Assignment: Part 2 - Report

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Content

1 Overview

1.1 Starting Code

As the assignment requires, I choose the outer loop parallelization which consumes about 12ms under CPU mode and 6ms under OpenMP mode as the starting code and make an improvement based on feedback.

1.2 Structure of Report

There are n implementations below which I have done in part 2.

- **Initial**

In the initial version, I have implemented the code by parallelising mosaic cell, storing pixel values in a vector and using shared memory.

- **Optimisation01**

2 Comparison

2.1 Initial

2.1.1 Overview

2.1.2 Result

The consuming time of different approaches for the initial version is showed below.

Index	Mode	Width x Height	c	Time
1	CPU	2048 x 2048	4	0s, 19.22ms
2	OPENMP	2048 x 2048	4	0s, 18,38ms
3	**CUDA**	2048 x 2048	**4**	**0s, 1.27ms**
4	CPU	2048 x 2048	128	0s, 17.21ms
5	OPENMP	2048 x 2048	128	0s, 17.60ms
6	**CUDA**	2048 x 2048	**128**	**0s, 12.80ms**
7	CPU	2048 x 2048	256	0s, 15.87ms
8	OPENMP	2048 x 2048	256	0s, 15.47ms
9	**CUDA**	2048 x 2048	**256**	**0s, 60.46ms**

2.1.3 Discussion

3 Limitations

DELETE BEFORE SUBMIT

```
16 CPU -i 2048x2048PlainText.ppm -o 2048x2048PlainText_output.ppm -f PPM_PLAIN_TEXT
```