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Preface

The second European Distributed Memory Computing Conference, EDMCC2, was held at Technische Universität München, April 22-24, 1991 and organized by the relevant Technical Committees of the German Associations for Informatics (GI) and for Information Technology (ITG) and the German Science Foundation (DFG) in cooperation with IFIP Working Group 10.3. The first conference focused on hypercube architectures and was held in Rennes, France, in 1989.

Even though a number of specialists in computer science since the mid-1970s have predicted that multiprocessor systems will gradually replace the classical pipelined vector-supercomputers, this has not happened yet on a large scale. On the other hand, after a large number of research projects and scientific prototypes of distributed memory computers, several commercial products in the field have become a success all over the world. The perfect distributed memory architecture still does not exist, and the field is characterized by large research efforts. The organizing research group (Sonderforschungsbereich 342 "Methods and tools for the use of parallel computer architectures") consisting of about 80 academic staff at Technische Universität München and Siemens Corporate Research is only one example of such activity. Whereas in the past decade, research has been oriented towards systems hardware, interconnection, processor and memory structure, it is now felt that the ease of use offered by the systems software, programming model, development tools and application-oriented program libraries will decide the success of such architectures. Again, new hardware architectures are in development that aim at virtualizing the concurrency of the underlying hardware to the user in the sense that the user will be offered compatibility up to object-code with conventional (sequential) computers: virtual shared memory, virtual distributed I/O, virtually completely interconnected multiprocessors, etc. On the way to this ambitious goal, (semi-)automatic tools for parallelizing compilers, load balancers, etc., are in development.

On the other hand, it is very well known that the best sequential algorithm is not necessarily a good algorithm to be executed on a parallel machine. Therefore, research for good parallel algorithms in all areas of computer applications is needed. Where new software for parallel architectures is being created, unconventional programming languages, execution paradigms (dataflow, reduction machines, neural nets, etc.) will be used. These last topics have been ruled out of the scope of the conference by the program committee. This decision reflected the fact that far more than 100 contributions were submitted to the conference, only some of which could be accepted as full papers in order to keep the conference within reasonable size and the proceedings readable. The interest in distributed memory computing is still growing and a number of very challenging research topics are to be solved in the future.

The conference was sponsored by:

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|-------------|--|
| GI FB 3.2.1 | Gesellschaft für Informatik, Parallel-Algorithmen, Rechnerstrukturen und Sprachen |
| GI FB 4 | Gesellschaft für Informatik, Informationstechnik und Technische Nutzung der Informatik |
| ITG FA 4.1 | Informationstechnische Gesellschaft, Rechner und Systemarchitektur |
| SFB 0342 | Sonderforschungsbereich "Methoden und Werkzeuge für die Nutzung paralleler Rechnerarchitekturen" (Deutsche Forschungsgemeinschaft) |
| ERCIM | European Research Consortium for Informatics and Mathematics |

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München, Spring 1991

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