

# Parallel Programming in Visual Studio 2008 on Windows HPC Server 2008

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*Christian Terboven, [terboven@rz.rwth-aachen.de](mailto:terboven@rz.rwth-aachen.de)*

*Center for Computing and Communication, RWTH Aachen University*

Visual Studio 2008 is very powerful Integrated Development Environment for C/C++ programmers. It provides comfortable tools for code design and editing tasks, as well as advanced debugging capabilities for serial, multi-threaded and message-passing programs. Windows HPC Server 2008, Microsoft's second incarnation of a complete HPC cluster solution, includes a well-integrated MPI library and a batch system. This environment is completed by ISVs such as Allinea providing the Visual Studio plugin DDTlite to enhance the debugging capabilities for parallel programs, and Intel providing Parallel Studio to allow for easy-to-use performance analysis and correctness-checking of serial and parallel programs as well as support for the FORTRAN programming language, and the well-known Vampir MPI trace analyzer. The specific advantage of the HPC tools portfolio on Windows is that all parts are seamlessly integrated with each other, thus offering a great user experience and defining a standard all ISVs have to stick to.

This workshop presents the HPC development environment on Windows for programs parallelized in OpenMP, Threading Building Blocks and MPI. It covers the products Visual Studio 2008, Microsoft HPC Server 2008, Allinea DDTlite and Intel Parallel Studio. The goal is to make the attendee familiar with all kinds of tools typically used in a HPC development workflow: From program runtime analysis over parallel debuggers and correctness checking tools to parallel profilers and making use of the batch system.

A basic familiarity with Windows is assumed. Previous knowledge of Visual Studio may be helpful, but is not required.

Agenda items:

- Overview: Windows HPC Server 2008
- Overview: Visual Studio 2008
- Shared-Memory Parallelization with Visual Studio 2008
- Intel Parallel Studio
- Parallelization with Message-Passing on Windows
- MPI-Tracing with MS-MPI and Vampir
- Outlook on new features in Visual Studio 2010