

Marvell 88NV1140/88NV1120

Small-Form Factor and Value-Line SSD Controller

PRODUCT OVERVIEW

The Marvell® 88NV1140/88NV1120 is its first NVM Express DRAMless SSD controller supporting X1-lane PCle 3.0 or 6Gb/s SATA interface for small-form factor and value-line SSD markets. While NAND Flash cost is expected to bring down a value-line SSD close a hard disk drive for a 128GB SSD, this new controller offers a cost-effective solution to help SSD makers to achieve that goal. In fact, it will be instrumental in quickly driving SSD adoption in client PC market.

In addition to enabling value-line SSD, the new controller design is also optimized for small-form factor applications. By using 28nm CMOS process node technology, the new controller is perfect for multiple-chip-package (MCP) integration running on embedded SRAM without external memory. It is ideal for use for low-z-height or compact mobile devices looking for SSD performance, like premium tablets or 2-in1 notebooks. Modules as small as M.2 2230 (3cm. in length) can be designed with the the stand-alone packed version.

The 88NV1140 supports new NVM Express standard or legacy AHCI through PCIe interface, while the 88NV1120 supports the popular SATA interface in a client PC system. The new controller also has Marvell's 3rd-genaration LDPC technology for reliability enhancement, endurance boost and TLC NAND device support on top of MLC NAND.

The controller's NVMe (non-volatile memory) design has passed IOL NVMe Compliance Testing and 3rd-party OS/platform compatibility testing and is ready to enable next-generation mobile PC devices with leading SSD technologies at an affordable price points.

BENEFITS AND FEATURES

KEY BENEFITS	KEY FEATURES
Dual PCIe or SATA interface for single firmware development	Fully hardware-automated NVMe 1.1a support Command overlay and out-of-order data return to deliver the full potential of NAND Hardware automation on command fetch and status return
Optimized design for MCP and small-form factor	• 15nm TLC/MLC and 3D NAND support with Marvell NANDEdge™ LDPC error correction control and management
Low-power CMOS process and new advanced NAND controller design	No external DRAM required
 PCIe 3.0 and NVMe support for new 2015 chipset and operating systems 	M.2/Multiple-chip-package(MCP) small form factor support with thermal optimization
Proven 3rd-generation LDPC technology secures NAND endurance and reliability	New low-power management (L1.2) design
	Advanced 28nm CMOS process

TARGET APPLICATIONS

- Value-line client SSD
- Small-form factor SSD for low z-height mobile PC devices





Fig 1. Photo of 88NV1120

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