

Adaptec 3Gb/s SATA & SAS RAID Family with Intelligent Power Management

5405, 5445, 5805, 5085, 51245, 51645, 52445



Unified Serial® (SATA/SAS) RAID Controllers Deliver High Performance and Energy Efficiency

With an industry-leading dual core RAID on Chip (ROC), DDR2 533MHz write cache, support for up to 256 SATA/SAS devices (using SAS expanders), and an x8 PCI Express host interface bus connection, the Series 5 controllers delivers impressive performance numbers — over 250,000 I/Os and 1.2GB/s. These controllers are ideal for enterprise-class storage applications that call for maximum performance, scalability and flexibility.

Highest Performance

Series 5 controllers deliver speeds up to five times faster than competing products — over 250,000 IOPs and 1.2GB/s — making them ideal for enterprise-class storage systems.

Advanced Data Protection

Adaptec RAID Code (ARC) delivers maximum reliability with RAID levels 0, 1, 1E, 5, 5EE, 6, 10, 50, 60 and JBOD. ARC also offers RAID Level Migration (the ability to easily migrate RAID levels), Online Capacity Expansion (expand capacity without powering down the server), and Copyback Hot Spare (when a failed drive has been replaced, data is automatically copied from the hot spare back to the restored drive).

Hybrid RAID

With Hybrid RAID 1 & 10 the Series 5 controllers offer maximum performance and reliability by combining Solid State Drives (SSDs) and Hard Disk Drives (HDDs) in a single array. By performing read operations from the faster SSD and write operations on both the SSDs and HDDs the result is tremendous performance gains over standard HDD RAID arrays. Hybrid RAID offers the benefits of both technologies and allows a better cost per GB ratio than comparable SSD-only RAID arrays.

The Case for Cache

The fastest way for a RAID controller to fulfill a read or write request is to serve data out of its cache. Enabling the RAID controller cache offers significant performance benefits, such as reduced latency in I/O requests, bandwidth and queue depths that surpass software application limits, and on-the-fly parity calculations on sequential writes.

Intelligent Power Management

The power required by disks is a primary ongoing storage cost. Full power is maintained to every disk whether it is actively being used or not, which also increases cooling costs. Adaptec Intelligent Power Management slashes power and cooling costs by spinning down idle disks and providing a lower power mode for active disks.

One-view Storage Management

Adaptec Storage Manager™, a one-view tool centralizes management of all Adaptec RAID products.

Broad Operating System Support

Extensive operating system support includes all major software releases, such as Windows, Linux, FreeBSD, and UNIX variants.

Compatibility, Reliability, and Support

The Series 5 family has been extensively tested with third-party components to deliver the utmost in compatibility. The cards are backed by a 3-year warranty and the company's legendary technical support.

Product Highlights

- 3Gb/s throughput at each port
- 1.2GHz Dual Core RAID on Chip (ROC)
 - High-performance RAID 5/6
 - Up to 512MB DDR2 cache
- Internal and External SATA/SAS connectors
- 4- and 8-port low-profile MD2 form factor
- 16-, 20- and 28-port half length form factors
- Supports up to 256 SATA or SAS devices using SAS expanders
- x8 PCI Express host interface
- Enclosure management support via LED header and SES2/SGPIO
- Intelligent Power Management
 - Reduces power and cooling costs by as much as 70%
- Hybrid RAID 1 & 10: SSD + HDD for Maximum Performance and Reliability



Adaptec SATA & SAS RAID Family (5405, 5445, 5805, 5085, 51245, 51645, 52445)

Adaptec Unified Serial Controller Family	
Why to buy?	Performance Unified Serial RAID controllers support both SATA and SAS devices. Ideal for bandwidth intensive storage applications; NAS, online transaction processing servers (OLTP), web servers, digital surveillance and stream applications.
Customer Needs	High I/O transaction and high bandwidth processing
Intelligent Power Management	Automated customer-configurable feature that reduces disk drive energy use by up to 70% without compromising application performance. Two configurable modes supported: Standby mode - low-power mode; drive rotates at reduced RPM when not in use (requires that the drive support Advanced Power Management specification). See Adaptec compatibility report for a list of supported disk drives. Power-off mode - Spin down drives when not in use.
RAID Features	<ul style="list-style-type: none"> - Supports up to 256 SATA or SAS devices using SAS expanders - RAID levels 0, 1, 1E, 5, 5EE, 6, 10, 50, 60 and JBOD - 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 - SAF-TE enclosure management - Configurable stripe size - S.M.A.R.T. support - Multiple arrays per disk drive - Dynamic sector repair - Staggered drive spin-up - Bootable array support - Optimized Disk Utilization
Management Utilities	Adaptec Storage Manager™ (ASM) <ul style="list-style-type: none"> - Java-based GUI Management Utility - Remote configuration, monitoring and notification - ASM OS Support: Windows, Linux, SCO, Solaris, - Microsoft VDS Support - SNMP, SMTP - Remote firmware updates ARCCONF <ul style="list-style-type: none"> - Command Line Interface Adaptec BIOS Configuration Utility (ACU) <ul style="list-style-type: none"> - BIOS level configuration utility - Flashable BIOS support
Operating System	Windows 7, Windows XP, Server 2003/2008, Vista, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), SCO OpenServer, UnixWare, Sun Solaris 10 x86, FreeBSD
Physical Dimensions	5085/5405/5445/5805 – 2.5"H x 6.6"L (167mm x 64mm) 51245/51645/52445 – 4.6"H x 6.43"L (164mm x 116mm)
Operating Temperature*	0°C to 55°C (with 200 LFM airflow; without battery) 0°C to 55°C (with 200 LFM airflow; without battery) 0°C to 40°C (with 200 LFM airflow; with battery) 0°C to 40°C (with 200 LFM airflow; with battery)
Operating Voltage	0.45A @ 3.3V; 1A @ 12V 0.47A @ 3.3V; 1.8A @ 12V
Regulatory Certification	CE, FCC, UL, C-tick, VCCI
MTBF	873,402 hours at 40°C
Warranty	3 years
Accessories	Adaptec Battery Module 800 (2248000-R), Adaptec Battery Module 800T (2263800-R)

*Note: This Adaptec card contains a powerful RAID processor which requires adequate airflow to operate reliably. Please install this card only into server or PC chassis with recommended airflow (200 LFM). Ambient temperature measured 1" away from the RAID processor.

Adaptec RAID	5405	5445	5805	5085	51245	51645	52445
Order Part Number	2258100-R (kit) 2258200-R (single)	2228800-R (kit) 2244900-R (single)	2244100-R (kit) 2244300-R (single)	2249100-R (single)	2268200-R (kit) 2268100-R (single)	2258500-R (kit) 2258600-R (single)	2258800-R (kit) 2258700-R (single)
Form Factor	MD2 - Low Profile	MD2 - Low Profile	MD2 - Low Profile	MD2 - Low Profile	Half Length/ Full Height	Half Length/ Full Height	Half Length/ Full Height
Ports	4 internal	8 (4 int./4 ext.)	8 internal	8 external	16 (12 int./4 ext.)	20 (16 int./4 ext.)	28 (24 int./4 ext.)
Connectors	1 SFF-8087 (int.)	1 SFF-8087 (int.) 1 SFF-8088 (ext.)	2 SFF-8087 (int.)	2 SFF-8088 (ext.)	3 SFF-8087 (int.) 1 SFF-8088 (ext.)	4 SFF-8087 (int.) 1 SFF-8088 (ext.)	6 SFF-8087 (int.) 1 SFF-8088 (ext.)
Bus Interface	8-Lane PCIe Gen1.1	8-Lane PCIe Gen1.1	8-Lane PCIe Gen1.1	8-Lane PCIe Gen1.1	8-Lane PCIe Gen1.1	8-Lane PCIe Gen1.1	8-Lane PCIe Gen1.1
Processor	1.2 GHz Dual Core	1.2 GHz Dual Core	1.2 GHz Dual Core	1.2 GHz Dual Core	1.2 GHz Dual Core	1.2 GHz Dual Core	1.2 GHz Dual Core
Cache	256MB	512MB	512MB	512MB	512MB	512MB	512MB
Fanout Cable/s (kit only)	mSASx4 to 4xSATA w/sideband (0.5M)x1	mSASx4 to 4xSATA w/sideband (0.5M)x1	mSASx4 to 4xSATA w/sideband (0.5M)x2	None (Single only)	mSASx4 to 4xSATA w/sideband (0.5M)x3	mSASx4 to 4xSATA w/sideband (0.5M)x4	mSASx4 to 4xSATA w/sideband (0.5M)x6



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