Analyzing data from dla generating program:

SET UP:

number of particles: 10/ radius: 10/ grid size: 200*200
When the particle goes out of bound, the particle is reinitialized.

When inputting seed from 1 to 10000,

the average number of steps taken: 6065 steps
the standard deviation of steps taken: 1995 steps

-To prove randomness of the program

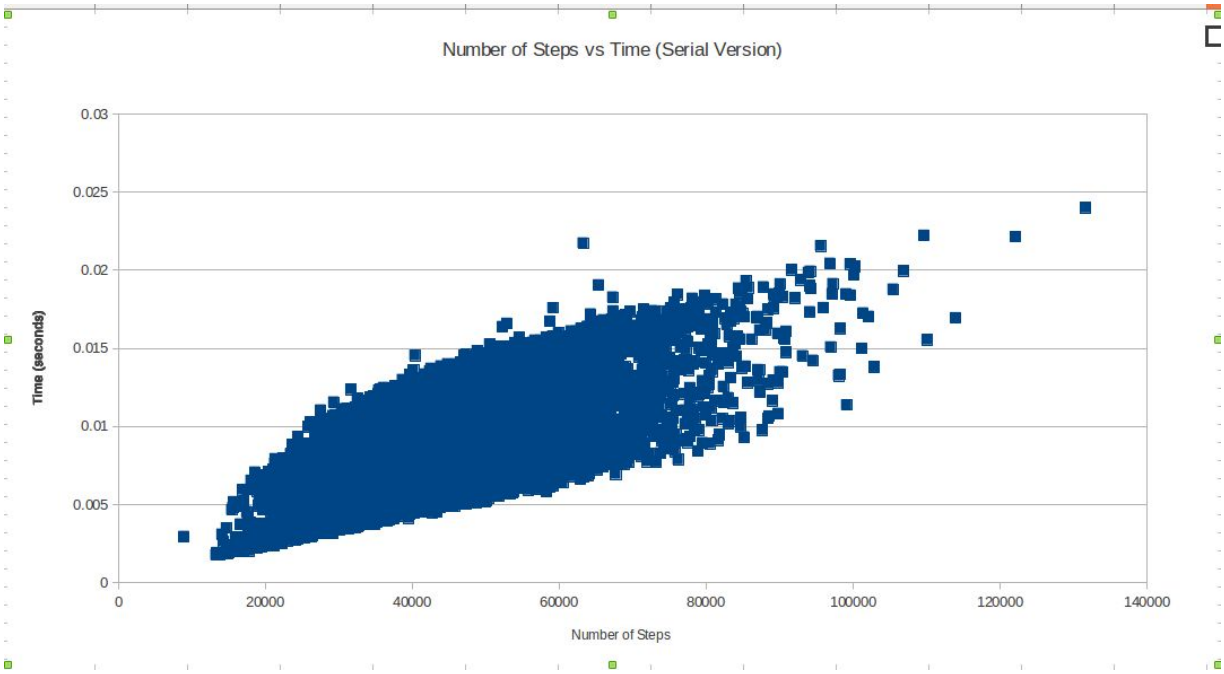
WITH DIFFERENT SETUP:

Same as the above except radius = 5

When inputting seed from 1 to 10000,

the average number of steps taken: 44096 steps
the standard deviation of steps taken: 13838 steps

the average time taken to complete the cluster: 0.008168961 seconds
the standard deviation of time taken to complete the cluster: 0.003554692



seconds

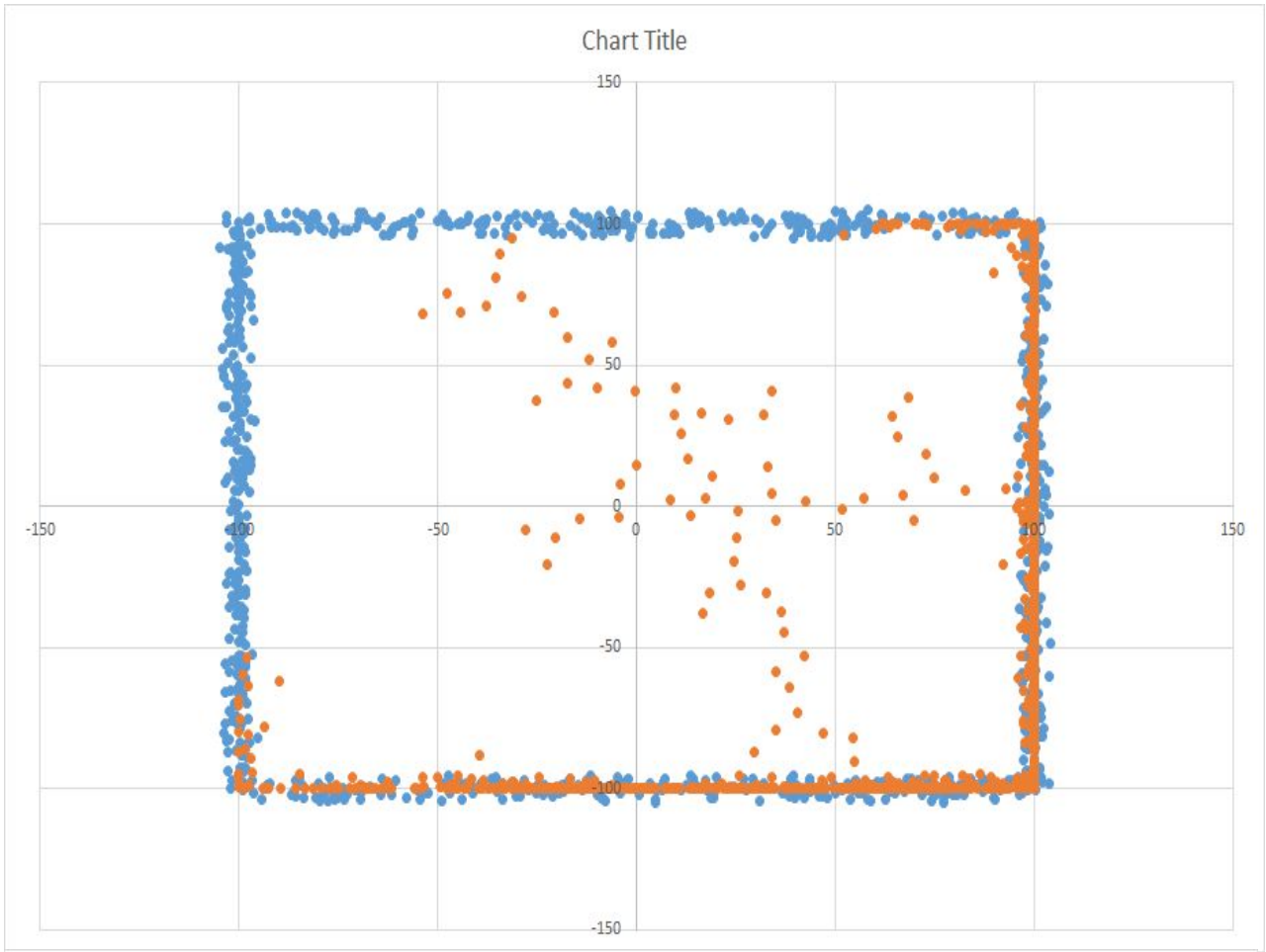


Chart Title
150
100
50
0
-50
-100
-150
-150
-100
-50
0
50
100
150

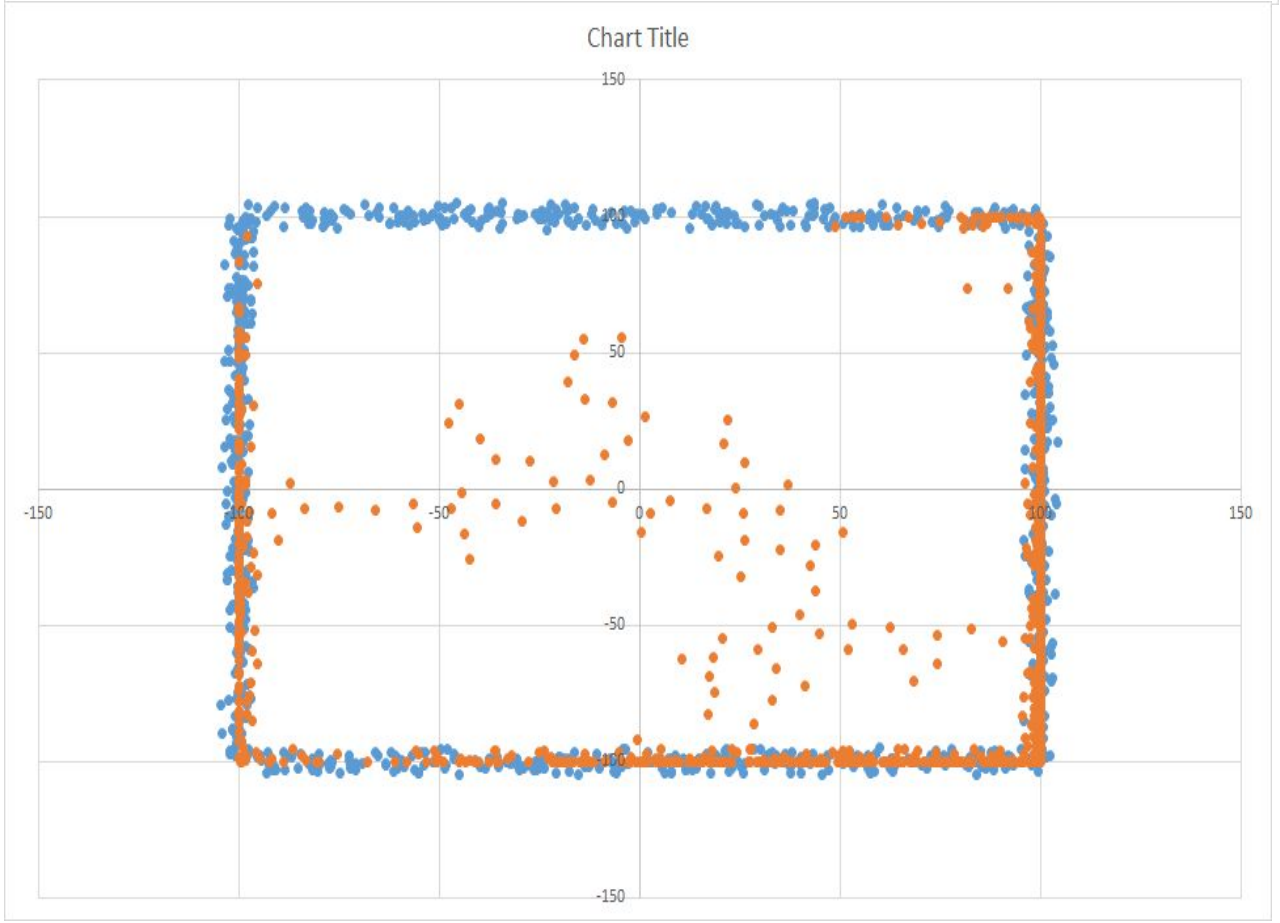


Chart Title
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100
50
0
-50
-100
-150
-150
-100
-50
0
50
100
150

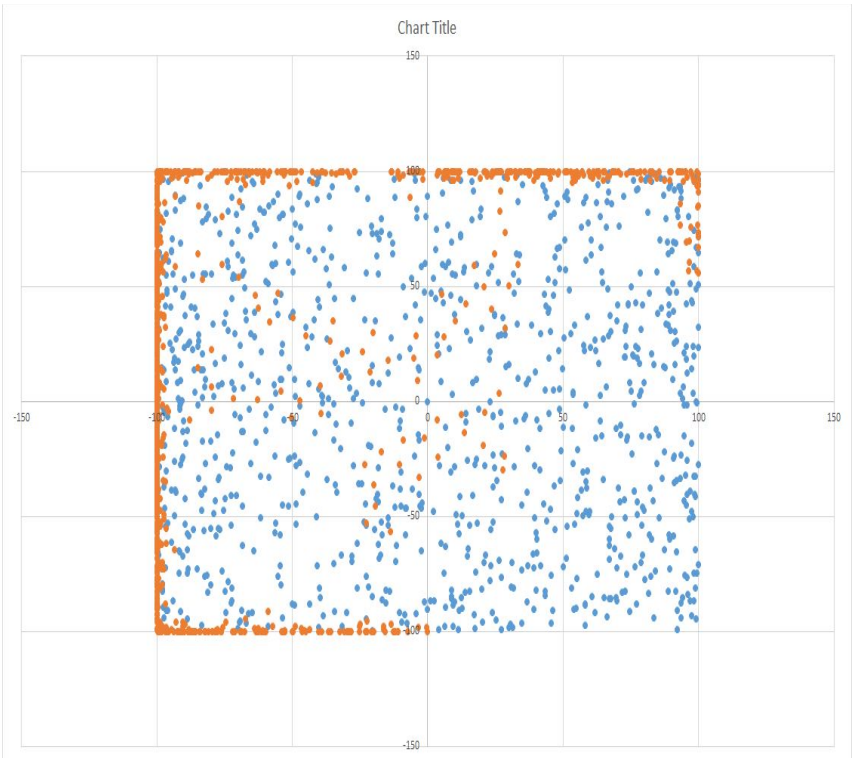
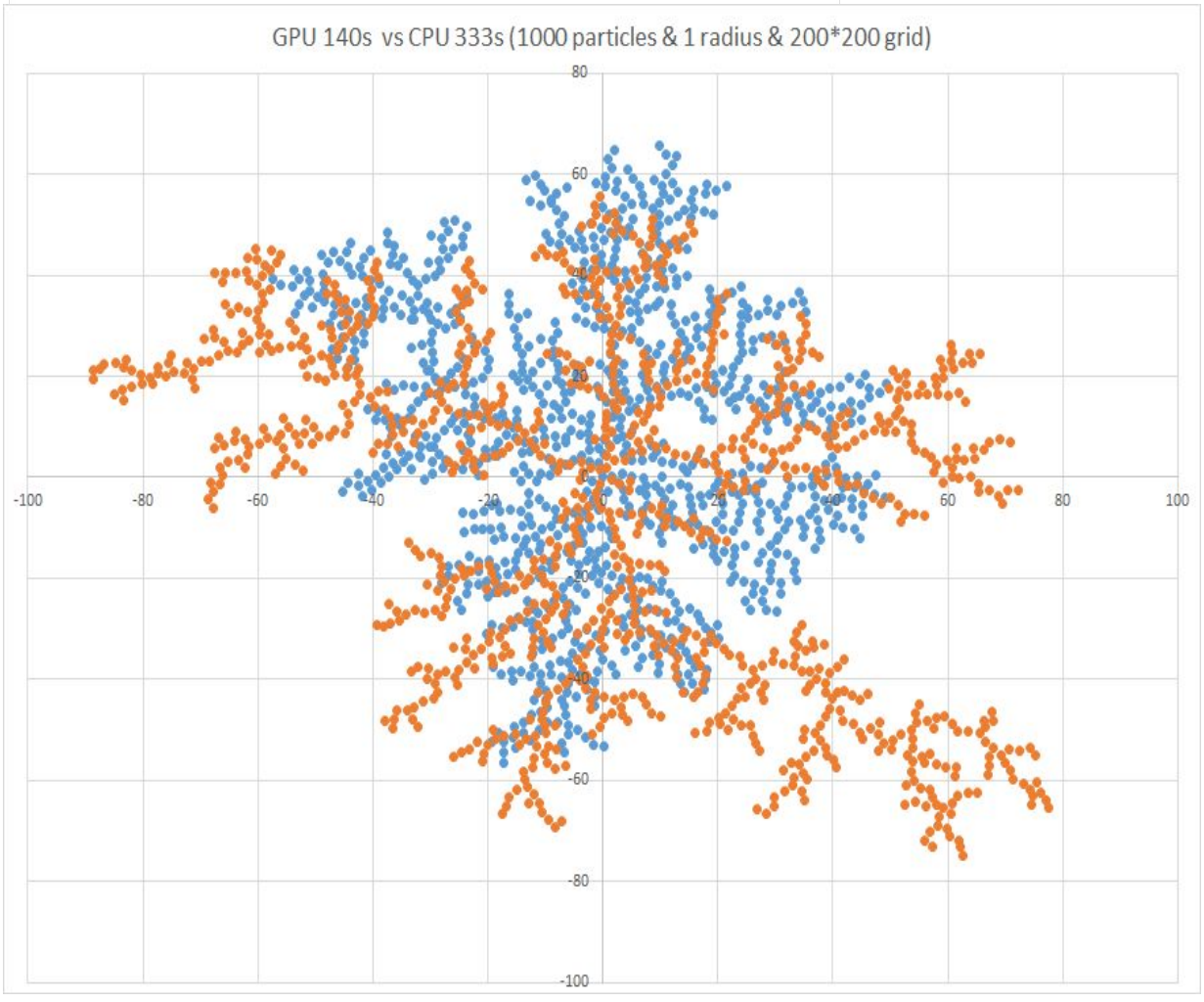
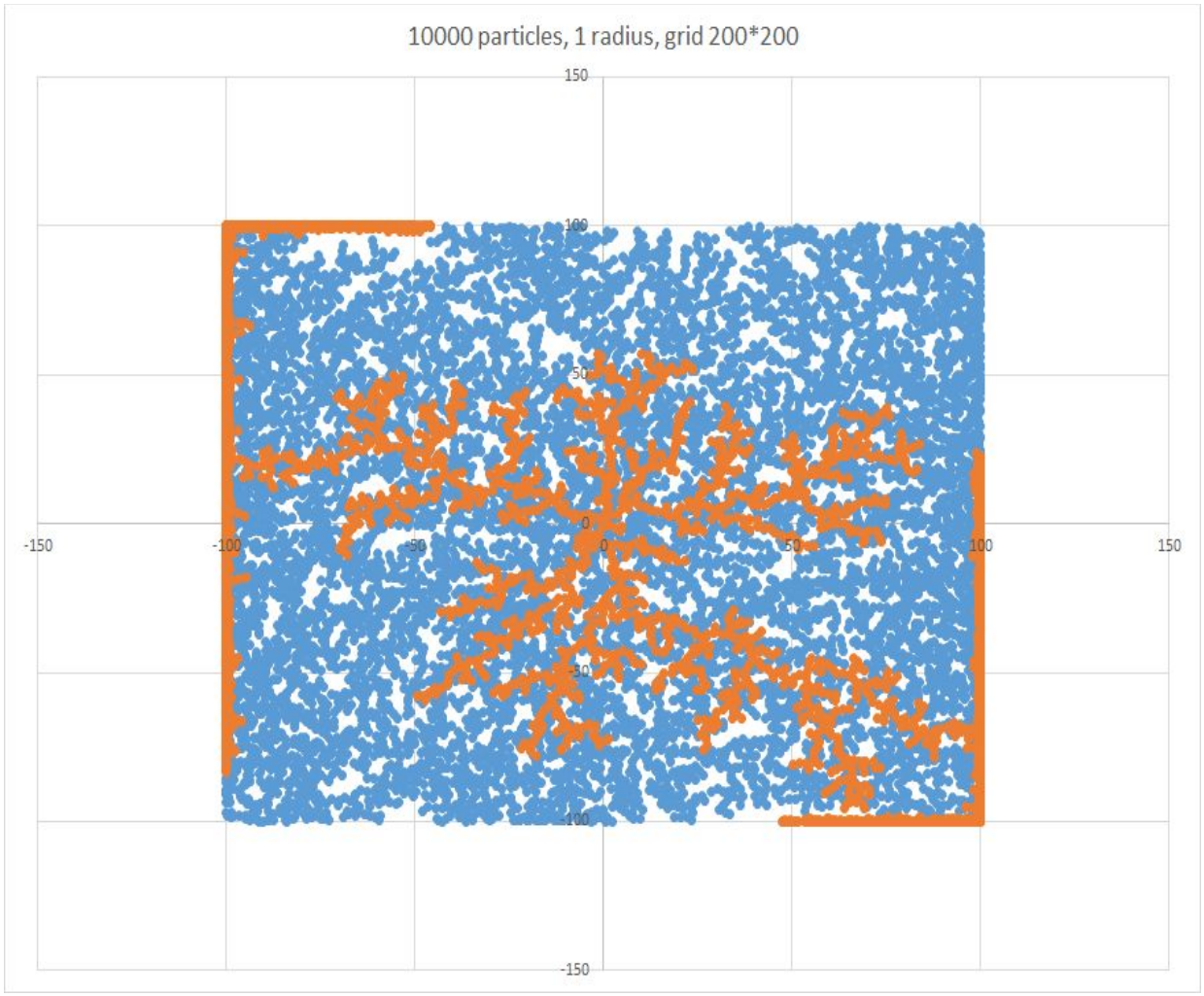
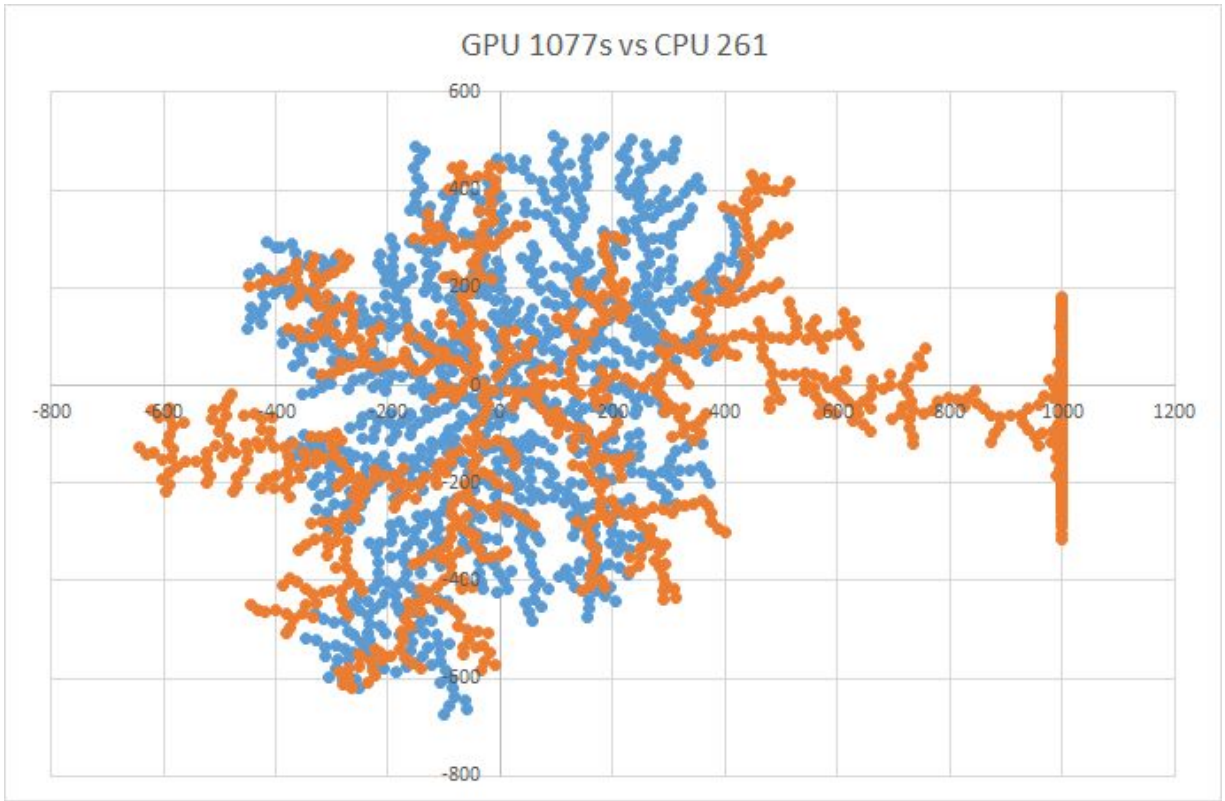
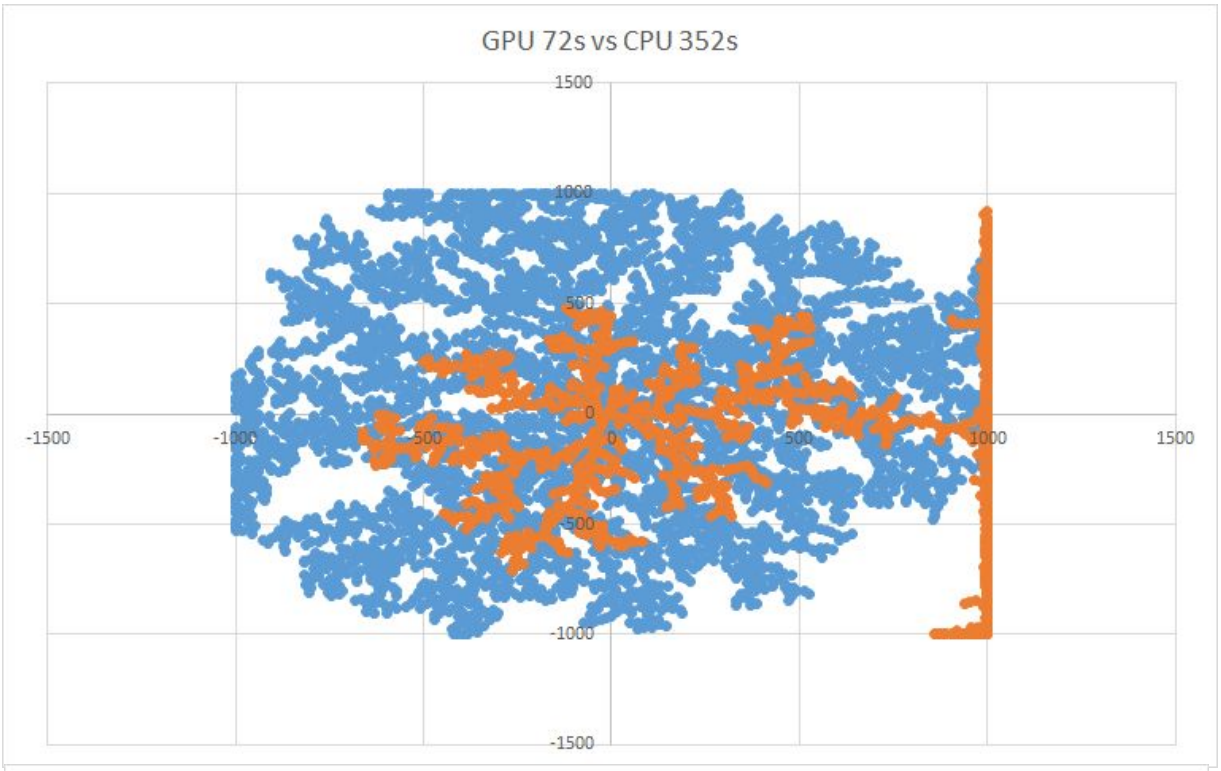


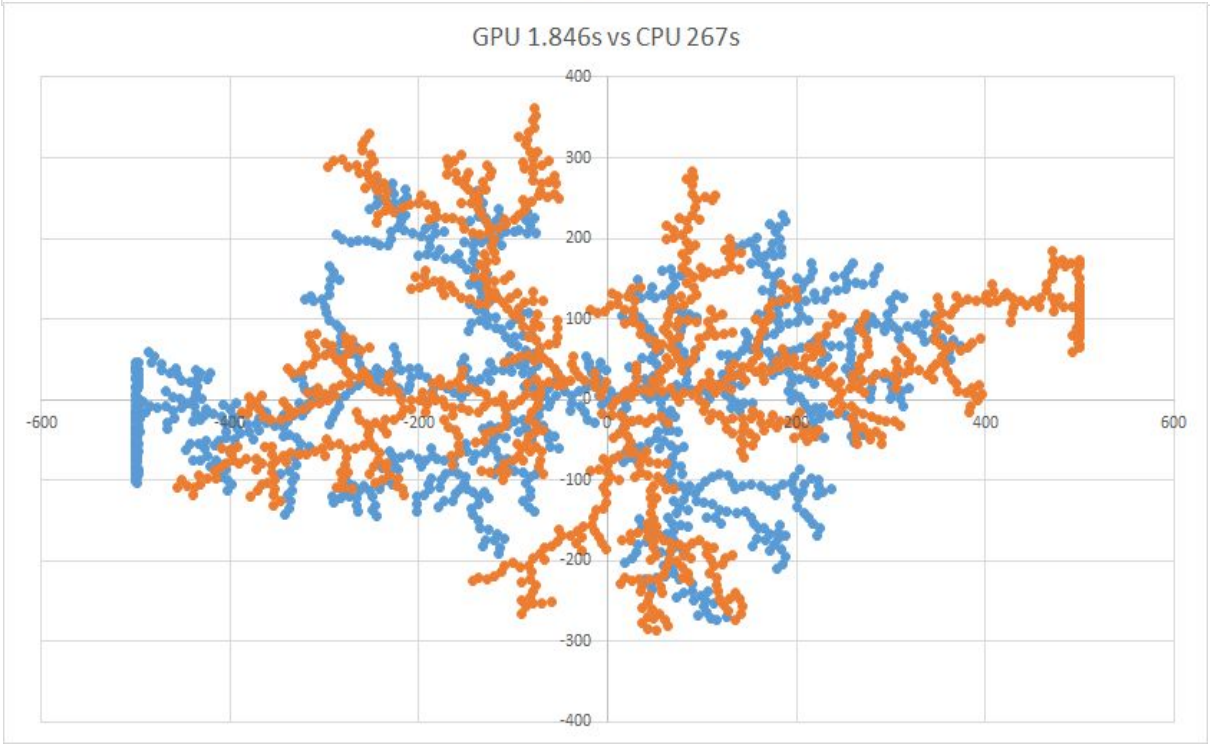
Chart Title
150
100
50
0
-50
-100
-150
-150
-100
-50
0
50
100
150

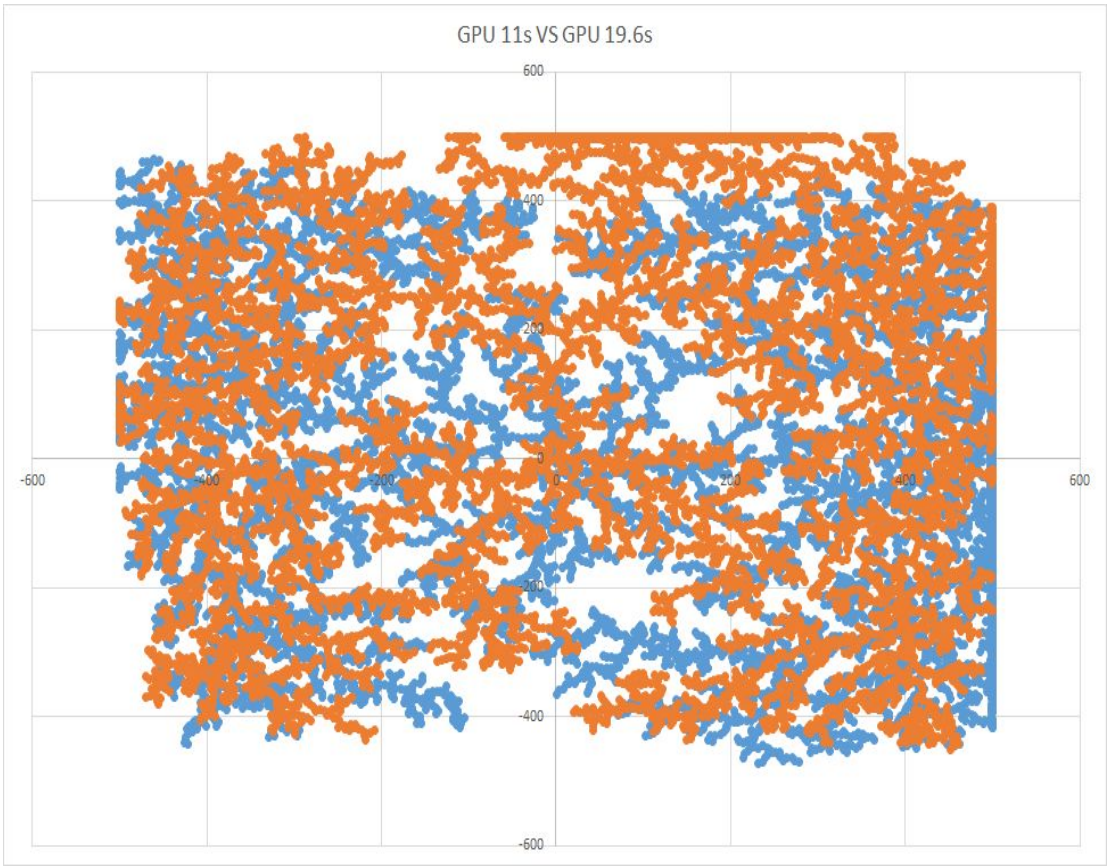

GPU 140s vs CPU 333s (1000 particles & 1 radius & 200*200 grid)
80
60
40
20
0
-20
-40
-60
-80
-100
-100
-80
-60
-40
-20
0
20
40
60
80
100


10000 particles, 1 radius, grid 200*200
150
100
50
0
-50
-100
-150
-150
-100
-50
0
50
100
150


GPU 1077s vs CPU 261
600
400
200
0
-200
-400
-600
-800
-800
-600
-400
-200
0
200
400
600
800
1000
1200


GPU 72s vs CPU 352s
1500
1000
500
0
-500
-1000
-1500
-1500
-1000
-500
0
500
1000
1500


GPU 1.846s vs CPU 267s
400
300
200
100
0
-100
-200
-300
-400
-600
-400
-200
0
200
400
600


GPU 11s VS GPU 19.6s
600
400
200
0
-200
-400
-600
-600
-400
-200
0
200
400
600