



# **Intel<sup>®</sup> Server Compute Blade SBXD132 Memory List Test Report Summary**

Revision 12.0  
November 2008

<b>Revision History</b>		
<b>Date</b>	<b>Rev</b>	<b>Modifications</b>
Aug/06	1.0	Initial release.
Nov/06	2.0	Add Samsung 512MB, 1GB, 2GB, 4GB modules, Qimonda 512MB, 1GB, 2GB modules. Micron 1GB modules, Hynix 512MB modules, and Elpida 1GB modules.
Jun/07	3.0	Added new modules (In shaded area).
Aug/07	4.0	Added new modules (In shaded area).
Oct/07	5.0	Updated some contact information. Added new modules (In shaded area).
Nov/07	6.0	Added AMB note. Added new modules (In shaded area).
Jan/08	7.0	Added new modules (In shaded area).
Mar/08	8.0	Added new modules (In shaded area).
May/08	10.0	Added new modules (In shaded area).
Nov 2008	11.0	Added new modules (in shaded area).
Nov 2008	12.0	Added new modules (in shaded area).

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The hardware vendor remains solely responsible for the design, sale and functionality of its product, including any liability arising from product infringement or product warranty. Only approved software drivers and accessories that are recommended for the revision number of the Blades and system being operated should be used with Intel products. Please note that, as a result of warranty repairs or replacements, alternate software and firmware versions may be required for proper operation of the equipment.

The Intel® Server Compute Blade SBXD132 may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

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**Please Note:** DIMM devices with gold contacts should NOT be placed into DIMM sockets with tin-lead contacts or vice-versa. Mixing dissimilar metal contact types has been shown to result in unreliable memory operation. Intel recommends similar manufacturer and similar speeds in each bank on the memory module. Mixing of dissimilar memory manufacturer and similar speeds in each bank on the memory module is NOT recommended.

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## Overview of Memory Testing

The following procedure is used to test memory modules for use in the Intel<sup>®</sup> Server Compute Blade SBXD132. Memory is a vital subsystem in a platform. Intel Corporation requires strict guidelines to be met before a memory vendor and part is put onto the qualified memory list. Each Intel Server Blade product has a separate qualified memory list.

Memory qualification for Intel's Server Board products is performed by Intel's Memory Validation Laboratory (MVL), and by an independent external test laboratory, Compute Memory Test Lab (CMTL)<sup>1</sup>. CMTL is a leading memory testing organization responsible for testing a broad range of memory products. Memory devices tested by Intel's MVL or CMTL must undergo rigorous tests to ensure that the product will perform the intended server functions.

Intel<sup>®</sup>'s Server and Workstation board qualified memory lists categorize memory modules as Advanced Tested. The Advanced Testing process involves a paper qualification, a standard voltage and room temperature functional test, and a voltage and temperature margin functional test. A paper qualification is a review of critical timings, electrical characteristics, timing requirements, environmental requirements, and packaging requirements in order to see if the memory meets Intel's memory specifications. The standard voltage and room temperature test involves testing the memory module on the particular Intel Server Blade for which it is being qualified with test software operating under Microsoft\* Windows\* Server 2003 Enterprise Edition for no less than 24 hours. The voltage and temperature margin testing involves testing the memory module on the particular Intel Server Blade for which it is being qualified with various test software and operating systems for 48-72 hours under various voltage and temperature margin conditions. Memory modules that have completed Advanced Testing are known to be compatible with the product on which they were tested, and with the test software and operating system that was utilized during the test procedure.

For information regarding the testing procedure required to reach each phase, please contact your Intel Representative.

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<sup>1</sup> CMTL\* is an independent memory testing organization responsible for testing a broad range of memory products. Receiving a "PASS" after being tested by CMTL, means that a product functions correctly and consumers can use it to perform the intended server functions. In order to pass these stringent standards, memory products must maintain the highest manufacturing procedures and pass an exacting battery of tests. Testing is performed with equipment and a procedure as defined by Intel's various functional testing levels. CMTL contact:

John Deters	Computer Memory Test Lab (CMTL)
949-716-8690 (voice)	24 Hammond Suite F
949-716-8691 (fax)	Irvine, CA 92618
	<a href="http://www.cmtlabs.com/">http://www.cmtlabs.com/</a>

## Qualified Memory for the Intel® Server Compute Blade SBXD132

The memory module on the Intel® Server Compute Blade SBXD132 has 4 DIMM sockets, which can hold up to 16 GB of Fully Buffered Dual In-line (FBD) Registered DDR2-667 memory using four 72-bit DIMM modules. The following memory features are supported:

- Fully Buffered ECC DDR2-667 in compliance with the standard DDR JEDEC DIMM Specification
- DIMMs with capacity of 512 MB, 1 GB, 2 GB, and 4 GB. Other DRAM sizes may function correctly but will not be validated
- Minimum configuration is 1 GB using two 512 MB DIMMs
- Maximum Configuration is 16 GB using four 4 GB DIMMs (or 32 GB using 4 GB DIMMs with BIE installed)
- Memory DIMMs are populated in sets of two identical DIMMS. Install the DIMMs in the following order:

Pair	DIMM Connectors
First	1 (J141) and 3 (J143)
Second	2 (J142) and 4 (J144)

- With Memory and I/O Expansion Blade (BIE), install the DIMMs in the following order:

Pair	DIMM Connectors
First	1 (J141) and 3 (J143)
Second	1 (BIE J18) and 3 (BIE J20)
Third	2 (J142) and 4 (J144)
Fourth	2 (BIE J19) and 4 (BIE J21)

- Refer to the Intel® Server Compute Blade SBXD132 Installation and User's Guide for specifics of memory configuration and population rules

Below is a chart that lists the current supported memory types:

Fully Buffered ECC, DDR2-667 DRAM Module Configurations					
DIMM Capacity	DIMM Organization	SDRAM Density	SDRAM Organization	DIMM Speed	Rank Type
512MB	64M x 72	512Mbit	64M x 8	667 MHz	Single
1GB	128M x 72	512Mbit	64M x 8	667 MHz	Double
2GB	256M x 72	512Mbit	128M x 4	667 MHz	Double
4GB	512M x 72	1Gbit	256M x 4	667 MHz	Double

The following table lists DIMM devices known to be compatible with the Intel® Server Compute Blade SBXD132. Intel recommends that Advanced Tested DIMMs be used to establish reliable system operation. DIMM devices not listed can be used; but, in the event of unreliable system operation, the DIMM devices should be replaced with functionally Advanced Tested DIMMs to determine whether the DIMM devices are causing the problem.

**Caution:** Third party memory vendors may use the same module part number with different DRAM vendors and die revisions. To insure proper system operation, verify that each DRAM vendor and die revision has been separately tested and qualified. Please notify CMTL if there is a discrepancy.

**Note:** This list is not intended be all-inclusive. It is provided as a convenience to Intel's general customer base, but Intel does not make any representations or warranties whatsoever regarding the quality, reliability, functionality, or compatibility of these memory modules.

***This list is subject to change without notice.***

## Intel® Server Compute Blade SBXD132

**Fully Buffered, ECC, DDR2-667 DIMM Modules  
512MB Sizes (64Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	Date
Micron	MT9HTF6472FY-667B4D3		Micron		IDT			7/06
Elpida	EBE51FD8AGFD-6E-E				IDT			7/06
Hynix	HYMP564F72BP8D2-Y5 AB				IDT			11/06
Qimonda	HYS72T64400HFD-3S-B							11/06
Qimonda	HYS72T64400HFD-3S-A							11/06
Samsung	M395T6553CZ4-CE61							11/06
Samsung	M395T6553CZ4-CE601		Samsung					11/06
Micron	MT9HTF6472FY-667B4D3	K4T51083QC-ZCE6000	Micron					7/06
Kingston	KVR667D2S8F5/512I	E5108AGBG-6E-E rev G	Elpida	2025285-002.A00 na		D1	Foxconn	5/23/07
Buffalo	D2F667CW-S512EGJ	E5108AGBG-6E-E rev G	Elpida	2DFA18F-AA	IDT	C1	Foxconn	9/14/07
Smart Modular Technologies	SG647FBD64852IBD5	HYB18T512800BF-3S rev B	Qimonda	PG54G240NFBUB4RAS rev A	IDT	A1.5	Foxconn	12/20/07
Dataram	DTM65506F	HYB18T512800B2F-3S rev B2	Qimonda	40053A rev B	IDT	C1	Foxconn	2/29/08

(+) This vendor is part of the CMTL Certification program. This means this part has/will be tested across all compatible Intel Server Blades. For further information contact CMTL @ <http://cmtlabs.com/>

**Caution:** Some modules on this list may contain "stacked" DRAM parts. These parts may have thermal & physical limitations in some chassis configurations. It is advised to verify that your chassis configuration will support "stacked" parts before purchase.



**Fully Buffered, ECC, DDR2-667 DIMM Modules  
1GB Sizes (128Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	Date
Hynix	HYMP512F72BP8 D2-Y5 AB		Hynix		IDT			7/06
Samsung	M395T2953CZ4- CE601	K4T51083QC- ZCE6000	Samsung		IDT			7/06
Elpida	EBE11FD8AGFD- 6E-E							11/06
Qimonda	HYS72T128420HF D-3S-A							11/06
Qimonda	HYS72T128420HF D-3S-B							11/06
Micron	MT18HTF12872F DY-667B5D3							11/06
Samsung	M395T2953CZ4- CE61	K4T51083QC- ZCE6000	Samsung					11/06
Kingston	KVR667D2D8F5/1 GI	E5108AGBG-6E-E rev G	Elpida	2025286- 002.A00 na		D1	Foxconn	5/22/07
Apacer	75.063AI.G00	K4T51083QE-ZCE6 rev E	Samsung	48.16203.095 rev 5		D1	AVC	6/15/07
Ventura Technology Group	D2-54VD80SIV- 555	K4T51083QE-ZCE6 rev E	Samsung	D2F28B na	IDT	A1.5	AVC	7/23/07
ATP Electronics	AP28K72S8BHE6 S	K4T51083QE-ZCE6 rev E	Samsung	SP240S08K1 na	NEC	B5 <sup>1</sup>	Foxconn	4/6/07
Smart Modular Technologies	SG1287FBD64852 -SEI	K4T510830QE-ZCE6 rev E	Samsung	M395T2953E Z0 na	IDT	C1	Foxconn	9/11/07
Buffalo	D2F667CW- S1GMEJ	MT47H128M8HQ-3 rev E	Micron	2DFA18F-AA	IDT	C1	Foxconn	9/13/07
Kingston	KVR667D2D8F5/1 GI	HYB18T512800BF- 3S rev B	Qimonda	2025286- 002.A00 na	Intel	D1	Foxconn	10/03/07
ATP Electronics	AP28K72S8BHE6 S	K4T51083QE-ZCE6 rev E	Samsung	D2F28B na	NEC	D1	Foxconn	1/17/08
Dataram	DTM65507G	HYB18T512800B2F3 S rev B2	Qimonda	40053A rev B	IDT	C1	Foxconn	3/6/08
TRS	TRS32403X	K4T1G084QQ-HCE6 rev Q	Samsung	M395T6553E Z0-P150 rev 4	IDT	C1	Samsung	10/14/08

<sup>1</sup> This part may show voltage errors in the System Event Log (SEL) during boot. These errors will not affect system operation and can be ignored.

(+) This vendor is part of the CMTL Certification program. This means this part has/will be tested across all compatible Intel Server Blades. For further information contact CMTL @ <http://cmtlabs.com/>

**Caution:** Some modules on this list may contain "stacked" DRAM parts. These parts may have thermal & physical limitations in some chassis configurations. It is advised to verify that your chassis configuration will support "stacked" parts before purchase.

**Fully Buffered, ECC, DDR2-667 DIMM Modules  
2GB Sizes (256Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	Date
Elpida	EBE21FD4AGFD-6E-E				IDT			7/06
Hynix	HYMP525F72BP4 D2-Y5 AB				IDT			7/06
Qimonda	HYS72T256420HF D-3S-A							11/06
Qimonda	HYS72T256420HF D-3S-B							11/06
Samsung	M395T5750CZ4-CE61							11/06
Samsung	M395T5750CZ4-CE601	K4T51043QC-ZCE6000	Samsung					11/06
Ventura Technology Group	D2-56VF82SIV-555	K4T51043QC-ZCE6 rev C	Samsung	D2F24E na		A1.5	AVC	5/21/07
Legacy Electronics Inc.	M527NAE90BE-30R	MT47H128M8HQ-3 rev E	Micron	D2F28B rev B		A1.5	AVC	6/07/07
Buffalo	D2F667CW-2GMEJ	MT47H128M8HQ-3 rev E	Micron	2DFB28F-AC	IDT	C1	Foxconn	8/20/07
ATP Electronics	AP56K72G4BHE6 S	K4T51043QE-ZCE6 rev E	Samsung	SP240G04K1 na	NEC	B5 <sup>1</sup>	Foxconn	5/3/07
Smart Modular Technologies	SG2567FBD28452 IBDC	HYB18T512400BF 3S rev B	Qimonda	PG54G240NF SUB1RES rev C	IDT	C1	Foxconn	10/1/07
Kingston	KVR667D2D4F5/2 GI	NT5TU128M4BE-3C rev B	Nanya	2025378-001.A00 na	Intel	D1	Foxconn	10/2/07
STEC	INT72W4M256M8 M-A03GZU	HYB18T512400BF 3S rev B	Qimonda	D2F24E na	IDT	A1.5	AVC	10/29/07
Kingston	KVR667D2D8F5/2 GI	E1108ACBG-6E-E rev C	Elpida	2025286-002.A00 na	Intel	D1	Foxconn	2/14/08
ATP Electronics	AP56K72G4BHE6 S	K4T51043QE-ZCE6 rev E	Samsung	D2F24E na	NEC	D1	Foxconn	1/22/08
Dataram	DTM65508F	HYB18T512400B2 F3S rev B2	Qimonda	40084A rev A	IDT	C1	Foxconn	3/7/08
Buffalo	D2F667CW-2GECJ	E1108ACBG-6E-E rev C	Elpida	2DFB28F-AC	IDT	C1	Foxconn	4/1/08
ATP Electronics	AP56K72S8BJE6S	K4T1G084QQ-HCE6 rev Q	Samsung	D2F28B rev B	NEC	D1	Foxconn	4/16/08
TRS	TRS32406X	K4T1G084QQ-HCE6 rev Q	Samsung	M395T2953E Z0-P110 rev 4	IDT	C1	Samsung	10/10/08
Kingston	KVR667D2D4F5/2 GI	HYB15T512400CF 25 rev C	Qimonda	240-35-1	IDT	C1	Logitex	10/24/08

<sup>1</sup> This part may show voltage errors in the System Event Log (SEL) during boot. These errors will not affect system operation and can be ignored.

(+) This vendor is part of the CMTL Certification program. This means this part has/will be tested across all compatible Intel Server Blades. For further information contact CMTL @ <http://cmtlabs.com/>

**Caution:** Some modules on this list may contain "stacked" DRAM parts. These parts may have thermal & physical limitations in some chassis configurations. It is advised to verify that your chassis configuration will support "stacked" parts before purchase.

**Fully Buffered, ECC, DDR2-667 DIMM Modules  
4GB Sizes (512Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	Date
Samsung	M395T5166AZ4-CE601	K4T1G244QA-ZCE6000	Samsung					11/06
Samsung	M395T5166AZ4-CE61							11/06
Smart Modular Technologies	SG5127FBD22565-2MEC	MT47H256M4HQ-3 rev E	Micron	PG54G240NF SUB2RES rev A	IDT	C1	Foxconn	7/26/07
Apacer	78.BHGA8.421	E1104ACSE-6E-E rev C	Elpida	48.1A205.011 rev 1	IDT	C1	AVC	7/27/07
Smart Modular Technologies	SG5127FBD22565-2SCD	K4T1G044QC-ZCE6 rev C	Samsung	M395T5750E Z0 na	IDT	C1	Samsung	8/22/07
ATP Electronics	AP12K72G4BJE6-M	MT47H256M4HQ-3 rev E	Micron	SP240G04K1 na	NEC	B5 <sup>1</sup>	Foxconn	5/16/07
Smart Modular Technologies	SG5127FBD22565-2-SC	K4T1G044QC-ZCE6 rev C	Samsung	M395T5750E Z0 na	IDT	A1.5	Samsung	8/31/07
ATP Electronics	AP12K72G4BJE6-S	K4T1G044QC-ZCE6 rev C	Samsung	D2F24E na	NEC	D1	Foxconn	12/18/07
Dataram	DTM65510C	HY5PS1G431CFP-Y5 rev C	Hynix	40084A rev A	IDT	C1	Foxconn	1/09/08
ATP Electronics	AP12K72G4BJE6-S	K4T1G044QQ-HCE6 rev Q	Samsung	D2F24E rev E	NEC	D1	Foxconn	3/24/08
Kingston	KVR667D2D4F5/4 Gi	E1104ACSE-6E-E rev C	Elpida	2025378-001.A00	Intel	D1	Foxconn	4/3/08
TRS	TRS32409X	K4T1G044QQ-HCE6 rev Q	Samsung	M395T5750E Z0-P081 rev 4	IDT	C1	Samsung	10/09/08

<sup>1</sup> This part may show voltage errors in the System Event Log (SEL) during boot. These errors will not affect system operation and can be ignored.

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## Sales Information

Vendor Name	Web URL	Vendor Direct Sales Info
ATP Electronics	<a href="http://www.atpinc.com/">http://www.atpinc.com/</a>	Tel: (1) 408-732-5000, ext 5858 Fax: (1) 408-732-5055 <a href="mailto:sales@atpinc.com">sales@atpinc.com</a>
ATP Electronics -- Taiwan Inc.	<a href="http://www.atpinc.com/">http://www.atpinc.com/</a>	Tel 011-886-2-2659-6368 Fax 886-2-2659-4982
Avant Technology	<a href="http://www.avanttechnology.com">http://www.avanttechnology.com</a>	Brad Scoggins Phone: (512)491-7411 Fax: (512)491-7412 <a href="mailto:brads@avanttechnology.com">brads@avanttechnology.com</a>
Aved Memory Products	<a href="http://www.avedmemory.com/">http://www.avedmemory.com/</a>	
Buffalo Technology	<a href="http://www.buffalotech.com/">http://www.buffalotech.com/</a>	(800) 967-0959 <a href="mailto:memory@buffalotech.com">memory@buffalotech.com</a>
Centon Electronics	<a href="http://www.centon.com">http://www.centon.com</a>	Tel: 949-855-9111 Fax: 949-855-6035
Corsair	<a href="http://www.corsairmicro.com/">http://www.corsairmicro.com/</a>	Tel: 510-657-8747 Fax: 510-657-8748
Crucial	<a href="http://www.crucial.com/intel">http://www.crucial.com/intel</a>	Toll-free: 888-363-4167 (US & Canada only) Tel: 208-363-5790 Fax: 208-363-5560 <a href="mailto:crucial.sales@micron.com">crucial.sales@micron.com</a>
Dane-Elec	<a href="http://www.dane-memory.com/">http://www.dane-memory.com/</a>	Michal Hassan @ (949)450-2941 or email @ <a href="mailto:Michal@Dane-memory.com">Michal@Dane-memory.com</a>
Dataram	<a href="http://www.dataram.com/">http://www.dataram.com/</a>	Paul Henke, 800-328-2726 x2239 in USA 609-799-0071 <a href="mailto:phenke@dataram.com">phenke@dataram.com</a>
GoldenRAM	<a href="http://www.goldenram.com">http://www.goldenram.com</a>	Jason M. Barrette @ 800-222-861 x7546 <a href="mailto:jasonb@goldenram.com">jasonb@goldenram.com</a> or Michael E. Meyer @800-222-8861 x7512 <a href="mailto:michaelm@goldenram.com">michaelm@goldenram.com</a>
Hitachi	<a href="http://semiconductor.hitachi.com/pointer/">http://semiconductor.hitachi.com/pointer/</a>	
Hyundai/Hynix Semiconductor	<a href="http://www.heacom/">http://www.heacom/</a>	
~ Qimonda (Infineon)	<a href="http://www.infineon.com/business/distribut/index.htm">http://www.infineon.com/business/distribut/index.htm</a>	
ITAUCOM	<a href="http://www.itaucom.com.br">http://www.itaucom.com.br</a>	
JITCO CO LTD	<a href="http://www.jitco.net/">http://www.jitco.net/</a>	Seong Jeon Tel: 82-32-817-9740 <a href="mailto:s.jeon@jitco.net">s.jeon@jitco.net</a>
Kingston	<a href="http://www.kingston.com">http://www.kingston.com</a>	US.- Call (877) 435-8726 Asia – Call 886-3-564-1539 Europe – Call +44-1932-755205
Legacy Electronics Inc.	<a href="http://www.legacyelectronics.com">http://www.legacyelectronics.com</a>	U.S. Contact: Gary Ridenour, 949-498-9600, Ext 350 European Contact: 49 89 370 664 11
Legend	<a href="http://www.legend.com.au">http://www.legend.com.au</a>	
Micron	<a href="http://www.micron.com">http://www.micron.com</a>	
MSC Vertriebs GmbH	<a href="http://www.msc-ge.com">http://www.msc-ge.com</a>	William Perrigo 49-7249-910-417 Fax: 49-7249-910-229 <a href="mailto:wpe@msc-ge.com">wpe@msc-ge.com</a>
Nanya Technology	<a href="http://www.ntc.com.tw">http://www.ntc.com.tw</a>	Winson Shao 886-3-328-1688, Ext 6018 <a href="mailto:winsonshao@ntc.com.tw">winsonshao@ntc.com.tw</a>
Netlist, Inc	<a href="http://www.netlistinc.com">http://www.netlistinc.com</a>	Christopher Lopes 949.435.0025 tel 949.435.0031 fax <a href="mailto:sales@netlistinc.com">sales@netlistinc.com</a>

<b>Vendor Name</b>	<b>Web URL</b>	<b>Vendor Direct Sales Info</b>
<b>Peripheral Enhancements</b>	<a href="http://www.peripheral.com/">http://www.peripheral.com/</a>	
<b>PNY</b>	<a href="http://www.pny.com/internet_explorer/LPB.HTML">http://www.pny.com/internet_explorer/LPB.HTML</a>	
<b>Samsung</b>	<a href="http://www.korea.samsungsemi.com/locate/buy/list_na.html">http://www.korea.samsungsemi.com/locate/buy/list_na.html</a>	For US customers go to: <a href="http://www.mymemorystore.com/">http://www.mymemorystore.com/</a>
<b>Silicon Tech</b>	<a href="http://www.silicontech.com/contact/salescontacts.shtml">http://www.silicontech.com/contact/salescontacts.shtml</a>	
<b>Simple Tech</b>	<a href="http://www.simpletech.com">http://www.simpletech.com</a>	Ron Darwish @ (949) 260-8230 or email @ <a href="mailto:Rdarwish@Simpletech.com">Rdarwish@Simpletech.com</a>
<b>SMART Modular Technologies</b>	<a href="http://www.smartm.com">http://www.smartm.com</a>	Leo Alafriz 949-753-0116 ext. 125 <a href="mailto:leo.alafriz@smartm.com">leo.alafriz@smartm.com</a>
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## **CMTL\* (Computer Memory Test Labs)**

CMTL is a privately owned and operated memory testing organization responsible for testing a broad range of memory products. Memory devices tested by CMTL must undergo a rigorous battery of tests to ensure that the product will perform the intended server functions. Memory capability is a major factor your customers consider. CMTL has the ability to test and certify memory on Intel-based server platforms. The list of memory modules, which have undergone testing through the CMTL facility, should be referenced when considering modules for integration into this Intel server product. Stringent standards with regard to manufacturing procedures and quality must be met to pass the exacting tests required for qualification through the independent testing facility. Testing is performed by CMTL with Intel server products and test procedures defined by Intel's Memory Validation Lab. Intel routinely audits the CMTL facility to ensure all procedures, process handling, and testing methodologies are met.

### **IMPORTANT NOTE**

DIMM devices with gold contacts should NOT be placed into DIMM sockets with tin-lead contacts or vice-versa. Mixing dissimilar metal contact types has been shown to result in unreliable memory operation. Intel recommends similar manufacturer and similar speeds in each bank on the memory module. Mixing of dissimilar memory manufacturer devices or dissimilar memory device speeds is not recommended. This document contains information which is the proprietary property of Intel Corporation. Nothing in this document constitutes a guaranty, warranty, or license, express or implied. Intel has tested the following DIMMs for minimum electrical and functional compatibility with boxed processors. This listing is not intended to be all inclusive; it only represents the DIMMs Intel or CMTL has tested. Users of this list are reminded to check with the DIMM manufacturer or Distributor to ensure that a particular DIMM model is adequate for the intended purpose of the boxed processor based-Blade. Intel provides no indemnities for and expressly disclaims all liabilities for any and all such guaranties, representations, and warranties (oral or written) whether express or implied, related to DIMMs in a Intel<sup>®</sup> Server Blade product, including without limitation to: fitness for a particular purpose; merchantability; noninfringement of intellectual property or other rights of any third party or of Intel. The reader is advised that third parties may have intellectual property rights which may be relevant to this document and the technologies discussed herein, and is advised to seek the advice of competent legal counsel, without obligation of Intel. Intel retains the right to make changes to this document at any time, without notice. Intel makes no warranty or representation with respect to the use of this document or reliance by the reader upon its contents, and assumes no responsibility for any errors which may appear in the document nor does it make a commitment to update the information contained herein.

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