Workshop Description

HIPS 2004 is a full-day workshop to be held at the IPDPS 2004 focusing on high-level programming of component architectures for parallel and grid computing. Its goal is to bring together researchers working in the areas of applications, computational models, language design, compilers, system architecture, and programming tools to discuss new developments in programming component-based systems. While this year's workshop focuses on component-based programming, contributions on other high-level programming models and supportive environments for parallel and distributed systems are equally welcome.

One of the keys for the advancement of parallel processing are the existence of high-level programming models and abstractions that allow one to more easily produce truly efficient applications across a range of parallel architectures. The adoption of a component programming model offers the promise of increased programmer specialization through a clear separation of the boundaries between program elements. This clear separation enhances the opportunity for software reuse as well as enhancing the opportunity for unit testing. However, current implementations of component-based system for high-performance computing often suffer from restricted applicability (limiting reuse), from the lack of corresponding high-level development tools (e.g., performance analysis and debugging), and from poor performance. This situation requires strong research efforts in the design of parallel programming models and languages supporting component-based systems that are both at a high conceptual level and implemented efficiently, in the development of supportive tools, and in the integration of languages and tools into convenient programming environments.

Topics of interest include, but are not restricted to:

- Concepts and languages for parallel and Grid programming
- Supportive techniques for environments and testbeds
- Tools for high-level parallel programming

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HIPS papers also appear in a separate HIPS proceedings.