

PARALLEL PROCESSING AND SIMULATION: A PANEL DISCUSSION

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ABSTRACT

Approaching rapidly on the horizon is a change to parallel architecture in digital computers that has the potential for multiplying the speed of execution achieved in serial architectures. The departure from serial operations provides rather obvious improvements in execution times for operations that are repetitive and that can be performed independently of each other. Such operations arise frequently in signal processing programs and in mathematical programming algorithms. Of interest to this conference is the impact of the new architectures on the practice of simulation - particularly simulations of large physical systems. A large number of questions can be raised (but few answered) on the impact of the new machines on simulation model designs, languages, data base manipulation, and other questions on the general utility of such machines for simulation problem solving. Moreover, it is likely that the new machines will influence the design of simulation experiments, random number generation, strategies for statistical iterations, sensitivity analyses, and variance reduction methods. Because of the interdisciplinary nature of these topics a dialog between simulation practitioners and computer technology developers will grow in importance. Several panelists, consisting of a mixture of simulation practitioners and computer scientists will describe their recent experiences in simulating systems on parallel computer configurations, highlighting efficiency comparisons and speculating on the general utility of such machines for simulation enterprises.

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