

AbstractID: 14508 Title: An introduction to GPU Computing

"An introduction to GPU computing"
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The graphical processing unit (GPU) is a special-purpose co-processor used to perform fast calculation of 2D and 3D graphics commands for computer displays. Recently, GPUs have begun to be used as general-purpose vector processors for a wide range of scientific programs. GPU programming is used in domains such as medical imaging, financial analysis, and oil exploration.

This talk will introduce the history and capabilities of modern GPU-based computing systems. I will describe the hardware organization of GPUs, and describe how multithreaded GPU programs map onto the hardware. Next, I will introduce the CUDA language, and software tools used to create GPU-accelerated programs. Finally, I will present an overview of existing libraries and applications.

Learning objectives

- 1) Learn the history and capabilities of GPU-based computing systems
- 2) Learn the hardware organization of GPUs
- 3) Learn tools and procedures for programming GPUs