	AVL Supermicro server platform Memory Module Qualification Test		
	Intel E5-2650(SNB-EP) x 2, Intel C602	Test Results	Pass
	PN: KVR16R11D4/16HM (16GB / RDIMM / ECC) On: X9DR3-LN4F+ Rev.1.1		

RP77D3x-106-KI-SQ-SMC-V2		Module Information		Rev 05/30/2012
AVL WorkOrder #	WC5058	AVL A#	8521	
Start Date	10/19/2012	End Date	10/24/2012	
Tested By	Van N.			
Module Manufacturer	Kingston			
Module Part Number	KVR16R11D4/16HM			
Module BOM Number	9965516-071.A00LF			
Module Capacity / Memory Type / ECC	16GB / RDIMM / ECC			
Module Configuration (Width, # of devices, # of Ranks)	2Gx72 /36 Devices / 2 Ranks			
Speed Tested (Data rate of Mbps, CL-tRP-tRCD)	DDR3-1600 /11-11-11			
DRAM Device Vendor	Hynix			
DRAM Device Part Number / Date code	H5TQ4G43MFR-PBC			1230
DRAM Die Revision / Process Technology (nm)	M			
DRAM Device Config (Density / Width)	4Gbit / x4		1024Mx4bit	
Thermal Sensor Device Vendor / Part Number / Revision				
Register Device Vendor / Part Number / Revision	Inphi	SSTE32882	2.1	



Platform System Information				
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)	X9DR3-LN4F+	1.1	0M23S40378	SN9374
BIOS Revision / BIOS Date	1.1	6/7/2012		
CPU / Speed	Intel E5-2650(SNB-EP) x 2	2.0GHz		
Chipset info (Stepping)	Intel C602			



AVL Supermicro server platform Memory Module Qualification Test

Intel E5-2650(SNB-EP) x 2, Intel C602

PN: KVR16R11D4/16HM (16GB / RDIMM / ECC) On: X9DR3-LN4F+ Rev.1.1

Test Results:


PASS

Comments:

AVL Memory Module Qual Test Results Summary

Test # and name	Test Description	Specs	Test	Comments
			Results	
1. Latest BIOS Upgrade & Configuration	Download / Upgrade latest BIOS & record size and speed detection		Done	
2. SPD Check	Memory module SPD content check for JEDEC compliance	JEDEC	Pass	Use proprietary tools
3. Reset Cycle	Run Linux based diags & utility software @ 50°C	50 loops	Pass	1 DIMM Per Channel when applicable
4a. Stress Application Test	Run Linux based diags & utility software @50°C	8 Hour per config	Pass	DIMM Loading per spec
4b. Stream Benchmark Test		5 loop per config	Pass	DIMM Loading per spec
4b. Reset Cycle		200 loop per config	Pass	DIMM Loading per spec
5. Functional Stress Test	Memory Stress Test @50°C -	12hrs	Pass	DIMM Loading per spec
6. Stress Application Test	Run Linux based diags & utility software @50°C	6hrs	Pass	3 DIMM Per Channel when applicable

Note: All test under IMC Vdd=Nom, Vref=Vddnom/2

	AVL Supermicro server platform Memory Module Qualification Test Intel E5-2650(SNB-EP) x 2, Intel C602 PN: KVR16R11D4/16HM (16GB / RDIMM / ECC) On: X9DR3-LN4F+ Rev.1.1
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SPD Check Results (Proprietary SPD check tools)						Test By	Van N
CTC Platform ID / AVL SN	CTC-3A-35	SB7176	CTC test script version	SPD_Check_rev 34(SCUD)	SPD Rev.:		
AVL A#	8521		* Speed Bin (MT/s)	1600	* CL:		11
* IRCD:	11		* IRP:	11	* DRAM Density:		4Gb
* Raw Card Type	E		* Nominal Vdd	1.5V	* Module Type		RDIMM
* Thermal Sensor	YES		* SDRAM silicon Type	MONO	* Heat Spreader		N/A
* Register Vendor	INPHI		* Register Revision	2.1	SPD Check Results:		Pass
List ALL Failed Byte# & error messages (Don't forget to review SDRAM & Module Attributes per tested module spec)							
Comments:							

MB (MC Vdd=Nom & All Vrefs=Vdd/2 - Max DIMMs loading) @50°C Test Results												Test By	Van N	
Red Hat Enterprise Linux 5.5 Kernel 2.6.18						Reset Cycle Test - 1DPC								
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)												X9DR3-LN4F+	1.1	SN9374
BIOS Revision / BIOS Date												1.1	6/7/2012	
CPU / Speed												Intel E5-2650(SNB-EP) x 2	2.0GHz	
Chipset info (Stepping)												Intel C602		
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)														
P1-A1	P1-A2	P1-A3	P1-B1	P1-B2	P1-B3	P1-C1	P1-C2	P1-C3	P1-D1	P1-D2	P1-D3			
SP8530			SP8533			SP8536			SP8539					
P2-E1	P2-E2	P2-E3	P2-F1	P2-F2	P2-F3	P2-G1	P2-G2	P2-G3	P2-H1	P2-H2	P2-H3			
SP8542			SP8545			SP8548			SP8551					
Verify BIOS before starting the test			Memory Size (GB)			128GB			Memory Speed (MHz)			1600		
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.														
Run 50 loops												Test Result	Pass	
Comments:														

Red Hat Enterprise Linux 5.5 Kernel 2.6.18												Test By	Van N	
Red Hat Enterprise Linux 5.5 Kernel 2.6.18						Stress App Test								
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)												X9DR3-LN4F+	1.1	SN9374
BIOS Revision / BIOS Date												1.1	6/7/2012	
CPU / Speed												Intel E5-2650(SNB-EP) x 2	2.0GHz	
Chipset info (Stepping)												Intel C602		
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)														
P1-A1	P1-A2	P1-A3	P1-B1	P1-B2	P1-B3	P1-C1	P1-C2	P1-C3	P1-D1	P1-D2	P1-D3			
SP8530	SP8531		SP8533	SP8534		SP8536	SP8537		SP8539	SP8540				
P2-E1	P2-E2	P2-E3	P2-F1	P2-F2	P2-F3	P2-G1	P2-G2	P2-G3	P2-H1	P2-H2	P2-H3			
SP8542	SP8543		SP8545	SP8546		SP8548	SP8549		SP8551	SP8552				
Verify BIOS before starting the test			Memory Size (GB)			256GB			Memory Speed (MHz)			1600		
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.														
6 Hour Minimum												Test Result	Pass	
Comments:														

Red Hat Enterprise Linux 5.5 Kernel 2.6.18												Test By	Van N	
Red Hat Enterprise Linux 5.5 Kernel 2.6.18						Stream Benchmark Test								
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)												X9DR3-LN4F+	1.1	SN9374
BIOS Revision / BIOS Date												1.1	6/7/2012	
CPU / Speed												Intel E5-2650(SNB-EP) x 2	2.0GHz	
Chipset info (Stepping)												Intel C602		
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)														
P1-A1	P1-A2	P1-A3	P1-B1	P1-B2	P1-B3	P1-C1	P1-C2	P1-C3	P1-D1	P1-D2	P1-D3			
SP8530	SP8531		SP8533	SP8534		SP8536	SP8537		SP8539	SP8540				
P2-E1	P2-E2	P2-E3	P2-F1	P2-F2	P2-F3	P2-G1	P2-G2	P2-G3	P2-H1	P2-H2	P2-H3			
SP8542	SP8543		SP8545	SP8546		SP8548	SP8549		SP8551	SP8552				
Verify BIOS before starting the test			Memory Size (GB)			256GB			Memory Speed (MHz)			1600		
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.														
Avg (MB/s) Avg Copy = 68212.68 Avg Scale = 68136.60 Avg Add = 66997.43 Avg Triad = 67046.71														
Comments:														

Red Hat Enterprise Linux 5.5 Kernel 2.6.18												Test By	Van N	
Red Hat Enterprise Linux 5.5 Kernel 2.6.18						Reset Cycle Test								
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)												X9DR3-LN4F+	1.1	SN9374
BIOS Revision / BIOS Date												1.1	6/7/2012	
CPU / Speed												Intel E5-2650(SNB-EP) x 2	2.0GHz	
Chipset info (Stepping)												Intel C602		
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)														
P1-A1	P1-A2	P1-A3	P1-B1	P1-B2	P1-B3	P1-C1	P1-C2	P1-C3	P1-D1	P1-D2	P1-D3			
SP8530	SP8531		SP8533	SP8534		SP8536	SP8537		SP8539	SP8540				
P2-E1	P2-E2	P2-E3	P2-F1	P2-F2	P2-F3	P2-G1	P2-G2	P2-G3	P2-H1	P2-H2	P2-H3			
SP8542	SP8543		SP8545	SP8546		SP8548	SP8549		SP8551	SP8552				
Verify BIOS before starting the test			Memory Size (GB)			256GB			Memory Speed (MHz)			1600		
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.														
Run 200 loops												Test Result	Pass	
Comments:														

DOS Memory Stress Test												Test By	Van N	
DOS Memory Stress Test						Memory Stress Test v1077								
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)												X9DR3-LN4F+	1.1	SN9374
BIOS Revision / BIOS Date												1.1	6/7/2012	
CPU / Speed												Intel E5-2650(SNB-EP) x 2	2.0GHz	
Chipset info (Stepping)												Intel C602		
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)														
P1-A1	P1-A2	P1-A3	P1-B1	P1-B2	P1-B3	P1-C1	P1-C2	P1-C3	P1-D1	P1-D2	P1-D3			
SP8530	SP8531		SP8533	SP8534		SP8536	SP8537		SP8539	SP8540				
P2-E1	P2-E2	P2-E3	P2-F1	P2-F2	P2-F3	P2-G1	P2-G2	P2-G3	P2-H1	P2-H2	P2-H3			
SP8542	SP8543		SP8545	SP8546		SP8548	SP8549		SP8551	SP8552				
Verify BIOS before starting the test			Memory Size (GB)			256GB			Memory Speed (MHz)			1600		
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.														
12 Hour Minimum												Test Result	Pass	
Comments:														

Red Hat Enterprise Linux 5.5 Kernel 2.6.18												Test By	Van N	
Red Hat Enterprise Linux 5.5 Kernel 2.6.18						Stress App Test								
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)												X9DR3-LN4F+	1.1	SN9374
BIOS Revision / BIOS Date												1.1	6/7/2012	
CPU / Speed												Intel E5-2650(SNB-EP) x 2	2.0GHz	
Chipset info (Stepping)												Intel C602		
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)														
P1-A1	P1-A2	P1-A3	P1-B1	P1-B2	P1-B3	P1-C1	P1-C2	P1-C3	P1-D1	P1-D2	P1-D3			
SP8530	SP8531	SP8532	SP8533	SP8534	SP8535	SP8536	SP8537	SP8538	SP8539	SP8540	SP8541			
P2-E1	P2-E2	P2-E3	P2-F1	P2-F2	P2-F3	P2-G1	P2-G2	P2-G3	P2-H1	P2-H2	P2-H3			
SP8542	SP8543	SP8544	SP8545	SP8546	SP8547	SP8548	SP8549	SP8550	SP8551	SP8552	SP8553			
Verify BIOS before starting the test			Memory Size (GB)			384			Memory Speed (MHz)			1066		
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.														
6 Hour Minimum												Test Result	Pass	
Comments:														



17665B Newhope Street
 Fountain Valley, CA 92708
 714-435-2630 Fax:714-427-3752
www.validationlabs.com

AVL's DDR3 Memory Module SPD Check

Test Results:	Pass
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General Information			
AVL W/O#	WC5058	AVL A#	8521
JEDEC Speed Grade	DDR3-1600	DRAM Density	16GB
JEDEC Raw Card#	E	Module Type	/ RDIMM
Module ECC or Non-ECC	/ ECC	Test By	Van N

General Information			
Supplier		Module P/N	
Kingston Technology		9965516-071.A00LF	
Module Type	RDIMM	CAS Latency Supported	
Memory Type	DDR3	6,7,8,9,10,11	
SPD Rev.	1.1	Total SPD Bytes	256
CRC Coverage	0~116	SPD Bytes Used	176
tCK	1.25 nS	tRAS	35 nS
tRP	13.125 nS	tWR	15 nS
tAA	13.125 nS	tFAW	30 nS
tRC	48.125 nS	tWTR	7.5 nS
tRTP	7.5 nS	tRCD	13.125 nS
tRFC	260 nS	tRRD	6 nS

SDRAM Attributes	
SDRAM Density	4 Gb
# of Banks	8
Column Address Bits	11
Row Address Bits	16
SDRAM Device Type	Standard monolithic
SDRAM Device Width	4 bits

SDRAM Optional Feature Support			
Extended Temp Refresh Rate		2X	
Extended Temp Range		0~95	
RZQ/7	Yes	RZQ/6	Yes
ASR	Yes	DLL-Off Node	Yes
PASR	No	ODTS Readout	No

Module Attributes	
Module Thermal Sensors	Yes
Primary Bus Width	64 bits
Bus Width Extension	8 bits (ECC)
# of Ranks	2
For either UDIMM or RDIMM R/C# JEDEC Spec	
Nominal High Max in mm	29 < height <= 30 mm
Max Thickness (Front)	1 < thickness <= 2 mm
Max Thickness (Back)	1 < thickness <= 2 mm
Reference Raw Card	E
Reference Raw Card Rev.	2
Rank 1 Mapping (UDIMM)	

RDIMM Only					
Register Supplier	Inphi Corporation	# of Rows of DRAMs	2	Heat Spreader Used	Not incorporated
Register Type	SSTE32882	# of Registers Used	1	Register Revision	2.1