

[4005-735-01] Parallel Computing I

Performance Analysis Results

Team Satisfaction

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Performance Metrics

In this section we list all gathered performance metrics that we collected during our experiments. The program output files used to generate these metrics are provided in the 'output' directory of the TeamSatisfactionDeliverables.jar archive.

Variable Performance Metrics

Exhaustive Program (Speedup)

Exhaustive 3-SAT with Fixed Schedule

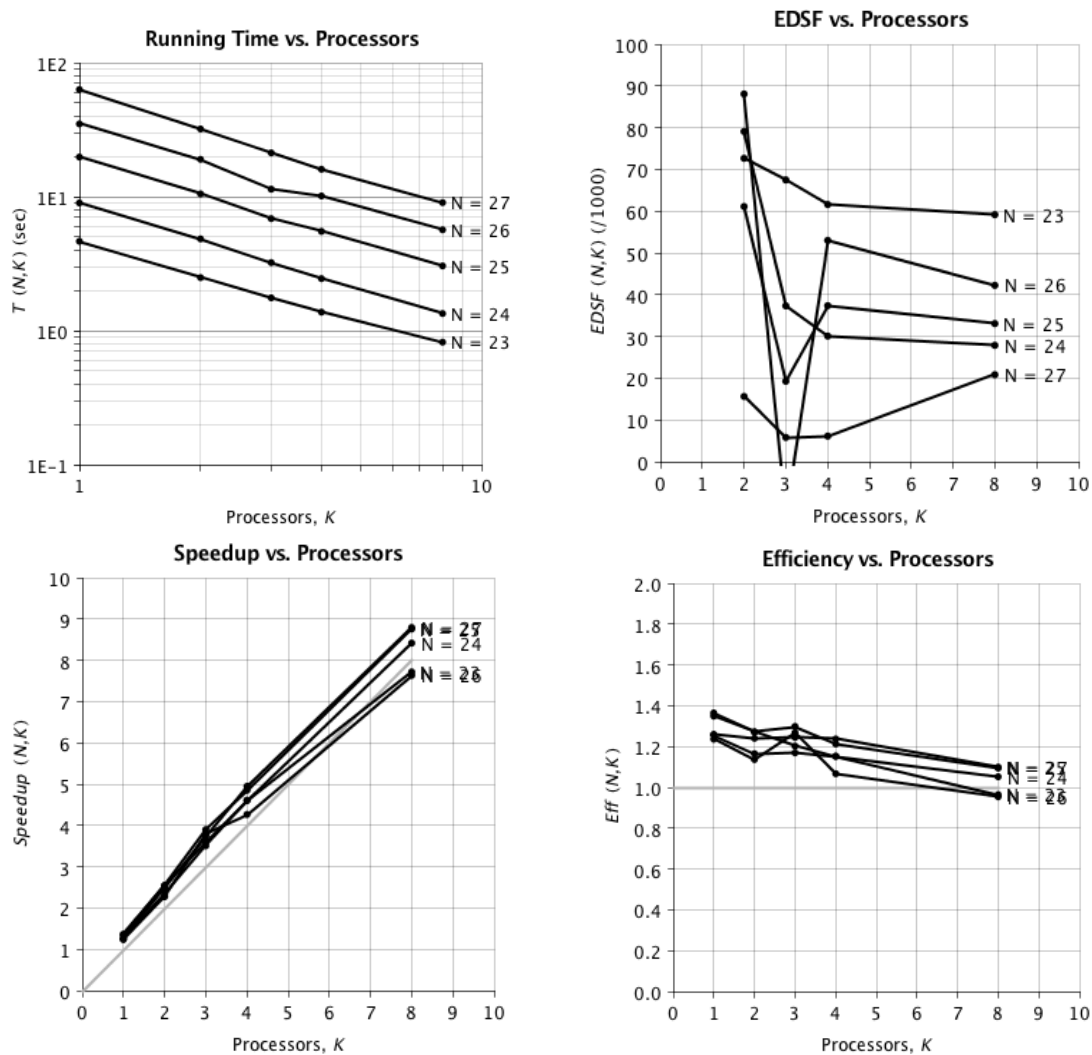


Figure 1. Exhaustive 3-SAT with a fixed schedule.

Table 1. Speedup metrics for exhaustive parallel program with 23 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	6329			
1	4639	1.364	1.364	
2	2488	2.544	1.272	0.073
3	1755	3.606	1.202	0.067
4	1374	4.606	1.152	0.062
8	820	7.718	0.965	0.059

Table 2. Speedup metrics for exhaustive parallel program with 24 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	11283			
1	8978	1.257	1.257	
2	4844	2.329	1.165	0.079
3	3216	3.508	1.169	0.037
4	2447	4.611	1.153	0.030
8	1341	8.414	1.052	0.028

Table 3. Speedup metrics for exhaustive parallel program with 25 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	26674			
1	19779	1.349	1.349	
2	10494	2.542	1.271	0.061
3	6847	3.896	1.299	0.019
4	5499	4.851	1.213	0.037
8	3045	8.760	1.095	0.033

Table 4. Speedup metrics for exhaustive parallel program with 26 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	43213			
1	34954	1.236	1.236	
2	19016	2.272	1.136	0.088
3	11360	3.804	1.268	-0.013
4	10128	4.267	1.067	0.053
8	5661	7.633	0.954	0.042

Table 5. Speedup metrics for exhaustive parallel program with 27 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	79313			
1	62968	1.260	1.260	
2	31976	2.480	1.240	0.016
3	21233	3.735	1.245	0.006
4	16032	4.947	1.237	0.006
8	9019	8.794	1.099	0.021

Exhaustive 3-SAT with Dynamic Schedule

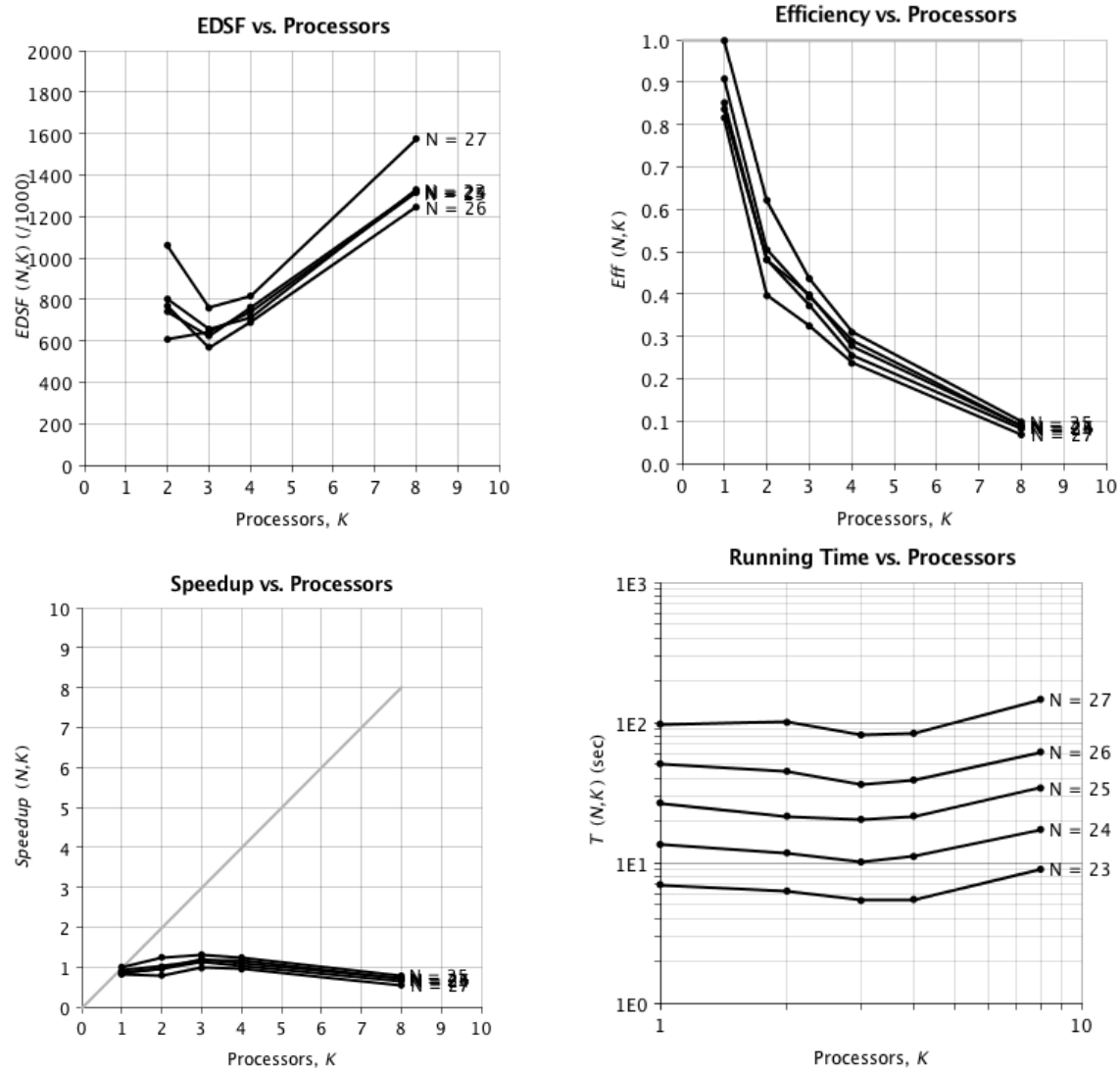


Figure 2. Exhaustive 3-SAT with a dynamic schedule.

Table 6. Speedup metrics for exhaustive parallel program with 23 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	6329			
1	6974	0.908	0.908	
2	6281	1.008	0.504	0.801
3	5375	1.177	0.392	0.656
4	5479	1.155	0.289	0.714
8	8984	0.704	0.088	1.329

Table 7. Speedup metrics for exhaustive parallel program with 24 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	11283			
1	13495	0.836	0.836	
2	11752	0.960	0.480	0.742
3	10114	1.116	0.372	0.624
4	11089	1.017	0.254	0.762
8	17281	0.653	0.082	1.321

Table 8. Speedup metrics for exhaustive parallel program with 25 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	26674			
1	26733	0.998	0.998	
2	21479	1.242	0.621	0.607
3	20381	1.309	0.436	0.644
4	21541	1.238	0.310	0.741
8	34100	0.782	0.098	1.315

Table 9. Speedup metrics for exhaustive parallel program with 26 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	43213			
1	50782	0.851	0.851	
2	44905	0.962	0.481	0.769
3	36204	1.194	0.398	0.569
4	38916	1.110	0.278	0.688
8	61671	0.701	0.088	1.245

Table 10. Speedup metrics for exhaustive parallel program with 27 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	79313			
1	97234	0.816	0.816	
2	100179	0.792	0.396	1.061
3	81552	0.973	0.324	0.758
4	83831	0.946	0.237	0.816
8	146151	0.543	0.068	1.575

Decision Program (Speedup)

Decision 3-SAT with a Fixed Schedule

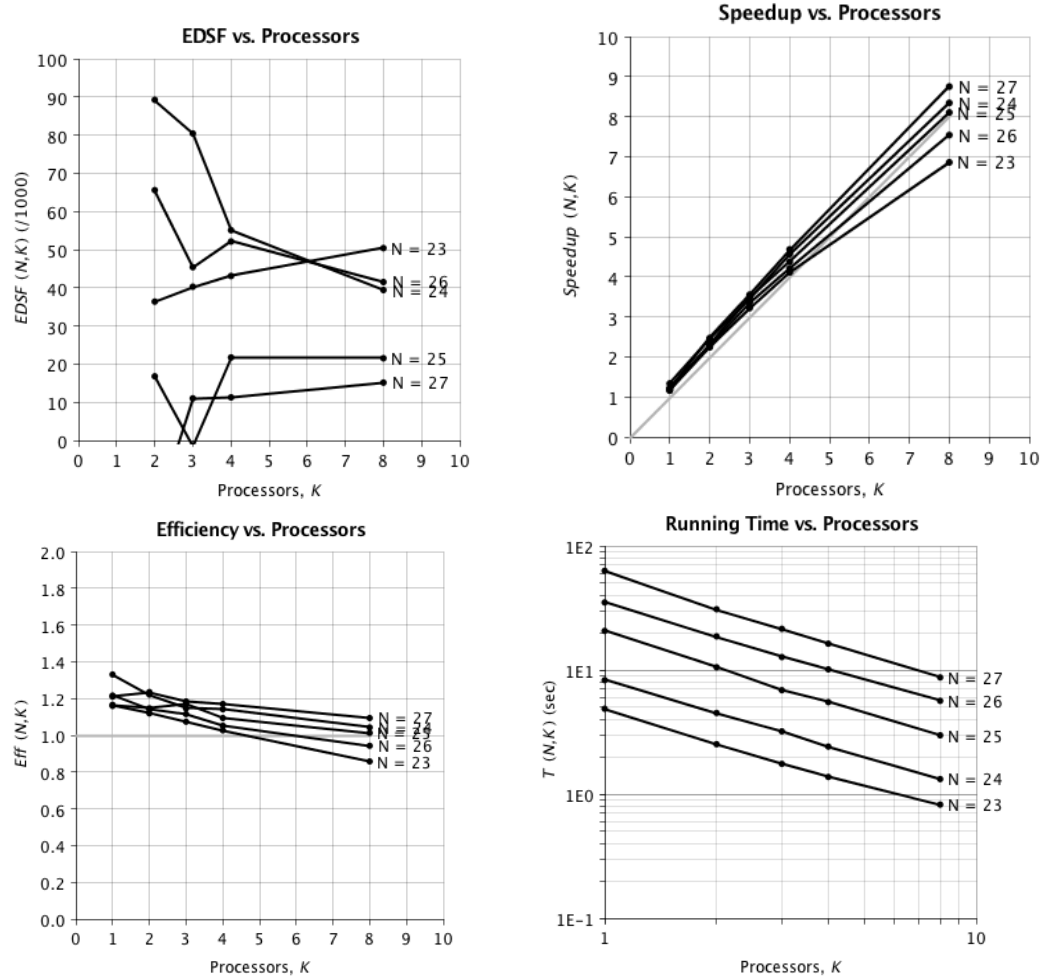


Figure 3. Decision 3-SAT with a fixed schedule.

Table 11. Speedup metrics for decision parallel program with 23 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	5645			
1	4867	1.160	1.160	
2	2522	2.238	1.119	0.036
3	1753	3.220	1.073	0.040
4	1374	4.108	1.027	0.043
8	823	6.859	0.857	0.050

Table 12. Speedup metrics for decision parallel program with 24 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	11019			
1	8283	1.330	1.330	
2	4511	2.443	1.221	0.089
3	3205	3.438	1.146	0.080
4	2413	4.567	1.142	0.055
8	1321	8.341	1.043	0.039

Table 13. Speedup metrics for decision parallel program with 25 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	24097			
1	20675	1.166	1.166	
2	10511	2.293	1.146	0.017
3	6872	3.507	1.169	-0.001
4	5506	4.376	1.094	0.022
8	2974	8.103	1.013	0.022

Table 14. Speedup metrics for decision parallel program with 26 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	42555			
1	34987	1.216	1.216	
2	18641	2.283	1.141	0.066
3	12721	3.345	1.115	0.045
4	10114	4.208	1.052	0.052
8	5644	7.540	0.942	0.042

Table 15. Speedup metrics for decision parallel program with 27 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	76206			
1	62987	1.210	1.210	
2	30853	2.470	1.235	-0.020
3	21458	3.551	1.184	0.011
4	16279	4.681	1.170	0.011
8	8709	8.750	1.094	0.015

Decision 3-SAT with a Dynamic Schedule

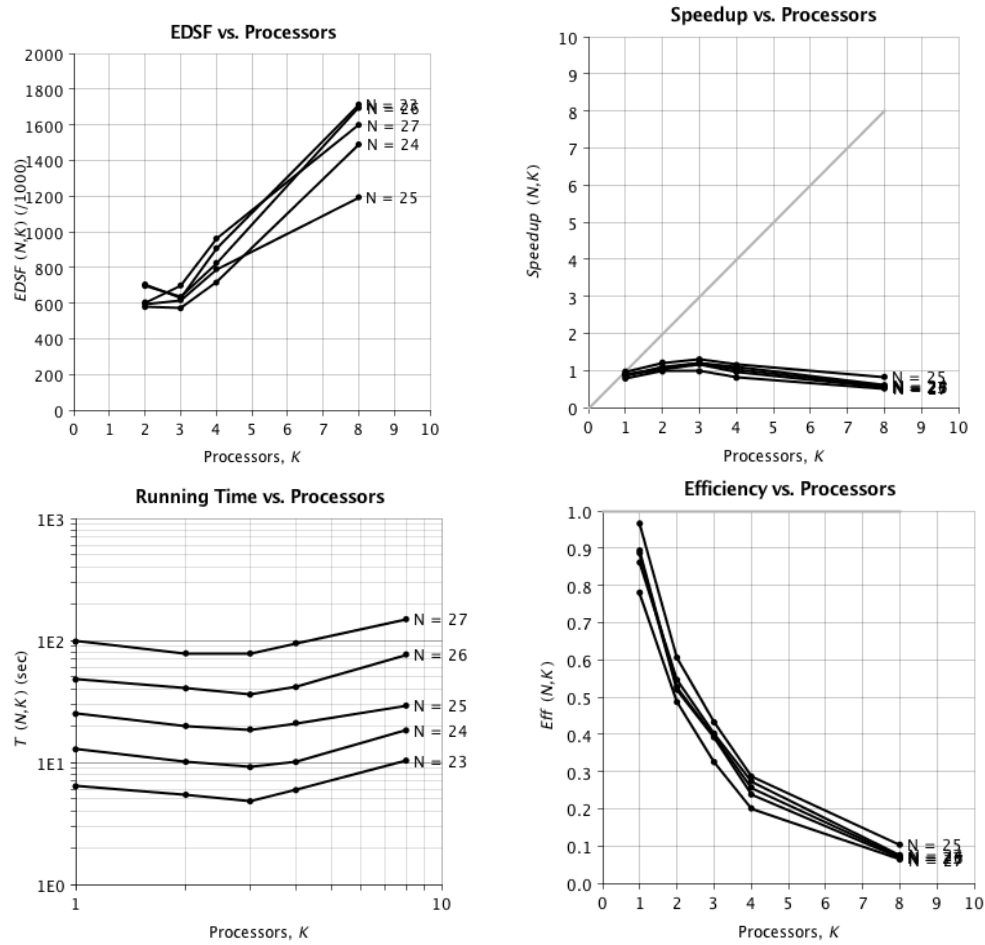


Figure 4. Decision 3-SAT with a dynamic schedule.

Table 16. Speedup metrics for decision parallel program with 23 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	5645			
1	6366	0.887	0.887	
2	5426	1.040	0.520	0.705
3	4800	1.176	0.392	0.631
4	5922	0.953	0.238	0.907
8	10342	0.546	0.068	1.714

Table 17. Speedup metrics for decision parallel program with 24 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	11019			
1	12791	0.861	0.861	
2	10093	1.092	0.546	0.578
3	9135	1.206	0.402	0.571
4	10063	1.095	0.274	0.716
8	18275	0.603	0.075	1.490

Table 18. Speedup metrics for decision parallel program with 25 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	24097			
1	24946	0.966	0.966	
2	19888	1.212	0.606	0.594
3	18573	1.297	0.432	0.617
4	21028	1.146	0.286	0.791
8	29166	0.826	0.103	1.193

Table 19. Speedup metrics for decision parallel program with 26 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	42555			
1	47627	0.894	0.894	
2	40395	1.053	0.527	0.696
3	35986	1.183	0.394	0.633
4	41408	1.028	0.257	0.826
8	76571	0.556	0.069	1.695

Table 20. Speedup metrics for decision parallel program with 27 variables and 1000 clauses.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	76206			
1	97636	0.781	0.781	
2	78312	0.973	0.487	0.604
3	78046	0.976	0.325	0.699
4	94828	0.804	0.201	0.962
8	148841	0.512	0.064	1.599

Exhaustive Program (Sizeup)

Exhaustive 3-SAT with Fixed Schedule

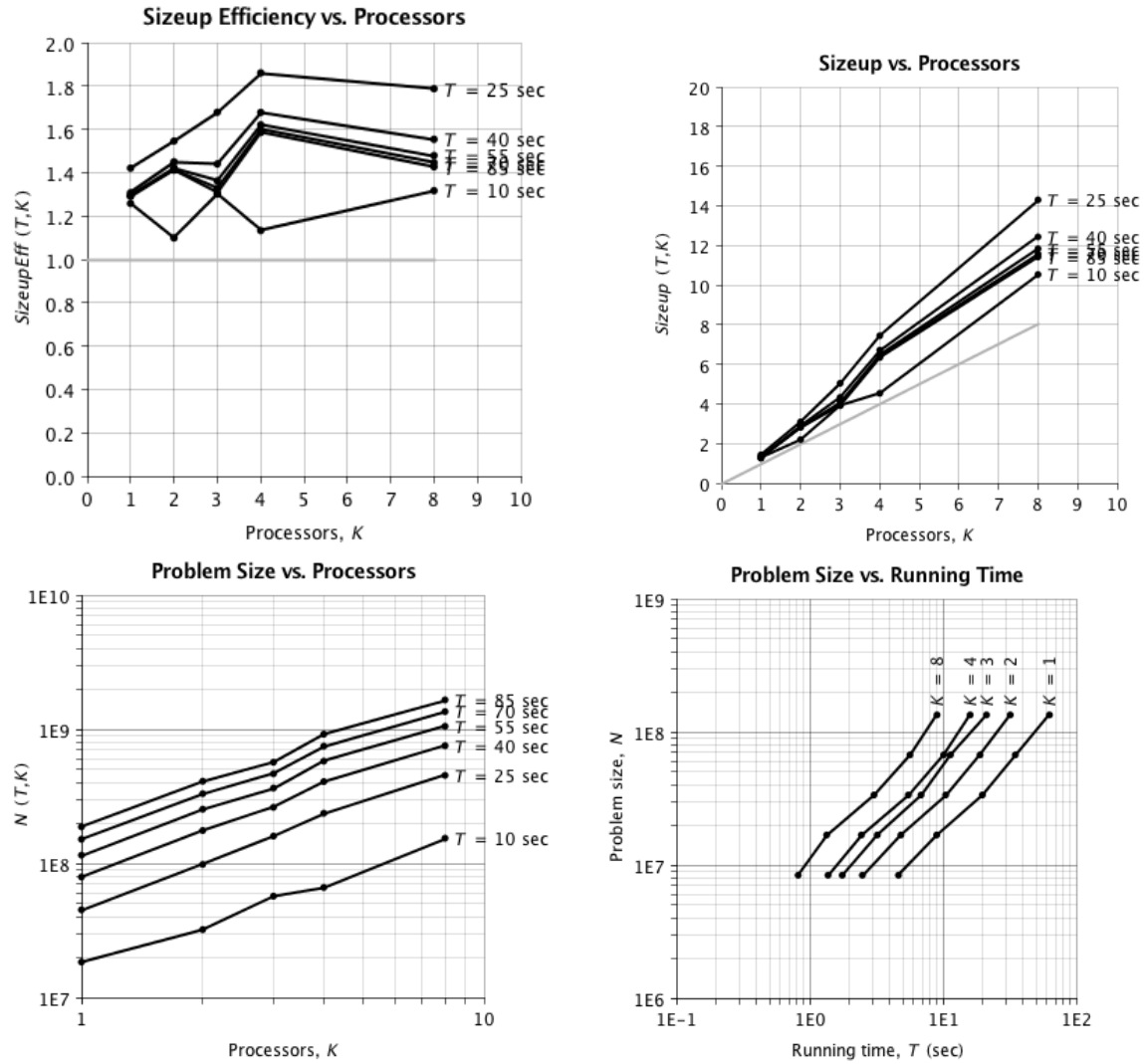


Figure 5. Exhaustive 3-SAT with a fixed schedule.

Table 21. Sizeup metrics for the exhaustive parallel program with 23 variables and fixed clause size.

T	K	N	Sizeup	SizeupEff
10000	seq	14604712		
10000	1	18364691	1.257	1.257
10000	2	32087539	2.197	1.099
10000	3	56997181	3.903	1.301

10000	4	66181025	4.531	1.133
10000	8	153822789	10.532	1.317
25000	seq	31729660		
25000	1	45098926	1.421	1.421
25000	2	98094932	3.092	1.546
25000	3	159822822	5.037	1.679
25000	4	236154092	7.443	1.861
40000	seq	60590308		
40000	1	79196796	1.307	1.307
40000	2	175767228	2.901	1.450
40000	3	261780986	4.321	1.440
40000	4	406654254	6.712	1.678
40000	8	753365946	12.434	1.554
55000	seq	89020559		
55000	1	115130007	1.293	1.293
55000	2	253439525	2.847	1.423
55000	3	363739151	4.086	1.362
55000	4	577154417	6.483	1.621
55000	8	1053137524	11.830	1.479
70000	seq	116905128		
70000	1	151063217	1.292	1.292
70000	2	331111821	2.832	1.416
70000	3	465697316	3.984	1.328
70000	4	747654580	6.395	1.599

70000	8	1352909103	11.573	1.447
85000	seq	144789698		
85000	1	186996428	1.292	1.292
85000	2	408784117	2.823	1.412
85000	3	567655481	3.921	1.307
85000	4	918154742	6.341	1.585
85000	8	1652680681	11.414	1.427

Exhaustive 3-SAT with Dynamic Schedule

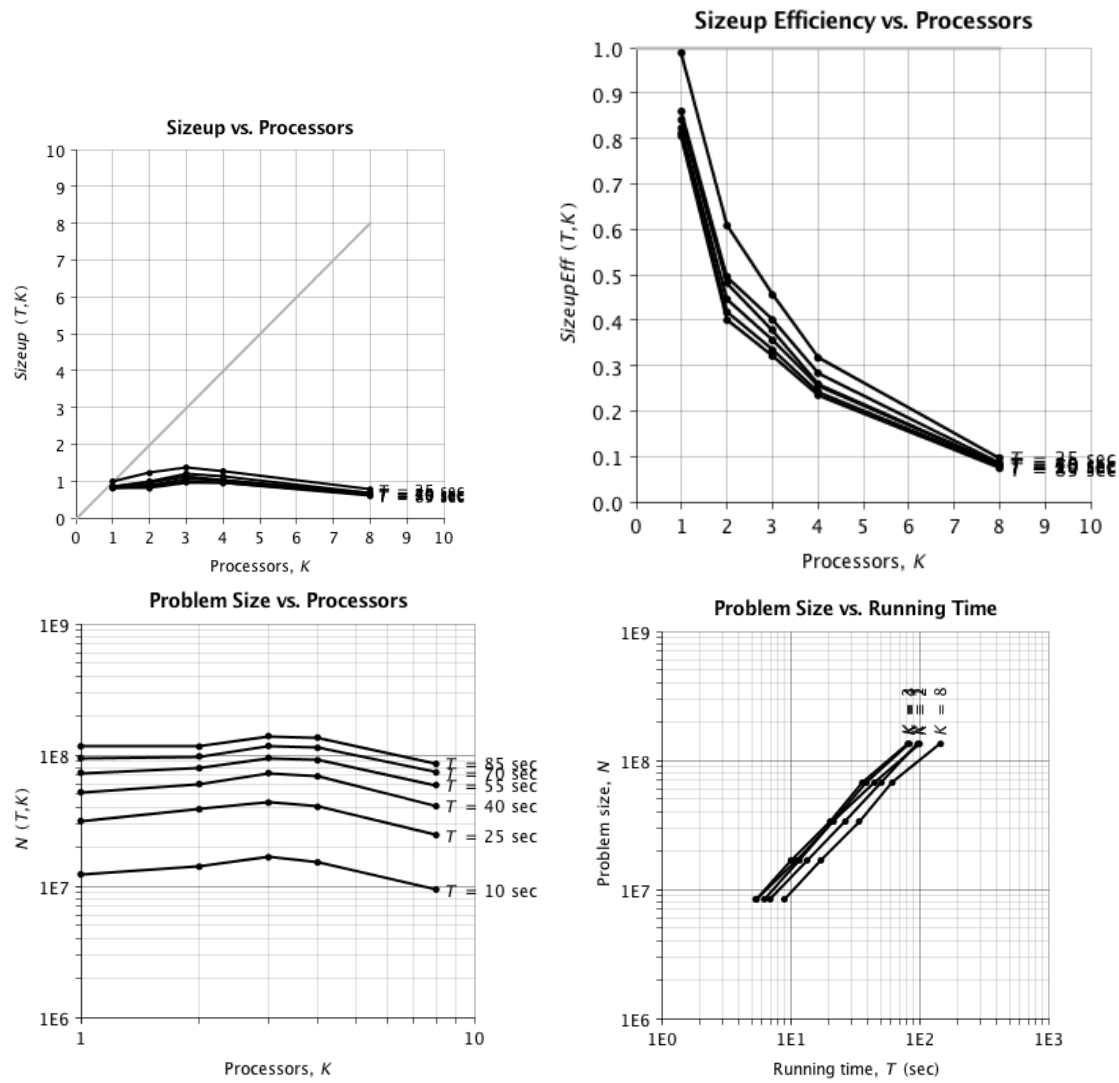


Figure 6. Exhaustive 3-SAT with a dynamic schedule.

Table 22. Sizeup metrics for the exhaustive parallel program with 23 variables and fixed clause size.

T	K	N	Sizeup	SizeupEff
10000	seq	14604712		
10000	1	12281251	0.841	0.841
10000	2	14090899	0.965	0.482
10000	3	16575422	1.135	0.378
10000	4	15148839	1.037	0.259
10000	8	9415826	0.645	0.081
25000	seq	31729660		
25000	1	31358110	0.988	0.988
25000	2	38597767	1.216	0.608
25000	3	43349535	1.366	0.455
25000	4	40234419	1.268	0.317
25000	8	24477039	0.771	0.096
40000	seq	60590308		
40000	1	52065249	0.859	0.859
40000	2	60083145	0.992	0.496
40000	3	72726427	1.200	0.400
40000	4	68728501	1.134	0.284
40000	8	40734844	0.672	0.084
55000	seq	89020559		
55000	1	73202578	0.822	0.822
55000	2	79365331	0.892	0.446
55000	3	94924384	1.066	0.355
55000	4	91140456	1.024	0.256

55000	8	58990130	0.663	0.083
70000	seq	116905128		
70000	1	94872968	0.812	0.812
70000	2	97577022	0.835	0.417
70000	3	117122341	1.002	0.334
70000	4	113552411	0.971	0.243
70000	8	73725220	0.631	0.079
85000	seq	144789698		
85000	1	116543358	0.805	0.805
85000	2	115788712	0.800	0.400
85000	3	139320298	0.962	0.321
85000	4	135964366	0.939	0.235
85000	8	85640856	0.591	0.074

Exhaustive 3-SAT with Guided Schedule

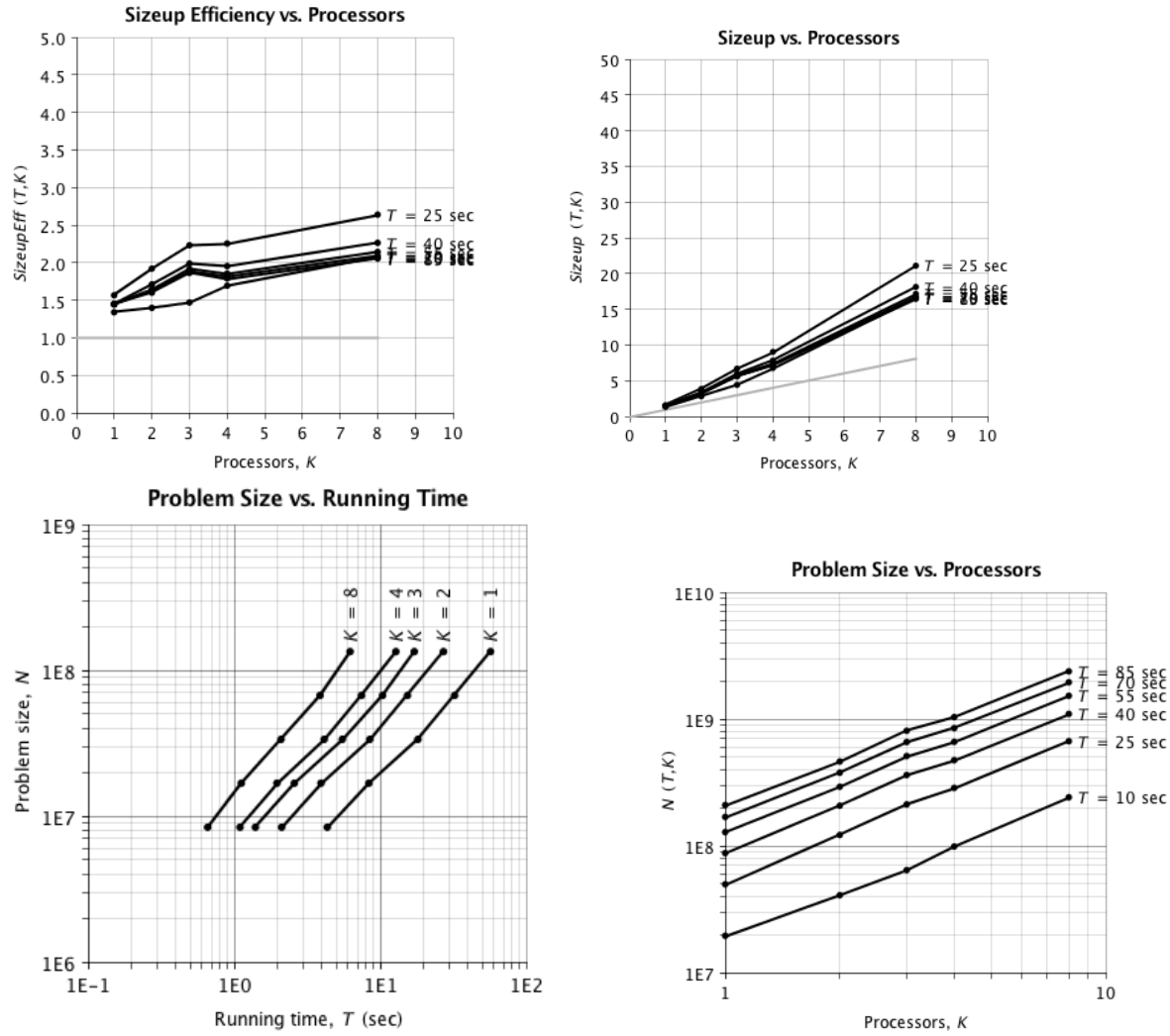


Figure 7. Exhaustive 3-SAT with a dynamic schedule.

Table 23. Sizeup metrics for the exhaustive parallel program with 23 variables and fixed clause size.

T	K	N	Sizeup	SizeupEff
10000	seq	14604712		
10000	1	19542277	1.338	1.338
10000	2	40846331	2.797	1.398
10000	3	64378965	4.408	1.469
10000	4	98871645	6.770	1.692
10000	8	241797258	16.556	2.070

25000	seq	31729660		
25000	1	49672838	1.566	1.566
25000	2	121820518	3.839	1.920
25000	3	212325763	6.692	2.231
25000	4	286152196	9.018	2.255
25000	8	669605571	21.103	2.638
40000	seq	60590308		
40000	1	87751074	1.448	1.448
40000	2	207200752	3.420	1.710
40000	3	361500772	5.966	1.989
40000	4	473432747	7.814	1.953
40000	8	1097413884	18.112	2.264
55000	seq	89020559		
55000	1	128406686	1.442	1.442
55000	2	292580986	3.287	1.643
55000	3	510675780	5.737	1.912
55000	4	660713297	7.422	1.856
55000	8	1525222197	17.133	2.142
70000	seq	116905128		
70000	1	169062298	1.446	1.446
70000	2	377961220	3.233	1.617
70000	3	659850789	5.644	1.881
70000	4	847993848	7.254	1.813
70000	8	1953030510	16.706	2.088
85000	seq	144789698		
85000	1	209717910	1.448	1.448
85000	2	463341454	3.200	1.600

85000	3	809025798	5.588	1.863
85000	4	1035274399	7.150	1.788
85000	8	2380838822	16.443	2.055

Decision 3-SAT with Fixed Schedule

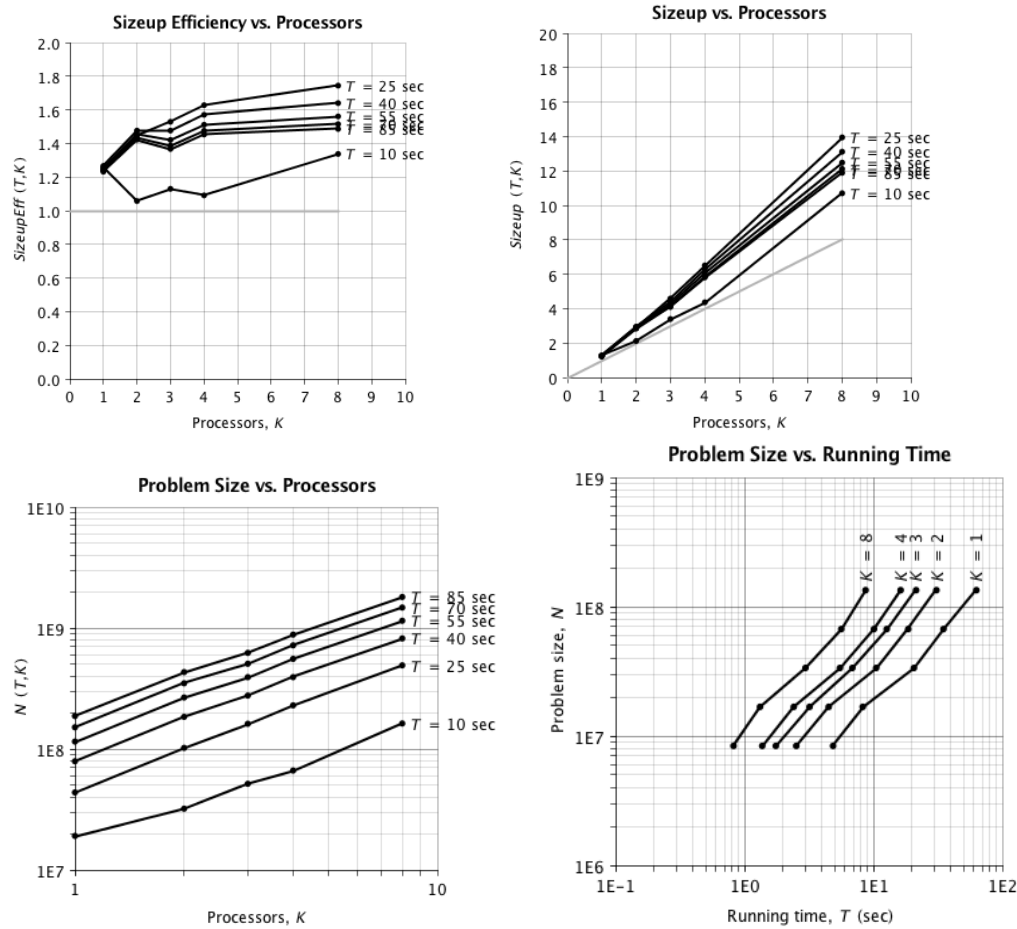


Figure 8. Decision 3-SAT with a fixed schedule.

Table 24. Sizeup metrics for the decision parallel program with 23 variables and fixed clause size.

T	K	N	Sizeup	SizeupEff
10000	seq	15186596		
10000	1	19101819	1.258	1.258
10000	2	32125572	2.115	1.058
10000	3	51499083	3.391	1.130

10000	4	66278741	4.364	1.091
10000	8	162484463	10.699	1.337
25000	seq	35195978		
25000	1	43694379	1.241	13.948
25000	2	102053612	2.900	1.450
25000	3	161423817	4.586	1.529
25000	4	229149829	6.511	1.628
25000	8	490912835	13.948	1.743
40000	seq	62464180		
40000	1	79123747	1.267	1.267
40000	2	184483432	2.953	1.477
40000	3	276638760	4.429	1.476
40000	4	392431737	6.283	1.571
40000	8	1476197951	13.117	1.640
55000	seq	91927437		
55000	1	115074925	1.252	1.252
55000	2	266913252	2.904	1.452
55000	3	391853703	4.263	1.421
55000	4	555713644	6.045	1.511
55000	8	1147769579	12.486	1.561
70000	seq	121841347		
70000	1	151026102	1.240	1.240
70000	2	349343072	2.867	1.434
70000	3	507068647	4.162	1.387

70000	4	718995552	5.901	1.475
70000	8	1476197951	12.116	1.514
85000	seq	151755256		
85000	1	186977279	1.232	1.232
85000	2	431772892	2.845	1.423
85000	3	622283590	4.101	1.367
85000	4	882277459	5.814	1.453
85000	8	1804626323	11.892	1.486

Decision 3-SAT with Dynamic Schedule

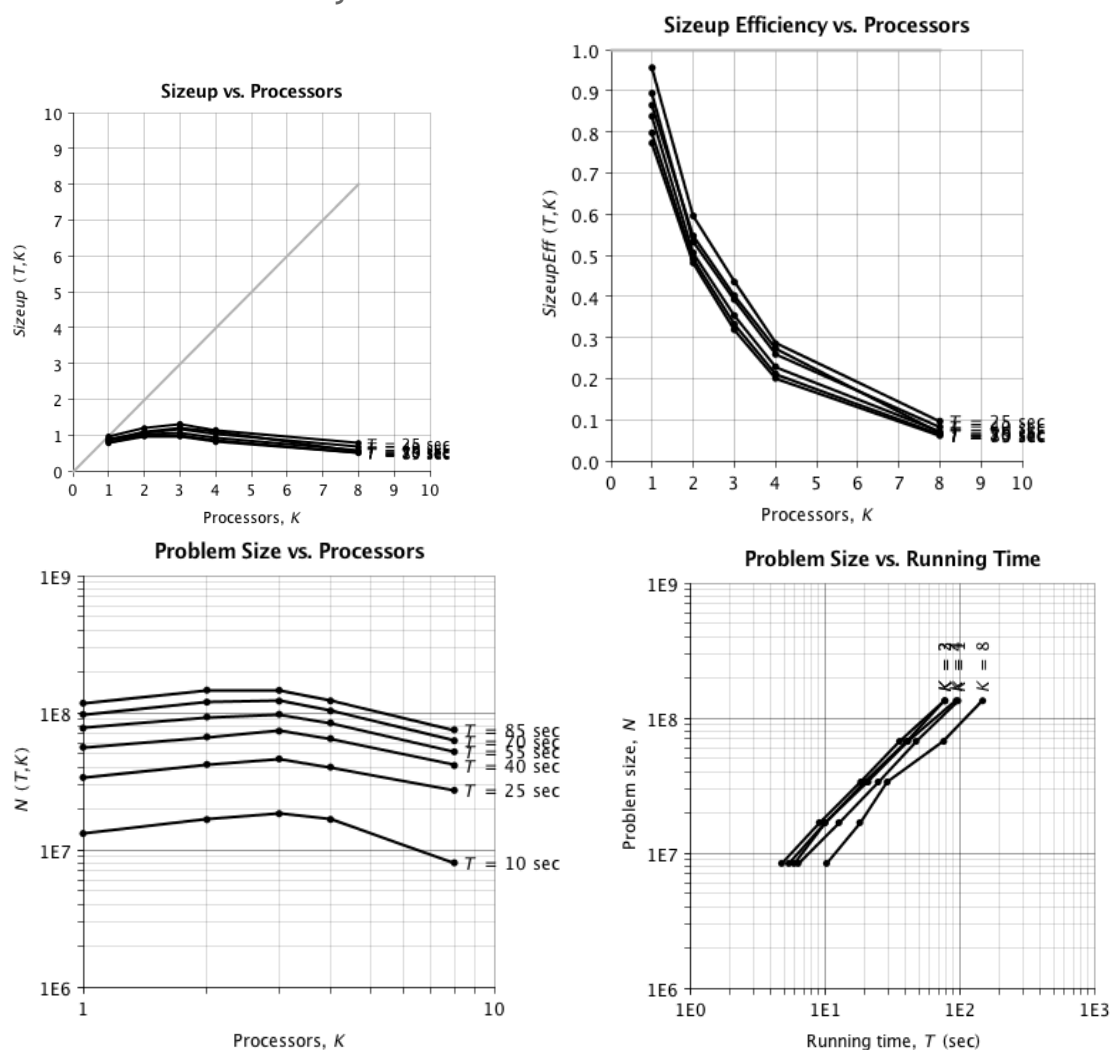


Figure 9. Decision 3-SAT with a dynamic schedule.**Table 25.** Sizeup metrics for the decision parallel program with 23 variables and fixed clause size.

T	K	N	Sizeup	SizeupEff
10000	seq	15186596		
10000	1	13133231	0.865	0.865
10000	2	16610055	1.094	0.547
10000	3	18314861	1.206	0.402
10000	4	16649594	1.096	0.274
10000	8	8026966	0.529	0.066
25000	seq	35195978		
25000	1	33634320	0.956	0.956
25000	2	41918905	1.191	0.596
25000	3	45939106	1.305	0.435
25000	4	40094089	1.139	0.285
25000	8	27136850	0.771	0.096
40000	seq	62464180		
40000	1	55825426	0.894	0.894
40000	2	66462548	1.064	0.532
40000	3	73513405	1.177	0.392
40000	4	64790678	1.037	0.259
40000	8	41223005	0.660	0.082
55000	seq	91927437		
55000	1	77002956	0.838	0.838
55000	2	92958086	1.011	0.506

55000	3	97446666	1.060	0.353
55000	4	84183811	0.916	0.229
55000	8	51840376	0.564	0.070
70000	seq	121841347		
70000	1	97131992	0.797	0.797
70000	2	119506414	0.981	0.490
70000	3	121379927	0.996	0.332
70000	4	103027558	0.846	0.211
70000	8	62457748	0.513	0.064
85000	seq	151755256		
85000	1	117261028	0.773	0.773
85000	2	146054743	0.962	0.481
85000	3	145313188	0.958	0.319
85000	4	121871305	0.803	0.201
85000	8	74935910	0.494	0.062

Decision 3-SAT with Guided Schedule

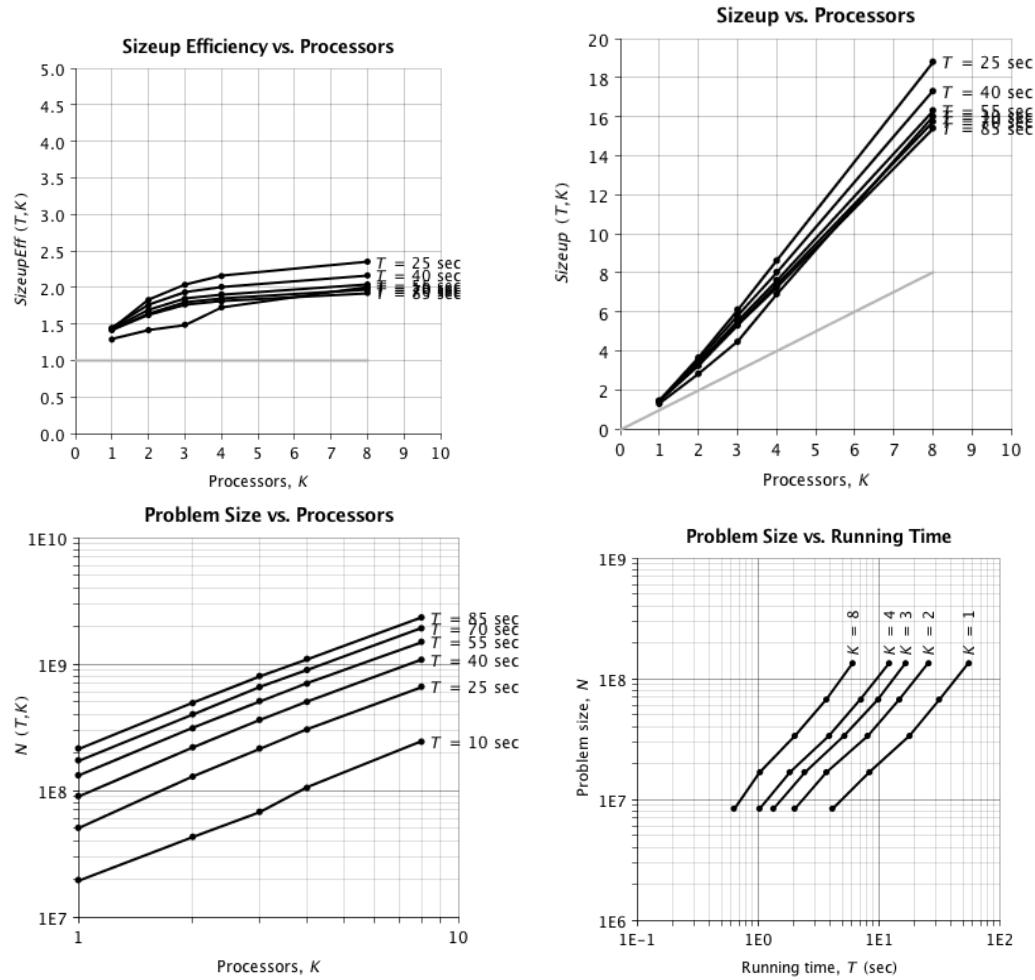


Figure 10. Decision 3-SAT with a guided schedule.

Table 26. Sizeup metrics for the decision parallel program with 23 variables and fixed clause size.

T	K	N	Sizeup	SizeupEff
10000	seq	15186596		
10000	1	19544430	1.287	1.287
10000	2	42998164	2.831	1.416
10000	3	67815376	4.465	1.488
10000	4	104942759	4.465	1.728
10000	8	243245196	16.017	2.002
25000	seq	35195978		

25000	1	50665492	1.440	1.440
25000	2	128654581	3.655	1.828
25000	3	215005457	6.109	2.036
25000	4	303372280	8.620	2.155
25000	8	662151962	18.813	2.352
40000	seq	62464180		
40000	1	90182386	1.444	1.444
40000	2	219456760	3.513	1.757
40000	3	362195537	5.798	1.933
40000	4	501801801	8.033	2.008
40000	8	1081058729	17.307	2.163
55000	seq	91927437		
55000	1	131751305	1.433	1.433
55000	2	310258940	3.375	1.688
55000	3	509385618	5.541	1.688
55000	4	700231322	7.617	1.904
55000	8	1499965495	16.317	2.040
70000	seq	121841347		
70000	1	173320225	1.423	1.423
70000	2	401061119	3.292	1.646
70000	3	656575698	5.389	1.796
70000	4	898660843	7.376	1.844
70000	8	1918872262	15.749	1.969
85000	seq	151755256		
85000	1	214889145	1.416	1.416

85000	2	491863298	3.241	1.621
85000	3	803765778	5.296	1.765
85000	4	1097090364	7.229	1.807
85000	8	2337779028	15.405	1.807

Clause Performance Metrics

Exhaustive 3-SAT with Fixed Schedule

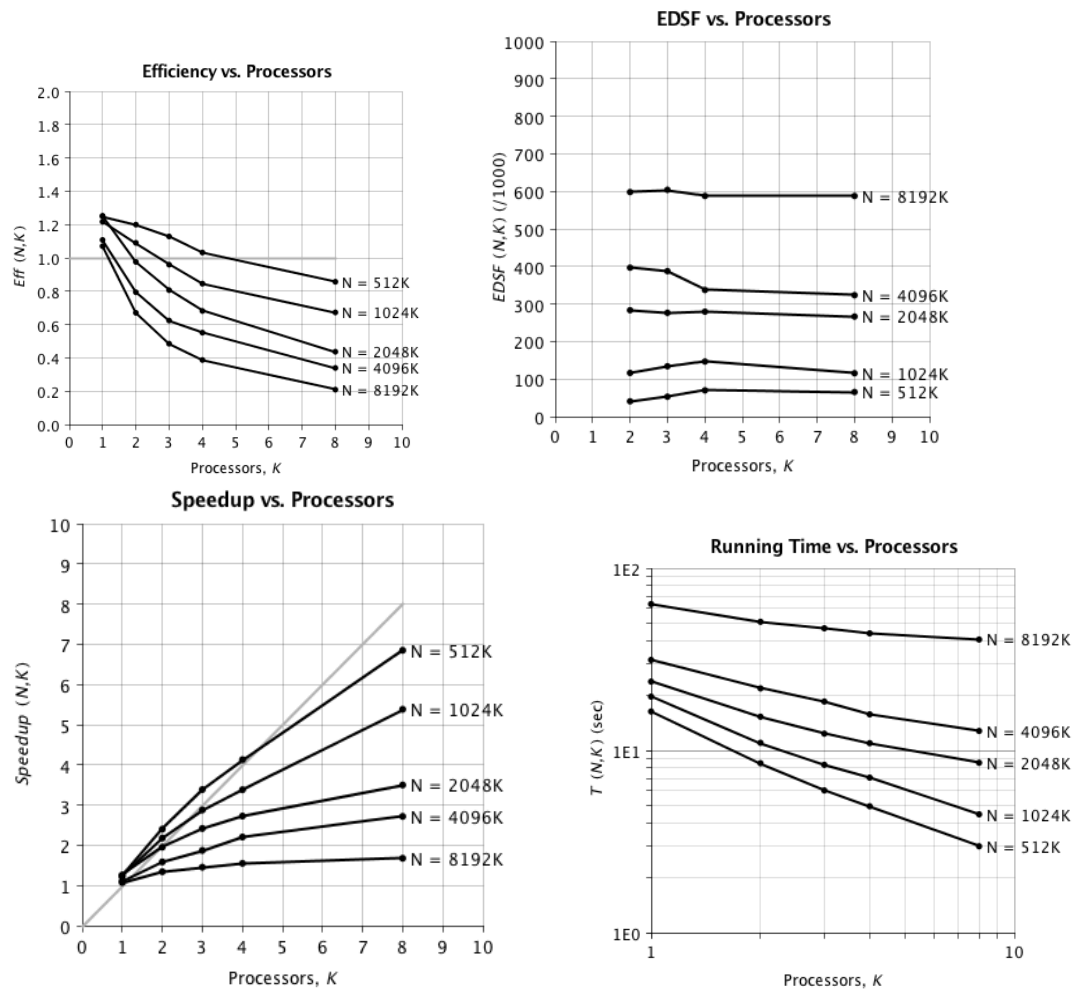


Figure 11. Exhaustive 3-SAT with a fixed schedule.

Table 27. Speedup metrics for the exhaustive parallel program with 512K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	20409			
1	16345	1.249	1.249	
2	8507	2.399	1.200	0.041
3	6027	3.386	1.129	0.053
4	4942	4.130	1.032	0.070
8	2979	6.851	0.856	0.065

Table 28. Speedup metrics for the exhaustive parallel program with 1024K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	23986			
1	19714	1.217	1.217	
2	11004	2.180	1.090	0.116
3	8336	2.877	0.959	0.134
4	7096	3.380	0.845	0.147
8	4458	5.380	0.673	0.116

Table 29. Speedup metrics for the exhaustive parallel program with 2048K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	29890			
1	23863	1.253	1.253	
2	15312	1.952	0.976	0.283
3	12353	2.420	0.807	0.276
4	10968	2.725	0.681	0.279

8	8549	3.496	0.437	0.267
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Table 30. Speedup metrics for the exhaustive parallel program with 4096K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	34727			
1	31344	1.108	1.108	
2	21892	1.586	0.793	0.397
3	18544	1.873	0.624	0.387
4	15760	2.203	0.551	0.337
8	12786	2.716	0.340	0.323

Table 31. Speedup metrics for the exhaustive parallel program with 8192K clauses and a fixed number of variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	67998			
1	63510	1.071	1.071	
2	50749	1.340	0.670	0.598
3	46750	1.455	0.485	0.604
4	43875	1.550	0.387	0.588
8	40588	1.675	0.209	0.588

Decision 3-SAT with Fixed Schedule

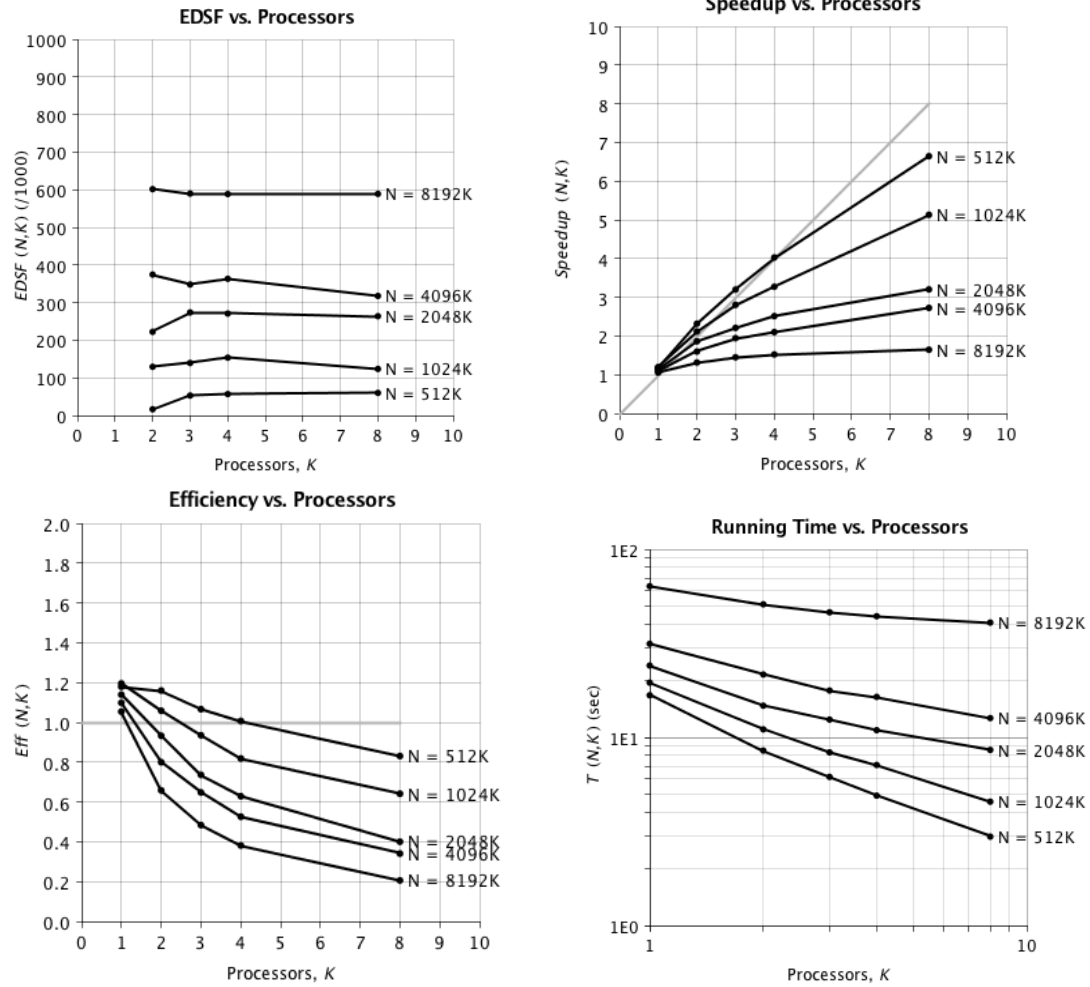


Figure 12. Decision 3-SAT with a fixed schedule.

Table 32. Speedup metrics for the decision parallel program with 512K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	19720			
1	16732	1.179	1.179	
2	8504	2.319	1.159	0.016
3	6167	3.198	1.066	0.053
4	4898	4.026	1.007	0.057
8	2968	6.644	0.831	0.060

Table 33. Speedup metrics for the decision parallel program with 1024K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	23340			
1	19526	1.195	1.195	
2	11025	2.117	1.059	0.129
3	8325	2.804	0.935	0.140
4	7132	3.273	0.818	0.154
8	4551	5.129	0.641	0.124

Table 34. Speedup metrics for the decision parallel program with 2048K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	27449			
1	24093	1.139	1.139	
2	14726	1.864	0.932	0.222
3	12432	2.208	0.736	0.274
4	10918	2.514	0.629	0.271
8	8574	3.201	0.400	0.264

Table 35. Speedup metrics for the decision parallel program with 4096K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	34501			
1	31407	1.099	1.099	
2	21584	1.598	0.799	0.374
3	17757	1.943	0.648	0.348
4	16410	2.102	0.526	0.363
8	12659	2.725	0.341	0.318

Table 36. Speedup metrics for the decision parallel program with 8192K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	67132			
1	63681	1.054	1.054	
2	50996	1.316	0.658	0.602
3	46274	1.451	0.484	0.590
4	44029	1.525	0.381	0.589

8	40782	1.646	0.206	0.589
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Exhaustive 3-SAT with Dynamic Schedule

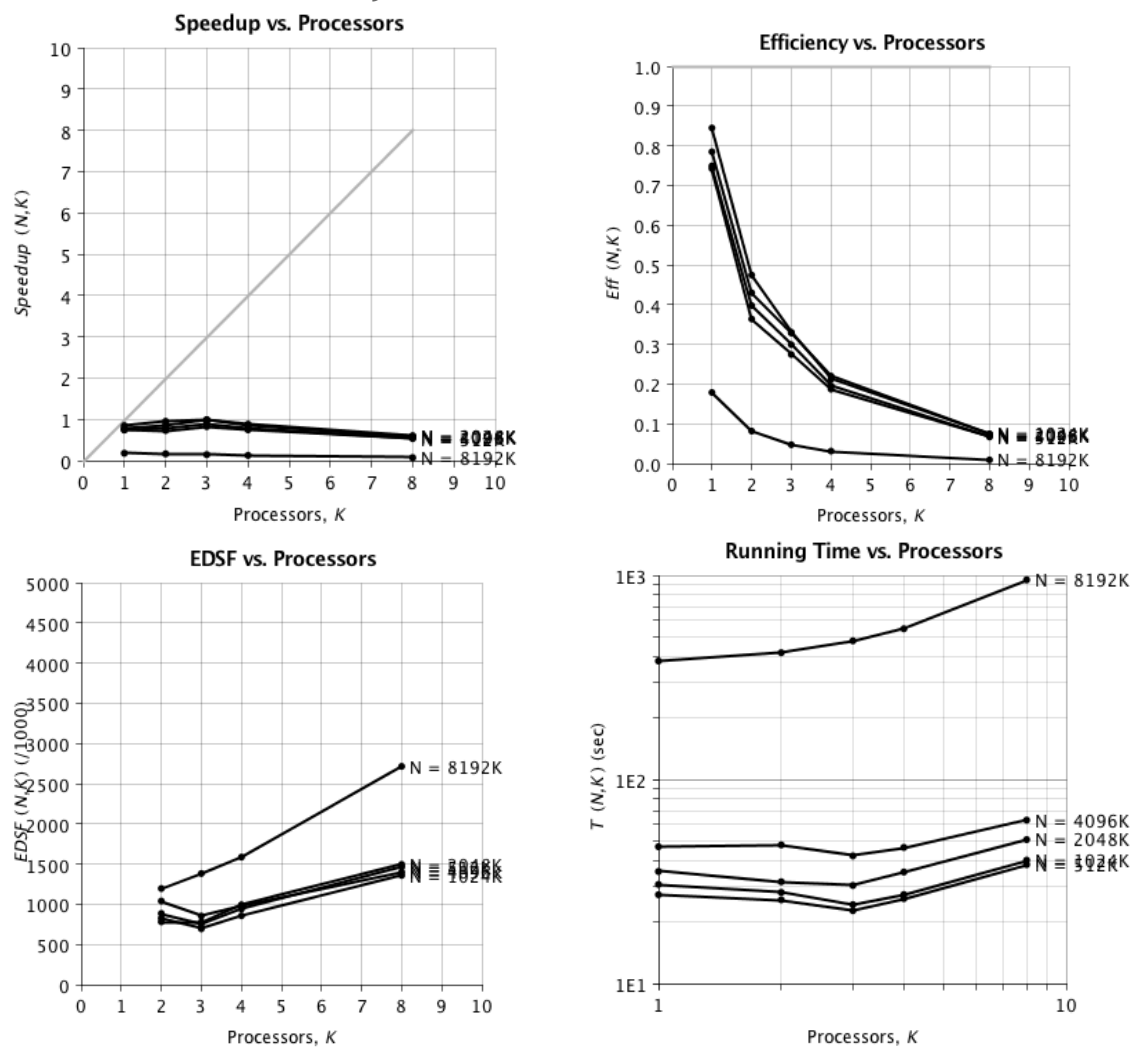


Figure 13. Exhaustive 3-SAT with a dynamic schedule.

Table 37. Speedup metrics for the exhaustive parallel program with 512K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	20409			
1	27245	0.749	0.749	
2	27245	0.795	0.397	0.885

3	22761	0.897	0.299	0.753
4	26067	0.783	0.196	0.942
8	38264	0.533	0.067	1.462

Table 38. Speedup metrics for the exhaustive parallel program with 1024K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	23986			
1	30566	0.785	0.785	
2	27921	0.859	0.430	0.827
3	24347	0.985	0.328	0.695
4	27276	0.879	0.220	0.856
8	40156	0.597	0.075	1.359

Table 39. Speedup metrics for the exhaustive parallel program with 2048K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	29890			
1	35395	0.844	0.844	
2	31511	0.949	0.474	0.781
3	30175	0.991	0.330	0.779
4	35179	0.850	0.212	0.992
8	50720	0.589	0.074	1.495

Table 40. Speedup metrics for the exhaustive parallel program with 4096K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	34727			

1	46796	0.742	0.742	
2	47744	0.727	0.364	1.041
3	42179	0.823	0.274	0.852
4	46389	0.749	0.187	0.988
8	63198	0.549	0.069	1.401

Table 41. Speedup metrics for the exhaustive parallel program with 8192K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	67998			
1	380129	0.179	0.179	
2	417345	0.163	0.081	1.196
3	477144	0.143	0.048	1.383
4	547297	0.124	0.031	1.586
8	950297	0.072	0.009	2.714

Decision 3-SAT with Dynamic Schedule

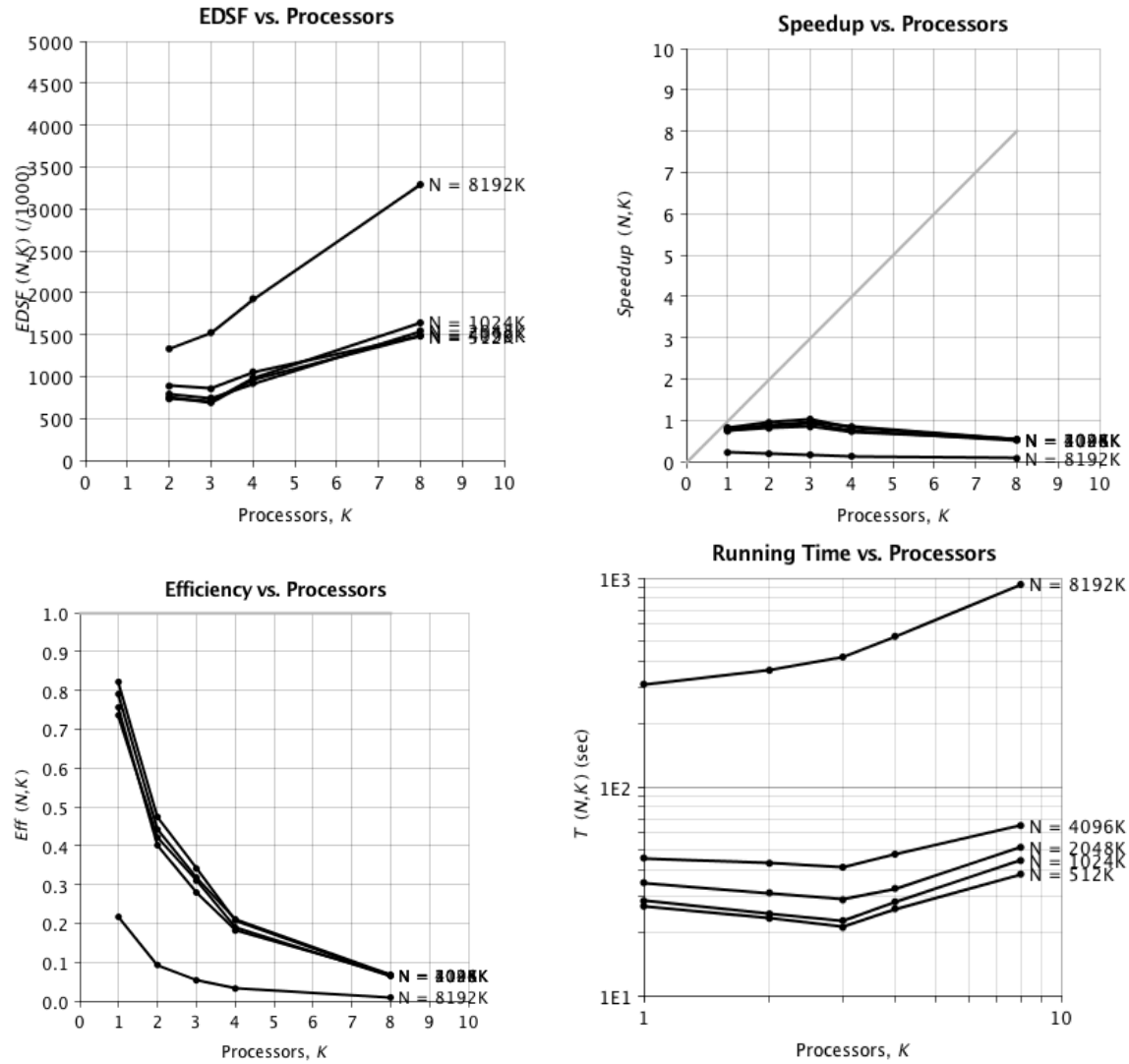


Figure 14. Decision 3-SAT with a dynamic schedule.

Table 42. Speedup metrics for the decision parallel program with 512K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	19720			
1	26811	0.736	0.736	
2	23433	0.842	0.421	0.748
3	21218	0.929	0.310	0.687
4	26051	0.757	0.189	0.962

8	38137	0.517	0.065	1.483
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Table 43. Speedup metrics for the decision parallel program with 1024K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	23340			
1	28400	0.822	0.822	
2	24624	0.948	0.474	0.734
3	22813	1.023	0.341	0.705
4	28131	0.830	0.207	0.987
8	44323	0.527	0.066	1.641

Table 44. Speedup metrics for the decision parallel program with 2048K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	27449			
1	34721	0.791	0.791	
2	31081	0.883	0.442	0.790
3	28752	0.955	0.318	0.742
4	32599	0.842	0.211	0.919
8	51276	0.535	0.067	1.545

Table 45. Speedup metrics for the decision parallel program with 4096K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	34501			
1	45623	0.756	0.756	
2	43018	0.802	0.401	0.886
3	41152	0.838	0.279	0.853
4	47518	0.726	0.182	1.055

8	65244	0.529	0.066	1.492
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Table 46. Speedup metrics for the decision parallel program with 8192K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	67132			
1	310079	0.216	0.216	
2	361244	0.186	0.093	1.330
3	418479	0.160	0.053	1.524
4	525520	0.128	0.032	1.926
8	931440	0.072	0.009	3.290

Exhaustive 3-SAT with Guided Schedule

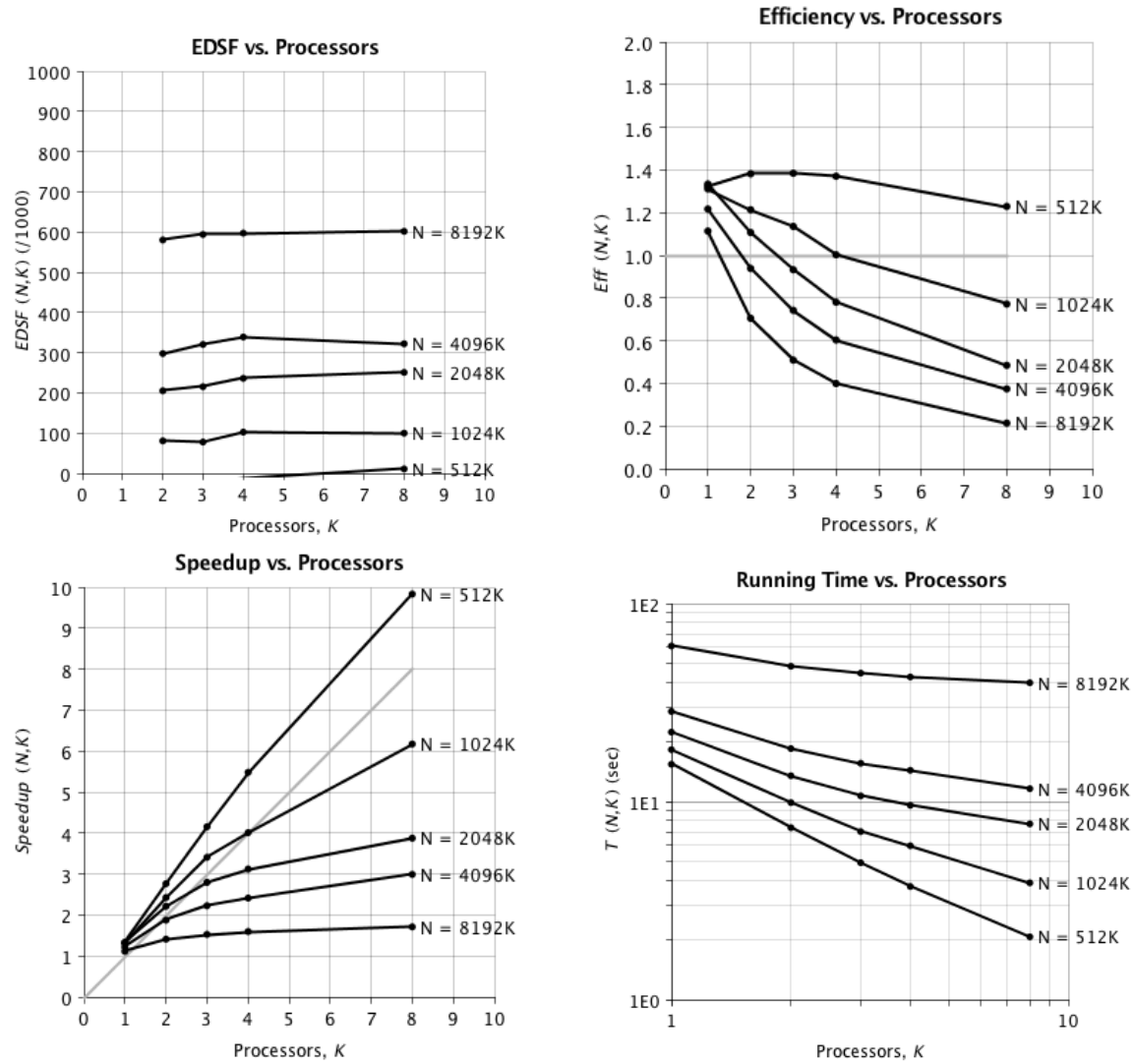


Figure 15. Exhaustive 3-SAT with a guided schedule.

Table 47. Speedup metrics for the exhaustive parallel program with 512K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	20409			
1	15417	1.324	1.324	
2	7383	2.764	1.382	-0.042
3	4913	4.154	1.385	-0.022
4	3722	5.483	1.371	-0.011

8	2076	9.831	1.229	0.011
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Table 48. Speedup metrics for the exhaustive parallel program with 1024K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	23986			
1	18293	1.311	1.311	
2	9883	2.427	1.213	0.081
3	7043	3.406	1.135	0.078
4	5980	4.011	1.003	0.103
8	3887	6.171	0.771	0.100

Table 49. Speedup metrics for the exhaustive parallel program with 2048K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	29890			
1	22405	1.334	1.334	
2	13500	2.214	1.107	0.205
3	10686	2.797	0.932	0.215
4	9572	3.123	0.781	0.236
8	7716	3.874	0.484	0.251

Table 50. Speedup metrics for the exhaustive parallel program with 4096K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	34727			
1	28528	1.217	1.217	
2	18510	1.876	0.938	0.298

3	15601	2.226	0.742	0.320
4	14384	2.414	0.604	0.339
8	11610	2.991	0.374	0.322

Table 51. Speedup metrics for the exhaustive parallel program with 8192K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	67998			
1	61070	1.113	1.113	
2	48248	1.409	0.705	0.580
3	44535	1.527	0.509	0.594
4	42617	1.596	0.399	0.597
8	39781	1.709	0.214	0.602

Decision 3-SAT with Guided Schedule

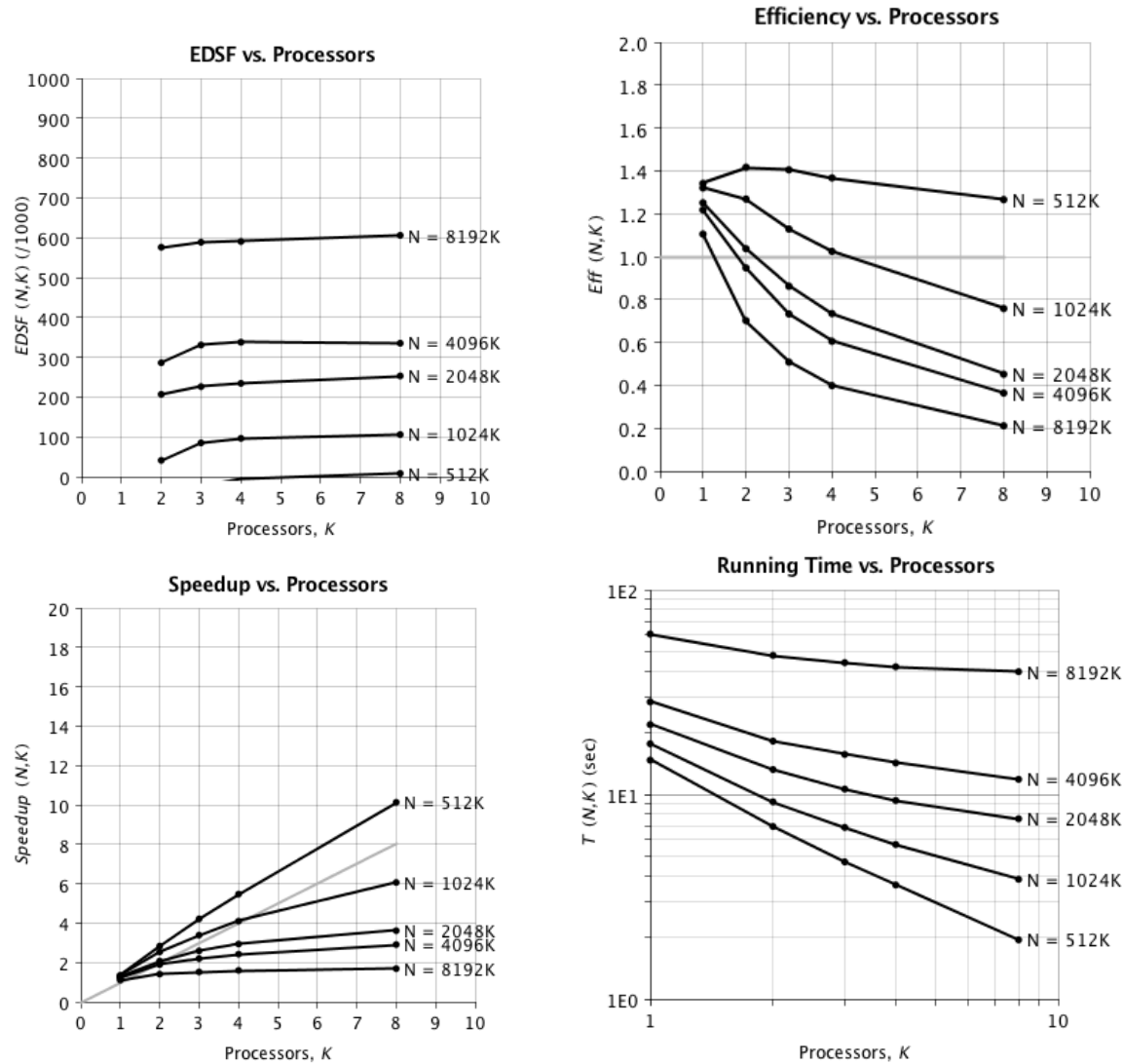


Figure 16. Decision 3-SAT with a guided schedule.

Table 52. Speedup metrics for the decision parallel program with 512K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	19720			
1	14706	1.341	1.341	
2	6961	2.833	1.416	-0.053
3	4681	4.213	1.404	-0.023
4	3605	5.470	1.368	-0.006
8	1947	10.128	1.266	0.008

Table 53. Speedup metrics for the decision parallel program with 1024K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	23340			
1	17677	1.320	1.320	
2	9202	2.536	1.268	0.041
3	6895	3.385	1.128	0.085
4	5695	4.098	1.025	0.096
8	3850	6.062	0.758	0.106

Table 54. Speedup metrics for the decision parallel program with 2048K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	27449			
1	21942	1.251	1.251	
2	13240	2.073	1.037	0.451
3	10620	2.585	0.862	0.226
4	9344	2.938	0.734	0.234
8	7600	3.612	0.451	0.253

Table 55. Speedup metrics for the decision parallel program with 4096K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	34501			
1	28332	1.218	1.218	

2	18216	1.894	0.947	0.286
3	15693	2.198	0.733	0.331
4	14254	2.420	0.605	0.337
8	11850	2.911	0.605	0.335

Table 56. Speedup metrics for the decision parallel program with 8192K clauses and 25 variables.

NT	Time (ms)	Speedup	Efficiency	ESDF
seq	67132			
1	60751	1.105	1.105	
2	47867	1.402	0.701	0.576
3	44082	1.523	0.508	0.588
4	42085	1.595	0.399	0.590
8	39800	1.687	0.211	0.606