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Marvell Extends SSD Leadership by Delivering the World's First DRAM-less NVMe SSD Controller for Mass Market Mobile Computing Solutions with Industry-Leading NANDEdge LDPC Technology Supporting TLC and 3D NAND

Marvell's 88NV1140 and 88NV1120 enable small form factor SSD solutions with unparalleled performance for integration into low-z-height tablets, Chrome devices and the upcoming wave of new 2-in-1 hybrid/detachable mobile PC platforms

SANTA CLARA, Calif., Dec. 8, 2014 /PRNewswire/ -- [Marvell](#) (NASDAQ:MRVL), a worldwide leader in providing complete silicon solutions from mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery and [Kinoma](#)® software enabling the "Smart Life and Smart Lifestyle," today announced the world's first DRAM-less NVMe (Non-Volatile Memory Express) solid state drive (SSD) controller for mass market mobile computing solutions with industry-leading NANDEdge™ low-density parity check (LDPC) technology supporting triple-level cell (TLC) and 3D NAND. Marvell's 88NV1140 and 88NV1120 enable small form factor SSD solutions with unparalleled performance for integration into low-z-height tablets, Chrome devices and the upcoming wave of new 2-in-1 hybrid/detachable mobile PC platforms.

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"As mobile computing and cloud-based services become an integral part of our daily lives, fast, secure, reliable and cost effective storage solutions with a small form factor are the key to bringing the benefit of technology to the mass market. I believe our latest game-changing SSD controller will drive the fast deployment of a new wave of small form factor SSD solutions for the mass market mobile computing platforms," said Weili Dai, President and Co-Founder of Marvell. "I am very pleased to see Marvell's leadership and our long track record of invention and innovation including the world's first DRAM-less NVMe SSD controller and the industry's most advanced LDPC technology enabling the latest TLC and 3D NAND flash memory. I am very thankful for our global engineering teams who continuously raise the technology bar to move our industry forward faster."

The small form factor of Marvell's 88NV1140 and 88NV1120 at just 8x8mm per package allows SSD drives as small as M.2 2230 (30 mm in length). In addition, the new, leading-edge controllers can enable the development of an NVMe BGA or SATA BGA SSD running

on embedded SRAM through multiple-chip-package (MCP) integration with NAND. Utilizing 28 nm low-power CMOS process node technology, the 88NV1140 and 88NV1120 controllers are best-in-class in active power while supporting all low power modes (L1.2 for PCIe and DevSlp for SATA devices). Both new solutions share Marvell's third-generation NANDEdge error-correction technology, as with the previously announced 88SS1093 PCIe Gen3x4 NVMe and 88SS1074 SATA SSD controllers. By developing single code for NANDEdge, SSD firmware developers are able to rapidly leverage one code to the other for the most advanced error-correcting technology for data integrity, endurance and reliability. In addition, Marvell's NANDEdge LDPC technology can support 15/16nm TLC and 3D NAND, resulting in low enabling cost of TLC and 3D NAND. The NVMe design has passed in-house SSD validation and third-party operating system and platform compatibility testing.

Key features of [Marvell's new 88NV1140 and 88NV1120](#) include:

- 88NV1140: AHCI and NVMe support over PCIe Gen3x1
 - Fully hardware automated NVMe 1.1b support
 - Low power management (L1.2) design
- 88NV1120: SATA 6Gb/s support
 - SATA DevSlp support
- 88NV1140 and 88NV1120 both share:
 - Powerful Dual core Cortex R5 CPU's
 - Embedded SRAM with hardware accelerators to optimize IOPS performance
 - ONFI3 and Toggle2 NAND support
 - NANDEdge error-correction: 15nm TLC and 3D NAND support using LDPC technology to boost endurance and reliability
 - BGA SSD and M.2/2.5 slim form factor support with thermal optimization and small package size
 - 28nm low power CMOS process

About Marvell

Marvell (NASDAQ: MRVL) is a global leader in providing complete silicon solutions and Kinoma software enabling the "Smart Life and Smart Lifestyle." From mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery, Marvell's diverse product portfolio aligns complete platform designs with industry-leading performance, security, reliability and efficiency. At the core of the world's most powerful consumer, network and enterprise systems, Marvell empowers partners and their customers to always stand at the forefront of innovation, performance and mass appeal. By providing people around the world with mobility and ease of access to services adding value to their social, private and work lives, Marvell is committed to enhancing the human experience.

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