

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

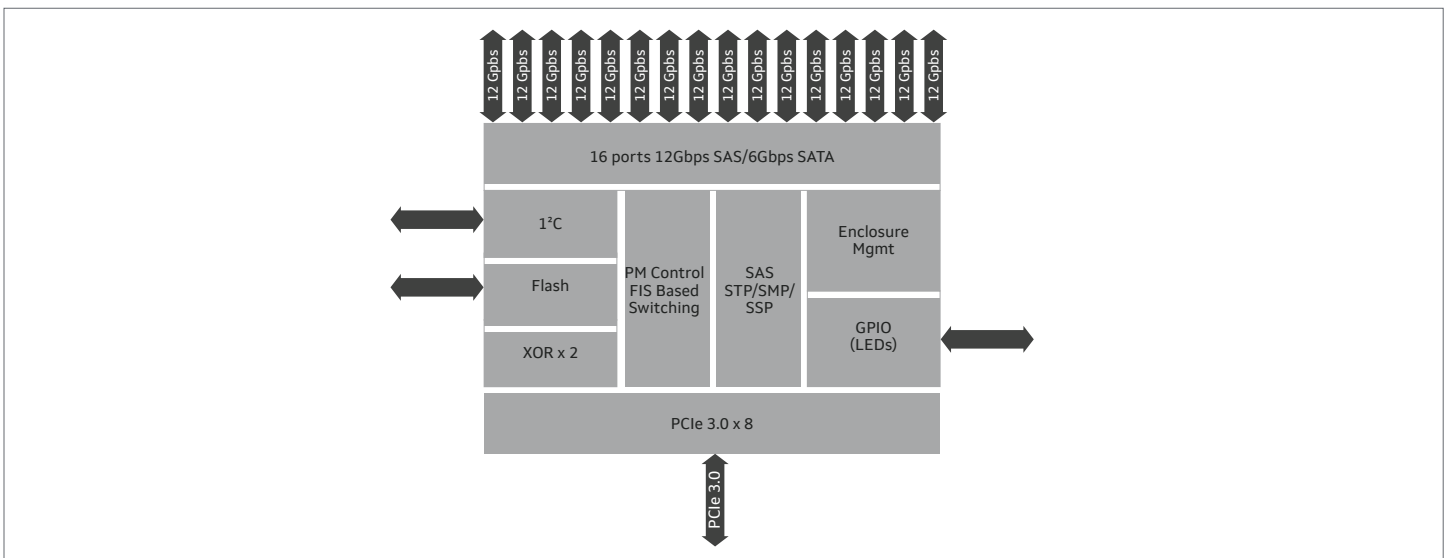


Figure 1. Marvell 88SE14xx PCIe 3.0 to 16-Port 12Gbps SAS / 6Gbps SATA I/O Host Controller

Key Features

Features	88SE1495	88SE1485	88SE1475
SAS/SATA Ports	16 12Gbps SAS/ 6Gbps SATA ports	8 12Gbps SAS/ 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 I²C busses		
SPI Bootable Device Support	SPI interface for external Option ROM (legacy or uEFI) bootable controller support		
LED Support	16 link status 16 activity (2 per port) 2 global LED	8 link status 8 activity (2 per port) 2 global LED	16 link status 16 activity (2 per port) 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.

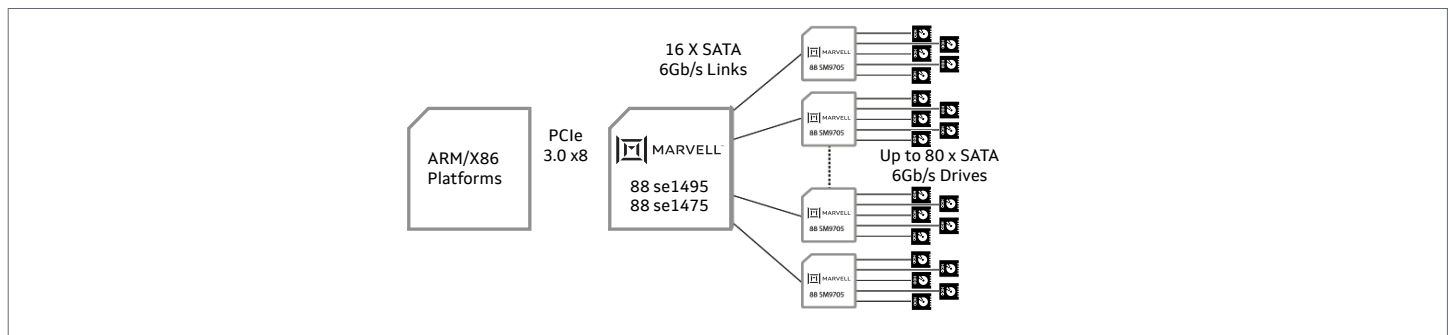


Figure 2. High-Density Cold/Cloud Storage Application Example

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



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.

Copyright © 2020 Marvell. All rights reserved. Marvell and the Marvell logo are trademarks of Marvell or its affiliates. Please visit www.marvell.com for a complete list of Marvell trademarks. Other names and brands may be claimed as the property of others.

Marvell_88SE14XX_PB Revised: 11/20