Parallel Programming Exercise 4–7

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(If you and your team member contribute equally, you can use (co-first author), after each name.)

1 Problem and Proposed Approach

Do simple reduction on multiple processors.

Use “mpi_reduce" to implement.

(Brief your problem, and give your idea or concept of how you design your program.)

2 Theoretical Analysis Model

O(logp)

(Try to give the time complexity of the algorithm, and analyze your program with iso-efficiency metrics)

3 Performance Benchmark

```
/home/byronhsu1230/basic/4_7
Mon Nov 25 14:37:57 CST 2019
Total 8 processors. The sum is 36
p * (p + 1) / 2 = 36
```

(Give your idea or concept of how you design your program.)

4 Conclusion and Discussion

(Discuss the following issues of your program
1. What is the speedup respect to the number of processors used?
2. How can you improve your program further more
3. How does the communication and cache affect the performance of your program?
4. How does the Karp-Flatt metrics and Iso-efficiency metrics reveal?

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Appendix(optional):
(If something else you want to append in this file, like picture of life game)