New SteelVine Storage Architecture Brings Affordable Storage to Mass Market

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Silicon Image, Inc., a leader in multi-gigabit semiconductor solutions for the secure transmission and storage of rich digital media, today announced the new SteelVineTM storage architecture that radically alters the landscape of storage solutions available to the consumer electronics (CE) and small to medium business (SMB) markets. The SteelVine architecture delivers enterprise-class features, such as virtualization, RAID, hot-plug and hot spare, in an appliance-like solution that is simple, affordable, reliable and scalable. The company also announced the new SV2000TM storage appliance, providing the first implementation of the SteelVine architecture. Targeted at the SMB market, the SV2000 provides enhanced data protection, high-performance and a plug-and-play user experience providing faster time to storage.

Silicon Image is using an innovative business model to bring the SteelVine architecture to market by partnering with industry-leading original design manufacturers (ODMs) and original equipment manufacturers (OEMs) to enable a multitude of SteelVine architecture-based implementation choices. ODMs are always looking for ways to deliver greater innovation and differentiation to the product offerings they develop for their OEMs. Similarly, many OEMs, particularly in the CE market, are looking for ways to address the need for reliable, scalable storage as they bring personal video recorder (PVR) and other digital content storage capabilities to their product offerings.

"The problem with today's storage is that it is too complicated, too

expensive and too support-intensive," said Steve Tirado, president, Storage Division. "With the introduction of the new SteelVine architecture, we have dramatically simplified and reduced the cost of storage with a 'system-on-a-chip' solution that, over time, will provide truly scalable, reliable storage solutions, available to the masses, at price points ultimately approaching $1,000/TB (or $1/GB). The SteelVine architecture is a natural extension of our expertise in developing market leading, innovative solutions for secure digital content delivery."

Innovative Storage Architecture

The SteelVine architecture helps users dramatically simplify adding reliable storage to any system. Leveraging a standard Serial ATA (SATA) interface, Silicon Image's first system-on-a-chip (SOC) implementation of the architecture provides users with a sophisticated RAID solution that does not require special O/S drivers or RAID software to load or configure. The interface to a PC, PVR or SMB server looks like a SATA disk drive, even though the power and intelligence of a full RAID disk array sits behind this powerful chip.

Toolkits will enable OEMs to offer a range of high-availability features that are pre-programmed in the factory, providing the user with a true plug-and-play appliance. The architecture is also designed to automatically handle disk failures and re-builds and allows the user to hot-plug new drives that configure themselves to the pre-configured policy running on the system, making the complexities and costs associated with traditional storage transparent to the user.

Silicon Image has accomplished all of this with a SOC solution that literally takes the volumes of software necessary for traditional RAID configurations and embeds those capabilities into silicon. The architecture takes full advantage of Silicon Image's proven MSL (Multi-layer Serial Link) technology to provide massive bandwidth and wire-

speed switching in a single SOC at the lowest possible cost. This first generation is a powerful 0.18-micron CMOS SOC with a dual-issue 32-bit superscalar processor with a storage-specific instruction set optimized for RAID 0 (striping), RAID 1 (mirroring), RAID 10 (striping + mirroring), partitioning and concatenation.

The SteelVine embedded microcode supports features like disk-to-disk copy and rebuild, packet cyclic redundancy checks (CRCs) and generation, hot-plug and asynchronous event notification. The SteelVine SOC also supports auto-negotiation between SATA I & II (1.5 Gb/s and 3.0 Gb/s) link speeds and works with both port multiplier (PM)-aware and non-aware hosts and host bus adapters (HBAs) and is compliant with the following specifications: SATA I & II, SATA port multiplier, storage enclosure management bridge (SEMB), storage enclosure processor (SEP) and the external SATA specification.

"Small and mid-sized firms are finding their storage needs growing more rapidly than they anticipated," said Raymond Boggs, vice president of SMB research for IDC. "But moving to advanced storage solutions is a major challenge, especially for those without a full-time IT staff." Boggs noted that most SMBs continue to rely on disks embedded in servers to meet their storage needs but are increasingly seeking lower cost alternatives, especially those that can be implemented with relative ease.

SV2000 Storage Appliance

Showcasing its simplicity, affordability and capability, the SV2000 is configured in a five-drive configuration and is available through a qualified group of VAR channels worldwide. The main features of the SV2000 include:
-- OS independent, Java-based configuration tool which allows ODMs, OEMs, system integrators (SIs) and VARs to pre-configure configuration volumes with concatenation, striping, mirroring and

combinations thereof; to configure hot-spare drives; to make firmware updates; and to configure the automatic rebuild and error notification features.
-- Five-drive external storage array
-- SATA disk drives - 3.5" drives
-- SATA direct host connection
-- 1.5 Gb/s SATA 1.0 and 3 Gb/s SATA II host and drive support

The performance, ease-of-use and price characteristics make the SV2000 an attractive solution to the SMB market and should apply equally to the consumer market. Silicon Image is also developing SteelVine architecture-based solutions with partners who are targeting the storage requirements of consumer electronics applications such as video on demand (VOD), PVRs and the transition from standard to high-definition (HD) television.

"The value of data is hard to quantify, yet we are dramatically increasing the home use of digital content with personal video recorders, media centers, downloaded music, digital pictures and movies, and, increasingly, the record of our lives is becoming digital," said Rob Enderle, principal analyst for the Enderle Group. "Many homes are already past the point where they need a reliable backup solution similar to what businesses have required for years, yet no homeowner wants to become an IT technician or incur the typical five-digit price tag these solutions have historically cost. Silicon Image's SteelVine storage architecture promises a solution that is as easy to use as a USB drive and is as robust as a business storage solution for a fraction of the cost and that's a timely promise indeed."

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