

# Violin Flash Storage Platform 7650

## Extreme Performance All Flash Storage

### Highlights

#### FSP 7650

- **Consistent low 200µs latency** at sustained 1M IOPS sets storage performance standard
- **Sustained high 2.0M IOPS** at consistent 1ms latency sets storage performance standard
- **Complete all flash SAN solution** replaces entire rack(s) of disk or hybrid primary storage
- **Starts at 8.8TB raw capacity** and scales in 8.8TB increments with Pay-As-You-Grow
- **Up to 140TB raw capacity** in a single enclosure occupying just 3RU of data center space

Accelerate your demanding databases and applications with the extreme performance of the Violin® Flash Storage Platform™ 7650. Consistent ultra-low latency at sustained ultra-high IOPS accelerates application performance.

Violin Memory revolutionized enterprise storage for data centers a decade ago and continues to reset the performance bar for all flash storage today. The Violin Flash Storage Platform (FSP) 7650 re-defines all flash Storage Area Network (SAN) solutions with a forward-thinking architecture that enables next-generation data centers.

#### Transformative Extreme Performance

Violin FSP sets a new performance standard for all flash storage within enterprise data center SAN environments. FSP 7650 delivers 5X lower storage latency compared to other all flash storage solutions while simultaneously surpassing their IOPS performance, as follows:

- Consistent ultra-low latency of 200 microseconds with 1.0 million IOPS
- 2.0 million sustained IOPS at 1 millisecond of latency

Combined with embedded enterprise data services and storage management software, the FSP 7650 offers the best combination of extreme all flash storage performance, low Total Cost of Ownership (TCO), and high Return on Investment (ROI).

#### Embedded Enterprise Data Services

Powered by the Violin Concerto™ OS 7 built-in storage software, FSP 7650 features enterprise data services supporting the Service Level Agreements (SLAs) businesses require, as follows:

- **Data Security** – powerful data-at-rest encryption that meets demanding FIPS-140-2 and AES-XTS-256 compliance standards.
- **Data Scaling** – non-disruptive Pay-As-You-Grow capacity growth, online capacity expansion, and online LUN expansion.
- **Business Continuity** – flexible global Asynchronous Replication, and when combined with the powerful FSP 7700 Stretch Cluster with zero RPO and RTO.

With the Violin Symphony™ management software, businesses can manage and monitor all FSP systems even if they are geographically distributed across the data center, across town, or across an ocean through a unified browser-based user interface.

#### Innovative Scale Smart™ With Pay-As-You-Grow

The FSP 7650, like all other Violin Flash Storage Platform systems, features the Violin exclusive Scale Smart architecture. Rather than simply scaling up or out, the Violin FSP 7650 simultaneously employs the best of the scale-out and scale-up—plus exclusive Violin Pay-As-You-Grow—to deliver simple, instant, and non-disruptive all flash storage scaling.

With Pay-As-You-Grow, Violin FSP 7650 is delivered with its entire flash storage memory installed and one or more capacity licenses. As additional all flash storage is utilized, capacity becomes immediately available without interruptions using additional 8.8TB capacity licenses.

Scale Smart allows FSP 7650 to begin as a single enclosure system, essentially a self-contained SAN, and then become the storage shelf of an FSP 7700. This delivers comprehensive FSP investment protection with massive performance, capacity, and connectivity scaling in a single namespace.



Flash Storage Platform 7650			
	FSP 7650-26	FSP 7650-70	FSP 7650-140
<b>PERFORMANCE</b>			
Performance (max)*	1M IOPS at 500µs latency 700K IOPS at 200µs latency	2M IOPS at 1ms latency 1.7M IOPS at 500µs latency 1M IOPS at 200µs latency	
Latency (min)	150µs		
Bandwidth (max)	8 GB/sec		
<b>CAPACITY</b>			
Raw (max)	26TB	70TB	140TB
Raw (Pay-As-You-Grow)	8 TB or 17 TB	35, 43, 52, or 61 TB	96, 105, 114, 123, or 131 TB
Usable (max)	14.7 TB	44.3 TB	88.7 TB
<b>SOFTWARE</b>			
Data Services (Concerto OS)	Data at Rest Encryption   Asynchronous Replication   Thick and Thin Provisioning   Application Consistent Snapshots LUN Mirroring   Thick and Thin Clones   Consistency Groups   Stretch Cluster with FSP 7700		
Management (Symphony)	Web GUI   CLI via Serial Port   SSH   SNMP   REST XML API		
<b>CONNECTIVITY</b>			
Hosts	8x16 Gb Fibre Channel or 8x10 GbE iSCSI		
Replication	2x40 GbE		
Management	2x 10/100/1000 Mbts/sec auto-sensing Ethernet ports (RJ-45)   1x Serial console port (RS-232)		
<b>PHYSICAL</b>			
Height	3RU		
Depth	28 in. / 711 mm		
Width	17.5 in. / 445 mm		
Weight	80 lb. / 36.3 kg	93 lb. / 42.2 kg	
Power **	1100W	1800W	
Cooling **	3780 BTU/hr.	6140 BTU/hr.	
<b>ENVIRONMENTAL</b>			
Operating Temperature	10 to 35 °C (50 to 95 °F)		
Non-Operating Temperature	-40 to 70 °C (-40 to 158 °F)		
Operating Humidity	8 to 90% (non-condensing)		
Non-Operating Humidity	5 to 95% (non-condensing)		
<b>CERTIFICATIONS</b>			
Industry Ecosystem	VMware VAAI, VADP, SRM, Horizon View Proven Storage, VCenter and VASA Plugin, Backup Software Integration, Automated DR Management, Snapshot Director for VM consistent backup and DR, RedHat & Mirantis certified OpenStack, CoprHD		
Regulatory and Safety	Safety: IEC/EN 60950, CB Certificate, UL60950-1 CAN/CSA-C22.2 No.60950-1, CE Mark. Emissions Class A: EN55022/CISPR 22, FCC Part 15 Class A, ICES-003 Issue 5 Class A, VCCI Class A, AS/NZS CISPR22:2009 Class A, BSMI CNS 13438 Class A, Korea RRA Notice No. 2012-13 Class A. Immunity: EN55024, EN 61000-4-2,3,4,5,6,8,11 Korea RRA Notice No. 2012-14. Environmental: RoHS 2011/65/EU. Contact Violin Memory for a list of country specific approvals.		

\* 4K, 100% read

\*\* Typical for Fibre Channel configurations.