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Using Graphics Processors for Scientific Computing BLAIR PEROT, JAYSON GADEBUSCH, University of Massachusetts, Amherst — We demonstrate how a low cost (< 100) commodity graphics processor can be used as a vector math co-processor in a conventional PC to increase the speed of scientific calculations by a factor of 3 to 10 times. Direct performance comparisons are made for dot products, sparse matrix vector multiply, and Poisson equation solution via conjugate gradients. A CFD code using the GPU as the primary processor is also demonstrated. The ultimate impact of this technology on high performance scientific computing is discussed.

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