

96ND500G-ST-WD5K2

Test Report

This report is also applied to the following drives since they are same generation with very similar specification.

96ND320G-ST-WD5K1
96ND250G-ST-WD5K1

Test Requestor	Christine.Weng	Job Title		Release Date	2011-9-16
Testing Engineer	Tenthy.Zhang	Job Title	AKDC DQA Engineer	Revision	V1.0
Approved by	Sophie.Song	Job Title	AKDC DQA assistant manager	Release Status	Formal Release

Revision History:

Revision Date	Revision	Description	Creator
2011/07/20	1.0	First version released	Jier.liu

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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

Motherboard or CPU card compatibility test result

MB/SBC	Core Chipset	Result	Remark
PCE-5124	Q35 GMCH+ICH9DO	Pass	
PCE-5125Q	IntelQ57	Pass	
AIMB-258	GM45 + ICH9M	Pass	
PCA-6010	945GC+ICH7	Pass	
PCM-8203	Intel Q45+ICH10DO	Pass	
PCM-8204	Pineview-D D525+ICH8M	Pass	

RAID Card compatibility test result

Band	MN/PN	Result	Remark
HighPoint	RocketRAID 1520	Pass	
HighPoint	RocketRAID 2640	Pass	
Promise	TX4660	Limitation	PCE-5124 compatibility question,shutdown slowly and need 3minutes,when this card using with any slot PCIEx4 for backplane PCE-5B12-07_ A101-1.
Promise	TX4310	Pass	
Promise	TX2300	Pass	
LSI	9650SE-2LP	Pass	
LSI	8708EM2	Pass	
LSI	9260-8i	Pass	

1. Product Information:

Advantech Part Number	96ND500G-ST-WD5K2
Manufacturer	WesternDigital
Model Number	WD5000BUCT
Model Generation	WD AV-25
Form Factor	2.5''
Interface	SATA
Capacity	500GB
Cache Capacity	16MB
Rotation Speed (RPM)	5400 RPM
Host Transfer Rate	3Gb/s
Data Transfer Rate	116MB/s(Max)
Number of Disks	2
Power On Hour (POH)	24X7
Annualized Failure Rate (AFR)	0.5%
MTBF	NA
Voltage Tolerance	5V(0.55A)
Operating Temperature	0°C to 60°C
Firmware	01.01A01
Country of origin	Thailand
Dimension (W x H x D)	69.85x 100.2x9.5(mm)
RoHS Status (Yes/No)	Yes

* This report is also applied to the following drives.

Advantech PN	Manufacturer	MN/PN	Remark
96ND320G-ST-WD5K1	WesternDigital	WD3200BUCT	
96ND250G-ST-WD5K1	WesternDigital	WD2500BUCT	

Photo:



2. Test Platform

MB/SBC	PCE-5124		
PCB version	A102-1	CPU	Core2 Duo E8500 3.16GHZ
BIOS version	V1.23	DRAM	Transcend DDR2 800 2GB
Core Chipset	Q35 GMCH+ICH9DO	Backplane	PCE-5B12-07_A101-1
VGA Chipset	Q35 GMCH Integrated	Other	

MB/SBC	PCE-5125Q		
PCB version	A101-2	CPU	Intel Core I3-530 2.93GHZ
BIOS version	125X0042	DRAM	Apacer DDR3 1333 1GB
Core Chipset	IntelQ57	Backplane	PCE-5B13-08_A102-1
VGA Chipset	CPU integrated VGA Controller	Other	


MB/SBC	AIMB-258		
PCB version	A101-4	CPU	Core2 Duo T7300 2.00GHZ
BIOS version	258x1163	DRAM	Transcend DDR3 1333 1GB
Core Chipset	GM45 + ICH9M	Backplane	NA
VGA Chipset	GM45 Integrated	Other	

MB/SBC	PCA-6010		
PCB version	A101-2	CPU	Intel PD E2160(1.8GHZ)
BIOS version	010X1301	DRAM	Transcend DDR2 667 2GB
Core Chipset	945GC+ICH7	Backplane	PCA-6114P7_D302-1
VGA Chipset	945GC Integrated	Other	

MB/SBC	PCM-8203		
PCB version	A101-2	CPU	Core2 Duo E8400 3.00GHZ
BIOS version	V1.10	DRAM	Apacer DDR3 1333 2GB
Core Chipset	Intel Q45+ICH10DO	Backplane	NA
VGA Chipset	Q45 integrated	Other	

MB/SBC	PCM-8204		
PCB version	A101-2	CPU	Atom D525 1.80GHz
BIOS version	8204X003	DRAM	Apacer DDR3 1333 1GB
Core Chipset	Pineview-D D525+ICH8M	Backplane	NA
VGA Chipset	Pineview-D integrated	Other	

3. Test Software

Utilities	Version / Description
Power On/Off (For Reliability test)	
Passmark BurnIn Test Pro (For Reliability test)	V6.0 build 1029
HD Tach (For Performance test)	V3.0.4.0
HD Tune (For Performance test)	V2.52

4. Test Item

4.1 Function test

4.1.1 Device Information

Pass Criteria: 1. POST should show the correct model name;

2. BIOS should show the correct model name and capacity;

3. Device manager should show the correct model name and capacity;

4. HD TUNE should show the correct model name and capacity, FW, transfer mode.

MB/SBC	Result	Note
PCE-5124	Pass	
PCE-5125Q	Pass	
AIMB-258	Pass	
PCA-6010	Pass	
PCM-8203	Pass	
PCM-8204	Pass	

4.1.2 OS installation

Pass Criteria: Windows OS can be installed and boot into OS properly.

MB/SBC: PCE-5124

OS	Version	Result
Windows XP	Windows XP professional with 32bit SP3(English)	Pass
Windows 7	Windows 7 Ultimate 64bit(English)	Pass
Windows 2008	Windows Server2008 32bit with SP2(English)	Pass

4.1.3 Read/Write

Pass Criteria: Run NFCTest 3 rounds from one partition to another under windows.

MB/SBC	Result	Note
PCE-5124	Pass	
PCE-5125Q	Pass	
AIMB-258	Pass	
PCA-6010	Pass	
PCM-8203	Pass	
PCM-8204	Pass	

4.2 Raid card compatibility test

Pass Criteria: Can build RAID and work normally in OS, and run power on/off 10 times successfully.

MB/SBC:PCE-5124

Backplane:PCE-5B12-07_A101-1

OS: Windows XP professional with 32bit SP3(English)

Raid Card	Raid Level	HDD information	In Slot	Result	Remark
HighPoint RocketRAID 1520(PCI 32 bit)	Raid1	WD WD5000BUCT*2	P1PCI3 (PCI 32bit)	Pass	
HighPoint RocketRAID 2640(PCIEX4)	Raid1	WD WD5000BUCT*2	P1PCIE1 (PCIEX4)	Pass	
Promise TX4660 (PCIEX4)	Raid10	WD WD5000BUCT*2+ WD WD3200BUCT+ WD WD2500BUCT	P1PCIE3 (PCIEX4)	Limitation	Compatibility question, shutdown slowly and need 3minutes, when this card using with any slot PCIEx4 for backplane PCE-5B12-07_A101-1.
Promise TX4310 (PCI 32 bit)	Raid1	WD WD5000BUCT*2	P1PC1 (PCI 32bit)	Pass	
Promise TX2300 (PCI 32 bit)	Raid1	WD WD5000BUCT*2	P1PCI2 (PCI 32bit)	Pass	
LSI 9650SE-2LP (PCIEX1)	Raid1	WD WD5000BUCT*2	PPCIE1 (PCIEX1)	Pass	
LSI SAS 8708EM2(PCIEX8)	Raid10	WD WD5000BUCT*2+ WD WD3200BUCT+ WD WD2500BUCT	PPCIE2 (PCIEX16)	Pass	
LSI SAS 9260-8i(PCIEX8)	Raid10	WD WD5000BUCT*2+ WD WD3200BUCT+ WD WD2500BUCT	PPCIE2 (PCIEX16)	Pass	

4.3 Performance test

Pass Criteria: Run software “HD Tach version 3.0.4.0 and HD Tune version 2.52”, Recording the benchmark score and compare the score with other product.The Memory performance can reach the average value;

MB/SBC	HD Tach version 3.0.4.0				Result
	Burst Speed (MB/s)	Average Read (MB/s)	CPU Utilization	Random Access Time (ms)	
PCE-5124	213.7	75.1	2%	18.1	Pass
PCE-5125Q	215.8	75.3	3%	18.1	Pass
AIMB-258	215.5	73.3	4%	18.2	Pass
PCA-6010	212.8	73.3	3%	17.8	Pass
PCM-8203	219.3	73.3	2%	18.5	Pass
PCM-8204	214	75.2	2%	18.3	Pass

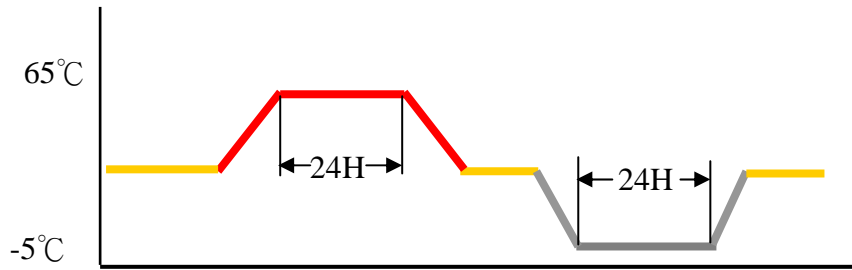
MB/SBC	HD Tune version 2.52						Result
	Minimum Transfer Rate (MB/s)	Maximum Transfer Rate (MB/s)	Average Transfer Rate (MB/s)	Access Time (ms)	CPU Usage	Burst Speed (MB/s)	
PCE-5124	42.1	92.5	71.3	18	3.5%	117.3	Pass
PCE-5125Q	43.2	92.8	71.6	18.1	3.3%	117.5	Pass
AIMB-258	43.4	87.7	69.5	18.2	3.9%	118.6	Pass
PCA-6010	40.7	87.7	69	18	3.5%	118.6	Pass
PCM-8203	43.4	87.7	69.5	18.7	3.7%	120.3	Pass
PCM-8204	42.1	92.4	71.2	18.4	2.7%	119.4	Pass

4.4 Reliability test

MB/SBC:PCE-5125Q

OS: Windows XP professional with 32bit SP3(English)

Test Environment: -5°C~65°C



Item	Pass Criteria	Result
Power on/off	Power on off 100 times, successful boot rate 100%;	Pass
Burn_inV6.0	Set DISK loading 100%,all disks file size 15%; The result of all disks should be Passed when running Burn_in V6.0 for 24 hours.	Pass

5. Appendix