



Intel® Itanium® 2 Processor: Industry Leading Performance

Itanium® 2-based platforms enable businesses and organizations to maximize their investments by delivering industry leading performance at lower cost with greater choice than proprietary technologies



High-performance technology for the most data-intensive business-critical and technical applications

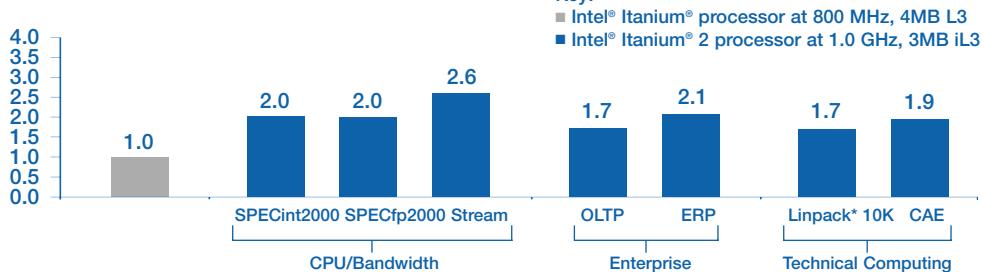
Boosting Performance

The Intel® Itanium® 2 processor, the second processor in a strong roadmap of the Intel® Itanium® processor family, extends the value, performance and flexibility of Intel's high-end computing platform.

The Intel Itanium 2 processor is binary-compatible with software compiled for the first-generation Intel Itanium processor and is expected to increase performance by 50% to 100% for a broad range of applications. Uniquely designed for the enterprise, the Itanium 2 processor enables industry leading enterprise performance, with 50%¹ higher transaction performance than comparable platforms from Sun Microsystems.

Additional performance benefits can be achieved when software is optimized for the Intel Itanium 2 processor (see figure 1 below).

Figure 1: Intel® Itanium® 2 Processor vs. Intel® Itanium® Processor Performance Comparison²



Note: All numbers are rounded off to the nearest tenth decimal

Source: Intel Corporation

¹ Please see Figure 2 on page 2.

² All Intel® Itanium® 2 processor projections are Intel estimates on production Itanium® 2-based systems at 1 GHz with integrated 3MB L3 cache, 2GB DDRAM, Windows® 2000/64-bit for most benchmarks, 32GB for OLTP, 16GB for MSC.Nastran, Single processor for MSC.Nastran, 4 processors for OLTP and Linpack* 10K.



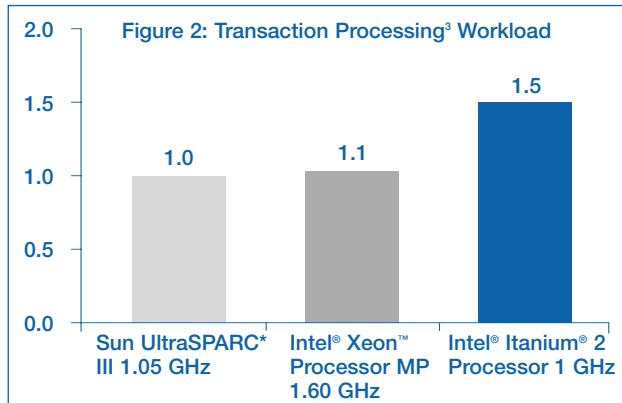
intel®



Intel® Itanium® 2 Processor

Compelling Performance for Large Databases

New levels of parallelism, combined with large memory addressability of the Intel® Itanium® architecture and massive memory space, make Itanium® 2-based servers ideal for large database applications. While large volumes of data can be held in main memory or cache for faster access, parallel processing enables fast queries for simultaneous operations. The performance benefits are especially noteworthy for newer, in-memory databases (IMDBs), which can operate much faster than traditional, disk-optimized applications.



³ Configuration: Intel® Itanium® 2 processor (1 GHz, 32GB system memory), Intel® Xeon™ processor MP 1.60 GHz (using 16GB memory), Sun UltraSPARC* III (1050 MHz, 32GB system memory). Source: Performance comparison based on Intel estimate of Sun UltraSPARC* III processor vs. Intel's forecast of production performance for Intel® Itanium® 2 processor and Intel® Xeon™ processor MP using online transaction processing (OLTP) workload testing.

Impact for Enterprise Resource Planning and Supply Chain Management

Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) applications face a variety of new challenges, especially since many businesses are linking them directly with their broader e-Business environment. Because of its large and efficient integrated cache and substantial platform bandwidth, the Intel® Itanium® 2 processor provides the capacity and performance to scale these applications for large numbers of concurrent users.

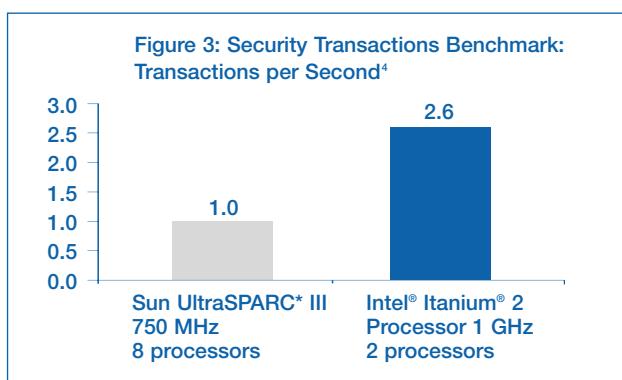
Key features that help to ensure high availability in business-critical environments include Machine Check Architecture; extensive error detection, and correction

on major data structures; complex platform error correction and recovery; and a well-defined error reporting and logging mechanism.

As businesses continue to integrate core applications into their e-Business environments, business data grows exponentially. The Intel Itanium 2 processor's industry-leading floating-point performance and large number of registers accelerate computations for data access, analysis and visualization. The ability of Intel® Itanium® architecture to drive fast, affordable business intelligence solutions will become increasingly vital to business success.

Security Transactions

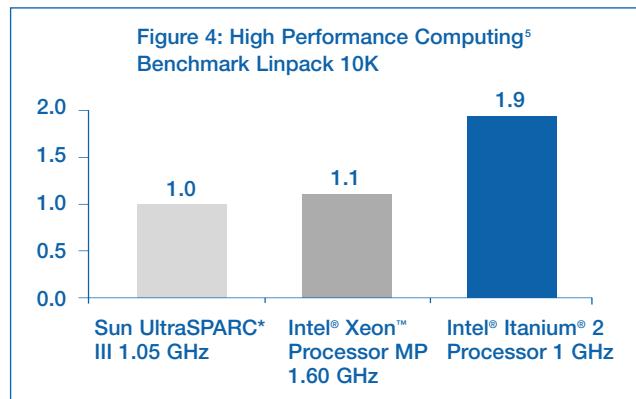
With its enhanced instruction set and parallel execution capabilities, the Intel® Itanium® architecture has demonstrated exceptional performance metrics running standard security protocols, such as secure sockets layer (SSL).



⁴ Source: Preliminary testing by Coradiant Research on prototype 2P Intel® Itanium® 2 processor 1 GHz-based server, 4GB, Linux* 2.4.9-18smp. Sun UltraSPARC* III 750 MHz 8P-based server, 16GB, SunOS 5.8. Both systems loaded with Apache* 1.3.22, OpenSSL 0.9.6c, mod_ssl 2.8.5-1.3.22.

Breakthrough Performance in High-Performance Computing

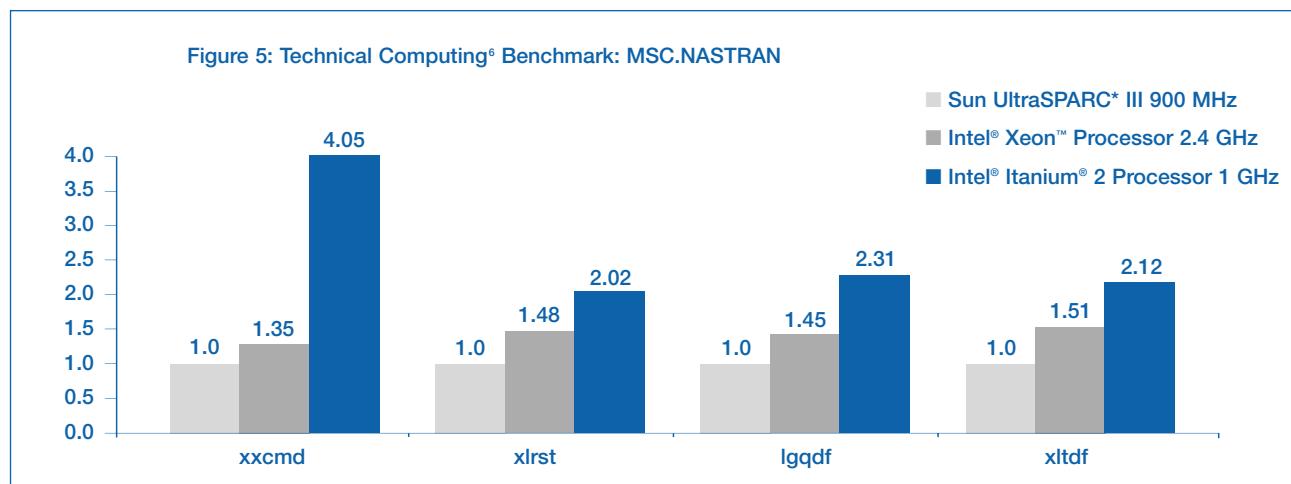
Industry-leading floating-point and computational capabilities improve performance in super-computing-type IT environments. Because of their ability to handle large data sets with exceptional memory scaling and its rich set of resources, Itanium® 2-based platforms are well-suited for high-performance computing (HPC) applications, which often depend on the management and analysis of multiple terabytes of data.



⁵ All projections based on Intel estimates for Sun UltraSPARC* III 1.05 GHz. Intel® Xeon™ processor MP and Intel® Itanium® 2 processor forecasted production targets using Linpack* 10K benchmark testing on 4 processors' systems.

Unparalleled Performance for Design, Analysis, and Compute Intensive Custom Applications

Technical computing applications like mechanical computer-aided engineering (MCAE) and electronic design automation (EDA) are helping businesses in many industries reduce their development costs and accelerate their time-to-market. The industry-leading floating-point capabilities of the Intel® Itanium® architecture, along with its ability to efficiently handle very large data sets provide excellent performance and scalability for the most rigorous technical computing applications.



⁶ Source: http://www.mscsoftware.com/support/prod_support/nastran/performance/v01_sngl.cfm Sun UltraSPARC* III 900 MHz, Solaris* 8. Intel measurements on an Itanium® 2-based system: 1 GHz, 3MB integrated L3 Cache, 16GB RAM, Microsoft Windows.NET*. Intel® Xeon™ processor 2.4 GHz estimates by Intel using 4GB PC800 RDRAM and Windows XP® Professional.

Now is the time to migrate from proprietary RISC-based infrastructure to higher performance, more cost-effective Itanium® 2-based systems

Conclusion

Intel® architecture delivers a high-performance and cost-effective platform to manage your business data. Systems based on the 32-bit Intel® Xeon™ processor MP show superior performance versus comparable proprietary systems with a variety of application choices, making them an ideal choice for small-to medium-range enterprise and technical computing environments. As the volume of your data grows, Itanium® 2-based systems deliver new levels of parallelism, combined with large memory addressability and massive memory space to process more information efficiently.

Future Intel® Itanium® processors will continue to support compatibility with existing Itanium®-based applications, to ensure that businesses can scale performance without recompiling applications. The Intel® Itanium® 2 processor has also introduced a new era of hardware compatibility into the Itanium processor family. Those who deploy applications on Itanium 2-based platforms will be able to scale performance by upgrading to next-generation Itanium processors (code-named Madison and Montecito). This will help ensure a long lifecycle for Itanium-based platforms.

Development work on several new processor generations is well underway, and Intel is committed to delivering increasing performance and price/performance to fuel the rapid adoption of Itanium architecture-based solutions. Ongoing processor enhancements will play a critical role in future advances.

For more information contact your Intel®-based systems provider, or visit us on the Web at: <http://www.intel.com/itanium2> or, <http://www.intel.com/eBusiness/products/itanium/>.

Performance tests and rating are measured using specific computer systems and/or components and reflect the approximate performance of Intel® products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing.

Information in this document is provided in connection with Intel products. No license, expressed or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document, except as provided in Intel's Terms and Conditions of Sale for such products. Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications. Intel retains the right to make changes to specifications and product descriptions at any time, without notice.

The Intel® Itanium® 2 , the Intel® Itanium® and Intel® Xeon™ processors may contain design defects or errors known as errata, which may cause the products to deviate from published specifications. Such errata are not covered by Intel's warranty. Current characterized errata are available on request.

*Other names and brands may be claimed as the property of others.

Copyright © 2002 Intel Corporation. All rights reserved.

Intel, the Intel logo, Intel Inside, Itanium, Itanium 2, and Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

