Using and Improving OpenMP for Devices, Tasks, and More

10th International Workshop on OpenMP, IWOMP 2014
Salvador, Brazil, September 28-30, 2014
Proceedings

Springer
Preface

OpenMP is a widely accepted, standard application programming interface (API) for high-level shared-memory parallel programming in Fortran, C, and C++. Since its introduction in 1997, OpenMP has gained support from most high-performance compiler and hardware vendors. Under the direction of the OpenMP Architecture Review Board (ARB), the OpenMP specification has evolved up to the recent release of version 4.0. This version includes several new features like accelerator support for heterogeneous hardware environments, an enhanced tasking model, user defined reductions, and thread affinity to support binding for performance improvements on non-uniform memory architectures.

The evolution of the standard would be impossible without active research in OpenMP compilers, runtime systems, tools, and environments. OpenMP is both an important programming model for single multicore processors and as part of a hybrid programming model for massively parallel, distributed memory systems built from multicore or manycore processors. In fact, most of the growth in parallelism of the upcoming Exascale systems is expected to be coming from an increased parallelism within a node. OpenMP offers important features that can improve the scalability of applications on such systems.

The community of OpenMP researchers and developers in academia and industry is united under cOMPunity (www.compunity.org). This organization has held workshops on OpenMP around the world since 1999: the European Workshop on OpenMP (EWOMP), the North American Workshop on OpenMP Applications and Tools (WOMPAT), and the Asian Workshop on OpenMP Experiences and Implementation (WOMPEI) attracted annual audiences from academia and industry. The International Workshop on OpenMP (IWOMP) consolidated these three workshop series into a single annual international event that rotates across Asia, Europe, and the Americas. The first IWOMP workshop was organized under the auspices of cOMPUnity. Since that workshop, the IWOMP Steering Committee has organized these events and guided development of the series. The first IWOMP meeting was held in 2005, in Eugene, Oregon, USA. Since then, meetings have been held each year, in Reims, France, Beijing, China, West Lafayette, USA, Dresden, Germany, Tsukuba, Japan, Chicago, USA, Rome, Italy, and Canberra, Australia. Each workshop has drawn participants from research and industry throughout the world. IWOMP 2014 continues the series with technical papers, tutorials, and OpenMP status reports. The IWOMP meetings have been successful in large part due to the generous support from numerous sponsors.

The cOMPUnity website (www.compunity.org) provides access to the talks given at the meetings and to photos of the activities. The IWOMP website (www.iwomp.org) provides information on the latest event. This book contains proceedings of IWOMP 2014. The workshop program included 16 technical
papers, two keynote talks, a tutorial on OpenMP, an invited talk, and a sponsor
talk. The paper by Artur Podobas, Mats Brorsson and Vladimir Vlassov was
selected for the Best Paper Award. All technical papers were peer reviewed by
at least three different members of the Program Committee.

In a special way, the OpenMP community remembers Ricky Kendall, former
member of the IWOMP Steering Committee. He passed away March 18, 2014
and is greatly missed.

September 2014

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Bronis R. de Supinski
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