

[illegible]

```
/*  
 * CPU Report  
 */
```

```
model name      : Intel(R) Core(TM) i7-4770K CPU @ 3.50GHz  
vendor_id       : GenuineIntel  
cpu cores       : 4  
siblings        : 8  
cache size      : 8192 KB
```

```
/*
 * Serie Runtime Report In Seconds
 */

2000 :1.70e-05:1.70e-05:2.00e-05:3.30e-05:2.50e-05
4000 :3.30e-05:2.40e-05:2.80e-05:2.40e-05:3.10e-05
2000 :2.90e-05:2.70e-05:2.30e-05:2.10e-05:2.10e-05
4000 :3.20e-05:2.20e-05:3.80e-05:3.00e-05:3.40e-05
2000 :1.00e-05:3.10e-05:2.20e-05:2.40e-05:2.10e-05
4000 :2.80e-05:3.00e-05:4.60e-05:4.30e-05:3.00e-05
2000 :2.60e-05:1.90e-05:1.30e-05:1.60e-05:1.80e-05
4000 :4.60e-05:3.20e-05:2.70e-05:4.30e-05:3.80e-05
```

```
/*
 * Parallel Runtime Report In Seconds
 */

2 2000 :1.27e-05:1.09e-05:1.45e-05:1.41e-05:1.90e-05
2 4000 :1.49e-05:1.68e-05:2.33e-05:1.82e-05:3.01e-05
4 2000 :1.27e-05:1.95e-05:1.72e-05:2.29e-05:1.42e-05
4 4000 :2.64e-05:2.11e-05:2.20e-05:2.09e-05:2.95e-05
6 2000 :2.63e-05:5.75e-05:4.28e-05:2.32e-05:5.60e-05
6 4000 :4.04e-05:1.63e-05:3.28e-05:2.15e-05:2.51e-05
8 2000 :6.34e-05:4.96e-05:2.21e-05:5.59e-05:6.00e-05
8 4000 :7.96e-05:4.58e-05:6.63e-05:6.85e-05:6.37e-05
```

```
/*
 * Speedup Report
 */

2 2000 :1.34e+00:1.56e+00:1.38e+00:2.34e+00:1.32e+00
2 4000 :2.21e+00:1.43e+00:1.20e+00:1.32e+00:1.03e+00
4 2000 :2.28e+00:1.38e+00:1.34e+00:9.17e-01:1.48e+00
4 4000 :1.21e+00:1.04e+00:1.73e+00:1.44e+00:1.15e+00
6 2000 :3.80e-01:5.39e-01:5.14e-01:1.03e+00:3.75e-01
6 4000 :6.93e-01:1.84e+00:1.40e+00:2.00e+00:1.20e+00
8 2000 :4.10e-01:3.83e-01:5.88e-01:2.86e-01:3.00e-01
8 4000 :5.78e-01:6.99e-01:4.07e-01:6.28e-01:5.97e-01
```

/\*

\* Parallel Calculation Report

\*/

2 Cores CPU - Size Problem 2000

Try 1

Runtime 1.27e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	1000	2000	0.463648	0.463648
1	2	1000	2000	1.287002	3.141593

Try 2

Runtime 1.09e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	1000	2000	0.463648	0.463648
1	2	1000	2000	1.287002	3.141593

Try 3

Runtime 1.45e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	1000	2000	0.463648	0.463648
1	2	1000	2000	1.287002	3.141593

Try 4

Runtime 1.41e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	1000	2000	0.463648	0.463648
1	2	1000	2000	1.287002	3.141593

Try 5

Runtime 1.90e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	1000	2000	0.463648	0.463648
1	2	1000	2000	1.287002	3.141593

2 Cores CPU - Size Problem 4000

Try 1

Runtime 1.49e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	2000	4000	0.463648	0.463648
1	2	2000	4000	1.287002	3.141593

Try 2

Runtime 1.68e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	2000	4000	0.463648	0.463648
1	2	2000	4000	1.287002	3.141593

Try 3

Runtime 2.33e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	2000	4000	0.463648	0.463648
1	2	2000	4000	1.287002	3.141593

---

 Try 4

Runtime 1.82e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	2000	4000	0.463648	0.463648
1	2	2000	4000	1.287002	3.141593

---

Try 5

Runtime 3.01e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	2	2000	4000	0.463648	0.463648
1	2	2000	4000	1.287002	3.141593

---

4 Cores CPU - Size Problem 2000

Try 1

Runtime 1.27e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	500	2000	0.244979	0.244979
1	4	500	2000	0.874676	1.854590
2	4	500	2000	0.719414	2.574004
3	4	500	2000	0.567588	3.141593

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Try 2

Runtime 1.95e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	500	2000	0.244979	0.244979
1	4	500	2000	0.874676	1.854590
2	4	500	2000	0.719414	2.574004
3	4	500	2000	0.567588	3.141593

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Try 3

Runtime 1.72e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	500	2000	0.244979	0.244979
1	4	500	2000	0.874676	1.854590
2	4	500	2000	0.719414	2.574004
3	4	500	2000	0.567588	3.141593

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Try 4

Runtime 2.29e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	500	2000	0.244979	0.244979
1	4	500	2000	0.874676	1.854590
2	4	500	2000	0.719414	2.574004
3	4	500	2000	0.567588	3.141593

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Try 5

Runtime 1.42e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	500	2000	0.244979	0.244979
1	4	500	2000	0.874676	1.854590
2	4	500	2000	0.719414	2.574004
3	4	500	2000	0.567588	3.141593

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4 Cores CPU - Size Problem 4000

Try 1

Runtime 2.64e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	1000	4000	0.244979	0.244979
1	4	1000	4000	0.719414	1.699329
2	4	1000	4000	0.874676	2.574004
3	4	1000	4000	0.567588	3.141593

Try 2

Runtime 2.11e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	1000	4000	0.244979	0.244979
1	4	1000	4000	0.874676	1.854590
2	4	1000	4000	0.719414	2.574004
3	4	1000	4000	0.567588	3.141593

Try 3

Runtime 2.20e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	1000	4000	0.244979	0.244979
1	4	1000	4000	0.874676	1.854590
2	4	1000	4000	0.719414	2.574004
3	4	1000	4000	0.567588	3.141593

Try 4

Runtime 2.09e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	1000	4000	0.244979	0.244979
1	4	1000	4000	0.874676	1.854590
2	4	1000	4000	0.719414	2.574004
3	4	1000	4000	0.567588	3.141593

Try 5

Runtime 2.95e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	4	1000	4000	0.244979	0.244979
1	4	1000	4000	0.719414	1.699329
2	4	1000	4000	0.874676	2.574004
3	4	1000	4000	0.567588	3.141593

6 Cores CPU - Size Problem 2000

Try 1

Runtime 2.63e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	333	2000	0.165473	0.165473
1	6	333	2000	0.627607	1.289499
2	6	333	2000	0.363306	1.652805
3	6	333	2000	0.498343	2.151148
4	6	333	2000	0.427729	2.578878
5	6	333	2000	0.568655	3.147533

Try 2

Runtime 5.75e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	333	2000	0.165473	0.165473
1	6	333	2000	0.363306	1.025198
2	6	333	2000	0.627607	1.652805



3	6	333	2000	0.568655	2.221460
4	6	333	2000	0.498343	2.719803
5	6	333	2000	0.427729	3.147533

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Try 3

Runtime 4.28e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	333	2000	0.165473	0.165473
1	6	333	2000	0.627607	1.289499
2	6	333	2000	0.568655	1.858154
3	6	333	2000	0.498343	2.356497
4	6	333	2000	0.363306	2.719803
5	6	333	2000	0.427729	3.147533

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Try 4

Runtime 2.32e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	333	2000	0.165473	0.165473
1	6	333	2000	0.568655	1.230547
2	6	333	2000	0.627607	1.858154
3	6	333	2000	0.427729	2.285884
4	6	333	2000	0.363306	2.649190
5	6	333	2000	0.498343	3.147533

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Try 5

Runtime 5.60e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	333	2000	0.165473	0.165473
1	6	333	2000	0.568655	1.230547
2	6	333	2000	0.627607	1.858154
3	6	333	2000	0.498343	2.356497
4	6	333	2000	0.427729	2.784226
5	6	333	2000	0.363306	3.147533

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6 Cores CPU - Size Problem 4000

Try 1

Runtime 4.04e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	666	4000	0.165230	0.165230
1	6	666	4000	0.626708	1.287627
2	6	666	4000	0.567855	1.855481
3	6	666	4000	0.497651	2.353132
4	6	666	4000	0.427139	2.780272
5	6	666	4000	0.362806	3.143078

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Try 2

Runtime 1.63e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	666	4000	0.165230	0.165230
1	6	666	4000	0.626708	1.287627
2	6	666	4000	0.497651	1.785277
3	6	666	4000	0.362806	2.148083
4	6	666	4000	0.427139	2.575223
5	6	666	4000	0.567855	3.143078

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Try 3

Runtime 3.28e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	666	4000	0.165230	0.165230

1	6	666	4000	0.567855	1.228774
2	6	666	4000	0.362806	1.591580
3	6	666	4000	0.427139	2.018720
4	6	666	4000	0.626708	2.645427
5	6	666	4000	0.497651	3.143078

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Try 4

Runtime 2.15e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	666	4000	0.165230	0.165230
1	6	666	4000	0.362806	1.023725
2	6	666	4000	0.626708	1.650433
3	6	666	4000	0.427139	2.077572
4	6	666	4000	0.567855	2.645427
5	6	666	4000	0.497651	3.143078

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Try 5

Runtime 2.51e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	6	666	4000	0.165230	0.165230
1	6	666	4000	0.427139	1.088058
2	6	666	4000	0.567855	1.655913
3	6	666	4000	0.362806	2.018720
4	6	666	4000	0.626708	2.645427
5	6	666	4000	0.497651	3.143078

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8 Cores CPU - Size Problem 2000

Try 1

Runtime 6.34e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	250	2000	0.124355	0.124355
1	8	250	2000	0.379807	0.877227
2	8	250	2000	0.482495	1.359721
3	8	250	2000	0.455168	1.814890
4	8	250	2000	0.419508	2.234397
5	8	250	2000	0.339607	2.574004
6	8	250	2000	0.301316	2.875320
7	8	250	2000	0.266273	3.141593

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Try 2

Runtime 4.96e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	250	2000	0.124355	0.124355
1	8	250	2000	0.482495	0.979915
2	8	250	2000	0.419508	1.399422
3	8	250	2000	0.339607	1.739030
4	8	250	2000	0.266273	2.005302
5	8	250	2000	0.455168	2.460470
6	8	250	2000	0.301316	2.761786
7	8	250	2000	0.379807	3.141593

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Try 3

Runtime 2.21e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	250	2000	0.124355	0.124355
1	8	250	2000	0.482495	0.979915
2	8	250	2000	0.455168	1.435083
3	8	250	2000	0.419508	1.854590
4	8	250	2000	0.339607	2.194198
5	8	250	2000	0.301316	2.495513
6	8	250	2000	0.266273	2.761786

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7	8	250	2000	0.379807	3.141593
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Try 4

Runtime 5.59e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	250	2000	0.124355	0.124355
1	8	250	2000	0.455168	0.952588
2	8	250	2000	0.379807	1.332395
3	8	250	2000	0.482495	1.814890
4	8	250	2000	0.339607	2.154497
5	8	250	2000	0.301316	2.455812
6	8	250	2000	0.266273	2.722085
7	8	250	2000	0.419508	3.141593

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Try 5

Runtime 6.00e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	250	2000	0.124355	0.124355
1	8	250	2000	0.455168	0.952588
2	8	250	2000	0.482495	1.435083
3	8	250	2000	0.419508	1.854590
4	8	250	2000	0.379807	2.234397
5	8	250	2000	0.339607	2.574004
6	8	250	2000	0.301316	2.875320
7	8	250	2000	0.266273	3.141593

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8 Cores CPU - Size Problem 4000

Try 1

Runtime 7.96e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	500	4000	0.124355	0.124355
1	8	500	4000	0.455168	0.952588
2	8	500	4000	0.482495	1.435083
3	8	500	4000	0.419508	1.854590
4	8	500	4000	0.379807	2.234397
5	8	500	4000	0.339607	2.574004
6	8	500	4000	0.301316	2.875320
7	8	500	4000	0.266273	3.141593

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Try 2

Runtime 4.58e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	500	4000	0.124355	0.124355
1	8	500	4000	0.482495	0.979915
2	8	500	4000	0.419508	1.399422
3	8	500	4000	0.339607	1.739030
4	8	500	4000	0.266273	2.005302
5	8	500	4000	0.379807	2.385109
6	8	500	4000	0.455168	2.840277
7	8	500	4000	0.301316	3.141593

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Try 3

Runtime 6.63e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	500	4000	0.124355	0.124355
1	8	500	4000	0.301316	0.798736
2	8	500	4000	0.482495	1.281230
3	8	500	4000	0.455168	1.736398
4	8	500	4000	0.419508	2.155906
5	8	500	4000	0.379807	2.535713
6	8	500	4000	0.339607	2.875320

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7	8	500	4000	0.266273	3.141593
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Try 4

Runtime 6.85e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	500	4000	0.124355	0.124355
1	8	500	4000	0.482495	0.979915
2	8	500	4000	0.455168	1.435083
3	8	500	4000	0.419508	1.854590
4	8	500	4000	0.379807	2.234397
5	8	500	4000	0.339607	2.574004
6	8	500	4000	0.301316	2.875320
7	8	500	4000	0.266273	3.141593

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Try 5

Runtime 6.37e-05 [s]

Process	Total	problemSize	Total	Local	Total
0	8	500	4000	0.124355	0.124355
1	8	500	4000	0.482495	0.979915
2	8	500	4000	0.455168	1.435083
3	8	500	4000	0.419508	1.854590
4	8	500	4000	0.379807	2.234397
5	8	500	4000	0.339607	2.574004
6	8	500	4000	0.301316	2.875320
7	8	500	4000	0.266273	3.141593

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