

Finite-difference time-domain method in custom hardware?

R.N. Schneider, M.M. Okoniewski and L.E. Turner. "Finite-difference time-domain method in custom hardware?." 2002 Microwave and Wireless Components Letters 12.12 (Dec. 2002 [MWCL]): 488-490.

While the finite-difference time-domain (FDTD) method is very successful in electromagnetics, it is computationally intensive. Reducing the runtime of these simulations, by an order of magnitude or more, would greatly increase the productivity of FDTD users and open new avenues of research. A dedicated hardware implementation that accelerates FDTD computations could provide a means to attain that goal. As the first step, we have implemented a one- and two-dimensional FDTD method in hardware. The experiment proved that computational speed can be increased by as much as two orders of magnitude, and is independent of the number of cells in the simulation.

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