AL440LX Motherboard Specification Update

Release Date: May 1999

Order Number: 686886-016

The AL440LX 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.

Copies of documents which have an ordering number and are referenced in this document, or other Intel literature, may be obtained from:

Intel Corporation
P.O. Box 5937
Denver, CO 80217-9808

or call in North America 1-800-548-4725, Europe 44-0-1793-431-155, France 44-0-1793-421-777,

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

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REVISION HISTORY

Date of Revision	Version	Description
September 1997	-001	This document is the first Specification Update for the Intel® AL440LX motherboard.
October 1997	-002	Added Errata 1-2 and Documentation Change 2.
November 1997	-003	Modified Documentation Change 2. Added Erratum 3 and Documentation Changes 3-4.
January 1998	-004	Added Erratum 4.
February 1998	-005	Added Specification Change 1 and Errata 5-8.
March 1998	-006	Added Specification Change 2 and Errata 9-10. Updated Specification Change 1 and status of Errata 1, 3, 5 and 7.
April 1998	-007	Added Erratum 11 and Documentation Change 5.
May 1998	-008	Added Erratum 12.
June 1998	-009	Added Specification Change 3 and Documentation Changes 6-7.
August 1998	-010	Added Erratum 13 and Documentation Changes 8-9.
October 1998	-011	Modified Specification Change 3.
November 1998	-012	Updated status of Errata 12-13.
December 1998	-013	Added Errata 14-17.
January 1999	-014	Added Errata 18-21 and Documentation Change 10.
February 1999	-015	Modified Specification Change 3.
May 1999	-016	Added Errata 22-24.

PREFACE

This document is an update to the specifications contained in the *AL440LX Motherboard Technical Product Specification* (Order number 677028). 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 AL440LX 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 *82443LX PAC AGPset Specification Update* (Order Number 297655) for specification updates concerning the 82440LX PCIset. Items contained in the *82440LX PCIset Specification Update* that either do not apply to the AL440LX motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any PCIset errata for a given stepping are applicable to the PBA revision(s) associated with that stepping.

Refer to the *82371AB PIIX4 Specification Update* (Order Number 297738) for specification updates concerning the 82371AB PIIX4. Items contained in the *82371AB PIIX4 Specification Update* that either do not apply to the AL440LX motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any PIIX4 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 AL440LX 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 AL440LX Motherboards

GENERAL INFORMATION

Basic AL440LX Motherboard Identification Information

AA Revision	PBA Revision	82440LX PCISet Stepping	BIOS Revision	Notes
681536-303	681545-303	A3	4A4LL0X0.86A. 0012.P02	1-5
681536-304	681545-304	A3	4A4LL0X0.86A. 0012.P02	1-5
681536-305	681545-305	A3	4A4LL0X0.86A. 0012.P02	1-5
681536-306	681545-306	A3	4A4LL0X0.86A. 0012.P02	1-5
681536-307	681545-307	A3	4A4LL0X0.86A. 0019.P07	1-5
681536-401	681545-401	A3	4A4LL0X0.86A. 0023.P08	1-5
681536-402	681545-402	A3	4A4LL0X0.86A. 0023.P08	1-5
681537-303	681546-303	A3	4A4LL0X0.86A. 0012.P02	1-5
681537-304	681546-304	A3	4A4LL0X0.86A. 0012.P02	1-5
681537-305	681546-305	A3	4A4LL0X0.86A. 0012.P02	1-5
681537-306	681546-306	A3	4A4LL0X0.86A. 0012.P02	1-5
681537-307	681546-307	A3	4A4LL0X0.86A. 0019.P07	1-5
681537-401	681546-401	A3	4A4LL0X0.86A. 0023.P08	1-5
681537-402	681546-402	A3	4A4LL0X0.86A. 0023.P08	1-5
681537-403	681546-403	A3	4A4LL0X0.86A. 0023.P08	1-5

AA Revision	PBA Revision	82440LX PCISet Stepping	BIOS Revision	Notes
681797-304	681546-304	A3	4A4LL0X0.86A. 0012.P02	1-5
681797-305	681546-305	A3	4A4LL0X0.86A. 0012.P02	1-5
681797-306	696926-306	A3	4A4LL0X0.86A. 0012.P02	1-5
681797-307	696926-307	A3	4A4LL0X0.86A. 0012.P02	1-5
681797-308	696926-308	A3	4A4LL0X0.86A. 0019.P07	1-5
681797-309	696926-309	A3	4A4LL0X0.86A. 0023.P08	1-5
681797-401	696926-401	A3	4A4LL0X0.86A. 0023.P08	1-5
681797-402	696926-402	A3	4A4LL0X0.86A. 0023.P08	1-5
681797-403	696926-403	A3	4A4LL0X0.86A. 0027.P10	1-5
681538-303	681548-303	A3	4A4LL0X0.86A. 0012.P02	1-5
681538-304	681548-304	A3	4A4LL0X0.86A. 0012.P02	1-5
681538-305	681548-305	A3	4A4LL0X0.86A. 0012.P02	1-5
681538-306	681548-306	A3	4A4LL0X0.86A. 0012.P02	1-5
681538-307	681548-307	A3	4A4LL0X0.86A. 0012.P02	1-5
681538-308	681548-308	A3	4A4LL0X0.86A. 0019.P07	1-5
681538-401	681548-401	A3	4A4LL0X0.86A. 0023.P08	1-5
681538-402	681548-402	A3	4A4LL0X0.86A. 0023.P08	1-5
681538-403	681548-403	A3	4A4LL0X0.86A. 0023.P08	1-5

AA Revision	PBA Revision	82440LX PCISet Stepping	BIOS Revision	Notes
681539-303	681549-303	A3	4A4LL0X0.86A. 0012.P02	1-5
681539-304	681549-304	A3	4A4LL0X0.86A. 0012.P02	1-5
681539-305	681549-305	A3	4A4LL0X0.86A. 0012.P02	1-5
681539-306	681549-306	A3	4A4LL0X0.86A. 0012.P02	1-5
681539-307	681549-307	A3	4A4LL0X0.86A. 0019.P07	1-5
681539-401	681549-401	A3	4A4LL0X0.86A. 0023.P08	1-5
681539-402	681549-402	A3	4A4LL0X0.86A. 0023.P08	1-5
681539-403	681549-403	A3	4A4LL0X0.86A. 0023.P08	1-5
683503-304	681549-304	A3	4A4LL0X0.86A. 0012.P02	1-5
683503-305	681549-305	A3	4A4LL0X0.86A. 0012.P02	1-5
AA Revision	**PBA Revision**	**82440LX PCISet Stepping**	**BIOS Revision**	**Notes**
683503-306	696925-306	A3	4A4LL0X0.86A. 0012.P02	1-5
683503-307	696925-307	A3	4A4LL0X0.86A. 0012.P02	1-5
683503-308	696925-308	A3	4A4LL0X0.86A. 0019.P07	1-5
683503-309	696925-309	A3	4A4LL0X0.86A. 0023.P08	1-5
683503-401	696925-401	A3	4A4LL0X0.86A. 0023.P08	1-5
683503-402	696925-402	A3	4A4LL0X0.86A. 0023.P08	1-5
683503-403	696925-403	A3	4A4LL0X0.86A. 0027.P10	1-5

AA Revision	PBA Revision	82440LX PCISet Stepping	BIOS Revision	Notes
681540-303	681562-303	A3	4A4LL0X0.86A. 0012.P02	1-5
681540-304	681562-304	A3	4A4LL0X0.86A. 0012.P02	1-5
681540-305	681562-305	A3	4A4LL0X0.86A. 0012.P02	1-5
681540-306	681562-306	A3	4A4LL0X0.86A. 0012.P02	1-5
681540-307	681562-307	A3	4A4LL0X0.86A. 0019.P07	1-5
681540-401	681562-401	A3	4A4LL0X0.86A. 0023.P08	1-5
681540-402	681562-402	A3	4A4LL0X0.86A. 0023.P08	1-5
681540-403	681562-403	A3	4A4LL0X0.86A. 0023.P08	1-5

NOTES:

1. The PBA number or AA number is found on a small label on the component side of the board.
2. The 82440LX PCIset kit used on this PBA revision consists of two components as follows:

Device	Stepping	S-Spec Numbers
82443LX	A3	SL2KK
82371AB	B0	SL23P SL2KM

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 AL440LX 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® 82443LX PAC AGPset Specification Update* (Order Number 297655) and either do not apply to the AL440LX motherboard or have been worked around in this PBA and/or BIOS revision: 1-2, 4-5. All other errata associated with the AGPset apply to this PBA revision.
5. The following items are contained in the *82371AB PIIX4 Stepping Information* (Order Number 297738) and either do not apply to the AL440LX motherboard or have been worked around in this PBA and/or BIOS revision: 2, 3, 5 All other errata associated with the PIIX4 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 AL440LX 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	Support for 333 MHz Pentium® II processors
2	Doc	Change to description of bootable controllers
3	Doc	Support for the Intel® Celeron™ processor
NO.	**PLANS**	**ERRATA**
1	Fixed	LS-120 drive does not work as expected in Windows* 95
2	Fix	Serial mouse activity does not wake system after APM shutdown
3	Fixed	Stuck or depressed key during POST may cause system hang
4	NoFix	System BIOS may corrupt audio add-in card EEPROM
5	Fixed	BIOS cannot disable L2 cache
6	NoFix	Advanced Power Management may suspend system during CD-ROM playback
7	Fixed	System will not boot with network as first boot device
8	Fixed	System BIOS does not recognize hard drives larger than 8.4 GB
9	Fixed	BIOS does not release IRQ if no mouse is present
10	Fixed	DMI product data may become corrupted during POST
11	Fix	MUX may fail to record change of processor speed
12	Fixed	BIOS will not wake system when PME# signal is asserted
13	Fixed	System using 3-mode floppy drive cannot read XDF format diskettes
14	Fixed	BIOS recovery fails from LS-120 drive
15	Fixed	System BIOS cannot disable power management
16	Fixed	Infrared port is not functional
17	Fixed	User can restore BIOS defaults with administrator password set
18	Fixed	BIOS may introduce delay in shutting down system
19	NoFix	BIOS does not halt system after multi-bit ECC error

NO.	PLANS	ERRATA
20	NoFix	System may fail to boot with powered USB hub attached
21	NoFix	System BIOS does not release IRQ when secondary IDE channel is not used
22	Fixed	Key combination locks keyboard if user password is set
23	Fix	Some USB speakers require that USB support be enabled
24	Fix	System will not boot if LANDesk® Client Manager is installed
NO.	**PLANS**	**DOCUMENTATION CHANGES**
1	Doc	Revision of Section 1.18.1, Power Supply Considerations
2	Doc	Revision of Section 3.1.12, USB Support
3	Doc	Revision of Section 3.1.4, PCI IDE Support
4	Doc	Revision of Section 5.3, BIOS Beep Codes
5	Doc	Change to Section 2.3, I/O Map
6	Doc	Addition of description of PC/PCI connector
7	Doc	Change to description of Manufacturing Options
8	Doc	Change to description of front panel connector
9	Doc	Change to Section 3.1.7, Desktop Management Interface
10	Doc	Change to description of Wake on Ring header

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
681545-303	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681545-304	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
681545-305	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681545-306	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681545-307	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
681545-401	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681545-402	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681546-303	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
681546-304	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681546-305	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681546-306	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
681546-307	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681546-401	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681546-402	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
681546-403	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681548-303	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681548-304	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

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681548-305	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681548-306	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681548-307	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

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681548-308	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681548-401	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681548-402	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

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681548-403	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681549-303	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681549-304	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

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681549-305	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681549-306	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681549-307	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

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681549-401	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681562-303	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681562-304	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

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681562-305	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681562-306	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681562-307	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
681562-401	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681562-402	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
681562-403	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
696925-306	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
696925-307	4A4LL0X0.86A.0012.P02	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
696925-308	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
696925-309	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
696925-401	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
696925-402	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24

PBA Revision	BIOS Revision	Errata That Apply
696925-403	4A4LL0X0.86A.0012.P02‡	1-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-4, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0023.P08‡	2, 4, 6, 11-24
	4A4LL0X0.86A.0024.P09‡	2, 4, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 4, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21, 23-24
696926-306	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24
696926-307	4A4LL0X0.86A.0012.P02	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24

PBA Revision	BIOS Revision	Errata That Apply
696926-308	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24
696926-309	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24
696926-401	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24

PBA Revision	BIOS Revision	Errata That Apply
696926-402	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24
696926-403	4A4LL0X0.86A.0012.P02‡	1-3, 5-11, 13-17, 19-24
	4A4LL0X0.86A.0014.P04‡	2-3, 6-11, 13-17, 19-24
	4A4LL0X0.86A.0015.P05‡	2-3, 5-7, 9-17, 19-24
	4A4LL0X0.86A.0017.P06‡	2, 6, 11-24
	4A4LL0X0.86A.0019.P07‡	2, 6, 11-24
	4A4LL0X0.86A.0023.P08‡	2, 6, 11-24
	4A4LL0X0.86A.0024.P09	2, 6, 11-12, 14, 17-24
	4A4LL0X0.86A.0027.P10	2, 6, 11, 19-24
	4A4LL0X0.86A.0028.P11	2, 6, 11, 19-24
	4A4LL0X0.86A.0029.P12	2, 6, 11, 19-24
	4A4LL0X0.86A.0030.P13	2, 6, 11, 19-21,23-24

‡ 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 *AL440LX Motherboard Technical Product Specification* (Order Number 677028). All Specification Changes will be incorporated into a future version of that specification.

1. Support for 333 MHz Pentium® II Processors

The motherboard supports 333 MHz Pentium® II processors. Section 1.6, Microprocessor, will be modified to add 333 MHz to the list of supported processor speeds.

333 MHz has been added to the list of speeds that can be selected in the BIOS Setup program configure mode and Table 44, Maintenance Menu, will be updated to include that speed.

BIOS revision 4A4LL0X0.86A.0015.P05.9712111454 or later is required for the motherboard to properly support a 333 MHz processor.

Note: Conformity with FCC open chassis emission standards was verified with processor speeds up to 300 MHz, the highest processor speed available at the time the motherboard was introduced.

Higher speed processors may increase system electro-magnetic emissions. It is the responsibility of the system integrator to verify that a system based on this motherboard and any new higher speed processor, including the newly announced 333 MHz Pentium II processor, complies with EMC emission standards.

2. Change to Description of Bootable Controllers

In Table 57 of Section 4.6.1, Hard Drive Submenu, the description “Bootable ISA Cards” will be changed to “Bootable Add-in Cards.”

3. Support for the Intel® Celeron™ Processor

The following will be added to Section 1.1, Overview, as the last bullet under the heading Processor:

- Supports the Intel® Celeron™ processor (see Section 1.6 for details of Celeron processor support)

The following will be added as the second paragraph of Section 1.6, Processor:

The motherboard supports the Celeron processor at 266 MHz with BIOS version 4A4LL0X0.86A.0023.P08, or later. Earlier BIOS versions will identify the processor as a Pentium II processor and will not work reliably with a Celeron processor.

The motherboard supports the Celeron processor at 300, 300A 333, 366 and 400 MHz with BIOS version 4A4LL0X0.86A.0027.P10 or later.

ERRATA

1. LS-120 Drive Does Not Work as Expected in Windows* 95

PROBLEM: After restarting Windows* 95 from MS-DOS* mode, the system BIOS does not configure the diskette parameter table correctly if an LS-120 drive is the only floppy drive in the system.

IMPLICATION: Windows 95 will report the LS-120 drive as a hard drive instead of a floppy drive and will report a floppy drive available as Drive A. If drive A is subsequently accessed, the system will lock up. The problem does not occur if a 1.44 MB 3-1/2" floppy drive is also present as either drive A or drive B.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0014.P04.

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

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

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

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

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

3. Stuck or Depressed Key During POST May Cause System Hang

PROBLEM: The BIOS is unable to detect when a key on the keyboard is stuck or depressed during Power On Self Test (POST).

IMPLICATION: If a key is stuck or depressed during POST, the system BIOS will continue to read data from the keyboard, resulting in a system hang condition.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0017.P06.

4. System BIOS May Corrupt Audio Add-In Card EEPROM

PROBLEM: Audio add-in cards using the Yamaha OPL3-SA2 or OPL3-SA3 audio codec have the same hardware identification number that is used by the Yamaha audio device integrated on the motherboard. This causes the system BIOS to inadvertently write information into the audio add-in card's serial EEPROM during system startup, thereby corrupting the audio add-in card's EEPROM contents.

IMPLICATION: The audio add-in card will not operate and no audio will be available.

WORKAROUND: Disable the onboard audio in BIOS Setup before installing an audio add-in card.

STATUS: This erratum will not be fixed.

5. BIOS Cannot Disable L2 Cache

PROBLEM: The option in the BIOS Setup program to disable L2 cache does not work.

IMPLICATION: Although the BIOS Setup program reports that L2 cache has been disabled, it will still be enabled.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A,0014.P04.

6. 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.

7. System Will Not Boot with Network as First Boot Device

PROBLEM: The feature allowing the system to boot from the network is not implemented. After the attempt to boot from a network device selected as the first boot device fails, the system BIOS does not attempt to boot from any additional boot devices specified in the BIOS Setup program.

IMPLICATION: If Network boot is selected as the first boot device, the system will hang.

WORKAROUND: Remove Network boot from the boot sequence.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0017.P06.

8. System BIOS Does Not Recognize Hard Drives Larger Than 8.4 GB

PROBLEM: The system BIOS does not include hard drive parameters to recognize drives larger than 8.4 GB.

IMPLICATION: An installed hard drive larger than 8.4 GB will not be available to the operating system.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0015.P05.

9. BIOS Does Not Release IRQ if No Mouse is Present

PROBLEM: The BIOS does not release the default IRQ12 used by a PS/2* mouse even if no mouse is detected in the system.

IMPLICATION: Some system resources may not be assigned an IRQ in a system with a large number of peripherals.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0017.P06.

10. DMI Product Data May Become Corrupted During POST

PROBLEM: The BIOS includes code that is designed to prevent the accidental erasure of information from the Vital Product Data (VPD) area in the flash ROM. A missing table entry causes part of that code not to be executed. If the system power is removed or the system is reset while any of the following events are occuring, DMI product information stored in the VPD area may be corrupted:

- Loading a BIOS update for the microprocessor.
- Storing custom CMOS defaults.
- Updating the configuration data (ESCD - Extended System Configuration Data) during POST or at the end of a windows session.
- Running a DMI writing utility such as OEMDMI.EXE.

IMPLICATION: The board serial number or any other data stored in this DMI area may become irrecoverably lost.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0017.P06.

11. MUX May Fail to Record Change of Processor Speed

PROBLEM: If offset voltage is present on the motherboard 3.3 V power plane at system power-on in configuration mode, the I^2C MUX that stores processor configuration information in non-volatile memory may be programmed to return invalid information. This offset may be caused either by the system power supply itself or by a powered USB device sending back voltage through the USB data lines. If this offset voltage is in the range of 90-1000 mV, the MUX failure may occur when the user changes the processor speed in the BIOS setup program.

IMPLICATION: If the MUX information is invalid, the system will either boot at the default configuration speed of 133 MHz or fail to update the speed of the processor (after the user changes it) and continue to boot at the former processor speed.

WORKAROUND: None.

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

12. BIOS Will Not Wake System When PME# Signal is Asserted

PROBLEM: The BIOS feature to power on the system when the PME# signal is asserted by an onboard or add-in device does not function in BIOS revision 4A4LL0X0.86A.0015.P05 or later.

IMPLICATION: Devices that depend on the ability to wake the system from a sleep state may not function as expected.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0027.P10.

13. 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 4A4LL0X0.86A.0024.P09.

14. BIOS Recovery Fails From LS-120 Drive

PROBLEM: The system is unable to perform a BIOS recovery from an LS-120 drive.

IMPLICATION: If the BIOS becomes corrupted and needs to be recovered the user will have to use a standard diskette drive.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0025.P10.

15. System BIOS Cannot Disable Power Management

PROBLEM: Power management is still enabled even after the BIOS Setup option has been set to Disabled.

IMPLICATION: The user will not be able to disable power management.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0024.P09.

16. Infrared Port Is Not Functional

PROBLEM: The infrared port is not properly initialized by the system BIOS.

IMPLICATION: IrDA* compliant infrared devices will not be usable. BIOS revisions P05 and earlier are not subject to this erratum.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0024.P09.

17. User Can Restore BIOS Defaults With Administrator Password Set

PROBLEM: The user can use the F9 key in the BIOS Setup program to restore CMOS defaults even though an adminstrator password has been set.

IMPLICATION: The user may be able to change a setting that the administrator had set for network management reasons.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0025.P10.

18. BIOS May Introduce Delay in Shutting Down System

PROBLEM: When shutting the system down within the Microsoft Windows* 95 operating system, the BIOS may introduce a delay of up to five minutes between the shutdown command and the final shutdown of the system.

IMPLICATION: The system will be unusable during this delay period. The delay is dependent on the number and type of IDE peripherals attached to the motherboard. BIOS revisions 4A4LL0X0.86A.0015.P05 and earlier are not subject to this erratum.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4A4LL0X0.86A.0027.P10.

19. 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 will not be fixed.

20. 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 will not be fixed.

21. System BIOS Does Not Release IRQ When Secondary IDE Channel is Not Used

PROBLEM: The system BIOS does not free up IRQ 15, reserved for the onboard secondary IDE channel, when no device uses that channel.

IMPLICATION: A user may be unable to install an additional device that requires an available interrupt.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

22. 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 4A4LL0X0.86A.0030.P13.

23. 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 will be fixed in a future BIOS revision.

24. System Will Not Boot if LANDesk® Client Manager is Installed

PROBLEM: In a system with an onboard hardware monitor and LANDesk® Client Manager installed, the following system error message will be displayed: "ERROR 251 System CMOS Checksum Bad – Default Configuration Used." The DMI log will include the following message: "Pre-Boot Error – CMOS Checksum Error."

IMPLICATION: The LANDesk Client Manager software cannot be used with this configuration. BIOS revisions prior to 4A4LL0X0.86A.0027.P10 are not subject to this erratum.

WORKAROUND: None.

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

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *AL440LX Motherboard Technical Product Specification* (Order Number 677028). All Documentation Changes will be incorporated into a future version of that specification.

1. Revision of Section 1.18.1, Power Supply Considerations

Section 1.18.1, Power Supply Considerations, will be replaced in its entirety as follows:

For typical configurations, the motherboard is designed to operate with at least a 200 W power supply (see Section 6.2 for the specification). A higher-wattage power supply should be used for heavily-loaded configurations. The power supply must comply with the following recommendations found in the indicated sections of that specification:

- The potential relation between 3.3VDC and +5VDC power rails (Section 4.2)
- The current capability of the +5VSB line (Section 4.2.1.2)
- All timing parameters (Section 4.2.1.3)
- All voltage tolerances (Section 4.2.2)

2. Revision of Section 3.1.12, USB Support

This section will be replaced in its entirety as follows:

USB LEGACY SUPPORT

USB legacy support enables USB keyboards and mice to be used even when no operating system USB drivers are in place. By default, USB legacy support is disabled. USB legacy support is only intended to be used in accessing BIOS Setup and installing an operating system that supports USB.

This sequence describes how USB legacy support operates in the default (disabled) mode.

1. When you power up the computer, USB legacy support is disabled.

2. POST begins.

3. USB legacy support is temporarily enabled by the BIOS. This allows you to use a USB keyboard to enter the Setup program or the maintenance mode.

4. POST completes and disables USB legacy support (unless it was set to Enabled while in Setup).

5. The operating system loads. While the operating system is loading, USB keyboards and mice are not recognized. After the operating system loads the USB drivers, the USB devices are recognized.

To install an operating system that supports USB, enable USB Legacy support in BIOS Setup and follow the operating system's installation instructions. Once the operating system is installed and the USB drivers configured, USB legacy support is no longer used. USB Legacy Support can be left enabled in BIOS Setup if needed.

Notes on using USB legacy support:

- If USB legacy support is enabled, don't mix USB and PS/2* keyboards and mice. For example, do not use a PS/2 keyboard with a USB mouse, or a USB keyboard and a PS/2 mouse.

- Do not use USB devices with an operating system that does not support USB. USB legacy is not intended to support the use of USB devices in a non USB operating system.
- USB legacy support is for keyboards and mice only. Hubs and other USB devices are not supported.

3. Revision of Section 3.1.4, PCI IDE Support

Section 3.1.4, PCI IDE Support, will be replaced in its entirety as follows:

If Auto is selected as a primary or secondary IDE device (see Section 4.2.2) in Setup, the BIOS automatically sets up the two local-bus IDE connectors with independent I/O channel support. The IDE interface supports hard drives up to PIO Mode 4 and recognizes ATAPI devices, including CD-ROM drives, tape drives and Ultra DMA drives (see Section 6.2 for the supported version of ATAPI). Add-in ISA IDE controllers are not supported. The BIOS determines the capabilities of each drive and configures them so as to optimize capacity and performance. To take advantage of the high-capacity storage devices, hard drives are automatically configured for logical block addressing (LBA) and to PIO Mode 3 or 4, depending on the capability of the drive. To override the autoconfiguration options, use the specific IDE device options in Setup. The ATAPI specification recommends that ATAPI devices be configured as shown in Table 41.

4. Revision of Section 5.3, BIOS Beep Codes

Section 5.3, BIOS Beep Codes, will be replaced in its entirety as follows:

BIOS BEEP CODES

Whenever a recoverable error occurs during Power-On Self Test (POST), the BIOS displays an error message describing the problem. The BIOS also issues a beep code (one long tone followed by two short tones) during POST if the video configuration fails (no card installed or faulty) or if an external ROM module does not properly checksum to zero.

An external ROM module (e.g video BIOS) can also issue audible errors, usually consisting of one long tone followed by a series of short tones. For more information on the beep codes issued, check the documentation for that external device.

There are several POST routines that issue a POST Terminal Error and shut down the system if they fail. Before shutting down the system, the terminal-error handler issues a beep code signifying the test point error, writes the error to I/O port 80h, attempts to initialize the video and writes the error in the upper left corner of the screen (using both mono and color adapters).

If POST completes normally, the BIOS issues one short beep before passing control to the operating system.

Table 62. BIOS Beep Codes

Beeps	Port 80h Code	Explanation
1-2-2-3	16h	BIOS ROM checksum
1-3-1-1	20h	Test DRAM refresh
1-3-1-3	22h	Test 8742 Keyboard Controller
1-3-3-1	28h	Autosize DRAM
1-3-3-2	29h	Initialize POST Memory Manager
1-3-3-3	2Ah	Clear 512 KB base RAM
1-3-4-1	2Ch	RAM failure on address line xxxx
1-3-4-3	2Eh	RAM failure on data bits xxxx of low byte of memory bus
1-4-1-1	30h	RAM failure on data bits xxxx of high byte of memory bus
2-1-2-2	45h	POST device initialization
2-1-2-3	46h	Check ROM copy right notice
2-2-3-1	58h	Test for unexpected interrupts
2-2-4-1	5Ch	Test RAM between 512 and 640 KB
1-2	98h	Search for option ROMs. One long, two short beeps on checksum failure

5. Change to Section 2.3, I/O Map

In Table 36, I/O Map, the reference to Management Extension Hardware at hex address 0290 - 0297 will be removed. The management extension hardware on the AL440LX motherboard does not use I/O address space.

6. Addition of Description of PC/PCI Connector

The following description of the PC/PCI connector will be added as Section 1.14.2. Following sections and tables will be renumbered as required.

PC/PCI CONNECTOR (OPTIONAL)

The PC/PCI connector is a 2 x 3-pin connector (J6D1) that may be used by some PCI add-in boards that require ISA DMA functionality. The most common example of this would be a PCI audio card. The ISA DMA functionality is required for true Sound Blaster* compatibility.

Table 17. PC/PCI Connector (J6D1)

Pin	Signal Name	Pin	Signal Name
1	P_PCIGNTA#	2	Ground
3	No connect	4	P_PCIREQA#
5	Ground	6	SER_IRQ

7. 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.

8. Change to Description of Front Panel Connector

Table 17, Front Panel I/O Connectors, will be changed to reflect the following values for pins 24-27:

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

9. 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.

10. Change to Description of Wake on Ring Header

Section 1.13, Wake on Ring Header, will be changed to add that the communications port IRQ used to trigger the wake on ring must be an IRQ that is unmasked for Advanced Power Management.