



# Adaptec maxCache 2.0 SSD Caching

## Series 6Q Storage Controllers with maxCache™ 2.0 Read and Write SSD Caching (6805Q, 6805TQ)

### Improves Application Performance up to 13x and Reduces Latency by 13x

Adaptec 6805Q and 6805TQ Unified Serial controllers with maxCache 2.0 deliver evolved application benefits with the addition of SSD write caching to the industry-first SSD read caching solution. Offered on Adaptec's 6Gb/s SAS hardware, the 6805Q and 6805TQ adapters can deliver up to 13x improvement in IOPs and 13x reduction in latency compared to hard-disk drive only storage arrays. The significant performance gains enable data centers and cloud computing environments to host more users and perform more transactions per second with a fewer number of servers, leading to quantifiable cost savings and quality of service improvements.

#### Adaptec maxCache 2.0 SSD Caching – Evolved Performance

First generation maxCache offered significant performance gains for read-intensive applications, delivering up to 11x performance improvement. Using SSDs to cache copies of frequently-accessed — or 'hot' — data, maxCache exploits the performance capabilities of SSDs to access the read data from the SSD rather than spinning media. Read caching is improved with maxCache 2.0, with additional optimizations to the learned-path algorithm.

To deliver the advanced performance capabilities of SSD caching to a broader set of application workloads, maxCache 2.0 evolves to offer caching of write data as well. By caching writes to the SSDs, maxCache 2.0 leverages the performance and latency capabilities of SSD technology for workloads with reads and writes.

Integration of maxCache 2.0 SSD caching technology is seamless. Adaptec Series 6Q controllers 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 2.0 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 6Q controllers 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 4GB 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, 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).

#### Reduce Energy Costs by Up to 70%

Adaptec Series 6Q controllers with maxCache 2.0 also include Adaptec Intelligent Power Management to slash power and cooling costs by spinning down idle disks and providing a lower power mode for active disks.

#### Adaptec maxView Storage Manager

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

#### Broad Operating System Support

Series 6Q supports all major operating systems, including Windows, Linux, VMware and FreeBSD.

#### Compatibility, Reliability, and Support

Series 6Q 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 technical support team.

#### Product Highlights

Adaptec maxCache 2.0 SSD caching support for read and write caching

Reduced capital & operating costs

- Support more users with less hardware
- Improve quality of service with reduced latency (13x) and accelerated IOPs (up to 13x)

6Gb/s throughput at each port

PMC-Sierra PM8013 Dual Core RAID on Chip (ROC)

SAS 2.0 interfaces and PCIe Gen 2 Host Connection

8-port low-profile MD2

Top-mounted connectors for dense server environments (6805TQ only)

Supports up to 256 SATA or SAS devices

Enclosure management support via LED header and SES2/SGPIO

Adaptec Flash Module 600 (AFM-600) for Zero-Maintenance Cache Protection with 4GB NAND flash (included):

- No data loss from power failures: Replaces lithium ion batteries
- Low Operating Costs: No monitoring, maintenance, disposal or replacement costs
- Maintenance-free cached data protection
- Instant RAID cache protection
- Environmentally conscious
- No toxic battery disposal
- Simplified IATA compliance

Intelligent Power Management

- Reduces power and cooling costs by as much as 70%

# Adaptec SATA & SAS Series 6Q RAID Family (6805Q, 6805TQ)

Adaptec Unified Serial Controller Family	
<b>Why to buy?</b>	Series 6Q RAID controllers support both SATA and SAS devices and offer maxCache 2.0 read and write SSD caching for increased IOPs and lower latency. Other features including Zero Maintenance Cache Protection and Intelligent Power Management. Ideal for I/O intensive storage applications, NAS, online transaction processing servers (OLTP), web servers, and cloud computing applications.
<b>Customer Needs</b>	High I/O transaction and high bandwidth processing; solutions that reduce energy consumption and maintenance costs.
<b>maxCache 2.0</b>	Upgraded algorithm from first-generation maxCache adds write caching to read caching to deliver up to 13x higher IOPs and 13x lower latency than HDD-based arrays.
<b>Zero Maintenance Cache Protection</b>	<ul style="list-style-type: none"> <li>Maximizes performance and extends power savings by protecting data in controller cache without incurring monitoring, replacement or disposal costs. ZMCP is included with Series 6Q products.</li> <li>Support for full installation lifecycle - ensuring data availability and reducing total cost of ownership.</li> </ul>
<b>Intelligent Power Management</b>	Automated customer-configurable feature that reduces disk drive energy use by up to 70% without compromising application performance. Two configurable modes supported: <b>Standby mode</b> - low-power mode; spins disks at lower RPMs (must be supported by disk drive). <b>Power-off mode</b> - Spin down drives when not in use.
<b>RAID Features</b>	<ul style="list-style-type: none"> <li>Supports up to 256 SATA or SAS devices using SAS expanders</li> <li>RAID levels 0, 1, 1E, 5, 5EE, 6, 10, 50, 60 and JBOD</li> <li>Hybrid RAID 1 &amp; 10</li> <li>Quick initialization</li> <li>Online Capacity Expansion</li> <li>Copyback Hot Spare</li> <li>Dynamic caching algorithm</li> <li>Native Command Queuing (NCQ)</li> <li>Background initialization</li> <li>Hot-plug drive support</li> <li>RAID Level Migration</li> <li>Hot spares - global, dedicated, and pooled</li> <li>Automatic/manual rebuild of hot spares</li> <li>SES and SAF-TE enclosure management</li> <li>Configurable stripe size</li> <li>S.M.A.R.T. support</li> <li>Multiple arrays per disk drive</li> <li>Dynamic sector repair</li> <li>Staggered drive spin-up</li> <li>Bootable array support</li> <li>Optimized Disk Utilization</li> </ul>
<b>Management Utilities</b>	<b>Adaptec maxView Storage Manager</b> <ul style="list-style-type: none"> <li>Web based GUI Management Utility</li> <li>OS Support: Windows, Linux, Solaris VMware</li> <li>Remote configuration, monitoring &amp; notification</li> <li>Remote firmware updates</li> <li>S.M.I-S Support</li> <li>SMTP</li> </ul> <b>ARCCONF</b> <ul style="list-style-type: none"> <li>Command Line Interface</li> <li>S.M.I-S support for VMware</li> </ul> <b>Adaptec BIOS Configuration Utility (CTRL+A)</b> <ul style="list-style-type: none"> <li>Legacy configuration utility</li> <li>Flashable BIOS support</li> </ul> <b>Adaptec uEFI BIOS Configuration Utility</b> <ul style="list-style-type: none"> <li>HLI based configuration utility</li> <li>Flashable BIOS support</li> </ul>
<b>Operating System</b>	Windows 7, Windows Server 2008/2008 R2, Windows Vista, VMware ESX 4.x Classic, VMware ESXi 5.0, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), Sun Solaris x86, FreeBSD, Debian Linux, Ubuntu Linux, Fedora Linux. The latest drivers are available at <a href="http://www.adaptec.com/support">www.adaptec.com/support</a> .
<b>Physical Dimensions</b>	2.536"H x 6.6"L (64mm x 167mm)
<b>Operating Temperature</b>	0°C to 50°C (with 200 LFM airflow)
<b>Operating Current</b>	0.17A @ 3.3V; 1.25A @ 12V measured on PCIe Gen 2 systems with 6G drives.
<b>Regulatory Certification</b>	CE, FCC, UL, C-tick, VCCI, KCC
<b>Environmental Compliance</b>	RoHS, REACH
<b>MTBF</b>	860,953 hours at 40°C
<b>Warranty</b>	3 years
<b>Availability</b>	Series 6Q controllers with maxCache 2.0 ship standard with SSD read caching enabled; please contact your Adaptec representative to enable the SSD write caching feature.

Adaptec RAID	6805Q	6805TQ
<b>Order Part Number</b>	2270700-R (single)	2273600-R (single)
<b>Form Factor</b>	MD2 - Low Profile	MD2 - Low Profile
<b>Ports</b>	8 Internal	8 Internal
<b>Connectors</b>	2 SFF-8087 (Internal)	2 SFF-8087 (Top-mounted)
<b>Bus Interface</b>	8-Lane PCIe Gen 2	8-Lane PCIe Gen 2
<b>Processor</b>	PM8013	PM8013
<b>Cache</b>	512MB	512MB
<b>AFM-600 ZMCP Module</b>	Included	Included



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