intel®

MP440BX
Motherboard
Specification Update

Release Date: November 1998

Order Number: 704524-005

The MP440BX motherboard may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are documented in this Specification Update.

CONTENTS

PREFACE

This document is an update to the specifications contained in the MP440BX Motherboard Technical Product Specification (Order number 694605). It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools. It will contain Specification Changes, Errata, Specification Clarifications, and Documentation Changes.

Refer to the *Pentium® II Processor Specification Update* (Order number 243337) for specification updates concerning the Pentium II processor. Items contained in the *Pentium II Processor Specification Update* that either do not apply to the MP440BX motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any processor errata for a given stepping are applicable to the PBA revision(s) associated with that stepping.

Refer to the *82443BX Specification Update* (Order Number 290639) for specification updates concerning the 82443BX PCI A.G.P. Controller. Items contained in the *82443BX Specification Update* that either do not apply to the MP440BX motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any controller errata for a given stepping are applicable to the PBA revision(s) associated with that stepping.

Refer to the *Intel® 82371EB (PIIX4E) Specification Update* (Order Number 290635) for specification updates concerning the 82371EB PIIX4E. Items contained in the *Intel 82371EB (PIIX4E) Specification Update* that either do not apply to the MP440BX motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any PIIX4E errata for a given stepping are applicable to the Printed Board Assembly (PBA) revision(s) associated with that stepping.

Nomenclature

Specification Changes are modifications to the current published specifications. These changes will be incorporated in the next release of the specifications.

Errata are design defects or errors. Characterized errata may cause the MP440BX motherboard's behavior to deviate from published specifications. Hardware and software designed to be used with any given Printed Board Assembly (PBA) and BIOS revision level must assume that all errata documented for that PBA and BIOS revision level are present on all motherboards.

Specification Clarifications describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in the next release of the specifications.

Documentation Changes include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.

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Specification Update for MP440BX Motherboards

GENERAL INFORMATION

Basic MP440BX Motherboard Identification Information

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
700350-204	700351-204	B1	4M4PB0X1.86A. 0008.P02	1-5
700350-301	700351-301	B1	4M4PB0X1.86A. 0013.P06	1-5
700350-302	700351-302	B1	4M4PB0X1.86A. 0013.P06	1-5
700350-303	700351-303	B1	4M4PB0X1.86A. 0013.P06	1-5
692373-205	691227-205	B1	4M4PB0X1.86A. 0008.P02	1-5
692373-206	691227-206	B1	4M4PB0X1.86A. 0008.P02	1-5
692373-302	691227-302	B1	4M4PB0X1.86A. 0013.P06	1-5
692373-303	691227-3-3	B1	4M4PB0X1.86A. 0013.P06	1-5
692373-304	691227-304	B1	4M4PB0X1.86A. 0013.P06	1-5
692373-305	691227-305	B1	4M4PB0X1.86A. 0013.P06	1-5

NOTES:

1. The PBA number or AA number is found on a small label on the component side of the board.

2. The 440BX AGPset kit used on this PBA revision consists of two components as follows:

Device	Stepping	S-Spec Numbers
82443BX	B1	SL2T5 SL2T6
82371EB	A0	SL2MY

3. The following errata are contained in the *Pentium® II Processor Specification Update* (Order Number 243337) for the Pentium II processor and either do not apply to the MP440BX motherboard or have been worked-around in this PBA and/or BIOS revision: 3, 10-11, 17, 27-28, 32, 41, 50, 1AP-3AP. All other errata associated with the processor apply to this PBA revision.

4. The following items are contained in the *Intel® 82443BX Specification Update* (Order Number 290639) and either do not apply to the MP440BX motherboard or have been worked around in this PBA and/or BIOS revision: Erratum 3. All other errata associated with the AGPset apply to this PBA revision.

5. The following items are contained in the *Intel® 82371EB (PIIX4E) Specification Update* (Order Number 290635) and either do not apply to the MP440BX motherboard or have been worked around in this PBA and/or BIOS revision: None. All other errata associated with the PIIX4E apply to this PBA revision.

Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes which apply to the MP440BX motherboard. Intel intends to fix some of the errata in a future revision of the motherboard, and to account for the other outstanding issues through documentation or specification changes as noted. This table uses the following notations:

CODES USED IN SUMMARY TABLE

Doc:	Document change or update that will be implemented.
Fix:	This erratum is intended to be fixed in a future revision of the motherboard or BIOS.
Fixed:	This erratum has been previously fixed.
NoFix:	There are no plans to fix this erratum.
Shaded:	This erratum is either new or modified from the previous version of the document.

NO.	PLANS	ERRATA
1	Fix	Serial mouse activity does not wake system after APM shutdown
2	NoFix	Advanced Power Management may suspend system during CD-ROM playback
3	Fixed	System using 3-mode floppy drive cannot read XDF format diskettes
4	Fix	System will not boot from ISA video adapter if Scan User Flash is enabled
5	Fix	System will not format unformatted 2.88 MB diskette
6	Fix	System BIOS does not log ECC memory errors
7	Fix	Onboard LAN controller may not initialize properly
NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	Hardware monitor reverses reporting of -12 Volt signal
NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to Section 2.3, I/O Map
2	Doc	Change to Section 3.7, System Management BIOS
3	Doc	Change to description of front panel connector

The errata described in this specification update apply to combinations of PBA revision and BIOS revision as shown in the table below. Descriptions of the individual errata referred to by number in the table below are found in the ERRATA section of this document.

PBA Revision	BIOS Revision	Errata That Apply
700351-204	4M4PB0X1.86A.0008.P02	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
700351-301	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
700351-302	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
700351-303	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
691227-205	4M4PB0X1.86A.0008.P02	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
691227-206	4M4PB0X1.86A.0008.P02	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
691227-302	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
691227-303	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
691227-304	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7
691227-305	4M4PB0X1.86A.0008.P02‡	1-7
	4M4PB0X1.86A.0013.P06	1-2, 4-7

‡ Note: This combination of BIOS revision and PBA revision has not undergone regression testing. Use of a PBA with down-revision BIOS is an untested combination and is undertaken at the user's risk.

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ERRATA

1.   Serial Mouse Activity Does Not Wake System After APM Shutdown

PROBLEM: The system BIOS does not recognize activity from a serial mouse as an APM event.

IMPLICATION: The system will not be restored from a power-managed state until keyboard activity occurs.

WORKAROUND: The system BIOS does recognize activity from a PS/2* style mouse.

STATUS: This erratum will be fixed in a future BIOS revision.

2.   Advanced Power Management May Suspend System During CD-ROM Playback

PROBLEM: ATAPI devices (such as CD-ROM and DVD drives) do not reset the inactivity timer that is used by Advanced Power Management to determine when to place the system into suspend mode.

IMPLICATION: When playback of an audio CD or a DVD file is the only system activity, the system will go into suspend mode when the inactivity timer expires.

WORKAROUND: Temporarily disable the Low-power standby and Shut off monitor options on the Display Properties, Screen Saver menu. This menu is available from the Windows* 95 Control Panel.

STATUS: This erratum will not be fixed.

3.   System Using 3-Mode Floppy Drive Cannot Read XDF Format Diskettes

PROBLEM: The buffer area that stores floppy drive parameters does not have room to store the speed information to allow a 3-mode floppy drive to read a diskette in the XDF format.

IMPLICATION: A system that has a 3-mode floppy drive cannot be used to install a program or operating system, such as PC-DOS 7.0, that is distributed on XDF format diskettes.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4M4PB0X1.86A.0013.P06.

4.   System Will Not Boot From ISA Video Adapter if Scan User Flash is Enabled

PROBLEM: If the option to scan the user flash area during the boot process is enabled in the BIOS setup program, the system will hang when the BIOS attempts to initialize an ISA video adapter. This erratum does not affect PCI video adapters.

IMPLICATION: A user who requires an ISA video adapter will not be able to use the scan user flash area option.

WORKAROUND: None.

STATUS: This erratum will be fixed in a future BIOS revision.

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5. System Will Not Format Unformatted 2.88 MB Diskette

PROBLEM: The BIOS does not support formatting unformatted 2.88 MB diskettes. The operation will terminate with the message, "Invalid Media or Track0 Bad. Disk not useable." Previously formatted diskettes can be reformatted in the drive.

IMPLICATION: Unformatted diskettes will have to be formatted in another system before they can be used.

WORKAROUND: None.

STATUS: This erratum will be fixed in a future BIOS revision.

6. System BIOS Does Not Log ECC Memory Errors

PROBLEM: The system BIOS does not write a record to the DMI log stored in non-volatile memory when a single or double bit ECC memory error is identified by the memory controller.

IMPLICATION: For single bit errors, the error will be corrected based on the memory checkbits. The corrected data will be passed to the system by the controller, but the error will not be recorded in the DMI log.

For double-bit errors identified during run time, the system will not be halted. The erroneous data will be passed to the system by the controller. The error will not be recorded in the DMI log.

Because these errors are not recorded in the DMI log, the user will not receive information from this log that could be useful in isolating a failing memory module.

WORKAROUND: None.

STATUS: This erratum will be fixed in a future BIOS revision.

7. Onboard LAN Controller May Not Initialize Properly

PROBLEM: The onboard LAN controller intermittently fails to establish a network link at the time the system is started or rebooted.

IMPLICATION: The user will not have access to network resources.

WORKAROUND: None.

STATUS: This erratum will be fixed in a future PBA revision.

SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *MP440BX Motherboard Technical Product Specification* (Order Number 694605). All Specification Clarifications will be incorporated into a future version of that specification.

1.   *Hardware Monitor Reverses Reporting of -12 Volt Signal*

The hardware monitor measures negative voltages by offsetting them into a positive voltage range. Earlier OPSD motherboards with hardware monitors measured negative voltages by inverting them. Monitoring software that expects negative voltages to be inverted will report increases and decreases of negative voltages incorrectly. As the magnitude of the voltage increases, it is reported as a voltage decrease. As the magnitude of the voltage decreases, it is reported as a voltage increase.

Alert actions based on whether the magnitude of the voltage is greater or less than the nominal -12 volts will not take place correctly. Alert actions that are only dependent on notification that the voltage is outside a defined tolerance band will continue to take place as defined.

Version 3.3 of the Intel® LANDesk® Client Manager network monitoring software reports changes in negative voltages correctly.

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the MP440BX Motherboard Technical Product Specification (Order Number 694605). All Documentation Changes will be incorporated into a future version of that specification.

1. Change to Section 2.3, I/O Map

In Table 30, I/O Map, the reference to Management Extension Hardware at hex address 0290 - 0297 will be removed. The management extension hardware on the AL440LX motherboard does not use I/O address space.

2. Change to Section 3.7, System Management BIOS

In Section 3.7, System Management BIOS (SMBIOS), paragraph 2 will be replaced in its entirety as follows:

Intel can provide system manufacturers with a utility that programs system and chassis-related information into the DMI space in Flash memory. The utility is used to program the BIOS during system manufacturing, so that the BIOS can later report this information. Once written, this information cannot be overwritten by the end user.

3. Change to Description of Front Panel Connector

Table 13, Front Panel I/O Connectors, will be changed to reflect the following values for pins 24-27:

Connector	Pin	Signal Name
A. Speaker	27	+5 V
	26	+5 V
	25	Key
	24	Speaker