

# Alnico RAID



## Company Profile

**PetaStor is a leader and pioneer in manufacturing high reliable, quality but cost-effective disk array subsystems for SMBs and enterprises that regard the RAID subsystems having high performance and/or high reliability and quality as the most important matter in various applications such as virtualization environment, surveillance, storage consolidation, and data replication.**

**Backed by a group of high caliber engineers, PetaStor is the first to have RAID 6 technology fully utilized on enterprise and entry level RAID subsystems. In 2005, ahead of the market, PetaStor again became the first to unveil the dual-port 4Gb FC host with cost efficient SATA-II disk drive RAID subsystem. In addition, PetaStor is fully devoted to the development of SAS-based products; in 2007, the first Alnico SAS to SAS / Fibre to SAS RAID subsystem was announced. Since then, none of new products announced by PetaStor is not SAS backplane compatible.**

**Today, PetaStor has built a solid reputation for delivering high quality, reliability and performance RAID subsystems along with fast time-to-market solutions and best maintaining services that keep our partners on the leading edge.**

# Alnico RAID

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## System Feature and Performance

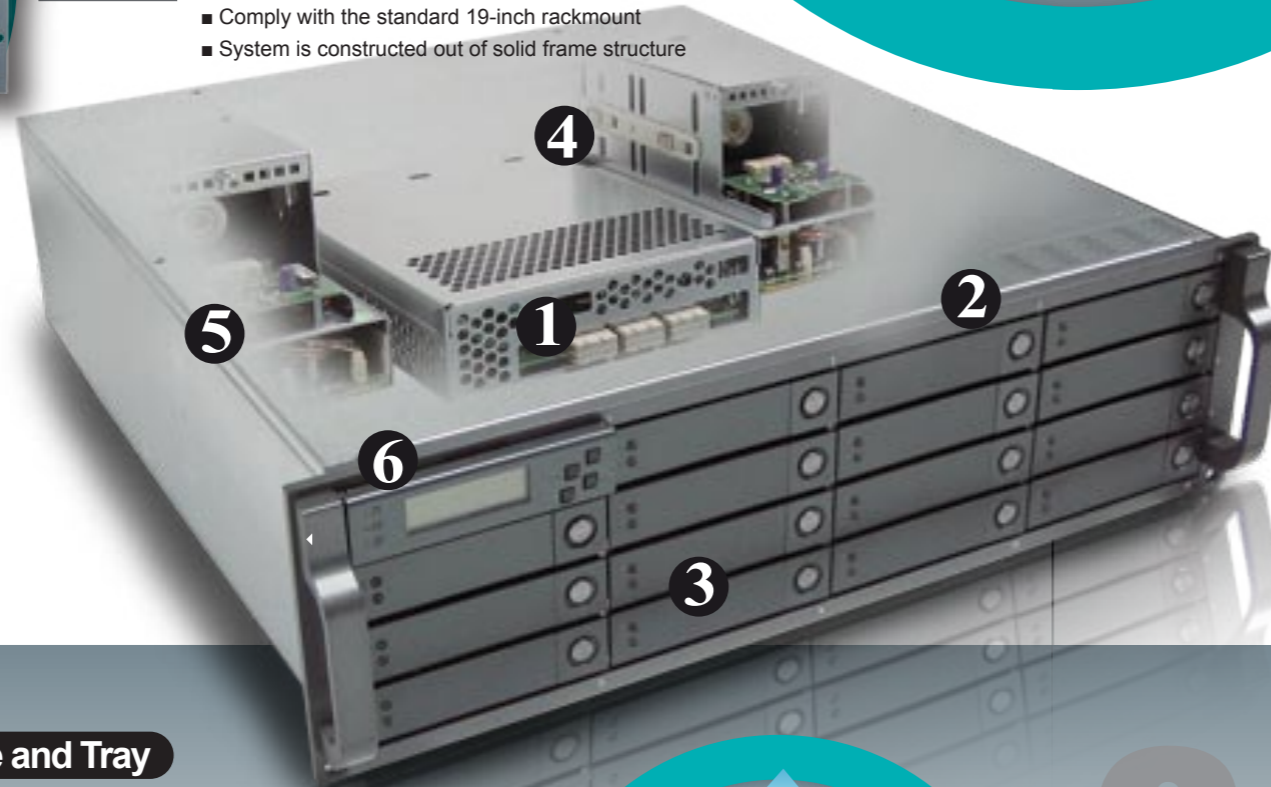
- The built-in new generation CPU to deliver superior I/O transfer and processing performance
- Varied host I/O selections, ranging from Ultra320 SCSI, 4Gb Fibre, iSCSI, SAS to PCIe (model dependent)
- All models support RAID 0,1,3,5,0+1,JBOD and RAID, Alnico 8 series extra supports RAID 50 & 60
- Up to 4GB cache memory with ECC protection is supported (model dependent)
- Battery backup support (optional) to keep data in the cache memory during power failure
- Array roaming to reduce the downtime largely
- Online capacity expansion and RAID level/stripe size migration
- Drive failure auto detecting and hot spare drive auto rebuilding ( hot swappable)
- "Scheduled Volume Checking" function to keep all volumes at healthy status



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## System Design

- Cable-less and modular design-oriented
- All models are RoHS compliant
- Hot swappable support for all major components (fans, power, HDDs and etc..)
- Chassis material is made from high quality SECC and aluminum
- Excellent inside heat airflow vent channel design
- Comply with the standard 19-inch rackmount
- System is constructed out of solid frame structure



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## Power System

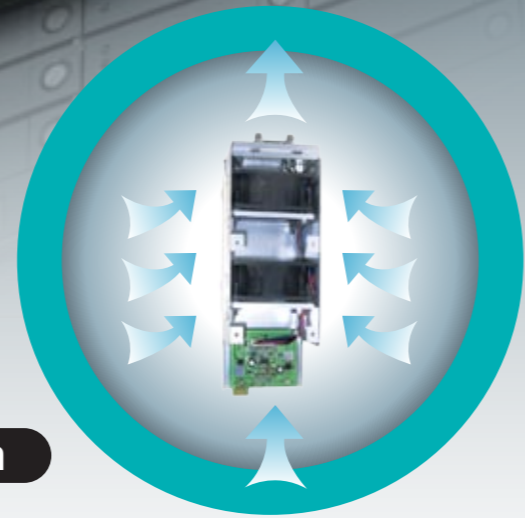
- Redundant, hot swappable, cable-less and modular design
- Fan speed controlled and monitored by the working temps
- High quality fans by Delta
- Wild range and excellent airflow design
- One design fit for most models



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## Hard Disk Interface and Tray

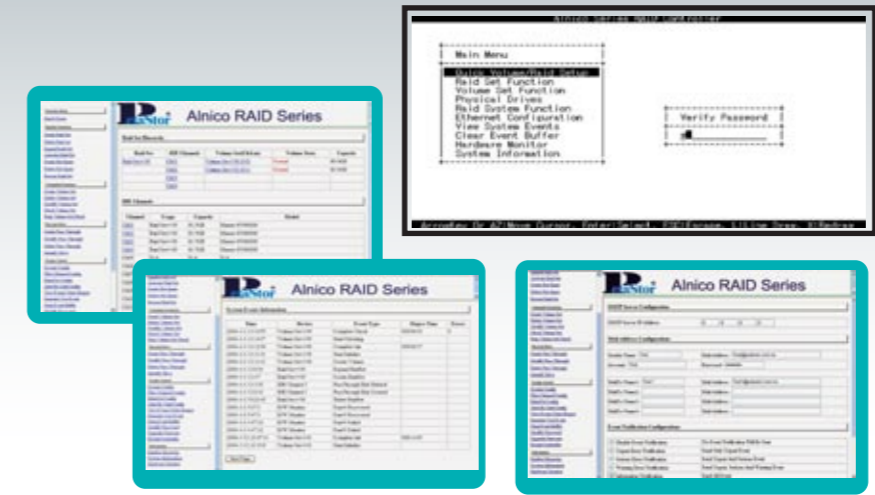
- "Smart Latch" (lock) to prevent accident tray removal, while keeping the access to HDDs effortlessly and easily
- Support high speed standard 3.5-inch disk drive
- New generation SAS 3Gb HDDs with redundant paths supported ( Alnico 8 Series)
- Excellent design for quick heat airflow radiating
- Solid design with aluminum frame to reduce the vibration effect ( Usually caused by high RPM HDD models, 15K RPM HDD models)
- 8bay /12bay /16bay /24bay varied models for different capacity demand
- 24TB (1TB HDD x 24) on a single 24bay model test approved
- Alnico 8 offers one expansion SAS port, allowing more JBODs to be connected for capacity expansion



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## Configuration and Monitoring

- Configuration & health status monitored via the embedded Web browser-based full manage interface
- Configuration & health status monitored via the LCD keypad-based quick manage menu
- Configuration & health status monitored via RS-232 port-based quick manage menu
- The firmware-embedded SNMP agent allows the event notifications to be sent via SNMP to one or multiple remote or local users
- The firmware-embedded SMTP manager allows event notifications to be sent via email to one or multiple remote or local users
- Up to 64 of event logs can be kept to check system conditions



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## Cooling System

- Redundant, hot swappable, cable-less and modular design
- Fan speed controlled and monitored by the working temps
- Utilize high quality fans and quick replacement is supported
- Wild range and excellent airflow design
- Two hot swappable and redundant fans are inside of each fan module
- One design fit for all models

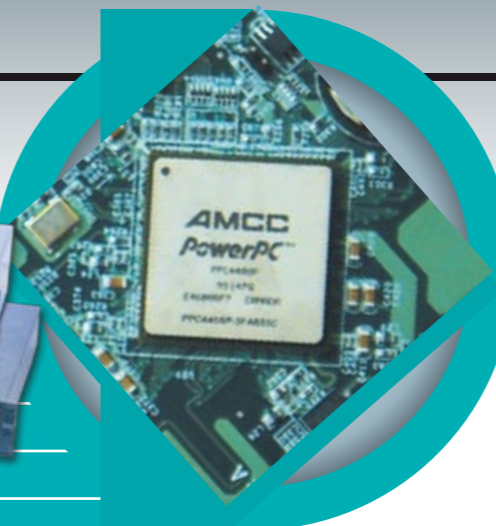


Lite

# SAS/U320 SCSI /4Gb FC to SATA-II RAID Subsystem

## Desktop-Type AL-6060 Series

- The Best Choice for SOHO
- 6-Bays, Tower Type
- 6060F Support 2 x 4Gb Fibre, Ideal for Audio / Video Streaming Applications
- Excellent Performance with Competitive Price

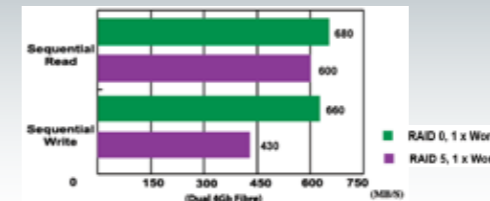


Storage Expo Russia 2006 Award-Winning

## 19" Rack mount

- 3U/16 Bay, 2U/12 Bay, 2U/8 Bay
- SATA-II Backplane Supported

# 4Gb FC to SATA-II RAID Subsystem



- Exceptional Performance from a 64-bit PowerPC 440SP Storage Processor
- Dual 64-bit 133MHz Data Buses Make the High Data Throughput
- Drive Spin Down - Saving More Power Consumption
- Automatically Starts Bad Blocks-Scrubbing by "Scheduled Volume Checking"

## Alnico 6 RAID Series

	AL-6160			AL-6120			AL-6080			AL-6060		
<b>Model</b>	6160S	6160FA	6160SA	6120S	6120FA	6120SA	6080S	6080FA	6080SA	6060S-S 6060R-S	6060S-F 6060R-F	
<b>RAID Architecture</b>	Intel 80321 I/O processor Proprietary ASIC to support extreme performance RAID 6 function Up to 1GB DDR SDRAM on one DIMM socket with ECC protection Advance 64-bit PCI-X bus architecture									Intel 80219 I/O processor 256MB DDR SDRAM on board Advance 64-bit PCI-X bus		
<b>RAID Features</b>	RAID Levels: 0, 1, 3, 5, 0+1, 6 & JBOD Multiple RAID selection Online RAID level / stripe size migration Online array roaming Greater than 2TB per volume set Instant availability and background initialization Hot spare disk / pass through disk support Automatic drive insertion / removal detection and rebuilding						Support spin down drives when not in use to extend service life ( MAID ) Online capacity expansion and RAID level migration simultaneously					
<b>System Type</b>	3U Rackmount			2U Rackmount			2U Rackmount			Desktop-Type		
<b>Host Interface</b>	Dual Ultra 320 SCSI Channels	Dual 4Gb Fibre Host Channels	Dual miniSAS Ports	Dual Ultra 320 SCSI Channels	Dual 4Gb Fibre Host Channels	Dual miniSAS Ports	Dual Ultra 320 SCSI Channels	Dual 4Gb Fibre Host Channels	Dual miniSAS Ports	Single Ultra 320 SCSI Channels	Dual 4Gb Fibre Host Channels	
<b>Disk Interface</b>	16 x SATA-II drives			12 x SATA-II drives			8 x SATA-II drives			6 x SATA-II drives		
<b>Battery Backup Module</b>	Optional, supporting 72 hours battery backup time									N/A		
<b>RAID Management</b>	Firmware-embedded Web browser-based RAID manager via built-in 10/100 Ethernet port Firmware-embedded manager via RS-232 port Firmware-embedded manager through Front LCD control panel Field-upgradeable firmware in flash ROM											
<b>Monitoring / Indicators</b>	All system status can be monitored via firmware-embedded Web browser-based RAID manager System status indication through LCD, LED and alarm buzzer All system events can be sent to multiple user alerts via "Plain English" e-mails Firmware-embedded SNMP agent allows the remote to monitor events through LAN with no SNMP agent required											
<b>Operating System</b>	OS independent and transparent											
<b>Power Supply</b>	Redundant by dual 460W power modules with PFC feature, load sharing type and cable-less design			Redundant by dual 375W power modules with PFC feature, load sharing type and cable-less design						<b>AL-6060S-S, AL-6060S-F:</b> Single ATX 300 watts power supply with PFC feature <b>AL-6060R-S, AL-6060R-F:</b> Redundant by dual 250 watts power modules with PFC feature (load sharing )		
<b>Electrical</b>	AC Voltage 100-240 VAC / AC (+- 10% Full Range), Frequency 50-60Hz											
<b>Temperature</b>	5 to 35 degree C. Non Operating Temperature: -40 to 60 degree C											
<b>Relative Humidity</b>	20% to 80% non-condensing											
<b>Dimension</b>	446mm(W) x 470mm(D) x 3U			446mm(W) x 480mm(D) x 2U						166mm(W) x 278mm(D) x 346mm(H)		
<b>Weight</b>	18KGS			13.5KGS			13KGS			AL-6060S : 11KGS AL 6060R : 13KGS		

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## Alnico 7 RAID Series

	AL-7161F		AL-7121F	
<b>Model</b>	AL-7161F		AL-7121F	
<b>Controller Numbers</b>	1		1	
<b>RAID Architecture</b>	PowerPC 440SP 64bits processor. Proprietary PCI-X 2.0 Polynomial ASIC to support extreme performance RAID 6 function. Up to 4GB DDR-II SDRAM on one DIMM socket with ECC protection. Advance dual 133Mhz / 64-bit PCI-X bus architecture. NVRAM and Real Time Clock supported.			
<b>RAID Features</b>	RAID Levels: 0, 1, 3, 5, 0+1, 6 & JBOD. Online RAID level / stripe size migration. Online capacity expansion and RAID level migration simultaneously. Instant availability and background initialization. Greater than 2TB per volume set (64-bit LBA/ 4K bytes/sector for Windows). Support S.M.A.R.T & NCQ & OOB Staggered Spin-Up capable drives. Automatic drive insertion / removal detection and rebuilding. Support spin down drives when not in use to extend service life ( MAID ).		Multiple RAID selection. Online array roaming. Online volume set expansion. Hot spare disk / pass through disk support. Support Scheduled Volume Checking.	
<b>System Type</b>	3U Rackmount		2U Rackmount	
<b>Host Interface</b>	Dual 4Gb Fibre Host Ports			
<b>Disk Interface</b>	16 x SATA-II drives		12 x SATA-II drives	
<b>Battery Backup Module</b>	Optional, supporting 72 hours battery backup time			
<b>RAID Management</b>	Firmware-embedded Web browser-based RAID manager via built-in 10/100 Ethernet port. Firmware-embedded manager via RS-232 port. Firmware-embedded manager through front LCD control panel . Field-upgradeable firmware in flash ROM.			
<b>Monitoring / Indicators</b>	All system status can be monitored via firmware-embedded Web browser-based RAID manager System status indication through LCD, LED and alarm buzzer. All system events can be sent to multiple user alerts via "Plain English" e-mails. Firmware-embedded SNMP agent allows the remote to monitor events through LAN with no SNMP agent required			
<b>Operating System</b>	OS independent and transparent			
<b>Power Supply</b>	Redundant by dual 460W power modules with PFC feature, Load sharing type and cable-less design		Redundant by dual 375W power modules with PFC feature, Load sharing type and cable-less design	
<b>Electrical</b>	AC Voltage 100-240 VAC / AC (+- 10% Full Range), Frequency 50-60Hz			
<b>Temperature</b>	5 to 35 degree C. Non Operating Temperature: -40 to 60 degree C.			
<b>Relative Humidity</b>	20% to 80% non-condensing			
<b>Dimension</b>	446.5mm(W) x 520mm(D) x 3U		446.5mm(W) x 520 mm(D) x 2U	
<b>Weight</b>	20KGS		17KGS	

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# 8Gb FC / 4Gb FC / SAS / PCIe to SAS / SATA-II Raid Subsystem

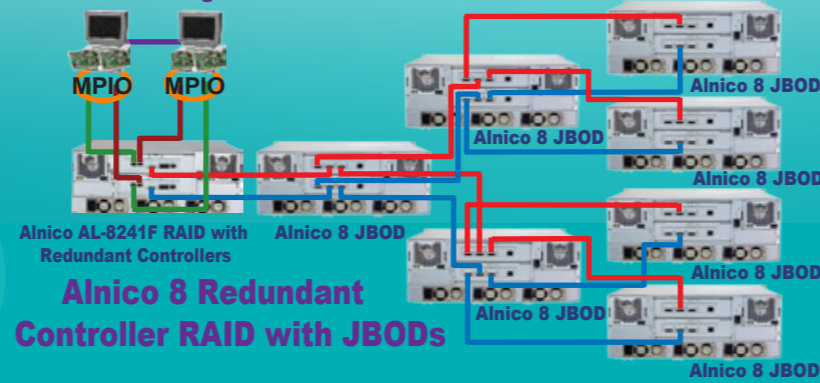
## Reliability

- Dual Active-Active Failover and Failback Redundant Controller Support.
- Utilize Point to Point Serial Architecture : SAS as Disk Interface.
- Dual Ports on SAS Drive for Redundancy and with Higher MTBF Value.

## Flexibility

- SATA Disk Drives are Fully Compatible with SAS Backplane.
- Wide Range Cost per GB, SATA for Basic Capability and SAS for High-end.

## HA or Clustering Solution



## Scalability

- Support SAS Expansion Port, Allowing More JBODs Be Connected for Capacity Expansion.
- Expandable to 122 Devices with SAS JBODs.

## Performance

- Deliver High Performance Based on the Varied Selections of Host Interface.
- 800MB/sec Data Throughput can be Reached with SAS Drives.

## Alnico 8 RAID Series

	Alnico RAID AL-8241					Alnico RAID AL-8161					Alnico RAID AL-8121			Alnico JBOD		
Model	8241 S - S	8241 S - D	8241 F - S	8241 F - D	8241E	8161 S - S	8161 S - D	8161 F - S	8161 F - D	8161E	8121S	8121F	8121E	8241J	8161J	8121J
Controller No.	1	2	1	2	1	1	2	1	2	1	1	1	N/A			
RAID Architecture	Intel IOP81341 64bit Storage Processor. Intel RAID 6 engine to support extreme performance RAID 6 function. Up to 4GB DDR2-533 SDARM on one DIMM socket with ECC protection. NVRAM for RAID configuration and transaction log. Real time clock support. Battery backup modules ready (Option). Advanced PCI-E and 64-bit PCI-X 133Mhz bus architecture.										AL-8121J: Single expansion I/O module.  AL-8241J / AL-8161J: Single or dual redundant expansion I/O module support.					
RAID Features	RAID Levels: 0, 1, 1E, 3, 5, 6, 50, 60 & JBOD. Multiple RAID selection. Online RAID level / stripe size migration. Online array roaming. Instant availability and background initialization. Online capacity expansion and RAID level migration simultaneously. Support spin down drivers for idle disk to extend service life ( MAID ).					Automatic drive insertion / removal detection and rebuilding. Hot spare disk / pass through disk support. Disk Scrubbing / array verify scheduling. Supports up to 122 SAS devices. Max 128 LUNs ( volume set ) per raid set. Online volume set growth. Scheduled Volume Checking support.										
System Type	4U Rackmount					3U Rackmount					2U Rackmount			4U Rackmount	3U Rackmount	2U Rackmount
Host Interface	Dual miniSAS (4x3Gb) ports per controller	Dual 4Gb FC ports (Optional) per controller		Single PCIe x4 port		Dual miniSAS (4x3Gb) ports per controller	Dual 4Gb FC ports (Optional) per controller		Single PCIe x4 port		Dual miniSAS (4x3Gb) ports	Dual 4Gb FC ports (Optional)	Single PCIe x4 port	1 x Up stream miniSAS (4x3Gb) port per expansion I/O module.		
Disk Interface	24 x SAS / SATAII drives ( see note #1) 1 x miniSAS (4x3Gb) port for expansion (Up to 122 devices)					16 x SAS / SATAII drives ( see note #1) 1 x miniSAS (4x3Gb) port for expansion (Up to 122 devices)					12x SAS / SATAII drives 1 x miniSAS (4x3Gb) port for expansion (Up to 122 devices)			24 / 16 / 12 x SAS / SATA-II drives 2 x miniSAS (4x3Gb) ports for expansion (Up to 122 devices)		
RAID Management	Firmware-embedded Web browser-based RAID manager via built-in 10/100 Ethernet. Firmware-embedded manager through front LCD control panel. Firmware-embedded manager via RS-232 port. Field-upgradeable firmware in flash ROM.															
Monitoring / Indicators	All system status can be monitored by firmware-embedded Web browser-based RAID manager. Firmware-embedded SNMP agent allows the remote to monitor events with no SNMP agent required. System status indication through LCD, LED and alarm buzzer. All system events can be sent to multiple user alerts via e-mails. ( SMTP)										Through in-band SES (SCSI Enclosure Service)					
Operating System	Single controller: OS independent and transparent Redundant controller: MPIO driver required		Device driver required ( see note #2 )		Single controller: OS independent and transparent Redundant controller: MPIO driver required		Device driver required ( see note #2 )		Single controller: OS independent and transparent Redundant controller: MPIO driver required		Device driver required ( see note #2 )		OS independent and transparent			
Power Supply	Redundant by three 460 Watts Power modules with PFC. Load sharing type and cable-less design.					Redundant by dual 460 Watts Power modules with PFC. Load sharing type and cable-less design.					Redundant by dual 375 Watts Power modules with PFC. Load sharing type and cable-less design.			Redundant by three 460 Watts Power	Redundant by dual 460 Watts Power	Redundant by dual 375 Watts Power
Electrical	AC Voltage 100-240 VAC / AC Frequency 50-60Hz										AC Voltage 100-240 VAC / AC Frequency 50-60Hz					
Temperature	5 to 35 degree C. Non Operating Temperature: -40 to 60 degree C.										5 to 35 degree C. Non Operating Temperature: -40 to 60 degree C.					
Relative Humidity	20% to 80% non-condensing										20% to 80% non-condensing					
Dimension	446.5mm(W) x 550mm(D) x 4U					Single controller: 446.5mm(W) x 510mm(D) x 3U Dual controller: 446.5mm(W) x 550mm(D) x 3U					446.5mm(W) x 527mm(D) x 2U			446.5mm(W) x 550mm(D) x 4U / 3U 446.5mm(W) x 527mm(D) x 2U		
Weight	36.5KGS					20KGS / 22.5KGS					17KGS			36.5KGS / 20KGS / 17KGS		

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Note 1: Alnico 8 redundant controller RAID subsystem ( AL-8241F-D / AL-8161F-D / AL-8241S-D / AL-8161S-D ) does not support SATAII hard drives

Note 2: Device driver is required for AL-8241E / AL-8161E / AL-8121E ( Support OS: Windows XP / 2000 / Server 2003 / Vista, Linux, FreeBSD, Solaris 10 X86 / X86\_64, Novell Netware 6.5, SCO UnixWare 7.1.4, Mac OS X 10.x)

# Alnico iSCSI RAID Series

## Dual-Port / Quad-Port GbE or Single-Port / Dual-Port 10GbE iSCSI to SAS / SATA-II Redundant Controller Capable RAID Subsystem

### IP SAN Technology at a Glance

The maturity and popularity of iSCSI technology makes iSCSI re-define the deployment of storage technology. Today businesses are able to deploy a high performance IP SAN by leveraging their storage resources over an existing IP infrastructure without the need for investments of special-purpose cabling for Fiber Channel SAN. Other businesses that have built their FC SAN can also introduce IP SAN by simply installing bridges or gateways in order to construct a heterogeneous IP SAN to maximize their storage flexibility and availability.

### Lower TCO and Higher Flexibility

Alnico iSCSI array's cost-performance offers customers a better alternative and value that rivals FC SAN. Alnico 8241i / 8161i / 8121i is not only capable of delivering outstanding performance up to 600MBps / 120K IOps in full-duplex mode, but also an optimized and cost-effective TCO (total cost of ownership) can be achieved by rapidly deploying IP SAN environments with existing GbE switches and the plentiful IP network that could be painlessly managed and maintained without further ado. Accompanied with hardware built-in snapshot function, Alnico iSCSI RAID can easily replicate several point-in-time data that could be instantly recovered at any time without interrupting production, the built-in snapshot function at the same time cuts down the licensing cost of backup software. With the excellence of cost-performance the Alnico iSCSI array possesses, customers could maximize their storage resource utilization and their TCO will be protected for the future.

### Product Feature Highlights

- Dual-Port GbE, Quad-Port GbE, Single-Port 10GbE, or Dual-Port 10GbE iSCSI host connectivity.
- Dual redundant controller support. ( 4U 24-bay and 3U 16-bay )
- Supports link aggregation, fail-over, and load-balancing.
- Built-in snapshot, volume backup and recovery become an easy task.
- Support iSCSI jumbo frame, maximizing data transmission efficiency.
- Multiple iSCSI target nodes support.
- Support CRC checksum for Header Digest and Data Digest, re-ensuring data integrity.
- Support CHAP encryption and host access control for data protection.
- N-way mirror, an advanced disk-mirroring configuration, makes N copies of mirrored disks.
- Support RAID Level 0, 1, 0+1, N-way mirror, 3, 5, 6, 10, 50, 60, JBOD.
- On-line volume migration for zero down-time.
- Support disk spin-down ( MAID ) for idle disks to extend disk lifespan.
- Hard drive support: SAS 3.0 and 6.0 Gb/s, SATA 1.5 Gb/s, 3.0 Gb/s, and 6.0Gb/s. ( model dependent )
- SAS JBOD expansion support, maximum 80 drives. ( 1 x RAID + 4 x JBODs )
- Complete modular and hot-swappable design for Power supply, FAN module, and disk trays.
- Management UI via serial console, SSH telnet, HTTP Web UI, and secured Web. ( HTTPS )



## GbE / 10GbE iSCSI to SAS / SATA-II Raid Subsystem



- Dual/Quad GbE or Single/Dual 10GbE iSCSI host connectivity
- Robust Performance up to 600MBps /120K IOps
- Advanced RAID Controller Redundancy
- Available for 4U 24-bay, 3U 16-bay, and 2U 12-bay

Alnico iSCSI RAID Series											
	Alnico 6 iSCSI		Alnico 8 iSCSI						Alnico JBOD		
Storage Processor	Intel IOP341		Intel IOP342								
Model	AL-6120i		AL-8121i		AL-8161i		AL-8241i		AL-8161Ji		
			8161 i-S	8161 i-D	8161 iA-S	8161 iA-D	8241 i-S	8241 i-D	8241 iA-S	8241 iA-D	
iSCSI Speed	GbE		GbE		GbE		10 GbE		GbE		
Controller No.	1		1		1	2	1	2	1	2	
RAID Features	RAID Levels: 0, 1, 3, 5, 6, 0+1, 10, 30, 50, 60 & JBOD Up to 2GB memory support with ECC protection Auto drive insertion / removal detection and rebuilding 1024 logical volumes in the system ( Alnico 8 iSCSI ) 256 logical volumes in the system ( Alnico 6 iSCSI ) Disk auto spin-down support Online capacity expansion and RAID level migration simultaneously Hardware built-in snapshot , up to 16 logical volume supported with rollback capability Each logical volume support up to 32 snapshot volumes, total 512 snapshot volumes per system				Hardware iSCSI off-load engine support Support Disk Scrubbing / scheduled array verification. Global and dedicated hot spare disks Online RAID level/stripe size migration Offline array roaming				Single or dual redundant expansion I/O module support.		
iSCSI Features	iSCSI Jumbo frame support iSNS & DHCP support CHAP authentication enabled Support LACP/ Trunking Support Microsoft MPIO & MC/S				Support independent access, failover, and load-balancing Up to 32 host connections per controller Up to 16 hosts clustered per volume Multiple iSCSI target nodes support (Alnico 8 iSCSI only)						
System Type	2U Rackmount		2U Rackmount		3U Rackmount		4U Rackmount		3U Rackmount		
Host Interface	2 x iSCSI GbE ports		4 x iSCSI GbE ports		AL-8XX1i-X : 4 x iSCSI GbE ports per controller AL-8XX1iA-X : 1 or 2 (optional) x iSCSI 10 GbE port per controller				2 x up stream miniSAS (4x3Gb) ports		
Disk Interface	12 x SATA-II drives		12 x SAS/ SATA-II drives		16 x SAS / SATA-II drives		24 x SAS / SATA-II drives		16 x SAS / SATA-II drives		
Capacity Expansion	No expansion port		One expansion port to connect up to 4 JBOD units., up to 80 drives support						1 x down stream miniSAS (4x3Gb) port for expansion		
Battery Backup	Optional, supporting 72 hours battery backup time										
RAID Management	Firmware-embedded manager through front LCD control panel Field-upgradeable firmware in flash ROM Management GUI via firmware-embedded serial console, SSH telnet, HTTP Web GUI, and secured Web UI (HTTPS)										
Monitoring / Indicators	All system status can be monitored via firmware-embedded SSH telnet, HTTP & HTTPS based RAID manager All system status can be monitored via syslog and Windows messenger System status indication through LCD, LED and alarm buzzer All system events can be sent to multiple user alerts via "Plain English" e-mails Firmware-embedded SNMP agent allows the remote to monitor events through LAN with no SNMP agent required								Through in-band SES (SCSI Enclosure Service)		
Operating System	Single controller RAID subsystem : OS independent and transparent Redundant controller RAID subsystem: MPIO driver required										
Power Supply	Redundant by Dual 375W		Redundant by Dual 460W		Redundant by Three 460W		Redundant by Dual 460W				
	Power modules with PFC feature, Load sharing type and cable-less design										
Electrical	AC Voltage 100-240 VAC / AC (+- 10% Full Range), Frequency 50-60Hz										
Dimension	446mm(W) x 480mm(D) x 2U		446mm(W) x 527mm(D) x 2U		446mm(W) x 510mm(D) x 3U		446mm(W) x 510mm(D) x 4U		446mm(W) x 550mm(D) x 3U		
Weight	13.5KGS		17KGS		20KGS		36.5KGS		22.5 KGS		

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## About Alnico RAID Series

Alnico RAID series deliver high performance based on varied selections of host interfaces ranging from Ultra 320 SCSI, 8Gb / 4Gb Fibre-Channel, iSCSI, PCIe to SAS 3Gbs supporting both SATA-II and SAS hard disks coexisting inside ( model dependent). Alnico RAID subsystems are SAN ready and hot swappable/ modular concept designs with easiness in setup and use. When properly configured, Alnico RAID subsystems can provide non-stop service with high degree of fault tolerance through the advantages of mature and sophisticated RAID technologies and array management features that are well appropriate for SMB or department and corporate server needs.

### PetaStor Alnico RAID Subsystem - Product Matrix

Alnico RAID Series		HDD Numbers					Host Connection					Controller		SAS Exp.	Remark	
Model Name		6	8	12	16	24	U320 SCSI	4Gb FC	miniSAS	GbE iSCSI	PCIe x4	Single	Dual			
Alnico 6 SATA-II	AL-6160SA				0				2			0		N/A	2 x links per miniSAS port	
	AL-6160S				0		2					0		N/A		
	AL-6160FA				0			2				0		N/A		
	AL-6120SA			0					2			0		N/A	2 x links per miniSAS port	
	AL-6120S			0			2					0		N/A		
	AL-6120FA			0				2				0		N/A		
	AL-6120i			0						2		0		N/A		
	AL-6080SA		0						2			0		N/A	2 x links per miniSAS port	
	AL-6080S		0				2					0		N/A		
	AL-6080FA		0					2				0		N/A		
	AL-6060S-S	0					1					0		N/A	Single Power	
	AL-6060R-S	0					1					0		N/A	Redundant Power	
AL-6060S-F	0						2				0		N/A	Single Power		
AL-6060R-F	0						2				0		N/A	Redundant Power		
Alnico 7 SATA-II	AL-7161F				0			2				0		N/A		
	AL-7121F			0				2				0		N/A		
Alnico 8 SATA-II / SAS	AL-8241S-S					0			2			0		1		
	AL-8241S-D					0			2 x 2				0	2 x 1		
	AL-8241F-S					0			2			0		1	Dual 8Gb FC (optional)	
	AL-8241F-D					0			2 x 2				0	2 x 1	Dual 8Gb FC per controller (optional)	
	AL-8241E					0				1		0		1	To Server via PCIe	
	AL-8241i-S					0				4		0		1		
	AL-8241i-D					0				2 x 4			0	2 x 1		
	AL-8241iA-S					0				1		0		1	1 or 2 x iSCSI 10 GbE per controller	
	AL-8241iA-D					0				2 x 1			0	2 x 1	1 or 2 x iSCSI 10 GbE per controller	
	AL-8241J-S					0				1		0		2	Single expander	
	AL-8241J-D					0				1 x 2			0	2 x 2	Redundant expander	
	AL-8161S-S				0					2		0		1		
	AL-8161S-D				0					2 x 2			0	2 x 1		
	AL-8161F-S				0					2		0		1	Dual 8Gb FC (optional)	
	AL-8161F-D				0					2 x 2			0	2 x 1	Dual 8Gb FC per controller (optional)	
	AL-8161i-S				0						4		0	1		
	AL-8161i-D				0						2 x 4			0	2 x 1	
	AL-8161iA-S				0						1		0	1	1 or 2 x iSCSI 10 GbE per controller	
	AL-8161iA-D				0						2 x 1			0	2 x 1	1 or 2 x iSCSI 10 GbE per controller
	AL-8161E				0							1	0		1	To Server via PCIe
	AL-8161J-S				0					1		0		2	Single expander	
	AL-8161J-D				0					2 x 1			0	2 x 2	Redundant expander	
	AL-8161Ji-S				0					2		0		1	Single expander for iSCSI Array	
	AL-8161Ji-D				0					2 x 2			0	2 x 1	Redundant expander for iSCSI Array	
	AL-8121S			0						2		0		1		
	AL-8121F			0						2		0		1	Dual 8Gb FC (optional)	
AL-8121i			0							4	0		1			
AL-8121E			0								1	0	1	To Server via PCIe		
AL-8121J			0						1		0		2	Single expander		