

	AVL Supermicro server platform Memory Module Qualification Test		
	Intel X5650(WSM) x 2, Intel 5520 (Tylersburg), Rev B3	Test Results	Pass
	PN: KVR16LR11D8/8KF (8GB / RDIMM / ECC) On: X8DT6-F Rev.1.3		

RP77D3x-128-KI-SQ-SMC-V2		Module Information		Rev 04/25/2013
AVL WorkOrder #	WC9578	AVL A#	9648	
Start Date	1/20/2014	End Date	1/21/2014	
Tested By	Van N.			
Module Manufacturer	Kingston			
Module Part Number	KVR16LR11D8/8KF			
Module BOM Number	9965426-169.A00LF			
Module Capacity / Memory Type / ECC	8GB / RDIMM / ECC			
Module Configuration (Width, # of devices, # of Ranks)	1Gx72 /18 Devices / 2 Ranks			
Module Speed (Data rate of Mbps, CL-tRP-tRCD)	DDR3-1600 /11-11-11			
DRAM Device Vendor	Kingston			
DRAM Device Part Number / Date code	D5128ED1FPGGGB	1345		
DRAM Die Revision / Process Technology (nm)	F			
DRAM Device Config (Density / Width)	512Mbit / x8 /512Mx8bit			
Thermal Sensor Device Vendor / Part Number / Revision	On-Semi			
Register Device Vendor / Part Number / Revision	Montage	SSTE32882	1.0	



Platform System Information				
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)	X8DT6-F	1.3	VMAS59161	SK4375
BISO Revision / BIOS Date / MRC Rev.	2.0c	5/5/2012		
CPU / Speed	Intel X5650(WSM) x 2		2.66GHz	
Chipset info (Stepping)	Intel 5520 (Tylersburg), Rev B3			



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Test Results:

PASS

Comments:

AVL Memory Module Qual Test Results Summary

Test # and name	Test Description	Specs	Test Results	Comments
1. Latest BIOS Upgrade & Configuration	Download / Upgrade latest BIOS & record size and speed detection	Per test platform, DIMM & config spec	Done	Record memory size & speed at each test only
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 @55°C	50 loops	Pass	1 DIMM Per Channel when applicable
4a. Stress Application Test	Run Linux based diags & utility software @55°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 @55°C	12hrs	Pass	DIMM Loading per spec
6. Stress Application Test	Run Linux based diags & utility software @55°C	8hrs	N/A	3 DIMM Per Channel when applicable

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



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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		SCUD34	SPD Rev.	1.2
AVL SN	ST2225	* Speed Bin (MT/s)		1600	* CL:		11
* tRCD:	11	* tRP:		11	* DRAM Density:		4Gb
* Raw Card Type	RC/B	* Nominal Vdd		1.35V	* Module Type		RDIMM
* Thermal Sensor	YES	* SDRAM silicon Type		MONO	* Heat Spreader		NO
* Register Vendor	Montage	* Register Revision		1.0	SPD Check Results:		Pass
List ALL Failed Byte# & error messages (Don't forget to review SDRAM & Module Attributes per tested module spec)							
Comments:							
MB (IMC Vdd=Nom & All Vrefs=Vdd/2 - *Max DIMMs loading) @55°C Linux Test Results							
Red Hat Enterprise Linux 6.2			Reset Cycle Test 1DPC			Test By	Van N
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)				X8DT6-F	1.3	VMAS59161	SK4375
BISO Revision / BIOS Date / MRC Rev.				2.0c	5/5/2012	0	
CPU / Speed				Intel X5650(WSM) x 2		2.66GHz	
Chipset info (Stepping)				Intel 5520 (Tylersburg), Rev B3			
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)							
P1-1C	P1-1B	P1-1A	P1-2C	P1-2B	P1-2A	P1-3C	P1-3A
		ST2203			ST2205		ST2207
P2-1C	P2-1B	P2-1A	P2-2C	P2-2B	P2-2A	P2-3C	P2-3A
		ST2209			ST2211		ST2214
Verify BIOS before starting the test			Memory Size (GB)		48	Memory Speed (MHz)	
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.							
50 loops						Pass	
Comments: BIOS Frequency setting = Auto							
Red Hat Enterprise Linux 6.2			Stress App Test			Test By	Van N
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)				X8DT6-F	1.3	VMAS59161	SK4375
BISO Revision / BIOS Date / MRC Rev.				2.0c	5/5/2012	0	
CPU / Speed				Intel X5650(WSM) x 2		2.66GHz	
Chipset info (Stepping)				Intel 5520 (Tylersburg), Rev B3			
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)							
P1-1C	P1-1B	P1-1A	P1-2C	P1-2B	P1-2A	P1-3C	P1-3A
	ST2202	ST2203		ST2204	ST2205		ST2207
P2-1C	P2-1B	P2-1A	P2-2C	P2-2B	P2-2A	P2-3C	P2-3A
	ST2208	ST2209		ST2210	ST2211		ST2214
Verify BIOS before starting the test			Memory Size (GB)		96	Memory Speed (MHz)	
8 Hours						Test Result	
Comments: BIOS Frequency setting = Force DDR 1066							
Red Hat Enterprise Linux 6.2			Stream Benchmark Test			Test By	Van N
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)				X8DT6-F	1.3	VMAS59161	SK4375
BISO Revision / BIOS Date / MRC Rev.				2.0c	5/5/2012	0	
CPU / Speed				Intel X5650(WSM) x 2		2.66GHz	
Chipset info (Stepping)				Intel 5520 (Tylersburg), Rev B3			
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)							
P1-1C	P1-1B	P1-1A	P1-2C	P1-2B	P1-2A	P1-3C	P1-3A
	ST2202	ST2203		ST2204	ST2205		ST2207
P2-1C	P2-1B	P2-1A	P2-2C	P2-2B	P2-2A	P2-3C	P2-3A
	ST2208	ST2209		ST2210	ST2211		ST2214
Verify BIOS before starting the test			Memory Size (GB)		96	Memory Speed (MHz)	
Run 5 loops & get average results						Done	
Avg (MB/s)		Avg Copy = : 35190.312460		Avg Scale = : 34643.841800		Avg Add = : 30636.545080	
		Avg Triad = : 30740.730820					
Comments: BIOS Frequency setting = Force DDR 1066							

Red Hat Enterprise Linux 6.2				Reset Cycle Test			Test By	Van N
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)				X8DT6-F	1.3	VMAS59161	SK4375	
BISO Revision / BIOS Date / MRC Rev.				2.0c	5/5/2012	0		
CPU / Speed				Intel X5650(WSM) x 2		2.66GHz		
Chipset info (Stepping)				Intel 5520 (Tylersburg), Rev B3				
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)								
P1-1C	P1-1B	P1-1A	P1-2C	P1-2B	P1-2A	P1-3C	P1-3B	P1-3A
	ST2208	ST2209		ST2210	ST2211		ST2213	ST2214
P2-1C	P2-1B	P2-1A	P2-2C	P2-2B	P2-2A	P2-3C	P2-3B	P2-3A
	ST2208	ST2209		ST2210	ST2211		ST2213	ST2214
Verify BIOS before starting the test				Memory Size (GB)	96	Memory Speed (MHz)	1066	
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.								
200 Cycles Minimum				Test Result	Pass			
Comments:				BIOS Frequency setting = Force DDR 1066				
Dos Memory Stress Test Rev 1077				Memory Stress Test			Test By	Van N
Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N)				X8DT6-F	1.3	VMAS59161	SK4375	
BISO Revision / BIOS Date / MRC Rev.				2.0c	5/5/2012	0		
CPU / Speed				Intel X5650(WSM) x 2		2.66GHz		
Chipset info (Stepping)				Intel 5520 (Tylersburg), Rev B3				
Fill out DIMM# with AVL S/N at Slots (CPU# . Channel# . DIMM#)								
P1-1C	P1-1B	P1-1A	P1-2C	P1-2B	P1-2A	P1-3C	P1-3B	P1-3A
	ST2202	ST2203		ST2204	ST2205		ST2206	ST2207
P2-1C	P2-1B	P2-1A	P2-2C	P2-2B	P2-2A	P2-3C	P2-3B	P2-3A
	ST2208	ST2209		ST2210	ST2211		ST2213	ST2214
Verify BIOS before starting the test				Memory Size (GB)	96	Memory Speed (MHz)	1066	
Please set / check appropriate item in BIOS or SW tool to verify for Single Bit Error (SBE) failure.								
12 Hours				Test Result	Pass			
Comments:				BIOS Frequency setting = Force DDR 1066				



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AVL's DDR3 Memory Module SPD Check

Test Results:	Pass
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General Information			
AVL W/O#	WC9578	AVL A#	9648
JEDEC Speed Grade	DDR3-1600	DRAM Density	8GB
JEDEC Raw Card#	RC/B	Module Type	/ RDIMM
Module ECC or Non-ECC	/ ECC	Test By	Van N.

General Infomation			
Supplier		Module P/N	
Kingston Technology		9965426-169.A00LF	
Module Type	RDIMM	CAS Latency Supported	
Memory Type	DDR3	6,7,8,9,10,11	
SPD Rev.	1.2	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 Optional Feature Support			
pTRR Supported (Intel ONLY)			Compliant
tMAW	64mS	tMAC	300K
Extended Temp Refresh Rate			2X
Extended Temp Range			0~95
RZQ/7	Yes	RZQ/6	Yes
ASR	No	DLL-Off Node	Yes
PASR	Yes	ODTS Readout	No

SDRAM Attributes	
SDRAM Density	4 Gb
# of Banks	8
Column Address Bits	10
Raw Address Bits	16
SDRAM Device Type	Standard monolithic
SDRAM Device Width	8 bits
Module Attributes	
Speed/CL-TRCD-TRP	1600 / 11-11-11
Module Density	8 GB
Module Nominal VDD	1.5V, 1.35V
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	B
Reference Raw Card Rev.	1
Rank 1 Mapping (UDIMM)	

RDIMM/LRDIMM Only					
Register/MB Supplier	Montage Technology	# of Rows of DRAMs	1	Heat Spreader Used	Not incorporated
Register Type	SSTE32882	# of Registers Used	1	Register/MB Revisio	1.0
Mirroring		Orientation of MB		Rank Numbering	