The PM8236 and PM8237 offer industry leading performance and power savings with support for hardware RAID 0/1/10/5/50/6/60 and native HBA modes.

These fourth generation RAID-on-Chip devices offer a comprehensive feature set for enterprise server data storage solutions and best-in-class performance. This highly integrated solution offers industry leading low-power and several BOM consolidation advantages over competing solutions, resulting in a reduced total cost of ownership.

The PM8236 and PM8237 support Microsemi Smart Storage solution drivers for all major operating systems and a comprehensive set of management tools, including a GUI and CLI.

**Highlights**
- RAID 0, 1, 10, 5, 50, 6, and 60 with hardware acceleration
- Two additional 6G SAS/SATA boot ports with RAID 1 support
- Supports 1 GB, 2 GB, or 4 GB DDR4 memory with speeds up to 2133 MT/s, providing access to volume DDR at top-line performance
- Compatible with Microsemi Smart Storage solution drivers for all major operating systems and Microsemi Smart Storage solution unified management utilities
- The PM8237 includes support for maxCrypto controller-based encryption

**Features**

**SmartRAID Solution**
- Flexible configuration for RAID mode
- Displays raw devices on connector
- RAID Build modes
  - Quick Initialization
  - Background Initialization
  - Rapid Parity Initialization
- SAS dual path failover (RAID stack managed Active/Standby)
- SMP commands using ARCCONF

**Ultra-High Performance and Feature-Rich**
- Persistent logging for RAID and HBA
- 4K native support for RAID and HBA
- Adapter power management modes
- Multiple LUN support
- Support for up to 238 raw devices
- Support for up to 238 target devices in RAID mode
- Supports up to 64 SAS/SATA logical/RAID volumes
- Up to 1.6M IOPS performance (4K random reads)
- Up to 145K IOPS RAID 5 performance (4K random writes)
- SAS expander support
- Transport Layer Retry (TLR) support
- Baseboard management controller (BMC) support with Management Component Transport Protocol (MCTP) over PCIe or I2C
- Enclosure Management: SES-2/3
- SGPIO: SFF-8485
- IBPI: SFF-8489
- SGPIO as a virtual SES enclosure: SFF-8448
- Up to 6.9 GB/s bandwidth
- Up to 3.8 GB/s RAID 5 throughput
- Hot plug drive support
- S.M.A.R.T. diagnostic access
- Supports eight lanes of PCIe 3.0 to the host, each lane supporting PCIe Gen 3 rates up to 8.0 Gbps
- SATA Native Command Queuing (NCQ)

**Microsemi Storage Management Utilities**
MaxView provides both server-based and remote administration. This fully browser-based tool supports all standard browsers and also is available through a USB boot image. MaxView controller management components include:
- MaxView GUI
- ARCCONF CLI
- Event Monitor (event logging and email alerts)
- VSphere plug-in
- OpenStack plug-in
- Smart Storage Administrator CLI
### Microsemi 12 Gbps Smart RAID-on-Chip Storage Controllers
16 + 2-Port SRCv+ and SRCe+

#### Third-Generation Green Backup
- Integrated controller automatically backs up DDR cache to NAND flash after a power failure
- ONFI 1.0, 2.x, and 3.0

#### Tools for Setup and Troubleshooting
Microsemi provides a complete suite of design-in collateral to support embedded designs with this product including: reference designs, detailed hardware specifications, and design-in guides.
- UEFI HII configuration tool
- CTRL-A Legacy BIOS configuration tool
- ChipLink diagnostic tools
  - Extensive debug, diagnostics, configuration, and analysis tools with an intuitive GUI
  - Access to configuration data, management capabilities, and signal integrity analysis tools such as real-time eye capture
- Connects to device over UART

#### Operating System Support
- Extensive operating system supports includes major software releases for Microsoft Windows/Server, VMware ESXi, Red Hat Enterprise Linux, SUSE Enterprise Linux, Ubuntu, CentOS, XenServer, Fedora, Debian, and Solaris
- Certification for Microsoft WHQL, VMware IOVP, and VMware VSAN

#### High-Speed I/O
- **x8 PCIe Gen 3.8 GT/s**
  - PCIe link rates supported: 8 GT/s, 5 GT/s, 2.5 GT/s
  - PCIe-compliant link training and manual PHY configuration
- **16x SAS-3 PHYs for high-speed targets**
  - SAS link rates supported: 12 Gbps, 6 Gbps, 3 Gbps
  - SATA link rates supported: 6 Gbps, 3 Gbps, 1.5 Gbps

#### High-Speed I/O (continued)
- **2x SAS-2 PHYs for boot devices**
  - SAS link rates supported: 6 Gbps, 3 Gbps
  - SATA link rates supported: 6 Gbps, 3 Gbps, and 1.5 Gbps
- **SAS or SATA operation on a per-PHY basis**
- **Independent per-channel selectable high-speed outputs**
- **Multiple programmable levels of receive equalization**
- **Integrated resistive termination**
- **Automatic negotiation of link speed**
- **Decision Feedback Equalizer provides robust recovery of 12 Gbps SAS signals over lossy channels**

#### Peripheral I/O Interfaces
- **Eight multi-master and seven master-only two-wire interfaces (TWIs) support variable bit rates up to 400 Kbps**
- **Two industry-standard 16750 UARTs**
- **Seven SFF-8485-compliant serial GPIO (SGPIO) ports**
- **Up to 30 GPIO ports depending on SGPIO port configuration**
- **Firmware API for peripheral control, including features such as activity LED, UART configuration, zoning configuration, inter-processor communications, and enclosure control**

**Note:** Some peripheral I/O interface pins are multiplexed

#### maxCrypto Encryption (PM8237 Only)
- **AES data encryption and decryption with key sizes of 128/192/256 bits**

#### Ordering Information

<table>
<thead>
<tr>
<th>Ordering Information</th>
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<tbody>
<tr>
<td>PM8236A-F3EI</td>
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<tr>
<td>PM8237A-F3EI (with encryption)</td>
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</table>

**A:** Revision number; **F3:** package descriptor; **E:** RoHS 6-compliant; **I:** industrial temperature.

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