

# Hardware Certification List (HCL) for NexentaStor 4.0.x

Product Management  
Certification Team

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## Revision History

04/30/2014	HCL 4.0 redesign: RA, RA+, CS
07/10/2014	<p><b>Additions</b></p> <p>1.3: Certification: Clarify certification process</p> <p>3.1: Dell RA+: Revise supported components</p> <p>3.2: SuperMicro RA+: Support all SMC-qualified SAS HDD and SAS SSD</p> <p>3.3: HP RA+: D6000 added to HP+ building blocks. Clarify 2.5" vs. 3.5" HDD support</p> <p>4.2 CS: Add clarification that CS building blocks are not for mix and match</p> <p>General</p> <ul style="list-style-type: none"> <li>- Emulex LPe 12004 added to Dell, SuperMicro, and HP RA+</li> <li>- SED support notes added</li> <li>- Clarification of internal SAS controller for RA/RA+ on SMC &amp; Dell</li> <li>- Added BIOS for Dell, SMC &amp; HP RA/RA+</li> </ul> <p><b>Corrections</b></p> <p>3.2: SuperMicro RA+: 846E26-R1200LPB → 826E26-R1200LPB</p> <p>4.2: Certified Solutions building blocks: 2TB NLC SAS → 2TB NL SAS</p>
12/15/2014	<p><b>Additions</b></p> <p>2.1: Dell RA: Added R730 (Dell 13G Server) based RAs</p> <p>3.1: Dell RA+: Added section for 13G based hardware</p> <p>4.1: Certified Solutions: Added Adcap Systems and Besta</p> <p>7.0: Appendix A: Added a table listing certified SSDs</p> <p><b>White on grey items are supported but not preferred for new deployments</b></p> <p>2.2: Dell RA: In ZIL/SLOG row, 200GB SLC replaced with 200GB SSD</p> <p>2.3: Supermicro RA: In ZIL/SLOG row, 200GB SLC replaced with 200GB UltraStar SSD</p> <p>3.1: Dell RA+</p> <ul style="list-style-type: none"> <li>• In L2ARC row, 400 GB SLC option under MD1200 is white on grey</li> <li>• In ZIL/SLOG row, 200GB SLC option under MD1220 replaced with 200 GB SSD</li> </ul> <p>3.2: Supermicro RA+: 200GB SLC in ZIL/SLOG row is white on grey</p> <p>3.3: HP RA+: In ZIL/SLOG row, 400GB SLC under D2700 is white on grey</p> <p><b>Modifications</b></p> <p>2.2: Dell RA: BIOS version for R720 changed to 2.2.3</p> <p>3.1: Dell RA+: Additions in HDD row under MD3060e columns, including HDD range now up to 6TB</p>
1/22/2015	<p><b>Additions</b></p> <p>3.3: SuperMicro RA+: Added 90-bay JBOD in fourth column</p> <p>4.1: Certified Solutions: Added a row for Zstor</p> <p>4.2: Certified Solutions Building Blocks: Added controller X9DRD-7LN4F and CPU</p> <p>Appendix: Noted SSDs that were tested and supported by both Nexenta and Supermicro</p>

## 1.0 Overview

### 1.1 Introduction

NexentaStor is Nexenta's flagship Software Defined Storage (SDS) platform, allowing thousands of customers all around the world to transform their storage infrastructure, increase flexibility and agility, simplify management, and dramatically reduce costs without compromising on availability, reliability, or functionality.

NexentaStor delivers unified file and block storage services, runs on industry standard hardware, scales from tens of terabytes to petabyte configurations, and includes all data management functionalities. NexentaStor is Software Defined Storage with SMARTS: Security, Manageability, Availability, Reliability, (lower) TCO, and Scalability.

This document is intended for Nexenta Partners and Nexenta customer-facing organizations. The latest version of Nexenta Hardware Certification List (HCL) is posted on Partner Portal. For NexentaConnect utilizing VMware vSphere, please refer to VMware HCL.

### 1.2 Nexenta Storage Solutions

Partners who are looking to offer NexentaStor storage solutions have the following options:

- Reference Architecture (RA)
- Reference Architecture Plus (RA+)
- Certified Solution (CS)

#### 1.2.1 Reference Architecture (RA)

A reference architecture consists of fixed sets of components within RA building blocks. RA building blocks are:

- Controllers: x86 servers with specific CPU, memory, NICs, and HBAs
- Storage enclosures: JBOD with specific HDDs and SSDs
- NexentaStor software

The detailed list of components for each RA configuration is listed in Section 2.0. Nexenta and hardware technology partners (such as Dell, SuperMicro, and others) collaborate to pre-certify NexentaStor software releases on each RA solution. In most cases, hardware technology partners offer consolidated SKUs for RA configurations to simplify ordering and selling of NexentaStor solutions. As a result, RAs typically provide the fastest path to market for Nexenta Partners.

### 1.2.2 Reference Architecture Plus (RA+)

Reference Architecture Plus are targeted variations from RA configurations and provide additional flexibility to Nexenta Partners. That flexibility is limited to modifying specific attributes of RA building blocks. Specifically, RA+ allows variations in CPU, DRAM, NIC, SAS HBA, and FC HBA in controllers and enclosure count, HDDs, SSDs in storage enclosures. Refer to Section 3.0 for more details. While RA+ provide additional flexibility to Nexenta Partners, they also require a lightweight Nexenta certification effort.

### 1.2.3 Certified Solution (CS)

Any deviations outside the scope of Reference Architecture and Reference Architecture Plus require Nexenta certification. Certification may be a lengthy process depending on the nature of the certification and requires extra efforts from both Partners' and Nexenta's engineering resources. Additional fees are required for certification. Unless CS is necessary, it is recommended that RA is the first choice of considerations for all deployments.

**Note:** Certified Solutions are specific to NexentaStor major releases. For example, a Certified Solution for NexentaStor 3.1.x does not automatically carry forward to NexentaStor 4.0 and will need to get re-certified.

RA	RA+	CS
<ul style="list-style-type: none"> <li>• Exact configurations with specific components within each configuration</li> </ul>	<ul style="list-style-type: none"> <li>• Controller Variations               <ul style="list-style-type: none"> <li>○ CPU type</li> <li>○ DRAM quantity</li> <li>○ NIC</li> <li>○ SAS HBA</li> <li>○ FC HBA</li> </ul> </li> <li>• Storage Enclosure Variations               <ul style="list-style-type: none"> <li>○ Enclosure count</li> <li>○ HDD type and count</li> <li>○ SSD type and count</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Controllers and/or Storage Enclosures that are outside of RA+ scope</li> <li>• Open Configurations</li> <li>• Certifications Required</li> </ul>

## 1.3 Certification

Certification requests (certification request CR form and certification testing requirement CTR form) can be made at <http://www.nexenta.com/hcl>. Both RA+ and CS require certification request. Estimation of completion time is in the following (from the receipt of certification requests):

	RA	RA+	CS
<b>Certification Request</b>	<ul style="list-style-type: none"> <li>No certification or approval necessary</li> </ul>	<ul style="list-style-type: none"> <li>Submit CR and CTR</li> <li>Nexenta SE can pre-approve RA+</li> </ul>	<ul style="list-style-type: none"> <li>Submit CR and CTR</li> </ul>
<b>Certification Process</b>	<ul style="list-style-type: none"> <li>Nexenta certification process (default)</li> </ul>	<ul style="list-style-type: none"> <li>Review RA+ config</li> <li>No certification tests</li> <li>Approval of RA+</li> </ul>	<ul style="list-style-type: none"> <li>Review CS config</li> <li>Nexenta certification tests</li> <li>Approval of CS</li> </ul>
<b>Estimated Completion</b>	n/a	Up to two weeks	Up to eight weeks
<b>Certification Fees</b>	n/a	n/a	Yes (Contact Sales)

Above estimation completion does not include new driver development and is subject to change at any time. For questions, contact [certsolprg@nexenta.com](mailto:certsolprg@nexenta.com).

## 2.0 Reference Architectures

### 2.1 Dell RA – Based on 13G Servers

Dell RA	Entry Level ND-44-13G	Midrange ND-88-13G	Midrange Expanded ND-176-13G	Large ND-224-13G	Large Expanded ND-456-13G	Backup and Archive ND-960-13G
Raw Capacity	44TB	88TB	176TB	224TB	456TB	960TB
Data Drive #	44	44	88	112	228	240
Form Factor (total system)	8U	12U	20U	12U	20U	20U
Memory (total system)	192GB	192GB	192GB	512GB	512GB	512GB
Read Cache	Up to 800GB	Up to 800GB	Up to 1.6TB	Up to 1.6TB	Up to 1.6TB	n/a
10GbE port	2	2	2	2	2	2
Software	NexentaStor 4.0					
Protocol	NFS v3, v4, CIFS, SMB 2.1, FC, iSCSI					
Client OS	RHEL, Windows, VMware, Hyper-V, OpenStack, CloudStack					

Dell RA	Entry Level ND-44-13G	Midrange ND-88-13G	Midrange Expanded ND-176-13G	Large ND-224-13G	Large Expanded ND-456-13G	Backup and Archive ND-960-13G
Controller	2x <a href="#">R730</a>					
CPU	E5-2609v3 1.9GHz, 6-core, 2-socket			E5-2643v3 3.4GHz, 6-core, 2-socket		
DRAM	96GB (12x 8GB)			256GB (16x 16GB)		
Boot Drive	2TB (2x 1TB NL SAS 7.2k 3.5)					
SAS HBA	2x LSI 9300-8e	4x LSI 9300-8e	4x LSI 9300-8e	2x LSI 9207-8e	4x LSI 9207-8e	4x LSI 9207-8e
NIC	H730 (for internal SysPool drives only)					
NIC	1x X520 10GbE DA/SPF+					
Storage Enclosure	2x <a href="#">MD1420</a> (24-bay)	4x <a href="#">MD1400</a> (12-bay)	8x <a href="#">MD1400</a> (12-bay)	2x <a href="#">MD3060e</a> (60-bay)	4x <a href="#">MD3060e</a> (60-bay)	4x <a href="#">MD3060e</a> (60-bay)
Data HDD	1TB NL SAS 7.2k 2.5	2TB NL SAS 7.2k 3.5				4TB NL SAS 7.2k 3.5
Data Drive #	44	44	88	112	228	240
L2ARC	Up to 800GB (0 – 2x 400GB)		Up to 1.6TB (0 – 4x 400GB)			n/a
ZIL/SLOG	2x 200GB SSD CV6W8	2x ZeusRAM Z4RZF3D-8UC	4x ZeusRAM Z4RZF3D-8UC	8x ZeusRAM Z4RZF3D-8UC		n/a

**Note 1:** For Dell deployments, please use Nexenta-labeled hardware in DellStar ordering system

**Note 2:** BIOS for R730 system is 1.0.4

**Note 3:** Chassis management for MD1400 and MD1420 enclosures is targeted for delivery by end of Q1 2015

## 2.2 Dell RA – Based on 12G Servers

Dell RA	Entry Level ND-44	Midrange ND-88	Midrange Expanded ND-176	Large ND-224	Large Expanded ND-456	Backup and Archive ND-960
Raw Capacity	44TB	88TB	176TB	224TB	456TB	960TB
Data Drive #	44	44	88	112	228	240
Form Factor (total system)	8U	12U	20U	12U	20U	20U
Memory (total system)	192GB	192GB	192GB	512GB	512GB	512GB
Read Cache	Up to 800GB	Up to 800GB	Up to 1.6TB	Up to 1.6TB	Up to 1.6TB	n/a
10GbE port	2	2	2	2	2	2
Software	NexentaStor 4.0					
Protocol	NFS v3, v4, CIFS, SMB 2.1, FC, iSCSI					
Client OS	RHEL, Windows, VMware, Hyper-V, OpenStack, CloudStack					

Dell RA	Entry Level ND-44	Midrange ND-88	Midrange Expanded ND-176	Large ND-224	Large Expanded ND-456	Backup and Archive ND-960
Controller	2x <a href="#">R720</a>					
CPU	E5-2609 2.4GHz, 4-core, 2-socket			E5-2643 3.3GHz, 4-core, 2-socket		
DRAM	96GB (12x 8GB)			256GB (16x 16GB)		
Boot Drive	2TB (2x 1TB NL SAS 7.2k 3.5)					
SAS HBA	2x LSI 9207-8e		4x LSI 9207-8e			
NIC	H710 (for internal SysPool drives only)					
NIC	1x X520 10GbE DA/SPF+					
Storage Enclosure	2x <a href="#">MD1220</a> (24-bay)	4x <a href="#">MD1200</a> (12-bay)	4x <a href="#">MD1200</a> (12-bay)	2x <a href="#">MD3060e</a> (60-bay)	4x <a href="#">MD3060e</a> (60-bay)	4x <a href="#">MD3060e</a> (60-bay)
Data HDD	1TB NL SAS 7.2k 2.5		2TB NL SAS 7.2k 3.5			4TB NL SAS 7.2k 3.5
Data Drive #	44	44	88	112	228	240
L2ARC	Up to 800GB (0 – 2x 400GB)		Up to 1.6TB (0 – 4x 400GB)			n/a
ZIL/SLOG	<a href="#">2x 200GB SLC</a> 2x 200GB SSD CV6W8	2x ZeusRAM Z4RZF3D-8UC	4x ZeusRAM Z4RZF3D-8UC		8x ZeusRAM Z4RZF3D-8UC	n/a

**Note 1:** For Dell deployments, please use Nexenta-labeled hardware in DellStar ordering system

**Note 2:** BIOS for R720 system is 2.2.3

**Note 3:** [White on grey items](#) are supported but not preferred for new deployments



## 2.3 SuperMicro RA

SuperMicro RA	NSM-20	NSM-40	NSM-54	NSM-84	NSM-170	NSM-348	NSM-520	NSM-1440
Raw Capacity	20TB	40TB	54TB	84TB	170TB	348TB	520TB	1440TB
Data Drive #	10	20	45	42	85	174	260	360
Form Factor (total system)	2U	8U	8U	8U	12U	20U	28U	36U
Memory (total system)	96GB	192GB	512GB	512GB	512GB	512GB	512GB	512GB
Read Cache	n/a	400GB	400GB	400GB	800GB	800GB	800GB	n/a
10GbE port	2	2	2	2	4	4	4	4
Software	NexentaStor 4.0							
Protocol	NFS v3, v4, CIFS, SMB 2.1, FC, iSCSI							
Client OS	RHEL, Windows, VMware, Hyper-V, OpenStack, CloudStack							

SuperMicro RA	NSM-20	NSM-40	NSM-54	NSM-84	NSM-170	NSM-348	NSM-520	NSM-1440
Controller	1x <a href="#">SSG-6027R-NEX1</a>	2x <a href="#">SSG-6027R-NEX1</a>	2x <a href="#">SSG-6027R-NEX2</a>					
CPU	E5-2609 2.4GHz, 4-core, 2-socket		E5-2643 3.3GHz, 4-core, 2-socket					
DRAM	96GB (12x 8GB)		256GB (16x 16GB)					
Boot Drive	2TB (2x 1TB NL SAS 7.2k 3.5)							
SAS HBA	n/a	1x LSI 9207-8e			2x LSI 9207-8e	2x LSI 9206-16e	3x LSI 9206-16e	4x LSI 9206-16e
	Internal embedded LSI 2308 (on Motherboard, in IT/JBOD mode, for internal SysPool drives only)							
NIC	1x X520 10GbE DA/SPF+				2x X520 10GbE DA/SPF+			
Data HDD	10x 2TB SAS 7.2k	n/a						
Storage Enclosure	n/a	2x <a href="#">826E26-R1200LPB</a> (12-bay)	2x <a href="#">216E26-R1200LPB</a> (24-bay)	1x <a href="#">847E26-RJBOD1</a> (45-bay)	2x <a href="#">847E26-RJBOD1</a> (45-bay)	4x <a href="#">847E26-RJBOD1</a> (45-bay)	6x <a href="#">847E26-RJBOD1</a> (45-bay)	8x <a href="#">847E26-RJBOD1</a> (45-bay)
Data HDD	n/a	2TB NL SAS 7.2k 3.5	1.2TB SAS 10k 2.5	2TB NL SAS 7.2k 3.5				4TB NL SAS 7.2k 3.5
Data Drive #	n/a	20	45	42	85	174	260	360
L2ARC	n/a	400GB MLC (1x 400GB)				800GB MLC (2x 400GB)		n/a
ZIL/SLOG	n/a	2x ZeusRAM Z4RZF3D-8UC	2x 200GB SLC 2x 200GB UltraStar SSD (see Appendix A)	2x ZeusRAM Z4RZF3D-8UC	4x ZeusRAM Z4RZF3D-8UC		8x ZeusRAM Z4RZF3D-8UC	n/a

**Note 1:** White on grey items are supported but not preferred for new deployments

## 3.0 Reference Architecture Plus

### 3.1 Dell RA+ (13G Based)

- Controllers and storage enclosures pairing is restricted within RA building blocks only. For example, R730 can be paired with any storage enclosures in the following list, but not across different RA partners building blocks, e.g. SMC.
- Variations in the following are permitted:
  - Controller: CPU type, DRAM capacity, SAS HBA type and count, NIC type and count, FC HBA type and count.
  - Storage enclosure: HDD type and count, SSD type and count, storage enclosure type and count.
- All Dell-qualified HDD and SSD manufacturers are supported as data HDD and data SSD respectively.

Dell RA+ Building Blocks - Controller	
Controller	<a href="#">R730</a>
CPU	All CPUs on Dell-supported list
DRAM	96GB to 256GB per controller
Boot Drive	2x 1TB NL SAS 7.2k 2.5 (mirrored)
SAS HBA	LSI-9300-8e LSI 9207-8e LSI 9206-16e <b>H730 (for internal SysPool drives only)</b>
NIC	X520 10GE DA/SPF+ X540 10GE RJ45 I350
FC HBA	Emulex LPe 12000, LPe 12002, LPe 12004 QLogic QLE 2462, QLE 2562

Dell RA+ Building Blocks – Storage Enclosure			
Storage Enclosure	<a href="#">MD1400</a>	<a href="#">MD1420</a>	<a href="#">MD3060e</a>
Data HDD	All SAS HDD on Dell-qualified list 7.2k SAS HDD ≤ 4TB 3.5 10k SAS HDD ≤ 1.2TB 3.5 15k SAS HDD ≤ 600GB 3.5	All SAS HDD on Dell-qualified list 7.2K SAS HDD ≤ 1TB 2.5 10k SAS HDD ≤ 1.2TB 2.5 15k SAS HDD ≤ 600GB 2.5	All SAS HDD on Dell-qualified list 7.2k SAS HDD ≤ 6TB 3.5 7.2K SAS HDD ≤ 1TB 2.5 10k SAS HDD ≤ 1.2TB 2.5 15k SAS HDD ≤ 300GB 2.5
L2ARC	200GB MLC 2.5 400GB MLC 2.5		
ZIL/SLOG	ZeusRAM 3.5	200GB SSD 2.5	ZeusRAM 3.5
Data SSD	All SAS SSD on Dell-qualified list		

**Note 1:** Up to 8x MD3060e supported.

**Note 2:** There is no Self-encrypting Drives (SED) support in NexentaStor at this time. SED drives certification can be waived with the following assumptions:

- Same hardware and firmware as non-SED (that was certified by Nexenta)
- Self-encrypting feature turned off

### 3.2 Dell RA+ (12G Based)

- Controllers and storage enclosures pairing is restricted within RA building blocks only. For example, R720 can be paired with any storage enclosures in the following list, but not across different RA partners building blocks, e.g. SMC.
- Variations in the following are permitted:
  - Controller: CPU type, DRAM capacity, SAS HBA type and count, NIC type and count, FC HBA type and count.
  - Storage enclosure: HDD type and count, SSD type and count, storage enclosure type and count.
- All Dell-qualified HDD and SSD manufacturers are supported as data HDD and data SSD respectively.

Dell RA+ Building Blocks - Controller	
Controller	<a href="#">R620</a> <a href="#">R720</a>
CPU	All CPUs on Dell-supported list
DRAM	96GB to 256GB per controller
Boot Drive	2x 1TB NL SAS 7.2k 2.5 (mirrored)
SAS HBA	LSI 9207-8e LSI 9206-16e H710 (for internal SysPool drives only)
NIC	X520 10GE DA/SPF+ X540 10GE RJ45 I350
FC HBA	Emulex LPe 12000, LPe 12002, LPe 12004 QLogic QLE 2462, QLE 2562

Dell RA+ Building Blocks – Storage Enclosure			
Storage Enclosure	<a href="#">MD1200</a>	<a href="#">MD1220</a>	<a href="#">MD3060e</a>
Data HDD	All SAS HDD on Dell-qualified list 7.2k SAS HDD ≤ 4TB 3.5 10k SAS HDD ≤ 1.2TB 3.5 15k SAS HDD ≤ 600GB 3.5	All SAS HDD on Dell-qualified list 10k SAS HDD ≤ 1.2TB 2.5 15k SAS HDD ≤ 600GB 2.5	All SAS HDD on Dell-qualified list 7.2k SAS HDD ≤ 6TB 3.5 7.2K SAS HDD ≤ 1TB 2.5 10k SAS HDD ≤ 1.2TB 2.5 15k SAS HDD ≤ 300GB 2.5
L2ARC	<a href="#">400GB SLC</a> 200GB MLC 2.5 400GB MLC 2.5		
ZIL/SLOG	ZeusRAM 3.5	<a href="#">200GB SLC</a> 200GB SSD 2.5	ZeusRAM 3.5
Data SSD	All SAS SSD on Dell-qualified list		

**Note 1:** Up to 8x MD3060e supported.

**Note 2:** There is no Self-encrypting Drives (SED) support in NexentaStor at this time. SED drives certification can be waived with the following assumptions:

- Same hardware and firmware as non-SED (that was certified by Nexenta)
- Self-encrypting feature turned off

**Note 3:** [White on grey items](#) are supported but not preferred for new deployments

### 3.3 SuperMicro RA+

- Controllers and storage enclosures pairing is restricted within RA building blocks only. For example, 6027R-E1R12L can be paired with any storage enclosures in the following list, but not across different RA partners building blocks, e.g. Dell.
- Variations in the following are permitted:
  - Controller: CPU type, DRAM capacity, SAS HBA type and count, NIC type and count, FC HBA type and count.
  - Storage enclosure: HDD type and count, SSD type and count, storage enclosure type and count.
  - All HDD and SSD manufacturers qualified by SuperMicro are supported as data HDD and data SSD respectively.

SMC RA+ Building Blocks - Controller	
Controller	<a href="#">SSG-6027R-E1R12L</a>
CPU	E5-2609, 2.4GHz, 4-core, 2-socket E5-2609 v2, 2.5GHz, 4-core, 2-socket E5-2643, 3.3GHz, 4-core, 2-socket E5-2643 v2, 3.5GHz, 6-core, 2-socket
DRAM	64GB to 512GB per controller
Boot Drive	2x 1TB NL SAS 7.2k 3.5 (mirrored)
SAS HBA	LSI 9207-8e LSI 9206-16e Internal embedded LSI 2308 (on Motherboard, in IT/JBOD mode, for internal SysPool drives only)
NIC	X520 10GE DA/SPF+ X540 10GE RJ45
FC HBA	Emulex LPe 12000, LPe 12002, LPe 12004 QLogic QLE 2462, QLE 2562

SMC RA+ Building Blocks – Storage Enclosure				
Storage Enclosure	<a href="#">826E26-R1200LPB</a>	<a href="#">847E26-RJBOD1</a>	<a href="#">216E26-R1200LPB</a>	<a href="#">SC847DE26-R2K02JBOD</a> <sup>4</sup>
Data HDD	All SAS HDD ≤ 4TB on SMC-qualified list			
L2ARC	200GB MLC 2.5 – See Appendix A for specific options 400GB MLC 2.5 – See Appendix A for specific options			
ZIL/SLOG	<b>200GB SLC</b> ZeusRAM 3.5 – See Appendix A for SSD based alternatives			
Data SSD	All SAS SSD on SMC-qualified list			

**Note 1:** There is no Self-encrypting Drives (SED) support in NexentaStor at this time. SED drives certification can be waived with the following assumptions:

- Same hardware and firmware as non-SED (that was certified by Nexenta)
- Self-encrypting feature turned off

**Note 2:** Motherboard BIOS for the SMC RA/RA+ is 3.0

**Note 3:** **White on grey items** are supported but not preferred for new deployments

**Note 4:** Deploying 90-bay JBOD will require professional services

### 3.4 HP RA+

- Controllers and storage enclosures pairing is restricted within RA building blocks only. For example, DL380e can be paired with any storage enclosures in the following list, but not across different RA partners building blocks, e.g. Dell
- Variations in the following are permitted
  - Controller: CPU type, DRAM capacity, SAS HBA type and count, NIC type and count, FC HBA type and count
  - Storage enclosure: HDD type and count, SSD type and count, storage enclosure type and count
- All HP-qualified HDD and SSD manufacturers are supported as data HDD and data SSD respectively

HP RA+ Building Blocks - Controller		
Controller	<a href="#">DL380e G8</a>	<a href="#">DL380p G8</a>
CPU	E5-2407, 2.2GHz, 4-core, 2-socket	E5-2643, 3.3GHz, 4-core, 2-socket
DRAM	96GB to 384GB per controller	256GB to 512GB per controller
Boot Drive	2x 1TB NL SAS 7.2k 2.5 (mirrored)	
SAS HBA	HP H221 (external) HP H220 (internal)	
NIC	HP 560SFP+	
FC HBA	Emulex LPe 12000, LPe 12002, LPe 12004 QLogic QLE 2462, QLE 2562	

HP RA+ Building Blocks – Storage Enclosure			
Storage Enclosure	<a href="#">D2600</a>	<a href="#">D2700</a>	<a href="#">D6000</a>
Data HDD	All SAS HDD ≤ 4TB on HP-qualified list		
	3.5" HDD	2.5" HDD	3.5" HDD
L2ARC	n/a	200GB MLC 2.5 (741136-B21) 400GB MLC 2.5 (741140-B21) 800GB MLC 2.5 (741144-B21)	n/a
ZIL/SLOG	ZeusRAM 3.5	200GB SLC 2.5 (741148-B21) 400GB SLC 2.5 (741153-B21)	n/a
Data SSD	All SAS SSD on HP-qualified list		

**Note 1:** There is no Self-encrypting Drives (SED) support in NexentaStor at this time. SED drives certification can be waived with the following assumptions:

- Same hardware as non-SED (that was certified by Nexenta)
- Same firmware as non-SED (that was certified by Nexenta)
- Self-encrypting feature turned off

**Note 2:** BIOS for HP RA/RA+ is P70

**Note 3:** D6000 starting with NexentaStor 4.0.3

## 4.0 Certified Solutions

### 4.1 Certified Solutions 4.0

The following is a list of Nexenta partners' solutions that are certified with NexentaStor 4.0

Nexenta Certified Solutions		
Partner Name	Partner Solutions	NexentaStor Release
Aberdeen	<ul style="list-style-type: none"> <li>AberSAN Z22</li> <li>AberSAN Z32</li> <li>AberSAN Z42</li> <li>AberSAN ZXP2</li> <li>AberSAN ZXP3</li> <li>AberSAN Petarack2</li> <li>AberSAN Petarack3</li> </ul>	4.0
Adcap Systems	<ul style="list-style-type: none"> <li>Adcap SwiftStor C7000 series</li> </ul>	4.0
AIC	<ul style="list-style-type: none"> <li>SB402-CP2 4U Storage Server</li> </ul>	4.0
Besta	<ul style="list-style-type: none"> <li>Besta SD201</li> </ul>	4.0
Pogo Storage	<ul style="list-style-type: none"> <li>StorageDirector ZXR</li> </ul>	4.0
Q5	<ul style="list-style-type: none"> <li>Predator</li> <li>Beluga</li> </ul>	4.0
Silicon Mechanics	<ul style="list-style-type: none"> <li>Silicon Mechanics zStax 104 4U</li> <li>Silicon Mechanics zStax 104 3U</li> <li>Silicon Mechanics zStax 64</li> </ul>	4.0
Zstor	<ul style="list-style-type: none"> <li>Q-3560</li> <li>Q-HA3560</li> </ul>	4.0

## 4.2 Certified Solutions Building Blocks

The following is a list of CS building blocks that are certified with NexentaStor 4.0.

CS building blocks serve as an indication or record of the hardware that went through certification and are for reference only.

Certified Solutions Building Blocks – Controller						
Controller	CPU	DRAM	Boot Drive	SAS HBA	NIC	FC HBA
SuperMicro X9DRH-iTF X9DRi-LN4+ X9DR3-LN4+ X9DRW-3LN4F+ X9DRW-3TF+ X9DRD-7LN4F	E5-2603, 1.8GHz, 4-core, 2-socket E5-2620 v2, 2.1GHz, 6-core, 2-socket E5-2630 v2, 2.6GHz, 6-core, 2-socket E5-2690, 2.9GHz, 8-core, 2-socket E5-2643, 3.3GHz, 4-core, 2-socket	96GB, 256GB	1TB, 2TB NL SAS 7.2k 3.5	LSI 9200-8e LSI 9201-16e LSI 9205-8e LSI 9206-16e LSI 9207-8e LSI 9207-8i LSI-9211-8i	X520 10GE DA/SPF+ X540 10GE RJ45	n/a

Certified Solutions Building Blocks – Storage Enclosure					
Storage Enclosure	Data HDD	ZIL/SLOG	L2ARC	Data SSD	
AIC XJ3000-4603S (4U 60-bay)	1TB NL SAS 7.2k 3.5 (ST1000NM0023)	ZeusRAM Z4RZF3D-8UC 3.5	400GB MLC	n/a	
Quanta JB9 (M4600H 4U 60-bay)	2TB NL SAS 7.2k 3.5 (ST32000645SS)	ZeusRAM Z4RZF3D-8UC 3.5	400GB MLC	n/a	
SuperMicro 837E26-RJBOD1 (3U 28-bay)	4TB NL SAS 7.2k 3.5 (ST4000NM0023) 600GB SAS 15k 3.5 (ST3600057SS) 900GB SAS 10k 2.5 (ST900MM0026) 1.2TB SAS 10k 2.5 (ST1200MM0017)	ZeusRAM Z4RZF3D-8UC 3.5	400GB MLC (S842E800M2) 800GB MLC (S842E400M2)	n/a	
Xyratex HB-2435-E6EBD (2U 24-bay)	4TB NL SAS 7.2k 3.5 (HUS724040ALS640)	ZeusRAM Z4RZF3D-8UC 3.5	400GB MLC	n/a	

## 5.0 About Nexenta

Nexenta is the global leader in Software-Defined Storage, delivering easy-to-use, secure and ultra-low cost storage software solutions. Nexenta solutions are hardware-, protocol-, and app-agnostic, providing innovation freedom and speed for organizations to realize "true" benefits of Software-Defined Infrastructure-centric Cloud Computing. Nexenta enables workloads from rich media-driven Social Living to Mobility; from the Internet of Things to Big Data; from OpenStack and CloudStack to Do-It-Yourself Cloud deployments. Founded around an "open source" platform and industry-disruptive vision, Nexenta delivers its award- and patent-winning software-only unified storage management solutions with a global partner network. For more information visit [www.nexenta.com](http://www.nexenta.com), [Twitter](#), [Facebook](#), [LinkedIn](#) and [YouTube](#). Also, download the newly published [Nexenta Special Edition Software Defined Data Centers \(SDDC\) for Dummies](#) eBook.

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Date: January 2015



## Appendix A - Supported SSDs

The following table lists SSDs that have been specifically tested by Nexenta and identifies recommended use cases for each. In general, SSDs with higher write endurance and lower sequential write latency should be used for ZIL/SLOG. SSDs with higher capacity and lower cost / performance profiles should be used for L2ARC.

This information is provided to help select devices as part of Certified Solutions or RA+ configurations that provide flexibility for SSD selection. Note that SSDs used as part of any RA+ configuration must also be supported by the enclosure vendor. For example, an SSD used in a SuperMicro RA+ configuration should be listed in this Appendix and on SuperMicro's list of qualified devices.

Nexenta Use Case	Manufacturer	Model	Interface	Capacity as Sold	Form Factor	Part Number	Min. Firmware
ZIL/SLOG	HGST	ZeusRAM *	6G SAS	8GB	3.5"	Z4RZF3D-8UCS	C025
ZIL/SLOG	HGST/STEC	S842Z *	6G SAS	32GB	2.5"	S842Z32M2	E4R3
ZIL/SLOG	HGST	s842 *	6G SAS	200GB	2.5"	S842E200M2 / 0T00169	E4R3
ZIL/SLOG	HGST	s842 *	6G SAS	400GB	2.5"	S842E400M2 / 0T00177	E4R3
ZIL/SLOG	HGST	UltraStar SSD800MH *	12G SAS <sup>i</sup>	200GB	2.5"	HUSMH8020ASS200	A210
ZIL/SLOG	HGST	UltraStar SSD800MH *	12G SAS <sup>1</sup>	400GB	2.5"	HUSMH8040ASS200	A210
ZIL/SLOG	HGST	UltraStar SSD800MH *	12G SAS <sup>1</sup>	800GB	2.5"	HUSMH8080ASS200	A210
ZIL/SLOG	HGST	UltraStar SSD800MH.B *	12G SAS <sup>1</sup>	100GB	2.5"	HUSMH8010BSS200	A45C
ZIL/SLOG	HGST	UltraStar SSD800MH.B *	12G SAS <sup>1</sup>	200GB	2.5"	HUSMH8020BSS200	A45C
ZIL/SLOG	HGST	UltraStar SSD800MH.B *	12G SAS <sup>1</sup>	400GB	2.5"	HUSMH8040BSS200	A45C
ZIL/SLOG	HGST	UltraStar SSD800MH.B *	12G SAS <sup>1</sup>	800GB	2.5"	HUSMH8080BSS200	A45C
ZIL/SLOG	SanDisk	Optimus.2 Extreme	6G SAS	100GB	2.5"	SDLKOE9W100G5CA1	F6C2
ZIL/SLOG	SanDisk	Lightning	6G SAS	100GB	2.5"	LB206S	P329
ZIL/SLOG	SanDisk	Optimus.2 Extreme	6G SAS	200GB	2.5"	SDLKOD9W200G5CA1	F6C2
ZIL/SLOG	SanDisk	Optimus.2 Extreme	6G SAS	400GB	2.5"	SDLKOC9W400G5CA1	F6C2
ZIL/SLOG	SanDisk	Optimus.2 Extreme	6G SAS	800GB	2.5"	SDLLOC9W800G5CA1	F6C2

Nexenta Use Case	Manufacturer	Model	Interface	Capacity as Sold	Form Factor	Part Number	Min. Firmware
ZIL/SLOG	Seagate	1200 *	12G SAS <sup>1</sup>	100GB	2.5"	ST100FM0103	0004
ZIL/SLOG	Seagate	1200 *	12G SAS <sup>1</sup>	200GB	2.5"	ST200FM0103	0004
ZIL/SLOG	Seagate	1200 *	12G SAS <sup>1</sup>	400GB	2.5"	ST400FM0103	0004
ZIL/SLOG	Seagate	1200 *	12G SAS <sup>1</sup>	100GB	2.5"	ST100FM0093	0004
ZIL/SLOG	Seagate	1200 *	12G SAS <sup>1</sup>	200GB	2.5"	ST200FM0093	0004
ZIL/SLOG	Seagate	1200 *	12G SAS <sup>1</sup>	400GB	2.5"	ST400FM0093	0004
ZIL/SLOG	Toshiba	PX02SS	12G SAS <sup>1</sup>	200GB	2.5"	PX02SSF020	A4AC
L2ARC	HGST	UltraStar SSD1600MR *	12G SAS <sup>1</sup>	250GB	2.5"	HUSMR1625ASS200	A100
L2ARC	HGST	UltraStar SSD1600MR *	12G SAS <sup>1</sup>	400GB	2.5"	HUSMR1640ASS200	A100
L2ARC	HGST	UltraStar SSD1600MR *	12G SAS <sup>1</sup>	500GB	2.5"	HUSMR1650ASS200	A100
L2ARC	HGST	UltraStar SSD1600MR *	12G SAS <sup>1</sup>	800GB	2.5"	HUSMR1680ASS200	A100
L2ARC	HGST	UltraStar SSD1600MR *	12G SAS <sup>1</sup>	1000GB	2.5"	HUSMR1610ASS200	A100
L2ARC	HGST	UltraStar SSD1600MR *	12G SAS <sup>1</sup>	1600GB	2.5"	HUSMR1616ASS200 <sup>2</sup>	A100
L2ARC	SanDisk	Optimus.2 Ultra	6G SAS	150GB	2.5"	SDLKOEKW150G5CA1	F6C2
L2ARC	SanDisk	Optimus.2 Ascend	6G SAS	200GB	2.5"	SDLKOEKM200G5CA1	F6C2
L2ARC	SanDisk	Optimus.2 Ultra	6G SAS	300GB	2.5"	SDLKODGW300G5CA1	F6C2
L2ARC	Sandisk	Optimus.1 Ascend	6G SAS	400GB	2.5"	SDLKAD6M400G5CA1	KZ40
L2ARC	SanDisk	Optimus.2 Ascend	6G SAS	400GB	2.5"	SDLKODDM400G5CA1	F6C2
L2ARC	SanDisk	Optimus.2 Eco	6G SAS	400GB	2.5"	SDLKOD6R400G5CA1	K0A0
L2ARC	SanDisk	Optimus.2 Ultra	6G SAS	600GB	2.5"	SDLKOCGW600G5CA1	F6C2
L2ARC	SanDisk	Optimus.2 Ascend	6G SAS	800GB	2.5"	SDLKOCMD800G5CA1	F6C2
L2ARC	SanDisk	Optimus.2 Eco	6G SAS	800GB	2.5"	SDLKOC6R800G5CA1	K0A0
L2ARC	SanDisk	Optimus.2 Ultra	6G SAS	1.2TB	2.5"	SDLLOCW012T5CA1	F6C2

Nexenta Use Case	Manufacturer	Model	Interface	Capacity as Sold	Form Factor	Part Number	Min. Firmware
L2ARC	SanDisk	Optimus.2 Ascend	6G SAS	1.6TB	2.5"	SDLLOCDM016T5CA1	F6C2
L2ARC	SanDisk	Optimus.2 Eco	6G SAS	1.6TB	2.5"	SDLLOC6R016T5CA1	K0A0
L2ARC	SanDisk	Optimus.2 Eco	6G SAS	2TB	2.5"	SDLLOC6R020T5CA1	K0A0
L2ARC	Seagate	1200 *	12G SAS <sup>1</sup>	200GB	2.5"	ST200FM0053	0004
L2ARC	Seagate	1200 *	12G SAS <sup>1</sup>	400GB	2.5"	ST400FM0053	0004
L2ARC	Seagate	1200 *	12G SAS <sup>1</sup>	800GB	2.5"	ST800FM0043	0004
L2ARC	Seagate	1200 *	12G SAS <sup>1</sup>	200GB	2.5"	ST200FM0073	0004 <sup>ii</sup>
L2ARC	Seagate	1200 *	12G SAS <sup>1</sup>	400GB	2.5"	ST400FM0073	0004 <sup>2</sup>
L2ARC	Seagate	1200 *	12G SAS <sup>1</sup>	800GB	2.5"	ST800FM0053	0004 <sup>2</sup>

**Note 1:** 12Gb SAS devices are currently only certified within 6Gb SAS enclosures. Full 12Gb SAS support is pending.

**Note 2:** SED functionality is not supported by NexentaStor

**Note 3:** \* - Tested and supported by Nexenta and Supermicro as of January 2015