

The Next 25 Years of Computer Architecture?

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Abstract. This talk speculates on a technology-driven path computer architecture is likely to have to follow in order to continue to deliver application performance growth over the next 25 years in a cost- and power constrained environment. We try to take into account transistor physics, economic constraints, and discuss how one might go about programming systems that will look quite different from what we are used to today.

Short Biography: H. Peter Hofstee is the IBM Chief Scientist for the Cell Broadband Engine processors used in systems from the Playstation 3 game console to the Roadrunner petaflop supercomputer. He has a masters (doctorandus) degree in theoretical physics from the Rijks Universiteit Groningen, and a PhD in computer science from Caltech. After two years on the faculty at Caltech, Peter joined the IBM Austin research laboratory in 1996 to work on the first GHz CMOS microprocessor. From 2001 to 2008 he worked on Cell processors and was the chief architect of the Synergistic Processor Element.