

DAKOTA RAID-WP2



DakotaRAID-WP2, featuring the latest in Microsoft® NAS technology, is a highly scalable Windows Storage Server® R2 Appliance that delivers seamless interoperability, solid reliability and simple-to-manage storage resources for heterogeneous network environments. Just attach it to your existing network and within minutes your Windows, UNIX, Linux, and Macintosh clients can share RAID protected storage resources. DakotaRAID-WP2 is integrated with Windows Storage Server 2003 R2 technology from Microsoft, providing advanced storage management features at a low cost of ownership. The optional iSCSI Software target module enables you to provide both file and block level storage from the same appliance.

Performance

The DakotaRAID-WP2 Standard Edition is built on a powerful server-class Quad-Core Xeon platform with single or dual processors and up to 4 GB of memory. Dedicated SCSI or SATA 3 Gb/s Hardware RAID controllers provide enterprise-level storage performance. In addition to the dual Gigabit Ethernet connections with teaming capability and jumbo frame support, optional TCP/IP Offload Engines enhance performance and accelerate Ethernet throughput to near wire speed. DakotaRAID-WP2 runs a NAS optimized version of Windows Server 2003 R2 and is 15-20% faster than a general purpose Windows Server 2003 R2 in file serving.

Reliability and Data Availability

DakotaRAID-WP2 is integrated with best-of-breed components and is based on Windows Server 2003® R2, a robust operating system that provides high reliability and data protection. Support for multiple RAID levels protects your data against disk failure while features such as hot swappable disks, hot spares, automatic drive failure detection, automatic data rebuild and redundant hot swappable power supplies provide for high data availability. RAID level 6 support on the SATA models improves fault tolerance by implementing two parity drives. A mature journaling file system enables easy, dependable file system recovery in the event of unscheduled downtime. Windows Storage Server 2003 R2 is a dedicated file and print server and has all functionality unrelated to file serving removed, increasing reliability and lowering CPU overhead. The Distributed File System (DFS) solution provides simplified, fault-tolerant access to files and WAN-friendly replication.

Multi-Protocol Connectivity

Because DakotaRAID-WP2 is powered by Windows Server 2003 R2, it is designed to exist in heterogeneous network environments and transfer data using industry standard file sharing protocols (SMB/CIFS, NFS, AFP, FTP and HTTP) over industry standard network protocols. Therefore, clients can share storage resources, regardless of their operating environment. Cross platform connectivity provides common storage resources and increased user productivity.



APPLIANCE FEATURES

- Windows Storage Server 2003 R2
- Integrated Management Supplement
- Unified Share & Storage Management
- File Server Resource Manager
- RDC for Replication
- Print Manager Console
- Distributed File System
- Journaling File System
- Shadow Copy Technology
- No Client Licenses
- Enterprise-Class Security
- Multi-Protocol Client Support
- UPS Support
- Anti-Virus Support
- Redundant Hot Swap Components

STORAGE FEATURES

- High Performance RAID Controllers
- RAID Level 0, 1, 10, 5, 50 & 6 Support
- SATA 3 Gb/s Disk Drives
- 2 TB+ SATA Volume Support
- Multiple RAID Levels
- Advanced RAID Features
- Hot Swappable Disk Drives
- Hot Spare Drives
- Automatic Drive Failure Detection
- Background Initialization & Rebuild
- RAID Level Migration
- Storage Manager for SANs
- iSCSI Initiator
- iSCSI Software Target Option
- SAN Connectivity
- Advanced Storage Reporting
- External Capacity Expansion
- Local Tape Backup Support
- Backup Application Support
- Backup Agent Support



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Security

DakotaRAID-WP2 features the tight enterprise-level security of Windows Server 2003 R2. Full Microsoft Active Directory® support enables DakotaRAID-WP2 to integrate seamlessly into a Windows enterprise network. Other authentication features include NT Domain Authentication (PDC) and Unix Network Information Services (NIS). DakotaRAID-WP2 also integrates completely into Distributed File System (DFS) environments.

Manageability

The Windows Storage Server 2003 MMC-based management console enables administrators to perform the majority of storage management tasks from a central location. The Unified Share and Storage Management snap-in provides wizard-based provisioning of volumes and shared folders, as well as the ability to configure quotas, file screening, Single Instance Storage, and indexing. DakotaRAID-WP2 can be managed remotely via a web browser from Windows and non-Windows clients. A keyboard, mouse, and monitor (or KVM) is supported for local management.

Configuration and Scalability

DakotaRAID-WP2 features high performance SATA 3Gb/s disk drives in multiple RAID configurations, providing the flexibility you need to fit your price, performance and data protection requirements. DakotaRAID-WP2 supports multi-terabyte configurations and is available in tower and rack models. A flexible design, featuring external SCSI ports and PCI expansion slots, enables you to add external storage or a tape library.

Microsoft iSCSI Software Target Option

Microsoft iSCSI Software Target option enables you to implement an iSCSI SAN with storage provisioning and management capabilities. Managed via the Microsoft Management Console, administrator's can create and manage iSCSI targets and iSCSI virtual disks, as well as schedule, export, and locally mount snapshots for use in backup and recovery operations. Wizards are provided to facilitate these features.

- **Virtual Disk Storage.** Disks created using iSCSI Software Target are iSCSI virtual disks, which are files in the virtual hard disk (VHD) format. These virtual disks offer flexible and effective storage. They are dynamically extendable to provide extra capacity on demand, enable efficient storage utilization, and minimize the downtime required to create and install new disks.
- **Snapshots.** To facilitate backup and recovery operations, you can schedule and create snapshots of iSCSI virtual disks. Snapshots can be scheduled to be created automatically without stopping programs and can be mounted locally or exported to facilitate backup and recovery operations.
- **Hardware Providers.** To support advanced management of iSCSI virtual disks and snapshots, you can install the Virtual Disk Service (VDS) and Virtual Shadow Copy Service (VSS) hardware providers, provided with system.

Distributed File System (DFS)

The Distributed File System (DFS) solution in Windows Storage Server 2003 R2 provides simplified, fault-tolerant access to files and WAN-friendly replication. Distributed File System consists of two technologies:

- **DFS Namespaces.** Formerly known as Distributed File System, DFS Namespaces allows administrators to group shared folders located on different servers and present them to users as a virtual tree of folders known as a namespace. A namespace provides numerous benefits, including increased availability of data, load sharing, and simplified data migration.
- **DFS Replication.** The successor to File Replication service (FRS), DFS Replication is a new state-based, multimaster replication engine that supports scheduling and bandwidth throttling. DFS Replication uses a new compression algorithm known as Remote Differential Compression (RDC). RDC is a protocol that can be used to efficiently update files over a limited-bandwidth network. RDC detects insertions, removals, re-arrangements of data in files, enabling DFS Replication to replicate only the deltas (changes) when files are updated.

iSCSI SAN Connectivity

Support for Microsoft's iSCSI software initiator and third party iSCSI HBAs, enables DakotaRAID-WP2 to easily integrate with IP targets and IP SANs.

Unified Share and Storage Management

With the Share and Storage Management snap-in, you can easily set up and manage shared folders and storage. Share and Storage Management provides the following:

- MMC-based management of shared folders and storage.
- Storage Wizard for creating and configuring storage, including creating a LUN and formatting a volume.
- Provision a Shared Folder Wizard for creating and configuring shared folders that can be accessed using either the SMB or NFS protocol.

This makes it possible to complete most of the administrative tasks required to create and manage shared folders and volumes, configure Single Instance Storage (SIS), configure quotas, configure file screening, and enable indexing from a single management point.

File Server Resource Manager

File Server Resource Manager provides a suite of tools for administrators to understand, control, and manage the quantity and type of data stored on their servers. File Server Resource Manager enables you to place quotas on folders and volumes, actively screen files, and generate comprehensive storage reports.

Storage Management for SANs

Storage Manager for SANs helps you create and manage logical unit numbers (LUNs) on fibre channel and iSCSI disk drive subsystems in your storage area network (SAN). Storage Manager for SANs can be used on storage subsystems that support Virtual Disk Service (VDS). Use Storage Manager for SANs to create and assign LUNs, manage connections between LUNs and the servers in your SAN, and set the security properties for iSCSI storage subsystems. Available in Standard edition.



Indexing Service

Indexing Service extracts the information from a set of documents and organizes it in a way that makes it quick and easy to access that information through the Search function for computers running Microsoft Windows 2000 or Microsoft Windows XP. This information can include text from within a document (its contents), and the characteristics and parameters of the document (its properties), such as the author's name. Once the index is created you can query the index for documents that contain key words, phrases, or properties.

Single Instance Storage

Single Instance Storage (SIS) recovers disk space by reducing the amount of redundant data stored on a volume by identifying identical files, storing only a single copy of the file in the SIS common store and replacing the files with pointers to the file in the SIS common store. Available in Standard edition.

Print Management

Print Management enables you to view and manage printers and print servers in your organization. You can use Print Management to manage all network printers on print servers running Windows 2000 Server, Windows Server 2003, Windows Storage Server 2003, Windows Server 2003 R2, or Windows Storage Server 2003 R2.

Volume Shadow Copy Service (VSS)

System administrators can use point-in-time shadow copy technologies to make up to 512 snapshots per volume (of which 64 are reserved for Shadow Copies for Shared Folders) using applications that have a VSS requestor. These shadow copy backups are available for rapid restores should the need arise. Unlike tape backups which can take hours to restore, these shadow copy backups can be restored in minutes. The end user can also benefit from point in time imaging technologies, using the Shadow Copies for Shared Folders (SCSF) feature. SCSF enables users to restore accidentally deleted or overwritten files or entire folders without the need for IT intervention. A maximum of 64 SCSF per volume can be created.

Windows SharePoint® Services

Microsoft Windows SharePoint Services is a powerful Web-based team collaboration environment that is included in Windows Storage Server 2003 R2. Windows SharePoint Services provides an integrated portfolio of collaboration and communication services designed to connect people, information, processes, and system both within and beyond the organizational firewalls.

Antivirus Support

Windows Storage Server 2003 R2 is built upon the Windows Server family of operating systems, therefore you can benefit from the increased security provided by existing antivirus software from a variety of supported Microsoft partners. For more information on Microsoft's antivirus partners, see <http://www.microsoft.com/security/partners/antivirus.asp>.

Total Cost of Ownership

DakotaRAID-WP2 enables you to reduce your total cost of ownership by ensuring fast deployment, seamless network interoperability, high uptime, low administration and no client license costs.

For more information about Windows Storage Server 2003 R2, visit <http://www.microsoft.com/windowsserver/system/wss2003/default.aspx>

File System

- Journaling File System
- Distributed File System (DFS) Support
- Encrypting File System (EFS)
- Single-Instance Storage (SIS)

Management

- Windows Remote Desktop
- Remote Web Administration
- Local via Keyboard & Mouse
- File Server Resource Manager
- Share and Storage Management Snap-In
- Storage Manager for SANs
- Dynamic Volume Manager
- Web-based RAID Management
- RAID Email Event Notification
- SNMP Support
- System and Security Logs
- System Health Monitoring
- Shadow Copies for Shared Folders
- Optional IPMI 2.0 Hardware Monitoring

Network Protocols

- TCP/IP & AppleTalk

File Sharing Protocols

- CIFS/SMB, NFS v2/v3, AFP, HTTP, WebDAV

Automatic IP Address Assignment

- Supports DHCP, BOOTP, & RARP

NIC Teaming Options

- Link Aggregation
- Load Balancing
- Failover

Security Features

- File Level Access Control Lists
- Local User/Group Database
- Microsoft Active Directory Services (ADS)
- Microsoft NT Domain Controller (PDC)
- Unix Network Information Services (NIS)
- Supports Kerberos Version 5.0
- Supports NTLM v2 Authentication
- RAID Protected OS

Services

- File Server Resource Manager (FSRM)
- DFS Replication
- Indexing Service
- Server for NFS
- Client for NFS
- User Name Mapping
- Groveler (Standard & Enterprise)
- Sis.sys Filter Driver (Standard & Enterprise)

*The Groveler service and Sis.sys filter driver are installed when Single Instance Storage (SIS) is enabled. The Groveler is activated when the first volume is enabled. The Sis.sys filter driver runs automatically when SIS is enabled.



Pre-Installed Software

Microsoft Windows Storage Server 2003 R2

Windows 2003 R2 NAS Optimized Operating System

Microsoft Services for Network File System

Services for Network File System is a set of services that integrates with Windows Server 2003 to allow UNIX- based NFS clients to access resources on Windows Storage Servers without having to explicitly sign on to the Windows domain.

Microsoft Backup

Microsoft Backup enables administrators to backup files to a local tape drive.

Microsoft iSCSI Software Target Option

Microsoft iSCSI Software Target option enables you to implement an iSCSI SAN with storage provisioning and management capabilities. Managed via the Microsoft Management Console, administrator's can create and manage iSCSI targets and iSCSI virtual disks, as well as schedule, export, and locally mount snapshots for use in backup and recovery operations. Wizards are provided to facilitate these features.

Integrated Management Supplement

The Integrated Management Supplement includes:

- Remote Management from non-Windows Clients
- New Management Console
- New Unified Share and Storage Management Snap-In that simplifies management of:
 - SMB and NFS share provisioning
 - Share and storage provisioning
 - Unified overview of storage and shares
 - Volume actions: extend, format, delete, & properties
 - Share actions: Stop sharing & properties

DakotaRAID-WP2 RAID Controller Specs

RAID Controller	AMCC/3Ware 9650SE and 9550SX Series
Number of Drives Supported per Controller	4, 8, 12, or 16
Type of RAID	Hardware RAID with Dedicated XOR Engine and Onboard Cache
RAID Levels	0, 1, 10, 5, 50, 6 & JBOD; 1, 10 & 5 on DWR100
Variable Stripe Size	Yes
RAID Group Max	16 Drives
2 TB+ RAID Support	Yes
Array Partitioning	Yes, Auto-Carving feature automatically creates 2 TB partitions
Drive Command Queuing Support	Yes
Management UI	Web-based
Hot Spare Support	Global per Controller
RAID Level Migration	Yes
Online Capacity Expansion	Yes
Onboard Cache	256 MB
Cache Battery	Option

Configuration Options

Internal Storage Options

Serial ATA 3 Gb/s Drive Capacities 80, 250, 500, 750 GB & 1 TB (7200 RPM)

PCI Expansion Slot Options

Network Adapters

- 1, 2 & 4 Port Gigabit Copper Server Adapters
- 1 & 2 Port Gigabit Fiber Server Adapters

Accelerators

- 1, 2 & 4 Port Alacritech Scalable Network Accelerators
- 1 & 2 Port Alacritech iSCSI Scalable Network Accelerators

HBAs

- 1 & 2 Port QLogic iSCSI HBAs
- 2 Port Silverback Systems iSCSI HBA
- 1 & 2 Channel U160/320 SCSI Host Adapters
- 1, 2 & 4 Port 2 Gb FC Host Adapters
- 1 & 2 Port 4 Gb FC Host Adapters

RAID Controllers

- 2 Channel U320 SCSI
- 4 Port SAS

Support

- Three Year Warranty on System with One Year Advance Replacement on Components
- Toll Free Technical Support
- Extended Advance Replacement Programs
- 8 x 5 and 7 x 24 On-Site Support Available

DakotaRAID-WP2 O/S Options

	Workgroup	Standard
CPU Support	1	1 – 4
Max Memory	4 GB	4 GB
Disk Drives	1 – 4	Any
Device Interface	SATA	SCSI, SATA, SAS, FC & iSCSI
File Server Management (FSM)	Yes	Yes
Print Management Console	Yes	Yes
Microsoft Services for Network File System (NFS)	Yes	Yes
Indexing Service	Yes	Yes
File Server Resource Manager (FSRM)	Yes	Yes
Unified Share and Storage Management	No	Yes
Distributed File Systems (DFS) Management	Yes	Yes
Distributed File Systems (DFS) Replication	Yes	Yes
Distributed File Systems (DFS) Replication Diagnostics and Configuration Tools	Yes	Yes
Storage Manager for Storage Area Networks (SAN)	No	Yes
Single Instance Storage (SIS)	No	Yes
Windows SharePoint Services	No	Yes
iSCSI Software Target Option	No	Yes

Model Specifications

	DWR100SA3 Rack DWR800STA3 Tower	DWR1000SA3 Rack	DWR2200SA3 Rack	DWR3200SA3 Rack	DWR4200SA3 Rack	DWR5200SA3 Rack
CPU	1 Dual-Core Xeon 2.33 GHz 1333 MHz	1 Quad-Core Xeon, 2.0 GHz, 1333 MHz FSB Upgradeable to Dual Processor and 3.0 GHz				2 Quad-Core Xeon 2.0 GHz 1333 MHz
Memory	1 GB (Up to 4)	1 GB (Up to 4)	1 GB (Up to 4)	1 GB (Up to 4)	1 GB (Up to 4)	2 GB (Up to 4)
O/S Version	DWR100 – Workgroup DWR800 – Standard	Windows Storage Server R2 Standard				
RAID Levels	0, 1, 5, 6, 10, 50 Single Disk & JBOD (Factory default RAID 5 on four drive models)					
Drive Interface	SATA 3Gb/s					
Hot Swap Mirrored O/S Drives	0	0	2 – 80 GB	2 – 80 GB	2 – 80 GB	2 – 80 GB
Hot Swap Data Drives	4–Rack; 8–Tower	4	8	12	16	24
External SCSI	Option	Option	2 – U320 VHD	2 – U320 VHD	2 – U320 VHD	2 – U320 VHD
Integrated LAN	2 – 10/100/1000					
PCI Expansion Slots	1 – LP PCI-X (R) 3 – FH PCI-X (T)	1 – LP PCI-X	2 – LP PCI-X	2 – FH PCI-X	2 – FH PCI-X	2 – FH PCI-X
USB Ports	2 – USB 2.0					
Floppy Drive	1.44 MB (Not available on 2U models, optional on 1U models)					
CD/DVD	DVD/CD-RW					
Cooling Fans	3 – 4cm (R) 4 (T)	2 – 10cm	2 – 80mm 4 – 40mm	3 – 80mm 3 – 40mm 2 – 60mm	5 – 80mm 2 – 60mm	2 – 120mm 2 – 60mm
Power Supply	300W PFC (R) 645W Low Noise (T) Redundant Option (T)	500W PFC Redundant Option	2 – 500W Redundant Hot Swap	3 – 350W Redundant Hot Swap	3 – 350W Redundant Hot Swap	3 – 500W Redundant Hot Swap
Dimensions HxWxD (in.)	1.7 x 17.2 x 19.8 (R) 17.1 x 7 x 25.5 (T)	1.7 x 17 x 25.6	3.5 x 19 x 27	5.25 x 19 x 27	7 x 19 x 27.5	8.75 x 19 x 26

* DWR100/800/1000SA3 – O/S is installed on a 20 GB partition of a 4-drive RAID-5 volume. Custom configurations available.

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