Intel® Threading Building Blocks 2.2
for Windows*, Linux*, and Mac OS* X

Product Brief

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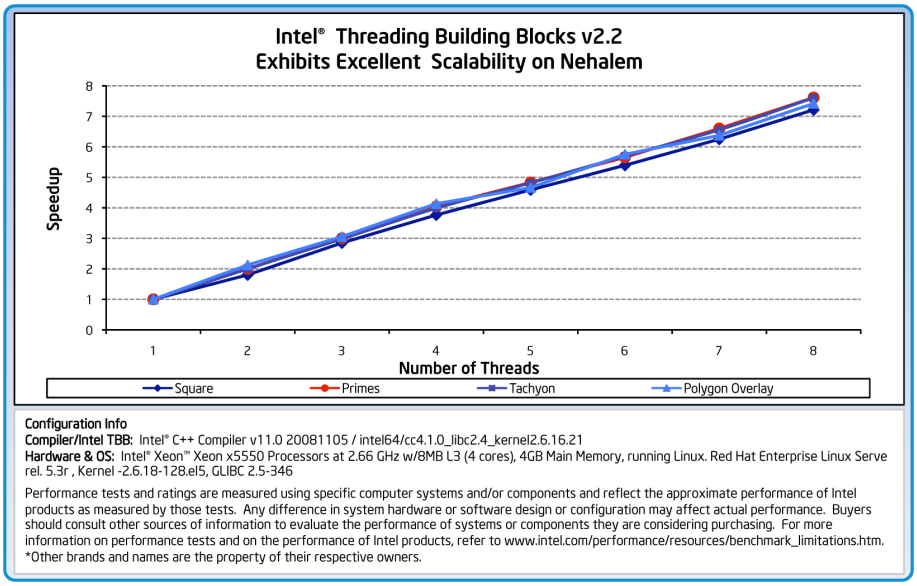
"After a couple days of integrating Intel® Threading Building Blocks (TBB), the team here at Exocortex got a 2.5X performance boost. Our fluid simulation code is now on track to scale in a future-proof manner, and we look forward to digging deeper into Intel® Parallel Studio. The huge ROI we got with TBB was fantastic, and our only regret is we didn't investigate it sooner."

Ben Houston, CTO
Exocortex Technologies

Thread Like an Expert

Intel® Threading Building Blocks (Intel® TBB) is an award-winning C++ template library that abstracts threads to tasks to create reliable, portable, and scalable parallel applications. Use Intel TBB to implement task-based parallel applications and enhance developer productivity for scalable software on multicore platforms. Intel TBB is the most efficient way to implement parallel applications and unleash multicore platform performance compared with other threading methods like native threads and thread wrappers. An open source version is also available. Visit www.threadingbuildingblocks.org for more information.



Configuration Info
Compiler/Intel TBB: Intel® C++ Compiler v11.0 20081105 / intel64/cc4.1.0_libc2.4_kernel2.6.16.21
Hardware & OS: Intel® Xeon™ Xeon x5550 Processors at 2.66 GHz w/8MB L3 (4 cores), 4GB Main Memory, running Linux. Red Hat Enterprise Linux Serve rel. 5.3r , Kernel -2.6.18-128.el5, GLIBC 2.5-346

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*Other brands and names are the property of their respective owners.

Productivity—Improves developer productivity by using task-based abstractions that make it easier to get scalable and reliable parallel applications with fewer lines of code. Task-based algorithms, containers, and synchronization primitives simplify parallel application development.

Future-proof applications—Application performance automatically improves as processor core count increases by using abstract tasks. Sophisticated task scheduler dynamically maps tasks to threads to balance the load among available cores, preserve cache locality, and maximize parallel performance.

Portability—Expand customer base by using a production-ready, open solution for parallelism that is available on a broad range of platforms. Available as a commercial and open source project, Intel TBB is coded in C++ and available on a multitude of platforms to provide a cross-platform solution for parallelism. Intel TBB is available as a standalone product, open source, or with the Intel® Compiler Professional Editions and Intel® Parallel Studio for a more complete and cost-effective solution.

New In This Release

Intel TBB v2.2 offers several functionality, performance, and usability enhancements over 2.1.

Improved performance:

- Improved performance of scalable memory allocator
- Significant redesign of task scheduler for better performance and scalability
- Better performance of affinity partitioner
- auto_partitioner is the default for loop templates instead of simple_partitioner

New in scalable memory allocator:

- Intel® TBB 2.2 supports automatic replacement of OS allocator with its scalable memory allocator (Microsoft Windows* and Linux* OS)

Improvements in task scheduler:

- Intel® TBB 2.2 supports automatic initialization of task scheduler (task_scheduler_init is now optional)
- Support for task groups

New and improved parallel algorithms:

- New algorithms parallel_invoke and parallel_for_each
- New thread-bound filter in pipeline
- Simplified interface for parallel_for for common loops
- Expanded support of Lambda expressions makes it easier to read and maintain code when using lambda capable compiler such as Intel® C++ Compiler 11.0 and above

New and improved data containers:

- New classes enumerable_thread_specific and combinable to support cross-platform thread local storage and algorithms for it
- Unbounded non-blocking interface for concurrent_queue and new blocking concurrent_bounded_queue
- Simplified interfaces for concurrent_hash_map
- Improved interfaces for concurrent_vector

System Requirements

Intel TBB is cross-platform (Windows, Linux, and Mac OS X), supports 32-bit and 64-bit applications, and works with Intel, Microsoft, and GNU compilers. Intel TBB is specifically designed to work in concert with other threading technologies, such as Win32*, POSIX*, and OpenMP* threads, providing a high degree of design and development flexibility. The templates implemented in Intel TBB rely on generic programming in order to provide high-speed and flexible algorithms with very few implementation constraints.

Intel TBB is compatible with Intel® Parallel Studio, Intel® Thread Checker, and the Intel® Compilers, to enable the rapid implementation of high-performance threads in applications. Please refer to www.intel.com/software/products/tbb for details on hardware and software requirements.

Support

Intel® Software Development Product purchases may include a year of support services, which provide access to Intel® Premier Support and all product updates during that time. Intel Premier Support gives you online access to technical notes, application notes, and documentation.

About Intel® Software Development Products

Intel Software Development Products can help you easily create the fastest software possible by offering a full suite of tools that include:

- Intel® Parallel Studio
- Intel® Compilers
- Intel® VTune™ Performance Analyzers
- Intel® Performance Libraries
- Intel® Threading Analysis Tools
- Intel® Cluster Tools

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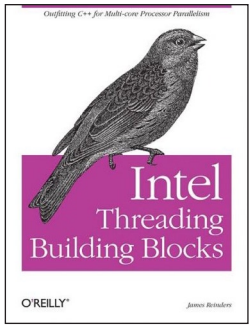
Book Available



Intel® Threading Building Blocks:
Outfitting C++ for Multicore Processor Parallelism

Parallelism for C++, as defined by Intel Threading Building Blocks, is being heralded as the key for multicore programming in C++. This book is packed with illustrative examples to explain the complexities of concurrency and shows how to extract the most benefit from using TBB in your application.

To learn more or to purchase this book, please visit http://shop.intel.com/shop/product.aspx?pid=SISW4001.

Download a trial version today.
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