Andrew Johnson

CS 475

Project 7

Commentary

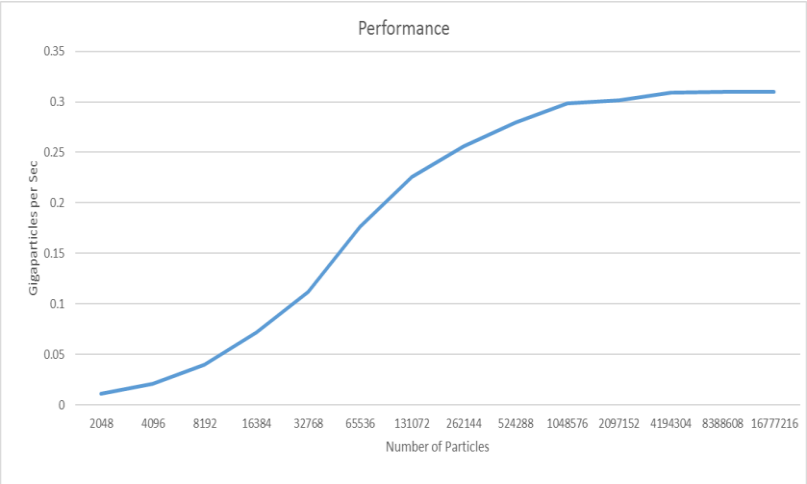
To start, I'd like to say I did this on my own computer using Visual Studio. I'm finding out I may need to clean out some dust in my computer because these projects are really heating up my computer.

How I affected the color is using the reciprocal of the velocity and subtract it from a half. The code looks like, "cp = .5 - 1/(DT*v);". I saw that it should stay between 0 and 1 and this was the best way I could think of. I took a screen shoot of using around 16000 particles with my two bumpers.

I kept the local size at 32 because it worked well in the past project. Then I gathered the performance for number of particles from 2048 to around 16 million.

Here is the table and graph for the performance, where the performance is measured in gigaparticles per second.

Num of Particles	Giga/Sec
2048	0.010928
4096	0.021005
8192	0.039737
16384	0.071853
32768	0.111771
65536	0.176311
131072	0.225429
262144	0.256225
524288	0.27988
1048576	0.29817
2097152	0.30182
4194304	0.30894
8388608	0.31003
16777216	0.310051



The curve looks to be a logarithmic type where it maxes out around .31 gigaparticles per second. I'm guessing this maxing out is the GPU's limit in organizing all the particles so it can run it swiftly. After all, all computers have their limitations. So it seems it'll be able to compute just as fast as around 8 million, as it will with 16 million and so on. That makes

GPU's quite powerful in computation when having to mess with a large number of particles. For example, if you were trying to create snow in a program. You would have to take into account all the small snowflakes and treat them all independently.