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XJ3000-2242 (Mezzanine Card) Compatibility Test Report DVT

Formal Release

Initiated by	Reviewed by	Approved by
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Originate Date	Revision	Release Status
2012/6/8	A0	Formal Release

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Revision History

Revisions

REV.	DESCRIPTION	DATE	Engineer
A0	XJ3000-2242(Mezzanine Card) Compatibility test DVT	2012/6/8	Jack Huang

If product change or information change/update, the report will be revised and released next edition.

Date of test:

Test Started	Test Completed
2012/6/5	2012/6/8

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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	XJ3000-2242 (Mezzanine Card)
	XJ3000-2242 Entry-Level SAS/SATA 6G JBOD Series
Features	Enterprise JBOD
	SSD/Flash Storage
	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)
	Environment monitoring with SEP/SES support
	Redundant high-efficiency power supply
	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	SFF 2.5"

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 SFF
Cooling	2 x hot-swap blowers
Power Supplies	500W 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 88.8/ 19 x 20 x 3.5
Gross Weight	w/ PSU; w/o Rail & Disks	23kgs / 50.6lbs
Packaging Dimension (W x D x H)	mm	600 x 730 x 288
Cubic Feet	5.2	
Reference Container Loading	20'	210
	40'	435
	40' H	520
Mounting Option	Adjust plate or 28" tool-less rail (optional)	

2.3 DUT 45° Photo



3 DUT Images

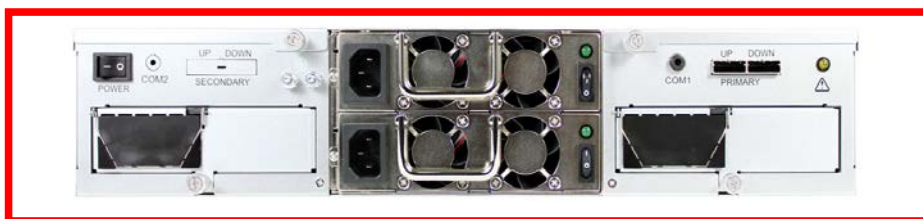
3.1 2U24(Mezzanine Card) JBOD



Front Angle



Top Open Angle



Rear Angle

3.2 2U24(Mezzanine Card) Backplane

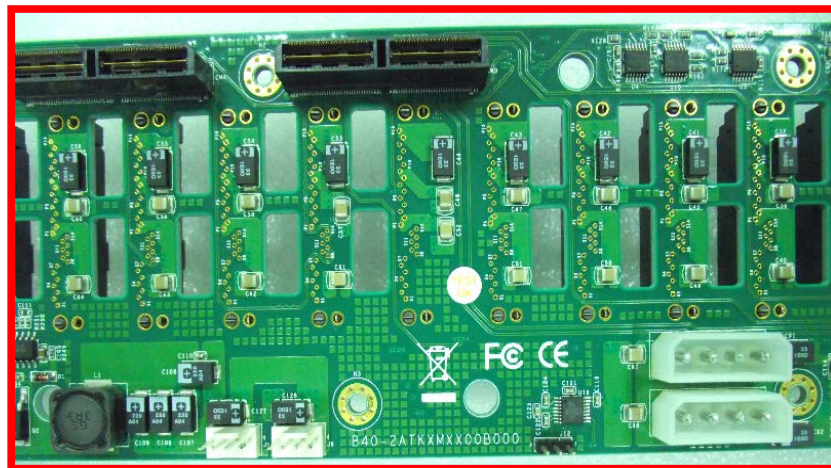
Model: XJ3000-2242(Mezzanine Card) backplane

Backplane: B40-2ATKXMX00B000

Mezzanine Card: B47-MSO9AXXX00A20B



Backplane Front Angle



Backplane Rear Angle



Mezzanine Card Front Angle

4 Target Device Configuration and Environment

4.1 Test Device Configuration Diagram

1. Single Host



Host PC (SAS HBA or RAID Controller)



XJ3000-2242 (Mezzanine Card)

4.2 Table of Test Configuration

Host Configuration		
Item	Vender / Model	Detail
Mortherboard	AIC Gemini ver.D	Motherboard of the host
Operation System	Microsoft Windows	Server 2003 Service Pack2 32bit
CPU	Intel	Xeon X5677 3.47GHz *1
Memory	DSL	DDR3 1066 U-DIMM/ 1GB *2
Hard Disk Drive	Seagate / ST9160511NS	SATA HDD / 160GB *1
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4.3 RAID/HBA Card Configuration

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
Intel RS2PI008	2.130.03.1332	3.20.00.4.11	5.2.112.32	11.06.00.0300
Intel RS2MB044	2.130.03.1332	3.20.00.4.11	5.2.112.32	11.06.00.0300
LSI 9260-4i	2.130.293-1580	3.24.00_4.12.05.00	5.2.112.32	11.06.00.0300
Adaptec 6445	5.2.0[19076]	5.2.0[19076]	5.2.0.18300	7.30.00(18837)
Adaptec 6405	5.2.0[18301]	5.2.0[18301]	5.2.0.18300	7.30.00(18837)
Atto R680	2.67	3.08	2.17.2.0	4.03
3Ware 9750-8e	FH9X 5.12.00.013	5.11.00.007	5.01.00.046	2.11.00.019
LSI 8888ELP	1.40.282-1279	2.07.00	5.2.112.32	11.06.00.0300
Adaptec ASR-5085	5.2-0[18252]	5.2-0[18252]	5.2.0.18252	7.30.00(18856)
Adaptec ASR-5445	5.2.0.18948	5.2.0.18948	5.2.0.18252	7.30.00.18856
ATTO R380	3.85	4.06	3.70.2.0	4.03
LSI 3801-E	01.33.00.00	06.36.00.00	1.34.2.0	11.06.00.0300
LSI 9201-16e	07.00.00.00	07.11.00.00	2.0.55.0	11.06.00.0300

4.4 HDD Configuration

Vender	Interface	Bandwidth	Model	FW Version	Capacity
Seagate	SAS	3G/S	ST936751SS	0001	36GB
Seagate	SAS	3G/S	ST973451SS	0001	73GB
Seagate	SAS	3G/S	ST973401SS	0002	73GB
Seagate	SAS	3G/S	ST9146802SS	0001	146GB
Seagate	SAS	6G/S	ST9500620SS	0002	500GB
Seagate	SAS	6G/S	ST9146803SS	0004	146GB
Seagate	SATA	3G/S	ST9500530NS	SN03	500GB
Seagate	SATA	3G/S	ST9250421AS	SD13	250GB
WD	SAS	6G/S	WD3000BKHG	VG04	300GB
Hitachi	SAS	3G/S	HTS725032A9A364	PC30C70E	320GB
Hitachi	SAS	3G/S	HUC101473CSS300	a72F	73GB
Hitachi	SAS	6G/S	HUC106060CSS600	A202	600GB
Hitachi	SAS	6G/S	HUC103030CSS600	A540	300GB
Fujitsu	SAS	3G/S	MAV2036RC	0108	36GB
Fujitsu	SAS	3G/S	MAY2036RC	0103	36GB
Fujitsu	SAS	3G/S	MAY2073RC	0103	73GB
Fujitsu	SAS	6G/S	MBD2147RC	0102	147GB
Fujitsu	SAS	6G/S	MBC2036RC	0102	36GB

5 RAID Card Test

Test Engineer	Jack Huang
Model Name	XJ3000-2242(Mezzanine Card)
Firmware	1.11.1.1
MFG	1.1.0.2
Backplane	B40-2ATKXMX00B000
Mezzanine Card	B47-MSO9AXXX00A20B
Power Housing	ZIPPY MRW-5500V4V / AC INPUT 100-240V 47-63Hz 8-4A DC OUTPUT 500W(MAX)
Power Module	ZIPPY MRW-3500V-R / AC INPUT: 100-240V 47-63Hz 8-4A / DC OUTPUT: 500W(MAX)

RAID Function	Test Procedure	Result
Intel RS2PI008	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
Intel RS2MB044	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
LSI 9260-4i	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
3Ware 9750-8e	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass

RAID Function	Test Procedure	Result
Adaptec 6405	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
Adaptec 6445	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
Atto R680	Create/Rebuild/Remove a RAID 1 volume	Fail
	Create/Rebuild/Remove a RAID 5 volume	Fail
	Create/Rebuild/Remove a RAID 6 volume	Fail
	Remove a crashed RAID 1 volume	Fail
	Remove a crashed RAID 5 volume	Fail
	Remove a crashed RAID 6 volume	Fail
LSI 8888ELP	Create/Rebuild/Remove a RAID 1 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 1 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
Adaptec ASR-5085	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
Adaptec ASR-5445	Create/Rebuild/Remove a RAID 10 volume	Pass
	Create/Rebuild/Remove a RAID 5 volume	Pass
	Create/Rebuild/Remove a RAID 6 volume	Pass
	Remove a crashed RAID 10 volume	Pass
	Remove a crashed RAID 5 volume	Pass
	Remove a crashed RAID 6 volume	Pass
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RAID Function	Test Procedure	Result
ATTO R380	Create/Rebuild/Remove a RAID 1 volume	Fail
	Create/Rebuild/Remove a RAID 5 volume	Fail
	Create/Rebuild/Remove a RAID 6 volume	Fail
	Remove a crashed RAID 1 volume	Fail
	Remove a crashed RAID 5 volume	Fail
	Remove a crashed RAID 6 volume	Fail

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6 HBA Card Test

Test Engineer	Jack Huang
Model Name	XJ3000-2242(Mezzanine Card)
Firmware	1.11.1.1
MFG	1.1.0.2
Backplane	B40-2ATKXMX00B000
Mezzanine Card	B47-MSO9AXXX00A20B
Power Housing	ZIPPY MRW-5500V4V / AC INPUT 100-240V 47-63Hz 8-4A DC OUTPUT 500W(MAX)
Power Module	ZIPPY MRW-3500V-R / AC INPUT: 100-240V 47-63Hz 8-4A / DC OUTPUT: 500W(MAX)
Other	

HBA Function	Test Procedure	Result
LSI 3801-e SAS HBA Card	While using LSI 3801-e SAS HBA to connect with XJ3000-2242(Mezzanine Card) SAS JBOD. Then check if all hard drives can be detect by LSI BIOS utility.	Pass
	While using LSI 3801-e SAS HBA to connect with XJ3000-2242(Mezzanine Card) SAS JBOD. Then check if all hard drives can be detect by LSI MSM.	Pass
	While using LSI 3801-e SAS HBA to connect with XJ3000-2242(Mezzanine Card) SAS JBOD. Then check if all hard drives can be detect by OS Disk management.	Pass
LSI 9201-16e SAS HBA Card	While using LSI 9201-16e SAS HBA to connect with XJ3000-2242(Mezzanine Card) SAS JBOD. Then check if all hard drives can be detect by LSI BIOS utility.	Pass
	While using LSI 9201-16e SAS HBA to connect with XJ3000-2242(Mezzanine Card) SAS JBOD. Then check if all hard drives can be detect by LSI MSM.	Pass
	While using LSI 9201-16e SAS HBA to connect withX XJ3000-2242(Mezzanine Card) SAS JBOD. Then check if all hard drives can be detect by OS Disk management.	Pass

7 Summary

Item	RAID / HBA Card	Result
RAID Card compatibility test	Intel RS2PI008	Pass
	Intel RS2MB044	Pass
	LSI 9260-4i	Pass
	3Ware 9750-8e	Pass
	Adaptec 6445	Pass
	Adaptec 6405	Pass
	ATTO R680	Fail
	LSI 8888ELP	Pass
	Adaptec ASR-5085	Pass
	Adaptec ASR-5445	Pass
	ATTO R380	Fail
HBA Card compatibility test	LSI 3801-e	Pass
	LSI 9201-16e	Pass



Compatibility List for XJ3000-3163(Mezzanine Card) 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 2012/06/08

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	Interface	Bandwidth	Model	FW Version	Capacity
Seagate	SAS	3G/S	ST936751SS	0001	36GB
Seagate	SAS	3G/S	ST973451SS	0001	73GB
Seagate	SAS	3G/S	ST973401SS	0002	73GB
Seagate	SAS	3G/S	ST9146802SS	0001	146GB
Seagate	SAS	6G/S	ST9500620SS	0002	500GB
Seagate	SAS	6G/S	ST9146803SS	0004	146GB
Seagate	SATA	3G/S	ST9500530NS	SN03	500GB
Seagate	SATA	3G/S	ST9250421AS	SD13	250GB
WD	SAS	6G/S	WD3000BKHG	VG04	300GB
Hitachi	SAS	3G/S	HTS725032A9A364	PC30C70E	320GB
Hitachi	SAS	3G/S	HUC101473CSS300	a72F	73GB
Hitachi	SAS	6G/S	HUC106060CSS600	A202	600GB
Hitachi	SAS	6G/S	HUC103030CSS600	A540	300GB
Fujitsu	SAS	3G/S	MAV2036RC	0108	36GB
Fujitsu	SAS	3G/S	MAY2036RC	0103	36GB
Fujitsu	SAS	3G/S	MAY2073RC	0103	73GB
Fujitsu	SAS	6G/S	MBD2147RC	0102	147GB
Fujitsu	SAS	6G/S	MBC2036RC	0102	36GB

3G/6G RAID/HBA Card Compatibility Matrix

Vender / Model	Firmware ver.	BIOS ver.	Driver ver.	GUI Software ver.
Intel RS2PI008	2.130.03.1332	3.20.00.4.11	5.2.112.32	11.06.00.0300
Intel RS2MB044	2.130.03.1332	3.20.00.4.11	5.2.112.32	11.06.00.0300
LSI 9260-4i	2.130.293-1580	3.24.00_4.12.05.00	5.2.112.32	11.06.00.0300
Adaptec 6445	5.2.0[19076]	5.2.0[19076]	5.2.0.18300	7.30.00(18837)
Adaptec 6405	5.2.0[18301]	5.2.0[18301]	5.2.0.18300	7.30.00(18837)
3Ware 9750-8e	FH9X 5.12.00.013	5.11.00.007	5.01.00.046	2.11.00.019
LSI 8888ELP	1.40.282-1279	2.07.00	5.2.112.32	11.06.00.0300
Adaptec ASR-5085	5.2-0[18252]	5.2-0[18252]	5.2.0.18252	7.30.00(18856)
Adaptec ASR-5445	5.2.0.18948	5.2.0.18948	5.2.0.18252	7.30.00.18856
LSI 3801-E	01.33.00.00	06.36.00.00	1.34.2.0	11.06.00.0300
LSI 9201-16e	07.00.00.00	07.11.00.00	2.0.55.0	11.06.00.0300

Bug List

Class

A Major

B Minor

C Limitation

D Other

NO.	Date	Class	Bug	Initiator	Status	Solution
1	2012/6/8	C	XJ3000-3163(Mezzanine Card) JBOD..不相容於3 ware 9690SA 的 RAID,經確認為LSI晶片不支援。	Jack	Close	SAS 6Gb/sExpandersAre Not Supported onthe 9690SAController
2	2012/6/8	D	ATTO R680及ATTO R380欲建RAID時，會建RAID失敗，尤其以WD1000FYYG/ST9146803SS最為容易失敗。	Jack	Open	