

Reconfigurable Computing and the von Neumann Syndrome

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Arthur Schopenhauer wrote: "Approximately every 30 years, we declare the scientific, literary and artistic spirit of the age bankrupt. In time, the accumulation of errors collapses under the absurdity of its own weight." However, mesmerized by the Gordon Moore Curve, we in computer science slowed down our own learning curve. Finally, after 60 years, we are witnessing the collapse of the spirit of the Mainframe Age. Heralded by numerous success stories of software to FPGA migrations, and, by the announcement of many-core microprocessors, disruptive technologies are guiding us to new horizons of affordable very high performance computing. The personal supercomputer is near. But we will have to pay a high price. For removing educational deficits we will have to question the fundamental mind set of application development. We need new qualifications and new programming tools following a dual-paradigm approach.

1. keynote announced for ICA3PP 2007 at Hangzhou, China, <http://grid.hust.edu.cn/ica3pp07/>