Panel

Extreme Parallel Architectures for the Masses

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Multicore processors are now commodity items, and this has created an unprecedented buzz about exploiting parallelism to maximize performance. This publicity has renewed interest in a long-standing problem: how much parallelism can we really exploit? Can extreme parallel computing be successfully delivered to the masses?

Several architectures are poised to expoit parallelism to achieve orders-of-magnitude speedup, including FPGAs, GPUs, Cell, and Manycore processors. Which of these architectures is the best approach? Or is there another stealth architecture that will be better? For a given application, how does one decide which approach is best?

All of these approaches work extremely well in their intended application domain. However, they all strive to become more general-purpose in nature. Will only one or two work out in the long run? Or, is a marriage in the cards for several of these architectures? What are the main obstacles standing in their path?

Panelists

1. Martin Langhammer, Chief Scientist, Altera
2. Dr. David Kirk, Chief Scientist, NVIDIA
3. Mike Butts, Fellow, Ambric
4. Dr. Fabrizio Petrini, IBM TJ Watson Research Center
5. Prof. Thomas Sterling, Louisiana State University

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