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Historical Impact of Government Investment in High Performance Computing

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ABSTRACT

Since the inception of electronic computing there have been shifts every one to two decades in High Performance Computing (HPC) architecture and the associated technology. The more significant of these shifts demarcate the beginning of a new era in HPC approach. In each case the transition to a new era was preceded by approximately 5-10 years by a significant U.S. federal government investment to develop the new technical approach. These forward looking investments were, it appears, a response to a national security context in which the prevailing computing capability was seen as insufficient for current or future defense and intelligence needs. Other factors doubtless contributed, and some forward looking investments did not precipitate a new era. But when juxtaposed these investments and shifts form a pattern suggesting that previous government investment has repeatedly played an important role in advancing HPC from one era to the next. I will briefly review this history, draw out other factors that seem indicative of an impending shift to a new technological era, and relate these observations to the current circumstance in HPC.