Speed Threading Prototyping with Intel® Advisor XE

A leading design software company gets the data to design threaded application performance

OVERVIEW
How are software product companies meeting the challenge of increasing data and the corresponding performance demands? Here, we’ll look at one leading design software company whose products are used by design and engineering professionals worldwide. Its flagship product contains millions of lines of source code and a sophisticated workflow. For this company, making its product easy to use and scalable was critical to meeting customers’ ever-increasing requirements.

THE CHALLENGE
The amount of data in customer models that needs to be processed is steadily expanding. Though trying to use parallel computing to improve product performance, the company was struggling to identify areas where multithreading could produce visible gains at reasonable cost—and at the same time, make affected source code thread-safe.

THE SOLUTION
The company found it easy and intuitive to get started with Intel® Advisor XE, following the steps on the workflow tab. Intel Advisor XE ran on the application's huge source code and delivered useful information from the first day of use. Intel Advisor XE accelerated the analysis process significantly—the amount of information that would normally take days was garnered in half an hour using the tool’s suitability analysis. The costs of using the tool were low, allowing the company to learn from even negative results. Intel Advisor XE also fulfilled a management imperative to base development decisions on actual data.

The learning curve was minimal. The company’s team members reported that after initial setup and some introduction, they could quickly start to rationalize gathered information and apply it to problem solving.

Results
Intel Advisor XE helped assess and validate a core application. The tool’s quantitative estimates closely matched the company’s real-world experience. About four years ago, the company experimented with parallelizing a functional block. The performance gain was much less than expected. In 2012, the same code was run through Intel Advisor XE and it accurately forecasted the poor results. Had the company used the tool the first time, it estimates it could have saved 3 months of work.

KEY FINDINGS
- Reduced ramp-up time for developers
- Reduced development costs
- Increased productivity, requiring fewer lines of code to be changed
- Reduced test and QA cycles
- Reduced time to market
- Improved customer’s return on hardware investment
**Conclusion**

For the software products industry, Intel Advisor XE can serve as an essential tool for managers and tech leaders alike. It provides data for cost-benefit analysis and scope of work, which contributes to both decision making and project planning. Says the company's development manager, "Intel® Advisor XE offers a good way to model a prototype threading design. Performance and scalability projections matched our real-world experience."