Marvell® 88SE9170/88SE9171/88SE9182

PCIe 2.0 to 6Gbps SATA I/O Host Controller

Overview

The Marvell® 88SE917X and 88SE9182 host controllers offer cost effective solutions for connecting Serial ATA (SATA) devices to a PCI Express (PCIe) 2.0 host. The SE889170 and the 88SE9171 each have a one-lane PCIe end-point interface at 5Gb/s. The 88SE9170 offers two SATA3 host ports, while the 88SE9171 offers a single SATA3 host port. All SATA ports support 6Gb/s, 3Gb/s and 1.5Gb/s interface speeds. The 88SE9182 device offers the same Dual SATA interface as the 88SE9170, but has a two-lane PCIe interface for additional host bandwidth. All devices feature a standard AHCI interface and inbox driver support (Windows 7/8/10, Linux, and MAC) for ease of use and fast time-to-market.
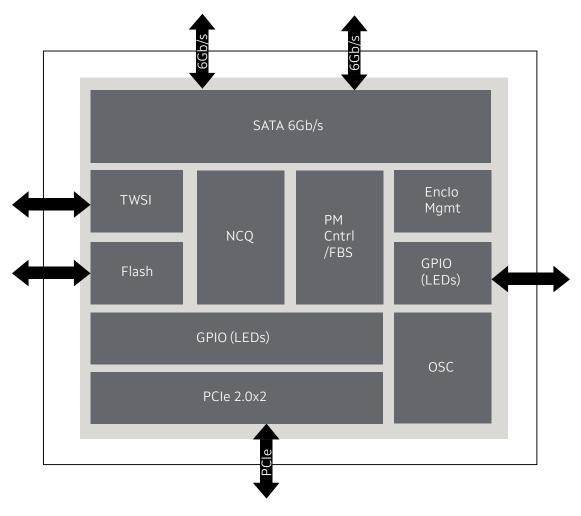
Block Diagram

Fig 1. Block Diagram - 88SE9182 PCIe 2.0 to 2 Port 6Gbps SATA I/O Host Controller

Key Features

Features	88SE9170	88SE9170	88SE9182
SATA Ports	Dual 6Gbps SATA ports	Single 6Gbps SATA port	Dual 6Gbps SATA ports
Port Multiplier Support	Yes	Yes	Yes
PCIe Interface	PCIe2.0 x1	PCIe2.0 x1	PCIe2.0 x2
Status Monitoring	GPIO pins for SATA link status and activity LEDs		
Native Command Queuing	32 outstanding commands per SATA port for high performance		
AHCI Driver Support	Yes		
SPI Flash Interface	External flash containing configuration and/or Legacy/UEFI BIOS		
On-Chip Oscillator	Low-cost crystal support		
Automotive Temperature	Yes	Yes	Yes
Package	7mm x 7mm 56pin QFN		
Power Consumption	<1W		
Power Regulation	Internal LDO voltage regulator for low cost system design		

Target Applications

The Marvell® 88SE917X and 88SE9182 host controllers are ideal solutions for small embedded systems needing SATA connectivity or systems with special temperature or power requirements. These SATA controllers allow a PCIe-based host system to control up to two 6Gb/s SATA devices via direct connection. Built-in support for SATA port multipliers with FIS based switching ensures system scalability with maximum performance.

The small footprint of the device and the very few required external components occupy a minimal amount of board space, easing system design and reducing cost. The devices are available with optional industrial and automotive temperature grade certification opening up a broad range of applications requiring flexible storage solutions in harsh environments.
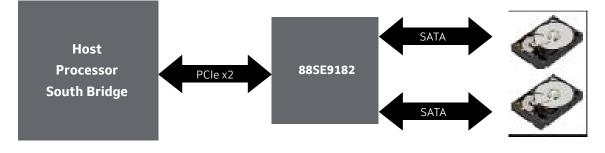

Fig 2. Typical Two Disk Application Example of 88SE9182

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