



# **Intel® Desktop Board D845WN Specification Update**

Release Date: October 2002

Order Number: A73419-013

The Intel® Desktop Board D845WN 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 D845WN 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, LANDesk 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 © 2001, 2002, Intel Corporation.

# CONTENTS

REVISION HISTORY .....v

PREFACE .....vi

## **Specification Update for the Intel® Desktop Board D845WN**

GENERAL INFORMATION .....3

SPECIFICATION CHANGES .....6

ERRATA.....14

SPECIFICATION CLARIFICATIONS.....16

DOCUMENTATION CHANGES .....20



## REVISION HISTORY

Date of Revision	Version	Description
September 2001	-001	This document is the first Specification Update for the Intel® Desktop Board D845WN.
October 2001	-002	Added Erratum 1.
November 2001	-003	Updated Erratum 1.
December 2001	-004	Added Specification Change 1.
January 2002	-005	Updated General Information section. Added Erratum 2. Added Specification Clarifications 1, 2.
February 2002	-006	Added Erratum 3. Updated General Information.
March 2002	-007	Added Specification Change 2.
April 2002	-008	Added Specification Change 3. Added Erratum 4.
June 2002	-009	Added Documentation Change 1.
July 2002	-010	Added Specification Clarification 3. Added Documentation Change 2.
August 2002	-011	Added Specification Change 4. Removed Printed Board Assembly (PBA) information from the document, as this reference is no longer valid.
September 2002	-012	Added Specification Change 5. Updated the Legal Disclaimer Section.
October 2002	-013	Added Specification Change 6. Added Erratum 5. Added Documentation Changes 3, 4.

## PREFACE

This document is an update to the specifications contained in the *Intel® Desktop Board D845WN Technical Product Specification* (Order number A65136). 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 D845WN. 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® 82845 Chipset: 82845 Memory Controller Hub (MCH) for SDR Specification Update* (Order Number 298589) for specification updates concerning the 82845 MCH Controller and that may apply to the desktop board D845WN. 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® 82801BA I/O Controller Hub 2 (ICH2) and Intel® 82801BAM I/O Controller Hub 2 Mobile (ICH2-M) Specification Update* (Order Number 298242) for specification updates concerning the 82801BA I/O Controller Hub and that may apply to the desktop board D845WN. Unless otherwise noted in this document, it should be assumed that any 82801BA 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 the desktop board D845WN'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 D845WN**





## GENERAL INFORMATION

Basic Desktop Board D845WN Identification Information

AA Revision	BIOS Revision	Notes
A68948-204	HV84510A.86A.0018.P04	1-5
A68948-206	HV84510A.86A.0022.P05	1-5
A68948-207	HV84510A.86A.0029.P07	1-5
A68948-208	HV84510A.86A.0029.P07	1-5
A68948-300	HV84510A.86A.0038.P10	1-5
A68950-204	HV84510A.86A.0018.P04	1-5
A68950-206	HV84510A.86A.0022.P05	1-5
A68950-207	HV84510A.86A.0029.P07	1-5
A68950-208	HV84510A.86A.0029.P07	1-5
A68950-300	HV84510A.86A.0038.P10	1-5
A64179-203	HV84510A.86A.0018.P04	1-5
A64179-204	HV84510A.86A.0022.P05	1-5
A64179-205	HV84510A.86A.0029.P07	1-5
A64179-206	HV84510A.86A.0029.P07	1-5
A64179-207	HV84510A.86A.0038.P10	1-5
A64179-300	HV84510A.86A.0038.P10	1-5
A64181-203	HV84510A.86A.0018.P04	1-5
A64181-204	HV84510A.86A.0022.P05	1-5
A64181-205	HV84510A.86A.0029.P07	1-5
A64181-206	HV84510A.86A.0029.P07	1-5
A64181-207	HV84510A.86A.0038.P10	1-5
A64181-300	HV84510A.86A.0038.P10	1-5

NOTES:

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

Device	Stepping	S-Spec Numbers
RG82845 MCH	A3 B0	SL5V7 SL63W SL5YQ
82801BA ICH	C0 B5	SL5PN SL5WK
N82802AB 4Mbit FWH	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 D845WN.
4. Refer to the *Intel® 82845 Chipset: 82845 Memory Controller Hub (MCH) for SDR Specification Update* (Order Number 298589) for errata related to the 82845 MCH that may apply to the desktop board D845WN.
5. Refer to the *Intel® 82801BA I/O Controller Hub 2 (ICH2) and Intel® 82801BAM I/O Controller Hub 2 Mobile (ICH2-M) Specification Update* (Order Number 298242) for errata related to the 82801BA I/O Controller Hub that may apply to the desktop board D845WN.

## Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes that apply to the desktop board D845WN. 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 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 Section 1.6, Processors
2	Doc	Support for faster Intel® Pentium® 4 processors
3	Doc	Support for additional Intel Pentium 4 processors
4	Doc	Support for faster Intel Pentium 4 processors; Support for Intel® Celeron® processors
5	Doc	Support for faster Intel Celeron processor
6	Doc	Support For faster Intel Pentium 4 processors
NO.	PLANS	ERRATA
1	Fixed	Certain PCI Add-in devices may not be recognized
2	Fixed	A system hang during POST may occur when using a Pentium 4 processor at a speed of 1.6 GHz in conjunction with a single SDRAM DIMM configuration
3	Fixed	System hang during POST may occur when using certain USB cameras
4	Fixed	System cannot enter ACPI S3 sleep state with BIOS revisions HV84510A.86A.0024.P06 And HV84510A.86A.0029.P07 while using the Windows® 98SE operating system
5	Fixed	Wake from an ACPI sleep state using wake methodologies may fail
NO.	PLANS	SPECIFICATION CLARIFICATIONS
1	Doc	Change to description of Section 2.6, Interrupts
2	Doc	Change to description of Section 2.7, PCI Interrupt Routing Map
3	Doc	Change to description of Section 3.8.1, CD-ROM and Network Boot
NO.	PLANS	DOCUMENTATION CHANGES
1	Doc	Change to description of Section 1.13.3, Chassis Intrusion And Detection
2	Doc	Addition of section 3.8.3, Changing the Default Boot Device During POST
3	Doc	Change to section 1.13.3, Chassis Intrusion
4	Doc	Addition to section 4.5, Security Menu BIOS Setup Options

## SPECIFICATION CHANGES

The Specification Changes listed in this section apply to the *Desktop Board D845WN Technical Product Specification* (Order Number A65136). All Specification Changes will be incorporated into a future version of that specification.

### 1. **Change to Description of Section 1.6, Processors**

Section 1.6, Processors, removes support for the 1.4 GHz Pentium® 4 processor and will change in its entirety as follows:

#### 1.6 **Processor**



#### **CAUTION**

*Use only the processors listed below. Use of unsupported processors can damage the board, the processor, and the power supply. See the Intel® Desktop Board D845HV/D845WN Specification Update for the most up-to-date list of supported processors for these boards.*

The D845HV and D845WN boards support a single Pentium 4 processor (in an mPGA478 socket) with a system bus of 400 MHz. The D845HV and D845WN boards support the processors listed in Table 5. All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

**Table 5. Supported Processors**

Type	Designation	System Bus	L2 Cache Size
Pentium® 4 processor	1.5, 1.6, 1.7, 1.8, 1.9, and 2.0 GHz	400 MHz	256 KB



#### **NOTE**

*Use only ATX12V- or SFX12V-compliant power supplies with the D845HV and D845WN boards. ATX12V and SFX12V power supplies have an additional power lead that provides required supplemental power for the Intel® Pentium 4 processor. Always connect the 20-pin and 4-pin leads of ATX12V and SFX12V power supplies to the corresponding connectors on the D845HV and D845WN boards, otherwise the board will not boot.*

*Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.*

For information about	Refer to
Processor support	Section 1.3, page 17
Processor usage	Section 1.3, page 17
Power supply connectors	Section 2.8.2.3, page 58

## 2. Support For Faster Intel® Pentium® 4 Processors

Section 1.6, Processor, will change in its entirety as follows:

### 1.6 Processor



#### CAUTION

*Use only the processors listed below. Use of unsupported processors can damage the board, the processor, and the power supply. See the Intel® Desktop Board D845HV/D845WN Specification Update for the most up-to-date list of supported processors for these boards.*

The D845HV and D845WN boards support a single Pentium® 4 processor (in an mPGA478 socket) with a system bus of 400 MHz. The D845HV and D845WN boards support the processors listed in Table 1. All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

**Table 1. Supported Processors**

Type	Designation	System Bus	L2 Cache Size
Pentium® 4 processor	1.4, 1.5, 1.6, 1.7, 1.8, 1.9, and 2.0 GHz	400 MHz	256 KB
	2.0 and 2.1 GHz	400 MHz	512 KB

 **NOTE**

*Use only ATX12V- or SFX12V-compliant power supplies with the D845HV and D845WN boards. ATX12V and SFX12V power supplies have an additional power lead that provides required supplemental power for the Intel® Pentium® 4 processor. Always connect the 20-pin and 4-pin leads of ATX12V and SFX12V power supplies to the corresponding connectors on the D845HV and D845WN boards, otherwise the board will not boot.*

*Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.*

<b>For information about</b>	<b>Refer to</b>
Processor support	Section 1.3, page 17
Processor usage	Section 1.3, page 17
Power supply connectors	Section 2.8.2.3, page 58

### **3. Support For Additional Intel® Pentium® 4 Processors**

Section 1.6, Processor, will change in its entirety as follows:

#### **1.6 Processor**

 **CAUTION**

*Use only the processors listed below. Use of unsupported processors can damage the board, the processor, and the power supply. See the Intel® Desktop Board D845HV/D845WN Specification Update for the most up-to-date list of supported processors for these boards.*

The D845HV and D845WN boards support a single Pentium 4 processor (in an mPGA478 socket) with a system bus of 400 MHz. The D845HV and D845WN boards support the processors listed in Table 2. All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

**Table 2. Supported Processors**

Type	Designation	System Bus	L2 Cache Size
Pentium® 4 processor	1.4, 1.5, 1.6, 1.7, 1.8, 1.9, and 2.0 GHz	400 MHz	256 KB
	1.6, 1.8, 2.0 and 2.2 GHz	400 MHz	512 KB

**NOTE**

Use only ATX12V or SFX12V compliant power supplies with the D845HV and D845WN boards. ATX12V and SFX12V power supplies have an additional power lead that provides required supplemental power for the Intel® Pentium® 4 processor. Always connect the 20-pin and 4-pin leads of ATX12V and SFX12V power supplies to the corresponding connectors on the D845HV and D845WN boards, otherwise the board will not boot.

Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.

For information about	Refer to
Processor support	Most recent D845WN Specification Update
Processor usage	Section 1.3, page 17
Power supply connectors	Section 2.8.2.3, page 58

#### 4. **Support For Faster Intel® Pentium® 4 Processors; Support For Intel® Celeron® Processors**

Section 1.6, Processor, will change in its entirety as follows:

##### 1.6 **Processor**



### CAUTION

Use only the processors listed below. Use of unsupported processors can damage the board, the processor, and the power supply. See the Intel® Desktop

Board D845HV/D845WN Specification Update *for the most up-to-date list of supported processors for these boards.*

The D845HV and D845WN boards support a single Pentium® 4 processor or Celeron® Processor (in an mPGA478 socket) with a system bus of 400 MHz. The D845HV and D845WN boards support the processors listed in Table 2. All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

**Table 2. Supported Processors**

Type	Designation	System Bus	L2 Cache Size
Pentium® 4 processor	1.4, 1.5, 1.6, 1.7, 1.8, 1.9, and 2.0 GHz	400 MHz	256 KB
	1.6, 1.8, 2.0, 2.2, and 2.4 GHz	400 MHz	512 KB
Celeron® processor	1.7 GHz	400 MHz	128 KB

 **NOTE**

*Use only ATX12V or SFX12V compliant power supplies with the D845HV and D845WN boards. ATX12V and SFX12V power supplies have an additional power lead that provides required supplemental power for the Intel® Pentium 4 processor. Always connect the 20-pin and 4-pin leads of ATX12V and SFX12V power supplies to the corresponding connectors on the D845HV and D845WN boards, otherwise the board will not boot.*

*Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.*

For information about	Refer to
Processor support	Most recent D845WN Specification Update
Processor usage	Section 1.3, page 17
Power supply connectors	Section 2.8.2.3, page 58



## 5. Support For Faster Intel® Celeron® Processor

Section 1.6, Processor, will change in its entirety as follows:

### 1.6 Processor



#### CAUTION

*Use only the processors listed below. Use of unsupported processors can damage the board, the processor, and the power supply. See the Intel® Desktop Board D845HV/D845WN Specification Update for the most up-to-date list of supported processors for these boards.*

The D845HV and D845WN boards support a single Pentium® 4 processor or Celeron® Processor (in an mPGA478 socket) with a system bus of 400 MHz. The D845HV and D845WN boards support the processors listed in Table 2. All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

**Table 2. Supported Processors**

Type	Designation	System Bus	L2 Cache Size
Pentium® 4 processor	1.4, 1.5, 1.6, 1.7, 1.8, 1.9, and 2.0 GHz	400 MHz	256 KB
	1.6, 1.8, 2.0, 2.2, and 2.4 GHz	400 MHz	512 KB
Celeron® processor	1.7 and 1.8 GHz	400 MHz	128 KB



#### NOTE

*Use only ATX12V or SFX12V compliant power supplies with the D845HV and D845WN boards. ATX12V and SFX12V power supplies have an additional power lead that provides required supplemental power for the Intel® Pentium 4 processor. Always connect the 20-pin and 4-pin leads of ATX12V and SFX12V power supplies to the corresponding connectors on the D845HV and D845WN boards, otherwise the board will not boot.*

*Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.*

For information about	Refer to
Processor support	Most recent D845HV Specification Update
Processor usage	Section 1.3, page 17
Power supply connectors	Section 2.8.2.3, page 58

## 6. Support For Faster Intel® Pentium® 4 Processors

Section 1.6, Processor, will change in its entirety as follows:

### 1.6 Processor



#### CAUTION

*Use only the processors listed below. Use of unsupported processors can damage the board, the processor, and the power supply. See the Intel® Desktop Board D845HV/D845WN Specification Update for the most up-to-date list of supported processors for these boards.*

The D845HV and D845WN boards support a single Pentium® 4 processor or Celeron® Processor (in an mPGA478 socket) with a system bus of 400 MHz. The D845HV and D845WN boards support the processors listed in Table 2. All supported onboard memory can be cached, up to the cachability limit of the processor. See the processor's data sheet for cachability limits.

**Table 2. Supported Processors**

Type	Designation	System Bus	L2 Cache Size
Pentium® 4 processor	1.4, 1.5, 1.6, 1.7, 1.8, 1.9, and 2 GHz	400 MHz	256 KB
	1.6A, 1.8A, 2A, 2.20, 2.40, 2.50, and 2.60GHz	400 MHz	512 KB
Celeron® processor	1.7 and 1.8 GHz	400 MHz	128 KB

**NOTE**

*BIOS revision HV84510A.86A.0041.P12 or later is required to support 2.50 GHz and higher processors.*

**NOTE**

*Use only ATX12V or SFX12V compliant power supplies with the D845HV and D845WN boards. ATX12V and SFX12V power supplies have an additional power lead that provides required supplemental power for the Intel® Pentium 4 processor. Always connect the 20-pin and 4-pin leads of ATX12V and SFX12V power supplies to the corresponding connectors on the D845HV and D845WN boards, otherwise the board will not boot.*

*Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.*

<b>For information about</b>	<b>Refer to</b>
Processor support	Most recent D845WN Specification Update
Processor usage	Section 1.3, page 17
Power supply connectors	Section 2.8.2.3, page 58

## ERRATA

### 1. *Certain PCI Add-in Devices May Not be Recognized*

**PROBLEM:** Some add-in PCI devices, especially those that use serial EPROM's, may not be enumerated during POST.

**IMPLICATION:** Enumeration of certain add-in PCI devices may not occur, particularly if those devices utilize a serial EPROM.

**WORKAROUND:** For those devices exhibiting this erratum, place the device into PCI slot one (slot one being the slot closest to the processor).

**STATUS:** This erratum was fixed in BIOS revision HV84510A.86A.0022.P05

### 2. *A System Hang During POST May Occur When Using a Pentium® 4 Processor at a Speed of 1.6 GHz in Conjunction With a Single SDRAM DIMM Configuration.*

**PROBLEM:** While booting the system, some boards may experience a hang during POST code D3 when the system is configured specifically with a Pentium® 4 processor running at a speed of 1.6 GHz and with only a single SDRAM DIMM installed.

**IMPLICATION:** There are two failing results to this specific configuration. One is due to false tasks on the SMBus that halts the system during Non-SPD memory detection. The other is due to a violation of specifications in memory initialization. After memory is initialized there exists a requirement that no reads happen for the next 200 µsec, this requirement is violated in the original reference code located in the BIOS.

**WORKAROUND:** Either add a different speed Pentium 4 processor and/or add additional SDRAM DIMM's to the configuration.

**STATUS:** This erratum was fixed in BIOS revision HV84510A.86A.0029.P07.

### 3. *System Hang During POST May Occur When Using Certain USB Cameras*

**PROBLEM:** During the system boot, certain USB cameras may cause a hang during POST if the camera is on during the boot process.

**IMPLICATION:** Some USB cameras may cause a system hang if the camera is on during system boot due to the BIOS incorrectly identifying the camera as a bootable device.

**WORKAROUND:** Ensure that the USB camera is off during the system boot process.

**STATUS:** This erratum was fixed in BIOS revision HV84510A.86A.0031.P08.

#### **4. System Cannot Enter ACPI S3 Sleep State With BIOS Revisions HV84510A.86A.0024.P06 And HV84510A.86A.0029.P07 While Using The Windows\* 98SE Operating System**

**PROBLEM:** An ACPI S3 sleep state cannot be entered when using a combination of BIOS revisions HV84510A.86A.0024.P06 or HV84510A.86A.0029.P07 in conjunction with the Windows 98SE operating system.

**IMPLICATION:** Users that utilize the ACPI S3 sleep state functionality will not be able to put their system into an ACPI S3 state with BIOS revisions HV84510A.86A.0024.P06 or HV84510A.86A.0029.P07 when the Windows 98SE operating system is used.

**WORKAROUND:** None.

**STATUS:** This erratum was fixed in BIOS revision HV84510A.86A.0031.P08.

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

**PROBLEM:** The desktop board hardware leaves the Resume Well Power OK (RSM\_PWROK) signal deasserted before and after the resume well power (VccSus3\_3 and VccSus1\_8) is valid, instead of asserting it for 10 ms after valid power, which is required by the Intel® 82801BA I/O Controller Hub 2 (ICH2) and Intel® 82801BAM I/O Controller Hub 2 Mobile (ICH2-M) Datasheet (order number 290687). 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 erratum was fixed in BIOS revision HV84510A.86A.0041.P12.

## SPECIFICATION CLARIFICATIONS

The Specification Clarifications listed in this section apply to the *Desktop Board D845WN Technical Product Specification* (Order Number A65136). All Specification Clarifications will be incorporated into a future version of that specification.

### 1. *Change to Description of Section 2.6, Interrupts*

Section 2.6, Interrupts, will change in its entirety as follows:

#### 2.6 *Interrupts*

The Interrupts can go through either the Programmable Interrupt Controller (PIC) or the Advanced Programmable Interrupt Controller (APIC) portion of the Intel® ICH2 component. The PIC is supported in Windows\* 98 SE and Windows ME and uses the first 16 interrupts. The APIC is supported in Windows 2000 and Windows XP and support a total of 24 interrupts.

**Table 16. Interrupts**

IRQ	System Resource
NMI	I/O channel check
0	Reserved, interval timer
1	Reserved, keyboard buffer full
2	Reserved, cascade interrupt from slave PIC
3	COM2 (Note 1)
4	COM1 (Note 1)
5	LPT2 (Plug and Play option) / User available
6	Diskette drive
7	LPT1 (Note 1)
8	Real-time clock
9	Reserved for Intel ICH2 system management bus
10	User available
11	User available
12	Onboard mouse port (if present, else user available)
13	Reserved, math coprocessor
14	Primary IDE (if present, else user available)
15	Secondary IDE (if present, else user available)
16	AGP video (through PIRQA) (Note 2)

continued

**Table 16. Interrupts (continued)**

IRQ	System Resource
17	AC' 97 Audio/User Available (through PIRQB) (Note 2)
18	User available (through PIRQC) (Note 2)
19	Intel® ICH2 USB Controller #1 (through PIRQD) (Note 2)
20	Intel ICH2 LAN (optional) (through PIRQE) (Note 2)
21	User available (through PIRQF) (Note 2)
22	User available (through PIRQG) (Note 2)
23	Intel ICH2 USB Controller #2/ User Available (through PIRQH) (Note 2)

Note 1: Default, but can be changed to another IRQ.

Note 2: Available in APIC mode only.

## 2. Change to Description of Section 2.7, PCI Interrupt Routing Map

Section 2.7, PCI Interrupt Routing Map, will change in its entirety as follows:

### 2.7 PCI Interrupt Routing Map

This section describes interrupt sharing and how the interrupt signals are connected between the PCI bus connectors and onboard PCI devices. The PCI specification specifies how interrupts can be shared between devices attached to the PCI bus. In most cases, the small amount of latency added by interrupt sharing does not affect the operation or throughput of the devices. In some special cases where maximum performance is needed from a device, a PCI device should not share an interrupt with other PCI devices. Use the following information to avoid sharing an interrupt with a PCI add-in card.

PCI devices are categorized as follows to specify their interrupt grouping:

- **INTA:** By default, all add-in cards that require only one interrupt are in this category. For almost all cards that require more than one interrupt, the first interrupt on the card is also classified as INTA.
- **INTB:** Generally, the second interrupt on add-in cards that require two or more interrupts is classified as INTB. (This is not an absolute requirement.)
- **INTC and INTD:** Generally, a third interrupt on add-in cards is classified as INTC and a fourth interrupt is classified as INTD.

The Intel ICH2 has eight programmable interrupt request (PIRQ) input signals. All PCI interrupt sources either onboard or from a PCI add-in card connect to one of these PIRQ signals. Some PCI interrupt sources are electrically tied together on the D845HV and D845WN boards and therefore share the same interrupt. Table 17 shows an example of how the PIRQ signals are routed on the D845HV and D845WN boards.

For example, using Table 17 as a reference, assume an add-in card using INTA is plugged into PCI bus connector 4. In PCI bus connector 4, INTA is connected to PIRQB, which is already connected to the SMBus. The add-in card in PCI bus connector 4 now shares interrupts with these onboard interrupt sources.

**Table 17. PCI Interrupt Routing Map**

PCI Interrupt Source	Intel® ICH2 PIRQ Signal Name				
	PIRQF	PIRQG	PIRQH	PIRQB	Other
AGP connector				INTB	INTA to PIRQA
Intel ICH2 USB controller #1					INTD to PIRQD
SMBus controller				INTB	
Intel ICH2 USB controller #2			INTC		
Intel ICH2 Audio / Modem				INTB	
Intel ICH2 LAN					INTA to PIRQE
PCI Bus Connector 1	INTA	INTB	INTC	INTD	
PCI Bus Connector 2	INTD	INTA	INTB	INTC	
PCI Bus Connector 3	INTC	INTD	INTA	INTB	
PCI Bus Connector 4 <sup>(Note)</sup>	INTB	INTC	INTD	INTA	
PCI Bus Connector 5 <sup>(Note)</sup>	INTA	INTB	INTC	INTD	
PCI Bus Connector 6 <sup>(Note)</sup>	INTB	INTC	INTD	INTA	

Note: D845WN board only.

#### **NOTE**

*In PIC mode, the Intel ICH2 can connect each PIRQ line internally to one of the IRQ signals (3, 4, 5, 6, 7, 9, 10, 11, 12, 14, and 15). Typically, a device that does not share a PIRQ line will have a unique interrupt. However, in certain interrupt-constrained situations, it is possible for two or more of the PIRQ lines to be connected to the same IRQ signal. In APIC mode, the allocation of PIRQ lines to IRQ signals is as shown in Table 17.*

### **3. Change to Description of Section 3.8.1, CD-ROM and Network Boot**

The following note will be added to Section 3.8.1, CD-ROM and Network Boot:

Booting from CD-ROM is supported in compliance to the El Torito\* bootable CD-ROM format specification. Under the Boot menu in the BIOS Setup program, ATAPI



CD-ROM is listed as a boot device. Boot devices are defined in priority order. Accordingly, if there is not a bootable CD in the CD-ROM drive, the system will attempt to boot from the next defined drive.

The network can be selected as a boot device. This selection allows booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Pressing the <F12> key during POST automatically forces boot from the LAN.

 **NOTE**

*To disable the forced boot from LAN (pressing <F12> during POST), use the BIOS Setup program's Security Menu as follows:*

- 1. Set a Supervisors Password.*
- 2. Set the User Access Level to any value other than Full.*

<b>For information about</b>	<b>Refer to</b>
The El Torito specification	Section 1.5, page 18
Supervisor Password and User Access Level	Section 4.5, page 110

## DOCUMENTATION CHANGES

The Documentation Changes listed in this section apply to the *Desktop Board D845WN Technical Product Specification* (Order Number A65136). All Documentation Changes will be incorporated into a future version of that specification.

### 1. ***Change to Description of Section 1.13.3, Chassis Intrusion And Detection***

Section 1.13.3, Chassis Intrusion And Detection will change in its entirety as follows:

#### 1.13.3 CHASSIS INTRUSION AND DETECTION

The boards support 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 connector. When the chassis cover is removed, the mechanical switch is in the closed position.

For information about	Refer to
The location of the chassis intrusion connector	Figure 12, page 58
The signal names of the chassis intrusion connector	Table 33, page 60

#### **NOTE**

*Chassis intrusion detection may be implemented using third-party software.*

### 2. ***Addition of Section 3.8.3, Changing the Default Boot Device During POST***

Section 3.8.3, Changing the Default Boot Device During POST, will be added. Note that subsequent Tables in the document will renumber accordingly:

#### 3.8.3 CHANGING THE DEFAULT BOOT DEVICE DURING POST

Pressing the <F8> key during POST causes a boot device menu to be displayed. This menu displays the list of available boot devices (as set in the BIOS setup program's Boot Device Priority Submenu). Table 57 lists the boot device menu options.

**Table 57. Boot Device Menu Options**

Boot Device Menu Function Keys	Description
<↑> or <↓>	Selects a default boot device
<Enter>	Exits the menu, saves changes, and boots from the selected device
<Esc>	Exits the menu without saving changes

**NOTE**

To disable the forced boot from LAN (pressing <F8> during POST), use the BIOS Setup program's Security Menu as follows:

1. Set a Supervisors Password.
2. Set the User Access Level to any value other than Full.

For information about	Refer to
Supervisor Password and User Access Level	Section 4.5, page 75

### 3. Change to Section 1.13.3, Chassis Intrusion

## 1.11.2 CHASSIS INTRUSION AND DETECTION

The Desktop Boards support a chassis security feature that detects if the chassis cover is removed. The security feature uses a mechanical switch on the chassis that attaches to the chassis intrusion connector. When the chassis cover is removed, the mechanical switch is in the closed position.

### 4. Addition to Section 4.5, Security Menu BIOS Setup Options

## 4.5 Security Menu

To access this menu, select Security from the menu bar at the top of the screen.

Maintenance	Main	Advanced	<b>Security</b>	Power	Boot	Exit
-------------	------	----------	-----------------	-------	------	------

The menu represented by Table 72 is for setting passwords and security features.

**Table 72. Security Menu**

If no password entered previously:		
Feature	Options	Description
Supervisor Password Is	No options	Reports if there is a supervisor password set.
User Password Is	No options	Reports if there is a user password set.
Set Supervisor Password	Password can be up to seven alphanumeric characters.	Specifies the supervisor password.
Set User Password	Password can be up to seven alphanumeric characters.	Specifies the user password.
Clear User Password (Note 1)	<ul style="list-style-type: none"> <li>• <b>Yes (default)</b></li> <li>• No</li> </ul>	Clears the user password.
User Access Level (Note 2)	<ul style="list-style-type: none"> <li>• Limited</li> <li>• No Access</li> <li>• View Only</li> <li>• <b>Full (default)</b></li> </ul>	Sets BIOS Setup Utility access rights for user level.
Unattended Start (Note 1, Note 3, and Note 4)	<ul style="list-style-type: none"> <li>• <b>Disabled (default)</b></li> <li>• Enabled</li> </ul>	<i>Enabled</i> allows system to complete the boot process without a password. The keyboard remains locked until a password is entered. A password is required to boot from a diskette.
Chassis Intrusion	<ul style="list-style-type: none"> <li>• Disabled (default)</li> <li>• Log,</li> <li>• Log, notify once</li>   <li>• Log, notify til cleared</li> </ul>	<p>Disables Chassis Intrusion</p> <p>Logs the intrusion in the event log</p> <p>Halts system during POST. User must press &lt;F4&gt; to continue. Intrusion flag is cleared and the event log is updated.</p> <p>Halts system during POST. User must enter BIOS setup Security Menu and select "Clear Chassis Intrusion Status" to clear the Chassis intrusion flag.</p>
Clear Chassis Intrusion Status (Note 5)	<ul style="list-style-type: none"> <li>• No Options</li> </ul>	Clears Chassis Intrusion event and updates the Event Log.

## Notes:

1. This feature appears only if a user password has been set.
2. This feature appears only if a supervisor password has been set.
3. If both Legacy USB and Unattended Start are set to enabled in the BIOS setup menu, USB aware operating systems can unlock as PS/2 style keyboard and mouse without requiring the user to enter a password.
4. When Unattended Start is enabled in the BIOS setup menu, a USB aware operating system may override user password protection if used in conjunction with a USB keyboard and mouse without requiring the user to enter a password.
5. This feature appears only if the Chassis Intrusion log, notify til cleared option has been set.