



## Product Brief

**Intel® NetBurst™  
Microarchitecture**

**512KB Level 2  
Advanced Transfer  
Cache**

**Designed for  
High-Performance  
Servers and  
Workstations**

# Intel® Xeon™ Processor

Unparalleled Value and Flexibility for Small and Medium Business Server Applications

The Intel® Xeon™ processor with Intel® NetBurst™ microarchitecture delivers innovative technology to meet the requirements of high-performance IA-32 server workloads. Designed to deliver superior performance, scalability, and reliability, the Intel Xeon processor is ideally suited for today's Internet infrastructure and departmental server applications in small and medium-sized businesses (SMBs). The Intel Xeon processor, together with the Intel® E7500 chipset, extends the bandwidth and performance-enhancing features of the Intel NetBurst microarchitecture and Hyper-Threading Technology by delivering outstanding productivity and headroom for peak Internet server workloads. Intel Xeon processor-based server platforms boost small and medium businesses' competitive advantage by providing lower Total Cost of Ownership (TCO), faster response times, support for more users, increased transaction rates, improved scalability, and enhanced manageability.

## The Intel® Xeon™ Processor with Intel® NetBurst™ Microarchitecture Offers Unparalleled Performance-Enhancing Features

### Hyper-Threading Technology

Hyper-Threading Technology supports multi-threaded code and multitasking operations through more efficient utilization of processor resources, so that multiple threads/tasks can be run simultaneously, thereby increasing the number of transactions that can be executed.

### Hyper-Pipelined Technology

A deeper pipeline enables instructions inside the processor to be queued and executed at the fastest possible rate, enabling Intel Xeon processors to achieve higher transaction rates and faster response times for dual-processor workloads.

### Streaming SIMD Extensions 2

Streaming Single Instruction Multiple Data (SIMD) Extensions 2, which consists of 144 new instructions, includes SIMD double-precision floating-point, SIMD 128-bit integer, and new cache and memory management instructions. Streaming SIMD Extensions 2 improves response times for applications such as media servers, secure transactions,

next-generation Web services, and departmental database applications for small and medium-sized businesses.

### 400-MHz System Bus

With three times the bandwidth of previous Intel® server processors, the 400-MHz system bus speeds the transfer of information from the processor to the rest of the system. Server headroom and scalability are enhanced via greater throughput and performance when accessing memory and I/O devices.

### Advanced Dynamic Execution

Intel has extended the Dynamic Execution features found in the previous-generation P6 microarchitecture. Improved branch prediction accelerates the flow of work to the processor and helps overcome the deeper pipeline. Very deep, out-of-order speculative execution carries out more than 100 instructions speculatively, ensuring that the processor's superscalar execution units remain busy for better overall performance.

### Enhanced Floating-Point/Multimedia Unit

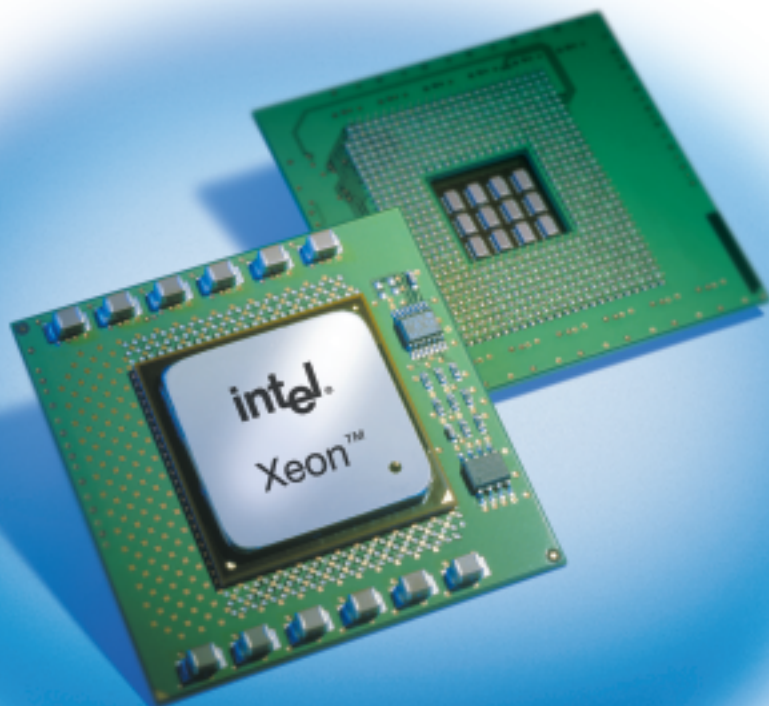
A 128-bit floating-point port and a second port for data movement enable smooth, lifelike 3D imaging and graphics.

### Execution Trace Cache

Advanced Level 1 instruction cache removes decoder pipeline latency and caches decoded instructions, improving the efficiency of and increasing the hit rate to cached instructions.

### Rapid Execution Engine

The simple Arithmetic Logic Units (ALUs) run at twice the frequency of the processor core. This additional speed enables the ALUs to execute certain instructions with a latency that is half the duration of the core clock and results in faster integer computations, providing increased performance for Web and database servers.



## Ultimate Price/Performance for IA-32 Servers

Dual-processor servers based on the Intel Xeon processor running at 2.40 GHz, today's highest operating frequency for servers, provide the perfect upgrade from Intel® Pentium® III and Intel® Pentium® III Xeon™ processor-based servers. The Intel Xeon processor's enlarged 512KB Level 2 Advanced Transfer Cache, along with the Intel® E7500 chipset, provides the foundation for dual-processor servers that deliver unparalleled price/performance and flexibility for Internet infrastructure and departmental server applications for small to medium-sized businesses.

Platform highlights include:

- Intel® NetBurst™ microarchitecture
- 512KB Level 2 Advanced Transfer Cache
- Hyper-Threading Technology
- High-bandwidth 133 MHz PCI-X I/O
- 3.2 GB/Sec DDR memory bandwidth
- Full compatibility with most existing server applications

## Performance and Versatility for Today's Most Demanding Workstation Applications

With the Intel NetBurst microarchitecture and a 400-MHz data bus, Intel Xeon processor-based systems provide world-class performance not only for servers but also for workstations, especially those running demanding mechanical design, electrical design, digital content creation, and financial analysis applications. For peak performance, configure a dual Intel Xeon processor-based workstation with an Intel® 860 chipset-based workstation board.

Platform features include:

- 3.2 GB/Sec dual RDRAM\* memory channels
- 2.40 GHz operating frequency
- 400-MHz system bus
- High-performance AGP 4x/Pro graphics
- High-bandwidth PCI 64/66 I/O



## The Boxed Intel® Xeon™ Processor Includes:

- Intel® Xeon™ processor
- Three-year limited warranty
- Passive heatsink with processor wind tunnel
- Fan with integrated power cable
- Processor retention mechanism kit
- Installation instructions
- Certificate of authenticity
- Intel Inside® logo label
- Thermal interface material applicator

## Features

## Benefits

<b>603-pin <math>\mu</math>PGA Package with dual-processor support</b>	Enables outstanding performance on multi-threaded applications and in multitasking environments
<b>Processor core speeds up to 2.40 GHz</b>	Outstanding throughput and performance for peak server and workstation workloads
<b>Intel® NetBurst™ Microarchitecture, including 400-MHz system bus</b>	High bandwidth between the processor and the rest of the system improves throughput and performance
<b>Hyper-Threading Technology</b>	On-die multi-threading support increases the number of transactions and users a server system can support
<b>512KB Level 2 Advanced Transfer Cache</b>	Enhances performance by providing fast access to heavily used data and instructions
<b>Hyper-Pipelined technology</b>	Extended pipeline stages significantly increase overall throughput
<b>Streaming SIMD Extensions 2</b>	144 new instructions accelerate operation across a broad range of demanding Internet infrastructure and departmental SMB server applications.
<b>Rapid Execution Engine</b>	Arithmetic Logic Units run at twice the core frequency, speeding execution in this performance-critical area
<b>128-bit floating-point port</b>	Floating-point performance boost provides enhanced 3D visualization and scientific calculation
<b>SIMD 128-bit integer</b>	Accelerates video, speech, encryption, and imaging/photo processing
<b>Execution Trace Cache</b>	Greatly improves instruction cache efficiency, maximizing performance in frequently used sections of software code
<b>Advanced Dynamic Execution</b>	Improved branch prediction enhances performance for all 32-bit applications by optimizing instruction sequences

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