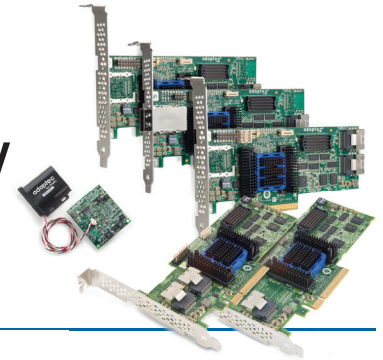


# Adaptec 6Gb/s SATA & SAS RAID Family

## with Intelligent Power Management & Zero-Maintenance Cache Protection (6405, 6445, 6805, 6405T, 6805T)



### Unified Serial® (SATA/SAS) 6Gb/s RAID Controllers Deliver Superior Bandwidth and Reliability, Energy Efficiency and Operating Costs Savings

Adaptec Series 6 and Series 6T RAID controllers feature PMC-Sierra's market-leading, multi-core SRC 8x6G RAID-on-Chip (ROC), 512MB DDR2 667MHz cache, and an x8 PCI Express Gen 2 host bus connection. They support up to 256 SATA/SAS devices and feature Adaptec Intelligent Power Management for improved energy-efficiency, plus Zero-Maintenance Cache Protection (ZMCP — pronounced "zemcap") to help data centers save thousands of dollars in operating costs. Series 6 and Series 6T controllers contain the same performance and features; Series 6T controllers include recessed top-mounted connectors.

#### Highest Performance

Series 6 and Series 6T controllers deliver up to 60% higher sustained sequential throughput than previous generation Adaptec controllers and up to 2GB/s sustained data transfer rate to the host. At peak performance, Series 6 and Series 6T offer 4.8GB/s through the SAS 2.0 interface and 4.0GB/s through the PCI Gen 2 host interface.

#### 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 6 and Series 6T controllers offer maximum performance and reliability by combining Solid State Drives (SSDs) and Hard Disk Drives (HDDs) in a single mirroring 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.

#### 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. Savvy network administrators know that 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.

#### Zero-Maintenance Cache Protection

RAID controllers typically employ battery backup units (BBUs) to protect cached data during power loss, but BBUs require constant monitoring and preserve data for a maximum of 72 hours during power loss. Series 6 and Series 6T controllers include Zero-Maintenance Cache Protection, a revolutionary advancement that solves BBU deficiencies by providing full protection to cached data with no installation, monitoring, maintenance, disposal, or replacement costs. ZMCP features 4GB of SLC based NAND flash memory with super capacitor technology (available as a separate Kit).

#### Intelligent Power Management

Intelligent Power Management (IPM) slashes power and cooling costs by up to 70% using intelligent I/O caching combined with disk drive power savings via standby and power-off modes.

#### One-view Storage Management

Series 6 and Series 6T controllers operate under Adaptec Storage Manager™, a one-view tool that centralizes management of all Adaptec RAID products.

#### Hardware Flexibility for Dense Servers

The Series 6T controllers (6405T and 6805T) provide the added hardware flexibility required for very dense server applications by providing a different connector orientation of 4 and 8-port recessed top-mounted connectors. These controllers include all the same performance capabilities and functionality of the Series 6 and support the same AFM-600 module for Zero-Maintenance Cache Protection.

#### Broad Operating System Support

Series 6 and Series 6T controllers support all major operating systems, including Windows, Linux, VMware and FreeBSD.

#### Compatibility, Reliability, and Support

Series 6 and Series 6T controllers have 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

- 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
- 4- and 8-port low-profile MD2
- 4- and 8-port recessed top-mounted connectors, low-profile MD2 (Series 6T)
- Support for up to 256 SATA or SAS devices
- Enclosure management support via LED header and SES2/SGPIO
- Intelligent Power Management
  - Reduces power and cooling costs by as much as 70%
- Adaptec Flash Module 600 (AFM-600) for Zero-Maintenance Cache Protection with 4GB NAND flash (optional kit):
  - No data loss from power failures: Replaces lithium ion batteries
  - Low Operating Costs: No installation, monitoring, maintenance, disposal or replacement costs due to batteries
  - Maintenance-free cached data protection
  - Instant RAID cache protection
  - Environmentally conscious
  - No toxic battery disposal
  - Simplified IATA compliance
- Hybrid RAID 1 & 10: SSD + HDD for Maximum Performance and Reliability



# Adaptec SATA & SAS RAID Family (6405, 6445, 6805, 6405T, 6805T)

Adaptec Unified Serial Controller Family	
<b>Why to buy?</b>	<ul style="list-style-type: none"> <li>6Gb/s performance Unified Serial RAID controllers support both SATA and SAS devices and offer unique features including Zero Maintenance Cache Protection and Intelligent Power Management. Ideal for bandwidth intensive storage applications; NAS, online transaction processing servers (OLTP), web servers, digital surveillance and streaming applications.</li> <li>For dense-server applications Series 6T with recessed top-mounted connectors provide maximum hardware flexibility and all the same performance and features as Series 6.</li> </ul>
<b>Customer Needs</b>	High I/O transaction and high bandwidth processing; solutions that reduce energy consumption and maintenance costs.
<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.</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 Storage Manager™ (ASM)</b> <ul style="list-style-type: none"> <li>Java-based GUI Management Utility</li> <li>Remote configuration, monitoring and notification</li> <li>ASM OS Support: Windows, Linux, Solaris, FreeBSD</li> <li>Microsoft VDS Support</li> <li>SNMP, SMTP</li> <li>Remote firmware updates</li> </ul> <b>ARCCONF</b> <ul style="list-style-type: none"> <li>Command Line Interface</li> <li>SMI-S support for VMware</li> </ul> <b>Adaptec BIOS Configuration Utility (ACU)</b> <ul style="list-style-type: none"> <li>BIOS level 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 55°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>	6405 and 6405T are 889,115 hours / 6445 is 862,728 hours / 6805 and 6805T are 860,953 hours all at 40°C
<b>Warranty</b>	3 years
<b>Accessories</b>	Adaptec Flash Module 600 (2269700-R)

Adaptec RAID	6405	6445	6805	6405T	6805T
<b>Order Part Number</b>	2271100-R (kit) 2270000-R (single)	2270200-R (single)	2271200-R (kit) 2270100-R (single)	2272700-R (single)	2272800-R (single)
<b>Form Factor</b>	MD2 - Low Profile	MD2 - Low Profile	MD2 - Low Profile	MD2 - Low Profile	MD2 - Low Profile
<b>Ports</b>	4 Internal	8 (4 int / 4 ext)	8 Internal	4 Internal	8 Internal
<b>Connectors</b>	1 SFF-8087 (int.)	1 SFF-8087 (int.)/ 1 SFF-8088 (ext.)	2 SFF-8087	1 Internal SFF-8087 Top Mounted	2 Internal SFF-8087 Top Mounted
<b>Bus Interface</b>	8-Lane PCIe Gen 2	8-Lane PCIe Gen 2	8-Lane PCIe Gen 2	8-lane PCIe Gen 2	8-lane PCIe Gen 2
<b>Processor</b>	PM8013	PM8013	PM8013	PM8013	PM8013
<b>Cache</b>	512MB	512MB	512MB	512MB	512MB
<b>Fanout Cable (Kit only)</b>	mSASx4 to 4xSATA w/sideband (0.7M)x1	None	mSASx4 to 4xSATA w/sideband (0.7M)x2	None	None



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



World Wide Web: [www.adaptec.com](http://www.adaptec.com)

**Pre-Sales Support:** US and Canada: 1 (800) 442-7274 or (408) 957-7274 or [adaptecsales@pmc-sierra.com](mailto:adaptecsales@pmc-sierra.com)

UK: +44 1276 854 528 or [uk\\_sales@pmc-sierra.com](mailto:uk_sales@pmc-sierra.com)

Australia: +61-2-90116787

Singapore: +65-92351044