

STORAGE: ARI-400 SERIES
Designed for High Performance Applications



ARI-400 2U 12 Bay



ARI-403 2U 24 Bay



ARI-409 5U 84 Bay

ARI-400 SERIES

STORAGE ARRAYS

Meet the ARI-400 series: The ARI-400 Series of storage products is designed for all purpose high performance applications and high demands of all parallel file systems including Spectrum Scale and Lustre. Foundation, distributed erasure coding technology, ensures the best data protection designed for HDD, hybrid, and all flash arrays. There are four versions in the series: 2U 12-Bay, 2U 24-Bay Hybrid, 2U 24-Bay Flash, and a 5U 84-Bay. 5.7GB/s Writes, 7GB/s Reads and also sustain 650,000 IOPs making this series ideal for any high performance computing Big Data or cloud applications.

The ARI-400 Series is ideal for any high performance applications where budget AND performance are key .

Advantages

- 7GB/s Writes, 5.7GB/s Reads
- Advanced Virtualization Features
- Proven 99.999% uptime
- Automatic drive tiering (optional)
- Declustered RAID
- Fastest Drive Rebuild Times
- Virtual Disk Pools = Faster
- SSD Flash Cache
- VolumeCopy, SnapShot & Remote Replication (optional)
- Thin Provisioning
- Max Drive Support 336 HDD, SSD, NLSAS
- SED & FIPS-2 Support
- Host Options:
 - (8) 16GB FC
 - (8) 12GB SAS
 - (8) 10 GB iSCSI
- Degraded Disk Detection
- Disk Background Scrub
- Battery Free Backup
- Automated Provisioning Tool

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Storage system leverages patent cache technology that instantly and simultaneously mirrors cache between RAID controllers, leading to significant performance improvements over traditional implementations.

AUTOMATIC DRIVE TIERING (OPTIONAL):

This technology overcomes the two major limitations found in most tiered storage systems today by (1) automating the migration of data, and (2) migrating data in real-time. The system virtualizes both the SSDs and HDDs at the sub-LUN level using 4 MB pages distributed across multiple RAID sets. Intelligent Tiering algorithms then continuously monitor I/O access patterns and automatically move Hot Data to the SSDs to maximize I/O operations and; therefore, improve performance of the aggregate application workload.

VIRTUAL DISK POOLS:

Rebuild of conventional (Linear) storage requires that the entire VDisk is rebuilt prior to returning the VDisk (and thus the Volumes on the VDisk) to a fault tolerant state. The rebuild operates at the VDisk level and has no knowledge of Volumes or customer data contained therein.

FOUNDATION (DECLUSTERED RAID):

Declustered RAID data protection with high performance I/O. Fastest rebuild times. No spares. Eliminates enclosure geometry restrictions. Allows mixed drive sizes and easy capacity expansion. Up to 128 drives per disk group. Works with SSD and HDD disk groups.

REMOTE REPLICATION:

Equipped with remote replication software, RAID Inc.'s ARI-400 series provides the easiest array-to-array remote replication solution on the market today, enabling disaster recovery protection and business continuity with support for up to 1000 snapshots per storage array. By providing centralized, array-level replication, Remote Replication offloads backup operations from critical application servers, and aids IT managers in complying with regulations such as the HIPAA and Sarbanes-Oxley acts.

THIN-PROVISIONING:

The increase in the volume and velocity of high density data can cause storage costs to exceed available budgets without some prudent provisioning. With the ARI's Thin Provisioning feature, IT managers can dedicate available storage space to volumes only when actually needed and add storage capacity transparently to any application, also as needed. Thin Provisioning enables LUN (volume) size to be configured independently of physical disk space and supports LUNs up to 128 TB.

SELF-ENCRYPTING DRIVES:

SED drives provide instant data destruction via cryptographic erase. In normal use, you do not need to maintain authentication keys (otherwise known as credentials or passwords) in order to access the drive's data. The SED will encrypt data being written to the drive and decrypt data being read from it, all without requiring an authentication key from the owner. Available in 1.2TB small form factor (2.5") or 12 TB large form factor (3.5").

VOLUME COPY AND SNAPSHOT (OPTIONAL):

With up to 1000 snapshots capability, the ARI-400 series offers necessary protection for business critical applications such as email, databases, and file sharing. With this capability, the ARI-400 series instantly takes volume snapshots, creating point-in-time backups that can be used to instantly restore your data after a system failure. In addition, VolumeCopy protects against disk failures.

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ARI-400 Series Technical Specifications: Features

	ARI-400 (2U 12 Bay)	ARI-403 (2U 24 Bay)	ARI-409 (5U 84 Bay)
HOSTS			
External Ports	8 per system	8 per system	8 per system
Fibre Channel			
Host speed	16Gb, 8Gb Fibre Channel	16Gb, 8Gb Fibre Channel	16Gb, 8Gb Fibre Channel
Interface type	SFP+	SFP+	SFP+
iSCSI			
Initiators	10Gb iSCSI	10Gb iSCSI	10Gb iSCSI
Interface type	SFP+	SFP+	SFP+
SAS			
Initiators	12Gb	12Gb	12Gb
Interface type	Mini-SAS HD	Mini-SAS HD	Mini-SAS HD
DRIVE SUPPORT			
	3.5" SAS	2.5" SFF & 3.5" SAS	Nearline SAS
DRIVE EXPANSION			
	144 DRIVES	144 DRIVES	336 DRIVES
HIGH-AVAILABILITY FEATURES			
	Redundant Hot-Swap Controllers Redundant Hot-Swap Disks, Fans, Power Dual Power Cords Hot Standby Spare Automatic Failover Multi-Path Support	Redundant Hot-Swap Controllers Redundant Hot-Swap Disks, Fans, Power Dual Power Cords Hot Standby Spare Automatic Failover Multi-Path Support	Redundant Hot-Swap Controllers Redundant Hot-Swap Disks, Fans, Power Dual Power Cords Hot Standby Spare Automatic Failover Multi-Path Support
PROTOCOLS AND STANDARDS			
IP (RFC, 894, 1092)			
RAID Levels supported	0, 1, 3, 5, 6, 10 and 50	0, 1, 3, 5, 6, 10 and 50	0, 1, 3, 5, 6, 10 and 50
SYSTEM CONFIGURATION			
System Memory	16GB per controller 32GB total	16GB per controller 32GB total	16GB per controller 32GB total
Volumes per system	1024	1024	1024
Mirrored Cache	Yes	Yes	Yes
Supercapacitor	Yes	Yes	Yes
Cache Backup			
Cache Backup to Flash	Yes – Non-volatile	Yes – Non-volatile	Yes – Non-volatile
MANAGEMENT			
Interface types	10/100/1000 Ethernet, Mini USB	10/100/1000 Ethernet, Mini USB	10/100/1000 Ethernet, Mini USB
Protocols supported	SNMP, SSL, SSH, SMTP, HTTP(S)	SNMP, SSL, SSH, SMTP, HTTP(S)	SNMP, SSL, SSH, SMTP, SMI-S Provider, HTTP(S)
Management Consoles	WEB GUI, CLI	WEB GUI, CLI	WEB GUI, CLI
Management Software	RAIDar 2.0 Remote Diagnostics Non-disruptive Updates Volume Expansion	RAIDar 2.0 Remote Diagnostics Non-disruptive Updates Volume Expansion	RAIDar 2.0 Remote Diagnostics Non-disruptive Updates Volume Expansion
DIMENSIONS			
Height	88.9mm (3.5") 2 EIA units	88.9mm (3.5") 2 EIA units	8.75in / 222.3 mm
Width	483mm (19") IEC rack compliant	483mm (19") IEC rack compliant	17.5 in / 444.5 mm
Depth	630mm (24.8")	630mm (24.8")	19.01 in / 483 mm with ear Mounts
Weight	26kg (57.2lb) with drives	24kg (53lb) with drives	38.63 in / 981 mm

ARI-100 Series Technical Specifications: Features

	ARI-400 (2U 12 Bay)	ARI-403 (2U 24 Bay)	ARI-409 (5U 84 Bay)
POWER REQUIREMENTS – AC INPUT			
Input Power Requirements	100-240V AC 60Hz/50Hz	100-240VAC 50/60Hz	200-240VAC 50/60Hz
Max Input Power		346W maximum continuous	1047W maximum continuous
Heat Dissipation	5°C to 40°C (35°C max above 2000m)	1181 BTUs/hour	3572 BTUs/hour
	100V-240V AC 60Hz/50Hz	Gold rated power supplies	Platinum rated power supplies
POWER REQUIREMENTS – DC INPUT			
Voltage	100-240V DC 60Hz/50Hz	100-240V AC	200-240V AC 50-60Hz
Max Input Power		346W maximum continuous	1047W maximum continuous
Heat Dissipation		1181 BTUs/hour	3572 BTUs/hour
TEMPERATURE AND HUMIDITY RANGES			
Operating Temperature	41°F to 104°F (5°C to 40°C)	41°F to 104°F (5°C to 40°C)	RBOD: 5°C to 35°C (41°F to 95°F)
Shipping Temperature			EBOD: 5°C to 40°C (41°F to 104°F)
Operating Humidity	20% to 80% noncondensing	20% to 80% noncondensing	-40°F to 70°F C (-40°F to +158°F) 20% to 80% noncondensing
Non-operating Humidity			5% to 100% non-precipitating
Sound Power	LWAd=6.5 Bels (re 1pW) @ 23 °C ambient	LWAd=6.5 Bels (re 1pW) @ 23 °C ambient	LWAd=6.5 Bels (re 1pW) @ 23 °C
Sound Pressure			
SHOCK AND VIBRATION			
Shock, Operational	5G's for 10 ms, half sine	5G's for 10 ms, half sine	5.0G's for 10 ms, half sine pulses Y-axis
Shock, Non-operational	30G's, 10 ms, half sine	30G's, 10 ms, half sine	30.0G's, 10 ms, half sine pulses (Z-axis); 20.0Gs, 10 ms, half sine pulses (X- and Y-axes)
Vibration, Operational	Random 0.21g RMS	Random 0.21g RMS	0.21 Grms 5Hz to 500Hz random
Vibration, Non-Operational	Random 1.04g RMS	Random 1.04g RMS	1.04 Grms 2Hz to 200Hz random
REGULATORY			
Safety	UL 60950-1 (USA & Canada) EN 60950-1 (European Union) IEC 60950-1 (International)	UL 60950-1 (USA & Canada) EN 60950-1 (European Union) IEC 60950-1 (International)	UL 60950-1 (USA) CAN/CSA-C22.2 No. 60950-1-07 (Canada) EN 60950-1 (European Union) IEC 60950-1 (International) CCC (China PRC – CCC Power Supplies) BIS (India) -BIS PowerSupplies)
Electromagnetic Compatibility			
Emissions	CFR 47 Part 15 Subpart B Class A; CES/NMB-003 Class A (U.S.A.) EN55022 Class A, EN55-24, EN610-3-2, EN61000-3-3 (Europe)	CFR 47 Part 15, Subpart B Class A; CES/NMB-003 Class A (U.S.A.) EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3 (Europe)	FCC CFR 47 Part 15 Subpart B Class A (U.S.A.)ICES/NMB-003 Class A (Canada) EN 55022/EN 55022/EN55032-2012 Class A (EU) AS/NZS CISPR 22/CISPR 32 Class A (Australia/New Zealand) VCCI Class A (Japan) KN 22/KN 32 Class A (S. Korea) CNS 13438 Class A (Taiwan) EN61000-3-2 (EU) EN 61000-3-3 (EU) EN 55024 (EU) KN 24/KN 35 (S. Korea)
Safety			
Harmonics			
Flicker			
Immunity			
RoHS and WEEE			RoHS Directive (2011/65/EU), WEEE Directive (2012/19/EU)
Country Approvals			
	U.S., EU, Australia/New Zealand, Japan, China (PRC), Korea, Taiwan	U.S., EU, Australia/New Zealand, Japan, China (PRC), Korea, Taiwan	Australia/New Zealand, Canada, China, European Union, Japan, S. Korea, Taiwan, United States