



# **Intel® Desktop Board 845G Chipset Family Specification Update**

Release Date: November 2003

Order Number: A98271-007

Intel® Desktop Boards using the Intel® 845G chipset 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 and its companion document, the Intel® Desktop Board Product Supplement Specification Update.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. INTEL PRODUCTS ARE NOT INTENDED FOR USE IN MEDICAL, LIFE SAVING, LIFE SUSTAINING APPLICATIONS.

Intel may make changes to specifications and product descriptions at any time, without notice.

Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined". Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them.

The Intel® desktop boards using the Intel® 845GL chipset 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.

Contact your local Intel sales office or your distributor to obtain the latest specifications before placing your product order.

Copies of documents which have an ordering number and are referenced in this document, or other Intel literature, may be obtained from:

Intel Corporation  
P.O. Box 5937  
Denver, CO 80217-9808

or call in North America 1-800-548-4725, Europe 44-0-1793-431-155, France 44-0-1793-421-777,  
Germany 44-0-1793-421-333, other Countries 708-296-9333

Intel, Pentium, Celeron, and the Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

\* Other names and brands may be claimed as the property of others.

Copyright © 2002, 2003, Intel Corporation.

# CONTENTS

REVISION HISTORY .....	v
------------------------	---

PREFACE .....	vi
---------------	----

## **Specification Update for Intel® Desktop Boards Using the Intel® 845G Chipset**

GENERAL INFORMATION .....	3
---------------------------	---

ERRATA.....	6
-------------	---

SPECIFICATION CLARIFICATIONS.....	9
-----------------------------------	---

DOCUMENTATION CHANGES .....	11
-----------------------------	----





## REVISION HISTORY

Date of Revision	Version	Description
June 2002	-001	This document is the first Specification Update for Intel® Desktop Boards using the Intel® 845G chipset. Added Document Changes 1 and 2.
September 2002	-002	Added Erratum 1. Removed Printed Board Assembly (PBA) information from the document, as this reference is no longer valid. Updated the Legal Disclaimer Section.
October 2002	-003	Added Specification Change 1. Added Erratum 2.
February 2003	-004	Added Errata 3-5. Added Documentation Change 3.
March 2003	-005	Added Errata 6-8. Added Documentation Changes 3, 4.
April 2003	-006	Added Documentation Change 5.
November 2003	-007	Added Specification Clarification 1.

## PREFACE

This document is an update to the specifications contained in the *Technical Product Specification for Intel® Desktop Boards using the 845G Chipset* (Order number A81229). 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® Pentium® 4 Processor Specification Update* (Order number 249199) for specification updates concerning the Intel Pentium 4 processor and that may apply to the Intel® Desktop Board 845GL chipset family. 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® 845G/845GL/845GV Chipset Specification Update* (Order Number 298657) for specification updates concerning the 82845G MCH Controller and that may apply to the Intel® Desktop Board 845G chipset family. 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® 82801DB I/O Controller Hub 4 (ICH4) Specification Update* (Order Number 290745) for specification updates concerning the 82801 I/O Controller Hub and that may apply to the Intel® Desktop Board 845GL chipset family. Unless otherwise noted in this document, it should be assumed that any 82801DB I/O Controller Hub (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 desktop boards using the Intel® 845G chipset'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  
Intel® Desktop Boards Using the Intel® 845G Chipset**







## GENERAL INFORMATION

Information contained in the *Specification Update for Intel® Desktop Boards using the Intel® 845G Chipset* is intended to be used with *Product Supplement Specification Update* documents (available separately).

## Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes that apply to desktop boards using the Intel 845G chipset. 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	SPECIFICATION CHANGES
1	Doc	Refer to the <i>Intel® Desktop Board D845GRG Product Supplement Document</i> (Order number A85837) and the <i>Intel® Desktop Board D845GBV Product Supplement Document</i> (Order number A85839) for this Document Change.
NO.	PLANS	ERRATA
1	Fixed	Intel® 82801DB I/O Controller Hub 4 (ICH 4) Erratum 7
2	Fixed	Wake from an ACPI sleep state using wake methodologies may fail
3	PlanFix	Sound Distortion may occur when recording while using the back panel onboard microphone connector
4	PlanFix	The onboard audio solution may produce an audible buzzing sound, heard through the speakers, when moving a desktop window with a mouse in Microsoft Windows* XP
5	PlanFix	Intel 82801DB I/O Controller Hub 4 (ICH 4) Erratum 8
6	PlanFix	Chassis Intrusion Event is Not Logged in the Advanced Menu of the Bios Event Log Viewer
7	PlanFix	When Some Non-Alpha Numeric Characters Are Used for the Supervisor Password to Enter BIOS SETUP, the Password Cannot be Changed Without Clearing All BIOS Passwords
8	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	Change to Description of Section 3.8.2, Network Boot
2	Doc	Change to description of Section 3.8.4, Changing the Default Boot Device During POST
3	Doc	Removed Note That Specifies USB 2.0 Support Limited to Windows 2000 and Windows XP From Section 1.7.2, USB



NO.	PLANS	DOCUMENTATION CHANGES (continued)
4	Doc	Removed ESCD Format Reference From Section 3.3.1, PCI Autoconfiguration
5	Doc	Add Alert Standard Format Specification Version 1.03 Dated June 20, 2001 to Section 1.4, Design Specifications.

## ERRATA

### 1. **Intel® 82801DB I/O Controller Hub 4 (ICH 4) Erratum 7**

**PROBLEM:** For a complete description of the ICH 4 erratum 7, see the Intel® 82801DB I/O Controller Hub 4 (ICH 4) Specification Update, order number 290745 found at <http://developer.intel.com/design/chipsets/specupdt>.

**IMPLICATION:** For a complete description of the ICH 4 erratum 7, see the Intel 82801DB I/O Controller Hub 4 (ICH 4) Specification Update, order number 290745 found at <http://developer.intel.com/design/chipsets/specupdt>.

**WORKAROUND:** None.

**STATUS:** This erratum was fixed in the B0 chipset stepping.

### 2. **Wake From an ACPI Sleep State Using Wake Methodologies May Fail**

**PROBLEM:** The desktop board hardware leaves the LAN RESET (LAN\_RST#) signal unasserted before and after the resume well power (VccSus3\_3 and VccSus1\_5) is valid, instead of asserting it for 10 ms after valid power, which is required by the Intel 82801DB I/O Controller Hub 4 (ICH4) Datasheet (order number 290744). The result is that LAN wake attempts may fail.

**NOTE:** Wake from LAN\* using the MagicPacket\* utility will not be affected by this errata.

**IMPLICATION:** Users that take advantage of LAN wake methods to wake systems from an ACPI sleep state may experience some wake failures.

**WORKAROUND:** None.

**STATUS:** This issue was fixed in BIOS revision RG84510A.86A.0013.P06.

### 3. **Sound Distortion May Occur When Recording While Using The Back Panel Onboard Microphone Connector**

**PROBLEM:** When using the microphone connector on the back panel for recording and with the volume control adjusted above 50 percent, a background noise in the 50 Hz to 60 Hz range may be audible.

**IMPLICATION:** Users that desire to record using the back panel microphone connector may observe noise distortion, especially if the volume control is increased above 50 percent.

**WORKAROUND:** None.

**STATUS:** This erratum may be fixed in a future revision of the desktop board.

### 4. **The Onboard Audio Solution May Produce an Audible Buzzing Sound, Heard Through The Speakers, When Moving a Desktop Window with a Mouse in Microsoft Windows\* XP**

**PROBLEM:** While moving a desktop window with a mouse in Microsoft Windows XP, the user may hear an audible buzzing noise from the speakers. This is especially apparent with the volume control turned up high.

**IMPLICATION:** Using an increased volume setting while using the onboard audio solution may result in a noticeable buzzing noise heard through the speakers in Microsoft Windows XP when the user moves a desktop window with the mouse.

**WORKAROUND:** None.

**STATUS:** This erratum may be fixed in a future revision of the desktop board.

## 5. ***Intel® 82801DB I/O Controller Hub 4 (ICH 4) Erratum 8***

**PROBLEM:** 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 <http://developer.intel.com/design/chipsets/specupdt>.

**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 <http://developer.intel.com/design/chipsets/specupdt>.

**WORKAROUND:** None.

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

## 6. ***Chassis Intrusion Event is Not Logged in the Advanced Menu of the Bios Event Log Viewer***

**PROBLEM:** If a chassis intrusion event is triggered, the event will be displayed at POST but is not logged as an event in the BIOS SETUP Advanced menu, Event Log Configuration menu, View Event Log.

**IMPLICATION:** When chassis intrusion is enabled in the Security menu of the BIOS SETUP, and the options log; log, notify once; or log, notify til cleared are set, the chassis intrusion will not be logged in the Advanced menu, Event Log Configuration menu, View Event Log.

**WORKAROUND:** None.

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

## 7. ***When Some Non-Alpha Numeric Characters Are Used for the Supervisor Password to Enter BIOS SETUP, the Password Cannot be Changed Without Clearing All BIOS Passwords***

**PROBLEM:** If non-alpha numeric characters are used in the Supervisor password to enter BIOS SETUP, the password cannot be changed without clearing all passwords.

**IMPLICATION:** Non-alpha numeric characters cannot be used in the Supervisor password for entering BIOS SETUP.

**WORKAROUND:** None.

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

**8.      *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 *Technical Product Specification for Intel® Desktop Boards using the Intel® 845G Chipset* (Order Number A81229). All Specification Clarifications will be incorporated into a future version of that specification.

### 1. Clarification of SMBus Routing

Section 2.2.2.1 will change in its entirety as follows:

#### 2.2.2.1 Expansion Slots

The Desktop Board has the following expansion slots:

- One 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.
- Three PCI rev 2.2 compliant local bus slots. The SMBus is routed to PCI bus connector 2.
- One CNR (optional), shared with PCI bus connector 3 (ATX expansion slot 1).

#### 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.*

#### For information about

Addition of the SMBus to the PCI Connector ECN

#### Refer to

[http://www.pcisig.com/data/specifications/smb\\_ecn\\_040501.pdf](http://www.pcisig.com/data/specifications/smb_ecn_040501.pdf)

#### NOTE

*This document references back-panel slot numbering with respect to processor location on the Desktop Board. The AGP slot is not numbered. PCI slots are*

*identified as PCI slot #x, starting with the slot closest to the processor. The CNR slot shares an ATX expansion slot 3. The ATX/MicroATX specifications identify expansion slot locations with respect to the far edge of a full-sized ATX chassis. The ATX specification and the Desktop Board'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 4 on page 19 illustrates the Desktop Board's PCI slot numbering.*



## DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *Technical Product Specification for Intel® Desktop Boards using the Intel® 845G Chipset* (Order Number A81229). All Documentation Changes will be incorporated into a future version of that specification.

### 1. **Change to Description of Section 3.8.2, Network Boot**

The following note will be added to Section 3.8.2, Network Boot:



#### INTEGRATOR'S NOTE

*The F12 key may be disabled during POST by assigning a Supervisor Password and setting the User Access Level to a value other than Full.*

##### For information about

##### Refer to

Supervisor Password and User Access Level

Section 4.5, page 75

### 2. **Change to Description of Section 3.8.4, Changing the Default Boot Device During POST**

The following note will be added to Section 3.8.4, Changing the Default Boot Device During POST:



#### INTEGRATOR'S NOTE

*The F10 key may be disabled during POST by assigning a Supervisor Password and setting the User Access Level to a value other than Full.*

##### For information about

##### Refer to

Supervisor Password and User Access Level

Section 4.5, page 75

### 3. **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:



#### NOTE

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

#### **4. *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.

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

The following specification will be added to table 2, Section 1.4, Design Specifications:

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