Intel® Desktop Board D845GERG2 Specification Update

Release Date: November 2003

Order Number: C21701-007

The Intel® Desktop Board D845GERG2 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.

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 board D845GERG2 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 the Intel® Desktop Board D845GERG2

GENERAL INFORMATION 3

ERRATA 5

SPECIFICATION CLARIFICATIONS 8

DOCUMENTATION CHANGES 10

REVISION HISTORY

Date of Revision	Version	Description
November 2002	-001	This document is the first Specification Update for the Intel® Desktop Board D845GERG2. Added Erratum 1.
December 2002	-002	Added Erratum 2.
February 2003	-003	Added Erratum 3–5. Added Documentation Change 1.
March 2003	-004	Added Errata 6-8. Added Documentation Change 2-3.
April 2003	-005	Added Documentation Change 4.
October 2003	-006	Added Erratum 9.
November 2003	-007	Added Specification Clarification 1.

PREFACE

This document is an update to the specifications contained in the *Intel® Desktop Board D845GEBV2/D845GERG2 Technical Product Specification* (Order Number C14584). 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 desktop board D845GERG2. 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® 845GE/845PE Chipset Specification Update* (Order Number 251955) for specification updates concerning the 82845GE MCH Controller and that may apply to the desktop board D845GERG2. 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 82801DB I/O Controller Hub and that may apply to the desktop board D845GERG2. Unless otherwise noted in this document, it should be assumed that any ICH 4 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 D845GERG2'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® Desktop Board D845GERG2

GENERAL INFORMATION

Basic Desktop Board D845GERG2 Identification Information

AA Revision	BIOS Revision	Notes
A97496-103	RG84510A.86A.0017.P09	1-5
A97496-104	RG84510A.86A.0019.P11	1-5
A97496-105	RG84510A.86A.0022.P12	1-5
A97496-106	RG84510A.86A.0028.P15	1-5
A97496-107	RG84510A.86A.0028.P15	1-5
A97833-102	RG84510A.86A.0017.P09	1-5
A97833-103	RG84510A.86A.0019.P11	1-5
A97833-104	RG84510A.86A.0019.P11	1-5
A97833-105	RG84510A.86A.0022.P12	1-5
A97833-106	RG84510A.86A.0028.P15	1-5
A97833-107	RG84510A.86A.0028.P15	1-5
A97835-102	RG84510A.86A.0017.P09	1-5
A97835-103	RG84510A.86A.0017.P09	1-5
A97835-104	RG84510A.86A.0019.P11	1-5
A97835-105	RG84510A.86A.0022.P12	1-5
A97835-106	RG84510A.86A.0028.P15	1-5
A97835-107	RG84510A.86A.0028.P15	1-5

NOTES:

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

Device	Stepping	S-Spec Numbers
RG82845GE GMCH	B1	SL6PS
82801DB ICH	B0	SL6DM
82802AB FWH	A0 A1	SB48

3. Refer to the *Intel® Pentium® 4 Processor Specification Update* (Order Number 249199) for errata related to the Pentium 4 processor and that may apply to the desktop board D845GERG2.
4. Refer to the *Intel® 845GE/845PE Chipset Specification Update* (Order Number 251955) for errata related to the *RG82845GE* GMCH that may apply to the desktop board D845GERG2.
5. Refer to the *Intel® 82801DB I/O Controller Hub 4 (ICH4) Specification Update* (Order Number 290745) for errata related to the 82802DB I/O Controller Hub that may apply to the desktop board D845GERG2.

Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes that apply to the desktop board D845GERG2. 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	Plan Fix	Detected chassis intrusion does not log event to the BIOS Event Log in BIOS setup
2	Fixed	Fan control defaults incorrectly set in BIOS for onboard hardware management ASIC
3	Plan Fix	Sound Distortion May Occur When Recording While Using The Back Panel Onboard Microphone Connector
4	Plan Fix	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	Plan Fix	Intel® 82801DB I/O Controller Hub 4 (ICH 4) Erratum 8
6	Plan Fix	Chassis intrusion event is not logged in the Advanced menu of the Bios Event Log Viewer
7	Plan Fix	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	Plan Fix	Supervisor password cleared when 256MB or greater system memory is used
9	Fixed	Some UDMA 6 hard disk drives may not operate properly
NO.	**PLANS**	**SPECIFICATION CLARIFICATIONS**
1	Doc	Clarification of SMBus routing
NO.	**PLANS**	**DOCUMENTATION CHANGES**
1	Doc	Change to description of Table 20, Section 2.8.2.2, Audio, Power, and Hardware Control Connectors
2	Doc	Removed Note that specifies USB 2.0 support limited to Windows 2000 and Windows XP from Section 1.7.2, USB
3	Doc	Removed ESCD format reference from Section 3.3.1, PCI Autoconfiguration
4	Doc	Add Alert Standard Format Specification Version 1.03 Dated June 20, 2001 to Section 1.5, Design Specifications.

ERRATA

1. Detected Chassis Intrusion Does Not Log Event to the BIOS Event Log in BIOS Setup

PROBLEM: When a chassis intrusion is detected, with chassis intrusion enabled in the Security Menu of the BIOS Setup, the event is not recorded to the BIOS setup Event Log.

IMPLICATION: Users that wish to take advantage of the chassis intrusion feature will not see a chassis intrusion event detected logged to the event log in the BIOS setup menu.

NOTE: If the "Log, Notify Once" or "Log, Notify til Cleared" features are set, the event will create a POST error and notify the user.

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® 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 RG84510A.86A.0019.P11

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.

9. Some UDMA 6 Hard Disk Drives May Not Operate Properly

PROBLEM: Some ATA-133 (UDMA 6)hard disk drives may not be properly recognized by the system BIOS to set the proper drive setting for ATA-100 (UDMA 5) operation that is supported by the Intel® D845GERG2 desktop board.

IMPLICATION: If the ATA-133 hard disk drive is not properly set to UDMA 5 in the BIOS Setup/Advanced/IDE Configuration submenu, the user may experience failed operating system installation or other data corruption issues.

WORKAROUND: In the BIOS Setup/Advanced/IDE Configuration sub menu, the UDMA setting can be manually changed to UDMA 5.

STATUS: This issue was fixed in BIOS revision RG84510A.86A.0033.P17

SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *Intel® Desktop Board D845GEBV2/D845GERG2 Technical Product Specification* (Order Number C14584). 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 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.
- PCI rev 2.2 compliant local bus slots (six on the Desktop Board D845GEBV2, three on the Desktop Board D845GERG2). The SMBus is routed to PCI bus connector 2 only (ATX expansion slot 6). PCI add-in cards with SMBus support can access sensor data and other information residing on the Desktop Board.
- One CNR (optional), shared with PCI bus connector 6 (ATX expansion slot 1) on the Desktop Board D845GEBV2, or with PCI bus connector 3 (ATX expansion slot 1) on the Desktop Board D845GERG2.

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	Refer to
Addition of the SMBus to the PCI Connector ECN	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 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 6 on the D845GEBV2 board and slot 3 on the D845GERG2 board. 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 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 15 (page 67) and Figure 16 (page 68) illustrate the board's PCI slot numbering.

DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *Intel® Desktop Board D845GEBV2/D845GERG2 Technical Product Specification* (Order Number C14584). All Documentation Changes will be incorporated into a future version of that specification.

1. Change to Description of Table 20, Section 2.8.2.2, Audio, Power, and Hardware Control Connectors

Table 25, Section 2.8.2.2, Audio, Power, and Hardware Control Connectors will change in its entirety as follows:

Table 25. Front Panel Audio Connector

Pin	Signal Name	Pin	Signal Name
1	MIC_IN	2	Ground
3	MIC_BIAS	4	+5 V
5	RIGHT_OUT	6	RIGHT_IN
7	Not Connected	8	Key
9	LEFT_OUT	10	LEFT_IN

2. 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.

3. 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.

4. Add Alert Standard Format Specification Version 1.03 Dated June 20, 2001 to Section 1.5, Design Specifications

The following specification will be added to table 4, Section 1.5, Design Specifications:

Reference Name	Specification Title	Version, Revision Date, and Ownership	The information is available from…
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