Q2

Execution Data:

Trial 1

```
└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4
100000000; ./dfa 5 100000000; ./
dfa 6 100000000; ./dfa 7 100000000
true
319.472
false
627.526
false
432.758
false
337.176
false
275.345
false
230.219
true
200.501
false
177.511
```

Trial 2

```
└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4
100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
true
321.113
true
627.780
false
433.112
false
341.884
false
271.554
true
229.434
false
198.549
false
175.249
```

Trial 3

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
true
319.511
false
641.172
false
433.447
true
325.951
true
267.673
false
227.426
false
198.340
true
176.075

Trial 4

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
true
318.977
true
632.274
false
432.029
false
330.969
false
276.102
false
237.341
false
199.617
true
179.904

Trial 5

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000

false
328.095
false
633.366
false
434.637
false
326.655
false
272.936
true
229.945
false
198.277
false
175.159

Trial 6

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
false
318.743
false
625.672
false
429.904
false
336.326
true
265.931
false
226.370
false
196.291
false
181.485

Trial 7

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
true
315.443
true
643.992

false
436.045
false
348.972
true
271.084
false
231.360
false
197.263
false
185.026

Trial 8

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
true
312.980
true
624.904
true
428.035
true
339.341
true
275.658
false
226.107
false
197.290
true
178.449

Trial 9

└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
false
316.233
true
629.612
false
442.186
false
331.183

false
271.749
false
229.454
true
200.946
true
176.915

Trial 10
└─$ ./dfa 0 100000000; ./dfa 1 100000000; ./dfa 2 100000000; ./dfa 3 100000000; ./dfa 4 100000000; ./dfa 5 100000000; ./dfa 6 100000000; ./dfa 7 100000000
false
315.371
false
641.976
false
428.387
true
332.295
false
271.650
true
226.358
false
200.340
false
179.329

Table:

Speedup in 10 Trials for t = 0,1,2,3,4,5,6,7, n = 100000000											
Optimistic Thread Count (t)	Speedup (Sequential at t=0 is baseline = 1)										
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Average
0	1	1	1	1	1	1	1	1	1	1	1
1	0.509	0.512	0.498	0.504	0.518	0.509	0.49	0.501	0.502	0.491	0.7355
2	0.738	0.741	0.737	0.738	0.755	0.741	0.723	0.731	0.715	0.736	0.9512
3	0.947	0.939	0.98	0.964	1.004	0.948	0.904	0.922	0.955	0.949	1.1717
4	1.16	1.183	1.194	1.155	1.202	1.199	1.164	1.135	1.164	1.161	1.1717
5	1.388	1.4	1.405	1.344	1.427	1.408	1.363	1.384	1.378	1.393	1.389
6	1.593	1.617	1.611	1.598	1.655	1.624	1.599	1.586	1.574	1.574	1.6031
7	1.8	1.832	1.815	1.773	1.873	1.756	1.705	1.754	1.787	1.759	1.7854

Graph:
Data graphically shows average speedup. Benefit from multithreading observed for t >=4.