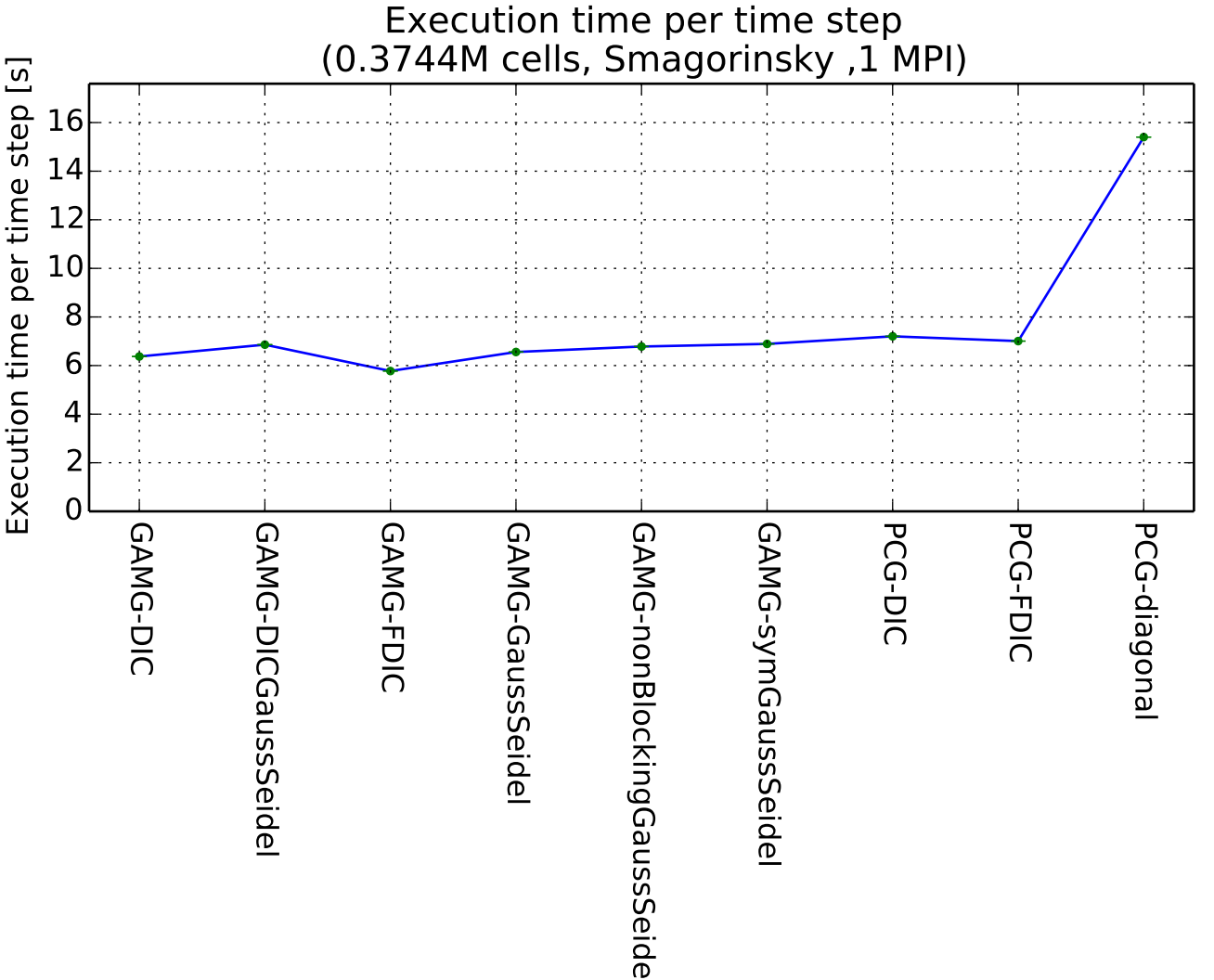
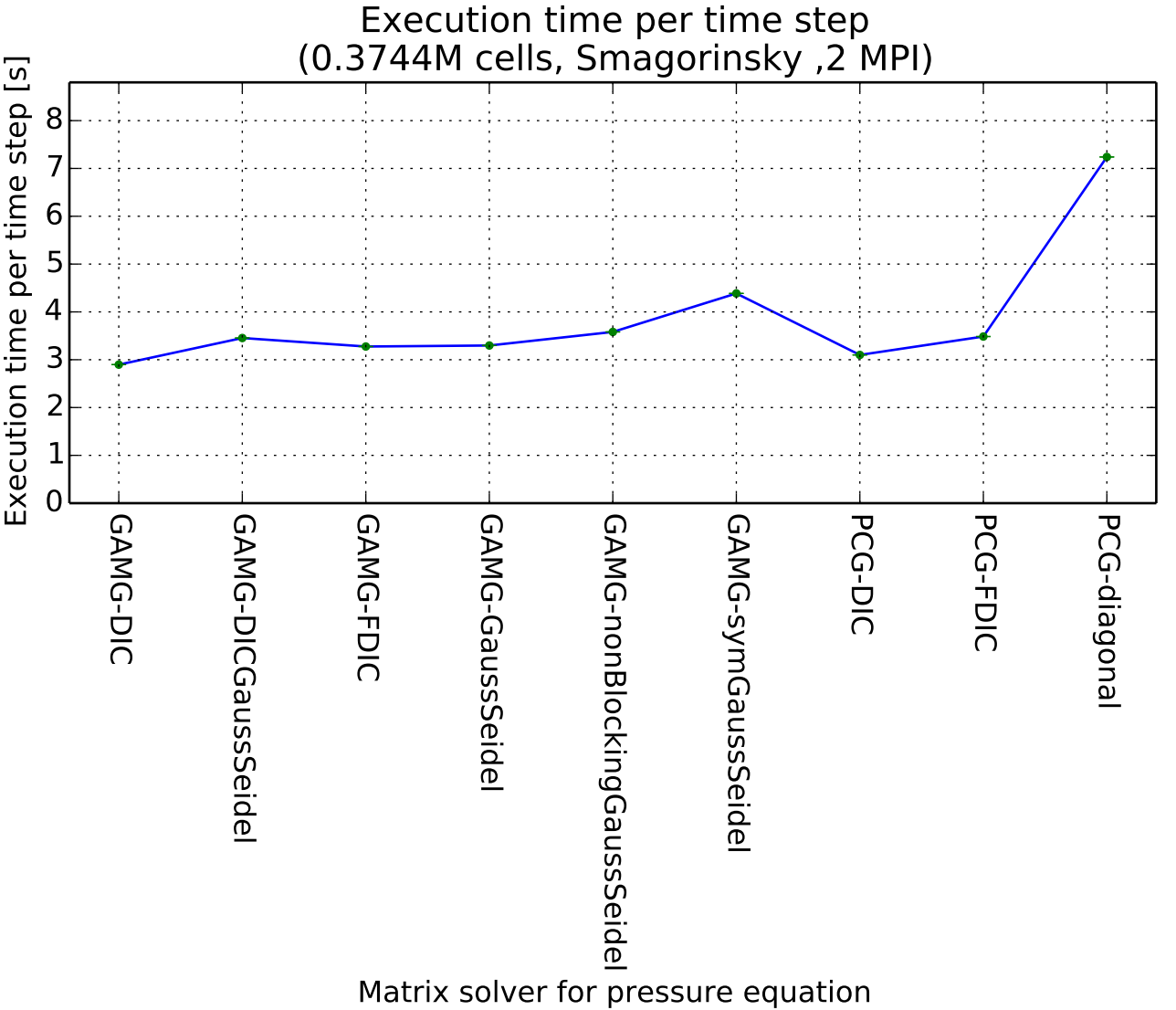
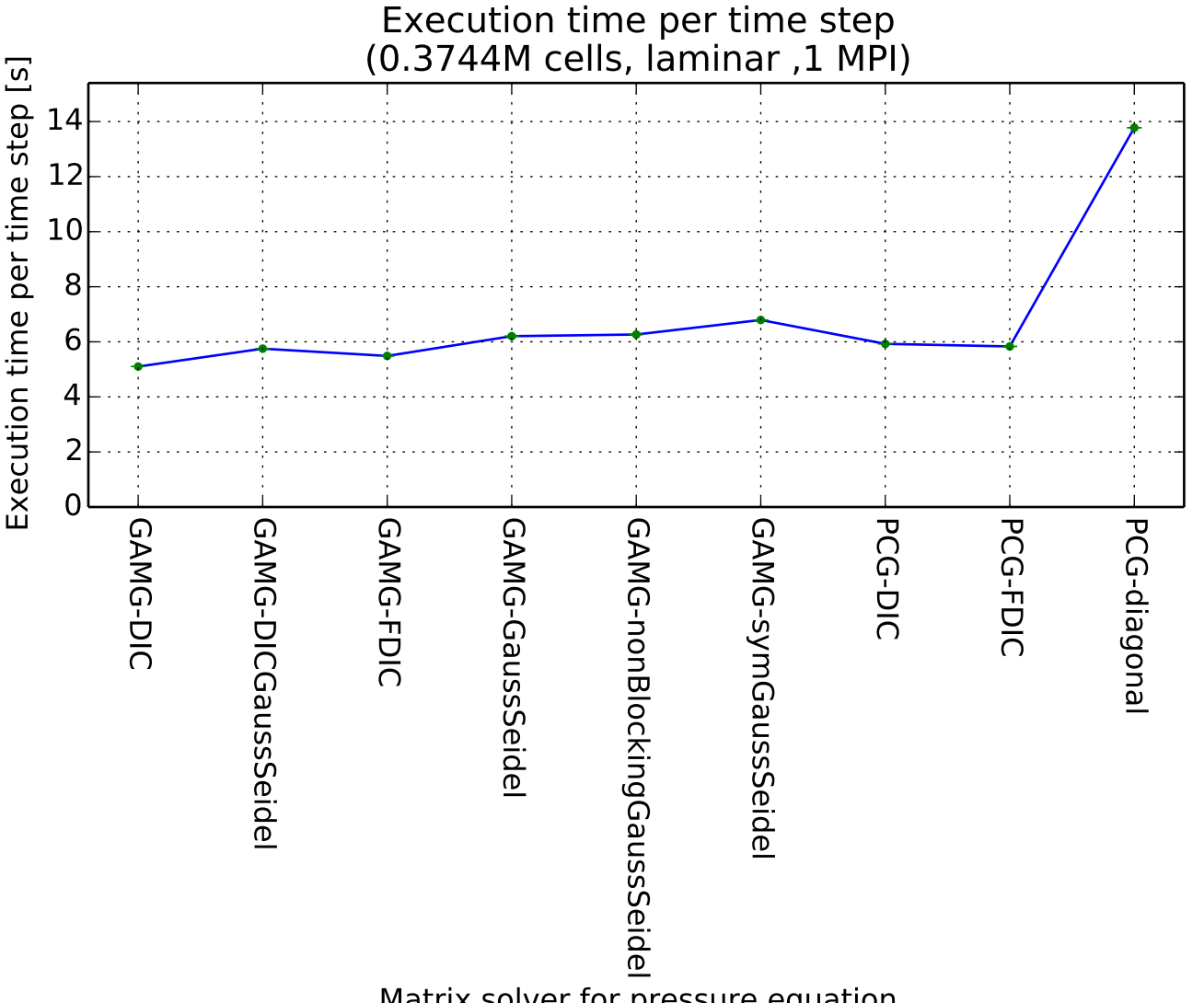
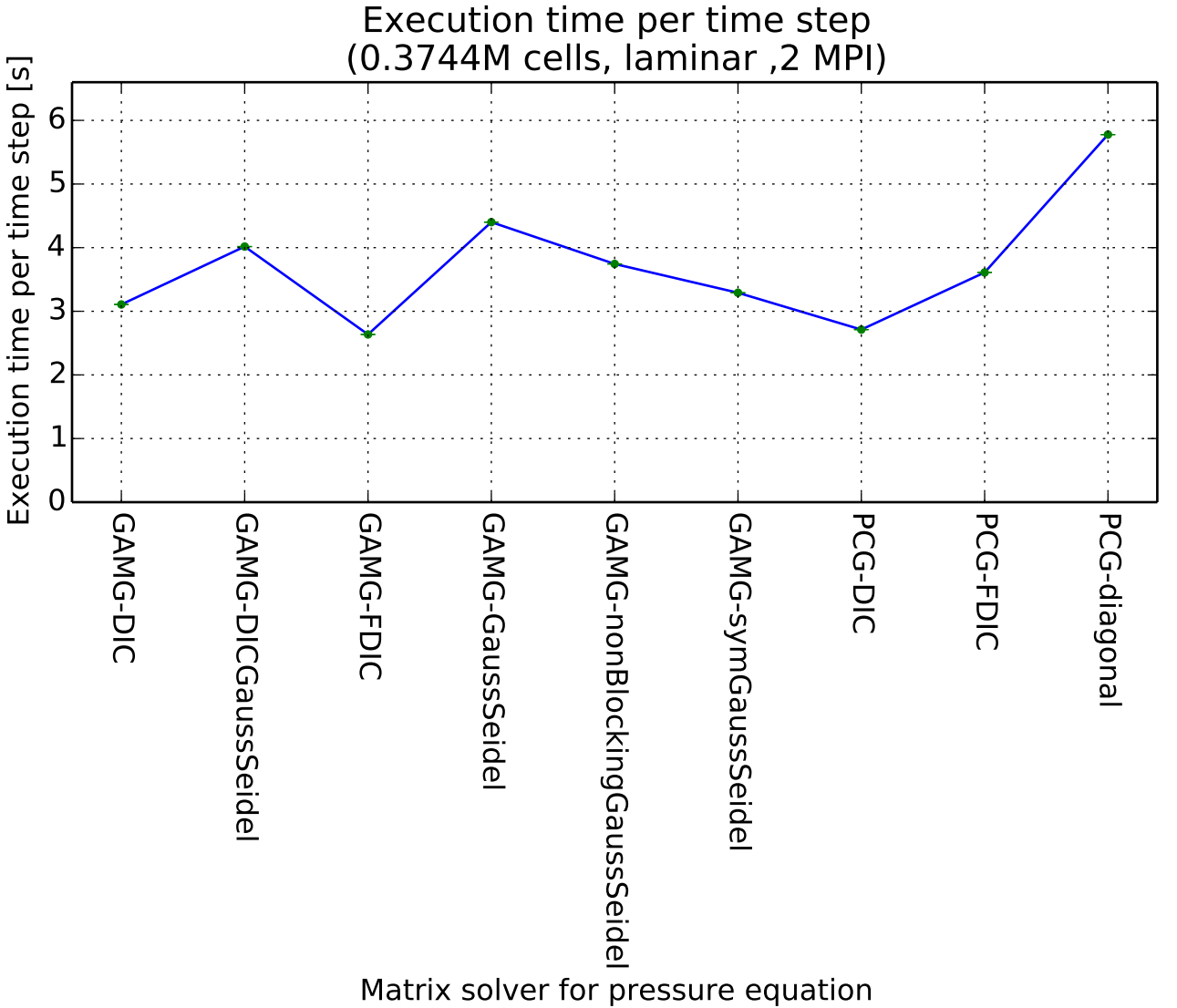
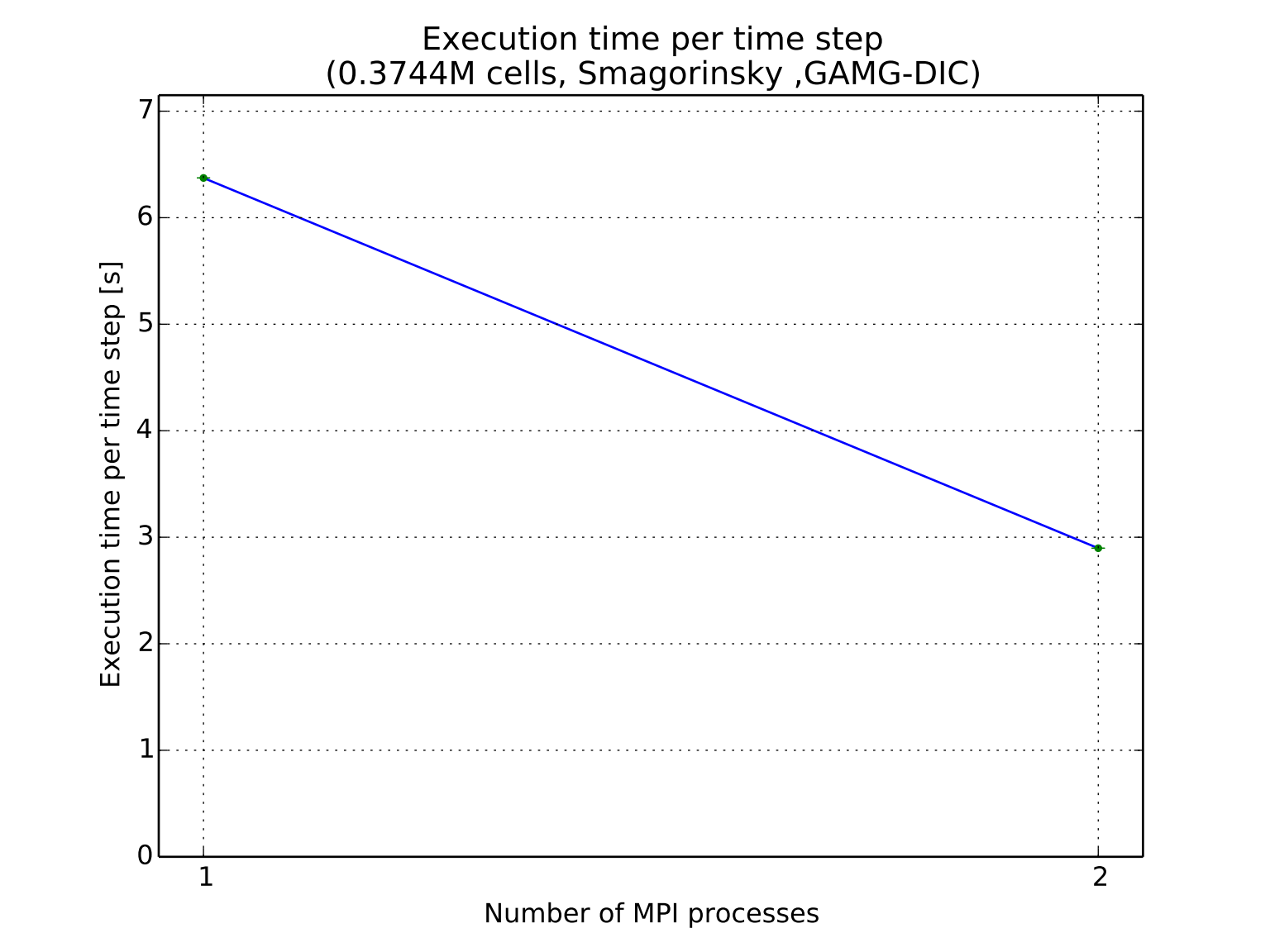
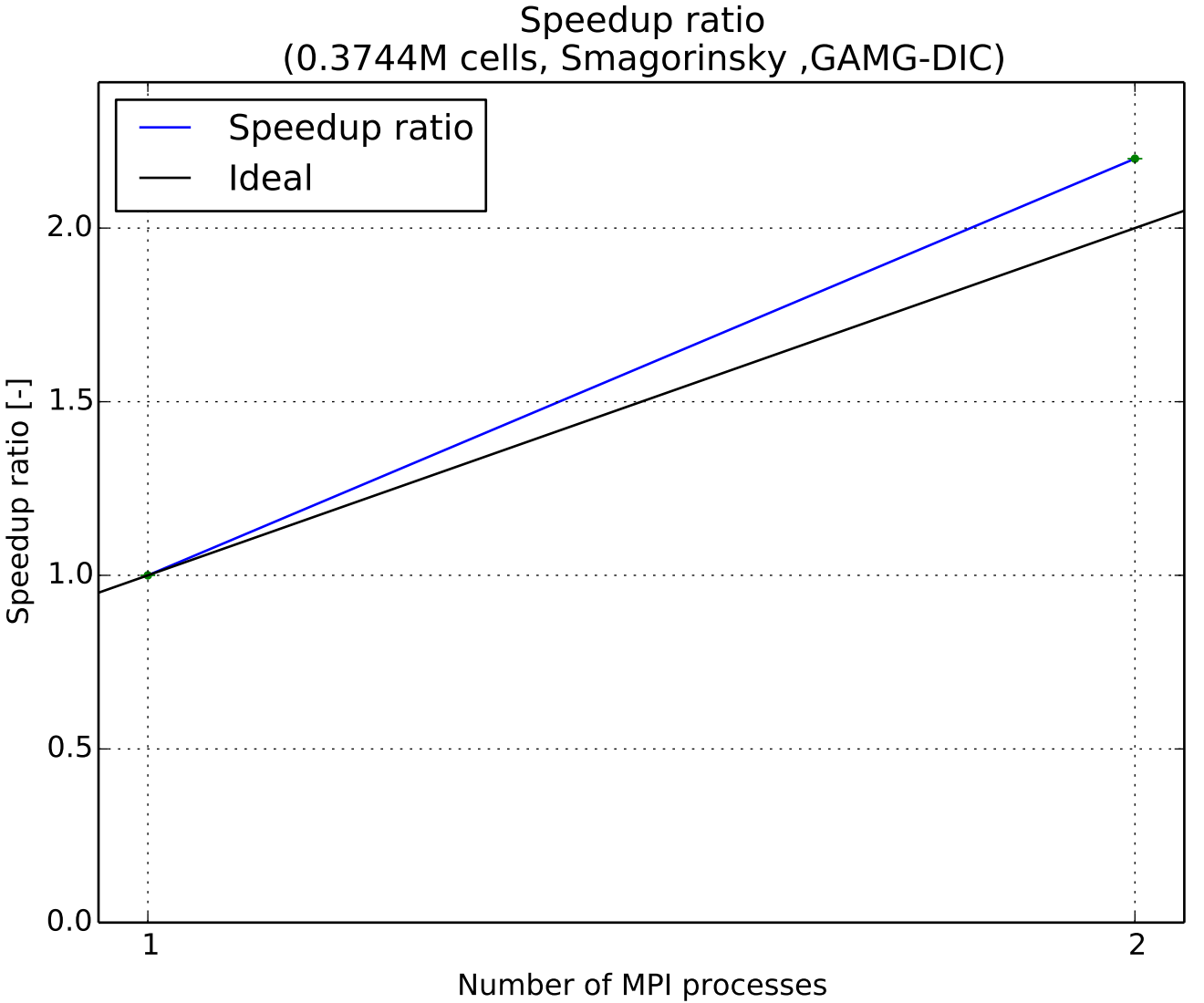

Execution time per time step
(0.3744M cells, Smagorinsky ,1 MPI)
Execution time per time step [s]
0
2
4
6
8
10
12
14
16
GAMG-DIC
GAMG-DICGaussSeidel
GAMG-FDIC
GAMG-GaussSeidel
GAMG-nonBlockingGaussSeidel
GAMG-symGaussSeidel
PCG-DIC
PCG-FDIC
PCG-diagonal
Matrix solver for pressure equation

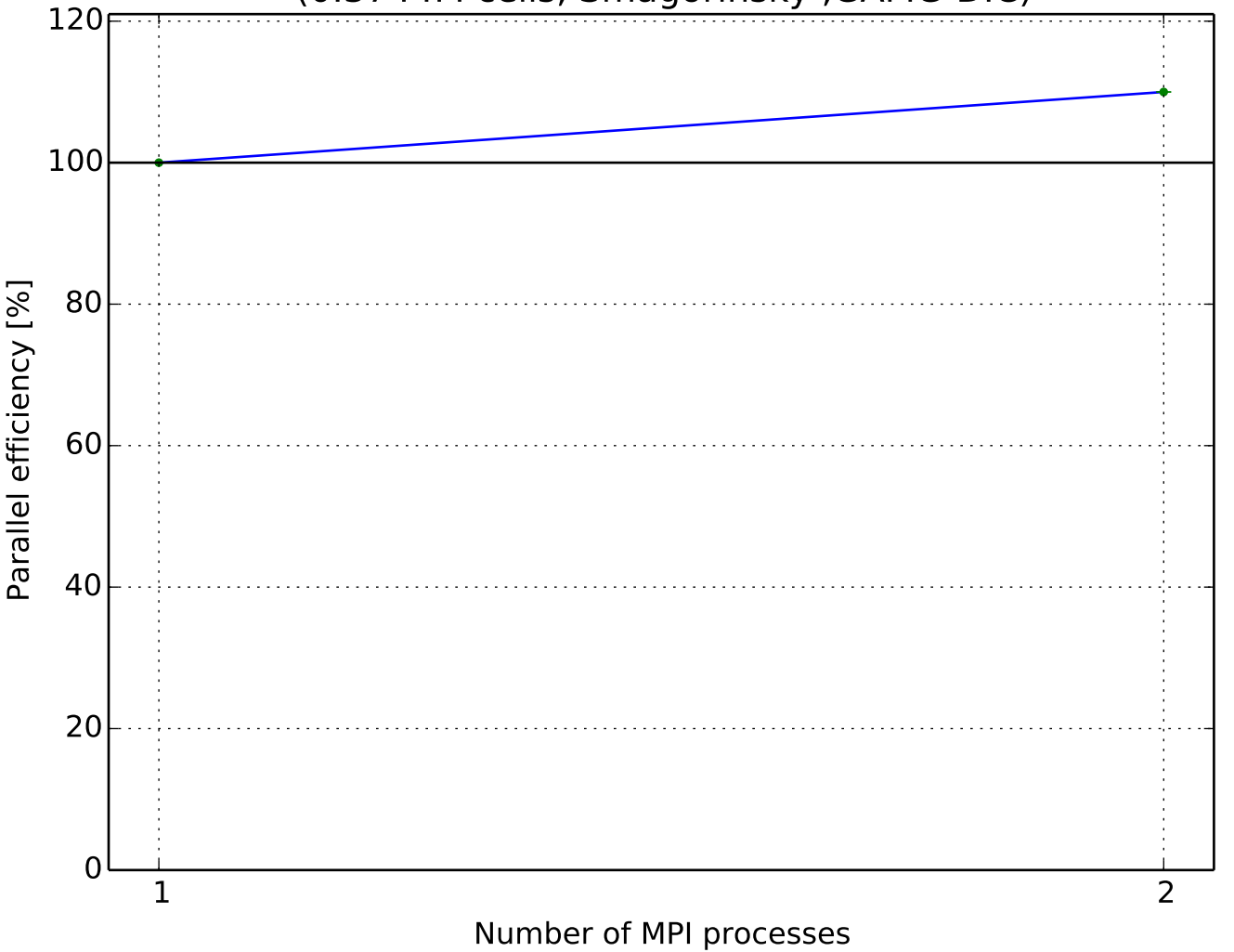

Execution time per time step
(0.3744M cells, Smagorinsky ,2 MPI)
Execution time per time step [s]
0
1
2
3
4
5
6
7
8
GAMG-DIC
GAMG-DICGaussSeidel
GAMG-FDIC
GAMG-GaussSeidel
GAMG-nonBlockingGaussSeidel
GAMG-symGaussSeidel
PCG-DIC
PCG-FDIC
PCG-diagonal
Matrix solver for pressure equation

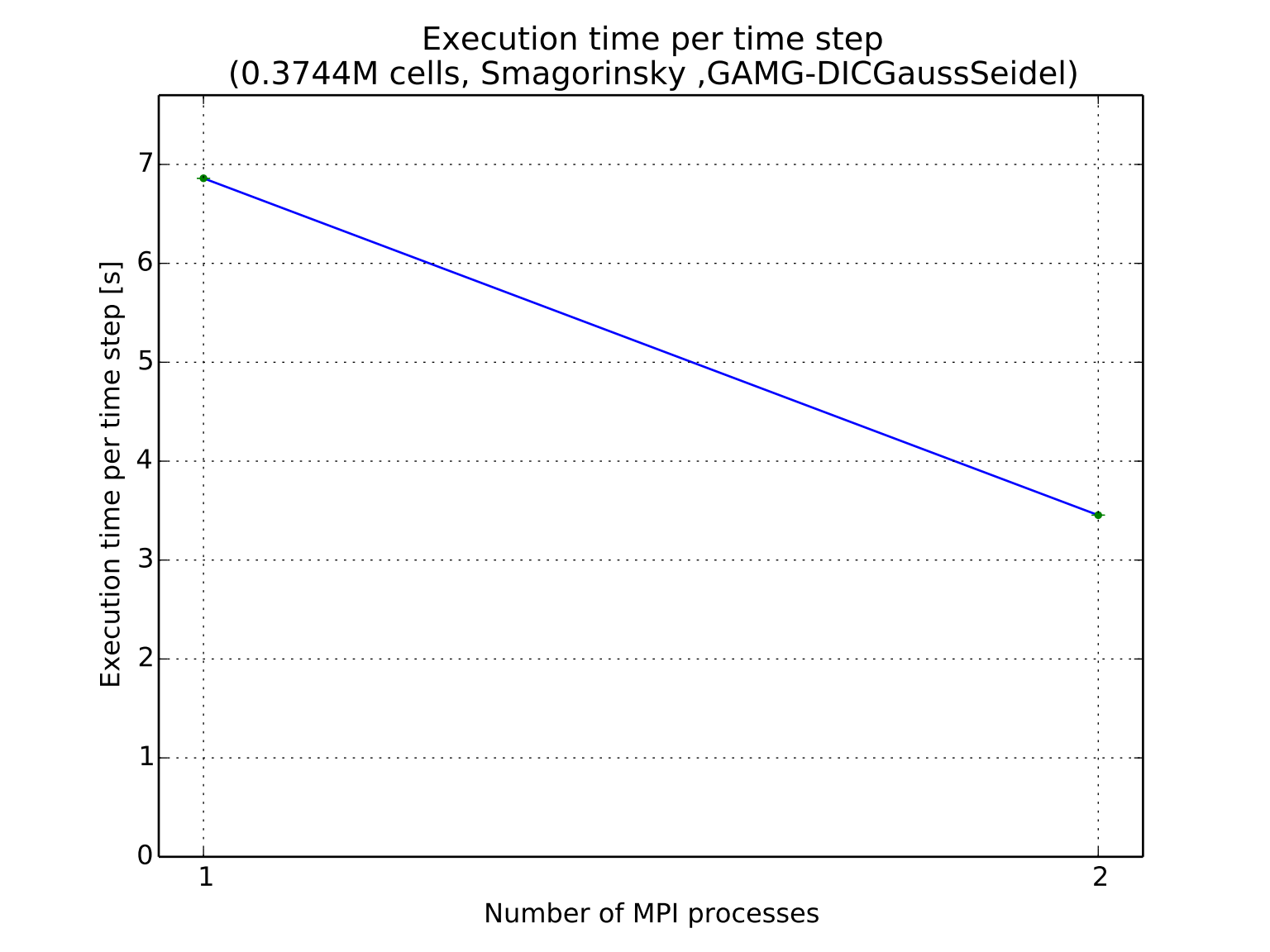

Execution time per time step
(0.3744M cells, laminar ,1 MPI)
Execution time per time step [s]
0
2
4
6
8
10
12
14
GAMG-DIC
GAMG-DICGaussSeidel
GAMG-FDIC
GAMG-GaussSeidel
GAMG-nonBlockingGaussSeidel
GAMG-symGaussSeidel
PCG-DIC
PCG-FDIC
PCG-diagonal
Matrix solver for pressure equation

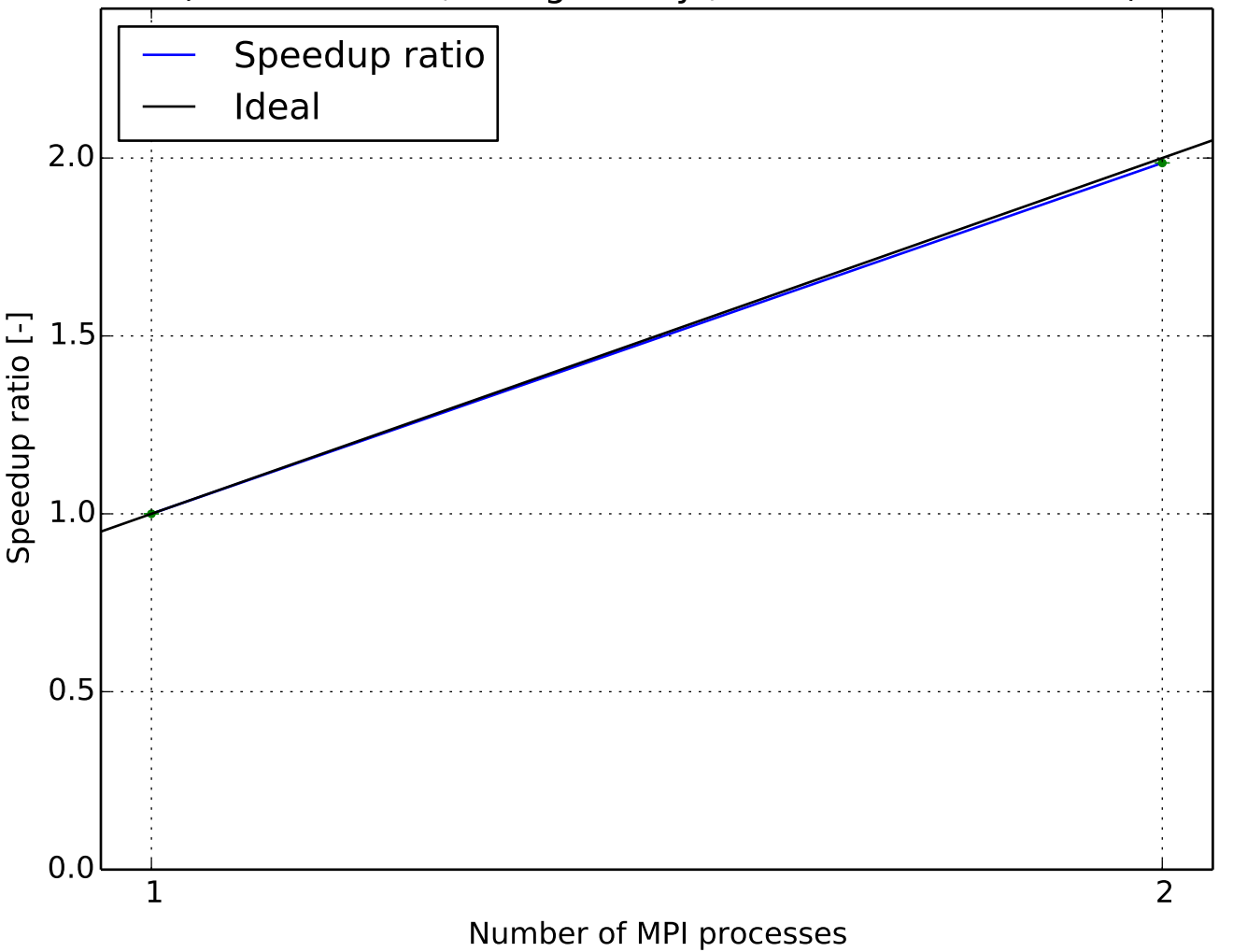

Execution time per time step
(0.3744M cells, laminar ,2 MPI)
Execution time per time step [s]
0
1
2
3
4
5
6
GAMG-DIC
GAMG-DICGaussSeidel
GAMG-FDIC
GAMG-GaussSeidel
GAMG-nonBlockingGaussSeidel
GAMG-symGaussSeidel
PCG-DIC
PCG-FDIC
PCG-diagonal
Matrix solver for pressure equation

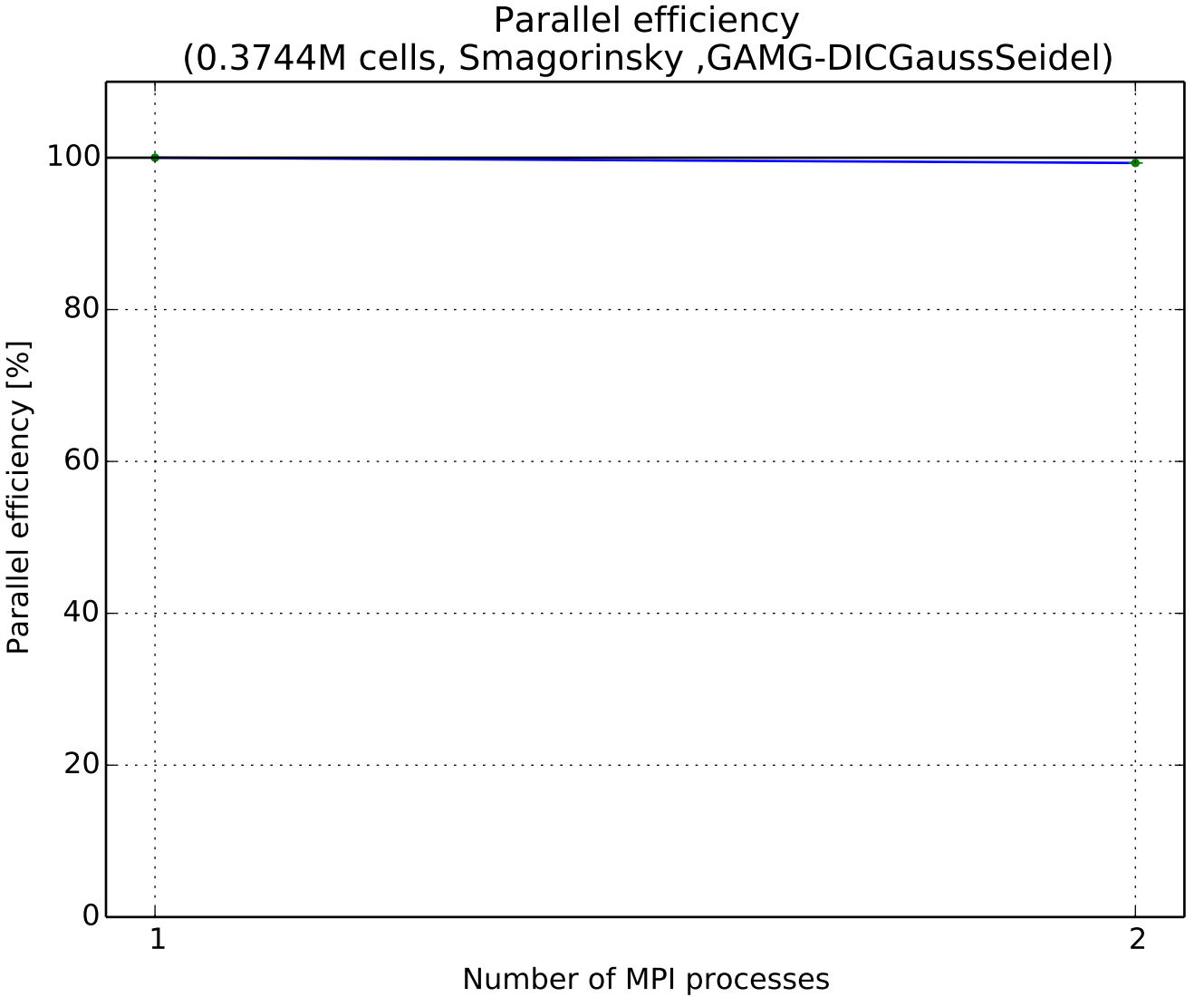

Execution time per time step
(0.3744M cells, Smagorinsky ,GAMG-DIC)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

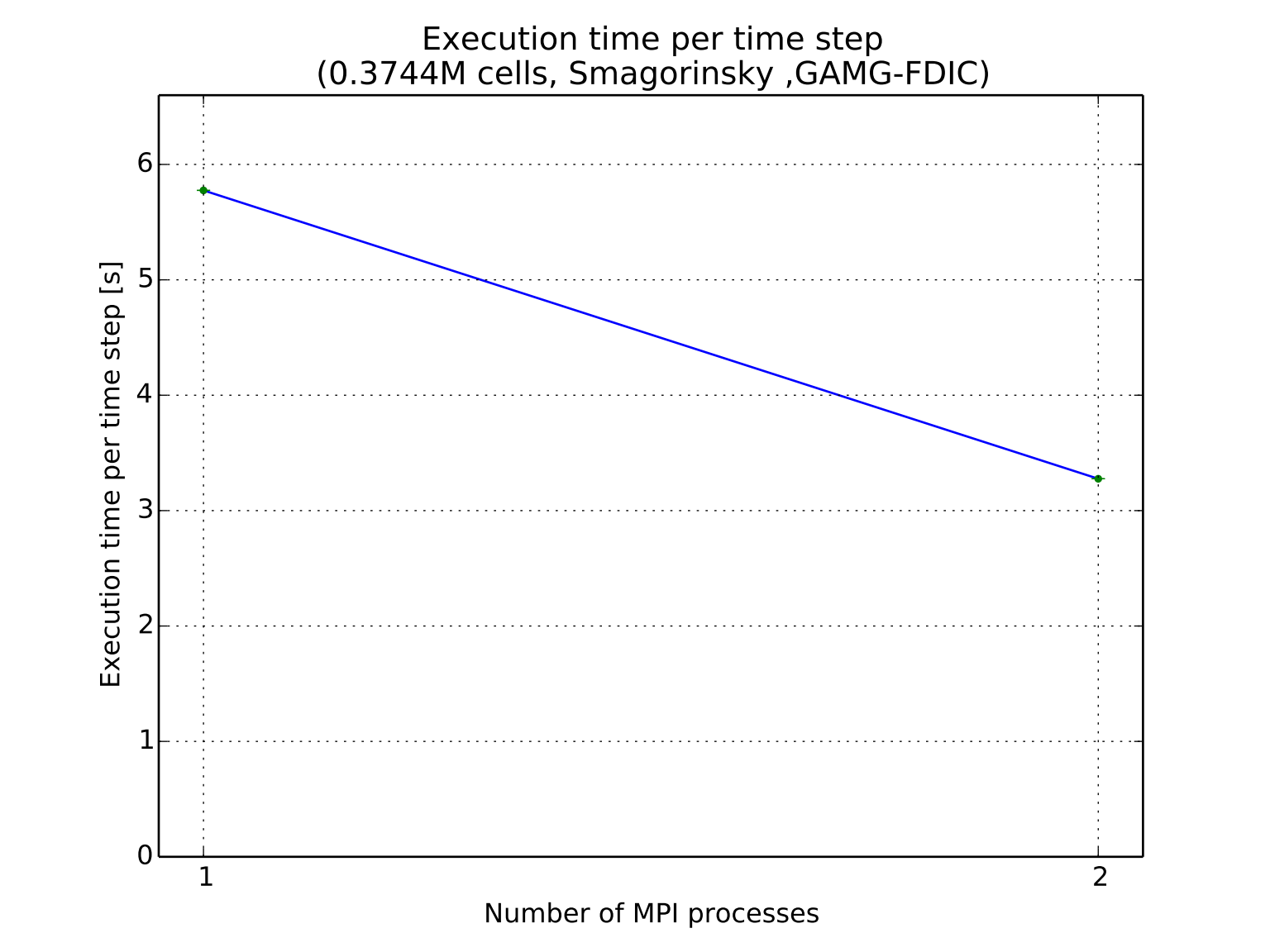

Speedup ratio
(0.3744M cells, Smagorinsky ,GAMG-DIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

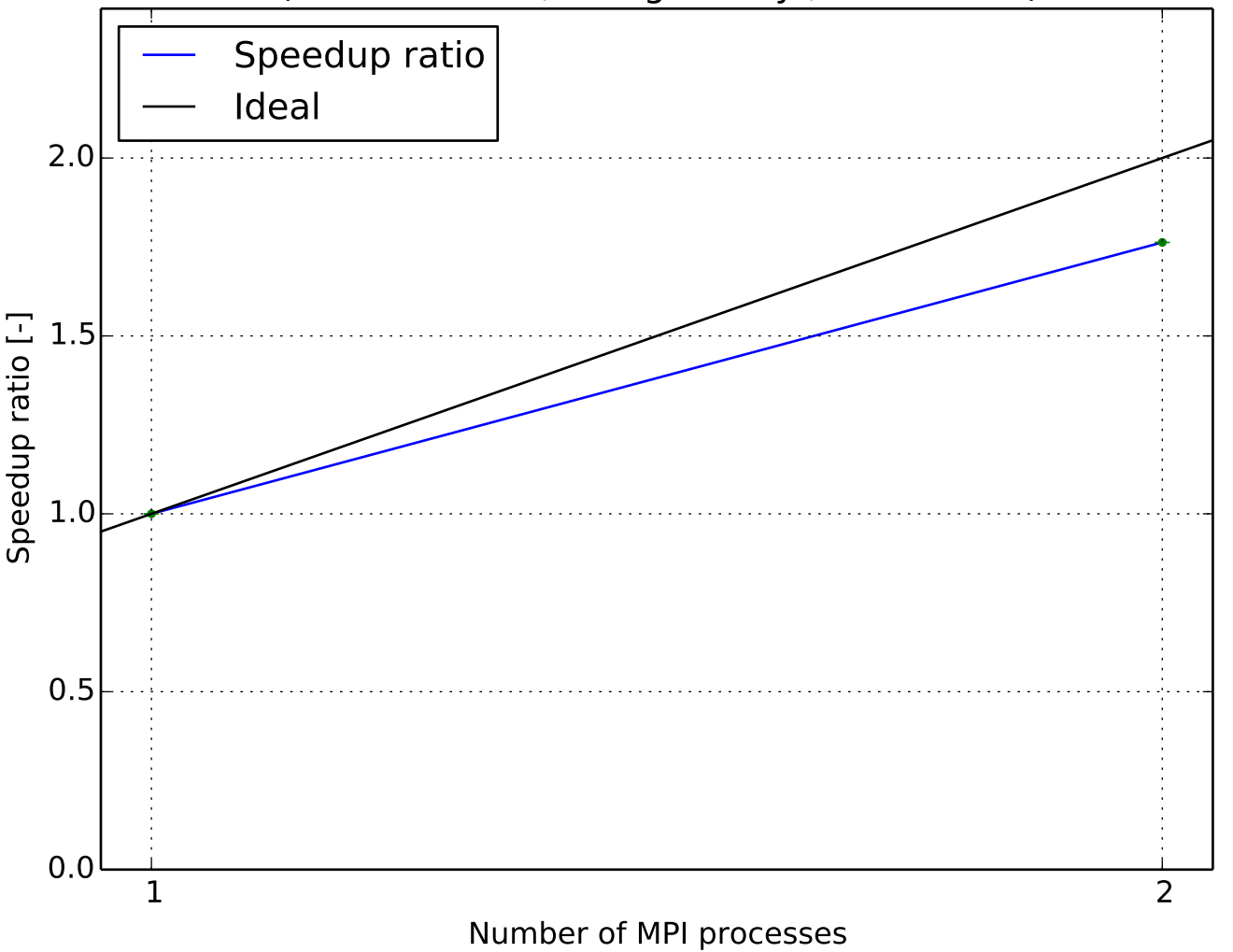

Parallel efficiency
(0.3744M cells, Smagorinsky ,GAMG-DIC)
120
100
80
60
40
20
0
Parallel efficiency [%]
1
2
Number of MPI processes

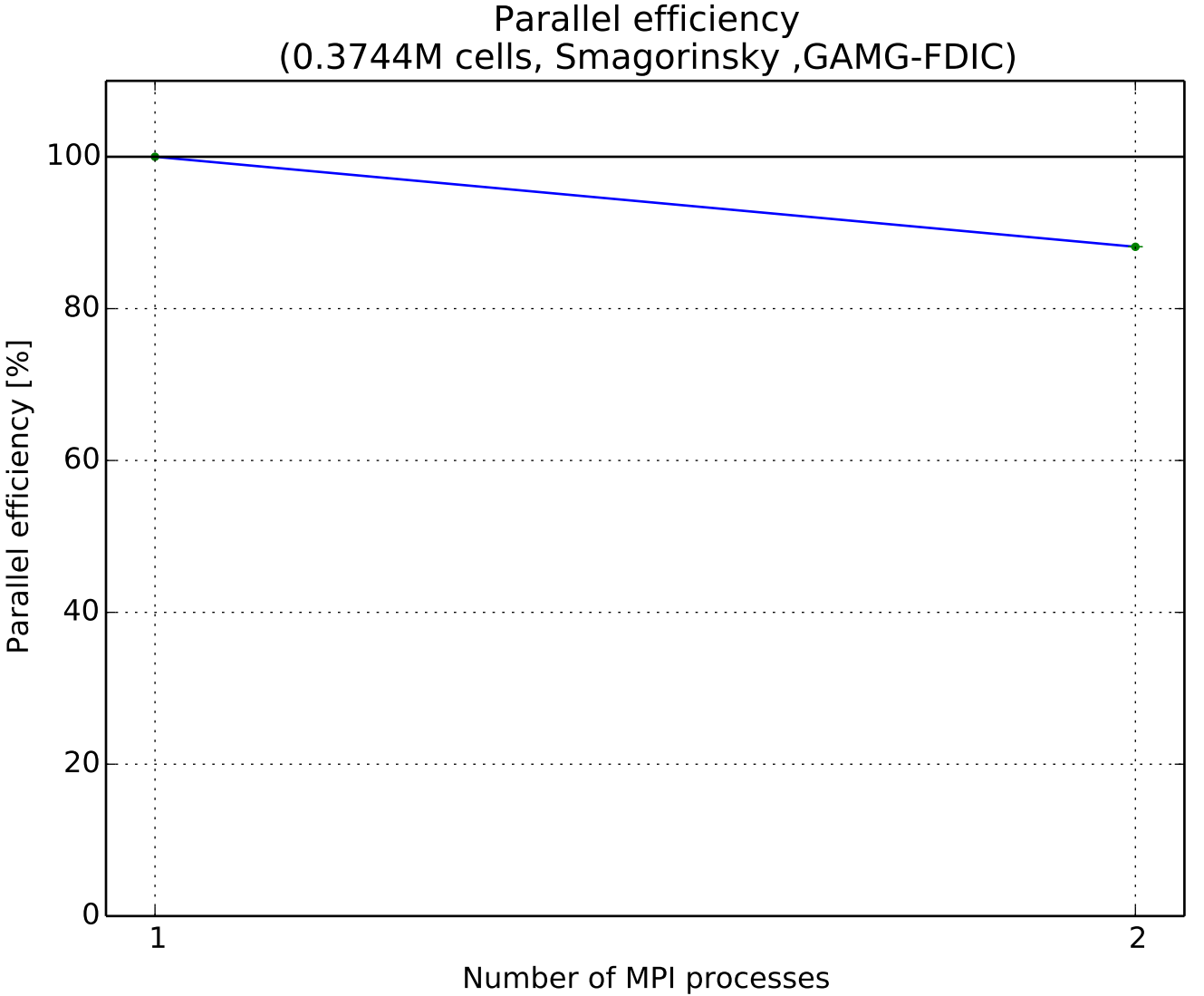

Execution time per time step
(0.3744M cells, Smagorinsky ,GAMG-DICGaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

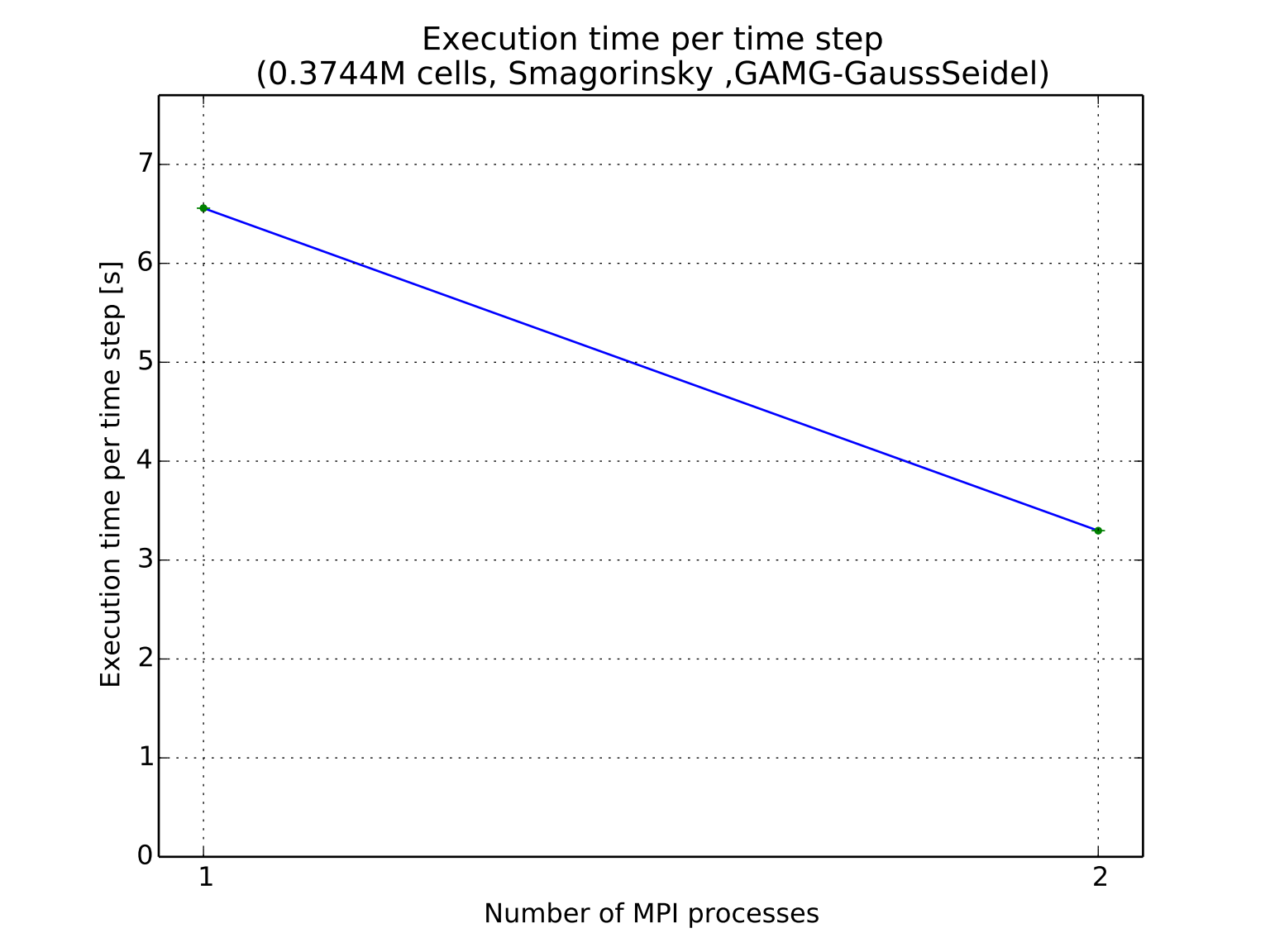

Speedup ratio
(0.3744M cells, Smagorinsky ,GAMG-DICGaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

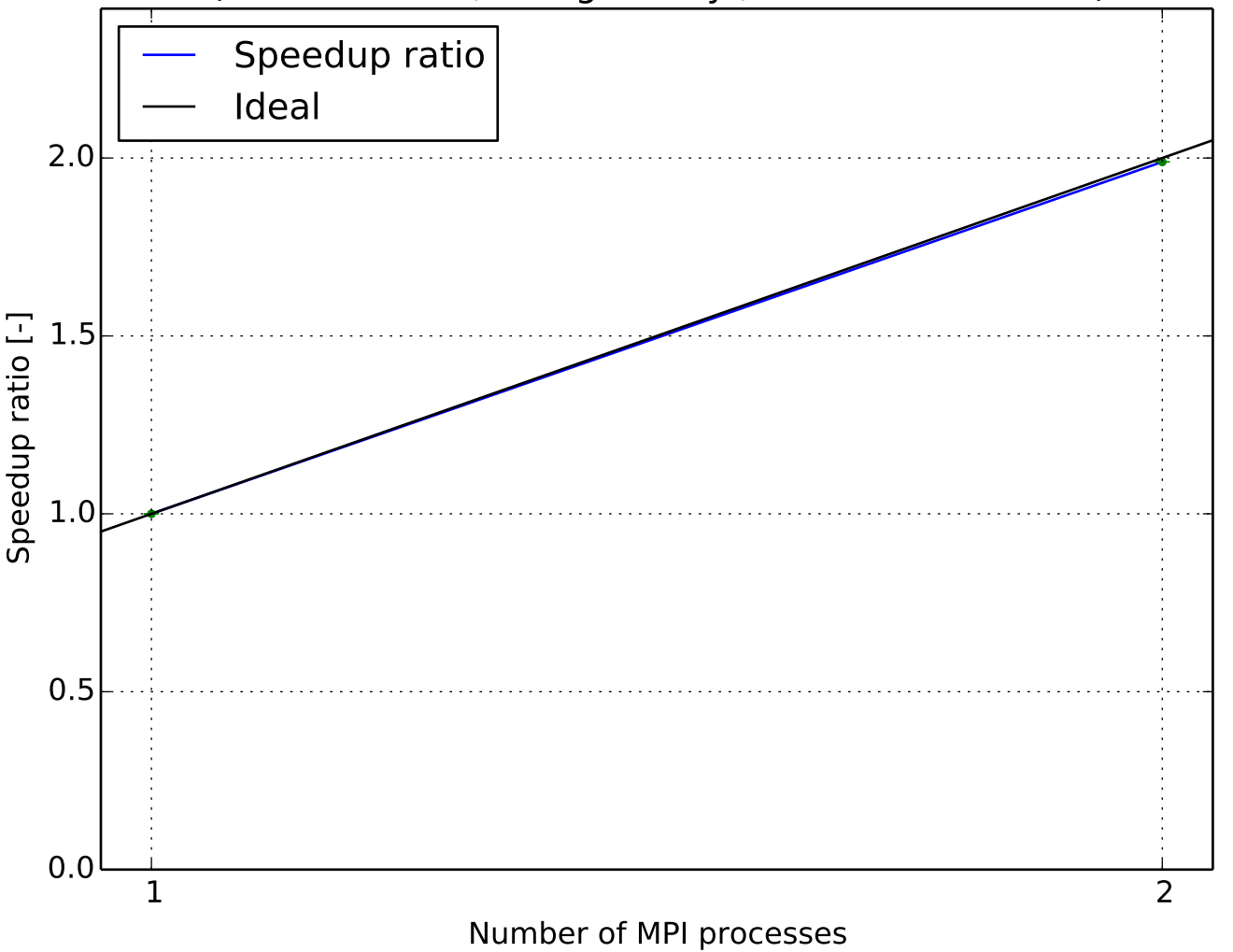

Parallel efficiency
(0.3744M cells, Smagorinsky ,GAMG-DICGaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

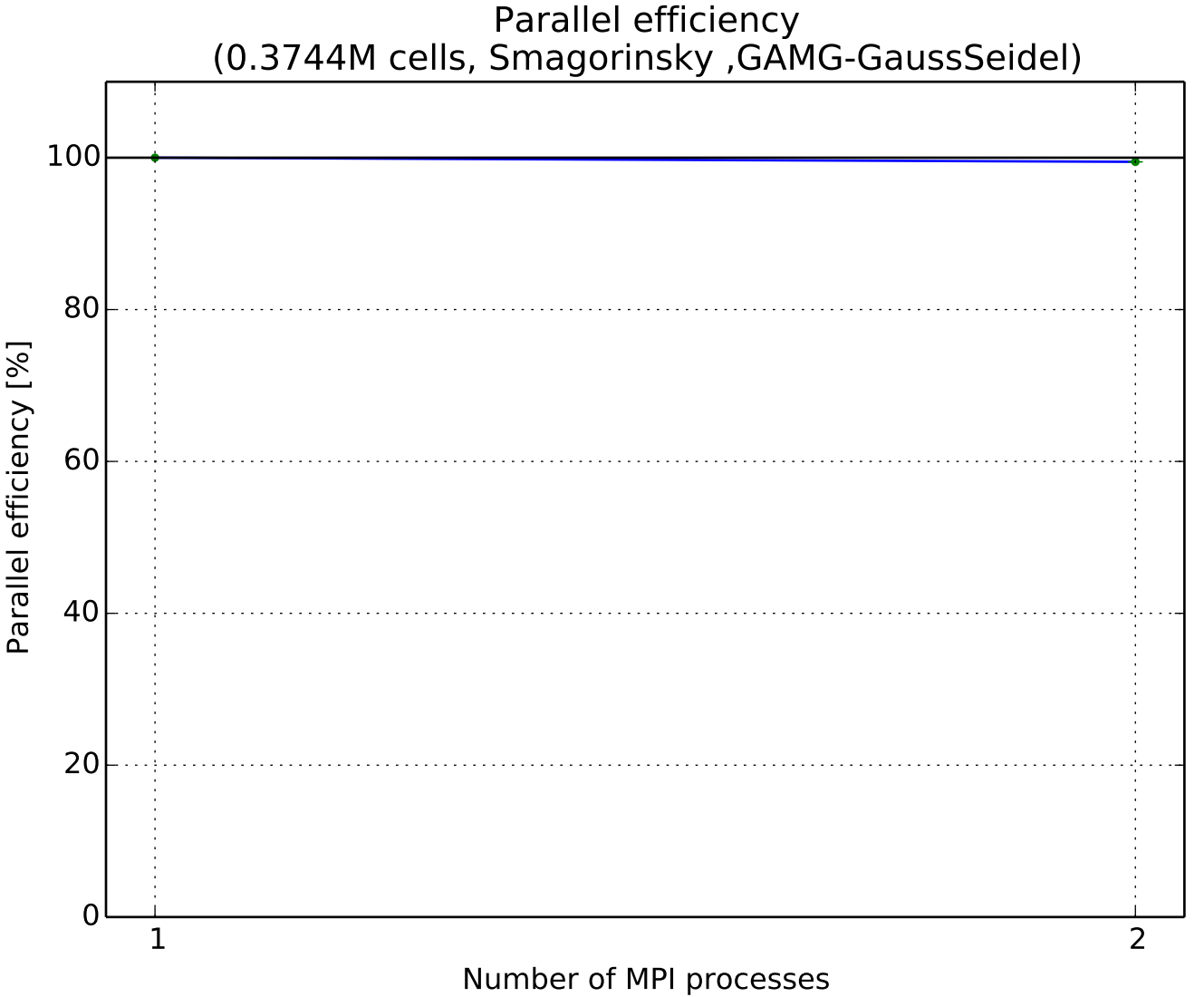

Execution time per time step
(0.3744M cells, Smagorinsky ,GAMG-FDIC)
Execution time per time step [s]
0
1
2
3
4
5
6
1
2
Number of MPI processes

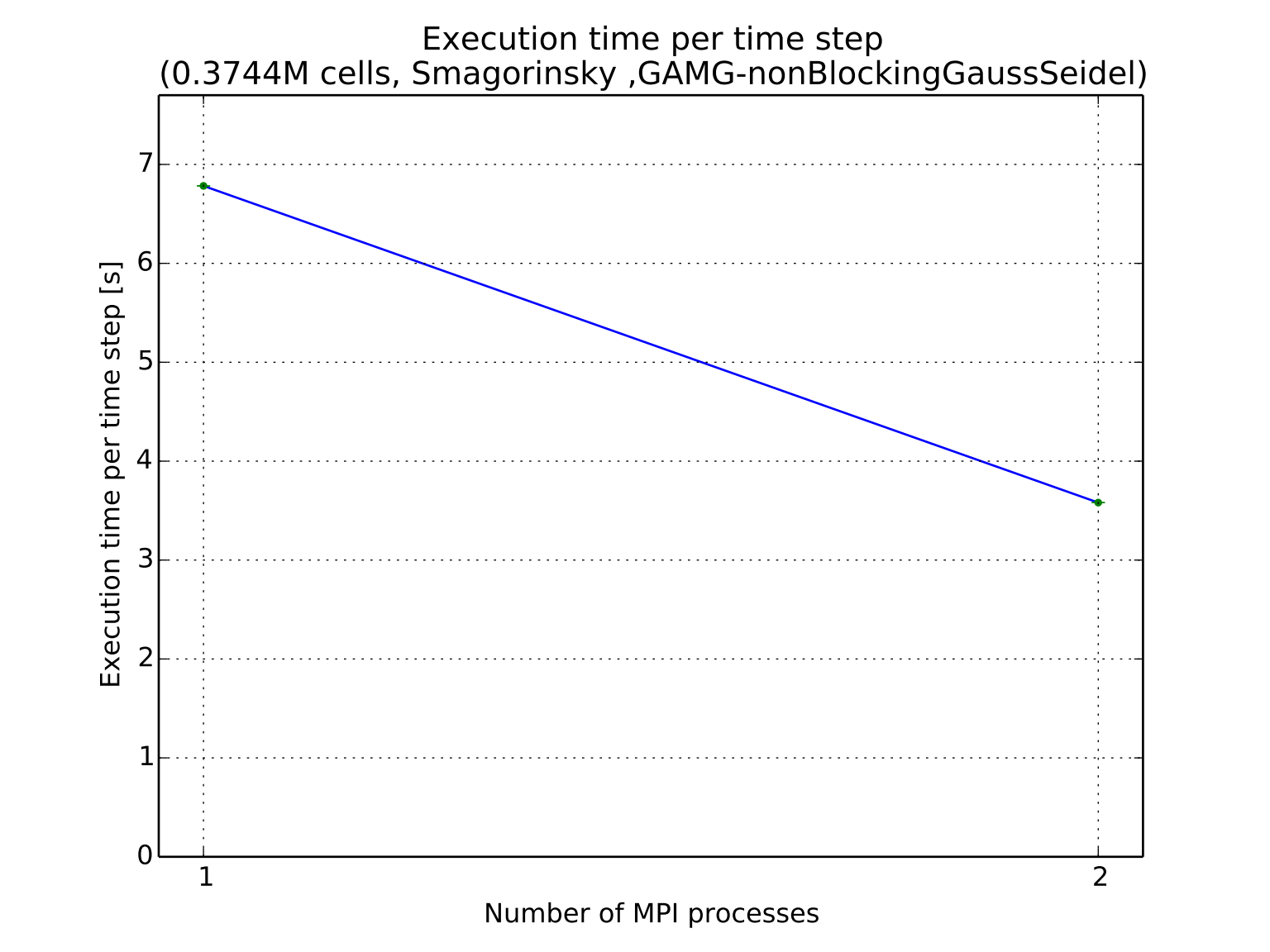

Speedup ratio
(0.3744M cells, Smagorinsky ,GAMG-FDIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

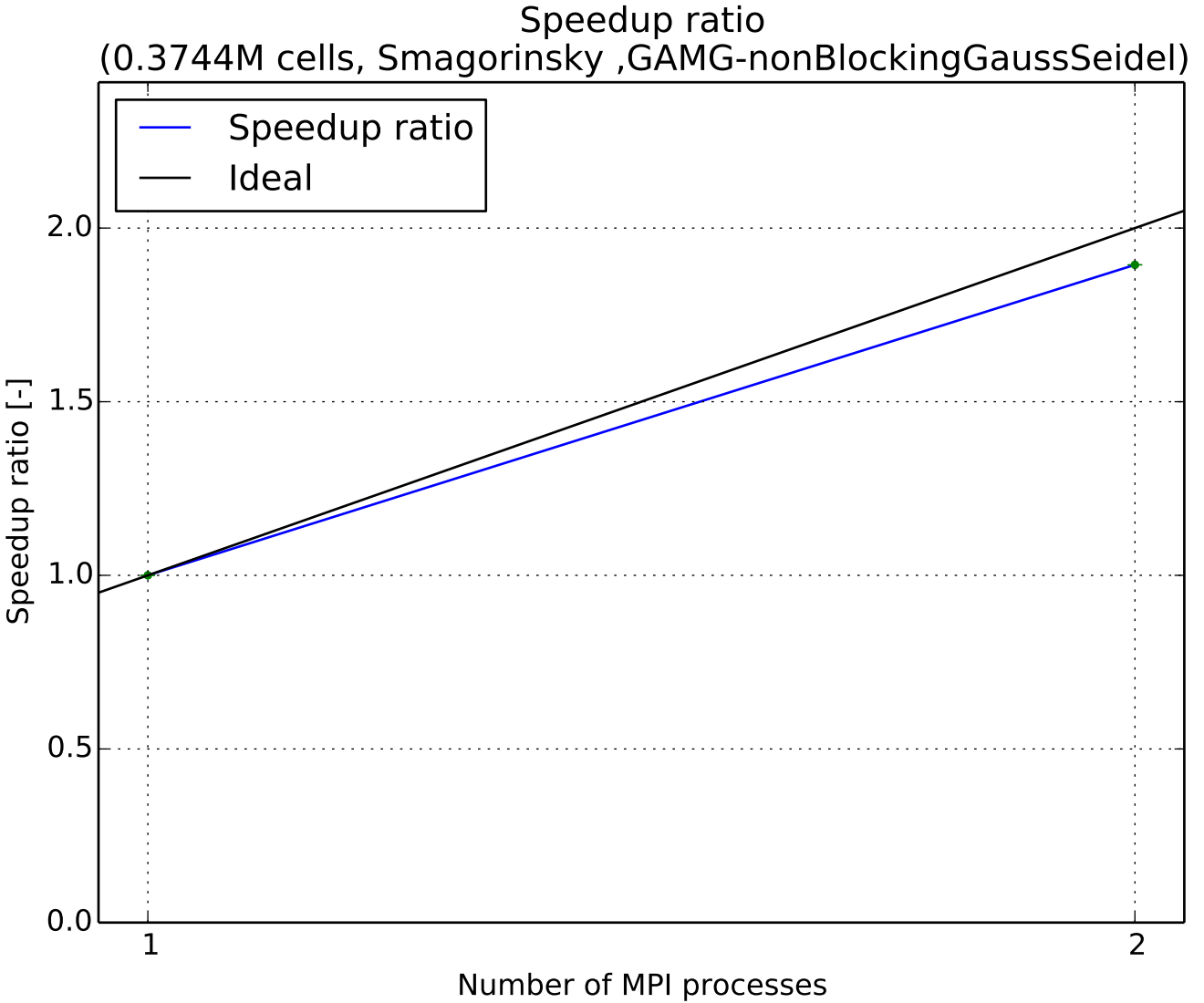

Parallel efficiency
(0.3744M cells, Smagorinsky ,GAMG-FDIC)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

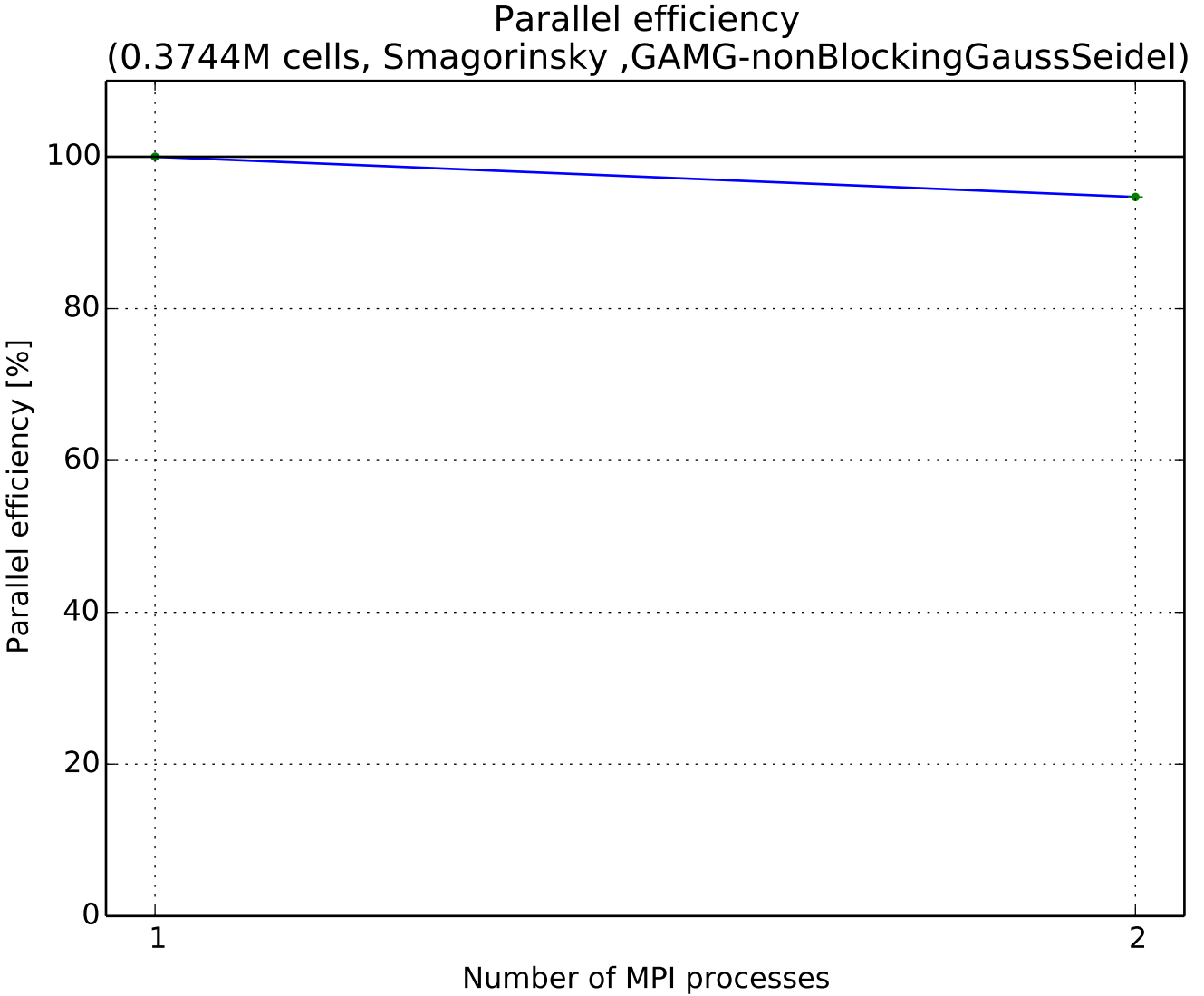

Execution time per time step
(0.3744M cells, Smagorinsky ,GAMG-GaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

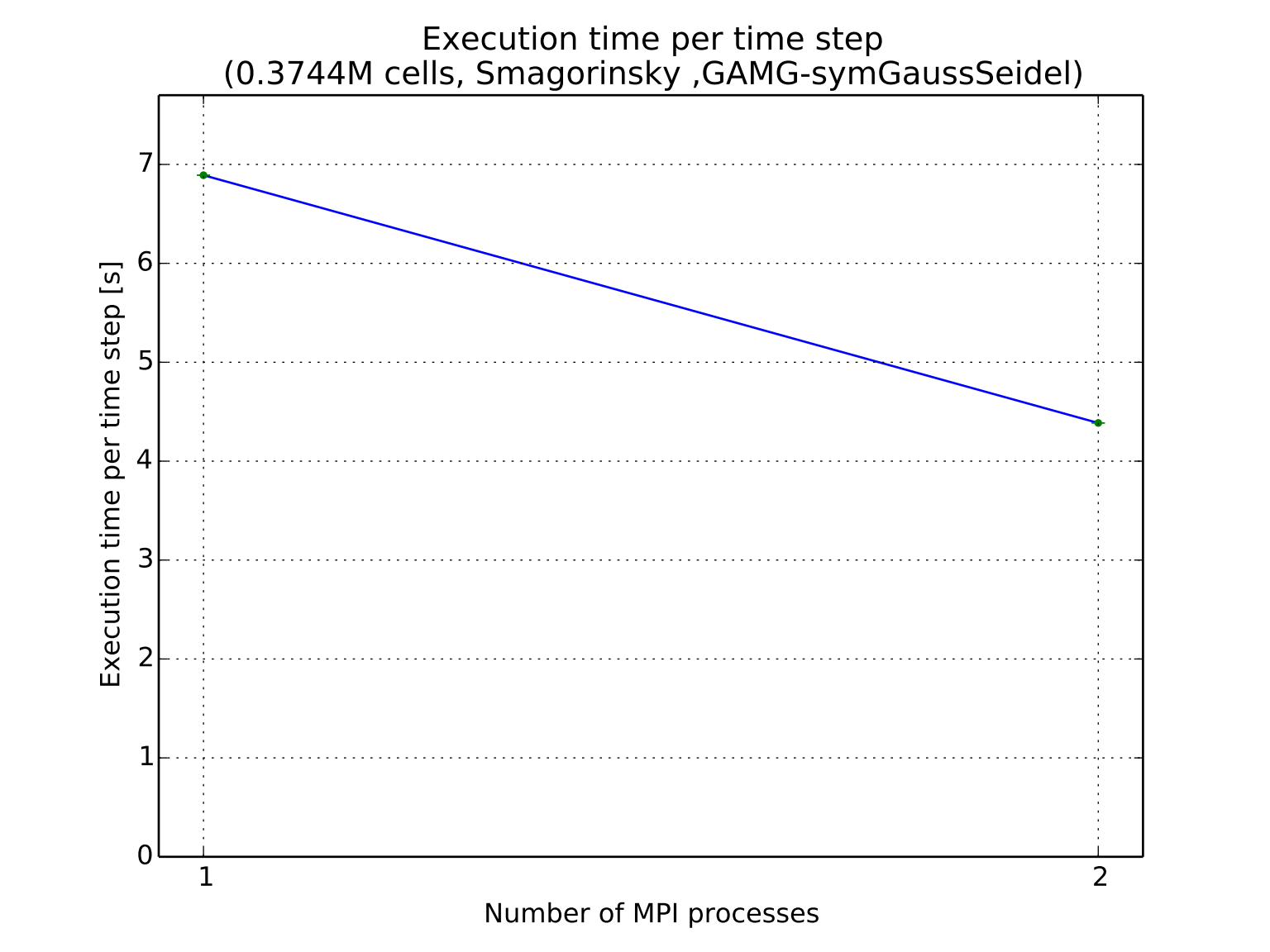

Speedup ratio
(0.3744M cells, Smagorinsky ,GAMG-GaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

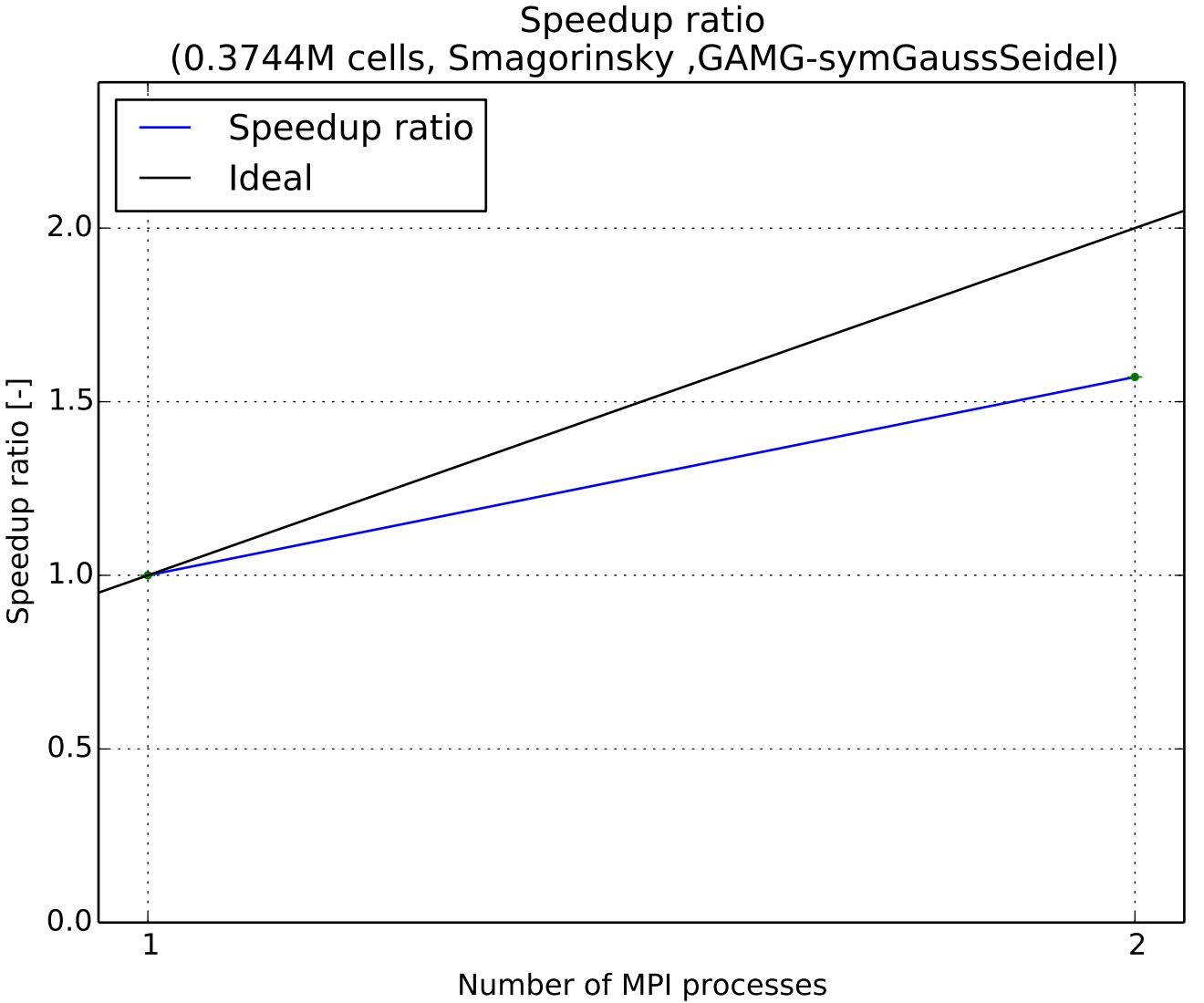

Parallel efficiency
(0.3744M cells, Smagorinsky ,GAMG-GaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

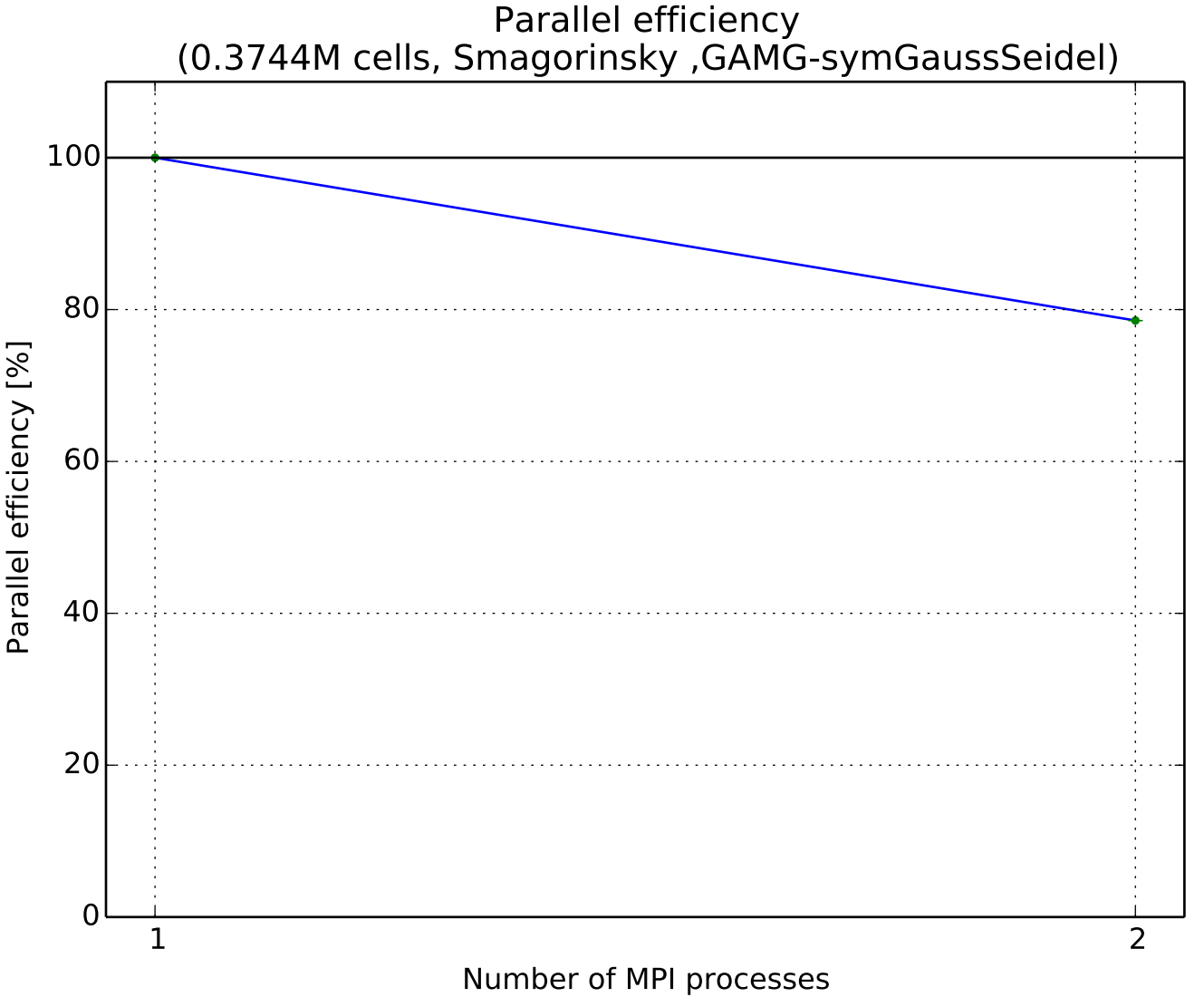

Execution time per time step
(0.3744M cells, Smagorinsky ,GAMG-nonBlockingGaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

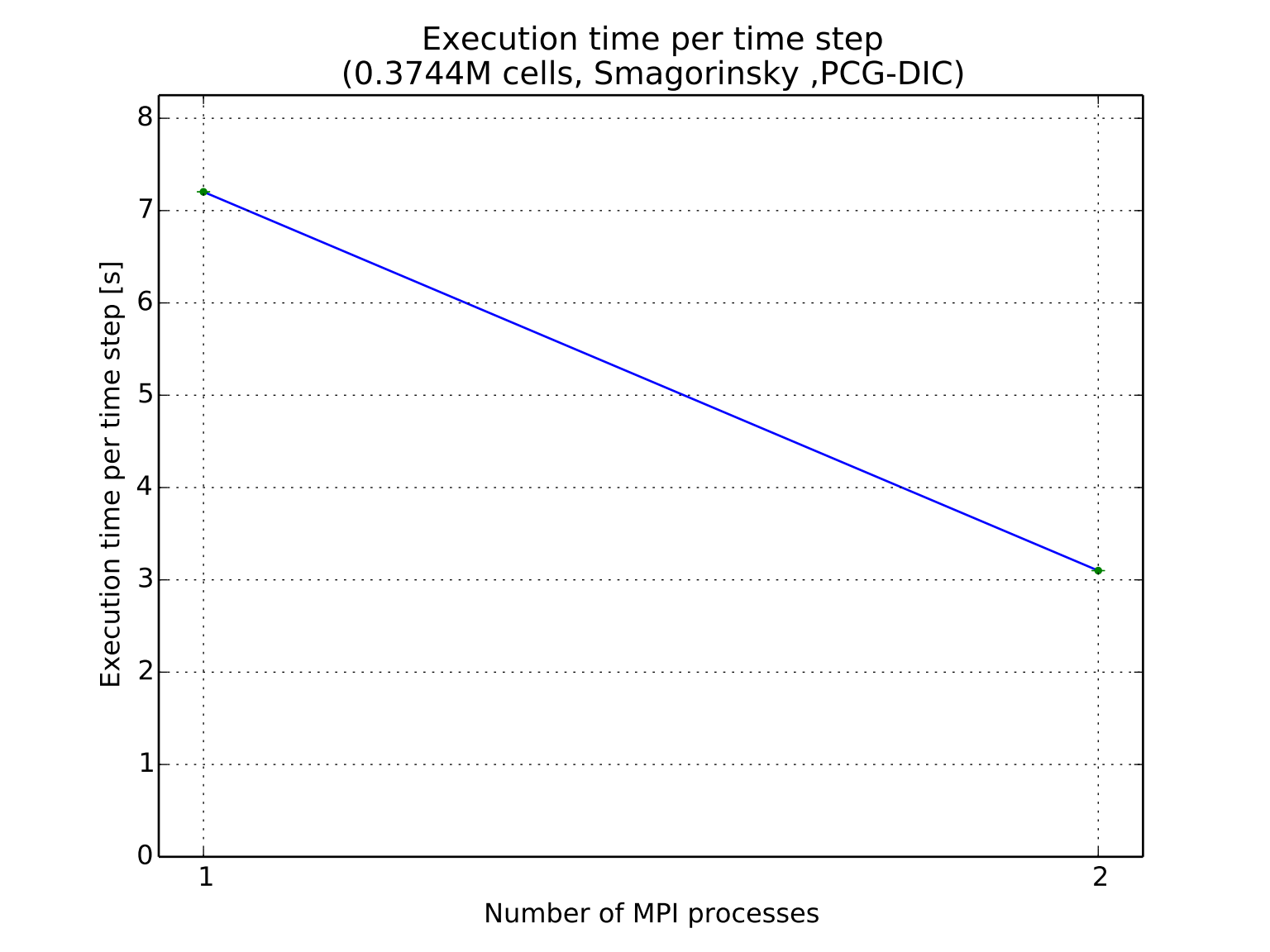

Speedup ratio
(0.3744M cells, Smagorinsky ,GAMG-nonBlockingGaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

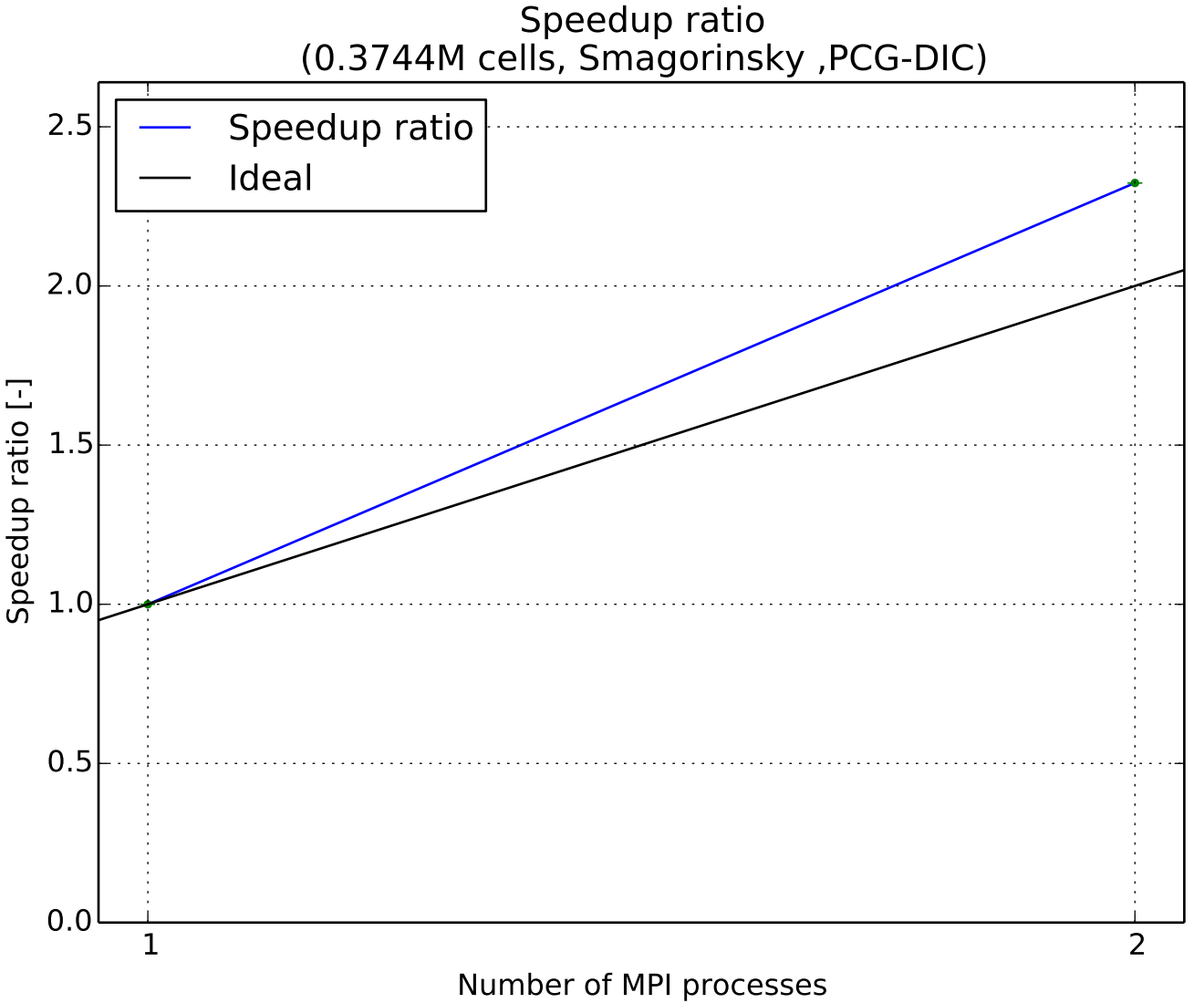

Parallel efficiency
(0.3744M cells, Smagorinsky ,GAMG-nonBlockingGaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

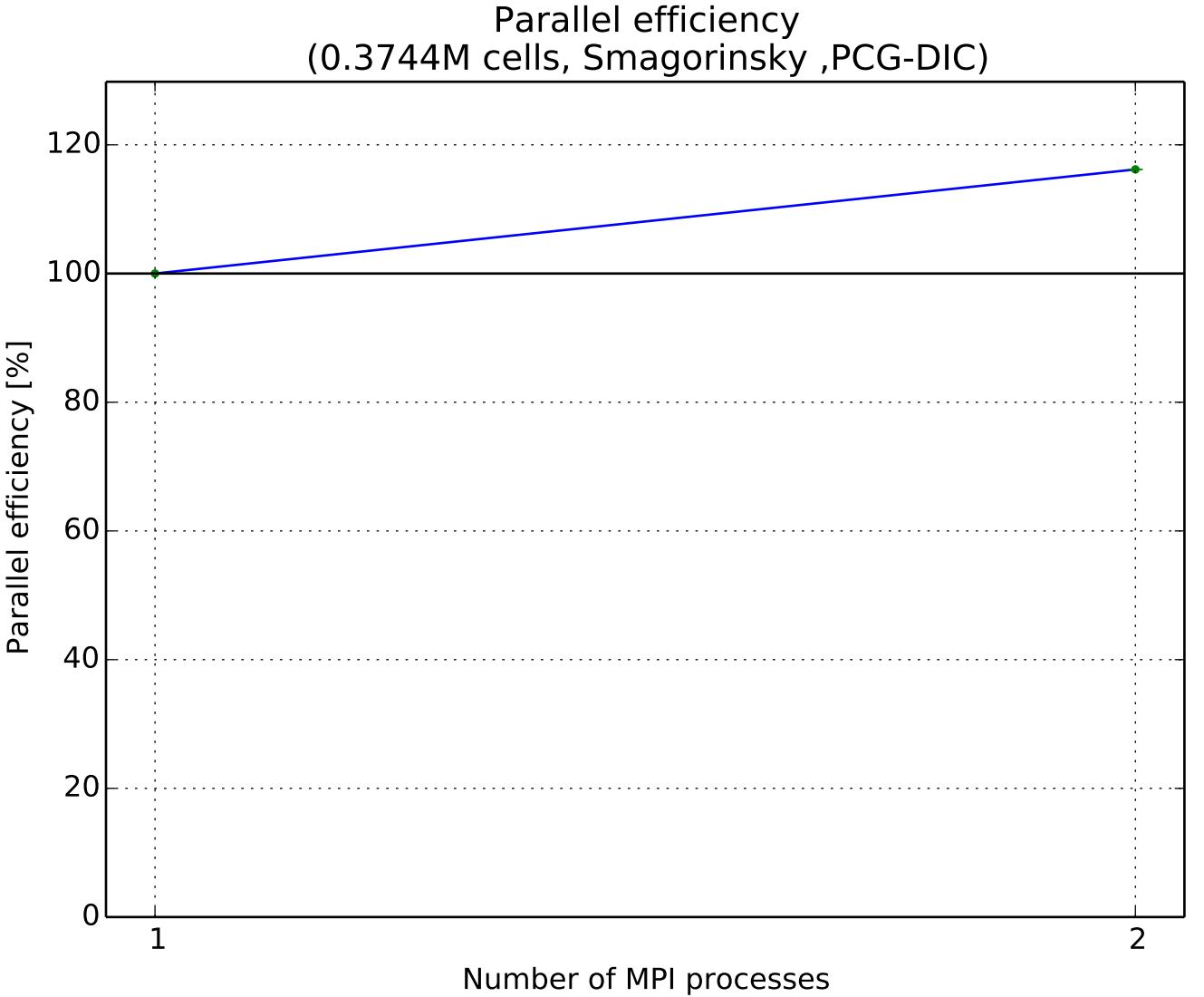

Execution time per time step
(0.3744M cells, Smagorinsky ,GAMG-symGaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

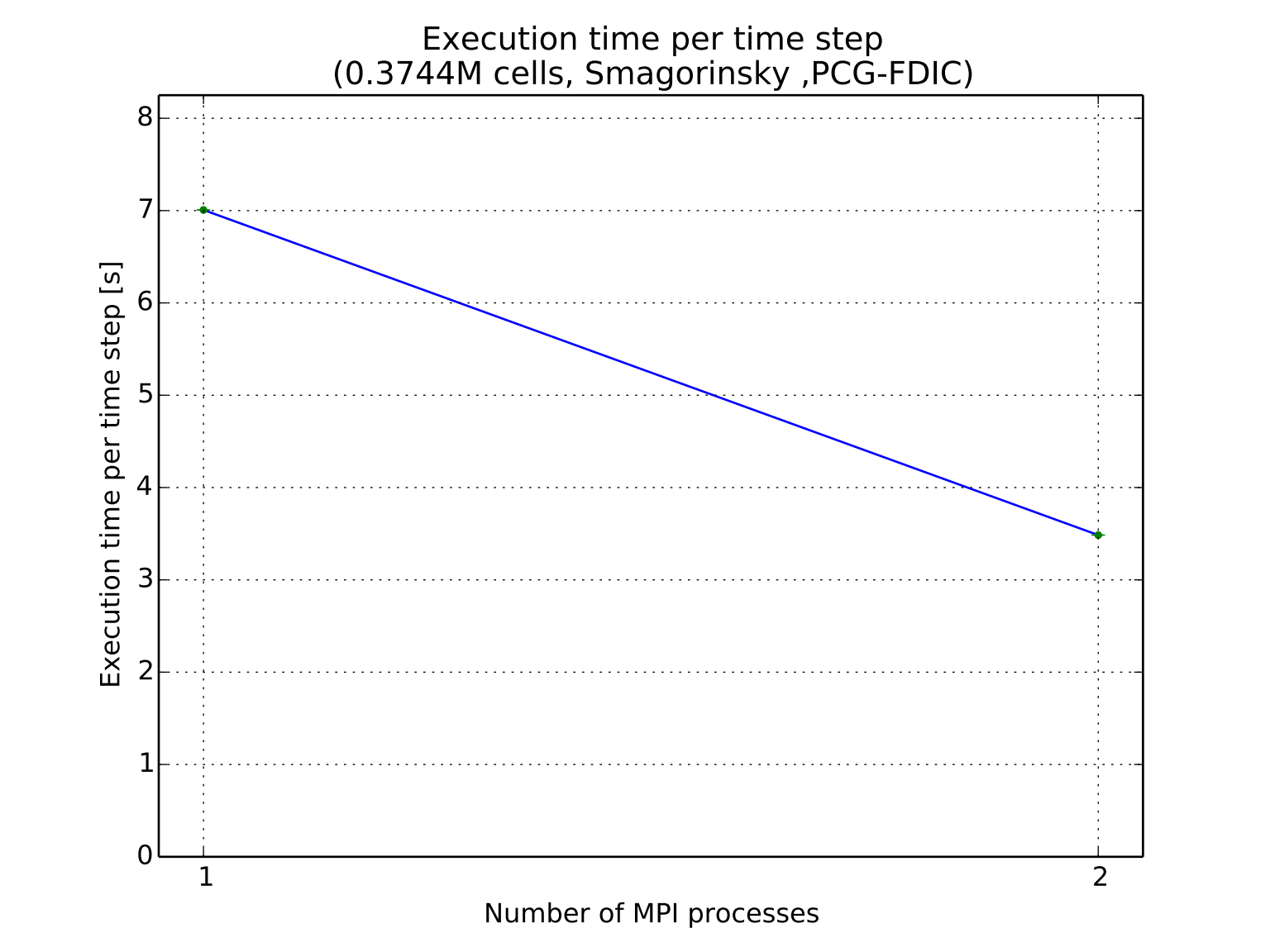

Speedup ratio
(0.3744M cells, Smagorinsky ,GAMG-symGaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

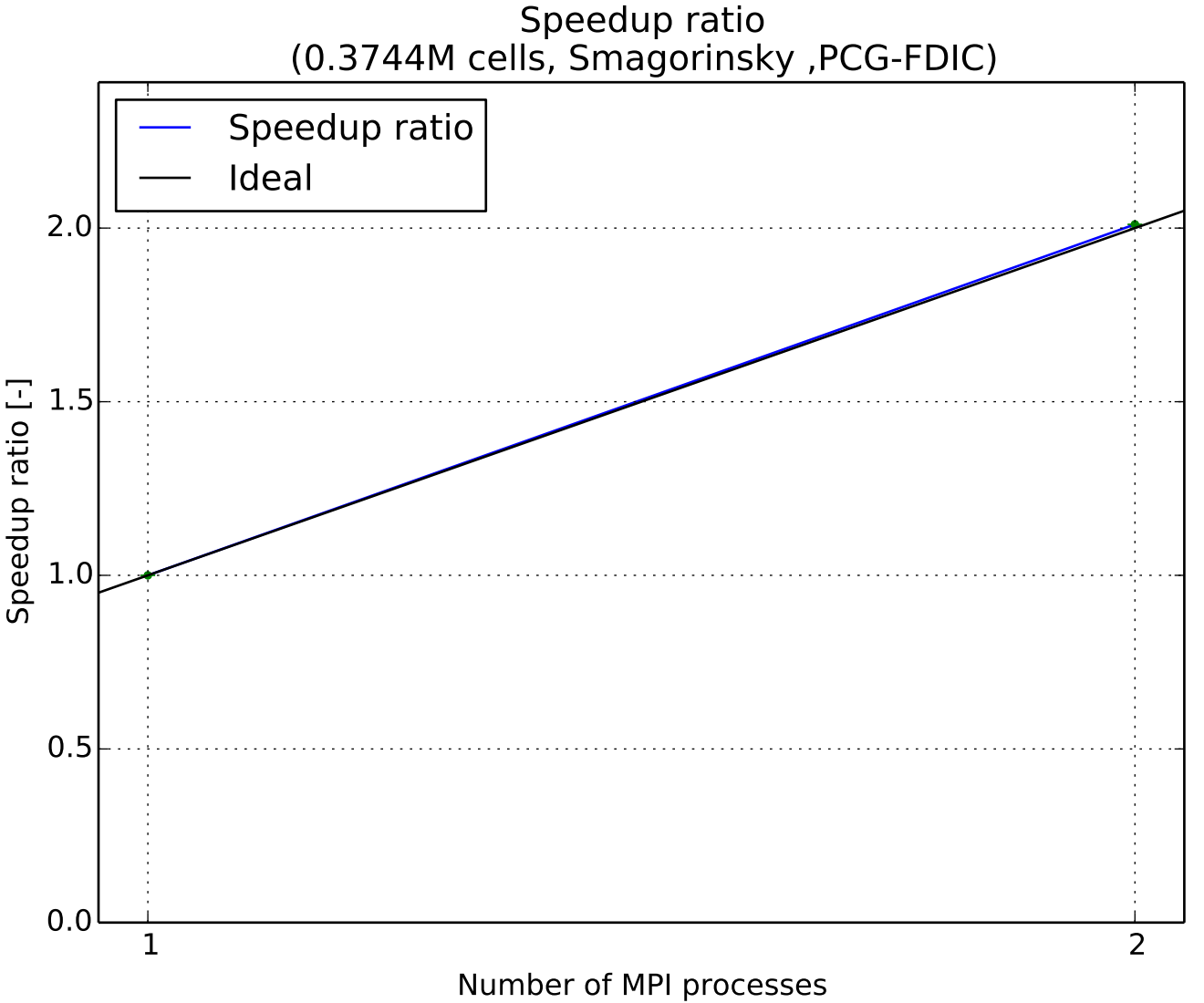

Parallel efficiency
(0.3744M cells, Smagorinsky ,GAMG-symGaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

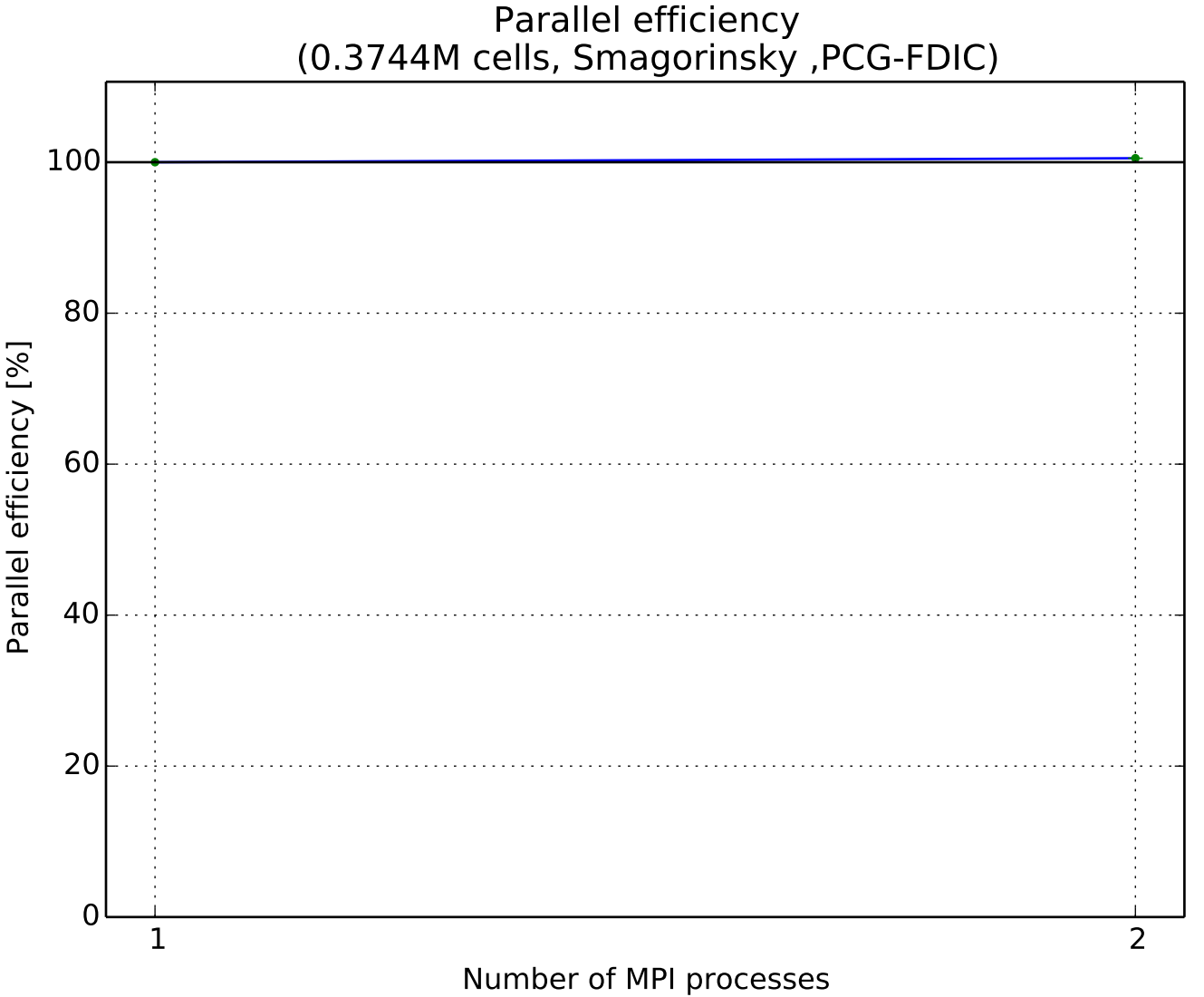

Execution time per time step
(0.3744M cells, Smagorinsky ,PCG-DIC)
Execution time per time step [s]
Number of MPI processes
0
1
2
3
4
5
6
7
8
1
2

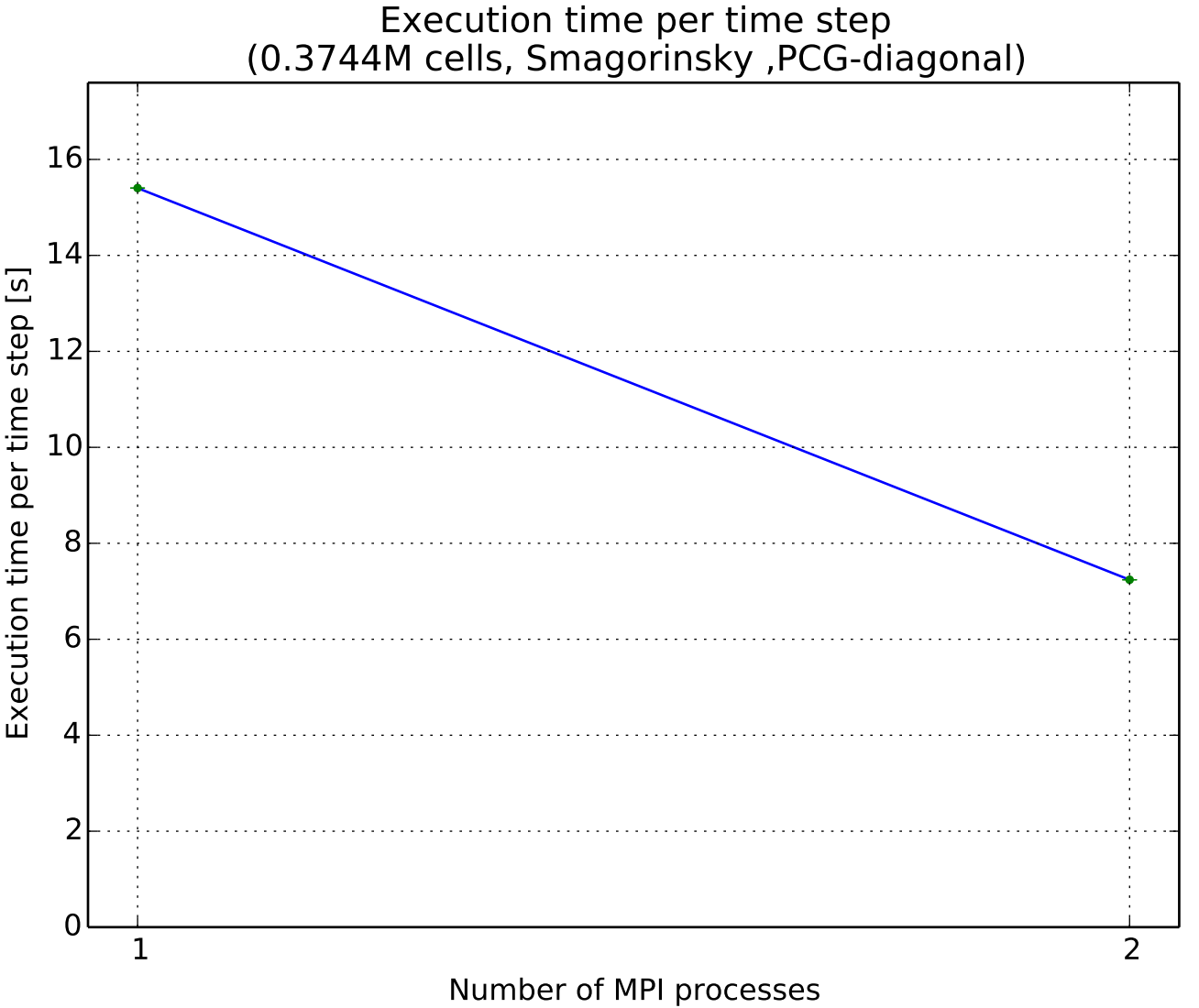

Speedup ratio
(0.3744M cells, Smagorinsky ,PCG-DIC)
Speedup ratio
Ideal
2.5
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

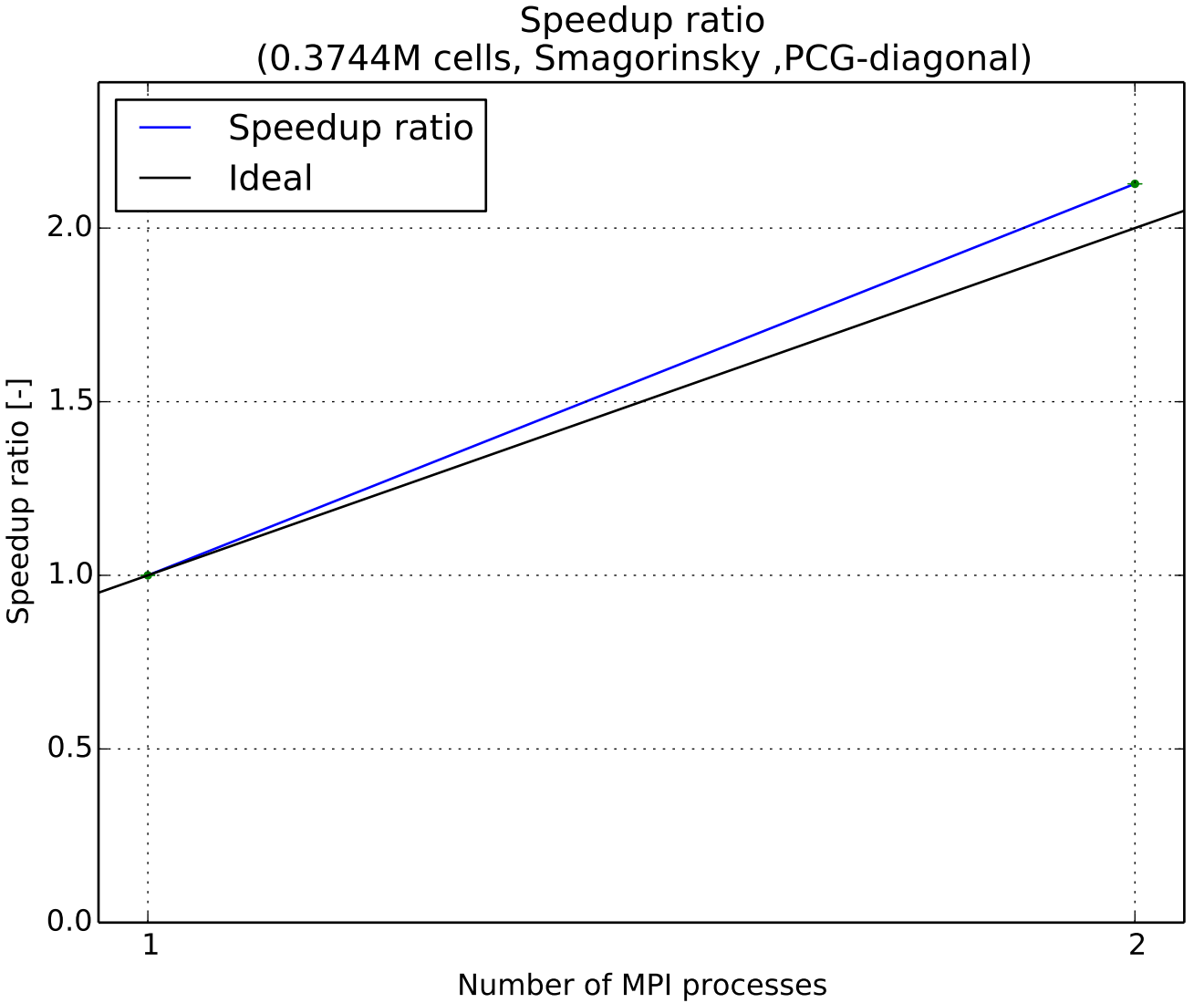

Parallel efficiency
(0.3744M cells, Smagorinsky ,PCG-DIC)
Parallel efficiency [%]
120
100
80
60
40
20
0
1
2
Number of MPI processes

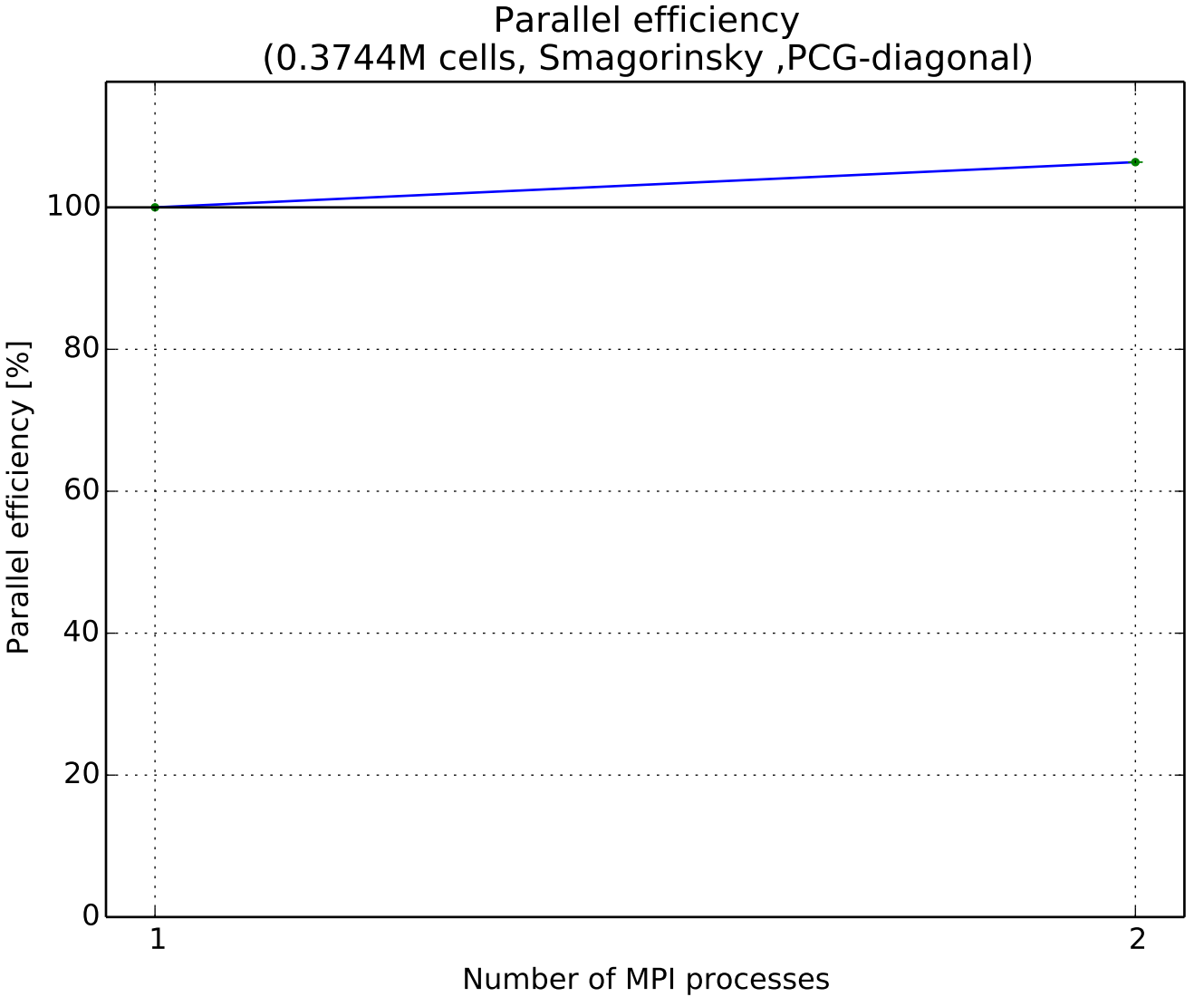

Execution time per time step
(0.3744M cells, Smagorinsky ,PCG-FDIC)
Execution time per time step [s]
Number of MPI processes
0
1
2
3
4
5
6
7
8
1
2

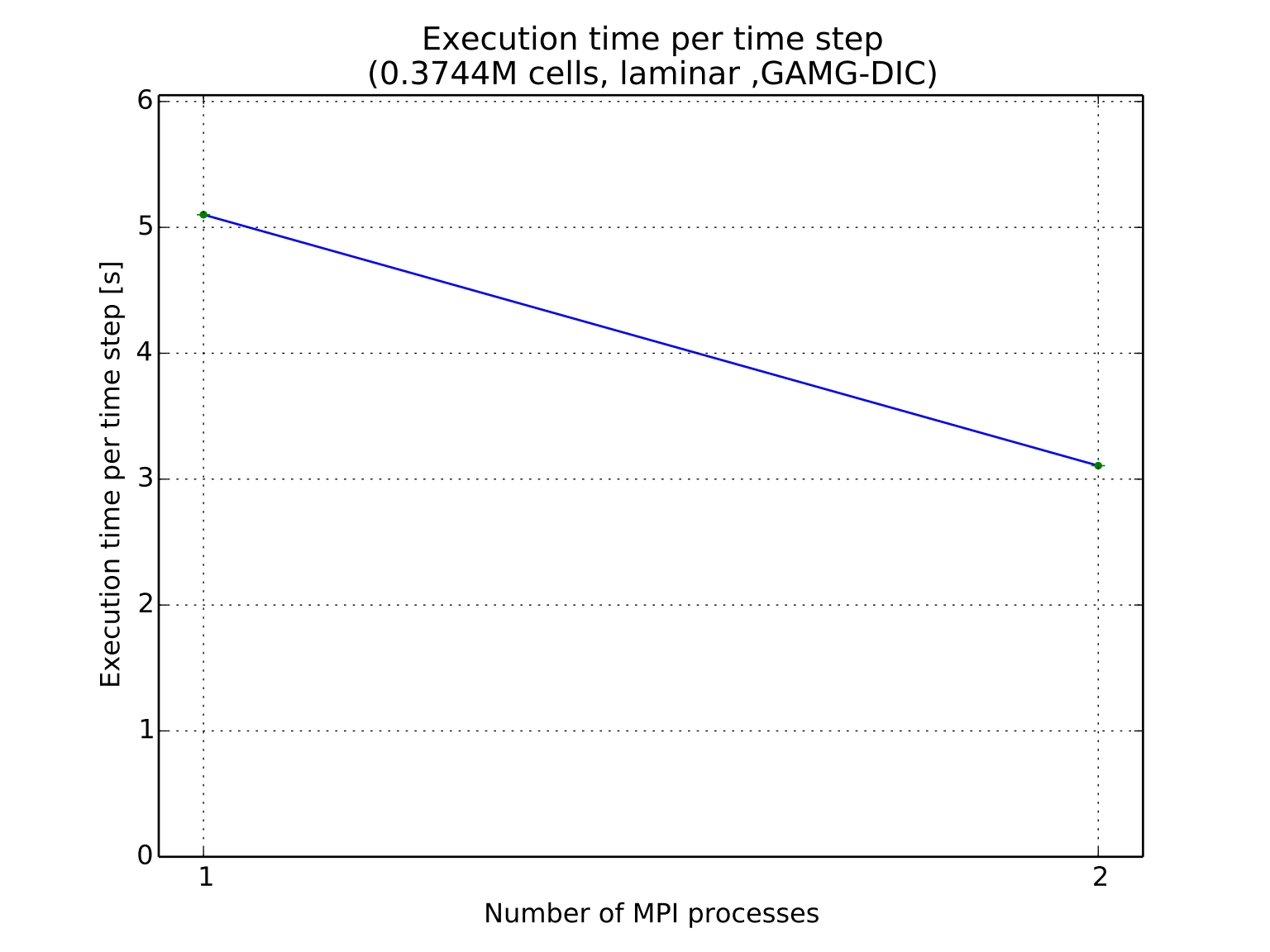

Speedup ratio
(0.3744M cells, Smagorinsky ,PCG-FDIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

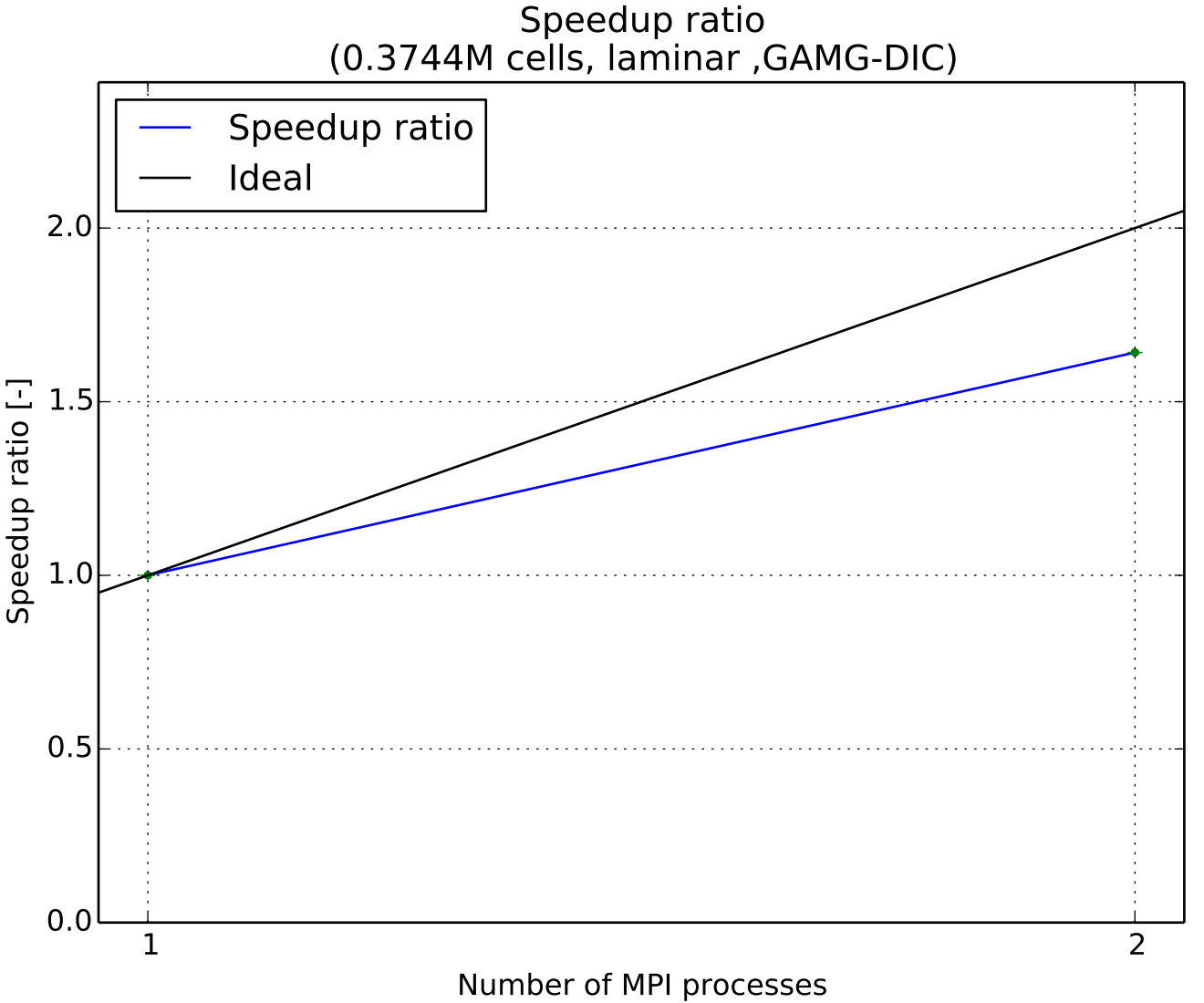

Parallel efficiency
(0.3744M cells, Smagorinsky ,PCG-FDIC)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

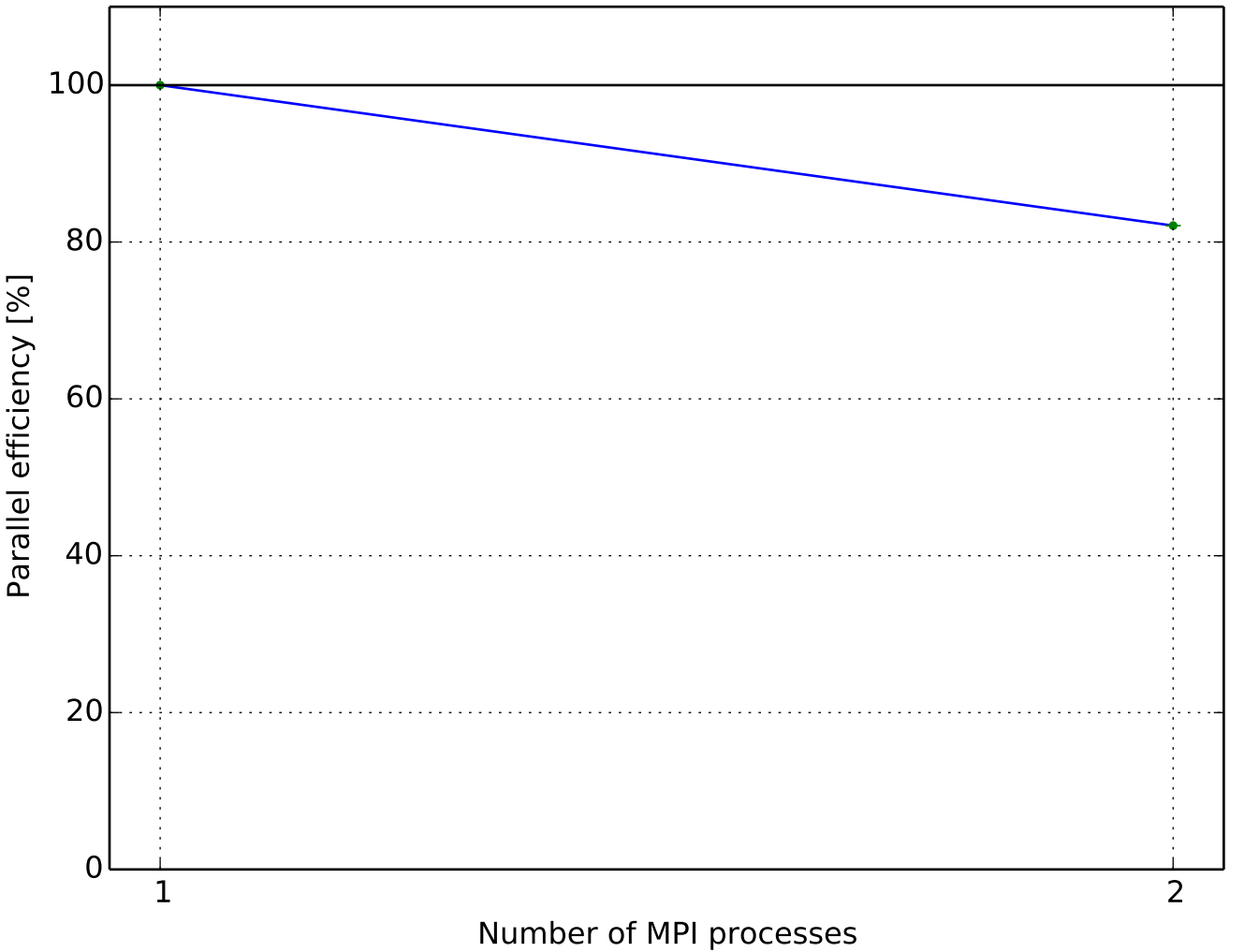

Execution time per time step
(0.3744M cells, Smagorinsky ,PCG-diagonal)
Execution time per time step [s]
0
2
4
6
8
10
12
14
16
1
2
Number of MPI processes

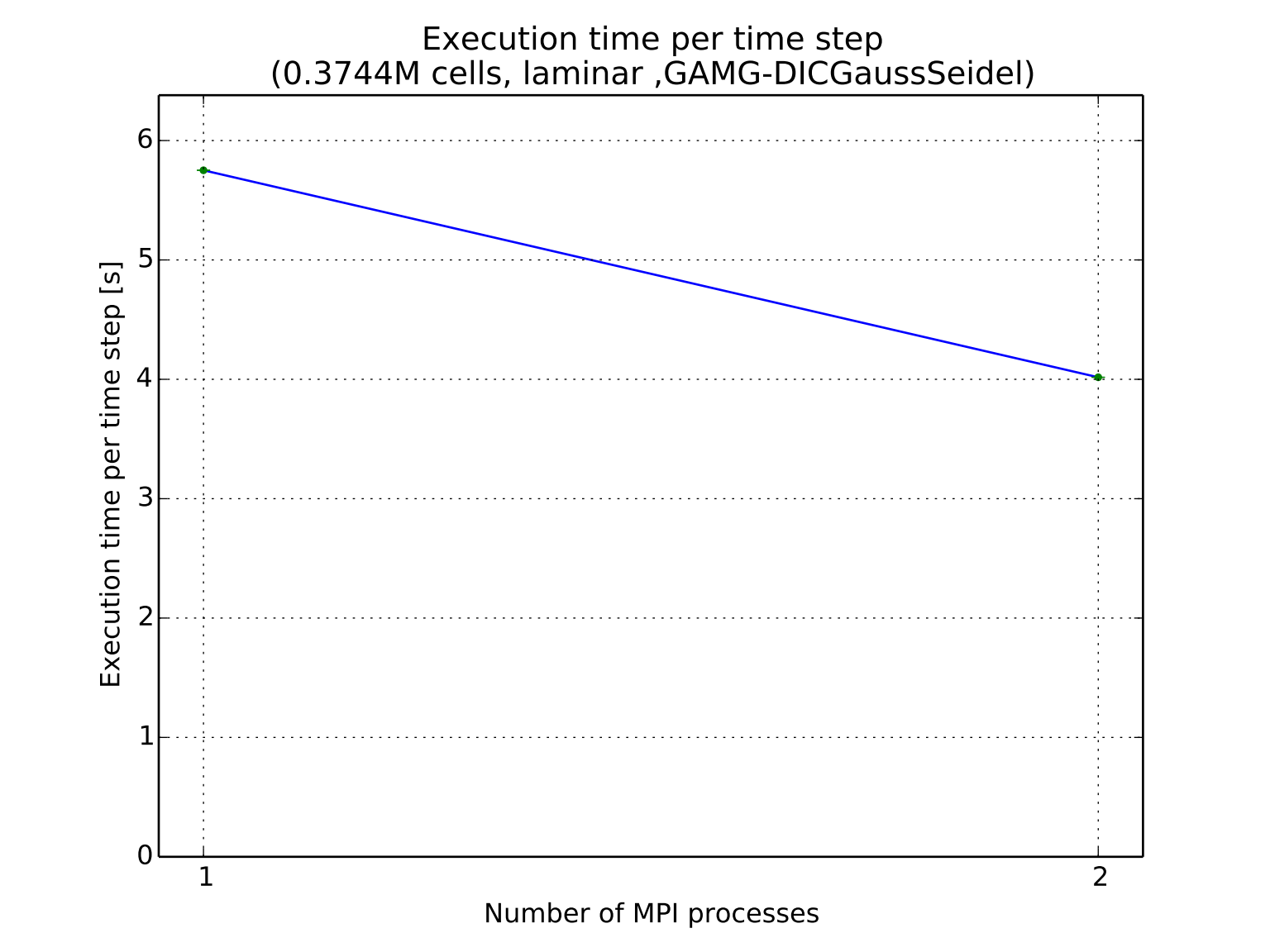

Speedup ratio
(0.3744M cells, Smagorinsky ,PCG-diagonal)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

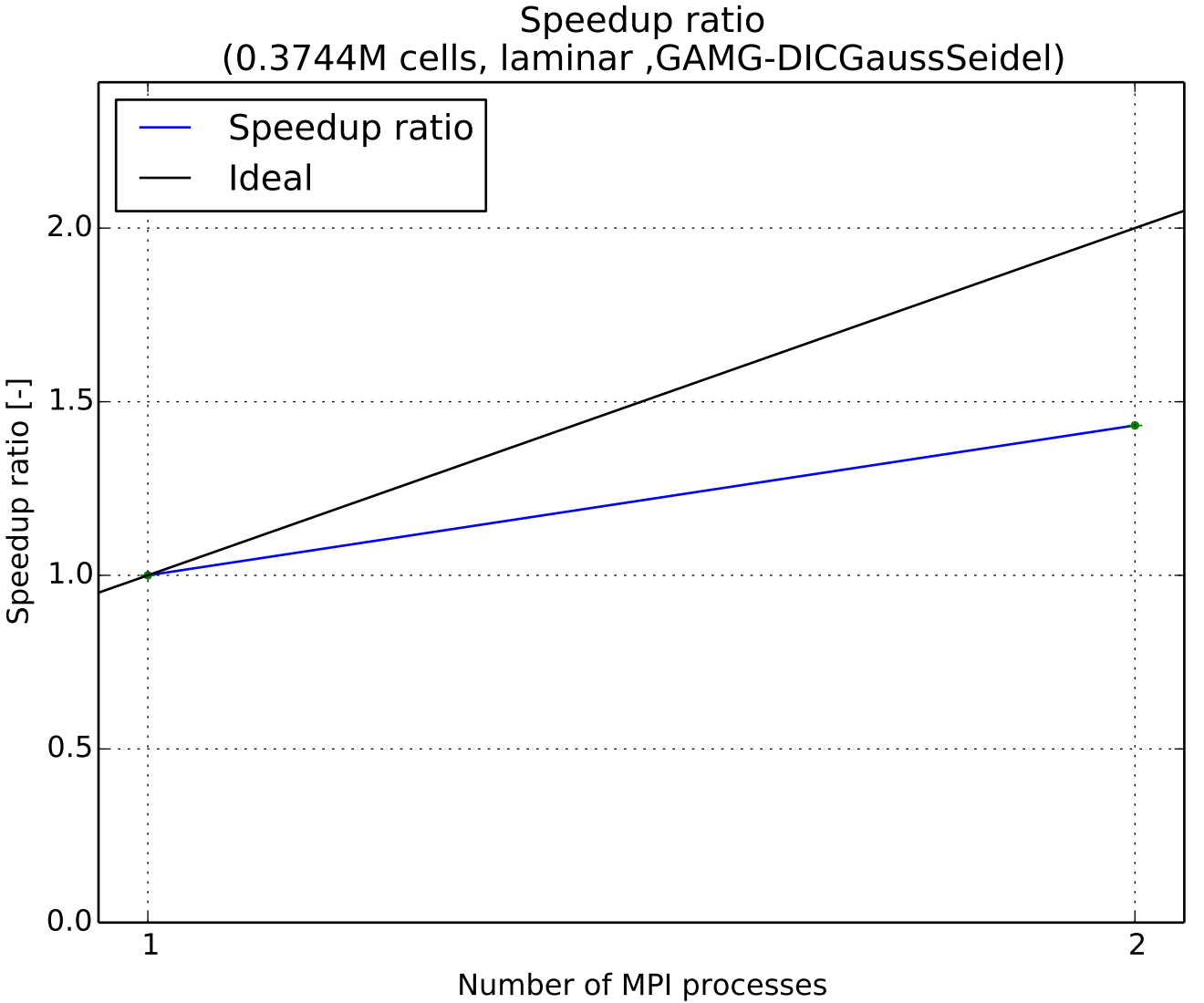

Parallel efficiency
(0.3744M cells, Smagorinsky ,PCG-diagonal)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

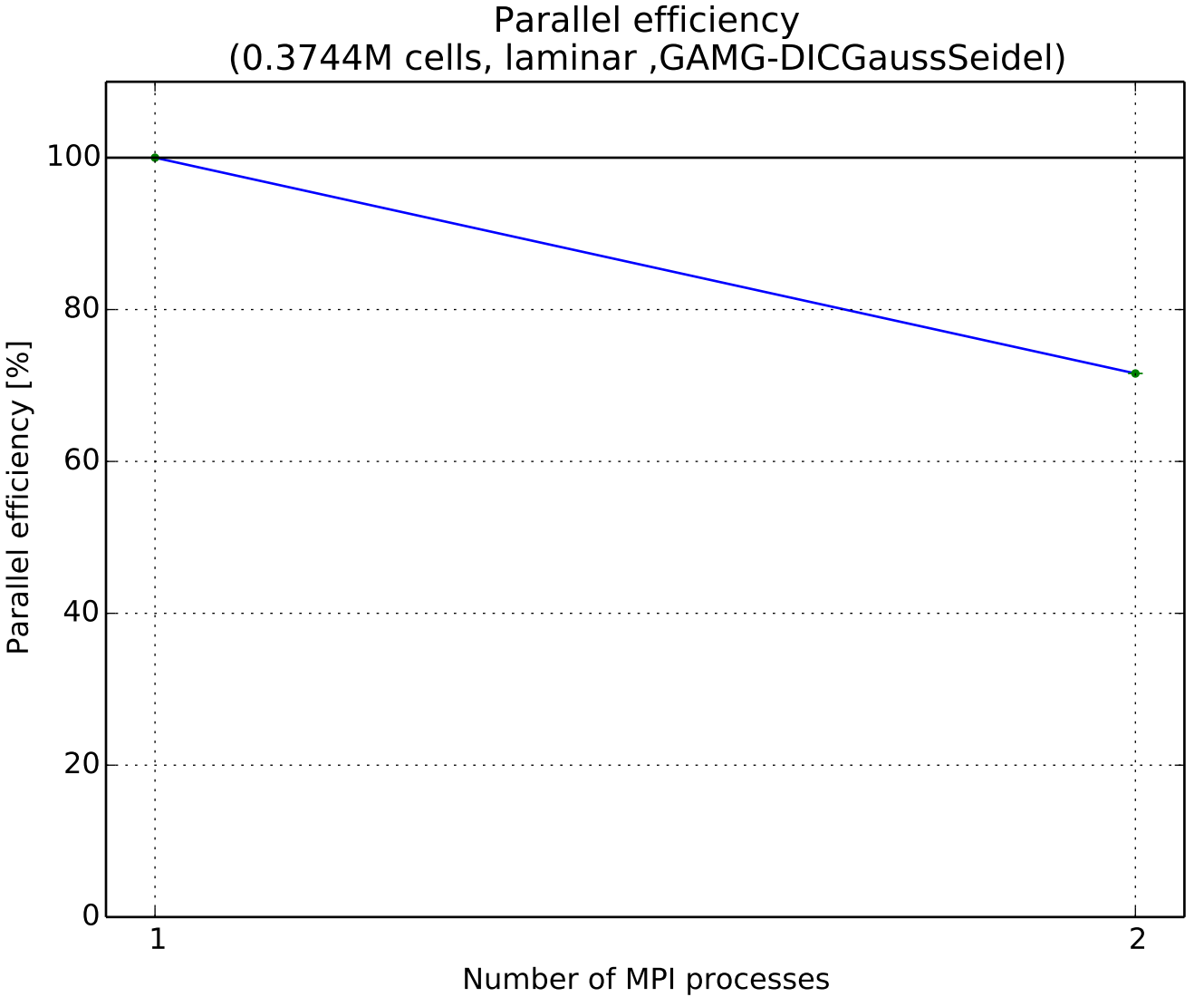

Execution time per time step
(0.3744M cells, laminar ,GAMG-DIC)
Execution time per time step [s]
Number of MPI processes
0
1
2
3
4
5
6
1
2

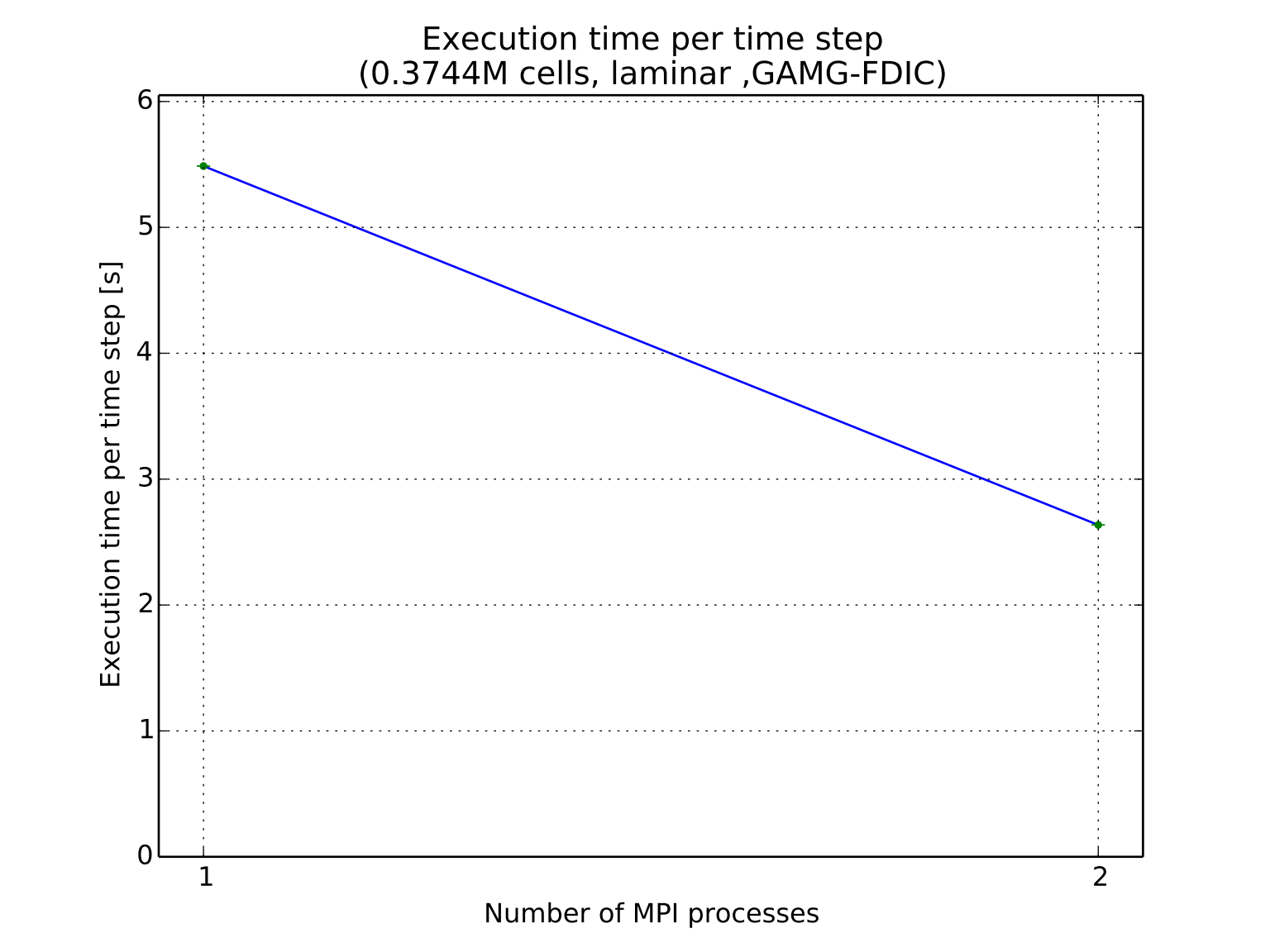

Speedup ratio
(0.3744M cells, laminar ,GAMG-DIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

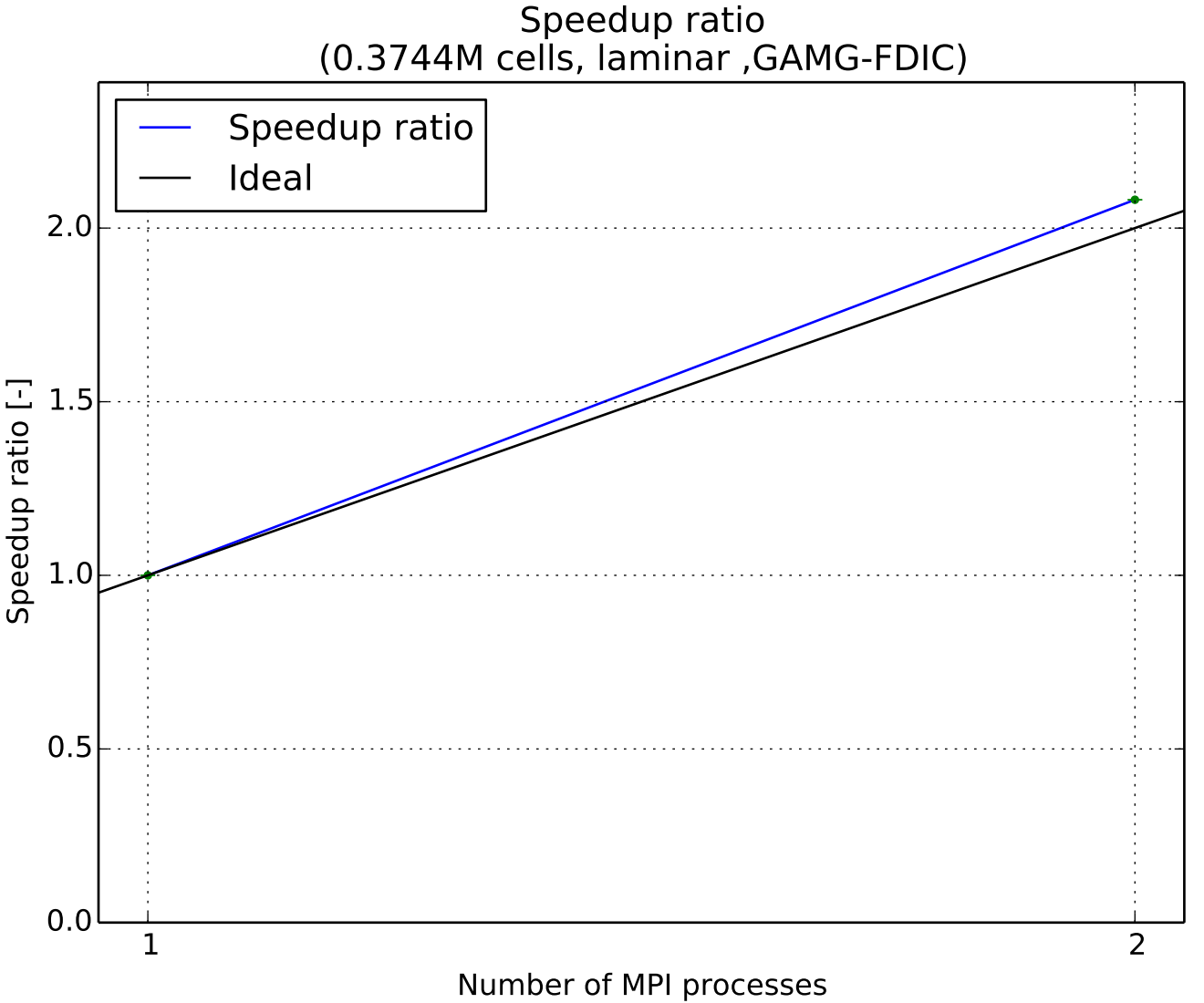

Parallel efficiency
(0.3744M cells, laminar ,GAMG-DIC)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

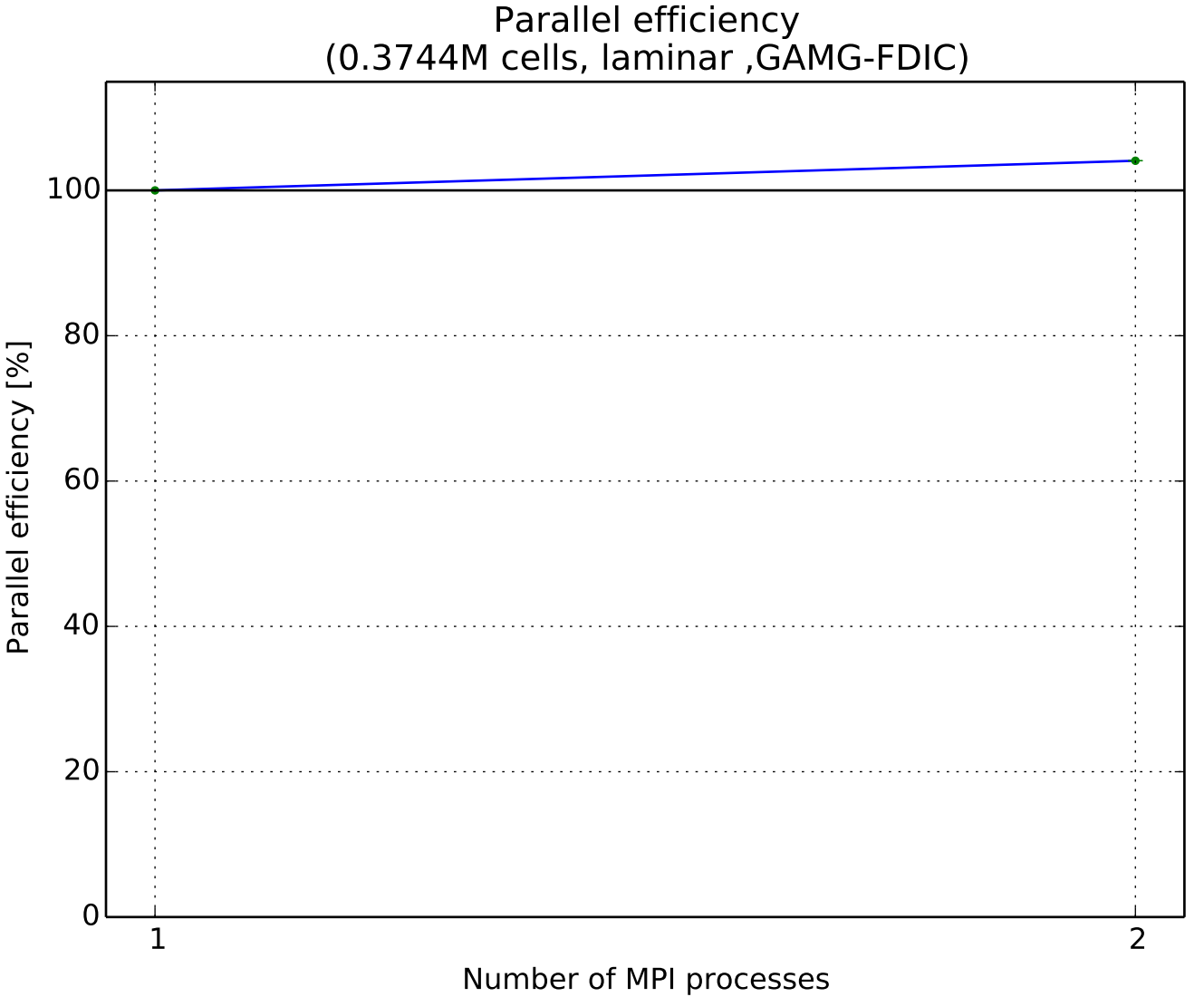

Execution time per time step
(0.3744M cells, laminar ,GAMG-DICGaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
1
2
Number of MPI processes

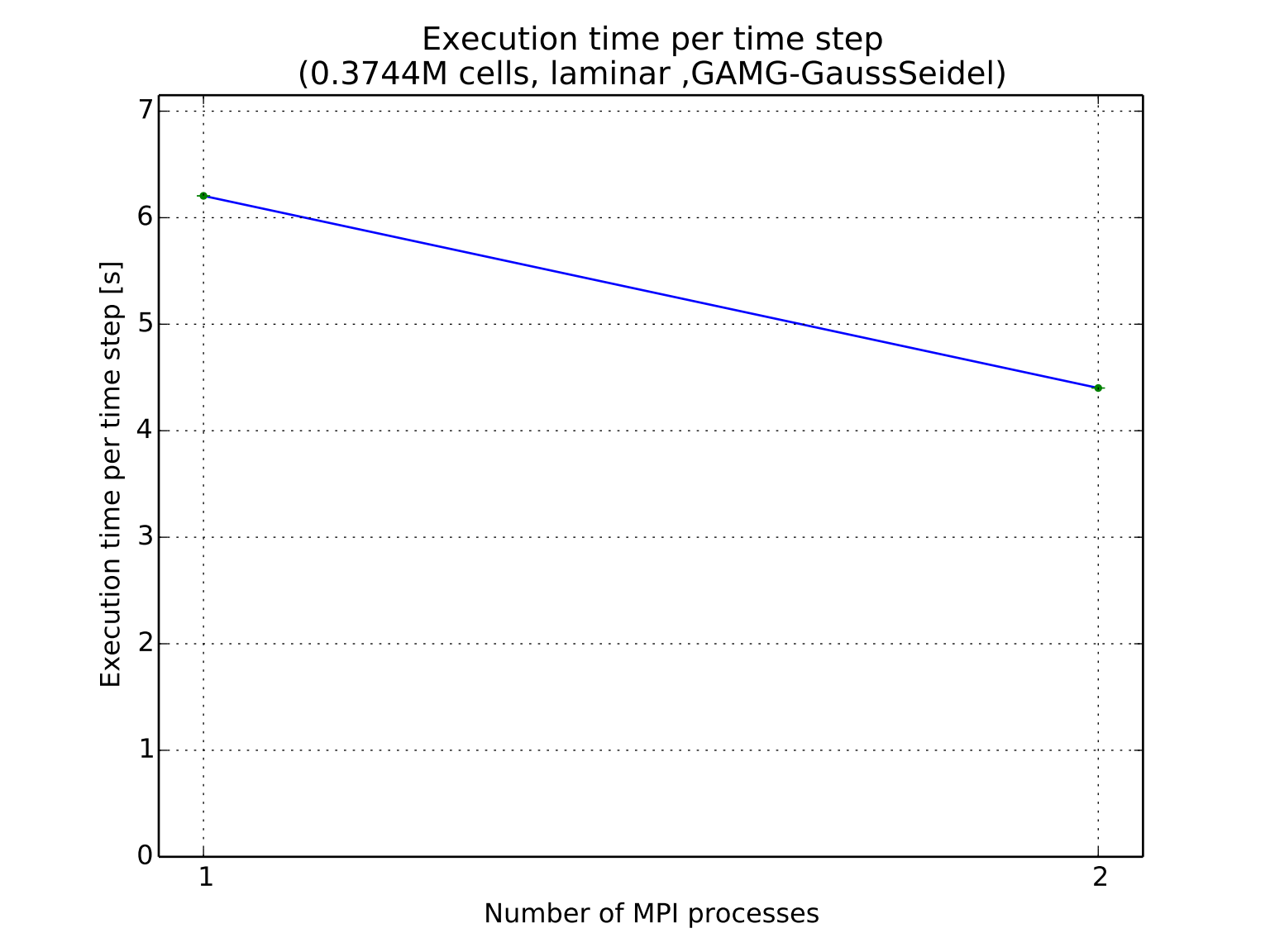

Speedup ratio
(0.3744M cells, laminar ,GAMG-DICGaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

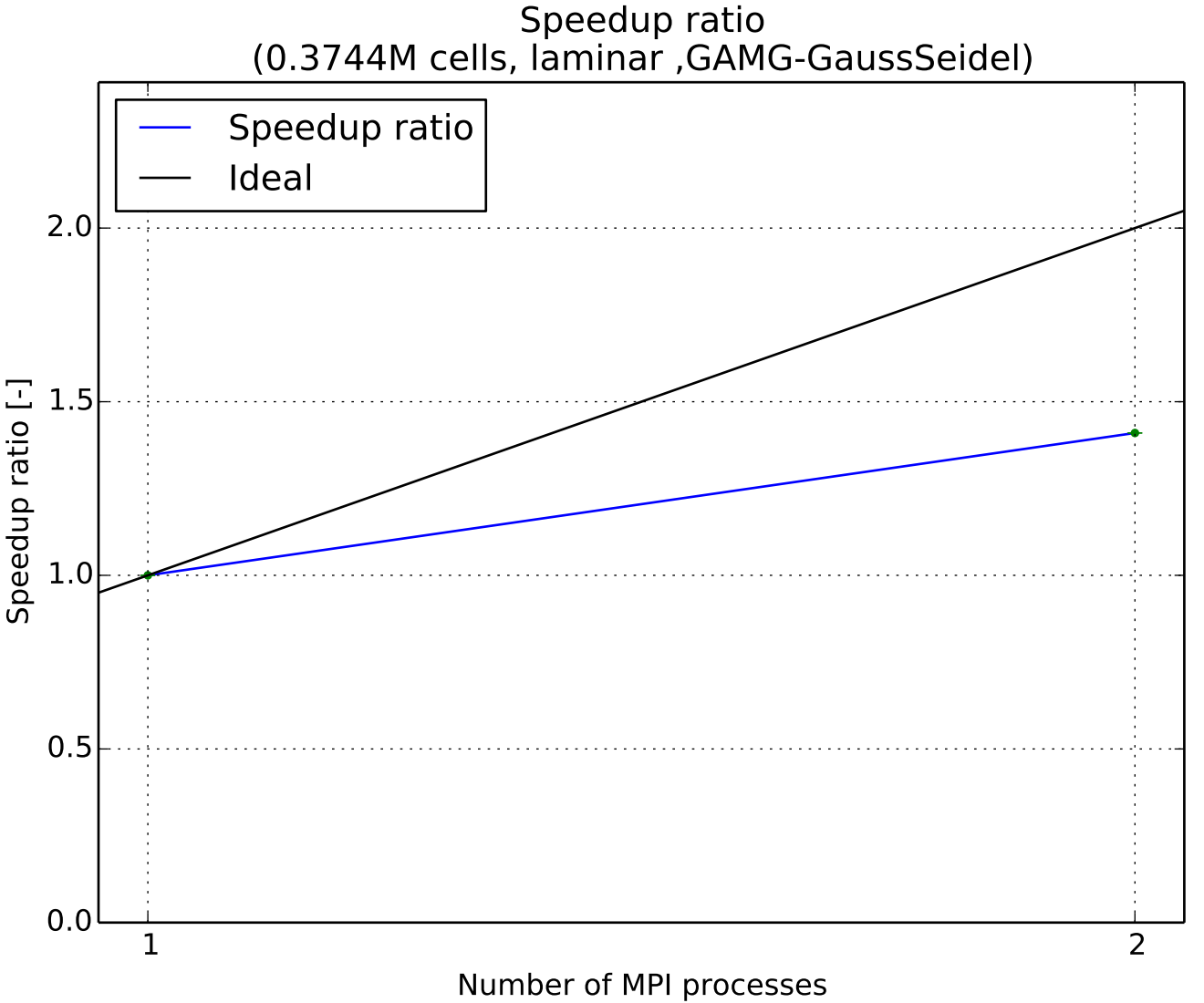

Parallel efficiency
(0.3744M cells, laminar ,GAMG-DICGaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

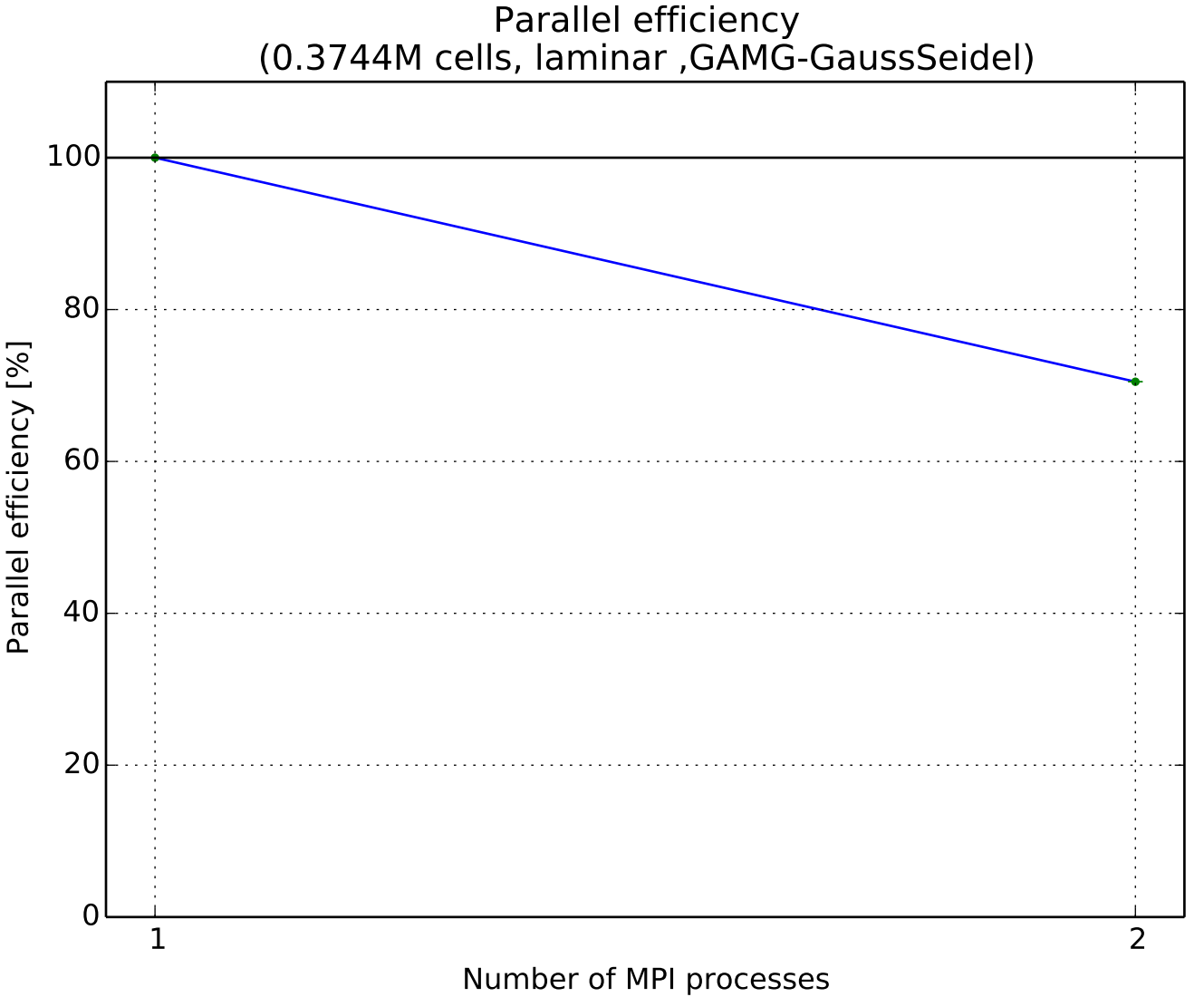

Execution time per time step
(0.3744M cells, laminar ,GAMG-FDIC)
Execution time per time step [s]
Number of MPI processes
0
1
2
3
4
5
6
1
2

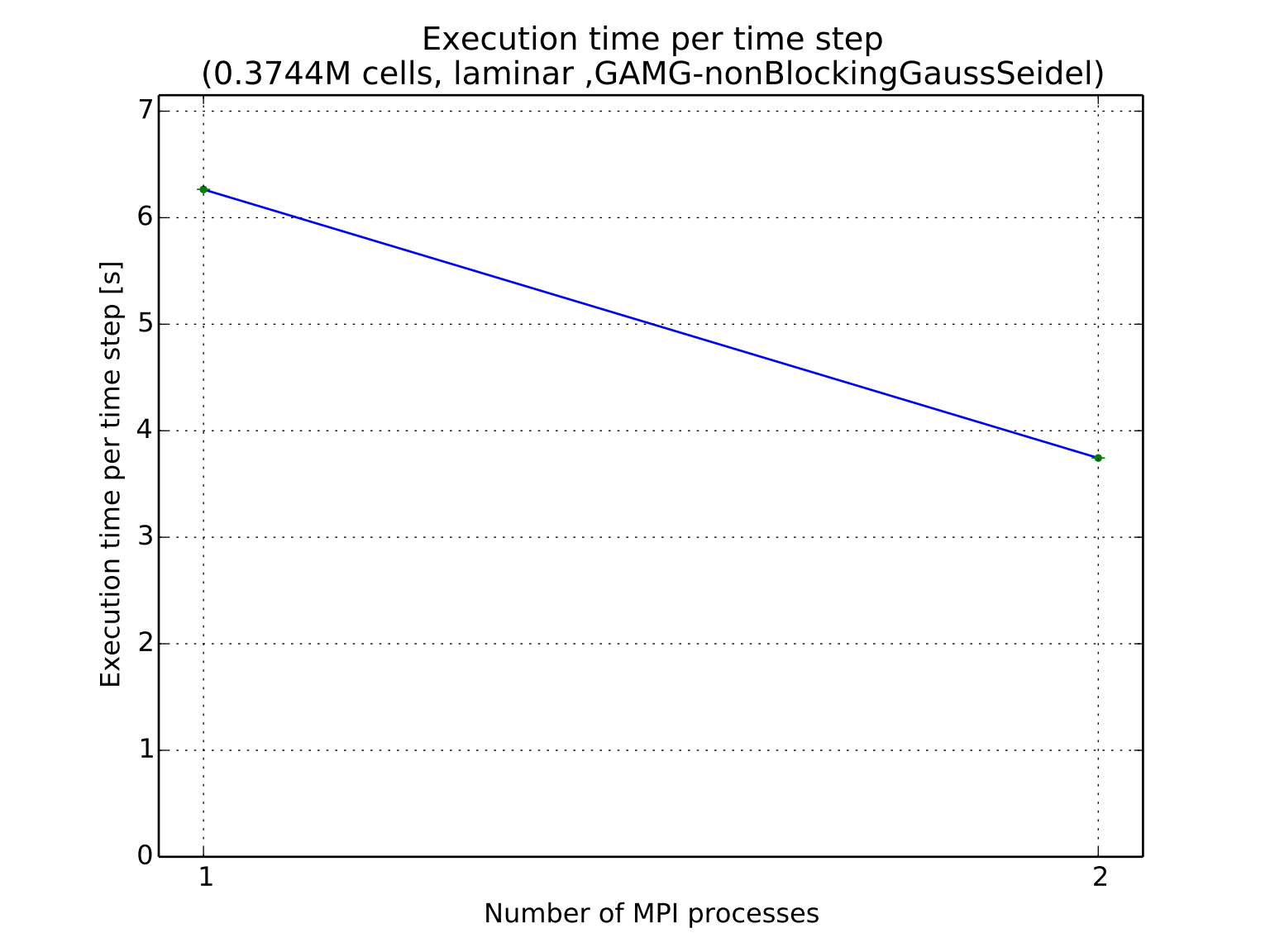

Speedup ratio
(0.3744M cells, laminar ,GAMG-FDIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

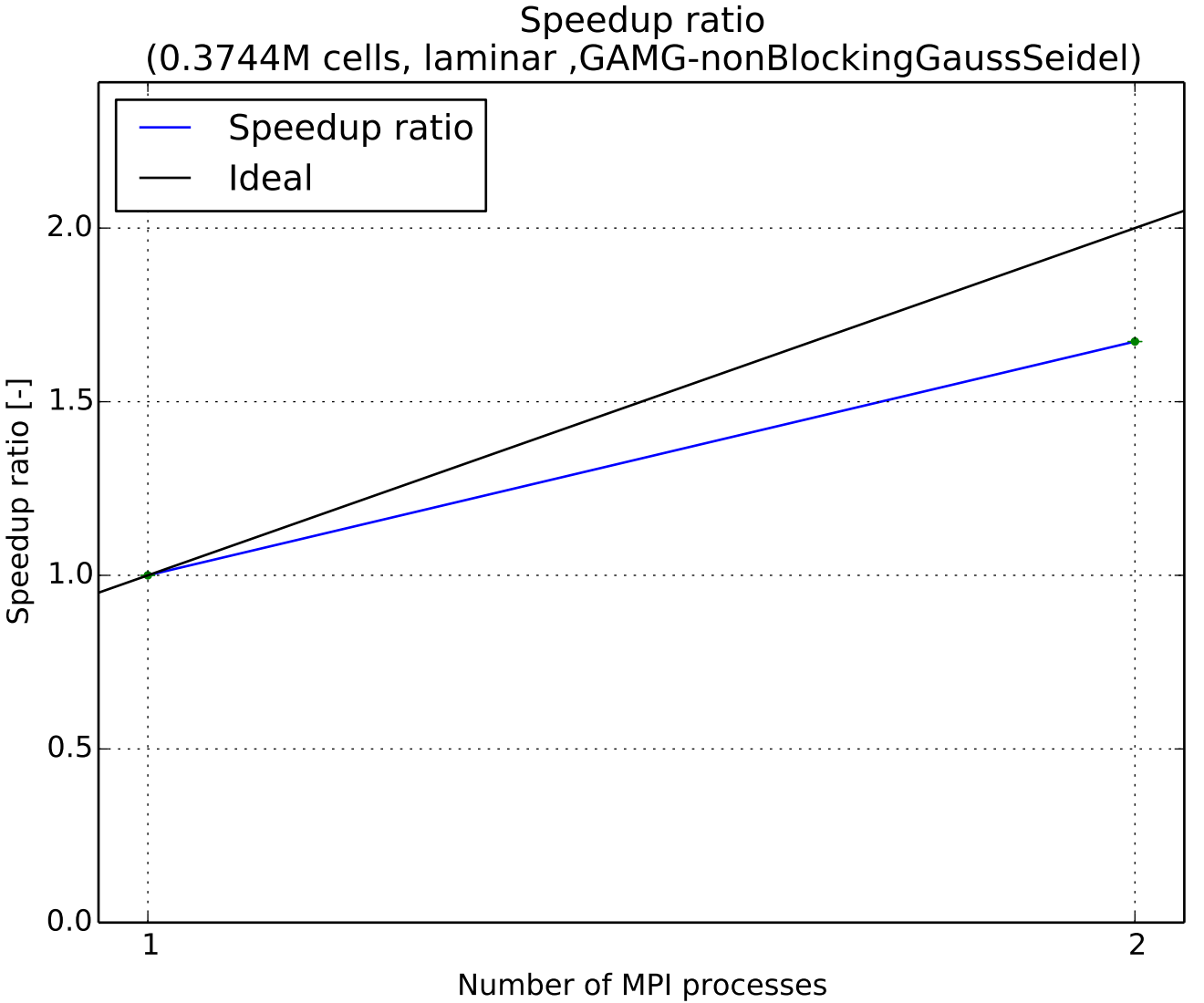

Parallel efficiency
(0.3744M cells, laminar ,GAMG-FDIC)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

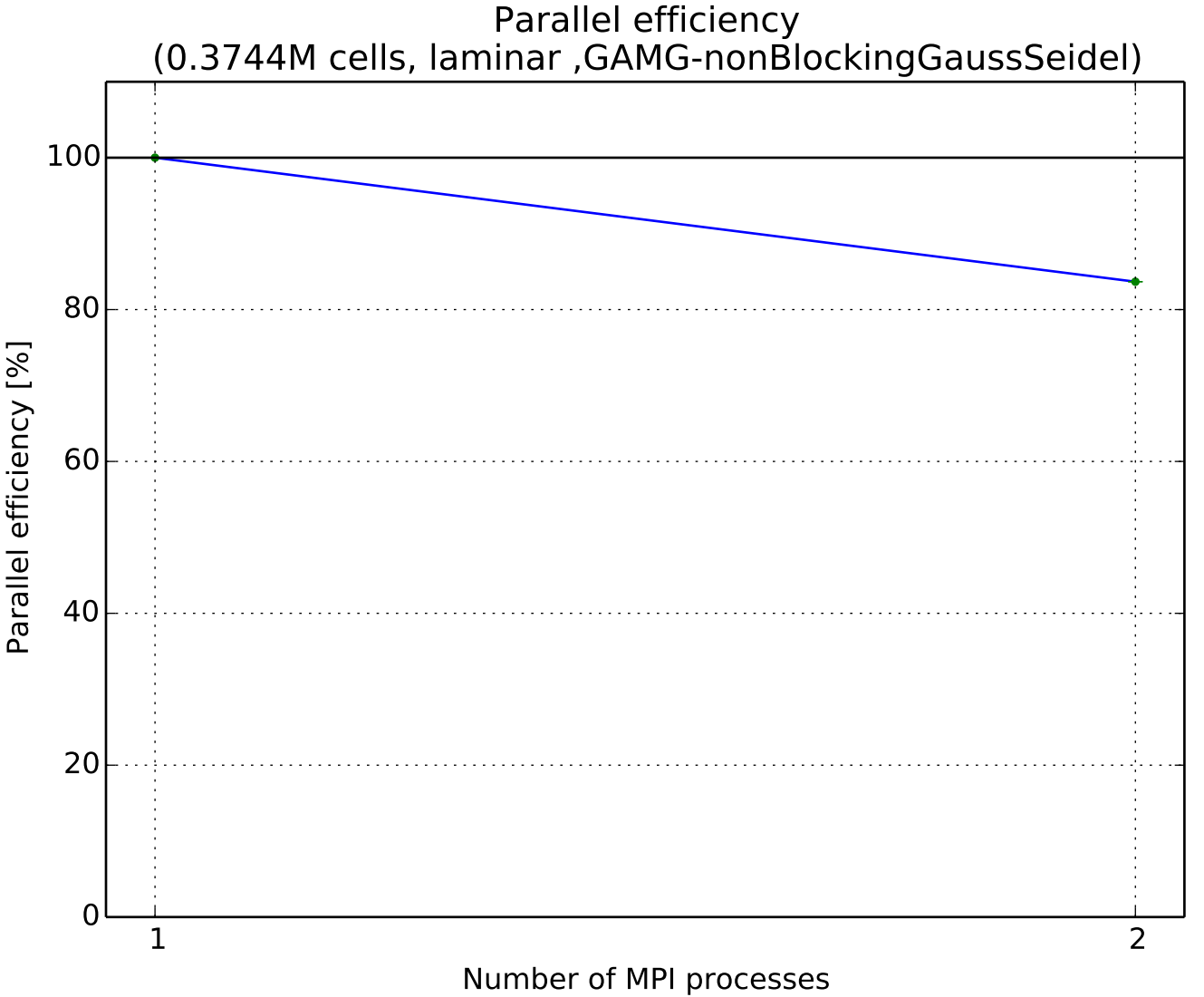

Execution time per time step
(0.3744M cells, laminar ,GAMG-GaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes


Speedup ratio
(0.3744M cells, laminar ,GAMG-GaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

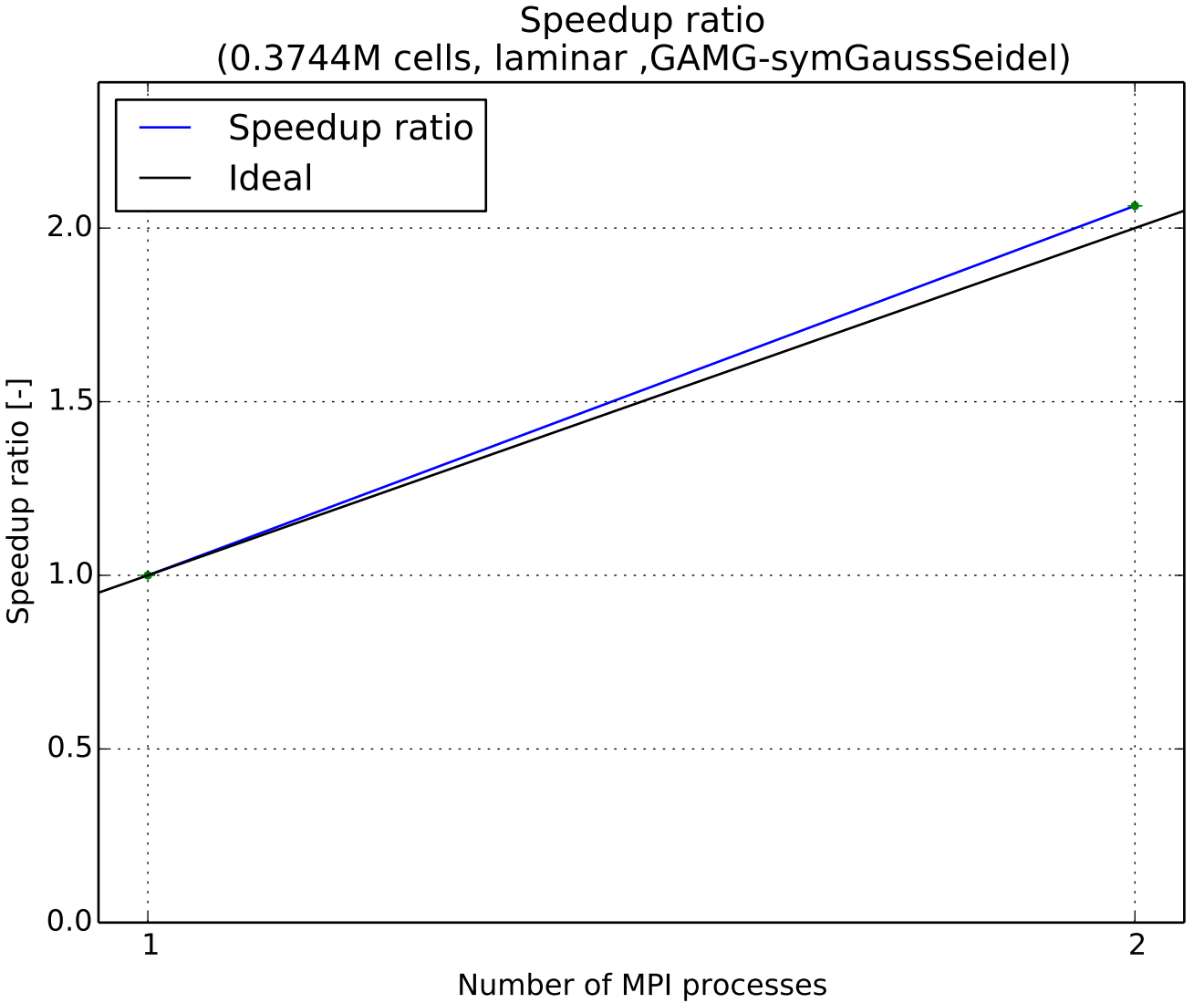

Parallel efficiency
(0.3744M cells, laminar ,GAMG-GaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

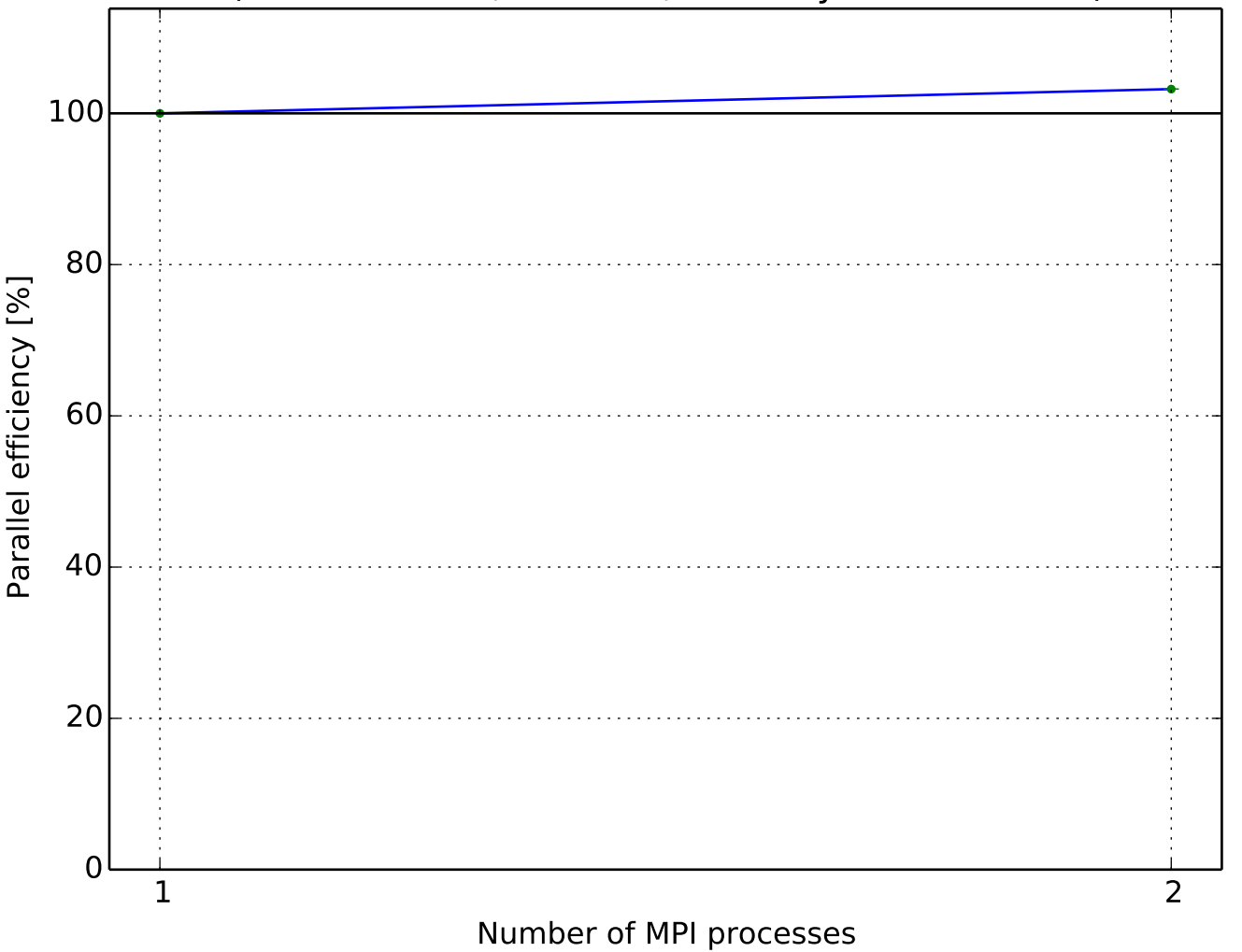

Execution time per time step
(0.3744M cells, laminar ,GAMG-nonBlockingGaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

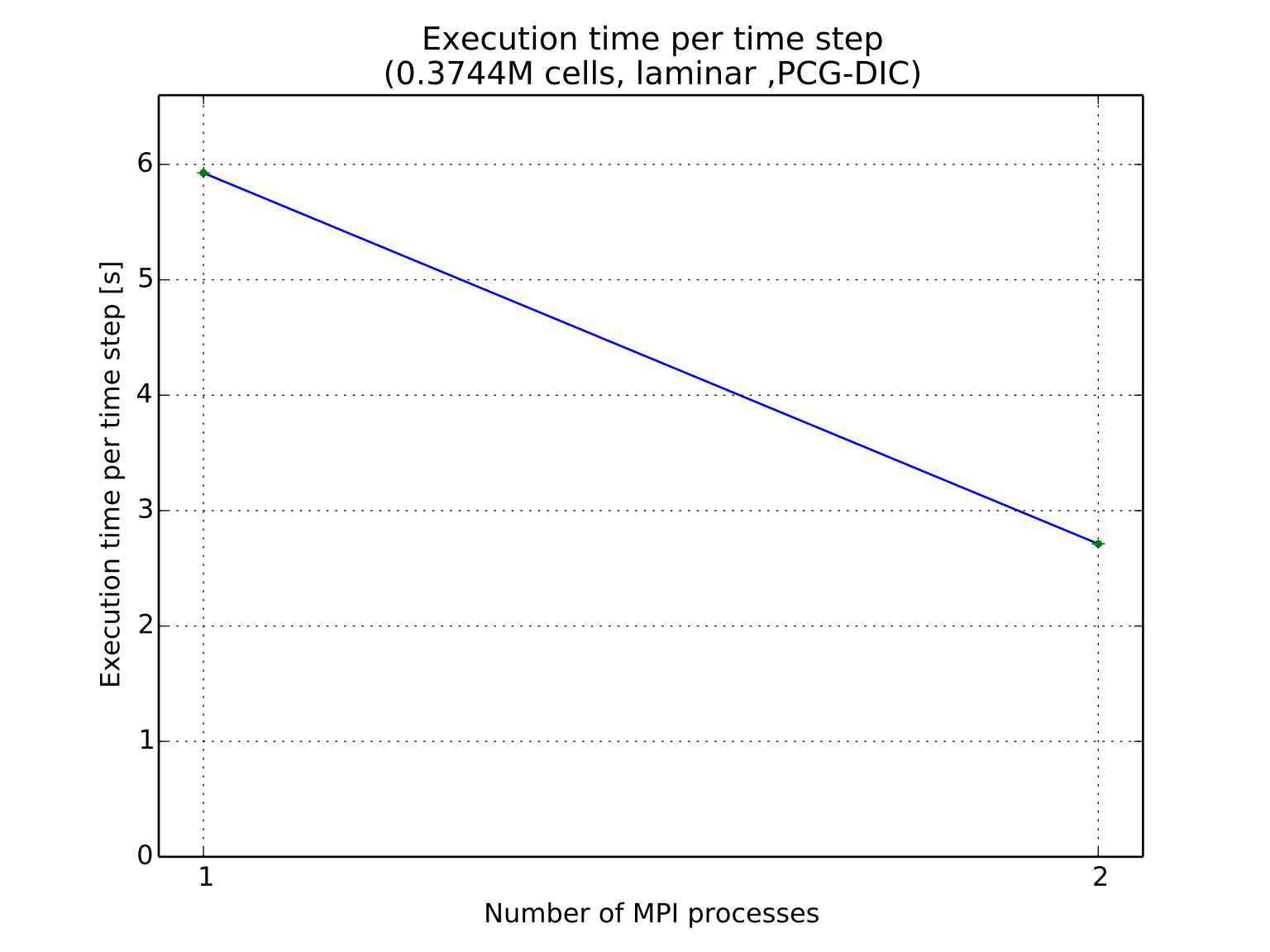

Speedup ratio
(0.3744M cells, laminar ,GAMG-nonBlockingGaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

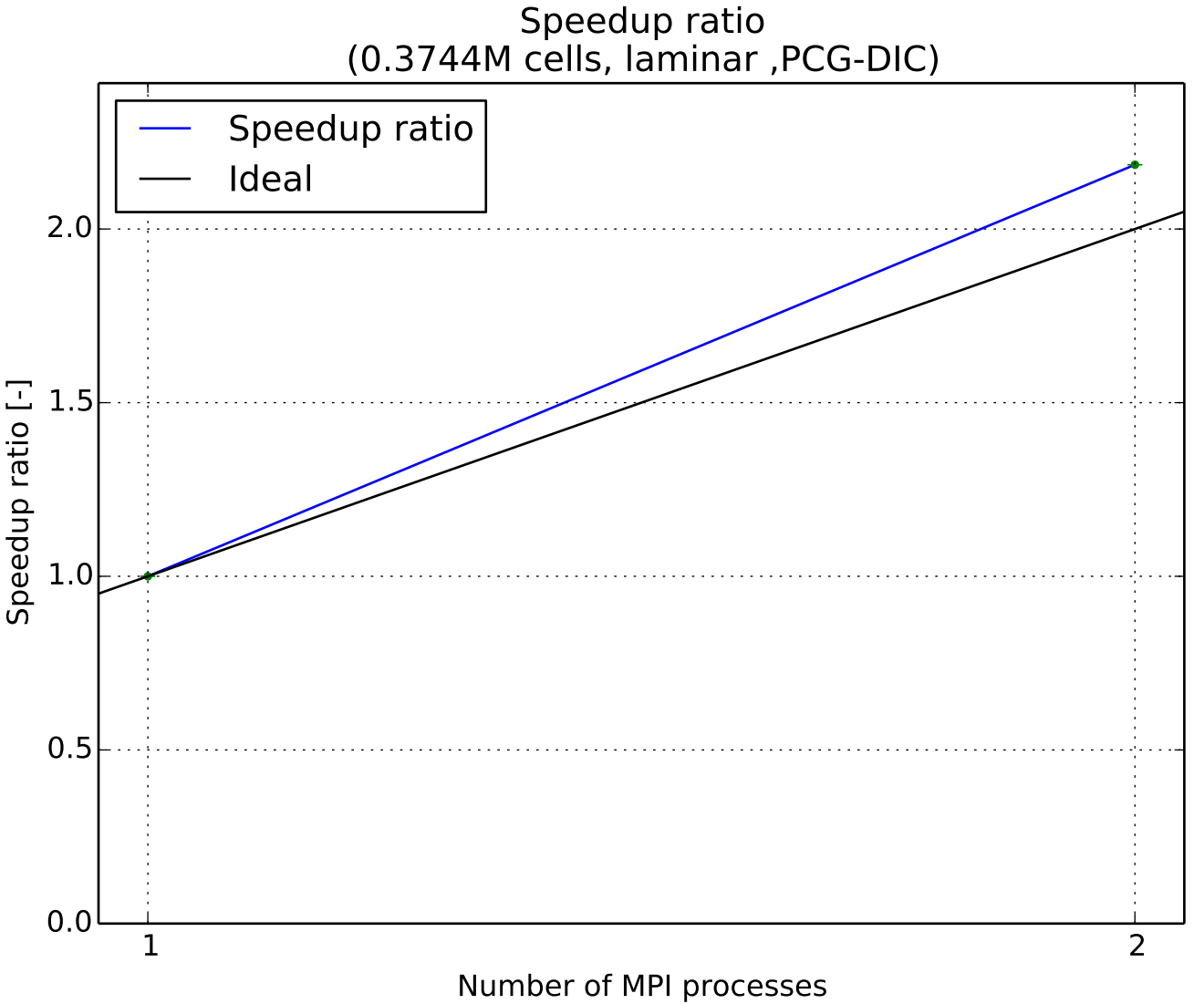

Parallel efficiency
(0.3744M cells, laminar ,GAMG-nonBlockingGaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

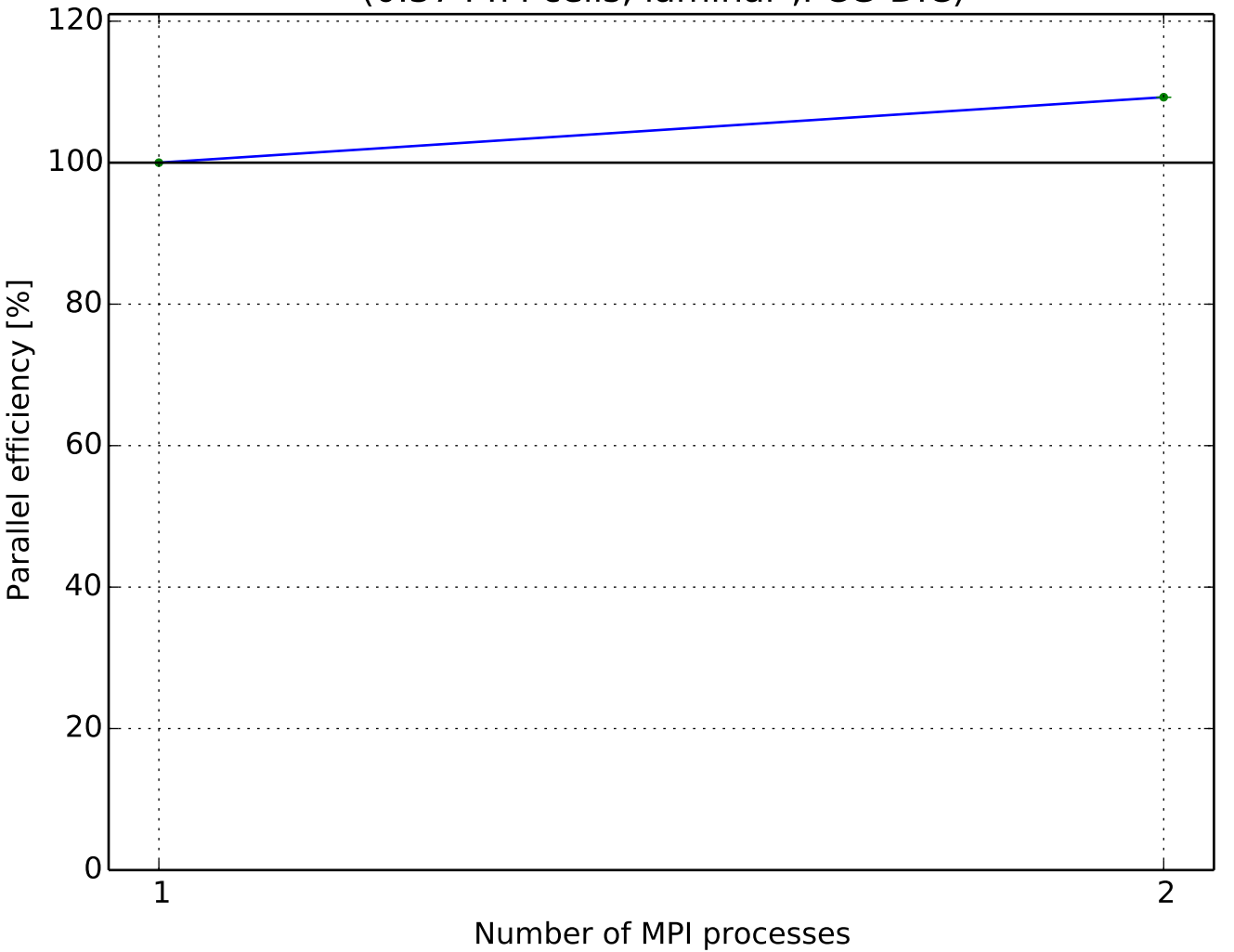

Execution time per time step
(0.3744M cells, laminar ,GAMG-symGaussSeidel)
Execution time per time step [s]
0
1
2
3
4
5
6
7
1
2
Number of MPI processes

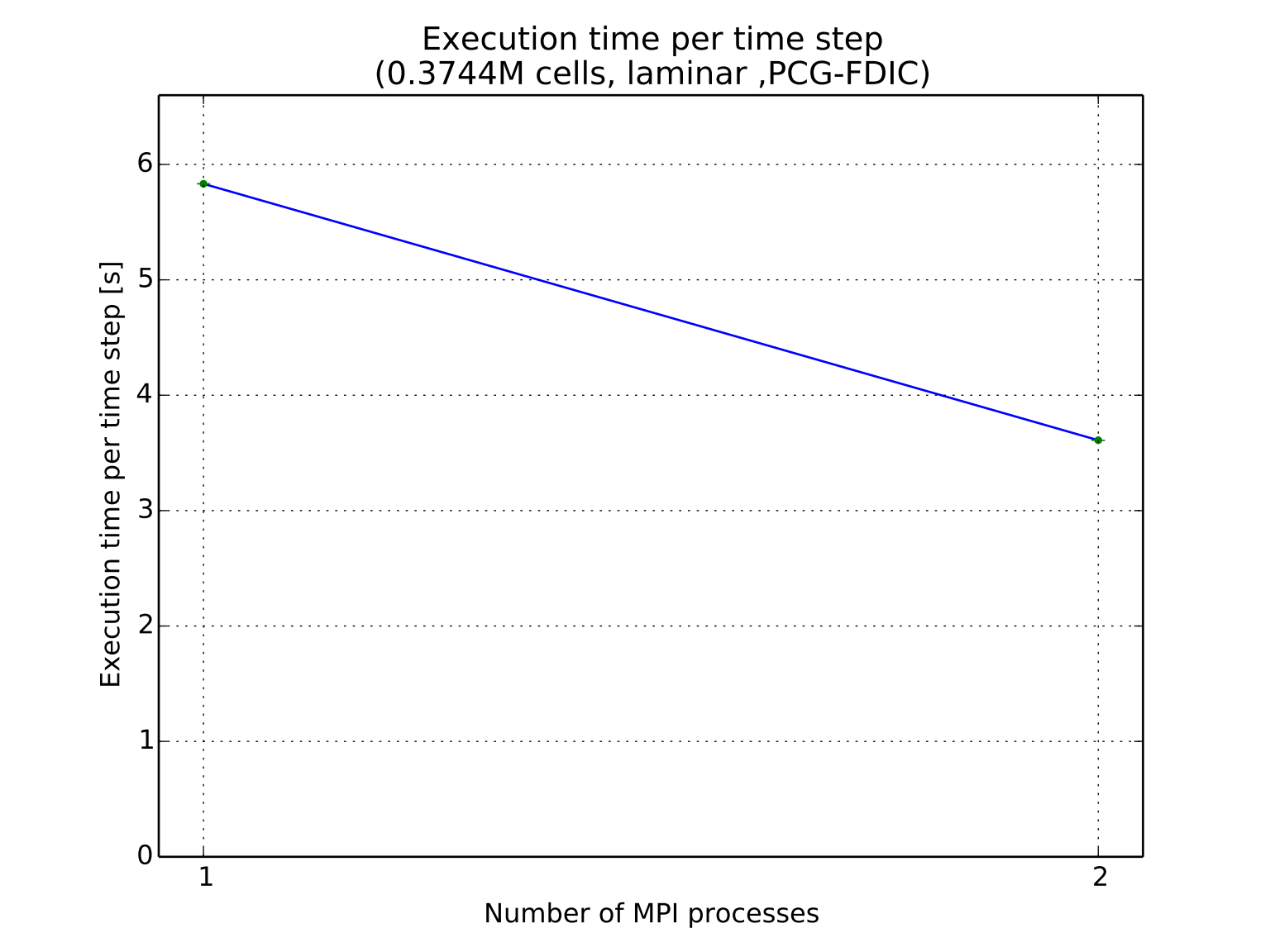

Speedup ratio
(0.3744M cells, laminar ,GAMG-symGaussSeidel)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

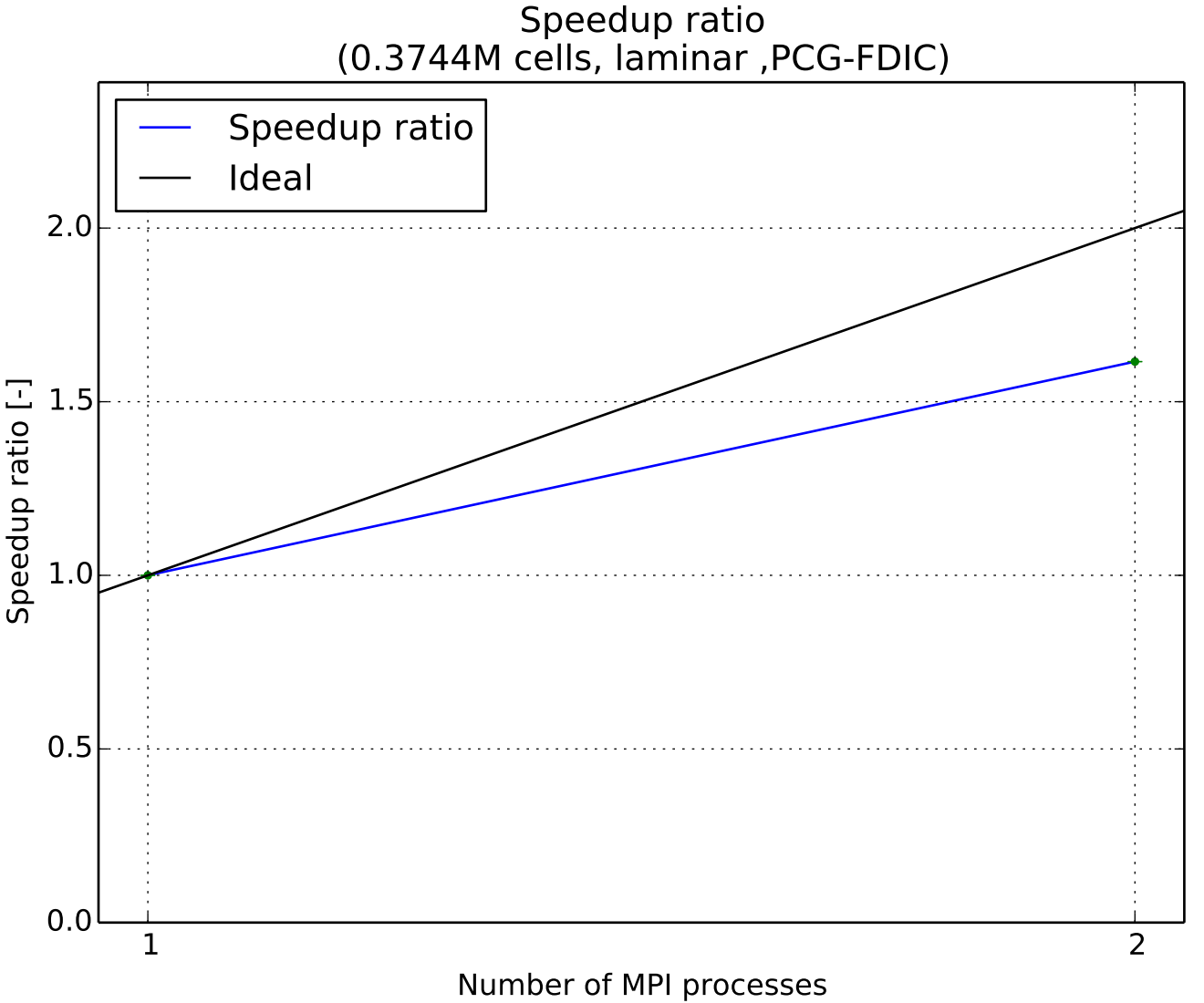

Parallel efficiency
(0.3744M cells, laminar ,GAMG-symGaussSeidel)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes

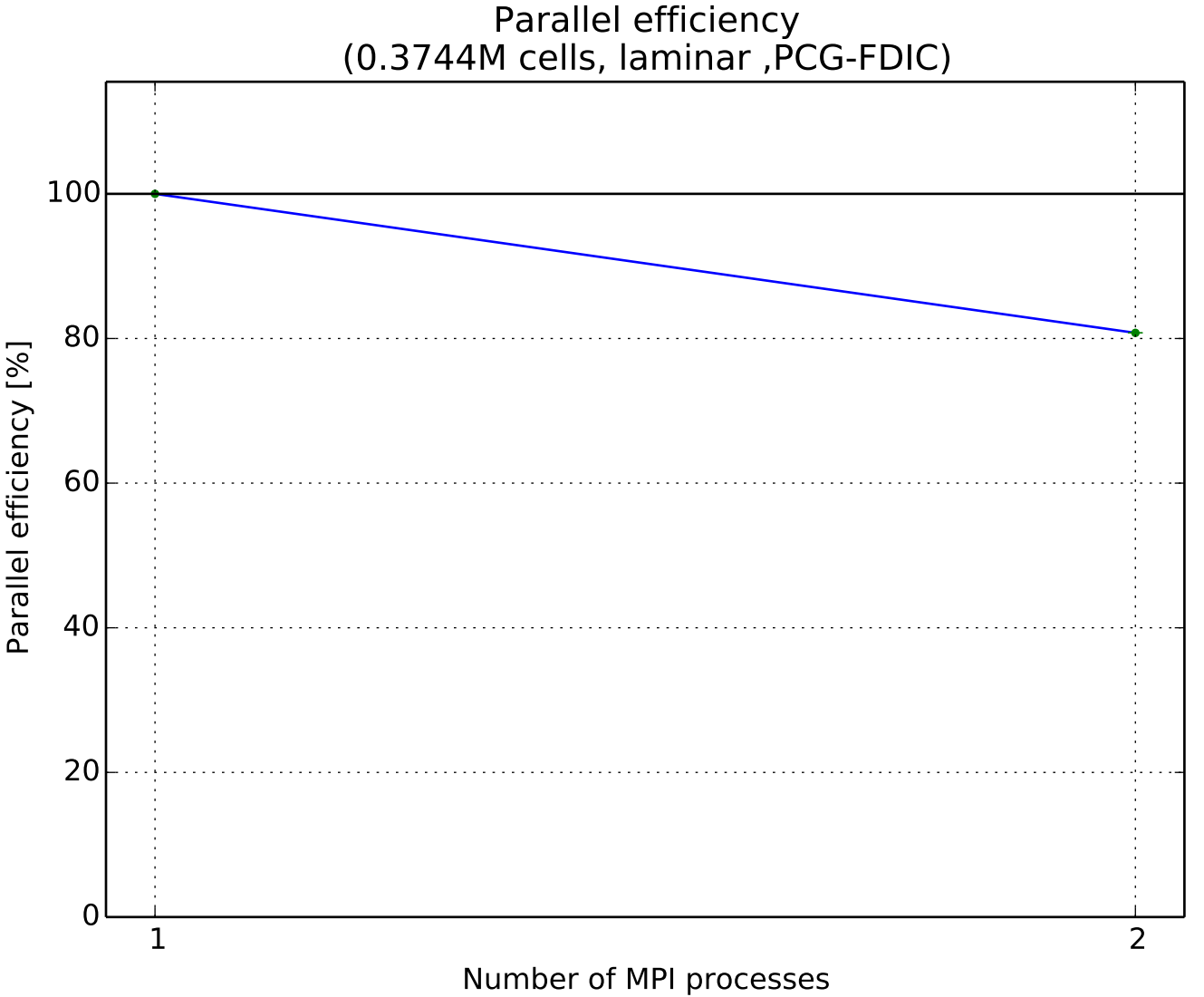

Execution time per time step
(0.3744M cells, laminar ,PCG-DIC)
Execution time per time step [s]
0
1
2
3
4
5
6
1
2
Number of MPI processes

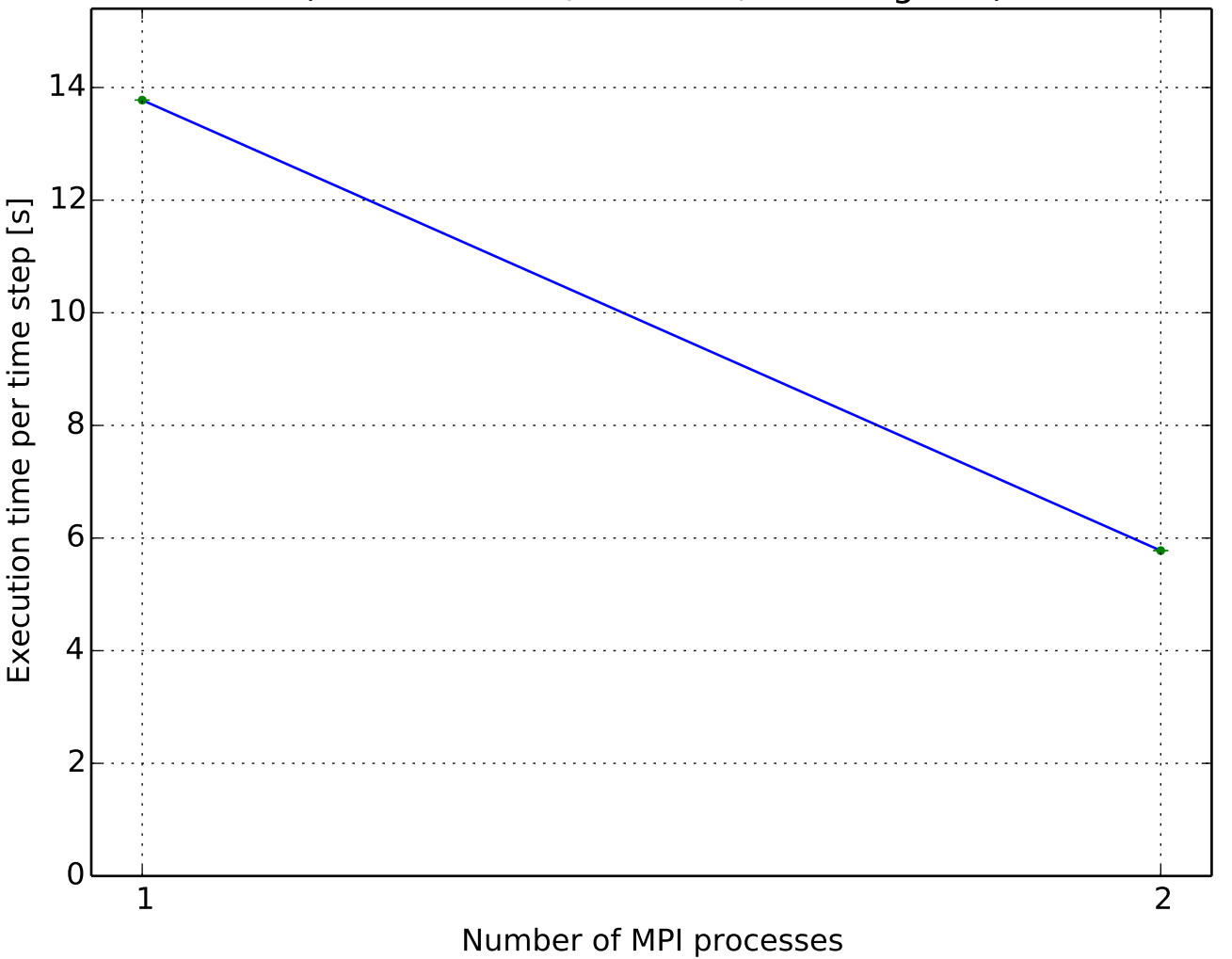

Speedup ratio
(0.3744M cells, laminar ,PCG-DIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes

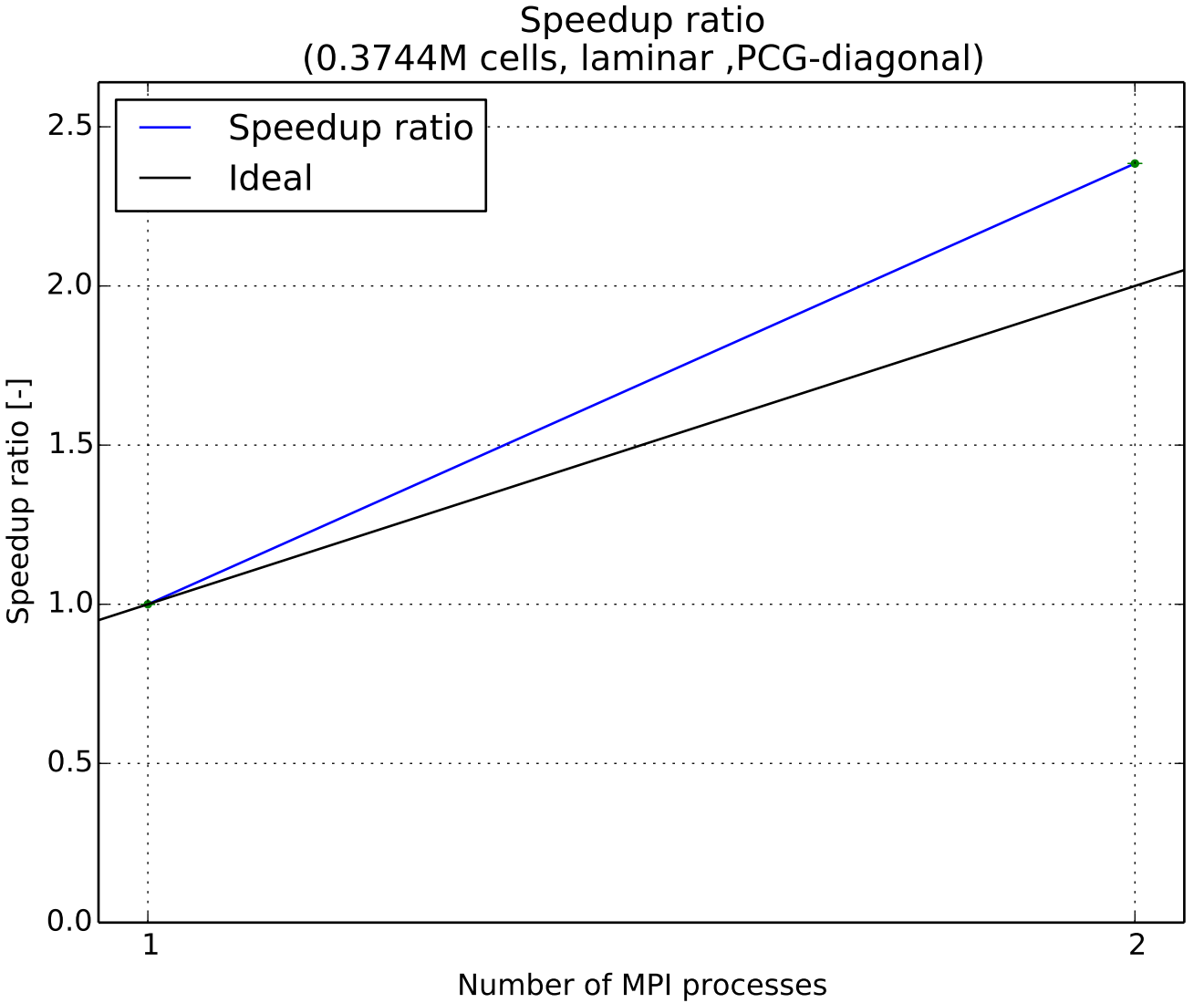

Parallel efficiency
(0.3744M cells, laminar ,PCG-DIC)
120
100
80
60
40
20
0
Parallel efficiency [%]
1
2
Number of MPI processes

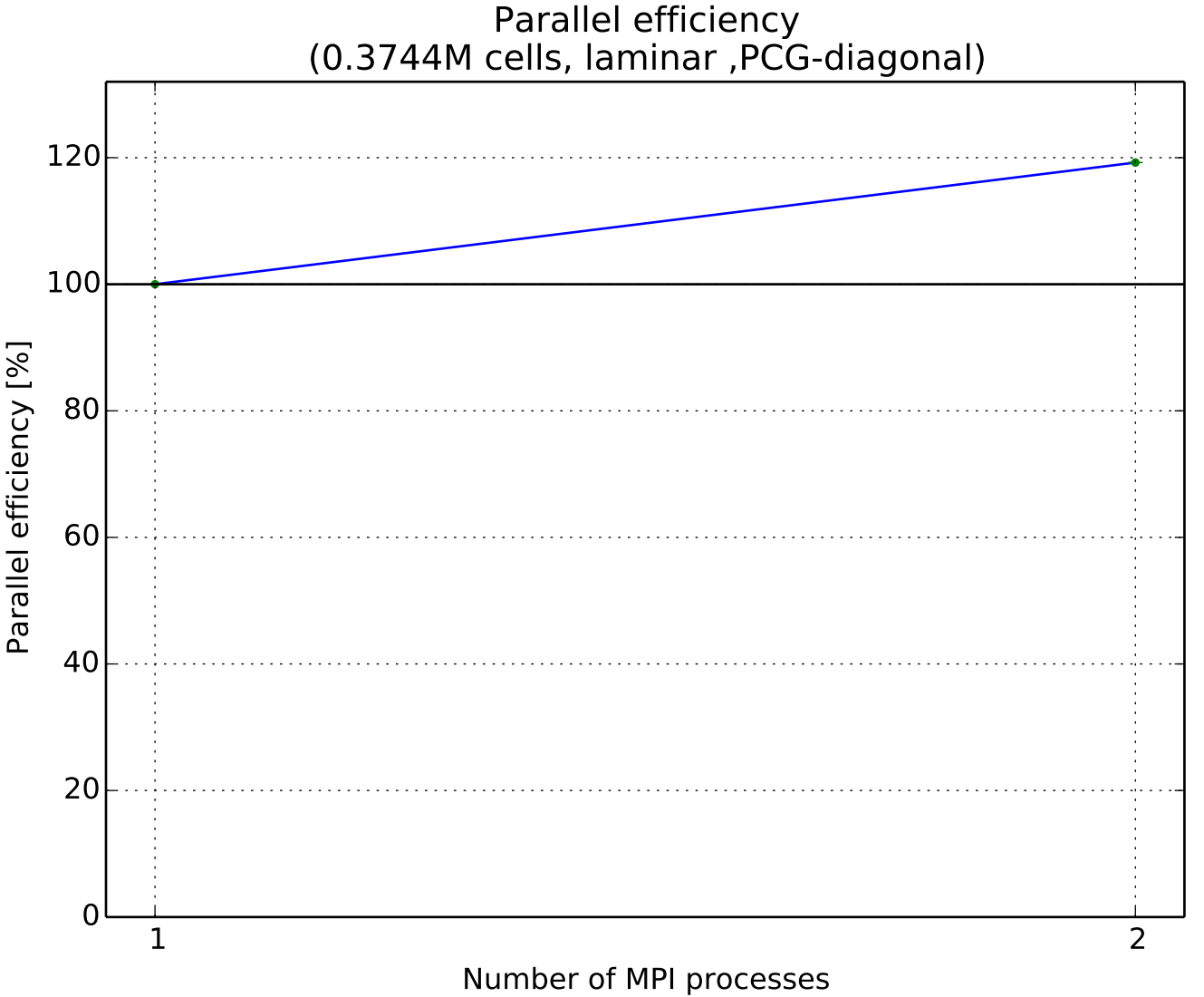

Execution time per time step
(0.3744M cells, laminar ,PCG-FDIC)
Execution time per time step [s]
0
1
2
3
4
5
6
1
2
Number of MPI processes


Speedup ratio
(0.3744M cells, laminar ,PCG-FDIC)
Speedup ratio
Ideal
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes


Parallel efficiency
(0.3744M cells, laminar ,PCG-FDIC)
Parallel efficiency [%]
100
80
60
40
20
0
1
2
Number of MPI processes


Execution time per time step
(0.3744M cells, laminar ,PCG-diagonal)
Execution time per time step [s]
0
2
4
6
8
10
12
14
1
2
Number of MPI processes


Speedup ratio
(0.3744M cells, laminar ,PCG-diagonal)
Speedup ratio
Ideal
2.5
2.0
1.5
1.0
0.5
0.0
Speedup ratio [-]
1
2
Number of MPI processes


Parallel efficiency
(0.3744M cells, laminar ,PCG-diagonal)
Parallel efficiency [%]
120
100
80
60
40
20
0
1
2
Number of MPI processes