

# Marvell 88SE1495 / 88SE1485 / 88SE1475

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

### PRODUCT 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

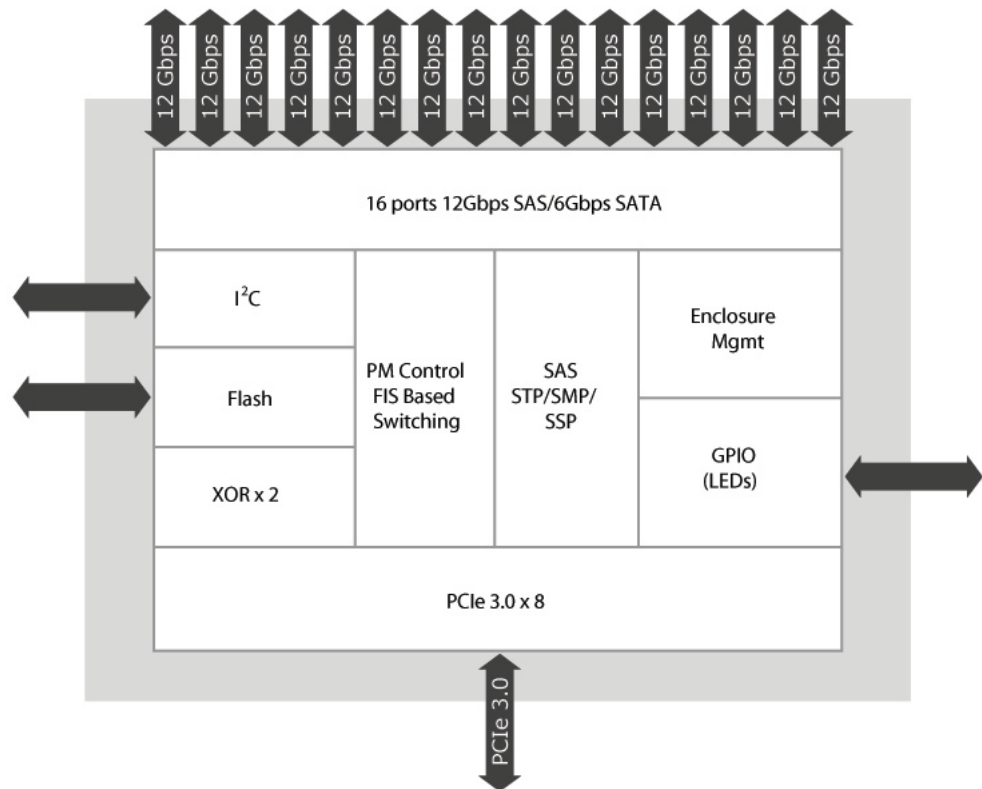


Fig 1. Marvell 88SE14xx PCIe 3.0 to 16-Port 12Gbps SAS / 6Gbps SATA I/O Host Controller

## KEY FEATURES

FEATURES	88SE1495	88SE1485	88SE1475
SAS/SATA Ports	<ul style="list-style-type: none"> <li>• 16 12Gbps SAS/</li> <li>• 6Gbps SATA ports</li> </ul>	<ul style="list-style-type: none"> <li>• 8 12Gbps SAS/</li> <li>• 6Gbps SATA ports</li> </ul>	<ul style="list-style-type: none"> <li>• 16 6Gbps SATA ports</li> </ul>
PCIe Interface	<ul style="list-style-type: none"> <li>• 8 lanes of PCIe 3.0 at 8Gbps per lane. Supports MSI/MSI-X interrupts</li> </ul>		
Port Multiplier Support	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
Out of Band Enclosure Management	<ul style="list-style-type: none"> <li>• Four SGPIO ports and five I<sup>2</sup>C busses</li> </ul>		
SPI Bootable Device Support	<ul style="list-style-type: none"> <li>• SPI interface for external Option ROM (legacy or uEFI) bootable controller support</li> </ul>		
LED Support	<ul style="list-style-type: none"> <li>• 16 link status</li> <li>• 16 activity (2 per port)</li> <li>• 2 global LED</li> </ul>	<ul style="list-style-type: none"> <li>• 8 link status</li> <li>• 8 activity (2 per port)</li> <li>• 2 global LED</li> </ul>	<ul style="list-style-type: none"> <li>• 16 link status</li> <li>• 16 activity (2 per port)</li> <li>• 2 global LED</li> </ul>
GPIO Support	<ul style="list-style-type: none"> <li>• 32 General Purpose IO ports</li> </ul>		
Dual XOR Engines	<ul style="list-style-type: none"> <li>• Requires customer-developed RAID software</li> </ul>		
NVSRAM Interface	<ul style="list-style-type: none"> <li>• Supports up to 16MB of external x8 or x16 NVSRAM for RAID stack</li> </ul>		
Power	<ul style="list-style-type: none"> <li>• 9.5W</li> </ul>	<ul style="list-style-type: none"> <li>• 7.5W</li> </ul>	<ul style="list-style-type: none"> <li>• 9W</li> </ul>
Package	<ul style="list-style-type: none"> <li>• 21x21mm 625 ball HFCBGA</li> </ul>		

## 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.

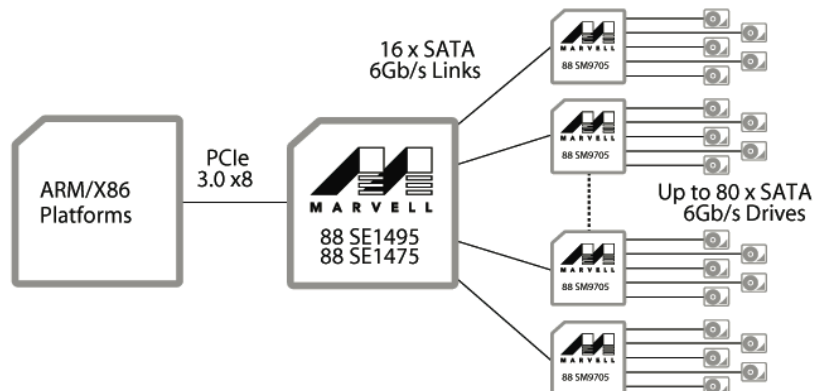


Fig 2. High-Density Cold/Cloud Storage Application Example

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



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