不优化

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 0 | 1 | 0 | 0 | 0 |
| N=1000 | 2 | 3 | 2 | 2 | 2 |
| N=10000 | 17 | 28 | 17 | 17 | 20 |
| N=100000 | 170 | 173 | 172 | 172 | 172 |
| N=1000000 | 1682 | 1677 | 1677 | 1689 | 1681 |

(a)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 1 | 0 | 0 | 0 | 0 |
| N=1000 | 3 | 2 | 2 | 3 | 3 |
| N=10000 | 24 | 15 | 15 | 18 | 18 |
| N=100000 | 158 | 157 | 159 | 158 | 158 |
| N=1000000 | 1578 | 1571 | 1560 | 1584 | 1573 |

(b)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 0 | 0 | 1 | 0 | 0 |
| N=1000 | 3 | 4 | 2 | 1 | 3 |
| N=10000 | 24 | 25 | 16 | 15 | 20 |
| N=100000 | 166 | 149 | 158 | 151 | 156 |
| N=1000000 | 1449 | 1495 | 1472 | 1483 | 1475 |

(c)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 0 | 0 | 0 | 1 | 0 |
| N=1000 | 1 | 2 | 1 | 0 | 1 |
| N=10000 | 10 | 9 | 11 | 5 | 8 |
| N=100000 | 57 | 52 | 57 | 51 | 54 |
| N=1000000 | 511 | 509 | 508 | 509 | 509 |

(a)+(b)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 1 | 1 | 0 | 0 | 1 |
| N=1000 | 2 | 2 | 4 | 2 | 2 |
| N=10000 | 15 | 15 | 27 | 15 | 18 |
| N=100000 | 145 | 178 | 162 | 156 | 160 |
| N=1000000 | 1394 | 1372 | 1394 | 1377 | 1384 |

(b)+(c)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 0 | 0 | 0 | 0 | 0 |
| N=1000 | 1 | 1 | 1 | 1 | 1 |
| N=10000 | 9 | 11 | 10 | 9 | 10 |
| N=100000 | 63 | 54 | 59 | 56 | 58 |
| N=1000000 | 441 | 438 | 438 | 436 | 436 |

(a)+(c)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 0 | 0 | 0 | 0 | 0 |
| N=1000 | 1 | 1 | 1 | 1 | 1 |
| N=10000 | 5 | 4 | 9 | 10 | 7 |
| N=100000 | 48 | 57 | 53 | 53 | 53 |
| N=1000000 | 474 | 475 | 475 | 491 | 479 |

(a)+(b)+(c)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 第1次(ms) | 第2次(ms) | 第3次(ms) | 第4次(ms) | average(ms) |
| N=10 | 0 | 0 | 0 | 0 | 0 |
| N=100 | 0 | 0 | 0 | 0 | 0 |
| N=1000 | 2 | 1 | 1 | 1 | 1 |
| N=10000 | 6 | 7 | 6 | 10 | 7 |
| N=100000 | 52 | 60 | 67 | 73 | 54 |
| N=1000000 | 508 | 508 | 512 | 510 | 510 |