

## DAKOTA<sup>STOR</sup>-WP2

DakotaStor-WP2, featuring a 6 Gb/s SAS architecture and the latest in Microsoft® Storage Server technology, is a cost-effective, versatile storage 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 you can provide NAS shares and iSCSI targets to Windows, UNIX, Linux, and Macintosh clients. Gateway models enable you to provide NAS and iSCSI capability for existing SAN storage or design a scalable, highly available unified storage appliance. DakotaStor-WP2 is integrated with Windows Storage Server 2008 R2, providing easy-to-manage file and block level storage, as well as print services from the one appliance at a low cost of ownership.



### Performance

DakotaStor-WP2 is built on a state-of-the-art server-class single or dual processor Intel® Xeon Series 5600/5500 platform, featuring Intel Turbo Boost, Hyper-Threading, and QuickPath technologies for top performance in bandwidth intensive applications. A powerful 6 Gb/s SAS/SATA Hardware RAID controller with 512 MB of cache provides enterprise-level storage features and performance. DakotaStor-WP2 features up to four Gigabit Ethernet NICs with Intel I/O Acceleration Technology, which moves data more efficiently through the processors for fast, reliable networking. Running a storage-optimized version of Windows Server 2008 R2, DakotaStor-WP2 is 15-20% faster than a general purpose Windows Server R2 in file serving.

#### CacheCade

CacheCade is an advanced software option that is designed to accelerate the performance of HDD arrays with only an incremental investment in SSD technology. The software enables SSDs to be configured as a secondary tier of cache to maximize transactional I/O performance for read-intensive applications.

### Reliability and Data Availability

DakotaStor-WP2 is integrated with best-of-breed components and is based on Windows Server 2008 R2, a robust operating system that provides high reliability and security. Support for multiple RAID levels protects your data against disk failure while advanced RAID and hardware redundancy features provide for high data availability. RAID level 6 improves fault tolerance by implementing two parity drives, ensuring data availability in the unlikely event that two drives fail simultaneously or a drive fails during a rebuild. Windows Storage Server 2008 R2 is a dedicated file and print server and has all functionality unrelated to file serving removed, increasing

### Features

- Windows Storage Server 2008 R2
- Unified NAS & iSCSI
- File Services Resource Manager (FSRM)
- File Classification Infrastructure (FCI)
- Data De-Duplication (SIS)
- Server Message Block (SMB) version 2.1
- Storage Manager for SANs
- Volume Shadow Copy Service (VSS) Snapshots
- Distributed File System (DFS) Replication
- Share & Storage Provisioning Wizards
- Print Services
- IPMI 2.0 Management with Dedicated LAN
- SATA, SAS, & Solid State Drives
- CacheCade SSD Acceleration
- Industry Standard Hardware
- 1U, 2U, 3U, & 4U Models
- 2 TB to 108 TB Base Configurations
- JBOD Expansion up to 132 Drives

reliability and lowering CPU overhead. The Distributed File System (DFS) feature provides simplified, fault-tolerant access to files and WAN-friendly replication. The DakotaStor-WP2 Enterprise Edition Gateways, with cluster support, provide high availability and disaster tolerance for mission-critical storage environments

## Multi-Protocol NAS Connectivity

Because DakotaStor-WP2 is powered by Windows Server 2008 R2, it is designed to exist in heterogeneous network environments and transfer data using industry standard file sharing protocols over industry standard network protocols. Therefore, clients can share storage resources, regardless of their operating environment. Cross platform NAS connectivity provides common storage resources and increased user productivity. iSCSI targets are accessible from clients running standard iSCSI software initiators and HBAs.

## Security

DakotaStor-WP2 features the tight enterprise-level security of Windows Server 2008 R2. Full Active Directory support enables DakotaStor-WP2 to integrate seamlessly into a Windows enterprise network. Other authentication features include NT Domain Authentication (PDC) and Unix Network Information Services (NIS). DakotaStor-WP2 also integrates completely into Distributed File System (DFS) environments. The Microsoft iSCSI Software Target supports security protocols and configuration such as iSNS integration, IPv6, IPsec, and CHAP authentication.

## Manageability

The Windows Storage Server 2008 R2 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, shared folders, and iSCSI targets, as well as the ability to configure quotas, file screening, Single Instance Storage, and indexing. DakotaStor-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. The "Out-of-Box Experience" incorporates a single configuration utility that starts automatically at logon, guiding administrators through the initial setup. And for common configuration tasks, administrators will have access to all the appropriate tools through the "Initial Configuration Tasks" interface.

An embedded Intelligent Management (IPMI 2.0) module with dedicated network port monitors onboard instrumentation such as temperature sensors, power status, voltages and fan speed, and provides remote power control capabilities to reboot and/or reset the appliance. It also includes remote access to the BIOS configuration and operating system console information via SOL (Serial over LAN) or embedded KVM over LAN capabilities. Because the IPMI controller is a separate processor, the monitoring and control functions work regardless of CPU operation or system power-on status.

## Configuration and Scalability

DakotaStor-WP2 features high performance SATA, 6 Gb/s SAS (7200 & 15K RPM), or solid state disks in multiple RAID configurations, providing the flexibility you need to fit your price, performance and data protection requirements. External SAS RAID ports provide scalability up to 132 drives via JBOD expansion modules. A flexible design with multiple PCI expansion slots enables you add Fibre Channel, SAS, SCSI, and iSCSI HBAs for direct attached storage and SAN connectivity.

## STORAGE FEATURES IN WINDOWS STORAGE SERVER 2008 R2:

**iSCSI block I/O storage:** The Microsoft iSCSI software target 3.3 enables block storage data access, accessed as iSCSI logical unit number (LUNs), for applications such as SQL Server, Microsoft SharePoint, Exchange Server, and operating system data like Hyper-V virtual machines or bootable images.

**Server Message Block (SMB) version 2.1:** At the core of file services is the SMB 2.1 protocol, introduced in Windows 7 and Windows Server 2008 R2. SMB 2.1 is faster and more efficient than previous versions of the protocol. SMB 2.1 is also optimized for low bandwidth connectivity and improved for better flexibility, compatibility and resiliency for clients running Windows 7.

**File Classification Infrastructure (FCI):** Windows Server 2008 R2 classification infrastructure provides insight into your data by automating classification processes so that you can manage your data more effectively. Organizations can save money and reduce risk by storing and retaining files based on their business value or impact. The built-in solution for file classification provides expiration, custom tasks, and reporting. Learn more about File Classification Infrastructure in Windows Server 2008 R2.

**Network File System (NFS):** NFS: enables organizations with heterogeneous environments to consolidate their file sharing resources on Windows Storage Server. Computers running Windows and other operating systems can easily share data.

**Single Instance Storage:** Single Instance Storage (SIS) is a data de-duplication technology that 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.

**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.

**Distributed File System (DFS):** DFS replication and namespaces provide organizations with better access to data and simplified access to files and shares across a network-wide infrastructure. DFS also extends traditional file serving by making file shares easier to locate and more resilient, which helps to ensure user productivity.

**File Services Resource Manager (FSRM):** FSRM is a single-management interface that delivers better managed file services across CIFS/SMB and NFS, as well as improved control and compliance over files. With built-in reporting, FSRM provides insight into how your file serving resources are used for audit and planning purposes.

## 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, storage, and iSCSI targets.
- Provision 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, volumes, and iSCSI targets, configure Single Instance Storage (SIS), configure quotas, configure file screening, and enable indexing from a single management point.

## 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 and Enterprise editions.

## 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 2000/2003/2008 Server.

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## ADDITIONAL FEATURES:

### Double-Take Availability Option

Double-Take Availability combines continuous real-time replication and automatic failover capabilities for disaster recovery, high availability, and centralized backup on physical or virtual Windows servers. Double-Take Availability uses patented replication and failover capabilities that continuously capture byte-level changes as they occur and replicate those changes to another server either locally or over any WAN link.

Double Take Availability captures disk-writes at the host's file system layer while all applications (including virtual machines writing to virtual disks) operate above the actual file system layer. This allows the solution to transparently and reliably protect that data by replicating it via its normal mechanisms to a target server running another copy of Double-Take Availability. On the target side, Double Take Availability simply applies the same file update commands to the duplicate files that reside on the target server – sending only real-time byte-level changes across any IP connection. For more information on Double-Take visit: <http://www.visionsolutions.com/Products/DT-Avail.aspx>

### Fibre Channel SAN Connectivity

DakotaStor-WP2, integrated with optional Fibre Channel HBAs, provides NAS and iSCSI volume support from existing Fibre Channel SANs. DakotaNAS supports Flexible Volume Mounting, enabling proper auto-mounting behavior for LUNs and volumes. With auto-mounting disabled, DakotaNAS mounts only volumes and LUNs that an administrator explicitly directs it to mount. This behavior helps prevent data corruption incidents.

## Antivirus Support

Windows Storage Server 2008 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.

## System Recovery

DakotaStor-WP2 features an on-disk operating system recovery image for simple recovery to factory default settings. A system recovery DVD or USB stick is also included for bare-metal operating system recovery.

## Total Cost of Ownership

DakotaStor-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. By combining multiple storage technologies into one hardware platform and one management interface, DakotaStor-WP2 appliances reduce the cost of hardware, management, training, power, rack space, and support. For more information about Windows Storage Server 2008 R2, visit <http://www.microsoft.com/windowsserver2008/en/us/wss08.aspx>

## DakotaStor-WP2 Specifications—Pre-Installed Software

Microsoft Windows Storage Server 2008 R2	Windows Server 2008 R2 NAS Optimized Operating System is customized for file serving and tuned for performance and scalability.
Microsoft Services for Network File System (MSNFS)	Services for Network File System (NFS) is a set of services that integrates with Windows Server 2008 R2 to allow UNIX-based NFS clients to access resources on Windows Storage Servers without having to explicitly sign on to the Windows domain.
Windows Server Backup	Windows Server Backup enables administrators to backup files to external and internal disks, DVDs, and shared folders.
Microsoft iSCSI Software Target 3.3	Microsoft iSCSI Software Target enables you to implement an iSCSI SAN with storage provisioning and management capabilities. Managed via the Microsoft Management Console, administrators 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.
Remote Desktop for Administration	With Remote Desktop for Administration, you can remotely administer a storage appliance from virtually any computer on your network. Formerly known as Terminal Services in Remote Administration mode, you can use Remote Desktop for Administration to log on to the server remotely with any of the following features: <ul style="list-style-type: none"> <li>• Remote Desktop Connection</li> <li>• Remote Web Administration</li> <li>• Windows Server Remote Administration Applet</li> </ul>
Share and Storage Management	New Unified Share and Storage Management that simplifies management of: <ul style="list-style-type: none"> <li>• SMB and NFS share provisioning</li> <li>• Share and storage provisioning</li> <li>• Unified overview of storage and shares</li> <li>• Volume actions: extend, format, delete, &amp; properties</li> <li>• Share actions: Stop sharing &amp; properties</li> </ul>
Single Instance Storage (SIS)	Single Instance Storage, which reduces disk consumption by transparently consolidating redundant files, also features: <ul style="list-style-type: none"> <li>• Ability to undo single instancing</li> <li>• Scales to 128 volumes</li> <li>• Remote Administration via command line</li> <li>• WMI scripting support</li> <li>• Cluster support</li> </ul> Notes: <ul style="list-style-type: none"> <li>• SIS requires NTFS</li> <li>• SIS is not supported on system/boot or remote drives</li> <li>• SIS files can be replicated using DFS-R</li> <li>• Backup applications may use the SIS API (sisbkup)</li> <li>• SIS will not de-duplicate: <ul style="list-style-type: none"> <li>○ Encrypted files</li> <li>○ Files smaller than 32KB</li> <li>○ Files with hard-links</li> </ul> </li> </ul>
Super Doctor III (SDIII)	Super Doctor is a web-based software program that provides detailed hardware monitoring information to further enhance the capabilities of remote management. It allows you to define thresholds for fan, voltage and temperature monitoring and provides hardware health and performance information, remote console redirection, power cycle and event notification management.
Double-Take Availability (Option)	Double-Take Availability for Windows provides real-time high availability and immediate disaster recovery so you never have to worry about downtime or the lost revenue and chaos that ensue. Double-Take is required for replication of Microsoft iSCSI Software Targets.

## Management

- ✓ Remote Desktop for Administration
- ✓ Web Remote Desktop Protocol (RDP)
- ✓ Local via Keyboard & Mouse
- ✓ KVM & KVM over LAN
- ✓ File Server Resource Manager
- ✓ Storage Manager for SANs
- ✓ Share and Storage Management Snap-In
- ✓ Dynamic Volume Manager
- ✓ SNMP Support
- ✓ Email Alert Notification
- ✓ System and Security Logs
- ✓ System Health Monitoring
- ✓ Shadow Copies for Shared Folders
- ✓ IPMI 2.0 with Dedicated LAN

## 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 v5 Authentication
- ✓ Supports NTLM v2 Authentication
- ✓ RAID Protected OS

## File Sharing Protocols

- ✓ CIFS/SMB, NFS, FTP, HTTP, & WebDAV

## NIC Teaming Options

- ✓ Link Aggregation
- ✓ Load Balancing
- ✓ Failover

## JBOD Expansion

- ✓ HeritageXA

## Microsoft Windows Storage Server 2008 R2 Editions

Description	Windows Storage Server 2008 R2 Workgroup	Windows Storage Server 2008 R2 Standard	Windows Storage Server 2008 R2 Enterprise
NAS segments	Entry level	Scale up	High availability
Architecture	x64	x64	x64
CPU Sockets	1	4	8
Random access memory (RAM)	32 gigabytes	32 gigabytes	2 terabytes
Users	25	Unlimited	Unlimited
Disks (number / interfaces / RAID type)	6/Any/Any	Unlimited/Any/Any	Unlimited/Any/Any
Hardware RAID	Yes	Yes	Yes
File sharing (SMB or NFS)	Yes	Yes	Yes
Print and Document Services and DHCP Server roles	Yes	Yes	Yes
Windows Server backup	Yes	Yes	Yes
DFS Replication service	Yes	Yes	Yes
File Server Resource Manager	Yes	Yes	Yes
File Classification Infrastructure	Yes	Yes	Yes
Domain join	Yes	Yes	Yes
iSCSI Software Target 3.3 Application Pack support	Yes	Yes	Yes
Search	Yes	Yes	Yes
Web Remote Desktop Protocol (RDP) Mgmt UI	Yes	Yes	Yes
DNS and WINS	No	Yes	Yes
Read Only Domain Controller (RODC)	No	Yes	Yes
Single Instance Storage (SIS)	No	Yes	Yes
Virtualization (Hyper-V™ host or guest support)	No	Yes	Yes
BranchCache (Distributed/Hosted Cache)	No	No	Yes
Failover clustering	No	No	Yes
Simplified cluster setup	No	No	Yes

## RAID Controller Features

✓ Hardware RAID with Dedicated XOR Engine using Fusion-MPT	✓ Hot-plug Drive Support
✓ Support for up to 120 Devices per x4 Port	✓ Global, Dedicated and Enclosure Hot Spares
✓ RAID Levels 0, 1, 5, 6,10, 50, and 60	✓ Automatic or Manual Rebuild of Hot Spares
✓ 512 MB Onboard Cache	✓ Revertible Hot Spare Support
✓ Configurable Stripe Size up to 1MB	✓ Emergency SATA Hot Spare for SAS Arrays
✓ Fast Initialization	✓ S.M.A.R.T Support
✓ Supports up to 64 Logical Drives	✓ Patrol Read for Media Scanning and Repairing
✓ Up to 64TB LUN Support	✓ User-specified Rebuild Rate
✓ Online Capacity Expansion	✓ Check Consistency for Background Data Integrity
✓ Online RAID Level Migration	✓ SafeStore Encryption Services
✓ Native Command Queuing (NCQ)	✓ SSD Support with SSD Guard
✓ Background Initialization	✓ SES & SGPIO Enclosure Management
✓ Auto Resume Rebuild after System Power Loss	✓ Drive Spin-up Sequencing Control
✓ Single Controller Multipathing (failover)	✓ Drive Migration
✓ Load Balancing	✓ Drive Roaming

\* Features are for LSI 2108 ROC, 9260, & 9280 based systems. LSAI 2008 ROC based systems do not have RAID cache and do not support RAID levels 6, 50, and 60.

## RAID Controller Management Utilities

LSI MegaRAID Storage Manager (MSM)	MegaRAID Command Tool (CT)
✓ Java-based GUI Management Utility	✓ Command Line Interface
✓ SNMP, SMTP	✓ OS: NetWare, SCO, Solaris, FreeBSD, DOS
✓ Microsoft VDS Support	
✓ Remote Firmware Updates	WebBIOS Configuration Utility (CU)
✓ Drive Firmware Updates	✓ BIOS Level Configuration Utility
✓ Remote Configuration, monitoring and notification	✓ Flashable BIOS Support

## RAID Controller Advanced Software Services

<b>MegaRAID Recovery</b>	Provides snapshot functionality that allows users to capture source volume data changes, and either 'Restore from View' or 'Rollback' to a previous Point in Time (PiT). By supplementing traditional backup methods with MegaRAID Recovery, users can greatly enhance their level of business continuity, data protection and restore capabilities.
<b>MegaRAID CacheCade – SSD Caching</b>	Allows the DakotaStor's existing drive volume to utilize SSD technology as a secondary tier of cache to maximize random read performance. Blend inexpensive SATA drives with a small amount of solid state storage capacity and realize I/O performance improvements of 2x to 50x for read-intensive applications such as web, file, SQL, and other transactional server applications.
<b>LSI SafeStore Encryption Services</b>	SafeStore software, together with self-encrypting drives (SEDs), secures a drives data from unauthorized access or modification resulting from theft, loss or repurposing of drives. With features such as 'Instant Secure Erase' which instantly and securely renders data on SED drives unreadable via cryptographic erase, and 'Auto-Lock' which automatically locks down the drives data the moment it is switched off or unplugged, SafeStore provides enterprise-level security for data-at-rest.

## DakotaStor-WP2 Appliance Rack Specifications – 3.5” Drives – 1U/2U

	DW400AS	DW400AL	DW4000A DW4000AX	DW8200A	DW12200A
O/S Version	Windows Storage Server 2008 R2 Standard (64 Bit) (Workgroup Models Available)		Windows Storage Server 2008 R2 Standard (64 Bit)		
iSCSI Software Target	Included				
Rack Size	1U – 3.5” Drive Bays			2U – 3.5” Drive Bays	
Processor	1 x Xeon X3430, 2.4 GHz (Upgradeable to 2.66 GHz)	1 x Xeon 5606, 2.13 GHz (Upgradeable to 2 x 2.66 GHz CPUs)		1 x Xeon 5620, 2.4 GHz (Upgradeable to 2 x 2.66 GHz CPUs)	
Installed Memory	3 GB		3 GB	6 GB	
Max Memory	16 GB		32 GB	32 GB	
Drive Type	SATA		SAS & SATA		
O/S Drives*	0 - OS is loaded on an 80 GB RAID10 Logical Drive across all drives.			2 Mirrored Hot Swap – OS is installed on an 80 GB partition. Excess capacity available for data.	
Hot Swap Data Drives	4 (OS and Data)			6	10
RAID Controller	LSI 2008 ROC	LSI 9260-4i		LSI 9260-8i	LSI 9280-4i4e
RAID Cache Protection	N/A	BBU Included			
RAID Levels	0, 1, 5, 10	0, 1, 5, 6, 10, 50, 60		0, 1, 5, 6, 10, 50, 60	0, 1, 5, 6, 10, 50, 60
SAS RAID Expansion Ports	None		Optional (2 ports)*	Optional (2 ports)*	1 (SFF-8088) (Upgradeable to 3)
JBOD Expansion	None		Up to 96 Drives per expansion port	Up to 96 Drives per expansion port	Up to 108 Drives (plus 96 drives per expansion port)
Integrated LAN	2 x 1GbE		DW4004A - 4 x GbE with Intel I/O Acceleration 3  Dw4004AX - 2 x GbE with Intel I/O Accel. 3 & 2 x 10GbE with SFP+ I/F	4 x 1GbE with Intel I/O Acceleration 3	4 x 1GbE with Intel I/O Acceleration 3
External SAS Ports	N/A		Optional**	1 – SAS3G	1 – SAS3G
External SCSI Ports	N/A		Options for Single or Dual Ports	Options for Single or Dual Ports	Options for Single or Dual Ports
PCI Expansion Slots	1 - x8 PCIe 2.0		2 - x8 PCIe 2.0 1 – x4 PCIe 2.0 LP (5.5” depth)		
Optical Drive	DVD-ROM				None
USB Ports	2 – USB 2.0 (Rear)				
Serial Ports	1 – (Rear)				
IPMI 2.0 with Dedicated LAN	1x RJ45 Dedicated IPMI 2.0 LAN port with virtual media over LAN and KVM-over-LAN support				
Cooling Fans	4	5		4 – Hot Swap	3 – Hot Swap
Power Supply	1 x 350W	1 x 560W	2 x 700W Redundant	2 x 720W Redundant	2 x 1200W Redundant
Dimensions: H x W x D (in.)	1.7 x 17.2 x 19.8	1.7 x 17.2 x 25.6	1.7 x 17.2 x 27.75	3.5 x 17.2 x 25.5	
Operating Temperature	10°C to 35°C				
Operating Relative Humidity	8% to 90%				

## DakotaStor-WP2 Appliance Rack Specifications – 3.5” Drives – 3U/4U

	DW16200A	DW24200A	DW26200AF	DW36200A
O/S Version	Windows Storage Server 2008 R2 Standard (64 Bit)			
iSCSI Software Target	Included			
Rack Size	3U – 3.5” Drive Bays		4U – 3.5” Drive Bays	
Processor	1 x Xeon 5620, 2.4 GHz (Upgradeable to 2 x 2.66 GHz CPUs)			
Installed Memory	6 GB			
Max Memory	32 GB			
Drive Type	SAS & SATA			
O/S Drives*	2 Mirrored Hot Swap – OS is installed on an 80 GB partition. Excess capacity available for data.			
Hot Swap Data Drives	14	22	24	34
RAID Controller	LSI 9280-4i4e			
RAID Cache Protection	BBU Included			
RAID Levels	0, 1, 5, 6, 10,50, 60			
SAS RAID Expansion Ports	1 (SFF-8088) (Upgradeable to 3)			
JBOD Expansion	Up to 112 Drives (plus 96 drives per additional expansion port)	Up to 120 Drives (plus 96 drives per additional expansion port)	Up to 120 Drives (plus 96 drives per additional expansion port)	Up to 132 Drives (plus 96 drives per additional expansion port)
Integrated LAN	4 x 1GbE with Intel I/O Acceleration 3			
External SAS Ports	1 – SAS3G			
External SCSI Ports	Optional**			
PCI Expansion Slots	2 - x8 PCIe 2.0 1 - x4 PCIe 2x PCI 33 MHz			
Optical Drive	DVD-ROM		None	
USB Ports	2 – USB 2.0 (Rear)			
Serial Ports	1 – (Rear)			
IPMI 2.0 with Dedicated LAN	1x RJ45 Dedicated IPMI 2.0 LAN port with virtual media over LAN and KVM-over-LAN support			
Cooling Fans	5 – Hot Swap			7 – Hot Swap
Power Supply	2 x 1200W Redundant			2 x 1400W Redundant
Dimensions H x W x D (in.)	5.2 x 17.2 x 25.5	7 x 17.2 x 26	7 x 17.2 x 26	7 x 17.2 x 27.5
Operating Temperature	10°C to 35°C			
Operating Relative Humidity	8% to 90%			

\* All models include an additional 20 GB partition for the factory restore image  
Custom configurations are available upon request.

\*\* Requires PCIe slot.

## DakotaStor-WP2 Appliance Rack Specifications – 2.5” Drives – 1U/2U

	DW820BS	DW8200B	DW24200B
O/S Version	Windows Storage Server 2008 R2 Standard (64 Bit)		
iSCSI Software Target	Included		
Rack Size	1U – 2.5” Drive Bays		2U – 2.5” Drive Bays
Processor	1 x Xeon X3430, 2.4 GHz (Upgradeable to 2.66 GHz)	1 x Xeon 5606, 2.13 GHz (Upgradeable to 2 x 2.66 GHz CPUs)	1 x Xeon 5620, 2.4 GHz (Upgradeable to 2 x 2.66 GHz CPUs)
Installed Memory	3 GB	3 GB	6 GB
Max Memory	16 GB	32 GB	32 GB
Drive Type	SAS & SATA		
O/S Drives	2 Mirrored Hot Swap – OS is installed on an 80 GB partition. Excess capacity available for data.		
Hot Swap Data Drives	6		22
RAID Controller	LSI 2008 ROC	LSI 9260-8i	LSI 9280-4i4e
RAID Cache Protection	N/A	BBU Included	
RAID Levels	0, 1, 5, 10	0, 1, 5, 6, 10, 50, 60	
SAS RAID Expansion Ports	None	Optional (2 ports)*	1 (SFF-8088) (Upgradeable to 3)
JBOD Expansion	None	Up to 96 drives per optional RAID expansion port	Up to 120 Drives (plus 96 drives per additional RAID expansion port)
Integrated LAN	2 x 1GbE	4 x 1GbE with Intel I/O Acceleration 3	
External SAS Ports	N/A	Optional**	1 – SAS3G
External SCSI Ports	N/A	Optional**	
PCI Expansion Slots	N/A	2 - x8 PCIe 2.0 1 - x4 PCIe 2.0 LP (5.5" depth)	2 - x8 PCIe 2.0 LP 1 - x4 PCIe LP 2 – PCI 33 MHz LP
Optical Drive	DVD-ROM		None
USB Ports	2 – USB 2.0 (Rear)		
Serial Ports	1 – (Rear)		
IPMI 2.0 with Dedicated LAN	1x RJ45 Dedicated IPMI 2.0 LAN port with virtual media over LAN and KVM-over-LAN support		
Cooling Fans	5	5	3 – Hot Swap
Power Supply	1 x 560W Fixed	2 x 700W Redundant	2 x 1200W Redundant
Dimensions: H x W x D (in.)	1.7 x 17.2 x 19.98	1.7 x 17.2 x 27.75	3.5 x 17.2 x 25.5
Operating Temperature	10°C to 35°C		
Operating Relative Humidity	8% to 90%		



## DakotaStor-WP2 Appliance Tower Specifications

	DW400APT	DW400AT	DW800AT	DW8200AT
O/S Version	Windows Storage Server 2008 R2 Standard (64 Bit) (Workgroup Models Available)		Windows Storage Server 2008 R2 Standard (64 Bit)	
iSCSI Software Target	Included			
Tower Form Factor	Mid Tower		Full Tower Can be converted to 4U Rack (Requires rack mounting kit)	
Processor	1 x Pentium E5300, 2.6 GHz	1 x Xeon 5603, 1.6 GHz (Upgradeable to 2.66 GHz)	1 x Xeon 5606, 2.13 GHz (Upgradeable to 2.66 GHz)	1 x Xeon 5620, 2.4 GHz (Upgradeable to 2 x 2.66 GHz CPUs)
Installed Memory	1 GB	3 GB	3 GB	6 GB
Max Memory	4 GB	24 GB	24 GB	32 GB
Drive Type	SATA			SAS & SATA
O/S Drives	0 - OS is loaded on an 80 GB RAID10 Logical Drive across all drives.			2 Mirrored Hot Swap – OS is installed on an 80 GB partition. Excess capacity available for data.
Hot Swap Data Drives	4 (OS and Data)	4 (OS and Data)	4 (OS and Data) With 4 Expansion Bays	6
RAID Controller	LSI 9260-4i		LSI 9260-8i	LSI 9260-8i
RAID Cache Protection	BBU Included	Optional Battery Backup Unit Available		BBU Included
RAID Levels Supported	0, 1, 5, 6, 10 Factory Default RAID-5	0, 1, 5, 6, 10, 50, 60 Factory Default RAID-5		0, 1, 5, 6, 10, 50, 60
SAS RAID Expansion Ports	None	Option to add two x4 RAID Expansion Ports		
JBOD Expansion	None	Up to 96 Drives per expansion port		
Integrated LAN	1 x 1GbE	2 x 1GbE		4 x 1GbE with Intel I/O Acceleration 3
External SAS Ports	Optional**			1 x 3Gb/s Port
External SCSI Ports	Options for Single or Dual Ports*			
PCI Expansion Slots	1 – x1 PCIe 2 – 32-bit PCI	2- x8 PCIe 2.0 1 - x4 PCIe 2x PCI 32-bit		
Optical Drive	DVD-ROM			
USB Ports	4 – USB 2.0 (Rear) 2 – USB 2.0 (Front)	2 – USB 2.0 (Rear) 2 – USB 2.0 (Front)		
Serial Ports	1	1		
IPMI 2.0 with Dedicated LAN	N.A	Included		
Cooling Fans	2	2	3	5 – Hot Swap
Power Supply	1 - 500W Fixed	1 - 665W Fixed	1 - 865W Fixed	2 - 800W Redundant
Dimensions H x W x D (in.)	16.8 x 7 x 20.9		17.8 x 7 x 25.5	17.2 x 7 x 25.5
Rack Kit Option	No		Yes	
Operating Temperature	10°C to 35°C			
Operating Relative Humidity	8% to 90%			

## DakotaStor-WP2 Gateway Specifications

	DW4200AG	DW4200AGX	DW8200AG	DW8200AGX
O/S Version	Windows Storage Server 2008 R2 Standard (64 Bit) (Upgradeable to Enterprise)			
iSCSI Software Target	Included			
Rack Size	1U – 3.5" Drive Bays		2U – 3.5" Drive Bays	
Processor	1 x Xeon 5620, 2.4 GHz (Upgradeable to 2 x 2.66 GHz CPUs)			
Installed Memory	6 GB			
Max Memory	32 GB			
Supported Drive Types	SAS & SATA			
Hot Swap Mirrored O/S Drives	2 Mirrored Hot Swap – OS is installed on an 80 GB partition. Excess capacity available for data.			
Additional Drive Bays	2		6	
RAID Controller	LSI 2108 ROC			
RAID Cache Protection	BBU Included			
RAID Levels Supported	Factory Default RAID 1 / Controller Supports 0, 1, 5, 6, 10,50, 60			
Integrated LAN	4 x 1GbE with Intel I/O Acceleration 3	4 x GbE with Intel I/O Acceleration 3 2 x 10GbE with SFP+ I/F	4 x 1GbE with Intel I/O Acceleration 3	4 x GbE with Intel I/O Acceleration 3 2 x 10GbE with SFP+ I/F
IPMI Support	1x RJ45 Dedicated IPMI 2.0 LAN port with virtual media over LAN and KVM-over-LAN support			
External SAS Ports	Option (Requires available PCIe slot)			
External SCSI Ports	Option (Requires available PCIe slot)			
External FC Ports	Option (Requires available PCIe slot)			
External iSCSI HBA Ports	Option (Requires available PCIe slot)			
PCI Expansion Slots	2 - x8 PCIe 2.0 1 - x4 PCIe 2.0 LP (5.5" depth)			
Optical Drive	DVD ROM			
USB Ports	2 – USB 2.0 (Rear)			
Serial Ports	1 (Rear)			
Cooling Fans	5		4 – Hot Swap	
Power Supply	700W Redundant		920W Redundant	
Dimensions H x W x D (in.)	1.7 x 17.2 x 27.75		3.5 x 17.2 x 27.75	
Operating Temperature	10°C to 35°C		10°C to 35°C	
Operating Relative Humidity	8% to 90%		8% to 90%	

## Warranty & Support

DakotaStor-WP2 ships with:

- ✓ 3 Year advance replacement of defective field-replaceable components
- ✓ 9 x 5 toll-free technical support

Warranty uplifts are available for:

- ✓ 9 x 5 Call Center with NBD onsite
- ✓ 24 x 7 Call Center with NBD onsite
- ✓ 24 x 7 Call Center with 4 hour onsite (requires spares kit)

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