Today’s growing flood of business data represents one of the most potent business opportunities of our time. With the emergence of in-memory computing, big data analytics, and self-service business intelligence, companies have powerful new tools for storing and analyzing massive amounts of diverse data and for injecting deep insight into real-time business processes.

Many businesses are trying to capitalize on this opportunity by deploying multiple point solutions to address specific needs. Microsoft SQL Server* 2014 running on servers powered by the Intel® Xeon® processor E7 v3 family offers an alternative: a modern data platform for mission-critical enterprise computing that has fully integrated support for in-memory performance, big data integration, self-service analytics, and cloud extensibility.

This comprehensive data platform delivers the next-generation capabilities you need in a scalable, highly available solution that delivers world-record performance and can address the full range of enterprise requirements. Just as importantly, it provides cost models and IT efficiencies that can free your organization to focus on what matters most—delivering the data and insights you need to drive better outcomes for your most important processes.
Transformative Performance for Real-Time Business

Servers based on the Intel Xeon processor E7 v3 family offer a major leap forward in performance versus previous-generation servers, and SQL Server 2014 is highly optimized for these new platforms. Based on published TPC-H* @ 3000GB benchmarks, SQL Server 2014 running on a server powered by the Intel Xeon processor E7-8890 v3 can provide:

- **Up to 6.8x higher analytics performance** than SQL Server 2008 R2 running on a typical 5-year old server platform, with up to a 95 percent reduction in cost per query per hour.
- **Up to 1.5x higher performance** than SQL Server 2014 running on the prior-generation Intel® Xeon® processor E7-4890 v2 with up to a 50 percent reduction in cost per query per hour.¹

You can use these gains to scale performance across all your workloads and to consolidate multiple legacy servers onto a single system to reduce your data center space, power, cooling, and management requirements. You can also take advantage of the in-memory engines that are built into SQL Server 2014 to dramatically accelerate performance for targeted transactions and queries. With these capabilities, you can integrate analytics directly into time-sensitive scenarios to improve outcomes for your most important business processes.

Scalability for Any Workload

The Intel Xeon processor E7 v3 family is designed for mission-critical computing environments. A single four-socket server based on these processors provides up to 72 cores and 144 threads and supports up to 6 TB of memory.² The combination of high core counts and large memory capacity ensures that you can scale your data platform to support rapid growth, whether you are using in-memory computing, traditional disk-based computing, or both. As discussed in the following sections, these processors also provide integrated high availability and security technologies that can help you protect your data, systems, and business more effectively, without impairing application performance.

Getting the most out of these powerful processors requires fast access to data, which can be provided by the Intel® Solid-State Drive (Intel® SSD) Data Center Family for PCIe*. Based on a new storage interface standard that Intel developed, the Intel® Solid-State Drive Data Center P3700 Series delivers up to six times the performance of previous-generation Intel SSDs designed for SATA interfaces.³ With SQL Server 2014, you can use one or more of these Intel SSDs as a “buffer pool extension,” to dramatically speed performance for your most frequently used data.

A Comprehensive, Next-Generation Data Platform

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Based on published TPC-H* benchmarks, Microsoft SQL Server* 2014 running on the Intel® Xeon® processor E7 v3 family offers world-record performance and can provide up to 6.8x higher performance than a typical 5-year old hardware and software platform—with up to a 95 percent reduction in cost per query per hour.¹

You can use these gains to scale performance across all your workloads and to consolidate multiple legacy servers onto a single system to reduce your data center space, power, cooling, and management requirements. You can also take advantage of the in-memory engines that are built into SQL Server 2014 to dramatically accelerate performance for targeted transactions and queries. With these capabilities, you can integrate analytics directly into time-sensitive scenarios to improve outcomes for your most important business processes.
High Availability for Uninterrupted Operations

Mission-critical data must be available at all times. Server platforms based on the Intel Xeon processor E7 family and the Windows Server operating system have been delivering uptime levels on a par with best-in-class RISC-based platforms for several years. SQL Server 2014 and the Intel Xeon processor E7 v3 family introduce new features that take high availability to new heights, while also simplifying implementation.

- **Automated failover across multiple sites** is provided by AlwaysOn Availability Groups in SQL Server 2014. You can configure up to eight secondary databases to support extreme uptime requirements. You can also maintain high utilization rates by using your secondary databases for read-only workloads, such as queries and backups.

- **New error recovery and memory-mirroring features** in the Intel Xeon processor E7 v3 family add to the more than 40 advanced features already provided by Intel® Run Sure Technology. Intel and Microsoft have worked together to provide optimized support throughout the solution stack, to help you achieve higher resilience and data integrity with better cost models.

Protect Your Data—and Your Business

Data security is a critical and growing concern. SQL Server 2014 provides transparent data encryption and granular access controls that are tightly integrated with Windows Server, Active Directory, and Microsoft SharePoint. It also provides consistent security and compliance functionality across all versions to help you provide better coverage with less effort.

Intel® architecture complements and strengthens these protections with hardware-assisted security capabilities. Most importantly, you can use Intel® Data Protection Technology with Intel Advanced Encryption Standard New Instructions and Secure Key to help accelerate and strengthen encryption, so you can protect your data at rest and in motion without slowing application performance.

Analyze All Your Data, Big and Small

SQL Server 2014 provides integrated support for new analytic capabilities. Features such as external BLOB storage, Microsoft StreamInsight, and bidirectional connections with the Cloudera distribution of Apache Hadoop allow you to store, integrate, and analyze massive volumes of structured, unstructured, and fast-moving data.

End of Support Coming Soon for SQL Server® 2005

As of April 12, 2016, Microsoft will no longer provide security updates, hotfixes, and other support for SQL Server 2005. By updating software and hardware in the near future, you can avoid the risks of using an unsupported solution stack—while increasing performance by up to 16x for online transaction processing and taking advantage of valuable new availability and security features.

Get Started Today

Microsoft SQL Server 2014 running on the Intel Xeon processor E7 v3 family and the Intel SSD Data Center Family for PCIe provides a premier platform for next-generation database and analytics requirements—in a modern, fully-integrated solution that provides world-record performance with up to 6x higher performance than a typical five-year old solution, and up to a 95 percent reduction in cost per query per hour. It can help you scale performance, consolidate infrastructure, and integrate new analytic BI capabilities, without the high cost and complexity of integrating multiple point solutions. Visit the following links for more information.

- Intel IT Center: [www.intel.com/itcenter/](http://www.intel.com/itcenter/)

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1 Claims based on published results for the TPC-H® 3000 GB benchmark. Baseline system configuration and results: Union ES7000 Model 76000R Enterprise Server* using Intel® Xeon® processor X7460 Hex-Core – 2.67 GHz (16 processors, 96 cores, 96 threads), historical result. Total system cost is USD 2,162,895, 102,778 QphH@3000 GB, USD 21.05 per QphH@3000 GB. Source: http://www.tpc.org/3248; Previous-generation system configuration and results: HP DL580 G8* Server with Intel® Xeon® processor E7-4860 v2 – 2.50 GHz (4 processors, 60 cores, 120 threads). Score: 46,183 QphH@3000 GB, total system cost is USD 941,557, USD 2.04 per QphH@3000 GB. Source: www.tpc.org/3297; Current-generation system configuration and results: Lenovo System x3850 X6 Server* using Intel® Xeon® processor E7-8890 v3 – 2.50 GHz (4 processors, 72 cores, 144 threads). Score: 700,392 QphH@3000 GB (the highest published score as of May 7, 2015), total system cost is USD 691,524, USD 0.99 per QphH@3000 GB. Source: http://www.tpc.org/3313.

2 Four terabytes is the current maximum supported in Windows Server® 2012 and SQL Server 2012. The Intel® Xeon® processor family supports up to six terabytes of memory per four-socket server, providing headroom for expansion if and when those limits increase.


6 Up to 1x6 performance improvement for transactions per second claim based on TPC-E benchmark. Baseline configuration and results: IBM System x3850® M2 running Microsoft SQL Server® 2005 using Intel® Xeon® processor X7550 2.9 GHz (4 processors, 64 cores, 64 threads). (Historical) Score: 419.80 tpsE, total system cost is USD 639,971, cost per tpsE is USD 1,527.25. Source: http://www.tpc.org/4004; Current generation system configuration and results: Lenovo x3850 X6® system running Microsoft SQL Server® 2014 with Intel® Xeon® processor E7-8890 v3 – 2.50 GHz (4 processors, 72 cores, 144 threads). Score: 6964.75 tpsE, total system cost is USD 1,723,004, cost per tpsE is 245.98. Source: http://www.tpc.org/4072

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