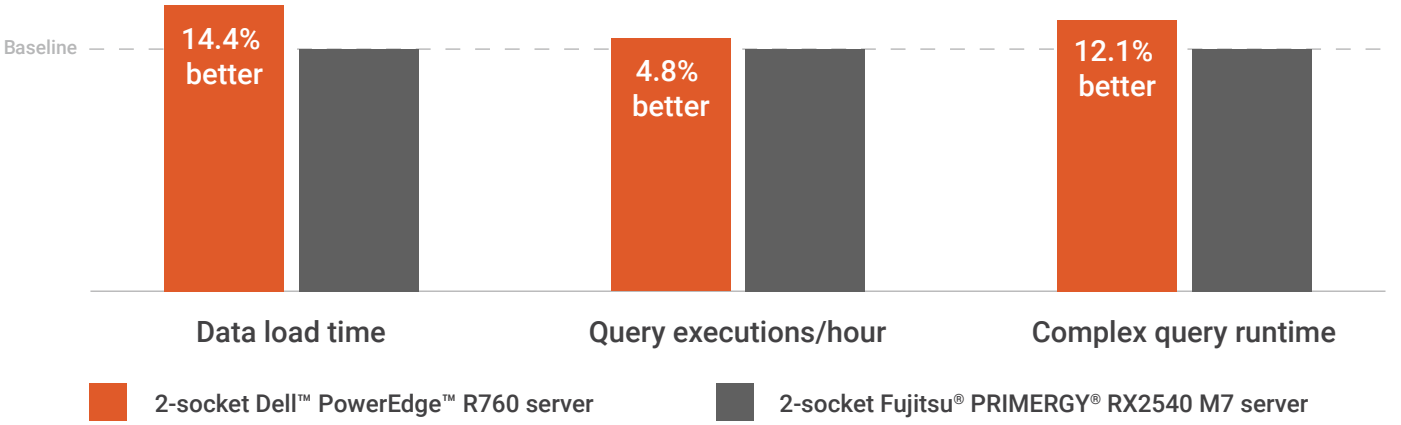


Figure 2. The 2-socket Dell™ PowerEdge™ R760 server performed better than the 2-socket Fujitsu® PRIMERGY® RX2540 M7 server on all three benchmark metrics when processing 3.9B records[2]

It's interesting to note that these 2-socket servers from Dell Technologies and Fujitsu both use the same processors and are configured with the same amount of memory. This makes the Dell server's performance advantage across all three metrics quite an accomplishment.

Outperforming 4- and 8-Socket Servers

The 2-socket PowerEdge R760 server also bested the 4-socket Fujitsu PRIMERGY RX4770 M6 server in all three phases of testing with 6.5B records, as shown in Figure 3.[3]

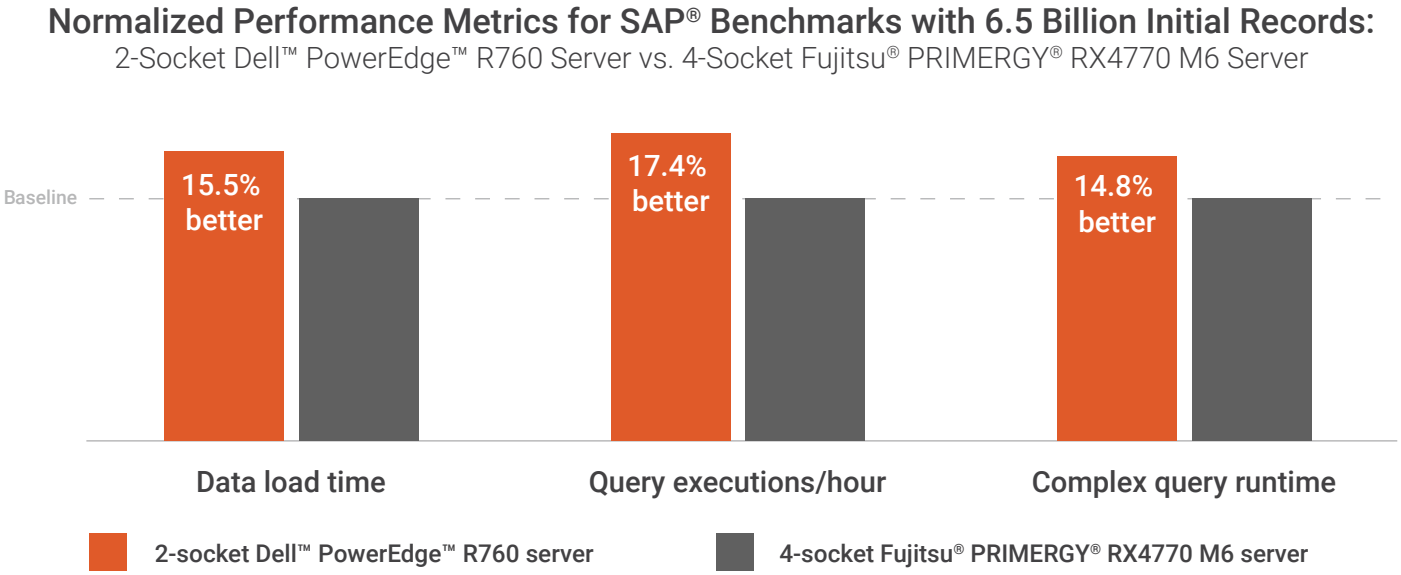


Figure 3. The 2-socket Dell™ PowerEdge™ R760 server performed better than the 4-socket Fujitsu® PRIMERGY® RX4770 M6 server on all three benchmarks when processing 6.5B records[3]

The 2-socket PowerEdge server even outperformed the 8-socket Fujitsu® PRIMEQUEST® 3800B2 server in two out of three phases of testing with 5.2B records (see Figure 4).[4]

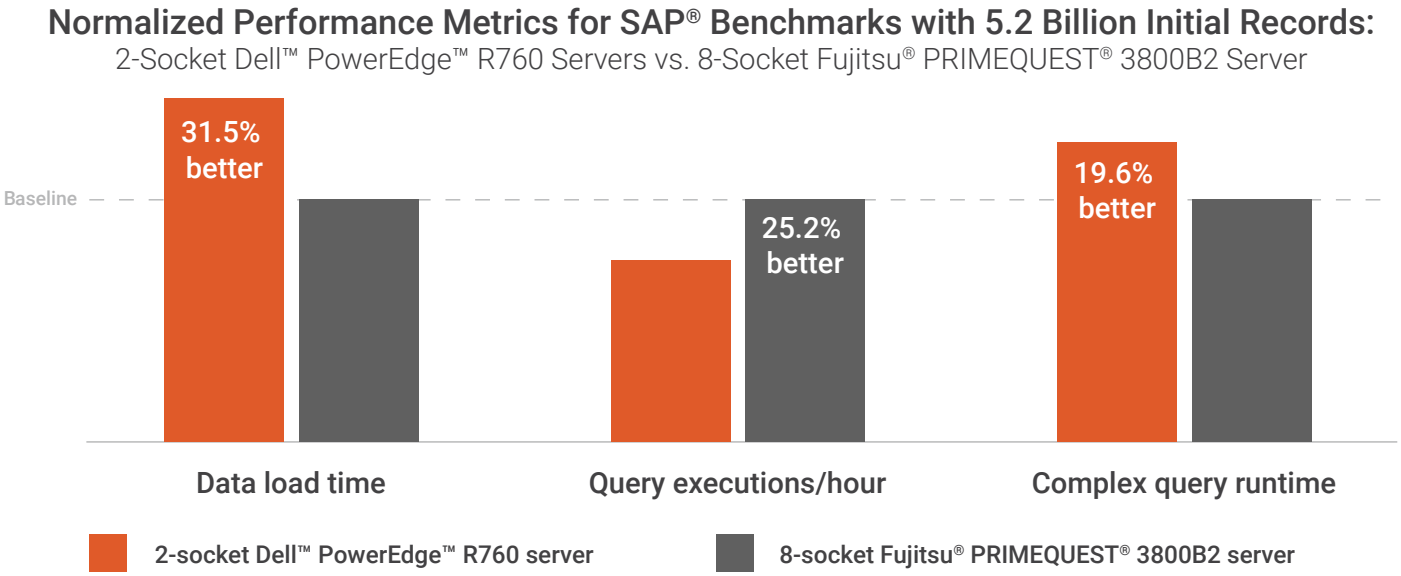


Figure 4. The 2-socket Dell™ PowerEdge™ R760 server performed better than the 8-socket Fujitsu® PRIMEQUEST® 3800B2 server on two out of three benchmark metrics when processing 5.2B records[4]

While it's unlikely that a customer would be choosing between an 8-socket server and a 2-socket server due to the importance of scale-up features, we nonetheless find it impressive that the 2-socket PowerEdge R760 server can surpass the 8-socket Fujitsu server in two out of three performance metrics.

Learn more

Watch for our in-depth report on the SAP Standard Application Benchmarks performance results for the PowerEdge R760 server, coming soon at www.prowesscorp.com.

[1] All performance data in this abstract is from results published by SAP. Source: SAP. "SAP Standard Application Benchmarks & Certified Hardware for SAP Solutions on Microsoft Windows." Accessed April 4, 2023. www.sap.com/dmc/exp/2018-benchmark-directory/#/bwh.

[2] Based on the published results for 2.6 and 3.9 billion records for the Dell PowerEdge R760 server using SAP BW edition for SAP HANA Standard Application Benchmark version 3 under certification numbers: 2023011 and 2023012 published on 03-01-2023 with 2 x Intel Xeon Platinum 8480+ processors running at 2.0 GHz with 112 cores and 224 threads and 2,048 GB of memory in a scale-up configuration running Red Hat Enterprise Linux 8.6, SAP HANA 2.0, and SAP NetWeaver 7.50, comparing against the results for 2.6 and 3.9 billion records for the Fujitsu PRIMERGY RX2540 M7 server using SAP BW edition for SAP HANA Standard Application Benchmark version 3 under certification numbers: 2023001 and 2023006 published on 01-10-2023 and 01-20-2023, respectively, with 2 x Intel Xeon Platinum 8480+ processors running at 2.0 GHz with 112 cores and 224 threads and 2,048 GB of memory in a scale-up configuration running SUSE Linux Enterprise Server 15, SAP HANA 2.0, and SAP NetWeaver 7.50.

[3] Based on the published results for 6.5 billion records for the Dell PowerEdge R760 server using SAP BW edition for SAP HANA Standard Application Benchmark version 3 under certification number: 2023014 published on 03-01-2023 with 2 x Intel Xeon Platinum 8480+ processors running at 2.0 GHz with 112 cores and 224 threads and 2,048 GB of memory in a scale-up configuration running Red Hat Enterprise Linux 8.6, SAP HANA 2.0, and SAP NetWeaver 7.50, comparing against the results for 6.5 billion records for the Fujitsu PRIMERGY RX4770 M6 server using SAP BW edition for SAP HANA Standard Application Benchmark version 3 under certification number: 2020039 published on 10-23-2020 with 4 x Intel Xeon Platinum 8380HL processors running at 2.9 GHz with 112 cores and 224 threads and 768 GB DRAM and 3,072 GB of persistent memory in a scale-up configuration running SUSE Linux Enterprise Server 15, SAP HANA 2.0, and SAP NetWeaver 7.50.

[4] Based on the published results for 5.2 billion records for the Dell PowerEdge R760 server using SAP BW edition for SAP HANA Standard Application Benchmark version 3 under certification number: #2023013 published on 03-01-2023 with 2 x Intel Xeon Platinum 8480+ processors running at 2.0 GHz with 112 cores and 224 threads and 2,048 GB of memory in a scale-up configuration running Red Hat Enterprise Linux 8.6, SAP HANA 2.0, and SAP NetWeaver 7.50, comparing against the results for 5.2 billion records for the Fujitsu PRIMEQUEST 3800B2 server using SAP BW edition for SAP HANA Standard Application Benchmark version 3 under certification number: 2019052 published on 10-16-2019 with 8 x Intel Xeon Platinum 8280 processors running at 2.70 GHz with 224 cores and 448 threads and 3,072 GB of memory in a scale-up configuration running SUSE Linux Enterprise Server 12, SAP HANA 2.0, and SAP NetWeaver 7.50.

The analysis in this document was done by Prowess Consulting and commissioned by Dell Technologies.

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