Heidrich / Grossetie

Computing with T.Node Parallel Architecture

Parallel processing is seen today as the means to improve the power of computing facilities by breaking the Von Neumann bottleneck of conventional sequential computer architectures. By defining appropriate parallel computation models definite advantages can be obtained. Parallel processing is the center of the research in Europe in the field of Information Processing Systems so the CEC has funded the ESPRIT Supemode project to develop a low cost, high performance, multiprocessor machine. The result of this project is a modular, reconfigurable architecture based on !NMOS transputers: T.Node. This machine can be considered as a research, industrial and commercial success. The CEC has decided to continue to encourage manufacturers as well as research and end-users of transputers by funding other projects in this field. This book presents course papers of the Eurocourse given at the Joint Research Centre in ISPRA (Italy) from the 4th to 8 of November 1991. First we present an overview of various trends in the design of parallel architectures and specially of the T.Node with it's software development environments, new distributed system aspects and also new hardware extensions based on the !NMOS T9000 processor. In a second part, we review some real case applications in the field of image synthesis, image processing, signal processing, terrain modeling, particle physics simulation and also enhanced parallel and distributed numerical methods on T.Node.

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