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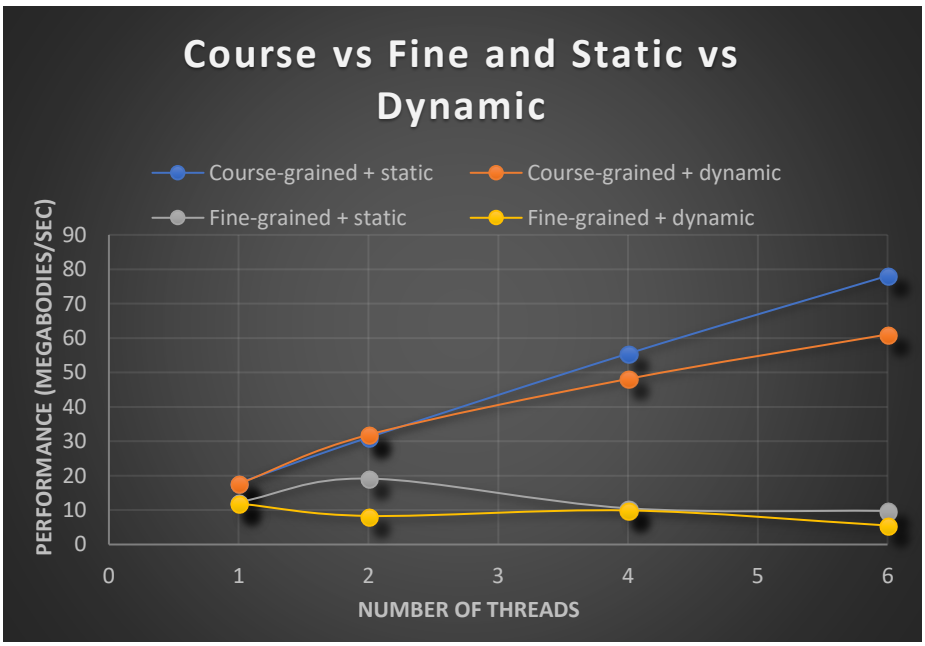
Project 2

Machine

I am on my home computer running my program on the flip3 server.

Performance

# Threads	MegaBodies/sec	Grain	Schedule Type
1	17.8667	Coarse-grained	static
2	31.1136	Coarse-grained	static
4	55.4709	Coarse-grained	static
6	78.0886	Coarse-grained	static
1	17.6232	Coarse-grained	dynamic
2	31.8837	Coarse-grained	dynamic
4	48.1249	Coarse-grained	dynamic
6	61.058	Coarse-grained	dynamic
1	12.3073	Fine-grained	static
2	19.1715	Fine-grained	static
4	10.5375	Fine-grained	static
6	9.7651	Fine-grained	static
1	11.8926	Fine-grained	dynamic
2	8.3064	Fine-grained	dynamic
4	9.903	Fine-grained	dynamic
6	5.5263	Fine-grained	dynamic



Patterns

i. Coarse-grained + static

The coarse-grained + static performed similar to coarse-grained + dynamic for 1 and 2 threads but beyond that, the coarse-grained + static performance continued to increase in a linear rate while the coarse-grained dynamic did not.

ii. Coarse-grained + dynamic

The coarse-grained + dynamic performed similar to coarse-grained + static for 1 and 2 threads but beyond that, the coarse-grained + dynamic performance rate started to drop (decreasing slope).

iii. Fine-grained + static

The fine-grained + static performance topped out at 2 threads then dropped back down to the performance level similar to 1 thread to create a "hump" in the line at 2 threads.

iv. Fine-grained + dynamic

The fine-grained + dynamic performance topped out at 1 thread the dropped and waivered for 2, 4, and 6 thread.

Analysis of Behavior

i. Coarse-grained vs Fine-grained

The coarse-grained parallel programs performed much better than the fine-grained which is shown in the data collected and graphed above. This follows my expectation since fine-grained tasks can have more scheduling issues which can negatively impact performance.

ii. Static vs dynamic

Though the static programs consistently performed slightly better than the dynamic programs, I would not say that there is a significant difference in static vs dynamic structure type in the data collected. This problem may not be big enough to showcase the difference in static vs dynamic or it may not be an optimal problem for showcasing the difference. I did not have any expectations about the outcome of static vs dynamic.