

LOWER BOUNDS FOR PARALLEL RANDOM-ACCESS MACHINES WITH UNBOUNDED SHARED MEMORY

Faith E. Fich, Friedhelm Meyer auf der Heide and
Avi Wigderson

ABSTRACT

A parallel random-access machine (PRAM) consists of n synchronized processors and a shared memory. In this paper, we allow an infinite number of memory cells. The processors have arbitrary computational power and read and write access to the shared memory. In the literature, conflicts arising when several processors want to write into the same cell are resolved by various rules. We consider two such rules. In the COMMON PRAM, these processors have to write the same value and, in the PRIORITY PRAM, the processor with the smallest index succeeds. No lower bounds were previously known for these models. In this paper we prove two lower bounds.

Advances in Computing Research, vol. 4, pages 1-15
Copyright © 1987 JAI Press Inc.
All rights of reproduction in any form reserved
ISBN: 0-89232-682-4