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KU440EX
Motherboard
Specification Update

Release Date: March 2000

Order Number: 716542-012

The KU440EX motherboard may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are documented in this Specification Update.

CONTENTS

REVISION HISTORY

Date of Revision	Version	Description
June 1998	-001	This document is the first Specification Update for the Intel® KU440EX motherboard.
August 1998	-002	Added Specification Change 1, Erratum 2 and Documentation Change 1.
September 1998	-003	Added Documentation Change 2.
October 1998	-004	Added Specification Change 2.
November 1998	-005	Updated status of Erratum 2. Added Errata 3-4.
January 1999	-006	Added Errata 5-6.
February 1999	-007	Modified Specification Change 2.
March 1999	-008	Added Documentation Change 3.
April 1999	-009	Added Erratum 7.
May 1999	-010	Added Errata 8-9 and Documentation Changes 4-5.
July 1999	-011	Added Erratum 10.
March 2000	-012	Added Erratum 11.

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PREFACE

This document is an update to the specifications contained in the KU440EX Motherboard Technical Product Specification (Order number 704768). 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 KU440EX 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 *82443EX Specification Update* (Order Number TBD) for specification updates concerning the 82443EX PCI A.G.P. Controller. Items contained in the *82443EX Specification Update* that either do not apply to the KU440EX 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 KU440EX 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 KU440EX 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
KU440EX Motherboards**

GENERAL INFORMATION

Basic KU440EX Motherboard Identification Information

AA Revision	PBA Revision	440EX AGPSet Stepping	BIOS Revision	Notes
715660-203	715661-203	A0	4K4UE0X0.86A .0005.P01	1-5
715660-204	715661-204	A0	4K4UE0X0.86A .0006.P02	1-5
715660-205	715661-205	A0	4K4UE0X0.86A .0008.P03	1-5
715660-206	715661-206	A0	4K4UE0X0.86A .0012.P05	1-5
715660-207	715661-207	A0	4K4UE0X0.86A .0014.P07	1-5
715660-208	715661-208	A0	4K4UE0X0.86A .0016.P09	1-5
710891-203	710894-203	A0	4K4UE0X0.86A .0005.P01	1-5
710891-204	710894-204	A0	4K4UE0X0.86A .0008.P03	1-5
710891-205	710894-205	A0	4K4UE0X0.86A .0012.P05	1-5
710891-206	710894-206	A0	4K4UE0X0.86A .0014.P07	1-5
710891-207	710894-207	A0	4K4UE0X0.86A .0016.P09	1-5
710893-203	710896-203	A0	4K4UE0X0.86A .0005.P01	1-5
710893-204	710896-204	A0	4K4UE0X0.86A .0008.P03	1-5
710893-205	710896-205	A0	4K4UE0X0.86A .0012.P05	1-5
710893-206	710896-206	A0	4K4UE0X0.86A .0014.P07	1-5
710893-207	710896-207	A0	4K4UE0X0.86A .0016.P09	1-5

NOTES:

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

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

Device	Stepping	S-Spec Numbers
82443EX	A0	SL2SA
82371EB	A0	SL2MY

3. The following errata are contained in the *Pentium® II Processor Specification Update* (Order Number 243337) for the Pentium II processor and either do not apply to the KU440EX motherboard or have been worked-around in this PBA and/or BIOS revision: 3, 10-11, 17, 1AP-3AP. All other errata associated with the processor apply to this PBA revision.

4. The following items are contained in the *Intel® 82443EX Specification Update* (Order Number TBD) and either do not apply to the KU440EX motherboard or have been worked around in this PBA and/or BIOS revision: None. All other errata associated with the PCIset 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 KU440EX motherboard or have been worked-around in this PBA and/or BIOS revision: None. All other errata associated with the PIIX4E apply to this PBA revision.

Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes which apply to the KU440EX 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 300 MHz Intel® Celeron™ processors
2	Doc	Support for 300A, 333, 366, and 400 MHz Intel Celeron processors

NO.	PLANS	ERRATA
1	NoFix	Advanced Power Management may suspend system during CD-ROM playback
2	Fixed	System using 3-mode floppy drive cannot read XDF format diskettes
3	Fixed	User can restore BIOS defaults with Administrator Password set
4	Fixed	System will not boot from ISA video adapter if Scan User Flash is enabled
5	Fixed	System BIOS does not report that memory has decreased in size during the POST process
6	NoFix	System BIOS does not release IRQ when no mouse is attached
7	Fixed	System may fail to boot with powered USB hub attached
8	NoFix	System BIOS does not release IRQ when secondary IDE channel is not used
9	NoFix	Key combination locks keyboard if user password is set
10	NoFix	Onboard audio will not play and record simultaneously
11	No Fix	BIOS does not support ACPI power management in Windows* 2000

NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	Hardware monitor reverses reporting of –12 Volt signal

NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to Section 3.7, System Management BIOS
2	Doc	In Figure 7, Thermally Sensitive Components, Labels B and C will be reversed
3	Doc	Change to Section 2.1, Memory Map
4	Doc	In Section 1.4, Form Factor, the first sentence should read, "The motherboard is designed to fit into an NLX form-factor chassis."

NO.	PLANS	DOCUMENTATION CHANGES
5	Doc	Addition of material tolerances for I/O shield

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
715661-203	4K4UE0X0.86A.0005.P01	1, 3-11
	4K4UE0X0.86A.0006.P02	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
715661-204	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
715661-205	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11

PBA Revision	BIOS Revision	Errata That Apply
715661-206	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
715661-207	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05‡	1, 6-11
	4K4UE0X0.86A.0013.P06‡	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
715661-208	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05‡	1, 6-11
	4K4UE0X0.86A.0013.P06‡	1, 6-11
	4K4UE0X0.86A.0014.P07‡	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710894-203	4K4UE0X0.86A.0005.P01	1, 3-11
	4K4UE0X0.86A.0006.P02	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11

PBA Revision	BIOS Revision	Errata That Apply
710894-204	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710894-205	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710894-206	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05‡	1, 6-11
	4K4UE0X0.86A.0013.P06‡	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710894-207	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05‡	1, 6-11
	4K4UE0X0.86A.0013.P06‡	1, 6-11
	4K4UE0X0.86A.0014.P07‡	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11

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PBA Revision	BIOS Revision	Errata That Apply
710896-203	4K4UE0X0.86A.0005.P01	1, 3-11
	4K4UE0X0.86A.0006.P02	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710896-204	4K4UE0X0.86A.0005.P01[‡]	1, 3-11
	4K4UE0X0.86A.0006.P02[‡]	1, 3-11
	4K4UE0X0.86A.0008.P03	1, 4-11
	4K4UE0X0.86A.0011.P04	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710896-205	4K4UE0X0.86A.0005.P01[‡]	1, 3-11
	4K4UE0X0.86A.0006.P02[‡]	1, 3-11
	4K4UE0X0.86A.0008.P03[‡]	1, 4-11
	4K4UE0X0.86A.0011.P04[‡]	1, 5-11
	4K4UE0X0.86A.0012.P05	1, 6-11
	4K4UE0X0.86A.0013.P06	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11
710896-206	4K4UE0X0.86A.0005.P01[‡]	1, 3-11
	4K4UE0X0.86A.0006.P02[‡]	1, 3-11
	4K4UE0X0.86A.0008.P03[‡]	1, 4-11
	4K4UE0X0.86A.0011.P04[‡]	1, 5-11
	4K4UE0X0.86A.0012.P05[‡]	1, 6-11
	4K4UE0X0.86A.0013.P06[‡]	1, 6-11
	4K4UE0X0.86A.0014.P07	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11

PBA Revision	BIOS Revision	Errata That Apply
710896-207	4K4UE0X0.86A.0005.P01‡	1, 3-11
	4K4UE0X0.86A.0006.P02‡	1, 3-11
	4K4UE0X0.86A.0008.P03‡	1, 4-11
	4K4UE0X0.86A.0011.P04‡	1, 5-11
	4K4UE0X0.86A.0012.P05‡	1, 6-11
	4K4UE0X0.86A.0013.P06‡	1, 6-11
	4K4UE0X0.86A.0014.P07‡	1, 6-11
	4K4UE0X0.86A.0016.P09	1, 6, 8-11

‡ 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 *KU440EX Motherboard Technical Product Specification* (Order Number 704768). All Specification Changes will be incorporated into a future version of that specification.

1.   Support for 300 MHz Intel® Celeron™ Processors

The motherboard supports 300 MHz Intel® Celeron™ processors. Section 1.1, Overview and Section 1.6, Microprocessor, will be modified to add 300 MHz to the list of supported processor speeds.

The table of processor speeds in Section 1.6 will be modified to add the following line:

Processor Type	Processor Speed	Host Bus Speed	Retention Module
Celeron	300 MHz	66 MHz	C-RM

BIOS revision 4K4UE0X0.86A.0010.P04 or later is required for the motherboard to properly support a 300 MHz processor.

2.   Support for 300A, 333, 366, and 400 MHz Intel Celeron Processors

The motherboard supports 300A, 333, 366, and 400 MHz Intel Celeron processors. Section 1.6, Microprocessor, will be modified to add these to the list of supported processor speeds.

The table of processor speeds in Section 1.6 will be modified to add the following lines:

Processor Type	Processor Speed	Host Bus Speed	Retention Module
Celeron	300A MHz	66 MHz	C-RM
Celeron	333 MHz	66 MHz	C-RM
Celeron	366 MHz	66 MHz	C-RM
Celeron	400 MHz	66 MHz	C-RM

BIOS revision 4K4UE0X0.86A.0012.P05 or later is required for the motherboard to properly support these processors.

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 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 4K4UE0X0.86A.0005.P01.

3. 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 4K4UE0X0.86A.0008.P03.

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

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

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

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4K4UE0X0.86A.0011.P04.

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5. System BIOS Does Not Report That Memory has Decreased in Size During the POST Process

PROBLEM: No error message is generated if the BIOS finds during the POST process that the amount of system memory has decreased. No record of the event is placed in the DMI event log.

IMPLICATION: If a portion of memory becomes unusable, the user will not receive advance warning that less memory than expected is available to the system.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4K4UE0X0.86A.0009.P05.

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

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

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

WORKAROUND: None.

STATUS: This erratum will not be fixed.

7. 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 4K4UE0X0.86A.0016.P09.

8. 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.

9. 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 will not be fixed.

10. Onboard Audio Will Not Play and Record Simultaneously

PROBLEM: Under the Windows NT* 4.0 operating system, if IRQ5 is reserved in the BIOS Setup program for use by another device, the onboard audio will not be given the DMA resources needed to perform full-duplex operation.

IMPLICATION: If IRQ5 must be used by a device other than the onboard audio, the user will not be able to play and record audio simultaneously.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

11. BIOS Does Not Support ACPI Power Management in Windows* 2000

PROBLEM: Under the Windows* 2000 operating system, KU440EX only supports APM mode.

IMPLICATION: Users who require power management must use APM mode.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

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SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *KU440EX Motherboard Technical Product Specification* (Order Number 704768). All Specification Clarifications will be incorporated into a future version of that specification.

1. Hardware Monitor Reverses Reporting of -12 Volt Signal

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

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

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

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *KU440EX Motherboard Technical Product Specification* (Order Number 704768). All Documentation Changes will be incorporated into a future version of that specification.

1. Change to Section 3.7, System Management BIOS

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

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

2. See Summary Table of Changes

3. Change to Section 2.1, Memory Map

In Section 2.1, Memory Map, Table 27 will be replaced in its entirety as follows:

Address Range (decimal)	Address Range (hex)	Size	Description
1024 K – 292144 K	100000 – 10000000	256 MB	Extended memory
896 K – 1024 K	E0000 – FFFFF	128 KB	System BIOS
800 K – 896 K	C8000 – DFFFF	96 KB	Available high DOS memory (open to ISA and PCI buses)
640 K – 800 K	A0000 – C7FFF	160 KB	Video memory and BIOS
0 K – 640 K	00000 – 9FFFF	640 KB	Conventional Memory

4. Refer to Summary Table of Changes

5. Addition of Material Tolerances for I/O Shield

In Section 1.5, I/O Shield, the following material tolerances will be added:

For dimensions given to two decimal places, (X.XX) the tolerance is ±0.02 inches. For dimensions given to three decimal places (X.XXX), the tolerance is ±0.010 inches.