ΠΑΡΑΡΤΗΜΑ Α

Χρόνοι Εκτέλεσης

DIADES

q = 16

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.028194	0.026424	0.010137	0.01588	0.021936	0.013019
2	0.028415	0.026711	0.010094	0.014467	0.019186	0.007808
3	0.028181	0.026427	0.010148	0.011932	0.022624	0.014265
4	0.028206	0.026442	0.010254	0.011434	0.024152	0.012958
5	0.028268	0.026442	0.010171	0.015986	0.031002	0.017378
6	0.028284	0.026431	0.010164	0.013059	0.048818	0.016836
7	0.028737	0.026543	0.010214	0.019204	0.073373	0.022773
8	0.029203	0.026477	0.01023	0.032946	0.129635	0.030131

q = 17

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.062183	0.054844	0.021409	0.030948	0.038931	0.017213
2	0.062377	0.0549	0.021319	0.028373	0.042194	0.016046
3	0.062921	0.055011	0.021356	0.021556	0.032879	0.019054
4	0.062144	0.054825	0.021258	0.017437	0.042649	0.014266
5	0.062116	0.054884	0.021389	0.021599	0.049007	0.021037
6	0.062642	0.054991	0.021601	0.028276	0.064021	0.020345
7	0.062173	0.054929	0.021274	0.034649	0.092625	0.025557
8	0.062006	0.054998	0.021287	0.043906	0.15766	0.036309

q = 18

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.136762	0.12037	0.045437	0.064888	0.082603	0.031484
2	0.137664	0.118946	0.044693	0.06098	0.080347	0.031724
3	0.137348	0.117073	0.044744	0.035939	0.056645	0.030916
4	0.136305	0.118355	0.044844	0.036213	0.071742	0.0245
5	0.138564	0.11834	0.044634	0.032091	0.076659	0.0277
6	0.136408	0.118375	0.044855	0.042375	0.089766	0.031447
7	0.136502	0.118337	0.044581	0.055979	0.126554	0.046042
8	0.136355	0.118086	0.044532	0.068451	0.19762	0.055951

q = 19

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.297829	0.265568	0.09362	0.140648	0.243865	0.068491
2	0.297916	0.264931	0.09387	0.135186	0.175341	0.063684
3	0.298096	0.264854	0.093558	0.079311	0.120513	0.059091
4	0.298085	0.265053	0.093692	0.058826	0.132184	0.046533
5	0.298208	0.265034	0.093688	0.071097	0.132598	0.041282
6	0.29804	0.264921	0.093772	0.071527	0.1482	0.058752
7	0.297834	0.26485	0.093842	0.079806	0.18417	0.067804
8	0.297859	0.265107	0.093904	0.115344	0.253357	0.090659

q = 20

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.651898	0.545717	0.197917	0.287201	0.590118	0.130521
2	0.650047	0.547001	0.197605	0.283763	0.37667	0.135013
3	0.652822	0.546349	0.197643	0.162162	0.244166	0.152299
4	0.650828	0.545404	0.197535	0.110203	0.262698	0.093634
5	0.648968	0.546143	0.197752	0.112131	0.255476	0.083755
6	0.649413	0.545764	0.197598	0.124756	0.272044	0.099802
7	0.650855	0.54496	0.198046	0.14522	0.302665	0.132645
8	0.650478	0.545012	0.198545	0.176784	0.39991	0.16319

q = 21

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	1.618443	1.181058	0.417683	0.600794	1.350811	0.283015
2	1.625681	1.173978	0.41786	0.603147	0.839409	0.27525
3	1.63233	1.168458	0.417762	0.352346	0.524283	0.277594
4	1.616111	1.170603	0.416704	0.275246	0.543063	0.205906
5	1.61651	1.175641	0.417793	0.22965	0.527041	0.160835
6	1.619259	1.16543	0.417105	0.239687	0.521235	0.172992
7	1.621375	1.174939	0.418032	0.247514	0.564499	0.228438
8	1.63375	1.180903	0.418097	0.296201	1.152638	0.348498

q = 22

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	3.597517	2.594772	0.875474	1.305851	1.990045	0.564156
2	3.63283	2.595239	0.875535	1.312633	1.631667	0.565686
3	3.598075	2.595401	0.877881	0.700351	1.038789	0.564265
4	3.615203	2.600265	0.876809	0.526027	1.061718	0.379153
5	3.598581	2.59549	0.875842	0.726374	1.039193	0.316852
6	3.638874	2.600946	0.876115	0.488383	1.026626	0.34286
7	3.598014	2.596323	0.876105	0.533966	1.061233	0.363267
8	3.727602	2.605149	0.872388	0.538196	1.135428	0.439626

q = 23

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	8.423184	5.360205	1.825932	2.703313	4.097567	1.175486
2	8.53492	5.387932	2.406724	3.755031	2.527648	1.203863
3	7.905701	5.363275	1.916769	3.748064	2.33936	1.172423
4	7.774754	5.644668	1.978931	2.079148	1.984496	1.285776
5	7.75998	5.386813	1.834463	0.979916	1.834161	0.657857
6	7.712897	5.395223	1.858231	0.962042	1.823685	0.686453
7	7.771723	5.351502	1.835468	0.946905	1.844683	0.754959
8	7.72316	5.363166	1.835846	1.007512	2.021027	0.826387

q = 24

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	16.708108	11.456296	3.834027	5.766471	9.526338	2.52649
2	16.577175	11.416901	4.274134	5.770955	4.890722	2.571838
3	16.723875	11.534044	3.835283	3.315423	5.722327	2.514709
4	16.70731	11.407649	3.848844	2.215329	3.914788	1.789936
5	16.700694	11.430656	3.838859	2.217586	3.923035	1.452451
6	16.786645	11.436835	3.836746	3.332637	3.810695	1.358768
7	16.512705	11.386247	3.830098	2.20608	3.81591	1.466333
8	16.596203	11.378964	3.812582	2.873716	3.971399	1.561225

q = 28

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
8	374.969548	251.616139	72.441467	45.047717	78.670668	32.447719

LOCAL

q = 16

p	Imperative		Recursive		Quick Sort		pthreads		openMP		pthreads+qSort
1		0.020063		0.022133		0.008976		0.012679		0.017788	0.006769
2		0.020591		0.02231		0.008984		0.012323		0.012382	0.006637
3		0.023986		0.024963		0.009205		0.008927		0.012847	0.006988
4		0.018031		0.0218		0.008812		0.008285		0.020031	0.00572
5		0.023968		0.022149		0.009304		0.009992		0.035332	0.007207
6		0.020134		0.021854		0.008839		0.013127		0.073924	0.009028
7		0.020113		0.021776		0.009044		0.024096		0.147857	0.021837
8		0.018058		0.02197		0.008784		0.055892		0.286552	0.041868

q = 17

p	Imperative		Recursive		Quick Sort		pthreads		openMP		pthreads+qSort
1		0.049121		0.047293		0.019616		0.025242		0.032001	0.013162
2		0.040531		0.046249		0.019098		0.025761		0.021605	0.013311
3		0.040902		0.048593		0.019839		0.016038		0.020763	0.01521
4		0.050092		0.046478		0.019024		0.017457		0.025585	0.010357
5		0.041136		0.045915		0.019222		0.015623		0.044237	0.010291
6		0.038579		0.046537		0.018686		0.019883		0.086333	0.01303
7		0.041872		0.046694		0.019422		0.030155		0.16985	0.023023
8		0.04485		0.046793		0.019389		0.057817		0.330758	0.042642

q = 18

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.08453	0.099045	0.038577	0.053213	0.066216	0.027129
2	0.082724	0.098582	0.039331	0.054012	0.039273	0.027294
3	0.093966	0.098373	0.038404	0.030341	0.034028	0.03053
4	0.085072	0.098245	0.040061	0.032687	0.038976	0.02242
5	0.087587	0.098372	0.03944	0.033184	0.061375	0.017878
6	0.090761	0.103859	0.041151	0.032111	0.108815	0.022902
7	0.084523	0.098165	0.038761	0.042511	0.198551	0.030285
8	0.090002	0.098624	0.064912	0.065507	0.38389	0.048366

q = 19

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.184339	0.21383	0.084545	0.10863	0.122587	0.05593
2	0.186606	0.214109	0.084713	0.128175	0.075978	0.059326
3	0.184786	0.213928	0.082883	0.070104	0.05994	0.055806
4	0.182454	0.214793	0.085658	0.070008	0.066729	0.041324
5	0.201902	0.223949	0.087098	0.060303	0.086297	0.042597
6	0.187735	0.215903	0.085987	0.068669	0.136537	0.041786
7	0.195057	0.21291	0.085739	0.067061	0.235275	0.042494
8	0.185695	0.211716	0.084697	0.094359	0.444449	0.065907

q = 20

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.41696	0.454083	0.176772	0.230179	0.261868	0.124431
2	0.401262	0.445331	0.17267	0.247267	0.154816	0.12127
3	0.408892	0.451179	0.177514	0.155907	0.116882	0.115525
4	0.412007	0.46111	0.18255	0.104832	0.122964	0.078377
5	0.429514	0.474006	0.186749	0.123401	0.149214	0.08161
6	0.401199	0.453154	0.176018	0.116028	0.186307	0.084922
7	0.411647	0.45459	0.179374	0.128585	0.311438	0.081921
8	0.399639	0.447338	0.174854	0.155652	0.553128	0.10022

q = 21

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	0.909403	0.971567	0.370605	0.493959	0.571449	0.242765
2	0.920795	0.963677	0.36864	0.499568	0.33119	0.232303
3	0.915397	0.968144	0.367897	0.32936	0.268445	0.237511
4	0.911016	0.96744	0.364743	0.316612	0.278832	0.168984
5	0.907346	0.965973	0.367523	0.280676	0.296431	0.171224
6	0.92435	1.008095	0.383543	0.273364	0.344694	0.148584
7	0.916009	0.964609	0.370376	0.302963	0.461079	0.176799
8	0.905505	0.949947	0.369711	0.291063	0.723926	0.184606

q = 22

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	2.003314	2.079806	0.798027	1.126621	1.321377	0.504488
2	1.989551	2.044758	0.770311	1.06297	0.727063	0.491535
3	2.042797	2.007425	0.756229	0.624626	0.617689	0.498311
4	2.038903	2.077942	0.789117	0.547344	0.653126	0.380995
5	2.07078	2.108195	0.806705	0.541019	0.667246	0.303471
6	2.038852	2.095717	0.791667	0.547653	0.720939	0.354801
7	2.057721	2.097495	0.788901	0.650631	0.824526	0.362576
8	2.03559	2.141656	0.797371	0.515891	1.112928	0.37326

q = 23

p	Imperative	Recursive	Quick Sort	pthreads	openMP	pthreads+qSort
1	4.509976	4.524647	1.649268	2.350926	2.729862	1.064418
2	4.438827	4.483241	1.679474	2.385578	1.822362	1.091355
3	4.157519	4.240919	1.576705	1.347845	1.252192	1.008421
4	4.283683	4.341461	1.574969	1.416056	1.34469	0.777574
5	4.248269	4.575474	1.769305	1.304605	1.368185	0.792688
6	4.252228	4.327263	1.559227	1.012058	1.348618	0.70599
7	4.213267	4.249071	1.573136	1.035608	1.42954	0.628413
8	4.238074	4.375969	1.635778	1.078833	1.704523	0.71869

p	Imperative	Recursive	q = 24 Quick Sort	pthreads	openMP	pthreads+qSort
1	9.102332	9.046799	3.385722	5.00162	5.999337	2.227661
2	9.318904	9.303537	3.265741	4.672894	3.341578	2.121636
3	9.267026	9.296926	3.355843	2.82892	2.750058	2.149791
4	9.222863	9.24242	3.280895	2.370106	2.767382	1.441187
5	9.470502	9.401382	3.475191	2.126369	2.714713	1.203651
6	9.254265	9.211474	3.373913	2.154122	2.735139	1.298649
7	9.314068	9.210511	3.396597	2.293464	3.077169	1.487645
8	9.228949	9.220052	3.354278	2.486729	3.259754	1.637697

p	Imperative	Recursive	q = 28 Quick Sort	pthreads	openMP	pthreads+qSort
8	191.952438	175.113336	60.178418	49.839102	60.052796	32.787755