

Adaptec maxCache™ 3.0 Read and Write SSD Caching Solution (Series 7Q SAS/SATA RAID Adapters 71605Q, 7805Q)



Improves Application Performance up to 25x and Reduces Latency by 25x

The Adaptec Series 7Q SAS/SATA RAID adapters, with maxCache 3.0, deliver evolved application acceleration benefits with the industry-first read caching solution and support for fully redundant SSD write caching. Adaptec's 71605Q and 7805Q adapters can deliver up to 25x improvement in IOPS and 25x reduction in latency compared to HDD-only storage arrays.

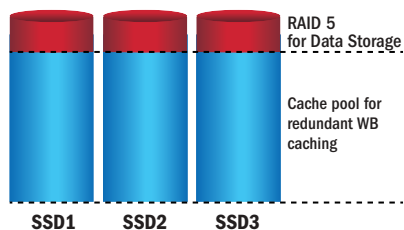
Adaptec maxCache 3.0 – The Evolution of Performance

Adaptec maxCache 1.0 offered significant performance gains for read-intensive applications. By using SSDs to cache copies of frequently accessed (aka “hot”) data, maxCache exploits the performance capabilities of SSDs to store/access read data from them rather than spinning media. The read caching function is further improved with maxCache 3.0, with additional optimizations to the learned-path algorithm.

Advancing the performance capabilities of SSD caching to a broader set of application workloads, maxCache 3.0 has evolved to support write caching. By caching writes to a redundant SSD cache pool (either RAID1E or RAID5), maxCache 3.0 leverages the performance and latency capabilities of SSD technology for both read and write workloads.

Also new to maxCache 3.0 is the inclusion of the Optimized Disk Utilization (ODU) feature. As SSD sizes continue to increase, monopolizing their entire capacity as a cache-pool is becoming less attractive. ODU allows the SSD to be partitioned into both a cache pool and logical device. The logical partition, unlike the cache pool, is exposed to the operating system, and can be used to install an OS to it or store other data that requires fast, low-latency access.

Integration of maxCache 3.0 SSD caching technology is seamless. Adaptec Series 7Q adapters do not require changes to storage architectures, application software or operating systems.



Reduction of Capital and Operating Expenses

With the acceleration of IOPS and reduction of latency, maxCache 3.0 allows data center and cloud computing environments to host more users and perform more transactions per second using less server hardware. The reduction in servers has a direct benefit on capital expenses for server hardware purchases, and additional financial benefit of reducing associated operating costs of power, cooling, and maintenance, delivering a highly reduced total cost of ownership (TCO) solution.

Green Solution

Series 7Q adapters include Zero-Maintenance Cache Protection, a revolutionary advancement that solves BBU deficiencies by providing full protection to cached data with no monitoring, maintenance, disposal, or replacement costs. ZMCP features 2GB of SLC based NAND flash memory with super capacitor technology. During a system power loss, the flash memory-based cache protection can preserve data for years.

Advanced Data Protection

Adaptec RAID Code (ARC) delivers maximum reliability with RAID levels 0, 1, 1E, 5, 6, 10, 50 and 60 (71605E supports RAID 0, 1, 1E and 10). 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).

Adaptec maxView Storage Manager

Adaptec maxView provides the powerful features of Adaptec StorageManager™ in an HTML5 web interface that can be viewed in standard desktop or mobile browsers without the need for separate software installation.

Compatibility, Reliability, and Support

Series 7Q supports all major operating systems, including Windows, Linux, VMware and FreeBSD. It has been extensively tested with third-party components to deliver the utmost in compatibility. The cards are backed by a three year warranty and the company's technical support.

Product Highlights

- 6Gb/s throughput at each port
- LP MD2 for 16 native SAS/SATA ports (71605Q) and 8 native SAS/SATA ports (7805Q)
- Adaptec maxCache 3.0 SSD caching support for read and fully redundant write caching
 - Allows configuration of SSD caching pool in RAID0, RAID1, RAID1E and RAID 5
 - Supports up to 8 SSDs with up to 2TB of SSD cache
- Optimized disk utilization
 - SSDs can be partitioned and some of the capacity can be utilized as separate logical drive to the host (e.g. to boot the OS from)
- Reduced capital & operating costs
 - Support more users with less hardware
 - Improve quality of service with reduced latency (25x) and accelerated IOPS (up to 25x)
- Preinstalled Adaptec Flash Module 700 (AFM-700) for Zero-Maintenance Cache Protection with 2GB NAND flash



Adaptec SAS/SATA Series 7Q RAID Adapter Family (71605Q, 7805Q)

Adaptec maxCache Storage Adapters with SSD Caching and Zero-Maintenance Cache Protection (ZMCP)	
Why to buy?	Series 7Q RAID adapters support both SAS and SATA devices and offer maxCache 3.0 read and write SSD caching for increased IOPS and lower latency. Ideal for I/O intensive storage applications, NAS, online transaction processing servers (OLTP), web servers, and cloud computing applications.
Customer Needs	High I/O transaction and high bandwidth processing; solutions that reduce energy consumption and maintenance costs.
maxCache 3.0	Includes 3rd generation write caching and read caching to deliver up to 25x higher IOPS and 25x lower latency than HDD-based arrays.
Zero Maintenance Cache Protection	– Maximizes performance and extends power savings by protecting data in adapter cache without incurring monitoring, replacement or disposal costs. ZMCP is included with Series 7Q products.
Key Software Features	<ul style="list-style-type: none"> – Optimized Disk Utilization – HBA Mode and Simple Volume Mode for automatic deployment – Supports up to 256 SATA or SAS devices using SAS expanders – Hybrid RAID 1 & 10 – Quick initialization – Online Capacity Expansion – Copyback Hot Spare – Dynamic caching algorithm – Native Command Queuing (NCQ) – Background initialization – Hot-plug drive support <ul style="list-style-type: none"> – RAID Level Migration – Hot spares - global, dedicated, and pooled – Automatic/manual rebuild of hot spares – SES and 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 – Support for Tape Devices, Autoloaders
Management Utilities	<p>Adaptec maxView Storage Manager</p> <ul style="list-style-type: none"> – Web based GUI Management Utility – OS Support: Windows, Linux, Solaris VMware – Remote configuration, monitoring & notification – Remote firmware updates – SMI-S Support – SMTP <p>ARCCONF</p> <ul style="list-style-type: none"> – Command Line Interface – SMI-S support for VMware <p>Adaptec BIOS Configuration Utility (CTRL+A)</p> <ul style="list-style-type: none"> – Legacy configuration utility – Flashable BIOS support <p>Adaptec uEFI BIOS Configuration Utility</p> <ul style="list-style-type: none"> – HII based configuration utility – Flashable BIOS support
Operating Systems	Microsoft Windows, Red Hat Linux, SUSE Linux, Fedora, Debian Linux, Ubuntu Linux, Sun Solaris, FreeBSD, VMware ESX. The latest drivers are available at www.adaptec.com/support .
Physical Dimensions	2.535"H x 6.6"L (64mm x 167mm)
Operating Temperature	0°C to 50°C* (with 200 LFM airflow; with flash) 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
Operating Current	7805Q: 0.1A@3.3V and 1.5A@12V, 71605Q: 0.1A@3.3V and 1.6A@12V measured on PCIe Gen3 systems with 6G drives
Regulatory Certification	CE, FCC, UL, C-tick, VCCI, KCC, CNS
Environmental Compliance	RoHS
MTBF	700,000 hours at 40°C (ongoing testing)
Warranty	3 years

Adaptec RAID	71605Q	7805Q
Order Part Number	2274600-R (single)	2274300-R (single)
RAID Levels	0, 1, 1E, 5, 6, 10, 50, 60	0, 1, 1E, 5, 6, 10, 50, 60
Form Factor	MD2 - Low Profile 2.535"H x 6.6"L	MD2 - Low Profile 2.535"H x 6.6"L
Ports	16 internal	8 internal
Connectors	4 SFF 8643 (int.)	2 SFF 8643 (int.)
Bus Interface	8-Lane PCIe Gen 3	8-Lane PCIe Gen 3
Processor	PM8015	PM8015
Cache	1024MB	1024MB
AFM-700 ZMCP Kit	Included	Included



PMC-Sierra, Inc.
1380 Bordeaux Dr.
Sunnyvale, CA 94089 USA
Tel: +1 (408) 239-8000

World Wide Web: www.adaptec.com

Pre-Sales Support: **US and Canada:** 1 (800) 442-7274 or (408) 957-7274 or adaptecsales@pmcs.com
UK: +44 1276 854 528 or uk_sales@pmcs.com
Australia: +61-2-90116787
Germany: +49-89-45640621 or adaptecsales.germany@pmcs.com
Singapore: +65-92351044