



**A platform that
can unlock new levels
of system performance
for the most demanding
applications.**

The Intel® 875P chipset and
the Intel® Pentium® 4 processor
deliver a new level of overall
system performance.

INTEL® 875P CHIPSET
PRODUCT BRIEF



The Intel® 875P chipset.

The Intel® Pentium® 4 processor with Intel® NetBurst™ microarchitecture provides incredible performance for both consumer and business power-users. In combination with the new Intel® 875P chipset, the Pentium 4 processor delivers optimal overall system performance.

We designed the 875P 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 highly scalable performance solution meets the most demanding computing needs. The 875P chipset utilizes new Intel® Performance Acceleration Technology (PAT), coupled with high-bandwidth interfaces such as dual-channel DDR400MHz main memory. An 800-MHz system bus, Performance AGP8X graphics interface, Intel® Communication Streaming Architecture featuring a Dedicated Network Bus (DNB) for wire-speed Gigabit Ethernet (GbE), dual independent Serial ATA ports and Hi-Speed USB 2.0³ connectivity ensures optimal performance.

Intel Performance Acceleration Technology (PAT) delivers additional system-level performance by optimizing memory access between the processor and system memory for platforms configured with 800FSB and DDR400 memory.

The 875P chipset is the newest performance discrete graphics chipset for the Pentium 4 processor, and was developed with dual-channel DDR400 in mind. 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 875P chipset. The Intel® 82875P Memory Controller Hub (MCH) utilizes Performance Acceleration Technology and supports 800-MHz and 533-MHz system bus designs, DDR400 or DDR333 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 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 sound audio for consumers, and an integrated LAN management controller supports the industry-standard Alert Standard Format (ASF) protocol.

The 875P 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 875P chipset delivers faster system performance and responsiveness.
- Intel Performance Acceleration Technology (PAT) delivers increased system-level performance.
- AGP8X provides 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 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.
- Built-in RAID capabilities utilizing the latest Serial ATA interface for accelerated disk I/O.
- Intel® SingleDriver™ technology supports all three network options, which simplifies network connectivity and eases deployment.
- 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.

FEATURES	BENEFITS
800-/533-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.
Intel® Performance Acceleration Technology	Increases system-level performance by optimizing internal data paths.
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 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 upgradability 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 the Dedicated Network Bus for performance network connectivity.
Low-Power Sleep Mode	Saves energy

³Separate 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® 82875P MCH		1005 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® 875P 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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