



INTEL® 865G CHIPSET  
PRODUCT BRIEF

**Is there a platform today  
with innovative feature  
integration, exceptional  
user value, and the  
scalability to enable  
tomorrow's technology and  
Internet innovations?**

The Intel® 865G chipset unleashes  
the power in the Intel® Pentium® 4  
processor well beyond 3.0 GHz.



# Yes. The Intel® 865G chipset.

The Intel® Pentium® 4 processor with Intel® NetBurst™ microarchitecture delivers incredible features and performance for both consumer and business users. In combination with the new Intel® 865G chipset, the Pentium 4 processor powers exciting new uses in digital audio, video, photography, and enhanced 3-D performance for consumers. Large, medium and small businesses benefit from the stability, reliability and performance today's robust applications demand.

We designed the 865G chipset to support the Intel® Pentium® 4 Processor with Hyper-Threading (HT) Technology<sup>1</sup>, adding intelligence to help manage and prioritize multiple threads received from the micro-processor. HT Technology is our latest groundbreaking innovation, and allows the processor to execute instruction threads in parallel so that the processor can complete more tasks in a given amount of time. This maximizes the processor efficiency, improving system performance and responsiveness.

The combination of an Intel Pentium 4 Processor with HT Technology<sup>2</sup>, an Intel® chipset that supports HT Technology, an operating system that includes optimizations for HT Technology, and an enabled HT Technology BIOS delivers outstanding system performance. Users can perform multiple complex tasks, such as accessing instant messaging while playing their favorite online game or downloading music while managing their digital photos.

This highly flexible and scalable solution meets a broad range of demanding computing needs. The 865G chipset offers high-bandwidth interfaces such as dual-channel DDR400 main memory, 800-MHz system bus, integrated graphics controller with Intel® Extreme Graphics 2 Technology, AGP8X Graphics, Intel® Communication Streaming Architecture featuring a Dedicated Network Bus (DNB)

interface for wire-speed Gigabit Ethernet (GbE) and Hi-Speed USB 2.0<sup>3</sup> connectivity to ensure the flexibility and performance you expect.

The 865G chipset also features integrated Intel® Extreme Graphics 2 Technology, delivering an intense and realistic visual experience without requiring a separate graphics card. The Intel® 82865G Graphics Memory Controller Hub (GMCH) features Intel's Dynamic Video Memory Technology (DVMT) and Zone Rendering Technology (ZRT). This innovative graphics architecture optimizes system performance by balancing memory usage between graphics and other subsystems. The dual-channel memory interface provides higher bandwidth for the graphics core resulting in increased performance.

The Intel® 82801EB I/O Controller Hub (ICH5) integrates dual independent Serial ATA controllers that provide 150 MB/s transfers each for the most demanding storage data transfers, while the Intel® 82801ER I/O Controller Hub (ICH5R) elevates Serial ATA storage performance to the next level with Intel® RAID Technology. Additional Hi-Speed USB 2.0 ports make ubiquitous end-user connections and provide backwards compatibility with existing USB 1.1 peripherals for ease-of-use and greater bandwidth for I/O-intensive applications. The ICH5 also supports full surround audio for consumers, and an integrated LAN management controller supports the industry-standard Alert Standard Format (ASF) protocol.

The 865G chipset utilizes these features to deliver a compelling solution for both corporate and consumer market segments:

- 800 MHz FSB enables support for the highest-performing Pentium 4 processors.
- Optimized for systems based on the Intel Pentium 4 Processor with HT Technology, the 865G chipset delivers flexibility, faster system performance and responsiveness.

- Advanced packaging technology and industry-leading design innovations improve signal integrity over a wide range of operating conditions, which helps ensure robust interface margins at higher frequencies.
- Intel® Stable Image Technology simplifies software image management by vigorously testing Intel® software drivers and delivering unsurpassed silicon quality that doesn't force "platform driver churn."
- Support for dual-channel DDR400, DDR333, and DDR266 SDRAM memory provides exceptional performance across the full range of multimedia and 3-D-intensive applications while offering the reliability of SDRAM-based architecture.
- Communication Streaming Architecture featuring a, Dedicated Network Bus (DNB) enables the real Gigabit Ethernet experience by eliminating the PCI bottleneck and relieving the load on I/O devices by providing a direct path for network activity to system memory for network data.
- A LAN Connect Interface (LCI) provides flexible network solutions including 10/100 Mbps Ethernet, and 10/100 Mbps Ethernet with LAN manageability.
- Intel® SingleDriver™ technology supports all three network options, which simplifies network connectivity and eases deployment.
- Built-in RAID capabilities utilizing the latest Serial ATA interface for accelerated disk I/O.
- Dual independent DMA audio engines enable two separate, simultaneous audio experiences such as making a PC phone call while playing digital music streams.

<sup>1</sup>Hyper-Threading Technology requires a computer system with an Intel® Pentium® 4 processor supporting HT Technology and a 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.

<sup>2</sup>Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo which your system vendor has verified utilize Hyper-Threading Technology. Performance will vary depending on the specific hardware and software you use. See [www.intel.com/info/hyperthreading/](http://www.intel.com/info/hyperthreading/) for information.

<sup>3</sup>Separate license may be required; contact vendor for details.



## FEATURES

## BENEFITS

800-/533-/400-MHz System Bus	Supports platform longevity with the highest Intel® processor frequencies and delivers greater system bandwidth.
Hyper-Threading Technology Support	Delivers increased system responsiveness and performance.
478-pin Processor Package Compatibility	Supports the highest performance Intel® desktop processors with the flexibility to support other 478-pin Intel processors.
Intel® Extreme Graphics 2 Technology	Fourth-generation graphics architecture supports the latest APIs, allowing software developers to create real-life environments and characters.
Intel® Hub Architecture	Dedicated data paths deliver maximum bandwidth for I/O-intensive applications.
Dual-Channel DDR400/333/266 SDRAM	Flexible memory technology allows a full spectrum of DDR usage from highest performance to more cost-effective systems.
Intel® Dynamic Video Output Interface	Two DVO ports offer maximum display (digital CRT or TV) flexibility through the standard AGP connector.
AGP8X Interface	Highest bandwidth graphics interface enables upgradability to latest graphics cards.
Integrated Hi-Speed USB 2.0	Eight ports offer up to 40x greater bandwidth over USB 1.1 for a variety of today's demanding high-speed I/O peripherals.
Dual Independent Serial ATA Controllers	Facilitates high-speed storage transfers and easy hard drive upgrades.
Intel® RAID Technology	Enables extreme storage performance for Serial ATA hard disks.
Ultra ATA/100	Takes advantage of the existing industry HDD and optical drive interfaces.
AC '97 Controller	Supports Dolby® Digital 5.1 surround sound <sup>3</sup> , delivering six channels of enhanced sound quality.
Intel® Communication Streaming Architecture	Wire-speed GbE with Dedicated Network Bus for performance network connectivity.
Low-Power Sleep Mode	Saves energy.

<sup>3</sup> Separate license may be required; contact vendor for details.

P R O D U C T		P A C K A G E	
Intel® Pentium® 4 Processor		478 Flip Chip Pin Grid Array (FCPGA)	
Intel® 82865G GMCH		760 Flip Chip Ball Grid Array (FCBGA)	
Intel® 82801EB (ICH5)/82801ER (ICH5R)		460 Micro Ball Grid Array (MBGA)	
I N T E L A C C E S S			
Developer's Site		<a href="http://developer.intel.com/">http://developer.intel.com/</a>	
Intel Chipsets Home Page		<a href="http://developer.intel.com/design/chipsets/">http://developer.intel.com/design/chipsets/</a>	
Intel Motherboard Selector Guide		<a href="http://www.intel.com/go/boards">http://www.intel.com/go/boards</a>	
Other Intel Support:		<a href="http://support.intel.com">http://support.intel.com</a>	
Intel Literature Center		(800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada) <i>International locations please contact your local sales office.</i>	
General Information Hotline		(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST	
<b>For more information, visit the Intel Web site</b>		<a href="http://developer.intel.com">http://developer.intel.com</a>	

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