



Intel[®] Desktop Board D815EEA Specification Update

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The desktop board D815EEA 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 Intel® D815EEA 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
July 2000	-001	This document is the first Specification Update for the Intel® desktop board D815EEA. Added erratum 1.
September 2000	-002	Amended Erratum 1; Added Errata 2-4; Added Document Changes 1-2.
October 2000	-003	Added Errata 5,6.
December 2000	-004	Added Erratum 7.
January 2001	-005	Updated Erratum 2. Added Specification Change 1 and Erratum 8.
February 2001	-006	Removed BIOS/Errata cross reference table, Added Erratum 9.
April 2001	-007	Added Specification Clarification 1.
May 2001	-008	Added Specification Changes 2, 3 and Erratum 10.
June 2001	-009	Added Erratum 11, Corrected Specification Change 2.
July 2001	-010	Amended Erratum 4. Added Documentation Change 3.

PREFACE

This document is an update to the specifications contained in the *Intel® Desktop Board D815EEA Technical Product Specification* (Order number A16964). 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 desktop board D815EEA 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 D815EEA 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 D815EEA 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 D815EEA 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 D815EEA 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 D815EEA 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
Desktop Board D815EEA**

GENERAL INFORMATION

Basic Desktop board D815EEA Identification Information

AA Revision	PBA Revision	BIOS Revision	Notes
A10378-204	A10379-204	EA81510A.86A.0007.P03	1-7
A10378-205	A10379-205	EA81510A.86A.0014.P04	1-7
A10378-206	A10379-206	EA81510A.86A.0014.P04	1-7
A10378-402	A10379-402	EA81510A.86A.0014.P04	1-7
A10378-403	A10379-403	EA81510A.86A.0031.P07	1-7
A10378-404	A10379-404	EA81510A.86A.0031.P07	1-7
A10378-405	A10379-405	EA81510A.86A.0031.P07	1-7
A10380-204	A10381-204	EA81510A.86A.0007.P03	1-7
A10380-206	A10381-206	EA81510A.86A.0014.P04	1-7
A10380-207	A10381-207	EA81510A.86A.0014.P04	1-7
A10380-402	A10381-402	EA81510A.86A.0014.P04	1-7
A10380-403	A10381-403	EA81510A.86A.0031.P07	1-7
A10380-404	A10381-404	EA81510A.86A.0031.P07	1-7
A10380-405	A10381-405	EA81510A.86A.0031.P07	1-7
A10380-406	A10381-406	EA81510A.86A.0031.P07	1-7
A10380-407	A10381-407	EA81510A.86A.0031.P07	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
82801BA ICH	B0	SL45H
82802AB FWH	A1	SB48



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 D815EEA or have been worked-around in this PBA and/or BIOS revision: 10. 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 D815EEA 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 D815EEA 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 D815EEA 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 D815EEA 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 that apply to the desktop board D815EEA. 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	SPECIFICATION CHANGES
1	Doc	Support for Faster Intel® Celeron™ Processors
2	Doc	Change to description of the chassis intrusion
3.	Doc	Change to description of processor support
NO.	PLANS	ERRATA
1	No Fix	Onboard LAN may experience increased bit error rate
2	Fixed	Some SCSI host bus adapters may not boot to the hard disk drive with a bootable CD-ROM drive attached
3	Fix	Wavy lines may be visually detectable at certain video refresh rate and video resolution combinations
4	Fixed	Wake on LAN* header is non-standard
5	Fixed	Audio master volume slider control may not function
6	Fixed	System may hang when shutting down Advanced Configuration Power Interface (ACPI) enabled operating systems
7	Fix	Intel® Ultra Storage driver causes ATA 100 hard disk drives to operate at 33.3 MB/sec on the secondary IDE channel
8	Fix	Some USB Peripherals May Disappear or Quit Working
9	Fixed	BIOS may cause the system to hang during boot using certain add in video adapters
10	Fixed	Intel® Pentium® III processor Erratum E76
11	Fix	System BIOS will not properly configure multi-channel audio Communications Network Riser (CNR) cards
NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	Change to description of Section 2.5, PCI Configuration Space Map



NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to description of section 1.6.2.3, Real-Time Clock, CMOS SRAM, and Battery
2	Doc	Change to description of section 3.9.2, Intel® Rapid BIOS Boot
3	Doc	Change to description of BIOS Setup Configuration Jumper Settings location

SPECIFICATION CHANGES

The Specification Changes listed in this section apply to the *Desktop Board D815EEA Technical Product Specification* (Order Number A16964). All Specification Changes will be incorporated into a future version of that specification.

1. **Support for Faster Intel® Celeron™ Processors**

In Section 1.4, Processor, the following will be added to Table 4, Supported Processors:

Type	Designation	System Bus Frequency	L2 Cache Size
Celeron™ processor in an FC-PGA package	633, 667, 700, 733 and 766	66 MHz	128 KB

BIOS revision EA81510A.86A.0031.P07 or later is required for the motherboard to properly support a 633, 667, 700, 733 or 766 MHz Celeron processor.

2. **Change to Description of The Chassis Intrusion**

Section 1.12.2, Chassis Intrusion Detect Connector, will be changed in its entirety as follows:

1.12.2 Chassis Intrusion Detect Connector

The board supports a chassis security feature that detects if the chassis cover is removed. For the chassis intrusion circuit to function, the chassis' power supply must be connected to AC power. The security feature uses a mechanical switch on the chassis that attaches to the chassis intrusion detect connector. The mechanical switch is closed for normal computer operation.

For information about	Refer to
The location of the chassis intrusion detect connector	Figure 10, page 59
The signal names of the chassis intrusion detect connector	Table 37, page 62

3. **Change to Description of Processor Support**

Section 1.4, Processor, will change in its entirety as follows:

1.4 Processor

CAUTION

The D815EEA board supports processors that have an 18.2 A maximum current draw with a 1.65 to 2.0 V core voltage. Using a processor not in compliance with the above guidelines can damage the processor, the D815EEA board, and the power supply. See the processor's data sheet for voltage and current usage requirements.

The D815EEA board supports a single Pentium® III or Celeron™ processor. The system bus speed is automatically selected. The D815EEA board supports the processors listed in Table 4.

Table 4. Supported Processors

Type	Designation	System Bus Frequency	L2 Cache Size
Pentium® III processor in an FC-PGA package	533EB, 600EB, 667, 733, 800EB, 866, and 933	133 MHz	256 KB
	500E, 550E, 600E, 650, 700, 750, 800, and 850	100 MHz	256 KB
Celeron™ processor in an FC-PGA package	800	100 MHz	128 KB
	533A, 566, 600, 633, 667, 700, 733 and 766	66 MHz	128 KB
Celeron processor in a PPGA package	500 and 533	66 MHz	128 KB

BIOS revision EA81510A.86A.0031.P07 or later is required for the motherboard to properly support a 633, 667, 700, 733 or 766 MHz Celeron processor.

All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

For information about	Refer to
Processor support	Section 1.2, page 16
Processor data sheets	Section 1.2, page 16

ERRATA

1. ***Onboard LAN May Experience Increased Bit Error Rate***

PROBLEM: The return signal loss on the Rx signal of the onboard LAN does not fall within specifications.

IMPLICATION: An increase in the measured bit error rate from about 1.0×10^{-8} to about 1.0×10^{-7} may result in an increase in dropped packets. Testing has shown that there is no data corruption as a result of this erratum.

WORKAROUND: None.

STATUS: This erratum will not be fixed.

2. ***Some SCSI Host Bus Adapters May Not Boot to The Hard Disk Drive With a Bootable CD-ROM Drive Attached***

PROBLEM: If a bootable CD-ROM is attached to the SCSI host bus adapter (HBA) and set as bootable in the setup menu of the SCSI HBA without bootable media installed, the system may not boot to the attached hard drive.

IMPLICATION: Users who wish to utilize a bootable SCSI CD-ROM in conjunction with a bootable hard drive on an add-in SCSI host bus adapter may not be able to boot to the hard drive if the SCSI adapter is set to recognize the CD-ROM as a bootable device.

WORKAROUND: Enable the CD-ROM as a bootable SCSI device only when using bootable media.

STATUS: This erratum was fixed in BIOS revision EA81510A.86A.0040.P09.

3. ***Wavy Lines May be Visually Detectable at Certain Video Refresh Rate And Video Resolution Combinations***

PROBLEM: Wavy lines may be apparent using certain combinations of video refresh rates and video resolutions.

IMPLICATION: Users may experience wavy lines scrolling across the video screen at certain video refresh rates and video resolutions.

WORKAROUND: Change video resolutions and refresh rates.

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

4. ***Wake on LAN* Header is Non-Standard***

PROBLEM: The Wake on LAN* (WOL) header on the board is a standard stake pin header and is not the specified WOL header form factor.

IMPLICATION: Users who wish to utilize the legacy WOL header for older Lan adapters will need to use a conversion cable.

WORKAROUND: A conversion cable is available from Intel. To obtain the conversion cable, contact your Intel Representative with part number A27301-001.

STATUS: This erratum was fixed in PBA revision A10381-402 and later.

5. Audio Master Volume Slider Control May Not Function

PROBLEM: Due to an interaction between hardware and software, the master volume slider control may not function in Windows* 98 SE or Windows 2000.

IMPLICATION: Using the master volume slider control may have no effect on volume control.

WORKAROUND: None.

STATUS: This erratum was fixed in audio driver revision WDM_5.12.01.2509.

6. System May Hang When Shutting Down Advanced Configuration Power Interface (ACPI) Enabled Operating Systems

PROBLEM: When shutting down ACPI enabled operating systems, the system may intermittently hang.

IMPLICATION: Users who wish to utilize ACPI functionality may intermittently experience system hangs while shutting down the operating system.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision EA81510A.86A.0026.P05.

7. Intel® Ultra Storage Driver Causes ATA 100 Hard Disk Drives to Operate at 33.3 MB/sec on The Secondary IDE Channel

PROBLEM: ATA 100 IDE hard disk drives only operate at UDMA/33 on the secondary IDE channel when using the Intel® ultra storage driver.

IMPLICATION: Users who utilize an ATA100 IDE hard disk drive on the secondary IDE channel and using the Intel ultra storage driver, will only achieve data throughput at 33.3 MB/sec.

WORKAROUND: Reconfigure the system to use the Microsoft Windows storage driver.

STATUS: This erratum is planned to be fixed in a future driver revision.

8. Some USB Peripherals May Disappear or Quit Working

PROBLEM: Certain USB peripherals that may be marginally within or may even be out of spec with respect to USB Specification version 1.1 may experience failures.

IMPLICATION: The user may experience USB peripheral failures such as the peripheral disappearing from Windows Explorer when trying to access that peripheral.

WORKAROUND: Attach a self-powered USB hub between the board and the USB peripheral.

STATUS: This erratum is intended to be fixed in a future PBA revision.

9. BIOS May Cause The System to Hang During Boot Using Certain Add In Video Adapters

PROBLEM: During system boot, the system may intermittently hang using some add in video adapters.

IMPLICATION: If the user utilizes certain add in video adapters, intermittent system hangs may occur during boot.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision EA81510A.86A.0040.P09.

10. 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 D815EEA desktop board with BIOS revision EA81510A.0046.P10.

STATUS: This erratum was addressed in BIOS revision EA81510A.0046.P10.

11. System BIOS Will Not Properly Configure Multi-Channel Audio Communications Network Riser (CNR) Cards

PROBLEM: During the system boot process, the system BIOS compares the multi-channel signature stored in BIOS with the multi-channel signature stored in the audio CNR EEPROM. If the signatures match, the system BIOS then programs the device ID in the PCI configuration space with the multi-channel model ID from the CNR EEPROM. The system BIOS for this desktop board incorrectly programs the device ID in the PCI configuration space. When the audio driver that supports multi-channel functionality is installed, the driver may not install correctly or may not install at all.

IMPLICATION: Users who install a multi-channel audio CNR card may experience difficulty installing the manufacturers audio drivers.

WORKAROUND: None.

STATUS: This erratum is intended to be fixed in a future BIOS revision.

SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *D815EEA Desktop Board Technical Product Specification* (Order Number A16964). All Specification Clarifications will be incorporated into a future version of that specification.

1. **Change to Description of Section 2.5, PCI Configuration Space Map**

Section 2.5, PCI Configuration Space Map will be changed in its entirety as follows:

2.5 **PCI Configuration Space Map**

Table 15. PCI Configuration Space Map

Bus Number (hex)	Device Number (hex)	Function Number (hex)	Description
00	00	00	Memory controller of Intel® 82815E component
00	01	00	PCI to AGP bridge
00	02	00	Intel 82815E GMCH (graphics memory controller hub) Intel® 82815EP MCH (memory controller hub)
00	1E	00	Hub link to PCI bridge
00	1F	00	Intel® 82801BA ICH2 PCI to LPC bridge
00	1F	01	IDE controller
00	1F	02	ICH2 USB controller #1
00	1F	03	SMBus controller
00	1F	04	ICH2 USB controller #2
00	1F	05	AC '97 audio controller (optional)
00	1F	06	AC '97 modem controller (optional)
02 (Note)	00	00	Add-in AGP adapter card
01	07	00	Creative Labs* ES1373 digital controller (optional)
01	08	00	LAN controller (optional)
01	09	00	PCI bus connector 1 (J4E1)
01	0A	00	PCI bus connector 2 (J4D1)
01	0B	00	PCI bus connector 3 (J4C1)
01	0C	00	PCI bus connector 4 (J4B1)
01	0D	00	PCI bus connector 5 (J4A1)

Note: If an add-in AGP card is installed, it occupies PCI Bus 02.

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *D815EEA Desktop Board Technical Product Specification* (Order Number A16964). All Documentation Changes will be incorporated into a future version of that specification.

1. **Change to Description of Section 1.6.2.3, Real-Time Clock, CMOS SRAM, and Battery**

The note in section 1.6.2.3 will be changed in its entirety as follows:

⇒ **NOTE**

If the battery and AC power fail, custom defaults if previously saved, will be loaded into CMOS RAM at power-on.

2. **Change to Description of Section 3.9.2, Intel® Rapid BIOS Boot**

An additional note in section 3.9.2 will be added:

⇒ **NOTE**

The boot time may be so fast that some drives might not be initialized at all. If this condition should occur, it is possible to introduce a programmable delay ranging from 3 to 30 seconds (using the Hard Disk Pre-Delay feature of the Advanced menu in the IDE Configuration Submenu of the BIOS Setup Program).

3. **Change to Description of BIOS Setup Configuration Jumper Settings Location**

Table 51 heading, Section 2.9, Jumper Block, will be changed to reflect the correct reference designator:

Table 51. BIOS Setup Configuration Jumper Settings (J7C1)

Function/Mode	Jumper Setting	Configuration
Normal	3 1-2 1	The BIOS uses current configuration information and passwords for booting.
Configure	3 2-3 1	After the POST runs, Setup runs automatically. The maintenance menu is displayed.
Recovery	3 None 1	The BIOS attempts to recover the BIOS configuration. A recovery diskette is required.

