Advanced/ZE User-Installable Upgrades

This document applies only to standard Advanced/ZE baseboards with BIOS identifier .BR0.

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

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 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 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.

IMPORTANT NOTE:

These devices are listed by Intel as a convenience to Intel's general customer base, but Intel does not make any representations or warranties whatsoever regarding quality, reliability, functionality or compatibility of these devices. This list and/or these devices may be subject to change without notice.

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SYSTEM MEMORY

Table A-1 shows the possible memory combinations. The Advanced/ZE 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.

SIMM 1,2 (Bank 0) SIMM Type (Size)	*SIMM 3,4 (Bank 1) SIMM Type (Size)*	*Total System Memory*
Empty	1M X 32 (4 MB)	8 MB
Empty	2M X 32 (8 MB)	16 MB
Empty	4M X 32 (16 MB)	32 MB
Empty	8M X 32 (32 MB)	64 MB
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.

All Sizes: Tin-lead contacts.

FAST PAGE SIMM

Vendor	*Test*	*Vendor Part Number*	*Comments*
1M x 32 (4MB), Non-Parity - 70ns			
Micron Technology	FULL	MT8D132M-7	
Samsung Corning Co, LTD.	FULL	KMM5321000BV-7	
Advantage Memory Corp.	BASIC	AMC1x32-70T	
Celestica Inc.	BASIC	CL001D01320B00J-70	
Kingston Technology Corp.	BASIC	KTM1x32L-70T	
Simple Technology	BASIC	STI321000-70T	
Super PC Memory	BASIC	4000/72NP	TIN must be specified when ordering
Unigen Corporation	BASIC	1x32UG7PBT1	
Unigen Corporation	BASIC	1x32UG7SQT	
Viking Components	BASIC	1x32-70T	
VisionTek Inc.	BASIC	VT15020.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69130.0	NEW P/N

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-132-60T	
Dataram Corp.	BASIC	62005	
VisionTek Inc.	BASIC	VT69030.0	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Simple Technology	BASIC	STI361000-70T	
VisionTek Inc.	BASIC	VT15070.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69110.0	NEW P/N

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Workstation Direct	BASIC	MM1x36-70T12C	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Dataram Corp.	BASIC	62022	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Hyundai	FULL	HYM532200AM-70	
Micron Technology	FULL	MT16D232M-7	
Micron Technology	FULL	MT16D232M-6	
Samsung Corning Co, LTD.	FULL	KMM5322200AW-7	
Advantage Memory Corp.	BASIC	AMC2x32-70T	
Celestica Inc.	BASIC	CL001D02320B00J-70	
Kingston Technology Corp.	BASIC	KTM2x32L-70T	
Simple Technology	BASIC	STI322000-70T	
Unigen Corporation	BASIC	2x32UG7DBT	
Unigen Corporation	BASIC	2x32UG7PBT1	
Viking Components	BASIC	2x32-70T	
VisionTek Inc.	BASIC	VT15115.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69150.0	NEW P/N

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-232-60T	
1st Tech Corporation	BASIC	20-232-601T	4 DRAMs
Dataram Corp.	BASIC	62006	
VisionTek Inc.	BASIC	VT69050.0	

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

Simple Technology	BASIC	STI362000A-70T	
VisionTek Inc.	BASIC	VT15150.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69120.0	NEW P/N
Workstation Direct	BASIC	MM2x36-70T24C	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Dataram Corp.	BASIC	61991	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Celestica Inc.	BASIC	CL001D04320B00J-70	
Kingston Technology Corp.	BASIC	KTM4x32L-70T	
Simple Technology	BASIC	STI324000-70T	
Unigen Corporation	BASIC	4x32UG7KBT2	
Viking Components	BASIC	4x32-70T	
VisionTek Inc.	BASIC	VT15182.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69160.0	NEW P/N

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-432-60NT3	
Advantage Memory Corp.	BASIC	AMC4x32-60T	
Dataram Corp.	BASIC	62007	
VisionTek Inc.	BASIC	VT69060.0	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Micron Technology	BASIC	MT12D436DM-7	
Samsung Corning Co, LTD.	BASIC	KMM5364100A-7	
Simple Technology	BASIC	STI-XPRESS/16HB	
VisionTek Inc.	BASIC	VT15208.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69140.0	NEW P/N
Workstation Direct	BASIC	MM4x36-70T12C	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-436-60NT3	
1st Tech Corporation	BASIC	20-1040-05	9 DRAMs
Dataram Corp.	BASIC	62003	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Advantage Memory Corp.	BASIC	AMC8x32-70T	
Kingston Technology Corp.	BASIC	KTM8x32L-70T	
Simple Technology	BASIC	STI328000-70T	
Unigen Corporation	BASIC	8x32UG7KBT2	
Viking Components	BASIC	8x32-70T	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
VisionTek Inc.	BASIC	VT15186.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69170.0	NEW P/N

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-832-60NT3	
1st Tech Corporation	BASIC	20-1040-15	
Dataram Corp.	BASIC	62008	
VisionTek Inc.	BASIC	VT69070.0	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Samsung Corning Co, LTD.	BASIC	KMM5368100A-7	
Simple Technology	BASIC	STI-XPRESS/32HB	
VisionTek Inc.	BASIC	VT15215.E	***OBSOLETE P/N; Replaced by P/N below
VisionTek Inc.	BASIC	VT69180.0	NEW P/N

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-1040-07	
Dataram Corp.	BASIC	62004	

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.

Vendor	*Test*	*Vendor Part Number*	*Comments*

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

Micron Technology	FULL	MT8D132M-7X	
Simple Technology	BASIC	STI321004A-70T	
Viking Components	BASIC	EDO1327T	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-1039-09	
Advantage Memory Corp.	BASIC	AMC1x32-60TEDO	
Dataram Corp.	BASIC	61972	
Kingston Technology Corp.	BASIC	KTM1x32L-60ET	
Unigen Corporation	BASIC	1x32UG6DBT-EDO	
VisionTek Inc.	BASIC	VT69210.0	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Simple Technology	BASIC	STI322004A-70T	
Viking Components	BASIC	EDO2327T	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-1039-11	
Advantage Memory Corp.	BASIC	AMC2x32-60TEDO	
Celestica Inc.	BASIC	CL001D02325B00J-60	
Dataram Corp.	BASIC	61973	
Kingston Technology Corp.	BASIC	KTM2x32L-60ET	
NEC	BASIC	MC-422000F32BA-60	
Unigen Corporation	BASIC	2x32UG6DBT-EDO	
VisionTek Inc.	BASIC	VT69220.0	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
Simple Technology	BASIC	STI324004-70T	
Unigen Corporation	BASIC	4x32UG7KBT2EDO	
Viking Components	BASIC	EDO4327T	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-1040-17	
Advantage Memory Corp.	BASIC	AMC4x32-60TEDO	
Celestica Inc.	BASIC	CL001D04325B00J-60	
Dataram Corp.	BASIC	61978	
Kingston Technology Corp.	BASIC	KTM4x32L-60ET	
VisionTek Inc.	BASIC	VT69240.0	

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

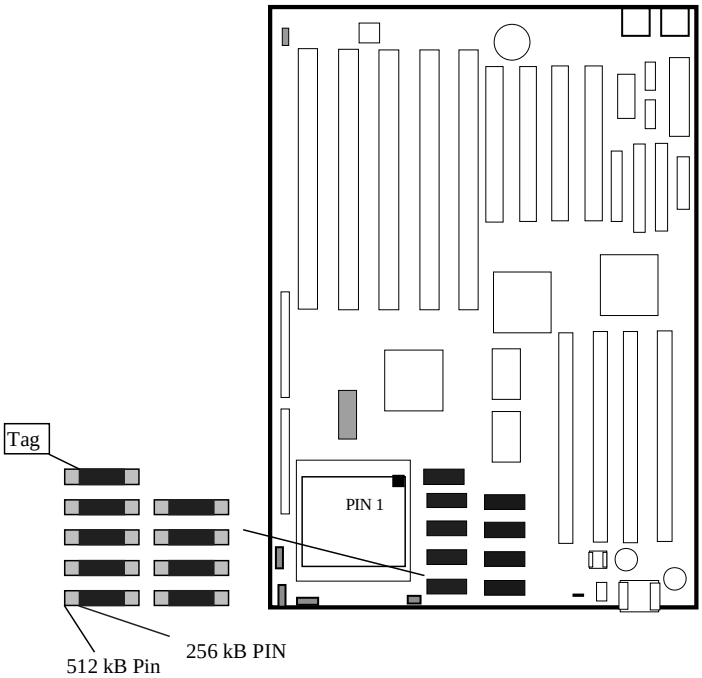
Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-1026-02	
Simple Technology	BASIC	STI328004-70T	
Viking Components	BASIC	EDO8327T	

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

Vendor	*Test*	*Vendor Part Number*	*Comments*
1st Tech Corporation	BASIC	20-1040-21	
Advantage Memory Corp.	BASIC	AMC8x32-60TEDO	
Dataram Corp.	BASIC	61979	
Kingston Technology Corp.	BASIC	KTM8x32L-60ET	
VisionTek Inc.	BASIC	VT69280.0	

CACHE SRAM

Baseboards configured for 0 KB of L2 cache can be upgraded to either 256 KB or 512 KB of L2 cache by installing eight 24-pin 32k x 8 or 28-pin 64k x 8 3.3 volt SOJ SRAM (20 ns) devices into the provided sockets. The TAG socket accepts a 24-pin 32k x 8 5.0V SOJ SRAM (15 ns). The figure below shows the Pin 1 location for the TAG and data SRAM. To properly support an external clock frequency of 66 MHz (e.g.; the 100 MHz Pentium Processor), the data and tag SRAM must be 15 ns devices.



CACHE SRAM VENDORS

Vendor	*Test*	*Vendor Part Number*	*Comments*
Tag SRAM (32Kx8, 15ns, 5V)			
Alliance Semiconductor Corp.	FULL	AS7C256-15JCTR	
Alliance Semiconductor Corp.	FULL	AS7C256-12JCTR	
Cypress Electronics	FULL	CY7C199-15VCT-CS4154AT	
Etron Technology Inc.	FULL	EM51256C-15J	
Etron Technology Inc.	FULL	EM51256C-15JL	
Idt	FULL	IDT71256SA15Y	

Tag SRAM (32Kx8, 15ns, 5V) - (cont.)

Vendor	*Test*	*Vendor Part Number*	*Comments*
Integrated Silicon Solutions	FULL	IS61C256AH-15J	Do not use or order Date Code 9451 2/95
Mitsubishi	FULL	M5M5278DJ-15	
Motorola	FULL	MCM6206-15	
Nkk	FULL	N341256SJ-15	
Samsung Corning Co.,Ltd	FULL	KM68257CJ-15T	
Winbond Electronics	FULL	W24257AJ-15	
Micron Technology	BASIC	MT5C2568DJ-15T	

Data SRAM (32Kx8, 20ns, 3.3V)

Vendor	*Test*	*Vendor Part Number*	*Comments*
Alliance Semiconductor Corp.	FULL	AS7C3256-20JC T&R	
Alliance Semiconductor Corp.	FULL	AS7C3256-15JC	
Idt	FULL	IDT71V256SA20Y	
Idt	FULL	IDT71V256SL15Y	
Idt	FULL	IDT71V256SA-15Y	
Integrated Silicon Solutions	FULL	IS61LV256-20J	

Data SRAM (32Kx8, 20ns, 3.3V) cont.

Micron Technology	FULL	MT5LC2568DJ-20T	
Micron Technology	FULL	MT5LC2568DJ-15T	
Samsung Corning Co.,Ltd	FULL	KM68V257J-20T	
Samsung Corning Co.,Ltd	FULL	KM68V257CJ-20T	
Samsung Corning Co.,Ltd	FULL	KM68V257J-17T OR -15T	
Toshiba Corp	FULL	TC55V328J-20 (EL)	
Toshiba Corp	FULL	TC55V328J-15 (EL)	
Toshiba Corp	FULL	TC55V328AJ-20	
Toshiba Corp	FULL	TC55V328AJ-15	

Data SRAM (32Kx8, 15ns, 3.3V)

Vendor	*Test*	*Vendor Part Number*	*Comments*
Alliance Semiconductor Corp.	FULL	AS7C3256-15JC	Rev G Tested
Idt	FULL	IDT71V256SL15Y	
Idt	FULL	IDT71V256SA-15Y	
Motorola	FULL	MCM6306DJ-15	
Samsung Corning Co.,Ltd	FULL	KM68V257CJ-15T	
Toshiba Corp	FULL	TC55V328J-15 (EL)	
Toshiba Corp	FULL	TC55V328AJ-15	

Data SRAM (64Kx8, 20ns, 3.3V)

Vendor	*Test*	*Vendor Part Number*	*Comments*

Data SRAM (64Kx8, 15ns, 3.3V)

Vendor	*Test*	*Vendor Part Number*	*Comments*

RTC BATTERY

The battery can be replaced with the following batteries:

APPROVED BATTERY VENDORS

Vendor	*Test*	*Vendor Part Number*	*Comments*
Battery, Coin cell, CR2032			
Maxell Corporation	FULL	CR2032	
Panasonic Industrial Company	FULL	CR2032	
Renata Batteries U.S.	FULL	CR2032	
Sanyo Energy Corp	FULL	CR2032	
Sony Corp	FULL	CR-2032	

OVERDRIVE PROCESSOR SUPPORT MATRIX

The information below describes the specific OPSD systems that support the OverDrive 320-pin PODP 3V-XXX processors which can be accommodated in a 320 pin Type 5 Socket or a 321 pin Type 7 Socket. The tables list 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. These 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.

For any particular baseboard, the type and speed of memory and/or the speed of the cache components that are used on the baseboard, may limit a baseboards' maximum achievable 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. Use the current external CPU clock settings as a guide in selecting a compatible selection for a Pentium OverDrive processor speed.

The Advanced/ZE baseboard comes in two configurations, a 320-pin Type 5 Zero Insertion Force (ZIF) socket or a 321 pin Type 7 Zero Insertion Force (ZIF) socket. Either configuration provides users with a Pentium OverDrive processor performance upgrade path.

PROCESSOR UPGRADES	*Original*	*External CPU Clock*	*External CPU Clock Switch/ Jumper*	*External Clock Switch/ Jumper*
CPU Type	*CPU Type*	*Speed*	*Switch 7*	*Switch 8*
Intel PODP 3V - 125 MHz	75 MHz	50 MHz	on	off
Intel PODP 3V - 150 MHz	90 MHz	60 MHz	off	off
Intel PODP 3V - 166 MHz	100 MHz	66 MHz	on	on