



# Enterprise Server Group

## Intel<sup>®</sup> SC450NX Server Platform System

### Tested Memory List & Report Summary



Revision History		
Date	Rev	Modifications
6/10/98	0.2	Initial release; 65 DIMMs identified as "paper-ready"
6/12/98	0.3	Update to memory list...4 added at Advanced or higher level
6/17/98	0.4	Minor grammar and trademark corrections
6/25/98	0.8	Update to list ... 16 vendors; 6 Advanced, 4 Basic, 53 Paper
6/29/98	0.9	Corrected maximum memory capability from 2GB to 4GB
7/7/98	0.91	Added 1 Advanced 32MB DIMM, 7 Advanced, 4 Basic, 53 Paper
7/23/98	0.92	Added TSOP requirement and new DIMMS Total: 8 Advanced, 3 Basic, 53 Paper
8/21/98	0.98	Merged Memory Qual Lab and CMTL testing
9/18/98	1.0	Released List
11/16/98	2.0	Update to list ... 6 vendors; 17 Advanced, 5 Basic
11/23/98	3.0	Removed Paper reviewed memory; add URLs for memory vendors
12/18/98	4.0	Removed Paper URLs for memory vendors, add new memory
01/04/99	5.0	Add new qualified memory.
01/14/99	6.0	Add new qualified memory.
01/29/99	7.0	Part number changes on Viking parts. Corrected Levels of testing.
02/04/99	8.0	Updated document structure & memory list.
02/25/99	9.0	Added new memory to the list w/DRAM part# (shaded modules in table).
03/04/99	10.0	Added new memory to the list w/DRAM part# (shaded modules in table).
03/30/99	11.0	Added new memory to the list (shaded modules in table).
04/12/99	12.0	Part number changes on Dataram parts. (Shaded modules in table).
05/03/99	13.0	Added new memory to the list (shaded modules in table).
05/18/99	14.0	Added new memory to the list (shaded modules in table).
06/09/99	15.0	Added new memory to the list (shaded modules in table).
06/23/99	16.0	Correction on Centon part. (Shaded modules in table).
07/01/99	17.0	Added new memory to the list (shaded modules in table).
07/06/99	18.0	Added new memory to the list.
07/09/99	19.0	Added new memory to the list.
07/19/99	20.0	Added new memory to the list.
08/13/99	21.0	Added new memory to the list.
08/30/99	22.0	Added new memory to the list.
09/07/99	23.0	Added new memory to the list.
09/14/99	24.0	Added new memory to the list & Dram part numbers.
09/23/99	25.0	Added PCB part number & CMTL test number.

<b>Revision History (continued)</b>		
<b>Date</b>	<b>Rev</b>	<b>Modifications</b>
12//99	26.0	Part number change for Viking parts. Added DRAM vendor and column to identify product that is end of life (EOL).
12/99	27.0	Part number changes on Samsung parts. Added new qualified part. (In shaded area). Add distributor information.
1/2000	28.0	Added new qualified part. (In shaded area) Added Samsung "Old" & "New" part numbers. Updated distributor information.
2/2000	29.0	Added Hyundai 64MB parts. (In shaded area) Part number changes & corrections for Samsung & DataRam.
2/2000	30.0	Added Qestec & Hyundai 256MB parts. (In shaded area)
3/2000	31.0	Added DataRam 256MB parts. (In shaded area)
3/2000	32.0	Part number change for Viking 64MB & 128MB parts. (In shaded area)
3/2000	33.0	Added DataRam 256MB & 64MB parts. Part number updates for Samsung. (In shaded area)
4/2000	34.0	Added DataRam 64MB & 256MB parts. Added Viking 256MB part. (In shaded area)
5/2000	35.0	Added DataRam 128MB parts. (In shaded area)
5/2000	36.0	Added Samsung 64MB & 128MB parts. Added Advantage Memory 128MB & Micron 256MB part. (In shaded area)
5/2000	37.0	Added DataRam 128MB part. (In shaded area)
6/2000	38.0	Added ATP Electronics 256MB part. Added Dane Elec 128MB part. Added new part number for Viking 256MB part. (In shaded area)
6/2000	39.0	Added Dane Elec 32MB & 128MB part. (In shaded area)
6/2000	40.0	Added Viking 128MB part. Part number change for Kingston 128MB & 256MB parts. (In shaded area)
9/2000	41.0	Added Vital 256MB part. (In shaded area)
10/2000	41.0	Added ATP Electronics 256MB part. (In shaded area)
10/2000	42.0	Updated distributor info for Centon Elec & Silicon Tech. (In shaded area).

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

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## Overview of Memory Testing

The following procedure is used to qualify Dual In-Line Memory Modules (DIMMs) for use in the Intel® SC450NX server system. Memory is a vital subsystem in a server. Intel requires strict guidelines to be met before a DIMM vendor is put onto the qualified memory list. To be acknowledged on the list as a fully functional DIMM, the memory must pass Advanced Environmental Testing.

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

Intel®'s Server and Workstation Board qualified memory lists categorize memory modules as Advanced Tested. The Advanced Testing process involves a paper qualification, a standard voltage and room temperature functional test, and a voltage and temperature margin functional test. A paper qualification is a review of critical timings, electrical characteristics, timing requirements, environmental requirements, and packaging requirements in order to see if the DIMM meets Intel's memory specifications. The standard voltage and room temperature test involves testing the memory module on the particular Intel Board for which it is being qualified with test software operating under Microsoft\* Windows NT\* v4.0 for no less than 24 hours. The voltage and temperature margin testing involves testing the memory module on the particular Intel Board for which it is being qualified with various test software and operating systems for 48-72 hours under various voltage and temperature margin conditions. DIMMs that have completed Advanced Testing are known to be compatible with the product on which they were tested, and with the test software and operating system that was utilized during the test procedure.

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†CMTL<sup>SM</sup> is a leading memory testing organization responsible for testing a broad range of memory products. A memory product, which receives a "PASS" after being tested by CMTL<sup>SM</sup>, 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 equipment and a procedure as defined by Intel's various functional testing levels. Testing is performed on a number of Intel SC450NX server boards.

John Deters	Computer Memory Test Lab
714-960-1243 (voice)	(CMTL <sup>SM</sup> )
714-960-4695 (fax)	101 Main Street, Suite 2G
	Huntington Beach, CA 92648
	<a href="http://www.cmtlabs.com">http://www.cmtlabs.com</a>

## Qualified DRAM DIMM Memory for the SC450NX Server System

The SC450NX memory module has 16 dual in-line memory module (DIMM) sockets, which support up to 4GB of EDO/ECC system memory. These sockets are divided into four banks of four sockets labeled A through D on the memory module. These banks support 4:1 interleaving only. All DIMMs within a given bank should be identical. From bank to bank, the Intel 82450NX PCiset supports different varieties of DIMM size, manufacturer, and speed. The BIOS will automatically detect the memory type, size, and speed. The following memory features are supported:

- 168-pin DIMMs with gold-plated contacts
- Buffered EDO/ECC DIMMs; 50ns or 60ns
  - 32MB: 16Mbit, 4Mx4 DRAM; 2K or 4K refresh
  - 64MB: 64Mbit, 8Mx8 DRAM; 4K refresh
  - 128MB: 64Mbit, 16x4 DRAM; 4K or 8K refresh
  - 256MB: 64Mbit, 16x4 DRAM; 4K or 8K refresh
- 3.3v memory only
- CAS-before-RAS refresh only
- Single or double-sided DIMMs
- Double-high DIMMs with maximum height of 2.1 inches
- TSOP package only, SOJ not supported due to spacing

Intel strongly recommends the use of ECC memory in all server systems. The EDO/ECC DIMMs can be installed four at a time on the memory module used on the SC450NX server platform. The SC450NX with Intel Pentium® II Xeon™ processors can meet a wide range of needs, with processing speeds starting at 400 MHz and cache sizes ranging from 512 KB to 2 MB. In addition, the SC450NX offers true scalability by supporting from one to four Pentium II Xeon processors. This document will be updated with the latest tested EDO/ECC memory modules as qualified memory is added for the life of the SC450NX Server system product. The most recent version of this document supercedes all other versions.

The following tables list DIMM devices known to be compatible with the Intel SC450NX Pentium® II Xeon™ processor-ready server platform system. Intel recommends that DIMMs listed as *Advanced* to be used to establish reliable system operation. DIMM devices not listed can be used; but, in the event of unreliable system operation, the DIMM devices should be replaced with functionally *Advanced* tested DIMMs to determine whether the DIMM devices are causing the problem. The memory devices shown are categorized according to three levels of qualification:

Memory modules not listed in the following tables may be used, however, Intel recommends the use of Advanced Tested ECC modules, and in the event of unreliable system operation, the modules should be replaced with Advanced Tested ECC modules to determine whether the unlisted or non -ECC modules are causing the problem. Intel recommends that module and DRAM vendors not be mixed in the same system.

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

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

This list is subject to change without notice.

**SC450NX Server Platform**  
**Buffered, ECC, EDO DIMM Modules**  
**32MB Sizes**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CMTL Test #	EOL
Samsung	KMM372F404AS-6				6/9/98		EOL
Mitsubishi	MH4V7245DATJ-6				6/15/98		
+Samsung	(Old #) KMM372F400CS-5 (New #) M372F0400CF0-C5000				6/18/98		
+Samsung	(Old #) KMM372F400CS-6 (New #) M372F0400CF0-C6000				6/26/98		
TI	TM4EP72BPB-60				7/7/98		
+Samsung	(Old #) KMM372F404BS-6 (New #) M372F0404BT0-C6000				11/5/98		
+Samsung	KMM372F404BS-5				11/15/98		EOL
+Samsung	(Old #) KMM372F404CS-6 (New #) M372F0404CT0-C6000				1/22/99		
+Samsung	(Old #) KMM372F404CS-5 (New #) M372F0404CT0-C5000				2/1/99		
Smart Modular	SM5IN4M72001	KM44V4004CS-50	Samsung	P532168PESJ7GCX	7/8/99	A361	
Smart Modular	SM5IN4M72001-80	HY51V16404CT-60	Hyundai	P532168PESJ76CX	8/13/99	A416	
Smart Modular	SM5IN4M72001-90	M5M4V16405DTP	Mitsubishi	P532168PESJ76CX	8/17/99	A414	
*Dane-Elec	DE07204VB42-G6R	HYB3117405BT-60	Siemens	4072V rev B	6/5/00	A900	

+Samsung parts are available under both part numbers.

\* For further information contact CMTL at [www.GOLD@cmtlabs.com](mailto:www.GOLD@cmtlabs.com).



**SC450NX Server Platform**  
**Buffered, ECC, EDO DIMM Module**  
**64MB Sizes**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CMTL Test #	EOL
Mitsubishi	MH8V7245AZTJ-6				5/26/98		
+Samsung	(Old #) KMM372F803BS-6 (New #) M372F0803BT0-C6000				6/10/98		
Samsung	KMM372F803BS-5				7/21/98		EOL
*DataRam	DTM60092	KM48V8104BS-5	Samsung	40442-B	9/11/98	A109	
Corsair	CM73EB64-6NX	KM48V8104BS-6		50-00061B	10/15/98	A122	
*DataRam	DTM60092	KM48V8104BS-5	Samsung	40442-A	11/4/98	A137	
*DataRam	DTM60092	HY51V65804ATC-50	Hyundai	40442	11/9/98	A144	
*DataRam	DTM60092	MT4LC8M8C2TG-5	Micron	40442	11/19/98	A157	
Hyundai	HYM5V72A804ATHG-50	HY51V65804ATC-50	Hyundai	9801-4	12/8/98	A173	
Samsung	KMM372F803CS-5				2/1/99		EOL
Viking	INT6412	KM48V8104AS-6	Samsung	9726524	2/18/99	A209	
Smart Modular	SM5IN8M72001	M5M465805BTP	Mitsubishi	P528168NEBJ B60X	7/21/99	A419	
Mitsubishi Electronics	MH8V7245BBZTJ-5	M5M465805BTP-5	Mitsubishi	2021940-001	8/13/99	A405	
Smart Modular	SM5IN8M72001	HY51V65804ATC-60	Hyundai	P528168NEBJ8 G0X	8/20/99	A417	
Smart Modular	SM5IN8M72001	KM48V8104CS-6	Samsung	P528168NEBJ8 G0X	8/25/99	A438	
Hyundai	GMMS773828OCTG-5	GM71V65803CT-5	Hyundai	N/A	1/13/00	A503	
*DataRam	DTM60092	GM71V65803CT-5 rev C	Hyundai	40442 rev B	3/19/00	A819	
*DataRam	DTM60092	MT4LC8M8C2TG-5	Micron	40442 rev B	4/1/00	A872	
Samsung	M372F803DT0-C50				4/20/00		

+Samsung parts are available under both part numbers.

\* For further information contact CMTL at [www.GOLD@cmtlabs.com](mailto:www.GOLD@cmtlabs.com).

**SC450NX Server Platform**  
**Buffered, ECC, EDO DIMM Modules**  
**128MB Sizes**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CMTL Test #	EOL
Micron	CT16M72E4B6.18LDTGX				7/7/98		
Micron	MT18LDT1672G-6X				7/7/98		
*DataRam	DTM60093	HYB3165405AT-50	Siemens	40404	9/11/98	A111	
*DataRam	DTM60093	KM44V16104BS-5	Samsung	40379	10/5/98	A120	
*DataRam	DTM60093	MT4LC16M4H9TG	Micron	40379	10/21/98	A123	
*DataRam	DTM60093	HY51V65404ATC-50	Hyundai	40379	10/30/98	A127	
Viking	*INT12812	TC5165805AFTS-50	Toshiba	9613341	11/14/98	A149	
Legend	SITKA 128	V53C365805AT50	Mosel-Vitellic	16872V	11/27/98	A167	
Viking	VE16722B4EN3-UN01	TC5165805AFTS-50	Toshiba	9613341	11/30/98	A166	
Hyundai	HYM5V72A1604ATNG-50	HY51V65804ATC-50	Hyundai	9838-3	12/5/98	A171	
+Samsung	(Old # ) KMM372F1600CS-5 (New # ) M372F1600CT0-C500				1/22/99		
Silicon Tech	SL721B4C16M4F-B50V	D4265405G5-A50	NEC	00524	2/5/99	A220	
Simple Tech	STI7216107D1-50VG	D4265405G5-A50	NEC	00524	2/5/99	A219	
Micron	MT18LDT1672G-6X(D die)				2/12/99		
Kingston	~KVR16X72V84-50EG-IS	KM48V8104BS-5	Samsung	200194-001	6/3/99	A336	
Centon Electronics	CINT512M/6EVBS	4LC16M4H9TG6	Micron	CPCB-429 rev A	12/10/99	A620	
*DataRam	DTM60135	MT4LC16M4G3TG-5 rev D	Micron	40379 rev A	4/28/00	A848	
Samsung	M372F1600DT0-C50				4/26/00		
Advantage Memory	EDC1672-16X4-66VB4	UPD42S65405G5-A60-7JD	NEC	A5161 rev A	5/6/00	A814	
*DataRam	DTM60093	MT4LC16M4H9TG-5	Micron	40379	5/12/00	A871	
*Dane Elec	DE07216VBC4-G6	D4265405G5-A60-7JD	NEC	KO-6209 rev A	5/30/00	A896	
*Dane-Elec	DE07216VBC4-G5U	TC5165405BFTS-50	Toshiba	KO-6209 rev A	6/2/00	A898	
Viking	VE16722B4EN3-TS01	K4E640812D-TC50	Samsung	9726524 rev A	6/21/00	B208	

+Samsung parts are available under both part numbers.

~ Part number change/correction.

\* For further information contact CMTL at [www.GOLD@cmtlabs.com](mailto:www.GOLD@cmtlabs.com).

**SC450NX Server Platform**  
**Buffered, ECC, EDO DIMM Modules**  
**256MB Sizes**

Manufacturer	Part Number	DRAM Part Number	DRAM Vendor	PCB Part Number	Date	CMTL Test #	EOL
+Samsung	(Old #) KMM372F3280BS1-5 (New #) M372F3280BT1-C500				6/15/98		
Micron	MT36LDT3272G-6X				7/7/98		
Micron	CT32M72E4B6.36LDTGX				7/7/98		
*DataRam	DTM60094	KM44V16104BS-5	Samsung	40404	9/11/98	A108	
*DataRam	DTM60094	HYB3165405AT-50	Siemens	40404	9/12/98	A110	
*DataRam	DTM60094	MT4LC16M4H9TG	Micron	40404	10/21/98	A124	
*DataRam	DTM60094	HY51V65404ATC-50	Hyundai	40404	10/30/98	A128	
Viking	VE32722B4EN3-UN01 or INT3272NXEA	KM44V16104AS-6	Samsung	9825639	11/14/98	A148	
Hyundai	HYM5V72A3204ATNG-50	HY51V65404ATC-50	Hyundai	9835-2	12/5/98	A170	
Corsair	CM73EB256-6NX	KM44V16104AS-6	Samsung	50-00093A	12/11/98	A176	
Silicon Tech	SL72B4C32M4F-B50V	D4265405G5-A50	NEC	00720	2/5/99	A217	
Simple Tech	STI7232107D2-50VG	D4265405G5-A50-7JD	NEC	00720	2/5/99	A212	
Micron	MT36LDT3272G-6X(D-die)				2/9/99		
Tanisys Tech	TNE7232E15AG5C0	HY51V65404ATC-50	Hyundai	50-1316-71	3/2/99	A222	
+Samsung	(Old #) KMM372F3200CS1-5 (New #) M372F3200CT1-C5000				3/17/99		
Wintec Industries	W9H332735BA-6	MT4LC16M4H9-6	Micron	ZD256M44B0	3/29/99	A240	
Micron	MT36LDT3272G-5X	MT4LC16M4H9TG-5	Micron	6670	5/3/99	A322	
Kingston	~KVR32X72V44-50EG-IS	KM44V16104CS-5	Samsung	200198-001	5/10/99	A338	
Centon Electronics	CINT1G/5EVBS	4LC16M4H9TG-5D	Micron	CPCB-00393	6/3/99	A366	
Qestec	Q3272H8EG636L3B	KM44V16104BS-6	Samsung	105280A	6/7/99	A380	
ATP Electronics	AME32V72I4E4T6S	KM44V16104CS-6	Samsung	D168EIV-256M	6/18/99	A393	
Samsung	KMM372F3280CS1-5				7/2/99		
Smart Modular	SM5IN32M72001	HY51V64404ATC-60	Hyundai	P556168NESJ860X	7/12/99	A412	
Mitsubishi Electronics	MH32V7245BTJ-5	M5M465405BTP-5	Mitsubishi	2022198-001	7/15/99	A407	
PNY	69000247	HY51V65404ATC-50	Hyundai	40000429-GNL	7/27/99	A387	
Smart Modular	SM5IN32M72001	M5M467405BTP	Mitsubishi	P556168NESJ8G0X	8/6/99	A422	
Smart Modular	SM5IN32M72001	KM44VI6004BS-5	Samsung	P556168NESJ8GOX	9/13/99	A452	
Qestec	Q3272I4EG536L3B	TC5164405BFT-50	Toshiba	105280A	1/28/00	A665	
Hyundai	GMMA77332280CTG-5	GM71V65403CT5	Hyundai	N/A	2/4/00	A694	
*DataRam	DTM60094	GM71V65403CT-5	Hyundai	40404 rev B	2/25/00	A811	
*DataRam	DTM60134	MT4LC16M4G3TG-5 rev D	Micron	40404 rev B	3/28/00	A846	
Micron	MT36LDT3272G-5X				2/18/00		

Continued.....

## *SC450NX Server Platform*

### *Buffered, ECC, EDO DIMM Modules 256MB Sizes (Continued)*

<b>Manufacturer</b>	<b>Part Number</b>	<b>DRAM Part Number</b>	<b>DRAM Vendor</b>	<b>PCB Part Number</b>	<b>Date</b>	<b>CMTL Test #</b>	<b>EOL</b>
+Viking	VE32722B4EN3-UN05 & INT25619	D4265405G5-A50-7JD	NEC	9825639A	4/13/00	A842	
*DataRam	DTM60094	MT4LC16M4H9TG-5	Micron	40404 rev B	4/19/00	A866	
ATP Electronics	AE32V72I4E4T6SD	K4E640412D-TL60	Samsung	D168EIV- 256M rev A	5/20/00	B090	
Vital	VT32MX72-EDO-BGA	ED16MX41SCB4NA	Vertical Circuits Inc.(VCI)	VT16/32MX72 -EDO-BGA	9/19/00	B531	

~Part number change/correction.

+Samsung parts are available under both part numbers.

+ Viking parts are available under both part numbers.

\* For further information contact CMTL at [www.GOLD@cmtlabs.com](mailto:www.GOLD@cmtlabs.com).

## *Distributor Information*

### ASIA

Vendor Name	Distributor Name	Contact Name	Phone Number	Fax Number/E-Mail
ATP Electronics, Inc	ATP Electronics, Inc. Taiwan	Suzan Chang	011-886-2-2718-8405	011-886-2-2718-8253
Centon Electronics		John Hardacre	800-234-9292	
Corsair (USA)		Richard Hashim	01-510-657-8747 ext. 204	<a href="http://www.corsairmicro.com/sales.htm">http://www.corsairmicro.com/sales.htm</a>
Dataram	Avnet, Inc.		800-426-7999	
Dataram	Arrow ICP		888-427-2250	
Dataram	Pioneer Standard Electronics/Keylink Systems		800-539-5465	
Dataram	Wyle Systems		800-318-9953	
Dynamen	Direct Sales		949-599-0100	949-599-0113
Hyundai		tkhan	+82-2-746-6639	<a href="mailto:T.K.Han@hei.co.kr">T.K.Han@hei.co.kr</a>
Kingston				<a href="http://www.kingston.com/partners/default.asp">http://www.kingston.com/partners/default.asp</a>
Micron				<a href="http://www.micron.com/mti/msp/html/salesint.html">http://www.micron.com/mti/msp/html/salesint.html</a>
Mitsubishi Electric	Taiwan Company, Ltd., Semiconductor		+886-2-2836-52889F,	+886-2-2833-9793 <a href="mailto:metwnssi@mtsemht.com.tw">metwnssi@mtsemht.com.tw</a>
Mitsubishi Electric	Asia PTE Ltd., Semicon Division		+65 4732308	+65 4738944 <a href="mailto:semicon@mss.meap.com">semicon@mss.meap.com</a>
Mitsubishi Electric	Hong Kong Ltd. Semiconductor Division		+852 2510-0555	+852 2510-9822 <a href="mailto:scdinfo@mehk.com">scdinfo@mehk.com</a>
PNY Tech				<a href="http://www.pny.com/international/index.stm">http://www.pny.com/international/index.stm</a>
Samsung				<a href="http://www.korea.samsungsemi.com/top/contactus/contactus_index.htm">http://www.korea.samsungsemi.com/top/contactus/contactus_index.htm</a>
Silicon Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Simple Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Smart Modular				<a href="http://www.smartm.com/howtobuy.html">http://www.smartm.com/howtobuy.html</a>
Viking Components			++65.235.8832	
Vital Technology, Inc.		James E. Shea	888.866.8282 X220 or 714.960.7711 X220	Fax:714.960.4683 <a href="mailto:govt_sales@vitaltechnology.com">http://govt_sales@vitaltechnology.com</a>

## Europe

Vendor Name	Distributor Name	Contact Name	Phone Number	Fax Number/E-Mail
ATP Electronics, Inc	Llanos & Asociados (Spain)	Jose Vasquez	34-902-40-39-38	34-94-480-41-89
Centon Electronics		John Hardacre	800-234-9292	
Corsair (USA)		Richard Hashim	01-510-657-8747 ext. 204	<a href="http://www.corsairmicro.com/sales.htm">http://www.corsairmicro.com/sales.htm</a>
Dataram	Avnet, Inc.		800-426-7999	
Dataram	Arrow ICP		888-427-2250	
Dataram	Pioneer Standard Electronics/Keylink Systems		800-539-5465	
Dataram	Wyle Systems		800-318-9953	
Kingston				<a href="http://www.kingston.com/partners/default.asp">http://www.kingston.com/partners/default.asp</a>
Micron				<a href="http://www.micron.com/mti/msp/html/salesint.html">http://www.micron.com/mti/msp/html/salesint.html</a>
Mitsubishi Electric	Europe, German Branch, Semiconductor Division		+49 (2102) 4860	+49 (2102) 486 367 <a href="mailto:semis.info@meg.mee.com">semis.info@meg.mee.com</a>
Mitsubishi Electric	Europe, UK Branch, Semiconductor Division		+44 (1707) 278900	+44(1707)27887 <a href="mailto:semis.info@meuk.mee.com">semis.info@meuk.mee.com</a>
PNY Tech				<a href="http://www.pny.com/international/index.stm">http://www.pny.com/international/index.stm</a>
Samsung				<a href="http://www.korea.samsungsemi.com/top/contactus/contactus_index.htm">http://www.korea.samsungsemi.com/top/contactus/contactus_index.htm</a>
Silicon Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Simple Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Smart Modular				<a href="http://www.smartm.com/howto/buy.html">http://www.smartm.com/howto/buy.html</a>
Viking Components			++353.1.466.0090	<a href="http://www.viking.ie/">http://www.viking.ie/</a>
Vital Technology, Inc.		James E. Shea	888.866.8282 X220 or 714.960.7711 X220	Fax:714.960.4683 <a href="http://govt_sales@vitaltechnology.com">http://govt_sales@vitaltechnology.com</a>

# Japan

Vendor Name	Distributor Name	Contact Name	Phone Number	Fax Number/E-Mail
ATP Electronics, Inc	ATP Electronics, Inc. Taiwan	Suzan Chang	011-886-2-2718-8405	011-886-2-2718-8253
Centon Electronics		John Hardacre	800-234-9292	
Corsair (USA)		Richard Hashim	01-510-657-8747 ext. 204	<a href="http://www.corsairmicro.com/sales.htm">http://www.corsairmicro.com/sales.htm</a>
Dataram	Avnet, Inc.		800-426-7999	
Dataram	Arrow ICP		888-427-2250	
Dataram	Pioneer Standard Electronics/Keylink Systems		800-539-5465	
Dataram	Wyle Systems		800-318-9953	
Dynamen	Direct Sales		949-599-0100	949-599-0113
Kingston				<a href="http://www.kingston.com/partners/default.asp">http://www.kingston.com/partners/default.asp</a>
Micron				<a href="http://www.micron.com/mti/msp/html/salesint.html">http://www.micron.com/mti/msp/html/salesint.html</a>
Mitsubishi Electric Corporation	Overseas Grp, Semiconductor Marketing Planning		+81-3-3218-3440	+81-3-3218-2722 <a href="mailto:sophp@sod.hon.melco.co.jp">sophp@sod.hon.melco.co.jp</a>
PNY Tech				<a href="http://www.pny.com/international/index.stm">http://www.pny.com/international/index.stm</a>
Samsung				<a href="http://www.korea.samsungemi.com/top/contactus/contactus_index.htm">http://www.korea.samsungemi.com/top/contactus/contactus_index.htm</a>
Silicon Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Simple Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Smart Modular				<a href="http://www.smartm.com/ho wtobuy.html">http://www.smartm.com/ho wtobuy.html</a>
Vital Technology, Inc.		James E. Shea	888.866.8282 X220 or 714.960.7711 X220	Fax:714.960.4683 <a href="http://govt_sales@vitaltechnology.com">http://govt_sales@vitaltechnology.com</a>

## South America

Vendor Name	Distributor Name	Contact Name	Phone Number	Fax Number/E-Mail
ATP Electronics, Inc	ATP Electronics, Inc. -U.S.A.	Martha Wu	408-732-5000	408-732-5055
Centon Electronics		John Hardacre	800-234-9292	
Corsair (USA)		Richard Hashim	01-510-657-8747 ext. 204	<a href="http://www.corsairmicro.com/sales.htm">http://www.corsairmicro.com/sales.htm</a>
Dataram	Avnet, Inc.		800-426-7999	
Dataram	Arrow ICP		888-427-2250	
Dataram	Pioneer Standard Electronics/Keylink Systems		800-539-5465	
Dataram	Wyle Systems		800-318-9953	
Dynamen	Direct Sales		949-599-0100	949-599-0113
Kingston				<a href="http://www.kingston.com/partners/default.asp">http://www.kingston.com/partners/default.asp</a>
Micron				<a href="http://www.micron.com/mti/misp/html/salesint.html">http://www.micron.com/mti/misp/html/salesint.html</a>
Mitsubishi Electric Corporation	Overseas Marketing A		+81-3-3218-3355	+81-3-3218-2894 <a href="mailto:scahp@sod.hon.melco.co.jp">scahp@sod.hon.melco.co.jp</a>
PNY Tech				<a href="http://www.pny.com/international/index.stm">http://www.pny.com/international/index.stm</a>
Samsung				<a href="http://www.korea.samsungs-emi.com/top/contactus/contactus_index.htm">http://www.korea.samsungs-emi.com/top/contactus/contactus_index.htm</a>
Silicon Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Simple Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Smart Modular				<a href="http://www.smartm.com/ho wtobuy.html">http://www.smartm.com/ho wtobuy.html</a>
Vital Technology, Inc.		James E. Shea	888.866.8282 X220 or 714.960.7711 X220	Fax:714.960.4683 <a href="http://govt_sales@vitaltechnology.com">http://govt_sales@vitaltechnology.com</a>



## North America

Vendor Name	Distributor Name	Contact Name	Phone Number	Fax Number/E-Mail
ATP Electronics, Inc	ATP Electronics, Inc. - U.S.A.	Martha Wu	408-732-5000	408-732-5055
Centon Electronics		John Hardacre	800-234-9292	
Corsair	Synnex Information Technologies	Jack Chen	800-756-9888	<a href="http://www.corsairmicro.com/sales.htm">http://www.corsairmicro.com/sales.htm</a>
Dataram	Avnet, Inc.		800-426-7999	
Dataram	Arrow ICP		888-427-2250	
Dataram	Pioneer Standard Electronics/Keylink Systems		800-539-5465	
Dataram	Wyle Systems		800-318-9953	
Kingston				<a href="http://www.kingston.com/partners/default.asp">http://www.kingston.com/partners/default.asp</a>
Micron				<a href="http://www.micron.com/mti/msp/html/salesna.html">http://www.micron.com/mti/msp/html/salesna.html</a>
Mitsubishi Electric.	Sales Canada, Inc		905-475-7728	905-475-1918
Mitsubishi Electric	Sales Canada, Inc.		613-591-3348	613-591-3948
Mitsubishi Electric	Sales Canada, Inc.		403-291-2100	403-291-1563
Mitsubishi Electronics	America, Inc. Electronic Device Group		408-730-5900	408-732-9382
Mitsubishi Electronics	America, Inc. Electronic Device Group		949-859-9457	949-859-9450
Mitsubishi Electronics	America, Inc. Electronic Device Group		972-888-2230	972-620-6025
PNY Tech				<a href="http://www.pny.com/international/index.stm">http://www.pny.com/international/index.stm</a>
Samsung				<a href="http://www.korea.samsungsemi.com/top/contactus/contactus_index.htm">http://www.korea.samsungsemi.com/top/contactus/contactus_index.htm</a>
Silicon Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Simple Tech				<a href="http://www.simpletech.com/about/buyprod.html">http://www.simpletech.com/about/buyprod.html</a>
Smart Modular				<a href="http://www.smartm.com/howtobuy.html">http://www.smartm.com/howtobuy.html</a>
Viking Components			800.338.2361 949.643.7255	<a href="http://www.vikingcomponents.com/company/offices.html">http://www.vikingcomponents.com/company/offices.html</a>
Vital Technology, Inc.		James E. Shea	888.866.8282 X220 or 714.960.7711 X220	Fax:714.960.4683 <a href="mailto:govt_sales@vitaltechnology.com">http://govt_sales@vitaltechnology.com</a>

### **Computer Memory Test Labs (CMTL<sup>SM</sup>)**

CMTL<sup>SM</sup> is a privately owned and operated memory testing organization responsible for testing a broad range of memory products. Memory devices tested by CMTL<sup>SM</sup> must undergo a rigorous battery of tests to ensure that the product will perform the intended server functions. Memory capability is a major factor customers consider. CMTL<sup>SM</sup> 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<sup>SM</sup> 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<sup>SM</sup> with Intel server products and test procedures defined by Intel's Memory Qualification Lab. Intel routinely audits the CMTL<sup>SM</sup> factuality to ensure all procedures, process handling, and testing methodologies are met.

### **Intel® Product Dealers and Product Integrators**

The Intel Product Dealer program was designed in North America to support system integrators building and selling a limited number of systems per year. More information on this program is available through the Intel web site at <http://channel.intel.com>. Similar programs exist in European, Middle Eastern, African, Asia-Pacific and South American regions.

#### **IMPORTANT NOTE**

DIMM devices with gold contacts should NOT be placed into DIMM sockets with tin-lead contacts or vice-versa. Mixing dissimilar metal contact types has been shown to result in unreliable memory operation. Intel recommends similar manufacturer and similar speeds in each bank on the memory module. Mixing of dissimilar memory manufacturer devices or dissimilar memory device speeds is not recommended. This document contains information which is the proprietary property of Intel Corporation. Nothing in this document constitutes a guaranty, warranty, or license, express or implied. Intel has tested the following DIMMs for minimum electrical and functional compatibility with boxed Pentium® II Xeon™ processors. This listing is not intended to be all inclusive; it only represents the DIMMs Intel or CMTL<sup>SM</sup> 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 Pentium® II Xeon™ baseboard. 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 SC450NX 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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