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XJ3000-4243

Expander on Board

Compatibility Test Report

DVT

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Originate Date	Revision	Release Status	
2012/3/22	A0	Preliminary Formal Release	

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Revision History

Revisions

REV.	DESCRIPTION	DATE	Engineer
A 1.0	XJ3000-4243 JBOD Compatibility Test for DVT	03/22/2012	Jack Huang

Date of test:

Test Started	Test Completed
03/07/2012	03/22/2012

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1 Introduction

1.1 Scope

This document is for demonstrating product conformance in the Various Development Phases of a project, Apply to all storage products in AIC company.

1.2 Purpose

Compatibility testing is one of the software and hardware tests that ensure complete customer satisfaction. Compatibility testing is a non-functional test to ensure that an application operates or performs as expected for all the intended customers. A non-functional test checks, if software operates according to its specified product characteristics like usability, documentation, compliance, reliability and other non-functional characteristics.

1.3 Reference Information

- DQA team to build compatibility test item for storage product.
- The PJM team to provide market information.
- FAE team feedback customers to use AIC product issue.
- Customer specified test item conditions.

Compatibility test is conducted by using the software under different hardware and software application conditions. The computing environment, conduct this test assumes importance, as the software product created must work in a real-time environment without any errors or bugs. want to consider the following computing environments, before conducting compatibility tests.

Operating systems (Windows server or Linux)

Hardware peripherals (SAS / SATA drives, HBA , RAIDI card,etc)

Browsers (GUI, Console)

Transmission performance (Iometer)

Other related system software and hardware

2 Product Specification

2.1 Product Features

Title	XJ3000-4243 Expander on Board
	XJ3000-4243 Entry-Level SAS/SATA 6G JBOD Series
Features	Enterprise JBOD
	High performance, redundancy & connectivity SAS interface
	High performance/availability SAS drives and high capacity/lower cost SATA drives in a single system, the flexibility to reduce total cost of ownership (true mix-and-match of drives in a single enclosure)
	Two 4-port connectors for host or expansion with automatic port speed detection and negotiation
	Scalable with expansion ports to couple with business growth
	Environment monitoring with SEP/SES support
	Redundant 6G expander modules and power supply, hot-swap drives and fans for high availability and easy maintenance

2.2 Product Specifications

GENERAL

Number of Expander	Single/Dual
Expander Chip	LSISAS2x36
Host Interface	Single Mini SAS 4x connector
Expansion Interface	Single Mini SAS 4x connector
Transfer Speed	2,400MB/s per connector

DRIVES SUPPORTED

Drive Interface	3.0/6.0 Gb dual ported SAS, 1.5/3.0/6.0 Gb single ported SATA
Drive RPM	Up to 15,000
Form Factor	3.5", 1" height

ADMINISTRATION / MANAGEMENT

Admin/Firmware Upgrade	In-band & Out-of-band, Serial port via Hyperterminal
LED Indicators, Alarm	Yes

HOT-SWAP & REDUNDANCY

Disk Drive	Hot-swap 24-bay
Cooling	3 x hot-swap fans
Power Supplies	600W 1+1 hot-swap redundant 80+ (Sliver)
Power Entry	Dual AC Inlet

ELECTRICAL & ENVIRONMENTAL

Universal A/C Input	100~240V AC full range
Operating Environment	Temperature 0°C to 35°C, Relative humidity 20% to 80%
Non-operating Environment	Temperature -20°C to 60°C, Relative humidity 10% to 90%

PHYSICAL SPECIFICATION

Dimensions (W x D x H)	mm / inches	482.6 x 450 x 177 / 19 x 20 x 7
Gross Weight	w/ PSU; w/o Rail & Disks	28kgs / 61.6lbs
Packaging Dimension (W x D x H)	mm	600 x 730 x 376
Cubic Feet	5.8	
Reference Container Loading	20'	165
	40'	335
	40' H	405
Mounting Option	Adjust plate or 20" tool-less rail (optional)	

2.3 DUT 45° Photo



3 DUT Images



Front Angle



Top Open Angle



Rear Angle

4 Target Device Configuration and Environment

4.1 Test Device Configuration Diagram

1. Single Host



Host PC (SAS HBA or RAID Controller)



XJ3000-4243 Expander On Board

4.2 Table of Test Configuration

Host Configuration		
Item	Vender / Model	Detail
Motherboard	TYAN i5400PW S5397	Motherboard of the host
Operation System	Microsoft Windows	Server 2003 Service Pack2 32bit
CPU	Intel	Xeon L5410 2.33GHz *1
Memory	Transcend	DDR2 667 FB-DIMM/ 1GB *2
Hard Disk Drive	Seagate / ST9160511NS	SATA HDD / 160GB *1
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4.3 RAID/HBA Card Configuration

3G HBA Card

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
LSI 3801E	1.33.00.00-IT	6.36.00.00	1.34.2.0	v2.92-02
LSI 3442E-R	01.32.00.00	06.34.00.00	1.34.2.0	v2.92-02

3G RAID Card

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
LSI 8888ELP	1.40.282-1279	2.07.00	5.2.103.0	11.12.01.01
ATTO R380	3.85	4.06	3.70.2.0	4.02
Adaptec 5085	5.2-0[18252]	v5.2-0[18252]	5.2.0.18252	7.30.00(18837)
Adaptec 52445	5.2-0[18252]	5.2-0[18252]	5.2.0.18252	7.30.00(18837)
Areca ARC1680	1.22d	1.49	6.20.0.22	V1.87
Promise EX8658	v1.10.0000.00	3.00.0000.88	5.1.0.4	3.15.0000.00

6G HBA Card

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
LSI 9211-8i	12.00.00.00-IR	7.23.01.00	2.0.52.0	6.90.0500

6G RAID Card

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
Intel RS2PI008	2.130.03-1332	3.20.00_4.11.05.00	5.2.103.0	11.06.00.0300
ATTO R680	2.55	3.06	2.17.2.0	4.02
LSI 9260-4i	2.120.183_1415	3.23.00_4.11.05.00	5.2.103.0	11.06.00.0300
3Ware	FH9X 5.12.00.013	5.11.00.007	5.01.00.046	2.11.00.019
Adaptec 6405	5.2.0[18301]	5.2.0[18301]	5.2.0.18300	7.30.00(18837)

4.4 DUT Hardware Configuration


Item	Product Number	Quantity	Detail
Backplane	B40-4AMKTMXX00A000	1	4U24 SAS JBOD
Mezzanine Card	N/A	0	Expander On board
Power Module	ZIPPY MRW-3600V-R	2	AC input 100-240V 47-63Hz 9-4A DC output 600W(Max)
Link Function PCBA(FAN)	B43-PLCFP52600A100	3	The PCBA combine with fan
Link Function PCBA(FAN)	B43-PLCSD52600A100	3	For Hot-swap to fan
Transfer Card	EPB0002730 Ver.A1	1	Mini SAS 26Pin to 36Pin

5 RAID Card Test

Test Engineer	Jack Huang
Model Name	XJ3000-4243 Expander on Board
MFG	1.1.0.2
Firmware	1.11.1.1
Backplane	B40-4AMKTMXX00A000
HDD Type for 6G RAID Card	HITACHI HUS156060VLS600 600GB *7 Seagate ST3600057SS 600GB*6
HDD Type for 3G RAID Card	HITACHI HUS154545VLS300 450GB *11
Power Housing	ZIPPY MRW-3600V-R; AC input 100-240V 47-63Hz 9-4A DC output 600W(Max)
Power Module	ZIPPY MRW-3600V-R; AC input 100-240V 47-63Hz 9-4A DC output 600W(Max)
Other	

RAID Function	Test Procedure	Result
Intel RS2PI008 RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Remove a RAID 00 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Create/Rebuild/Remove a RAID 60 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 00 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
	Remove a crashed RAID 60 volume	Pass

RAID Function	Test Procedure	Result
ATTO R680 RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
LSI 9260-4i RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
Adaptec 6405 RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Create/Rebuild/Remove a RAID 60 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
	Remove a crashed RAID 60 volume	Pass
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RAID Function	Test Procedure	Result
3Ware 9750-8e RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
LSI 8888ELP RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
ATTO R380 RAID FUNCTION	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
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RAID Function	Test Procedure	Result
Adaptec 5085 RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
Areca ARC1680 RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
Promise EX8658 RAID Function	Create/Remove a RAID 0 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 50 volume	Pass
	Remove a crashed RAID 0 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 50 volume	Pass
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6 HBA Card Test

Test Engineer	Jack Huang
Model Name	XJ3000-4243 Expander on Board
MFG	1.1.0.2
Firmware	1.11.1.1
Backplane	B40-4AMKTMXX00A000
HDD Type for 6G RAID Card	HITACHI HUS156060VLS600 600GB *7 Seagate ST3600057SS 600GB*6
HDD Type for 3G RAID Card	HITACHI HUS154545VLS300 450GB *11
Power Housing	ZIPPY MRW-3600V-R; AC input 100-240V 47-63Hz 9-4A DC output 600W(Max)
Power Module	ZIPPY MRW-3600V-R; AC input 100-240V 47-63Hz 9-4A DC output 600W(Max)
Other	

HBA Function	Test Procedure	Result
LSI 3801-E SAS HBA Card	While using LSI 9200-8e SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by LSI BIOS utility.	Pass
	While using LSI 9200-8e SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by LSI MSM.	Pass
	While using LSI 9200-8e SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by OS Disk management.	Pass
LSI 9211-8i SAS HBA Card	While using LSI 9211-8i SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by LSI BIOS utility.	Pass
	While using LSI 9211-8i SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by LSI MSM.	Pass
	While using LSI 9211-8i SAS HBA to connect withX J3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by OS Disk management.	Pass

HBA Function	Test Procedure	Result
LSI 3442E-R SAS HBA Card	While using LSI 9200-8e SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by LSI BIOS utility.	Pass
	While using LSI 9200-8e SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by LSI MSM.	Pass
	While using LSI 9200-8e SAS HBA to connect with XJ3000-4243 Expander on Board SAS JBOD. Then check if all hard drives can be detect by OS Disk management.	Pass
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7 Summary

Item	RAID / HBA Card	Result
HBA Card compatibility test	LSI 9200-8e SAS HBA Card	Pass
	LSI 9211-8i SAS HBA Card	Pass
	LSI 3442E-R SAS HBA Card	Pass
RAID Card compatibility test	Intel RS2PI008 RAID Card	Pass
	ATTO R680 RAID Card	Pass
	LSI 9260-4i RAID Card	Pass
	Adaptec 6405 RAID Card	Pass
	3Ware 9750-8e RAID Card	Pass
	LSI 8888ELP RAID Card	Pass
	ATTO R380 RAID Card	Pass
	Adaptec 5085 RAID Card	Pass
	Adaptec 52445 RAID Card	Pass
	Areca ARC1680 RAID Card	Pass
	Promise EX8658 RAID Card	Pass

** Notes: Test items and test contents depend on spec.



Compatibility List for XJ3000-4243 Expander on Board SAS JBOD

This list basic compatibility, and it is only a guide to hardware which is known to function with the listed SAS JBOD controllers.

Updated 03/07/2012

The End User Center of Competence performs comprehensive functionality testing in order to demonstrate compatibility of the storage.

The listed components represent the compatibility guide for the direct attached storage system based on our findings.

Test cases specific to Enclosures, Drives, and Controller and includes RAID functionality across all supported RAID levels, basic storage system SES functions (Disk detect, Array locate, smart fan , temperature, power supply information, (enclosure information), enclosure power cycles during IO and physical drive pulls.

Compatibility List

SAS/SATA Hard Disk Driver Compatibility Matrix

RAID CARD: Intel RS2PI008 SAS 6G RAID Card

Vender	Type	Generation	Model	FW Version	Capacity
SEAGATE	SAS	6Gb/s	ST3600057SS	0006	600GB
SEAGATE	SAS	3Gb/s	ST3300655SS	0002	300GB
SEAGATE	SAS	3Gb/s	ST3146855SS	0001	146GB
SEAGATE	SAS	3Gb/s	ST336754SS	0002	34GB
SEAGATE	SAS	3Gb/s	ST3146854SS	0002	146GB
SEAGATE	SAS	3Gb/s	ST3750630SS	E319	750GB
SEAGATE	SATA	3Gb/s	ST3250310NS	SN04	250GB
SEAGATE	SATA	3Gb/s	ST3250620NS	3.AEK	250GB
SEAGATE	SATA	3Gb/s	ST31000524NS	SN11	1TB
SEAGATE	SATA	3Gb/s	ST31000340NS	SN06	1TB
SEAGATE	SATA	3Gb/s	ST3320418AS	CC34	320GB
HITACHI	SAS	6Gb/s	HUS156060VLS600	A5D0	600GB
HITACHI	SAS	3Gb/s	HUS154545VLS300	A570	450GB
WD	SATA	3Gb/s	WD20EARS	AB51	2TB
WD	SATA	3Gb/s	WD1002FBYS	03.00C05	1TB
WD	SATA	3Gb/s	WD7500AYYS	30.04G30	750GB
WD	SATA	3Gb/s	WD5000ABPS	02.01B01	500GB
WD	SATA	3Gb/s	WD5000YS	2E09	500GB
WD	SATA	3Gb/s	WD5002ABYS	02.03B02	500GB
FUJITSU	SAS	3Gb/s	MAX3147RC	0104	147GB
FUJITSU	SAS	3Gb/s	MBA3300RC	0103	300GB
FUJITSU	SAS	3Gb/s	MAX3073RC	0102	73.5GB

3G/6G RAID/HBA Card Compatibility Matrix

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
LSI 3801E	1.33.00.00-IT	6.36.00.00	1.34.2.0	v2.92-02
LSI 3442E-R	01.32.00.00	06.34.00.00	1.34.2.0	v2.92-02
LSI 8888ELP	1.40.282-1279	2.07.00	5.2.103.0	11.12.01.01
ATTO R380	3.85	4.06	3.70.2.0	4.02
Adaptec 5085	5.2-0[18252]	v5.2-0[18252]	5.2.0.18252	7.30.00(18837)
Adaptec 52445	5.2-0[18252]	5.2-0[18252]	5.2.0.18252	7.30.00(18837)
Areca ARC1680	1.22d	1.49	6.20.0.22	V1.87
Promise EX8658	v1.10.0000.00	3.00.0000.88	5.1.0.4	3.15.0000.00
LSI 9211-8i	12.00.00.00-IR	7.23.01.00	2.0.52.0	6.90.0500
Intel RS2PI008	2.130.03-1332	3.20.00_4.11.05.00	5.2.103.0	11.06.00.0300
ATTO R680	2.55	3.06	2.17.2.0	4.02
LSI 9260-4i	2.120.183_1415	3.23.00_4.11.05.00	5.2.103.0	11.06.00.0300
3Ware	FH9X 5.12.00.013	5.11.00.007	5.01.00.046	2.11.00.019
Adaptec 6405	5.2.0[18301]	5.2.0[18301]	5.2.0.18300	7.30.00(18837)