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More Flash Memory News

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Enterprise & Cloud

Some more news from the 2018 Flash Memory Summit. This involves Tachyum, Solarflare, Marvell, Seagate Technology, Newisys, Supermicro, Kalray, StorByte, Burlywood and Violin Systems.

Rado Danilak's latest start-up company, Tachyum, is creating a disruptive intelligence processing product, targeted at hyperscale data centers and other users for big data analytics, deep learning, mobile and large-scale computing. According to our discussion, this product should provide 3X lower capex/MIPS, 10X lower power per server and 10X smaller footprint versus an Intel processor. They are working with foundry, TSMC, to make these chips with a 7 nm standard cell, providing 64 cores on one socket. More details will come soon on this technology from the Hot Chips Conference.

Solarflare gave a keynote talk about NVMe over TCP storage fabrics with industry collaborators Intel, Supermicro, Smart IOPS and EXTEN Technologies (all-flash software-defined storage servers and NVMe over TCP fabrics). Doing NMe-oF using TCP provides a low-cost high performance solid-state storage network. The Solarflasre solution is said to fix the network performance bottlenecks that fast NVMe storage exposes with conventional storage networking approaches using User Space Block Storage that allows direct access to memory without context switching, buffer copying and blocking.

Solarflare NVMe over TCP Direct Memory Access PHOTO BY TOM COUGHLIN

Solarflare and Intel showed Intel's NVMe-based Optane storage over TCP. The two companies demonstrated how to achieve disaggregated access end-to-end latency as low as 15 microseconds. Solarflare said that this sort of capability will be needed in applications, such as 5G, and in particular real time analytics in micro data centers (close to or at the network edge.

Marvell demonstrated artificial intelligence SSD controller architecture solutions at the FMS by applying NVIDIA's Deep Learning Accelerator (NVDLA) technology to its family of data center and client SSD controllers. These controllers are targeted at cloud and edge data centers, automotive, industrial, communications networking, environmental monitoring, banking and client applications. The company says that by adding NVDLA to its SSD controllers it can improve efficiency, reduce power consumption, maximize scalability and optimize the distribution of resources for users of its SSD controllers. The programable architecture allows AI models to be quickly updated as needed.

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Seagate Technology expanded its Nytro SSD enterprise products with the launch of its Nytro SSD flash drives, designed to deliver ultra-fast performance for read-intensive workloads. The product, available in the Fall of 2018. These products include Seagate's Nytro 1000 SATA and Nytro 5020 NVMe SSDs, which were demoed at the 2018 Flash Memory Summit.

Seagate Technology Nytro 1000 SATA SSD PHOTO BY TOM COUGHLIN

An interesting feature of these drives is that they include Seagate Secure, that "delivers peace of mind, ensuring secure supply chain, secure download and diagnostics, and secure erase." The company also says that the Nytro 1000 SATA SSD has a tunable capacity feature that increases random write performance by up to 120 percent or provides maximum capacity to the user and that its DuraWrite technology delivers "industry-leading write performance and best-in-class read/write performance, up to 2.3X higher than the competition."

Newisys is a product division of Sanmina Corporation. Their recently announced NSS2560 is an all NVMe product in a 2U form factor. The system features 56 hot-swappable side-loaded U.2 NVMe drives with 2 dual CPU socket servers, with access from each server to all the drives. The product has 50 GB/s and 12.5 million IOPs read performance over four 100 GE ports. The product supplies 64 GB/s bandwidth to drives between both servers and has a balanced architecture for non-blocking performance. Total capacity is up to 1.68 PB in 2U (including the two server modules). The system was on display in the FMS exhibits, shown below.

Newisys NSS2560 at the 2018 FMS PHOTO BY TOM COUGHLIN

Supermicro was showing their own side loading NVMe , hot swappable, JBOF and server system. This is a 1U product that can store 1 PB , can configure up to 8 hosts and has a high throughput of 64 GB/s data transfer rate. The product uses side-loaded 32 U.2 NVMe SSDs or SSDs in the Intel Ruler RSSD configuration. The Intel Ruler system was on display in the Intel exhibit at the FMS. Note that Supermicro also has hot swappable all-flash storage arrays using the

Samsung NF1 form factor SSD.

Kalray was demonstrating their MPPA for NVMe-oF (NVMe over fabric) compatible storage acceleration. Kalray offers all-in-one system (CPU plus NIC plus software) systems as well. One of the Kalray PCIe accelerator cards is on display below.

Supermicro JBOF with Intel Ruler SSDs at FMS PHOTO BY TOM COUGHLIN

Storbyte is a start-up founded by

Kalray Storage Accelerator PHOTO BY TOM COUGHLIN

Diamond Lauffin, who was a founder of Nexsan. Storbyte has all flash memory solutions to provide low cost storage solutions with flash performance, ECO*FLASH. Diamond was showing on of their storage card with dual-ported mSATA modules. These can fit into a 1U, 2U and 4U form factor, with the 4U raw capacity up to 1.57 PB. The device has an Altera FPGA on board running special data placement algorithms. The company recently announced that they were giving a 10-yeaar warranty policy on its ECO*FLASH drives and arrays. Below is one of the ECO*FLASH drives.

Storbyte ECO*FLASH SSD PHOTO BY TOM COUGHLIN

Burlywood is an SSD controller company. Their roots go back to the holographic optical storage company In-Phase. Holographic storage stored information in pages, similar to what flash memory does. They said that 2-4 TB SSDs are the current sweet spot for the hyperscale industry and they have been working with Xilinx (using their FPGA and they had a display in the Xilinx booth at the FMs). The company is doing a SATA qualification for hyperscale and database applications with reference designs at customer sites. The company also recently announced an OEM agreement with SSD manufacturer, Unigen Corporation, which will market and sell Burlywood's TrueFlash software solutions to customers looking to accelerate their transition to an all-flash data center.

Violin Systems, one of the original all flash array companies, now reorganized and with new management, said that they expect to announce products soon, probably with a high-performance product focused on Fibre Channel environments. We also discussed plans for products for edge data centers to support smart cities and other environments that require mission critical processing at the edge of IP or 5G networks.

Flash memory and related software products are making higher performance storage available for more applications. A big driver is storage for hyperscale customers but there was an increasingly frequent message about solutions for network edge applications, such as Smart Cities.

I am the President of Coughlin Associates and a widely respected storage analyst and consultant. I have over 35 years in the data storage industry with multiple engineering and management positions at high profile companies. I have many publications and six patents to m... MORE

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