



Intel® Desktop Board D810E2CB Specification Update

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The Intel® Desktop Board D810E2CB 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® desktop board D810E2CB 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
February 2001	-001	This document is the first Specification Update for the Intel® Desktop Board D810E2CB. Added Erratum 1.
March 2001	-002	Added Document Change 1.
April 2001	-003	Revised Erratum 1.
May 2001	-004	Added Erratum 2.
September 2001	-005	Added Specification Change 1.
November 2003	-006	Added Specification Clarification 1.

PREFACE

This document is an update to the specifications contained in the *Intel® Desktop Board D810E2CB Technical Product Specification* (Order number A44673). 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 D810E2CB 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 D810E2CB 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® 82810 Chipset: 82810E Graphics and Memory Controller Hub (GMCH) Specification Update* (Order Number 290659) for specification updates concerning the 82810 GMCH Controller. Items contained in the *82810E GMCH Specification Update* that either do not apply to the Desktop Board D810E2CB 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 D810E2CB 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 Desktop Board D810E2CB 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 D810E2CB**

GENERAL INFORMATION

Basic Desktop Board D810E2CB Identification Information

AA Revision	PBA Revision	BIOS Revision	Notes
A42327-203	A42326-203	CB81010.86A.0005.P03	1-6
A42327-204	A42326-204	CB81010.86A.0005.P03	1-6
A42327-205	A42326-205	CB81010.86A.0008.P05	1-6
A42327-206	A42326-206	CB81010.86A.0009.P06	1-6
A42327-207	A42326-207	CB81010.86A.0009.P06	1-6
A42327-208	A42326-208	CB81010.86A.0012.P09	1-6

NOTES:

1. The PBA number or AA number is found on a small label on the component side of the board.
2. The 82810E Chipset kit used on this PBA revision consists of three components as follows:

Device	Stepping	S-Spec Numbers
82810E GMCH	A3	SL3MD SL3Q4
82801BA ICH2	B1	SL4HM
SST 49LF004A FWH	NA	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 D810E2CB or have been worked-around in this PBA and/or BIOS revision: 2. 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 D810E2CB 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® 82810E Graphics and Memory Controller Hub (GMCH) Specification Update* (Order Number 290659) and either do not apply to the Desktop Board D810E2CB 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 D810E2CB 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.

Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes that apply to the Desktop Board D810E2CB. 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, driver, 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	Change to description of processor support
NO.	PLANS	ERRATA
1	Fixed	System hangs may occur when using the Microsoft Windows* 98SE or Windows Millennium operating system and the Intel® Ultra ATA storage driver
2	Fixed	Intel® Pentium® III processor Erratum E76
NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	Clarification of SMBus routing
NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to Section 1.5, System Memory

SPECIFICATION CHANGES

The Specification Changes listed in this section apply to the *D810E2CB Desktop Board Technical Product Specification* (Order Number A44673). All Documentation Changes will be incorporated into a future version of that specification.

1. Change to Description of Processor Support

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

1.4 Processor



CAUTION

The D810E2CB board supports processors that draw a maximum of 22 A. Using a processor that draws more than 22 A can damage the processor, the board, and the power supply. See the processor's data sheet for current usage requirements.



CAUTION

Before installing or removing the processor, make sure that AC power has been removed by unplugging the power cord from the computer. Failure to do so could damage the processor and the board.

The D810E2CB board supports either an Intel® Pentium® III processor (FCPGA package), or an Intel® Celeron™ processor (PGA package) as shown in Table 1. The system bus frequency is automatically selected.

Table 1. Supported Processors

Processor Type	Processor Designation	System Bus Frequency	L2 Cache Size
Pentium® III processors	500E, 550E, 600E, 650, 700, 750, 800, and 850 MHz	100 MHz	256 KB
	1.0, 1.1 GHz	100 MHz	256 KB
	533B, 600EB, 667, 733, 800EB, 866, and 933 MHz	133 MHz	256 KB
	1.0B GHz	133 MHz	256 KB
Celeron® processors	400, 433, 466, 500, 533, 533A, 566A, 600, 633, 667, 700, 733, and 766 MHz	66 MHz	128 KB
	800 MHz	100 MHz	128 KB

BIOS revision CB81010A.86A.0011.P08 or later is required for the motherboard to properly support a 1.0 or 1.1 GHz Celeron processor.



All supported onboard memory can be cached, up to the cachability limit of the processor.

For information about	Refer to
Processor support for the D810E2CB board	http://support.intel.com/support/motherboards/desktop
Processor data sheets	http://www.intel.com/design/litcentr

ERRATA

1. ***System Hangs May Occur When Using The Microsoft Windows* 98SE or Windows Millennium Operating System And The Intel® Ultra ATA Storage Driver***

PROBLEM: Some software programs that utilize digital CD audio and run under Windows* 98SE or Windows Millennium and while using the Intel® Ultra ATA storage driver, may experience system hangs.

IMPLICATION: Users that require the Intel Ultra ATA storage driver in conjunction with software programs that implement digital CD audio under the Windows 98SE or Windows Millennium Operating Systems, may experience system hangs.

WORKAROUND: Apply QFE #274370 that is included with the IDE driver revision 6.03.009.

STATUS: This erratum was fixed with the IDE driver revision 6.03.009.

2. ***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 D810E2CB desktop board with BIOS revision CB81010A.86A.0009.P06.

STATUS: This erratum was addressed in BIOS revision CB81010A.86A.0009.P06.

SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *D810E2CB Desktop Board Technical Product Specification* (Order Number A44673). All Documentation Clarifications will be incorporated into a future version of that specification.

1. Clarification of SMBus Routing

Section 2.8.2.2 will add note and change in its entirety as follows:

2.8.2.2 Add-in Board and Peripheral Interface Connectors

Figure 6 shows the location of the add-in board and peripheral interface connectors. Note the following considerations for the PCI bus connectors:

- All of the PCI bus connectors are bus master capable.
- PCI bus connector 2 has SMBus signals routed to it. This enables PCI bus add-in boards with SMBus support to access sensor data on the board. The specific SMBus signals are as follows:
 - The SMBus clock line is connected to pin A40
 - The SMBus data line is connected to pin A41

NOTE

The SMBus routing to the PCI bus connectors does not conform to the PCI Engineering Change Notice (ECN) “Addition of the SMBus to the PCI Connector ECN”, dated October 5th, 2000. The ECN specifies that SMBus signals must be routed to all PCI bus connectors. On this board, SMBus signals are routed to PCI bus connector 2 only.

Add-in cards that implement PCI bus connector pins A40 and A41 for any purpose other than SMBCLK (SMBus clock) and SMBDAT (SMBus data) should not be installed in PCI bus connector 2.

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *D810E2CB Desktop Board Technical Product Specification* (Order Number A44673). All Documentation Changes will be incorporated into a future version of that specification.

1. **Change to Section 1.5, System Memory**

Section 1.5, System Memory will change in its entirety as follows:

1.5 **System Memory**

NOTE

To be compliant with applicable Intel® SDRAM memory specifications, the D810E2CB board should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. If your memory modules do not support SPD, the BIOS will attempt to configure the memory controller for normal operation; however, the DIMMs may not function at their optimum speed.

CAUTION

Before installing or removing memory, make sure that AC power has been removed by unplugging the power cord from the computer. Failure to do so could damage the memory and the board.

CAUTION

Because the main system memory is also used as video memory, the board requires 100 MHz SDRAM DIMMs even though the processor's system bus speed is 66 MHz, 100MHz, or 133 MHz. It is highly recommended that SPD DIMMs be used, since this allows the BIOS to read the SPD data and program the chipset to accurately configure memory settings for optimum performance. If non-SPD memory is installed, the BIOS will attempt to correctly configure the memory settings, but performance and reliability may be impacted.

The D810E2CB board has two DIMM sockets. The minimum memory size is 64 MB and the maximum total memory size is 512 MB. (The BIOS will not initialize installed memory greater than 512MB, and will display a message stating this fact during boot). The BIOS automatically detects memory type, size, and speed. Memory can be installed in one or both sockets. Memory size can vary between sockets.

The D810E2CB board supports the following memory features:

- 3.3 V, 168-pin DIMMs with gold-plated contacts
- 100 MHz SDRAM
- Serial Presence Detect (SPD) or non-SPD memory (BIOS recovery requires SPD DIMMs)
- Non-ECC and ECC DIMMs (ECC DIMMs will operate in non-ECC mode only) memory
- Unbuffered single- or double-sided DIMMs
- Suspend-to-RAM support

The board is designed to support DIMMs in the configurations listed in Table 2 below.

Table 2. System Memory Configuration

DIMM Size	Non-ECC Configuration
16 MB	2 Mbit x 64
32 MB	4 Mbit x 64
64 MB	8 Mbit x 64
128 MB	16 Mbit x 64
256 MB	32 Mbit x 64

For information about	Refer to
The <i>PC Serial Presence Detect Specification</i>	Table 3, page 16
Obtaining copies of PC SDRAM specifications	http://www.intel.com/design/pcisets/memory