MapGraph - Graph processing at 30 billion edges per second on NVIDIA GPUs

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MapGraph is a disruptive technology that delivers extreme performance for graph problems on many-core hardware. MapGraph can be run on a laptop, on EC2 HPC GPU compute nodes, and on large GPU compute clusters. With processing speeds of up to 3 billion edges per second on a single GPU, MapGraph changes what is possible with your data.

Many-core computing is the future. CPU architectures are not getting any faster. Continued performance gains must come from many-core technologies such as GPUs or the Intel Xeon Phi. GPUs are widely known for their role in games, high-performance computing, and high FLOPS/watt ratio. However, graph algorithms are data-intensive, not compute intensive, and have degree dependent parallelism. As a consequence, graph algorithms place an extreme burden on the memory bus and communications network.

SYSTAP and the Scientific Computing and Imaging Institute have developed a capability for extreme performance parallel graph algorithms on GPUs from laptops to large GPU clusters. MapGraph provides a scalable technology for data-intensive workloads that addresses the data-dependent parallelism, memory, and communication bottlenecks. I will review this research and present our roadmap for this technology.

Learn more at http://mapgraph.io.