

Advanced/ATX User-Installable Upgrades

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This document applies only to standard Advanced/ATX baseboards, identified by part number 642594-xxx with BIOS identifier .CN0.

The devices listed below are categorized according to two levels of qualification:

Full Functional Tested: The device has passed electrical and functional testing across the full temperature and voltage specifications for the product, as well as signal quality analysis and vendor specification analysis per the Full Functional Test Qualification Procedure for the particular device. The testing of the device may have been conducted by the vendor or other third party.

Basic Functional Tested: The device has passed basic functional testing at ambient temperatures per the Basic Functional Test Qualification Procedure for the particular device. The testing of the device may have been conducted by the vendor or other third party.

Devices are added to the list upon written notification to Intel that the device has passed all the requirements documented in the applicable test procedure. Devices not listed can be used, but in the event of unreliable system operation, the devices should be replaced with tested devices to determine whether the unlisted devices are causing the problem.

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SYSTEM MEMORY

Table A-1 shows the possible memory combinations. The Advanced/ATX will support both Fast Page DRAM or EDO DRAM SIMMs, but they cannot be mixed within the same memory bank. If Fast Page DRAM and EDO DRAM SIMMs are installed in separate banks, each bank will be optimized for maximum performance. Parity generation and detection is NOT supported, but parity SIMMs (x36) may be used. SIMM requirements are 70ns Fast Page Mode or 60nS EDO DRAM (70 ns EDO may be used with a 60mhz or slower external CPU clock) with tin-lead connectors.

<i>SIMM 1,2 (Bank 0) SIMM Type (Amount)</i>	<i>SIMM 3,4 (Bank 1) SIMM Type (Amount)</i>	<i>Total System Memory</i>
1M X 32 (4 MB)	Empty	8 MB
1M X 32 (4 MB)	1M X 32 (4 MB)	16 MB
1M X 32 (4 MB)	2M X 32 (8 MB)	24 MB
1M X 32 (4 MB)	4M X 32 (16 MB)	40 MB
1M X 32 (4 MB)	8M X 32 (32 MB)	72 MB
2M X 32 (8 MB)	Empty	16 MB
2M X 32 (8 MB)	1M X 32 (4 MB)	24 MB
2M X 32 (8 MB)	2M X 32 (8 MB)	32 MB
2M X 32 (8 MB)	4M X 32 (16 MB)	48 MB
2M X 32 (8 MB)	8M X 32 (32 MB)	80 MB
4M X 32 (16 MB)	Empty	32 MB
4M X 32 (16 MB)	1M X 32 (4 MB)	40 MB
4M X 32 (16 MB)	2M X 32 (8 MB)	48 MB
4M X 32 (16 MB)	4M X 32 (16 MB)	64 MB
4M X 32 (16 MB)	8M X 32 (32 MB)	96 MB
8M X 32 (32 MB)	Empty	64 MB
8M X 32 (32 MB)	1M X 32 (4 MB)	72 MB
8M X 32 (32 MB)	2M X 32 (8 MB)	80 MB
8M X 32 (32 MB)	4M X 32 (16 MB)	96 MB
8M X 32 (32 MB)	8M X 32 (32 MB)	128 MB

Table A-1. Possible SIMM memory combinations

Note: SIMMs may be parity (x 36) or non-parity (x 32)

IMPORTANT NOTE

SIMMs with gold contacts should NOT be placed into SIMM sockets with tin-lead contacts or vice-versa. Mixing dissimilar metal contact types has resulted in unreliable memory operation. Use only Tin-lead contact SIMMs.

TESTED SIMM VENDORS

The following tables list SIMMs that have been tested. SIMMs that are not listed should also 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.

FAST PAGE SIMM

1M x 32 (4MB), Non-Parity - 70ns

Vendor	Vendor Part Number	Qual	Comments
Centon Memory	CPCB00104-7	FULL	Samsung DRAM
Centon Memory	CSAM1MX32-70SMT or 60SMT	FULL	
Centon Memory	CSAM1MX32NT7SMT	FULL	
Fujitsu Ltd	158101	FULL	NPNX DRAM 1MX4
Hyundai	HYM532100AM-60B	FULL	
Hyundai	HYM532100AM-70	FULL	
Hyundai	HYM532120W-70	FULL	HY532120w-7MA
Micron Technology	MT8D132M-7	FULL	
Oki Semiconductor	MSC23132C-70DS8	FULL	
Samsung Corning Co, LTD.	KMM5321000BV-7	FULL	
Samsung Corning Co, LTD.	KMM5321000CV-7	FULL	
Samsung Corning Co, LTD.	KMM5321000AW-7	FULL	
Smart Modular Technologies	IN5321000-W7	FULL	with NEC DRAM
Smart Modular Technologies	IN5321000W-7	FULL	Siemens 1X16 DRAM
Smart Modular Technologies	IN5321000W-7	FULL	with NEC 4218160-60,70
Smart Modular Technologies	INSM5321000-7	FULL	with NEC 424400-70
Smart Modular Technologies	INSM5321000-70	FULL	
Smart Modular Technologies	INSM5321000T-7	FULL	
Smart Modular Technologies	SM5321000H-7	FULL	
Smart Modular Technologies	SMI5321000-7	FULL	
Smart Modular Technologies	SMI5321000W-7	FULL	

1M x 32 (4MB), Non-Parity - 70ns (cont.)

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Texas Instruments	TM124BBK32S-60	FULL	
Texas Instruments	Z124BBK32U-70	FULL	TI# TM124BBK32U-70
Toshiba Corporation	THM3210B0AS-70	FULL	also THM3210BOAS-60
Unigen Corporation	NU53201400IXXS7	FULL	
Unigen Corporation	UG8M132SQT-70	FULL	
Advantage Memory Corp.	AMC1x32-70T	BASIC	
Celestica Inc.	CL001D01320B00J-70	BASIC	
Kingston Technology Corp.	KTM1x32L-70T	BASIC	
Simple Technology	STI321000-70T	BASIC	
Super PC Memory	4000/72NP	BASIC	TIN must be specefied when ordering
Unigen Corporation	1x32UG7PBT1	BASIC	
Unigen Corporation	1x32UG7SQT	BASIC	
Viking Components	1X32-70T	BASIC	
VisionTek Inc.	VT69130.0	BASIC	

1M x 32 (4MB), Non-Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT8D132M-6	FULL	
1st Tech Corporation	20-132-60T	BASIC	
VisionTek Inc.	VT69030.0	BASIC	

1M x 36 (4MB), Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT9D136M-70	FULL	
Simple Technology	STI361000-70T	BASIC	
VisionTek Inc.	VT69110.0	BASIC	
Workstation Direct	MM1x36-70T12C	BASIC	

1M x 36 (4MB), Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>

2M x 32 (8MB), Non-Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Century Microelectronics	322M6-07	FULL	with TC511816AJ-70 DRAM
Fujitsu Ltd	MB185201	FULL	w/NPNX 1Mx4
Hyundai	HYM532200AM-70	FULL	
Micron Technology	MT16D232M-7 OR -6	FULL	
Oki Semiconductor	MSC23232C-70DS16	FULL	
Samsung Corning Co.,Ltd	KMM5322000BV-7	FULL	
Samsung Corning Co.,Ltd	KMM5322000CV-7	FULL	
Smart Modular Tech. Inc	NI532023101XXS7	FULL	using 1x16 devices
Smart Modular Tech. Inc	SMI5322000-7	FULL	
Texas Instrument	Z248CBK32S-60 IN	FULL	TM248CBK32S-60
Texas Instrument	Z248CBK32U-60	FULL	
Toshiba Corp	THM3220C0AS-70	FULL	
Advantage Memory Corp.	AMC2x32-70T	BASIC	
Celestica Inc.	CL001D02320B00J-70	BASIC	
Kingston technology Corp.	KTM2x32L-70T	BASIC	
Simple Technology	STI322000-70T	BASIC	
Unigen Corporation	2x32UG7DBT	BASIC	
Unigen Corporation	2x32UG7PBT1	BASIC	
Viking Components	2X32-70T	BASIC	
VisionTek Inc.	VT69150.0	BASIC	

2M x 32 (8MB), Non-Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT16D232M-6	FULL	
1st Tech Corporation	20-232-60T	BASIC	
1st Tech Corporation	20-232-601T	BASIC	4 DRAMs
VisionTek Inc.	VT69050.0	BASIC	

2M x 36 (8MB), Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT24D236M-7	FULL	
Micron Technology	MT18D236M-7 OR -6	FULL	
Simple Technology	STI362000A-70T	BASIC	
VisionTek Inc.	VT69120.0	BASIC	
Workstation Direct	MM2x36-70T24C	BASIC	

2M x 36 (8MB), Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>

4M x 32 (16MB), Non-Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT8D432M-7 OR -6	FULL	
Celestica Inc.	CL001D04320B00J-70	BASIC	
Kingston Technology Corp.	KTM4x32L-70T	BASIC	
Simple Technology	STI324000-70T	BASIC	
Unigen Corporation	4x32UG7KBT2	BASIC	
Viking Components	4X32-70T	BASIC	
VisionTek Inc.	VT69160.0	BASIC	

4M x 32 (16MB), Non-Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT8D432M-6	FULL	
1st Tech Corporation	20-432-60NT3	BASIC	
Advantage Memory Corp.	AMC4x32-60T	BASIC	
VisionTek Inc.	VT69060.0	BASIC	

4M x 36 (16MB), Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT12D436DM-7	FULL	
Micron Technology	MT12D436DM-70	FULL	
Simple Technology	STI-XPRESS/16HB	BASIC	
VisionTek Inc.	VT69140.0	BASIC	
Workstation Direct	MM4x36-70T12C	BASIC	

4M x 36 (16MB), Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Texas Instruments	Z497MBK36Q-60	FULL	
1st Tech Corporation	20-436-60NT3	BASIC	
1st Tech Corporation	20-1040-05	BASIC	9 DRAMs

8M x 32 (32MB), Non-Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Advantage Memory Corp.	AMC8x32-70T	BASIC	
Kingston Technology Corp.	KTM8x32L-70T	BASIC	
Simple Technology	STI328000-70T	BASIC	
Unigen Corporation	8x32UG7KBT2	BASIC	
Viking Components	8X32-70T	BASIC	
VisionTek Inc.	VT69170.0	BASIC	

8M x 32 (32MB), Non-Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
1st Tech Corporation	20-832-60NT3	BASIC	
1st Tech Corporation	20-1040-15	BASIC	
VisionTek Inc.	VT69070.0	BASIC	

8M x 36 (32MB), Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Simple Technology	STI-XPRESS/32HB	BASIC	
VisionTek Inc.	VT69180.0	BASIC	

8M x 36 (32MB), Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT24D836M-6	FULL	
1st Tech Corporation	20-1040-07	BASIC	

EDO SIMM

Note: 60ns EDO SIMMs are required when the external CPU clock is set to 66 MHz (e.g., for the 100, 133, 166, and 200 MHz Pentium processor). Either 60ns or 70ns SIMMs can be used for external clock frequencies of 50 MHz and 60 MHz, but no additional performance will be seen with the 60ns SIMMs.

1M x 32 (4MB), Non-Parity - 70ns

Vendor	Vendor Part Number	Qual	Comments
Micron Technology	MT8D132M-7X	FULL	
Micron Technology	MT8D132M-6X	FULL	
Samsung Corning Co.,Ltd	KMM5321004CV-6	FULL	
Samsung Corning Co.,Ltd	KMM5321004CV-7	FULL	4M DRAM BASED
Samsung Corning Co.,Ltd	KMM5321204AW-6	FULL	
Samsung Corning Co.,Ltd	KMM5321204AW-7	FULL	
Smart Modular Tech. Inc	NI532013181XXS7	FULL	With NEC DRAM4218165-70
Smart Modular Tech. Inc	NI532014081XXS7OR S6	FULL	
Texas Instrument	TM124FBK32S-60	FULL	TM is production board
Texas Instrument	TM124FBK32S-70	FULL	
Texas Instrument	TM124FBK32U-70	FULL	Date code 9532 can not use
Texas Instrument	TX124FBK32S-60	FULL	Hyper shink version
Texas Instrument	Z124FBK32S-70	FULL	
Texas Instrument	Z124FBK32U-70	FULL	Date code 9532 can not use
Simple Technology, Inc.	STI321004A-70T	BASIC	1-800-367-7330
Viking Components	EDO1327T	BASIC	

1M x 32 (4MB), Non-Parity - 60ns

Vendor	Vendor Part Number	Qual	Comments
Micron Technology	MT8D132M-6X	FULL	
Samsung Corning Co.,Ltd	KMM5321004CV-6	FULL	4M DRAM BASED
Samsung Corning Co.,Ltd	KMM5321204AW-6	FULL	16M DRAM BASED
Smart Modular Tech Inc	NI532014081XXS6	FULL	
Texas Instrument	Z124FBK32S-60	FULL	
Texas Instrument	TM124FBK32S-60	FULL	
1st Tech Corporation	20-1039-09	BASIC	
Advantage Memory Corp.	AMC1x32-60TEDO	BASIC	
Kingston Technology Corp.	KTM1x32L-60ET	BASIC	
Unigen Corporation	1x32UG6DBT-EDO	BASIC	
VisionTek Inc.	VT69210.0	BASIC	

2M x 32 (8MB), Non-Parity - 70ns

Vendor	Vendor Part Number	Qual	Comments
Fujitsu Ltd	DM2M2N325-60JS	FULL	Use 2Mx8 EDO DRAM
Micron Technology	MT8D232M-7X	FULL	
Micron Technology	MT8D232M-6X	FULL	
Smart Modular Tech. Inc	NI532024081XXS7	FULL	1mx4 based
Texas Instrument	TM248GBK32U-70	FULL	
Simple Technology, Inc.	STI322004A-70T	BASIC	
Viking Components	EDO2327T	BASIC	

2M x 32 (8MB), Non-Parity - 60ns

Vendor	Vendor Part Number	Qual	Comments
Micron Technology	MT16D232M-6X	FULL	
Samsung Corning Co.,Ltd	KMM5322204BW-6	FULL	
Smart Modular Tech. Inc	NI532024081XXS6	FULL	W/iMx4 Micron
1st Tech Corporation	20-1039-11	BASIC	
Advantage Memory Corp.	AMC2x32-60TEDO	BASIC	
Celestica Inc.	CL001D02325B00J-60	BASIC	
Kingston Technology Corp.	KTM2x32L-60ET	BASIC	
NEC	MC-422000F32BA-60	BASIC	
Unigen Corporation	2x32UG6DBT-EDO	BASIC	
VisionTek Inc.	VT69220.0	BASIC	

4M x 32 (16MB), Non-Parity - 70ns

Vendor	Vendor Part Number	Qual	Comments
Simple Technology, Inc.	STI324004-70T	BASIC	
Unigen Corporation	4x32UG7KBT2EDO	BASIC	
Viking Components	EDO4327T	BASIC	

4M x 32 (16MB), Non-Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT8D432M-6X	FULL	
Micron Technology	MT8D432M-60X	FULL	
Texas Instrument	TM497FBK32S-60	FULL	
1st Tech Corporation	20-1040-17	BASIC	
Advantage Memory Corp.	AMC4x32-60TEDO	BASIC	
Celestica Inc.	CL001D04325B00J-60	BASIC	
Kingston Technology Corp.	KTM4x32L-60ET	BASIC	
VisionTek Inc.	VT69240.0	BASIC	

8M x 32 (32MB), Non-Parity - 70ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
1st Tech Corporation	20-1026-02	BASIC	
Simple Technology, Inc.	STI328004T-70T	BASIC	
Viking Components	EDO8327T	BASIC	

8M x 32 (32MB), Non-Parity - 60ns

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT16D832M-60X	FULL	
1st Tech Corporation	20-1040-21	BASIC	
Advantage Memory Corp.	AMC8x32-60TEDO	BASIC	
Kingston Technology Corp.	KTM8x32L-60ET	BASIC	
VisionTek Inc.	VT69280.0	BASIC	

REAL TIME CLOCK BATTERY REPLACEMENT

The battery can be replaced with a Sanyo CR2032, or equivalent, coin cell lithium battery. This battery has a 220 mAh rating.

TESTED BATTERY VENDORS**Battery, Coin cell, CR2032**

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual Level</i>	<i>Comments</i>
Maxell Corporation	CR2032	FULL	
Panasonic Industrial Co.	CR2032	FULL	
Renata Batteries U.S.	CR2032	FULL	
Sanyo Energy Corp	CR2032	FULL	
Sony Corp	CR-2032	FULL	

GRAPHICS MEMORY UPGRADE

The Advanced/ATX baseboard has 1 MB of Fast Page DRAM installed for graphics and two SOJ type sockets for upgrades up to 2 MB of graphics DRAM. The user can install two 256k x 16, 60 nS DRAM to provide a total of 2 MB of graphics DRAM.

TESTED VIDEO DRAM VENDORS**Fast Page Video DRAM (256Kx16, 60ns, SOJ)**

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Hyundai	HY514260BJC-60	FULL	
Micron Technology	MT4C16257DJ-6TR	FULL	

EDO Video DRAM (256Kx16, 60ns, SOJ)

<i>Vendor</i>	<i>Vendor Part Number</i>	<i>Qual</i>	<i>Comments</i>
Micron Technology	MT4C16270DJ-6	FULL	
Samsung Corning Co.,Ltd	KM416C254BJ-6T	FULL	

CPU UPGRADE - OVERDRIVE PROCESSOR

A Type 7 Zero Insertion Force (ZIF) socket provides users with a performance upgrade path to the Pentium Overdrive Processors.

OVERDRIVE PROCESSOR SUPPORT MATRIX

The table below lists the jumper settings required for the selected OverDrive processor. These OverDrive processors select their clock ratios internally and do not use the baseboard's internal clock ratio jumpers. The OverDrive processors work over a voltage range that includes both VR and VRE voltage ranges, therefore the user does not need to change the voltage specification jumpers on the baseboard.

The type and speed of memory components that are used on the baseboard may limit a baseboard's maximum External CPU Clock speed. This would then limit the selection of Pentium OverDrive processor that could be used to full effect on this particular baseboard. For example, the Advanced/ATX requires 60 ns EDO SIMMs if the external CPU clock frequency is set to 66 MHz. Use the current external CPU clock settings as a guide in selecting a compatible selection for a Pentium OverDrive processor speed.

<i>OverDrive Processor Type</i>	<i>Original Processor Speed</i>	<i>External CPU Clock</i>	<i>External CPU Clock Jumpers J2G1</i>
Intel PODP 3V - 125 MHz	75 MHz	50 MHz	pins 1-2, 5-6
Intel PODP 3V - 150 MHz	90 MHz	60 MHz	pins 1-2, 4-5
Intel PODP 3V - 166 MHz	100 MHz	66 MHz	pins 2-3, -5-6

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