MICROSOFT® SQL SERVER®
2014 - DATA WAREHOUSE
FAST TRACK (DWFT)
REFERENCE ARCHITECTURE

SOLUTION BRIEF

HP and SanDisk® collaborated to certify the HP ProLiant DL380 Gen8 and HP ProLiant DL580 Gen8 with HP PCIe LE Workload Accelerators on the Microsoft SQL Server 2014 Data Warehouse Fast Track Reference Architecture

Win with HP® and SanDisk®

Our three solutions are designed to meet and exceed your performance and storage needs by taking advantage of SanDisk's industry-leading storage performance, reliability, and capacity, while reducing data center sprawl, licensing cost, and administration overhead.

New Data Warehouse Features in Microsoft SQL Server 2014

Microsoft added clustered column store indexes (CCI) in SQL Server 2014, which are designed to decrease query response times and deliver deeper levels of data compression. CCI eliminates the need to build summary tables, thus further reducing ETL run times.

CCI is optimized for query performance. Our solutions deliver an order-of-magnitude of 7x better query performance when using CCI. CCI accomplishes this by using a columnar format to compress the data by 10x or more, processing a set of rows in batches, and reading only the columns that are referenced in the query.

- CCI is updateable allowing concurrent insert – both bulk import and trickle insert – of new data while query workload is running. This reduces the data latency from the time data is born to when it is available for querying.

What is the SQL Server Data Warehouse Fast Track Reference Architecture?

The Microsoft SQL Server DWFT reference architecture is designed to eliminate the complexity of properly sizing hardware, which helps reduce unnecessary scale-out of storage and servers. The sizing techniques used in in SQL Server DWFT reference architecture will properly size servers, based on I/O and CPU consumption. This consumption-based approach ensures your data warehouse can fully take advantage of your hardware investment.

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	Rated User Capacity (TB)	Measured Throughput (Queries/Hr/TB)	Measured Scan Rate Physical (MB/s)	Measured CPU% (Avg.)
HP ProLiant DL380 Gen8	28	202 with row store 1414 with CCI	5,868	96
HP ProLiant DL380 Gen8	45	198 with row store 1476 with CCI	4,778	97
HP ProLiant DL580 Gen8	90	366 with row store 2721 with CCI	9,245	92

Our Results - Your Choice

Three configurations were certified by Microsoft's SQL Server Engineering Team. Two configurations are based on the HP ProLiant DL380 Gen8 platform, and the remaining configuration is based on the HP ProLiant DL580 Gen8 platform. These options provide rated data capacities of 28TB, 45TB and 90TB, giving you the flexibility to choose a solution that meets your requirements.

Scalable Server Architecture

The HP ProLiant DL380 Gen8 includes six PCIe Gen3 full-height and half-length (FHHL) slots, and the HP ProLiant DL580 Gen8 includes up to nine PCIe Gen3 FHHL slots. This enables customers to properly size their data warehouse in the beginning and increase the HP PCIe LE Workload Accelerator capacity as data volumes grow.

HP ProLiant DL380/DL580 Gen8 and HP PCIe LE Workload Accelerator

• Up to 768GB/3TB of DRAM, respectively

• Up to 48/120 logical processors, respectively

• Up to 26TB/46.8TB of HP PCIe LE Workload Accelerator usable capacity, respectively

• Up to 16.2/24.3GB/s of HP PCIe LE Workload Accelerator read bandwidth, respectively.

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At SanDisk, we're expanding the possibilities of data storage. For more than 25 years, SanDisk's ideas have helped transform the industry, delivering next generation storage solutions for consumers and businesses around the globe.