Adaptec 6Gb/s PCIe Gen3 Product Family
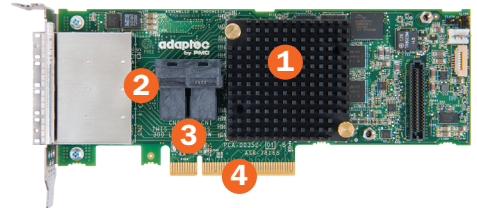# Highest Port Count, Low Profile SAS/SATA RAID Adapters
(71605Q, 7805Q, 78165, 72405, 71685, 71605, 7805, 71605E)

**The industry's first 6Gb/s RAID adapter family to offer
up to 24 native SAS/SATA ports in a low profile/MD2 form factor.**

With 24-port native connectivity, the Adaptec Series 7 triples storage connectivity by replacing up to three eight-port RAID adapters, and more than doubles the performance of competing solutions, significantly reducing cost and power. The Series 7 family includes entry-level and high performance adapters available in 8, 16 and 24 native port configurations, with High Density Mini SAS connectors and cables. With the Series 7 RAID adapters, Adaptec by PMC brings to market a number of breakthroughs for the most performance-intensive applications and dense server environments.
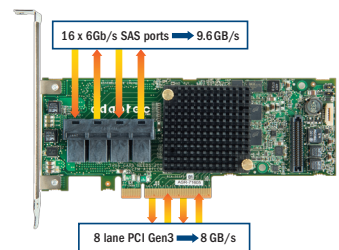
Series 7 family features:

1 PMC's 6Gb/s 24 port RAID-on-Chip (ROC), x8 PCIe Gen3 interface with 6Gb/s SAS ports to enable a new generation of performance

2 Up to 24 native SAS/SATA ports in a LP/MD2 design

3 6Gb/s throughput with mini SAS HD connectors

4 >530K IOPS; 6.6GB/s sequential reads, 5.7 GB/s sequential writes

Series 7Q with Adaptec maxCache 3.0

Advancing the performance capabilities of SSD caching to a broader set of application workloads, the Series 7Q with maxCache 3.0 supports write caching. By caching writes to a redundant SSD cache pool (RAID1, RAID1E or RAID5, maxCache 3.0 leverages the performance and latency capabilities of SSD technology for both read and write workloads. The read caching function is also improved with maxCache 3.0, with additional optimizations to the learned-path algorithm.

Full PCIe Gen 3 Bandwidth Utilization

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.

Flash-based Cache Protection

The Series 7 family continues Adaptec by PMC's battery-free portfolio. Series 7 adapters can be combined with the AFM-700 flash-based cache protection module to enable instant cache protection. Series 7Q adapters with maxCache 3.0 include the AFM-700 module.
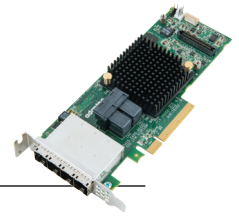
Advanced Data Protection and Ease of Use

Adaptec RAID Code (ARC) delivers maximum reliability with an industry-leading feature set, including all of the RAID levels the industry has come to expect, plus unique features like Flexible Configuration modes for the adapter, Hybrid RAID, and Optimized Disk Utilization (ODU) where no available space is wasted. Adaptec's maxView provides an HTML5 web interface, which can be used in standard desktops and mobile browsers, for all storage configuration and management needs.

www.adaptec.com

Adaptec 6Gb/s PCIe Gen3 Product Family

SPECIFICATIONS

Benefits	Ideal for space-limited entry-level server to high-end server platforms and high-performance workstations without compromising robust 6Gb/s performance and with proven Adaptec reliability.
Key Differentiators	— Up to 24 native SAS ports — maxCache 3.0 software (Series 7Q only) — Complete portfolio of SAS HD cables available — LP/MD2 form factor for up to 24 native SAS/SATA ports — Third generation ZMCP (AFM-700) optional (78165, 72405, 71685, 71605, 7805)
Customer Needs	— High I/O transaction and high bandwidth processing; solutions that reduce energy consumption and maintenance costs; low profile form factor.
Key Software Features	— maxCache 3.0 software (Series 7Q) — Flexible Configuration: HBA Mode & Auto Volume Mode for automatic deployment — Optimized Disk Utilization (multiple arrays per disk) — Supports up to 256 SATA or SAS devices using SAS expanders — Support for native 4K sector SAS and SATA devices in addition to 512 byte sector devices — 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 — 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 — MSI-X support for all device drivers for all supported Operating Systems — Secure boot support for the uEFI host BIOS — USB image available on **start.adaptec.com** to boot maxView GUI from any USB device for enhanced GUI-based setup and offline maintenance
Management Utilities	**Adaptec maxView Storage Manager** — Web based GUI Management Utility — OS Support: Windows, Linux, Solaris VMware — Remote configuration, monitoring & notification — Remote firmware updates — SMI-S Support — SMTP **ARCCONF** — Command Line Interface; SMI-S support for VMware **Adaptec BIOS Configuration Utility (ACU)** — Legacy configuration utility; Flashable BIOS support **Adaptec uEFI BIOS Configuration Utility** — 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 **start.adaptec.com**
Physical Dimensions	**71605Q, 7805Q, 78165, 71605, 7805, 71605E**: 2.535"H x 6.6"L; **72405, 71685**: 4.198"H x 6.6"L
Operating Temperature	0°C to 55°C* (with 200 LFM airflow, without flash); 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).
Operating Current	**7805/7805Q**: 0.1A @ 3.3 VDC and 1.5A @ 12 VDC; **71605/71605Q**: 0.1A @ 3.3 VDC and 1.6A @ 12 VDC; **71605E**: 0.1A @ 3.3 VDC and 1.5A @ 12.0 VDC; **71685/72405**: 0.1A @ 3.3 VDC and 1.8A @ 12.0 VDC; **78165**: 1.1A @ 3.3 VDC and 1.3A @ 12 VDC measured on PCIe Gen3 systems with 6G drives
Regulatory Certification	CE, FCC, UL, C-tick, VCCI, KCC, CNS
Environmental Compliance	RoHS
MTBF	645,612 hours at 40°C
Warranty	3 years

	SERIES 7Q		**SERIES 7**					
ADAPTEC RAID	71605Q	7805Q	78165	72405	71685	71605	7805	71605E
Order Part Number	2274600-R (Single)	2274300-R (Single)	2280900-R (Single)	2274900-R (Single)	2274700-R (Single)	2274400-R (Single)	2274100-R (Single) 2274200-R (Kit)	2274500-R (Single)
RAID Levels	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, 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
Form Factor	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	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
Ports	16 Internal	8 Internal	8 Internal/ 16 External	24 Internal	16 Internal/8 External	16 Internal	8 Internal	16 Internal
Connectors	4 X SFF-8643	2 X SFF-8643	2 X SFF-8643 4 X SFF-8644	6 x SFF-8643	4 X SFF-8643 2 X SFF-8644	4 X SFF-8643	2 X SFF-8643	4 X SFF-8643
Bus Interface	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3	8-Lane PCIe Gen3
Processor	PMC 6Gb/s RoC	PMC 6Gb/s RoC	PMC 6Gb/s RoC	PMC 6Gb/s RoC	PMC 6Gb/s RoC	PMC 6Gb/s RoC	PMC 6Gb/s RoC	PMC 6Gb/s RoC
Cache	1024MB	1024MB	1024MB	1024MB	1024MB	1024MB	1024MB	256MB
Cache Protection	AFM-700 (included)	AFM-700 (included)	AFM-700 (optional)	AFM-700 (optional)	AFM-700 (optional)	AFM-700 (optional)	AFM-700 (optional)	Not Supported
SAS HD Cables	Not included	Not included	Not included	Not included	Not included	Not included	ACI-I-HDmSAS-4SATA-SB-.8M	Not included

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