intel®

SE440BX
Motherboard
Specification Update

Release Date: August 1999

Order Number: 704528-014

The SE440BX 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

REVISION HISTORY

Date of Revision	Version	Description
April 1998	-001	This document is the first Specification Update for the Intel® SE440BX motherboard.
May 1998	-002	Added Erratum 3.
June 1998	-003	Added Specification Changes 1-3, Errata 3-7, Specification Clarifications 1-2 and Documentation Change 1.
July 1998	-004	Added Erratum 8.
August 1998	-005	Added Erratum 9 and Documentation Change 2.
September 1998	-006	Added Errata 10-14. Updated status of Errata 1 and 3-9.
October 1998	-007	Updated status of Errata 10 and 14. Added Specification Changes 4-6 and Errata 15-16.
November 1998	-008	Added Erratum 17 and Documentation Change 3. Updated status of Erratum 15.
December 1998	-009	Added Specification Change 7 and Errata 18-19.
January 1999	-010	Modified Specification Change 7 and Erratum 18. Added Errata 20-23.
April 1999	-011	Modified Specification Change 7. Updated status of Errata 13, 15, and 17-20 . Added Specification Changes 8-10 and Errata 24-25.
May 1999	-012	Added Specification Change 11 and Erratum 26.
June 1999	-013	Updated status of Erratum 10.
August 1999	-014	Added Erratum 27.

intel®

PREFACE

This document is an update to the specifications contained in the *SE440BX Motherboard Technical Product Specification* (Order number 691141). 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 SE440BX 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 SE440BX 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 *Inte® 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 SE440BX 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 SE440BX 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.

**Specification Update for
SE440BX Motherboards**

GENERAL INFORMATION

Basic SE440BX Motherboard Identification Information

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
696211-405	696210-405	B1	4S4EB0X1.86A. 0011.P04	1-5
696211-406	696210-406	B1	4S4EB0X1.86A. 0011.P04	1-5
696211-407	696210-407	B1	4S4EB0X1.86A. 0011.P04	1-5
696211-408	696210-408	B1	4S4EB0X1.86A. 0025.P09	1-5
696211-409	696210-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696211-410	696210-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696211-411	696210-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
695197-405	696210-405	B1	4S4EB0X1.86A. 0011.P04	1-5
695197-406	696210-406	B1	4S4EB0X1.86A. 0011.P04	1-5
695197-407	696210-407	B1	4S4EB0X1.86A. 0011.P04	1-5
695197-408	696210-408	B1	4S4EB0X1.86A. 0025.P09	1-5
695197-409	696210-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
695197-410	696210-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
695197-411	696210-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703652-405	696210-405	B1	4S4EB0X1.86A. 0011.P04	1-5
703652-406	696210-406	B1	4S4EB0X1.86A. 0011.P04	1-5
703652-407	696210-407	B1	4S4EB0X1.86A. 0011.P04	1-5
703652-408	696210-408	B1	4S4EB0X1.86A. 0025.P09	1-5
703652-409	696210-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
703652-410	696210-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703652-411	696210-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696205-405	696206-405	B1	4S4EB0X1.86A. 0011.P04	1-5
696205-406	696206-406	B1	4S4EB0X1.86A. 0011.P04	1-5
696205-407	696206-407	B1	4S4EB0X1.86A. 0011.P04	1-5
696205-408	696206-408	B1	4S4EB0X1.86A. 0025.P09	1-5
696205-409	696206-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696205-410	696206-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696205-411	696206-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
695201-405	696206-405	B1	4S4EB0X1.86A. 0011.P04	1-5
695201-406	696206-406	B1	4S4EB0X1.86A. 0011.P04	1-5
695201-407	696206-407	B1	4S4EB0X1.86A. 0011.P04	1-5
695201-408	696206-408	B1	4S4EB0X1.86A. 0025.P09	1-5
695201-409	696206-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
695201-410	696206-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
695201-411	696206-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
703649-405	696206-405	B1	4S4EB0X1.86A. 0011.P04	1-5
703649-406	696206-406	B1	4S4EB0X1.86A. 0011.P04	1-5
703649-407	696206-407	B1	4S4EB0X1.86A. 0011.P04	1-5
703649-408	696206-408	B1	4S4EB0X1.86A. 0025.P09	1-5
703649-409	696206-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703649-410	696206-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703649-411	696206-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696214-405	696213-405	B1	4S4EB0X1.86A. 0011.P04	1-5
696214-406	696213-406	B1	4S4EB0X1.86A. 0011.P04	1-5
696214-407	696213-407	B1	4S4EB0X1.86A. 0011.P04	1-5
696214-408	696213-408	B1	4S4EB0X1.86A. 0025.P09	1-5
696214-409	696213-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696214-410	696213-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
696214-411	696213-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
693072-405	696213-405	B1	4S4EB0X1.86A. 0011.P04	1-5
693072-406	696213-406	B1	4S4EB0X1.86A. 0011.P04	1-5
693072-407	696213-407	B1	4S4EB0X1.86A. 0011.P04	1-5
693072-408	696213-408	B1	4S4EB0X1.86A. 0025.P09	1-5
693072-409	696213-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
693072-410	696213-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
693072-411	696213-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703642-405	696213-405	B1	4S4EB0X1.86A. 0011.P04	1-5
703642-406	696213-406	B1	4S4EB0X1.86A. 0011.P04	1-5
703642-407	696213-407	B1	4S4EB0X1.86A. 0011.P04	1-5
703642-408	696213-408	B1	4S4EB0X1.86A. 0025.P09	1-5
703642-409	696213-409	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703642-410	696213-410	C1	4S4EB0X1.86A. 0025.P09	1, 3-6
703642-411	696213-411	C1	4S4EB0X1.86A. 0025.P09	1, 3-6

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 SE440BX 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 SE440BX 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 SE440BX 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.

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

Device	Stepping	S-Spec Numbers
82443BX	C1	SL2VH SL378
82371EB	A0	SL2MY SL2T3 SL37M SL37Z

Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes which apply to the SE440BX 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	SPECIFICATION CHANGES
1	Doc	Removal of memory hole option from resource configuration
2	Doc	Addition to Section 4.6.1, Hard Drive Submenu
3	Doc	Addition to Section 4.6.2, Removeable Devices Submenu
4	Doc	Support for 450 MHz Pentium® II Processors
5	Doc	Addition of option to select primary video adapter
6	Doc	Addition of option to control display of boot time diagnostics
7	Doc	Change to supported memory configurations
8	Doc	Support for the Intel® Pentium III processor
9	Doc	Added feature to control PCI IRQ sharing
10	Doc	Added feature to control cooling fan
11	Doc	Change to description of power LED

NO.	PLANS	ERRATA
1	Fixed	Serial mouse activity does not wake system after APM shutdown
2	NoFix	Advanced Power Management may suspend system during CD-ROM playback
3	Fixed	BIOS hangs if serial presence detect EEPROM is not programmed
4	Fixed	System BIOS does not detect mouse if unattended start is enabled
5	Fixed	System BIOS does not recognize monochrome display adapter if a second adapter is present
6	Fixed	User cannot enter BIOS Setup program after disabling parallel port
7	Fixed	System locks up during reboot if reset button is held
8	Fixed	BIOS cannot resolve resource conflicts
9	Fixed	System using 3-mode floppy drive cannot read XDF format diskettes
10	Fixed	System will not boot from ISA video adapter if Scan User Flash is enabled

NO.	PLANS	ERRATA
11	NoFix	Audio features lost after recovery from APM in DOS application
12	Fixed	System may hang after APM suspend in Windows* 95
13	Fixed	Resource conflict errors are not captured in the DMI event log
14	Fixed	System BIOS does not log ECC memory errors
15	Fixed	BIOS does not recognize Shift-Tab key combination
16	Fix	System shutdown may take an extended time
17	Fixed	BIOS will not configure 5 ¼" diskette drive
18	Fixed	System may fail to boot with powered USB hub attached
19	Fixed	Keyboard may fail when non-US key map is loaded
20	Fixed	User password option may cause video distortion in BIOS Setup program
21	Fixed	Some USB speakers require that USB support be enabled
22	Fix	System BIOS does not release IRQ when no mouse is attached
23	Fixed	System BIOS does not recognize some keyboards
24	Fixed	Unattended Start feature may hang system with USB keyboard
25	Fixed	Real mode DOS drivers may cause modem to disconnect
26	Fixed	Key combination locks keyboard if user password is set
27	NoFix	BIOS does not implement S4BIOS power state
NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	The Intel® Celeron™ processor
2	Doc	Hardware monitor reverses reporting of -12 Volt signal
NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to description of manufacturing options
2	Doc	Change to Section 3.1.7, Desktop Management Interface
3	Doc	Change the Revision of the IO Controller

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
696210-405	4S4EB0X1.86A.0011.P04	1-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696210-406	4S4EB0X1.86A.0011.P04	1-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696210-407	4S4EB0X1.86A.0011.P04	1-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696210-408	4S4EB0X1.86A.0011.P04[‡]	1-18, 20-26
	4S4EB0X1.86A.0021.P07[‡]	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08[‡]	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22

PBA Revision	BIOS Revision	Errata That Apply
696210-409	4S4EB0X1.86A.0011.P04‡	1-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696210-410	4S4EB0X1.86A.0011.P04‡	1-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696210-411	4S4EB0X1.86A.0011.P04‡	1-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-14, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696206-405	4S4EB0X1.86A.0011.P04	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696206-406	4S4EB0X1.86A.0011.P04	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22

PBA Revision	BIOS Revision	Errata That Apply
696206-407	4S4EB0X1.86A.0011.P04	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696206-408	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696206-409	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696206-410	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696206-411	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22

PBA Revision	BIOS Revision	Errata That Apply
696213-405	4S4EB0X1.86A.0011.P04	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696213-406	4S4EB0X1.86A.0011.P04	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696213-407	4S4EB0X1.86A.0011.P04	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696213-408	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696213-409	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22

PBA Revision	BIOS Revision	Errata That Apply
696213-410	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22
696213-411	4S4EB0X1.86A.0011.P04‡	1-11, 13-18, 20-26
	4S4EB0X1.86A.0021.P07‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0022.P08‡	2, 10-11, 13-15, 17-18, 20-26
	4S4EB0X1.86A.0025.P09	2, 10-11, 13-15, 17-26
	4S4EB0X1.86A.0027.P10	2, 10-15, 17-20, 22, 24-26
	4S4EB0X1.86A.0031.P11	2, 11, 22
	4S4EB0X1.86A.0032.P12	2, 11, 22

‡ 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.
.

SPECIFICATION CHANGES

The Specification Changes listed in this section apply to the *SE440BX Motherboard Technical Product Specification* (Order Number 691141). All Specification Changes will be incorporated into a future version of that specification.

1. Removal of Memory Hole Option From Resource Configuration

The option to reserve a memory hole for ISA add-in cards has been removed from Section 4.3.7, Resource Configuration Submenu. The reference to the feature in Table 57 will be deleted.

2. Addition to Section 4.6.1, Hard Drive Submenu

Installed Hard Drives will be added as an option in Table 61, Hard Drive Submenu.

3. Addition to Section 4.6.2, Removeable Devices Submenu

Installed Removeable Devices will be added as an option in Table 62, Removeable Devices Submenu.

4. Support for 450 MHz Pentium® II Processors

The motherboard supports 450 MHz Pentium® II processors. Section 4.2, Maintenance Menu, will be replaced in its entirety as follows:

Maintenance Menu

This menu is for setting the processor speed and clearing the Setup passwords. Setup only displays this menu in configure mode. See Section 1.16 for information about setting configure mode.

Table 48.   Maintenance Menu

Feature	Options	Description
Processor Speed	• 233 • 266 • 300 • 333 • 350 • 400 • 450	Specifies the processor speed in megahertz. This setup screen will only show speeds up to and including the maximum speed of the processor installed on the motherboard. • With a host bus operating at 66 MHz, the board supports processors at the following speeds: 233, 266, 300, and 333 MHz. • With a host bus operating at 100 MHz, the board supports processors at the following speeds: 350, 400 and 450 MHz.
Clear All Passwords	No options	Clears the user and supervisor passwords.

BIOS revision 4S4EB0X1.86A.0025.P09.9808201254 or later is required for the motherboard to properly support a 450 MHz processor.

5.   Addition of Option to Select Primary Video Adapter

In Section 4.3.6, the following feature will be added to Table 56, Video Configuration Submenu:

Feature	Options	Description
Default Primary Video Adapter	• **AGP (default)** • PCI	Selects the type of video card used for the boot display device

6.   Addition of Option to Control Display of Boot Time Diagnostics

The following feature will be added to Table 60, Boot Menu:

Feature	Options	Description
Boot Time Diagnostic Screen	• **Disabled (default)** • Enabled	Displays the diagnostic screen during boot

7.   Change to Supported Memory Configurations

256 MB DIMMs have been qualified on the SE440BX motherboard. The following changes will be made to the Technical Product Specification:

In Section 1.1, Overview, in the second bullet under Main Memory 384 MB will be replaced with 768 MB.

In Section 1.7.1, Main Memory, maximum memory size will be changed from 384 MB to 768 MB.

The following line will be added to the table of DIMMs:

DIMM Size	Non-ECC Configuration	ECC Configuration
256 MB	32 Mbit x 64	32 Mbit x 72

In Section 2.1, Memory Map, the first line of Table 34 will be changed to:

Address Range (decimal)	Address Range (hex)	Size	Description
1024 K - 785408 K	100000 - 2FF00000	767 MB	Extended memory

Section 1.6.2, Second Level Cache, will be replaced in its entirety as follows:

The second-level cache is located on the substrate of the S.E.C. cartridge. The cache includes 512 KB of synchronous pipelined burst static RAM (PBSRAM) and tag RAM. All supported onboard memory can be cached, up to the limits of the microprocessor. Refer to the microprocessor data sheet for the amount of memory that your processor can cache.

16

8.   Support for the Intel® Pentium® III Processor

The following bullet will be added to the processor portion of section 1.1:

Single Pentium® III processor at 450 MHz with 100 MHz host bus speed.

The first sentence in section 1.6 will be replaced in its entirety as follows:

The motherboard supports a single Pentium III processor at 450 MHz or Pentium II processor.

The following will be added to the first paragraph in section 1.6:

BIOS version 4S4EB0X1.86A.0034.P11 or later is required to support the Pentium III processor at 450 MHz on all SE440BX motherboard revisions. Earlier BIOS versions will identify the processor as a Pentium II processor and will not work reliably with a Pentium III processor. The SE440BX motherboard does not support the 500 MHz Pentium III processor.

The first sentence in section 1.6.3 will be replaced in its entirety as follows:

The motherboard can be upgraded with a Pentium II processor that runs at a maximum speed of 450 MHz or a Pentium III processor that runs at a maximum speed of 450 MHz.

The first sentence of the note in section 1.7.1 will be replaced in its entirety as follows:

Pentium III processors with a 100 MHz front side bus and Pentium II processors 100 MHz front side bus should be paired only with 100 MHz SDRAM.

In Section 4.2, Main Menu, the following option will be added to Table 49:

Feature	Options	Description
Processor Serial Number	• **Disabled (default)** • Enabled	Disabled blocks the processor from reporting the processor serial number to the operating system or software.

9.   Added Feature to Control PCI IRQ Sharing

In Section 4.3.7, Resource Configuration Submenu, the following option will be added to Table 57:

Feature	Options	Description
Shared PCI IRQs	• Auto (Default) • Share One IRQ • Share Two IRQs • Share Three IRQs	This option forces PCI devices to use at most the specified number of IRQs. Auto minimizes IRQ sharing.

10. *Added Feature to Control Cooling Fan*

In Section 4.5, Power Menu, the following option will be added to Table 59:

Feature	Options	Description
Fan Always On	• Yes • **No (default)**	Controls whether power management can turn the system fan off in low power mode.

11. *Change to Description of Power LED*

In Section 1.15.4.3, Power LED/Sleep/Message Waiting Connector, the following will be inserted as Table 17. All following tables will be renumbered as necessary.

Table 17.   States for a Single-colored Power LED

LED State	Description
Off	Power off/suspend/sleep
Steady	Running
Blinking	Running/message waiting

Note: To use the message waiting function, APCI must be enabled in the operating system and a message-capturing application must be invoked.

The original Table 17 will be replaced in its entirety by Table 18 as follows:

Table 18.   States for a Dual-colored Power LED

LED State	Description
Off	Power off
Steady Green	Running
Blinking Green	Running/message waiting[1]
Steady Yellow	Sleeping
Blinking Yellow	Sleeping/message waiting[1]

Note: To use the message waiting function, APCI must be enabled in the operating system and a message-capturing application must be invoked.

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 was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

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.   BIOS Hangs if Serial Presence Detect EEPROM is Not Programmed

PROBLEM: If the BIOS detects blank or invalid data in the Serial Presence Detect (SPD) EEPROM, the system will hang during the memory detection phase instead of detecting the memory size dynamically and booting with the default timing parameters used for non-SPD DIMMs.

IMPLICATION: DIMMs with blank or invalid data in an SPD EEPROM will not allow the system to boot even if they are otherwise usable.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

4.   System BIOS Does Not Detect Mouse if Unattended Start is Enabled

PROBLEM: If a user password is enabled and the unattended start feature has been enabled in the BIOS Setup program, the system BIOS will not report the presence of a mouse to the operating system.

IMPLICATION: In Windows 95, a warning message that no mouse is available will occur when the operating system loads. The Device Manager entry for the mouse will show an error warning, although the mouse may function normally within the operating system.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

5. System BIOS Does Not Recognize Monochrome Display Adapter if a Second Adapter is Present

PROBLEM: In a dual monitor system that includes an AGP or PCI display adapter and a monochrome display adapter (MDA), only the AGP or PCI adapter will be recognized and initialized by the system BIOS.

IMPLICATION: Programmers or others who use this configuration in a dual monitor system will not be able to use the MDA video.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

6. User Cannot Enter BIOS Setup Program After Disabling Parallel Port

PROBLEM: The BIOS Setup program requires that the parallel port be available in order to support the print screen function. If the user disables the parallel port in BIOS Setup, any subsequent attempt to enter BIOS Setup will cause the system to lock up.

IMPLICATION: If the user disables the parallel port, he will be unable to reenter BIOS Setup to make any additional configuration changes.

WORKAROUND: Enter BIOS Configuration mode using jumper J8A1 and use the F9 key to reset the system configuration to default values. See Section 1.16 for information on using the configuration jumper to enter configuration mode.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

7. System Locks Up During Reboot If Reset Button is Held

PROBLEM: If the reset button is held in for longer than four seconds, the system may lock up during the reboot process. Intel has tested a number of system configurations and has found that the lockup is dependent on the configuration of memory in the system.

IMPLICATION: If the system locks up, the user will be required to cycle power to restart the system.

WORKAROUND: Release the reset button as soon as the display screen blanks.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

8. BIOS Cannot Resolve Resource Conflicts

PROBLEM: If three or more PCI add-in cards that require IRQs are installed and an IRQ is reserved in BIOS Setup, the onboard IDE devices will not be initialized.

IMPLICATION: The BIOS will display the POST error message "Resource Conflict - PCIMass Storage Controller Configuration Error Bus:00, Device:07, Function:01." The system will not boot.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

9. 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 4S4EB0X1.86A.0021.P07.

10. 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 was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

11. Audio Features Lost After Recovery From APM in DOS Application

PROBLEM: Advanced Power Management (APM) is not fully supported by the audio drivers in DOS applications that use audio.

IMPLICATION: Sounds may be missing or distorted if the system goes into APM mode and then returns to active mode. Restarting the system will restore normal audio.

WORKAROUND: Disable APM before starting a DOS application that uses audio.

STATUS: This erratum will not be fixed.

12. System May Hang after APM Suspend in Windows* 95

PROBLEM: The audio driver does not handle a return from suspend mode correctly in Windows* 95. No audio is heard after the system resumes and the system will hang if the user attempts to reboot or restart the system. Power must be cycled in order to restart the system and restore audio.

IMPLICATION: Using APM and audio together may result in loss of audio functions.

WORKAROUND: None.

STATUS: This erratum was fixed in audio driver revision 4.05.2720b.

13. Resource Conflict Errors Are Not Captured in the DMI Event Log

PROBLEM: Resource Conflict errors that are detected by the BIOS at system boot time are not recorded in the DMI event log, even if event logging has been enabled in the BIOS setup program. Error messages are displayed by the BIOS during the boot process.

IMPLICATION: System administrators will not have access to information that could be useful in resolving those resource conflicts.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

14. 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 was fixed in BIOS revision 4S4EB0X1.86A.0025.P09.

15. BIOS Does Not Recognize Shift-Tab Key Combination

PROBLEM: The system BIOS interprets the Shift-Tab key combination as a Tab key.

IMPLICATION: DOS programs will not use the Shift-Tab key combination to move between screens. Windows* 95 does interpret Shift-Tab correctly. This erratum does not affect BIOS revision 4S4EB0X1.86A.0025.P09.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

16. System Shutdown May Take an Extended Time

PROBLEM: With certain combinations of ATA and ATAPI devices using the onboard IDE controller, system shutdown under Windows 95 may be delayed for up to 5 minutes.

IMPLICATION: The system will be unavailable to the user during this time.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0021.P07.

17. BIOS Will Not Configure 5 ¼" Diskette Drive

PROBLEM: The BIOS is not able to configure a 5 ¼" diskette drive properly.

IMPLICATION: If the system includes a 5 ¼" diskette drive, the drive light will come on when the system is powered on and remain on. The drive motor will spin continuously as long as the system is on. The drive will not be accessible through the operating system.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

18. System May Fail to Boot With Powered USB Hub Attached

PROBLEM: If a powered USB hub is connected to the system with no USB device plugged into the hub, the system may boot very slowly or not boot at all. The hub will work normally if the system completes the boot process or if it is connected to the USB port after boot.

IMPLICATION: A powered USB hub may require multiple reboots before the system can be used.

WORKAROUND: Unplug the hub during the boot process, or plug a USB device that does not have an integrated USB hub into the onboard hub before booting the system.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

19. Keyboard May Fail When Non-US Key Map is Loaded

PROBLEM: When a non-US key map is loaded, some keyboards cause the system to freeze when any of the state lock keys (CAPS lock, NUM lock or SCROLL lock) are pressed. The freeze may be only momentary or may last until the computer is restarted.

IMPLICATION: Keyboards that display this behavior are not usable with non-US key maps. BIOS revisions prior to 4S4EB0X1.86A.0022.P08 and earlier are not subject to this erratum.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

20. User Password Option May Cause Video Distortion in BIOS Setup Program

PROBLEM: If the User Password feature is enabled and Quiet Boot is also enabled, after the user enters the password, the password box will close but a hole the size of the password box will remain in the BIOS logo area. Diagnostic text will be visible through this hole.

If the user enters the BIOS Setup program (by pressing the F2 key), the normal setup screens will not be visible. Only the portion that can be seen through the hole left by the password box will be visible.

IMPLICATION: The user will not be able to enter the BIOS Setup program to make changes in BIOS settings.

WORKAROUND: Press the F2 key to enter the BIOS Setup program before the password box appears.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

21.   Some USB Speakers Require That USB Support Be Enabled

PROBLEM: Some USB speakers require that USB Legacy support be enabled in the BIOS Setup program in order to function.

IMPLICATION: If USB Legacy support is not enabled, the system will not boot.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0027.P10.

22.   System BIOS Does Not Release IRQ When No Mouse Is Attached

PROBLEM: The system BIOS does not release IRQ12 to be reserved for use by an ISA legacy device when no PS/2 mouse is detected at system boot.

IMPLICATION: It may not be possible to install an ISA legacy device in the system if no other IRQ is available. IRQ12 is available for assignment to another device in the Windows∗ 95 or Windows 98 Device Manager.

WORKAROUND: None.

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

23.   System BIOS Does Not Recognize Some Keyboards

PROBLEM: If the NUMLOCK option in the BIOS Setup program is set to anything other than Auto, the system BIOS may not recognize a PS/2 keyboard at boot time. If this option is set to Auto, on those keyboards the initial NUMLOCK state after boot will be Off instead of On. BIOS revisions 4S4EB0X1.86A.0022.P08 and earlier are not subject to this erratum.

IMPLICATION: A user may not be able to use the options in the BIOS Setup program to control the initial state of the NUMLOCK key automatically.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0027.P10.

24.   Unattended Start Feature May Hang System With USB Keyboard

PROBLEM: If the unattended start feature is enabled, a system with a USB keyboard but with no attached PS/2 devices will hang at system start. The power switch will not work to bring the system out of the hang condition.

IMPLICATION: A user who requires a USB keyboard will not be able to use the unattended start feature.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

25.   Real Mode DOS Drivers May Cause Modem to Disconnect

PROBLEM: In a system with a PCI add in card that loads real mode DOS drivers, an internal modem may disconnect or stop responding during data transmission.

IMPLICATION: The user will not be able to use an internal modem reliably while real mode DOS drivers are loaded.

WORKAROUND: Unload real mode drivers before connecting with an internal modem.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

26.   Key Combination Locks Keyboard if User Password is Set

PROBLEM: If a user password has been set in the BIOS Setup program, the <Ctrl><Alt><L> key combination will lock the keyboard. The user password must be entered to unlock the keyboard and resume use of the system.

IMPLICATION: Software that requires that key combination for some other purpose can only be used if the user password feature is turned off.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB0X1.86A.0031.P11.

27.   BIOS Does Not Implement S4BIOS Power State

PROBLEM: The S4BIOS (Suspend to Disk) power state has not been implemented in the motherboard BIOS.

IMPLICATION: The user will not be able to suspend the system to a state that includes saved context information.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *SE440BX Motherboard Technical Product Specification* (Order Number 691141). All Specification Clarifications will be incorporated into a future version of that specification.

1.   The Intel® Celeron™ Processor

While the Intel® Celeron™ processor uses the same P6 microarchitecture as the Pentium® II processor, there are some differences. No qualification or compatibility testing has been performed using the Celeron processor and the BIOS does not contain support for this processor. A Celeron processor will be identified as a Pentium II processor by the system. While the Celeron processor may appear to work in the motherboard, the reliability of operation is not known.

2.   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 *SE440BX Motherboard Technical Product Specification* (Order Number 691141). All Documentation Changes will be incorporated into a future version of that specification.

1. Change to Description of Manufacturing Options

In Section 1.2, Manufacturing Options, paragraph one will be replaced in its entirety as follows:

The following are manufacturing options. Not all manufacturing options are available in all marketing channels. Please contact your Intel representative to determine what manufacturing options are available to you.

2. Change to Section 3.1.7, Desktop Management Interface

In Section 3.1.7, Desktop Management Interface (DMI), 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 the Revision of the IO Controller

The IO controller in Section 1.1, Overview, Section 1.3, Motherboard Components and Section 1.9, I/O Interface Controller will be changed from the SMC FDC37C777 controller to the SMC FDC37B777 controller. There is no functional difference between the two parts as implemented on this motherboard.