
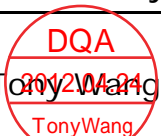





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## XJ3000-3163 EOB Compatibility with HDD / RAID Card DVT

### Formal Release

Initiated by	Reviewed by	Reviewed by	Approved by
 Jack Huang	 TonyWang	 Jacky Yang	David Yu
Originate Date	Revision	Release Status	
2012/4/23	A1	Formal Release	

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# Revision History

## Revisions

REV.	DESCRIPTION	DATE	Engineer
A0	XJ3000-3163 Expander On Board Compatibility Test	2012/2/10	Cola Chang
A1	XJ3000-3163 EOB Compatibility with HDD/RAID Card	2012/4/23	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
2012/4/16	2012/4/23

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# Table of Contents

1 Introduction.....	4
1.1 Scope.....	4
1.2 Purpose.....	4
1.3 Reference Information.....	4
2 Product Specification.....	5
2.1 Product Features.....	5
2.2 Product Specifications.....	5
2.3 DUT 45° Photo.....	6
3 DUT Images.....	7
3.1 3U16 EOB JBOD	7
3.2 3U16 EOB Backplane	8
4 Target Device Configuration and Environment.....	9
4.1 Test Device Configuration Diagram.....	9
4.2 Table of Test Configuration.....	9
4.3 RAID/HBA Card Configuration.....	10
4.4 HDD Configuration.....	11
5 RAID Card Test.....	12
6 HBA Card Test.....	14
7 Summary.....	15
Appendix	

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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	XJ3000-3163 Expander on Board
	XJ3000-3163 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	LSISAS2x28
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 16-bay
Cooling	3 x hot-swap fans
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 133.4/19 x 20 x 5.25
Gross Weight	w/ PSU; w/o Rail & Disks	26kgs / 57.2lbs
Packaging Dimension (W x D x H)	mm	600 x 730 x 333
Cubic Feet	5.2	
Reference Container Loading	20'	180
	40'	375
	40' H	450
Mounting Option	Adjust plate or 20" tool-less rail (optional)	

### 2.3 DUT 45° Photo



## 3 DUT Images

### 3.1 3U16 EOB JBOD



Front Angle



Top Open Angle



Rear Angle



### 3.2 3U16 EOB Backplane

Model: XJ3000-3163(3U16) EOB backplane

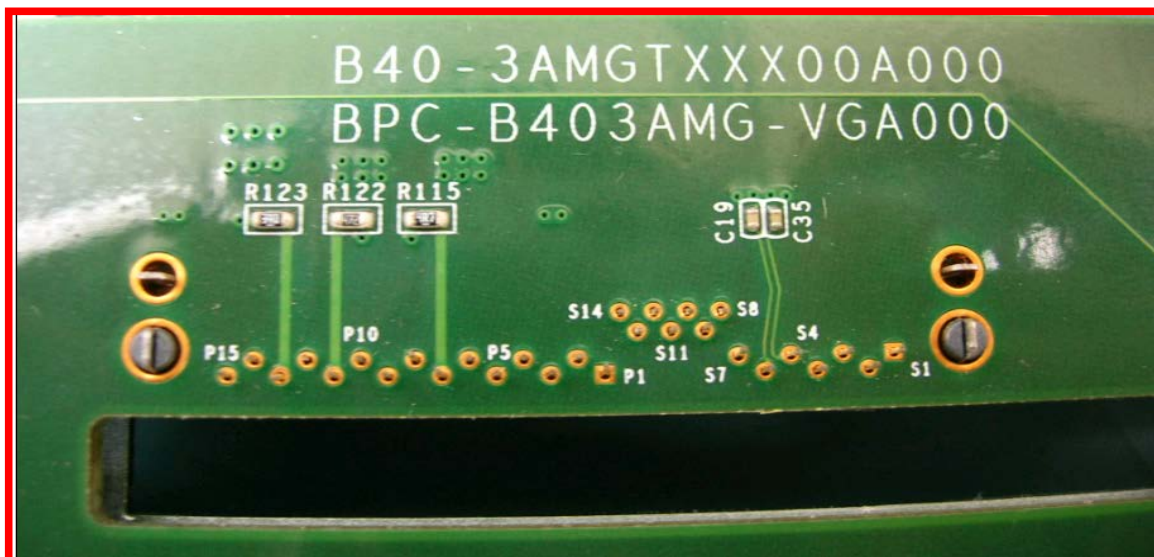
Product Part NO: B40-3AMGTXXX00A000



Front Angle



Rear Angle




Product Part Number



#### 4.1 Test Device Configuration Diagram



## 4.2 Table of Test Configuration

Host Configuration		
Item	Vender / Model	Detail
Mortherboard	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
	AIC Inc.	REV A1 Page 9 of 15

### 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	2.120.60.1242	3.20.00.4.11	5.2.112.32	11.06.00.0300
LSI 9260-4i	2.120.183_1415	3.23.00_4.11.05.00	5.2.103.0	11.06.00.0300
Adaptec 6405	5.2.0[18301]	5.2.0[18301]	5.2.0.18300	7.30.00(18837)
Atto R680	2012.02.17	3.06	2.17.2.0	4.02
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	5.2.103.0	11.12.01.01
Adaptec ASR-5085	5.2-0[18252]	5.2-0[18252]	5.2.0.18252	7.30.00(18837)
Adaptec ASR-5445	5.2.0.18252	5.2.0.18252	5.2.0.18252	7.30.00.18837
ATTO R380	3.85	4.06	3.70.2.0	4.02
LSI 3801-E	01.33.00.00	06.36.00.00	1.34.2.0	11.06.00.0300
LSI 9211-8i	12.00.00.00	07.23.01.00	2.0.52.0	11.06.00.0300

#### 4.4 HDD Configuration

Vender	Interface	Bandwidth	Model	FW Version	Capacity
Seagate	SAS	3G/S	ST31000640SS	HPE2	1TB
Seagate	SAS	3G/S	ST336754SS	0002	34GB
Seagate	SAS	3G/S	ST3450856SS	0005	450GB
Seagate	SAS	3G/S	ST3146855SS	0002	146GB
Seagate	SAS	3G/S	ST3300655SS	0002	300GB
Seagate	SAS	3G/S	ST3750630SS	E319	750GB
Seagate	SAS	3G/S	ST3146854SS	0001	146GB
Seagate	SAS	6G/S	ST3600057SS	0006	600GB
Seagate	SATA	3G/S	ST3750640NS	3.AEE	750GB
Seagate	SATA	3G/S	ST31000340NS	SN04	1TB
Seagate	SATA	3G/S	ST3320418AS	CC34	320GB
WD	SATA	3G/S	WD2500SD	08.02D08	250GB
WD	SATA	3G/S	WD3000HLFS	04.04V01	300GB
WD	SATA	3G/S	WD7500AYYS	30.04G30	750GB
WD	SATA	3G/S	WD10EADS	01.01A01	1TB
WD	SATA	3G/S	WD20EARS	51.0AB51	2TB
Hitachi	SAS	3G/S	HUS151414VLS300	A420	147GB
Hitachi	SAS	3G/S	HUS153030VLS300	a72E	300GB
Hitachi	SAS	3G/S	HUS154545VLS300	A570	450GB
Hitachi	SAS	6G/S	HUS156060VLS600	A5D0	450GB
Fujitsu	SAS	3G/S	MAX3073RC	0102	74GB
Fujitsu	SAS	3G/S	MBA3300RC	0103	300GB

# 5 RAID Card Test

Test Engineer	Jack Huang
Model Name	XJ3000-3163 Expander on Board
MFG	1.1.0.2
Firmware	1.11.1.1
Backplane	B40-3AMGTXXX00A000
Power Housing	ZIPPY MRW-3500V-R AC INPUT:100-240V 47-63Hz 8-4A,DC OUTPUT:500W
Power Module	ZIPPY MRW-3500V-R AC INPUT:100-240V 47-63Hz 8-4A,DC OUTPUT:500W
Other	

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

Note: ATTO R680 compatibility degree with 3U16 JBOD was not well.



AIC Inc.

REV A1  
Page 12 of 15

RAID Function	Test Procedure	Result
Adaptec 6405	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
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 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-5445	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
ATTO R380	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
<b>AIC</b>	AIC Inc.	REV A1 Page 13 of 15

## 6 HBA Card Test

Test Engineer	Jack Huang
Model Name	XJ3000-3163 Expander on Board
MFG	1.1.0.2
Firmware	1.11.1.1
Backplane	B40-3AMGTXXX00A000
Power Housing	ZIPPY MRW-3500V-R AC INPUT:100-240V 47-63Hz 8-4A,DC OUTPUT:500W
Power Module	ZIPPY MRW-3500V-R AC INPUT:100-240V 47-63Hz 8-4A,DC OUTPUT:500W
Other	

HBA Function	Test Procedure	Result
LSI 3801-E SAS HBA Card	While using LSI 3801-e SAS HBA to connect with XJ3000-3163 Expander on Board 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 XJ3000-3163 Expander on Board 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 XJ3000-3163 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 XJ3000-3163 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 XJ3000-3163 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 XJ3000-3163 Expander on Board 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
	Adaptec 6405	Pass
	ATTO R680	Fail
	3Ware 9750-8e	Pass
	LSI 8888ELP	Pass
	Adaptec ASR-5085	Pass
	Adaptec ASR-5445	Pass
	ATTO R380	Pass
HBA Card compatibility test	LSI 3801-E	Pass
	LSI 9211-8i	Pass

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





## **Compatibility List for XJ3000-3163 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 04/20/2012**

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	Interface	Bandwidth	Model	FW Version	Capacity
Seagate	SAS	3G/S	ST31000640SS	HPE2	1TB
Seagate	SAS	3G/S	ST336754SS	0002	34GB
Seagate	SAS	3G/S	ST3450856SS	0005	450GB
Seagate	SAS	3G/S	ST3146855SS	0002	146GB
Seagate	SAS	3G/S	ST3300655SS	0002	300GB
Seagate	SAS	3G/S	ST3750630SS	E319	750GB
Seagate	SAS	3G/S	ST3146854SS	0001	146GB
Seagate	SAS	6G/S	ST3600057SS	0006	600GB
Seagate	SATA	3G/S	ST3750640NS	3.AEE	750GB
Seagate	SATA	3G/S	ST31000340NS	SN04	1TB
Seagate	SATA	3G/S	ST3320418AS	CC34	320GB
WD	SATA	3G/S	WD2500SD	08.02D08	250GB
WD	SATA	3G/S	WD3000HLFS	04.04V01	300GB
WD	SATA	3G/S	WD7500AYYS	30.04G30	750GB
WD	SATA	3G/S	WD10EADS	01.01A01	1TB
WD	SATA	3G/S	WD20EARS	51.0AB51	2TB
Hitachi	SAS	3G/S	HUS151414VLS300	A420	147GB
Hitachi	SAS	3G/S	HUS153030VLS300	a72E	300GB
Hitachi	SAS	3G/S	HUS154545VLS300	A570	450GB
Hitachi	SAS	6G/S	HUS156060VLS600	A5D0	450GB
Fujitsu	SAS	3G/S	MAX3073RC	0102	74GB
Fujitsu	SAS	3G/S	MBA3300RC	0103	300GB

Note: WD / WD2500SD unsupported 3Ware 9750-8E RAID Card.

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REV A1  
Appendix

### 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	2.120.60.1242	3.20.00.4.11	5.2.112.32	11.06.00.0300
LSI / 9260-4i	2.120.183_1415	3.23.00_4.11.05.00	5.2.103.0	11.06.00.0300
3 Ware/ 9750-8E	FH9X 5.12.00.013	5.11.00.007	5.01.00.046	2.11.00.019
Adaptec / ASR-6405	5.2.0[18301]	5.2.0[18301]	5.2.0.18300	7.30.00(18837)
LSI / 8888ELP	1.40.282-1279	2.07.00	5.2.103.0	11.12.01.01
Adaptec / ASR-5085	5.2-0[18252]	5.2-0[18252]	5.2.0.18252	7.30.00(18837)
Adaptec / ASR-5445	5.2.0.18252	5.2.0.18252	5.2.0.18252	7.30.00.18837
ATTO / R380	3.85	4.06	3.70.2.0	4.02
LSI / 9211-8i	12.00.00.00	07.23.01.00	2.0.52.0	11.06.00.0300
LSI / 3801E	01.33.00.00	06.36.00.00	1.34.2.0	11.06.00.0300

Note: ATTO R680 compatibility degree with 3U16 JBOD was not well.

# Bug List

## Class

A	Major
B	Minor
C	Limitation
D	Other

NO.	Date	Class	Bug	Initiator	Status	Solution
1	2012/1/12	C	XJ3000-3163 JBOD Expander on board..不相容於3 ware 9690SA 的 RAID,經確認為LSI晶片不支援，詳見 LSI Release Notes 	Cola	Close	SAS 6Gb/sExpandersAre Not Supported onthe 9690SAController
2	2012/4/23	B	使用ATTO R680 RAID Card於3U16 進行建RAID 5，則於初始化過程中即出現異常中止訊息或硬碟錯誤訊息。	Jack	Open	