

Topic 01

Support Tools and Environments

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Developing large applications on parallel machines is a difficult task, especially for newcomers or people without a deep knowledge of parallelism. Currently, we notice that parallelism not only enters industrial areas but also other fields of science. The aim of European projects like EUROPORT 1 and 2 is clear: to prove the validity of a parallel solution for large industrial codes. Moreover, in order to solve larger problems, scientists need more and more powerful computers both in terms of Mflops, memory size and I/O bandwidth. During the last five years, big efforts have been put in the definition of portable libraries and languages like MPI, HPF and OpenMP. Some parallel libraries like ScaLAPACK or PETSc start to be widely used. Finally, many tools for the development of applications have been developed.

Parallel architectures have also known many changes. Clusters of PCs connected with high speed networks are now well used both in academia and industry. Distributed shared memory machines are also main actors on the market.

Research in the domain of “Support Tools and Environments” is of course a core area of high-performance computing. Even if environments and tools are now able to help a scientist in getting good performances on a parallel machine or a cluster of workstations, a lot of work remains to be done around debugging, portability, heterogeneity, and many other fields.

We tried in this workshop to provide a meeting place for specialists in these important domains but also for users that need to know the very last developments that may change their way to program parallel machines or clusters. Eleven interesting papers will be presented that will start, as we hope, discussions around the future of parallel programming and debugging.