

Five Years with the High Productivity Computing Systems Program — A Perspective

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For the past five years, I had the very enviable task of leading IBM's effort in DARPA's High Productivity Computing Systems (HPCS) program. IBM competed successfully with other contestants in and survived two down-selects, producing along the way ground-breaking research for peta-scale systems aimed at changing the status quo in high end computing. The HPCS program is unique in that it states productivity as a broader definition of the system value than just performance. Commercial viability is another goal, meant to add realism and produce usable systems at the end of the program with productivity and performance goals that well exceed the projected improvements using today's technology. This unprecedented mix adds interesting and challenging constraints on the research program, and the traditional ways of approaching the problem do not apply. This talk will give an overview of the challenges of running projects of this kind, and gives a forward looking statement about the future of the program and its projected impact on the industry and the academic communities.