

AQD-SD3L4GN16-MQ

Test Report

Test Requestor	Eric.Tu	Job Title	PM	Release Date	2014-05-14
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
2014-05-14	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	Pass	
1.1	Device Information confirm	Pass	
1.2	Basic function test	Pass	
Chapter 2	Compatibility test	Pass	
2.1	With OS compatibility test	Pass	
2.2	With motherboard compatibility test	Pass	
2.3	With CPU compatibility test	Pass	
Chapter 3	Performance test	Pass	
3.1	Sisoftware Sandra	Pass	
Chapter 4	Reliability test	Pass	
4.1	Loading test	Pass	

Appendix 1:Motherboard List

MB/SBC	Core Chipset	Remark
AIMB-272	Intel QM67	
UNO-2184	Intel QM67	
PCM-8209	Haswell ULT	
PCM-8210	Intel Q87	
PCM-8206	Atom D2550+NM10	
SOM-5892	Ivy Bridge QM77	

Product Information:

Advantech Part Number	AQD-SD3L4GN16-MQ
Manufacturer	Advantech
Module Part NO.	AQD-SD3L4GN16-MQ
IC Brand(chip model)	Micron 4CK72 D9PSH
Memory Category	DDR3L SODIMM
Socket type	204pin
Size	4GB
ECC&REG	No ECC®
Bandwidth	12.8GB/sec
Speed Grade	1600
Max Frequency	800MHz
CAS Latency	CL11
Organization	512M*64bit
Component Composition	256M x 8bit*16EA
Number of Rank	2R
Power supply(VDD)	1.35V; 1.5V
Operating Temperature	0~85°C
Dimension (W x H x D)	67.6x30 x3.8(mm)
RoHS Status (Yes/No)	YES

Photo:



Test Platform

MB/SBC	AIMB-272		
PCB version	A101-3	CPU	Intel i7-2710QE 2.10GHz
BIOS version	V1.14	DRAM	AQD-SD3L4GN16-MQ x2pcs
Core Chipset	Sandy bridge QM67	Backplane	NA
VGA Chipset	Graphic HD3000	Other	

MB/SBC	UNO-2184		
PCB version	A101-2	CPU	Intel Core i7 2715QE 2.10GHZ
BIOS version	V1.10	DRAM	AQD-SD3L4GN16-MQ x2pcs
Core Chipset	Intel QM67	Backplane	NA
VGA Chipset	Cpu integrated	Other	


MB/SBC	PCM-8209		
PCB version	A101-2	CPU	Intel i5-4300U 1.90GHz
BIOS version	8209SA09	DRAM	AQD-SD3L4GN16-MQ x1pcs
Core Chipset	Haswell ULT	Backplane	NA
VGA Chipset	Cpu integrated	Other	

MB/SBC	PCM-8210		
PCB version	A101-1	CPU	Intel I7-4770S 3.10GHz
BIOS version	8210X005	DRAM	AQD-SD3L4GN16-MQ x2pcs
Core Chipset	Intel Q87	Backplane	NA
VGA Chipset	Cpu integrated	Other	

MB/SBC	PCM-8206		
PCB version	A101-3	CPU	Atom D2550 1.86GHz
BIOS version	8206X010	DRAM	AQD-SD3L4GN16-MQ x1pcs
Core Chipset	Atom D2550+NM10	Backplane	NA
VGA Chipset	Cpu integrated	Other	

MB/SBC	SOM-5892		
PCB version	A101-2	CPU	Intel i7-3612QE 2.10GHz
BIOS version	5892x018	DRAM	AQD-SD3L4GN16-MQ x2pcs
Core Chipset	Ivy bridge QM77	Backplane	SOM-DB5800_00A2E_A201-2
VGA Chipset	Graphic HD4000	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)	V5.01
SiSoftware Sandra 2011 (for Performance test)	V17.77
EVEREST Ultimate Edition	V5.5

Test Item

Chapter 1: Function test

1.1 Device Information confirm

The test ensures the product meets SPEC. Check Memory information under EVEREST Ultimate Edition- Motherboard-SPD- Device description, and paste the screenshot of test result as below.

Test result (MB/SBC: AIMB-272):

The screenshot displays the EVEREST Ultimate Edition [TRIAL VERSION] interface. The left sidebar shows a tree view with 'Motherboard' expanded to 'Memory' > 'SPD'. The main window shows 'Device Description' for DIMM1: A-Data (4 GB DDR3-1600 DDR3 SDRAM). Below this is a table of 'Memory Module Properties' and 'Memory Timings'.

Field	Value
Memory Module Properties	
Module Name	A-Data
Serial Number	A6350000h (13734)
Manufacture Date	Week 10 / 2014
Module Size	4 GB (2 ranks, 8 banks)
Module Type	SO-DIMM
Memory Type	DDR3 SDRAM
Memory Speed	DDR3-1600 (800 MHz)
Module Width	64 bit
Error Detection Method	None
Memory Timings	
@ 761 MHz	10-10-10-27 (CL-RCD-RP-RAS) / 37-122-5-12-6-6 (RC-RFC-RRD-...
@ 685 MHz	9-9-9-24 (CL-RCD-RP-RAS) / 33-110-5-11-6-6 (RC-RFC-RRD-WR-...
@ 609 MHz	8-8-8-22 (CL-RCD-RP-RAS) / 30-98-4-10-5-5 (RC-RFC-RRD-WR-...
@ 533 MHz	7-7-7-19 (CL-RCD-RP-RAS) / 26-86-4-8-4-4 (RC-RFC-RRD-WR-W...
@ 457 MHz	6-6-6-16 (CL-RCD-RP-RAS) / 22-74-3-7-4-4 (RC-RFC-RRD-WR-W...
@ 380 MHz	5-5-5-14 (CL-RCD-RP-RAS) / 19-61-3-6-3-3 (RC-RFC-RRD-WR-W...
Memory Module Features	
<input checked="" type="checkbox"/> Auto Self Refresh	Supported
<input checked="" type="checkbox"/> Extended Temperature Range	Supported
<input type="checkbox"/> Extended Temperature Refre...	Not Supported
<input type="checkbox"/> On-Die Thermal Sensor Rea...	Not Supported
Memory Module Manufacturer	
Company Name	A-DATA Technology Co., Ltd.
Product Information	http://www.adata.com.tw/adata_en/drammodule.php

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:

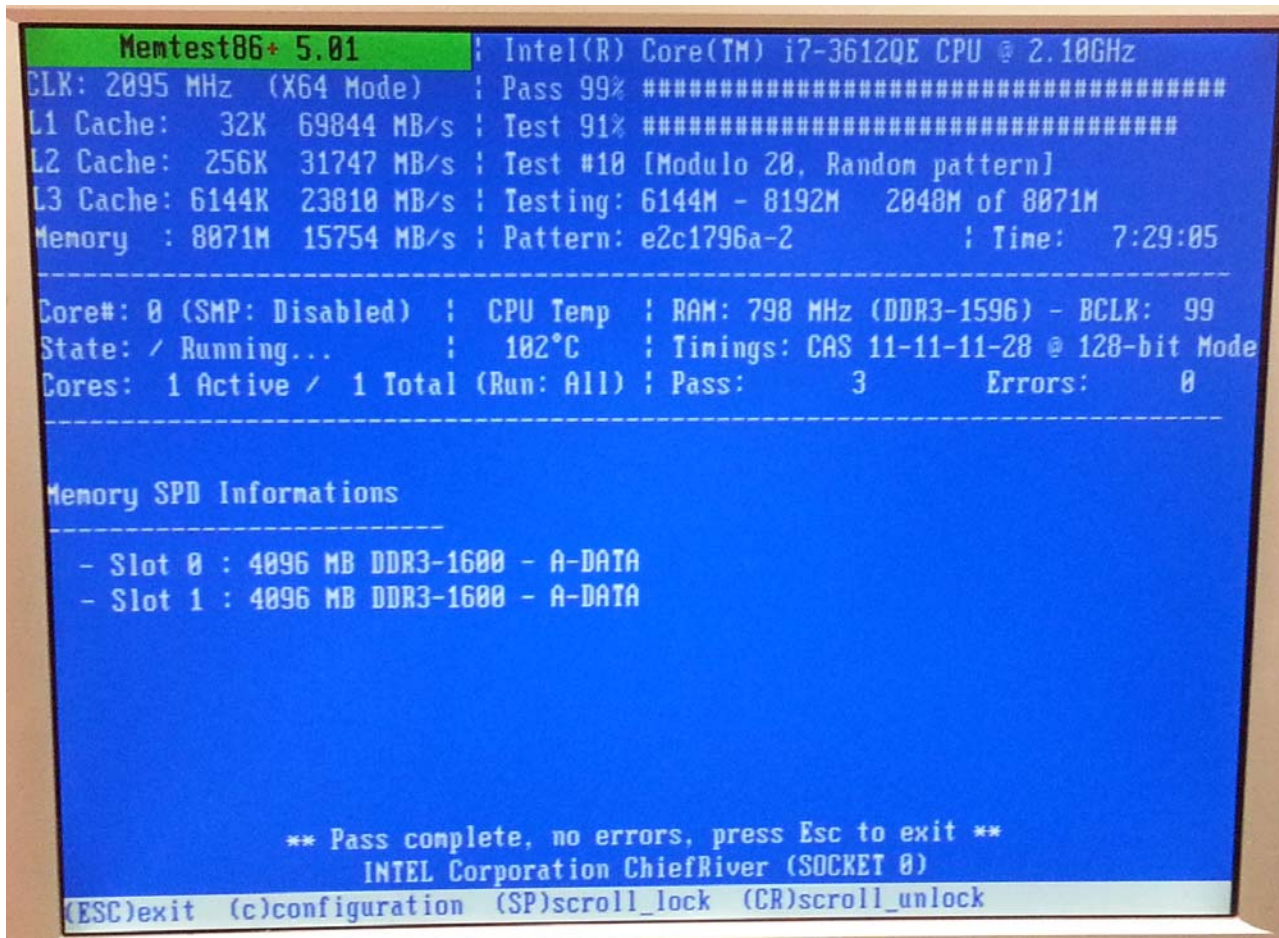
1. The Memory can boot up without any problem and power on/off 10 times, the test must be pass;
2. Check Memory size and frequency can display correctly and pass the self-test;
3. Verify the Memory can't have any problem when running memtest86+ V5.01 test program for 3 cycles.

And paste the photo of test result as below.

MB/SBC:SOM-5892

Test Item	Result	Remark
Boot up(power on/off) test	Pass	
POST test	Pass	
Memtest86+ V5.01	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-272		
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	8.00(3.41GB usable)	Pass
Windows 7	Windows 7 ultimate with sp1 64bit	8.00(7.89GB usable)	Pass
Windows 8	Windows professional 8 64bit	8.00(7.89GB usable)	Pass
Windows 8	Windows server 2008 R2 standard sp1 64bit	8.00(7.89GB 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+ V5.01 test program for 3 cycles (All the memory slot should add on memory).
3. Power on/off 10 times, the test must pass when socket combination as single channel and dual channel and full loading.

Memtest86+ V5.01 test result					
MB/SBC	CPU	Memory Size	Frequency	Result	Remark
AIMB-272	Intel i7-2710QE 2.10GHz	No display	No display	Pass	
UNO-2184	Intel Core i7 2715QE 2.10GHZ	8192MB	1600	Pass	
PCM-8209	Intel i5-4300U 1.90GHz	4096MB	1600	Pass	

PCM-8210	Intel I7-4770S 3.10GHz	8192MB	1600	Pass		
PCM-8206	Atom D2550 1.86GHz	4096MB	1067	Pass		
SOM-5892	Intel i7-3612QE 2.10GHz	8192MB	1600	Pass		
Socket function and combination test result						
MB/SBC	CPU	DIMM socket	Memory Size	Frequency	Result	Remark
AIMB-272	Intel i7-2710QE 2.10GHz	DIMM A	No display	No display	Pass	
		DIMM B	No display	No display	Pass	
		Full loading	No display	No display	Pass	
UNO-2184	Intel Core i7 2715QE 2.10GHZ	DIMM A	4096MB	1600	Pass	
		DIMM B	4096MB	1600	Pass	
		Full loading	8192MB	1600	Pass	
PCM-8209	Intel i5-4300U 1.90GHz	DIMM A	4096MB	1600	Pass	
PCM-8210	Intel I7-4770S 3.10GHz	DIMM A	4096MB	1600	Pass	
		DIMM B	4096MB	1600	Pass	
		Full loading	8192MB	1600	Pass	
PCM-8206	Atom D2550 1.86GHz	DIMM A	4096MB	1067	Pass	
SOM-5892	Intel i7-3612QE 2.10GHz	DIMM A	4096MB	1600	Pass	
		DIMM B	4096MB	1600	Pass	
		Full loading	8192MB	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	Memory Bandwidth	Memory (Random	Memory Latency-Speed		

		Buff'd (GB/s)	Float Buff'd (GB/s)	Access Latency (ns)	Factor		
AIMB-272	Intel i7-2710QE 2.10GHz	20.12	20.1	85.7	61	Pass	
UNO-2184	Intel Core i7 2715QE 2.10GHZ	20.15	19.67	84.6	54	Pass	
PCM-8209	Intel i5-4300U 1.90GHz	11	11	85.2	58.7	Pass	
PCM-8210	Intel I7-4770S 3.10GHz	16.37	16.42	81.8	78.4	Pass	
PCM-8206	Atom D2550 1.86GHz	3.62	3	175.4	91.8	Pass	
SOM-5892	Intel i7-3612QE 2.10GHz	20.13	20.13	86.5	65.4	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-272	
OS	Windows 7 ultimate with sp1 32bit/DOS	
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