

Homework

2.5, 2.11, 2.14, 2.18

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5.9 The code is showed in the project HW1. The running results on $n = 100$ and $n = 1000$ separately are as follows:

```
D:\并行作业\HW1\HW1\x64\Debug>mpiexec.exe -n 10 HW1.exe 100
count 4 from process 4
count 4 from process 1
count 4 from process 7
count 4 from process 0
global_count: 25
count 4 from process 5
count 4 from process 8
count 4 from process 3
count 4 from process 2
count 4 from process 6
count 4 from process 9

D:\并行作业\HW1\HW1\x64\Debug>mpiexec.exe -n 10 HW1.exe 1000
count 11 from process 5
count 11 from process 1
count 11 from process 2
count 11 from process 6
count 11 from process 8
count 11 from process 7
count 11 from process 3
count 11 from process 4
count 11 from process 0
global_count: 168
count 11 from process 9
```

图 1: The running results on $n = 100$ and $n = 1000$

6.10 The code is showed in the project MYBcast. The running result is as follows:

```
D:\并行作业\MY_Bcast\x64\Debug>mpiexec.exe -n 10 MY_Bcast.exe
my_elapsed_time:0.006962
mpi_elapsed_time:0.002593
```

图 2: The running results of MYBcast

From the running result, we can see easily that the mpiBcast is much faster than MYBcast.

6.13 The program is in the project 生命游戏. There are some problems in the program, so that it maybe get stuck while running. And I think the Life Game can not be well parallelized; Since suppose we partition it with row, then the first line of block i will depend on the last line of block $i - 1$.

7.11 Because the speedup in the Gustafson-Barsis 's law is related to the scale of the problem, while the amdahl's law is not.