

AQD-D31GN16-HC

Test Report

Test Requestor	Eric.Tu	Job Title	PM	Release Date	2014-08-06
Testing Engineer	Jier.Liu	Job Title	AKDC DQA Engineer	Revision	V1.0
Approved by	Jier.Liu	Job Title	AKDC DQA Engineer	Release Status	Formal Release

Revision History:

Revision Date	Revision	Description	Creator
2014-08-06	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.

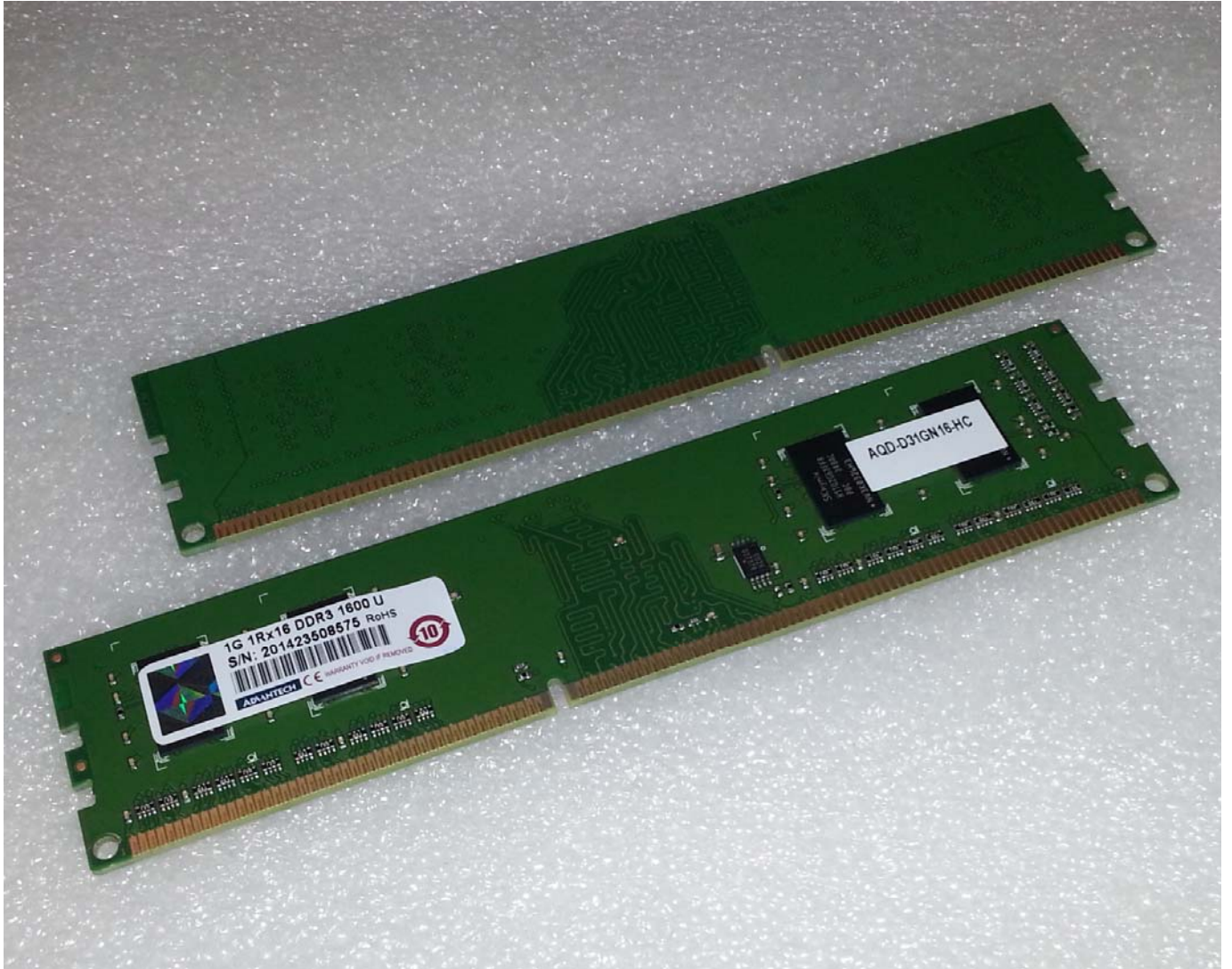
Test Item List Summary

Num.	Test item	Result	Remark
Chapter 1	Function test		
1.1	Device Information confirm	Pass	
1.2	Basic function test	Pass	
Chapter 2	Compatibility test		
2.1	With OS compatibility test	Pass	
2.2	With motherboard compatibility test	Pass	
	PCE-5125Q	Intel® Q57	Pass
	PCE-5126Q	Intel Q67	Pass
	PCE-5026VG	Intel H61	Pass
	AIMB-782QG2	Ivy Bridge Q77	Pass
	AIMB-784	Intel Q87	Pass
	FWA-3210	Intel H61	Pass
	FWA-3231	Intel C226 PCH	Pass
2.3	With CPU compatibility test	Pass	
Chapter 3	Performance test		
3.1	Sisoftware Sandra	Pass	
Chapter 4	Reliability test		
4.1	Loading test	Pass	

Product Information:

Advantech Part Number	AQD-D31GN16-HC
Manufacturer	Advantech
Module Part NO.	AQD-D31GN16-HC
IC Brand(chip model)	SKHynix H5TQ2G63FFR
Goldfinger process technology	Electroless Nickel/Immersion Gold (ENIG)
Memory Category	DDR3
Socket type	240PIN
Size	1GB
ECC&REG	Non ECC®
Bandwidth	12.8GB/s
Speed Grade	1600MHz
Max Frequency	800MHz
CAS Latency	11
Organization	128Mx64 Module
Component Composition	128Mx16bits *4
Number of Rank	1R
Power supply(VDD)	1.5V
Operating Temperature	0~85°
Dimension (W x H x D)	133.35x30x3.8
RoHS Status (Yes/No)	YES

Photo:



Test Platform

MB/SBC	PCE-5125Q		
PCB version	A101-2	CPU	Intel i7-860 2.80GHz
BIOS version	125x0042	DRAM	AQD-D31GN16-HC x2
Core Chipset	Intel® Q57	Backplane	PCE-5B12-07
VGA Chipset	Nvidia GT520	Other	

MB/SBC	PCE-5126Q		
PCB version	A101-4	CPU	Intel i7-2600 3.40GHz
BIOS version	V1.14	DRAM	AQD-D31GN16-HC x2
Core Chipset	Intel Q67	Backplane	PCE-5B12-07
VGA Chipset	Cpu integrated	Other	

MB/SBC	PCE-5026VG		
PCB version	A101-2	CPU	Intel i5-2400 3.10GHz
BIOS version	V1.12	DRAM	AQD-D31GN16-HC x2
Core Chipset	Intel H61	Backplane	PCE-7B13-07
VGA Chipset	Cpu integrated	Other	


MB/SBC	AIMB-782QG2		
PCB version	A101-4	CPU	Intel i5-3550s 3.00GHz
BIOS version	V1.11	DRAM	AQD-D31GN16-HC x4
Core Chipset	Ivy Bridge Q77	Backplane	NA
VGA Chipset	Cpu integrated	Other	

MB/SBC	AIMB-784		
PCB version	A101-3	CPU	Intel i7-4770s 3.10GHz
BIOS version	V1.10	DRAM	AQD-D31GN16-HC x4
Core Chipset	Intel Q87	Backplane	NA
VGA Chipset	Cpu integrated	Other	

MB/SBC	FWA-3210		
PCB version	A101-3	CPU	Intel i5-2400 3.10GHz
BIOS version	3210XB34	DRAM	AQD-D31GN16-HC x2
Core Chipset	Intel H61	Backplane	NA
VGA Chipset	Cpu integrated	Other	

MB/SBC	FWA-3231		
PCB version	A101-2	CPU	Intel i7-4770s 3.10GHz
BIOS version	SA.30	DRAM	AQD-D31GN16-HC x4
Core Chipset	Intel C226 PCH	Backplane	NA
VGA Chipset	Cpu integrated	Other	

Test Software

Utilities	Version / Description
Power On/Off (For Reliability test)	
Passmark Burn_In Test Pro (For Reliability test)	V7.1 build 1007
MemTest 86+ (For Function test)	V5.10
SiSoftware Sandra 2011 (for Performance test)	V17.77
CPU-z	V1.69

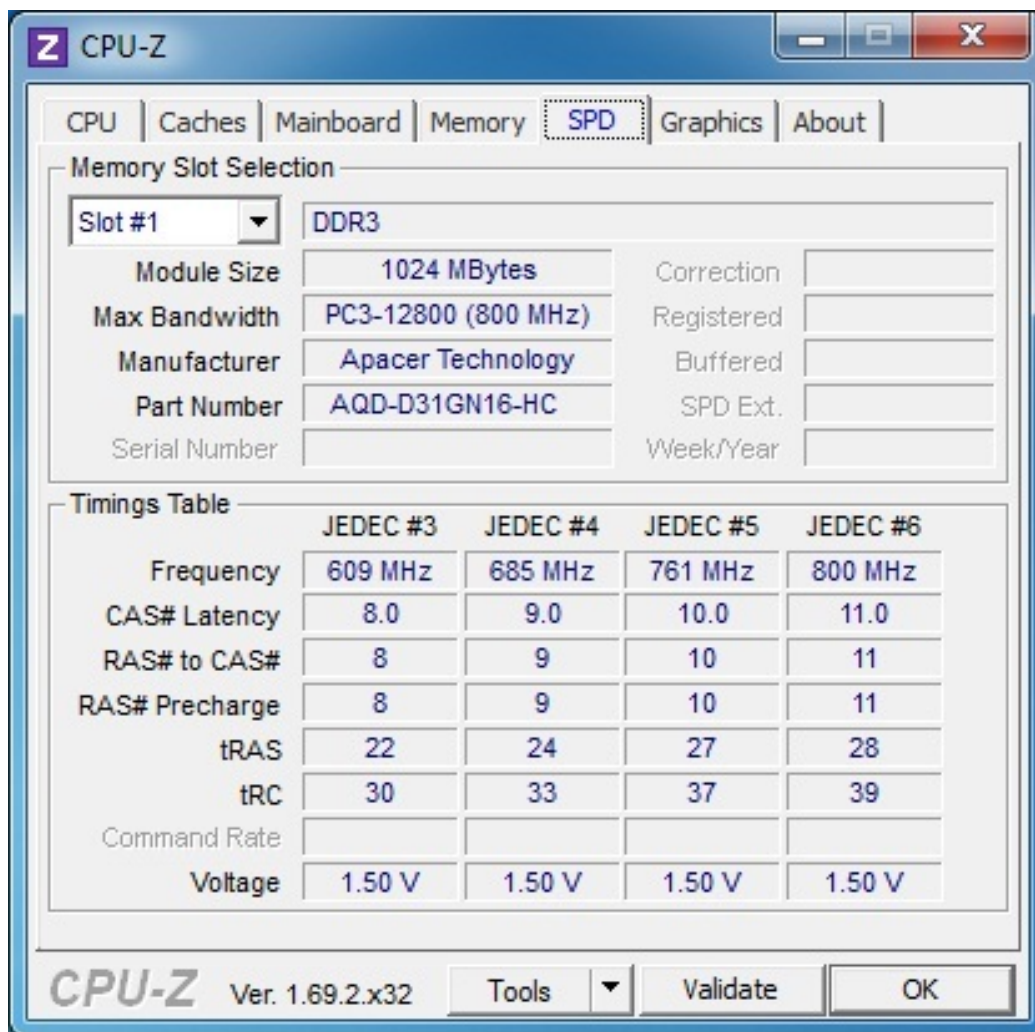
Test Item

Chapter 1: Function test

1.1 Device Information confirm

The test ensures the product meets SPEC. Check Memory information in CPU-Z is accrod with Memory Spec and paste the screenshot of test result as below.

Test result (MB/SBC: AIMB-782):



1.2 Basic function test

The test ensures the product basic function normally. Please see the table list as below:

Please see the test criteria as below:

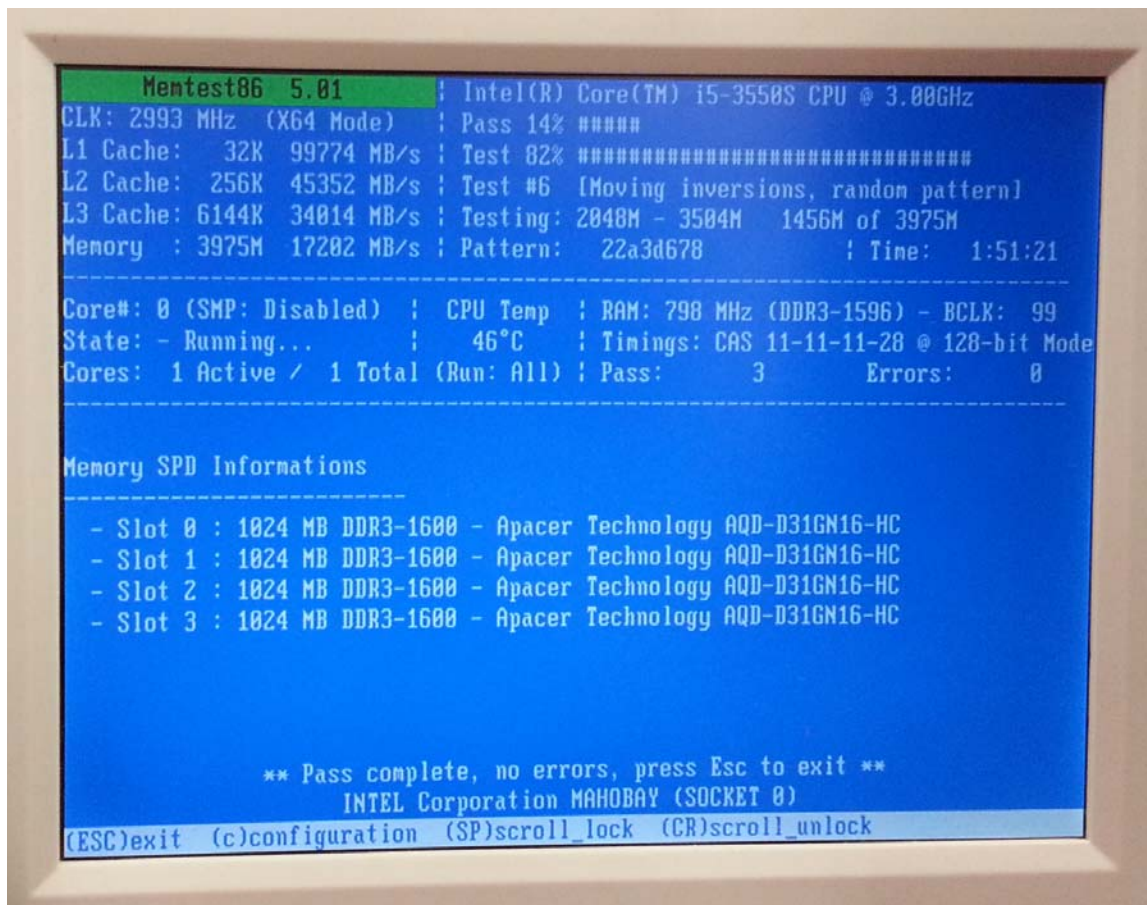
1. The Memory can boot up without any problem and power on/off 10 times, the test must be pass;
2. Check Memory size and frequency can display correctly and pass the self-test;
3. Verify the Memory can't have any problem when running memtest86+ v4.20 test program for 3 cycles.

And paste the photo of test result as below.

MB/SBC:AIMB-782

Test Item	Result	Remark
Boot up(power on/off) test	Pass	
POST test	Pass	
Memtest86+ V5.10	Pass	

Memtest86 test result(photo):



Chapter 2: Compatibility test

2.1 With OS compatibility test

The test ensures mainstream windows OS can be installed and boot into OS properly.

Please see the test criteria as below (All the memory slot should add on memory):

1. Verify the install process can't have any problem or hangs;
2. Check and record Memory size under my computer-properties-General-computer information;
3. Check the Memory can't have any problem or system hangs when running Passmark (Select CPU&RAM&2D&3D), test program for 15 Minutes.

Test platform	AIMB-782		
OS	Version	Memory size	Result
Windows XP	Windows professional XP SP3 32bit	3.41GB of RAM	Pass
Windows 7	Windows 7 ultimate with sp1 32bit	3.41GB	Pass
Windows 2008	Windows server 2008 R2 standard sp1 64bit	3.88GB usable	Pass
Windows 8	Windows professional 8 64bit	3.88GB usable	Pass

2.2 With motherboard compatibility test

The test ensures the memory can work properly with different framework and chipsets of Motherboard.

Please see the test criteria as below (Please select motherboard support of the max CPU for test):

1. Check Memory size and frequency can display correctly, and record the result as below list.
2. Verify the Memory can't have any problem when running memtest86+ v5.10 test program for 3 cycles (All the memory slot should add on memory).
3. Power on/off 10 times, successful boot rate 100% with the socket combination as single channel and dual channel and full loading.

Memtest86+ v5.10 test result					
MB/SBC	CPU	Memory Size	Frequency	Result	Remark
PCE-5125Q	Intel i7-860 2.80GHz	2008MB	1333	Pass	Less 40MB
PCE-5126Q	Intel i7-2600 3.40GHz	2048MB	1333	Pass	
PCE-5026VG	Intel i5-2400 3.10GHz	2048MB	1333	Pass	
AIMB-782QG2	Intel i5-3550s 3.00GHz	4096MB	1600	Pass	
AIMB-784	Intel i7-4770s 3.10GHz	4096MB	1600	Pass	

FWA-3210	Intel i5-2400 3.10GHz	2048MB	1333	Pass	
FWA-3231	Intel i7-4770s 3.10GHz	4096MB	1600	Pass	

Socket function and combination test result						
MB/SBC	CPU	DIMM socket	Memory Size	Frequency	Result	Remark
PCE-5125Q	Intel i7-860 2.80GHz	DIMM A1	984MB	1333	Pass	Less 40MB
		DIMM B1	984MB	1333	Pass	Less 40MB
		DIMM A1+B1	2008MB	1333	Pass	Less 40MB
PCE-5126Q	Intel i7-2600 3.40GHz	DIMM A1	1024MB	1333	Pass	
		DIMM B1	1024MB	1333	Pass	
		DIMM A1+B1	2048MB	1333	Pass	
PCE-5026VG	Intel i5-2400 3.10GHz	DIMM A1	1024MB	1333	Pass	
		DIMM B1	1024MB	1333	Pass	
		DIMM A1+B1	2048MB	1333	Pass	
AIMB-782QG 2	Intel i5-3550s 3.00GHz	DIMM A1	1024MB	1600	Pass	
		DIMM A2	1024MB	1600	Pass	
		DIMM B1	1024MB	1600	Pass	
		DIMM B2	1024MB	1600	Pass	
		DIMM A1+B1	2048MB	1600	Pass	
		DIMM A2+B2	2048MB	1600	Pass	
		Full	4096MB	1600	Pass	
AIMB-784	Intel i7-4770s 3.10GHz	DIMM A1	1024MB	1600	Pass	
		DIMM A2	1024MB	1600	Pass	
		DIMM B1	1024MB	1600	Pass	
		DIMM B2	1024MB	1600	Pass	

		DIMM A1+B1	2048MB	1600	Pass	
		DIMM A2+B2	2048MB	1600	Pass	
		Full	4096MB	1600	Pass	
FWA-3210	Intel i5-2400 3.10GHz	DIMM A1	1024MB	1333	Pass	
		DIMM B1	1024MB	1333	Pass	
		DIMM A1+B1	2048MB	1333	Pass	
FWA-3231	Intel i7-4770s 3.10GHz	DIMM A1	1024MB	1600	Pass	
		DIMM A2	1024MB	1600	Pass	
		DIMM B1	1024MB	1600	Pass	
		DIMM B2	1024MB	1600	Pass	
		DIMM A1+B1	2048MB	1600	Pass	
		DIMM A2+B2	2048MB	1600	Pass	
		Full	4096MB	1600	Pass	

2.3 With CPU compatibility test

The test ensures the Memory can work properly with different CPU of core/speed/ FSB.

Please see the test criteria as below (All the memory slot should add on memory):

1. Check Memory size and frequency can display correctly, and record the result as below list;
2. Check the Memory can't have any problem or system hangs when running Passmark(Select CPU&RAM&2D&3D), test program for 30 minutes;
3. Power on/off 10 times, successful boot rate 100%.

CPU	MB/SBC	Memory Size	Frequency	Result	Remark
Intel i7-860 2.80GHz	PCE-5125Q	2008MB	1333	Pass	Less 40MB
Intel i5-660 3.33GHz		1912MB	1333	Pass	Less 136MB
Intel Pentium G6950 2.80GHz		1912MB	1066	Pass	Less 136MB
Intel i7-2600 3.40GHz	PCE-5126Q	2048MB	1333	Pass	
Intel i3-2120 3.30GHz		2048MB	1333	Pass	
Intel i5-2400 3.10GHz	PCE-5026VG	2048MB	1333	Pass	
Intel Pentium G850 2.90GHz		2048MB	1333	Pass	
Intel i5-3550s 3.00GHz	AIMB-782QG2	4096MB	1600	Pass	
Intel i3-2100 3.10GHz		4096MB	1333	Pass	
Intel i7-4770s 3.10GHz	AIMB-784	4096MB	1600	Pass	
Intel i5-4570TE 2.70GHz		4096MB	1600	Pass	
Intel i5-2400 3.10GHz	FWA-3210	2048MB	1333	Pass	
Intel i7-4770s 3.10GHz	FWA-3231	4096MB	1600	Pass	

Chapter 3: Performance test

The test ensures the Memory performance can reach the average value. Record the benchmark score and compare the score with other product (All the memory slot should add on memory).

3.1 Sisoftware Sandra

MB/SBC	CPU	Sisoftware Sandra2011.SP4c (17.77)				Result	Remark
		Memory Bandwidth-Int Buff'd (GB/s)	Memory Bandwidth Float Buff'd (GB/s)	Memory (Random Access) Latency (ns)	Memory Latency-Speed Factor		
PCE-5125Q	Intel i7-860 2.80GHz	14.51	14.52	76	52.3	Pass	
PCE-5126Q	Intel i7-2600 3.40GHz	16.1	16.11	72.9	67.5	Pass	
PCE-5026VG	Intel i5-2400 3.10GHz	16	16	77.2	63.9	Pass	
AIMB-782QG2	Intel i5-3550s 3.00GHz	20.18	20.2	80.5	72	Pass	
AIMB-784	Intel i7-4770s 3.10GHz	16.57	16.54	75.1	71.2	Pass	
FWA-3210	Intel i5-2400 3.10GHz	16.1	16	74.8	59.7	Pass	
FWA-3231	Intel i7-4770s 3.10GHz	14.54	14.54	81.7	63.3	Pass	

Chapter 4: Reliability test

4.1 Loading test

The test ensures under the environment of high load the memory can work properly.

Test platform	AIMB-782	
OS	Windows 7 ultimate with sp1 32bit	
Item	Pass Criteria	Result
Power on/off	Power on/off 100 times, successful boot rate 100%;	Pass
Passmark Burn_in	Set CPU/2D/3D/Memory loading 100%; The result should be passed when running Burn_in V7.1 for 12 hours.	Pass