



Adaptec InterOperability Test Report

ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure

Tested with: **Adaptec Serial Attached SCSI 48300**
Adaptec Serial ATA II RAID 2820SA
Adaptec Serial Attached SCSI RAID 4805SAS

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Table of Contents

Table of Contents	2
Summary of Results	3
Overview: Testing Ecosystem	3
Test Objectives.....	3
Vendor Product(s)	3
Adaptec product(s).....	3
Vendor Product Description & Features	3
Adaptec Products, Device Drivers & Firmware/BIOS.....	4
Adaptec Serial Attached SCSI 48300 (Adaptec 48300).....	4
Adaptec Serial ATA II RAID 2820SA (Adaptec 2820SA)	4
Adaptec Serial Attached SCSI RAID 4805SAS (Adaptec 4805SAS).....	4
Adaptec Product Families and Representatives	4
Adaptec Storage Manager (ASM)	4
Operating Systems	5
32-bit	5
64-bit	5
Overview: Test Suites & Vendor Product Categories.....	6
HostRAID - Test Suite Table.....	6
ARC (IOP RAID) - Test Suite Table	6
InterOperability Test Summary: Test Suite Results	7
HostRAID configurations.....	7
ARC (IOP RAID) configurations	7
Compatibility Report Summary.....	8
Enclosures.....	8
Appendix	9
Testing Configurations	9
Configuration #1 – W2K3 x86	9
Configuration #2 – W2K3 x86	9
Configuration #3 – W2K x86	10
Configuration #4 – W2K3 x64	10
Configuration #5 – W2K3 x86	11
Configuration #6 – XP x86	11
Configuration #7 – W2K3 x64	12
Configuration #8 – XP x64	12
Adaptec InterOperability Testing Assertions	14
Adaptec product assertions.....	14
PC hardware assertions	14
Operating System assertions	14
HDD assertions	14
RAID testing assertions.....	14
Enclosure assertions	14
Non-DASD.....	14
Other assertions	14

Summary of Results

The **ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure** has passed Adaptec's InterOperability Test Suites for the Adaptec products detailed on page 4 with the hardware and operating system configurations detailed on page 7.

As a result of passing these interoperability test suites, this product will be listed in Adaptec's Compatibility Report Summary on our corporate web site.

Overview: Testing Ecosystem

This section describes the ecosystem of the interoperability testing environment.

Test Objectives

The objective of Adaptec interoperability testing is to ensure compatibility between Adaptec host adapters and 3rd party computer peripherals (hard drives, enclosures, tape drives, etc.) on popular hardware platforms across major operating systems.

This report details the interoperability testing between Vendor and Adaptec products:

Vendor Product(s)¹

ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure

Adaptec product(s)²

- Adaptec 48300
- Adaptec 2820SA
- Adaptec 4805SAS

Vendor Product Description & Features

The features of the **ICY DOCK Internal Storage – Multi Bay MB454, MB455 SATA Enclosure** include:

- Internal connection with supported SATA host adapter
- Supports up to 4 and to 5 (SATA I or SATA II with jumpers setting)
- Hot Swappable drive trays
- Enclosure management for monitoring and managing internal functions
- Hard drive activity indicator
- Failed hard drive LED indicator
- Dedicated cooling fan for ventilation
- Temperature setting

¹ "Vendor Product(s)" may be used throughout this report to refer to vendor equipment.

² See page 4 for Adaptec product details.

Adaptec Products, Device Drivers & Firmware/BIOS

Below is detailed the Adaptec products tested along with descriptions. For details on Windows driver/version, Firmware/BIOS version, and Storage Manager, references in the Appendix – Testing Configurations section (see page 9).

Adaptec Serial Attached SCSI 48300 (Adaptec 48300)

8 ports, one x4 internal SFF-8484 and one x4 external SFF-8470 connector, Supports Serial ATA and Serial SCSI hard disk drives. PCI-X 64 bit/133 MHz host interface. RAID 0, 1, and 10. 48-bit LBA support. Low-profile form factor. Bootable array support.

Adaptec Serial ATA II RAID 2820SA (Adaptec 2820SA)

8 SATA ports, ¾-length PCI-X controller supporting RAID 0, 1, 5, 10, 50, JBOD and the Adaptec Advanced Data Protection Suite with RAID 1E, 5EE, 6, 60, Copyback Hotspare and optional Snapshot Backup for pedestal and high-density rack-mount servers.

Adaptec Serial Attached SCSI RAID 4805SAS (Adaptec 4805SAS)

8 ports, ¾-length PCI Express (PCIe) to Serial Attached SCSI controller supporting RAID 0, 1, 5, 10, 50, JBOD and the Adaptec Advanced Data Protection Suite with RAID 1E, 5EE, 6, 60, Copyback Hotspare and optional Snapshot Backup for pedestal and high-density rack-mount servers.

Adaptec Product Families and Representatives

Adaptec interoperability testing uses the concept of product families where there is a “representative” that characterizes the “members” in the family. The products listed below are family members of the representatives tested above and piggy back on their compatibility with the representative. Descriptions of these members can be found at www.adaptec.com/en-US/products/.

Representatives	Members
Adaptec 48300	Adaptec 58300 Adaptec 44300
Adaptec 2820SA	Adaptec 2420SA

Adaptec Storage Manager (ASM)

Adaptec’s Storage Manger (ASM) is a flexible, robust and extensible for supporting all the latest Adaptec RAID storage technologies and 3rd party Storage systems. ASM features an easy-to-use graphical interface for intuitive configuration, management and health monitoring of RAID storage across all operating systems. Features include common look-and-feel for initial configuration and online storage management with the ability to configure, expand, manage, and monitor local and remote RAID storage from a single client workstation via secure encrypted remote communications. To be fully supported by ASM, storage systems are required to have a Storage Enclosure Processor (SEP) which communicates with the host via the SCSI Enclosure Services 2 (SES2) protocol.

Operating Systems

This is a list of the Operating Systems available for testing within Adaptec's InterOperability Test Lab. This listing is not meant to imply that testing was done on all Operating Systems. Specific testing information can be found in the Appendix – Testing Configurations section (see page 9).

32-bit

Client Operating Systems	Version	Service Pack	Code
Microsoft Windows XP (x86)	Professional	SP2	XPx86

Enterprise Operating Systems	Version	Service Pack	Code
Microsoft Windows 2000 (x86)	Advanced Server	SP4	W2Kx86
Microsoft Windows 2003 (x86)	Enterprise Edition	R2 SP1	W2K3x86

64-bit

Client Operating Systems	Version	Service Pack	Code
Microsoft Windows XP (x64)	Professional	SP1	XPx64

Enterprise Operating Systems	Version	Service Pack	Code
Microsoft Windows 2003 (x64)	Enterprise Edition	R2 SP1	W2K3x64

Overview: Test Suites & Vendor Product Categories

This table outlines which interoperability test suites are run for various product classifications. A test suite is run on at least one configuration.

Adaptec has two RAID implementations reflected in the Test Suite Table below:

- HostRAID (HR): The RAID function is performed by the device driver and runs on the host processor.
- IOP RAID (ARC): The RAID function is performed by the Adaptec RAID Code firmware and runs on a dedicated processor.

HostRAID - Test Suite Table

Test Suite	Vendor Product Categories							
	HDD	Enclosure	System / Motherboard	Backplanes / Expanders	Tape	Removable / DVD	Cable	Other
HR - RAID-0	YES	YES	YES	YES				
HR - RAID-1	YES	YES	YES	YES				
HR - RAID-10	YES	YES	YES	YES			YES	
HR - S/S Volumes	YES	YES	YES	YES				
HR - ACPI	YES	YES	YES	YES				
HR - BIOS HR	YES	YES	YES	YES				
HR - Optical Drives						YES		
HR - Tape Drives					YES			
HR - Enclosures		YES						
HR - Slot Test			YES					
HR - BBS			YES					
HR - Multiple Ctrl			YES					

ARC (IOP RAID) - Test Suite Table

ARC - RAID-0	YES	YES	YES	YES				
ARC - RAID-1	YES	YES	YES	YES				
ARC - RAID-1E	YES	YES		YES				
ARC - RAID-10	YES	YES	YES	YES			YES	
ARC - RAID-5	YES	YES	YES	YES				
ARC - RAID-5EE	YES	YES		YES				
ARC - RAID-50	YES	YES		YES				
ARC - RAID-6	YES	YES	YES	YES				
ARC - RAID-60	YES	YES		YES				
ARC - S/S Volumes	YES	YES	YES	YES				
ARC - ACPI	YES	YES	YES	YES				
ARC - BIOS ARC	YES	YES	YES	YES				
ARC - Optical Drives						YES		
ARC - Tape Drives					YES			
ARC - Enclosures		YES						
ARC - Slot Test			YES					
ARC - BBS			YES					
ARC - Multiple Ctrl			YES					

Legend:

YES – this test is applicable

No – this test is not applicable (may also be a grayed box)

InterOperability Test Summary: Test Suite Results

PASS does not imply that all Operating Systems (see page 5) have been thoroughly tested on each configuration³. PASS and OK do mean that sufficient testing has been successfully completed for Adaptec to declare Vendor Product interoperability with the above named Adaptec Products.

HostRAID configurations⁴

	Config#1	Config#2				
OS>	W2K3x86	W2k3x86				
Adaptec>	48300	48300				
HR - RAID-0	PASS					
HR - RAID-1		PASS				
HR - RAID-10	PASS					
HR - S/S Volumes	PASS					
HR - ACPI	PASS	PASS				
HR - BIOS HR	PASS	PASS				
HR - Optical Drives						
HR - Tape Drives						
HR - Enclosures	PASS	OK#1				
HR - Slot Test						
HR - BBS						
HR - Multiple Ctrls						

ARC (IOP RAID) configurations⁴

	Config#3	Config#4	Config#5	Config#6	Config#7	Config#8
OS>	W2Kx86	W2K3x64	W2K3x86	XPx86	W2K3x64	XPx64
Adaptec>	4805	4805	2820	2820	2820	2820
ARC - RAID-0	PASS			PASS		
ARC - RAID-1		PASS			PASS	
ARC - RAID-1E			PASS			
ARC - RAID-10			PASS			
ARC - RAID-5			PASS			
ARC - RAID-5EE					PASS	
ARC - RAID-50						PASS
ARC - RAID-6						PASS
ARC - RAID-60					PASS	
ARC - S/S Volumes	PASS					PASS
ARC - ACPI		PASS		PASS		
ARC - BIOS ARC	PASS				PASS	PASS
ARC - Optical Drives						
ARC - Tape Drives						
ARC - Enclosures	OK#1	PASS	PASS	PASS	PASS	OK#1
ARC - Slot Test						
ARC - BBS						
ARC - Multiple Ctrls						

³ See the Appendix-Configurations on page 9 for configuration details.

⁴ See the Legend below for an explanation of "PASS", "OK" and "FAIL", the last two of which may have details in the Notes section (see page 8) that follows the Legend.

Legend:

PASS – This test suite passed on this system in this configuration

OK – At least one test in this suite did not pass on this system in this configuration – Vendor Product remains “compatible” with Adaptec Product(s) – see notes below

FAIL – At least one significant test in this suite did not pass on this system in this configuration – Vendor Product considered “incompatible” with Adaptec Product(s) – see notes below

NA – Not Applicable – this test was not run because it didn’t apply (may also be indicated by grey box)

NR – Test applicable but Not Run – see notes below (may also be indicated by grey box)

Notes:

1. The 3 bay enclosure’s hardware was faulty, and returned to ICY Dock

Compatibility Report Summary

The Vendor Product entry below will be added to Adaptec’s web-available Compatibility Test Report.

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB454	None	4
SATA	ICY DOCK	MB455	None	5

Appendix

Testing Configurations

The configurations below were used in for this InterOperability Testing as reflected on the table on page 7.

Configuration #1 – W2K3 x86

Operating System

Vendor	Version	Service Pack
Microsoft Windows 2003 (x86)	Enterprise Edition	R2 SP1

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial Attached SCSI 48300	Adaptec 48300	adp94xx.sys	5921	1706
Adaptec Storage Manager	ASM	aacmgt.sys	4866	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
SuperMicro	X6DH8-XG2	1.3a	Intel E7520	Yes	Yes	No	Yes	No	No	Xeon 3.0GHz EM64T

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Seagate	ST3500641AS	3.AA	500GB
SATA II	Seagate	ST3400833AS	2.AA	400GB
SATA II	Seagate	ST3250824NS	3.AE	250GB
SATA II	Western Digital	WD3200JS	21.0	320GB
SATA II	Western Digital	WD2000JS	02.0	200GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB454	None	4
SATA	ICY DOCK	MB455	None	5

Configuration #2 – W2K3 x86

Operating System

Vendor	Version	Service Pack
Microsoft Windows 2003 (x86)	Enterprise Edition	R2 SP1

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial Attached SCSI 48300	Adaptec 48300	adp94xx.sys	5921	1706
Adaptec Storage Manager	ASM	aacmgt.sys	4866	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
Dell	Precision 670	A06	Intel E7525	Yes	No	Yes	Yes	Yes	Yes	Xeon 3.0GHz EM64T

ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure
Tested with Adaptec 48300 / 2820SA / 4805SAS

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Seagate	ST3500641AS	3.AA	500GB
SATA II	Seagate	ST3400833AS	2.AA	400GB
SATA II	Maxtor	6H400F0	HA43	400GB
SATA II	SAMSUNG	HD160JJ	WU10	160GB
SATA II	Western Digital	WD3200JS	21.0	320GB
SATA I	Hitachi	HDT722525DLA380	V440	250GB
SATA II	Hitachi	HDS725050KLA360	K2A0	500GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB453	None	4
SATA	ICY DOCK	MB455	None	5

Configuration #3 – W2K x86**Operating System**

Vendor	Version	Service Pack
Microsoft Windows 2000 (x86)	Advanced Server	SP4

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial Attached SCSI RAID 4805SAS	Adaptec 4805SAS	arcsas.sys	9133	9133
Adaptec Storage Manager	ASM	aacmgt.sys	4866	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
Dell	Precision 670	A06	Intel E7525	Yes	No	Yes	Yes	Yes	Yes	Xeon 3.0GHz EM64T

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Western Digital	WD5000KS	06.0	500GB
SATA II	Western Digital	WD4000YR	01.0	400GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB453	None	4

Configuration #4 – W2K3 x64**Operating System**

Vendor	Version	Service Pack
Microsoft Windows 2003 (x64)	Enterprise Edition	R2 SP1

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial Attached SCSI RAID 4805SAS	Adaptec 4805SAS	arcsas.sys	9138	9138
Adaptec Storage Manager	ASM	aacmgt.sys	4866	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
MSI	K8N Neo4 Platinum	1.B	nVidia nForce4 SLI	Yes	No	No	No	No	Yes	AMD Athlon 64 3500+

ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure
Tested with Adaptec 48300 / 2820SA / 4805SAS

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Maxtor	11 6H400F0	HA43	400GB
SATA II	SAMSUNG	HD160JJ	WU10	160GB
SATA II	Seagate	ST3400833AS	2.AA	400GB
SATA II	Seagate	ST3250824NS	3.AE	250GB
SATA II	Western Digital	WD5000KS	06.0	500GB
SATA II	Western Digital	WD4000YR	01.0	400GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB454	None	4
SATA	ICY DOCK	MB455	None	5

Configuration #5 – W2K3 x86**Operating System**

Vendor	Version	Service Pack
Microsoft Windows 2003 (x86)	Enterprise Edition	R2 SP1

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial ATA II 2820SA	Adaptec 2820SA	arc.sys	9114	9117
Adaptec Storage Manager	ASM	aacmgt.sys	4813	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
SuperMicro	X6DH8-XG2	1.3a	Intel E7520	Yes	Yes	No	Yes	No	No	Xeon 3.0GHz EM64T

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Western Digital	WD3200JS	21.0	320GB
SATA II	Western Digital	WD2000JS	02.0	200GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB455	None	5

Configuration #6 – XP x86**Operating System**

Vendor	Version	Service Pack
Microsoft Windows XP (x86)	Professional	SP2

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial ATA II 2820SA	Adaptec 2820SA	arc.sys	9114	9117
Adaptec Storage Manager	ASM	aacmgt.sys	4813	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
MSI	K8N Neo4 Platinum	1.B	nVidia nForce4 SLI	Yes	No	No	No	No	Yes	AMD Athlon 64 3500+

ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure
Tested with Adaptec 48300 / 2820SA / 4805SAS

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA I	Hitachi	HDS724040KLSA80	KFA0	400GB
SATA II	Maxtor	6H500F0	HA43	500GB
SATA II	SAMSUNG	HD160JJ	WU10	160GB
SATA II	SAMSUNG	SP2004C	VM10	200GB
SATA II	Seagate	ST3500641NS	2.AE	500GB
SATA II	Seagate	ST3400833AS	2.AA	400GB
SATA II	Seagate	ST3250824NS	3.AE	250GB
SATA II	Western Digital	WD5000KS	06.0	500GB
SATA II	Western Digital	WD4000YR	01.0	400GB
SATA II	Western Digital	WD3200JS	21.0	320GB
SATA II	Western Digital	WD2000JS	02.0	200GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB454	None	4
SATA	ICY DOCK	MB455	None	5

Configuration #7 – W2K3 x64**Operating System**

Vendor	Version	Service Pack
Microsoft Windows 2003 (x64)	Enterprise Edition	R2 SP1

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial ATA II 2820SA	Adaptec 2820SA	arc.sys	9114	9117
Adaptec Storage Manager	ASM	aacmgt.sys	4813	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
SuperMicro	X6DH8-XG2	1.3a	Intel E7520	Yes	Yes	No	Yes	No	No	Xeon 3.0GHz EM64T

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Maxtor	6H500F0	HA43	500GB
SATA II	Maxtor	6H400F0	HA43	400GB
SATA II	SAMSUNG	HD160JJ	WU10	160GB
SATA II	SAMSUNG	SP2004C	VM10	200GB
SATA II	Seagate	ST3500641NS	2.AE	500GB
SATA II	Seagate	ST3400833AS	2.AA	400GB
SATA II	Seagate	ST3250824NS	3.AE	250GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB454	None	4
SATA	ICY DOCK	MB455	None	5

Configuration #8 – XP x64**Operating System**

Vendor	Version	Service Pack
Microsoft Windows XP (x64)	Professional	SP1

ICY DOCK Internal Storage – Multi Bay MB454 and MB455 SATA Enclosure
Tested with Adaptec 48300 / 2820SA / 4805SAS

Adaptec Product

Name	Short name	Driver name	Driver version	FW / BIOS
Adaptec Serial ATA II 2820SA	Adaptec 2820SA	arc.sys	9114	9117
Adaptec Storage Manager	ASM	aacmgt.sys	4813	

Host Systems

Mfg	Model	BIOS	Chipset	PCIe x4	PCIe x8	PCIe x16	PCI 64	PCI32 (3.3v)	PCI32 (5v)	CPU
SuperMicro	X6DH8-XG2	1.3a	Intel E7520	Yes	Yes	No	Yes	No	No	Xeon 3.0GHz EM64T

Hard Drives (HDD)

Type	Manufacturer	Model	FW Revision	Capacity
SATA II	Seagate	ST3500641AS	3.AA	500GB
SATA II	Seagate	ST3400833AS	2.AA	400GB
SATA II	Seagate	ST3250824NS	3.AE	250GB
SATA II	Western Digital	WD5000KS	06.0	500GB
SATA II	Western Digital	WD4000YR	01.0	400GB
SATA II	Western Digital	WD3200JS	21.0	320GB
SATA II	Western Digital	WD2000JS	02.0	200GB

Enclosures

Type	Manufacturer	Model	FW Revision	# of Bays
SATA	ICY DOCK	MB453	None	5
SATA	ICY DOCK	MB454	None	4

Adaptec InterOperability Testing Assertions

The focus of Adaptec interoperability testing is on assessing Vendor Product compatibility with various Adaptec Products across select operating systems and PC hardware configurations. The complexity and multi-dimensionality of the test matrix is beyond the cost-time efficiencies. The following assertions guide the selection of optimal test suite configurations.

Adaptec product assertions

- With similar Adaptec products (e.g. main difference is number of ports); a family “representative” (usually the most complex member) can represent the entire family.
- It is sufficient to mix Adaptec products within representative configurations; not all Adaptec products need to be tested across all OSES.

PC hardware assertions

- For interoperability test, the PC vendor (Asus, Dell, HP, IBM, Intel, SuperMicro, Tyan) and/or the CPU processor (AMD and Intel) are not significant factors; any combination may be used. However, with new Host Bus Adapters (HBAs) or new firmware for the HBAs, using a variety of PC Vendors helps ensure interoperability compatibility between a motherboard BIOS and the HBA firmware.

Operating System assertions

- It is not necessary to test 32- and 64-bit systems on both Windows and Linux; mixing 32-bit and 64-bit between Windows and Linux is acceptable interoperability testing.
- Enterprise systems are typically 64-bit; testing 64-bit systems covers 32-bit systems in the Enterprise market space.

HDD assertions

- Hard Disk vendor products are interoperability tested as direct attach only; enclosure testing is by exception only.

RAID testing assertions

- Testing all RAID levels is required.
- Testing all RAID levels across all OSES is not required.
- Testing a RAID level on any OS is sufficient coverage for all OSES.

Enclosure assertions

- When testing an enclosure, it is not necessary to mix HDD within the enclosure. However, when enclosures support both SAS & SATA HDDs then both interface types may be tested subject to vendor recommendations.

Non-DASD

- Besides the OS’s embedded applications, third-party software may also be tested with tape drives and DVD drives.

Other assertions

- Where appropriate, SATA and SAS drives are mixed unless not recommended by the vendor.