WINNER

Uzi Vishkin, University of Maryland, Department of Electrical and Computer Engineering

Professor Uzi Vishkin, currently working for the University of Maryland Institute for Advanced Computer Studies, the Department of Electrical and Computer Engineering, and the Department of Computer Science, identified the importance of parallel programmability in 1979. And unlike his colleagues, who proceeded directly to building parallel computers, Vishkin spent the next 15 years inventing parallel algorithms.

Simply put, Vishkin has created a prototype of the next generation of personal computers — a prototype capable of computing speeds 100 times faster than current desktops.

The technology is based on parallel processing on a single chip that allows the computer to perform many tasks simultaneously, while allowing the processors to work in conjunction with one another. Parallel processing is also a way to provide faster completion time of an application by performing many different tasks concurrently. Basically, this technology makes programming practical and simple for software developers.

While there has been considerable experience with parallel processing over the last four decades, all parallel processors today have had limited success, namely because it was not easy enough to program them. The original theory was developed within an abstract mathematical model, but practitioners have deemed its implementation impractical. Vishkin and his team have combined this older theory with new software and user real-

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ities, addressing both the needs for fast parallel processing and ease of programming.

A faster computer doesn't just mean ease and speed. Vishkin says that this technology can enhance drug discovery efforts, help national security and enhance virtual reality. And, if and when serial computing runs out of steam due to physical limitations, parallel computing would be the natural avenue for growth in computer performance.

— Elizabeth Stocklin

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