



# **BI440ZX Motherboard Specification Update**

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The BI440ZX 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 BI440ZX 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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## REVISION HISTORY

Date of Revision	Version	Description
December 1998	-001	This document is the first Specification Update for the Intel® BI440ZX motherboard.
January 1999	-002	Added Erratum 1.
February 1999	-003	Added Specification Change 1.
April 1999	-004	Added Errata 2-3.
May 1999	-005	Added Erratum 4.
June 1999	-006	Added Erratum 5.
July 1999	-007	Modified Specification Change 1.
August 1999	-008	Added Documentation Change 1.
September 1999	-009	Added Specification Change 2.
December 1999	-010	Added Specification Clarification 1.
March 2000	-011	Added Erratum 6.

## PREFACE

This document is an update to the specifications contained in the BI440ZX Motherboard Technical Product Specification (Order number 726089). 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 *Intel® Celeron™ Processor Specification Update* (Order number 243748) for specification updates concerning the Celeron processor. Items contained in the *Intel Celeron Processor Specification Update* that either do not apply to the BI440ZX 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 *82443ZX Specification Update* (Order Number TBD) for specification updates concerning the 82443ZX PCI A.G.P. Controller. Items contained in the *82443ZX Specification Update* that either do not apply to the BI440ZX 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 BI440ZX 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 BI440ZX 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  
BI440ZX Motherboards**



**GENERAL INFORMATION**
**Basic BI440ZX Motherboard Identification Information**

AA Revision	PBA Revision	440ZX AGPSet Stepping	BIOS Revision	Notes
729695-202	721262-202	A1	4B4IZ0XA,86A.0003.P01	1-5
729695-203	721262-203	A1	4B4IZ0XA,86A.0006.P03	1-5
729695-204	721262-204	A1	4B4IZ0XA,86A.0007.P04	1-5
729695-205	721262-205	A1	4B4IZ0XA,86A.0008.P05	1-5
729695-206	721262-206	A1	4B4IZ0XA,86A.0010.P07	1-5
729695-207	721262-207	A1	4B4IZ0XA,86A.0010.P07	1-5
729695-208	721262-208	A1	4B4IZ0XA,86A.0010.P07	1-5
725665-202	721262-202	A1	4B4IZ0XA,86A.0003.P01	1-5
725665-203	721262-203	A1	4B4IZ0XA,86A.0006.P03	1-5
725665-204	721262-204	A1	4B4IZ0XA,86A.0007.P04	1-5
725665-205	721262-205	A1	4B4IZ0XA,86A.0008.P05	1-5
725665-206	721262-206	A1	4B4IZ0XA,86A.0010.P07	1-5
725665-207	721262-207	A1	4B4IZ0XA,86A.0010.P07	1-5
725665-208	721262-208	A1	4B4IZ0XA,86A.0010.P07	1-5

**NOTES:**

- The PBA number or AA number is found on a small label on the component side of the board.
- The 440ZX AGPset kit used on this PBA revision consists of two components as follows:

Device	Stepping	S-Spec Numbers
82443ZX	A1	SL37A
82371EB	A0	SL37M SL37Z



3. The following errata are contained in the *Intel® Celeron™ Processor Specification Update* (Order Number 243748) for the Celeron processor and either do not apply to the BI440ZX motherboard or have been worked-around in this PBA and/or BIOS revision: C1AP-C2AP. All other errata associated with the processor apply to this PBA revision.
4. The following items are contained in the *Intel® 82443ZX Specification Update* (Order Number TBD) and either do not apply to the BI440ZX motherboard or have been worked around in this PBA and/or BIOS revision: None. 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 BI440ZX motherboard or have been worked around in this PBA and/or BIOS revision: 5, 9, 15. 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 BI440ZX 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 new Intel® Celeron™ processor speeds
2	Doc	Support for 500 MHz Intel Celeron processors
NO.	PLANS	ERRATA
1	NoFix	System Cannot Boot From Intelligent I/O Device
2	Fixed	System BIOS does not load latest processor microcode at boot time
3	NoFix	BIOS setup program does not warn of IRQ conflict
4	Fixed	System will not boot without video card installed
5	Fixed	System does not suspend correctly under OS/2* Warp* 4.0
6	Fixed	System may not function with add-in SCSI host bus adapter
NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	FDISK terminates if there is no disk in ZIP drive.
NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to description of wake-up devices

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
721262-202	4B4IZ0XA.86A.0003.P01	1-6
	4B4IZ0XA.86A.0004.P02	1, 3-6
	4B4IZ0XA,86A.0006.P03	1, 3-6
	4B4IZ0XA,86A.0007.P04	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3
721262-203	4B4IZ0XA.86A.0003.P01 <sup>†</sup>	1-6
	4B4IZ0XA.86A.0004.P02 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0006.P03	1, 3-6
	4B4IZ0XA,86A.0007.P04	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3
721262-204	4B4IZ0XA.86A.0003.P01 <sup>†</sup>	1-6
	4B4IZ0XA.86A.0004.P02 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0006.P03 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0007.P04	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3
721262-205	4B4IZ0XA.86A.0003.P01 <sup>†</sup>	1-6
	4B4IZ0XA.86A.0004.P02 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0006.P03 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0007.P04 <sup>†</sup>	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3
721262-206	4B4IZ0XA.86A.0003.P01 <sup>†</sup>	1-6
	4B4IZ0XA.86A.0004.P02 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0006.P03 <sup>†</sup>	1, 3-6
	4B4IZ0XA,86A.0007.P04 <sup>†</sup>	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05 <sup>†</sup>	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3

<b>PBA Revision</b>	<b>BIOS Revision</b>	<b>Errata That Apply</b>
721262-207	4B4IZ0XA.86A.0003.P01 <sup>‡</sup>	1-6
	4B4IZ0XA.86A.0004.P02 <sup>‡</sup>	1, 3-6
	4B4IZ0XA,86A.0006.P03 <sup>‡</sup>	1, 3-6
	4B4IZ0XA,86A.0007.P04 <sup>‡</sup>	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05 <sup>‡</sup>	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3
721262-208	4B4IZ0XA.86A.0003.P01 <sup>‡</sup>	1-6
	4B4IZ0XA.86A.0004.P02 <sup>‡</sup>	1, 3-6
	4B4IZ0XA,86A.0006.P03 <sup>‡</sup>	1, 3-6
	4B4IZ0XA,86A.0007.P04 <sup>‡</sup>	1, 3, 5-6
	4B4IZ0XA,86A.0008.P05 <sup>‡</sup>	1, 3, 5
	4B4IZ0XA,86A.0010.P07	1, 3

<sup>‡</sup> 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 *BI440ZX Motherboard Technical Product Specification* (Order Number 726089). All Specification Changes will be incorporated into a future version of that specification.

### 1. **Support for New Intel® Celeron™ Processor Speeds**

The following will be added to Table 1, Processor Speeds Supported by the Motherboard, in Section 1.2, Processor:

Processor Speed	Host Bus Frequency	Cache Size
366 MHz	66 MHz	128 KB
400 MHz	66 MHz	128 KB
433 MHz	66 MHz	128 KB
466 MHz	66 MHz	128 KB

Note: BIOS Revision 4B4IZ0XA.86A.0007.P04 or greater is required to properly support 433 MHz and 466 MHz processors.

### 2. **Support for 500 MHz Intel Celeron Processors**

The following will be added to Table 1, Processor Speeds Supported by the Motherboard, in Section 1.2, Processor:

Processor Speed	Host Bus Frequency	Cache Size
500 MHz	66 MHz	128 KB

Note: BIOS Revision 4B4IZ0XA.86A.0010.P07 or greater is required to properly support 500 MHz processors.

## ERRATA

### 1. ***System Cannot Boot From Intelligent I/O Device***

**PROBLEM:** Although the BIOS Setup program lists the option to select a device that complies with the Intelligent I/O specification as a boot device, the system will not boot from the device. The option to select an Intelligent I/O device as a boot device has been removed from BIOS revisions 4B4IZ0XA.86A.0004.P02 and later.

**IMPLICATION:** The user will have to specify another boot device.

**WORKAROUND:** None.

**STATUS:** This erratum will not be fixed.

### 2. ***System BIOS Does Not Load Latest Processor Microcode at Boot Time***

**PROBLEM:** Even if a later processor microcode update has been loaded into non-volatile RAM by an update utility, the BIOS loads the superseded original microcode from within the BIOS flash module.

**IMPLICATION:** The system will be subject to processor errata that have been worked around in the new update.

**WORKAROUND:** None.

**STATUS:** This erratum was fixed in BIOS revision 4B4IZ0XA.86A.0004.P02.

### 3. ***BIOS Setup Program Does Not Warn of IRQ Conflict***

**PROBLEM:** The BIOS Setup program does not display an asterisk in the Peripheral Configuration submenu to warn that the IRQ chosen for the serial port is in use by another device.

**IMPLICATION:** The user may assign two devices to use the same IRQ resource.

**WORKAROUND:** None.

**STATUS:** This erratum will not be fixed.

### 4. ***System Will Not Boot Without Video Card Installed***

**PROBLEM:** The system will fail during the boot process if no video card is detected during system boot.

**IMPLICATION:** Embedded applications that do not use a video card will not run correctly.

**WORKAROUND:** None.

**STATUS:** This erratum was fixed in BIOS revision 4B4IZ0XA.86A.007.P04.

## **5. System Does Not Suspend Correctly Under OS/2\* Warp\* 4.0**

**Problem:** Under the OS/2\* Warp\* 4.0 operating system, the system will not suspend from the start menu. When the user attempts to put the system into the suspend state, it suspends for about one second, then wakes up.

**IMPLICATION:** The user will not be able to force the system to suspend.

**WORKAROUND:** None.

**STATUS:** This erratum was fixed in BIOS revision 4B4IZ0XA.86A.0010.P07.

## **6. System May Not Function With Add-in SCSI Host Bus Adapter**

**Problem:** The BIOS may fail to initialize an add-in SCSI host bus adapter correctly.

**Implication:** Devices connected to the host bus adapter will not be available to the operating system.

**Workaround:** None

**Status:** This erratum was fixed in BIOS revision 4S4R100A.86A.0011.P05.

## SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *BI440ZX Motherboard Technical Product Specification* (Order Number 726089). All Specification Changes will be incorporated into a future version of that specification

### **1. *FDISK Terminates if There is No Disk in ZIP\* Drive***

When using a ZIP\* DRIVE as an ATAPI device, there must be a disk in the drive for FDISK to function properly.

## DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *BI440ZX Motherboard Technical Product Specification* (Order Number 726089). All Documentation Changes will be incorporated into a future version of that specification.

### **1. *Change to Description of Wake-Up Devices***

In Section 3.5.2.2, Wake-up Devices and Events, the text paragraph should read "Table 50 describes which devices or specific events can wake the computer from specific ACPI states."



