Vess Family Overview

VessRAID FC RAID Storage Systems

Fiber Channel's dominance for applications requiring high substantial bandwidth in the market still remains high as it provides improved application response times, increased throughput and of course data uptime reliability. For businesses that are always committed to use Fiber Channel storage network, VessRAID allows them to upgrade their existing data storage infrastructures at lower costs. Best of all, the product is a unified networked storage design that supports file and block level data transfer via IP and Fiber Channel ports. The multiprotocol-support VessRAID is a unified platform making network-attached storage (NAS) and storage-area network (FC and iSCSI) data transport possible in one system.

VessRAID SAS RAID Storage Systems

Serial Attached SCSI interfaces (SAS) are the technological follower of the proven parallel SCSI interface and is today's standard for high performance connectivity between host servers and storage systems. VessRAID storage systems offers dual (two) host interfaces each with up to 1.2 GB/s data transfer rate.

VessRAID iSCSI RAID Storage Systems

iSCSI as host interface for storage systems become more and more popular. Four iSCSI channels makes it possible to transfer block data between servers and VessRAID storage systems via four Ethernet LAN lines simultaneously. This bandwidth makes VessRAID ideal for using in Storage Area Networks (SANs) as well as centralized storage system for several servers or other iSCSI targets, like cameras. VessRAID iSCSI systems supporting also Network Attached Storage (NAS) functionality. Via four 1 Gb/s Ethernet interfaces the storage systems will be bounded into an existing network and offer a huge file system to Windows, Linux and Apple users.

VessJBOD Storage - Expansion Enclosure Units

Up to six VessJBOD can be connected as extension to ONE VessRAID or a RAID controller.

System Features and Highlights

RAID Storage System

- Fiber Channel Storage with dual 8Gb/s FC interfaces and dual 1Gb/s iSCSI interfaces to support multiprotocol feature
- Direct Attached Storage with dual proven and powerful Serial Attached SCSI (SAS) interfaces
- Network Attached Storage with four 1Gb/s Ethernet interfaces for network-based applications
- iSCSI IP SAN storage via four 1Gb/s Ethernet interfaces for server and Storage Area Networks (SAN)
- Extents existing IT environments and offers huge and cost effective storage, like online backup or data archive
- 2U / 3U rack versions

Hard Disk Drives (HDDs)

- SAS and/or SATA hard disk drives newest generation can be mounted into VessRAID or VessJBOD systems.
- Supports NCQ/TCQ
- Up to 112 hard disk drives connected to one VessRAID storage system unit extended by six VessJBOD expansion units

VessRAID Features

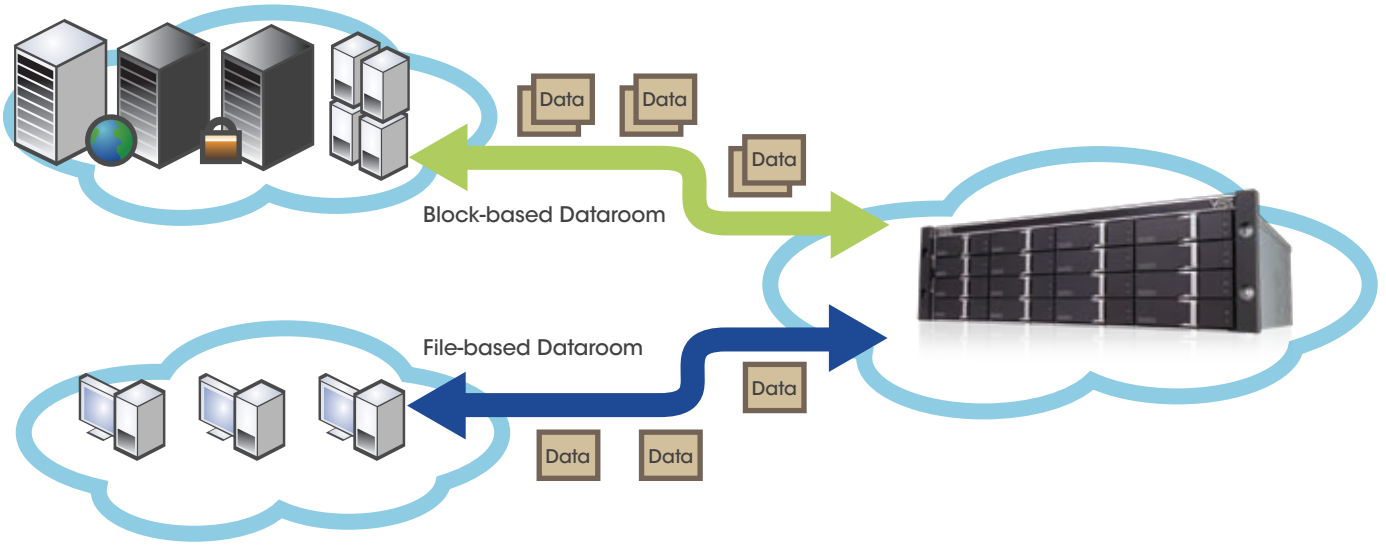
- Advance Data Protection (Predictive Data Migration)
- Proven PerfectRAID engine
- HDD Hot-Swap and Hot-Spare functionality
- RAID level 0, 1, 1E, 3, 5, 6, 10(0+1), 30, 50, 60
- Online Capacity Expansion
- RAID Level Migration
- LUN Masking/Mapping
- Embedded Browser Management
- MAID2.0 Intelligent Power Management
- High Efficient 80PLUS Power Supply
- Service Friendly Design OPAS
- Full Image Volume Copy
- Power Consumption Module
- Battery Backup Unit for Cache-Buffering, rails, data cables and LCD panel as option available.

Experence Vess New Upgrades

iSCSI + NAS, Exploit Storage with more Possibilities

VessRAID 1000i series provides iSCSI and NAS combined features which enables users to do file and block-based data transaction on the network. iSCSI allows SCSI protocol to operate over TCP/IP and it's getting popular in various IP-based applications as you can leverage existing network infrastructure to achieve SAN connectivity. NAS devices are easy to deploy and ideal for file sharing over the network. Files on NAS are transparent to users and applications, and its access convenience greatly reduces users' learning curve on how to download and upload data to the storage. It largely increases storage flexibility and usability across a multitude of network applications.

- iSCSI transport protocol
- SMB/CIFS (Apple, Microsoft), NFS (Linux/Unix), FTP file sharing protocols



Experence Vess New Upgrades

Performance Monitoring

Available in 3 statistical charts, the VessRAID provides performance monitoring function in WebPAM PROe for users to do real-time read and write examination on system's bandwidth, IOPs, and average throughput index.

- Logical Drive Statistics
- Physical Drive Statistics
- Port Statistics (exclude NAS traffic)

File Data Services

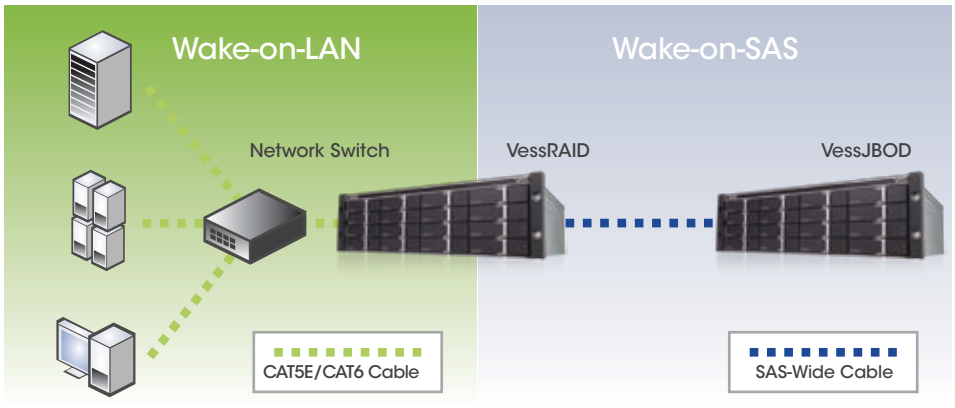
Data backup services enable customer to perform box-to-box or box-to-host replication over the network through built-in WebPAM PROe, and exercise client-to-host volume based data sync and backup using SmartNAVI utility.

- Backup / Restore Data
- Scheduled Operation
- User Management
- Share Folder Administration

Wake-on-SAS

A common knowledge of using Wake-on-LAN is that it allows users to power on the storage array at anytime on the Internet-based network. The VessRAID can work with any Freeware/Shareware WOL software and the system is also able to wake up the secondary VessJBOD units using generic SAS cable connection and still perform user scheduled data backup under the same node.

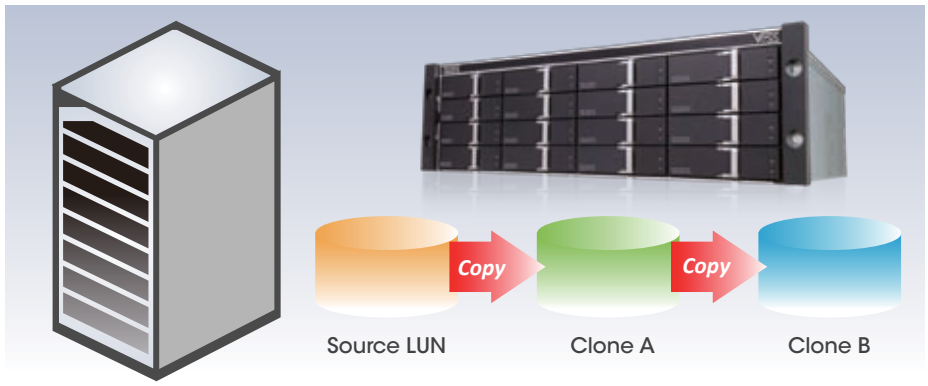
- Scheduled Wakeup/Shutdown
- System Standby Power Consumption is less than 3W



Experence Vess New Upgrades

Volume Copy (LUN Clone)

VessRAID features full image volume clone that allows user to perform concurrent mirroring up to 8 copies at a time. All clones require the same space as the source volume and have to stay within the same storage node. For businesses who want to manage critical LUNs backup in an automated fashion, a scheduled copy through the embedded user interface WebPAM PROe is where you get started.



- Full image copy, use WebPAM PROe to complete setup
- Require the same space as the source LUN and clones need to stay within the same storage node
- Up to 8 copies at a time per source LUN
- Scheduled operation

New User Level Management, OPAS

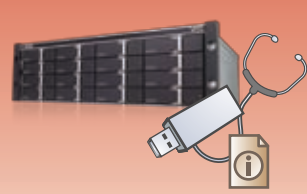
OPAS (One Plug Auto Service)

A typical maintenance workflow is to wire personal laptop or desktop through a serial port with the host system then type in serial computer commands in order to get detailed system information. Sometimes the diagnostic process isn't turning the trouble around but bringing down the system due to a lack of user training, operational knowledge, and instant access to the system because it's remote located. A common practice to resolve this issue is to either email or phone interview with the customer, but somehow it takes time to get it right and the back and forth intercommunication really exhausts, resulting in serious delays.

OPAS is designed to reduce maintenance complexity and streamline an easier tech support workflow as much as possible. It provides a new level of user convenience unique to PROMISE while doing storage management and maintenance. With a simple USB stick plugging-in, it performs system information retrieval, firmware auto upgrading, script for quick installation and password resetting.

System data and configuration can be transferred to a USB 2.0 memory stick connected to the integrated USB 2.0 port. The information can be forwarded to engineer for technical service or support.

Systeminfo Retrival



Comprehensive system report that contains detailed information such as NVRAM events and runtime events that have occurred.

Quick Installation

Firmware upgrade is operator-intensive, script for quick installation in initial setup,dramatically reduces workload required.

Firmware auto upgrade provides a new user level practice while doing storage system update in the field.

Firmware Auto Upgrade

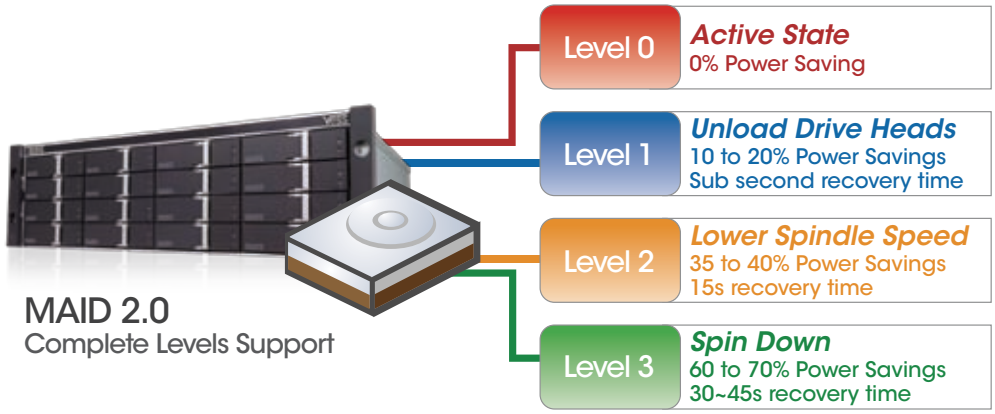
It's always challenging when you deal with numerous login usernames and passwords. It gives flexibility to resolve similar issues.

Password Reset

GreenRAID Energy Savings

MAID 2.0 Fully Compliant

The VessRAID supports MAID 2.0, a complete level of intelligent power management means on the hard disk drives, to slow spindle speed or even power down inactive HDDs when the disk drives have not been accessed or are not scheduled to be accessed for some time, greatly optimizing energy usage of storage arrays.

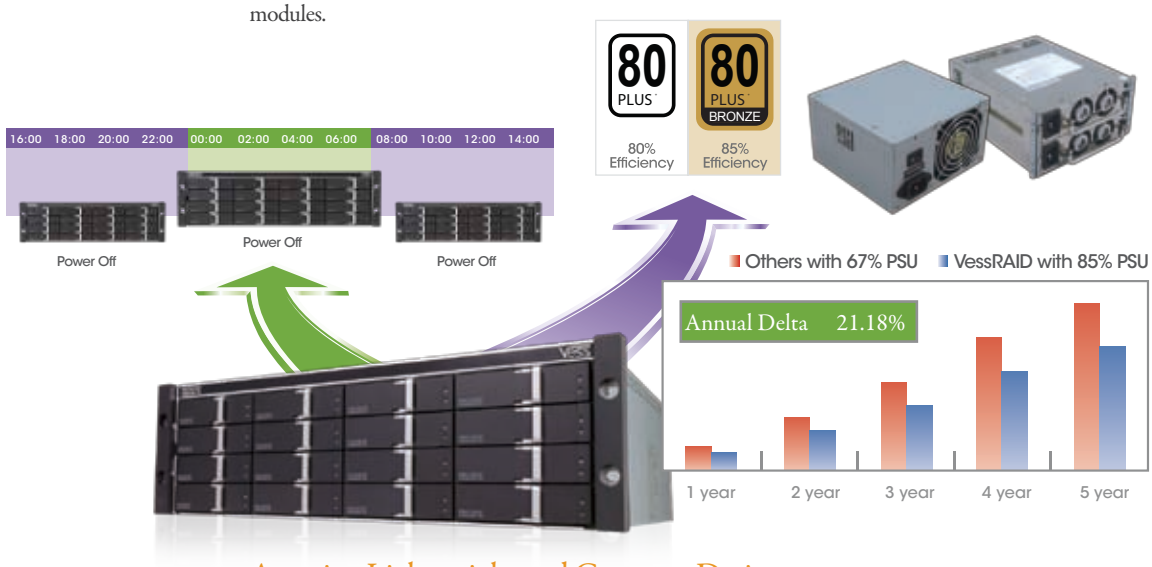


Green Power Scheduler

The new WebPAM PROe contains a new time and date scheduler. This tool starts up the system on defined time to run user-scheduled tasks then shuts down into a stand by mode until the next scheduled operation. Using a backup window of e.g. 6 hours the power consumption can be reduced by about 75% compare to systems not using our Green Power Scheduler.

80PLUS Certified PSUs

The entire VessRAID and VessJBOD storage systems are using high efficient power supply units proven by the 80PLUS standard that can greatly improve system's power effectiveness and reduce heat generation. The used power supplies are optimized with 450 watts/350 watts compared to typical used 500 watts/400 watts, providing annual cost savings difference of up to 21% over competitive solutions using regular power modules.



Amazing Lightweight and Compact Design

Innovative enclosure design makes the Vess series easy to lift and install into rackmount housings, especially for SMBs who are short of space. As IT data centers face pressing challenges with the obvious growth of digital information, demanding storage requirements come with more cooling and floor space. Making an efficient layout deployment is not just reducing square footage in an electrical or computer room, but also saving money from your IT budget.

18% Space Saved

	Lightweight and Compact Design	
	VessRAID 3U	Other 3U Products
D	461.0 (mm)	560 (mm)
W	444.2 (mm)	444.2 (mm)
H	131.0 (mm)	131.0 (mm)

Product Family	VessRAID FC	VessRAID SAS		VessRAID iSCSI			VessJBOD Expansion	
	1840f+	1830s+	1840s+	1720i+	1830i+	1840i+	1830+	1840+
Product Models								
System and Controller Features								
Form Factor	3U rackmount	2U rackmount	3U rackmount	2U rackmount		3U rackmount	2U rackmount	3U rackmount
Number of Drives	16	12	16	8	12	16	12	16
Controller/CPU	Single (Intel® IOP348 1.2GHz)	Single (Intel® IOP348 800MHz)		Single (Intel® IOP348 1.2GHz)			Single	
Drive Interface	SAS/SATA 6Gb/s or 3Gb/s	SAS/SATA 6Gb/s or 3Gb/s		SAS/SATA 6Gb/s or 3Gb/s			SAS/SATA 6Gb/s or 3Gb/s	
Max. Drives Supported	112 (thru exp.)	108 (thru exp.)	112 (thru exp.)	8	108 (thru exp.)	112 (thru exp.)	12	16
Host Interface	2x 8Gb FC and 2x 1Gb iSCSI	2x 3Gb SAS (X4)		4x 1Gb iSCSI			2x 3Gb SAS (x4) IN/OUT	
Expansion Links	mini-SAS (SFF-8088)	mini-SAS (SFF-8088)		mini-SAS (SFF-8088)			mini-SAS (SFF-8088)	
Operation Features								
Supported OS	Windows, Linux, FreeBSD, CentOS, VMware, Xen	Windows, Linux, FreeBSD, CentOS, VMware, Xen		Windows, Linux, FreeBSD, CentOS, VMware, Xen			–	
RAID Levels	0, 1, 1E, 3, 5, 6, 10(0+1), 30, 50, 60	0, 1, 1E, 3, 5, 6, 10(0+1), 30, 50, 60		0, 1, 1E, 3, 5, 6, 10(0+1), 30, 50, 60			–	
File Sharing Protocols	SMB/CIFS, NFS, FTP	–		SMB/CIFS, NFS, FTP			–	
File Data Services	O	–		O			–	
Online Capacity Expansion	O	O		O			–	
RAID Level Migration	O	O		O			–	
Predictive Data Migration (PDM)	O	O		O			–	
Volume Copy (LUN Clone)	O	O		O			–	
Disk Roaming	O	O		O			O	
Management Features								
UPS Monitor	O	O		O			–	
OPAS Service	O	O		O			–	
Performance Monitoring	O	O		O			–	
Disk Quota Management	O	–		O			–	
Power Redundancy	O	O		–	O		O	
Wake-on-LAN	O	O		O			–	
Wake-on-SAS	O	O		–	O		O	
System Information								
Data Cache	2GB	2GB		2GB			–	
LCD Module	Optional	Optional		Optional			–	
Battery Backup Unit	Optional	Optional		Optional			–	
Weight	14/16kg (30.86/35.27lbs)	10.8/12.6kg (23.81/27.78lbs)	14/16kg (30.86/35.27lbs)	12.6/18.2kg (27.78/40.12lbs)	12.8/21.2kg (28.21/46.73lbs)	15/26.2kg (33/57.76lbs)	12.6kg (27.78lbs)	15.8kg (34.83lbs)
Dimension (H x W x D)	131 x 446 x 461 mm (5.1 x 17.6 x 18.1 in)	88 x 446 x 461 mm (3.5 x 17.6 x 18.1 in)	131 x 446 x 461 mm (5.1 x 17.6 x 18.1 in)	88 x 446 x 461 mm (3.5 x 17.6 x 18.1 in)	88 x 446 x 461 mm (3.5 x 17.6 x 18.1 in)	131 x 446 x 461 mm (5.1 x 17.6 x 18.1 in)	88 x 446 x 461 mm (3.5 x 17.6 x 18.1 in)	131 x 446 x 461 mm (5.1 x 17.6 x 18.1 in)
Warranty	3 years	3 years		3 years			3 years	

** Initiator still runs at 3Gb/s mode.*
**System base configuration varies depending on regional market needs, please contact local sales representatives for details.*
** Specifications may change without notice.*

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