

Matrix Multiplication Runtime

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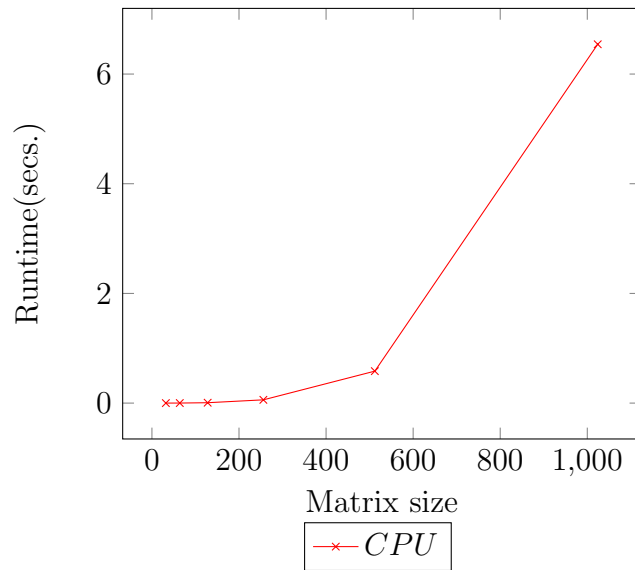
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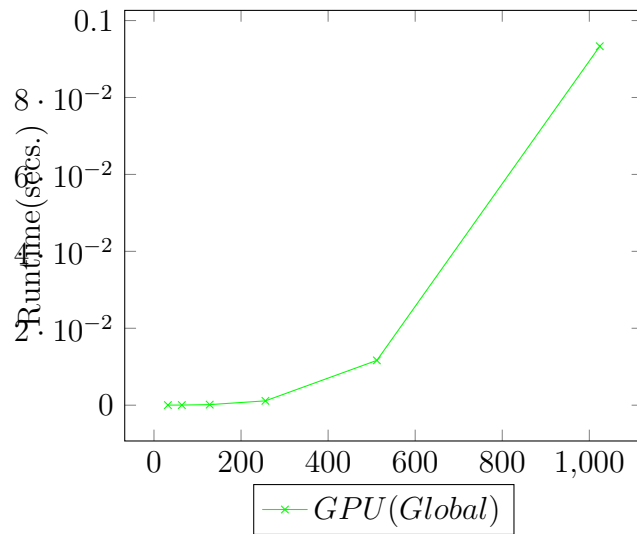
1 CPU Programe Runtime

This program is executed in normal CPU and x, y values are extracted from the average runtime of each different matrix sizes. The Graph has been plotted according to matrix size and average run time.



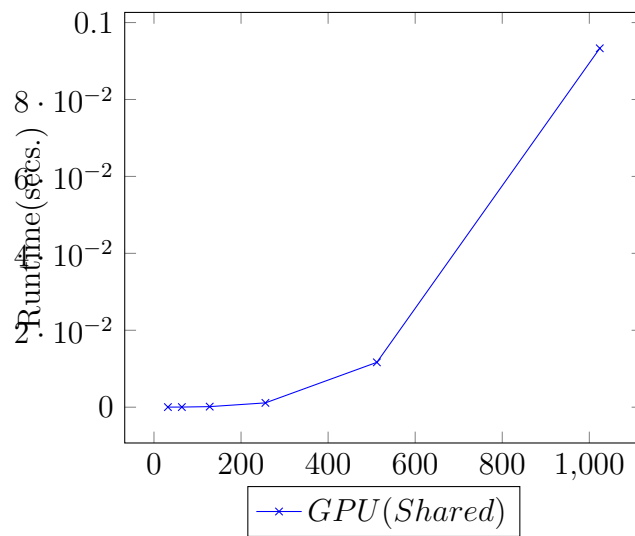
2 GPU Program Runtime Using Global Memory

This program is executed in NVIDIA GPU and x, y values are extracted from the average runtime of each different matrix sizes. The Graph has been plotted according to matrix size and average run time. But here Global Memory is used to run the Programme.



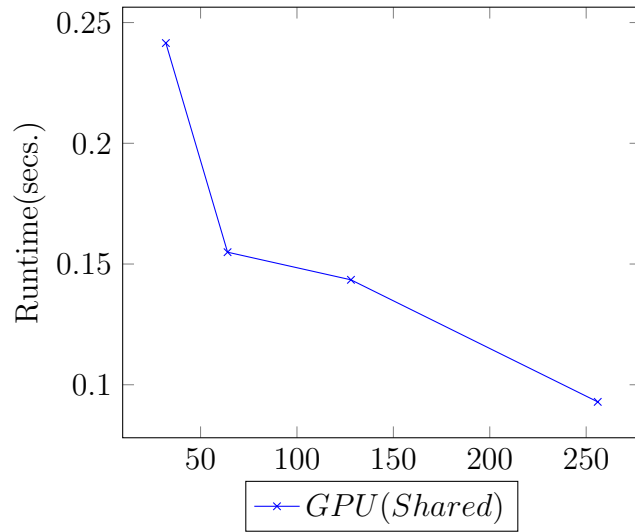
3 GPU Program Runtime Using Shared Memory

This program is executed in Nvidia GPU(Shared memory) and x, y values are extracted from the average runtime of each different matrix sizes. The Graph has been plotted according to matrix size and average run time. But here Shared Memory is used to run the Programme.



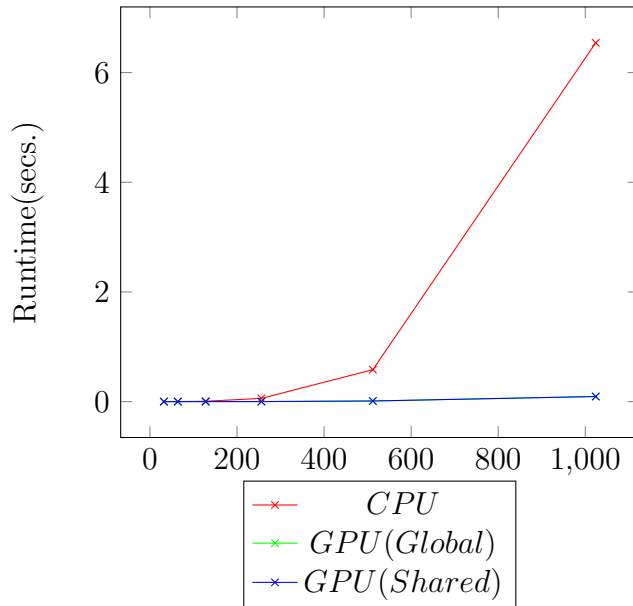
4 GPU Program Runtime Using Global Memory By Changing Block Size

This program is executed in Nvidia GPU(Shared memory) and x, y values are extracted from the average runtime of each different matrix sizes. The Graph has been plotted according to matrix size and average run time. But here Global Memory is used to run the Programme and Matrix Size is fixed.



5 Comparison And Conclusion

Here Three Graphs are Compared which are mentioned above and all the graphs are plotted according to matrix size and average run time. As the conclusion, average time which is needed to run a program in a GPU using Shared or Global Memory are less than CPU.



6 References

- <https://gist.github.com/LeCoupa/122b12050f5fb267e75f>
- <https://tex.stackexchange.com/questions>
- <https://stackoverflow.com>
- <https://www.quantstart.com/articles/Matrix-Matrix-Multiplication-on-the-GPU-with-Nvidia-CUDA>
- <https://www.sharelatex.com>
- <http://www.techdarting.com/2014/03/matrix-multiplication-in-cuda-using.html>