

# ***VessRAID***

**1000f, 1000i, 1000s Series**

## ***Product Guide***

*For Video Surveillance Applications*



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This document is created as a reference guide for Promise Technology's partners specialized in video surveillance areas. The document is subject to change without notice.

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## **1 General Information**

### ***1.1 Surveillance Market Trend***

#### ***1.1.1 Executive Summary***

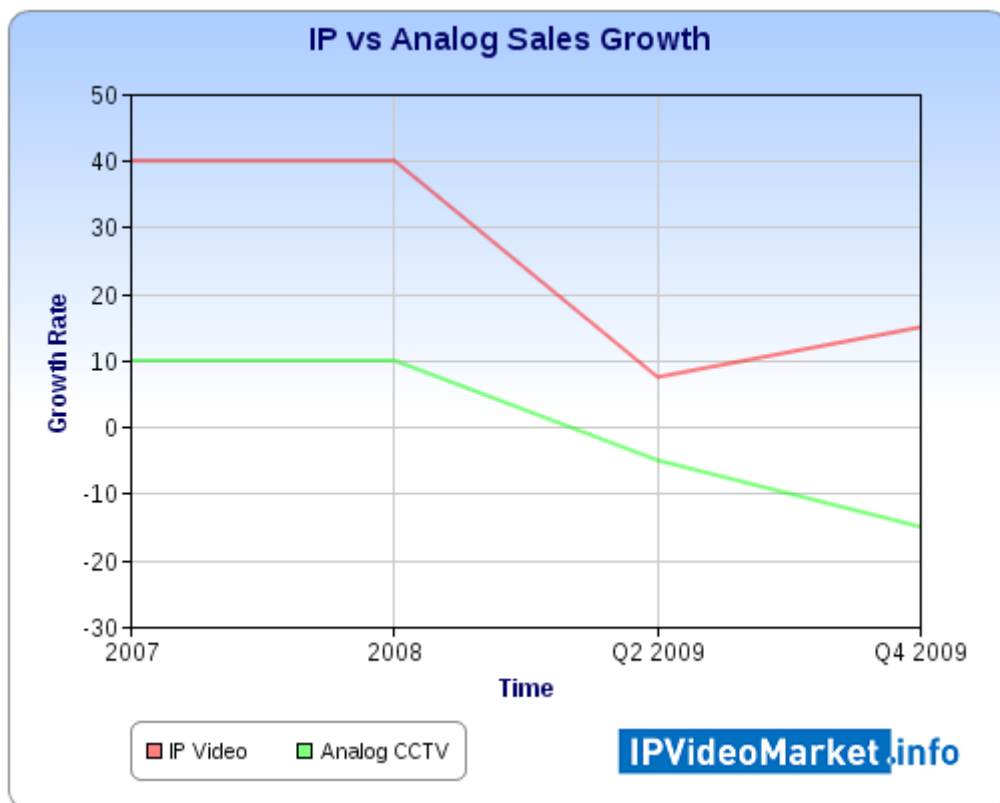
It's all about your security. Whether property, assets, or even people's lives, we at PROMISE understand that you sell security – and in video surveillance security means 100% reliability. This can only be achieved by finding the right solution for the right customer. So, how do you ensure that you deliver the best packages? It's a big question when dealing with a bewildering array of surveillance packages that include host recording systems like DVR or NVR, cameras, storage arrays and operating software with technical support. There are so many choices that finding an answer can seem impossible. What kind of camera is good for home use? And how many cameras do we need in the office? Is H.264 or MPEG4 compressed video evidence recognized by law? And which protocol best fits video recording? SCSI? Gigabit Ethernet? eSATA? Or USB?

#### ***1.1.2 Ready to Go IP?***

It's a hot topic right now. IP based cameras are blushing under the attention. Currently, on seminars, forums, webinars and blogs, the question rings out on whether it's worth the initial investment for businesses to go IP. But they're the future and they know it. Frost & Sullivan, a leading business research and consulting firm, estimated the IP surveillance market at \$1.4 billion in 2008 and \$6.5 billion in 2012 with a compound annual growth rate of 47 percent for 2005-12, and this trend shows no signs of abating.

IPVideoMarkt.info also indicated an important market shift for the video surveillance in March, 2010 while in the last 6 months IP video sales have rebounded and CCTV analog sales continues to decline. This is in fact an important market indicator that more and more field distributors, integrators and installers are willing to buy, sell, and plan IP solutions in video surveillance.

Below is the visual from IPVideoMarket.info after examining recent financial statements worldwide.



As in all technological walks of life, digital is rapidly taking over analogue in the surveillance industry. IP-based cameras are gaining popularity. H.264/AVC has already become the mainstream data compression technology. And network infrastructure is set to be king. Choosing an IP based solution means finding a better way in the beginning.

### **1.1.3 Megapixel and HD Camera**

A number of manufacturers have begun to promote megapixel cameras business as it represents more profit and competitive advantage compared to analog. While analog cameras have no more than 400,000 pixels, all megapixel cameras (including HD) have one million or more pixels. HD is a type of megapixel camera. All HD cameras are megapixel but not all megapixel cameras are HD.

There are some key differentiators to identify both, but the easiest one is the video format each can present. HD video format is 1920x1080 or 1280x720 while megapixel video format can be numerous. There is no clear cut telling which one is better because as in a variety of deployment environments everything depends. It depends on the application where some really need higher frame rates but some do not. One thing is clear for sure is that they're both flashing under the spotlight in verticals.

## ***1.2 Surveillance in a Total Solution***

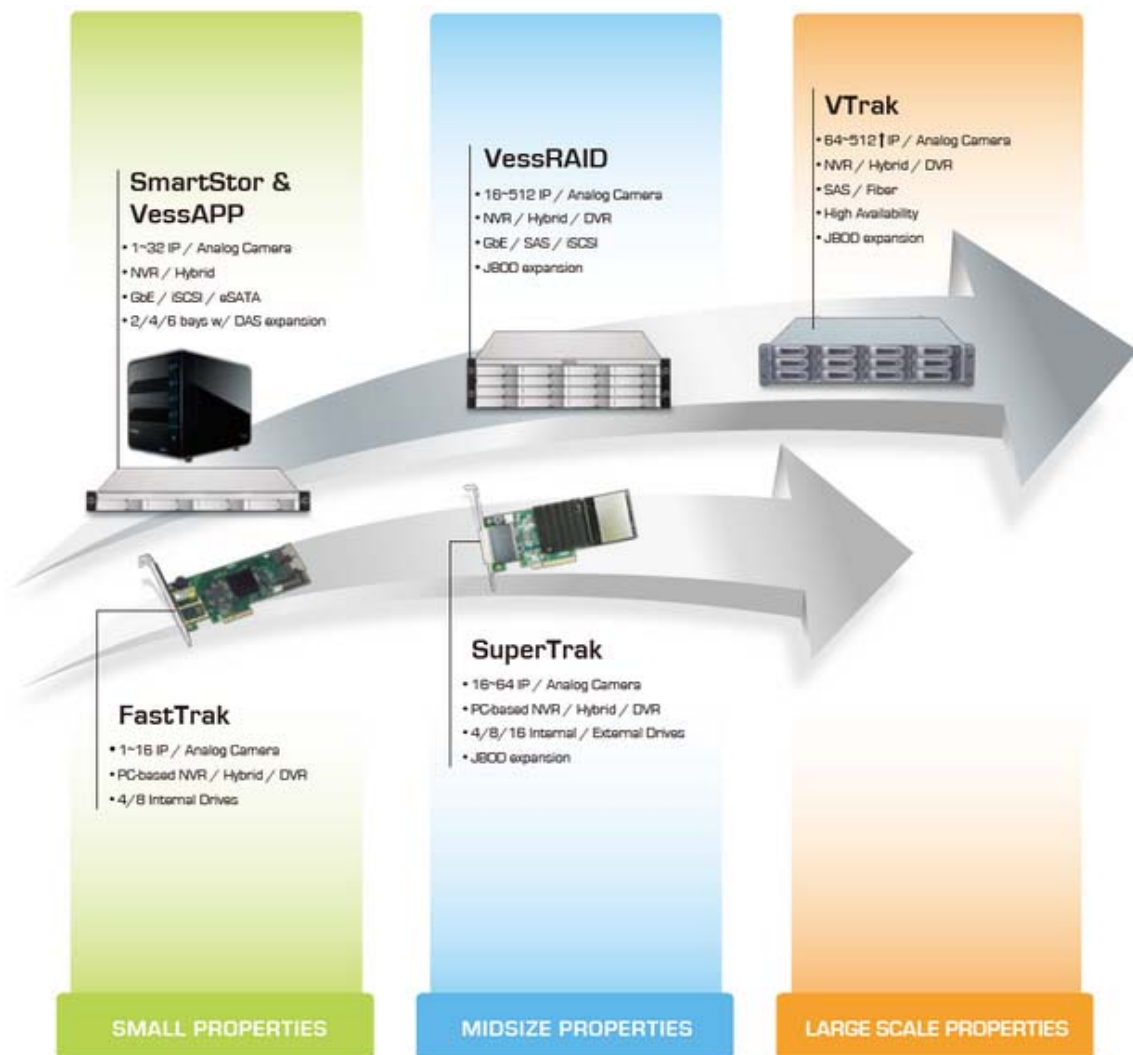
### ***1.2.1 Your Reliable Storage for Surveillance***

Video surveillance's goal is to help people safeguard their properties, assets, and life safety. The common challenge in all video surveillance deployments, either large or small, is not only to decide proper interconnected components required for recording but also find appropriate data storages where all surveillance video can be kept in a secured database for later retrieval and review. Once an incident strikes, a well-preserved video archive can provide enough analytical visibility to the viewers to profile and detail all possible security threats that had occurred in widespread surveillance check points. It is therefore important to realize that storage is not simply a space provided to store video stream, but a safe data center in which reliability and capability greatly matters when it comes to surveillance video protection.

### ***1.2.2 Comprehensive Product Coverage for Video Surveillance***

PROMISE Technology has designed and manufactured sophisticated RAID solutions for more than 21 years. Catering to small, midsize, and large scale video surveillance requirements, our profound knowledge and dedication means that we can produce storage requirements for all levels of need. For entry level users we can provide comprehensive storage solutions, including NAS and DAS appliances for 1 to 16 camera installation bases. For SMBs, we offer host-based RAID controllers for internal and external disk drive connections from 16 to 64 cameras. And for large scale enterprises we can deploy high available standalone RAID subsystems for more than thousands of networked cameras. As such surveillance integrators and installers who want to have a single umbrella storage solution able to streamline a control of video data management, PROMISE can promise to meet all your needs.

## 1.2.3 Video Surveillance Storage Product Lineup





## 2 About PROMISE

### 2.1 Quick Facts about PROMISE

#### 2.1.1 Introduction

- Founded in San Jose, CA, USA in 1988
- Established Taiwan office in 1991, and listed in Taiwan Stock Exchange in 2002 (3057.TW)
- 22 Years experience in RAID storage field
- Shipped 16 million PROMISE RAID core worldwide (including RAID chip, RAID Controller cards, Subsystem and Software license)
- Worldwide offices: USA, Taiwan, China, Japan, Netherlands, Germany, Italy and UK
- Over 450 employees worldwide, over 40% R&D

#### 2.1.2 Technology Milestones

It takes a unique vision to become a market leader. As the world's leading RAID solutions provider, the PROMISE vision began with the recognition that by combining hardware, software, firmware and vertical applications' design capability in house, PROMISE could more rapidly deliver versatile data storage solutions. This market transformation coupled with our technological innovations has continued throughout our 20+ year legacy in the global storage market.

PROMISE has always been a pioneer that created numerous world firsts with leading market share in the storage industry. With new storage technologies continually evolving and reshaping the market trend, PROMISE is always able to bring that essence into our solutions and benefit our users through professional evaluation and strong execution.

2010

- FC/iSCSI-to-SAS/SATA RAID6 external storage system(VessRAID 1000f Series)

2009

- SAS-to-SAS/SATA RAID6 external storage system(VessRAID 1000s Series)
- iSCSI-to-SAS/SATA RAID6 external storage system(VessRAID 1000i Series)
- SOHO NAS and DAS Storage Announcement (SmartStor NS4600 and DS4600)

2008

- VTrak E-Class RAID Subsystems Qualified for Mac OS X and Final Cut Studio

- 2-bay NAS Storage Announcement (SmartStor NS2300N)  
2007
- 3<sup>rd</sup> generation iSCSI-to-SATA 3G external storage system (VTrak M-Class)
- FC-to-SAS/SATA 3G Enterprise Class RAID (VTrak E-Class)
- 4x SAS wide-to-SAS/SATA 3G Enterprise Class RAID (VTrak E-Class)
- 4-bay NAS Storage Certified by Digital Living Network Alliance, DLNA (SmartStor NS4300N)  
2006
- 4x SAS wide-to-SAS/SATA 3G Enterprise Class JBOD (VTrak J-Class)  
2005
- 2nd generation iSCSI-to-SATA 3G external storage system (VTrak M-Class)
- FC-to-SATA 3G external storage system (VTrak M-Class)
- SATA 3G HBAs  
2004
- SATA controllers - RAID and non RAID
- 15-drive bay iSCSI-to-SATA RAID 5 external storage system (VTrak 15200)
- Serial ATA 1.5G with extension and 3G RAID controllers  
2003
- SATA controllers - RAID and non-RAID
- World's first SATA RAID 5 card shipped by OEM (FastTrak S150 SX4) 15-drive bay SCSI-to-SATA RAID 5 external storage system  
2001
- Ultra ATA/133 controllers
- World's first ATA/133 RAID controllers
- 8-drive bay SCSI-to-ATA RAID 5 external DAS (UltraTrak)  
2000
- Ultra ATA/100 controllers
- ATA/100 RAID 0/1/10 card (FastTrak100)
- RAID 5 card (SuperTrak100)  
1999
- Ultra ATA/66 drive controllers
- ATA/66 RAID 0/1/10 card (FastTrak66) World's first ATA RAID 5 card (SuperTrak66)  
1997
- Introduced world's first ATA RAID 0/1/10 card (FastTrak<sup>®</sup>)
- ATA/33 controller breaks 8.4GB barrier

### 2.1.3 Core Technology – Superior RAID Technology

At the heart of the PROMISE products and solutions is a common reliable RAID engine. Each of these external storage products, as with all PROMISE RAID products, is powered by the PROMISE RAID engine. This RAID engine has been developed by PROMISE to deliver proven performance, reliability, and stability.

The central technology that controls how a storage device sees a set of hard drives and stores, retrieves, and protects the data on them. By putting this same enterprise-class performance technology at the heart of all of our products, we guarantee excellence. Our commitment to providing cost-effective quality, reliability and support ensures that users around the world know that their data is safe, continuously available and open to multiple applications, from data center test and production to security surveillance, from audio/video editing to digital home entertainment.



#### **2.1.4 Product & Solution Coverage**

##### **▶ VTrak**

*Enterprise Storage with Fiber Channel SAS or iSCSI connections*



The PROMISE VTrak E-Class RAID subsystem is a High Availability RAID solution developed to meet the needs of enterprises using mission critical and creative applications. Enterprise

customers that require the highest levels of performance and availability can choose from our VTrak storage subsystems which offer either complete end to end SAS based RAID and JBOD solutions for DAS connectivity or a Fibre Channel based solution for SAN based storage. The VTrak E-Class supports Active-Active, dual-controller and fail-over capabilities, which assures enterprise users a “no single point of failure” storage environment.

Moreover, the VTrak E-Class truly shines in video environments by delivering consistent low latency performance without frame dropping. When used in film and video postproduction, users can scale performance and capacity to support large scale, uncompressed HD workflows.

##### **▶ VessRAID**

*SMB Storage with SAS or iSCSI connectors*



VessRAID storage subsystems provide small to medium business and organizations of all sizes a

cost-effective way to keep data online longer, while allowing fast access and reliable data protection. The VessRAID storage system

is able to handle today's high-capacity storage requirements for video surveillance, unstructured data, disk-to-disk backup and still meet the strenuous backup requirements necessary for business continuity.

With its low-cost expansion capabilities and a complete product lineup in FC, iSCSI and SAS host interfaces, the VessRAID system is ideal for any industry confronting the need to provide a reliable, energy-efficient and secure method for the long-term storage of data. For business requiring connection throughput the Fiber Channel series provides best-of-breed features over competitive solutions as it not only delivers high-performance value but also flexibly accommodates block and file-based data transfer as a unified storage system for varied business or mission critical applications. The SAS series is designed to satisfy diverse backup needs and vertical applications while the iSCSI series features IP-SAN deployments using block-level file transfer, which is practical for various

IP-based applications.

All VessRAIDs come with our innovative One-Plug-Auto-Service (OPAS). Through one USB stick, customers can do auto script configuration for minimal installation fuss, hassle free firmware upgrading, and system maintenance, diagnostics and troubleshooting. The VessRAID family also features GreenRAID™, an energy efficient 80PLUS power supply that allows the system to power on from standby mode to run user-scheduled tasks such as backups and archives by leveraging its comprehensive power scheduling capabilities. This reduces your costs and environmental footprint by allowing system downtime without compromising your operations. VessRAID's green features can provide annual cost savings of up to 70% over competitive solutions.

### ► **SuperTrak / FastTrak**

*RAID Controller/ Server, Workstation and Desktop*



#### **SuperTrak**

PROMISE has been the leading brand of HBA market to worldwide Tier-1 OEM customers for more than 15 years. For system builders, PROMISE offers a complete line of storage HBAs for desktops, workstations and enterprise class servers. From single to multiple drives, Non-RAID to RAID, 3Gb/s to 6Gb/s, PROMISE can offer a product to meet your capacity, performance, data protection and availability needs.

### ► **SmartStor**

*NAS and DAS/ SOHO Storage and Digital Home*



#### **SmartStor**

For both SOHO and Home applications, the SmartStor NAS and DAS product lines offer comprehensive solutions. Our NAS range comes with DLNA certification, guaranteeing total interoperability between your various media devices. This means that you can access movies and music stored on the NAS directly from your HDTV, game console or Hi-Fi system. What's more, families can remotely share all media types across the Internet, even on mobile devices, such as iPhones. And businesses can safely access and share vital data without the risks of losing portable storage devices. Both NAS and DAS are powered by the same PROMISE RAID engine that delivers excellence across our range. This means

that your data is safe and that the systems are fully expandable.

## ► **Embedded RAID Solution**

### *Customizable RAID on Motherboard (ROMB) solution*



PROMISE Software RAID was considered as an affordable and reliable approach to address entry-level RAID needs. Now with CPU moving into high-speed, multi-cores architecture, the traditional performance boundary between Software RAID and IOP RAID is gradually disappearing. By combining both Software and IOP RAID into a new “Hybrid” mode, PROMISE has created the new innovative approach for manufactures looking for the best Software ROMB solution on server boards without compromising RAID performance, quality and reliability. Based on the same RAID core technology, PROMISE is able to assist system board manufactures design and deliver desktop systems that have IOP level RAID performance with Software RAID cost.



## 2.2 PROMISE Quality System

### 2.2.1 ISO Certifications

Promise Technology is ISO 9001:2008 and ISO 14001:2004 certified for design and manufacturing. ISO certifications ensure that we effectively manage the definition, design, test, launch, manufacture and service of our storage products.



### 2.2.2 Phase Gate Development Processes

Promise uses industry standard phase gate development and test processes. These processes ensure the product passes ridged standards before exiting each development phase. Technical and business reviews occur at each phase to guarantee the product is ready to move ahead. Promise's phase gate process delivers high quality, cost effective storage systems to our customers.

### 2.2.3 End to End Quality Ownership

The Promise Quality Organization is a single point of ownership for all aspects of delivered Quality. From the definition of the ISO processes used to design and deliver and test products, to supplier and manufacturing quality, including quality systems, the voice of the customer is represented through the Quality Organization.

## 3 SMB Storages for Midrange Video Surveillance

### 3.1 Product Introduction

#### 3.1.1 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 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 support also Network Attached Storage (NAS) functionality. With four 1-Gigabit Ethernet interfaces the storage systems will be bounded into an existing network and offer a huge file system to Windows, Linux and Apple users.

##### ► **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.

#### 3.1.2 Product Series

##### **VessRAID Series**

Promise VessRAID SAS/SATA external storage subsystems offer three host interfaces



available in FC, iSCSI and SAS.

- VessRAID 1000f series product features two ports of Fiber Channel 8Gbps and two ports of Gigabit Ethernet in a robust 3U/16 form factor.
- VessRAID 1000s series products are provided in two form factors – 1x40s for 3U/16 drives and 1x30s for 2U/12 drives.
- VessRAID 1000i series products offer three form factors – 1x40i for 3U/16 drives, 1x30i for 2U/12 drives and 1x20i for 2U/8 drives.

All VessRAID products utilize Promise's high performance V4 RAID engine with robust error handling features to ensure high data reliability and availability.

### VessJBOD Series

Promise VessJBOD SAS/SATA external storage enclosure contains two form factors (3U-16 bay and 2U-12 bay).

- VessJBOD 1000 series products are provided in two form factors – 1x40 for 3U/16 drives and 1x30 for 2U/12 drives.

### 3.1.3 Product Lineup Matrix

	VessRAID Storage Subsystems		
Product Series	1000i Series	1000s Series	1000f Series
Camera Range	64 to 128	128 to 256	256 to 512
Form Factor	2U-8, 2U-12, 3U-16	2U-12, 3U-16	3U-16
Drive Interface	SAS/SATA 6Gb* or 3Gb		
Max. Drives Supported	112		
Host Interfaces	4x 1Gb iSCSI	2x 3Gb SAS (x4)	2x 8Gb FC 2x 1Gb iSCSI
Host Access Protocols	iSCSI	SAS	FCP, iSCSI
File Sharing Protocols	SMB, CIFS, NFS, FTP	N/A	SMB, CIFS, NFS, FTP
Expansion Links	mini-SAS	mini-SAS	mini-SAS
RAID Levels	0, 1, 1E, 3, 5, 6, 10(0+1), 30, 50, 60		
UPS Monitor	○	○	○
Data Services	○	-	○
Online Capacity Expansion	○	○	○
RAID Level Migration	○	○	○
Predictive Data Migration (PDM)	○	○	○
Disk Roaming	○	○	○
Auto Restart	○	○	○
Smart FAN Control	○	○	○
Power Redundancy	1820i, 1830i, 1840i	1830s, 1840s	1840f

\*Initiator still runs at 3Gb/s mode

## **3.2 System Features and Highlights**

### **3.2.1 RAID Storage System**

- FC SAN storage with two ports of Fiber Channel 8Gbps and two ports of Gigabit Ethernet interfaces for multiple protocols access
- iSCSI SAN storage via four ports of Gigabit Ethernet for block level storage area network storage and file level network attached storage
- Direct Attached Storage with dual host interfaces of serial attached SCSI
- Offers a comprehensive and cost-effective storage solution for SMBs to enhance business potentials at a lower price point while improving overall IT capital and operational efficiency.
- 2U / 3U rackmount versions

### **3.2.2 Features and Highlights**

#### ***VessRAID 1000f Series***

- Perfect for 256 to 512 surveillance camera range
- Up to 1300MB/s sequential bandwidth
- SAS/SATA 6Gb/s\* or 3Gb/s drive support in a robust 3U chassis
- Dual-port FC 8Gb and dual-port iSCSI 1Gb Ethernet access with link aggregation and jumbo frames support
- FCP, iSCSI, SMB/CIFS, NFS, FTP support
- Field-proven RAID 0, 1, 1E, 3, 5, 6, 10, 30, 50, 60
- Wake-on-LAN and Auto Restart once power resumes after blackout
- Surveillance Video Data Remote Replication : Client-to-Host Volume Clone, Box-to-Box Mirror
- USB service for easy management and maintenance: systeminfo retrieval, firmware upgrading, quick installation, and password resetting
- UPS support via USB
- Energy Savings: Dual 80PLUS power supply, MAID 2.0 full level, Advanced Power Scheduling enables scheduled power usage
- Microsoft Active Directory Support
- Scale up to 112 Hard Disk Drive through VessJBOD Expansion units
- Embedded web-based management GUI via Ethernet – WebPAM PROe
- PerfectRAID™ and Predictive Data Migration™ technology for robust error handling and recovery perfect for surveillance video data protection
- Wake-on-SAS support (VessJBOD)

\*Initiator still runs at 3Gb/s mode



[Download VessRAID 1000f Series Datasheet](#)

### **VessRAID 1000i Series**

- Perfect for 64 to 128 surveillance camera range
- Up to 250MB/s sequential bandwidth
- SAS/SATA 6Gb/s\* or 3Gb/s drive support in a robust 2U or 3U chassis
- Quad-port 1Gb Ethernet access with link aggregation and jumbo frames support
- iSCSI, SMB, CIFS, NFS, and FTP support
- Filed-proven RAID 0, 1, 1E, 3, 5, 6, 10, 30, 50, 60
- Wake-on-LAN and Auto Restart once power resumes after blackout
- Surveillance Video Data Remote Replication : Client-to-Host Volume Clone, Box-to-Box Mirror
- USB service for easy management and maintenance: systeminfo retrieval, firmware upgrading, quick installation, and password resetting
- UPS support via USB
- Energy Savings: Single/Dual 80PLUS power supply, MAID 2.0 full level, Advanced Power Scheduling enables scheduled power usage
- Microsoft Active Directory Support
- Scale up to 112 Hard Disk Drive through VessJBOD Expansion units
- Embedded web-based management GUI via Ethernet – WebPAM PROe
- PerfectRAID™ and Predictive Data Migration™ technology for robust error handling and recovery perfect for surveillance video data protection
- Wake-on-SAS support (VessJBOD)

\*Initiator still runs at 3Gb/s mode



[Download VessRAID 1000i Series Datasheet](#)

### **VessRAID 1000s Series**

- Perfect for 128 to 256 surveillance camera range
- Up to 900MB/s sequential bandwidth
- SAS/SATA 6Gb/s\* or 3Gb/s drive support in a robust 2U or 3U chassis
- Dual-port 3Gb SAS-wide access
- Filed-proven RAID 0, 1, 1E, 3, 5, 6, 10, 30, 50, 60
- Wake-on-LAN and Auto Restart once power resumes after blackout
- USB service for easy management and maintenance: systeminfo retrieval, firmware upgrading, quick installation, and password resetting
- UPS support via USB

- Energy Savings: Single/Dual 80PLUS power supply, MAID 2.0 full level, Advanced Power Scheduling enables scheduled power usage
- Scale up to 112 Hard Disk Drive through VessJBOD Expansion units
- Embedded web-based management GUI via Ethernet – WebPAM PROe
- PerfectRAID™ and Predictive Data Migration™ technology for robust error handling and recovery perfect for surveillance video data protection
- Wake-on-SAS support (VessJBOD)

\*Initiator still runs at 3Gb/s mode



[Download VessRAID 1000s Series Datasheet](#)

## 3.3 Product Pictures

### 3.3.1 VessRAID System Front Views



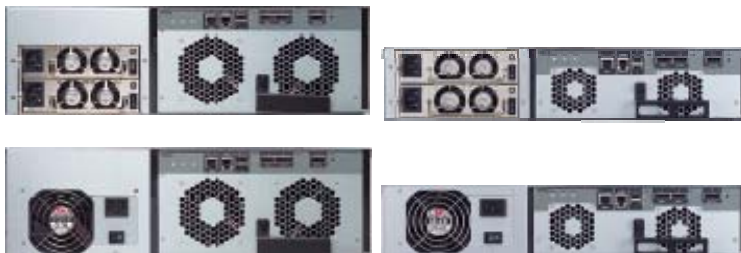
### 3.3.2 VessRAID FC Series Rear Views



### 3.3.3 VessRAID iSCSI Series Rear Views



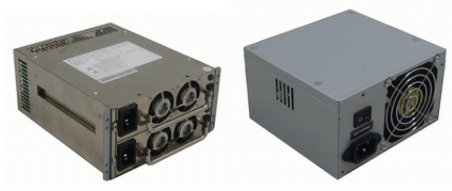
### 3.3.4 VessRAID SAS Series Rear Views



### 3.3.5 VessRAID System Front Bezels



### 3.3.6 VessRAID Power Supply Units



### 3.3.7 VessRAID Battery (2-cell) Backup Module



### 3.3.8 VessRAID Drive Carrier



### 3.3.9 CLI Interface



### 3.3.10 Web-based Management Software(WebPAM PROe)





## **4 Warranty**

### **4.1 Limited Warranty**

Promise Technology, Inc. ("Promise") warrants that for three (3) years from the time of the delivery of the product to the original end user except for one (1) year warranty on the battery backup unit:

- a) the product will conform to Promise's specifications;
- b) the product will be free from defects in material and workmanship under normal use and service.

This warranty:

- a) applies only to products which are new and in cartons on the date of purchase;
- b) is not transferable;
- c) is valid only when accompanied by a copy of the original purchase invoice;
- d) is not valid on spare parts.

This warranty shall not apply to defects resulting from:

- a) improper or inadequate maintenance, or unauthorized modification(s), performed by the end user;
- b) operation outside the environmental specifications for the product;
- c) accident, misuse, negligence, misapplication, abuse, natural or personal disaster, or maintenance by anyone other than a Promise or a Promise authorized service center.

### **4.2 Disclaimer of Other Warranties**

This warranty covers only parts and labor, and excludes coverage on software items as expressly set above.

Except as expressly set forth above, Promise DISCLAIMS any warranties, expressed or implied, by statute or otherwise, regarding the product, including, without limitation, any warranties for fitness for any purpose, quality, merchantability, non-infringement, or otherwise. Promise makes no warranty or representation concerning the suitability of any product for use with any other item. You assume full responsibility for selecting products and for ensuring that the products selected are compatible and appropriate for use with other goods with which they will be used.

Promise DOES NOT WARRANT that any product is free from errors or that it will interface without problems with your computer system. It is your responsibility to back up or otherwise save important data before installing any product and continue to back up your important data regularly.

No other document, statement or representation may be relied on to vary the terms of this limited warranty.

Promise's sole responsibility with respect to any product is to do one of the following:

- a) replace the product with a conforming unit of the same or superior product;
- b) repair the product.

Promise shall not be liable for the cost of procuring substitute goods, services, lost profits, unrealized savings, equipment damage, costs of recovering, reprogramming, or reproducing of programs or data stored in or used with the products, or for any other general, special, consequential, indirect, incidental, or punitive damages, whether in contract, tort, or otherwise, notwithstanding the failure of the essential purpose of the foregoing remedy and regardless of whether Promise has been advised of the possibility of such damages. Promise is not an insurer. If you desire insurance against such damage, you must obtain insurance from another party.

Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, so the above limitation may not apply to you.

This warranty gives specific legal rights, and you may also have other rights that vary from state to state. This limited warranty is governed by the State of California.

## 5 Spare Parts

### 5.1 Spare Parts List

ROHS Part Number	Description	Photo
F29000020000117	VessRAID/JBOD.2U.Rackmount Support Rails	
F29000020000101	VessRAID/JBOD.3U.Rackmount Support Rails	
F29VC6220000009	VessRAID.1S2P battery module	
F29000020000122	VessRAID.2U.LCD Module	
F29VC6220000004	VessRAID.3U.LCD Module	
F29000020000120	VessRAID/VessJBOD.2U.Fan	
F29000020000102	VessRAID/VessJBOD.3U.Fan	
F29R14F20000000	VessRAID 1840f.Controller Unit with 1MB DDR	



F29VC6220000000	VessRAID 1740s/1840s.Controller Unit with 512 DDR	
F29VC3220000000	VessRAID 1730s/1830s.Controller Unit with 512 DDR	
F29V17420000004	VessRAID 1740i/1840i.Controller Unit with 512 DDR	
F29VR3I20000006	VessRAID 1730i/1830i.Controller Unit with 512 DDR	
F29000020000113	VessRAID 1720i/1820i.Controller Unit with 512 DDR	
F29VC6220000006	VessRAID/JBOD.3U.16Bay.Dual Power.Chassis	
F29VC6220000005	VessRAID/JBOD.3U.16Bay.Single Power.Chassis	
F29VR3I200000004	VessRAID/JBOD.2U.12Bay.Dual Power.Chassis	
F29VR3I200000005	VessRAID/JBOD.2U.12Bay.Single Power.Chassis	
F29V17220000004	VessRAID/JBOD.2U.8Bay.Dual Power.Chassis	
F29V17220000005	VessRAID/JBOD.2U.8Bay.Single Power.Chassis	
F29000020000103	VessRAID/VessJBOD.Drive Carrier	
F29000020000121	VessRAID/VessJBOD.2U.Front Bezel	
F29000020000104	VessRAID/VessJBOD.3U.Front Bezel	

F29000020000115	VessRAID/JBOD.2U.PSU.350W.Single	
F29000020000116	VessRAID/JBOD.2U.PSU.350W.Dual.Mini-single	
F29000020000114	VessRAID/JBOD.2U.PSU.350W.Dual	
F29000020000106	VessRAID/JBOD.3U.PSU.450W.Single	
F29000020000108	VessRAID/JBOD.3U.PSU.450W.Dual.Mini-single	
F29000020000105	VessRAID/JBOD.3U.PSU.450W.Redundant	
F29R14F20000002	SP.VessRAID 8Gbps fibre SFP Optical Transceiver	
F29000020000118	SP.VessRAID/JBOD.2U.Screw Bag. 50ea	
F29000020000107	SP.VessRAID/JBOD.3U.Screw Bag. 70ea	

F29000020000074	External Mini-SAS to External Mini-SAS Cable, 1M	
F2900002000000W	External Mini-SAS to External Mini-SAS Cable, 3M	
F2900002000000X	External Mini-SAS to External Mini-SAS Cable, 5M	
F29000020000083	CABLE.Round Cable.200cm.6Pin.DB9/F=>RJ11.Black	
F29000020000109	VessRAID.512MB DDR2 Memory Module	
F29000020000077	VessRAID.1GB DDR2 Memory Module	
F29000020000080	VessRAID.2GB DDR2 Memory Module	

## **5.2 Spare Parts Warranty**

Promise does not provide a warranty for spare parts except as set forth expressly herein. Installation of a spare part in a product does not affect the product's remaining warranty term. Promise warrants only that all new spare parts will not be DOA. If a new spare part is found to be defective upon receipt, you may contact your local distributor or Promise Technology within thirty (30) days of receipt and obtain a replacement spare part. A copy of the original purchase invoice and the defective part must accompany all such requests for replacement spare parts.

**About PROMISE Technology, Inc.**

With a long history of innovation, PROMISE Technology develops and manufactures sophisticated RAID solutions recognized worldwide, ranging from a complete line of RAID controller cards to FC/iSCSI/SAS/SATA RAID subsystems. Catering to enterprise, mid-range, entry-level consumer data protection needs, PROMISE products are distinguished by their Unified Common RAID Core and management software and unparalleled support. Headquartered in Milpitas, Calif., PROMISE has operations throughout Asia and Europe. For more information, visit PROMISE Technology's website at [www.PROMISE.com](http://www.PROMISE.com).