Intel® Parallel Amplifier

Product Brief

Intel® Parallel Amplifier

"Thanks Intel, you guys rock! I decided to give Parallel Amplifier a run. I was delighted when it pointed me to the right source line that was taking much of the time. I made the change, and voilá our app is now almost 10 times faster. The GUI is very easy to use in my opinion."

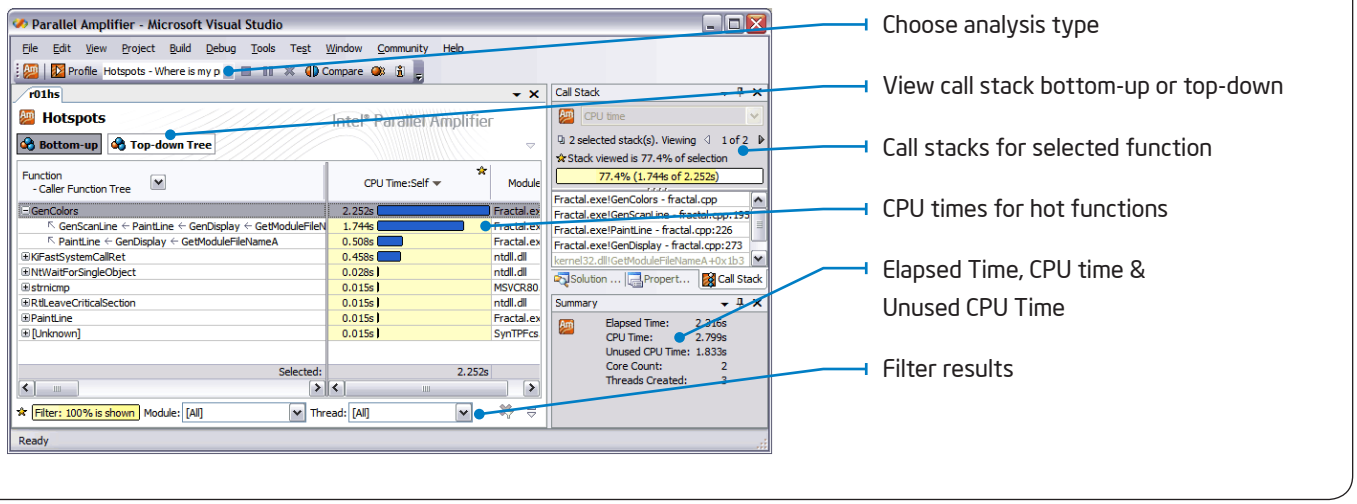
Dat Chu, Research Assistant
Computational Biomedicine Lab
University of Houston

Optimize Performance and Scalability

Intel® Parallel Amplifier makes it simple to quickly find multicore performance bottlenecks without needing to know the processor architecture or assembly code. Intel Parallel Amplifier takes away the guesswork and analyzes performance behavior in Windows* applications, providing quick access to scaling information for faster and improved decision making.

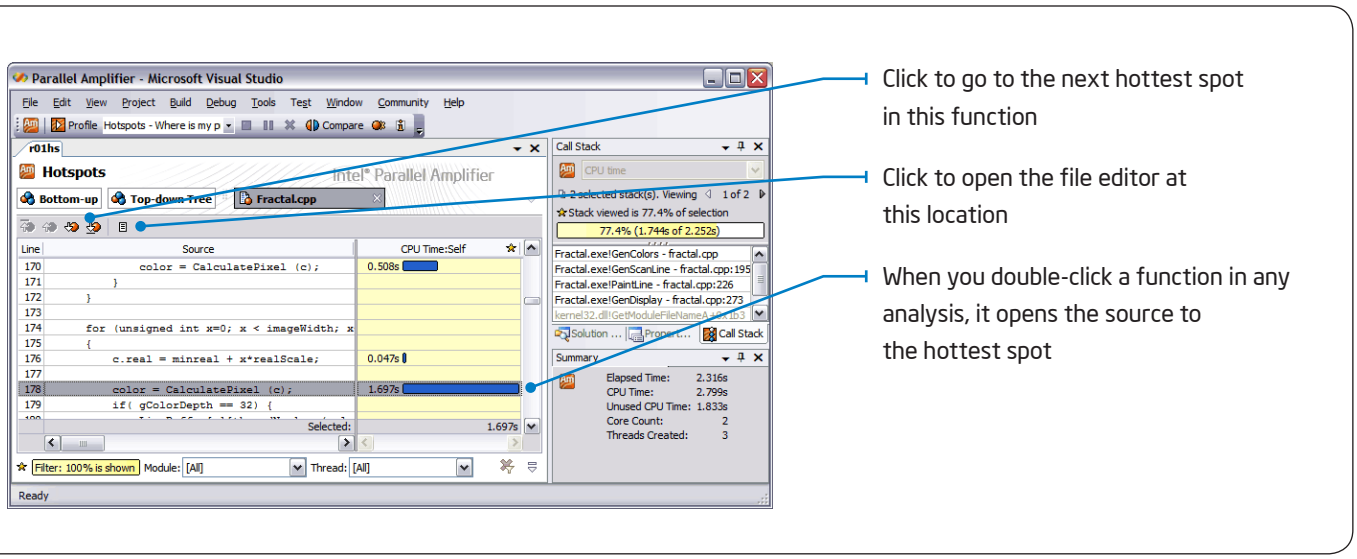
Fine-tune for optimal performance, ensuring cores are fully exploited and new capabilities are supported.

- Make significant performance gains that impact customer satisfaction
- Increase application headroom for richer feature sets and next-gen innovation
- Find performance problems quickly and easily
- Scale applications for multicore



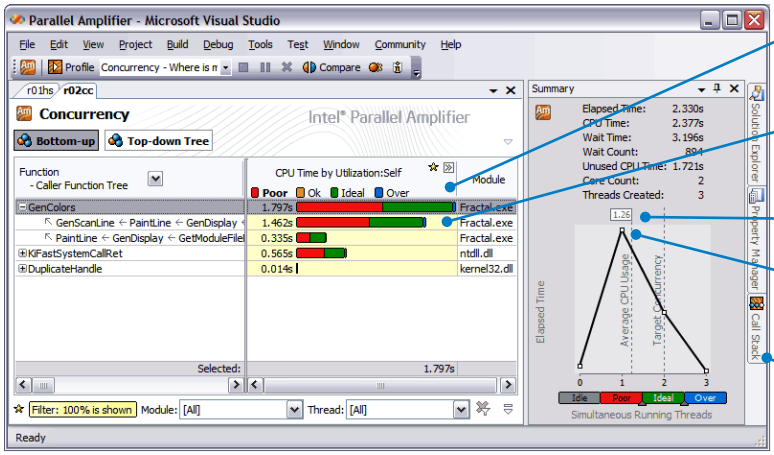
Hotspot Analysis: Where is my application spending time?

Find the functions in your application that consume the most time. This is where you'll want to tune or add parallelism to make your program faster. Intel Parallel Amplifier also shows the stack, so you know how the function is being called. For functions with multiple calling sequences, this lets you see if one of the call stacks is hotter than the others.



Source View: See the results on your source.

Source view shows you the exact location on your source. Just double-click on the function names in any of the analysis views to see the source.



Tune core utilization
Green = Ideal Red = Poor

Length of bar is time, color is utilization while the function is running

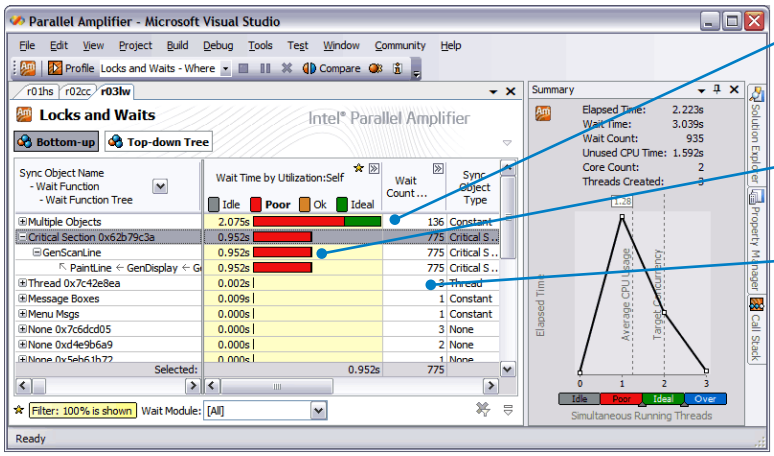
Average CPU utilization

Most of the time this app only uses one core

Call stack information (not shown) is available

Concurrency Analysis: When are cores idle?

Like hotspot analysis, concurrency analysis finds the functions where you are spending the most time. But it also shows you how well you are utilizing multiple cores. Color indicates the core utilization while the function is running. A green bar means all the cores are working. A red bar means cores are underutilized. When there is red, add parallelism and get all the cores working for you. This helps you ensure application performance scales as more cores are added.



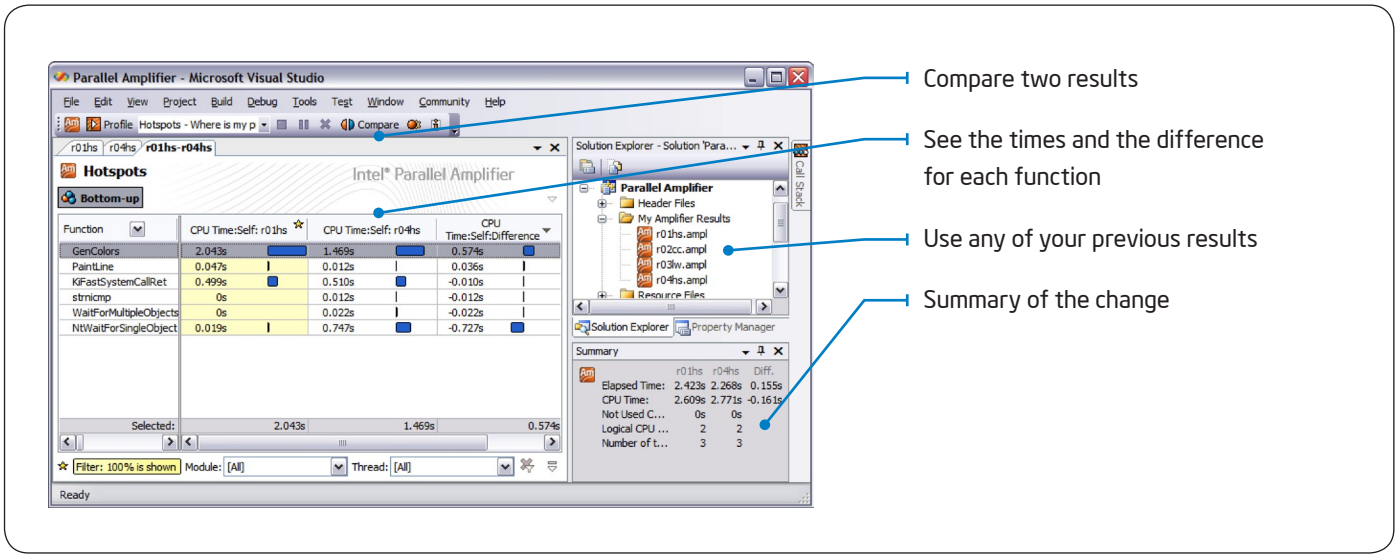
Length of bar is wait time, color is number of cores utilized during the wait

Waiting with underutilized cores hurts performance

Wait count helps identify interesting waits

Locks and Waits Analysis: Where are the bad waits?

Waiting too long on a lock is a common source of performance problems. It's not bad to wait while all the cores are busy (green). It is bad to wait when there are unused cores available (red).



Compare Results: Quickly see what changed.

This gives you a fast way to check progress when tuning and also makes a handy regression analysis.

Features

- Fully integrated with Microsoft Visual Studio*
- Supports Microsoft and Intel® Compilers
- Works with all models for parallelism offered by Intel® Parallel Studio and Microsoft Visual Studio*, Intel® Threading Building Blocks (Intel® TBB), OpenMP*, and WinAPI.
- Intuitive performance profiler specifically designed for threaded applications
- Find application hotspots and view them on the source
- Tune parallel applications for scalable performance using concurrency analysis
- Use locks and waits analysis to find critical waits that limit parallel performance
- Compare results to quickly see what changed or find regressions
- Build applications that automatically scale for manycore

"The performance profiling capabilities couldn't be easier to understand and use. Once the analysis is done, it takes 2 seconds to find the problem and identify what can be improved or fixed in my source code."

David Mercier
Senior Independent Software Developer

System Requirements

- Microsoft Visual Studio* 2005 or 2008 (except the Express Edition)
- For the latest system requirements, go to: www.intel.com/software/products/systemrequirements/

Support

Intel® Parallel Studio products include access to community forums and a knowledge base for all your technical support needs, including technical notes, application notes, documentation, and all product updates.

For more information, go to
http://software.intel.com/sites/support/

Download a Trial Version Today

Evaluation copy available at:
www.intel.com/software/products/ParallelStudio/

Intel® Parallel Studio

Designed for today's serial applications and tomorrow's software innovators.

Intel brings simplified parallelism to Microsoft Visual Studio* C++ developers with a complete productivity solution designed to optimize serial and new parallel applications for multicore and scale for manycore.

Intel® Parallel Studio: Create optimized serial and parallel applications with the ultimate all-in-one parallelism toolkit

Intel® Parallel Composer: Develop effective applications with a C/C++ compiler and advanced threaded libraries

Intel® Parallel Inspector: Ensure application reliability with proactive parallel memory and threading error checking

Intel® Parallel Amplifier: Quickly find bottlenecks and tune parallel applications for scalable multicore performance

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