

STEC Kronos PCIe Accelerators for SSDs Without Taxing CPU

By StorageNewsletter.com
Mon, August 8th, 2011

Supporting 300GB to 1.95TB SLC or MLC with 50 μ s read and 30 μ s write

[STEC, Inc.](#) announced a family of high endurance, enterprise-class solid-state accelerators (SSAs) that integrates PCIe and flash technologies onto a compact, power-efficient, on-board ASIC-based card.



STEC's new [Kronos](#) PCIe accelerators avoid taxing the host system's memory and CPU cycles to perform flash management tasks, freeing them for more critical functions, such as application acceleration.

The Kronos PCIe SSA architecture combines software with an integrated PCIe-based ASIC on a card to achieve application-level acceleration that is capable of delivering consistent, fast and reliable access to data, as well as performance and endurance over the lifetime of each accelerator card. For any business application where accelerating access to data accelerates time to money, the Kronos PCIe SSA family is a choice. Data centers equipped with Kronos PCIe SSAs require fewer and lower cost server deployments that translates into lower TCO.

Custom-engineered from the ground up and built upon four generations of STEC's SSD controller technology, the Kronos PCIe SSA family provides low-latency and accelerated responses to host requests via its PCIe implementation. The SSAs deliver performance and enterprise-class reliability that enables IT consolidation (server virtualization) and server consolidation in virtualized environments, while still providing accelerated access to data and supporting the transaction rates required by e-commerce and financial applications.

In addition, the Kronos PCIe SSA family reduces the overall footprint and power consumption in the data center by lowering direct Capex and Opex, and delivering low-latency access without sacrificing IOPS performance. The Kronos PCIe SSA family also includes technologies such as CellCare, Secure Array of Flash Elements (S.A.F.E.) and PowerSafe, that provide a combination of performance, endurance and data protection for mission-critical enterprise and cloud computing applications. Each Kronos PCIe accelerator card is warranted for 5-years and provides longer product life cycles for flash memory, based on MLC and SLC architectures.

The Kronos PCIe accelerator family consists of three models:

- Kronos PCIe SSA;
- Kronos Turbo PCIe SSA; and
- Kronos Bi-Turbo PCIe SSA

They support a range of SLC and MLC user capacities from 300GB to 1.95TB. All models achieve a read access time of 50 microseconds and a write access time of 30 microseconds.

"Our MLC flash integration uses our proprietary CellCare technology and now enables a new cost-effective family of enterprise-grade PCIe accelerator cards that features the price points and performance for mainstream server and storage application adoption," said Manouch Moshayedi, STEC's Chairman and CEO. *"With the ability to achieve impressive application-level acceleration and data center consolidation, the new Kronos PCIe SSA cards requires fewer and lower cost servers."*

The Kronos ASIC card architecture delivers direct access to the PCIe bus and represents a PCIe accelerated solution without taxing the CPU or utilizing system memory, so consistent performance is delivered over the life of these accelerator cards. It achieves this by combining STEC's software layer and the ASIC architecture to deliver new levels of integration that spans from the application layers, all the way to the flash components. Other implementations, such as flash-managed PCIe products, requires high host CPU and RAM utilization, while multi-component solutions that use RAID and a flash controller have higher latencies and reduced I/O performance since multiple levels are required to access flash.

"Enterprise OEMs are challenged to deliver solutions that provide consistent, fast and reliable access to data that is also cost-effective," said Jeff Janukowicz, Research Manager for Solid State Storage at IDC. *"PCIe-based solid state solutions, such as STEC's Kronos PCIe family with CellCare technology, provide the low-latency and high-performance required to satisfy enterprise customers. Reliable MLC solutions enable more attractive price points, and will drive further consumption to a broader range of server and storage applications."*

STEC is sampling the Kronos PCIe SSD family to key customers.