NX440LX Motherboard Specification Update

Release Date: December 1998

Order Number: 686884-012

The NX440LX 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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REVISION HISTORY

Date of Revision	Version	Description
September 1997	-001	This document is the first Specification Update for the Intel® NX440LX motherboard.
October 1997	-002	Added Errata 1-2 and Documentation Change 2.
November 1997	-003	Modified Documentation Change 2. Added Documentation Changes 3-5.
December 1997	-004	Added Specification Change 1.
January 1998	-005	Added Erratum 3.
February 1998	-006	Added Specification Change 2 and Errata 4-7.
March 1998	-007	Added Specification Change 3. Updated Specification Change 2 and Errata 1-2.
April 1998	-008	Added Documentation Change 6.
June 1998	-009	Added Specification Clarification 1.
July 1998	-010	Added Errata 8-9.
August 1998	-011	Added Erratum 10 and Documentation Change 7.
December 1998	-012	Added Specification Change 4. Updated the status of Errata 4, 6 and 10.

PREFACE

This document is an update to the specifications contained in the *NX440LX Motherboard Technical Product Specification* (Order number 674633). 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 NX440LX 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 AGPsetSpecification 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 NX440LX 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 NX440LX 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 NX440LX Motherboards

GENERAL INFORMATION

Basic NX440LX Motherboard Identification Information

AA Revision	PBA Revision	82440LX PCISet Stepping	BIOS Revision	Notes
689366-305	669208-305	A3	4N4XL0X0.86A. 0008.P02	1-5
689366-306	669208-306	A3	4N4XL0X0.86A. 0008.P02	1-5
689366-326	669208-326	A3	4N4XL0X0.86A. 0010.P04	1-5
689366-327	669208-327	A3	4N4XL0X0.86A. 0011.P05	1-5
689366-328	669208-328	A3	4N4XL0X0.86A. 0018.P08	1-5
689366-329	669208-329	A3	4N4XL0X0.86A. 0020.P10	1-5
684798-303	684801-303	A3	4N4XL0X0.86A. 0008.P02	1-5
684798-323	684801-323	A3	4N4XL0X0.86A. 0010.P04	1-5
684798-324	684801-324	A3	4N4XL0X0.86A. 0011.P05	1-5
684798-325	684801-325	A3	4N4XL0X0.86A. 0018.P08	1-5
684798-326	684801-326	A3	4N4XL0X0.86A. 0020.P10	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 NX440LX 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 NX440LX motherboard or have been worked around in this PBA and/or BIOS revision: 1-2, 4-5. All other errata associated with the PCIset 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 NX440LX 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 NX440LX motherboard. Intel intends to fix some of the errata in a future revision of the motherboard, and to account for the other outstanding issues through documentation or specification changes as noted. This table uses the following notations:

CODES USED IN SUMMARY TABLE

Doc:	Document change or update that will be implemented.
Fix:	This erratum is intended to be fixed in a future revision of the motherboard or BIOS.
Fixed:	This erratum has been previously fixed.
NoFix:	There are no plans to fix this erratum.
Shaded:	This erratum is either new or modified from the previous version of the document.

No.	PLANS	SPECIFICATION CHANGES
1	Doc	Removal of optional video memory expansion socket
2	Doc	Support for 333 MHz Pentium® II processors
3	Doc	Change to description of bootable controllers
4	Doc	Change to location of ECC configuration option in BIOS Setup program
No.	**PLANS**	**ERRATA**
1	Fixed	LS-120 drive does not work as expected in Windows* 95
2	Fixed	Serial mouse activity does not wake system after APM shutdown
3	NoFix	System BIOS may corrupt audio add-in card EEPROM
4	Fixed	BIOS cannot disable L2 cache
5	NoFix	Advanced Power Management may suspend system during CD-ROM playback
6	NoFix	System will not boot with network as first boot device
7	Fix	System BIOS does not recognize hard drives larger than 8.4 GB
8	Fix	MUX may fail to record change of processor speed
9	NoFix	The BIOS will not support the Advanced Configuration and Power Interface (ACPI)
10	NoFix	System using 3-mode floppy drive cannot read XDF format diskettes
No.	**PLANS**	**SPECIFICATION CLARIFICATIONS**
1	Doc	The Intel® Celeron™ processor
NO.	**PLANS**	**DOCUMENTATION CHANGES**
1	Doc	Power supply considerations
2	Doc	Revision of Section 3.12, USB Support
3	Doc	Revision of Section 1.14, Onboard Video Configuration Jumper Block
4	Doc	Revision of Section 3.4, PCI IDE Support
5	Doc	Revision of Section 5.3, BIOS Beep Codes

NO.	PLANS	DOCUMENTATION CHANGES
6	Doc	Change to Section 1.7.3, Floppy Controller
7	Doc	Change to Section 3.7, Desktop Management Interface

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
669208-305	4N4XL0X0.86A.0008.P02	1-10
	4N4XL0X0.86A.0010.P04	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
669208-306	4N4XL0X0.86A.0008.P02	1-10
	4N4XL0X0.86A.0010.P04	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
669208-326	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
669208-327	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04‡	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
669208-328	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04‡	2-10
	4N4XL0X0.86A.0011.P05‡	3-10
	4N4XL0X0.86A.0016.P06‡	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10

PBA Revision	BIOS Revision	Errata That Apply
669208-329	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04‡	2-10
	4N4XL0X0.86A.0011.P05‡	3-10
	4N4XL0X0.86A.0016.P06‡	3, 5-10
	4N4XL0X0.86A.0018.P08‡	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
684801-303	4N4XL0X0.86A.0008.P02	1-10
	4N4XL0X0.86A.0010.P04	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
684801-323	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
684801-324	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04‡	2-10
	4N4XL0X0.86A.0011.P05	3-10
	4N4XL0X0.86A.0016.P06	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10
684801-325	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04‡	2-10
	4N4XL0X0.86A.0011.P05‡	3-10
	4N4XL0X0.86A.0016.P06‡	3, 5-10
	4N4XL0X0.86A.0018.P08	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10

PBA Revision	BIOS Revision	Errata That Apply
684801-326	4N4XL0X0.86A.0008.P02‡	1-10
	4N4XL0X0.86A.0010.P04‡	2-10
	4N4XL0X0.86A.0011.P05‡	3-10
	4N4XL0X0.86A.0016.P06‡	3, 5-10
	4N4XL0X0.86A.0018.P08‡	3, 5-10
	4N4XL0X0.86A.0020.P10	3, 5-10

‡ 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 *NX440LX Motherboard Technical Product Specification* (Order Number 674633). All Specification Changes will be incorporated into a future version of that specification.

1. Removal of Optional Video Memory Expansion Socket

The expansion socket to allow the addition of 2 MB of RAMBUS* video memory is not offered as an option on the motherboard. References to the connector will be removed from Section 1.1, Overview, Figure 2, Motherboard Components and Section 1.12, Motherboard Connectors.

2. Support for 333 MHz Pentium® II Processors

The motherboard supports 333 MHz Pentium® II processors. Section 1.1, Overview and Section 1.4, 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 26, Maintenance Menu, will be updated to include that speed.

BIOS revision 4N4XL0X0.86A.0009.P05 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.

3. Change to Description of Bootable Controllers

In Table 39 of Section 4.6.1, Hard Drive Submenu, the description “Bootable ISA Cards” will be changed to “Bootable Add-in Cards.”

4. Change to Location of ECC Configuration Option in BIOS Setup Program

In the BIOS Setup program the location of the option to configure ECC memory has been moved from the Resource Configuration Submenu (Section 4.3.1) to the Advanced Menu (Section 4.3.)

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 4N4XL0X0.86A.0010.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 was fixed in BIOS revision 4N4XL0X0.86A.0011.P05.

3. 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.

4. 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 4N4XL0X0.86A.0016.P06.

5. 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.

6. 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 will not be fixed.

7. 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 will be fixed in a future BIOS revision.

8. 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.

9. The BIOS Will Not Support the Advanced Configuration and Power Interface (ACPI)

PROBLEM: BIOS support for the Advanced Configuration and Power Interface has not been added to the BIOS.

IMPLICATION: Users will not be able to use the ACPI configuration and power management options supported by an ACPI aware operating system. Plug and Play configuration of system resources and Advanced Power Management (APM) are supported by the BIOS.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

10. 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 will not be fixed.

SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *NX440LX Motherboard Technical Product Specification* (Order Number 674633). All Specification Clarifications will be incorporated into a future version of that specification.

1. The Intel® Celeron™ Processor

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

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *NX440LX Motherboard Technical Product Specification* (Order Number 674633). All Documentation Changes will be incorporated into a future version of that specification.

1. Power Supply Considerations

Table 14, DC Voltage, and the last paragraph of Section 1.19, Power Consumption, will be deleted.

Section 1.19.1, Power Supply Considerations, will be added as follows:

For typical configurations, the motherboard is designed to operate with at least a 145 W NLX power supply (see Section 6.2 for the NLX Power Supply Recommendations). A higher-wattage power supply should be used for heavily-loaded configurations. The power supply must comply with the following recommendations from that document:

The potential relation between 3.3VDC and +5VDC power rails (Section 4.5)

The current capability of the +5VSB line (Section 4.1.2)

All timing parameters (Section 4.5)

All voltage tolerances (Section 4.5)

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 1.14, Onboard Video Configuration Jumper Block

The jumper settings in Table 7 of Section 1.14, Onboard Video Configuration Jumper Block, are reversed. This jumper block is only present on boards with onboard video. The table will be replaced in its entirety as follows:

Table 7. Onboard Video Configuration Jumper Block (J1J1)

Function	Jumper	Configuration
Enable	2-3	Enables onboard video. (Default)
Disable	1-2	Disables onboard video and allows use of an add-in A.G.P. card or any video on the riser.

4. Revision of Section 3.4, PCI IDE Support

Section 3.4, 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 23.

5. 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 44 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

6. Change to Section 1.7.3, Floppy Controller

In Section 1.7.3, Floppy Controller, the reference to 120 MB (LS-120) floppy drive capacity will be removed. LS-120 drives connect to the IDE interface.

7. Change to Section 3.7, Desktop Management Interface

In Section 3.7, 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.