Edit distance problem on a GPU-cluster

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ABSTRACT

In this paper, we descibe how the edit distance problem can be distributed over a GPU-cluster using MPI.

Keywords

OpenCL, Edit distance problem, GPU-cluster, C++, case study, GPGPU program, MPI, Message Passing Interface, case study

1. INTRODUCTION

As the amount of data increases the need for parallel does so too. The edit distance problem is used in various fields of research[3]. Fields such as Computational Biology, Signal Processing, and Text Retrieval. This algorithm has already been implemented on a single Graphics Processing Unit (GPU)[1], but to decrease the processing time even further a logical step is to increase the number of GPUs[2]. These GPUs allow the processing asdf os

The existing implementation of this problem uses a dynamic programming algorithm, which is well-suited for

How will the proposed implementation improve performance?

2. RESEARCH QUESTIONS

The research question of this proposal is:

How much can the processing time neede to calculate the edit distance problem be reduced using a GPU cluster which uses MPI?

3. BACKGROUND

3.1 OpenCL

3.2 GPGPU programming

3.3 MPI

3.4 Edit distance

The edit distance problem is way of measuring how much two strings differ from each other. The distance between two strings is measured by inserting, removing, and rearanging characters. The operations considered

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4. RELATED WORK

4.1 Edit distance problem on GPU

4.2 Benchmark on a GPU-cluster

5. METHOD

6. CONCLUSIONS

7. ACKNOWLEDGMENTS

8. REFERENCES

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