

Intel® Server Board S5400SF Intel® Server System SR1560SF

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 21.0
February 2009

Revision History

Date	Rev	Modifications
Nov 2007	1.0	First external release.
Jan 2008	2.0	Additional modules added (in shaded areas).
Jan 2008	3.0	Additional modules added (in shaded areas).
Mar 2008	4.0	Additional modules added (in shaded areas).
Apr 2008	5.0	Additional modules added (in shaded areas).
May 2008	6.0	Additional modules added (in shaded areas).
May 2008	7.0	Additional modules added (in shaded areas).
June 2008	8.0	Additional modules added (in shaded areas).
June 2008	9.0	Additional modules added (in shaded areas).
July 2008	10.0	Adding 8G DIMM support. Additional modules added (in shaded areas).
July 2008	11.0	Additional modules added (in shaded areas). Update contact information for MSC Vertriebs GmbH
Aug 2008	12.0	Additional modules added (in shaded areas).
Aug 2008	13.0	Additional modules added (in shaded areas).
Sep 2008	14.0	Additional modules added (in shaded areas).
Oct 2008	15.0	Additional modules added (in shaded areas).
Nov 2008	16.0	Added additional memory parts (in shaded area).
Nov 2008	17.0	Added additional memory parts (in shaded area).
Dec 2008	18.0	Added additional memory parts (in shaded area).
Jan 2009	19.0	Added additional memory parts (in shaded area).
Feb 2009	20.0	Added additional memory parts (in shaded area).
Feb 2009	21.0	<p>Added additional memory parts (in shaded area).</p> <p>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</p>

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The Intel® Server Board S5400SF and Intel® Server System SR1560SF 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 Rank on the memory module. Mixing of dissimilar memory is NOT recommended.

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1. Overview of Memory Testing

The following test processes are used to qualify Fully Buffered Dual In-Line Memory Modules (FBDIMMs) for use with the Intel® Server Board S5400SF and Intel® Server System SR1560SF. Memory is a vital subsystem in a server. Intel requires that strict guidelines be met before a memory vendor is added to this Tested Memory Report. To be included on the list as a fully supported FBDIMM, 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 controller 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. FBDIMMs 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 FBDIMM 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 FBDIMM passes the standard paper qualification, functionality of the FBDIMM 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 FBDIMM and Intel product combination operate with no failures for a period of no less than 24 hours for both minimum and maximum memory 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 FBDIMM and Intel product combination operate with no failures for a period of no less than 24 hours for both minimum and maximum memory 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® Server Board S5400SF Memory Sub-system

The Intel® Server Board S5400SF has a memory sub-system designed to support only Fully Buffered Dual In-line Memory Modules (FBDIMM), which are registered and support error correcting code (ECC). FBDIMMs compatible with this server board will operate at 667 MHz or 800 MHz.

Note: Only DDR2 DIMMs that are Fully Buffered is supported on this server board.

The Intel® 5400 MCH masters four Fully Buffered DIMM (FB-DIMM) memory channels. The four memory channels are organized in to two branches. Each branch is supported by a separate memory controller. The two channels on each branch operate in lock step to increase FBD bandwidth. A branch transfers 16 bytes of payload/frame on Southbound lanes and 32 bytes of payload/frame on Northbound lanes.

The host frequency is the speed of the memory interface of the Intel® 5400 Chipset. This frequency determines the speed at which the chipset completes a memory transaction. The gear ratio determines the relative speed between the processor interface and the memory interface. The BIOS supports 667 MHz and 800 MHz FB-DIMMs, and automatically selects and configures the host frequency and gear ratio.

The following table shows the theoretical peak bandwidth of the Front Side Bus and Memory Bus when the server board is configured with supported processor and memory configurations.

FSB Clock (Quad pumped)	FSB Transfer Rate	FSB BW	FBD Channel Frequency	DRAM Clock	DRAM Transfer Rate	FBD BW per Branch
266 MHz (1066 MHz)	1066 MT/s	8 GB/s	3.2 GHz	266 MHz	533 MT/s	8.4 GB/s
			4 GHz	333 MHz	667 MT/s	10.6 GB/s
333 MHz (1333 MHz)	1333 MT/s	10.7 GB/s	3.2 GHz	266 MHz	533 MT/s	8.4 GB/s
			4 GHz	333 MHz	667 MT/s	10.6 GB/s
400 MHz (1600 MHz)	1600 MT/s	12.8 GB/s	3.2 GHz	266 MHz	533 MT/s	8.4 GB/s
			4 GHz	320 MHz	640 MT/s ¹	10.2 GB/s
			4.8 GHz	400 MHz	800 MT/s	12.8 GB/s

1 - In system configurations that utilize processors supporting a 1600 MHz FSB and 667 MHz FBDIMMs concurrently, the actual DRAM transfer rate will be 640 MT/s due to a set gear ratio inside the MCH

800 MHz FBDIMM Compatibility Note: The use of 800 MHz FBDIMMs is only supported with Multi-Core Intel® Xeon® processors that support a 1600 MHz front side bus. Using these FBDIMMs with processors that support a lower frequency front side bus is not supported on this server board.

On the Intel® Server Board S5400SF, a pair of channels becomes a branch where Branch 0 consists of channels A and B, and Branch 1 consists of channels C and D. The first DIMM slot for each memory channel is identified in “blue” as shown in the following illustration.

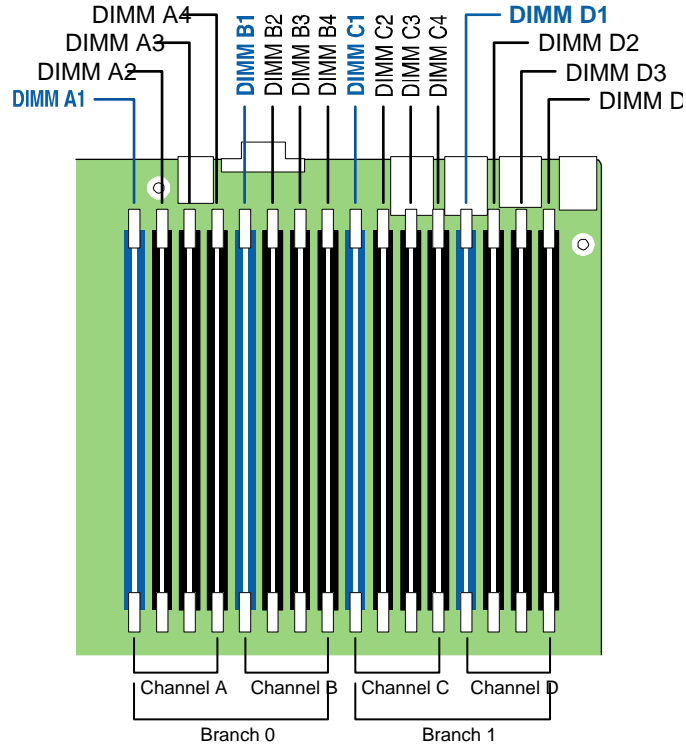


Figure 1. Memory Slot Layout


2.1 Supported Memory

The server board can support up to sixteen DDR2-667 or DDR2-800 Fully Buffered DIMMs (FBD memory). Using 8GB DIMMs, the maximum supported memory configuration will equal 128 GB of physical memory (validated).

2.2 DIMM Population Rules and Supported DIMM Configurations

Intel supported DIMM population configurations for this server board are shown in the following table.

 Supported and Validated configuration : Slot is populated

 Supported but not validated configuration : Slot is populated

 Slot is not populated

Branch 0								Branch 1								Sparing Possible
Channel A				Channel B				Channel C				Channel D				
DIMM_A1	DIMM_A2	DIMM_A3	DIMM_A4	DIMM_B1	DIMM_B2	DIMM_B3	DIMM_B4	DIMM_C1	DIMM_C2	DIMM_C3	DIMM_C4	DIMM_D1	DIMM_D2	DIMM_D3	DIMM_D4	
																No
																No
																No
																No
																Yes (0, 1)
																Yes (0,1)
																Yes (0, 1)

Notes:

- Single channel mode is only tested and supported with a 512MB x8 FBDIMM installed in DIMM slot A1.
- The supported memory configurations must meet population rules defined on the following page.
- For best performance, the number of DIMMs installed should be balanced across both memory branches. For Example: a four DIMM configuration will perform better than a two DIMM configuration and should be installed in DIMM Slots A1, B1, C1, and D1. An eight DIMM configuration will perform better then a six DIMM configuration.
- Although mixed DIMM capacities between channels is supported, Intel does not validate DIMMs in mixed DIMM configurations.

2.2.1 DIMM population rules for this server board are as follows:

- Within a branch, DIMMs must be populated in slot order starting with slot 1 for each channel, followed by slot 2, then slot 3, and ending with slot 4.
- DIMMs must be populated in matching pairs across channels within a given branch. Therefore, when populating DIMM pairs, the population order would be as follows:

A1 & B1; C1 & D1; A2 & B2; C2 & D2; A3 & B3; C3 & D3; A4 & B4; C4 & D4

- DIMMs that make up a given pair must match with respect to size, speed, and organization
- DIMM size from one DIMM pair to another can be different. However, speed and organization must be the same. For example: if DIMM pair A1 & B1 are populated with x8 1GB DDR2-667 DIMMs, DIMM pair C1 and D1 can be populated with x8 2GB DDR2-667 DIMMs.

2.2.2 Minimum Memory Configuration

The server board is capable of supporting a minimum of one DIMM installed. However, for system performance reasons, Intel's recommendation is that at least two DIMMs be installed.

The following diagram shows the recommended minimum DIMM memory configuration.

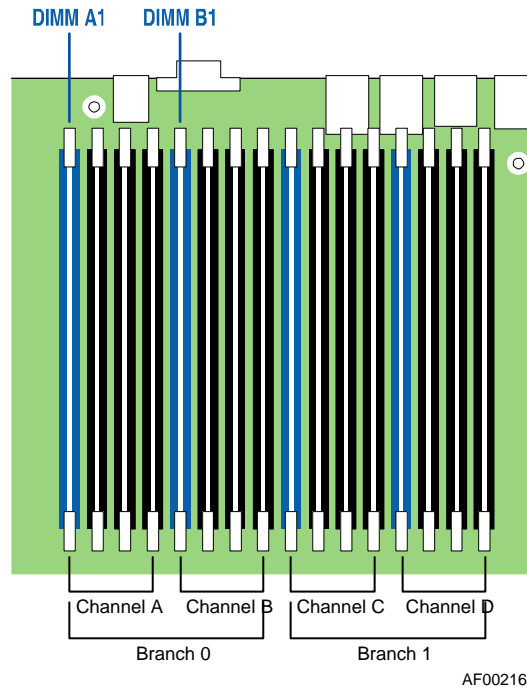


Figure 2. Recommended Minimum DIMM Memory Configuration

Note: The server board supports single DIMM mode operation. Intel will only validate and support this configuration with a single 512MB x8 FBDIMM installed in DIMM slot A1.

2.2.3 Memory upgrades

The minimum memory upgrade increment is two DIMMs per branch. The DIMMs must cover the same slot position on both channels. DIMMs pairs must be identical with respect to size, speed, and organization. DIMMs that cover adjacent slot positions do not need to be identical.

When adding two DIMMs to the configuration shown in Figure 2, the DIMMs should be populated in DIMM slots C1 and D1 as shown in the following diagram.

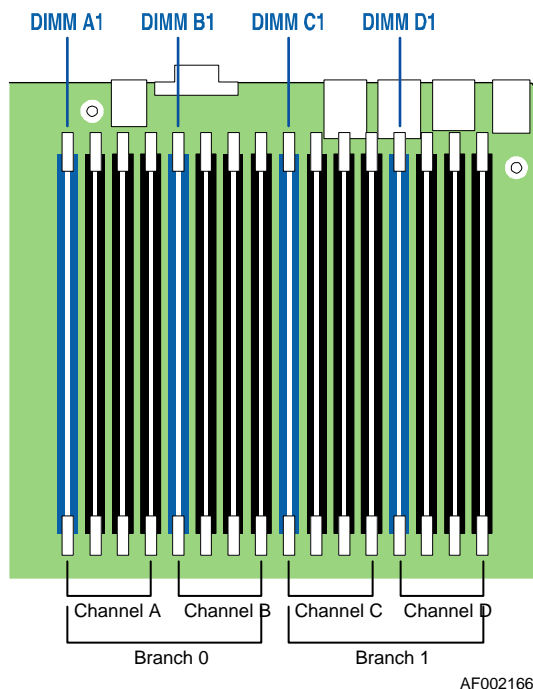


Figure 3. Recommended Four DIMM Configuration

Functionally, DIMM slots A2 and B2 could also have been populated instead of DIMM slots C1 and D1. However, your system will not achieve equivalent performance. The above figure shows the supported DIMM configuration that is recommended because it allows both memory branches from the MCH to operate independently and simultaneously. FBD bandwidth is doubled when both branches operate in parallel.

2.3 Memory Performance Throttling

Memory throttling is a feature of the Intel® 5400 Chipset to prevent FBDIMM memory from overheating. Two different memory throttling mechanisms are supported on this server board: Closed Loop Thermal Throttling (CLTT), and Open Loop Throughput Throttling (OLTT).

2.3.1 FBDIMM Closed Loop Thermal Throttling (CLTT)

Closed Loop Memory Throttling is a feature of the Intel chipset to prevent FBDIMM memory from overheating. This is a temperature based throttling feature. If the temperature of the installed FBDIMMs approaches their thermal limit, the system BIOS will initiate memory throttling which manages memory performance by limiting bandwidth to the DIMMs, therefore capping the power consumption and preventing the DIMMs from overheating. By default, the BIOS will configure the system to support CLTT if it detects that there are functional AMB thermal sensors present on all installed DIMMs. In CLTT mode,

the system fans run slower to meet the acoustic limits for the given platform but will also allow the fans to ramp up as needed to maintain the parts within temperature specifications under high stress levels.

In a similar way to OLTT, the system BIOS utilizes a Memory Reference Code (MRC) throttling algorithm to maximize memory bandwidth for a given configuration. The MRC code relies on Serial Presence Detect (SPD) data read from the installed DIMMs. Closed Loop Throttling is autonomous and internal to the MCH hardware, and the throttling algorithm always throttles the minimum amount required to prevent the part from overheating.

Note: CLTT is the Intel preferred platform control mechanism as it provides the best memory bandwidth performance while providing the lowest system fan acoustics. CLTT is supported by default when FBDIMMs are installed with functional AMB thermal sensors. All FBDIMMs listed in this tested memory report include AMB thermal sensors.

2.3.2 FBDIMM Open Loop Throughput Throttling (OLTT)

Open Loop Throughput Throttling (OLTT) is based on a hardware bandwidth count and works by preventing the bandwidth from exceeding the throttling settings programmed into the MCH registers. System BIOS will automatically select OLTT as the memory throttling mechanism if it detects that one or more installed DIMMs does not have a functional AMB thermal sensor. Once system BIOS enables OLTT, it utilizes a Memory Reference Code (MRC) throttling algorithm to maximize memory bandwidth for a given configuration. The MRC code relies on Serial Presence Detect (SPD) data read from the installed DIMMs as well as system level data as set through the FRUSDR Utility.

The following table lists the current supported memory types:

FBDIMM-667 CL5 & FBDIMM-800 CL5/6 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
4GB	512Mx72	2Gbit	256M x 8	18	15/3/10	2
4GB	512Mx72	2Gbit	128M x 8	36	14/3/10	4
8GB	1Gx72	2Gbit	512M x 4	36	15/3/11	2
8GB	1Gx72	2Gbit	Stacked 1G x 4	18	15/3/11	2

3. Intel® Server Board S5400SF Main Memory Tested

The following tables list FBDIMM devices tested to be compatible with the Intel® Server Board S5400SF. 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® Server Board S5400SF 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. Intel does not make any representations or warranties whatsoever regarding the quality, reliability, functionality, or compatibility of these memory modules.

Intel® Server Board S5400SF
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
Micron	MT9HTF6472 FY-667D5D4	MT47H64MCB-3	Micron	IDT	C1	FDHS	1	10/7/07
Micron	MT9HTF6472FY-667D5E4	MT47H64M8-3	Micron	Intel	GB D1	FDHS	1	10/10/07
Qimonda	HYS72T64400HFN-3S-B	HYB18T512800AF-3S-B	Qimonda	Intel	D1	FDHS	1	10/10/07
Samsung	M395T6553EZ4-CE66	K4T51083QE-ZCE6	Samsung	IDT	C1	FDHS	1	10/28/07
Qimonda	HYS72T64400HFD-3S-B	HYB18T512800AF-3S-B	Qimonda	IDT	C1	FDHS	1	10/30/07
Dataram	DTM65506F	HYB18T512800B2F-3S rev B2	Qimonda	IDT	C1	Foxconn	1	3/3/08
Crucial	CT6472AF667.9FD5D4	MT47H64MCB-3	Micron	IDT	C1	FDHS	1	5/1/08
Crucial	CT6472AF667.9FD5E4	MT47H64M8-3	Micron	Intel	GB D1	FDHS	1	5/1/08
Micron	MT9HTF6472FY-667D5N6	MT47H64M8B6-3:D	Micron	NEC	B5+	FDHS	1	4/25/08
Crucial	CT6472AF667.9FD5N6	MT47H64M8B6-3:D	Micron	NEC	B5+	FDHS	1	5/21/08
Kingston	KVR667D2S8F5/512I	NT5TU64M8BE-3C	Nanya	Intel	GB D1	FDHS	1	5/20/08
Kingston	KVR667D2S8F5-512I	E5108AGBG-6E-E	Elpida	Intel	GB D1	FDHS	1	6/20/08
Hynix	HYMP564F72CP8D3-Y5	HY5PS12821CFP-Y5	Hynix	IDT	C1	FDHS	1	7/25/08

Fully Buffered ECC, DDR2-800 DIMM Modules
512 MB Sizes (64Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Micron	MT9HTF6472FY-80ED5D4	MT47H64M8B6-25E:D; Date Code 200751 or later	Micron	IDT	C1	FDHS	1	12/20/07
Samsung	M395T6553EZ4-CF76	K4T51083QE-ZCF7	Samsung	IDT	C1	FDHS	1	4/2/08
Kingston	KVR800D2S8F5/512I	E5108AJBG-8E-E	Elpida	IDT	C1	FDHS	1	4/28/08
Crucial	CT6472AF80E.9FD5D4	MT47H64M8B6-25E:D	Micron	IDT	C1	FDHS	1	5/21/08

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

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 S5400SF
Fully Buffered ECC, DDR2-667 DIMM Modules
1 GB Sizes (128Mx72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Micron	MT9HTF12872F Y-667E1D4	MT47H128M8H Q-3:E	Micron	IDT	C1	FDHS	1	10/7/07
Hynix	HYMP512F72CP 8N3-Y5	HY5PS12821C FP-Y5	Hynix	Intel	GB D1	FDHS	2	10/13/07
Micron	MT9HTF12872F Y-667E1N6	MT47H129M8H Q-3:E	Micron	NEC	B5+	FDHS	1	10/13/07
Samsung	M395T2953EZ4-CE65	K4T51083QE	Samsung	Intel	GB D1	FDHS	2	10/17/07
Hynix	HYMP512F72CP 8D3-Y5	HY5PS12821C FP-Y5	Hynix	IDT	C1	FDHS	2	10/20/07
Micron	MT18HTF12872 FDY-667D6E4	MT47H64M8-3	Micron	Intel	GB D1	FDHS	2	10/24/07
Qimonda	HYS72T128420HFN-3S-B	HYB18T512800AF-3S-B	Qimonda	Intel	GB D1	FDHS	2	10/30/07
Samsung	M395T2953EZ4-CE66	K4T51083QC	Samsung	IDT	C1	FDHS	2	11/8/07
Micron	MT18HTF12872FDY-667D6D4	MT47H64M8B6-3:D	Micron	IDT	C1	FDHS	2	1/7/08
Smart Modular Technologies	SG1287FBD64852-SEI	K4T510830QE-ZCE6 rev E	Samsung	IDT	C1	Foxconn	2	2/4/08
STEC	INT72W8M128M8M-A03GZU	K4T51083QE-ZCE6 rev E	Samsung	Intel	D1	AVC	2	1/21/08
Dataram	DTM65507C	HY5PS12821CFP-Y5 rev C	Hynix	Intel	D1	Foxconn	2	3/10/08
Dataram	DTM65507G	HYB18T512800B2F3S rev B2	Qimonda	IDT	C1	Foxconn	2	3/12/08
Samsung	M395T2863QZ4-CE66	K4T1G084QQ-HCE6	Samsung	IDT	C1	FDHS	1	3/17/08
Crucial	CT12872AF667.9FE1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	1	5/1/08
Crucial	CT12872AF667.9FE1N6	MT47H128M8HQ-3:E	Micron	NEC	B5+	FDHS	1	5/1/08
Crucial	CT12872AF667.18FD6E4	MT47H64M8-3	Micron	Intel	GB D1	FDHS	2	5/1/08
Crucial	CT12872AF667.18FD6D4	MT47H64M8B6-3:D	Micron	IDT	C1	FDHS	2	5/1/08
Micron	MT18HTF12872FDY-667D6N6	MT47H64M8B6-3:D	Micron	NEC	B5+	FDHS	2	4/26/08
Micron	MT18HTF12872FY-667D6D4	MT47H128M4B6-3:D	Micron	IDT	C1	FDHS	1	4/30/08
Micron	MT18HTF12872FY-667D6E4	MT47H128M4B6-3:D	Micron	Intel	GB D1	FDHS	1	5/11/08
Micron	MT9HTF12872FY-667E1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	1	4/30/08
Crucial	CT12872AF667.18FD6N6	MT47H64M8B6-3:D	Micron	NEC	B5+	FDHS	2	5/21/08
Crucial	CT12872AF667.18F4D6D4	MT47H64M8B6-3:D	Micron	IDT	C1	FDHS	2	5/21/08
Crucial	CT12872AF667.18F4D6E4	MT47H64M8B6-3:D	Micron	Intel	GB D1	FDHS	2	5/21/08

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

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Crucial	CT12872AF667.9FE1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	1	5/21/08
Kingston	KVR667D2D8F5/1GI	E5108AGBG-6E-E	Elpida	Intel	GB D1	FDHS	2	5/20/08
Avant Technology	AVF7228B52E5667F1NYBP-IS	NT5TU64M8BE-25C rev B	Nanya	IDT	C1	Foxconn	2	5/29/08
Avant Technology	AVF7228B52E5667F1ELJP-IS	EDE5108AJBG-8E-E rev J	Elpida	IDT	C1	Foxconn	2	06/04/08
Micron	MT9HTF12872FY-667E1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	1	5/15/08
Crucial	CT12872AF667.9FE1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	1	5/15/08
Micron	MT9HTF12872FY-667E1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	1	6/18/08
Crucial	CT12872AF667.9FE1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	1	6/18/08
Micron	MT9HTF12872FY-667E2D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	1	6/17/08
Crucial	CT12872AF667.9E2D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	1	6/17/08
Qimonda	HYS72T128420EFD-3S-B2	HYB18T512800B2F-3S	Qimonda	IDT	C1	FDHS	2	6/26/08
Kingston	KVR667D2D8F5/1GI	NT5TU64M8BE-3C	Nanya	Intel	D1	FDHS	2	7/3/08
Viking	VR5EF287218FBWL1	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	1	9/23/08
Dataram	DTM65526A	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	C1	Foxconn	1	9/23/08
TRS	TRS32403X	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	C1	Samsung	1	10/15/08
Hynix	HYMP112F72CP8D5-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	L4	FDHS	1	10/14/08
Hynix	HYMP112F72CP8D3-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	C1	FDHS	1	11/9/08
Qimonda	HYS72T128501EFD-3S-C2	HYB18T1G800C2F-3S-C2	Qimonda	IDT	L4	FDHS	1	10/13/08
Dataram	DTM65526B	HYB18T1G800C2F-3S rev C2	Qimonda	IDT	C1	Foxconn	1	12/05/08

**Fully Buffered ECC, DDR2-800 DIMM Modules
1 GB Sizes (128Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Micron	MT9HTF12872FY-80EE1D4	MT47H128M8HQ-25E:E; Date Code 200751 or later	Micron	IDT	C1	FDHS	1	12/27/07
Micron	MT18HTF12872FDY-80ED6D4	MT47H64M8B6-25E:D; Date Code 200751 or later	Micron	IDT	C1	FDHS	1	1/3/08
Samsung	M395T2863QZ4-CF76	K4T1G084QQ-HCF7	Samsung	IDT	C1	FDHS	1	2/16/08
Samsung	M395T2953EZ4-CF76	K4T51083QE-ZCF7	Samsung	IDT	C1	FDHS	2	4/2/08
Dataram	DTM65511B	HY5PS12821CFP-S5 rev C	Hynix	IDT	C1	Foxconn	2	4/24/08

Fully Buffered ECC, DDR2-800 DIMM Modules 1 GB Sizes (128Mx72)								
Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Crucial	CT12872AF80E.9FE1D4	MT47H128M8HQ-25E:E	Micron	IDT	C1	FDHS	2	5/1/08
Avant Technology	AVF7228B52E5800F1NYBP-IS	NT5TU64M8BE-25C rev B	Nanya	IDT	C1	Foxconn	2	5/04/08
Avant Technology	AVF7228B52E5800F1ELJP-IS	EDE5108AJBG-8E-E rev J	Elpida	IDT	C1	Foxconn	2	5/06/08
Kingston	KVR800D2D8F5/1GI	E5108AJBG-8E-E	Elpida	IDT	C1	FDHS	2	5/1/08
Micron	MT9HTF12872FY-80EE1N8	MT47H128M8HQ-25E:E	Micron	NEC	D1	FDHS	1	4/26/08
Crucial	CT12872AF80E.9FE1N8	MT47H128M8HQ-25E:E	Micron	NEC	D1	FDHS	1	5/21/08
Apacer	78.0HGAG.424	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	AVC	1	7/09/08
Hynix	HYMP112F72CP8D5-S5	HY5PS1G831CFP-S5	Hynix	IDT	L4	FDHS	1	10/7/08

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

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 S5400SF
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
Hynix	HYMP525F7 2CP4D3-Y5	HY5PS12421BFP-Y5	Hynix	IDT	C1	FDHS	2	10/7/07
Hynix	HYMP525F7 2CP4N3-Y5	HY5PS12421CFP-Y5	Hynix	Intel	D1	FDHS	2	10/10/07
Micron	MT18HTF25 672FY-667E1E4	MT47H256M4	Micron	Intel	GB D1	FDHS	1	10/28/08
Samsung	M395T5750E Z4- CE65	K4T51043QE	Samsung	Intel	GB D1	FDHS	2	10/17/07
Samsung	M395T5750E Z4- CE66	K4T51043QC-ZCE6	Samsung	IDT	C1	FDHS	2	10/17/07
Qimonda	HYS72T256420HFD- 3S-B	HYB18T512400AF- 3S-B	Qimonda	IDT	C1	FDHS	2	11/2/07
Micron	MT18HTF25672FDY- 667E1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	2	11/6/07
Micron	MT36HTF25672FY- 667D1D4	MT47H128M4B6-3:D	Micron	IDT	C1	FDHS	2	1/7/08
Buffalo	D2F667CW-2GMEJ	MT47H128M8HQ-3 rev E	Micron	IDT	C1	Foxconn	2	2/7/08
Smart Modular Technologies	SG2567FBD28452- HCD	HY5PS12421C-FP-Y5 rev C	Hynix	IDT	C1	Hynix	2	2/15/08
STEC	INT72W4M256M8M- A03GZU	HYB18T512400BF3S rev B	Qimonda	IDT	A1.5	AVC	2	1/16/08
Ventura Technology Group	D2-56VF82SIV-555-E	K4T51043QE-ZCE6 rev E	Samsung	IDT	A1.5	AVC	2	1/30/08
Dataram	DTM65508F	HYB18T512400B2F3 S rev B2	Qimonda	IDT	C1	Foxconn	2	3/03/08
Samsung	M395T5663QZ4- CE66	K4T1G084QQ-HCE6	Samsung	IDT	C1	FDHS	2	3/14/08
ATP Electronics	AP56K72S8BJE6S	K4T1G084QQ-HCE6 rev Q	Samsung	NEC	D1	Foxconn	2	4/2/08
Smart Modular Technologies	SG2567FB212852HC DL	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	2	4/7/08
Smart Modular Technologies	SG2567FBD12852HC DC	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	C1	Foxconn	2	4/30/08
Crucial	CT25672AF667.18FE 1D4	MT47H128M8HQ-3:E	Micron	IDT	C1	FDHS	2	5/1/08
Crucial	CT25672AF667.36FD 1D4	MT47H128M4B6-3:E	Micron	IDT	C1	FDHS	2	5/1/08
Crucial	CT25672AF667.18F4 E1E4	MT47H256M4	Micron	Intel	GB D1	FDHS	1	5/1/08
Wintec Industries	39C945384Q	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	C1	Foxconn	2	5/13/08
Kingston	KVR667D2D4F5/2GI	NT5TU128M4BE-3C	Nanya	IDT	C1	FDHS	1	4/21/08
Kingston	KVR667D2D4F5/2GI	HYB18T512400BF-3S	Qimonda	Intel	GB D1	FDHS	1	4/22/08
Micron	MT18HTF25672FDY- 667E1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	2	5/4/08
Micron	MT18HTF25672FDY- 667E1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	2	4/25/08
Micron	MT18HTF25672FDY- 667E2D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	2	4/26/08

**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
Micron	MT18HTF25672FY-667E1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	1	4/30/08
Crucial	CT25672AF667.18F E1E4	MT47H128M8HQ-3:E	Micron	Intel	GB D1	FDHS	2	5/21/08
Crucial	CT25672AF667.18F E1N8	MT47H128M8HQ-3:E	Micron	NEC	D1	FDHS	2	5/21/08
Crucial	CT25672AF667.18F E2D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	2	5/21/08
Crucial	CT25672AF667.18F 4E1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	1	5/21/08
Micron	MT18HTF25672FDY-667E1N6	MT47H128M8HQ-3:E	Micron	NEC	B5+	FDHS	2	5/19/08
Crucial	CT25672AF667.18F E1N6	MT47H128M8HQ-3:E	Micron	NEC	B5+	FDHS	2	5/19/08
Avant Technology	AVF7256B61E5667F 0ELCP-IS	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	Foxconn	2	5/30/08
Avant Technology	AVF7256B61E5667F 1ELCP-IS	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	Foxconn	2	6/05/08
Kingston	KVR667D2D8F5/2GI	HY5PS1G831CFP-Y5	Hynix	Intel	GB D1	FDHS	2	6/5/08
Qimonda	HYS72T256420EFD-3S-B2	HYB18T512400B2F-3S	Qimonda	IDT	C1	FDHS	2	5/28/08
Micron	MT18HTF25672FY-667E2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	1	6/14/08
Crucial	CT25672AF667.18F 4E2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	1	6/14/08
Qimonda	HYS72T256920EFA-3S-B2	HYB18T512400B2F-3S	Qimonda	Qim	C1	FDHS	2	6/26/08
Micron	MT18HTF25672FDY-80EE1D4	MT47H128M8HQ-25E:E; Date Code 200751 or later	Micron	IDT	C1	FDHS	2	12/27/07
Smart Modular Technologies	SG2567FBD12851-HCD	HY5PS1G831CFP-S5 rev C	Hynix	IDT	C1	Hynix	2	3/06/08
ATP Electronics	AP56K72S8BJE7S	K4T1G084QQ-HCE7 rev Q	Samsung	NEC	D1	Foxconn	2	4/01/08
Samsung	M395T5663QZ4-CF76	K4T1G084QQ-HCF7	Samsung	IDT	C1	FDHS	2	2/2/08
Nanya	NT2GT72U4NB1BD-2C	NT5TU128M4BE	Nanya	IDT	C1	FDHS	2	3/16/08
Smart Modular Technologies	SG2567FBD12851H CDL	HY5PS1G831CFP-S5 rev C	Hynix	IDT	L4	Foxconn	2	4/8/08
ATP Electronics	AP56K72R8BJE7S0	K4T1G084QQ-HCE7 rev Q	Samsung	IDT	C1	Samsung	2	4/17/08
Crucial	CT25672AF80E.18F E1D4	MT47H128M8HQ-25E:E	Micron	IDT	C1	FDHS	2	5/1/08
Avant Technology	AVF7256B61E5800F 1ELCP-IS	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	Foxconn	2	5/12/08
Avant Technology	AVF7256B61E5800F 0ELCP-IS	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	Foxconn	2	5/15/08
Dataram	DTM65512B	HYB18T512400B2F2 5F rev B2	Qimonda	IDT	C1	Foxconn	2	5/02/08
Crucial	CT25672AF80E.18F E1N8	MT47H128M8HQ-25E:E	Micron	NEC	D1	FDHS	2	5/21/08
Micron	MT18HTF25672FDY-80EE2D6	MT47H128M8HQ-25E:E	Micron	IDT	L4	FDHS	2	5/9/08

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
Kingston	KVR667D2D4F5/2GI	HYB18T5212400BF-3S	Qimonda	Intel	D1	FDHS	2	7/1/08
Kingston	KVR667D2D8F5/2GI	E1108ACBG-6E-E	Elpida	Intel	D1	FDHS	2	7/8/08
Hynix	HYMP125F72CP8D3-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	C1	FDHS	2	7/25/08
Dataram	DTM65521A	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	C1	Foxconn	2	8/4/08
Viking	VR5EF567218FBWL2	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	2	8/10/08
Qimonda	HYS72T256521EFD-3S-C2	HYB18T1G800C2F-3S-C2	Qimonda	IDT	AMB+	FDHS	2	9/23/08
TRS	TRS32406X	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	C1		2	10/10/08
Kingston	KVR667D2D4F5/2GI	HYB15T512400CF25 rev C	Qimonda	IDT	C1	Logitex	2	10/29/08
Hynix	HYMP125F72CP8D5-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	L4	FDHS	2	10/14/08
Dataram	DTM65521B	HYB18T1G800C2F-3S rev C2	Qimonda	IDT	C1	Foxconn	2	11/24/08
Ventura Technology Group	D2-56VF82SIV-555	K4T51043QE-ZCE6 rev E	Samsung	IDT	A1.5	AVC	2	11/14/08
Ventura Technology Group	D2-56VF82SIV-555	K4T51043QG-HCE6 rev G	Samsung	IDT	C1	Samsung	2	11/23/08
ATP Electronics	AP56K72S8BJE6S7	K4T1G084QQ-HCE6 rev Q	Samsung	Montage Technology	B2	Foxconn	2	01/23/09
ATP Electronics	AP56K72S8BJE6S	K4T1G084QE-HCE6 rev E	Samsung	NEC	D1	Foxconn	2	01/30/09
Smart Modular Technologies	SG2567FB212852H EDC	H5PS1G83EFR-S5C rev E	Hynix	IDT	C1	Foxconn	2	01/19/09

**Fully Buffered ECC, DDR2-800 DIMM Modules
2 GB Sizes (256Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Micron	MT18HTF25672FDY-80EE1N8	MT47H128M8HQ-25E:E	Micron	NEC	D1	FDHS	2	4/30/08
Crucial	CT25672AF80E.18F E2D6	MT47H128M8HQ-25E:E	Micron	IDT	L4	FDHS	2	5/9/08
Kingston	KVR800D2D4F5/2G I	HYB18T512400B2F25F	Qimonda	IDT	C1	FDHS	2	5/6/08
Samsung	M395T5750EZ4-CF76	K4T51043QE-ZCF7	Samsung	IDT	C1	FDHS	2	6/16/08
Micron	MT18HTF25672FDY-80EE2D6	MT47H128M8HQ-25E:E	Micron	IDT	L4	FDHS	2	5/10/08
Crucial	CT25672AF80E.28F E2D6	MT47H128M8HQ-25E:E	Micron	IDT	L4	FDHS	2	5/10/08
Apacer	78.AHGAG.425	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	AVC	2	7/08/08
Kingston	KVR667D2D4F5-2GI	HYB18T5212400	Qimonda	Intel	GB D1	FDHS	2	7/1/08
Micron	MT18HTF25672FY-667E2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	1	6/26/08
Crucial	CT25672AF667.18F 4E2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	1	6/26/08
Centon Electronics	TOP-034	EDE1108ACBG-8E-E rev C	Elpida	IDT	C1	AVC	2	8/12/08
Hynix	HYMP125F72CP8D5-S5	HY5PS1G831CFP-S5	Hynix	IDT	L4	FDHS	2	10/7/08
Dataram	DTM65525A	HYB18T1G800C2F-25F rev C2	Qimonda	IDT	C1	Foxconn	2	12/12/08
Smart Modular Technologies	SG2567FB212851H EDL	H5PS1G83EFR-S5C rev E	Hynix	IDT	L4	Foxconn	2	01/21/09
ATP Electronics	AP56K72R8BJF7S7	K4T1G084QQ-HCF7 rev Q	Samsung	Montage Technology	B2	Foxconn	2	02/02/09

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

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 S5400SF
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
Micron	MT36HTF51272 FY-667E1D4	MT47H256M4 HQ-3:E	Micron	IDT	C1	FDHS	2	10/13/07
Micron	MT36HTF51272 FY-667E1N6	MT47H256M4 HQ-3:E	Micron	NEC	B5+	FDHS	2	10/13/07
Hynix	HYMP351F72A MP4N3-Y5	HY5PS12421C FP-Y5	Hynix	Intel	GB D1	FDHS	2	10/20/07
Samsung	M395T5160CZ4-CE66	K4T1G044QC	Samsung	IDT	C1	FDHS	2	10/24/07
Samsung	M395T5160CZ4-CE65	K4T1G044QC	Samsung	Intel	GB D1	FDHS	2	11/2/07
ATP Electronics	AP12K72G4BJE6S	K4T1G044QC-ZCE6 rev C	Samsung	NEC	D1	Foxconn	2	2/8/08
Smart Modular Technologies	SG5127FBD225652 HCD	HY5PS1G431CFP-Y5 rev C	Hynix	Intel	D1	Hynix	2	1/14/08
Smart Modular Technologies	SG5127FBD225652 SCD	K4T1G044QC-ZCE6 rev C	Samsung	IDT	C1	Samsung	2	1/18/08
STEC	INT72W4W512M8M-A03GZU	MT47H256M4HQ-3 rev E	Micron	IDT	C1	AVC	2	1/23/08
Smart Modular Technologies	SG5127FBD225652 MEC	MT47H256M4HQ-3 rev E	Micron	IDT	C1	Foxconn	2	2/01/08
Viking	VR5EF127214FBWL1	MT47H256M4HQ-3 rev E	Micron	IDT	A1.5	Foxconn	2	3/14/08
ATP Electronics	AP12K72G4BJE6S	K4T1G044QQ-HCE6 rev Q	Samsung	NEC	D1	Foxconn	2	3/18/08
Samsung	M395T5160QZ4-CE66	K4T1G044QQ-HCE6	Samsung	IDT	C1	FDHS	2	3/14/08
Smart Modular Technologies	SG5127FBD25652H CDL	HY5PS1G431CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	2	4/4/08
Wintec Industries	39955444Q	K4T1G044QQ-HCE6 rev Q	Samsung	IDT	C1	Foxconn	2	4/16/08
Crucial	CT51272AF667.36F E1N6	MT47H256M4HQ-3:E	Micron	NEC	B5+	FDHS	2	5/1/08
Crucial	CT51272AF667.36F E1D4	MT47H256M4HQ-3:E	Micron	IDT	C1	FDHS	2	5/1/08
Smart Modular Technologies	SG5127FBD12852H CDL	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	4	5/07/08
Kingston	KVR667D2D4F5/4GI	E1104ACSE-6E-E	Elpida	IDT	C1	FDHS	2	4/25/08
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
Micron	MT36HTF51272FY-667E1E4	MT47H256M4HQ-3:E	Micron	Intel	GB D1	FDHS	2	5/14/08
Crucial	CT51272AF667.36F E2D6	MT47H256M4HQ-3:E	Micron	IDT	L4	FDHS	2	5/21/08
Crucial	CT51272AF667.36F E1N8	MT47H256M4HQ-3:E	Micron	NEC	D1	FDHS	2	5/21/08
Crucial	CT51272AF667.36F E1E4	MT47H256M4HQ-3:E	Micron	Intel	GB D1	FDHS	2	5/21/08

**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
Kingston	KVR667D2D4F5/4GI	E1104ACSE-6E-E	Elpida	Intel	GB D1	FDHS	2	5/30/08
Avant Technology	AVF7251B62E5667F4ELCP-IS	EDE1104ACSE-8E-E rev C	Elpida	IDT	C1	Foxconn	2	6/01/08
Viking	VR5EF127218FBWL1	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	4	6/12/08
Micron	MT36HTF51272FY-667E1N6	MT47H256M4HQ-3:E	Micron	NEC	B5+	FDHS	2	6/13/08
Crucial	CT51272AF667.36FE1N6	MT47H256M4HQ-3:E	Micron	NEC	B5+	FDHS	2	6/13/08
Hynix	HYMP151F72CP4D3-Y5	HY5PS1G431CFP-Y5	Hynix	IDT	C1	FDHS	2	7/25/08
Netlist, Inc.	NMD517A21207FD53I5ME	MT47H128M8HQ-3 rev E	Micron	IDT	L4	Netlist	4	4/26/08
Netlist, Inc.	NMD517A21207FD53I5HC	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Netlist	4	5/27/08
Netlist, Inc.	NMD517A21207FD53N1HC	HY5PS1G831CFP-Y5 rev C	Hynix	NEC	D0	Netlist	4	5/22/08
Netlist, Inc.	NMD517A21207FD53I5SQ	K4T1G084QQ-HCE6 rev Q	Samsung	IDT	L4	Netlist	4	5/27/08
Netlist, Inc.	NMD517B21207FD53I5EC	E1108ACBG-8E-E rev C	Elpida	IDT	L4	Netlist	4	7/29/08
Netlist, Inc.	NMD517B2120HFD53N1EC	E1108ACBG-6E-E rev C	Elpida	NEC	D0	Netlist	4	7/30/08
ATP Electronics	AP12K72F8BJE6S1	K4T1G084QQ-HCE6 rev Q	Samsung	NEC	D1	Foxconn	4	8/14/08
Smart Modular Technologies	SG5127FB212852HCDM	HY5PS1G831CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	4	8/15/08
Hynix	HYMP151F72CP8D5-Y5	HY5PS1G831CFP-Y5	Hynix	IDT	AMB+	FDHS	4	9/15/08
Micron	MT36HTF51272FDY-667E1D6	MT47H128M8HQ-3:E	Micron	IDT	L4	FDHS	2	9/15/08
Smart Modular Technologies	SG5127FB212852QC2M	HYB18T1G800C2F-3S rev C2	Qimonda	IDT	L4	Foxconn	4	10/01/08
Viking	VR5EF127214FBWL2	HY5PS1G431CFP-Y5 rev C	Hynix	IDT	L4	Foxconn	2	10/01/08
Qimonda	HYS72T512540EFD-3S-C2	HYB18T1G800C2F-3S-C2	Qimonda	IDT	AMB+	FDHS	4	9/26/08
Kingston	DU300DELCDTDOF	E1108ACBG-8E-E rev C	Elpida	IDT	D0	Foxconn	4	10/11/08
Kingston	DU300DQAC2IDTD0	HYB18T1G800C2F-2.5 rev C2	Qimonda	IDT	D0	AVC	4	10/20/08
TRS	TRS32409X	K4T1G044QQ-HCE6 rev Q	Samsung	IDT	C1	Samsung	2	10/18/08
Hynix	HYMP151F72CP4D5-Y5	HY5PS1G431CFP-Y5	Hynix	IDT	L4	FDHS	2	10/14/08
Dataram	DTM65523B	HYB18T1G800C2F-3S rev C2	Qimonda	IDT	L4	Foxconn	4	11/26/08
ATP Electronics	AP12K72G4BJE6S7	K4T1G044QQ-HCE6 rev Q	Samsung	Montage Technology	B2	Foxconn	2	01/28/09
Legacy Electronics Inc.	B547RYC9BEP-30R	K4T1G044QQ-HCE6 rev Q	Samsung	IDT	C1	AVC	2	01/12/09

**Fully Buffered ECC, DDR2-800 DIMM Modules
4 GB Sizes (512Mx72)**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Micron	MT36HTF51272FY-80EE1D4	MT47H256M4HQ-25E:E; Date Code 200751 or later	Micron	IDT	C1	FDHS	2	12/17/07
Hynix	HYMP151F72CP4D3-S5	HY5PS1G431CFP-S5	Hynix	IDT	C1	FDHS	2	12/12/07
Smart Modular Technologies	SG5127FB225651-HCD	HY5PS1G431C-FP-S5 rev C	Hynix	IDT	C1	Hynix	2	3/07/08
Samsung	M395T5160QZ4-CF76	K4T1G044QQ-HCF7	Samsung	IDT	C1	FDHS	2	2/14/08
Smart Modular Technologies	SG5127FB225651HCD L	HY5PS1G431CFP-S5 rev C	Hynix	IDT	L4	Foxconn	2	4/11/08
Crucial	CT51272AF80E.36FE1D4	MT47H256M4HQ-25E:E	Micron	IDT	C1	FDHS	2	5/1/08
Smart Modular Technologies	SG5127FB212851HCD L	HY5PS1G831CFP-S5 rev C	Hynix	IDT	L4	Foxconn	4	5/09/08
Viking	VR5EF127218FBYL1	HY5PS1G831CFP-S5 rev C	Hynix	IDT	L4	Foxconn	4	5/14/08
Avant Technology	AVF7251B62E5800F4 ELCP-IS	EDE1104ACSE-8E-E rev C	Elpida	IDT	C1	Foxconn	2	5/20/08
Kingston	KVR800D2D4F5/4GI	E1104ACSE-8E-E	Elpida	IDT	C1	FDHS	2	5/13/08
Micron	MT36HTF51272FY-80EE2D6	MT47H256M4HQ-25E:E	Micron	IDT	L4	FDHS	2	5/13/08
Crucial	CT51272AF80E.36E2D6	MT47H256M4HQ-25E:E	Micron	IDT	L4	FDHS	2	5/13/08
ATP Electronics	AP12K72U4BJE7S1	K4T1G044QQ-HCE7 rev Q	Samsung	NEC	D1	Foxconn	2	7/17/08
Dataram	DTM65513B	HY5PS1G431CFP-S5 rev C	Hynix	IDT	C1	Foxconn	2	7/28/08
Smart Modular Technologies	SG5127FB212851HCD M	HY5PS1G831CFP-S5 rev C	Hynix	IDT	L4	Foxconn	4	7/16/08
Netlist, Inc.	NMD517A21207FD6NI5HC	HY5PS1G831CFP-S6 rev C	Hynix	IDT	L4	Netlist	4	4/28/08
Smart Modular Technologies	SG5127FB212851SQD L	K4T1G084QQ-HCE7 rev Q	Samsung	IDT	L4	Foxconn	4	10/09/08
Smart Modular Technologies	SG5127FB212851QC2 M	HYB18T1G800C2F-25F rev C2	Qimonda	IDT	L4	Foxconn	4	10/01/08
Hynix	HYMP151F72CP4D5-S5	HY5PS1G431CFP-S5	Hynix	IDT	L4	FDHS	2	10/5/08
Legacy Electronics Inc.	24FN80FNMEAE0EN	MT47H128M8HQ-25 rev E	Micron	IDT	L4	AVC	4	12/19/08
Swissbit	MEF51272B1AC2EP-2ARE	EDE1104ACSE-8E-E rev C	Elpida	IDT	C1	Foxconn	2	12/18/08
ATP Electronics	AP12K72F8BJF7S7	K4T1G084QQ-HCF7 rev Q	Samsung	Montage Technology	B2	Foxconn	4	01/26/09
Dataram	DTM65529A	HYB18T1G400C2F-25F rev C2	Qimonda	IDT	C1	Foxconn	2	02/03/09

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

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 S5400SF
Fully Buffered ECC, DDR2-667 DIMM Modules
8 GB Sizes (1G x72)

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	AMB Vendor	AMB Revision	Heat-sink Vendor	Rank	Date
Smart Modular Technologies	SG1027FBD25652 MEDL	GBS12M4DCTL5S BM rev E	Smart	IDT		Foxconn	2	6/30/08
Apacer	78.BHGAD.421	EDE1104ACSE-8E-E rev C	Elpida	IDT	C1	AVC	2	07/03/08
Micron	MT36HTS1G72FY-667A1D4	MT47H1G4THM-3:A	Micron	IDT	C1	FDHS	2	6/14/08
Crucial	CT102472AF667.3 6DA1D4	MT47H1G4THM-3:A	Micron	IDT	C1	FDHS	2	6/14/08
Netlist, Inc.	NMD1G7B2250BF-D53I5HC	HY5PS2G431CMP-Y5 rev C	Hynix	IDT	L4	Netlist	4	6/11/08
Samsung	M395T1K66AZ4-CE66	K4T4G264QA-HCE6	Samsung	IDT	C1	FDHS	2	9/15/08
Qimonda	HYS72T1G523EF-D-3S-A	HYB18T4G402AF-3S	Qimonda	IDT	AMB+	FDHS	2	9/15/08
Netlist, Inc.	NMD1G7A2250BF-D53I2HC	HY5PS2G431CMP-Y5 rev C	Hynix	IDT	D0	Netlist	4	10/01/08
Smart Modular Technologies	SG1027FB225652-HCD	HY5PS2G431CMP-Y5-C rev C	Hynix	IDT	L4	Hynix	4	10/01/08
Smart Modular Technologies	SG1027FB251252-SA	K4T4G264QA-HCE6 rev A	Samsung	IDT	C1	Samsung	2	10/30/08

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

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.

Sales Information

Vendor Name	Web URL	Vendor Direct Sales Info
ATP Electronics	http://www.atpinc.com/	Tel (1) 408-732-5000, ext 5858 Fax 408-732-5893 sales@atpusa.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://Qimonda.com	
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://www.micron.com	
MSC Vertriebs GmbH	http://www.msc-ge.com	Andreas Gruendl Tel: +49-89-945532-34 Fax: +44-89-945532-43 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 760 724-8700 ext. 103
Viking InterWorks	http://www.vikinginterworks.com	Adrian Proctor Tel: 949-643-7255 adrian.proctor@sanmina-sci.com
Virtium Technology Inc	http://www.virtium.com	Tod Skelton @ (949) 460-0020 ext. 146 or email @ tod.skelton@virtium.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® 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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