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「ムーアの法則を超えた並列プログラミング」

§1. 研究成果の概要

In this fiscal year we end-to-end capability of our autonomous execution model. We proposed a new method for autonomously communicating between accelerators, which are widely used in HPC scientific simulations. Our method removes the CPU from the critical path of communication in GPU-accelerated systems. By running scientific application where communication is driven by the GPUs, in a persistent way, we can reduce the communication latency to minimum (the main bottleneck in strong scaling of GPU-accelerated systems) and achieve speedups in software that are higher than any state-of-the-art production communication libraries. Additionally, the achieved results make us well-positioned to enter the final fiscal year with the clear goal of applying our autonomous execution environment on real-world application on full supercomputer scale.

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