MARVELL® 88SS1084 SSD Controller

PCIe Gen 3x4, 4-Channel High-Performance SSD Controller with NVMe 1.3 interface
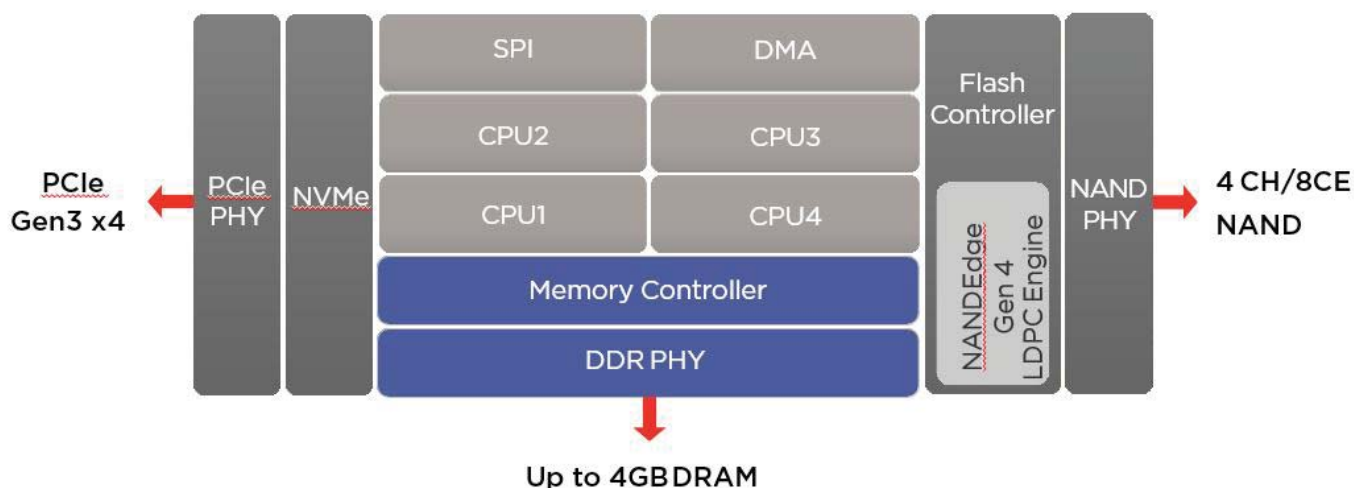
PRODUCT OVERVIEW

The Marvell® 88SS1084 enables high performance and high capacity SSDs for use in mainstream PC client environments. Leveraging a quad-core ARM® Cortex-R5 architecture with support for up to 4GB DRAM controller can enable high performance SSDs to meet the demands of the most challenging workloads.

88SS1084 use a common hardware and firmware controller architecture with 88SS1100 and our recently announced data center and enterprise NMVe controllers, 88S1088 and 88S1098. The common architecture enables SSD makers to leverage their development efforts. SSD makers can re-use the core differentiating elements of their firmware code base between the multiple family of Marvell SSD controllers to produce comprehensive families of SSD solutions optimized for client, data center and enterprise segment requirements.

88SS1084 leverages the 4th generation of the Marvell NANDEdge™ LDPC engine for extracting the highest performance and best in class endurance from TLC and QLC memories.

BLOCK DIAGRAM

Marvell 88SS1084 SSD Controller

KEY FEATURES AND BENEFITS

FEATURES	BENEFITS
Processor	• Quad Cortex R5 CPUs
PCIe Interface	• PCIe Gen 3x4
DDR Controller	• Upto 4GB DDR3, DDR4, LPDDR3, LPDDR4 at speeds up to 2400MT/s • 32-bit data bus width • 2 chip select pins
Flash Controller	• 4 NAND Channels @ 800MT/s • Compatible with ONFI 2.2/2.3/3.0/4.0, JEDEC mode and Toggle 1.0/2.0/3.0 • Hardware RAID • 4th generation of Marvell NANDEdge™ LDPC engine
NVMe	• NVMe Standard Revision 1.3 compliance • 256 outstanding I/O commands • T-10 DIF and end-to-end data protection
Security	• OTP support for secure drive configuration • AES encryption hardware • Media re-encryption hardware
Temperature Support	• 0 C to 70 C (Operating)
Package	• Available in standard 12mm x 13.5mm (418 ball) BGA package

TARGET APPLICATIONS

• PC Client Mainstream & High-Performance SSDs