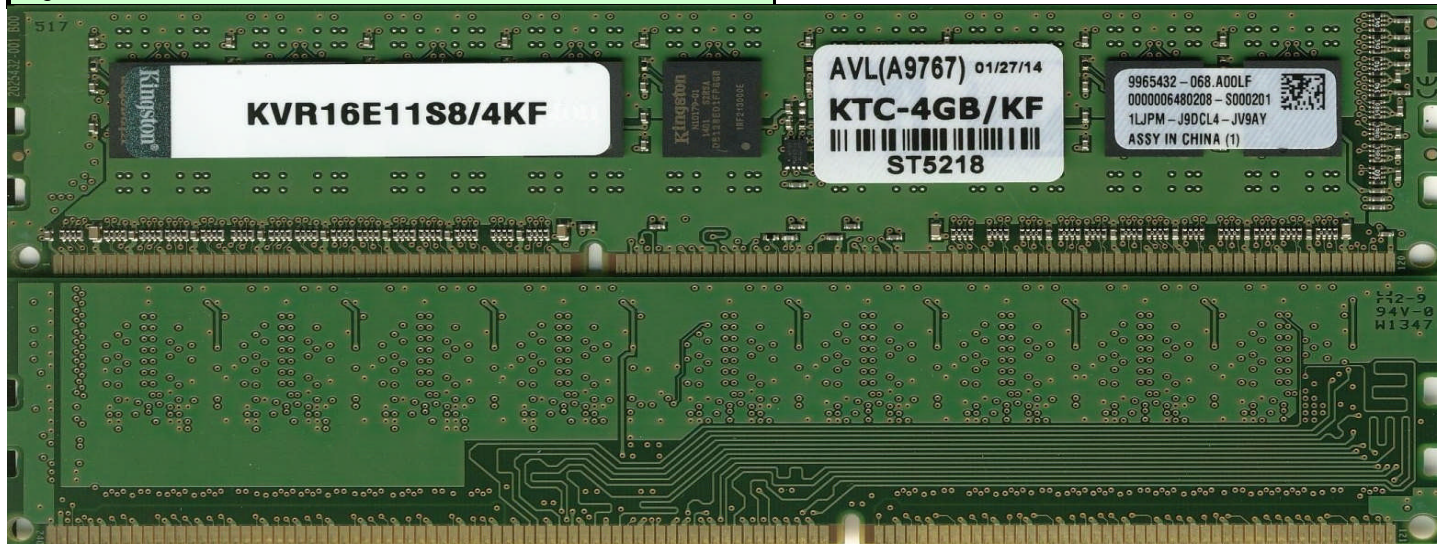


| | | | |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------|------|
|  | AVL Supermicro server platform Memory Module Qualification Test | | |
| | Intel E5-2650(IVB) x 2, Intel C602 | Test Results | Pass |
| | PN: KVR16E11S8/4KF (4GB / UDIMM ECC / ECC) On: X9DR3-LN4F+ Rev.1.2 | | |

| RP77D3x-106-KI-SQ-SMC-V2 | | Module Information | | Rev 05/30/2012 |
|--------------------------------------------------------|-----------------------------|--------------------|-----------|----------------|
| AVL WorkOrder # | WC9838 | AVL A# | 9767 | |
| Start Date | 2/18/2014 | End Date | 2/20/2014 | |
| Tested By | Van N. | | | |
| Module Manufacturer | Kingston | | | |
| Module Part Number | KVR16E11S8/4KF | | | |
| Module BOM Number | 9965432-068.A00LF | | | |
| Module Capacity / Memory Type / ECC | 4GB / UDIMM ECC / ECC | | | |
| Module Configuration (Width, # of devices, # of Ranks) | 512Mx72 /9 Devices / 1 Rank | | | |
| Module Speed (Data rate of Mbps, CL-tRP-tRCD) | DDR3-1600 /11-11-11 | | | |
| DRAM Device Vendor | Kingston | | | |
| DRAM Device Part Number / Date code | D5128ED1FPGGB | | | |
| 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 | N/A | | | |



| Platform System Information | | | | |
|------------------------------------------------------------|------------------------|-----|------------|--------|
| Motherboard Info (Model# & MB Revision & MB S/N & AVL S/N) | X9DR3-LN4F+ | 1.2 | 0M23S40378 | SN9374 |
| BIOS Revision / BIOS Date | 3.0 | | 7/5/2013 | |
| CPU / Speed | Intel E5-2650(IVB) x 2 | | 2.6GHz | |
| Chipset info (Stepping) | Intel C602 | | | |



AVL Supermicro server platform Memory Module Qualification Test

Intel E5-2650(IVB) x 2, Intel C602

PN: KVR16E11S8/4KF (4GB / UDIMM ECC / ECC) On: X9DR3-LN4F+ Rev.1.2

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 | Done | 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