

A Comparison of CPU vs GPU Performance for Computation

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December 15, 2011

Abstract

I hope to overview the uses of CPU and GPU preformacen and provide an overview of the advantages and disadvantages of wach and give examples of where each would be better suited.

Contents

Introduction

The pursuit for increased computational performance is never ending, as computer's become faster and more powerful, more intensive demands are made of them to produce faster or more precise results. As current technology is reaching a plateau in the increased performance of succeeding CPUs, research has been done into new ways of getting that increased performance. The first steps on this path was Hyper Threading which allowed a processor to queue up multiple tasks before execution to give a performance boost of 15-30% with only die size increase of just 5% [?]. This was later followed with multi core processors which added processors with multiple separate 'cores' on each die, giving theoretically double or possibly greater performance than a single core processor

CPU Processing

The

GPU Processing

A GPU achieves its increased performance through having not just 4 processor core as in a modern multicore processor, a GPU can have up to 512 Stream Processors in a single GPU card or as many as 1024 on a multi GPU card such as the Nvidia GTX590 allowing them to compute on massively parallel scales. This allows a properly optimised piece of software to vastly outperform the same program running on a CPU. . This allows a properly optimised piece of software to vastly outperform the same program running on a CPU. . This allows a properly optimised piece of software to vastly outperform the same program running on a CPU.

Typical Usage Environments

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Conclusion

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