

Performance Portability Across Diverse Computer Architectures

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Abstract

Achieving performance portability is challenging even with fairly simple codes and a small number of architectures. As the codes become more complex and the number and diversity of architectures increases, the performance portability challenge increases significantly. In this talk we'll present some recent work performing one of the widest ever performance portability studies. In this work we have taken structured grid, unstructured grid and Monte Carlo codes from the particle transport domain and developed performance portable versions. These codes were then assessed across a wide range of CPUs from different vendors, and different GPUs. The results should help advance our understanding of the fundamental issues in the performance portability space.