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Intel® Desktop Board
D865GRH for the
Intel® Pentium® 4 Processor



Delivering Value with Integrity

The Intel® Desktop Board D865GRH features a Trusted Platform Module (TPM). This component on the Desktop Board D865GRH helps enhance platform security above-and-beyond the capabilities of today's software. Defined by the Trusted Computing Group's public specification, the TPM provides hardware-based protection for the encryption and digital signature keys that help secure your data's confidentiality.

Intel® Desktop Board D865GRH

FEATURES AND BENEFITS

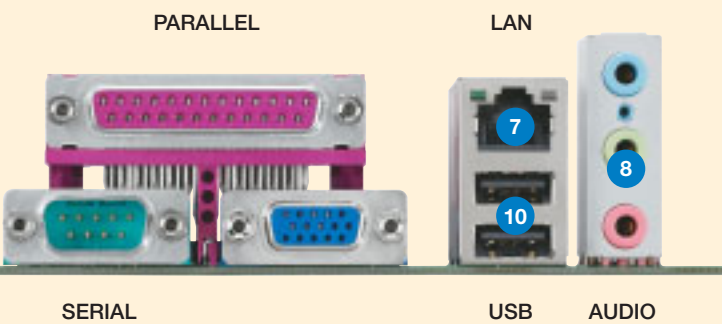
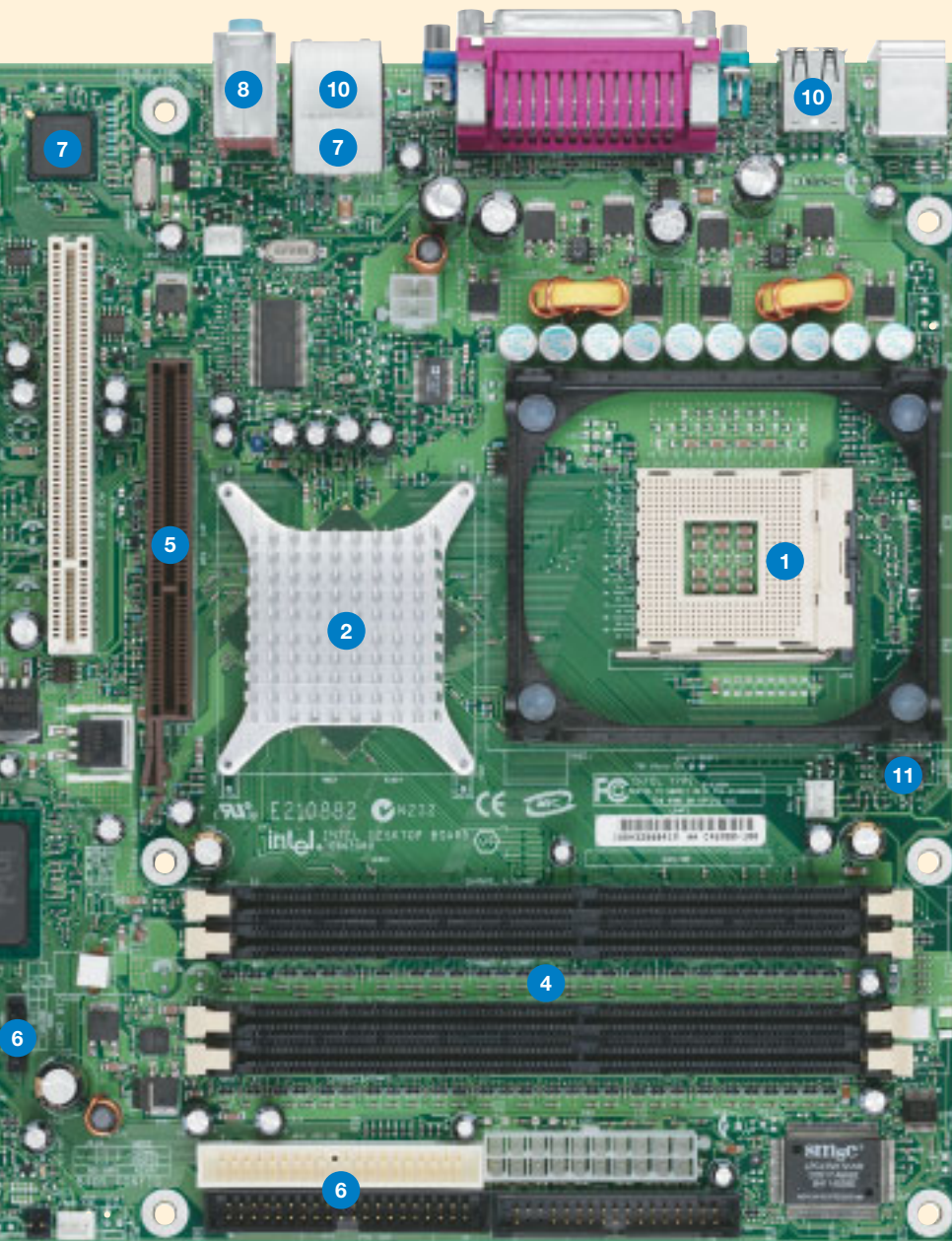
- 1 Support for the Intel® Pentium® 4 processor featuring Hyper-Threading Technology¹ and 800-MHz system bus in the mPGA478-pin package.** Also supports the Intel Pentium 4 processor (1.60a, 1.80a, 2a, 2.20 GHz or higher) with 533-MHz and 400-MHz system bus in the mPGA478 package.
- 2 Intel® 865G chipset featuring Intel® Extreme Graphics 2 using Dynamic Video Memory Technology (DVMT).** Low-cost, high-performance graphics solution.
- 3 Trusted Platform Module (TPM):** Protects unencrypted keys and platform authentication information from software-based attacks by securing them in hardware. The Wave Systems* EMBASSY* Trust Suite software package, which utilizes the TPM functionality, is included as part of the Desktop Board D865GRH security solution.
- 4 Dual-Channel DDR400² SDRAM support:** Four DIMM sockets designed to support up to 4 GB³ of DDR400 SDRAM memory (also supports DDR333^{4/5} and DDR266). Flexible support for either single- or dual-channel operation.
- 5 AGP 8X/4X graphics interface:** Flexibility to upgrade via a high-end AGP graphics card.
- 6 SATA 150 and Ultra ATA100 connectors:** Flexible support of new-generation SATA 150 (2 ports) and current generation ATA (2 channels) storage devices.
- 7 Integrated Intel® PRO/10/100/1000 CT Desktop Connection (optional):** Onboard Gigabit Ethernet LAN connectivity using the Communication Streaming Architecture (CSA) interface.
- 8 AC'97 6-channel Audio:** SoundMAX* 4 XL AudioESP (Audio Enumeration and Sensing Process) enabling either 6-channel or 2-channel audio.
- 9 Three PCI slots:** Expansion slots for custom system configurations and future add-in card upgrades.
- 10 Eight Hi-Speed USB 2.0 ports:** Four rear ports and headers for four front-panel USB ports.
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PS/2



USB



BOXED INTEL® DESKTOP BOARD D865GRH SOLUTION INCLUDES:

- Desktop Board D865GRH
- ATX 2.01 Compliant I/O Shield
- Floppy, SATA and IDE cables
- Board and back-panel I/O layout stickers
- Quick Start Guide
- Desktop Board three-year limited warranty
- Intel® Express Installer CD, including:
 - Wave Systems* EMBASSY* Trust Suite
 - Document Manager
 - Private Information Manager
 - SmartSignature*
 - Norton* Internet Security*
 - Intel® Active Monitor
 - NTI CD-Maker*
 - Software Drivers, with easy Web updates
 - Product Guide

Intel® Desktop Board D865GRH

Processor

Processors Supported	<ul style="list-style-type: none"> Intel® Pentium® 4 processors supporting Hyper-Threading Technology¹ with 800-MHz or 533-MHz system bus in the mPGA478-pin package Intel Pentium 4 processors (1.60a, 1.80a, 2a, 2.20 GHz or higher) with 533-MHz or 400-MHz system bus in the mPGA478-pin package Intel® Celeron® processors (2 GHz or higher) with 400-MHz system bus in the mPGA478-pin package
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Intel® 865G Chipset	<ul style="list-style-type: none"> Intel® 82865G Graphics Memory Controller Hub (GMCH) with Accelerated Hub Architecture bus Intel® 82801EB I/O Controller Hub (Intel® ICH5) with Accelerated Hub Architecture bus Intel® 82802EB Firmware Hub (FWH)
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Graphics Memory Controller Hub (GMCH)	Designed to support up to 4 GB ² of system memory using DDR400 ³ /333 ⁴ /266 SDRAM memory
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Intel® ICH5 I/O Controller Hub	<ul style="list-style-type: none"> Ultra ATA 100/66 Six PCI request-grant pairs for support of six PCI bus masters Two SATA 150 (1.5 Gbps) ports Intel® PRO/1000 CT network connection (optional)
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I/O Features	Integrated super I/O LPC bus controller <ul style="list-style-type: none"> Three PCI local bus slots Designed for PC2001
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USB 2.0	Integrated Intel® ICH5 controllers: <ul style="list-style-type: none"> Four back-panel ports (two dual stack) Four front-panel ports (via 2-headers requiring cabling to front panel)
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Firmware Hub

System BIOS	<ul style="list-style-type: none"> 4 Mb Flash EEPROM with Intel®/AMI® BIOS featuring Plug and Play, IDE drive auto-configure Advanced configuration and power interface V1.0b, DMI 2.0, multilingual support
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Intel® Rapid BIOS Boot	<ul style="list-style-type: none"> Optimized POST for fast access to PC from power-on
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System Memory

Memory Capacity	<ul style="list-style-type: none"> Four 184-pin DIMM connectors supporting up to four double-sided DIMMs
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Memory Types	<ul style="list-style-type: none"> DDR400 SDRAM Memory (when used with Intel® processor with 800-MHz front-side bus) DDR333 SDRAM Memory (when used with Intel processor with 800-MHz or 533-MHz front-side bus) DDR266 SDRAM Memory
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Memory Modes	<ul style="list-style-type: none"> Dual- and single-channel operation support
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Memory Voltage	<ul style="list-style-type: none"> 2.5V
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Hardware Management Features

- System chassis fan speed control
- Voltage and temperature sensing
- Fan sensor inputs used to monitor fan activity
- Power management support for ACPI 1.0b

Wake-Up From Network

- Wired for Management (WfM) 2.0-compatible
- Support for system wake-up using an add-in network interface card with remote wake-up capability or integrated LAN

Expansion Capabilities

- Three PCI bus add-in card connectors
- One universal 1.5V/0.8V AGP 3.0 connector supporting up to AGP 8X

Jumpers and Front-Panel Connectors

Jumpers	<ul style="list-style-type: none"> Single configuration jumper design Jumper access for BIOS configuration mode
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Front-Panel Connectors	<ul style="list-style-type: none"> Reset, HD LED, Power LEDs, power on/off, standby header Two front-panel USB headers Front-panel audio header
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Mechanical

Board Style	ATX 2.0 Compliant I/O Shield
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Board Size	9.6" x 9.6"
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Baseboard Power

Requirements	ATX12V or SFX12V
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Environment

Operating Temperature	0° C to +55° C
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Storage Temperature	-40° C to +70° C
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Regulations

Safety Regulations	UL 1950, Third edition—CAN/CSA C22.2 No. 950-95 with recognized U.S. and Canadian component marks
<i>U.S. and Canada</i>	
<i>Europe</i>	Nemko certified to EN 60950
<i>International</i>	Nemko certified to IEC 60950 (CB report with CB certificate)

EMC regulations (tested in representative chassis)	
<i>U.S.</i>	FCC Part 15, Class B
<i>U.S.</i>	FCC Part 15, Class B open-chassis (cover off) testing
<i>Canada</i>	ICES-003, Class B
<i>Europe</i>	EMC directive 89/336/EEC; EN 55022:1998 Class B; EN 55024:1998
<i>Australia/New Zealand</i>	AS/NZS 3548, Class B
<i>Taiwan</i>	CNS 13438, Class B
<i>International</i>	CISPR 22:1997, Class B

Power requirements vary. Complies with US CRF via EN55022 +6 db in system configurations with an open chassis and EU Directive 89/336/EEC and use via EN55022 and EN50082-1 in a representative chassis.

ORDERING INFORMATION

See Intel's Web site at www.intel.com
 For the most current product information available,
 visit Intel's Web site at: developer.intel.com/design/motherbd/

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The Intel® Desktop Board D865GRH 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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* Other names and brands may be claimed as the property of others.

¹ Hyper-Threading Technology requires a computer system with an Intel® Pentium® 4 processor supporting Hyper-Threading Technology and an HT Technology enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See <http://www.intel.com/info/hyperthreading/> for more information including details on which processors support HT Technology.

² DDR400 memory only supported in combination with Intel® Pentium® 4 processor with 800-MHz system bus.

³ Desktop Board D865GRH was designed to support up to 4 GB total system memory using DIMMs based on 512-Mbit technology, but this technology has not been validated on this Intel® desktop board. For more information about the latest list of tested memory, refer to the Intel World Wide Web site at: <http://support.intel.com/support/motherboards/desktop/>

⁴ When using an 800-MHz FSB CPU, DDR333 memory is clocked at 320 MHz. This minimizes system latencies to optimize system performance.

⁵ DDR333 memory not supported in combination with Intel® Pentium® 4 processor with 400-MHz system bus.





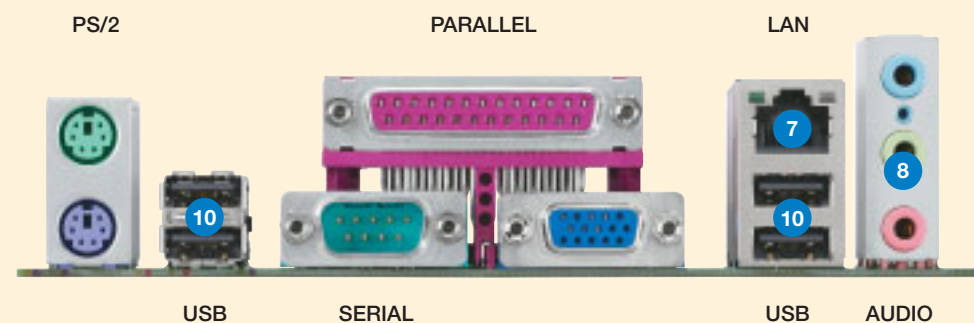
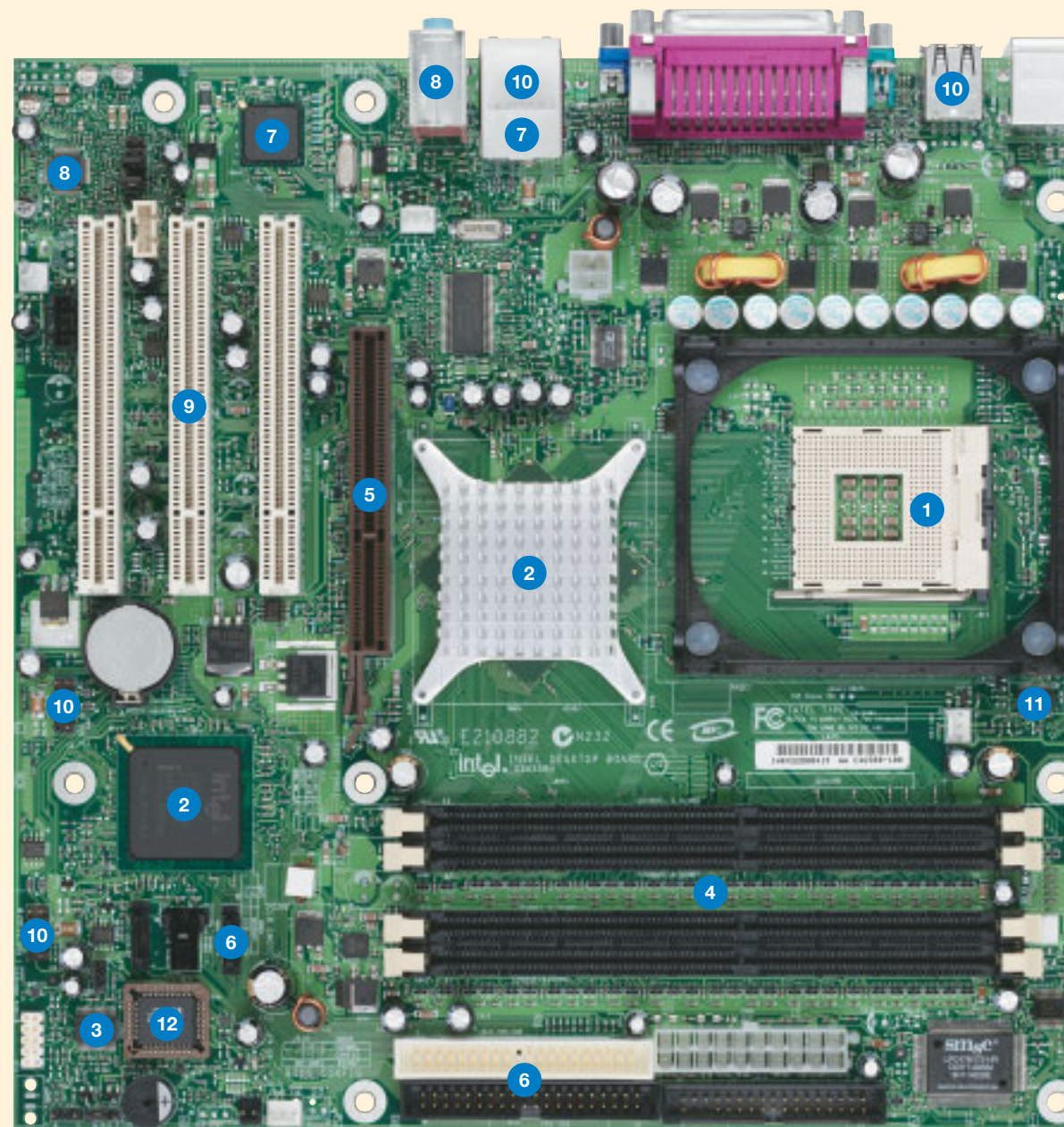
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