

# STORAGE SWITZERLAND BRIEFING NOTE

## SSD IS MORE THAN A BUNCH OF CHIPS STEC KRONOS PCIe SSD AND ENHANCEIO



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Discussion of solid state storage is becoming so commonplace now that there may be a tendency to treat it as a 'check-box item'. After all SSDs are just a bunch of memory chips and those chips all come from just a few manufacturers right? Ironically the opposite is true, so much value can be added by SSD manufacturers that the technology that they put along side those NAND Flash chips can make all the difference in the world.

[STEC](#) is one of the best examples of this reality. [Previously we wrote](#) about their CellCare technology that makes lower cost MLC based memory more appropriate for the enterprise. Their flash controller actually corrects errors on the fly, improving the life of MLC flash devices. Now STEC has brought out a new PCIe based SSD and potentially more interestingly, announced an SSD caching software that they call "EnhanceIO".

### PCIe SSD

The PCIe SSD market is growing in popularity. It's a quick way for IT administrators to target and solve a performance problem at its source, the server that is

processing the data. Instead of upgrading the entire infrastructure to support an SSD-based array, it may be more cost effective to install an SSD directly into a server. PCIe eliminates the concern over how to access that SSD by providing the highest speed channel to this zero latency storage.

Suppliers of all types have been quick to jump into this market. The STEC Kronos PCIe SSD though has several key differentiators. First, the controller technology is the same that's on the other STEC products, which means the customer can benefit from the error correction of CellCare, the reliability of Secure Array of Flash Elements (SAFE) and PowerSafe.

Specific to the PCIe SSD is that the board doesn't generate any server CPU or server memory overhead (sometimes called a "CPU or memory tax"), unlike other solutions on the market which borrow (actually take) these server resources. This could be critical when maintaining predictable performance under stress.

Initially Kronos PCIe will be available in a standard and “turbo” edition. Both editions of this PCIe SSD will support up to 480GB of SLC and 980GB of MLC capacity. In 4K Random Read tests the standard Kronos can perform about 110K IOPS and about 100K IOPS in Random Write tests. The Turbo doubles those numbers thanks to additional controllers on board. Both come with a five year warranty.

#### EnhanceIO SSD Cache Software

STEC coming out with a great PCIe card was almost expected. What was surprising was the second part of the briefing which covered their new EnhanceIO SSD Cache Software Family. This cross-platform caching software supports read, write-back and write-through caching and works with any SSD, including non-STEC supplied equipment. It also includes a performance profiler that will help you determine how much SSD cache you need for maximum application performance.

This is a critical capability. As users start to embrace SSDs, they all face a common challenge specifically, determining what data should be placed on SSDs and when. Caching software solves that problem for them. It also makes PCIe SSD viable when the storage is being accessed through a

SAN. By pulling the data closer to the server, 100s of milliseconds of access time are eliminated. Not only does the local server see a performance boost but so will the rest of the storage network, as significant load is eliminated and bandwidth is made available for other servers.

#### Storage Swiss Take

STEC gets it. Solid-state storage is not about chips, it's about making those chips usable in an enterprise data center. Technologies like CellCare were early examples of this understanding and now, with a zero CPU tax, PCIe SSD and a caching software option, STEC is making solid-state storage acceptable to a wider range of applications and data centers.

We expect this kind of value-add to be the new bar for entry into the solid-state storage market. Vendors must respond with these types of capabilities and be able to explain why they matter in order to remain competitive in this market.

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