

Intel[®] Server Blade SBXL52 Memory List Test Report Summary



Revision 21.0
March 2006

Revision History		
Date	Rev	Modifications
April/04	.5	Pre-release
May/04	.9	Correction made to verbiage; remove untested parts.
May/04	1.0	Released version
May/04	1.5	Added Infineon 512MB, 1G & 2G parts. Added Elpida 2G part. (In shaded area)
Sept/04	2.0	Added TRS 512MB, 1GB, and 2GB parts. Added Legend 512MB parts. Added Smart 1GB parts. (In shaded area)
Sept/04	3.0	Added support for DDR333. Added Legend 256MB parts. Added Legend and TRS 512MB parts. Added ATP, Legend and Smart 1GB parts. Added Samsung 512MB & 2G part. (In shaded area)
Sept/04	4.0	Added Apacer 256MB parts. Added Ventura 512MB parts. Added Viking & Infineon 1GB parts. (In shaded area)
Oct/04	5.0	Added Legend 256MB and 2GB parts. Added Smart 512MB parts. Added TRS 1GB parts. (In shaded area)
Oct/04	6.0	Added Apacer 1GB parts. (In shaded area)
Nov/04	7.0	Added Legacy 512MB parts. Added Legacy, Ventura, TRS, and Centon 1GB parts. (In shaded area)
Nov/04	8.0	Added Viking 1GB and TRS 2GB parts. (In shaded area)
Dec/04	9.0	Added Viking 512MB and Legacy 1GB parts. (In shaded area)
Dec/04	10.0	Added Smart 1GB parts. (In shaded area)
Dec/04	11.0	Added Legacy 512MB parts. (In shaded area)
Feb/05	12.0	Added Buffalo 512MB and Smart 2GB parts. (In shaded area)
Mar/05	13.0	Added Buffalo 512MB and 1GB parts. Added Smart 2GB parts. (In shaded area)
Mar/05	14.0	Added note on Lead free modules (these modules are now in bold text). Added Ventura 1GB parts. (In shaded area)
Apr/05	15.0	Added Ventura 512MB parts. Added Legacy and Smart 1GB parts. Added Smart 2GB parts. (In shaded area)
Apr/05	16.0	Added Smart 512MB parts and Ventura 1GB parts. (In shaded area)
May/05	17.0	Updated contact information.
Jun/05	18.0	Added Smart 2GB parts. (In shaded area)
Feb/06	19.0	Added Legend 512MB and 1GB parts. Added Legacy 1GB part. Added TRS 2GB part. (In shaded area)
Mar/06	20.0	Added Smart and Legend 2GB parts. (In shaded area)
Mar/06	21.0	Added Smart 1GB part. (In shaded area)

INTEL DISCLAIMS ALL LIABILITY FOR THESE DEVICES, INCLUDING LIABILITY FOR INFRINGEMENT OF ANY PROPRIETARY RIGHTS RELATING TO THESE DEVICES OR THE IMPLEMENTATION OF INFORMATION IN THIS DOCUMENT. INTEL DOES NOT WARRANT OR REPRESENT THAT SUCH DEVICES OR IMPLEMENTATION WILL NOT INFRINGE SUCH RIGHTS. INTEL IS NOT OBLIGATED TO PROVIDE ANY SUPPORT, INSTALLATION, OR OTHER ASSISTANCE WITH REGARD TO THESE DEVICES.

THE INTEL PRODUCT REFERRED TO IN THIS DOCUMENT IS INTENDED FOR STANDARD COMMERCIAL USE ONLY. CUSTOMERS ARE SOLELY RESPONSIBLE FOR ASSESSING THE SUITABILITY OF THE PRODUCT AND/OR DEVICES FOR USE IN PARTICULAR APPLICATIONS. THE REFERENCED INTEL PRODUCT IS NOT INTENDED FOR USE IN CRITICAL CONTROL OR SAFETY SYSTEMS OR IN NUCLEAR FACILITY APPLICATIONS.

Information in this document is provided in connection with Intel products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by the sale of Intel products. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications. Intel retains the right to make changes to its test specifications and memory list at any time, without notice.

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 Blade SBXL52 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.

Copyright © Intel Corporation 2005.

* Other brands and names are the property of their respective owners.

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.

Table of Contents

OVERVIEW OF MEMORY TESTING	5
REGISTERED, ECC, DDR266 DIMM MODULES 256MB SIZES (32Mx72).....	8
REGISTERED, ECC, DDR333 DIMM MODULES 256MB SIZES (32Mx72).....	8
REGISTERED, ECC, DDR266 DIMM MODULES 512MB SIZES (64Mx72).....	9
REGISTERED, ECC, DDR333 DIMM MODULES 512MB SIZES (64Mx72).....	10
REGISTERED, ECC, DDR266 DIMM MODULES 1GB SIZES (128Mx72)	11
REGISTERED, ECC, DDR333 DIMM MODULES 1GB SIZES (128Mx72)	12
REGISTERED, ECC, DDR266 DIMM MODULES 2GB SIZES (256Mx72)	13
REGISTERED, ECC, DDR333 DIMM MODULES 2GB SIZES (256Mx72)	13
SALES INFORMATION.....	14
<u>CMTL* (COMPUTER MEMORY TEST LABS)</u>	16

Overview of Memory Testing

The following procedure is used to test memory modules for use in the Intel® Server Blade SBXL52. 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, Computer Memory Test Lab (CMTL)¹. 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's Server and Workstation board qualified memory lists categorize memory modules as Advanced Tested. The Advanced Testing process involves a paper qualification, a standard room temperature and functional temperature margins 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 functional temperature margins 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 temperature margin testing involves testing the memory module on the particular Intel Server Blade for which it is being qualified with test software and operating systems for 48-72 hours under various 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.

¹ 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
	http://www.cmtlabs.com/

Qualified Memory for the Intel® Server Blade SBXL52

The memory module on the server Blade SBXL52 has 4 DIMM sockets, which can hold up to 8 GB of Registered ECC DDR266 or DDR333 memory using four 72-bit DIMM modules. The following memory features are supported:

- DDR266 and DDR333 Registered ECC in compliance with the standard DDR JEDEC DIMM Specification
- DIMMs with capacity of 128MB, 256MB, 512MB, 1GB and 2GB. Other DRAM sizes may function correctly but will not be validated.
- Minimum configuration is 256MB using two 128MB DIMM.

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

DDR266 Registered DRAM Module Configurations for Cas Latency 2 & 2.5					
DIMM Capacity	DIMM Organization	DRAM Density	DRAM Organization	# DRAM Devices/rows/Banks	# Address bits rows/Banks/column
128MB	16M x 72	64Mbit	16M x 4	18/1/4	12/2/10
128MB	16M x 72	64Mbit	8M x 8	18/2/4	12/2/9
128MB	16M x 72	128Mbit	16M x 8	9/1/4	12/2/10
256MB	32M x 72	128Mbit	32M x 4	18/1/4	12/2/11
256MB	32M x 72	128Mbit	16M x 8	18/2/4	12/2/10
256MB	32M x 72	256Mbit	32M x 8	9/1/4	13/2/10
512MB	64M x 72	128Mbit	32M x 4	36/2/4	12/2/11
512MB	64M x 72	256Mbit	64M x 4	18/1/4	13/2/11
512MB	64M x 72	256Mbit	32M x 8	18/2/4	13/2/10
1GB	128M x 72	256Mbit	64M x 4	36/2/4	13/2/11
1GB	128M x 72	512Mbit	64M x 8	18/2/4	13/2/11
1GB	128M x 72	512Mbit	128M x 4	18/1/4	13/2/12
2GB	256M x 72	512Mbit	128M x 4	36/2/4	13/2/12
DDR333 Registered DRAM Module Configuration Matrix					
256MB	32M x 72	128Mbit	32M x 4	18/1/4	12/2/11
256MB	32M x 72	128Mbit	16M x 8	18/2/4	12/2/10
256MB	32M x 72	256Mbit	32M x 8	9/1/4	13/2/10
512MB	64M x 72	256Mbit	64M x 4	18/1/4	13/2/11
512MB	64M x 72	256Mbit	32M x 8	18/2/4	13/2/10
512MB	64M x 72	512Mbit	64M x 8	9/1/4	13/2/11
1GB	128M x 72	512Mbit	128M x 4	18/1/4	13/2/12
1GB	128M x 72	512Mbit	64M x 8	18/2/4	13/2/11
1GB	128M x 72	1Gbit	128M x 4	9/1/4	14/2/11
2GB	256M x 72	1Gbit	128M x 4	18/1/4	14/2/12
2GB	256M x 72	1Gbit	128M x 8	18/2/4	14/2/11

Memory features are detailed in *the Intel® Server Blade SBXL52 Technical Product Specification* available on-line at http://support.intel.com/support/mother_boards/server/TBD/SBXL52

The following table lists DIMM devices known to be compatible with the Intel Server Blade SBXL52. 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.

Server Blade SBXL52

Registered, ECC, DDR266 DIMM Modules 256MB Sizes (32Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Samsung	M312L3310ETS-CB0		Samsung			2.5		(32M x 4)*18	
Infineon	HYS72D23501GR-7-A	HYB25D128400AT-7	Infineon			2.0		(32M x 4)*18	
+Legend	L3272YC5-RU1HDC5B	HY5DU56822BT-J rev B	Hyundai	DRR1U081 8-A rev 1	8/11/04	2.5	Yes	(32M x 8)*9	
+Legend	L3272YC5-RU1HDC5D	HY5DU56822DT-J rev D	Hyundai	DRR1U081 8-A1 rev 1	9/20/04	2.5	Yes	(32M x 8)*9	

Registered, ECC, DDR333 DIMM Modules 256MB Sizes (32Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Samsung	M312L3310ETS-CB0		Samsung			2.5		(32M x 4)*18	
Infineon	HYS72D23501GR-7-A	HYB25D128400AT-7	Infineon			2.0		(32M x 4)*18	
+Legend	L3272YC5-RU1HDC5B	HY5DU56822BT-J rev B	Hyundai	DRR1U081 8-A rev 1	8/11/04	2.5	Yes	(32M x 8)*9	
+Apacer	75.85395.505	HYB25D256800CE-6 rev C	Infineon	48.18115.0 12 rev 2	9/7/04	2.5	Yes	(32M x 8)*9	
+Legend	L3272YC6-RU1HDC5B	HY5DU56822BT-D43 rev B	Hyundai	DRR1U081 8-A rev 1	9/14/04	2.5	Yes	(32M x 8)*9	

Modules shaded in blue are low profile.

Modules in bold text do not contain Lead.

(+) 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.

Server Blade SBXL52

**Registered, ECC, DDR266 DIMM Modules
512MB Sizes (64Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Samsung	M312L640ETS-CB0		Samsung			2.5		(64M X 4)*18	
Infineon	HYS72D64500GR-7-B		Infineon			2.0		(64M X 4)*18	
+Legend	L6472YC5-PPASDD5D	K4H560438D-TCB3 rev D	Samsung	18-25141A Rev A	7/9/04	2.5	Yes	(64M X 4)*18	
+TRS	TRS21151	HYB25D256400BT-7 rev B	Infineon	M0530LA1 rev 1	7/9/04	2	Yes	(64M X 4)*18	
+TRS	TRS21152	HYB25D256800BT-7 rev B	Infineon	M0529LA1 rev 1	7/7/04	2	Yes	(32M x 8)*18	
+Legend	L6472YC5-182HDD5A	HY5DU56422AT-K rev A	Hyundai	184RL rev 2	7/27/04	2.5	Yes	(64M X 4)*18	
+TRS	TRS21202	HYB25D256400CE-7 rev C	Infineon	M0530LA1 rev 1	8/6/04	2	Yes	(64M x 4)*18	
Samsung	M312L6420FTS-CB0	K4H560438F-TCB0	Samsung		8/15/04	2.5	Yes	(64M x 4)*18	
+Ventura Technology Group	D52WVK42SV	K4H560838E-TCB3 rev E	Samsung	DR1G872-A	9/9/04	2.5	Yes	(32M x 8)*18	
+Smart Modular Technologies	SM6472RDDR325LP-S	K4H560438E-TCB0 rev E	Samsung	M312L3310 ETS	9/16/04	2.5	Yes	(64M x 4)*18	
+Legacy Electronics Inc.	88S6JDLR-1JDG	HYB25D256400BT-7 rev B	Infineon	LE36DDT18 44R rev A	10/29/04	2	Yes	(64M x 4)*18	
+Viking	VI4CR647228DTHL5	MT46V32M8TG(P)-6T rev G	Micron	0000985A	11/23/04	2.5	Yes	(32M x 8)*18	

**Registered, ECC, DDR333 DIMM Modules
512MB Sizes (64Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Infineon	HYS72D64300GBR-6-B		Infineon			2.5		(64M X 4)*18	
+Legacy Electronics Inc.	88S6JDGR-1NDG	HYB25D256400BC6 rev B	Infineon	LE36DDF1844RC rev B	12/13/04	2.5	Yes	(64M X 4)*18	
+Buffalo	DD333L-R512/SF	K4H560838F-TCB3 rev F	Samsung	1D188EF-AA	2/10/05	2.5	Yes	(32M x 8)*18	
+Buffalo	DD333L-R512/MG	MT46V32M8TG(P)-6T rev G	Micron	1D188EF-AA	2/15/05	2.5	Yes	(32M x 8)*18	
+Ventura Technology Group	D52YCK44MV	MT46V64M4FG-6 rev G	Micron	DR1G472B	3/23/05	2.5	Yes	(64M X 4)*18	
+Smart Modular Technologies	SM6472RDDR6H1BG BC	HYB25D256400CC-6 rev C	Infineon	184-22-2	3/29/05	2.5	Yes	(64M X 4)*18	
+Legend	L6472YC6-RU1HDHSC	HY5DU12822CTP-J rev C	Hynix	DDR1U0818 rev A	1/25/06	2.5	Yes	(64M x 8)*9	

Modules shaded in blue are low profile.

Modules in bold text do not contain Lead.

(+) 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.

Server Blade SBXL52

Registered, ECC, DDR266 DIMM Modules 1GB Sizes (128Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Samsung	M312L2828ET0-CB0	K4H510638E-TCB0	Samsung			2.5		(64M X 4)*36	
Samsung	M312L2920BTS-CB0		Samsung			2.5		(64M X 4)*36	
Infineon	HYS72D128521GR-7-B		Infineon			2.0		(64M X 4)*36	
Elpida	EBD10RD4ABFA-7B		Elpida			2.5		(64M X 4)*36	
+Smart Modular Technologies	SM12872RDDR301BG AS	K4H560438E-GCB3 rev E	Samsung	P54G184NE SZBRCD	7/13/04	2	Yes	(64M X 4)*36	
+TRS	TRS21174	HYB25D512800AT-7 rev A	Infineon	M0529LA1 rev 1	7/7/04	2	Yes	(64M X 8)*18	
+TRS	TRS21171	HYB25D256400BC-7 rev B	Infineon	M0533LA1 rev 1	7/15/04	2	Yes	(64M X 4)*36	
+ATP Electronics	AB28L72Q8SHB0S	K4H510838B-TCB3 rev B	Samsung	SB184Q08L 1 rev 1	7/29/04	2.5	Yes	(64M X 8)*18	
+Legend	L1272YC5-183HDD5A	HY5DU56422AS-H rev A	Hyundai	184RL rev 3	8/2/04	2.5	Yes	(64M X 4)*36	
+Smart Modular Technologies	SX12872RDDR308BTI B	HYB25D512800BE-6 rev B	Infineon	P52G184NE BZ6RCL rev B	8/18/04	2	Yes	(64M X 8)*18	
+Smart Modular Technologies	SM12872RDDR301BGI C	HYB25D256400CC-6 rev C	Infineon	P54G184NE SZBRCD	8/4/04	2	Yes	(64M X 4)*36	
+Legend	L1272YC5-RU1HDH5A	HY5DU12822AT-H rev A	Hyundai	DRR1U0818 -A rev 1	7/29/04	2.5	Yes	(64M X 8)*18	
+Legacy Electronics Inc.	89S6JDLC-1JDG	HYB25D256400BT-7 rev B	Infineon	LE36DDT18 44R rev A	11/5/04	2	Yes	(64M X 4)*36	
+Ventura Technology Group	D54WYK42SV	K4H510838B-TCB3 rev B	Samsung	DR1G872-A	11/9/04	2.5	Yes	(64M X 8)*18	
+TRS	TRS21203	HYB25D512400BE-7 rev B	Infineon	M0530LA1 rev 1	10/26/04	2	Yes	(128M x4)*18	
+Viking	VI4CR287228ETHL1	MT46V64M8TG(P)-75 rev D	Micron	0000985A	11/18/04	2.5	Yes	(64M X 8)*18	
+Legacy Electronics Inc.	89S6JDGM-1JDG	HYB25D256400BC-7 rev B	Infineon	LE36DDF18 44RRF rev A	11/23/04	2	Yes	(64M X 4)*36	
+Smart Modular Technologies	SX12872RDDR302LPI B	HYB25D512400BE-7 rev B	Infineon	P52G184NE SZ6G001 rev A	11/30/04	2	Yes	(128M x4)*18	
+Smart Modular Technologies	SG12872RDDR3H1LPI C	HYB25D512400CE-6 rev C	Infineon	PG52G184 NESZ6G001 rev A	3/6/06	2.5	Yes	128M x4)*18	

**Registered, ECC, DDR333 DIMM Modules
1GB Sizes (128Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Infineon	HYS72D128320GBR-6-B		Infineon			2.5		(64M X 4) *36	
+Viking	VI4CR287224DBKL2	K4H560438E-GCB3 rev E	Samsung	0000972B	9/2/04	2.5	Yes	(64M X 4) *36	
Infineon	HYS72D128300GBR-6-B	HYB25D512400BC-6 B	Infineon		9/8/04	2.5	Yes	(128Mbx4) *18	
+TRS	TRS21197	HYB25D256400CC-6 rev C	Infineon	M0533LA1 rev 1	9/22/04	2.5	Yes	(64M X 4) *36	
+Apacer	75.07299.561	HYB25D512400BC-6 rev B	Infineon	48.16164.013 rev C	10/4/04	2.5	Yes	(128Mx4) *18	
+TRS	TRS21199	HYB25D512800BE-6 rev B	Infineon	M0529LA1 rev 1	11/11/04	2.5	Yes	(64M X 8)*18	
+Centon Electronics	TOP02-E150	K4H560438E-GCB3 rev E	Samsung	CPCB/00571 rev G	11/3/04	2.5	Yes	(64M X 4) *36	
+Buffalo	DD333L-R1G/SB	K4H510838B-TCB3 rev B	Samsung	1D188EF-AA	2/24/05	2.5	Yes	(64M X 8)*18	
+Buffalo	DD333L-R1G/MD	MT46V64M8TG(P)-6T rev D	Micron	1D188EF-AA	2/16/05	2.5	Yes	(64M X 8)*18	
+Ventura Technology Group	D54YFK44MV	MT46V128M4FN-6 rev D	Micron	DR1G472B	2/28/05	2.5	Yes	(128M x 4) *18	
+Legacy Electronics Inc.	89S6MDZR-1NDG	HYB25D512400BC-6 rev B	Infineon	LE18DDF1844R rev A	3/15/05	2.5	Yes	(128M x 4) *18	
+Smart Modular Technologies	SM12872RDDR6H2BG IC	HYB25D256400CC-6 rev C	Infineon	P54G184NE SZBRCD rev B	3/21/05	2.5	Yes	(64M X 4) *36	
+Ventura Technology Group	D54YFK44SV	K4H510438C-ZCB3 rev C	Samsung	DR1G472B	4/4/05	2.5	Yes	(128M x 4) *18	
+Legacy Electronics Inc.	89B6MDZR-1NDG	K4H510438C-ZCB3 rev C	Samsung	LE18DDF1844R rev A	1/27/06	2.5	Yes	(128M x 4) *18	
+Legend	L1272YC6-PPXSDD2E	K4H560438E-GCB3 rev E	Samsung	DR2G472Bna	2/6/06	2.5	Yes	(64M X 4) *36	

Modules shaded in blue are low profile.

Modules in bold text do not contain Lead.

(+) 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.

Server Blade SBXL52

Registered, ECC, DDR266 DIMM Modules 2GB Sizes (256Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
Samsung	M312L5628MT0-CB0	K4H1G0638M-TCB0	Samsung			2.5		(128M X4)*36	
Infineon	HYS72D256520GR-7-A		Infineon			2.0		(128M X4)*36	
Elpida	EBD21RD4ABNA-7B		Elpida			2.5		(128M X4)*36	
+TRS	TRS21155	HYB25D512400AT-7 rev A	Infineon	M0531LA1 rev 1	7/13/04	2	Yes	(128M X4)*36	
+Viking	VI4CR567224EYHL3	K4H510438B-TCB3 rev B	Samsung	03-0307 rev B	8/18/04	2.5	Yes	(128M X4)*36	
Samsung	M312L5628BT0-CB0	K4H1G0638B-TCB0	Samsung			2.5	Yes	(128Mx4)*36	
+Smart Modular Technologies	SX25672RDDR301LPIB	HYB25D512400BE-7 rev B	Infineon	P54G184NE SZKRCN rev A	2/7/05	2	Yes	(128Mx4)*36	
+TRS	TRS21218	HYB25D512400BE-7 rev B	Infineon	M0531LA1 rev 1	1/19/06	2	Yes	(128Mx4)*36	
+Smart Modular Technologies	SG25672RDDR3H1LPI C	HYB25D512400CE-6 rev C	Infineon	PG54G184 NESZKRCN rev A	2/24/06	2.5	Yes	(128Mx4)*36	

Registered, ECC, DDR333 DIMM Modules 2GB Sizes (256Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CAS Latency	Low Profile	DRAM Organization	EOL
+Legend	L2572YC6-PPXSDM5B	K4H510438B-TCB3 rev B	Samsung	18-21040B rev B	9/24/04	2.5	Yes	(128Mbx4)*36	
+TRS	TRS21208	K4H510438B-TCB3 rev B	Samsung	M0531LA1 rev 1	11/16/04	2.5	Yes	(128Mbx4)*36	
+Smart Modular Technologies	SM25672RDDR6H2BGB I	HYB25D512400BC-6 rev B	Infineon	184-25-2	2/14/05	2.5	Yes	(128Mbx4)*36	
+Smart Modular Technologies	SM25672RDDR6H2BGA I	HYB25D512400BC-6 rev B	Infineon	P54G184NE SZB1RF rev B	3/25/05	2.5	Yes	(128Mbx4)*36	
+Smart Modular Technologies	SG25672RDDR6H2BGS C	K4H510438C-ZCB3 rev C	Samsung	PG54G184 NESZB1RF rev A	6/3/05	2.5	Yes	(128Mbx4)*36	
+Legend	L2572YC6-PPXSMDMB	K4H510438B-TCB3 rev B	Samsung	18-21040B rev B (0403)	2/14/06	2.5	Yes	128M x 4	

Modules shaded in blue are low profile.

Modules in bold text do not contain Lead.

(+) 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.

Sales Information

Vendor Name	Web URL	Vendor Direct Sales Info
ATP Electronics	http://www.atpinc.com/	Albert Chung Tel: (1) 408-732-5831, Ext 5858 Fax: (1) 408-732-5055 sales@atpinc.com
ATP Electronics -- Taiwan Inc.	http://www.atpinc.com/	Patty Kuo Tel 011-886-2-2659-6368 Fax 886-2-2659-4982
Avant Technology	http://www.avanttechnology.com	Brad Scoggins Phone: (512)491-7411 Fax: (512)491-7412 brads@avanttechnology.com
Aved Memory Products	http://www.avedmemory.com/	
Buffalo Technology	http://www.buffalotech.com/	(800) 967-0959 memory@buffalotech.com
Centon Electronics	http://www.centon.com	Tel: 949-855-9111 Fax: 949-855-6035
Corsair	http://www.corsairmicro.com/	Tel: 510-657-8747 Fax: 510-657-8748
Dane-Elec	http://www.dane-memory.com/	Michal Hassan @ (949)450-2941 or email @ Michal@Dane-memory.com
Dataram	http://www.dataram.com/	Paul Henke, 800-328-2726 x2239 in USA phenke@dataram.com Peter Jauss, +49-69-680-9070 in EMEA pjauss@dataram.com
GoldenRAM	http://www.goldenram.com	Jason M. Barrette @ 800-222-861 x7546 jasonb@goldenram.com or Michael E. Meyer @800-222-8861 x7512 michaelm@goldenram.com
Hitachi	http://semiconductor.hitachi.com/pointer/	
Hyundai/Hynix Semiconductor	http://www.hea.com/	
Infineon	http://www.infineon.com/business/distribut/index.htm	
ITAUCOM	http://www.itauc.com.br	
JITCO CO LTD	http://www.jitco.net/	Seong Jeon Tel: 82-32-817-9740 s.jeon@jitco.net
Kingston	http://www.kingston.com	US.- Call (877) 435-8726 Asia – Call 886-3-564-1539 Europe – Call +44-1932-755205
Legacy Electronics Inc.	http://www.legacyelectronics.com	U.S. Contact: Gary Ridenour, 949-498-9600, Ext 350 European Contact: 49 89 370 664 11
Legend	http://www.legend.com.au	
Micron	http://silicon.micron.com/mktg/ http://silicon.micron.com/mktg/mbqual/qual_data.cfm	

Vendor Name	Web URL	Vendor Direct Sales Info
MSC Vertriebs GmbH	http://www.msc-ge.com	William Perrigo 49-7249-910-417 Fax: 49-7249-910-229 wpe@msc-ge.com
Netlist, Inc	http://www.netlistinc.com	Christopher Lopes 949.435.0025 tel 949.435.0031 fax sales@netlistinc.com
Silicon Tech	http://www.silicontech.com/contact/salescontacts.shtml	
Simple Tech	http://www.simpletech.com	Ron Darwish @ (949) 260-8230 or email @ Rdarwish@Simpletech.com
SMART Modular Technologies	http://www.smartm.com/channel	Gene Patino (949) 439-6167 Gene.Patino@Smartm.com
TechnoLinc Corporation	http://www.technolinc.com	David Curtis 510-445-7400 davidc@technolinc.com
TRS* Tele-Radio-Space GmbH	http://www.certified-memory.com http://www.certified-memory.de	Vendor Direct Sales Info: Andreas Gründl, Pho.: +49(0)89/94553234, Fax.: +49(0)89/94553293, agruendl@trs-space.de
Unigen	http://www.unigen.com	
Ventura Technology Inc	http://www.venturatech.com	Don Hummel @ 805-581-0800 x 108 or email @ don@venturatech.com
Viking InterWorks	http://www.vikinginterworks.com	
Virtium Technology Inc	http://www.virtium.com	Tod Skelton @ (949) 460-0020 ext. 146 or email @ tod.skelton@virtium.com
Legend	http://www.legend.com.au	Tel: 800-338-2361 Fax: 949-459-8577 orderdesk@vikingcomponents.com
Wintec Industries	http://www.wintecindustries.com	Tel 510-360-6300 Fax 510-770-9338

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 on the boxed processor baseBlade. 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® 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.

Product and corporate names listed in this document may be trademarks of their respective companies.