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A parallel implementation of flat concurrent Prolog. (English) Zbl 0614.68007

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Flat concurrent Prolog is a simple, practical, concurrent programming language which has an efficient uniprocessor implementation. This paper describes an initial parallel implementation of the language; it consists of an interpreter implemented on an Intel iPSC hypercube. The parallel execution of concurrent logic programming languages involves many nontrivial implementation problems. Some of these problems are well known and have been treated extensively in the literature. The most difficult task is to integrate problem solutions in a coherent and efficient manner. The algorithm presented has been useful in providing insights into the major problems and includes a number of novel ideas to simplify implementation. It does not attempt to solve all the problems involved but rather provides a workable basis for current and future research. The algorithm is under ongoing refinement, simplification and improvement.

MSC:

68N01 General topics in the theory of software

68N25 Theory of operating systems

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Keywords:

logic programming; concurrent programming language; uniprocessor implementation; Intel iPSC hypercube; parallel execution

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