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## PERFORMANCE OF THE OPENMP AND MPI IMPLEMENTATIONS ON ULTRASPARC SYSTEM

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This paper targets programmers and developers interested in utilizing parallel programming techniques to enhance application performance. The Oracle Solaris Studio software provides state-of-the-art optimizing and parallelizing compilers for C, C++ and Fortran, an advanced debugger, and optimized mathematical and performance libraries. Also included are an extremely powerful performance analysis tool for profiling serial and parallel applications, a thread analysis tool to detect data races and deadlock in memory parallel programs, and an Integrated Development Environment (IDE). The Oracle Message Passing Toolkit software provides the high-performance MPI libraries and associated run-time environment needed for message passing applications that can run on a single system or across multiple compute systems connected with high performance networking, including Gigabit Ethernet, 10 Gigabit Ethernet, InfiniBand and Myrinet. Examples of OpenMP and MPI are provided throughout the paper, including their usage via the Oracle Solaris Studio and Oracle Message Passing Toolkit products for development and deployment of both serial and parallel applications on SPARC and x86/x64 based systems. Throughout this paper it is demonstrated how to develop and deploy an application parallelized with OpenMP and/or MPI.

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