

MicroATX Form Factor

## Essential technology for your everyday computing needs.

Introducing the Intel® Desktop Board D945GCNL Essential Series.

### Selecting an entry-level Intel® Desktop Board for your home or office just got easier.

The new Intel® Desktop Board D945GCNL Essential Series offers a cost-efficient solution for the budget conscious user. Equipped with the essential technology needed for a stable and reliable desktop board, the Intel Desktop Board D945GCNL comes packed with features and software to meet a variety of user demands.

Built with affordability and flexibility in mind, the Intel Desktop Board D945GCNL comes with PCI Express\*, PCI, Serial ATA, and high-speed USB interfaces for ease of expandability.

The essential software that users need to build a stable and reliable system is included with this desktop board. This software includes Diskeeper\* Home Edition, Norton Internet Security\*, TypePad\*, and more.

Intel Desktop Board D945GCNL is a flexible, integrated graphics solution designed to support the Intel® Core™2 Duo, Intel® Pentium® Dual-Core, Intel® Pentium® D, Intel® Pentium® 4, Intel® Celeron® 400 Sequence, and Intel® Celeron® D processors in the LGA775 package. Supporting up to 1066 / 800 / 533 MHz system bus, this board is also designed to support dual-channel DDR2 667 / 533 memory and PCI Express\* x16 discrete graphics solution.



# Intel® Desktop Board D945GCNL

The Intel® Desktop Board D945GCNL delivers a flexible integrated graphics solution that supports the Intel® Core™2 Duo, Intel® Pentium® Dual-Core, Intel® Pentium® D, Intel® Pentium® 4, Intel® Celeron® 400 Sequence, and Intel® Celeron® D processors. This platform offers great features such as 1066 / 800 / 533 MHz system bus support, dual-channel DDR2 667 / 533 memory, Intel® Graphics Media Accelerator 950, PCI Express\* x16 graphics connector, and Intel® High Definition Audio.



## The Boxed Intel® Desktop Board D945GCNL Solution includes:

- ATX 2.2 Compliant I/O Shield
- Floppy, SATA, and ATA 100/66 Cables
- Board and Back Panel I/O Layout Stickers
- Quick Reference and Product Guide
- Intel® Express Installer Driver and Software CD
- Windows Vista\* Premium WHQL certified

## Software Included:

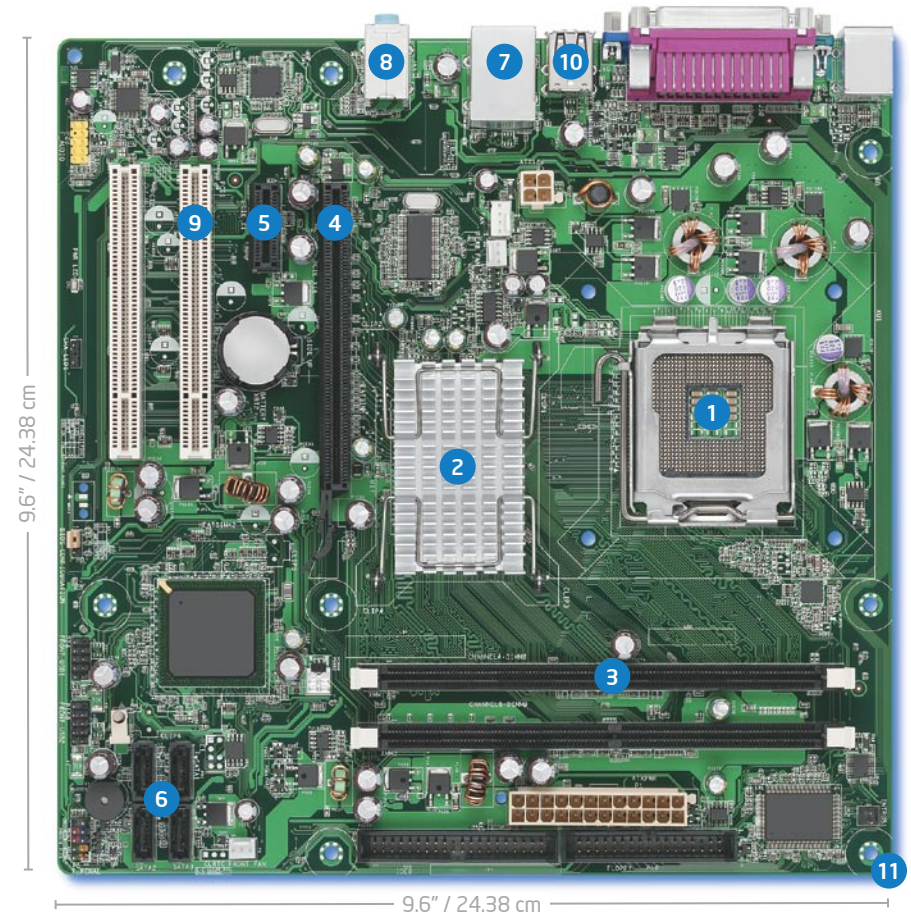
- Diskeeper\* Home Edition
- Norton Internet Security\*
- Skype\*
- TypePad\*
- Kaspersky\* Anti-Virus (*Russian*)
- Kingsoft\* Antivirus (*Chinese*)

## Features and Benefits

# Intel® Desktop Board D945GCNL

- 1 Support for the Intel® Core™2 Duo, Intel® Pentium® Dual-Core, Intel® Pentium® D, Intel® Pentium® 4, Intel® Celeron® 400 Sequence, and Intel® Celeron® D processors in the LGA775 package:** Features 1066 / 800 / 533 MHz system bus and supports boxed Intel® processors.
- 2 Intel® 945GC Express Chipset:** Offers a new level of outstanding system performance through high bandwidth interfaces and integrated Intel® Graphics Media Accelerator 950.
- 3 Dual-channel DDR2 667 / 533 memory support:** Two DIMM sockets designed to support up to 2 GB of DDR2 667 / 533 memory for greater platform performance and flexible memory support.
- 4 PCI Express\* x16 graphics connector:** Increased graphics bandwidth delivers up to 4 Gb per direction.
- 5 PCI Express\* x1 connector:** Designed for bandwidth-intensive applications, PCI Express\* x1 I/O offers 3.5 times the bandwidth over traditional PCI architecture.

- 6 Four Serial ATA ports (3.0 Gb/s):** Facilitates highspeed storage and data transfers at up to 3.0 Gb/s for each of four ports.
- 7 Integrated 10/100/1000 Network Connection:** Features on-board 10/100/1000 Mb/s Ethernet LAN connectivity.
- 8 Intel® High Definition Audio with 5.1 Surround Sound:** Provides flexible six-channel audio and high-quality integrated audio that rivals the performance of high-end discrete solutions.
- 9 Two PCI connectors:** Offers expansion slots for custom system configurations and future add-in card upgrades.
- 10 Eight Hi-Speed USB 2.0 ports:** Provides four back panel ports and an additional four USB ports via two internal headers.
- 11 MicroATX Form Factor**



## Technical Specifications

### Processor

- Intel® Core™2 Duo processor in the LGA775 package
- Intel® Pentium® Dual-Core processor in the LGA775 package
- Intel® Pentium® D processor in the LGA775 package
- Intel® Pentium® 4 processor in the LGA775 package
- Intel® Celeron® 400 Sequence processor in the LGA775 package
- Intel® Celeron® D processor in the LGA775 package
- Supports Intel® 64 Architecture<sup>1</sup>

### Chipset

#### Intel 945GC Express Chipset

- Intel® 945GC Express Chipset Graphics and Memory Controller Hub
- Intel® 82801 GB I/O Controller Hub (ICH7)
- Serial Peripheral Interface (SPI) Flash or Firmware Hub (FwH)

#### Memory Controller Hub (MCH) for Intel® 945GC Express Chipset

- Designed to support up to 2 GB of system memory using DDR2 667 / 533 SDRAM Memory

#### Intel® ICH7 I/O Controller Hub

- One Ultra ATA 100/66 devices
- One Floppy Connector
- Four SATA (3.0 Gb/s) ports
- One PCI Express\* x1 connector support
- RealTek\* 10/100/1000 Network Connection

### I/O Features

- Integrated super I/O LPC bus controller
- Two PCI local bus slots
- One PCI Express\* x16 Graphics bus slot

### Integrated Intel® ICH7 controllers

- Four back-panel ports (two dual stack)
- Four additional ports (via two headers)

### Firmware Hub

#### System BIOS

- 4 Mb Flash EEPROM with Intel® Platform Innovation Framework for EFI Plug and Play, IDE drive auto-configure
- Advanced configuration and power interface V1.0b, DMI 2.0, multilingual support

### System Memory

#### Memory Capacity

- Two 240-pin DIMM connectors supporting up to two double-sided DIMMs

#### Memory Types

- DDR2 667 / 533 SDRAM memory support
- Non-ECC Memory

#### Memory Modes

- Dual-channel operation support

#### Memory Voltage

- 1.8V

### Hardware Management

- Processor fan speed control
- System chassis fan speed control
- Voltage and temperature sensing
- Fan sensor inputs used to monitor fan activity
- Power management support for ACPI 2.0

### Expansion Capabilities

- One PCI Express\* x16 graphics connector
- One PCI Express\* x1 connector
- Two PCI bus add-in card connectors

### Jumpers and Front-Panel Connectors

#### Jumpers

- Single configuration jumper design
- Jumper access for BIOS maintenance mode

#### Front-Panel Connectors

- Reset, HD LED, Power LEDs, power on/off
- One alternate power LED header (1x3)
- Two front-panel Hi-Speed USB 2.0 headers
- Front-panel audio header

### Mechanical

#### Board Style

- ATX 2.2 compliant

#### Board Size

- 9.6" x 9.6" (24.38 cm x 24.38 cm)

#### Baseboard Power Requirements

- ATX12V

### Environment

#### Operating Temperature

- 0°C to +55°C

#### Storage Temperature

- 40°C to +70°C

### Regulations and Safety Standards

#### United States and Canada

- CSA/UL 60950-1, First Edition (Binational Standard)

#### Europe

- (Low Voltage Directive 2006/95/EC) EN 60950-1:2006

#### International

- IEC 60950-1:2001, First Edition

### EMC Regulations

#### (tested in representative chassis)

##### United States

- FCC 47 CFR Part 15, Subpart B

##### Canada

- ICES-003 Class B

##### Europe

- (EMC Directive 2004/108/EC) EN 55022:2006 and EN 55024:1998

##### Australia/New Zealand

- EN 55022:2006 Class B

##### Japan

- VCCI V-3/04.04, V-4/03.04, Class B

##### South Korea

- KN-22:2005 and KN-24:2005

##### Taiwan

- CNS 13438:2006 Class B

##### International

- CISPR 22:2005 +A1:2005 +A2:2006 Class B

### Environmental Compliance

#### Europe

- Europe RoHS (Directive 2002/95/EC)

#### China

- China RoHS (MII Order # 39)



**Lead-Free:** The symbol is used to identify electrical and electronic assemblies and components in which the lead (Pb) concentration level in any

of the raw materials and the end product is not greater than 0.1% by weight (1000 ppm). This symbol is also used to indicate conformance to lead-free requirements and definitions adopted under the European Union's Restriction on Hazardous Substances (RoHS) directive, 2002/95/EC.

**Ordering Information: See the Intel Web site at [www.intel.com](http://www.intel.com)**

**For the most current product information, visit [developer.intel.com/design/motherbd/](http://developer.intel.com/design/motherbd/)**

**For ENERGY STAR\* recommended configurations, visit [www.intel.com/go/energystar](http://www.intel.com/go/energystar)**

<sup>1</sup> 64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See <http://developer.intel.com/technology/intel64/index.htm> for more information.

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