SE440BX-2 Motherboard Specification Update

Release Date: May 2000

Order Number: 725856-014

The SE440BX-2 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.

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The SE440BX-2 motherboard may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

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Germany 44-0-1793-421-333, other Countries 708-296-9333

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REVISION HISTORY

Date of Revision	Version	Description
October 1998	-001	This document is the first Specification Update for the Intel® SE440BX-2 motherboard.
December 1998	-002	Added Specification Change 1 and Errata 2-4.
January 1999	-003	Modified Erratum 2. Updated status of Errata 2-4. Added Errata 5-8.
February 1999	-004	Added Specification Change 2.
March 1999	-005	Added Specification Change 3.
April 1999	-006	Modified Specification Changes 1 and 3. Added Erratum 9.
May 1999	-007	Added Specification Change 4 and Errata 10-11.
June 1999	-008	Added Specification Change 5 and Erratum 12.
August 1999	-009	Added Errata 13-14.
September 1999	-010	Added Specification Change 6 and Erratum 15.
October 1999	-011	Updated Specification Change 1. Added Erratum 16.
November 1999	-012	Updated status of Errata 7 and 16. Added Errata 17-18.
March 2000	-013	Added Specification Change 7 and Specification Clarification 1.
May 2000	-014	Added Specification Change 8 and Erratum 19.

PREFACE

This document is an update to the specifications contained in the SE440BX-2 Motherboard Technical Product Specification (Order number 721632). 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 *Celeron® Processor Specification Update* (Order number 243748) for specification updates concerning the *Celeron* processor. Items contained in the *Celeron Processor Specification Update* that either do not apply to the SE440BX-2 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 *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-2 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 *Pentium® III Processor Specification Update* (Order number 244553) for specification updates concerning the Pentium *III* processor. Items contained in the *Pentium III Processor Specification Update* that either do not apply to the SE440BX-2 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-2 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 SE440BX-2 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-2 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-2 Motherboards

GENERAL INFORMATION

Basic SE440BX-2 Motherboard Identification Information

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
719944-205	719945-205	C1	4S4EB2X0.86A. 0009.P03	1-7
719944-206	719945-206	C1	4S4EB2X0.86A. 0009.P03	1-7
719944-207	719945-207	C1	4S4EB2X0.86A. 0009.P03	1-7
719944-208	719945-208	C1	4S4EB2X0.86A. 0011.P04	1-7
719944-209	719945-209	C1	4S4EB2X0.86A. 0014.P07	1-7
719944-210	719945-210	C1	4S4EB2X0.86A. 0015.P08	1-7
719944-211	719945-211	C1	4S4EB2X0.86A. 0016.P09	1-7
719944-212	719945-212	C1	4S4EB2X0.86A. 0017.P10	1-7
719944-213	719945-213	C1	4S4EB2X0.86A. 0018.P11	1-7
719944-214	719945-214	C1	4S4EB2X0.86A. 0021.P14	1-7
719944-215	719945-215	C1	4S4EB2X0.86A. 0021.P14	1-7
720938-205	719945-205	C1	4S4EB2X0.86A. 0009.P03	1-7
720938-206	719945-206	C1	4S4EB2X0.86A. 0009.P03	1-7
720938-207	729350-207	C1	4S4EB2X0.86A. 0009.P03	1-7
720938-208	729350-208	C1	4S4EB2X0.86A. 0011.P04	1-7
720938-209	729350-209	C1	4S4EB2X0.86A. 0011.P04	1-7
720938-210	729350-210	C1	4S4EB2X0.86A. 0014.P07	1-7
720938-211	729350-211	C1	4S4EB2X0.86A. 0015.P08	1-7

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
720938-212	729350-212	C1	4S4EB2X0.86A. 0016.P09	1-7
720938-213	729350-213	C1	4S4EB2X0.86A. 0017.P10	1-7
720938-214	729350-214	C1	4S4EB2X0.86A. 0018.P11	1-7
720938-215	729350-215	C1	4S4EB2X0.86A. 0021.P14	1-7
720940-205	719945-205	C1	4S4EB2X0.86A. 0009.P03	1-7
720940-206	719945-206	C1	4S4EB2X0.86A. 0009.P03	1-7
720940-207	729350-207	C1	4S4EB2X0.86A. 0009.P03	1-7
720940-208	729350-208	C1	4S4EB2X0.86A. 0011.P04	1-7
720940-209	729350-209	C1	4S4EB2X0.86A. 0011.P04	1-7
720940-210	729350-210	C1	4S4EB2X0.86A. 0014.P07	1-7
720940-211	729350-211	C1	4S4EB2X0.86A. 0015.P08	1-7
720940-212	729350-212	C1	4S4EB2X0.86A. 0016.P09	1-7
720940-213	729350-213	C1	4S4EB2X0.86A. 0017.P10	1-7
720940-214	729350-214	C1	4S4EB2X0.86A. 0018.P11	1-7
720940-215	729350-215	C1	4S4EB2X0.86A. 0021.P14	1-7
719946-204	719947-204	C1	4S4EB2X0.86A. 0009.P03	1-7
719946-205	719947-205	C1	4S4EB2X0.86A. 0009.P03	1-7
719946-206	719947-206	C1	4S4EB2X0.86A. 0009.P03	1-7
719946-207	719947-207	C1	4S4EB2X0.86A. 0009.P03	1-7

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
719946-208	719947-208	C1	4S4EB2X0.86A.0011.P04	1-7
719946-209	719947-209	C1	4S4EB2X0.86A.0014.P07	1-7
719946-210	719947-210	C1	4S4EB2X0.86A.0015.P08	1-7
719946-211	719947-211	C1	4S4EB2X0.86A.0016.P09	1-7
719946-212	719947-212	C1	4S4EB2X0.86A.0017.P10	1-7
719946-213	719947-213	C1	4S4EB2X0.86A.0018.P11	1-7
719946-214	719947-214	C1	4S4EB2X0.86A.0021.P14	1-7
720930-204	719947-204	C1	4S4EB2X0.86A.0009.P03	1-7
720930-205	719947-205	C1	4S4EB2X0.86A.0009.P03	1-7
720930-206	719947-206	C1	4S4EB2X0.86A.0009.P03	1-7
720930-207	719947-207	C1	4S4EB2X0.86A.0009.P03	1-7
720930-208	719947-208	C1	4S4EB2X0.86A.0011.P04	1-7
720930-209	719947-209	C1	4S4EB2X0.86A.0014.P07	1-7
720930-210	719947-210	C1	4S4EB2X0.86A.0015.P08	1-7
720930-211	719947-211	C1	4S4EB2X0.86A.0016.P09	1-7
720930-212	719947-212	C1	4S4EB2X0.86A.0017.P10	1-7
720930-213	719947-213	C1	4S4EB2X0.86A.0018.P11	1-7
720930-214	719947-214	C1	4S4EB2X0.86A.0021.P14	1-7
720932-204	719947-204	C1	4S4EB2X0.86A.0009.P03	1-7

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
720932-205	719947-205	C1	4S4EB2X0.86A. 0009.P03	1-7
720932-206	719947-206	C1	4S4EB2X0.86A. 0009.P03	1-7
720932-207	719947-207	C1	4S4EB2X0.86A. 0009.P03	1-7
720932-208	719947-208	C1	4S4EB2X0.86A. 0011.P04	1-7
720932-209	719947-209	C1	4S4EB2X0.86A. 0014.P07	1-7
720932-210	719947-210	C1	4S4EB2X0.86A. 0015.P08	1-7
720932-211	719947-211	C1	4S4EB2X0.86A. 0016.P09	1-7
720932-212	719947-212	C1	4S4EB2X0.86A. 0017.P10	1-7
720932-213	719947-213	C1	4S4EB2X0.86A. 0018.P11	1-7
720932-214	719947-214	C1	4S4EB2X0.86A. 0021.P14	1-7
754552-200	754554-200	C1	4S4EB2X0.86A. 0021.P14	1-7
754552-201	754554-201	C1	4S4EB2X0.86A. 0022.P15	1-7
754552-202	754554-202	C1	4S4EB2X0.86A. 0022.P15	1-7
754552-203	754554-203	C1	4S4EB2X0.86A. 0022.P15	1-7
754552-204	754554-204	C1	4S4EB2X0.86A. 0022.P15	1-7
754552-205	754554-205	C1	4S4EB2X0.86A. 0022.P15	1-7
754558-200	754559-200	C1	4S4EB2X0.86A. 0021.P14	1-7
754558-201	754559-201	C1	4S4EB2X0.86A. 0022.P15	1-7
754558-202	754559-202	C1	4S4EB2X0.86A. 0022.P15	1-7

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
754558-203	754559-203	C1	4S4EB2X0.86A.0022.P15	1-7
754558-204	754559-204	C1	4S4EB2X0.86A.0022.P15	1-7
754558-205	754559-205	C1	4S4EB2X0.86A.0022.P15	1-7

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	C1	SL2VH SL378
82371EB	A0	SL2MY SL2T3 SL37M SL37Z

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-2 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-2 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-2 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 following errata are contained in the *Celeron® Processor Specification Update* (Order Number 243748) for the Pentium II processor and either do not apply to the SE440BX-2 motherboard or have been worked-around in this PBA and/or BIOS revision: 1AP-2AP. All other errata associated with the processor apply to this PBA revision.
7. The following errata are contained in the *Pentium® III Processor Specification Update* (Order Number 2444553) for the Pentium II processor and either do not apply to the SE440BX-2 motherboard or have been worked-around in this PBA and/or BIOS revision: 3, 10-11, 1AP-3AP. All other errata associated with the processor 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 SE440BX-2 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	Change to Description of Supported Memory Configurations
2	Doc	Support for the Intel® Celeron™ processor
3	Doc	Support for the Intel® Pentium® III processor
4	Doc	Change to description of power LED
5	Doc	Support for 550 MHz Pentium III processors
6	Doc	Support for 600 MHz Pentium III processors
7	Doc	Support for 550E, 600E, 650, 700, 750 and 800 MHz Pentium III processors
8	Doc	Change to description of supported memory configurations
NO.	**PLANS**	**ERRATA**
1	NoFix	Advanced Power Management may suspend system during CD-ROM playback
2	Fixed	System may fail to boot with powered USB hub attached
3	Fixed	BIOS does not halt system after multi-bit ECC error
4	Fixed	System will not boot with ISA video adapter if Scan User Flash is enabled
5	Fixed	System BIOS does not log a memory decreased error
6	Fixed	Keyboard may fail when non-US key map is loaded
7	Fixed	System BIOS does not release IRQ when no mouse is attached
8	Fixed	Power LED shows wrong color for sleeping state
9	Fixed	Real mode DOS drivers may cause modem to disconnect
10	Fixed	Key combination locks keyboard if user password is set
11	Fixed	Power LED indicates standby state incorrectly
12	Fixed	BIOS setup program does not allow selection of primary video adapter
13	NoFix	BIOS does not implement S4BIOS power state
14	Fixed	BIOS does not halt after checksum error during POST

NO.	PLANS	ERRATA
15	Fixed	Boot delay with LS-120 and tape drive
16	Fixed	USB mouse causes system halt during POST
17	NoFix	Some devices will not wake system from ACPI S1 power state
18	Fixed	BIOS option to disable processor serial number may not be present
19	NoFix	Wake On LAN* connector may be unusable with some AGP adapters installed
NO.	**PLANS**	**SPECIFICATION CLARIFICATIONS**
1	Doc	Susceptibility to processor erratum 51

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 erratum referred to by number in the table below are found in the ERRATA section of this document.

PBA Revision	BIOS Revision	Errata That Apply
719945-205	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-206	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-207	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19

PBA Revision	BIOS Revision	Errata That Apply
719945-207	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-208	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-209	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-210	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19

PBA Revision	BIOS Revision	Errata That Apply
719945-210	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-211	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-212	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-213	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19

PBA Revision	BIOS Revision	Errata That Apply
719945-213	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-214	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719945-215	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19

PBA Revision	BIOS Revision	Errata That Apply
719945-215	4S4EB2X0.86A.0022.P15	1, 13,19
719947-204	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-205	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-206	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19

PBA Revision	BIOS Revision	Errata That Apply
719947-206	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-207	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-208	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19

PBA Revision	BIOS Revision	Errata That Apply
719947-209	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-210	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-211	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19

PBA Revision	BIOS Revision	Errata That Apply
719947-211	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-212	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-213	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
719947-214	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19

PBA Revision	BIOS Revision	Errata That Apply
719947-214	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-207	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-208	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-209	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19

PBA Revision	BIOS Revision	Errata That Apply
729350-209	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-210	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-211	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-212	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19

PBA Revision	BIOS Revision	Errata That Apply
729350-212	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-213	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
729350-214	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19

PBA Revision	BIOS Revision	Errata That Apply
729350-215	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74554-200	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74554-201	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19

PBA Revision	BIOS Revision	Errata That Apply
74554-201	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74554-202	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74554-203	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74554-204	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19

PBA Revision	BIOS Revision	Errata That Apply
74554-204	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74554-205	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74559-200	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74559-201	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19

PBA Revision	BIOS Revision	Errata That Apply
74559-201	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74559-202	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74559-203	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74559-204	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19

PBA Revision	BIOS Revision	Errata That Apply
74559-204	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19
74559-205	4S4EB2X0.86A.0009.P03	1-19
	4S4EB2X0.86A.0011.P04	1-2, 6-7, 9-19
	4S4EB2X0.86A.0012.P05	1, 7, 9-19
	4S4EB2X0.86A.0014.P07	1, 7, 9-19
	4S4EB2X0.86A.0015.P08	1, 13-19
	4S4EB2X0.86A.0016.P09	1, 13-19
	4S4EB2X0.86A.0017.P10	1, 13-19
	4S4EB2X0.86A.0018.P11	1, 13-14, 16-19
	4S4EB2X0.86A.0019.P12	1, 13, 16-19
	4S4EB2X0.86A.0020.P13	1, 13, 16-17, 19
	4S4EB2X0.86A.0021.P14	1, 13,19
	4S4EB2X0.86A.0022.P15	1, 13,19

‡ 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-2 Motherboard Technical Product Specification* (Order Number 721632). All Specification Changes will be incorporated into a future version of that specification.

1. Change to Description of Supported Memory Configurations

256 MB DIMMs have been qualified on the SE440BX-2 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 1.3.1, 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 Capacity	Non-ECC DIMM Organization*	SDRAM Density	SDRAM Organization	Number of SDRAMs
256 MB	32M X 64	128 Mbit	16M X 8	8

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 – 786432 K	100000 - 30000000	767 MB	Extended memory

In Section 1.2.1, Second Level Cache, the following paragraph will be added:

Refer to the processor datasheet for any limits on the amount of memory that your processor can cache.

2. Support for the Intel® Celeron™ Processor

The following will be added to the list of supported processors in Section 1.2, Microprocessor:

Processor Type	Processor Speed (in MHz)	Host Bus Frequency (in MHz)	Level 2 Cache (in KB)
Celeron™ processor	366 400	66 66	128 128

3. Support for the Intel® Pentium® III Processor

The following will be added to the processor row in section 1.1:

Intel® Pentium® III processor with host bus frequency of 100 MHz

The first sentence in section 1.2 will be replaced in its entirety as follows:

The motherboard supports a single Pentium III processor, Pentium II processor or Celeron™ processor.

The following will be added to the list of supported processors in Section 1.2, Microprocessor:

Processor Type	Processor Speed (in MHz)	Host Bus Frequency (in MHz)	Level 2 Cache (in KB)
Pentium III processor*	450 500	100 100	512 512

* The motherboard supports the Pentium III processor at 450 MHz and 500 MHz with BIOS version 4S4B2X0.86A.0014.P07, or later. Earlier BIOS versions will identify the processor as a Pentium II processor and will not work reliably with a Pentium III processor.

The first sentence in section 1.2.1 will be replaced in its entirety as follows:

The second-level cache for the Pentium III or Pentium II processor includes 512 KB of synchronous pipelined burst RAM (PBSRAM) and a tag RAM.

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.

4. Change to Description of Power LED

In Section 1.10.6.3, Power LED/Sleep/Message Waiting Connector, Tables 27 and 28 will be replaced in their entirety as follows:

Table 1. States for a Single-colored Power LED

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

Table 2. States for a Dual-colored Power LED

LED State	Description
Off	Power off
Steady Green	Running
Blinking Green	Running/message waiting
Steady Yellow	Sleeping
Blinking Yellow	Sleeping/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.

See Erratum 11 for an issue with behavior of the power LED in BIOS revisions earlier than 4S4EB2X0.86A.0015.P08.

5. Support for 550 MHz Pentium® III Processors

The motherboard supports 550 MHz Pentium® III processors. Section 1.2, Microprocessor, will have the following table entry added:

Processor Type	Processor Speed (in MHz)	Host Bus Frequency (in MHz)	Level 2 Cache (in KB)
Pentium III processor*	550	100	512

In Section 4.1, Maintenance Menu, Table 49 will add an entry for 550 MHz with a host bus operating at 100 MHz.

BIOS revision 4S4EB2X0.86A.0017.P10 or later is required for the motherboard to properly support a 550 MHz processor.

6. Support for 600 MHz Pentium III Processors

The motherboard supports 600 MHz Pentium III processors. Section 1.2, Microprocessor, will have the following table entry added:

Processor Type	Processor Speed (in MHz)	Host Bus Frequency (in MHz)	Level 2 Cache (in KB)
Pentium III processor*	600	100	512

BIOS revision 4S4EB2X0.86A.0020.P13 or later is required for the motherboard to properly support a 600 MHz processor.

7. Support for 550E, 600E, 650, 700, 750 and 800 MHz Pentium® III Processors

Section 1.2 Microprocessor and 1.21 Second Level Cache will be replaced in its entirety to reflect the following processor changes.

1.2 Microprocessor

The motherboard supports a single Pentium® III processor, Pentium II processor or Celeron™ processor. The processor's VID pins automatically program the voltage regulator on the motherboard to the required processor voltage. In addition, the front side bus frequency (66 MHz and 100 MHz) is automatically selected. The processor connects to the motherboard through a 242-contact slot connector. The processor must be secured by a retention mechanism attached to the motherboard.

CAUTION

Processors with a 100 MHz host bus should be used only with 100 MHz SDRAM; the motherboard will not operate reliably if a processor with a 100 MHz host bus is paired with 66 MHz SDRAM. However, processors with a 66 MHz host bus can be used with either 66 MHz or 100 MHz SDRAM.

The motherboard supports the following processors:

Processor Type	Processor Speed (in MHz)	Host Bus Frequency (in MHz)	Level 2 Cache (in KB)
Pentium III processor	450	100	512
	500	100	512
	550E	100	256
	550	100	512
	600E	100	256
	600	100	512
	650	100	256
	700	100	256
	750	100	256
	800	100	256
Pentium II processor	233	66	512
	266	66	512
	300	66	512
	333	66	512
	350	100	512
	400	100	512
	450	100	512
Celeron processor	266	66	0
	300	66	0
	300A	66	128
	333	66	128
	366	66	128
	400	66	128

NOTE

BIOS Revision 4S4EB2X0.86A.0021.P14 or later is required for the Desktop Board to properly support 550E, 600E, 650,700, 750 and 800 MHz processors.

In addition, the following board PBA's are required to support these processors:

719945-214 or later

729350-214 or later

754554-200 or later

719947-214 or later

754559-200 or later

1.2.1 Second Level Cache

The Pentium® III processors with integrated 256 KB second level cache subsystem, have it implemented on the processor die. All supported onboard memory can be cached.

The second-level cache for the Pentium II processor and Pentium III processor includes 512 KB of synchronous pipelined burst static RAM (PBSRAM) and tag RAM. All supported onboard memory can be cached.

The Celeron™ processors with integrated 128 KB second level cache subsystem, have it implemented on the processor die. All supported onboard memory can be cached.

8. Change to Description of Supported Memory Configurations

Section 1.3 and 1.31 will be replaced in their entirety as follows:

1.3 Memory

1.3.1 MAIN MEMORY

The motherboard has three DIMM sockets. SDRAM can be installed in one, two, or three sockets. EDO DIMMs are not supported. Using the serial presence detect (SPD) data structure, programmed into an E^2PROM on the DIMM, the BIOS can determine the SDRAM's size and speed. Minimum memory size is 16 MB; maximum memory size is 768 MB. Memory size and speed can vary between sockets.

The motherboard supports the following memory features:

- 168-pin DIMMs with gold-plated contacts
- 66 or 100 MHz SDRAM
- Non-ECC (64-bit) and ECC (72-bit) memory
- 3.3 V memory only
- Unbuffered single- or double-sided DIMMs in the following sizes:

DIMM Capacity	Non-ECC DIMM Organization*	SDRAM Density	SDRAM Organization	Number of SDRAMs
16 MB	2M X 64	16 Mbit	1M X 16	8
16 MB	2M X 64	16 Mbit	2M X 8	8
16 MB	2M X 64	64 Mbit	2M X 32	2
32 MB	4M X 64	16 Mbit	2M X 8	16**
32 MB	4M X 64	64 Mbit	2M X 32	4
32 MB	4M X 64	64 Mbit	4M X 16	4
64 MB	8M X 64	64 Mbit	4M X 16	8
64 MB	8M X 64	64 Mbit	8M X 8	8
128 MB	16M X 64	64 Mbit	8M X 8	16**
256	32M X 64	128 Mbit	16M X 8	8
256	32M X 64	128 Mbit	16M X 8	16**

* ECC DIMM organization will be X 72 and additional components will be used on each side of DIMM.

** If the number of SDRAMs is greater than nine, the DIMM will be double sided.

NOTE

Processors with 100 MHz front side bus should be paired only with 100 MHz SDRAM. Processors with 66 MHz front side bus can be paired with either 66 MHz or 100 MHz SDRAM.

CAUTION

To be fully compliant with all applicable Intel® SDRAM memory specifications, the motherboard should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. If your memory modules do not support SPD, you will see a notification to this effect on the screen at power up. The BIOS will attempt to configure the memory controller for normal operation. However, DIMMs may not function under the determined frequency. You can access the PC Serial Presence Detect Specification at:

http://www.intel.com/design/pcisets/memory/

NOTE

All memory components and DIMMs used with the SE440BX-2 motherboard must comply with the PC SDRAM specifications. These include: the PC SDRAM Specification (memory component specific), the PC100 SDRAM Component Testing Summary, and the PC Unbuffered DIMM Specification. You can access these documents through the Internet at:

http://www.intel.com/design/pcisets/memory/

See Section 6.2 for information about these specifications.

ERRATA

1. 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.

2. 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 4S4EB2X0.86A.0012.P05.

3. BIOS Does Not Halt System After Multi-bit ECC Error

PROBLEM: When a multi-bit ECC error is detected by the BIOS a record of the error is entered into the management information log but the system is not halted.

IMPLICATION: The erroneous data will be passed to the system by the memory controller.

Single-bit errors are detected and corrected by the memory controller and entered into the management information log.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.

4. System Will Not Boot With 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 4S4EB2X0.86A.0011.P04.

5. The System BIOS Does Not Log a Memory Decreased Error

PROBLEM: If the BIOS finds during the POST process that the amount of system memory has decreased, an error message is written to the screen but no record of the event is placed in the DMI event log.

IMPLICATION: The user will not have a record of failing memory that could help in diagnostic troubleshooting.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.

6. 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.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0012.P05.

7. 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 was fixed in BIOS revision 4S4EB2X0.86A.0015.P08.

8. Power LED Shows Wrong Color for Sleeping State

PROBLEM: For systems using a dual colored power LED, the sleeping state is indicated by a blinking green light instead of a steady yellow light.

IMPLICATION: The user may believe the system is sleeping when it is running.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.

9. 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 4S4EB2X0.86A.0015.P08.

10. 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 4S4EB2X0.86A.0015.P08.

11. Power LED Indicates Standby State Incorrectly

PROBLEM: The BIOS incorrectly indicates a standby state under the Windows* 95 operating system. When the system is in the suspend state, the BIOS indicates this with a flashing green LED. The correct behavior is for a single color LED to be off and a dual color LED to be steady amber.

IMPLICATION: The user will receive incorrect information about the current state of the system.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0015.P08.

12. BIOS Setup Program Does Not Allow Selection of Primary Video Adapter

PROBLEM: The option to allow the user to specify whether the AGP or PCI video adapter in a dual adapter configuration is to be designated as the primary video device is not present on the Video Configuration submenu of the Advanced Menu.

IMPLICATION: In a dual monitor configuration, the PCI video adapter will function as the primary video adapter. BIOS revisions prior to 4S4EB2X0.86A.0014.P07 are not subject to this erratum.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0015.P08.

13. 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.

14. BIOS Does Not Halt After Checksum Error During POST

PROBLEM: The BIOS does not halt when a checksum error occurs during the POST process. The user is not able to read the warning that a checksum error has occurred. The BIOS loads default values for BIOS setup parameters.

IMPLICATION: A user who has changed settings from standard defaults will be unaware that the system has booted with different parameters in effect.

WORKAROUND: Save the changed values as Custom Defaults when exiting the BIOS setup program.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0019.P12.

15. Boot Delay with LS-120 and Tape Drive

PROBLEM: Some devices require extra time to reset on the IDE bus and the BIOS was resetting the IDE controller multiple times.

IMPLICATION: A boot delay of up to 120 seconds may occur with an LS-120 drive as secondary master and a tape backup drive with the tape in the drive as primary slave.

WORKAROUND: Boot without a tape in the tape drive or set the tape drive as None in the BIOS Setup, IDE Configuration menu.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0018.P11.

16. USB Mouse Causes System Halt during POST

PROBLEM: A USB mouse attached to the board will cause the system to halt during POST.

IMPLICATION: A USB mouse cannot be attached or plugged into the board until the operating system has loaded. This erratum does not apply to BIOS revision 4S4EB2X0.86A.0019.P12 or earlier.

WORKAROUND: The USB mouse can be hot plugged after the operating system has loaded or a PS/2* mouse can be used in place of the USB mouse.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0021.P14.

17. Some Devices Will Not Wake System from ACPI S1 Power State

PROBLEM: PS/2 keyboards and mice and IR devices cannot wake the system from the ACPI S1 power state.

IMPLICATION: The user must press the power switch to restore the system from the S1 power state.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

18. BIOS Option to Disable Processor Serial Number May Not Be Present

PROBLEM: If an add-in board that includes an option ROM is used in the system, it may cause the BIOS Setup program not to display the option to disable or enable use of the processor serial number feature.

IMPLICATION: The user will not be able to change the status of the feature. If the user or system integrator has disabled the feature, it will remain disabled.

WORKAROUND: To change the status of the processor serial number feature, temporarily remove the add-in board with the option ROM. Change the status, then reinstall the add-in card.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0020.P13.

19 Wake-On-LAN* Connector May be Unusable With Some AGP Adapters Installed

PROBLEM: The WOL connector is located in an area of the AGP keep-out zone that may restrict the use of the WOL functionality with certain add-in AGP adapters.

IMPLICATION: Those users who wish to utilize the WOL functionality in conjunction with an add-in AGP adapter will need to ensure that the AGP adapter does not encroach on the WOL connector.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

SPECIFICATION CLARIFICATIONS

1. Susceptibility to Processor Erratum 51

Desktop boards that support the 550E, 600E, 650, 700, 750 and 800MHz processors may be subject to erratum 51 published in the *Pentium® III Processor Specification Update*, which is characterized by the system stopping during POST without video. Restarting the computer may or may not be successful. The following and later PBA revisions are not subject to this processor erratum.

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