

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 PCIe 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 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-generation 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 |
|--|--|
| <ul style="list-style-type: none"> Dual PCIe or SATA interface for single firmware development | <ul style="list-style-type: none"> Fully hardware-automated NVMe 1.1a support <ul style="list-style-type: none"> Command overlay and out-of-order data return to deliver the full potential of NAND Hardware automation on command fetch and status return |
| <ul style="list-style-type: none"> Optimized design for MCP and small-form factor | <ul style="list-style-type: none"> 15nm TLC/MLC and 3D NAND support with Marvell NANDEdge™ LDPC error correction control and management |
| <ul style="list-style-type: none"> Low-power CMOS process and new advanced NAND controller design | <ul style="list-style-type: none"> No external DRAM required |
| <ul style="list-style-type: none"> PCIe 3.0 and NVMe support for new 2015 chipset and operating systems | <ul style="list-style-type: none"> M.2/Multiple-chip-package(MCP) small form factor support with thermal optimization |
| <ul style="list-style-type: none"> Proven 3rd-generation LDPC technology secures NAND endurance and reliability | <ul style="list-style-type: none"> New low-power management (L1.2) design |
| | <ul style="list-style-type: none"> Advanced 28nm CMOS process |

TARGET APPLICATIONS

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

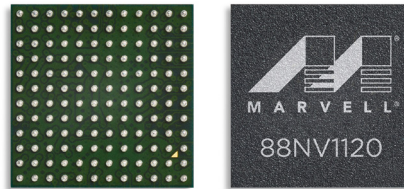


Fig 1. Photo of 88NV1120

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