Pomiary na macierzach : [4, 8, 16, 32, 64, 128, 256, 512, 1024]

Sekwencyjne:

```
[Running] python -u "c:\Users\kacpe\Desktop\Optymalizacja\matrix.py"
Sekwencyjne mnozenie macierzy 4x4 zakonczone w czasie: 0.000000 sekund
Zuzycie pamieci : 4.0 KB
Sekwencyjne mnozenie macierzy 8x8 zakonczone w czasie: 0.000000 sekund
Zuzycie pamieci : 0.0 KB
Sekwencyjne mnozenie macierzy 16x16 zakonczone w czasie: 0.001001 sekund
Zuzycie pamieci : 0.0 KB
Sekwencyjne mnozenie macierzy 32x32 zakonczone w czasie: 0.007998 sekund
Zuzycie pamieci : 0.0 KB
Sekwencyjne mnozenie macierzy 64x64 zakonczone w czasie: 0.065000 sekund
Zuzycie pamieci : 0.0 KB
Sekwencyjne mnozenie macierzy 128x128 zakonczone w czasie: 0.520801 sekund
Zuzycie pamieci : 132.0 KB
Sekwencyjne mnozenie macierzy 256x256 zakonczone w czasie: 4.109526 sekund
Zuzycie pamieci : 120.0 KB
Sekwencyjne mnozenie macierzy 512x512 zakonczone w czasie: 33.410848 sekund
Zuzycie pamieci : 1908.0 KB
Sekwencyjne mnozenie macierzy 1024x1024 zakonczone w czasie: 281.377434 sekund
Zuzycie pamieci : 6288.0 KB
```

Rozproszone (1 watek)

```
[Running] python -u "c:\Users\kacpe\Desktop\Optymalizacja\nodal_matrix.py"

Matrix Size: 4x4
Scatter Time: 0.000071 s, Memory Usage: 92.00 KB
Compute Time: 0.000059 s, Memory Usage: 52.00 KB
Gather Time: 0.000022 s, Memory Usage: 20.00 KB
Total Time: 0.000181 s, Total Memory Usage: 164.00 KB

Matrix Size: 8x8
Scatter Time: 0.000019 s, Memory Usage: 0.00 KB
Compute Time: 0.000149 s, Memory Usage: 0.00 KB
Gather Time: 0.000013 s, Memory Usage: 0.00 KB
Total Time: 0.000188 s, Total Memory Usage: 0.00 KB

Matrix Size: 16x16
Scatter Time: 0.000015 s, Memory Usage: 4.00 KB
Compute Time: 0.001122 s, Memory Usage: 4.00 KB
Gather Time: 0.000020 s, Memory Usage: 0.00 KB
Total Time: 0.001163 s, Total Memory Usage: 8.00 KB

Matrix Size: 32x32
Scatter Time: 0.000021 s, Memory Usage: 0.00 KB
Compute Time: 0.008255 s, Memory Usage: 4.00 KB
Gather Time: 0.000025 s, Memory Usage: 0.00 KB
Total Time: 0.008318 s, Total Memory Usage: 4.00 KB

Matrix Size: 64x64
Scatter Time: 0.000084 s, Memory Usage: 32.00 KB
Compute Time: 0.064766 s, Memory Usage: 60.00 KB
Gather Time: 0.000024 s, Memory Usage: 0.00 KB
Total Time: 0.064900 s, Total Memory Usage: 92.00 KB

Matrix Size: 128x128
Scatter Time: 0.000058 s, Memory Usage: 124.00 KB
Compute Time: 0.519469 s, Memory Usage: 132.00 KB
Gather Time: 0.000030 s, Memory Usage: 0.00 KB
Total Time: 0.519609 s, Total Memory Usage: 256.00 KB

Matrix Size: 256x256
Scatter Time: 0.000313 s, Memory Usage: 1024.00 KB
Compute Time: 4.123154 s, Memory Usage: 520.00 KB
Gather Time: 0.000052 s, Memory Usage: 0.00 KB
Total Time: 4.123547 s, Total Memory Usage: 1544.00 KB

Matrix Size: 512x512
Scatter Time: 0.001397 s, Memory Usage: 4096.00 KB
Compute Time: 33.386969 s, Memory Usage: 1264.00 KB
Gather Time: 0.000532 s, Memory Usage: 2048.00 KB
Total Time: 33.388921 s, Total Memory Usage: 7408.00 KB

Matrix Size: 1024x1024
Scatter Time: 0.004693 s, Memory Usage: 16384.00 KB
Compute Time: 284.517179 s, Memory Usage: 8332.00 KB
Gather Time: 0.002433 s, Memory Usage: 6144.00 KB
Total Time: 284.524435 s, Total Memory Usage: 30860.00 KB
```

Rozproszone (4 watki)

```
AssertionError: Number of processes must be a perfect square.
PS C:\Users\kacpe\Desktop\Optymalizacja> mpiexec -n 4 python nodal_matrix.py

Matrix Size: 4x4
Scatter Time: 0.000193 s, Memory Usage: 120.00 KB
Compute Time: 0.000097 s, Memory Usage: 52.00 KB
Gather Time: 0.000020 s, Memory Usage: 20.00 KB
Total Time: 0.003144 s, Total Memory Usage: 192.00 KB

Matrix Size: 8x8
Scatter Time: 0.000025 s, Memory Usage: 0.00 KB
Compute Time: 0.000073 s, Memory Usage: 0.00 KB
Gather Time: 0.000019 s, Memory Usage: 0.00 KB
Total Time: 0.000133 s, Total Memory Usage: 0.00 KB

Matrix Size: 16x16
Scatter Time: 0.000035 s, Memory Usage: 8.00 KB
Compute Time: 0.000310 s, Memory Usage: 4.00 KB
Gather Time: 0.000016 s, Memory Usage: 4.00 KB
Total Time: 0.000374 s, Total Memory Usage: 16.00 KB

Matrix Size: 32x32
Scatter Time: 0.000030 s, Memory Usage: 4.00 KB
Compute Time: 0.002146 s, Memory Usage: 20.00 KB
Gather Time: 0.000038 s, Memory Usage: 20.00 KB
Total Time: 0.002226 s, Total Memory Usage: 44.00 KB

Matrix Size: 64x64
Scatter Time: 0.000037 s, Memory Usage: 12.00 KB
Compute Time: 0.016180 s, Memory Usage: 32.00 KB
Gather Time: 0.000040 s, Memory Usage: 0.00 KB
Total Time: 0.016287 s, Total Memory Usage: 44.00 KB

Matrix Size: 128x128
Scatter Time: 0.000062 s, Memory Usage: 0.00 KB
Compute Time: 0.139440 s, Memory Usage: 12.00 KB
Gather Time: 0.000128 s, Memory Usage: 132.00 KB
Total Time: 0.139675 s, Total Memory Usage: 144.00 KB

Matrix Size: 256x256
Scatter Time: 0.000297 s, Memory Usage: 248.00 KB
Compute Time: 1.035432 s, Memory Usage: 64.00 KB
Gather Time: 0.000146 s, Memory Usage: 512.00 KB
Total Time: 1.035959 s, Total Memory Usage: 824.00 KB

Matrix Size: 512x512
Scatter Time: 0.000862 s, Memory Usage: 1024.00 KB
Compute Time: 8.123646 s, Memory Usage: 236.00 KB
Gather Time: 0.000512 s, Memory Usage: 2048.00 KB
Total Time: 8.125189 s, Total Memory Usage: 3308.00 KB

Matrix Size: 1024x1024
Scatter Time: 0.003355 s, Memory Usage: 4104.00 KB
Compute Time: 66.512430 s, Memory Usage: 2004.00 KB
Gather Time: 0.002204 s, Memory Usage: 6144.00 KB
Total Time: 66.518697 s, Total Memory Usage: 12252.00 KB
```

Rozproszone (16 watkow)

```
Total Time: 00.010097 s, Total Memory Usage: 12202.00 KB
PS C:\Users\kacpe\Desktop\Optymalizacja> mpiexec -n 16 python nodal_matrix.py

Matrix Size: 4x4
Scatter Time: 0.000597 s, Memory Usage: 128.00 KB
Compute Time: 0.000815 s, Memory Usage: 108.00 KB
Gather Time: 0.000058 s, Memory Usage: 20.00 KB
Total Time: 0.009147 s, Total Memory Usage: 256.00 KB

Matrix Size: 8x8
Scatter Time: 0.000058 s, Memory Usage: 0.00 KB
Compute Time: 0.000117 s, Memory Usage: 0.00 KB
Gather Time: 0.000061 s, Memory Usage: 0.00 KB
Total Time: 0.000293 s, Total Memory Usage: 0.00 KB

Matrix Size: 16x16
Scatter Time: 0.000049 s, Memory Usage: 4.00 KB
Compute Time: 0.000298 s, Memory Usage: 0.00 KB
Gather Time: 0.000063 s, Memory Usage: 0.00 KB
Total Time: 0.000442 s, Total Memory Usage: 4.00 KB

Matrix Size: 32x32
Scatter Time: 0.000089 s, Memory Usage: 8.00 KB
Compute Time: 0.001208 s, Memory Usage: 0.00 KB
Gather Time: 0.000097 s, Memory Usage: 16.00 KB
Total Time: 0.001429 s, Total Memory Usage: 24.00 KB

Matrix Size: 64x64
Scatter Time: 0.000156 s, Memory Usage: 8.00 KB
Compute Time: 0.008590 s, Memory Usage: 40.00 KB
Gather Time: 0.000101 s, Memory Usage: 16.00 KB
Total Time: 0.008913 s, Total Memory Usage: 64.00 KB

Matrix Size: 128x128
Scatter Time: 0.000374 s, Memory Usage: 8.00 KB
Compute Time: 0.065278 s, Memory Usage: 24.00 KB
Gather Time: 0.000143 s, Memory Usage: 16.00 KB
Total Time: 0.065918 s, Total Memory Usage: 48.00 KB

Matrix Size: 256x256
Scatter Time: 0.000755 s, Memory Usage: 0.00 KB
Compute Time: 0.493195 s, Memory Usage: 32.00 KB
Gather Time: 0.000218 s, Memory Usage: 388.00 KB
Total Time: 0.494326 s, Total Memory Usage: 420.00 KB

Matrix Size: 512x512
Scatter Time: 0.000838 s, Memory Usage: 252.00 KB
Compute Time: 3.390878 s, Memory Usage: 300.00 KB
Gather Time: 0.016680 s, Memory Usage: 2048.00 KB
Total Time: 3.408736 s, Total Memory Usage: 2600.00 KB

Matrix Size: 1024x1024
Scatter Time: 0.012826 s, Memory Usage: 1024.00 KB
Compute Time: 25.942720 s, Memory Usage: 596.00 KB
Gather Time: 0.079406 s, Memory Usage: 6152.00 KB
Total Time: 26.039120 s, Total Memory Usage: 7772.00 KB
```

Porownanie wynikow:

1 watek:


```
PS C:\Users\kacpe\Desktop\Optymalizacja> python measurements_nodal.py
Results are the same!

Matrix Size: 4x4
Scatter Time: 0.000118 s, Memory Usage: 92.00 KB
Compute Time: 0.000078 s, Memory Usage: 44.00 KB
Gather Time: 0.000027 s, Memory Usage: 20.00 KB
Total Time: 0.000287 s, Total Memory Usage: 156.0 KB
Total Squential Time: 0.000000 s, Sequential memory usage : 0.0 KB
Results are the same!

Matrix Size: 8x8
Scatter Time: 0.000034 s, Memory Usage: 0.00 KB
Compute Time: 0.000157 s, Memory Usage: 0.00 KB
Gather Time: 0.000017 s, Memory Usage: 0.00 KB
Total Time: 0.000220 s, Total Memory Usage: 0.0 KB
Total Squential Time: 0.001001 s, Sequential memory usage : 4.0 KB
Results are the same!

Matrix Size: 16x16
Scatter Time: 0.000025 s, Memory Usage: 0.00 KB
Compute Time: 0.001074 s, Memory Usage: 4.00 KB
Gather Time: 0.000014 s, Memory Usage: 0.00 KB
Total Time: 0.001124 s, Total Memory Usage: 4.0 KB
Total Squential Time: 0.000999 s, Sequential memory usage : 0.0 KB
Results are the same!

Matrix Size: 32x32
Scatter Time: 0.000051 s, Memory Usage: 4.00 KB
Compute Time: 0.008464 s, Memory Usage: 12.00 KB
Gather Time: 0.000022 s, Memory Usage: 0.00 KB
Total Time: 0.008559 s, Total Memory Usage: 16.0 KB
Total Squential Time: 0.008000 s, Sequential memory usage : 8.0 KB
Results are the same!

Matrix Size: 64x64
Scatter Time: 0.000044 s, Memory Usage: 0.00 KB
Compute Time: 0.064114 s, Memory Usage: 24.00 KB
Gather Time: 0.000025 s, Memory Usage: 0.00 KB
Total Time: 0.064196 s, Total Memory Usage: 24.0 KB
Total Squential Time: 0.065112 s, Sequential memory usage : 20.0 KB
Results are the same!

Matrix Size: 128x128
Scatter Time: 0.000077 s, Memory Usage: 124.00 KB
Compute Time: 0.512274 s, Memory Usage: 140.00 KB
Gather Time: 0.000030 s, Memory Usage: 0.00 KB
Total Time: 0.512437 s, Total Memory Usage: 264.0 KB
Total Squential Time: 0.515000 s, Sequential memory usage : 180.0 KB
Results are the same!

Matrix Size: 256x256
Scatter Time: 0.000177 s, Memory Usage: 512.00 KB
Compute Time: 4.114995 s, Memory Usage: 40.00 KB
Gather Time: 0.000043 s, Memory Usage: 0.00 KB
Total Time: 4.115234 s, Total Memory Usage: 552.0 KB
Total Squential Time: 4.102413 s, Sequential memory usage : 248.0 KB
Results are the same!

Matrix Size: 512x512
Scatter Time: 0.001304 s, Memory Usage: 4096.00 KB
Compute Time: 33.356386 s, Memory Usage: 860.00 KB
Gather Time: 0.000561 s, Memory Usage: 2048.00 KB
Total Time: 33.358642 s, Total Memory Usage: 7004.0 KB
Total Squential Time: 33.466347 s, Sequential memory usage : 980.0 KB
Results are the same!

Matrix Size: 1024x1024
Scatter Time: 0.004498 s, Memory Usage: 16388.00 KB
Compute Time: 280.637244 s, Memory Usage: 8364.00 KB
Gather Time: 0.003600 s, Memory Usage: 6144.00 KB
Total Time: 280.645465 s, Total Memory Usage: 30896.0 KB
Total Squential Time: 280.829262 s, Sequential memory usage : 6228.0 KB
```
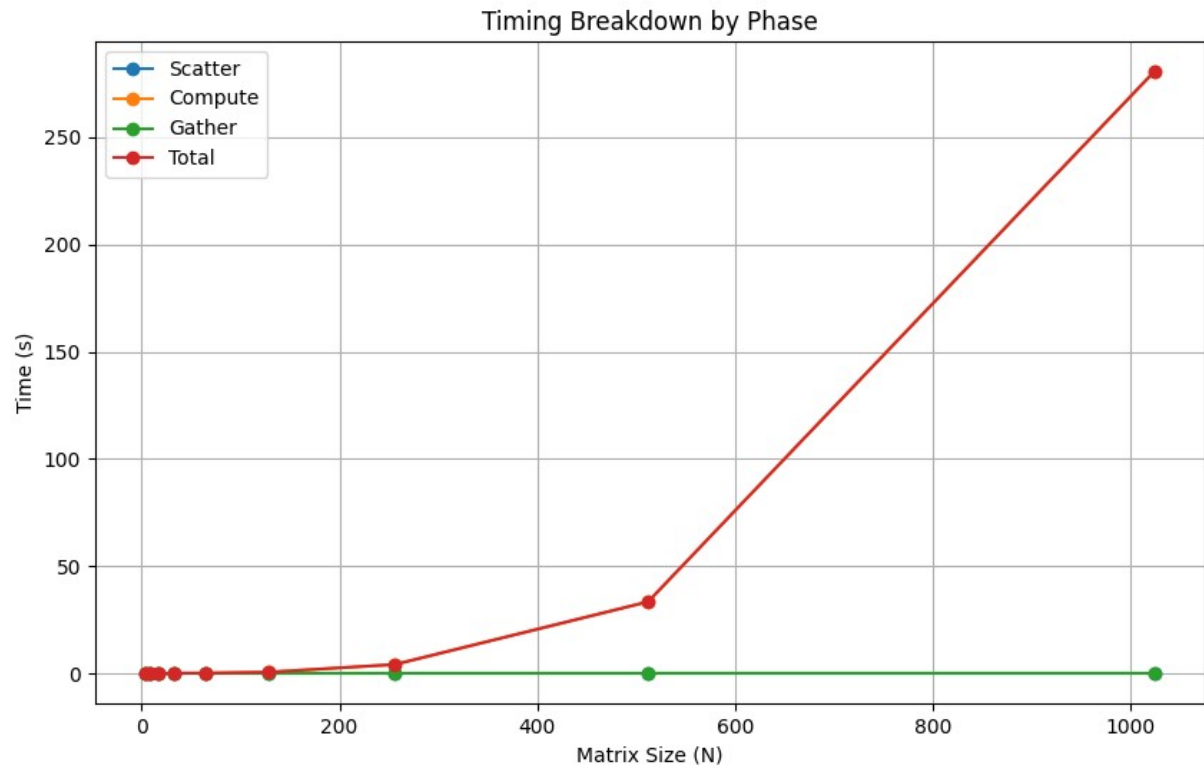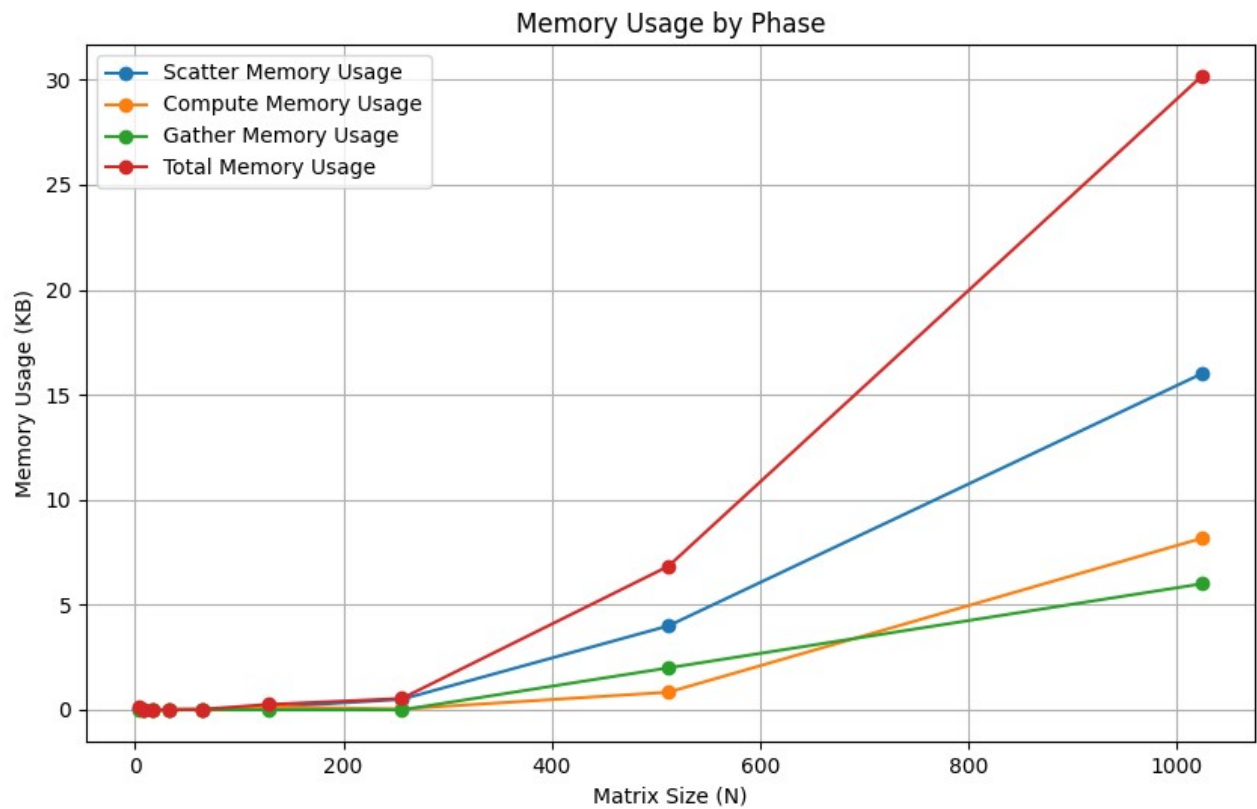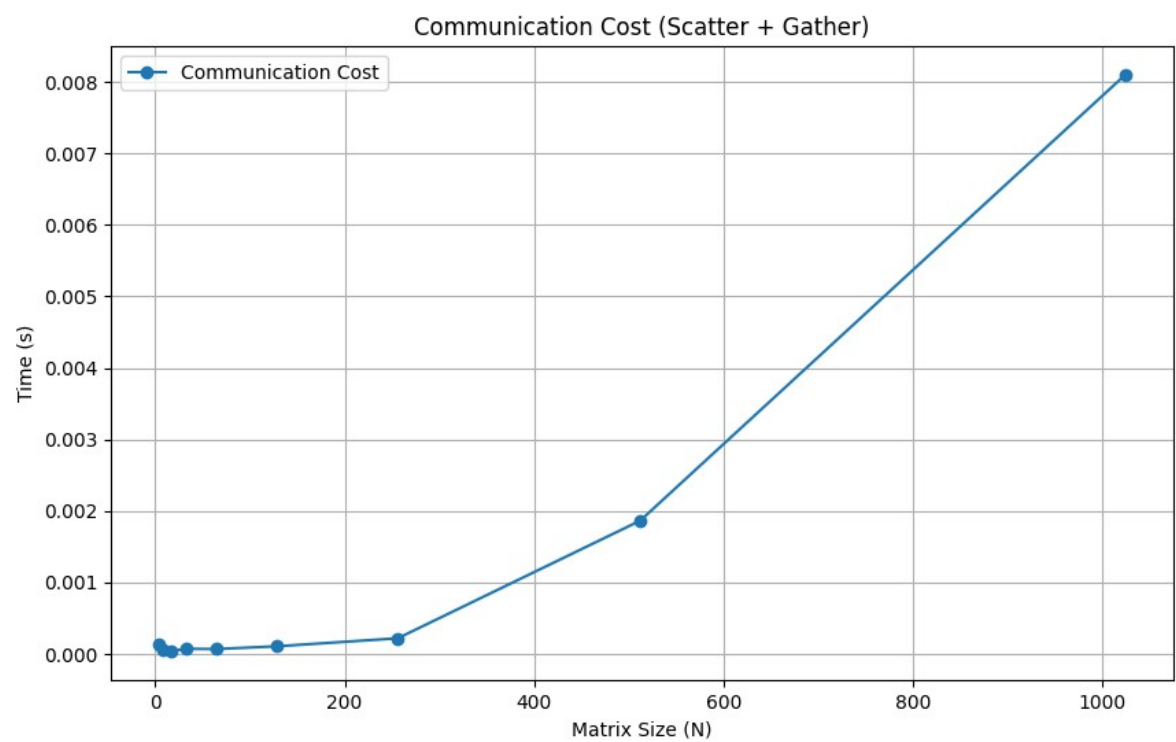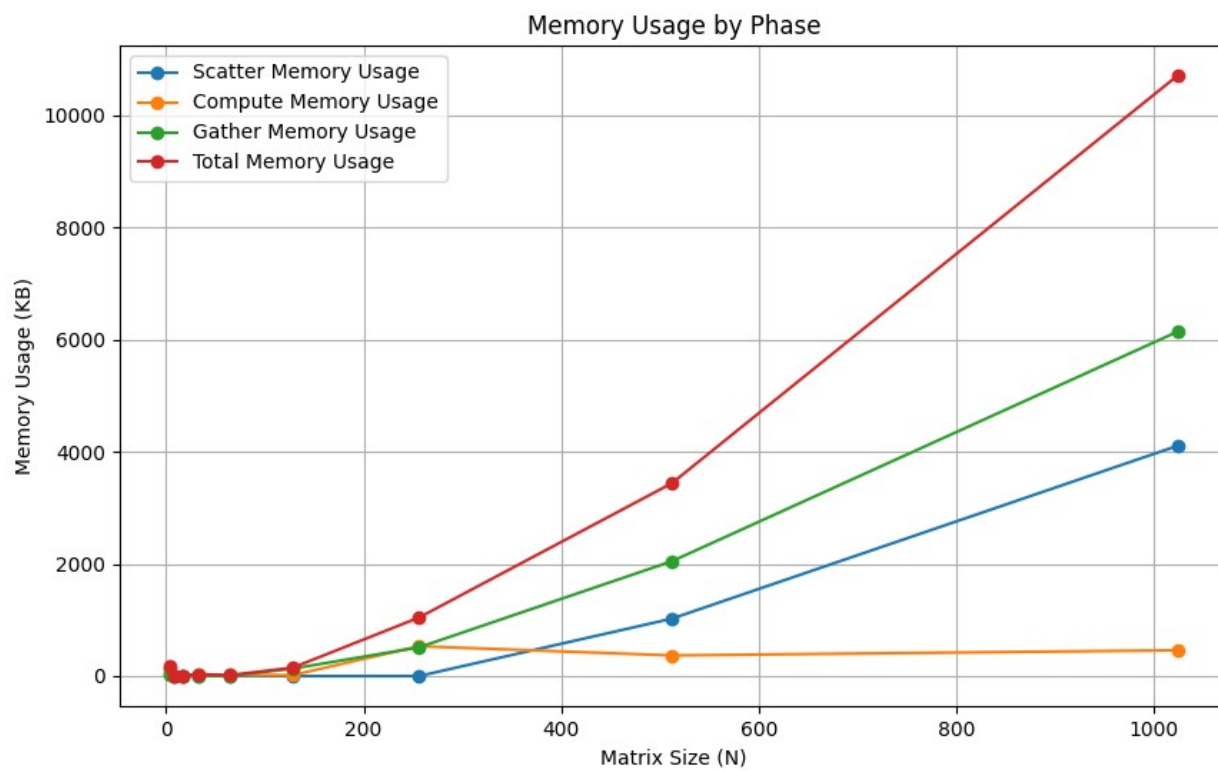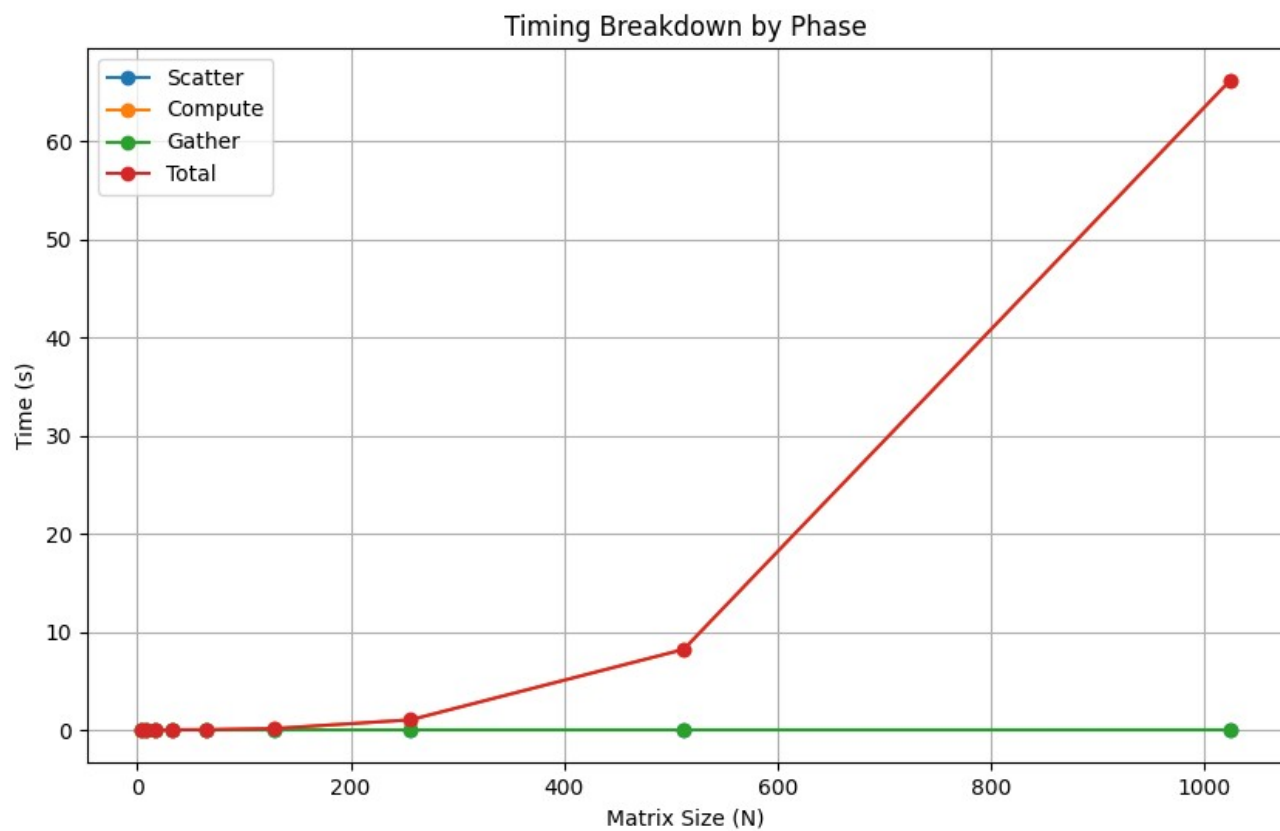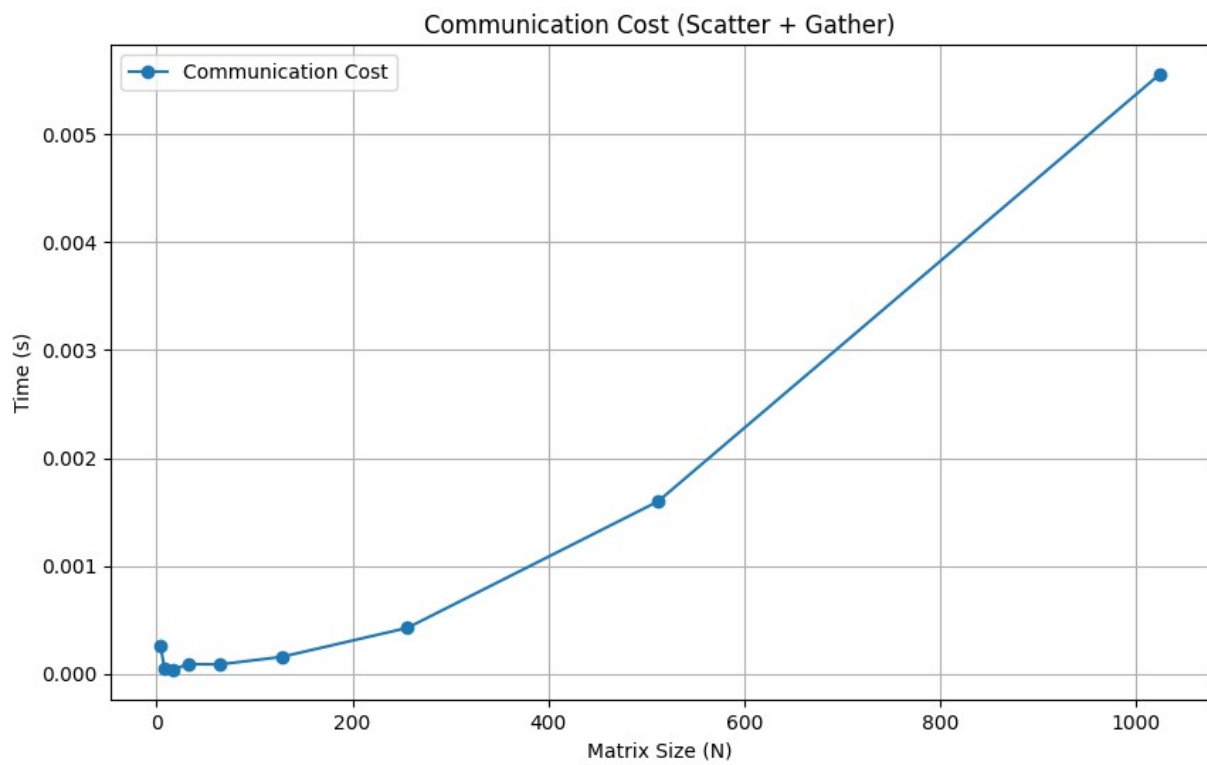
Timing Breakdown by Phase

(MB, blad w kodzie, dzielilem przez 1024 w 2 miejscach)

Memory Usage by Phase

Communication Cost (Scatter + Gather)

4 watki

Timing Breakdown by Phase

Memory Usage by Phase

Communication Cost (Scatter + Gather)

```
Results are the same!

Matrix Size: 4x4
Scatter Time: 0.000214 s, Memory Usage: 120.00 KB
Compute Time: 0.000101 s, Memory Usage: 44.00 KB
Gather Time: 0.000046 s, Memory Usage: 20.00 KB
Total Time: 0.000665 s, Total Memory Usage: 184.0 KB
Total Squential Time: 0.000000 s, Sequential memory usage : 0.0 KB
Results are the same!

Matrix Size: 8x8
Scatter Time: 0.000035 s, Memory Usage: 0.00 KB
Compute Time: 0.000077 s, Memory Usage: 0.00 KB
Gather Time: 0.000016 s, Memory Usage: 0.00 KB
Total Time: 0.000145 s, Total Memory Usage: 0.0 KB
Total Squential Time: 0.001001 s, Sequential memory usage : 0.0 KB
Results are the same!

Matrix Size: 16x16
Scatter Time: 0.000024 s, Memory Usage: 4.00 KB
Compute Time: 0.000303 s, Memory Usage: 4.00 KB
Gather Time: 0.000014 s, Memory Usage: 0.00 KB
Total Time: 0.000360 s, Total Memory Usage: 8.0 KB
Total Squential Time: 0.001000 s, Sequential memory usage : 0.0 KB
Results are the same!

Matrix Size: 32x32
Scatter Time: 0.000040 s, Memory Usage: 4.00 KB
Compute Time: 0.002582 s, Memory Usage: 20.00 KB
Gather Time: 0.000052 s, Memory Usage: 12.00 KB
Total Time: 0.002691 s, Total Memory Usage: 36.0 KB
Total Squential Time: 0.008000 s, Sequential memory usage : 12.0 KB
Results are the same!

Matrix Size: 64x64
Scatter Time: 0.000057 s, Memory Usage: 0.00 KB
Compute Time: 0.016567 s, Memory Usage: 16.00 KB
Gather Time: 0.000033 s, Memory Usage: 0.00 KB
Total Time: 0.016688 s, Total Memory Usage: 16.0 KB
Total Squential Time: 0.064000 s, Sequential memory usage : 20.0 KB
Results are the same!

Matrix Size: 128x128
Scatter Time: 0.000074 s, Memory Usage: 0.00 KB
Compute Time: 0.132159 s, Memory Usage: 16.00 KB
Gather Time: 0.000085 s, Memory Usage: 132.00 KB
Total Time: 0.132361 s, Total Memory Usage: 148.0 KB
Total Squential Time: 0.514333 s, Sequential memory usage : 4.0 KB
Results are the same!

Matrix Size: 256x256
Scatter Time: 0.000279 s, Memory Usage: 0.00 KB
Compute Time: 1.023422 s, Memory Usage: 532.00 KB
Gather Time: 0.000149 s, Memory Usage: 512.00 KB
Total Time: 1.023934 s, Total Memory Usage: 1044.0 KB
Total Squential Time: 4.128687 s, Sequential memory usage : 0.0 KB
Results are the same!

Matrix Size: 512x512
Scatter Time: 0.001016 s, Memory Usage: 1024.00 KB
Compute Time: 8.199867 s, Memory Usage: 368.00 KB
Gather Time: 0.000583 s, Memory Usage: 2048.00 KB
Total Time: 8.201635 s, Total Memory Usage: 3440.0 KB
Total Squential Time: 33.526490 s, Sequential memory usage : 504.0 KB
Results are the same!

Matrix Size: 1024x1024
Scatter Time: 0.003144 s, Memory Usage: 4108.00 KB
Compute Time: 66.140089 s, Memory Usage: 460.00 KB
Gather Time: 0.002408 s, Memory Usage: 6144.00 KB
Total Time: 66.146236 s, Total Memory Usage: 10712.0 KB
Total Squential Time: 279.796756 s, Sequential memory usage : 6324.0 KB
```
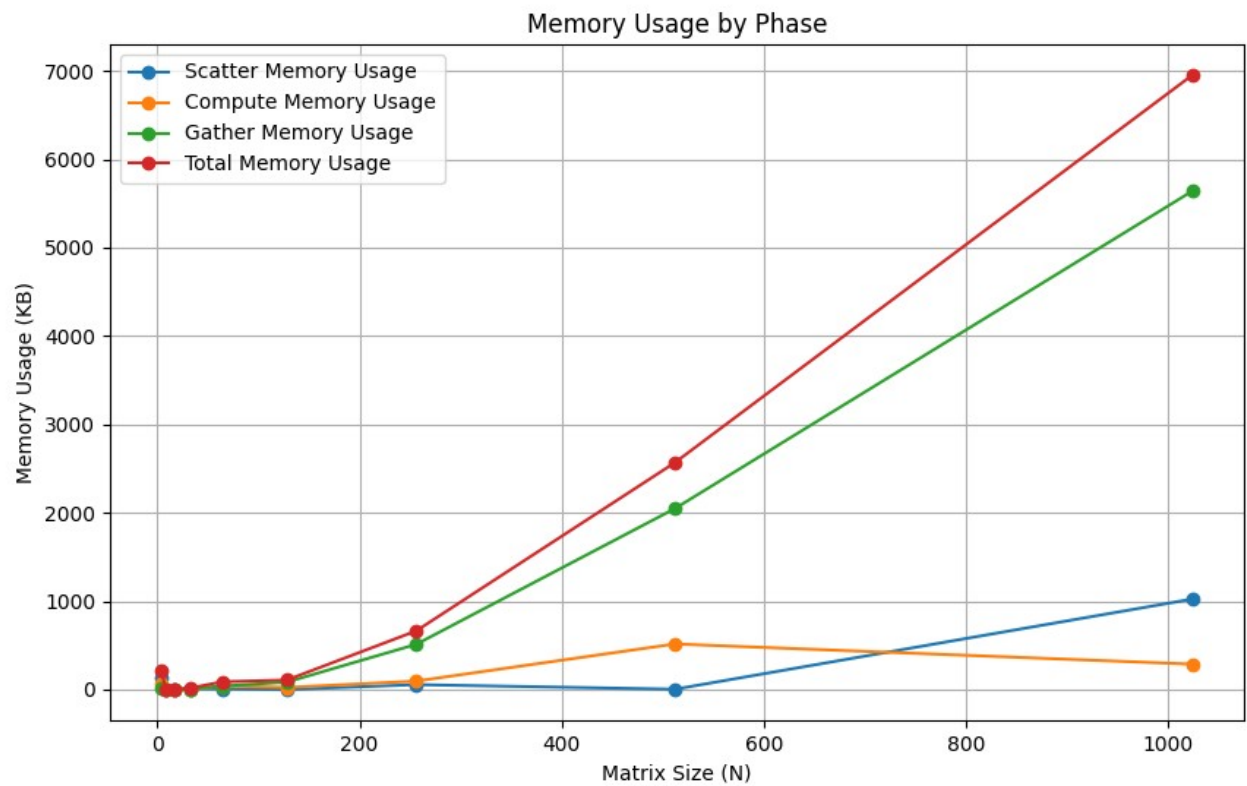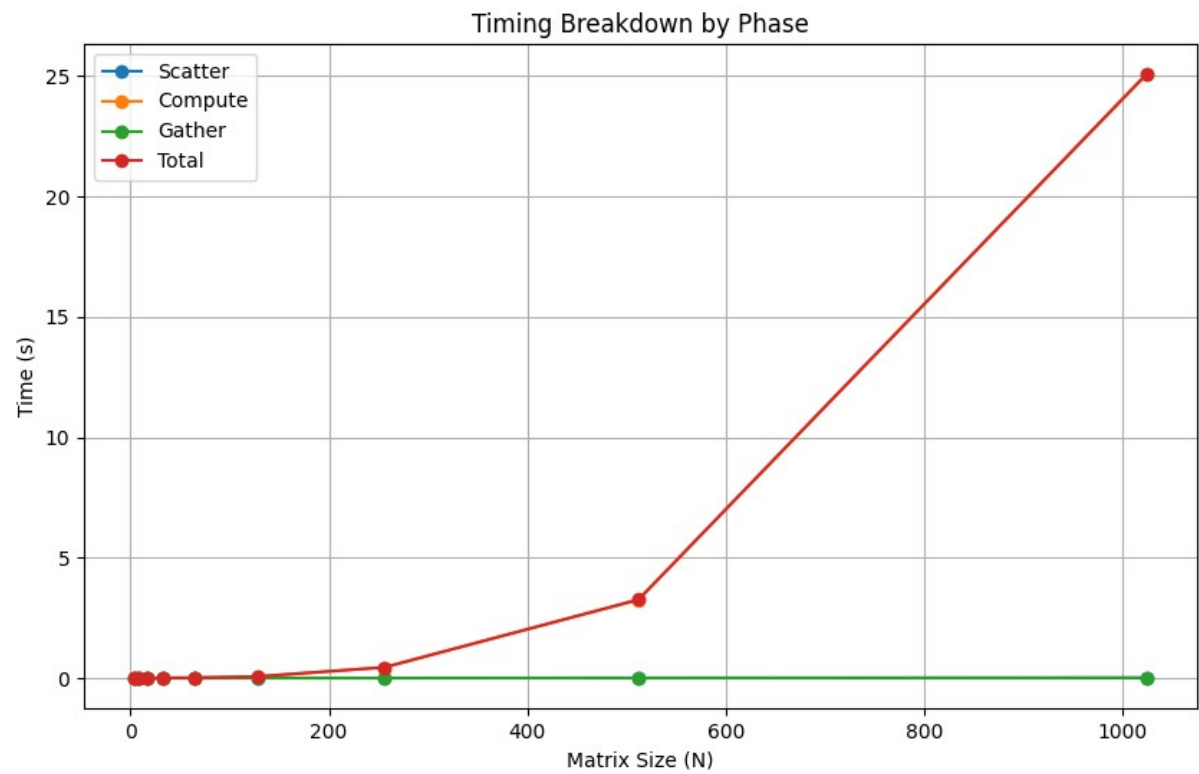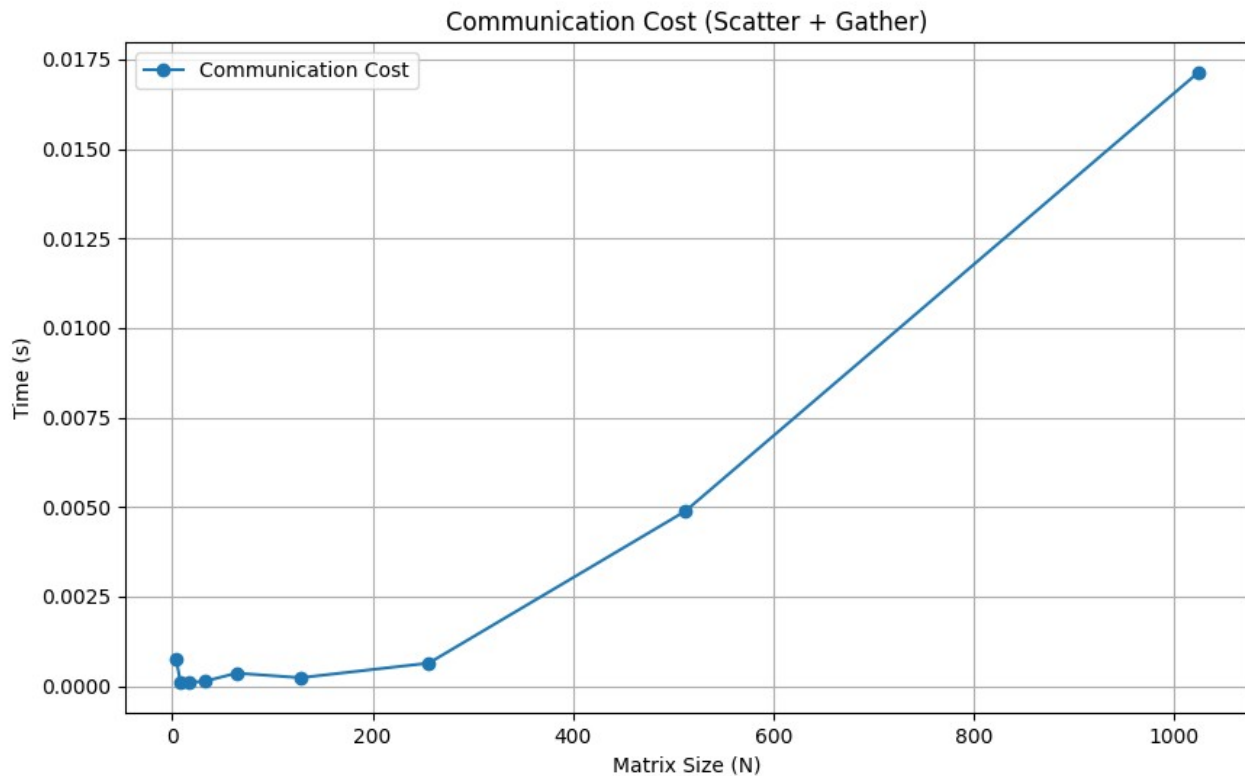
16 watkow

Timing Breakdown by Phase

Memory Usage by Phase

Communication Cost (Scatter + Gather)

Results are different!
Max difference: 1.0692617368493176
Mean difference: 0.12001191707372927

Matrix Size: 4x4
Scatter Time: 0.000636 s, Memory Usage: 136.00 KB
Compute Time: 0.001078 s, Memory Usage: 64.00 KB
Gather Time: 0.000115 s, Memory Usage: 20.00 KB
Total Time: 0.009102 s, Total Memory Usage: 220.0 KB
Total Squential Time: 0.000000 s, Sequential memory usage : 0.0 KB
Results are different!
Max difference: 0.7766729686388931
Mean difference: 0.13906771954543357

Matrix Size: 8x8
Scatter Time: 0.000057 s, Memory Usage: 0.00 KB
Compute Time: 0.000145 s, Memory Usage: 0.00 KB
Gather Time: 0.000052 s, Memory Usage: 0.00 KB
Total Time: 0.000323 s, Total Memory Usage: 0.0 KB
Total Squential Time: 0.000527 s, Sequential memory usage : 0.0 KB
Results are different!
Max difference: 1.2982341956330288
Mean difference: 0.2030029880841948

Matrix Size: 16x16
Scatter Time: 0.000027 s, Memory Usage: 0.00 KB
Compute Time: 0.000358 s, Memory Usage: 0.00 KB
Gather Time: 0.000081 s, Memory Usage: 0.00 KB
Total Time: 0.000512 s, Total Memory Usage: 0.0 KB
Total Squential Time: 0.001553 s, Sequential memory usage : 0.0 KB
Results are different!
Max difference: 1.94102376502964
Mean difference: 0.24765736740127167

Matrix Size: 32x32
Scatter Time: 0.000049 s, Memory Usage: 8.00 KB
Compute Time: 0.001188 s, Memory Usage: 0.00 KB
Gather Time: 0.000084 s, Memory Usage: 8.00 KB
Total Time: 0.001393 s, Total Memory Usage: 16.0 KB
Total Squential Time: 0.008533 s, Sequential memory usage : 12.0 KB
Results are different!
Max difference: 4.06222610668155
Mean difference: 0.38066186756602405

Matrix Size: 64x64
Scatter Time: 0.000236 s, Memory Usage: 8.00 KB
Compute Time: 0.009367 s, Memory Usage: 40.00 KB
Gather Time: 0.000127 s, Memory Usage: 40.00 KB
Total Time: 0.009914 s, Total Memory Usage: 88.0 KB
Total Squential Time: 0.067414 s, Sequential memory usage : 4.0 KB
Results are different!
Max difference: 5.304364234194935
Mean difference: 0.5265021800014229

Matrix Size: 128x128
Scatter Time: 0.000098 s, Memory Usage: 0.00 KB
Compute Time: 0.060375 s, Memory Usage: 24.00 KB
Gather Time: 0.000139 s, Memory Usage: 84.00 KB
Total Time: 0.061442 s, Total Memory Usage: 108.0 KB
Total Squential Time: 0.510001 s, Sequential memory usage : 132.0 KB
Results are different!
Max difference: 8.623787578736078
Mean difference: 0.7547608589947449

Matrix Size: 256x256
Scatter Time: 0.000450 s, Memory Usage: 56.00 KB
Compute Time: 0.444146 s, Memory Usage: 96.00 KB
Gather Time: 0.000194 s, Memory Usage: 512.00 KB
Total Time: 0.445749 s, Total Memory Usage: 664.0 KB
Total Squential Time: 4.169017 s, Sequential memory usage : 444.0 KB
Results are different!
Max difference: 12.704605150719786
Mean difference: 1.062523514212506

Matrix Size: 512x512
Scatter Time: 0.001143 s, Memory Usage: 4.00 KB
Compute Time: 3.252873 s, Memory Usage: 516.00 KB
Gather Time: 0.003742 s, Memory Usage: 2048.00 KB
Total Time: 3.259632 s, Total Memory Usage: 2568.0 KB
Total Squential Time: 33.266242 s, Sequential memory usage : 860.0 KB
Results are different!
Max difference: 17.83027469115831
Mean difference: 1.5077517020711557

Matrix Size: 1024x1024
Scatter Time: 0.012611 s, Memory Usage: 1024.00 KB
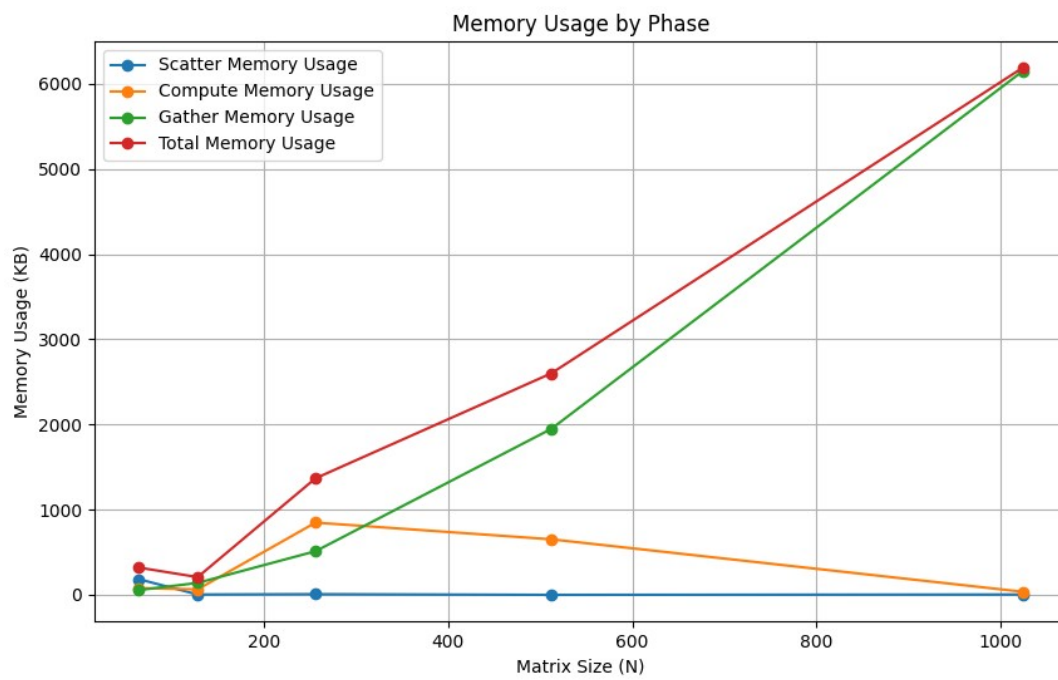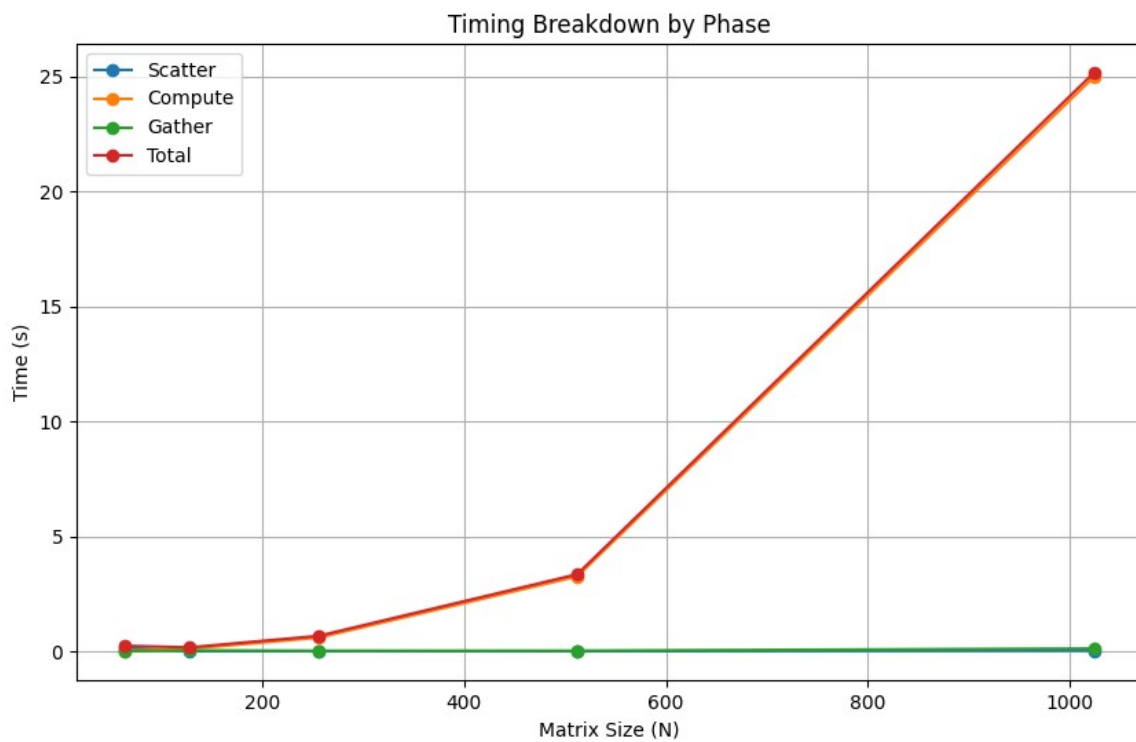Compute Time: 25.067348 s, Memory Usage: 288.00 KB
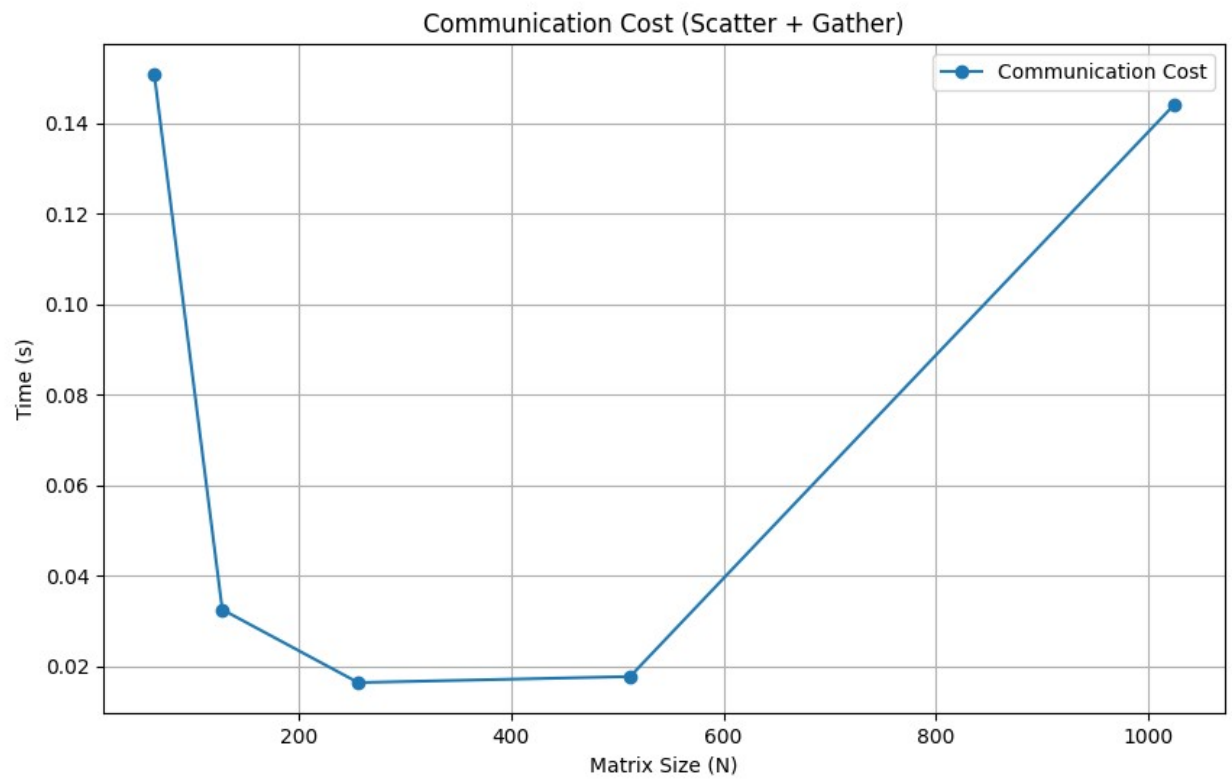Gather Time: 0.004522 s, Memory Usage: 5640.00 KB
Total Time: 25.087863 s, Total Memory Usage: 6952.0 KB
Total Squential Time: 278.487080 s, Sequential memory usage : 6312.0 KB

[64, 128, 256, 512, 1024]
64 watki

Timing Breakdown by Phase

Memory Usage by Phase

Communication Cost (Scatter + Gather)

```
AssertionError: Number of processes must be a perfect square.
PS C:\Users\kacpe\Desktop\Optymalizacja> mpiexec -n 64 python measurements_nodal.py
Results are different!
Max difference: 4.2374678219063344
Mean difference: 0.5568524011110136

Matrix Size: 64x64
Scatter Time: 0.147943 s, Memory Usage: 184.00 KB
Compute Time: 0.012496 s, Memory Usage: 80.00 KB
Gather Time: 0.002786 s, Memory Usage: 56.00 KB
Total Time: 0.234206 s, Total Memory Usage: 320.0 KB
Total Squential Time: 0.065000 s, Sequential memory usage : 32.0 KB
Results are different!
Max difference: 4.769609965608225
Mean difference: 0.8114408218743573

Matrix Size: 128x128
Scatter Time: 0.000154 s, Memory Usage: 4.00 KB
Compute Time: 0.101735 s, Memory Usage: 64.00 KB
Gather Time: 0.032386 s, Memory Usage: 140.00 KB
Total Time: 0.164739 s, Total Memory Usage: 208.0 KB
Total Squential Time: 0.521526 s, Sequential memory usage : 132.0 KB
Results are different!
Max difference: 8.150480654297724
Mean difference: 1.1306885713378239

Matrix Size: 256x256
Scatter Time: 0.004893 s, Memory Usage: 8.00 KB
Compute Time: 0.588419 s, Memory Usage: 848.00 KB
Gather Time: 0.011523 s, Memory Usage: 512.00 KB
Total Time: 0.666202 s, Total Memory Usage: 1368.0 KB
Total Squential Time: 4.168612 s, Sequential memory usage : 248.0 KB
Results are different!
Max difference: 12.106126596879136
Mean difference: 1.596818361353377

Matrix Size: 512x512
Scatter Time: 0.001011 s, Memory Usage: 0.00 KB
Compute Time: 3.253103 s, Memory Usage: 652.00 KB
Gather Time: 0.016740 s, Memory Usage: 1948.00 KB
Total Time: 3.346572 s, Total Memory Usage: 2600.0 KB
Total Squential Time: 33.565380 s, Sequential memory usage : 1024.0 KB
Results are different!
Max difference: 17.5799302928849156
Mean difference: 2.2552334296276877

Matrix Size: 1024x1024
Scatter Time: 0.027487 s, Memory Usage: 4.00 KB
Compute Time: 24.985480 s, Memory Usage: 36.00 KB
Gather Time: 0.116468 s, Memory Usage: 6148.00 KB
Total Time: 25.166743 s, Total Memory Usage: 6188.0 KB
Total Squential Time: 282.585354 s, Sequential memory usage : 6164.0 KB
PS C:\Users\kacpe\Desktop\Optymalizacja> |
```
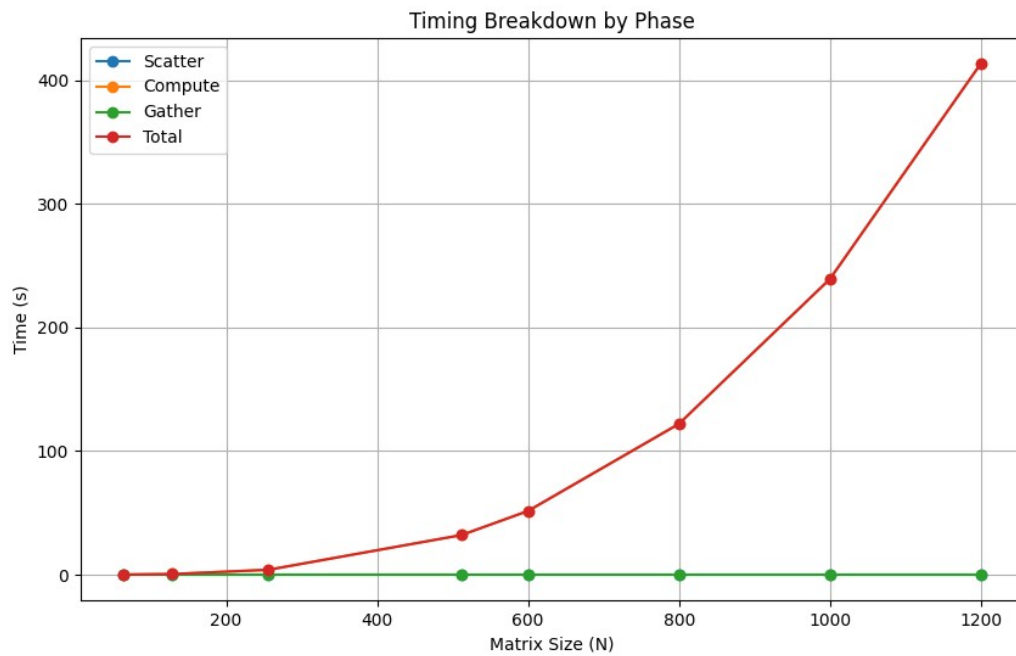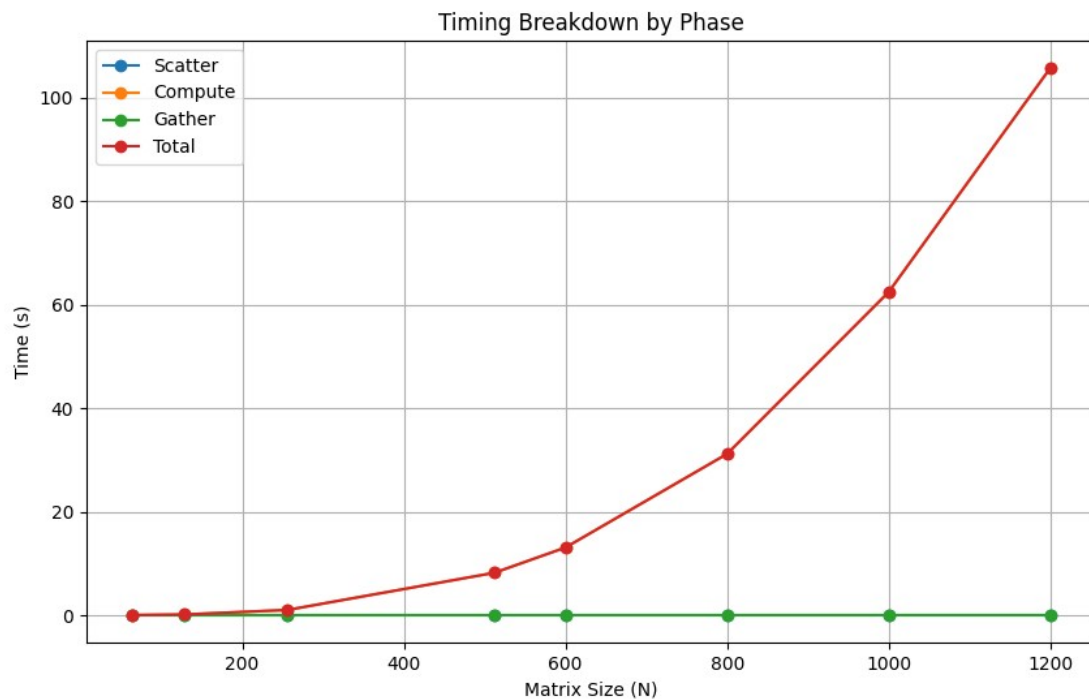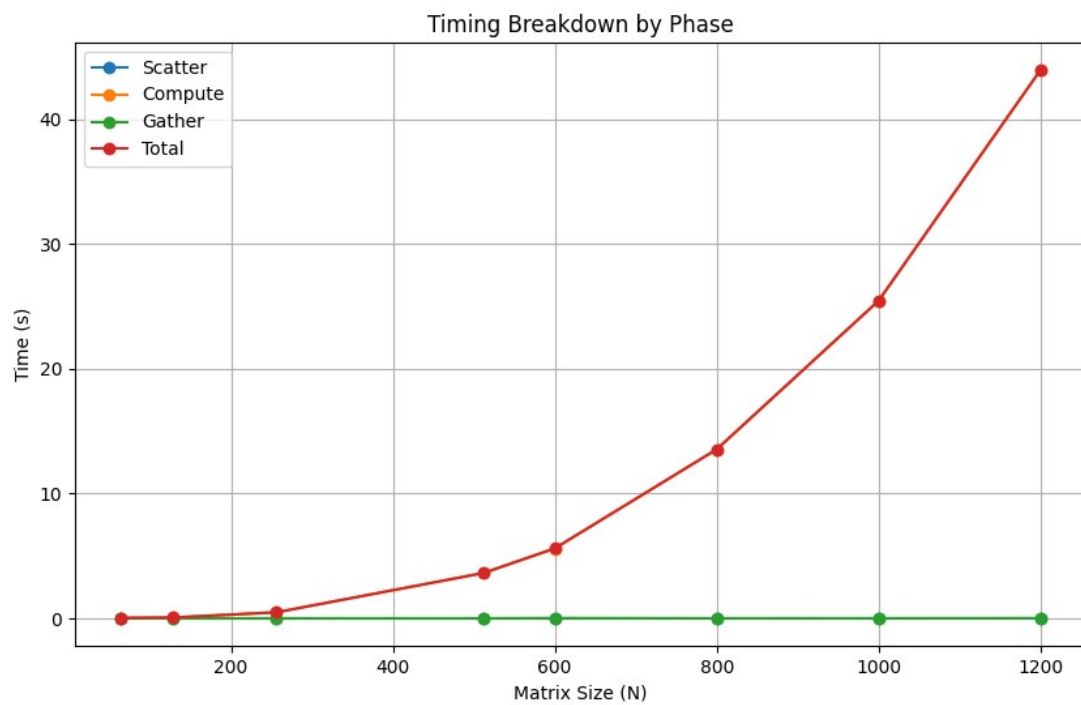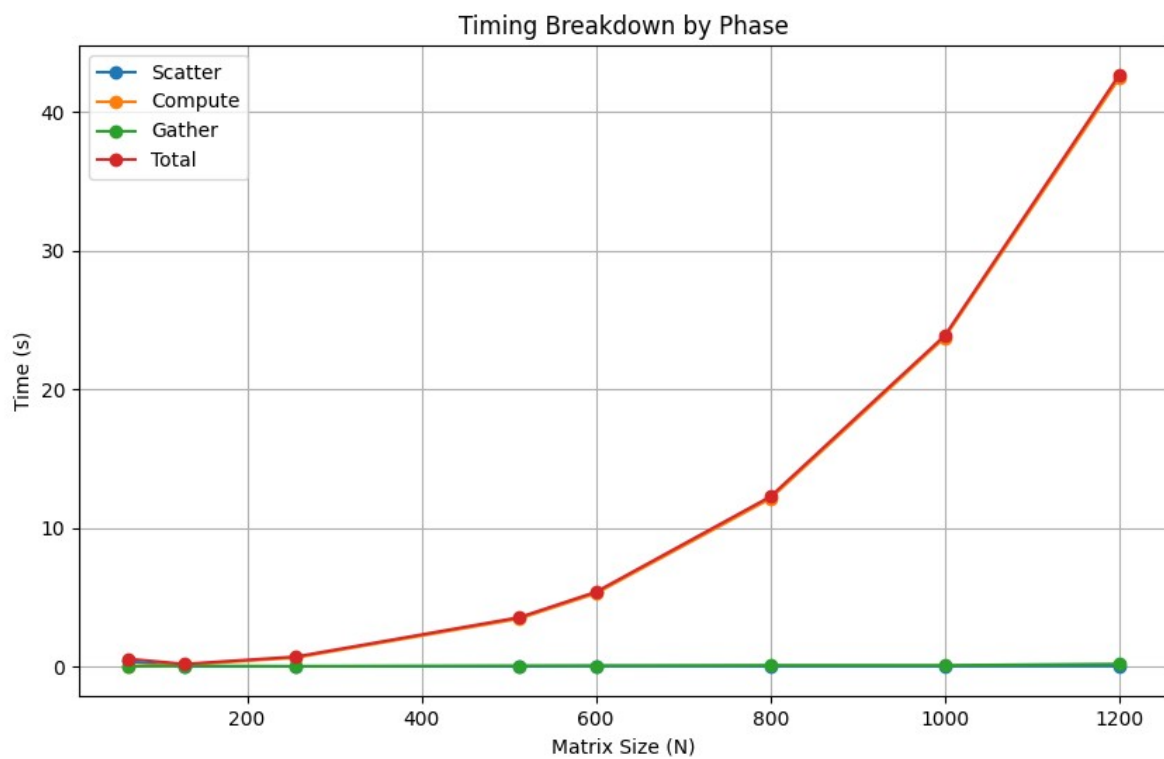
CZESC DRUGA

Liczba procesow : 1

Liczba procesow : 4
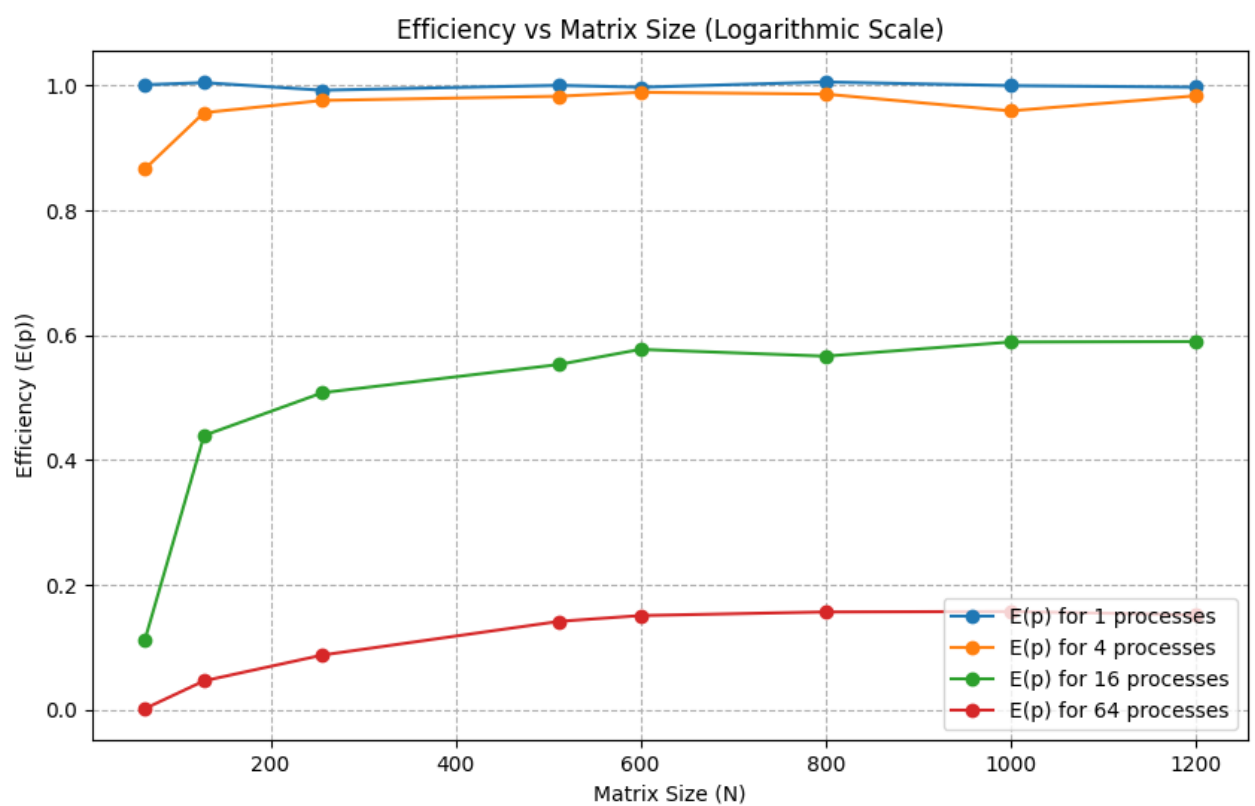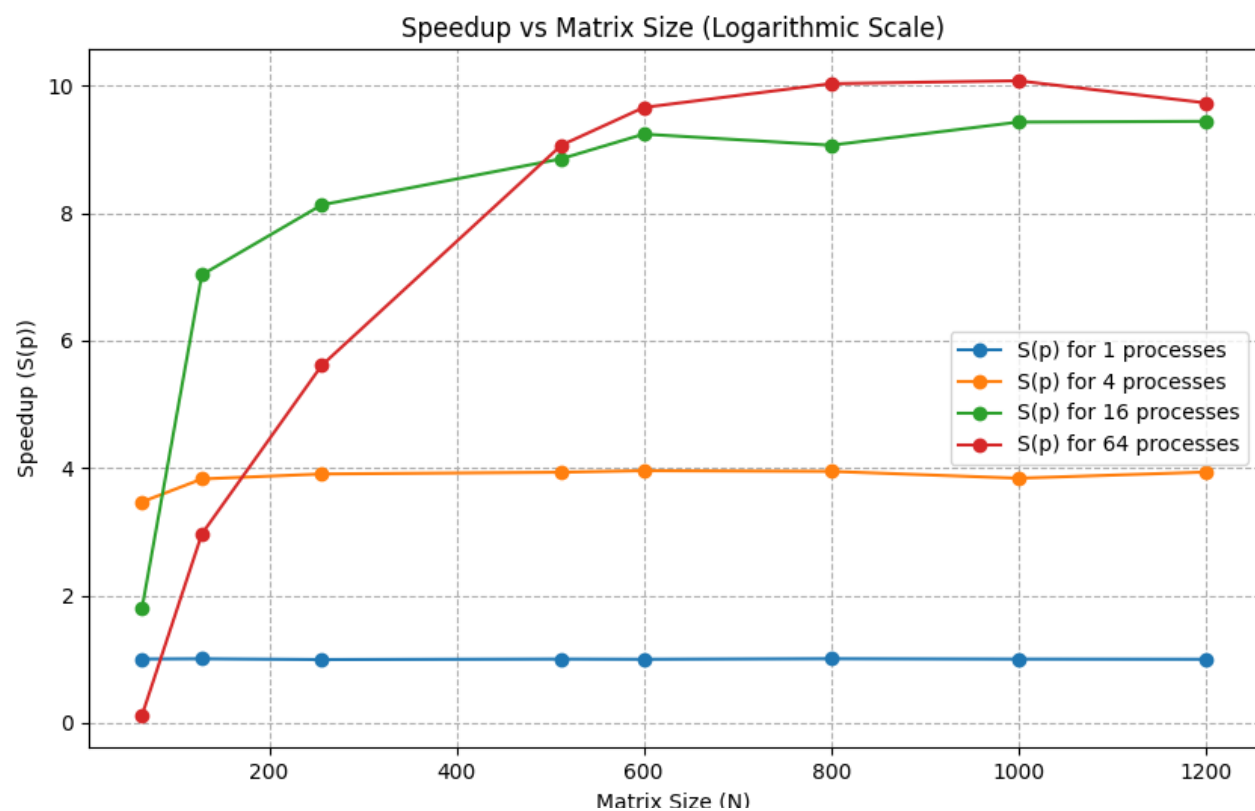

DANE : num_processes = [1, 4, 16, 64] input_sizes = [64, 128, 256, 512, 600, 800, 1000, 1200]

Liczba procesow : 16

Timing Breakdown by Phase

Liczba procesow : 64

Timing Breakdown by Phase

Speedup vs Matrix Size (Logarithmic Scale)

Efficiency vs Matrix Size (Logarithmic Scale)

Speedup vs Number of Processes (P)

Efficiency vs Number of Processes (P)

OS Y na LOG

Speedup vs Matrix Size (Logarithmic Scale)

Efficiency vs Matrix Size (Logarithmic Scale)

Speedup vs Number of Processes (P)

Efficiency vs Number of Processes (P)
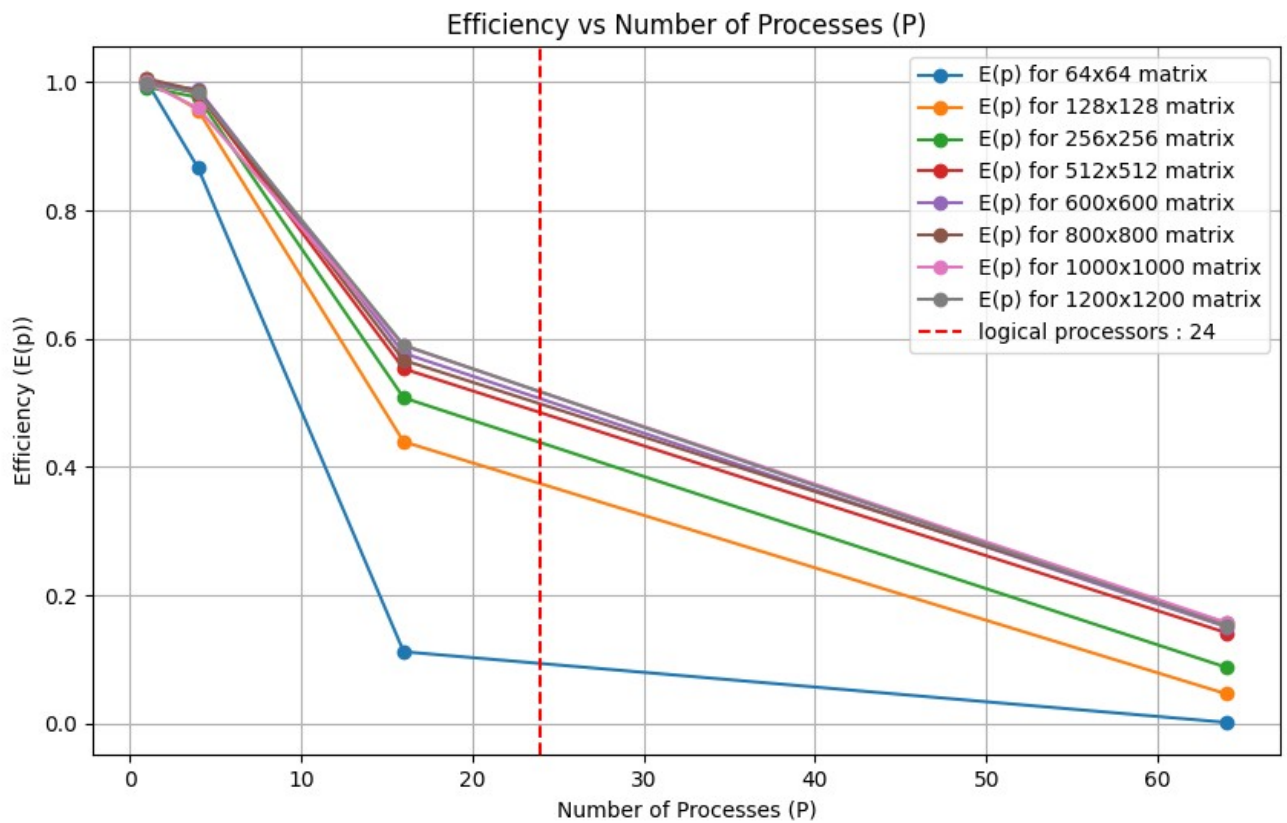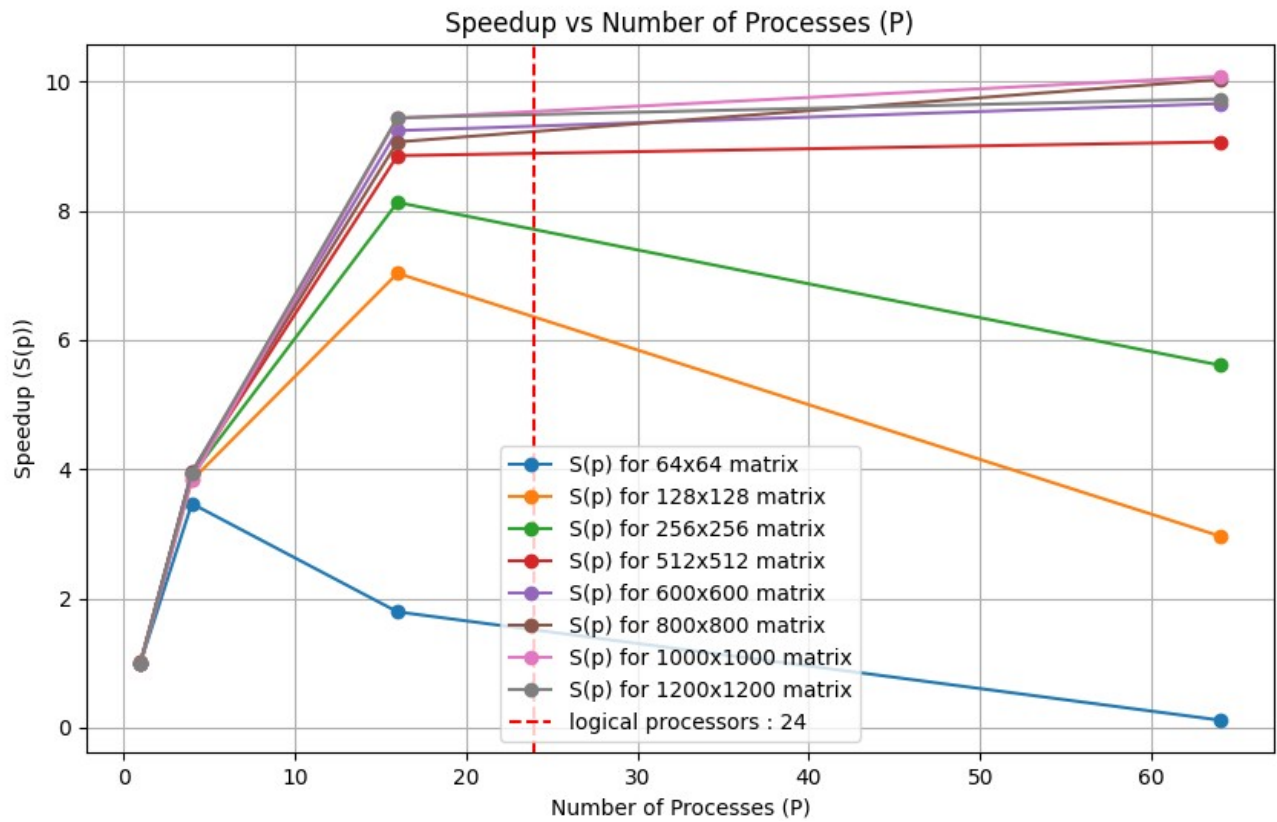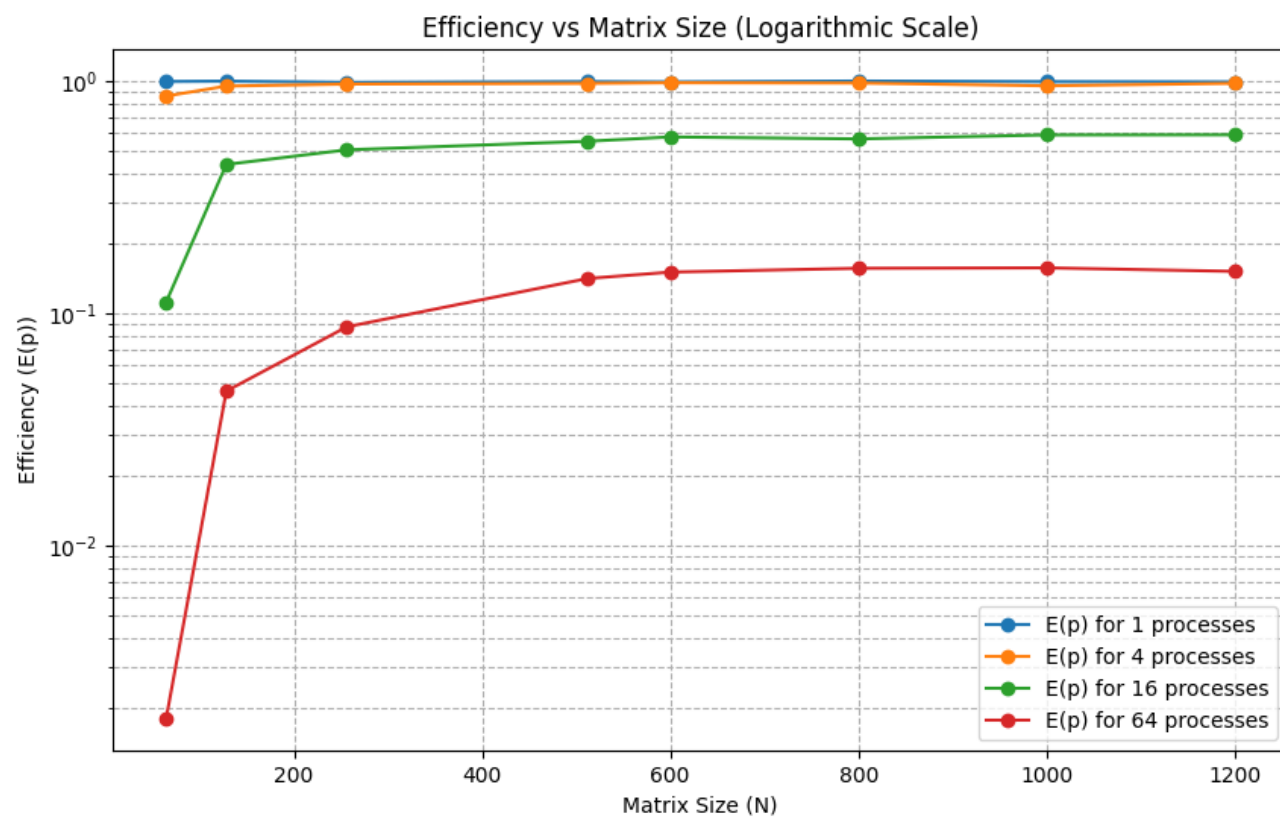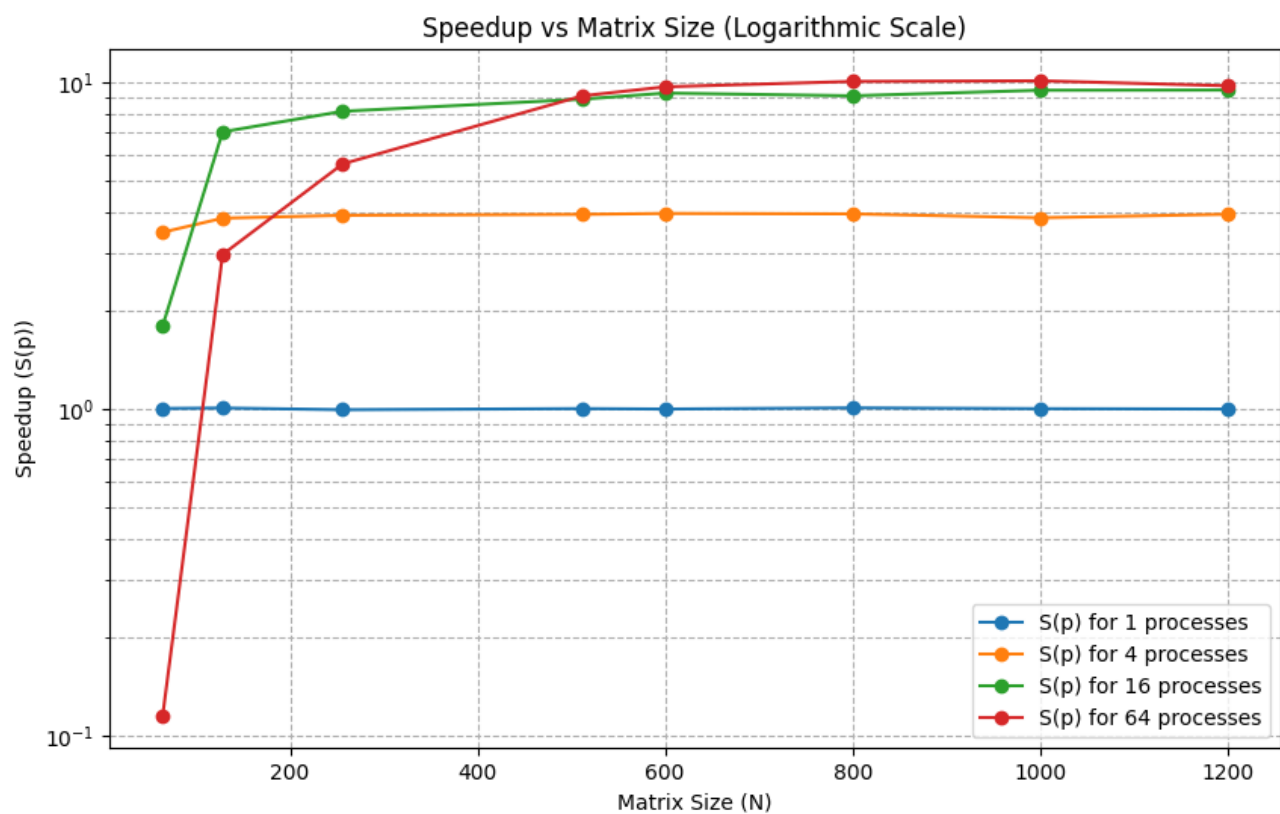
Dodano wiecej punktow pomiarowych :
input_sizes = [120, 240, 360, 480, 600, 720, 840, 960, 1200, 1320]
num_processes = [1, 4, 16, 25, 36, 64]

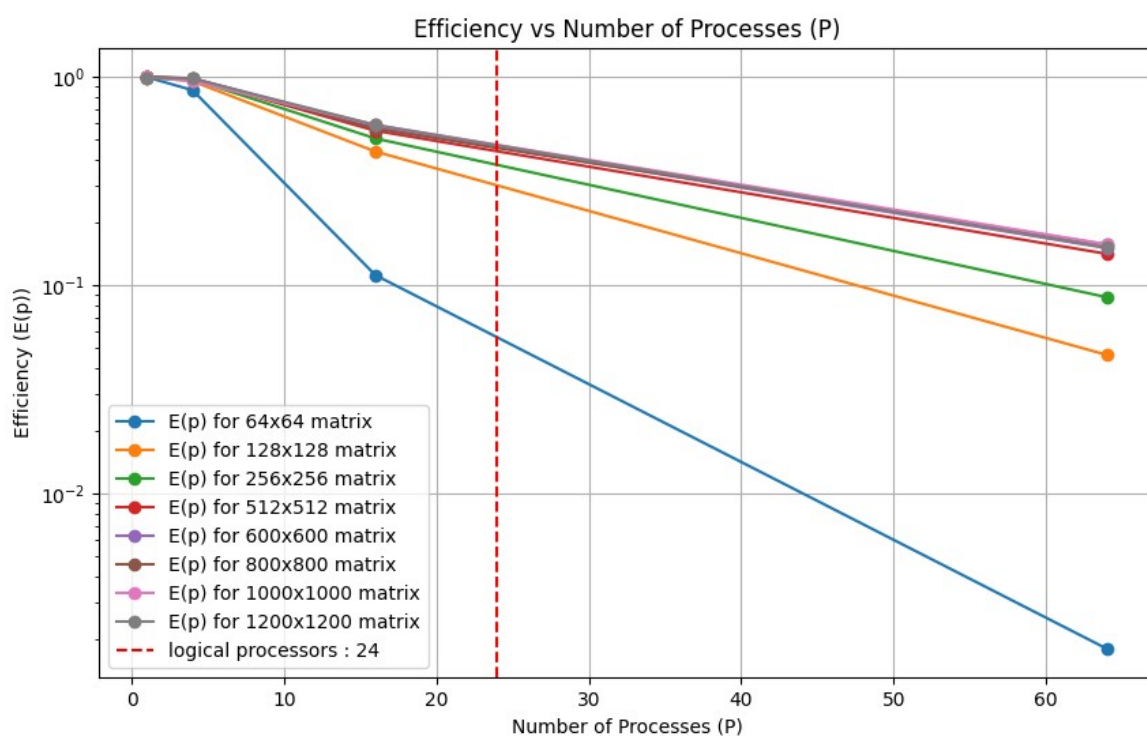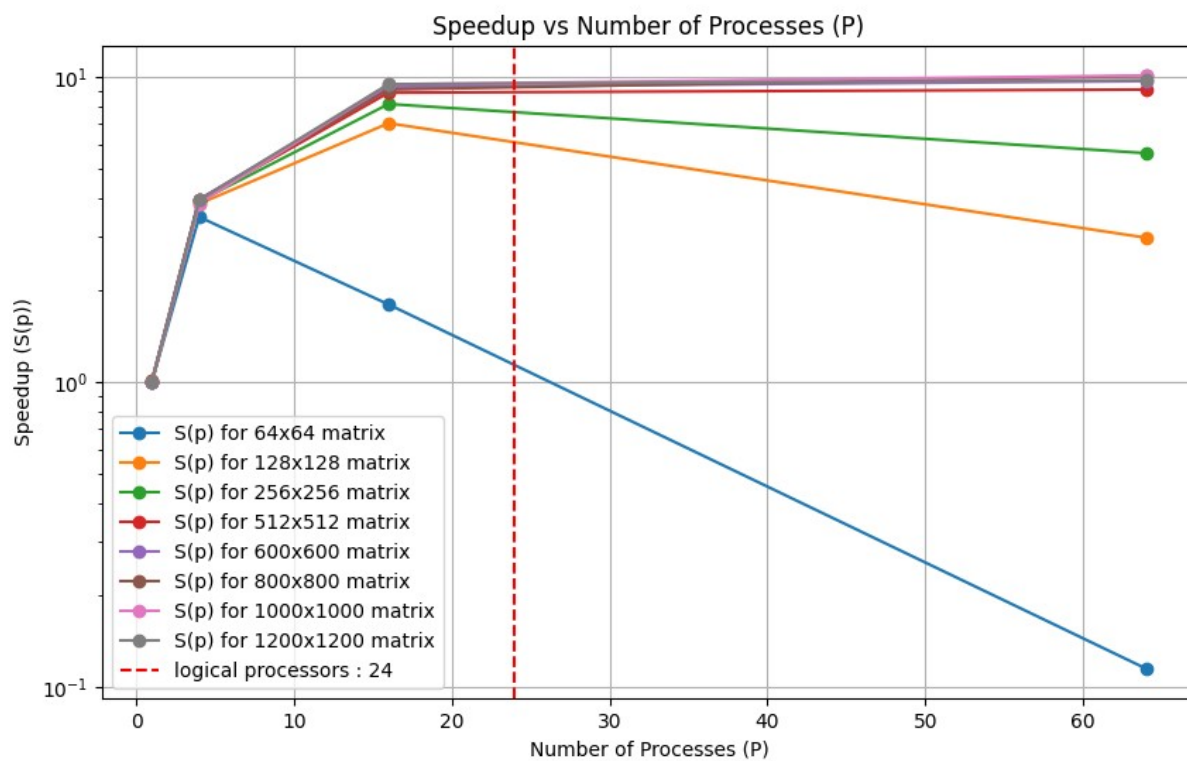Speedup vs Matrix Size (Logarithmic Scale)

Efficiency vs Matrix Size (Logarithmic Scale)

Speedup vs Number of Processes (P)

Efficiency vs Number of Processes (P)

Speedup vs Matrix Size (Logarithmic Scale)

Efficiency vs Matrix Size (Logarithmic Scale)

Speedup vs Number of Processes (P)

Legend:
- S(p) for 120x120 matrix
- S(p) for 240x240 matrix
- S(p) for 360x360 matrix
- S(p) for 480x480 matrix
- S(p) for 600x600 matrix
- S(p) for 720x720 matrix
- S(p) for 840x840 matrix
- S(p) for 960x960 matrix
- S(p) for 1200x1200 matrix
- S(p) for 1320x1320 matrix
- logical processors : 24
- cores : 16

Efficiency vs Number of Processes (P)

Legend:
- E(p) for 120x120 matrix
- E(p) for 240x240 matrix
- E(p) for 360x360 matrix
- E(p) for 480x480 matrix
- E(p) for 600x600 matrix
- E(p) for 720x720 matrix
- E(p) for 840x840 matrix
- E(p) for 960x960 matrix
- E(p) for 1200x1200 matrix
- E(p) for 1320x1320 matrix
- logical processors : 24
- cores : 16