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LT430TX
Motherboard
Specification Update

Release Date: October 1998

Order Number: 678285-017

The LT430TX 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
May 1997	-001	This document is the first Specification Update for the Intel® LT430TX motherboard.
June 1997	-002	Added Specification Change 1, Specification Clarifications 1-3 and Documentation Changes 1-3.
July 1997	-003	Added Erratum 4, Specification Clarification 4 and Documentation Changes 4-9.
August 1997	-004	Updated Documentation Changes 1 and 7- 8. Added Specification Clarification 5 and Documentation Change 10.
September, 1997	-005	Updated Documentation Change 10. Added Errata 5 and 6.
October 1997	-006	Updated Erratum 4. Added Errata 7-9 and Documentation Change 11.
November 1997	-007	Updated Errata 8-9 and Documentation Change 11. Added Erratum 10 and Documentation Changes 12-13.
December 1997	-008	Added Erratum 11 and Specification Clarifications 6-7.
January 1998	-009	Added Errata 12-13 and Specification Clarification 8.
February 1998	-010	Updated Erratum 12. Added Erratum 14.
March 1998	-011	Added Specification Change 2.
April 1998	-012	Added Erratum 15.
May 1998	-013	Added Erratum 16. Updated Errata 3, 5, 11 and 15.
June 1998	-014	Added Documentation Change 14.
July 1998	-015	Added Documentation Change 15.
August 1998	-016	Added Erratum 17.
October 1998	-017	Updated status of Erratum 17.

PREFACE

This document is an update to the specifications contained in the *LT430TX Motherboard Technical Product Specification* (Order Number 677032). 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® Processor Specification Update* (Order Number 242480) for specification updates concerning the Pentium processor. Items contained in the *Pentium Processor Specification Update* that either do not apply to the LT430TX 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 Printed Board Assembly (PBA) revision(s) associated with that stepping.

Refer to the *82430TX PCIset Specification Update* (Order Number 297736) for specification updates concerning the 82430TX PCIset. Items contained in the *82430TX PCIset Specification Update* that either do not apply to the LT430TX 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 Printed Board Assembly (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 LT430TX 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 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 LT430TX 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 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
LT430TX Motherboards**

GENERAL INFORMATION

Basic LT430TX Motherboard Identification Information

AA Revision	PBA Revision	82430TX PCIset Stepping	BIOS Revision	Notes
678039-101	677570-101	A1	4L3TT0X0.86A.0006.P01	1, 2, 3, 4, 5
678039-102	677570-102	A1	4L3TT0X0.86A.0006.P01	1, 2, 3, 4, 5
678039-103	677570-103	A1	4L3TT0X0.86A.0006.P01	1, 2, 3, 4, 5
678039-104	677570-104	A1	4L3TT0X0.86A.0007.P03	1, 2, 3, 4, 5

NOTES:

1. The AA/PBA number is found on a small label on the component side of the board.
2. The 82430TX PCIset kit used on this PBA revision consists of two different components as follows:

Device	Stepping	S-Spec Numbers
82439TX	A1	L238
82371AB	B0	L23P

3. The following errata contained in the *82430TX PCIset Specification Update* (Order Number 297736) either do not apply to the LT430TX motherboard or have been worked around in this PBA and/or BIOS revision: 1S, 2S, 4S. All other errata associated with the PCIset apply to this PBA revision. For specific details of any erratum please refer to the *82430TX PCIset Specification Update*.

4. The following errata contained in the *82371AB PIIX4 Specification Update* (Order Number 297738) either do not apply to the LT430TX motherboard or have been worked around in this PBA and/or BIOS revision. All other errata associated with the PCIset apply to this PBA revision. For specific details of any erratum please refer to the *82371AB PIIX4 Specification Update*.

5. The following errata contained in Part I of the *Pentium® Processor Specification Update* (Order Number 242480) either do not apply to the LT430TX motherboard or have been worked around in this PBA and/or BIOS revision: 5, 7, 9-11, 13-14, 16-17, 29, 31, 34, 36-37, 39, 40, 46, 48-50, 58, 60-64, 66-67, 69, 71, all DP errata, all AP errata, all TCP errata. All other errata in Part I may apply to this revision level of the motherboard, depending on the stepping of the processor or the specific software that is being executed. Also, some of these errata apply only to motherboards being used in an application development environment. For specific details of any erratum please refer to the *Pentium Processor Specification Update.*

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Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes which apply to the LT430TX 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 233 MHz Pentium® processors with MMX™ technology
2	Doc	Change to Description of Bootable Controllers

NO.	PLANS	ERRATA
1	NoFix	System does not meet FCC Class B with unshielded USB cables
2	NoFix	Audio driver does not support Windows* 3.x session within OS/2* Warp*
3	Fixed	System BIOS does not recognize bootable USB devices
4	Fixed	Management extension ASIC may fail to reset at power-on
5	Fixed	Memory decrease warning message not displayed
6	Fix	Hard drive not detected on boot if user defined
7	Fixed	Intel EtherExpress™ Pro/100B fails to initialize with Windows 95
8	Fixed	LS-120 drive does not work as expected in Windows 95
9	Fix	Serial mouse activity does not wake system after APM shutdown
10	Fix	Stuck or depressed key during POST may cause system hang
11	Fixed	Unable to define IDE heads value for secondary IDE hard drive in BIOS Setup
12	Fixed	System BIOS may corrupt audio add-in card EEPROM
13	NoFix	Windows 95 will not boot if LS-120 drive is only device on IDE channel
14	NoFix	Advanced Power Management may suspend system during CD-ROM playback
15	Fixed	BIOS does not correctly size 64 MB or larger DIMMs
16	Fixed	Unattended start feature does not require password before boot
17	NoFix	System using 3-mode floppy drive cannot read XDF format diskettes

NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	Advanced Power Management (APM) will not function as expected with Universal Serial Bus (USB) enabled

NO.	PLANS	SPECIFICATION CLARIFICATIONS
2	Doc	LS-120 drive and floppy will not function as expected for BIOS recovery
3	Doc	PCI 2.1 Specification optional features
4	Doc	Supervisor and user passwords
5	Doc	Power supply considerations
6	Doc	LS-120 drive configured as a boot device
7	Doc	Resource allocation with all PCI slots used
8	Doc	Using shift print screen in BIOS Setup
NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Revision of Section 1.6.1, "Main Memory"
2	Doc	Addition of "Power On" section
3	Doc	Revision of Section 5.1, "Specifications"
4	Doc	Revision of Section 1.7.1, "82439TX System Controller (MTXC)"
5	Doc	Revision of Section 1.14, "Add-In Board Expansion Connectors"
6	Doc	Revision of Section 1.15.1, "Processor Configuration (J9C1-C, D)"
7	Doc	Revision of Section 1.6.1.1, "EDO DRAM"
8	Doc	Revision of Section 1.8.1, "Serial Ports"
9	Doc	Revision of Section 1.15.3, "Clear CMOS (J9C1-A)"
10	Doc	Revision of Section 1.18.1, "Power Supply Considerations"
11	Doc	Revision of Section 3.1.12, USB Support
12	Doc	Addition of "BIOS Beep Codes" section
13	Doc	Revision of Section 3.1.4, "PCI IDE Support"
14	Doc	Change to description of Manufacturing Options
15	Doc	Addition of section describing real time clock

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
677570-101	L3TT0X0.86A.0006.P01	1-14, 16-17
	L3TT0X0.86A.0006.P02	1-14, 16-17
	L3TT0X0.86A.0007.P03	1-6, 9-14, 16-17
	L3TT0X0.86A.0007.P04	1-6, 9-11, 13-14, 16-17
	4L3TT0X0.86A.0015.P07	1-2, 4, 6, 9-10, 13-17
	4L3TT0X0.86A.0017.P08	1-2, 4, 6, 9-10, 13-15, 17
	4L3TT0X0.86A.0018.P09	1-2, 4, 6, 9-10, 13-14, 17
	4L3TT0X0.86A.0019.P10	1-2, 6, 9-10, 13-14, 17
677570-102	L3TT0X0.86A.0006.P01	1-14, 16-17
	L3TT0X0.86A.0006.P02	1-14, 16-17
	L3TT0X0.86A.0007.P03	1-6, 9-14, 16-17
	L3TT0X0.86A.0007.P04	1-6, 9-11, 13-14, 16-17
	4L3TT0X0.86A.0015.P07	1-2, 4, 6, 9-10, 13-17
	4L3TT0X0.86A.0017.P08	1-2, 4, 6, 9-10, 13-15, 17
	4L3TT0X0.86A.0018.P09	1-2, 4, 6, 9-10, 13-14, 17
	4L3TT0X0.86A.0019.P10	1-2, 6, 9-10, 13-14, 17
677570-103	L3TT0X0.86A.0006.P01	1-3, 5-14, 16-17
	L3TT0X0.86A.0006.P02	1-3, 5-14, 16-17
	L3TT0X0.86A.0007.P03	1-3, 5, 6, 9-14, 16-17
	L3TT0X0.86A.0007.P04	1-3, 5-6, 9-11, 13-14, 16-17
	4L3TT0X0.86A.0015.P07	1-2, 6, 9-10, 13-17
	4L3TT0X0.86A.0017.P08	1-2, 6, 9-10, 13-15, 17
	4L3TT0X0.86A.0018.P09	1-2, 6, 9-10, 13-14, 17
	4L3TT0X0.86A.0019.P10	1-2, 6, 9-10, 13-14, 17
677570-104	L3TT0X0.86A.0006.P01[‡]	1-3, 5-14, 16-17
	L3TT0X0.86A.0006.P02[‡]	1-3, 5-14, 16-17
	L3TT0X0.86A.0007.P03	1-3, 5, 6, 9-14, 16-17
	L3TT0X0.86A.0007.P04	1-3, 5-6, 9-11, 13-14, 16-17
	4L3TT0X0.86A.0015.P07	1-2, 6, 9-10, 13-17
	4L3TT0X0.86A.0017.P08	1-2, 6, 9-10, 13-15, 17
	4L3TT0X0.86A.0018.P09	1-2, 6, 9-10, 13-14, 17
	4L3TT0X0.86A.0019.P10	1-2, 6, 9-10, 13-14, 17

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.

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SPECIFICATION CHANGES

The Specification Changes listed in this section apply to the *LT430TX Motherboard Technical Product Specification* (Order Number 677032). All Specification Changes will be incorporated into a future version of that specification.

1. *Support for 233 MHz Pentium® processors with MMX™ technology*

Support for 233 MHz Pentium® processors with MMX™ technology is available in PBA revision 677570-101 and higher. Below are the jumper settings:

Processor Freq. (MHz)	Jumpers J9C1-C	Jumpers J9C1-D	Host Bus Freq. (MHz)	PCI Bus Freq. (MHz)	ISA Bus Freq. (MHz)	Bus/Processor Freq. Ratio
100/233	5-6	1-2 and 4-5	66	33	8.33	1.5

NOTE:

There are no additional jumpering requirements for Pentium processors with MMX technology.

The 100 MHz Pentium processor and the 233 MHz Pentium processor with MMX technology have identical jumper settings. The motherboard automatically detects which processor type is installed.

2. *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."

ERRATA

1.   *System Does Not Meet FCC Class B with Unshielded USB Cables*

PROBLEM: The motherboard will generate excessive electromagnetic radiation on unshielded USB cables, even if no device or a low speed (sub-channel) USB device is attached to the cable.

IMPLICATION: The system will not meet FCC Part 15 Class B requirements when unshielded USB cable is used. This is a violation of the USB v1.0 specification.

WORKAROUND: Use USB devices with shielded cable that meet the requirements for high speed (fully-rated) USB devices.

STATUS: This erratum will not be fixed.

2.   *Audio Driver Does Not Support Windows* 3.x Session Within OS/2* Warp**

PROBLEM: The LT430TX motherboard audio drivers for OS/2* Warp* or Windows* 3.x do not support audio during a Windows 3.x session within OS/2 Warp.

IMPLICATION: No audio is available during a Windows 3.x session within OS/2 Warp. Normal audio support will be available in native OS/2 Warp.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

3.   *System BIOS Does Not Recognize Bootable USB Devices*

PROBLEM: The system BIOS does not recognize a USB keyboard or mouse during a system boot. A USB keyboard or mouse is not recognized until an operating system that supports USB is loaded.

IMPLICATION: 1. The user is not able to use a USB keyboard to enter the BIOS Setup or to respond to error messages that are displayed before an operating system with USB support is loaded.
2. The user is not able to use a USB keyboard or mouse with any operating system that does not have USB support.

WORKAROUND: Use a standard PS/2* style keyboard and mouse in any configuration where input is required before an operating system with USB support is loaded.

STATUS: This erratum was fixed in BIOS revision 4L3TT0X0.86A.0015.P07.

4.   *Management Extension ASIC May Fail to Reset at Power-On*

PROBLEM: If external system devices, such as monitors or printers, are already powered on at system power-on, they may provide an offset potential of greater than 200 mV DC between the Vcc power plane and the ground plane of the motherboard. This can cause an intermittent internal reset failure in the management extension ASIC used on the motherboard. If the internal reset fails, no data conversions will occur and the ASIC registers that store temperature, voltage and fan speed data will be set to zero.

IMPLICATION: If LANDesk® software or other management software attempts to query the ASIC for temperature, voltage or fan speed information, it will receive invalid data. Any system alerts based on the status of those parameters will not occur.

The monitoring of these three parameters is the only function affected by this erratum. The rest of the system will function normally in all other respects. Applications that do not use management software to monitor these hardware parameters are not affected by this erratum.

WORKAROUND: Power down the system and all external devices connected to it. While all external devices are still turned off, power the system on again. Turning off all external devices reduces the offset potential to a low value that allows the management ASIC to reset when power is turned on again.

STATUS: This erratum was fixed in PBA revision 677570-103.

5.   *Memory Decrease Warning Message Not Displayed*

PROBLEM: During POST, the BIOS will not generate and display a memory decrease warning message on the screen.

IMPLICATION: The user will not be warned about a decrease in the amount of memory.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4L3TT0X0.86A.0015.P07.

6.   *Hard Drive Not Detected on Boot if User Defined*

PROBLEM: If the drive type in BIOS Setup is set to USER, the hard drive will not be detected by the motherboard at boot.

IMPLICATION: The hard drive will not be detected by the BIOS during the boot process and will not be available to the operating system.

WORKAROUND: None.

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

7.   *Intel® EtherExpress™ Pro/100B Fails to Initialize With Windows* 95*

PROBLEM: The system BIOS allocates 48 KB of memory at location C000H:0 rather than 44 KB as expected.

IMPLICATION: Since the EtherExpress™ Pro/100B attempts to map memory starting at location CB00H:0 by default, this results in a resource conflict with the system BIOS. Therefore, Windows* 95 will be unable to initialize the EtherExpress Pro/100B and an exclamation mark will be displayed in Device Manager for this device.

WORKAROUND: Manually move the EtherExpress Pro/100B memory range to D000 or higher in Windows 95 Device Manager.

STATUS: This erratum was fixed in BIOS revision L3TT0X0.86A.0007.P03.

8.   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 L3TT0X0.86A.0007.P03.

9.   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.

10.   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 will be fixed in a future BIOS revision.

11.   Unable to Define IDE Heads Value for Secondary IDE Hard Drive in BIOS Setup

PROBLEM: The Secondary IDE Master/Slave Configuration Submenu in BIOS Setup does not display a field for the number of hard disk drive heads and has no value assigned for them in manual configuration mode.

IMPLICATION: Since BIOS setup does not allow the user to define the number of hard disk heads, thus the system BIOS cannot detect the secondary IDE hard drive.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4L3TT0X0.86A.0015.P07.

12. *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: None.

STATUS: This erratum was fixed in BIOS revision L3TT0X0.86A.0007.P04.

13. *Windows* 95 Will Not Boot if LS-120 Drive is Only Device on IDE Channel*

PROBLEM: An LS-120 drive will not be recognized by Windows* 95 if it is the only device on the IDE channel.

IMPLICATION: If an LS-120 drive is the only device on an IDE channel, a black screen with a cursor blinking in the upper left hand corner will be displayed when Windows 95 is starting to boot and the system will hang.

WORKAROUND: The LS-120 drive is recognized when connected as either the master or the slave on an IDE channel with another device.

STATUS: This erratum will not be fixed.

14. *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.

15. *BIOS Does Not Correctly Size 64 MB or Larger DIMMs*

PROBLEM: Because of an incorrect register setting in the memory controller, the BIOS may not correctly identify the size of 64 MB or larger DIMMs.

IMPLICATION: Only 16 MB of the memory will be reported by the power on self-test (POST). The additional memory will not be available to the operating system. This erratum applies only to BIOS revision 4L3TT0X0.86A.0015.P07 and later.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4L3TT0X0.86A.0018.P09.

16. *Unattended Start Feature Does Not Require Password Before Boot*

PROBLEM: The Unattended Start feature at power on allows the system to boot without any password being entered at the keyboard, even though a user or administrator password has been set in the BIOS Setup program.

IMPLICATION: A system that is booted without an operator in attendance could be vulnerable to unauthorized access.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4L3TT0X0.86A.0017.P08.

17. *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 *LT430TX Motherboard Technical Product Specification* (Order Number 677032). All Specification Clarifications will be incorporated into a future version of that specification.

1.   Advanced Power Management (APM) Will Not Function as Expected with Universal Serial Bus (USB) Enabled

The following will be added to Section 1.7.3, Universal Serial Bus and Section 3.1.8, Advanced Power Management:

Advanced Power Management will not function as expected when a USB keyboard or mouse is used. USB activity is not monitored by the APM event counter, therefore, activity from a USB keyboard or mouse will not keep the system awake or bring a system out of APM sleep mode. If a USB keyboard or mouse is being used, APM should be disabled.

2.   LS-120 Drive and Floppy Will Not Function as Expected for BIOS Recovery

The following note will be added to Section 3.1.14, Recovering BIOS Data:

The LS-120 drive does not work as a legacy floppy drive when attempting to perform a BIOS recovery. A 1.44 MB disk must be used in place of an LS-120 disk in the LS-120 drive for BIOS recovery.

3.   PCI 2.1 Specification Optional Features

The following will be added to Section 1.14, Add-in Board Expansion Connectors:

The following optional features in the PCI 2.1 Specification are not implemented on the LT430TX motherboard:

- Cache Support Pins **SBO#** and **SDONE** (Section 2.2.7)
- **PRSNTx#** (Section 2.2.8)
- **CLKRUN#** (Section 2.2.8)
- 64 Bit Bus Extension Pins (Section 2.2.9)
- 66 MHz support (Section 2.2.8)
- JTAG/Boundary scan (Section 2.2.10)

4.   Supervisor and User Passwords

The following will be added to Section 3.2.5, Security Menu:

If a supervisor password has been set, but no user password has been set, a user can create a password by entering BIOS Setup at boot by pressing the <F2> key and pressing enter at the supervisor password prompt. Once in Setup, a user will be able to create a new user password.

Once defined, a user password can be cleared by either defining a new user password in BIOS Setup, or by moving the Password Clear jumper (J9C1-A) on the motherboard. See Section 1.15.2, Password Clear for more information on how to use this jumper.

5.   Power Supply Considerations

The LT430TX motherboard has been designed to be configured in a system that uses a power supply that complies with the recommendations of ATX Specification Version 2.01. See Documentation Change 10 for the specific recommendations that must be met by a power supply for the motherboard.

6.   LS-120 Drive Configured as a Boot Device

The second paragraph in Section 1.7.4.1, LS-120 Support will be replaced in its entirety as follows:

The motherboard allows connection of an LS-120 compatible drive and a standard 3.5-inch diskette drive. The LS-120 drive can be configured as a boot device, if selected as a floppy device in the BIOS setup utility.

7.   Resource Allocation With All PCI Slots Used

The BIOS assigns resources to PCI boot devices (video cards and SCSI controllers, for example) during POST when Plug and Play is enabled in BIOS Setup. PCI and ISA non-boot devices (network cards and audio, for example) will not have resources assigned by the BIOS during POST. A Plug and Play operating system assigns resources to PCI and ISA non-boot devices when it loads.

8.   Using Shift Print Screen in BIOS Setup

In order to use the Shift Print Screen function to print screens from BIOS Setup, PnP OS must be set to no. If PnP OS is set to yes in BIOS Setup, the Shift Print Screen function will not work. The BIOS does not assign resources to the parallel port when PnP OS is set to yes in BIOS Setup. Resources for the parallel port will be allocated by the plug and play operating system when it loads. If PnP OS is set to no, the BIOS allocates resources to the parallel port.

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *LT430TX Motherboard Technical Product Specification* (Order Number 677032). All Documentation Changes will be incorporated into a future version of the appropriate LT430TX motherboard documentation.

1.   *Revision of Section 1.6.1, Main Memory*

This section will be replaced in its entirety as follows:

The motherboard has two 168-pin DIMM sockets. Memory can be installed in one or two sockets. Minimum memory size is 8 MB. Maximum memory size is 128 MB for EDO memory and 256 MB SDRAM memory. The BIOS automatically detects memory type, size, and speed so no jumper settings are required.

The motherboard supports the following:

- 168-pin 3.3 V DIMMs with gold-plated contacts

- 60 and 66 MHz bus speeds

- 60 ns 3.3 V EDO DRAM

- Unrestricted CAS Latency 2 unbuffered 4-clock 3.3 V SDRAM

- Caching for the first 64 MB of main memory

- 64-bit data path

- Single- or double-sided DIMMs in the following sizes:

DIMM Size	Type	Configuration	Technology
8 MB	60 ns EDO	1M x 64	16 Mbit
16 MB	60 ns EDO	2M x 64	16 Mbit
32 MB	60 ns EDO	4M x 64	16 Mbit
64 MB	60 ns EDO	8M x 64	16 Mbit
8 MB	CAS Latency 2 SDRAM	1M x 64	16 Mbit
16 MB	CAS Latency 2 SDRAM	2M x 64	16 Mbit
32 MB	CAS Latency 2 SDRAM	4M x 64	16 Mbit
64 MB	CAS Latency 2 SDRAM	8M x 64	64 Mbit
128 MB	CAS Latency 2 SDRAM	16M x 64	64 Mbit

Memory type, size, and speed can vary between sockets, so EDO and SDRAM can be installed on the same motherboard. 168-pin parity DIMMs can be installed but are not recommended for the following reasons:

- The motherboard does not provide parity checking or ECC

- Parity DIMMs cause excessive capacitive loading on memory data and address lines

2.   Revision of Section 1.13.2.1, Power On

The following section will be replaced in its entirety as follows:

This header must be connected to a front panel power switch. The switch must pull the SW_ON# pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time requirement is due to the motherboard's internal debounce circuitry.) At least two seconds must pass before the motherboard will recognize another on/off signal. If the user selects either the "Stay Off" or the "Last State" options from the BIOS Setup, the system will turn on for 300 ms when AC power is first applied to the board. See Section 3.2.7.1 for additional information.

⚠ CAUTION

If you need to turn off the computer during POST, hold the power switch in for four seconds; otherwise the computer will not switch off.

3.   Revision of Section 5.1, Specifications

The following note will be added to the table entry for PCI compliance:

NOTE: Certain optional PCI features have not been implemented on this motherboard, see section 1.14 for more information.

4.   Revision of Section 1.7.1, 82439TX System Controller (MTXC)

The fourth bullet in this section will be replaced in its entirety as follows:

- Fully synchronous minimum latency PCI bus interface

    — PCI compliance (see Section 5.1 for compliance level)

    — 30 and 33 MHz bus speeds

    — PCI to DRAM data transfers up to or greater than 100 MB/sec

    — Up to four PCI masters in addition to the PIIX4

5.   Revision of Section 1.14, Add-In Board Expansion Connectors

The text in the first paragraph of this section will be replaced in its entirety as follows:

The motherboard Expansion Slots support up to four bus mastering PCI and up to three ISA add-in boards. One of the PCI slots may be shared with an ISA slot.

6.   Revision of Section 1.15.1, Processor Configuration (J9C1-C, D)

The following note will be added to the bottom of Table 26 in this section:

NOTE: Pins 1, 2 and 3 on Jumper J9C1-C are not used.

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LT430TX SPECIFICATION UPDATE

7. Revision of Section 1.6.1.1, EDO DRAM

The following will be added to the end of this section:

EDO DIMM should meet the Intel® 60 ns 64-bit 3.3 V unbuffered EDO DIMM v1.2 specification.

⚠ CAUTION

Due to loading anomalies, using EDO DIMMs with a n x 4 DRAM base in the LT430TX motherboard is not recommended. For example, a DIMM that uses sixteen 16 Mbit x 4 devices should not be used.

8. Revision of Section 1.8.1, Serial Ports

This section will be replaced in its entirety as follows:

The motherboard has one 9-pin D-Sub serial port connector located on the back panel, and one keyed 10-pin header located on the motherboard for cabling to the back panel. The 16540 and 16550A compatible UARTs allow data transfers at speeds up to 115.2 Kbaud with BIOS serial port support.

9. Revision of Section 1.15.3, Clear CMOS (J9C1-A)

This section will be replaced in its entirety as follows:

Allows CMOS settings to be reset to default values by moving the jumper from pins 4-5 to pins 5-6 and turning the system on. When the system reports that "NVRAM cleared by jumper", the system can be turned off, and the jumper should be returned to the 4-5 position to restore normal operation. Default is for this jumper to be on pins 4-5.

Caution: This procedure should only be done if, after a BIOS update, the system does not boot to a point where Setup can be entered or if, after CMOS default settings have been restored from within the Setup program, the system does not boot to the operating system.

10. Revision of Section 1.18.1, Power Supply Considerations

This section 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 5.1 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)

11. 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.

12. Addition of BIOS Beep Codes Section

The following will be added after Section 4.2. Remaining tables will be renumbered accordingly.

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).

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

Table 43.   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

13.   *Revision of Section 3.1.4, PCI IDE Support*

This section will be replaced in its entirety as follows:

If you select "Auto" 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 any ATAPI devices, including CD-ROM drives, tape drives and Ultra DMA drives (see Section 5.1 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 to optimize capacity and performance. To take advantage of the high capacities typically available today, hard drives are automatically configured for Logical Block Addressing (LBA) and to PIO Mode 3 or 4, depending on the capability of the drive. You can override the auto-configuration options by specifying manual configuration in Setup. The ATAPI Specification recommends that ATAPI devices be configured as shown in Table 37.

14.   *Change to Description of Manufacturing Options*

The following will be added as the first paragraph of Section 1.2, Motherboard Manufacturing Options:

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.

15.   Addition of Section Describing Real Time Clock

The following will be added as Section 1.8.5. Following sections will be renumbered as necessary:

1.8.5 Real-Time Clock, CMOS SRAM, and Battery

The real-time clock is compatible with DS1287 and MC146818 components. The clock provides a time-of-day clock and a multicentury calendar with alarm features and century rollover. The real-time clock supports 256 bytes of battery-backed CMOS SRAM in two banks that are reserved for BIOS use.

The time, date, and CMOS values can be specified in the Setup program. The CMOS values can be returned to their defaults by using the Setup program.

An external coin-cell battery powers the real-time clock and CMOS memory. When the computer is not plugged into a wall socket, the battery has an estimated life of three years. When the computer is plugged in, the 3.3 V standby current from the power supply extends the life of the battery. The clock is accurate to ± 13 minutes/year at 25 ºC with 3.3 V applied.