

DARPA's HPCS Program: History, Models, Tools, Languages

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Abstract: The historical context surrounding the birth of the DARPA High Productivity Computing Systems (HPCS) program is important for understanding why federal government agencies launched this new, longterm high performance computing program and renewed their commitment to leadership computing in support of national security, large science, and space requirements at the start of the 21st century. In this chapter we provide an overview of the context for this work as well as various procedures being undertaken for evaluating the effectiveness of this activity including such topics as modeling the proposed performance of the new machines, evaluating the proposed architectures, understanding the languages used to program these machines as well as understanding programmer productivity issues in order to better prepare for the introduction of these machines in the 2011-2015 timeframe.

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