# Marvell® 88SE1495 / 88SE1485 / 88SE1475

PCIe 3.0 to 16-Port, 12Gbps SAS / 6Gbps SATA I/O Host Controller

## Overview

Marvell® is a leading provider of Serial Attached SCSI (SAS) and Serial ATA (SATA) host controller silicon and software solutions for desktops, workstations, servers, and cold/cloud storage systems. The Marvell 88SE14xx family of I/O controllers delivers eight lanes of PCIe 3.0 and up to 16 ports of 12Gbps SAS or 6Gbps SATA with over 1 million IOPS* performance and industry-leading features. Marvell's advanced PHY technology enables the 88SE14xx products to achieve the best jitter performance and lowest per-port power consumption available. The devices are available with Marvell's Windows and Linux reference drivers to speed product development, as well as a Linux GPL open-source driver.

### Block Diagram

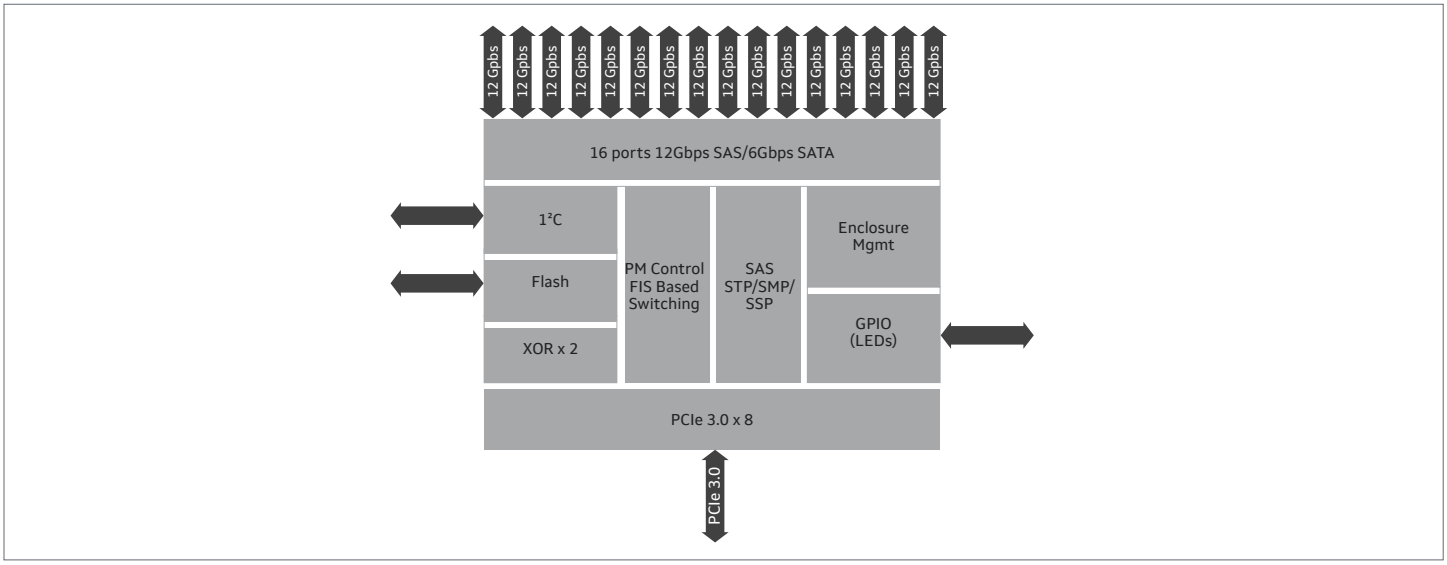



Figure 1. Marvell 88SE14xx PCIe 3.0 to 16-Port 12Gbps SAS / 6Gbps SATA I/O Host Controller

## Key Features

| Features | 88SE1495 | 88SE1485 | 88SE1475 |
|---|---|---|---|
| SAS/SATA Ports | • 16 12Gbps SAS/<br>• 6Gbps SATA ports | • 8 12Gbps SAS/<br>• 6Gbps SATA ports | • 16 6Gbps SATA ports |
| PCIe Interface | • 8 lanes of PCIe 3.0 at 8Gbps per lane. Supports MSI/MSI-X interrupts | | |
| Port Multiplier Support | • Yes | • Yes | • Yes |
| Out of Band Enclosure Management | • Four SGPIO ports and five $I^2C$ busses | | |
| SPI Bootable Device Support | • SPI interface for external Option ROM (legacy or uEFI) bootable controller support | | |
| LED Support | • 16 link status<br>• 16 activity (2 per port)<br>• 2 global LED | • 8 link status<br>• 8 activity (2 per port)<br>• 2 global LED | • 16 link status<br>• 16 activity (2 per port)<br>• 2 global LED |
| GPIO Support | • 32 General Purpose IO ports | | |
| Dual XOR Engines | • Requires customer-developed RAID software | | |
| NVSRAM Interface | • Supports up to 16MB of external x8 or x16 NVSRAM for RAID stack | | |
| Power | • 9.5W | • 7.5W | • 9W |
| Package | • 21x21mm 625 ball HFCBGA | | |

## Target Applications

The 88SE1495 and 88SE1475 chips deliver optimal I/O control performance for 16-port SAS/SATA connectivity for both enterprise and entry to mid-level applications in storage server, enclosure system, workstation, cold/cloud storage, and HBA applications. The built-in support of various SATA link rates and SATA Port Multipliers with FIS-based switching enables better performance with highest cost-effectiveness for high-capacity SATA JBOD applications, such as DAS, NAS, DVR, and NVR.

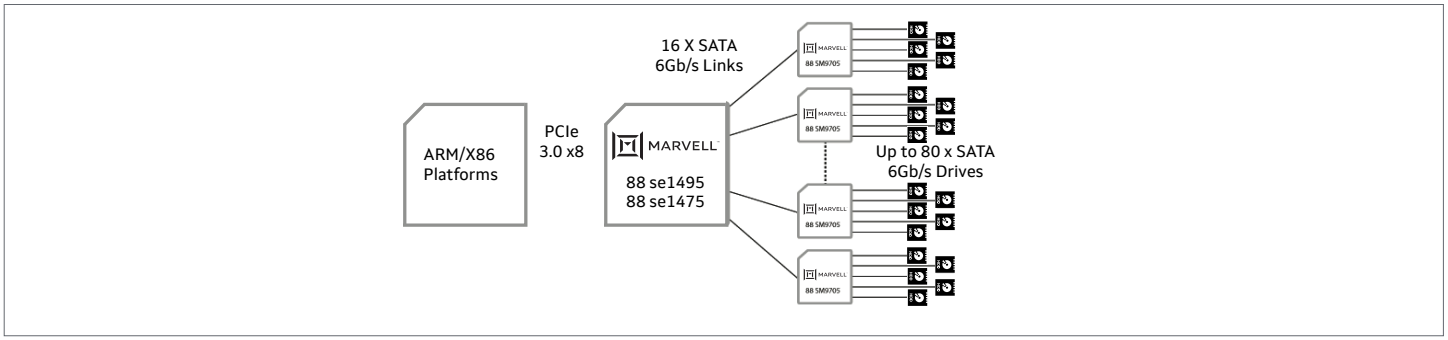



Figure 2. High-Density Cold/Cloud Storage Application Example

* Performance of 1 million IOPS measured with 4KB random reads from 16 SSDs under Windows and Linux

MARVELL

To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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