# DataON™ Database HCI Platform for Microsoft SQL OLTP* v2

## Verified Intel® Select Solution that is optimized for high performance and high availability

### The Challenge

- Microsoft SQL Server* OLTP system performance is critical

- Business continuity depends on maximizing transaction throughput, reliability, and high availability (HA) systems

- Customers need to plan for Microsoft SQL Server 2008 to 2017 migration

### The Solution

- Window Server* 2019 Storage Spaces Direct clusters optimized for Microsoft SQL 2017

- Validated Intel® Select Solutions with a DataON HCI-based SQL cluster

- SQL solutions tuned for business performance and built for high availability

As one of the leading database platforms for business—from small and medium organizations to large enterprises—Microsoft SQL Server* is at the center of operations for Online Transaction Processing (OLTP). For these organizations, computer system performance is critical to maximize transaction throughput, and reliability and high availability (HA) are necessary to keep business flowing smoothly. With mainstream support for Microsoft SQL Server 2008 and Microsoft SQL Server 2008 R2 ending in 2019, customers need to plan their migration to a platform that will not only continue to serve their businesses, but easily scale with them as they grow.

DataON S2D-5108 servers are part of Intel® Select Solutions for Microsoft SQL Server, giving businesses powerful OLTP performance. DataON's solution with a two-node cluster is optimized for Microsoft SQL 2017, achieving 10 million transactions per minute[1] with automatic failover to keep the business operating. The clusters can be configured as a standalone SQL application resource connected to the rest of the data center's systems, or as a hyper-converged infrastructure running Microsoft SQL Server 2017 alongside Microsoft Storage Spaces Direct* 2016 and 2019 and other enterprise applications. In either deployment, the solution is tuned for business performance and built for high availability.

## Featured Benefits

**Speed.** 2nd Generation Intel® Xeon® Scalable processors offer the highest performance of Intel® processors for demanding data center workloads, delivering fast data processing and access to data with reduced blocking.
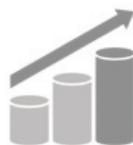
**Capacity.** In a hyper-converged infrastructure, locally attached storage devices are aggregated across nodes to increase capacity without sacrificing performance.

**Simplicity.** No external enclosures and storage cabling are needed with DataON's SQL Failover Clustering instance. Combined with mirrored volumes the system ensures SQL gets the highest throughput to maximize performance on mixed random IOPS workloads.

**Cost Savings.** Consolidating multiple instances on a single cluster helps reduce licensing fees and administrative overhead.

**Flexibility.** Multiple configurations allow deploying the best solution for today and in the future.

**Two-Node DataON S2D-5108**

## Intel Select Solutions for Microsoft SQL Server 2017 with DataON S2D-5108 servers and Microsoft Storage Spaces Direct*

DataON S2D-5108 servers for Microsoft SQL Server 2017 are offered in a two-node configuration with 24-core Intel® Xeon® Platinum 8260 processors (Table 1). This configuration is designed for high performance on mixed workloads.

The DataON S2D-5108 servers use only Intel® SSD Data Center Series drives with the PCIe* interface for NVMe. Using NVMe delivers maximum storage performance with minimal latency in a clustered configuration. DataON's optimized deployments of Microsoft SQL Server 2017 on Intel®-based platforms delivers over 2x the performance of Microsoft SQL Server 2008 (Figure 2).[1]

Both configurations are designed to optimize Microsoft SQL Server 2017 performance with automatic failover capability to maintain a highly available database service.

| Component | Two Nodes Standard | |
|---|---|---|
| DataON™ Server Node | S2D-5108 | |
| Processor (GHz)/(Core) | Intel® Xeon® Platinum 8260; 2.4GHz, 24 cores, 2 processors per node | |
| Memory (GB) | DDR4 | 384GB |
| Raw Storage Intel® SSD DC Series | NVMe | 4TB x6 |
| Usable Storage | 2-way Mirror | 12TB |
| Storage Data Network | RDMA | 10GbE |

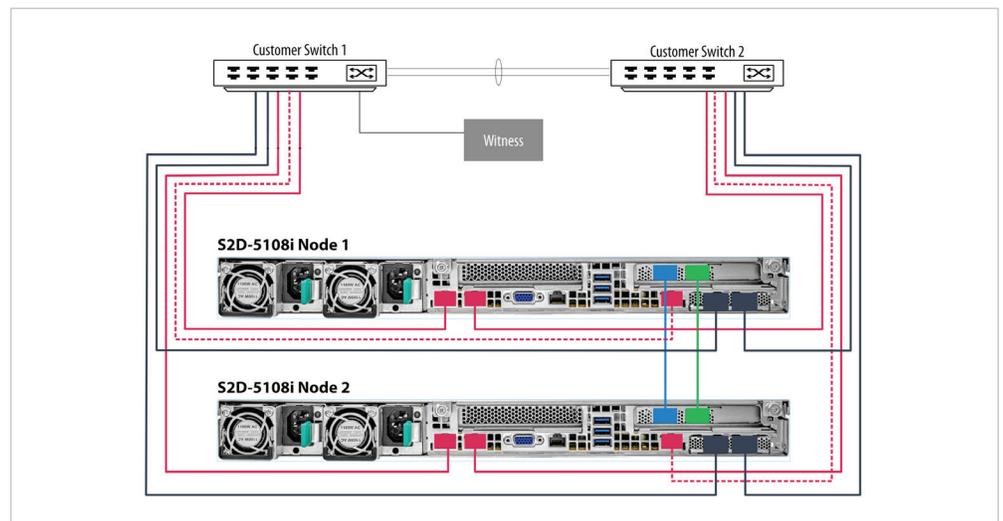**Table 1.** Hardware configuration for DataON Database HCI Platform for Microsoft SQL OLTP.*



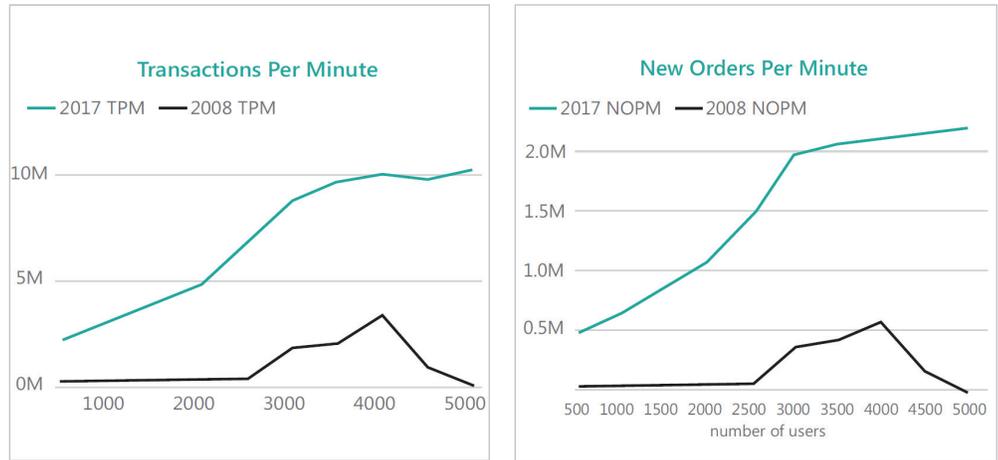**Figure 1.** DataON S2D-5108 HCI Platform Connections Diagram

**Figure 2.** Microsoft SQL Server* 2017 performance compared to Microsoft SQL Server* 2008 using DataON Database HCI Platform for Microsoft SQL OLTP.*[1]

## Fundamental Intel® Technologies

The following technologies help enhance security and performance in DataON Database HCI Platform for Microsoft SQL OLTP:

- **Trusted Platform Module (TPM) 2.0.** Protects the system start-up process by ensuring it is tamper-free before releasing system control to the operating system. TPM 2.0 also provides secured storage for sensitive data, such as security keys and passwords, and it performs encryption and hash functions.

- **Intel® Turbo Boost Technology.** Accelerates processor and graphics performance for peak loads, automatically allowing processor cores to run faster than the rated operating frequency if they're operating below power, current, and temperature specification limits.

- **Intel® Hyper-Threading Technology (Intel® HT Technology).** Enables multiple threads to run on each core, which ensures that systems use processor resources more efficiently. Intel HT Technology also increases processor throughput, improving overall performance on threaded software.

- **Intel® Speed Shift Technology.** Allows the processor to quickly select its best operating frequency and voltage for optimal performance and power efficiency without intervention from the operating system.

## Intel® Xeon® Scalable Processors

2nd generation Intel® Xeon® Scalable processors are the future-forward platform for cloud and enterprise data centers.

- **Higher Per-Core Performance-** Up to 56 cores (9200 series) and up to 28 cores (8200 series), delivering high-performance and scalability for compute-intensive workloads across compute, storage, and network usages

- **Greater Memory Bandwidth/ Capacity-** Support for Intel® Optane™ DC persistent memory, supporting up-to 36 TB of system-level memory capacity when combine with traditional DRAM. 50 percent increased memory bandwidth and capacity. Support for six memory channels and up-to 4 TB of DDR4 memory, per socket, with speeds up-to 2933 MT/s (1 DPC)

- **Expanded I/O-** 48 lanes of PCIe* 3.0 bandwidth and throughput for demanding I/O-intensive workloads

- **Support for Intel® Optane™ DC persistent memory-** Breakthrough memory and storage memory innovation offering groundbreaking capabilities for fast storage solutions. Can be combined with Intel® Optane™ DC SSDs for the ultimate in storage and data performance

## A Verified Configuration for Optimized Solutions

DataON Database HCI Platform for Microsoft SQL OLTP is a fast path to maximizing database processing with workload-optimized configurations verified for Intel® Xeon® Scalable processors.

## About DataON

DataON is the industry-leading provider of solutions for Microsoft Azure Stack HCI, and hyper-converged infrastructure and storage systems optimized for Microsoft Windows Server environments. It has been named to CIO Review's '20 Most Promising Microsoft Solution Providers 2018.' Our company is focused on customers who have made the "Microsoft choice" to deploy Microsoft applications, virtualization, data protection, and hybrid cloud services. Our enterprise-level solutions, delivered as a complete, turnkey experience, are designed to provide the highest level of performance, manageability, and security offered.

For more information on all Intel Select Solutions, visit **www.intel.com/selectsolutions**.

For more information on DataON servers and solutions, visit **www.dataonstorage.com**.

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