



INTEL® 865PE CHIPSET
PRODUCT BRIEF

**A platform with
the innovative features,
exceptional user value,
and system performance
needed to power robust
applications for today
and tomorrow.**

The Intel® 865PE chipset and
the Intel® Pentium® 4 processor
deliver outstanding system
performance overall.



The Intel® 865PE chipset.

The Intel® Pentium® 4 processor with Intel® NetBurst™ microarchitecture provides incredible performance for both consumer and business users. In combination with the new Intel® 865PE chipset, the Pentium 4 processor delivers even better system performance overall.

We designed the 865PE chipset to support the Intel® Pentium® 4 Processor with Hyper-Threading (HT) Technology¹, 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 processor efficiency, improving system performance and responsiveness.

The combination of an Intel Pentium 4 Processor with HT Technology², an Intel® chipset that supports HT Technology, an operating system that includes optimizations for HT Technology, and BIOS that supports HT Technology and has it enabled 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 flexible and highly scalable solution meets a broad range of demanding computing needs. The 865PE chipset offers high-bandwidth interfaces such as dual-channel DDR400MHz main memory, coupled with an 800-MHz system bus, AGP8X graphics interface, Intel® Communication Streaming Architecture featuring a Dedicated Network Bus (DNB) interface for wire-speed Gigabit Ethernet (GbE), dual independent Serial ATA ports and Hi-Speed USB 2.0³ connectivity to ensure the performance you expect.

The 865PE chipset is the newest discrete graphics chipset for the Pentium 4 processor, and was developed with dual-channel DDR400, DDR333, and DDR266 memory support. You can be confident that this platform offers a complete, robust solution for a broad range of demanding computing needs. In adding DDR400 main memory support, we worked closely with the industry to update memory specifications and validate compliance so you can count on outstanding performance and interoperability.

We designed two controller hubs into the 865PE chipset. The Intel® 82865PE Memory Controller Hub (MCH) supports 800-MHz, 533-MHz and 400-MHz system bus designs; DDR400, DDR333, or DDR266 SDRAM memory; and the latest graphics devices through the 1.5V AGP8X interface.

The Intel® 82801EB I/O Controller Hub (ICH5) integrates dual independent Serial ATA controllers that provide 150MB/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 sound audio for consumers, and an integrated LAN management controller supports the industry-standard Alert Standard Format (ASF) protocol.

The 865PE 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 Technology², the 865PE chipset delivers faster system performance and responsiveness.
- AGP8X support for an advanced graphics experience.
- 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.
- 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 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.

¹Hyper-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.

²Look 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/ for information.

³Separate license may be required; contact vendor for details.

F E A T U R E S**B E N E F I T S**

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® 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.
AGP8X Interface	Highest bandwidth graphics interface enables upgradeability to the 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 ³ , 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.

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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® 82865PE MCH		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 Site		http://developer.intel.com	
Intel Chipsets Home Page		http://program.intel.com/shared/products/chipsets/	
Intel Motherboard Selector Guide		http://www.intel.com/go/boards	
Other Intel Support		http://support.intel.com	
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	
For more information, visit the Intel Web site		http://developer.intel.com	

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The Intel® Pentium® 4 processor and Intel® 865PE chipset 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. Intel Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in an Intel® product. Information contained herein supersedes previously published specifications on these devices from Intel.

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