Abstracts

Finite-Difference Time-Domain (FDTD) Analysis Using Distributed Computing

V. Varadarajan and R. Mittra. "Finite-Difference Time-Domain (FDTD) Analysis Using Distributed Computing." 1994 Microwave and Guided Wave Letters 4.5 (May 1994 [MGWL]): 144-145.

This paper describes an implementation of the Finite-Difference Time-Domain FDTD calculations using PVM [Parallel Virtual Machine] 3.2 and a cluster of workstations for a test problem involving a three-dimensional rectangular cavity. It is found that the speedup factors achieved in FDTD calculations can approach the maximum values for large problem sizes if the computation-to-communication ratios are maintained at values significantly greater than unity. It is also found that in order to achieve linear speedups, the problem sizes should be increased with the number of processors while adequate computation-to-communication ratios are maintained in the individual processors. The results demonstrate the potential of parallel distributed computing for FDTD calculations in Electromagnetic.

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