Marco Cisternino, PhD, Senior Software Developer @ Optimad Engineering Srl

Summary: “Our needs in HPC”

From our point of view HPC has always been a leverage for democratization of high fidelity Computational Fluid Dynamics simulations. By reducing the simulation costs, HPC can make HiFi CFD available for organizations with small or no budget for simulations. SMEs can play the role of trait-d’union between the world HPC and these organizations.

Moreover, SMEs are a flexible organizations to make innovation and HPC can strongly improve their efficiency and effectiveness. By freeing SMEs from the burden of managing infrastructures and of keeping the fast pace of the computing world, European and National initiatives in HPC can make the SMEs focus on innovation in their own fields.

Resources, expertise and formation are the main needs HPC initiatives can satisfy for SMEs.Accessing computational resources in the form of infrastructure and platform services can provide SMEs with tangible tools to easily distribute software as services and strongly reduce the cost of a single simulation. HPC experts can support SMEs in approaching complex hardware, in reducing costs by performance improvement and most importantly in this moment in assaying the new wave of Quantum Computing. Concurrently, SMEs can be enforced by continuous formation on cutting-edge HPC technologies and programming models.

CV

Master Of Science in Environmental Physics at Università di Torino (*)
PhD in Applied Mathematics/Fluid Dynamics at Université de Bordeaux and Politecnico di Torino.
Senior Software Developer at Optimad since 2012.
Main developer of HPC CFD solvers in different flow regimes from hypersonic regime to rarefied gases.(*)
Employee in PRACE/SHAPE “RAPHI: rarefied flow simulations on Intel Xeon Phi” project and in FORTISSIMO/Tolomhe experiment
Currently, developer of immerflow, a parallel Immersed Boundary Navier-Stokes equations solver with Adaptive Mesh Refinement capabilities.
Principal Investigator in “immerflow GPU porting” project (granted proposal of Italian NCC of EuroCC project)