Intel® Compute Module MFS5000SI
Tested Memory Report

Notice: *This document will be discontinued in March 2009.*

Please refer to the Sever Configuration tool for a complete list of tested hard drives at:
http://serverconfigurator.intel.com/default.aspx

Revision 16.0

February 2009

Revision History

Date	Rev	Modifications
November 2007	1.0	Initial Release.
January 2008	2.0	Additional modules added (in shaded area).
March 2008	3.0	Additional modules added (in shaded area).
April 2008	4.0	Additional modules added (in shaded area).
April 2008	5.0	Additional modules added (in shaded area).
May 2008	6.0	Additional modules added (in shaded area).
May 2008	7.0	Additional modules added (in shaded area).
June 2008	8.0	Additional modules added (in shaded area).
June 2008	9.0	Additional modules added (in shaded area).
July 2008	10.0	Additional modules added (in shaded area). Update contact information for MSC Vertriebs GmbH
Aug 2008	11.0	Additional modules added (in shaded area).
Oct 2008	12.0	Additional modules added (in shaded area).
Nov 2008	13.0	Additional modules added (in shaded area).
Dec 2008	14.0	Additional modules added (in shaded area).
Feb 2009	15.0	Additional modules added (in shaded area).
Feb 2009	16.0	Additional modules added (in shaded area). **Note:** Supported adapters, peripherals, hard drives and memory have been added for each Intel® Server product in the Server Configurator Tool. This document will be discontinued in March 2009. Please refer to the Sever Configuration tool for a complete list of tested memory at: http://serverconfigurator.intel.com/default.aspx

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The Intel® Compute Module MFS5000SI 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® Compute Module MFS5000SI used in the Intel® Modular Server System MFSYS25. 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 Intel server, workstation and RAID contoller products is performed both by Intel's Memory Validation Lab (MVL) and by an independent external test lab, Computer Memory Test Lab* (CMTL).

The Tested Memory Lists for Intel's server board, workstation board, and RAID controller 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 and passed Advanced Testing are considered to be compatible with the product on which they were tested, and with the test software and operating systems that was 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 type 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 is 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 24 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 prodcut combination operate with no failures for a period of no less than 24 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 various 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 product, which 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. Intel® Compute Module MFS5000SI Memory Sub-system

The Intel® Compute Module MFS5000SI supports Fully Buffered Dual In-line (FBD) Registered DDR2-533 CAS Latency CL4 and DDR2-667 CAS Latency CL5 FBDIMM memory ECC Synchronous Dynamic Random Access Memory (SDRAM). Other industry naming conventions for DDR2-533 includes PC2-4200, and DDR2-667 includes PC2-5300.

The maximum memory capacity supported on the Intel® Compute Module MFS5000SI is 32 GB, using eight sticks of 4 GB FBDIMMs.

The following memory features and sizes are supported:

- FBD-DDR2-533 and FBD-DDR2-667 in compliance with the standard FBD-DDR2 JEDEC DIMM Specification.
- Use only DDR-667 stacked FB-DIMM modules.
- 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 32 GB using eight 4 GB DIMMs.

2.1 Population Rules for Memory Boards

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. For performance reasons DIMM pairs should be populated in the following DIMM slot order: A1 & B1, C1 & D1, A2 & B2, C2 & D2. 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 & B1, and 1 GB DIMMs installed in DIMM slots C1 & D1.

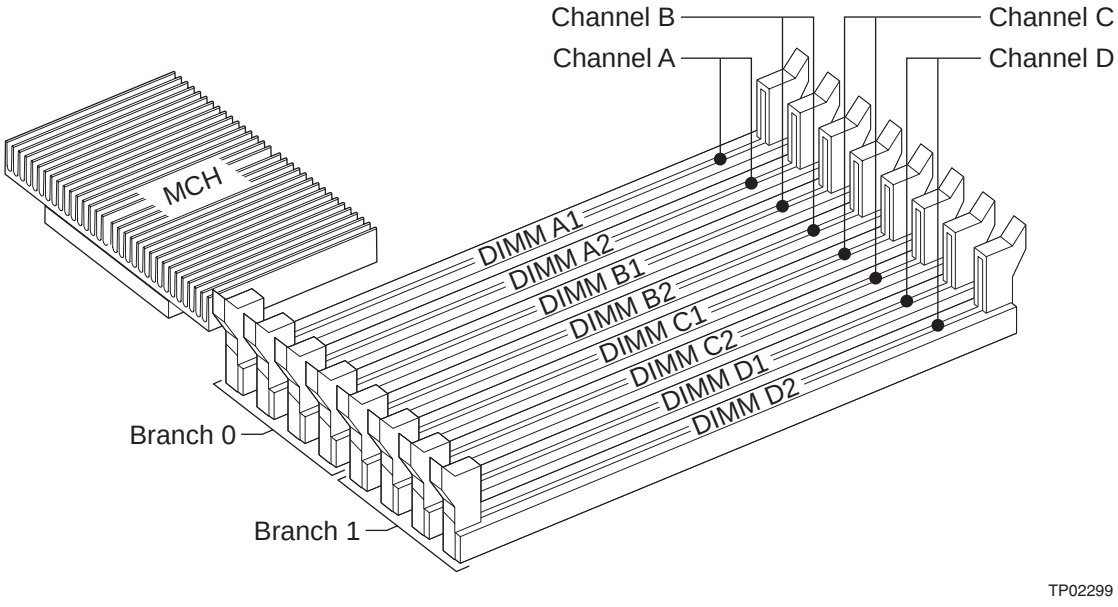

Figure 1. Memory Layout

When operating in mirrored mode, both branches operate in lock step. In mirrored mode, branch 1 contains a replicate copy of the data in branch 0. The minimum DIMM configuration to support memory mirroring is four DIMMs, populated as shown in **Figure 2**. All four DIMMs must be identical with respect to size, speed, and organization.

To upgrade a four-DIMM mirrored memory configuration, four additional DIMMs must be added to the system. All four DIMMs in the second set must be identical to the first with the exception of speed. The MCH will adjust to the lowest speed DIMM.

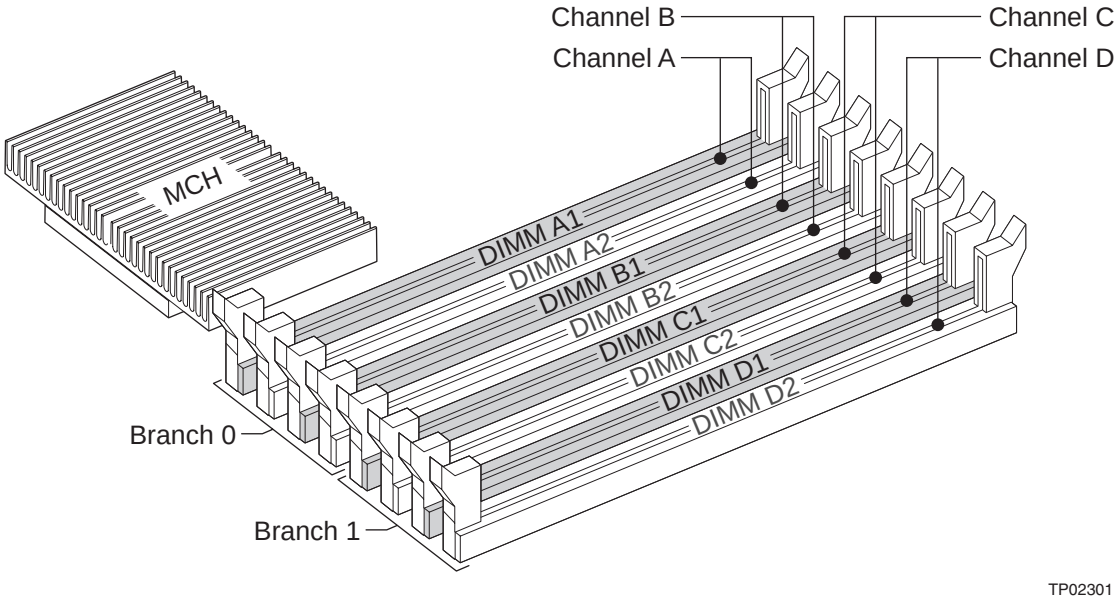

Figure 2. Recommended Four-DIMM Configuration

The MCH provides DIMM sparing capabilities. Sparing is a RAS feature that involves configuring a DIMM to be placed in reserve so it can be use to replace a DIMM that fails. DIMM sparing occurs within a given bank of memory and is not supported across branches. Memory mirroring and memory sparing are mutually exclusive. Only one can be active at a time. See the *Intel® Compute Module MFS5000SI Technical Product Specification* for additional information regarding the memory sub-system.

2.1.1 Supported Memory Types

The following table lists the current supported memory types.

Note: DDR2 DIMMs that are not fully buffered are NOT supported in this server system. Note that although architecturally supported, DDR2-533 memory is not planned to be validated on this product.

FBDIMM-667 CL5 Memory Matrix						
DIMM Capacity	**DIMM Organization**	**SDRAM Density**	**SDRAM Organization**	**# SDRAM Devices**	**# Address bits Rows/Columns/Banks**	**Ranks**
512 MB	64M x72	512Mbit	64M x 8	9	14/10/2	1
1 GB	128M x 72	512Mbit	64M x 8	18	14/10/2	2
1 GB	128M x 72	512Mbit	64M x 8	18	13/11/2	2
1 GB	128M x 72	1Gbit	128M x 8	9	14/11/3	1
2 GB	256M x 72	512Mbit	128M x 4	36	14/11/2	2
2 GB	256M x 72	1Gbit	128M x 8	18	14/10/3	2
4 GB	512M x 72	1Gbit	256M x 4	36	14/11/2	2
4 GB	512M x 72	2Gbit stacked	2x256M x 4	36	14/11/2	2

3. Intel® Compute Module MFS5000SI Tested Memory

The following tables list DIMM devices tested to be compatible with the Intel® Compute Module MFS5000SI . 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 with the Intel® Compute Module MFS5000SI 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 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.

Intel® Compute Module MFS5000SI

Fully Buffered ECC, DDR2-667 DIMM Modules

512 MB Sizes (64Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Samsung	M395T6553EZ4-CE65	K4T51083QE-ZCE6	Samsung	Intel	GB D1		1	11/07
Micron	MT9HTF6472FY-667D5D4	MT47H64M8B6-3	Micron	IDT	C1		1	11/07
Dataram	DTM65506F	HYB18T512800B2F-3S rev B2	Qimonda	IDT	C1	Foxconn	1	2/29/08
Kingston	KVR667D2S8F5/512I	E5108AGBG-6E-E	Elpida	Intel	GB D1	FDHS	1	5/15/08
Kingston	KVR667D2S8F5/512I	NT5TU64M8BE-3C	Nanya	Intel	GB D1	FDHS	1	4/1/08
Micron	MT9HTF6472FY-667D5E4	MT47H64M8B6-3:D	Micron	Intel	GB D1	FDHS	1	5/2/08
Micron	MT9HTF6472FY-667D5N6	MT47H64M8B6-3:D	Micron	NEC	B5+	FDHS	1	5/10/08
Crucial	CT6472AF667.9FD5E4	MT47H64M8B6-3:D	Micron	Intel	GB D1	FDHS	1	5/21/08
Crucial	CT6472AF667.9FD5N6	MT47H64M8B6-3:D	Micron	NEC	B5+	FDHS	1	5/21/08
Crucial	CT6472AF667.9FD5D4	MT47H64M8B6-3:D	Micron	IDT	C1	FDHS	1	5/21/08
Hynix	HYMP564F72CP8N3-Y5	HY5PS12821CFP-Y5	Hynix	Intel	GB D1	FDHS	1	5/12/08
Hynix	HYMP564F72CP8D3-Y5	HY5PS12821CFP-Y5	Hynix	IDT	C1	FDHS	1	5/2/08

(+) This vendor is part of the CMTL Certification program. This means this part has been/will be tested across all compatible Intel® Server Boards. 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.*

Intel® Compute Module MFS5000SI

Fully Buffered ECC, DDR2-677 DIMM Modules

1 GB Sizes (128Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-Sink Vendor	Rank	Date
Samsung	M395T2953EZ4-CE66	K4T51083QE-ZCE6	Samsung	IDT	C1		2	11/07
Hynix	HYMP512F72CP8D3-Y5	HY5PS12821CFP-Y5	Hynix	IDT	C1		1	1/17/08
Hynix	HYMP512F72CP8N3-Y5	HY5PS12821CFP-Y5	Hynix	Intel	GB D1		2	1/17/08
Smart Modular Technologies	SG1287FBD64852-SEI	K4T510830QE-ZCE6 rev E	Samsung	IDT	C1	Foxconn	2	2/12/08
Dataram	DTM65507G	HYB18T512800B2F3S rev B2	Qimonda	IDT	C1	Foxconn	2	3/4/08
Micron	MT9HTF12872FY-667E1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	1	3/8/08
Crucial	CT12872AF667.9FE1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	1	3/8/08
Micron	MT9HTF12872FY-667E1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	1	3/12/08
Crucial	CT12872AF667.9FE1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	1	3/12/08
Hynix	HYMP112F72CP8D3-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	C1	FDHS	1	4/26/08
Hynix	HYMP112F72CP8N3-Y5	HY5PS1G831CFP-Y5	Hynix	Intel	GB D1	FDHS	1	4/17/08
ATP Electronics	AP28K72A8BJE6S1	K4T1G084QQ-HCE6 rev Q	Samsung	NEC	D1	Foxconn	1	05/14/08
Kingston	KVR667D2D8F5/1GI	E5108AGBG-6E-E	Elpida	Intel	GB D1	FDHS	2	5/8/08
Kingston	KVR667D2D8F5/1GI	NT5TU64M8BE-3C	Nanya	Intel	GB D1	FDHS	2	3/28/08
Micron	MT18HTF12872FDY-667D6D4	MT47H64M8B6-3:D	Micron	IDT	C1	FDHS	2	4/26/08
Micron	MT18HTF12872FDY-667D6E4	MT47H64M8B6-3:D	Micron	Intel	GB D1	FDHS	2	5/3/08
Micron	MT18HTF12872FY-667D6D4	MT47H128M4B6-3:D	Micron	IDT	C1	FDHS	1	4/26/08
Micron	MT18HTF12872FY-667D6E4	MT47H128M4B6-3:D	Micron	Intel	GB D1	FDHS	1	5/10/08
Micron	MT9HTF12872FY-667E1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	1	5/10/08
Crucial	CT12872AF667.18FD6D4	MT47H64M8B6-3:D	Micron	IDT	C1	FDHS	2	5/21/08
Crucial	CT12872AF667.18FD6E4	MT47H64M8B6-3:D	Micron	Intel	GB D1	FDHS	2	5/21/08
Crucial	CT12872AF667.18F4D6D4	MT47H128M4B6-3:D	Micron	IDT	C1	FDHS	1	5/21/08
Crucial	CT12872AF667.18F4D6E4	MT47H128M4B6-3:D	Micron	Intel	GB D1	FDHS	1	5/21/08
Crucial	CT12872AF667.9FE1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	1	5/21/08
Micron	MT18HTF12872FDY-667F1D4	MT47H64M8CF-3:F	Micron	IDT	C1	FDHS	2	5/27/08

Fully Buffered ECC, DDR2-677 DIMM Modules 1 GB Sizes (128Mx72)								
Manufacturer	**Part Number**	**DRAM Part Number**	**DRAM Vendor**	**AMB Vendor**	**AMB Revision**	**Heat-Sink Vendor**	**Rank**	**Date**
Crucial	CT12872AF667.18 FF1D4	MT47H64M8CF-3:F	Micron	IDT	C1	FDHS	2	5/27/08
Avant Technology	AVF7228B52E5667 F1ELJP-IS	EDE5108AJBG-8E-E rev J	Elpida	IDT	C1	Foxconn	2	5/29/08
Avant Technology	AVF7228B52E5667 F1NYBP-IS	NT5TU64M8BE-25C rev B	Nanya	IDT	C1	Foxconn	2	06/02/08
Swissbit	MEF12872C1BJ2E P-30RE	EDE5108AJBG-6E-E rev J	Elpida	IDT	C1	Foxconn	2	06/10/08
Samsung	M395T2863QZ4-CE66	K4T1G084QQ-HCE6	Samsung	IDT	C1	FDHS	1	5/20/08
Hynix	HYMP512F72CP8D3-Y5	HY5PS12821CFP-Y5	Hynix	IDT	C1	FDHS	2	6/20/08
TRS	TRS32403X	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	C1	Samsung	1	07/18/08
TRS	TRS32400X	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	C1	Hynix	1	07/30/08

(+) This vendor is part of the CMTL Certification program. This means this part has been/will be tested across all compatible Intel® Server Boards. 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.*

Intel® Compute Module MFS5000SI

Fully Buffered ECC, DDR2-667 DIMM Modules

2 GB Sizes (256Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-Sink Vendor	Rank	Date
Samsung	M395T5750EZ4-CE66	K4T51043QC-ZCE6	Samsung	IDT	C1		2	11/07
Hynix	HYMP525F72CP4D3-Y5	HY5PS12421CFP-Y5	Hynix	IDT	C1		2	1/17/08
Hynix	HYMP525F72CP4N3-Y5	HY5PS12421CFP-Y5	Hynix	Intel	GB D1		2	1/17/08
Buffalo	D2F667CW-2GMEJ	MT47H128M8HQ-3 rev E	Micron	IDT	C1	Foxconn	2	2/13/08
Kingston	KVR667D2D4F5/2GI	NT5TU128M4BE-3C rev B	Nanya	IDT	C1	Foxconn	2	2/19/08
Kingston	KVR667D2D4F5/2GI	NT5TU128M4BE-3C rev B	Nanya	IDT	C1	Foxconn	2	2/19/08
Dataram	DTM65508F	HYB18T512400B2F3S rev B2	Qimonda	IDT	C1	Foxconn	2	3/07/08
Crucial	CT25672AF667.18FE1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	2	3/6/08
Micron	MT18HTF25672FY-667E1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	1	3/11/08
Micron	MT36HTF25672FY-667D1D4	MT47H128M4B6-3:E	Micron	IDT	C1	FDHS	2	3/7/08
Micron	MT18HTF25672FDY-667E1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	2	3/6/08
Hynix	HYMP125F72CP8D3-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	C1	FDHS	2	4/1/08
Hynix	HYMP125F72CP8N3-Y5	HY5PS1G831CFP-Y5	Hynix	Intel	GB D1	FDHS	2	4/1/08
ATP Electronics	AP56K72S8BJE6S	K4T1G084QQ-HCE6 rev Q	Samsung	NEC	D1	Foxconn	2	4/7/08
Crucial	CT25672AF667.36FD1D4	MT47H128M4B6-3:E	Micron	IDT	C1	FDHS	2	3/7/08
Smart Modular Technologies	SG2567FB212852HCDL	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	2	04/16/08
Crucial	CT25672AF667.18F4E1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	1	5/1/08
Wintec Industries	39C945384Q	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	C1	Foxconn	2	05/07/08
Micron	MT18HTF25672FDY-667E1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	2	4/29/08
Micron	MT18HTF25672FDY-667E1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	2	4/26/08
Micron	MT18HTF25672FDY-667E2D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	2	4/29/08
Micron	MT18HTF25672FY-667E1E4	MT47H256M4HQ-3:E	Micron	Intel	GB D1	FDHS	1	5/14/08
Micron	MT36HTF25672FY-667D1E4	MT47H128M4B6-3:D	Micron	Intel	GB D1	FDHS	2	5/13/08
Crucial	CT25672AF667.18FE1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	2	5/21/08
Crucial	CT25672AF667.18FE1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	2	5/21/08
Crucial	CT25672AF667.18FE2D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	2	5/21/08

Fully Buffered ECC, DDR2-667 DIMM Modules 2 GB Sizes (256Mx72)								
Manufacturer	**Part Number**	**DRAM Part Number**	**DRAM Vendor**	**AMB Vendor**	**AMB Revision**	**Heat-Sink Vendor**	**Rank**	**Date**
Crucial	CT25672AF667.18F 4E1E4	MT47H256M4HQ-3:E	Micron	Intel	GB D1	FDHS	1	5/21/08
Crucial	CT25672AF667.36F D1E4	MT47H128M4B6-3:D	Micron	Intel	GB D1	FDHS	2	5/21/08
Kingston	KVR667D2D4F5/2GI	HYB18T512400BF-3S	Qimonda	Intel	GB D1	FDHS	2	5/29/08
Kingston	KVR667D2D4F5/2GI	NT5TU128M4AE-3C	Nanya	Intel	GB D1	FDHS	2	5/9/08
Swissbit	MEF25672C1BC2EP -30RE	EDE1108ACBG-6E-E rev C	Elpida	IDT	C1	Foxconn	2	06/05/08
Samsung	M395T5663QZ4-CE66	K4T1G084QQ-HCE6	Samsung	IDT	C1	FDHS	2	5/20/08
Kingston	KVR667D2D4F5/2GI	HYB18T512400BF-3S	Qimonda	Intel	GB D1	FDHS	2	5/29/08
TRS	TRS32406X	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	C1	Samsung	2	07/16/08
TRS	TRS32401X	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	C1	Hynix	2	07/28/08
Qimonda	HYS72T256420EFD-3S-B2	HYB18T512400B2F-3S	Qimonda	IDT	C1	FDHS	2	8/2/08
Kingston	KVR667D2D4F5/2GI	HYB15T512400CF25 rev C	Qimonda	IDT	C1	Logitex	2	10/24/08
ATP Electronics	AP56K72S8BJE6S7	K4T1G084QQ-HCE6 rev Q	Samsung	Montage Technology	B2	Foxconn	2	02/09/09
ATP Electronics	AP56K72S8BJE6S	K4T1G084QE-HCE6 rev E	Samsung	NEC	D1	Foxconn	2	02/06/09

(+) This vendor is part of the CMTL Certification program. This means this part has been/will be tested across all compatible Intel® Server Boards. 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.*

Intel® Compute Module MFS5000SI

Fully Buffered ECC, DDR2-667 DIMM Modules

4 GB Sizes (512Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-Sink Vendor	Rank	Date
Samsung	M395T5160CZ4-CE66	K4T1G044QC	Samsung	IDT	C1		2	11/07
Micron	MT36HTF51272FY-667E1E4	MT47H256M4HQ-3:E	Micron	Intel	GB D1		2	11/07
ATP Electronics	AP12K72G4BJE6S	K4T1G044QC-ZCE6 rev C	Samsung	NEC	D1	Foxconn	2	2/12/08
Smart Modular Technologies	SG5127FBD225652HCD	HY5PS1G431CFP-Y5 rev C	Hynix	Intel	D1	Hynix	2	2/12/08
Smart Modular Technologies	SG5127FBD225652SCD	K4T1G044QC-ZCE6 rev C	Samsung	IDT	C1	Samsung	2	2/15/08
Smart Modular Technologies	SG5127FBD225652MEC	MT47H256M4HQ-3 rev E	Micron	IDT	C1	Foxconn	2	2/21/08
Smart Modular Technologies	SG5127FBD225652MEC	MT47H256M4HQ-3 rev E	Micron	IDT	C1	Foxconn	2	2/21/08
ATP Electronics	AP12K72G4BJE6S	K4T1G044QQ-HCE6 rev Q	Samsung	NEC	D1	Foxconn	2	3/25/08
Micron	MT36HTF51272FY-667E1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	2	3/4/08
Crucial	CT51272AF667.36FE1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	2	3/4/08
Kingston	KVR667D2D4F5/4GI	E1104ACSE-6E-E	Elpida	IDT	C1	FDHS	2	4/30/08
Micron	MT36HTF51272FY-667E2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	2	4/26/08
Micron	MT36HTF51272FY-667E1N8	MT47H256M4HQ-3:E	Micron	NEC	D1	FDHS	2	4/30/08
Crucial	CT51272AF667.36FE2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	2	5/21/08
Crucial	CT51272AF667.36FE1N8	MT47H256M4HQ-3:E	Micron	NEC	D1	FDHS	2	5/21/08
Crucial	CT51272AF667.36FE1E4	MT47H256M4HQ-3:E	Micron	Intel	GB D1	FDHS	2	5/21/08
Hynix	HYMP151F72CP4N3-Y5	HY5PS1G431CFP-Y5	Hynix	Intel	GB D1	FDHS	2	5/19/08
Hynix	HYMP151F72CP4D3-Y5	HY5PS1G431CFP-Y5	Hynix	IDT	C1	FDHS	2	5/26/08
Samsung	M395T5160QZ4-CE66	K4T1G044QC-HCE6	Samsung	IDT	C1	FDHS	2	5/20/08
TRS	TRS32409X	K4T1G044QQ-HCE6 rev Q	Samsung	IDT	C1	Samsung	2	07/14/08
TRS	TRS32404X	HY5PS1G431CFP-Y5 rev C	Hynix	IDT	C1	Hynix	2	07/25/08
Legacy Electronics Inc.	B547RYC9BEP-30R	K4T1G044QQ-HCE6 rev Q	Samsung	IDT	C1	AVC	2	01/19/09
ATP Electronics	AP12K72G4BJE6S7	K4T1G044QQ-HCE6 rev Q	Samsung	Montage Technology	B2	Foxconn	2	02/04/09

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Sales Information

Vendor Name	Web URL	Vendor Direct Sales Info
ATP Electronics	http://www.atpinc.com/	Tel (1) 408-732-5000, ext 5858 Fax: (1) 408-732-5055 sales@atpinc.com
ATP Electronics -- Taiwan Inc.	http://www.atpinc.com/	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
Crucial	http://www.crucial.com/intel	Toll-free: 888-363-4167 (US & Canada only) Tel: 208-363-5790 Fax: 208-363-5560 crucial.sales@micron.com
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 609-799-0071 phenke@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/	
Hynix Semiconductor	http://www.hynix.com/	
Qimonda (Infineon)	http://www.Qimonda.com	
ITAUCOM	http://www.itaucom.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://www.micron.com	
MSC Vertriebs GmbH	http://www.msc-ge.com	Andreas Gruendl Tel: +49-89-945532-34 Fax: +44-89-945532-41 agru@msc-ge.com
Nanya Technology	http://www.ntc.com.tw	Winson Shao 886-3-328-1688, Ext 6018 winsonshao@ntc.com.tw

Vendor Name	Web URL	Vendor Direct Sales Info
Netlist, Inc	http://www.netlistinc.com	Christopher Lopes 949.435.0025 tel 949.435.0031 fax sales@netlistinc.com
Peripheral Enhancements	http://www.peripheral.com/	
Samsung	http://www.samsung.com/Products/Semiconductor	For US customers go to:
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	www.smartm.com/channel/hpc/	Gene Patino (949) 439-6167 Gene.Patino@Smartm.com
Super Talent Electronics	http://www.supertalentmemory.com	David Crume (408) 957-8181 support@supertalentmemory.com
Swissbit	http://www.swissbit.com	Tony Cerreta Tel: 914-935-1400 x240 Fax: 914-935-9865 tony.cerreta@swissbitna.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	Vender Direct Sales Info: Andreas Gruendl Tel: +49.89.945532-34 Fax: +49.89.945532-41 Andreas.gruendl@trs-eu.com
Unigen	http://www.unigen.com	
Ventura Technology Inc	http://www.venturatech.com	Sam Lewis 760 599-0080 ext. 1
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

4. 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® Compute Module. 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 Intel® Compute Module. 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 an Intel® Compute Module 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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