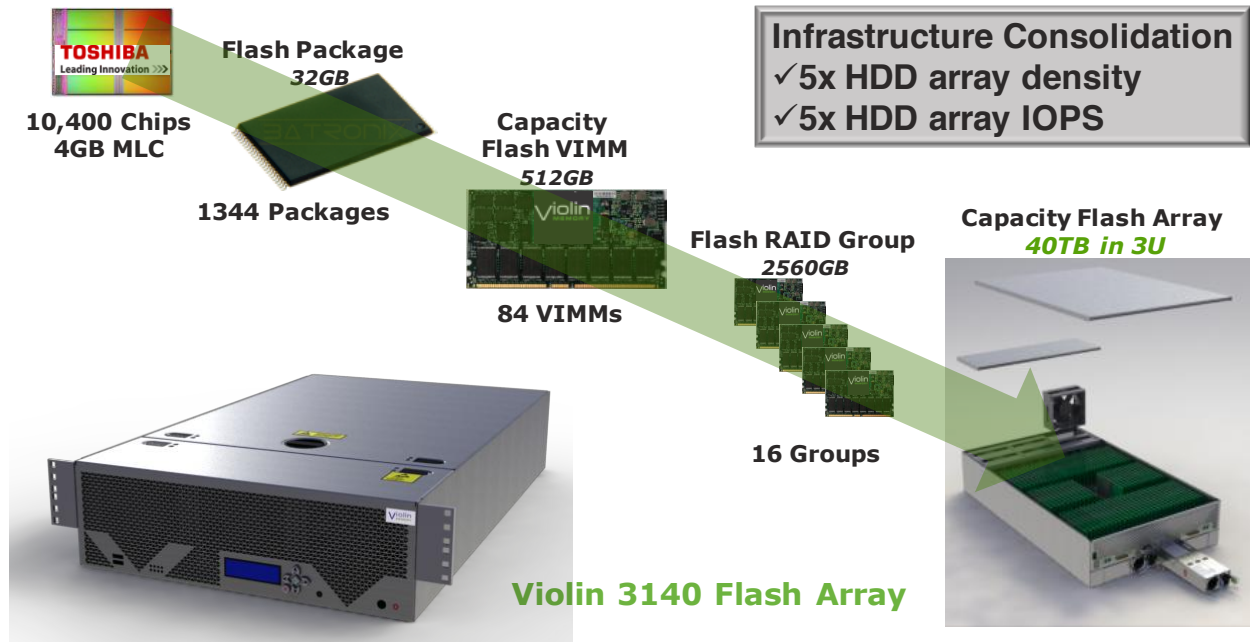


## High Capacity Flash Memory for the Enterprise Data Center

The Violin 3140 is the industry's most cost-effective Flash memory array; designed specifically to support dramatic infrastructure consolidation and OPEX reduction. With over 40TB of MLC NAND Flash in 3U, it is optimized for density and delivers the five times the capacity and performance expected from a rack of HDD-based performance storage. It is ideally suited to high bandwidth file storage, virtual machine storage and large dataset analytics. Using the integrated Hardware Flash RAID, *it delivers dramatically better performance at a significantly lower total cost than performance storage systems with 15Krpm HDDs and RAID.*



## Infrastructure Consolidation

The Violin 3140 is populated with Violin Intelligent Memory Modules (VIMMs) based on high capacity MLC flash memory devices. Violin Switched Memory (VXM) technology and Violin's Flash RAID provide the system with its industry-leading density and efficiency:

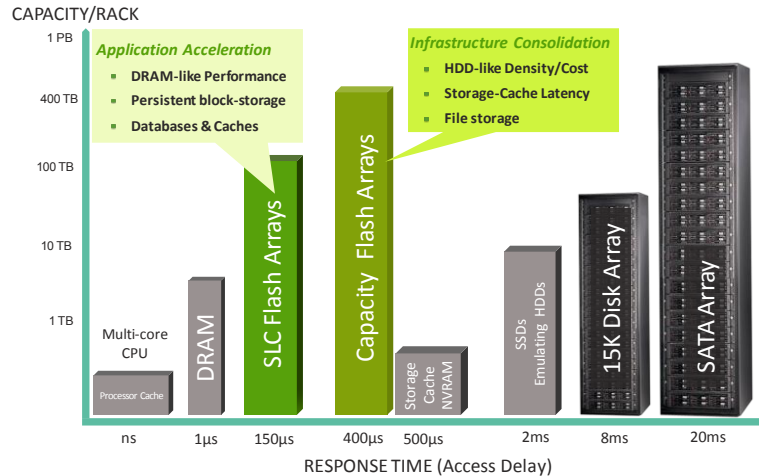
- Density: 40TB Flash in 3U
- Useable Capacity: 30TB with RAID
- Hot swappable: VIMMs with 4+1P RAID and 4 spares
- System power: 30W per Useable TByte
- OPEX: 80% less power and space than performance HDD storage
- Endurance: 5+ Years

When the active data of large-scale and high performance applications is assigned to Violin memory arrays, much higher CPU utilization is achieved and large numbers of performance HDDs can be retired. There are significant CAPEX and OPEX savings that flow from this infrastructure consolidation. *With its higher density and integrated RAID, the Violin 3140 has both lower \$/GB and lower \$/IOPS than performance HDD storage arrays.*

## Flash Performance

Violin Flash memory appliances eliminate the seek-bound limitations of disk storage and delivers significant application performance benefits. The Violin 3140 with Capacity Flash delivers sustained cache-like performance that is 5 times faster than a similar size HDD array:

- Over 1000 MB/s bandwidth
- Over 150K Sustained Random R/W IOPS
- Spike-free Flash RAID
  - 25/300  $\mu$ sec Write/Read latency
  - Non-blocking Erases
- 5x application performance
- 80% reduction in IOPS cost
- Power-safe writes without batteries



## Flexible SAN & Server Connectivity

The Violin 3140 can be directly attached via low latency PCI-Express or SAN attached with Fiber Channel & Ethernet interfaces via a Memory Gateway that provides LUN management functions.

<b>Direct Attachment: PCIe Interfaces</b> <ul style="list-style-type: none"> <li>• PCIe <math>\times</math>8, Dual PCIex4 Interface(s)</li> <li>• SCSI and Block Device Driver modes</li> <li>• Linux: 32 bit and 64 bit</li> <li>• Solaris, OpenSolaris (x86)</li> <li>• Microsoft: 32 bit and 64bit (WHQL certified)</li> </ul>	<b>LAN/SAN Memory Gateway</b> <ul style="list-style-type: none"> <li>• 2-10 8Gb Fiber Channel</li> <li>• 2-10 4Gb Fiber Channel</li> <li>• 2-4 10Gb Ethernet (iSCSI or FCoE)</li> <li>• LUN Management: Masking, Snapshots</li> <li>• Gateways: Solaris, FalconStor, OpenFiler</li> </ul>
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<b>Reliability and Data Integrity</b> <ul style="list-style-type: none"> <li>• RAID over multiple VIMMs (4+IP)</li> <li>• Additional 128 bit integrity check over 4K block</li> <li>• ECC: 64bit per 4K + Data scrubbing</li> <li>• VIMM MTBF: &gt; 1 Million Hours (114 Years)</li> <li>• VIMM hot-swap with 4 spares</li> <li>• Redundant hot swap fans, power, PCIe</li> </ul>	<b>Management</b> <ul style="list-style-type: none"> <li>• 1 – 1024 LUNs</li> <li>• Detailed Flash statistics, SMART</li> <li>• 1 Console Interface via DB-9 male DTE port</li> <li>• 10/100 Ethernet Management Port</li> <li>• Syslog—Alarm/Event Logging</li> <li>• Telnet, SSH, CLI, SNMP, Web</li> </ul>
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<b>Physical Dimensions</b> <ul style="list-style-type: none"> <li>• Height: 3U (5.25"/133.4mm)</li> <li>• Width: 17.5" (420mm)</li> <li>• Depth: 28.4" (725mm)</li> <li>• Cable Mgmt.: 6" (150mm)</li> <li>• Weight: 75 lbs (35kg)</li> </ul>	<b>Power</b> <ul style="list-style-type: none"> <li>• Dual AC inputs</li> <li>• 90 – 264V auto</li> <li>• 100W per TB</li> <li>• 960W max.</li> <li>• 800W Typical</li> </ul>	<b>Environmental</b> <ul style="list-style-type: none"> <li>• Operating Temperature (ambient): 5°C to 35°C</li> <li>• Operating Humidity: 5 to 85% (non-condensing)</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>• Emissions: FCC Part B Class A</li> <li>• Safety: UL</li> <li>• Environment: RoHS</li> <li>• General: CE Mark</li> </ul>
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Information subject to change without notice

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