

The Multiprecision Effort in the US Exascale Computing Project

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The US Exascale Computing project is focused on accelerating the delivery of a capable exascale computing ecosystem that delivers 50x the application performance of the leading 20PF systems and 5x the performance of the world's most powerful supercomputer, supporting applications that deliver high-fidelity solutions in less time and address problems of greater complexity. For achieving this, we need to adapt numerical algorithms to an increasingly diverse ecosystem - in terms of hardware architecture and in terms of floating point formats. In the ECP Multiprecision Focus Effort, we combine the expertise of scientists working on software technology to design and deploy algorithms combining different precision formats to increase the performance on modern hardware architectures without impacting the high quality of the final result.