Scalability and performance for SQL Server 2014

HP ProLiant DL580 Gen8 Workload Accelerator SQL Solution
Boost your real-time business intelligence and Microsoft® SQL Server 2014 application performance with Fusion-io-powered, in-server flash acceleration for a highly scalable and resilient solution that will leave your competitors in the dust.

Performance and scalability¹
• More than 1.2 million new “orders per minute”
• 4 GB/s database backup rate
• Microsecond latency
• Up to 51.2 TB with eight HP LE or VE PCIe Workload Accelerators (each with a capacity of up to 6.4 TB) per HP ProLiant DL580 Gen8 Server

High availability
• Accelerated mirroring and failover with SQL Server AlwaysOn and Microsoft Windows® Server Failover

Increased return on investment
• Up to hundreds of thousands of dollars saved with reduced infrastructure footprint, software licenses, power costs, and management overhead

Scalable SQL Server 2014 database acceleration
Feature-rich Microsoft SQL Server 2014 is the platform of choice for many organizations processing vast amounts of data and demanding increased productivity based on better business insights.

With SQL Server 2014, in-memory online transaction processing (OLTP) improves OLTP performance by up to 30X and query performance by 100X.² Running SQL Server 2014 on an HP ProLiant DL580 Gen8 Server with transaction performance gains of up to 30X enables you to benefit from Microsoft’s in-memory OLTP features. An additional 4X performance acceleration—or more for SQL Server 2008 and SQL Server 2012—can be gained simply by adding HP Light Endurance (LE) or Value Endurance (VE) PCIe Workload Accelerators.³ These provide scalable, cost-effective, in-server flash acceleration for speeding up real-time intelligence and increasing business productivity.

Peak performance with HP Converged Infrastructure
Adding HP LE and VE PCIe Workload Accelerators as an in-server memory performance tier—scaling up to 51.2 TB—drastically reduces the performance and scalability constraints of I/O bottlenecks and long latencies that impact database performance when using legacy storage. Moving transaction logs and Buffer Pool Extension (BPE) for faster paging to HP LE and VE PCIe Workload Accelerators takes full advantage of new SQL Server 2014 features to leverage in-server deployed flash for additional performance gains.

Easy to deploy, easy to scale, and highly available
Whether using flash for in-memory OLTP logging, BPE paging, or hosting your entire dataset on PCIe Workload Accelerators, there is great flexibility for deploying SQL Server 2014.

Each HP ProLiant DL580 Gen8 Server supports up to eight Workload Accelerators for a total flash storage capacity of up to 51.2 TB.

Two HP ProLiant DL580 Gen8 Servers paired in a high-availability (HA) configuration (see figure 1) is an ideal solution for hosting your entire dataset in-server to provide ultra-low latency SQL 2014 application performance acceleration. TPC- C-like performance results showed more than 1.2 million new “orders per minute” simultaneously while backing up four 600 GB databases with a database backup throughput of 4 GB/s to a network share on node 2.⁴ As your needs change, you can easily scale the solution by adding more or higher capacity workload accelerators. The solution scales further with the addition of more servers and server pairs to meet your expansion requirements.

Using an HA server deployment with SQL Server AlwaysOn and Windows Server Failover Clustering in an N+1 configuration for reliability and availability, scaling is easy and cost-effective without impacting performance.

1,3,4 Fusion-io testing of the HP ProLiant DL580 Gen8 Server with HP LE and VE PCIe Workload Accelerators running Microsoft SQL Server 2014
2 download.microsoft.com/download/D/7/D/D7D64E12-C8E5-4A8C-A104-C945C188FA99/SQL_Server_2014_Datasheet.pdf
Figure 1. The scalable HP ProLiant DL580 Gen8 Server and LE and VE PCIe Workload Accelerator Solution for Microsoft SQL Server 2014

Scalable, cost-effective performance for your SQL Server 2014 requirements

The right solution based on the right technology

HP ProLiant servers
The HP ProLiant DL580 Gen8 Server’s highly scalable PCIe backplane easily supports the high I/O throughput of HP LE and VE PCIe Workload Accelerators to drive even the most demanding workloads. Automated upgrades and simplified maintenance and troubleshooting increases reliability and efficiency for significant costs savings.

HP LE and VE PCIe Workload Accelerators
HP LE and VE PCIe Workload Accelerators push the performance density envelope with flash memory capacities up to 6.4 TB. With enterprise-grade reliability, high endurance, and consistently low latency, these have been architected to dramatically scale and accelerate your Microsoft SQL Server 2014 database and application performance.

Microsoft SQL Server AlwaysOn
SQL Server AlwaysOn simplifies high availability deployment and management at either the application, database, or instance level, integrating seamlessly with Windows Server Failover Clustering (WSFC) to protect your business-critical Microsoft SQL Server 2014 applications.

The benefits are yours – let’s do it together

The HP ProLiant DL580 Gen8 Server and PCIe Workload Accelerator solution accelerates the performance of your SQL Server 2014 applications. The simplicity, flexibility, and efficiency of the solution also makes it cost-effective.

With Microsoft SQL Server 2014 running on HP’s Converged Infrastructure, accelerated transaction processing can drive increased productivity and an enhanced user experience that will enable you to meet your business goals.

Learn more at:
hp.com/go/WorkloadAccelerator

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