adaptec by PMC

Zero-Maintenance Cache Protection
No Batteries. No Worries.

What is Adaptec Zero-Maintenance Cache Protection?

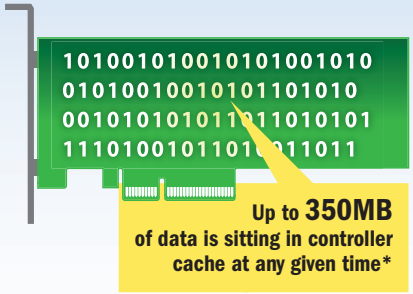
Zero-Maintenance Cache Protection (ZMCP pronounced “zemcap”) is a revolutionary advancement that protects cached data while offering lower operating costs than controllers equipped with battery backup units (BBUs). Now in its second generation, ZMCP is sold separately as an add-on kit (AFM-600) for Adaptec Series 6 and Series 6T Unified Serial RAID controllers. Adaptec Series 5Z and Series 6Q Unified Serial® (SATA/SAS) RAID controllers ship with a fully-integrated AFM module.

Why Do Your Customers Need It?

Enabling the RAID controller cache offers significant benefits, such as reduced latency in I/O requests, bandwidth and queue depths that surpass software application limits, on-the-fly parity calculations on sequential writes, and reduced storage power and cooling costs.

RAID controllers typically employ Lithium Ion BBUs to protect cached data during a system power outage, but BBUs require constant monitoring and expensive maintenance, and can only preserve data for a maximum of 72 hours during a power loss.

Why protect data in the controller cache?

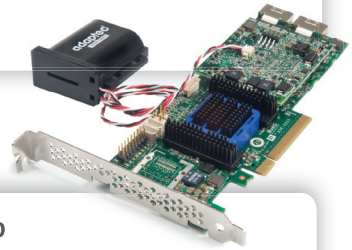


*Based on 512MB controller cache

Your Cached Data is at Risk:

1. Power Loss
2. System Failure
3. Mother Nature

Zero-Maintenance Cache Protection protects controller cache data without the use of a battery.



ZMCP Reduced Maintenance & Costs

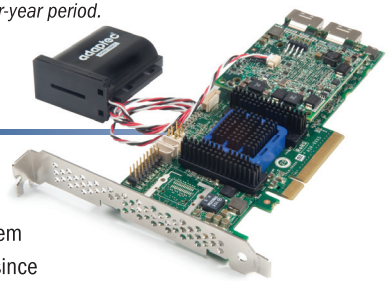
Item	Adaptec Zero-Maintenance Cache Protection	Standard Lithium Ion Unified Serial® (SATA/SAS) RAID
Maintenance schedule	None needed for years	Battery should be replaced every 1–2 years Continual battery monitoring required
Maintenance impact	None	Server must be opened (usually means removal from rack) and should be taken offline while the battery is being replaced
Data must be recovered within	Several months	Up to 72 hours, less if battery is degraded
Charge time	Capacitor charges while the system boots	4.5 to 9 hours
Time to cache protection	Immediate	24 to 36 hours for initial capacity test
Inventory requirements	None	Need to maintain at least a small inventory of emergency replacements
Disposal issues	None	Need to safely dispose of hazardous battery material

Zero-Maintenance Cache Protection

BBUs vs. Series 6 with ZMCP Cost Comparison

Parameter	Typical RAID controller with Lithium-ion BBU	Adaptec RAID 6805
Adapter Price	$ 595 SRP	**$ 550 SRP**
Cost for Cache Protection	$ 175 (BBU)	**$ 195 SRP**
Replacement BBU	$ 175	**$ 0**
Serviceability	$ 265	**$ 0**
Disposal – Hazmat	$ 25	**$ 0**
Total 4 year cost	**$ 1235**	**$ 745 SRP**

In typical real-world scenarios, ZMCP offers cost savings of more than 40% over a four-year period.



How it Works

Adaptec ZMCP features 4GB of flash memory paired with super capacitor technology to nearly instantly save cache contents in the event of system power loss. The super capacitor charges nearly instantly while while the system boots and cache protection is available within minutes of installation. And, since it is flash-based, systems don't need to be shut down for battery replacement.

Ideal Applications:

- Online transaction processing servers (OLTP)
- Digital surveillance
- Web servers
- Streaming applications

Grow Your Business with Adaptec

Adaptec innovations like ZMCP help you meet the evolving needs of data centers. By selling Adaptec solutions, you can build loyalty among existing customers and gain entry into new accounts.

Glossary

Battery backup unit (BBU): A device installed on a RAID controller that provides reserve power to protect stored cache data in the event of a loss of the main power to preserve data for up to 72 hours.

Battery replacement shutdown: The need to power down a server in order to change the battery in a RAID controller's BBU.

Controller cache: Cache memory in the RAID controller. It improves storage throughout and overall performance by queuing data in the cache to accelerate read and write speeds.

Flash memory: A type of solid state (no moving parts) memory that can be erased and reprogrammed. It is mainly used in memory cards and USB thumb drives for general storage. Flash memory is non-volatile, which means it can retain stored information even when not being powered.

Gigabyte (GB): 1024 megabytes (MB); 1,048,576 kilobytes (KB); 1,073,741,824 bytes.

Intelligent Power Management (IPM): An Adaptec-only innovation that can slash storage power and cooling costs by up to 70% by allowing active disks to be spun down to lower RPMs or stopped altogether during idle times.

I/O: Input/Output. Any operation that moves information from a disk or another device to a computer.

Lithium Ion: A type of battery most commonly used in small electronic devices. Lithium ion batteries have some significant drawbacks, including a service life that is directly correlated to age rather than usage. High temperatures can also shorten a battery's lifespan.

Total cost of ownership (TCO): Total cost of ownership (TCO) – An accounting model designed to determine the total cost of acquiring, operating, and retiring a piece of equipment over that equipment's entire lifespan.

For more information:
www.adaptec.com/zmcp

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