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### Intel<sup>®</sup> Desktop Board D845PEBT2 Specification Update

Release Date: November 2003

Order Number: C21698-006

The Intel<sup>®</sup> Desktop Board D845PEBT2 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 D845PEBT2 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	
November 2002	-001	This document is the first Specification Update for the Intel <sup>®</sup> Desktop Board D845PEBT2. Added Erratum 1.	
December 2002	-002	Added Erratum 2.	
February 2003	-003	Added Erratum 3.	
March 2003	-004	Added Erratum 4. Added Documentation Change 1, 2.	
April 2003	-005	Added Documentation Change 3.	
November 2003	-006	Added Specification Clarification 1.	



#### PREFACE

This document is an update to the specifications contained in the *Intel® Desktop Board D845PEBT2 Technical Product Specification* (Order Number C15333). 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 *Intel<sup>®</sup> Pentium<sup>®</sup> 4 Processor Specification Update* (Order Number 249199) for specification updates concerning the Intel Pentium 4 processor and that may apply to the desktop board D845PEBT2. Unless otherwise noted in this document, it should be assumed that any processor errata for a given stepping are applicable to the Altered Assembly (AA) revision(s) associated with that stepping.

Refer to the *Intel*<sup>®</sup> 845GE/845PE Chipset Specification Update (Order Number 251955) for specification updates concerning the 82845E MCH Controller and that may apply to the desktop board D845PEBT2. Unless otherwise noted in this document, it should be assumed that any MCH errata for a given stepping are applicable to the Altered Assembly (AA) revision(s) associated with that stepping.

Refer to the *Intel<sup>®</sup> 82801DB I/O Controller Hub 4 (ICH4) Specification Update* (Order Number 290745) for specification updates concerning the 82801DB I/O Controller Hub and that may apply to the desktop board D845PEBT2. Unless otherwise noted in this document, it should be assumed that any ICH errata for a given stepping are applicable to the Altered Assembly (AA) 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 D845PEBT2's behavior to deviate from published specifications. Hardware and software designed to be used with any given Altered Assembly (AA) and BIOS revision level must assume that all errata documented for that AA 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<sup>®</sup> Desktop Board D845PEBT2

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#### **GENERAL INFORMATION**

#### Basic Desktop Board D845PEBT2 Identification Information

AA Revision	BIOS Revision	Notes
C10867-402	BT84520A.86A.0007.P02	1-5
C10867-403	BT84520A.86A.0010.P03	1-5
C10867-404	BT84520A.86A.0020.P08	1-5
C10867-405	BT84520A.86A.0020.P08	1-5
C12587-402	BT84520A.86A.0007.P02	1-5
C12587-403	BT84520A.86A.0010.P03	1-5
C12587-404	BT84520A.86A.0015.P06	1-5
C12587-405	BT84520A.86A.0020.P08	1-5
C12587-406	BT84520A.86A.0020.P08	1-5

NOTES:

- 1. The AA number is found on a small label on the component side of the board.
- 2. The 82845PE Chipset kit used on this AA revision consists of three components as follows:

Device	Stepping	S-Spec Numbers
82845PE MCH	A0	SL6H5
82801DB ICH	B0	SL6DM
82802AB FWH	A0 A1	SB48

3. Refer to the Intel<sup>®</sup> Pentium<sup>®</sup> 4 Processor Specification Update (Order Number 249199) for errata related to the Pentium 4 processor and that may apply to the desktop board D845PEBT2

4. Refer to the Intel<sup>®</sup> 845GE/845PE Chipset Specification Update (Order Number 251955) for errata related to the 82845PE MCH that may apply to the desktop board D845PEBT2

 Refer to the Intel<sup>®</sup> 82801DB I/O Controller Hub 4 (ICH) Specification Update (Order Number 290745) for errata related to the 82801DB I/O Controller Hub that may apply to the desktop board D845PEBT2



#### Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes that apply to the desktop board D845PEBT2. 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.
PlanFix:	This erratum may 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	ERRATA	
1	PlanFix	Onboard Serial ATA (SATA) Hard Disk Drives (HDD) will perform slowly prior to loading the SATA driver for the Microsoft Windows* Operating System	
2	Fixed	Fan control defaults incorrectly set in BIOS for onboard hardware management ASIC	
3	PlanFix	Intel® 82801DB I/O Controller Hub (ICH 4) erratum 8	
4	PlanFix	Supervisor password cleared when 256MB or greater system memory is used	
NO.	PLANS	SPECIFICATION CLARIFICATIONS	
1	Doc	Clarification of SMBus routing	
NO.	PLANS	DOCUMENTATION CHANGES	
1	Doc	Removed note that specifies USB 2.0 support limited to Windows 2000 and Windows XP from Section 1.7.2, USB	
2	Doc	Removed ESCD format reference from Section 3.3.1, PCI Autoconfiguration	
3	Doc	Add Alert Standard Format Specification Version 1.03 Dated June 20, 2001 to Section 1. Design Specifications.	



#### ERRATA

#### 1. Onboard Serial ATA (SATA) Hard Disk Drives (HDD) Will Perform Slowly Prior to Loading the SATA Driver For the Microsoft Windows<sup>\*</sup> Operating System

**PROBLEM:** Serial ATA HDD software operations, prior to loading Microsoft Windows SATA drivers, results in slower SATA HDD performance.

**IMPLICATION:** If a user attempts to boot to an operating system other than Microsoft Windows or attempts to use software prior to loading the SATA driver for a Microsoft Windows operating system on a SATA HDD, drive performance will be slow.

#### WORKAROUND: None.

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

#### 2. Fan Control Defaults Incorrectly Set in BIOS for Onboard Hardware Management ASIC

**PROBLEM:** Default BIOS settings on desktop boards that implement the Intel<sup>®</sup> Precision Cooling Technology fan control are incorrect, which could result in improper system cooling.

**IMPLICATION:** The maximum front and rear system chassis fan speeds are limited to 30% of maximum, irrespective of the actual chassis temperature. Under certain circumstances, this fan speed limitation may not provide adequate system cooling.

NOTE: The CPU fan is not controllable by the desktop board and is not directly impacted.

**WORKAROUND:** Disable fan control by changing the 'FAN CONTROL' setting to "Disabled" in the BIOS setup menu under the 'ADVANCED' tab, 'FAN CONFIGURATION' menu. This will allow the system fans to run at full speed, which will allow maximum system cooling.

STATUS: This erratum was fixed in BIOS revision BT84520A.86A.0010.P03.

#### 3. Intel<sup>®</sup> 82801DB I/O Controller Hub 4 (ICH 4) Erratum 8

**PROBLEM:** For a complete description of the ICH 4 erratum 8, see the Intel<sup>®</sup> 82801DB I/O Controller Hub 4 (ICH 4) Specification Update, order number 290745 found at <a href="http://developer.intel.com/design/chipsets/specupdt">http://developer.intel.com/design/chipsets/specupdt</a>.

**IMPLICATION:** For a complete description of the ICH 4 erratum 8, see the Intel 82801DB I/O Controller Hub 4 (ICH 4) Specification Update, order number 290745 found at <a href="http://developer.intel.com/design/chipsets/specupdt">http://developer.intel.com/design/chipsets/specupdt</a>.

#### WORKAROUND: None.

**STATUS:** This erratum may be fixed in a future chipset stepping.



#### 4. Supervisor Password Cleared When 256MB or Greater System Memory is Used

**PROBLEM:** If 256MB or more system memory is added to a system the Supervisor password is cleared. **IMPLICATION:** Supervisor password cannot be used with 256MB or more of system memory.

WORKAROUND: None.

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



#### SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *Intel<sup>®</sup> Desktop Board D845PEBT2 Technical Product Specification* (Order Number C153330). All Specification Clarifications will be incorporated into a future version of that specification.

#### 1. Clarification of SMBus Routing

Section 2.8.2.1 will change in its entirety as follows:

#### 2.8.2.1 Expansion Slots

The Desktop Board D845PEBT2 has the following expansion slots:

- AGP connector: The AGP connector is keyed for 1.5 V AGP cards only. Do not install a legacy 3.3 V AGP card. The AGP connector is not mechanically compatible with legacy 3.3 V AGP cards.
- CNR (optional).
- Five PCI rev 2.2 compliant local bus slots: PCI add-in cards with SMBus support can access sensor data and other information residing on the Desktop Board D845PEBT2. As shown in the table below, the PCI bus connector to which SMBus is routed varies per board version. The board version can be identified by the board's AA number (labeled on the board's front right corner and shown in the figure at the bottom of the page) or by the manufacturing options included on the board (listed in the table below).

A Board with This AA Number (where xxx is any number)	Or These Included Manufacturing Options	Has SMBus Routed to This PCI Bus Connector
A99697-xxx	2-channel audio subsystem	1 (ATX expansion slot 6)
C10867-xxx	<ul> <li>6-channel audio subsystem</li> <li>IEEE 1394a-2000 subsystem</li> </ul>	1 (ATX expansion slot 6)
C12587-xxx	<ul> <li>6-channel audio subsystem</li> <li>(No IEEE 1394a-2000 subsystem)</li> </ul>	2 (ATX expansion slot 5)

#### Table 29. SMBus Routing



#### Image: Book of the second second

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 1 or 2 only (See Table 29).

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 either PCI bus connector 1 or 2 depending on the board configuration (See Table 29).

For information about	Refer to
Addition of the SMBus to the PCI Connector ECN	http://www.pcisig.com/data/s pecifications/smb_ecn_0405 01.pdf

#### Image: Book of the second second

This document references back-panel slot numbering with respect to processor location on the Desktop Board D845PEBT2. The AGP slot is not numbered. PCI slots are identified as PCI slot #x, starting with the slot closest to the processor. The ATX specification identifies expansion slot locations with respect to the far edge of a full-sized ATX chassis. The ATX specification and the Desktop Board D845PEBT2's silkscreen are opposite and could cause confusion. The ATX numbering convention is made without respect to slot type (PCI vs. AGP), but refers to an actual slot location on a chassis. Figure 14 on page 61 illustrates the Desktop Board D845PEBT2's PCI slot numbering.

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The following figure shows the location of the board's AA number.

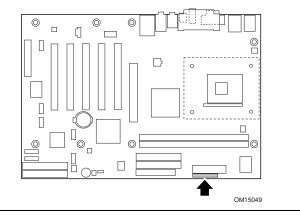


Figure 12. Location of the Board's AA Number



#### **DOCUMENTATION CHANGES**

The Documentation Changes listed in this section apply to the *Intel<sup>®</sup> Desktop Board D845PEBT2 Technical Product Specification* (Order Number C153330). All Documentation Changes will be incorporated into a future version of that specification.

#### 1. Removed Note That Specifies USB 2.0 Support Limited to Windows 2000 and Windows XP From Section 1.7.2, USB

The following note will be removed in its entirety from Section 1.7.2, USB:

• USB 2.0 support has been tested with Windows 2000 and Windows XP drivers and is not currently supported by any other operating system.

#### 2. Removed ESCD Format Reference From Section 3.3.1, PCI Autoconfiguration

Remove the sentence "Autoconfiguration information is stored in ESCD format." from Section 3.3.1, PCI Autoconfiguration.

#### 3. Add Alert Standard Format Specification Version 1.03 Dated June 20, 2001 to Section 1.4, Design Specifications

Reference	Specification	Version, Revision Date,	The information is available from
Name	Title	and Ownership	
ASF	Alert Standard Format Specification	Version 1.03, June 20, 2001, Distributed Management Task Force (DMTF).	http://www.dmtf.org/standards/ documents/ASF/DSP0114.pdf

The following specification will be added to table 3, Section 1.4, Design Specifications: