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GULF COAST ACADEMIC SUPERCOMPUTING

DYNAMIC PERFORMANCE DATA COLLECTION USING THE OPENMP COLLECTOR INTERFACE

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This talk will describe how the OpenMP Collector interface can enable tools to interact with the runtime portion of an OpenMP implementation to obtain information on a program during its execution with low overheads. We briefly describe our implementation and give examples of how this has been used to enable several different tools to gather data about OpenMP codes. We also give a brief overview of our OpenMP-enabled compiler.

The High Performance Computing Tools group (HPCTools) is a research group in the Department of Computer Science at the University of Houston. The group was created by Dr. Barbara Chapman. Its mission is to perform cutting-edge research in compiler and tools for high performance computing systems.

The HPCTools group is also part of the OpenMP community and takes part in the OpenMP ARB committees. Current research areas include:

- Compilers and Tools: OpenUH compiler, Dragon Analysis Tool, OpenMP Validation Suite

- Parallel Programming Models: Hybrid OpenMP/MPI, OpenMP, Global Arrays, Transactional Memory

- COPPER Project

- Performance Tuning Environments: Selective Instrumentation, Performance Monitoring, Bottleneck Analysis, Feedback-based Optimization

- Compiler Optimization: Wide Area Privatization, Parallel Data Flow Analysis, Automatic OpenMP Generation, Cost Model-based Optimization

- Grid Computing, Web Services, Scheduling Policy