Computing the Pipelined Phase-Rotation FFT

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July 13, 1993
CMU-CS-93-174

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Abstract

The phase-rotation FFT is a new form of the FFT that replaces data movement with multiplications by constant phasor multipliers. The result is an FFT that is simple to pipeline. This paper reports some fundamental new improvements to the original phase-rotation FFT design, provides a complete description of the algorithm directly in terms of the parallel pipeline, and describes a radix-2 implementation on the iWarp computer system that balances computation and communication to run at the full-bandwidth of the communications links, regardless of the input data set size.

Supported in part by the Advanced Research Projects Agency, Information Science and Technology Office, under the title "Research on Parallel Computing," ARPA Order No. 7330. Work furnished in connection with this research is provided under prime contract MDA972–90–C–0035 issued by ARPA/CMO to Carnegie Mellon University, and in part by the Air Force Office of Scientific Research under Contract F49620–92–J–0131. Also supported in part by an E-Systems IR&D program.