

Comparison of Two Prime Number Sieves © Saturday, September 14, 2024, by James Pate Williams, Jr. All Rights Reserved

1. Sieve of Atkin
2. Sieve of Eratosthenes

I am comparing two different variants of each algorithm that utilize different data structures:

1. A Standard Template Library (STL) Boolean vector data structure
2. A 32-bit vector data structure

== Menu ==

1 Test prime number generation

2 Create runtimes table

3 Exit

Enter an option: 1

limit = 100

1	2	2	2	2
2	3	3	3	3
3	5	5	5	5
4	7	7	7	7
5	11	11	11	11
6	13	13	13	13
7	17	17	17	17
8	19	19	19	19
9	23	23	23	23
10	29	29	29	29
11	31	31	31	31
12	37	37	37	37
13	41	41	41	41
14	43	43	43	43
15	47	47	47	47
16	53	53	53	53
17	59	59	59	59
18	61	61	61	61
19	67	67	67	67
20	71	71	71	71
21	73	73	73	73
22	79	79	79	79
23	83	83	83	83
24	89	89	89	89
25	97	97	97	97

== Menu ==

- 1 Test prime number generation
- 2 Create runtimes table
- 3 Exit

Enter an option: 2

Runtimes in microseconds:

Limit	Atkin1	Erato1	Atkin2	Erato2
100000	1338406	1387537	6601	7593
110000	1431594	1476953	11278	9470
120000	1704776	1700595	14001	14974
130000	1823049	1724274	7812	9864
140000	1850093	1929558	8249	10869
150000	1997887	2075019	8920	11502
160000	2163837	2396104	9367	12137
170000	2317328	2335828	10000	13158
180000	2358257	2483047	10754	13685
190000	2499330	2597823	11112	14435
200000	2624630	3534236	22718	24603
210000	4502983	3764585	19432	22719
220000	3417427	3048769	15509	19450
230000	3040839	3168904	20567	17628
240000	3162954	3488801	15265	24422
250000	3409537	3287100	14875	18822