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Q1) My throughput averages 40 zombies per second, naturally it lowers when there are less than 40 zombies to kill.
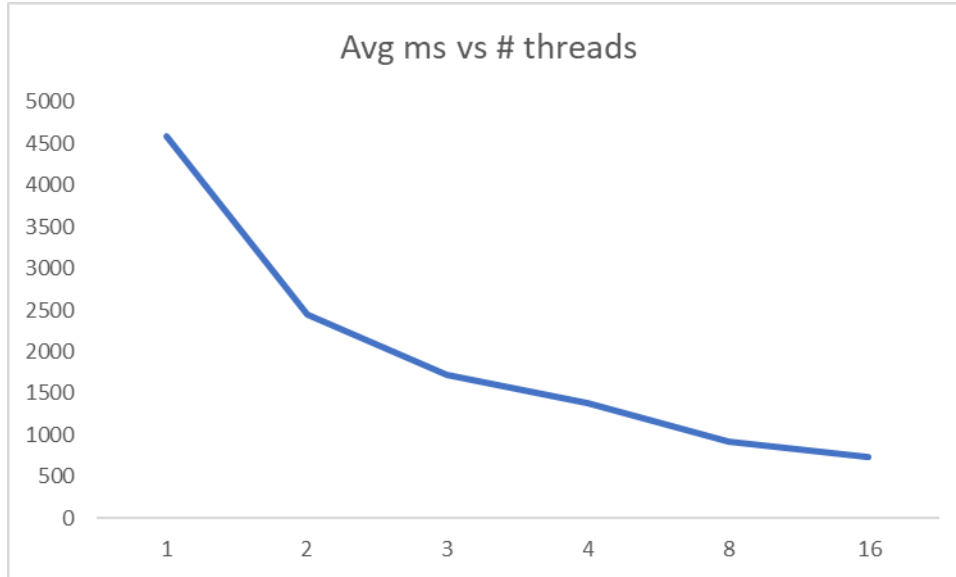
Q2)

Avg ms vs # threads

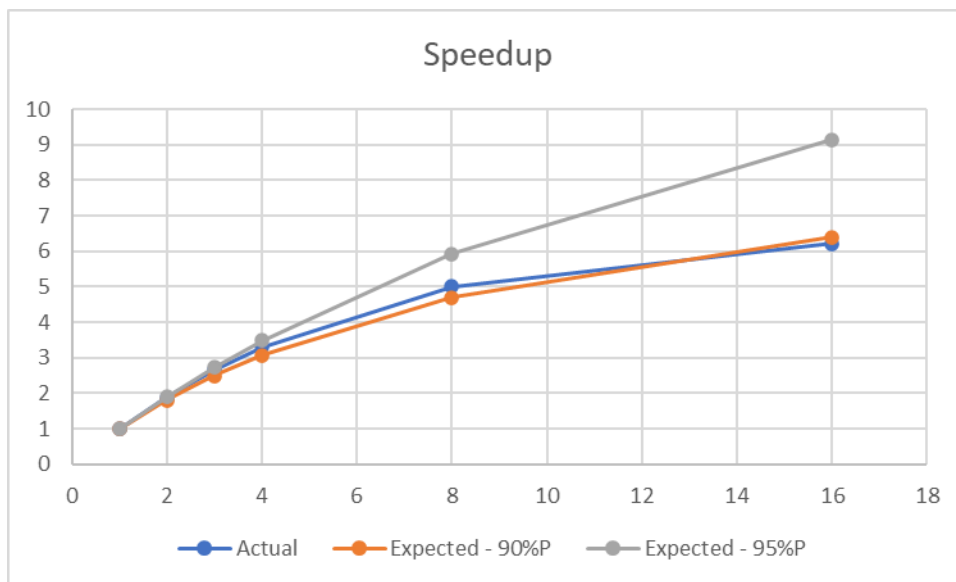*Figure 1: time in ms vs # of threads*

Speedup

Figure 2: Actual speedup vs Amdahl's law for 90 and 95% parallelizable applications

Data:

# of threads	R1	R2	R3	Avg ms	Actual	Expected - 90%P	Expected - 95%P
1	4557	4607	4602	4588.67	1.00	1.00	1.00
2	2425	2431	2487	2447.67	1.87	1.81	1.90
3	1735	1730	1707	1724.00	2.66	2.50	2.72
4	1378	1387	1394	1386.33	3.31	3.07	3.48
8	902	917	935	918.00	5.00	4.70	5.93
16	734	719	761	738.00	6.22	6.40	9.14

As expected, the actual speedup curve is between the 90 and 95% Expected speedup calculated using Amdahl's law.

Color mapping was done by using the pixel value to produce an HSB color and then converted to RGB. Here are the results for different number of lines.
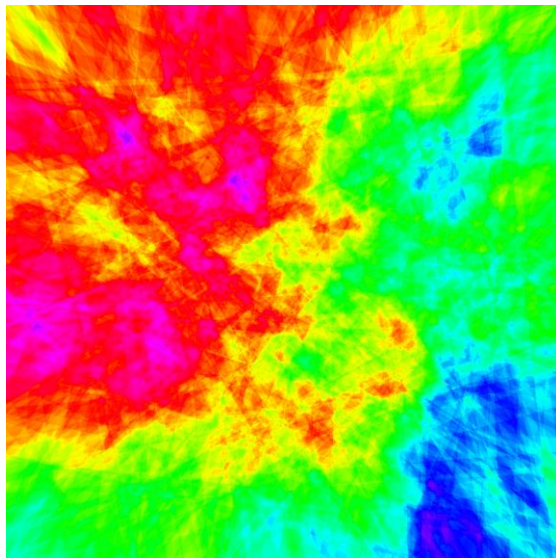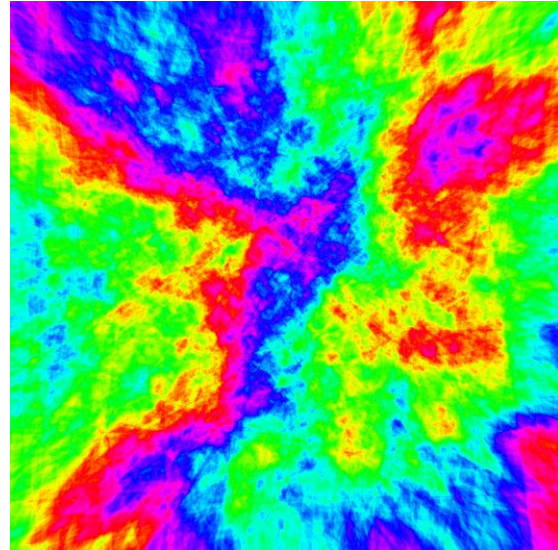

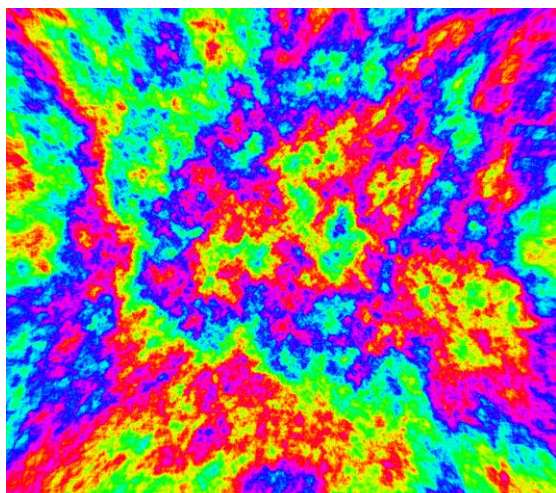*Figure 6:1000x1000, 1000 lines*

Figure 5: 1000x1000, 2500 lines
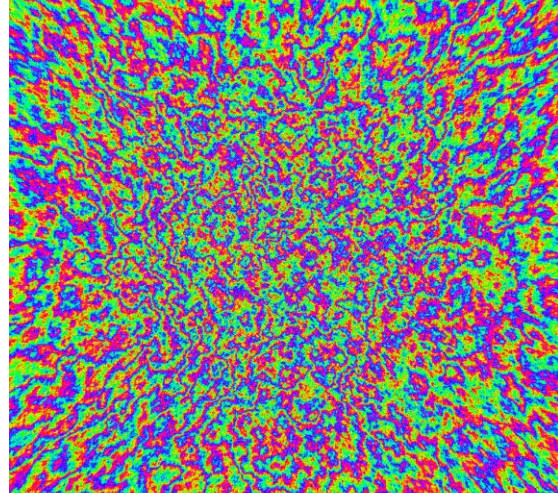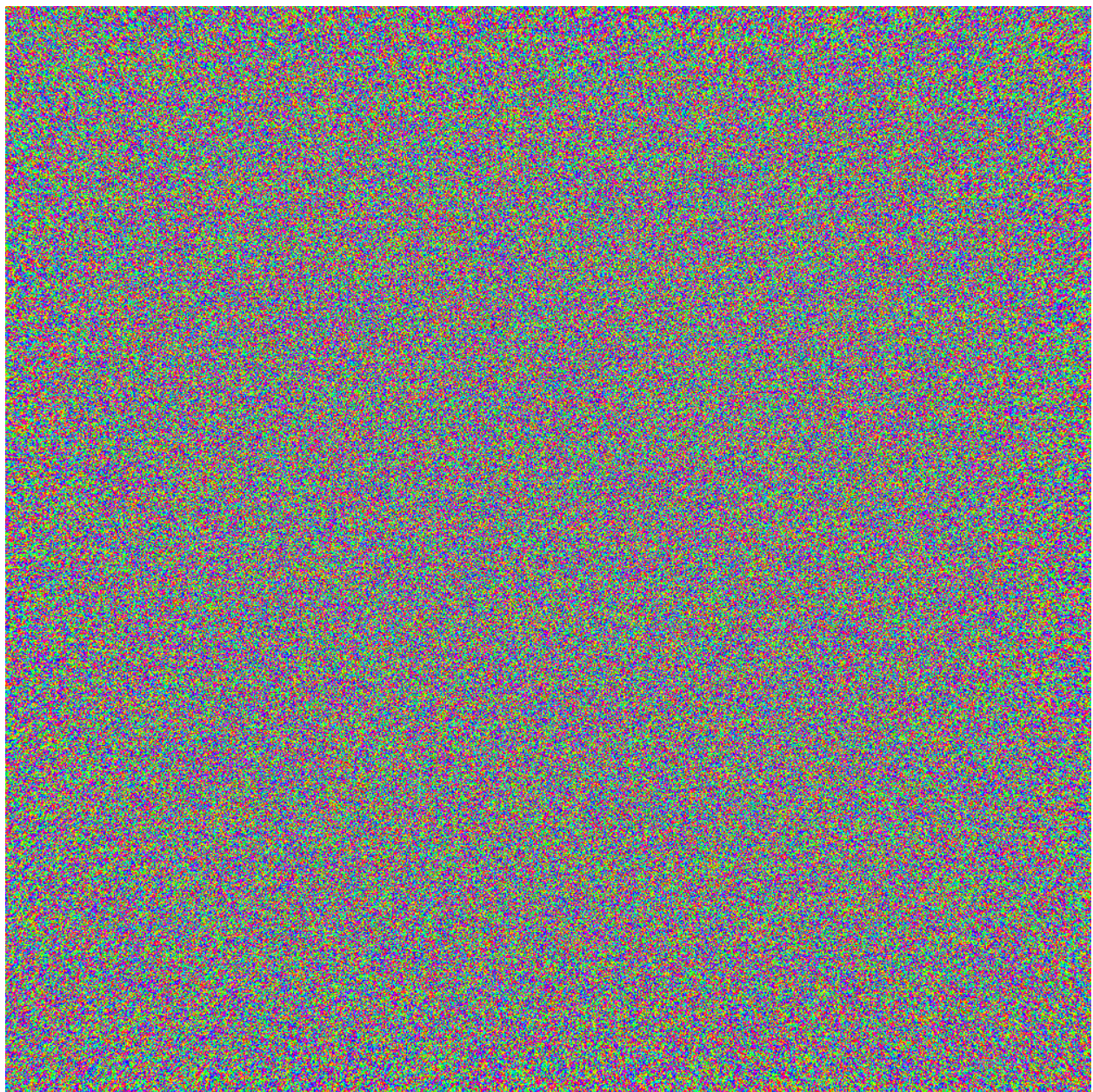

Figure 4: 1000x1000, 10 000 lines

Figure 3:1000x1000, 100 000 lines

Figure 7: 1000x1000, 1 000 000 lines, t=594358 ms