



SanDisk ION Accelerator™

Award-winning all-flash performance for mission critical applications

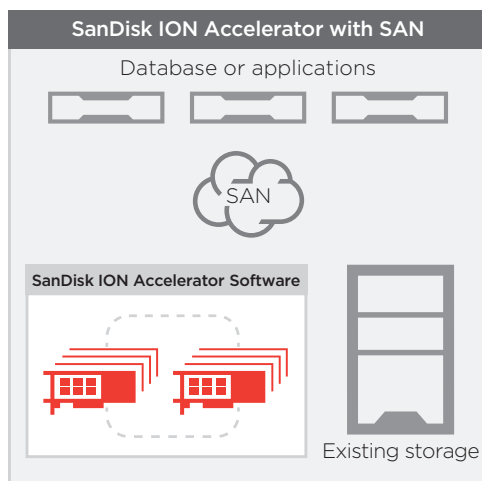
- Application Acceleration for Databases
- Shared All-Flash Storage
- Reduced Total Cost of Ownership

The SanDisk ION Accelerator delivers game-changing performance for database applications. Consisting of SanDisk ION Accelerator™ 2.5.0 software and Fusion ioMemory™ PCIe cards, available in quantities of 2, 4, 6 and 8 cards, it provides shared all-flash storage, which is highly available and performance optimized for use with a choice of capacity and SAN connectivity options, including 16Gb Fibre Channel, 56Gb InfiniBand and 40Gb iSCSI.

SanDisk ION Accelerator Performance Architecture

Developed from the ground up for performance, SanDisk ION Accelerator's design incorporates a streamlined, innovative SanDisk ION Accelerator 2.5.0 software stack that eliminates bottlenecks, taking advantage of our low latency Fusion ioMemory products.

- Enables server-side Fusion ioMemory to be shared storage for database acceleration
- Delivers a high performing 1.9 million sequential IOPS¹, 25GB/s sequential bandwidth² and 85 microsecond low latency for random workload acceleration^{3,4}
- Efficient density with incremental scalable storage of up to 51.2TB Fusion ioMemory capacity in 1U - 4U of space (based on a compatible server)
- Multi-lane PCIe architecture scales performance with capacity and reduces bottlenecks from slower storage protocol interfaces used by other systems
- Durability with proven Fusion ioMemory data protection technology such as Adaptive Flashback
- Deployment in standalone or High-Availability mode. With High-Availability, SanDisk ION Accelerator simultaneously accelerates performance for volumes distributed across two systems.



Database Acceleration

The SanDisk ION Accelerator enables top database applications to run at the highest levels of performance. For application environments ranging from OLTP (Microsoft SQL Server, Oracle RAC) to OLAP (SAP HANA), the SanDisk ION Accelerator delivers exceptional acceleration. And, it seamlessly integrates with Oracle Enterprise Manager to deliver simple capacity planning and historical performance monitoring.

SanDisk ION Accelerator Performance Results

Models	High-Availability	Standalone
IOPS ¹		
80% Read / 20% Write IOPS, Sequential	1,937,053	1,108,435
80% Read / 20% Write IOPS, Random	1,266,609	693,344
Bandwidth ²		
80% Read / 20% Write Bandwidth, Sequential	25.3 GB/s	16.6 GB/s
Latency ³		
Read Latency, Random	83µs	81µs
Write Latency, Random	85µs	35.5µs

SanDisk conducted a synthetic performance test⁴ on Supermicro SYS-6037R-TXRF with 128GB RAM. Eight Fusion ioMemory SX300-3200 PCIe cards were configured in direct access mode. For high availability mode, two Supermicros and 16 PCIe cards were used. The performance test was conducted using SanDisk ION Accelerator software version 2.5.0, using an InfiniBand fabric and eight initiators. The *fio* benchmark program was used to generate the workload and to measure performance. The SanDisk ION Accelerator solution was able to achieve up to 1.9 million IOPS for sequential workloads.

SanDisk ION Accelerator Solution Specifications

I/O Connectivity	Up to 8 Ports	Up to 4 Ports
Simultaneous PCIe Lanes	128	64
Capacity ⁵	12.8TB, 25.6TB, 51.2TB	
Fibre Channel ⁶ InfiniBand iSCSI	16Gb and 8Gb 56Gb/FDR and 40Gb/QDR 40Gb and 10Gb	
Management (http interface)	Fusion ioSphere™ GUI, CLI, SNMP, SMI-S	
Hardware Availability	RAID 0/1/5/10 for Fusion ioMemory devices	
Flash Reliability	Adaptive Flashback	
Power ^{7,8}	500 to 1000W maximum range	
Environmental ⁷	Operating Temperature: 0° to 55°C Non-operating Temperature: -40° to 70°C Airflow (LFM) 300 Non-condensing Humidity: 5% - 95% Operational Altitude: -1,000 - 10,000 Non-operational Altitude: -1,000 - 30,000	
Support Offerings	7 day x 24 hour phone support available	
Initiator Operating Systems ⁶	Microsoft Windows Server; Oracle Linux, Red Hat Enterprise Linux, Solaris, SUSE Enterprise Linux Server; VMware ESXi, Microsoft Windows Server Hyper-V, Oracle VM; AIX, HP-UX	

The SanDisk ION Accelerator solution runs on customer-supplied servers and is compatible with servers from most major OEMs and vendors. Flexible support for deployment models and storage interfaces are available. To learn which servers are compatible, please contact your SanDisk sales representative.

Contact Information

Phone: 408-801-1592

For more information, please visit:

www.sandisk.com/bigdataflash/ion-accelerator

Performance results are based on internal testing and use. Results and performance may vary according to configurations and systems, including drive capacity, system architecture, server platform, and applications.

¹ IOPS results from testing 4k block sizes.

² Bandwidth results from testing 64k block sizes.

³ Read and Write latency measurements are from random workloads and using 512 bytes block size.

⁴ Based on internal testing. Full configuration details and measured results are on record.

⁵ Varies based on server platform.

⁶ Contact your sales representative to determine the Operating Systems support for FC, IB, iSCSI as defined in the Compatibility Guide.

⁷ Based on Fusion ioMemory PCIe specifications.

⁸ Power consumption varies by server chassis, number of CPUs and number of Fusion ioMemory, Adaptive Flashback devices.

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