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Clover HMC and Staggered Multigrid on Summit/Volta

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We report on recent work to integrate and optimize QUDA's adaptive multi-grid solver into Chroma RHMC Wilson-clover gauge evolution. Particular emphasis has been paid to optimization for the new Volta-powered Summit supercomputer. When combined with other recent improvements into Chroma's molecular dynamics implementation, in moving from Titan to Summit we achieve close to an aggregate 100x improvement in throughput in gauge evolution.

Finally, we report on the ongoing project to incorporate staggered multigrid into QUDA. We have completed an initial four-dimensional implementation based on our two-dimensional algorithm and will present initial results on dynamical gauge configurations, concluding with prospects for integrating multigrid into staggered gauge evolution.

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