Lab 3 Report

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1 Part 1

Mean improvement 1 : 5.41x
Mean improvement 2 : 14.12x

2 Part 2

Number of Cores	Optimization			
	Baseline	**Remove evens**	**Remove Bcast**	**Reorder loops**
4	92.40	44.75	44.61	18.92
6	63.15	30.96	30.31	12.45
8	47.10	23.17	22.41	9.11
10	39.85	18.95	18.11	7.04
12	33.27	16.00	15.22	5.99
14	27.97	13.64	12.99	5.11
16	24.91	12.11	11.43	4.51
18	22.07	10.71	10.13	4.01
20	19.52	9.56	9.10	3.54
22	17.59	8.67	8.28	3.24
24	16.17	7.92	7.67	2.85
26	14.96	7.34	7.05	2.75
28	13.85	6.79	6.55	2.54
30	13.12	6.40	6.20	2.39

Table 1: Comparing the four versions of the Sieve of Erastosthenes.

Number of Cores	Optimization			
	Baseline	**Remove evens**	**Remove Bcast**	**Reorder loops**
32	28.18	13.82	13.74	2.72
64	14.28	6.99	6.77	1.36
128	13.03	6.32	6.31	0.73
256	6.55	3.17	3.11	0.37

Table 2: Comparing the four versions of the Sieve of Erastosthenes.

3 Part 3

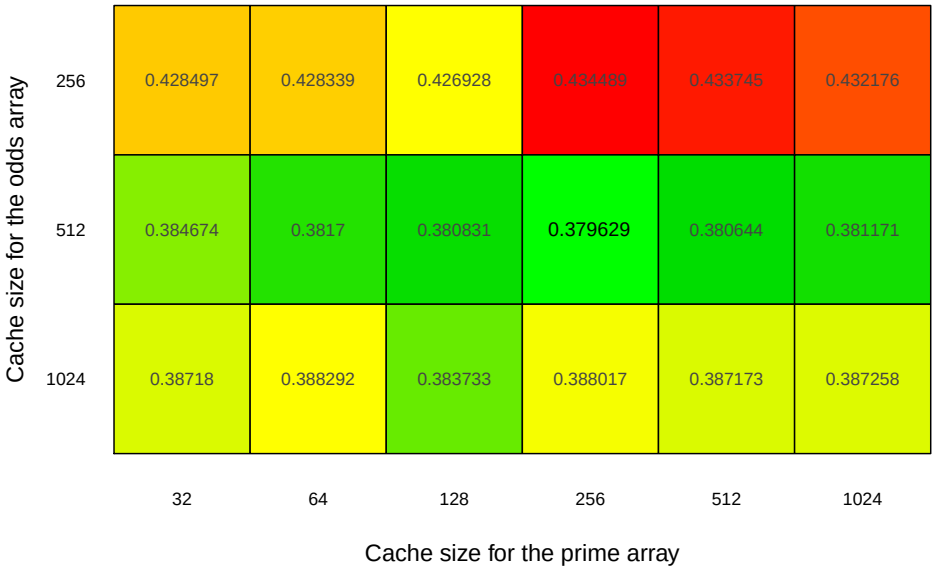

Figure 1: Execution time in seconds of different cache sizes for prime and odds arrays.

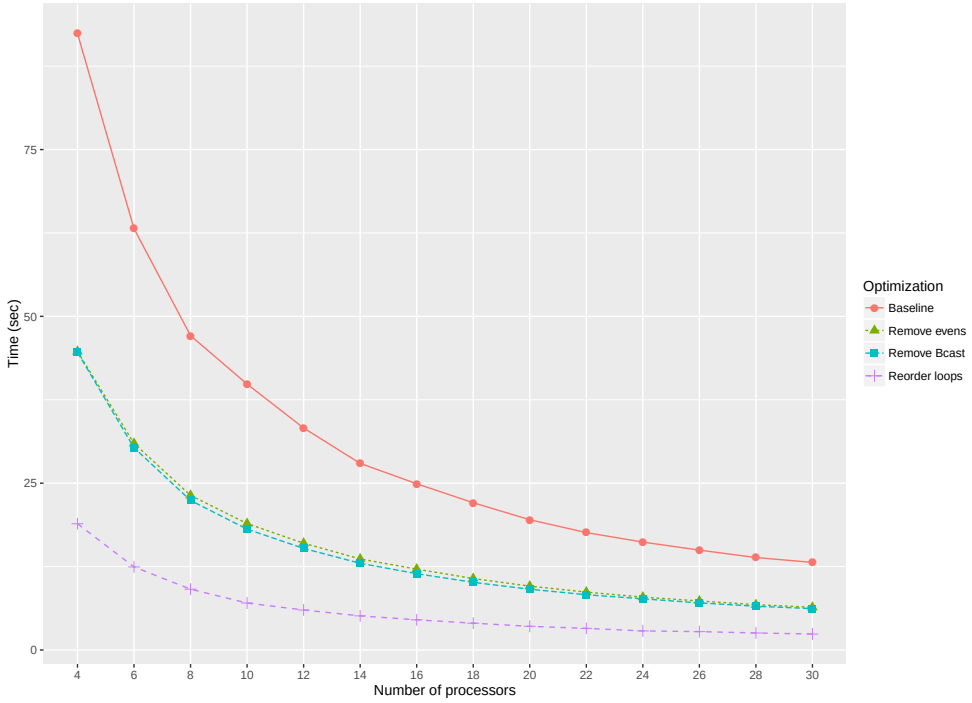

Figure 2: Execution time of the Sieve of Erastosthenes and its optimizations.

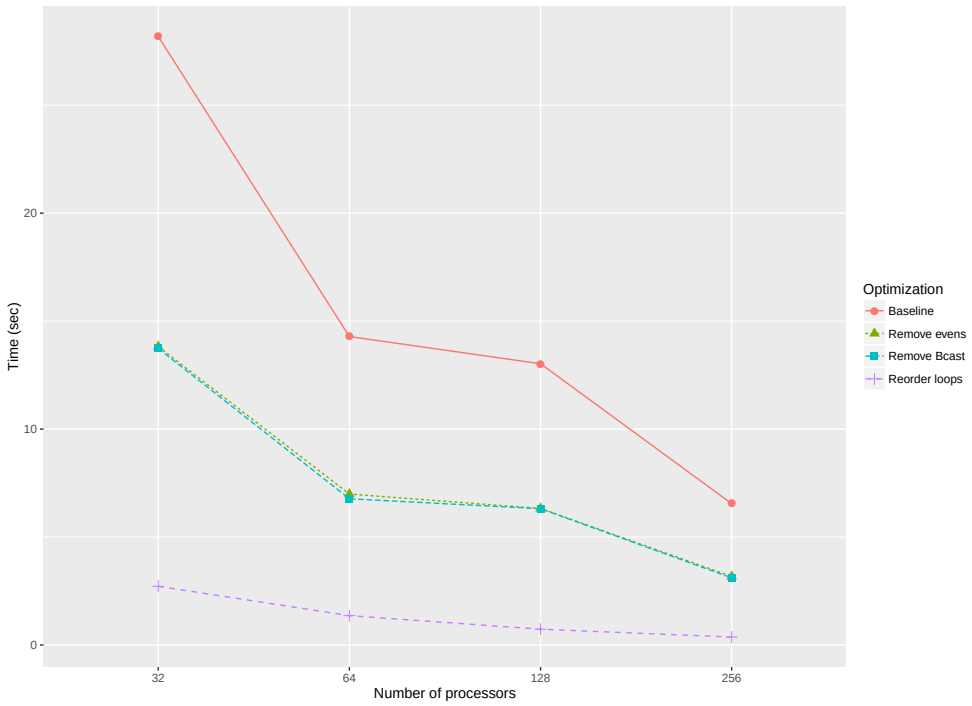

Figure 3: Execution time of the Sieve of Erastosthenes and its optimizations.