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Intel® Desktop Board D815BN Specification Update

Release Date: May 2001

Order Number: A42948-004

The Intel® Desktop Board D815BN 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

Specification Update for the Intel® Desktop Board D815BN

REVISION HISTORY

Date of Revision	Version	Description
October 2000	-001	This document is the first Specification Update for the Intel® Desktop Board D815BN.
November 2000	-002	Added Errata 1-2 and Documentation Change 1.
March 2001	-003	Removed BIOS/Errata cross reference table; added Document Change 2.
May 2001	-004	Added Erratum 3 and Document Changes 3-7.

PREFACE

This document is an update to the specifications contained in the *Intel*® *Desktop Board D815BN Technical Product Specification* (Order number A29192). 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*® *III Processor Specification Update* (Order number 244453) for specification updates concerning the Pentium III processor. Items contained in the *Pentium III Processor Specification Update* that either do not apply to the D815BN desktop board 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 *Intel*® *Celeron™ Processor Specification Update* (Order number 243748) for specification updates concerning the Intel Celeron processor. Items contained in the *Intel Celeron Processor Specification Update* that either do not apply to the Desktop Board D815BN 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 *Intel*® *82815 Chipset: 82815 Graphics and Memory Controller Hub (GMCH) Specification Update* (Order Number 290659) for specification updates concerning the 82815 GMCH Controller. Items contained in the *82815 GMCH Specification Update* that either do not apply to the Desktop Board D815BN or have been worked around are noted in this document. Otherwise, it should be assumed that any GMCH errata for a given stepping are applicable to the PBA revision(s) associated with that stepping.

Refer to the *Intel*® *82801 I/O Controller Hub (ICH) Specification Update* (Order Number 290677) for specification updates concerning the 82801 I/O Controller Hub. Items contained in the *Intel 82801 ICH Specification Update* that either do not apply to the Desktop Board D815BN or have been worked around are noted in this document. Otherwise, it should be assumed that any ICH errata for a given stepping are applicable to the Printed Board Assembly (PBA) revision(s) associated with that stepping.

Refer to the *Intel*® *82802 Firmware Hub (FWH) Specification Update* (Order Number TBD) for specification updates concerning the 82802 Firmware Hub. Items contained in the *Intel 82802 FWH Specification Update* that either do not apply to the Desktop Board D815BN or have been worked around are noted in this document. Otherwise, it should be assumed that any ICH 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 Desktop Board D815BN'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 desktop boards.

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 the Intel® Desktop Board D815BN

GENERAL INFORMATION

Basic Desktop Board D815BN Identification Information

AA Revision	PBA Revision	BIOS Revision	Notes
A27604-302	A27605-302	BN81510A.86A.0001.P02	1-7
A27604-303	A27605-303	BN81510A.86A.0001.P02	1-7
A27604-304	A27605-304	BN81510A.86A.0001.P02	1-7
A28419-305	A28420-305	BN81510A.86A.0001.P02	1-7
A28419-306	A28420-306	BN81510A.86A.0001.P02	1-7
A28419-307	A28420-307	BN81510A.86A.0001.P02	1-7

NOTES:

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

2. The 82815 Chipset kit used on this PBA revision consists of three components as follows:

Device	Stepping	S-Spec Numbers
82815 GMCH	A2	SL4DF
82801AA ICH	A3	SL3Z2
82802AB FWH or STM M50FW040 FWH	A1 NA	SB48 NA

3. The following errata are contained in the *Pentium® III Processor Specification Update* (Order Number 244453) for the Pentium III processor and either do not apply to the Desktop Board D815BN or have been worked-around in this PBA and/or BIOS revision: 3. All other errata associated with the processor apply to this PBA revision.

4. 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 Desktop Board D815BN or have been worked-around in this PBA and/or BIOS revision: None. All other errata associated with the processor apply to this PBA revision.

5. The following items are contained in the *Intel® 82815 Graphics and Memory Controller Hub (GMCH) Specification Update* (Order Number 290659) and either do not apply to the Desktop Board D815BN or have been worked around in this PBA and/or BIOS revision: None. All other errata associated with the GMCH apply to this PBA revision.

6. The following items are contained in the *Intel® 82801 I/O Controller Hub Specification Update* (Order Number 290677) and either do not apply to the Desktop Board D815BN or have been worked around in this PBA and/or BIOS revision: None. All other errata associated with the ICH apply to this PBA revision.

7. The following items are contained in the *Intel® 82802 Firmware Hub Specification Update* (Order Number TBD) and either do not apply to the Desktop Board D815BN or have been worked around in this PBA and/or BIOS revision: None. All other errata associated with the FWH 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 Desktop Board D815BN. Intel intends to fix some of the errata in a future revision of the desktop board, 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 desktop board 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	ERRATA
1	Fix	Advanced configuration and power interface (ACPI) S3 state disabled
2	NoFix	Attachment packet interface (ATAPI) CD-ROM header may interfere with some accelerated graphics port (AGP) video adapters
3	Fixed	Intel® Pentium® III processor Erratum E76

NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to Description of Section 5.6, Diagnostic LEDs
2	Doc	Change to Section 3.5, USB Legacy Support
3	Doc	Change to description of Section 1.1.1, Feature Summary
4	Doc	Change to description of Section 1.1.3, D815BN Board Layout, Figure 1
5	Doc	Change to description of Section 1.6, Intel® 815 Chipset
6	Doc	Change to description of Section 1.6.3, Intel® 82802AB 4 Mbit Firmware Hub (FWH)
7	Doc	Change to description of Section 3.2, BIOS Flash Memory Organization

ERRATA

1. Advanced Configuration and Power Interface (ACPI) S3 State Disabled

PROBLEM: ACPI S3 functionality has been removed from the Desktop Board D815BN.

IMPLICATION: Users who desire ACPI S3 functionality will not be able to implement this feature.

WORKAROUND: None.

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

2. Attachment Packet Interface (ATAPI) CD-ROM Header May Interfere With Some Accelerated Graphics Port (AGP) Video Adapters

PROBLEM: The ATAPI CD-ROM header, when populated with a cable, may interfere with the installation of some AGP video adapters.

IMPLICATION: Potential damage to cable or component may occur if the ATAPI CD-ROM header is populated and certain add-in AGP video adapters with components on the video adapter, in close proximity to the ATAPI CD-ROM header, are used.

WORKAROUND: Use of the legacy CD-ROM header is recommended when utilizing some add-in AGP video adapters.

STATUS: This erratum will not be fixed.

3. Intel® Pentium® III Processor Erratum E76

PROBLEM: For a complete description of the Pentium® III processor erratum E76, see the Pentium III Specification Update, order number 244453 found at http://developer.intel.com/design/PentiumIII/specupdt/.

IMPLICATION: For a complete description of the Pentium III processor erratum E76, see the Pentium III Specification Update, order number 244453 found at http://developer.intel.com/design/PentiumIII/specupdt/.

WORKAROUND: Update the D815BN desktop board with BIOS revision BN81510A.86A.0002.P03.

STATUS: This erratum was addressed in BIOS revision BN81510A.86A.0002.P03.

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *Desktop Board D815BN Technical Product Specification* (Order Number A29192). All Documentation Changes will be incorporated into a future version of that specification.

1. *Change to Description of Section 5.6, Diagnostic LEDs*

The note after Table 81 in section 5.6, Diagnostic LEDs will be changed in its entirety as follows:

⟹ **NOTE**

> *After the computer has booted, the diagnostic LEDs remain green during normal operation.*

2. *Change to Section 3.5, USB Legacy Support*

Section 3.5, USB Legacy Support will change in its entirety as follows:

3.5 *Legacy USB Support*

Legacy USB support enables USB devices such as keyboards, mice, and hubs to be used even when the operating system's USB drivers are not yet available. Legacy USB support is used to access the BIOS Setup program, and to install an operating system that supports USB. By default, legacy USB support is set to Enabled.

Legacy USB support operates as follows:

1. When you apply power to the computer, legacy support is disabled.
2. POST begins.
3. Legacy USB support is enabled by the BIOS allowing you to use a USB keyboard to enter and configure the BIOS Setup program and the maintenance menu.
4. POST completes.
5. The operating system loads. While the operating system is loading, USB keyboards, mice, and hubs are recognized and may be used to configure the operating system. (Keyboards, mice, and hubs are not recognized during this period if legacy USB support was set to Disabled in the BIOS Setup program.)

To install an operating system that supports USB, verify that legacy USB support in the BIOS Setup program is set to Enabled and follow the operating system's installation instructions.

⟹ **NOTE**

Legacy USB support is for keyboards, mice, and hubs only. Other USB devices are not supported in legacy mode.

3. Change to Description of Section 1.1.1, Feature Summary

Section 1.1.1, Feature Summary, Table 1, will be changed in its entirety as follows:

1.1.1 FEATURE SUMMARY

Table 1 summarizes the D815BN board's major features.

Table 1. Feature Summary

Form Factor	microATX (9.6 inches by 8.5 inches)
Processor	Support for either an Intel® Pentium® III processor in a Flip Chip Pin Grid Array (FC-PGA) package or an Intel® Celeron™ processor in an FC-PGA package or a PPGA package
Memory	• Three 168-pin SDRAM Dual Inline Memory Module (DIMM) sockets • Support for up to 512 MB system memory • Single- or double-sided DIMMs supported
Chipset	Intel® 815 chipset, consisting of: • Intel® 82815 Graphics and Memory Controller Hub (GMCH) • Intel® 82801AA I/O Controller Hub (ICH) • Intel® 82802AB 4 Mbit Firmware Hub (FWH) or • STM* M50FWH040 4 Mbit FWH
I/O Control	SMSC LPC47M142 I/O LPC bus controller
Video	• Intel® 82815 integrated graphics support • AGP universal connector supporting 1X, 2X, and 4X AGP cards or a Graphics Performance Accelerator (GPA) • Digital Video Output (DVO) connector
Peripheral Interfaces	• Four Universal Serial Bus (USB) ports • One serial port • One parallel port • Two IDE interfaces with Ultra DMA, ATA-33/66 support • One diskette drive interface • PS/2* keyboard and mouse ports

Table 1. Feature Summary (continued)

Expansion Capabilities	• Three PCI bus add-in card connectors (SMBus routed to PCI bus connector 2) One GPA/AGP universal connector
BIOS	• Intel/AMI BIOS (resident in the Intel 82802AB or the STM* M50FWH040 4 Mbit FWH) • Intel® Rapid BIOS boot • Support for Advanced Configuration and Power Interface (ACPI), Advanced Power Management (APM), Plug and Play, and SMBIOS
Diagnostic LEDs	Four dual-color LEDs on the back panel
Instantly Available PC	• Support for *PCI Local Bus Specification Revision 2.2* • Suspend to RAM support • Wake on PS/2 keyboard

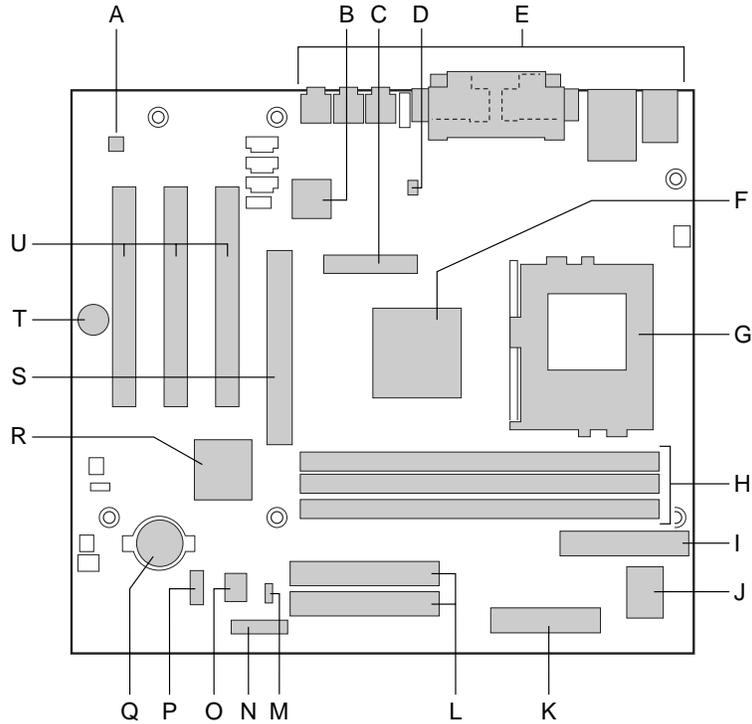| For information about	Refer to
The board's compliance level with ACPI, APM, Plug and Play, and SMBIOS.	Section 1.3, page 16
The *PCI Local Bus Specification Revision 2.2*	Section 1.3, page 16

4. Change to Description of Section 1.1.3, D815BN Board Layout, Figure 1

Section 1.1.3, D815BN Board Layout, Figure 1 will change in its entirety as follows:

1.1.3 D815BN BOARD LAYOUT

Figure 1 shows the location of the major components on the D815BN board.

OM10735

A	AD1885 analog codec (optional)	L	IDE connectors
B	Intel® 82559 LAN controller (optional)	M	Front panel power LED connector
C	DVO connector	N	Auxiliary Front panel connector
D	Hardware monitor (optional)	O	Intel® 82802AB 4 Mbit Firmware Hub (FWH) or the STM* M50FWH040 4 Mbit Firmware Hub (FWH)
E	Back panel connectors	P	Front panel USB connector
F	Intel® 82815 Graphics and Memory Controller Hub (GMCH)	Q	Battery
G	Processor socket	R	Intel® 82801AA I/O Controller Hub (ICH)
H	DIMM sockets	S	AGP universal connector
I	Diskette drive connector	T	Speaker
J	SMSC LPC47M142 I/O controller	U	PCI bus add-in card connectors
K	Power connector		

Figure 1. D815BN Board Components

5. Change to Description of Section 1.6, Intel® 815 Chipset

Section 1.6, Intel® 815 Chipset, third bullet will change as follows:

- 82802AB Firmware Hub (FWH) or
- STM* M50FWH040 Firmware Hub (FWH)

6. Change to Description of Section 1.6.3, Intel® 82802AB 4 Mbit Firmware Hub (FWH)

Section 1.6.3, Intel® 82802AB 4 Mbit Firmware Hub (FWH), will change in its entirety as follows:

1.6.3 Intel® 82802AB or STM* M50FWH040 4 Mbit Firmware Hub (FWH)

The FWH provides the following:

- System BIOS
- System security and manageability logic that enables protection for storing and updating of platform information

7. Change to Description of Section 3.2, BIOS Flash Memory Organization

Section 3.2, BIOS Flash Memory Organization, will change in its entirety as follows:

3.2 BIOS Flash Memory Organization

The Intel 82802AB or STM* M50FWH040 Firmware Hub (FWH) includes a 4 Mbit (512 KB) symmetrical flash memory device. Internally, the device is grouped into eight 64-KB blocks that are individually erasable, lockable, and unlockable.