

# Classic/PCI Expandable Desktop User-Installable Upgrades

**PLEASE NOTE**

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## CPU UPGRADE JUMPERS

CPU Type	CPU Voltage (Vcc) Jumpers	Pentium™ OverDrive™ Processor Cache Enable Jumper	SX/ Non-SX CPU Jumper	SL/ Non-SL CPU Jumper	CPU Clock Speed Jumpers
	J2A1, J2A2, J2A3, J2A4	J1C2	J1C4	J1C3	J1E1, J1E2
i486™ SX 25 MHz 5 V SL	pins 2-3	pins 1-2	pins 2-3	pins 2-3	pins 2-3
IntelSX2™ 50 MHz 5 V SL	pins 2-3	pins 1-2	pins 2-3	pins 2-3	pins 2-3
i486 DX 33 MHz 5 V SL	pins 2-3	pins 1-2	pins 1-2	pins 2-3	pins 1-2
IntelDX2™ 66 MHz 5 V SL	pins 2-3	pins 1-2	pins 1-2	pins 2-3	pins 1-2
IntelDX4™ 100 MHz 3.3 V SL	pins 1-2	pins 1-2	pins 1-2	pins 2-3	pins 1-2
Pentium OverDrive processor 5 V SL	pins 2-3	pins 2-3	pins 1-2	pins 2-3	pins 1-2
Future OverDrive processor for IntelDX4 processor 3.3 V SL	pins 1-2	pins 2-3	pins 1-2	pins 2-3	pins 1-2
Non-SL enhanced processors	*	*	*	pins 1-2	*

## CACHE SRAM

The Classic/PCI Expandable Desktop can be upgraded with a second level cache by adding industry-standard SRAM components to DIP sockets on the baseboard. Possible combinations are listed in Table A-2. The design requires 15 ns data SRAM and 15 ns tag and 15 ns dirty bit SRAM. A jumper change may be required.

Cache Size	SRAM Size			
	Bank 0 U7C1-3, U8C1	Bank 1 U7A1-3, U8A1	Tag Bit U6A1	Dirty Bit U6C1
128K	(4) 32Kb x 8	none	(1) 32Kb x 8	(1) 16Kb x 1
256K	(4) 32Kb x 8	(4) 32Kb x 8	(1) 32Kb x 8	(1) 16Kb x 1

Table A-2. Possible second level cache combinations

Table A-3 lists the approved part numbers for 128 KB or 256 KB cache components from several vendors.

Vendor	32 Kb x 8, 15 ns	16 Kb x 1, 15 ns
IDT	71256SA15TP	6167SA-15
Motorola	MEM6206CP15	
Cypress		CY7C167A-15PC
Hyundai	HY658256S-15	
Kelly Micro Systems	256 KB kit: KNI/CACHE-256PR 128 KB kit: KNI/CACHE-128PR	

Table A-3. Sampling of cache component vendors

## SYSTEM MEMORY

<i>Bank 0 SIMM Type (Amount)</i>	<i>Bank 1 SIMM Type (Amount)</i>	<i>Total System Memory</i>
Empty	256K X 36 (1 MB)	1 MB
Empty	512K X 36 (2 MB)	2 MB
Empty	1M X 36 (4 MB)	4 MB
Empty	2M X 36 (8 MB)	8 MB
Empty	4M X 36 (16 MB)	16 MB
Empty	8M X 36 (32 MB)	32 MB
256K X 36 (1 MB)	Empty	1 MB
256K X 36 (1 MB)	256K X 36 (1 MB)	2 MB
256K X 36 (1 MB)	512K X 36 (2 MB)	3 MB
256K X 36 (1 MB)	1M X 36 (4 MB)	5 MB
256K X 36 (1 MB)	2M X 36 (8 MB)	9 MB
256K X 36 (1 MB)	4M X 36 (16 MB)	17 MB
256K X 36 (1 MB)	8M X 36 (32 MB)	33 MB
512K X 36 (2 MB)	Empty	2 MB
512K X 36 (2 MB)	256K X 36 (1 MB)	3 MB
512K X 36 (2 MB)	512K X 36 (2 MB)	4 MB
512K X 36 (2 MB)	1M X 36 (4 MB)	6 MB
512K X 36 (2 MB)	2M X 36 (8 MB)	10 MB
512K X 36 (2 MB)	4M X 36 (16 MB)	18 MB
512K X 36 (2 MB)	8M X 36 (32 MB)	34 MB
1M X 36 (4 MB)	Empty	4 MB
1M X 36 (4 MB)	256K X 36 (1 MB)	5 MB
1M X 36 (4 MB)	512K X 36 (2 MB)	6 MB
1M X 36 (4 MB)	1M X 36 (4 MB)	8 MB
1M X 36 (4 MB)	2M X 36 (8 MB)	12 MB
1M X 36 (4 MB)	4M X 36 (16 MB)	20 MB
1M X 36 (4 MB)	8M X 36 (32 MB)	36 MB
2M X 36 (8 MB)	Empty	8 MB
2M X 36 (8 MB)	256K X 36 (1 MB)	9 MB
2M X 36 (8 MB)	512K X 36 (2 MB)	10 MB
2M X 36 (8 MB)	1M X 36 (4 MB)	12 MB
2M X 36 (8 MB)	2M X 36 (8 MB)	16 MB
2M X 36 (8 MB)	4M X 36 (16 MB)	24 MB
2M X 36 (8 MB)	8M X 36 (32 MB)	40 MB
4M X 36 (16 MB)	Empty	16 MB
4M X 36 (16 MB)	256K X 36 (1 MB)	17 MB
4M X 36 (16 MB)	512K X 36 (2 MB)	18 MB
4M X 36 (16 MB)	1M X 36 (4 MB)	20 MB
4M X 36 (16 MB)	2M X 36 (8 MB)	24 MB
4M X 36 (16 MB)	4M X 36 (16 MB)	32 MB
4M X 36 (16 MB)	8M X 36 (32 MB)	48 MB
8M X 36 (32 MB)	Empty	32 MB
8M X 36 (32 MB)	256K X 36 (1 MB)	33 MB
8M X 36 (32 MB)	512K X 36 (2 MB)	34 MB
8M X 36 (32 MB)	1M X 36 (4 MB)	36 MB
8M X 36 (32 MB)	2M X 36 (8 MB)	40 MB
8M X 36 (32 MB)	4M X 36 (16 MB)	48 MB
8M X 36 (32 MB)	8M X 36 (32 MB)	64 MB

Table A-1. Possible SIMM memory combinations  
 Note: All SIMMs can be x32(non-parity) or x36 (parity)

## APPROVED SIMM LIST

The following tables list SIMMs that are known to be compatible with the Classic/PCI Baby-AT Board and Expandable Desktop. SIMMs that are not listed also should function properly as long as their specifications are compatible with the devices listed below. In general, SIMM devices that are faster than those specified for a given platform will work although no extra performance will be realized. The SIMM devices shown are categorized according to three levels of qualification:

- 1. Intel Approved and Tested:** The device has been electrically tested by Intel and is known to be compatible with the Classic/PCI Low Profile. In addition, the vendor has met or exceeded Intel's product change, quality control, and availability requirements and is listed on our Approved Manufacturing List.
- 2. Intel Tested:** The device has been electrically tested by Intel at ambient temperatures; running a series of Intel tests (PCDIAG) and applications.
- 3. Customer Tested:** The device has been electrically tested by a customer and is reported to be compatible with the specified platform(s).

Intel recommends that SIMMs listed as (1) *Intel Approved and Tested* or (2) *Intel Tested* be used to ensure reliable system operation. SIMMs not listed or listed as (3) *Customer Tested* can be used; but, in the event of unreliable system operation, the SIMMs should be replaced with SIMMs tested by Intel (1 or 2) to determine whether the SIMMs are causing the problem.

### IMPORTANT NOTE

SIMM devices with gold contacts should NOT be placed into SIMM sockets with tin-lead contacts or vice-versa. Mixing dissimilar metal contact types has been shown to result in unreliable memory operation.

Telephone numbers are provided for your convenience. These were accurate as of March 1994, but may change at any time without notice.

All Sizes: Tin-lead contacts, 70ns

#### 1M X 32 (4MB per SIMM), Non-parity

Vendor	Qual	Part Number	Comments
Hyundai	1	HYM532100M-70	
Micron Technology	1	MT8D132M-7	208-368-3900 (they will provide a phone number for a representative in your area)
Texas Instruments	1	TM124BBK32S-70	214-644-5580
Smart Modular Technology	1	SMI5321000-7	
Kelly Micro Systems	2	KMS1000SD32-70	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI321000-70T	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG1M32000SQT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680
Centon Electronics	3	CE321020AS-70	Contact John Paratore (516)471-7700 or (800) 234-9292

#### 1M X 36 (4MB per SIMM), Parity

Vendor	Qual	Part Number	Comments
Samsung	1	KMM5361003B-7	
Texas Instruments	1	TM124MBK36R-70	
Toshiba	1	THM361020AS-70	
Kelly Micro Systems	2	KMS1000SD36-70	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI361000-70T	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG1M36000DQT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680

#### 2M X 32 (8MB per SIMM), Non-parity

Vendor	Qual	Part Number	Comments
Samsung Corning Co.	1	KMM5322000BV-7	408-954-7000
Texas Instruments	1	TM248CBK32S - 70	214-644-5580
Smart Modular Technology	1	SMI5322000-7	
Kelly Micro Systems	2	KMS2000SD32-70	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI322000-70T	Contact Mark Smith, (800)367-7330 x57
Centon Electronics	3	CE322040AS-70	Contact John Paratore (516)471-7700 or (800) 234-9292

**2M X 36 (8MB per SIMM), Parity**

Vendor	Qual	Part Number	Comments
Samsung	1	KMM5362003C-7	
Texas Instruments	1	TM248NBK36R-70	
Micron	1	MT24D236M-7	208-368-3900(they will provide a phone number for a representative in your area)
Kelly Micro Systems	2	KN18000/486T	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI362000-70T	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG2M36000DNT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680

**4M X 32 (16MB per SIMM), Non-parity**

Samsung	1	KMM5324100AV-7	
Kelly Micro Systems	2	KMS4000SD32-70	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI324000-70T	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG4M32000SQT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680
Centon Electronics	3	CE324020AS-70	Contact John Paratore (516)471-7700 or (800) 234-9292

**4M X 36 (16MB per SIMM), Parity**

Samsung	1	KMM5364100-7	408-954-7000
Kelly Micro Systems	2	KN116000/XP	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI-XPRESS/16	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG4M36000DQT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680

**8M X 32 (32MB per SIMM), Non-parity**

Toshiba	1	THM328020S-70	503-629-0818 (they will provide a phone number for a representative in your area)
Kelly Micro Systems	2	KMS8000SD32-70	Contact Jeff Jones (800)854-3900x236
Simple Technology	2	STI328000-70T	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG8M32000DQT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680
Centon Electronics	3	CE3282AS-70	Contact John Paratore (516)471-7700 or (800) 234-9292

**8M X 36 (32MB per SIMM), Parity**

Simple Technology	2	STI-XPRESS/32	Contact Mark Smith, (800)367-7330 x57
Unigen Corp	2	UG8M36000DNT-7	Contact Patrick Kylie (800) 826-0808, in CA (510) 657-2680