Intel® Server Board S5000PHB

Tested Memory Report

Revision 1.8

August 2008

Revision History

Date	Rev	Modifications
August 2006	0.5	Preliminary Release
December 2006	1.0	Updated with tested memory for the IP Network Server NSW1U
October 10, 2007	1.1	Updated list of tested memory for the IP Network Server NSW1U
October 15, 2007	1.2	Updated list of tested memory from CMTL update
November 06, 2007	1.3	Updated list from CMTL update. Added entries for 1 GB and 2 GB modules.
January 09, 2008	1.4	Updated list from CMTL update. Added entries for 512 MB and 4 GB modules
February 05, 2008	1.5	Updated list from CMTL update. Added entry for 4 GB module
March 04, 2008	1.6	Updated list from CMTL update. Added entries for 1 GB, 2 GB, and 4 GB modules
June 27, 2008	1.7	Updated list from CMTL update. Added entries for 512 MB, 1 GB, 2 GB, and 4 GB modules
August 19, 2008	1.8	Added entry for 8 GB module

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The Intel® Server Board S5000PHB 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.

* 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 Rank on the memory module. Mixing of dissimilar memory is NOT recommended.*

Table of Contents

1. Overview of Memory Testing

The following test processes are used to qualify Dual In-Line Memory Modules (DIMMs) for use with the Intel® Server Board S5000PHB. Memory is a vital subsystem in a server. Intel requires that strict guidelines be met before a DIMM vendor is added to the Tested Memory Report. To be included on the list as a fully supported DIMM, the memory must undergo rigorous tests to ensure that the product will perform the intended server product functions. Memory qualification for the Intel server products is performed both by Intel's Memory Validation Lab (MVL).

The Tested Memory Lists for Intel's server board products categorize memory modules as Advanced Tested. The Advanced Testing process includes a standard paper qualification and then is followed by two levels of functional testing. DIMMs that have completed memory testing are considered to be compatible with the product on which they were tested, and with the test software and operating systems thatwere used during the test process.

Note: Memory qualification for main memory is done by testing identical memory modules in all DIMM slots. Memory qualification does not include testing of mixed DIMM type and/or vendors. Mixing of DIMM types and/or vendors is not recommended.

1.1 Paper Qualification

A paper qualification is performed to verify that the specifications of a given DIMM meet Intel's memory specifications for a given product. Specification criteria reviewed include: critical timings, electrical characteristics, timing requirements, environmental requirements, and packaging requirements.

1.2 Functional Testing

After a given DIMM passes the standard paper qualification, functionality of the DIMM is then tested with the intended Intel product. Two levels of functional testing are performed; Standard and Advanced.

Standard functional testing requires that the given DIMM and Intel product combination operate with no failures for a period of no less than 6 hours for both minimum and maximum DIMM configurations. Testing is performed using a Microsoft Windows* operating system and a custom test package. The test systems operate with standard voltage and at room temperature.

1.3 Advanced Functional Testing

Advanced functional testing requires that the given DIMM and Intel product combination operate with no failures for a period of no less than 6 hours for both minimum and maximum DIMM configurations. Testing is performed with multiple operating systems and various custom test packages. Each test configuration is tested with high and low voltage and temperature margin conditions.

1.4 Computer Memory Test Lab*

Computer Memory Test Lab, also known as “CMTL*” is a leading memory test organization responsible for testing a broad range of memory products. A memory productthat receives a “PASS” after being tested by CMTL means it functions correctly and consumers can use the product 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 Intel-supplied equipment and procedures defined by Intel’s various functional testing levels.

CMTL* Contact Information:

Office: (949) 716-8690
Main Fax: (949) 716-8691

Computer Memory Test Lab (CMTL)
24 Hammond Suite F
Irvine, CA 92618
http://www.cmtlabs.com/

2. S5000PHB Memory Subsystem

The Intel® Server Board S5000PHB main memory subsystem is designed to support Fully Buffered Dual In-line (FBD) Registered DDR2-533 and DDR2-667 FBDIMM memory ECC Synchronous Dynamic Random Access Memory (SDRAM). Other industry naming conventions for DDR2-533 include PC2-4200 and for DDR2-667 include PC2-5300.

The maximum main memory capacity supported is based on the number of DIMM slots provided and maximum supported memory loads by the chipset. On the Intel® Server Board S5000PHB the maximum supported capacity is 24 GB; the minimum supported capacity is 512 MB with one single 512 MB DIMM.

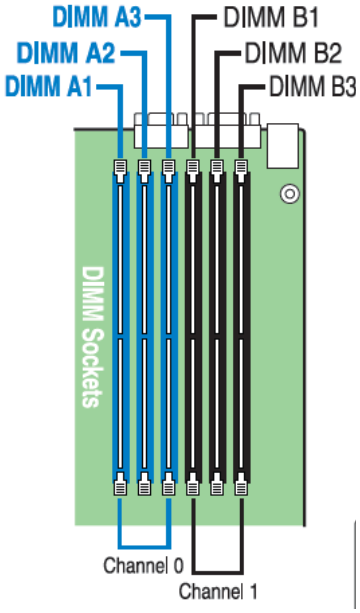
Supported FBDIMM capacities for main memory include: 512 MB, 1 GB, 2 GB, and 4 GB.

2.1 Main Memory Population

The Intel® Server Board S5000PHB has six DIMM slots grouped into two channels for main memory. DIMMs within each bank should be identical (same manufacturer, CAS latency, number of rows, columns and devices, timing parameters etc.). Although DIMMs within a bank must be identical, the BIOS supports various DIMM sizes and configurations, which allows memory between banks to be different. Memory sizing and configuration are guaranteed only for qualified DIMMs approved by Intel.

DIMM population rules depend on the operating mode of the memory controller, which is determined by the number of DIMMs installed. DIMMs must be populated in pairs. DIMM pairs are populated in the following DIMM slot order: A1 and B1, A2 and B2, A3 and B3. DIMMs within a given pair must be identical with respect to size, speed, and organization. However, DIMM capacities can be different between different DIMM pairs.

For example, a valid mixed DIMM configuration may have 512 MB DIMMs installed in DIMM Slots A1 and B1, and 1 GB DIMMs installed in DIMM slots A2 and B2.



2.1.1 Memory Subsystem

The MCH masters two fully buffered DIMM (FBD) memory channels. FBD memory utilizes a narrow high-speed frame-oriented interface referred to as a channel. On the server board, the two channels are routed to six DIMM slots and are capable of supporting registered DDR2-533 and DDR2-667 FBDIMM memory.

Note: Only fully buffered DDR2 DIMMs are supported on this server board.

The following table lists the current supported memory types.

FBDIMM-533 CL4 & FBDIMM-667 CL5 Memory Matrix						
DIMM Capacity	**DIMM Organization**	**SDRAM Density**	**SDRAM Organization**	**# SDRAM Devices**	**# Address bits Row/Bank/Column**	**# of Ranks**
512MB	64M x72	512Mbit	64M x 8	9	14/10/2	1
1GB	128M x 72	512Mbit	64M x 8	18	14/10/2	2
1GB	128M x 72	512Mbit	128M x 4	18	14/11/2	1
1GB	128M x 72	512Mbit	128M x 8	9	14/10/3	1
2GB	256M x72	512Mbit	128M x 4	36	14/11/2	2
2GB	256M x72	1Gbit	256M x 4	18	14/11/3	1
2GB	256M x72	1Gbit	128M x 8	18	14/10/3	2
4GB	512M x72	1Gbit	256M x 4	36	14/11/3	2
4GB	512M x 72	2Gbit	512M x 4	18	13/11/2	2

3. S5000PHB Main Memory Tested on the IP Network Server NSW1U

The following tables list DIMM devices tested as compatible with the Intel® Server Board S5000PHB on the IP Network Server NSW1U. The list of tested memory is periodically updated when qualified memory is added during the production life of the Intel product.

Intel strongly recommends the use of ECC memory in all server products.

Memory modules not listed in the following tables have not been tested for compatibility and their use with the Intel® Server Board S5000PHB may result in unpredictable operation and data loss.

Caution: Third party memory vendors may use the same module part number with different DRAM vendors and die revisions. To ensure 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. This list is subject to change without notice.

Note: This list is not intended to 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.

Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
512 MB Sizes (64Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Dataram	DTM65506C	HY5PS12821CFP-Y5 rev C	Hynix	40053A rev B	Intel	D1	Foxconn	64M x 8		25-Apr-07
ATP Electronics	AP64K72A8BHE6S	K4T51083QE-ZCE6 rev E	Samsung	D2F18A na	NEC	B5	Foxconn	64M x 8		07-May-07
Kingston	KVR667D2S8F5/512I	NT5TU64M8BE-3C rev B	Nanya	2025285-002.A00 na	Intel	D1	Foxconn	64M x 8		25-May-07
Kingston	KVR667D2S8F5/512I	E5108AGBG-6E-E rev G	Elpida	2025285-002.A00 na	Intel	D1	Foxconn	64M x 8		25-Jun-07
Smart Modular Technologies	SG647FBD64852IBD5	HYB18T512800BF-3S rev B	Qimonda	PG54G240NFBUB4RAS rev A	IDT	A1.5	Foxconn	64M x 8		08-Aug-07
Smart Modular Technologies	SG647FBD64852-SEI	K4T51083QE-ZCE6 rev E	Samsung	M395T6553EZ0 na	Intel	D1	Samsung	64M x 8		04-Dec-07
Dataram	DTM65506F	HYB18T512800B2F-3S rev B2	Qimonda	40053A rev B	IDT	C1	Foxconn	64M x 8		04-Mar-08
Micron	MT9HTF6472FY-667D5D4	MT47H64M8B6-3:D	Micron	0499D	IDT	C1	FMHS	64M x 8		27-Mar-2008
Crucial Technology	CT6472AF667.9FD5D4	MT47H64M8B6-3:D	Micron	0499D	IDT	C1	FMHS	64M x 8		27-Mar-2008
Micron	MT9HTF6472FY-667D5N6	MT47H64M8B6-3:D	Micron	0499C	NEC	B5+	FMHS	64M x 8		31-Mar-2008
Crucial Technology	CT6472AF667.9FD5N6	MT47H64M8B6-3:D	Micron	0499C	NEC	B5+	FMHS	64M x 8		31-Mar-2008
Micron	MT9HTF6472FY-667D5E4	MT47H64M8B6-3:D	Micron	0499D	Intel	D1	FMHS	64M x 8		03-Apr-2008
Crucial Technology	CT6472AF667.9FD5E4	MT47H64M8B6-3:D	Micron	0499D	Intel	D1	FMHS	64M x 8		03-Apr-2008

Note: Rows highlighted in gray are for modules added since the previous publication of the list

Note: Some memory modules may have thermal issues when used in a non-Intel 1U rack solution. Verifying any thermal limitations with your chassis supplier before purchasing a chassis is advised.

Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
1 GB Sizes (128Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Dataram	DTM65507D	HYB18T512800BF3S rev B	Qimonda	40053A rev B	Intel	D1	Foxconn	64M x 8		19-Apr-07
Micron	MT18HTF12872FDY-667D6E4	MT47H64M8-3	Micron		Intel	GB-D1	FDHS	64M x 8		29-Jan-07
Smart Modular Technologies	SG1287FBD64852-HB	HY5PS12821CFP-Y5 rev C	Hynix	KS-11 (0646-3F)	IDT	A1.5	Hynix	64M x 8		23-Apr-07
Smart Modular Technologies	SG1287FBD64852IBD5	HYB18T512800BF3S rev B	Qimonda	PG58G240NFBUB4RBS rev A	IDT	A1.5	Foxconn	64M x 8		09-May-07
Dataram	DTM65507C	HY5PS12821CFP-Y5 rev C	Hynix	40053A rev B	Intel	D1	Foxconn	64M x 8		17-May-07
Kingston	KVR667D2D8F5/1GI	NT5TU64M8BE-3C rev B	Nanya	2025286-002.A00 na	Intel	D1	Foxconn	64M x 8		06-Jun-07
ATP Electronics	AP28K72S8BHE6S	K4T51083QE-ZCE6 rev E	Samsung	SP240S08K1 na	NEC	B5	Foxconn	64M x 8		19-Jun-07
Kingston	KVR667D2D8F5/1GI	E5108AGBG-6E-E rev G	Elpida	2025286-002.A00 na	Intel	D1	Foxconn	64M x 8		27-Jun-07
Ventura Technology Group	D2-54VD80SIV-555	K4T51083QE-ZCE6 rev E	Samsung	D2F28B na	IDT	A1.5	AVC	64M x 8		23-Jul-07
Smart Modular Technologies	SG1287FBD64852-SEI	K4T510830QE-ZCE6 rev E	Samsung	M395T2953EZ0 na	IDT	C1	Foxconn	64M x 8		12-Sep-07
Kingston	KVR667D2D8F5/1GI	HYB18T512800BF-3S rev B	Qimonda	2025286-002.A00 na	Intel	D1	Foxconn	64M x 8		05-Oct-07
Kingston	KVR667D2D8F5/1GI	HYB18T512800BF-3S rev B	Qimonda	2025286-002.A00 na	Intel	D1	Foxconn	64M x 8		05-Oct-07
Avant Technology	AVF7228B52E5667F0-ELHP	EDE5108AHSE-6E-E rev H	Elpida	50-1451-01-A rev A	Qimonda	C1	Foxconn	64M x 8		09-Oct-07
Smart Modular Technologies	SG1287FBD64852SEC1	K4T51083QE-ZCE6 rev E	Samsung	PG58G240NFBUB4RBS rev A	IDT	C1	Foxconn	64M x 8		15-Oct-07
Smart Modular Technologies	SG1287FBD64852IBDC	HYB18T512800BF3S rev B	Qimonda	PG58G240NFBUB4RBS rev A	IDT	C1	Foxconn	64M x 8		25-Oct-07
Micron	MT18HTF12872FDY-667D6E4	MT47H64M8B6-3:D	Micron	0500E	Intel	D1	FMHS	64M x 8		04-Mar-08
Micron	MT18HTF12872FDY-667D6N6	MT47H64M8B6-3:D	Micron	0500E	NEC	B5+	FMHS	64M x 8		04-Mar-08
Micron	MT9HTF12872FY-667E1D4	MT47H128M8HQ-3:E	Micron	0499D	IDT	C1	FMHS	128M x 8		04-Mar-08
Micron	MT9HTF12872FY-667E1N8	MT47H128M8HQ-3:E	Micron	0499D	NEC	D1-667	FMHS	128M x 8		04-Mar-08
Crucial Technology	CT12872AF667.18FD6E4	MT47H64M8B6-3:D	Micron	0500E	Intel	D1	FMHS	64M x 8		04-Mar-08
Crucial Technology	CT12872AF667.18FD6N6	MT47H64M8B6-3:D	Micron	0500E	NEC	B5+	FMHS	64M x 8		04-Mar-08
Crucial Technology	CT12872AF667.9FE1D4	MT47H128M8HQ-3:E	Micron	0499D	IDT	C1	FMHS	128M x 8		04-Mar-08
Crucial Technology	CT12872AF667.9FE1N8	MT47H128M8HQ-3:E	Micron	0499D	NEC	D1-667	FMHS	128M x 8		04-Mar-08

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Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
1 GB Sizes (128Mx72)
[Continued]

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Dataram	DTM65507G	HYB18T512800B2F3S rev B2	Qimonda	40053A rev B	IDT	C1	Foxconn	64M x 8		06-Mar-08
Micron	MT9HTF12872FY-667E1N6	MT47H128M8HQ-3:E	Micron	0499D	NEC	B5+	FMHS	128M x 8		09-May-08
Crucial Technology	CT12872AF667.9FE1N6	MT47H128M8HQ-3:E	Micron	0499D	NEC	B5+	FMHS	128M x 8		09-May-08
Micron	MT18HTF12872FY-667D6D4	MT47H128M4B6-3:D	Micron	0501F	IDT	C1-667	FMHS	128M x 4		09-May-08
Crucial Technology	CT12872AF667.18F4D6D4	MT47H128M4B6-3:D	Micron	0501F	IDT	C1-667	FMHS	128M x 4		09-May-08
Avant Technology	AVF7228B52E5667F1ELJP-IS	EDE5108AJBG-8E-E rev J	Elpida	D2F28B rev B	IDT	C1	Foxconn	64M x 8		30-May-08
Avant Technology	AVF7228B52E5667F1NYBP-IS	NT5TU64M8BE-25C rev B	Nanya	D2F28B rev B	IDT	C1	Foxconn	64M x 8		09-Jun-08

Note: Rows highlighted in gray are for modules added since the previous publication of the list

Note: Some memory modules may have thermal issues when used in a non-Intel 1U rack solution. Verifying any thermal limitations with your chassis supplier before purchasing a chassis is advised.

Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
2 GB Sizes (256Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Smart Modular Technologies	SG2567FBD28452-SCD	K4T51043QC-ZCE6 rev C	Samsung	M395T5750-CZ0 na	IDT	A1.5	Samsung	128M x 4		27-Apr-07
Dataram	DTM65508D	HYB18T512400BF3S rev B	Qimonda	40060A rev A	Intel	D1	Foxconn	128M x 4		14-May-07
Ventura Technology Group	D2-56VF82SIV-555	K4T51043QC-ZCE6 rev C	Samsung	D2F24E na	IDT	A1.5	AVC	128M x 4		23-May-07
Dataram	DTM65508E	HY5PS12421CFP-Y5 rev C	Hynix	40060A rev A	Intel	D1	Foxconn	128M x 4		01-Jun-07
Kingston	KVR667D2D8F5/2GI	MT47H128M8HQ-3 rev E	Micron	2025286-002.A00 na	Intel	D1	Foxconn	128M x 8		14-Jun-07
ATP Electronics	AP56K72G4BHE6S	K4T51043QE-ZCE6 rev E	Samsung	SP240G04K1 na	NEC	B5	Foxconn	128M x 4		29-Jun-07
Legacy Electronics Inc.	M527NAE90BE-30R	MT47H128M8HQ-3 rev E	Micron	D2F28B rev B	IDT	A1.5	AVC	128M x 8		05-Jul-07
Apacer	75.A72AI.G00	K4T51043QE-ZCE6 rev E	Samsung	48.1A205.011 rev 1	Intel	D1	AVC	128M x 4		06-Jul-07
Legacy Electronics Inc.	B527M4C90EE-30R	K4T51043QC-ZCE6 rev C	Samsung	D2F24E_A rev A	IDT	A1.5	AVC	128M x 4		10-Jul-07
Smart Modular Technologies	SG2567FBD28452IBD5	HYB18T512400BF3S rev B	Qimonda	PG54G240NFSUB1RES rev C	IDT	A1.5	Foxconn	128M x 4		23-Jul-07
Kingston	KVR667D2D4F5/2GI	HYB18T512400BF3S rev B	Qimonda	2025372-002.A00 na	Intel	D1	Foxconn	128M x 4		28-Sep-07
Smart Modular Technologies	SG2567FBD28452IBDC	HYB18T512400BF3S rev B	Qimonda	PG54G240NFSUB1RES rev C	IDT	C1	Foxconn	128M x 4		01-Oct-07
Kingston	KVR667D2D4F5/2GI	NT5TU128M4BE-3C rev B	Nanya	2025378-001.A00 na	Intel	D1	Foxconn	128M x 4		03-Oct-07
Smart Modular Technologies	SG2567FBD28452-IBQ	HYB18T512405BF3S rev B	Qimonda	0712 (240-25-4)	Qimonda	C1	Logitex	128M x 4		19-Oct-07
Kingston	KVR667D2D8F5/2GI	E1108ACBG-6E-E rev C	Elpida	2025286-002.A00 na	Intel	D1	Foxconn	128M x 8	2	15-Feb-08
Micron	MT18HTF25672FDY-667E1D4	MT47H128M8HQ-3:E	Micron	0500E	IDT	C1	FMHS	128M x 8		04-Mar-08
Micron	MT36HTF25672FY-667D1D4	MT47H128M4B6-3:D	Micron	0561A	IDT	C1	FMHS	128M x 8		04-Mar-08
Micron	MT18HTF25672FY-667E1D4	MT47H256M4HQ-3:E	Micron	0501F	IDT	C1	FMHS	256M x 4		04-Mar-08
Crucial Technology	CT25672AF667.18FE1D4	MT47H128M8HQ-3:E	Micron	0500E	IDT	C1	FMHS	128M x 8		04-Mar-08
Crucial Technology	CT25672AF667.36FD1D4	MT47H128M4B6-3:D	Micron	0561A	IDT	C1	FMHS	128M x 8		04-Mar-08

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Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
2 GB Sizes (256Mx72)
[Continued]

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Dataram	DTM65508F	HYB18T512400B2F3S rev B2	Qimonda	40084A rev A	IDT	C1	Foxconn	128M x 4		11-Mar-08
ATP Electronics	AP56K72S8BJE6S	K4T1G084QQ-HCE6 rev Q	Samsung	D2F28B rev B	NEC	D1	Foxconn	128M x 8		17-Apr-08
Micron	MT18HTF25672FDY-667E2D6	MT47H128M8HQ-3:E	Micron	0658A	IDT	L4-667	FMHS	128M x 8		29-Apr-08
Crucial Technology	CT25672AF667.18FE2D6	MT47H128M8HQ-3:E	Micron	0658A	IDT	L4-667	FMHS	128M x 8		29-Apr-08
Micron	MT18HTF25672FDY-667E1N8	MT47H128M8HQ-3:E	Micron	0500E	NEC	D1-667	FMHS	128M x 8		30-Apr-08
Crucial Technology	CT25672AF667.18FE1N8	MT47H128M8HQ-3:E	Micron	0500E	NEC	D1-667	FMHS	128M x 8		30-Apr-08
Kingston	KVR667D2D8F5/2Gi	HY5PS1G831CFP-Y5 rev C	Hynix	2025286-002.A00 na	Intel	D1	Foxconn	128M x 8		07-May-08
Kingston	KVR667D2D4F5/2GI	HYB18T512400B2F25F rev B2	Qimonda	2025378-001.A00	INTEL	D1	Foxconn	128M x 4		11-Jun-08
Avant Technology	AVF7256B61E5667F1ELCP-IS	EDE1108ACBG-8E-E rev C	Elpida	D2F28B rev B	IDT	C1	Foxconn	128M x 8		13-Jun-08

Note: Rows highlighted in gray are for modules added since the previous publication of the list

Note: Some memory modules may have thermal issues when used in a non-Intel 1U rack solution. Verifying any thermal limitations with your chassis supplier before purchasing a chassis is advised.

Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
4 GB Sizes (512Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Legacy Electronics Inc.	M547RAE90EE-30R	MT47H256M4HQ-3 rev E	Micron	D2F24E rev E	IDT	A1.5	AVC	256M x 4		15-May-07
ATP Electronics	AP12K72G4BJE6M	MT47H256M4HQ-3 rev E	Micron	SP240G04K1 na	NEC	B5	Foxconn	256M x 4		21-May-07
Kingston	KVR667D2D4F5/4GI	E1108ABSH-E rev B	Elpida	0646 na	IDT	A1.5	Foxconn	256M x 4		21-Jun-07
Smart Modular Technologies	SG5127FBD225652MEC	MT47H256M4HQ-3 rev E	Micron	PG54G240NFSUB2RES rev A	IDT	C1	Foxconn	256M x 4		23-Jul-07
Apacer	78.BHGA8.421	E1104ACSE-6E-E rev C	Elpida	48.1A205.011 rev 1	IDT	C1	AVC	256M x 4		01-Aug-07
Smart Modular Technologies	SG5127FBD225652-SC	K4T1G044QC-ZCE6 rev C	Samsung	M395T5750EZ0 na	IDT	A1.5	Samsung	256M x 4		22-Aug-07
Smart Modular Technologies	SG5127FBD225652SCD	K4T1G044QC-ZCE6 rev C	Samsung	M395T5750EZ0 na	IDT	C1	Samsung	256M x 4		24-Aug-07
ATP Electronics	AP12K72G4BJE6S	K4T1G044QC-ZCE6 rev C	Samsung	D2F24E na	NEC	D1	Foxconn	256M x 4		19-Dec-07
Dataram	DTM65510C	HY5PS1G431CFP-Y5 rev C	Hynix	40084A rev A	IDT	C1	Foxconn	256M x 4		08-Jan-08
Micron	MT36HTF51272FY-667E1D4	MT47H256M4HQ-3:E	Micron	0589A	IDT	C1	FMHS	256M x 4		04-Mar-08
Crucial Technology	CT51272AF667.36FE1D4	MT47H256M4HQ-3:E	Micron	0589A	IDT	C1	FMHS	256M x 4		04-Mar-08
ATP Electronics	AP12K72G4BJE6S	K4T1G044QQ-HCE6 rev Q	Samsung	D2F24E rev E	NEC	D1	Foxconn	256M x 4		18-Mar-08
Kingston	KVR667D2D4F5/4Gi	E1104ACSE-6E-E rev C	Elpida	2025378-001.A00	Intel	D1	Foxconn	256M x 4		04-Apr-08
Avant Technology	AVF7251B62E5667F4ELCP-IS	EDE1104ACSE-8E-E rev C	Elpida	BA2FRCU 3.10 rev 3.10	IDT	C1	Foxconn	256M x 4		04-Jun-08

Note: Rows highlighted in gray are for modules added since the previous publication of the list

Note: Some memory modules may have thermal issues when used in a non-Intel 1U rack solution. It is advised that you verify any thermal limitations with your chassis supplier before purchasing a chassis.

Intel® Server Board S5000PHB
Fully Buffered ECC, DDR2-667, CAS Latency 5, Lead Free DIMM Modules
8 GB Sizes (1024M x 72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	AMB Vendor	AMB Revision	Heat-sink Vendor	DRAM Organization	Rank	Date
Micron	MT36HTS1G72FY-667A1D4	MT47H1G4THM-3:A	Micron	0467E	IDT	C1-667	FMHS	(1Gbx4)*18		15-May-08
Crucial Technology	CT102472AF667.36DA1D4	MT47H1G4THM-3:A	Micron	0467E	IDT	C1-667	FMHS	(1Gbx4)*18		15-May-08

Note: Rows highlighted in gray are for modules added since the previous publication of the list

Note: Some memory modules may have thermal issues when used in a non-Intel 1U rack solution. It is advised that you verify any thermal limitations with your chassis supplier before purchasing a chassis.

4. Intel® Carrier Grade Server TIGW1U SAS Front Panel Board Intel® RAID Cache Tested Memory

The following tables list Mini-DIMM devices tested to be compatible with the Intel® Carrier Grade Server TIGW1U SAS Front Panel board. The list of tested memory is periodically updated as qualified memory is added during the production life of the Intel product.

Intel strongly recommends the use of ECC memory in all server products.

Memory modules not listed in the following tables have not been tested for compatibility and their use as RAID cache in the SAS Front Panel Board subsystem with the Intel Carrier Grade Server TIGW1U may result in unpredictable operation and data loss.

Mini-DIMMs used with the SAS Front Panel Board should be a single rank device (with at maximum nine x8 devices) due to the Intel® RAID Smart Battery (RSB) retention time requirements.

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. This list is subject to change without notice.

Note: This list is not intended to 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.

TIGW1U SAS Front Panel Board RAID Cache Registered ECC DDR Mini-DIMM Modules 128 MB Sizes

Manufacturer	Part Number	Performance	Rank	DRAM Organization	# of Compo-nents	Row/Bank/ Column	Bank Address
Micron	MT5HTF1672KY-40EB2	DDR2-400	1	32Mx16 (512Mb)	5	13/2/10	BA0-BA1
Smart Modular Technologies	SG572163FG8RWDG	DDR2-533	1	16Mx16 (256Mb)	5	13/2/9	BA0-BA1

TIGW1U SAS Front Panel Board RAID Cache Registered ECC DDR Mini-DIMM Modules 256 MB Sizes

Manufacturer	Part Number	Performance	Rank	DRAM Organization	# of Compo-nents	Row/Bank/ Column	Bank Address
Micron	MT5HTF3272KY-40ED1	DDR2-400	1	32Mx16 (512Mb)	5	13/2/10	BA0-BA1
Smart Modular Technologies	SG572328FG8RWDB	DDR2-400	1	32Mx8 (256Mb)	9	13/2/10	BA0-BA1

TIGW1U SAS Front Panel Board RAID Cache Registered ECC DDR Mini-DIMM Modules 512 MB Sizes

Manufacturer	Part Number	Performance	Rank	DRAM Organization	# of Compo-nents	Row/Bank/ Column	Bank Address
Smart Modular Technologies	SG572648FG8RZDB	DDR2-400	1	64Mx8 (512Mb)	9	14/2/10	BA0-BA1
Micron	MT9HVF6472PKY-53ED4	DDR2-533	1	64Mx8 (512Mb)	9	14/2/10	BA0-BA1
Micron	MT9HTF6472PKY-53ED3	DDR2-533	1	64Mx16 (1Gb)	5	14/2/10	BA0-BA1

5. 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 Qualification 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 Rank 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 the Intel® Server RAID Controller. 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 Intel® Server RAID Controller. 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 RAID Controller 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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