VessRAID™ Series
Fibre, SAS and iSCSI Storage Subsystems
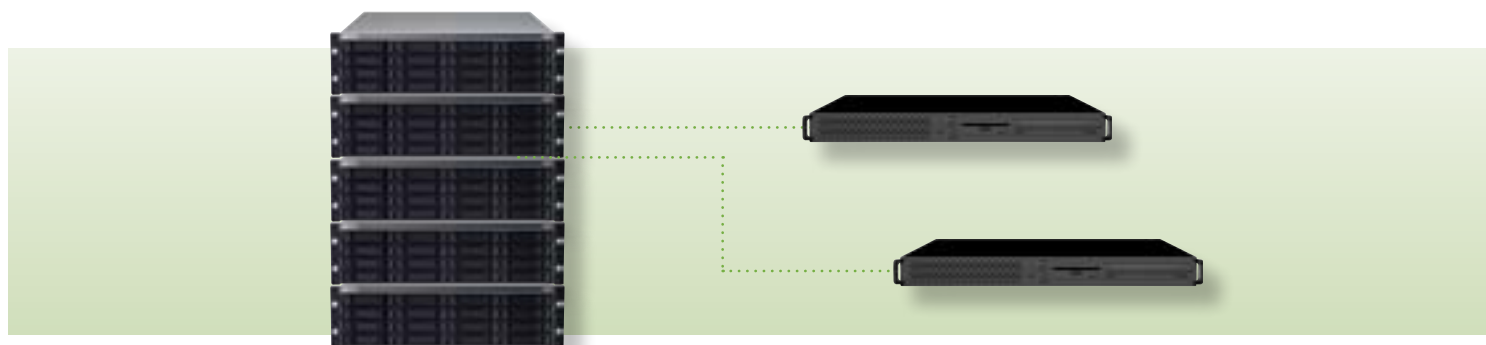
GreenRAID™ Energy-smart SMB and Entry-Level Class Storage

PROMISE®
TECHNOLOGY, INC.

PROMISE redefines SMB and Entry-Level storage with the VessRAID Series based on the PROMISE Unified RAID core, management software and GreenRAID™ energy saving features. VessRAID provides new levels of price/performance and expandabilty.

Reliable External RAID Storage

In today's fast-paced business environment, users generate large amounts of unstructured data creating a demand for more storage. Companies that are storing digital content such as video, music and images, and are constrained by industry regulations regarding document retention, are changing their storage requirements. The VessRAID line of storage systems provide a cost-effective way for businesses to easily meet storage needs, allowing users to keep data online longer while providing fast access and reliable data protection. VessRAID family of products offers users state-of-the-art storage technology with the proven reliability you expect from PROMISE Technology.

Capacity and Performance to Meet Multiple Storage Requirements

Cloud Computing	
Matching IT resources to real-life business needs is an ongoing issue for IT managers and having the ability to create inexpensive SAS, iSCSI targets to quickly provision for additional storage.	The VessRAID Series of storage subsystems are designed to make webscale computing easier for developers by offering scalable, energy-efficient storage solutions for network computing. With the PROMISE 4th generation Unified RAID Core and management software, scaling up to 80 bays on-the-fly is easy and affordable.

Exponential Data Growth of Unstructured Data	
Managing day-to-day computing needs as well as archives of documents and emails, digital libraries, image and audio data banks to meet user requirements and industry regulations may easily create terabytes of storage demand.	VessRAID is a perfect fit for unstructured data storage like general-purpose file serving, offering cost-effective expandable storage for SMB and Entry-Level applications and access profiles.

Backup and Restore - Online - D2D	
Shrinking backup windows require rapid storage and restoration of files and operating systems. To maximize operation, customers are switching to disk-to-disk backups to support restoration Service Level Agreements.	VessRAID features massive capacity with flexible direct attached storage (SAS) or IP-SAN (iSCSI) connectivity. Power management enables time and energy-efficient backups.

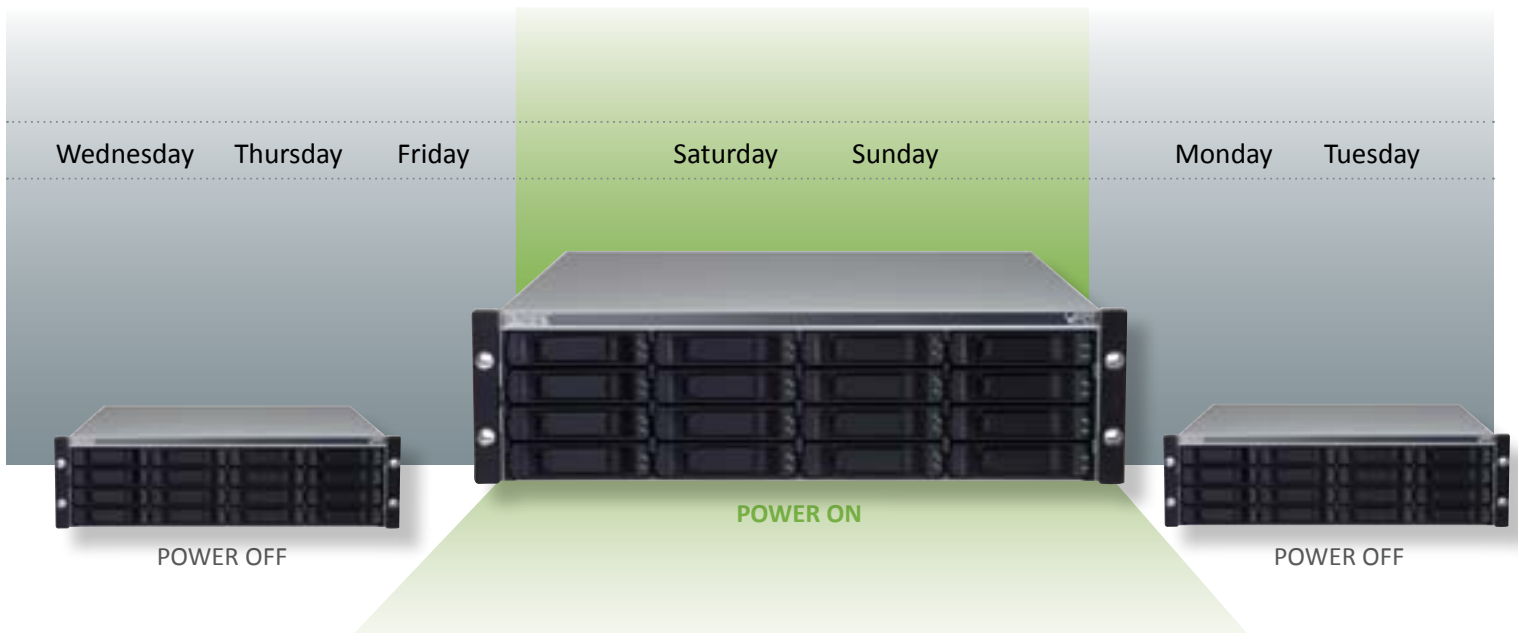| Video Surveillance	
Moving from analog to digital, the 24/7 demands for video surveillance are creating incredible demand for storage.	VessRAID with its low-cost expansion capabilities and SAS and IP-camera ready iSCSI host interface is the product of choice for this application.

Archive	
Graphic and video files may consume large amounts of disk space. When jobs are complete, they are often written and stored on removable media.	With scalable capacity, VessRAID allows you to save money and prevent data loss due to unstable removable media. Online files are also faster to access.

GreenRAID™ Energy Saving Features

VessRAID's power-scheduling feature allows the system to power-on from standby mode to run user-scheduled tasks such as backups and archives. Then as the task completes, the system goes into standby until the next scheduled task. Additionally, the 80PLUS-certified power supplies ensure the efficient use of power and minimize heat generation. VessRAID green features provide annual cost savings of up to 70% over competitive solutions.

| Wednesday Thursday Friday | Saturday Sunday | Monday Tuesday |

POWER OFF   **POWER ON**   **POWER OFF**

Expandable Modularity

The 2U/12 bay and 3U/16 bay VessRAID models are fully expandable to meet your needs today and in the future. Up to four additional expansion chassis may be added to the RAID system. This provides expansion for up to 60 drives using the 2U chassis or 80 drives using the 3U chassis.

Ease of Management

One-Plug-Auto-Service (OPAS) reduces the time spent on conventional administration tasks. By simply plugging in a supported USB flash drive into VessRAID's USB port, users are able to automatically download system service reports, as well as perform advanced functions like firmware upgrades and configuration script installation.

HIGHLIGHTS

- 8/12 hot-swappable SAS/SATA HDD drive bays in a 2U chassis
- 16 hot-swappable SAS/SATA HDD drive bays in a 3U chassis
- Host connect includes FC + iSCSI, SAS or iSCSI
- 512MB cache upgradable to 2GB with optional battery backup units

- Dual hot-swap 80PLUS power supplies on 12 and 16 bay models
- Expansion potential up to 80 bays
- UPS support on USB port
- Ethernet management – WebPAM PROe
- Power-Scheduler Operation and Wake-on-LAN support

Complementing VTrak E-Class Storage

VessRAID™ complements the use of VTrak E-Class storage by providing cost effective storage to meet backup requirements necessary for business continuity.

PROMISE VessRAID - *Factory integrated storage to meet rapidly growing capacity requirments*

VessRAID VessJBOD	PROMISE VessRAID offers a simple way to add high capacity, fault tolerant storage to any environment, even within tight budgets. Each model begins with a field replace-able controller and hot-swap drive modules. Base configurations have 16TBs of fully tested drives that can be easily expanded to address the needs of today's rapidly growing IT environments using low cost JBOD expansion.

Interface Options

FC + iSCSI	Host Channel: Two 8Gbps Fibre Channel ports and Two 1Gbps Ethernet ports that support iSCSI & NAS protocols Processor: Single Intel® IOP348 1.2GHz Data Cache: 1GB factory installed ECC memory upgradeable to 2GB, Optional Battery Backup Unit Command Queue Depth: 1024
iSCSI	Host Channel: Quad Ports full-duplex 1Gb iSCSI Processor: Single Intel® IOP348 800MHz Data Cache: 512MB factory installed ECC memory upgradeable to 2GB, Optional Battery Backup Unit Command Queue Depth: 1024
SAS	Host Channel: Two 4-lane mini-SAS ports (SFF-8088) Processor: Single Intel® IOP348 800MHz Data Cache: 512MB factory installed ECC memory upgradeable to 2GB, Optional Battery Backup Unit Command Queue Depth: 512
3G SAS JBOD	Host Channel: (2) 4-lane 3gb/s mini SAS ports (SFF-8088); one IN and one OUT port for cascading JBODs

Models	2U/8-bay with Single PSU	2U/12-bay with Redundant PSU	3U/16-bay with Redundant PSU
FC + iSCSI Models	NA	NA	VR1840FNAC2C **MSRP: $7499**
iSCSI Models	VR1720INAC **MSRP: $ 5899**	VR1830INAC2C **MSRP: $6599**	VR1840INAC2C **MSRP: $6899**
SAS Models	NA	VR1830SNAC1C **MSRP: $6599**	VR1840SNAC1C **MSRP: $6899**
JBOD Expansion	NA	VJ1830NAC1C **MSRP: $5599**	VJ1840NAC1C **MSRP: $5999**
Redundant PSU	Single 350W 90-264V auto-ranging w/PFC 80PLUS Bronze Certified 6A (100V); 3A (240V)	Dual 350W 90-264V full-ranging w/PFC 80PLUS Power Efficiency Hot swappable and redundant Current (Maximum) 6A (100V); 3A (240V)	Dual 450W 90-264V full-ranging w/PFC 80PLUS Power Efficiency Hot swappable and redundant Current (Maximum) 8A (100V); 4A (240V)
Dimensions (HxWxD)	88.4 x 446.2 x 460.5 mm 3.5 x 17.6 x 18.1 in	88.4 x 446.2 x 460.5 mm 3.5 x 17.6 x 18.1 in	131 x 446.2 x 460.5 mm 5.1 x 17.6 x 18.1 in
Weight	10.8 kg (23.81 lbs) w/o drives 18.6 kg (41 lbs) w/ drives	12.6 kg (27.78 lbs) w/o drives 20.4 kg (44.97 lbs) w/ drives	16 kg (35.27 lbs) w/o drives 25.6 kg (56.44 lbs) w/ drives
AC Input	90 ~ 264 VAC, 47 ~ 63Hz		
FAN	N+1 design		
Temperature	5° ~ 40°C2 (-40° ~ 60°C non operational)		
Relative Humidity	10% to 80% non-condensing		
Safety/EMI	CE, FCC Class B, VCCI, BSMI, CB, KCC, C-Tick, UL/cUL, TUV		
What's in the VessRAID box	• VESSRAID 2Uw/8x 2TB SATA hard drives installed and tested • RJ11-to-DB9 Serial Data Cable, Power Cord • Quick Start Guide, Set of Screws, CD (Product Manual, SNMP files, QSG)	• VESSRAID 2U/3U Unit w/ 8 2TB SATA hard drives installed and tested • Rack Mounting Rail, 1x miniSAS to miniSAS Host Cable (SAS RAID & JBOD models) • RJ1 1-to-DB9 Serial Data Cable, 2x Power Cords • Quick Start Guide, Set of Screws, CD (Product Manual, SNMP files, QSG)	

VessRAID Features

Drive Support	SAS(3Gb/s), SATAII(3Gb/s), NCQ, TCQ	
PROMISE Expansion Port	3U/16 and 2U/12 features 1x SAS-wide (x4) port for VessJBOD series	
RAID Levels	RAID 0, 1, 1E, 5, 6, 10, 50, 60	
Hot spares	Global or dedicated with revertible option	
Max LUNs per subsystem	256	
Max LUNs per array	32	
Variable Block and Sector Size	64KB ~ 1MB stripe block sizes 512B, 1KB, 2KB, 4KB sector size	
Disk Data Formats	Supports Disk Data Format (DDF) for drive roaming between Vtrak and VessRAID series systems.	
Background Activities	• Media Patrol • Background Synchronizing; Initialization • Rebuild; Redundancy Check	• SMART Condition Pooling, OCE (Online Capacity Expansion)/ RLM (RAID Level Migration) • Priority Control; Throttle Rate Control and watermarking per BGA (background activities) in Disk and NVRAM
RAID Robustness	• PDM (Predictive Data Migration) • PerfectRAID™ advanced error handling	• Array Error Recovery • Read/ Write Check Table, Write Hole Table, Bad Sector Re-map Table, NVRAM event logging

Warranty & Support

Warranty	3 years limited warranty
Hardware & Software Support	Latest version of the PROMISE approved vendor list can be found at http://www.PROMISE.com
Supported OS	Windows 2000, XP, 2003, Vista, 2008[1], RedHat Linux, SuSE Linux, FreeBSD 7.0 (VMware vSphere 4.0 support for iSCSI models)
Hardware Options	LCD Panel, Front Bezel, Battery Backup Unit

For more information on the complete portfolio of PROMISE storage products, go to: www.PROMISE.com