96RC-SAS-4P-PE-AD1
96RC-SAS-4P-PE-AD2
Test Report

Test Requestor	Lydia.Liu	**Job Title**		**Release Date**	2013-3-26
Testing Engineer	Jeans.Zhou	**Job Title**	AKDC DQA Engineer	**Revision**	V1.1
Approved by	Sophie.Song	**Job Title**	AKDC DQA assistant manager	**Release Status**	Formal Release

Revision History:

Revision Date	Revision	Description	Creator
2012/11/19	1.0	First version released	Jeans.Zhou
2013/3/26	1.1	Add FWA-6510 Mother Board compatibility test, and update the items 2.2&2.3 of this report.	Tenthy.Zhang

Content

Test Result Definition:

Item	Description
Pass	Compatibility test properly without any problem.
Fail	Compatibility test can't work properly and can't meet the product spec, please describe issue to the "Remark" item detailedly.
No test	No test (no test tool or device or driver not ready); please write reason to the "Remark" item.
N/A	Spec not support.
Limitation	Compatibility issue Limitation, it needs formal approval mail or other formal reply from PM or Applicant or Manufacturer.

Test Item List Summary

Num.	Test item	Result	Remark
Chapter 1	Function test	Pass	
1.1	Device Information confirm	Pass	
1.2	Basic function test	Pass	
1.2.1	RAID Level test	Pass	
1.2.2	Rebuild test	Pass	
1.2.3	Drive interface test	Pass	
1.2.4	Hybrid RAID test	Pass	
1.3	LED&Jumpers and Connectors	Pass	
Chapter 2	Compatibility test	Pass	
2.1	With OS compatibility test	Pass	Warning
2.2	With motherboard compatibility test	Pass	
2.3	With PCIE Bus test	Pass	Warning
Chapter 3	Performance test	Pass	
3.1	HD Tach	Pass	
3.2	HD Tune	Pass	
Chapter 4	Reliability test	Pass	
4.1	Room temperature test	Pass	

Engineer summary:

1. The RAID card driver need loading two times when install the OS（WIN7&WIN2K8）,but does not affect the use.
   The reason is the OS built-in Adaptec AACRAID Driver can support the old card, but can't support the new of 6 series cards.
2. The raid card may be can't work normally in slot PCIEX16 and PCIEX8 of Sandy Bridge CPU card or motherboard, there is no problem if using in slot PCIEx4 or PCIEX1.
   (Ps: It can be fixed by updating BIOS. Ex. PCE-5126(E1.11), FWA-3210(3210XB34))

Appendix 1:Motherboard List

MB/SBC	Core Chipset	Remark
AIMB-762	Intel 945G GMCH+ICH7R	
ASMB-781	Intel Cougar Point C206	Can't work in PCIEx16
AIMB-780W	Intel3450 Chipset	
PCE-5020	945GC+ICH7R	
PCE-5124	Intel Q35 GMCH+ICH9DO	
PCE-5125Q	Intel Q57	
PCE-5126W	Intel Cougar Point C206	Fail: BIOS V1.11and slot PCIEX16 Pass: BIOS E1.11 and slot PCIEX16
PCE-7214	Intel E5100 + ICH9R	
FWA-6510	C604PCH	

Appendix 2: HDD List

P-TD Part Number	Band	MN/PN	Remark
96HD250G-ST-SG7K12	Seagate	ST250DM000	
NA	Seagate	ST3000DM001	
96HD1000G-ST-SG7K6	Seagate	ST1000DM003	
96HD2000G-ST-SG7K2	Seagate	ST2000DM001	
96HD2000G-ST-SG7K3	Seagate	ST2000VX000	
NA	Seagate	ST3000VX000	
96HD500G-ST-SG7K11	Seagate	ST500NM0011	
96HD2000G-ST-SG7K1	Seagate	ST2000NM0011	
96HD1T-ST-WD10KE	Seagate	WD1000DHTZ	
96HD500G-ST-WD10KE	Seagate	WD5000HHTZ	
96HD1T-ST-WD7K	Seagate	WD10EZEX	
SQF-S25M8-256G-F1C	Advantech	SQF-S25M8-256G-F1C	
SQF-S25S8-256G-S8E	Advantech	SQF-S25S8-256G-S8E	
SQF-S25S8-256G-S8C	Advantech	SQF-S25S8-256G-S8C	
SQF-S25S4-64G-S7C	Advantech	SQF-S25S4-64G-S7C	
SQF-S25S4-64G-S7E	Advantech	SQF-S25S4-64G-S7E	
96ND500G-ST-TO5K1	Toshiba	MK5076GSX	

96ND320G-ST-TO5K1	Toshiba	MK3276GSX	
96ND250G-ST-TO5K1	Toshiba	MK2576GSX	
96ND160G-ST-TO5K1	Toshiba	MK1676GSX	
NA	Seagate	ST160LT015	
96ND500G-ST-SG5K2	Seagate	ST500LT012	
96ND1T-ST-WD5K	Western Digital	WD10JPVT	
96ND1T-ST-WD5KE	Western Digital	WD10JUCT	
96ND750G-ST-WD7K	Western Digital	WD7500BPKT	
96ND750G-ST-WD5K	Western Digital	WD7500BPVT	
96ND500G-ST-WD5K3	Western Digital	WD5000LPVT	
96ND500G-ST-WD5KE	Western Digital	WD500LUCT	
96ND500G-SS-SG7KE	Seagate	ST9500620SS	
NA	Toshiba	MK1001TRKB	
96HD300G-SS-SG15K	Seagate	ST3300657SS	

Appendix 3: Mobile Rack List

P-TD Part Number	Band	MN/PN	Remark
96RACK-5-ST-CR1	CREMAX	MB123SK-1	
96RACK-5-ST-CR-B2	CREMAX	MB123SK-1B	
96RACK-5-ST-CR-B5	CREMAX	MB153SP-B	
96RACK-5-ST-CR-B6	CREMAX	MB154SP-B	
96RACK-5-ST-CR-B1	CREMAX	MB453SPF-B	
96RACK-5-SS-CR-B1	CREMAX	MB453IPF-B	
96RACK-5-ST-CR-B4	CREMAX	MB994SP-4SB-1	
96RACK-3-SS-CR-B	CREMAX	MB991IK-B	
96RACK-5-SS-CR-B	CREMAX	MB123IK-1B	

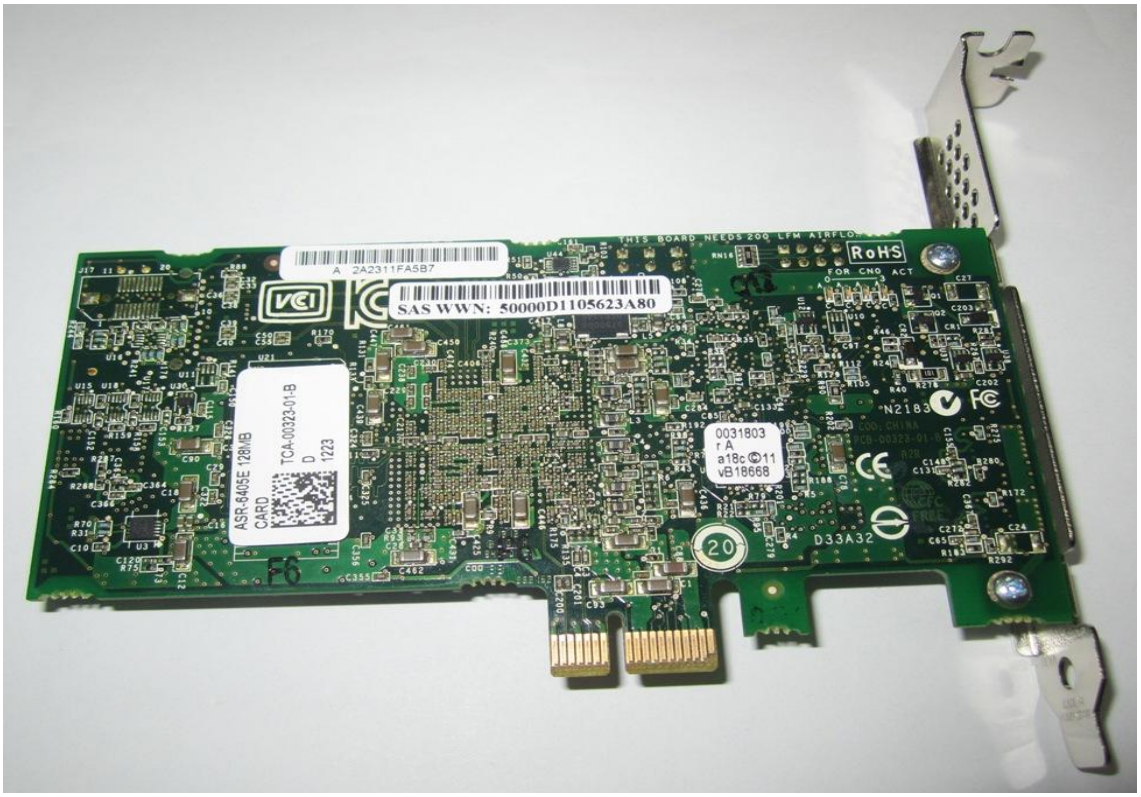
Product Information:

Advantech Part Number	96RC-SAS-4P-PE-AD1
Manufacturer	ADAPTEC
Model Number	6405E / 2271700-R
Device support	supports up to 4 SATA or SAS devices
Number of ports	1 SFF-8087(4 internal)
Array interface to the host	1-Lane PCIe Gen2
PCI Express bus data transfer rate	Up to 1GB/s
RAID controller	PMC-Sierra PM8013 Dual Core RAID on Chip(ROC)
RAID Levels	RAID levels 0, 1, 10, 1E and JBOD； Hybrid RAID 1 & 10)
Drive data transfer rate	6Gb/s per port
Cache	128MB
OS Support	Support Windows(7,Server2008,Vista),Linux and FreeBSD
Operating voltage	0.11A @ 3.3 VDC; 0.75A @ 12.0 VDC
Operating Temperature	0℃ to 55℃(with 200 LFM airflow)
PCB version	PCA-00323-01-B
BIOS version	V5.2-0(build 18512)
Card size	Low-profile form factor (2.535’’H x 5.115’’ L) smaller than MD2 allows installation in condensed system designs
ROHS Status (Yes/No)	Yes

***** The raid card has select backup unit and cable for testing, as follows：

Part Number	Band	MN/PN	Remark
96CB-SAS-SATA-4P1	LITZ	T1070A6361121	MINI SAS TO 4P SATA+SIDEBAND0.7M(G)
NA	ADAPTEC	ACK-I-mSASx4-4SATAx1-SB-1M	

Photo:



Test Platform

MB/SBC	AIMB-762		
PCB version	A101-4	**CPU**	Intel Pentium 4 3.06GHZ
BIOS version	V1.17	**DRAM**	Transcend DDR2 512MB 667 DIMM
Core Chipset	Intel 945G GMCH+ICH7R	**Backplane**	NA
VGA Chipset	Intel 945G integrated	**Other**	Cable: ADAPTEC CABLE (2247100-R) ACK-I-mSASx4-4SATAx1-SB-1M

MB/SBC	ASMB-781		
PCB version	A101-3	**CPU**	Intel Core i3-2120 3.30GHZ
BIOS version	V1.10	**DRAM**	Apacer 2GB DDR3 1333 DIMM
Core Chipset	PCHC206	**Backplane**	NA
VGA Chipset	ASPEED AST2300	**Other**	Cable: ADAPTEC CABLE (2247100-R) ACK-I-mSASx4-4SATAx1-SB-1M

MB/SBC	AIMB-780W		
PCB version	A101-2	**CPU**	Intel Core i5 660 3.33GHZ
BIOS version	V1.10	**DRAM**	Apacer 2GB DDR3 1333 DIMM
Core Chipset	Intel 3450	**Backplane**	NA
VGA Chipset	CPU integrated VGA Controller	**Other**	Cable:副廠 SFF-8087 to 4 X SATA (1 對 4 SATA 6G 含 SGPIO 線材)

MB/SBC	PCE-5020		
PCB version	A101-2	**CPU**	Intel Core 2 6400 2.63GHZ
BIOS version	V1.12	**DRAM**	Transcend DDR2 667 2GB DIMM
Core Chipset	945GC+ICH7R	**Backplane**	PCE-5B06-04_A104-1
VGA Chipset	Intel 945GC integrated	**Other**	Cable:副廠 SFF-8087 to 4 X SATA (1 對 4 SATA 6G 含 SGPIO 線材)

MB/SBC	PCE-5124		
PCB version	A102-1	**CPU**	Intel Core 2 6600 2.40GHZ
BIOS version	V1.23	**DRAM**	Cable: Transcend DDR2 800 1GB DIMM
Core Chipset	Intel Q35GMCH+ICH9DO	**Backplane**	PCE-5B13-08_A102-1
VGA Chipset	Q35GMCH Integrated	**Other**	ADAPTEC CABLE (2247100-R) ACK-I-mSASx4-4SATAx1-SB-1M

MB/SBC	PCE-5125Q		
PCB version	A101-2	CPU	Intel Core i3 530 2.93GHZ
BIOS version	125x0042	DRAM	Apacer 2GB DDR3 1333 DIMM
Core Chipset	Intel Q57	Backplane	PCE-5B05-02_A101-2
VGA Chipset	CPU integrated VGA Controller	Other	Cable: ADAPTEC CABLE (2247100-R) ACK-I-mSASx4-4SATAx1-SB-1M

MB/SBC	PCE-5126W		
PCB version	A101-3	CPU	Intel Core i5-2400 3.10GHZ
BIOS version	V1.11	DRAM	Apacer 1GB DDR3
Core Chipset	Intel Cougar Point C206	Backplane	PCE-5B12-07_A101-1
VGA Chipset	CPU integrated VGA Controller	Other	Cable:副廠 SFF-8087 to 4 X SATA (1 對 4 SATA 6G 含 SGPIO 線材)

MB/SBC	PCE-7214		
PCB version	A102-1	CPU	Intel Xeon E5410 2.33GHZ
BIOS version	7214V110	DRAM	Transcend 1GB DDR2 667 DIMM
Core Chipset	Intel E5100 + ICH9R	Backplane	PCE-7B06-04_A104-1
VGA Chipset	XGI Volari Z11 via PCI Express X1 Link	Other	Cable: ADAPTEC CABLE (2247100-R) ACK-I-mSASx4-4SATAx1-SB-1M

MB/SBC	FWA-6510		
PCB version	A104-1	CPU	Intel E5-2658 2.10GHz
BIOS version	F1.20	DRAM	Apacer DDR3 1333 4GBx4 DIMM
Core Chipset	C604PCH	Backplane	NA
VGA Chipset	AST2300	Other	

Test Software

Utilities	Version / Description
Power On/Off (For Reliability test)	
Passmark BurnIn Test Pro (For Reliability test)	V7.0 build 1013
HD Tach (For Performance test)	V3.0.4.0
HD Tune (For Performance test)	V5.0

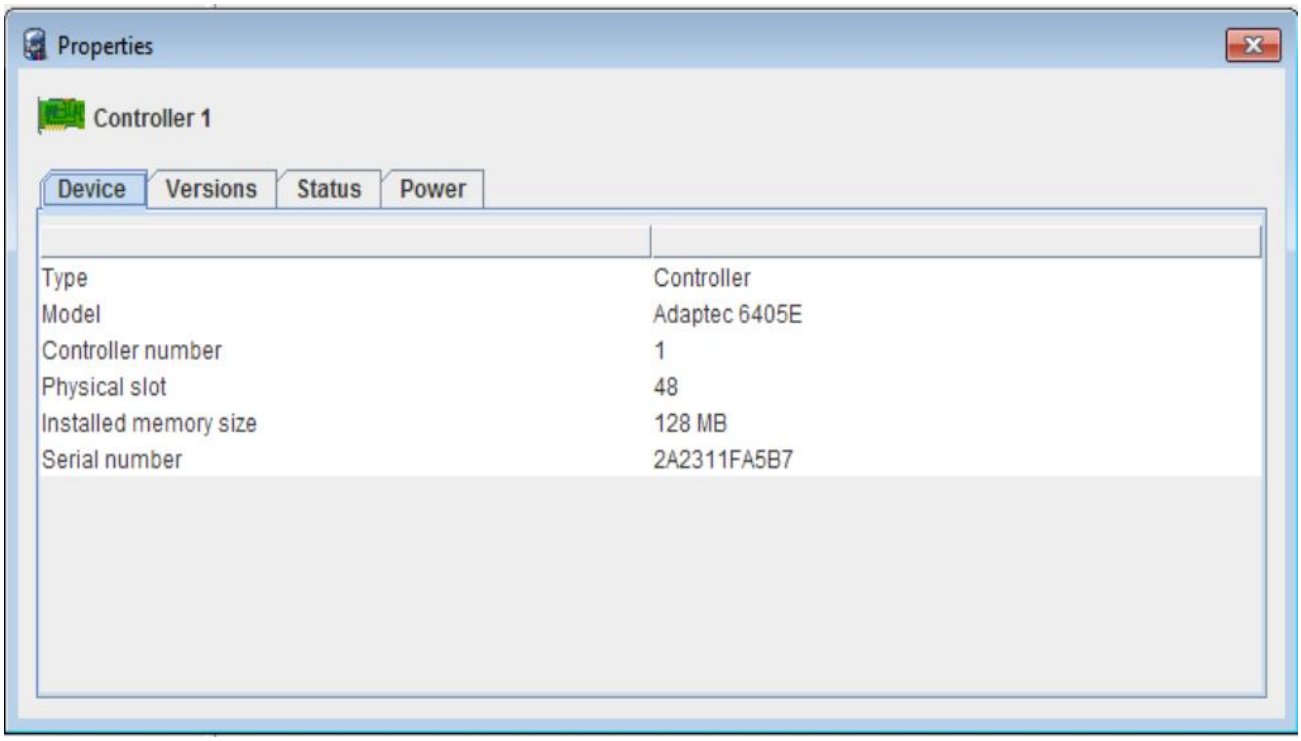
Test Item

Chapter 1: Function test

1.1 Device Information confirm

The test ensures the product meets SPEC. Check RAID card properties in GUI Storage Management Utility, and paste the screenshot of test result as below.

Test result (MB/SBC: PCE-7214):



1.2 Basic function test

1.2.1 RAID Level test

The test ensures the RAID controllers Support for RAID levels can be create and working normally. Please see the test criteria as below:

1. The HDD disk can be detected, and the BIOS of Raid card should show the correct drive model and capacity etc information.
2. Make sure the HDD disk can build Raid, Check Raid disk size should be as below:

RAID Level	Size	fault-tolerant capability	Note
RAID 0	1+1=2	0	
RAID 1	1+1=1	1	Each one of the array
RAID 1E	1+1+1=N*1/2	1or 2	"A RAID 1E array can be built from three or more disk drives.≤3pcs disk(allowing 1pcs of offline); ≥4pcs（allowing 2pcs of offline，but cannot be adjacent or the first and the second cannot be at the same time offline）
RAID 10	2+2=2	2	Both sides RAID1 each bad a piece of hard disk, but not at the same time.

PS: "N" represent disk quantity; "* 1" meaning is multiplied by the single disk capacity.

(Table 1)

3. OS can be installed into the RAID disk without any problem.
4. Run Burn-in test 30 minutes with the raid disk, Set DISK loading 100%, all disks file size 15%, the result must be passed.
5. Run Power on/off test at least 10 times, RAID can not lose and boot into the OS.
6. Refer to Table 1 fault-tolerant capability，RAID can boot into OS when removed the hard disk.

MB/SBC: ASMB-781

Raid level	Mobile rack	HDD	OS	Result	Remark
RAID 0	96RACK-5-ST-CR1	96HD250G-ST-SG7K12	Win7 32bit	**Pass**	
	96RACK-5-ST-CR-B2	Seagate ST3000DM001			
RAID 1	96RACK-5-SS-CR-B	96HD2000G-ST-SG7K1	Red Hat 6.1 32bit	**Pass**	
	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2			
RAID1E	96RACK-5-ST-CR-B1	Seagate ST3000DM001 Seagate ST3000VX000*2	Win7 32bit	**Pass**	
RAID 10	96RACK-5-ST-CR-B6	Seagate ST3000DM001 96HD500G-ST-SG7K11 96HD2000G-ST-SG7K2 Seagate ST3000VX000	Win7 64bit	**Pass**	

1.2.2 Rebuild test

Pass Criteria: when a drive fails, the controller firmware automatically replaces and rebuilds the data from the failed drive to the hot spare.

Raid level	MB/SBC	Mobile rack	HDD	OS	Result	Remark
RAID 1	PCE-7214	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	Linux 32bit	Pass	96ND500G-ST-WD5K3 replace 96ND500G-ST-TO5K1
		NA	96ND250G-ST-TO5K1			
RAID 1E	PCE-5126W	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	Win2008 32bit	Pass	96HD1T-ST-WD10KE replace 96HD500G-ST-WD10KE
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
RAID 10	PCE-7214	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	Win7 64bit	Pass	WD1000DHTZ replace 96HD500G-ST-SG7K11
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			

1.2.3 Drive Interface test

The test ensures each port on the SAS RAID controller supports SAS devices, SATA II devices or both.
Pass Criteria:

1. The HDD disk can be detected, and the BIOS of Raid card should show the correct drive model and capacity etc information.
2. OS can be installed into the RAID disk without any problem.
3. Run Burn-in test 30 minutes with the raid disk, Set DISK loading 100%, all disks file size 15%, the result must be passed.
4. Run Power on/off test at least 10 times, RAID can not lose and boot into the OS.

MB/SBC: PCE-7214

Drive	Raid level	Mobile rack	HDD	OS	Result	Remark
3.5"SATA	RAID1E	96RACK-5-ST-CR-B5	96HD1T-ST-WD10KE 96HD500G-ST-WD10KE 96HD1T-ST-WD7K	Win7 32bit	Pass	
	RAID10	96RACK-5-ST-CR-B6	Seagate ST3000DM001 96HD2000G-ST-SG7K1 Seagate ST3000VX000 96HD2000G-ST-SG7K2	Win7 64bit	Pass	
2.5''SATA	RAID 10	96RACK-5-ST-CR-B4	96ND500G-ST-WD5K3 96ND500G-ST-WD5KE 96HDND1T-ST-WD5KE 96ND750G-ST-WD5K	Win 7 32bit	Pass	
3.5" SAS	RAID 1	96RACK-5-SS-CR-B1 96RACK-5-SS-CR-B	96HD300G-SS-SG15K Toshiba MK1001TRKB	Win 7 32bit	Pass	
2.5" SAS	RAID 1	NA 96RACK-3-SS-CR-B	96ND500G-SS-SG7KE 96ND500G-SS-SG7KE	Win2008 64bit	Pass	
SSD	RAID 10	96RACK-5-ST-CR-B4	SQF-S25S8-256G-S8E SQF-S25S8-256G-S8C SQF-S25S4-64G-S7C SQF-S25S4-64G-S7E	Win7 32bit	Pass	

1.2.4 Hybrid RAID test

The test ensures the Hybrid RAID: SSD +HDD for Maximum Performance and Reliability in a single array.

Pass Criteria:

1. The SSD and HDD disk can be detected, and the BIOS of Raid card should show the correct drive model and capacity etc information.
2. OS can be installed into the RAID disk without any problem.
3. Run HD Tune for performance test.
4. Run Burn-in test 30 minutes with the raid disk, Set DISK loading 100%, all disks file size 15%, the result must be passed.

5. Run Power on/off test at least 10 times, RAID can not lose and boot into the OS.

MB/SBC: ASMB-781

Raid level	RAID 1					
Mobile rack	MRA751P-B-A					
HDD	SQF-S25M8-256G-F1C+96HD2000G-ST-SG7K3					
OS	Win 7 SP1 32bit					
Performance test						
Item	**HD Tune version 5.0**					
	Minimum Transfer Rate (MB/s)	**Maximum Transfer Rate (MB/s)**	**Average Transfer Rate (MB/s)**	**Access Time (ms)**	**CPU Usage**	**Burst Speed (MB/s)**
Read	185.6	195.7	189.4	0.283	2.2%	195.4
Write	151.0	174.5	168.6	8.51	2.2%	198.2

1.3 LED&Jumpers and Connectors

The test ensures whether the the LED&Jumpers and Connectors can meet the RAID card spec.

1. LED can work properly as spec define
2. Jumper can work properly as spec define

MB/SBC: PCE-5125Q

Jumper/ Connector	Type	Result	Remark
J1	Aggregate Activity	**Pass**	
J2	Drive Activity LED connector for CN0/CN1	**Pass**	
J7	HAD mode connector	No test	Forced flush firmware, no test device
J9	UART	No test	No test device
J12	Ext. Alarm connector	No test	No test device

Chapter 2: Compatibility test

2.1 With OS compatibility test

The test ensures mainstream windows OS can be installed into the RAID, and the Raid card can working without any problem.

Please see the test criteria as below:

1. OS can be installed into the RAID and the Partition and format function is normal.
2. The RAID Card of driver installation without any problem, and device work normally.
3. Run Burn-in test 30 minutes with the raid disk, Set DISK loading 100%, all disks file size 15%, the result must be passed.

Test platform	PCE-7214	
OS	**Driver**	**Result**
Windows 7 Ultimate 32bit	5.2.0.19076	**Pass**
Windows 7 Ultimate 64bit	5.2.0.19076	**Pass**
Windows server 2008 Standard 32bit with SP2	5.2.0.19076	**Pass**
Windows server 2008 Standard 64bit with SP2	5.2.0.19076	**Pass**
Red Hat enterprise Linux 6	1.1-7[29100]	**Pass**

Warning:

Error Message: **No drives were found**
With Adaptec **Series 6** controller, you may see this message. The Windows setup program tries to load the inbox storage **driver** first, by default. As a result, the **driver** for the Adaptec **Series 6** controller must be loaded twice.

Select "Load **Driver**" again, uncheck "Hide **drivers** that are not compatible", then select the **Series 6** controller **driver**. On the second attempt, the **driver** will load successfully.

http://ask.adaptec.com/app/answers/detail/a_id/17105/kw/series%206%20driver

2.2 With motherboard compatibility test

The test ensures the configuration of RAID solution can work properly with different framework and chipsets of Motherboard.

Please see the test criteria as below:

1. The HDD disk can be detected, and the BIOS of Raid card should show the correct drive model and capacity etc information.
2. The RAID configuration can be successfully to create and initialization normal :
3. OS can be installed into the RAID and driver working without any problem.
4. Run Burn-in test 30 minutes with the raid disk, Set DISK loading 100%, all disks file size 15%, the result must be passed.
5. Run Power on/off test at least 10 times, RAID can not lose and boot into the OS.

MB/SBC: AIMB-762

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PCIE1(x4)	Win 7 32bit	**Pass**
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PCIE1(x4)	Linux 32bit	**Pass**
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PCIE1(x4)	Win 7 64bit	**Pass**
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PCIE1(x4)	Win2008 64bit	**Pass**
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: ASMB-781

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PCIE3(x4)	Win 7 32bit	Pass
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PCIE3(x4)	Red Hat 6.1 32bit	Pass
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PCIE7(x1)	Win 7 64bit	Pass
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PCIE3(x4)	Win 2008 32bit	Pass
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: AIMB-780W

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PCIEX4(x4)	Win 7 32bit	Pass
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PCIEX1(x1)	Win 7 64bit	Pass
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PCIEX4(x4)	Red Hat 6.1 32bit	Pass
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PCIEX4(x4)	Win 7 64bit	Pass
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: PCE-5020

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PPCIE1(x16)	Win 7 64bit	**Pass**
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PPCIE1(x16)	Win7 32bit	**Pass**
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PPCIE1(x16)	Win7 64bit	**Pass**
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PPCIE1(x16)	Red Hat 6.1 32bit	**Pass**
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: PCE-5124

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PPCIE3(x1)	Win 7 32bit	**Pass**
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PPCIE2(x1)	Win 2008 64bit	**Pass**
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PPCIE2(x1)	Red Hat 6.1 32bit	**Pass**
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PPCIE3(x1)	Win 7 64bit	**Pass**
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: PCE-5125Q

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PPCIE2(x16)	Win 7 32bit	**Pass**
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PPCIE1(x4)	Win 7 32bit	**Pass**
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PPCIE1(x4)	Red Hat 6.1 32bit	**Pass**
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PPCIE2(x16)	Win 2008 32nit	**Pass**
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: PCE-5126W

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD1000G-ST-SG7K6	P1PCIE2(x4)	Win 7 32bit	**Pass**
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD500G-ST-SG7K11			
		96RACK-5-ST-CR-B6	96HD2000G-ST-SG7K2			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	P1PCIE2(x4)	Win 7 32bit	**Pass**
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND500G-ST-WD5KE	P1PCIE2(x4)	Win 7 64bit	**Pass**
			96ND500G-ST-WD5K3			
			96ND750G-ST-WD7K			
			96ND1T-ST-WD5KE			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	P1PCIE3(x4)	Red Hat 6.1 32bit	**Pass**
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: PCE-7214

Item	Level	MOBLE	HDD	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96RACK-5-ST-CR1	96HD500G-ST-SG7K11	PPCIE1(x4)	Win 7 64bit	Pass
		96RACK-5-ST-CR-B2	96HD2000G-ST-SG7K3			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	PPCIE1(x4)	Win2008 32bit	Pass
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			
2.5"SATA Solution	RAID10	96RACK-5-ST-CR-B4	96ND750G-ST-WD5K	PPCIE1(x4)	Win 7 32bit	Pass
			96ND500G-ST-WD5K3			
			96ND1T-ST-WD5KE			
			96ND1T-ST-WD5K			
	RAID 1	96RACK-3-SS-CR-B	96ND500G-ST-SG5K2	PPCIE1(x4)	Red Hat 6.1 32bit	Pass
		No Rack	96ND250G-ST-TO5K1			

MB/SBC: FWA-6510__Riser card NAMB-6510PRC_A102-1(PCIEX8 to PCIEX8)

Item	Level	P-TD Part Number	MN/PN	IN SLOT	OS	Result
3.5" SATA Solution	RAID10	96HD1000G-ST-SG7K6	ST1000DM003	CN5 (PCIEX8)	Win7 64bit	Pass
		96HD2000G-ST-SG7K3	ST2000VX000			
		96HD2000G-ST-SG7K1	ST2000NM0011			
		96HD2000G-ST-SG7K2	ST2000DM001			
	RAID5	96HD1T-ST-WD10KE*2pcs	WD1000DHTZ	CN5 (PCIEX8)	Win2008 32bit	Pass
		96HD500G-ST-WD10KE	WD5000HHTZ			
2.5"SATA Solution	RAID 1	96ND500G-ST-SG7K2	ST9500620NS	CN5 (PCIEX8)	Red hat 6.1 32bit	Pass
		96ND1T-ST-SG7KE	ST91000640NS			

2.3 With PCIE Bus test

The test ensures whether the PCIE bus can work properly without any error with the raid card.

Please see the test criteria as below:

1. Run copy test and the RAID can work normally in OS.
2. Run Power on/off test at least 5 times, RAID can not lose.

MB/SBC	Backplane	PCIE list	Result	Remark
AIMB-762	NA	PCIE1-4X	**Pass**	
		PCIE-16X	**Pass**	
ASMB-781	NA	PCIE7(x1)	**Pass**	
		PCIE3(x4)	**Pass**	
		PCIE4(x16)	Fail	Can't enter BIOS of Raid card
		PCIE6(x16)	Fail	Can't enter BIOS of Raid card
AIMB-780W	NA	PCIEX1-1	**Pass**	
		PCIEX4-1	**Pass**	
		PCIEX16-1	**Pass**	
PCE-5020	PCE-5B06-04_A104-1	PPCIE1(x16)	**Pass**	
PCE-5124	PCE-5B13-08_A102-1	PPCIE1(x1)	**Pass**	
		PPCIE2(x1)	**Pass**	
		PPCIE3(x1)	**Pass**	
		PPCIE4(x16)	**Pass**	
PCE-5125Q	PCE-5B05-02_A101-2	PPCIE1(x4)	**Pass**	
		PPCIE2(x16)	**Pass**	
PCE-5126W	PCE-5B12-07_A101-1	P1PCIE1(x4)	**Pass**	
		P1PCIE2(x4)	**Pass**	
		P1PCIE3(x4)	**Pass**	
		PPCIE2(x16)	**Pass**	BIOS E1.11(OEM Customer)
			Fail	BIOS V1.11(Can't enter BIOS of Raid card)
PCE-7214	PCE-7B06-04_A104-1	PPCIE1(x8)	**Pass**	
FWA-6510	Use Riser card NAMB-6510PRC	CN5 (PCEX8 to PCIEX8)	**Pass**	

Chapter 3: Performance test

The RAID configured:
RAID Level：RAID 10
Mobile Rack (HDD) ：96RACK-5-ST-CR1 (96HD1000G-ST-SG7K6)
96RACK-5-ST-CR-B2 (96HD2000G-ST-SG7K3)
96RACK-5-ST-CR-B5 (96HD2000G-ST-SG7K2)
96RACK-5-ST-CR-B6 (96HD1000G-ST-SG7K6)

3.1 HD Tach

MB/SBC	HD Tach version 3.0.4.0			
	Burst Speed (MB/s)	Average Read (MB/s)	CPU Utilization	Random Access Time (ms)
AIMB-762	166.1	143.9	4%	10.1
ASMB-781	240.3	196.1	2%	10.0
AIMB-780W	168.9	147.5	2%	9.9
PCE-5020	167.1	147.3	5%	10.1
PCE-5124	160.9	140.9	4%	9.8
PCE-5125Q	290.2	227.9	3%	9.8
PCE-5126W	151.2	131.2	2%	10.0
PCE-7214	181.2	154.4	1%	9.7

3.2 HD Tune

3.2.1 Read test

MB/SBC	HD Tune version 2.52					
	Minimum Transfer Rate (MB/s)	Maximum Transfer Rate (MB/s)	Average Transfer Rate (MB/s)	Access Time (ms)	CPU Usage	Burst Speed (MB/s)

AIMB-762	125.3	134.7	132.5	9.67	3.1%	137.1
ASMB-781	150.0	185.9	179.2	9.74	1.9%	192.8
AIMB-780W	130.3	139.4	137.0	9.63	0.9%	141.8
PCE-5020	130.3	139.0	136.3	9.74	2.8%	141.3
PCE-5124	108.9	131.1	128.6	9.44	2.6%	131.0
PCE-5125Q	190.3	224.2	214.2	9.41	1.6%	231.2
PCE-5126W	117.2	125.1	122.7	9.58	1.2%	127.6
PCE-7214	135.4	145.6	142.6	9.69	1.0%	146.6

3.2.2 Write Test

MB/SBC	HD Tune version 2.52					
	Minimum Transfer Rate (MB/s)	Maximum Transfer Rate (MB/s)	Average Transfer Rate (MB/s)	Access Time (ms)	CPU Usage	Burst Speed (MB/s)
AIMB-762	53.7	63.1	60.7	5.40	1.6%	111.2
ASMB-781	71.2	92.6	84.5	5.40	1.9%	130.1
AIMB-780W	83.9	103.4	98.6	5.48	1.5%	142.7
PCE-5020	50.2	62.0	59.0	4.93	1.8%	106.0
PCE-5124	50.2	60.0	57.4	5.50	1.4%	105.2
PCE-5125Q	91.8	104.1	99.7	5.49	0.7%	163.7
PCE-5126W	48.8	60.0	56.5	5.45	1.5%	105.3
PCE-7214	52.5	64.1	61.1	4.95	0.5%	118.0

Chapter 4: Reliability test

4.1 Room temperature test

The test ensures the RAID card can working stable in a long time.

Please see the test criteria as below:

1. Run power on/off 100 times， successful boot rate 100%;
2. Run Passmark Burn_in, Set DISK loading 100%, all disks file size 15%; The result of all disks should be passed when running Burn_in for 12 hours.

MB/SBC	RAID Level	Moble rack	HDD	OS	Result	Remark
PCE-5124	RAID10	96RACK-5-ST-CR1	96HD2000G-ST-SG7K3	Win 7 32bit	**Pass**	
		96RACK-5-ST-CR-B2	96HD500G-ST-SG7K11			
		96RACK-5-ST-CR-B5	96HD2000G-ST-SG7K2			
		96RACK-5-ST-CR-B6	96HD1000G-ST-SG7K6			
PCE-5126W	RAID1E	96RACK-5-ST-CR-B1	96HD1T-ST-WD7K	Win 7 64bit	**Pass**	
			96HD500G-ST-WD10KE			
			96HD1T-ST-WD10KE			