

June 6th, 2017

Processor Paradigms: Evolution or Disruption

Prof. Yale Patt

The University of Texas at Austin

Abstract

At HPCA in February, a workshop titled Pioneering Processor Paradigms was held (first one), focused on taking a look at key paradigms of the past to see what we could learn from them. They asked me to give the keynote. The result was my awareness that paradigms are proposed to solve problems, do not quite make it, and are replaced by newer paradigms that purport to solve the problems, which in turn are replaced by newer paradigms, etc.

That is, for the most part our field has grown by evolving one paradigm into the next. What is also clear is that we have also needed to, and will need to even more so as Moore's Law comes to an end, lean on researchers working in other levels of the Transformation Hierarchy if we are to continue to ride the crest of continued improved performance. In this talk I will look at some examples of evolved processor paradigms, particularly recent ones that require support from the entire transformation hierarchy. Finally, I will note what must be done if we are to succeed in getting that support.



Short Bio

Yale Patt is a teacher at the local public university in Austin, Texas. He enjoys teaching the intensive required intro to computing course to 400 freshmen every other Fall, the advanced graduate course in microarchitecture every other Spring, and the senior-level computer architecture course whenever they let him. Most of all he enjoys his time each year in Barcelona, teaching the fundamentals of computer architecture to UPC graduate students and learning lessons of life from Mateo, the founding Director of BSC. Dr. Patt has earned appropriate degrees from reputable universities and received more than enough awards for his research and teaching. More detail is available on his website:<http://www.ece.utexas.edu/~patt>