Microsemi Adaptec® SmartRAID 3162-8i and 3162-8i /e with Encryption

12 Gbps PCIe Gen3 SAS/SATA RAID Adapters

Maximum Performance and Flexibility

Data center, Enterprise IT, and general consumer server environments have a broad range of requirements—from basic connectivity to extreme data storage capacities. Effective data access and protection is crucial to their ultimate success. The 12 Gbps SmartRAID 3162-8i adapter is ideal for high performance enterprise servers that require maximum connectivity. The controller-based encryption option, SmartRAID 3162-8i /e, supports security enabled server platforms and provides the industry's only data-at-rest encryption solution.

maxCache 4.0 SSD Caching

maxCache accelerates HDD-based RAID arrays and logical drives, advancing the performance capabilities for a broader set of application workloads. SmartRAID 3162 adapters support read- and write-back caching. By caching writes to a redundant SSD cache pool, maxCache 4.0 leverages the performance and latency capabilities of SSD technology for both read and write workloads. Read performance is also improved by caching frequently accessed data on the SSD tier with additional optimizations through the learned-path algorithm, which leverages the aggregate performance of all available storage devices.

maxCrypto Controller-Based Encryption

The SmartRAID 3162-8i /e provides the industry's only data-at-rest controller-based encryption solution. maxCrypto encrypts data on RAID arrays and single drive RAID 0 with AES 256 encryption. It works at line speed, accelerated by silicon engines, with all SAS and SATA devices that are supported in RAID (SSDs and HDDs). It supports local encryption key management and provides a superior solution over self-encrypting drives.

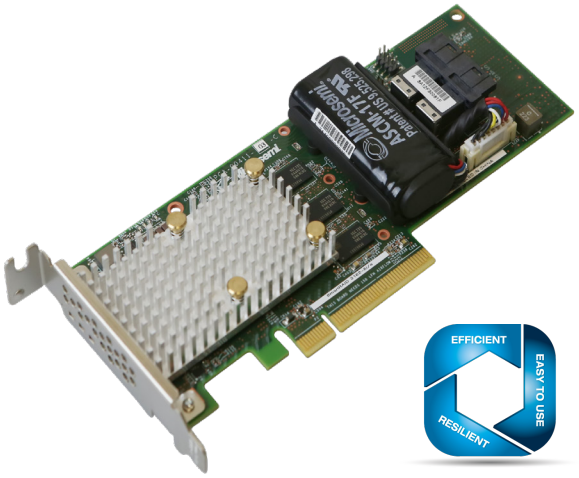
Onboard Integrated Cache Protection

The SmartRAID family continues Microsemi's battery-free portfolio. The 3162-8i includes onboard cache backup circuitry and flash memory. It integrates the ZMCP power source (capacitor module) in the adapter to enable instant cache protection without the need to find space to mount the supercap elsewhere in the system. The onboard capacitor module form factor fits into a PCIe slot and optimizes the airflow for operation with only 150 LFM. It supports a five-year lifetime and is continuously monitored by the smart firmware to ensure the data can be safely backed up to the flash memory on the SmartRAID adapter.

Advanced Data Protection and Ease of Use

Microsemi's industry-leading Smart Storage stack delivers maximum reliability and best-in-class performance that all RAID levels come to expect, plus unique features like Mixed Mode support (RAID and HBA devices can be used simultaneously), adapter power management (reduces power consumption up to 30 percent), and advanced data management (ADM) that allow data migration from existing RAID arrays.

Microsemi's Adaptec maxView provides an HTML5 web interface that can be used in standard desktops and mobile browsers for all storage configuration and management needs. It supports local and remote management, and comes with plugins for major storage management software suites for enterprises and data centers.



Benefits

- Ideal for enabling 12 Gbps storage capabilities in performance-hungry server and workstation platforms, without compromising proven Microsemi reliability
- Industry's only data at rest encryption solution for security enabled server platforms
- Provides high I/O transaction and high bandwidth processing solutions that reduce energy consumption and maintenance costs
- Accelerates storage with up to 2 GB of high-speed DRAM cache with integrated cache protection.

Highlights

- First SmartRAID solution with fully integrated ZMCP including onboard supercap to enable cache protection without requiring extra space in the server
- maxCache 4.0 caching software
- maxCrypto controller-based encryption with local key management
- RAID levels: 0, 1, 5, 6, 10, 50, 60, 1 ADM, and 10 ADM
- Supports simultaneous use of RAID and raw devices (mixed mode)
- 12 Gbps and 6 Gbps compatibility with HDD or SSD SAS/SATA devices
- 12 Gbps throughput per SAS port using mini-SAS HD connectors
- 1.45M random read 4 KB IOPS
- Industry's lowest-power 28 nm SmartROC SAS/SATA protocol controller
- Quality and reliability through the unified, hardened Smart Storage stack, which is deployed in over 30M servers

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Parameters

Parameter	Description
Key software features	• maxCache 4.0 caching software (all SmartRAID 315x/316x products with cache protection) • Mixed mode allows devices connected to the same adapter to be used in RAID and HBA modes simultaneously • Support for up to 256 SAS/SATA target devices (238 SSDs/HDDs maximum support, remainder are reserved for expanders and enclosure management) • Support for native 4K sector SAS and SATA devices in addition to 512-byte sector devices • RAID ADM through triple mirroring, move array, and split mirroring • Quick initialization • Online capacity expansion • Copyback hot spare • Dynamic caching algorithm • Native command queuing (NCQ) • Background initialization • Hot-plug drive support • RAID level migration • Hot spares—global, dedicated, and pooled • Automatic/manual rebuild of hot spares • SES and SGPIO enclosure management • Configurable stripe size • S.M.A.R.T. support • BMC support • Dynamic sector repair • Staggered drive spin-up • Bootable array support • Support for tape devices, autoloaders • Smart PQI driver with multip queue and MSI-X support for all device drivers for all supported operating systems • Secure boot support for the uEFI host BIOS • USB image available on storage.microsemi.com/en-us/support/start to boot maxView GUI from any USB device for enhanced GUI-based setup and offline maintenance
Management utilities	**maxView Storage Manager** • Web-based GUI management utility • OS support: Windows, Linux, Solaris VMware • Remote configuration, monitoring, and notification • Remote firmware updates • SMI-S support • SMTP **ARCCONF** • Command-line interface • SMI-S support for VMware **ROM-Based uEFI BIOS Configuration Utilities** • HII-based pre-boot GUI configuration utility • Arcconf CLI for uEFI shell • Flashable BIOS support **Event Monitor** • Lightweight event monitoring and logging tool • Distributes adapter events and notifies user
Operating systems	Microsoft Windows Server, Windows 10, Windows 8.1, Windows 7, Red Hat Enterprise Linux, CentOS, SuSE Linux Enterprise Server, Ubuntu Linux, Debian Linux, Oracle Linux, Citrix XenServer, Solaris, FreeBSD, VMware ESXi, and open-source Linux drivers. The latest drivers are available at storage.microsemi.com/en-us/support/start. Supports open-source Linux drivers and inbox drivers.
CPU architecture	Intel, AMD, Cavium ThunderX2
Dimensions	2.535" H × 6.6" L (64 mm × 167 mm)
Operating temperature	0 °C to 55 °C with 150 LFM airflow, with onboard supercap installed. **Note:** This adapter contains a powerful RAID processor that requires adequate airflow to operate reliably. Only install this card into server or PC chassis with at least 150 LFM airflow. Temperature measured 1 inch from RAID adapter.
Regulatory certification	CE, FCC, UL, C-tick, VCCI, KCC, CNS
Environmental compliance	RoHS
MTBF	1.88 million hours measured at 40 °C
Warranty	3 years

Ordering Information

SmartRAID 3100 Series	Part Number	RAID Levels	Host Interface	SAS/SATA Ports	Cache	Cache Width	Cache Backup (ZMCP)	maxCrypto
SmartRAID 3162-8i	2299800-R	0, 1 ,5, 6, 10, 50, 60, 1 ADM, 10 ADM	8-Lane PCIe Gen 3	8 internal	2 GB DDR4/2100 MHz	64-bit	Yes, onboard	NA
SmartRAID-3162-8i /e	2299600-R							Yes, controller based encryption

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