

# Adaptec PCIe Gen3 Product Family

## High Port Count SAS/SATA RAID Adapters

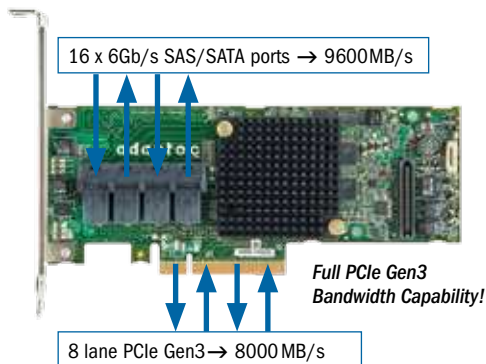
(72405, 71685, 71605, 7805, 71605E)



### 2nd Generation 6Gb/s solutions with game changing performance

The Adaptec Series 7 RAID adapter family features PMC's 24 port PM8015 RAID-on-Chip (ROC), which combines a x8 PCIe Gen3 interface with 6Gb/s SAS ports to enable a new generation of high-performance RAID adapters that are unmatched by any other ROC in the industry. Adaptec Series 7 RAID adapters are available with 8, 16 or 24 native SAS/SATA ports.

While the PCIe Gen3 interface doubles bandwidth to the host compared to PCIe Gen2, it requires at least 16 6Gb/s SAS/SATA ports to double the bandwidth to the storage devices. Competing 6Gb/s solutions have only 8 ports, and cannot leverage that advantage.



#### New Levels of Performance

Series 7 adapters perform at up to 6.6 GB/s on sequential reads and up to 2.6 GB/s on sequential writes on parity RAID 5, more than doubling the performance of competing host-based RAID adapters.

With 16 direct-connected solid-state drives (SSDs), Series 7 adapters can deliver up to 450,000 IOPS – nearly 10x the performance of previous-generation RAID adapters.

#### 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).

New to Series 7 is its auto configuration capability. Users can operate in HBA mode (expose drives to the host directly) or Simple Volume mode (use fast DRAM cache to reduce latency and improve performance), without the need to use setup tools. In RAID mode, they can mix and match all devices and handle them at the same time.

#### Connectivity

Series 7 adapters support all types of devices including drives, tapes, autoloaders, external RAID systems. They support migration of disk drives from standard Host Bus Adapters (HBAs) as well as onboard SATA or SAS interfaces from the motherboard.

#### Introducing mini SAS HD Connectors

These connectors allow for greater flexibility in configuration options by supporting up to 16 native SAS/SATA ports in a Low-Profile MD2 form factor and up to 24 SAS/SATA ports in a full-height half-length form factor. The new connectors can be combined with a wide range of Adaptec SAS HD cables, including straight connectors or Adaptec's first to market right angle connectors.

#### Zero-Maintenance Cache Protection (ZMCP)

Series 7 adapters can be combined with our third-generation AFM-700 flash-based cache protection module (sold separately) to enable instant battery-free protection of the data within the cache.

#### 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.

#### Hybrid RAID

With Hybrid RAID 1 & 10 the Series 7 adapters offer maximum performance and reliability by combining SSDs and 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.


#### Broad Operating System Support

Series 7 adapters support all major operating systems, including Windows, Linux, VMware and FreeBSD.

#### Compatibility, Reliability, and Support

Series 7 adapters have been extensively tested with third-party components to deliver the utmost in compatibility. They are backed by a three year warranty and the company's technical support.

#### Product Highlights

- 6Gb/s throughput at each port
  - LP MD2 for up to 16 native SAS/SATA ports (7805, 71605, 71605E)
  - Half length FH for up to 24 native SAS/SATA ports (72405, 71685)
  - Direct connect to backplanes (No expander needed)
  - Maximum performance for up to 24 SSDs (No expander needed)
  - New mini SAS HD connectors and SAS HD cables – for fit and function in dense server configurations
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- PMC PM8015 ROC
  - Support for up to 256 SAS and SATA devices
  - Support for SSD, HDD, Autoloader, RBOD, Tape
  - Auto configuration of HBA and Simple Volume modes – “set it and forget it”
  - Adaptec Flash Module (AFM-700) for Zero Maintenance Cache Protection with 2GB NAND flash (72405, 71685, 71605, 7805)

# Adaptec PCIe Gen 3 Product Family High Port count SAS/SATA RAID Adapters

## Adaptec Series 7 SAS/SATA RAID Adapter Family

<b>Benefits</b>	Ideal for entry-level server to high-end server platforms and high-performance workstations without compromising robust 6Gb/s performance and proven Adaptec reliability.	
<b>Key Differentiators</b>	<ul style="list-style-type: none"> <li>– Up to 24 native SAS/SATA ports</li> <li>– Complete portfolio of SAS HD cables available</li> </ul>	<ul style="list-style-type: none"> <li>– LP MD2 form factor for up to 16 native SAS/SATA ports</li> <li>– Third generation ZMCP (AFM-700) optional (72405, 71685, 71605, 7805)</li> </ul>
<b>Customer Needs</b>	– High I/O transaction and high bandwidth processing; solutions that reduce energy consumption and maintenance costs.	
<b>Key Software Features</b>	<ul style="list-style-type: none"> <li>– Optimized Disk Utilization</li> <li>– HBA Mode and Simple Volume Mode for automatic deployment</li> <li>– Supports up to 256 SATA or SAS devices using SAS expanders</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> </ul>	<ul style="list-style-type: none"> <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>– Support for Tape Devices, Autoloaders</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>– SMI-S Support</li> <li>– SMTP</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 (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>– HII based configuration utility</li> <li>– Flashable BIOS support</li> </ul>
<b>Operating Systems</b>	Microsoft Windows, Red Hat Linux, SUSE Linux, Fedora, Debian Linux, Ubuntu Linux, Sun Solaris, FreeBSD, VMware ESX. The latest drivers are available at <a href="http://www.adaptec.com/support">www.adaptec.com/support</a> .	
<b>Physical Dimensions</b>	2.535"H x 6.6"L (64mm x 167mm) 7805, 71605, 71605E; 4.198"H x 6.6"L (107mm x 167mm) 72405, 71685	
<b>Operating Temperature</b>	0°C to 55°C* (with 200 LFM airflow; without flash), 0°C to 50°C* (with 200 LFM airflow; with flash) <b>Note:</b> 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).	
<b>Operating Current</b>	ASR-7805: 0.1A@3.3V and 1.5A@12V, ASR-71605: 0.1A@3.3V and 1.6A@12V, ASR-71605E: 0.1A@3.3V and 1.5A@12V ASR-71685/72405: 0.1A@3.3V and 1.8A@12V measured on PCIe Gen3 systems with 6G drives	
<b>Regulatory Certification</b>	CE, FCC, UL, C-tick, VCCI, KCC, CNS	
<b>Environmental Compliance</b>	RoHS	
<b>MTBF</b>	700,000 hours at 40°C (ongoing testing)	
<b>Warranty</b>	3 years	

Adaptec RAID	72405	71685	71605	7805	71605E
<b>Order Part Number</b>	2274900-R (single)	2274700-R (single)	2274400-R (single)	2274100-R (single) 2274200-R (kit)	2274500-R (single)
<b>RAID Levels</b>	0, 1, 1E, 5, 6, 10, 50, 60	0, 1, 1E, 5, 6, 10, 50, 60	0, 1, 1E, 5, 6, 10, 50, 60	0, 1, 1E, 5, 6, 10, 50, 60	0, 1, 1E, 10,
<b>Form Factor</b>	Half Length-Full Height 4.198"H x 6.6"L	Half Length-Full Height 4.198"H x 6.6"L	MD2-Low Profile 2.535"H x 6.6"L	MD2-Low Profile 2.535"H x 6.6"L	MD2-Low Profile 2.535"H x 6.6"L
<b>Ports</b>	24 Internal	16 Internal 8 External	16 Internal	8 Internal	16 Internal
<b>Connectors</b>	6 X SFF-8643	4 X SFF-8643/ 2 X SFF-8644	4 X SFF-8643	2 X SFF-8643	4 X SFF-8643
<b>Bus Interface</b>	8-Lane PCIe Gen 3	8-Lane PCIe Gen 3	8-Lane PCIe Gen 3	8-Lane PCIe Gen 3	8-Lane PCIe Gen 3
<b>Processor</b>	PMC PM8015	PMC PM8015	PMC PM8015	PMC PM8015	PMC PM8015
<b>Cache</b>	1024MB	1024MB	1024MB	1024MB	256MB
<b>Cache Protection</b>	AFM-700 (optional)	AFM-700 (optional)	AFM-700 (optional)	AFM-700 (optional)	Not Supported
<b>SAS HD Cables</b>	Not included	Not included	Not included	ACI-I-HdM SAS-4SATA-SB-.8M	Not included



**adaptec**  
by PMC

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

For more information about SAS HD cables, please visit: [www.adaptec.com/cables](http://www.adaptec.com/cables)

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@pmcs.com](mailto:adaptecsales@pmcs.com)  
UK: +44 1276 854 528 or [uk\\_sales@pmcs.com](mailto:uk_sales@pmcs.com)  
Australia: +61-2-90116787  
Germany: +49-89-45640621 or [adaptecsales.germany@pmcs.com](mailto:adaptecsales.germany@pmcs.com)  
Singapore: +65-92351044