Numerical Simulation and Visualisation as a Part of the Same Process

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Extended Abstract. The general aim of the presented paper is the discussing of the possibility of detailed simulation of relevant processes in different important fields of modern science with the help of supercomputers of CONVEX-cluster having the parallel architecture. Using supercomputers for the solution of mathematical and physical problems is a challenging task as they permit to minimize efforts of scientists in getting necessary data for their researches and give the opportunity to decrease the solution period from several months up to several weeks (or even hours). The paper is devoted to the numerical simulation of multidimension molecular gasdynamic problems. All the stages of the process are to be briefly described: formulating the task, elaborating special algorithms, implementing the program solution, getting output data and creating the final visual demonstration. The last stage is of the main interest for authors. There are two main purposes of using visualization in the sphere of numerical simulation: illustrating results and presenting results. The first one means clarifying obtained data for specialists working with it. The second one means making the data more attractive for demonstration, using sometimes the additional computational and graphic resources. The methods of visualization are very important for both analyze of numerical simulation results and popularization of supercomputer methods. The dynamics of different physical and chemical processes are better observed in graphical form. We are going to present our recent results widely illustrated for proving this thesis. We hope that our experience will help novices to make their first steps in using supercomputers, in particular for the purposes of numerical simulation.