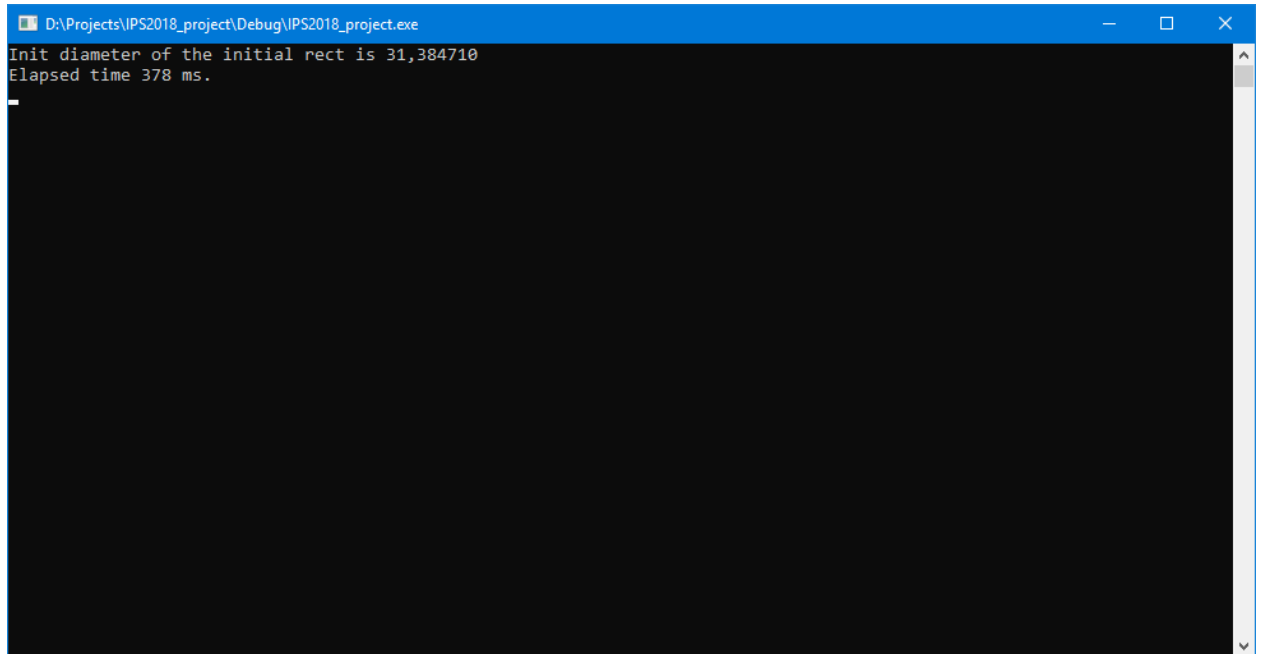


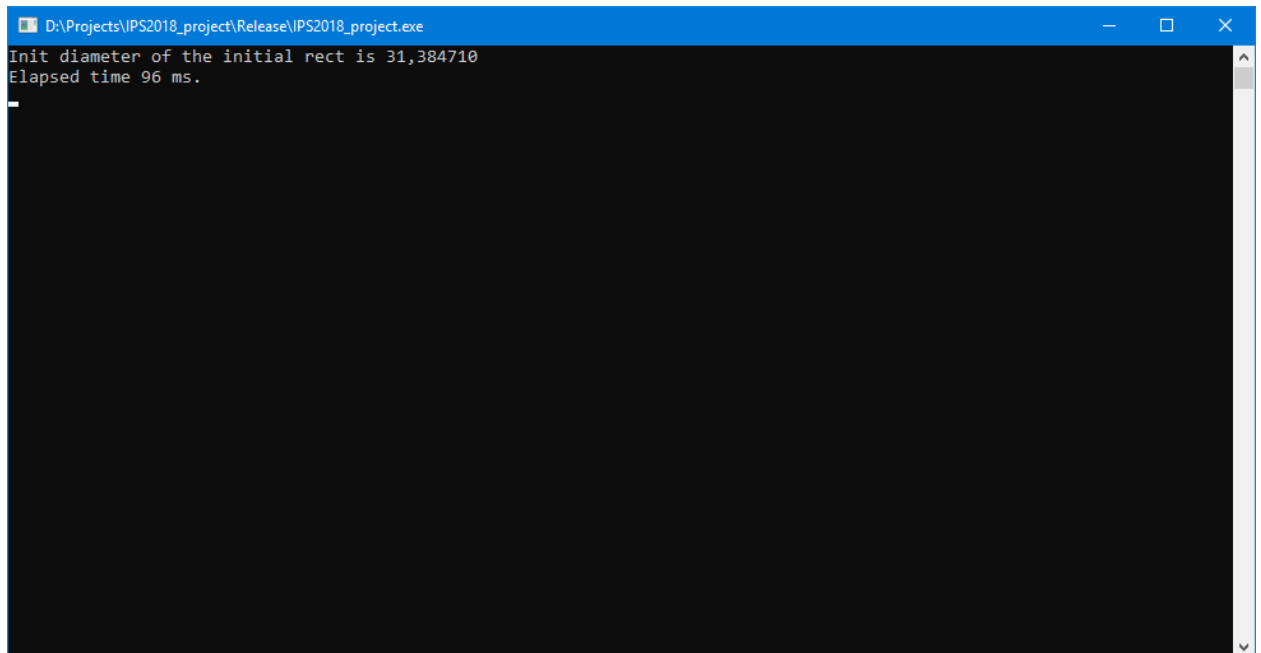
Проектное задание по курсу "Parallel Programming with IPS". Черновик №2. Задания 6-10

Время работы программы в режиме Debug (378 ms)



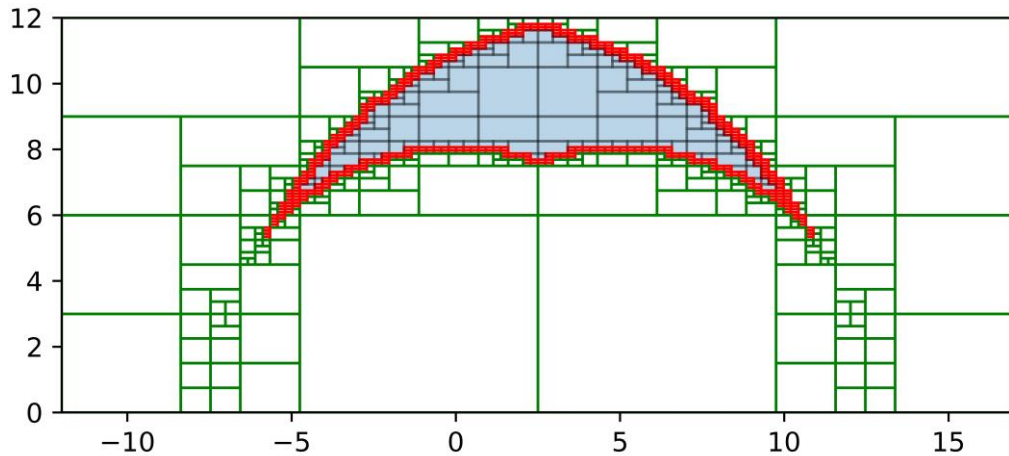
```
D:\Projects\IPS2018_project\Debug\IPS2018_project.exe
Init diameter of the initial rect is 31,384710
Elapsed time 378 ms.
```

Время работы программы в режиме Release (96 ms)

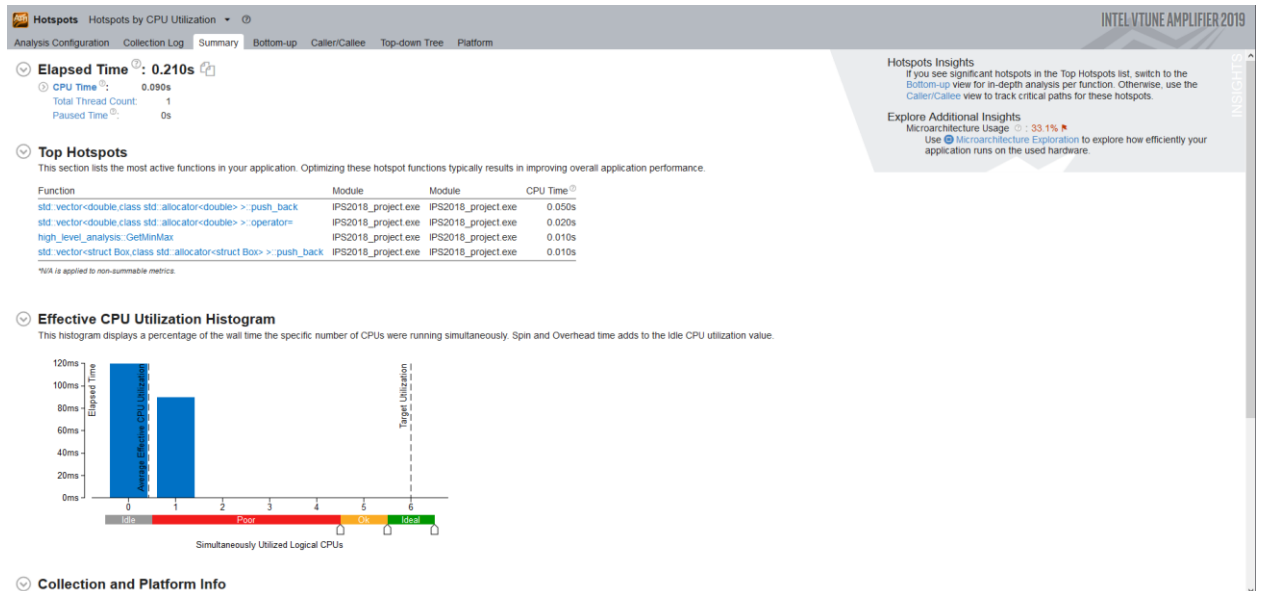


```
D:\Projects\IPS2018_project\Release\IPS2018_project.exe
Init diameter of the initial rect is 31,384710
Elapsed time 96 ms.
```

Полученное рабочее пространство



Результаты Amplifier XE



Hotspots Hotspots by CPU Utilization

Analysis Configuration Collection Log Summary Bottom-up Caller/Callee Top-down Tree Platform

Function	CPU Time: Total	CPU Time: Self	Module	Callers	CPU Time: Total	CPU Time: Self
BaseThreadInitThunk	100.0%	0ms	kernel32.dll	high_level_analysis: GetM	100.0%	10.006ms
_scrt_common_main_seh	100.0%	0ms	IP62018_project.exe	high_level_analysis: Get	100.0%	10.006ms
main	100.0%	0ms	IP62018_project.exe			
high_level_analysis: GetSolution	100.0%	0ms	IP62018_project.exe			
func@0x4b2e3a9d	100.0%	0ms	ntdll.dll			
func@0x4b2e3a99	100.0%	0ms	ntdll.dll			
high_level_analysis: GetMinMax	100.0%	10.006ms	IP62018_project.exe			
std::vector<double, class std::allocator<double>>::push_back	55.6%	49.875ms	IP62018_project.exe			
std::vector<double, class std::allocator<double>>::operator=	22.2%	19.910ms	IP62018_project.exe			
std::vector<struct Box, class std::allocator<struct Box>>::push_back	11.1%	9.985ms	IP62018_project.exe			

Callers

Function	CPU Time: Total	CPU Time: Self
high_level_analysis: GetM	100.0%	10.006ms
std::vector<double, class std::allocator<double>>	62.5%	49.875ms
std::vector<double, class std::allocator<double>>	25.0%	19.910ms

Callers

Function	CPU Time: Total	CPU Time: Self
high_level_analysis: GetM	100.0%	10.006ms
std::vector<double, class std::allocator<double>>	62.5%	49.875ms
std::vector<double, class std::allocator<double>>	25.0%	19.910ms

FILTER 100.0% Process Any Process Thread Any Thread Module Any Module Utilization Any Utilizat Call Stack Mode User functions + 1 Inline Mode Show inline funct Loop Mode Functions only

Результаты Parallel Advisor

Vectorization Workflow Threading Workflow

OFF Batch mode

Run Routine

Collect

Enable Routine with Callstacks

1. Survey Target

Collect

Mark loops for Deeper Analysis

Select checkboxes in the Survey & Routine tab to mark loops for other Advisor analyses.

There are no marked loops.

1.1 Find Trip Counts and FLOP

Collect

Find Counts

Find FLOP

Analyze all loops

2.1 Check Memory Access Patterns

Collect

No loops selected

2.2 Check Dependencies

Collect

No loops selected

Re-finalize Survey

Elapsed time: 0.21s

Vectorization Advisor

Vectorization Advisor is a vectorization analysis tool that lets you identify loops that will benefit most from vector parallelism, discover performance issues preventing from effective vectorization and characterize your memory vs. vectorization bottlenecks with Advisor Routine model automation.

Program metrics

Elapsed Time: 0.21s

Vector Instruction Set: SSE2

Number of CPU Threads: 1

Loop metrics

Metrics	Total
Total CPU time	0.09s
Time in scalar code	0.09s

Vectorization Gain/Efficiency (Not available)

Per program recommendations

Higher instruction set architecture (ISA) available

Consider recompiling your application using a higher ISA. [Show more](#)

Top time-consuming loops

Loop	Self Time	Total Time
Loop in high_level_analysis: GetSolution at fragmentation.cpp:229	0s	0.090s
Loop in high_level_analysis: GetSolution at fragmentation.cpp:229	0s	0.090s
Loop in operator new at new_scalar.cpp:34	0s	0.010s

Collection details

Platform information

CPU Name: Intel(R) Core(TM) i5-8400 CPU @ 2.80GHz

Frequency: 2.81 GHz

Logical CPU Count: 6

Operating System: Windows

Computer Name: DESKTOP-JEMBP5

Он указывает на 236 строчку, как раз внутреннего цикла

```

229 for (int curLevel = 0; curLevel < maxLevels; curLevel++)
230 {
231     printf("Processing level %i\n", curLevel);
232
233     curLevelNodes = temporary_boxes.size();
234     //cilk::reducer<cilk::op_vector<Box>> r;
235
236     for (int curLevelNode = 0; curLevelNode < curLevelNodes; curLevelNode++)
237     {
238         current_box = &temporary_boxes[curLevelNode];

```

Locate Deadlocks and Data Races

Target
Analysis Type
Collection Log
Summary

Problems

No Problems Detected

Intel Inspector detected no problems at this analysis scope. If this result is unexpected, try rerunning the target using an analysis type with a wider scope. Press F1 for more information.

Filters
Sort
Severity
Type
Source
Module
State
Suppressed
Investigated

Locate Memory Problems

Target
Analysis Type
Collection Log
Summary

Problems

ID	Type	Sources	Modules	Object Size	State
P1	Invalid partial memory acc...	setlocale.cpp; strlen.cpp; ...	ucrtbased.dll		New

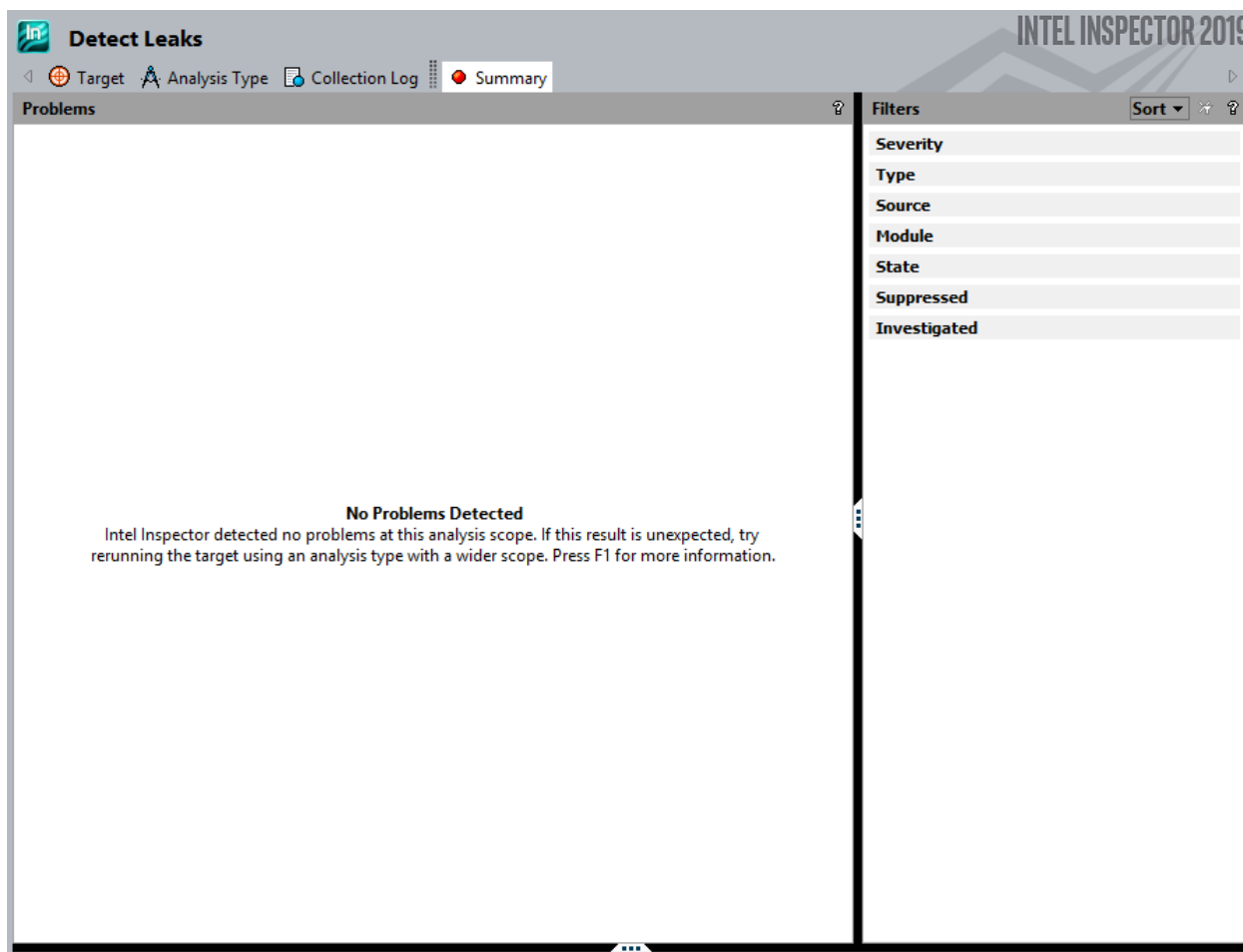
Filters
Sort
Severity
Error 1 item(s)
Type
Invalid partial memory access 1 item(s)
Source
setlocale.cpp 1 item(s)
strlen.cpp 1 item(s)
wsetlocale.cpp 1 item(s)
Module
ucrtbased.dll 1 item(s)
State
New 1 item(s)
Suppressed
Not suppressed 1 item(s)

1 of 2
All
Code Locations: Invalid partial memory...

Description	Source	Function	Module	Object Size	Offset	Variable
Read	strlen.cpp:152	common_strnl...	ucrtbased.dll			0x00aeab80
Allocation site	setlocale.cpp:23	call_wsetlocale	ucrtbased.dll			0x00aeab80

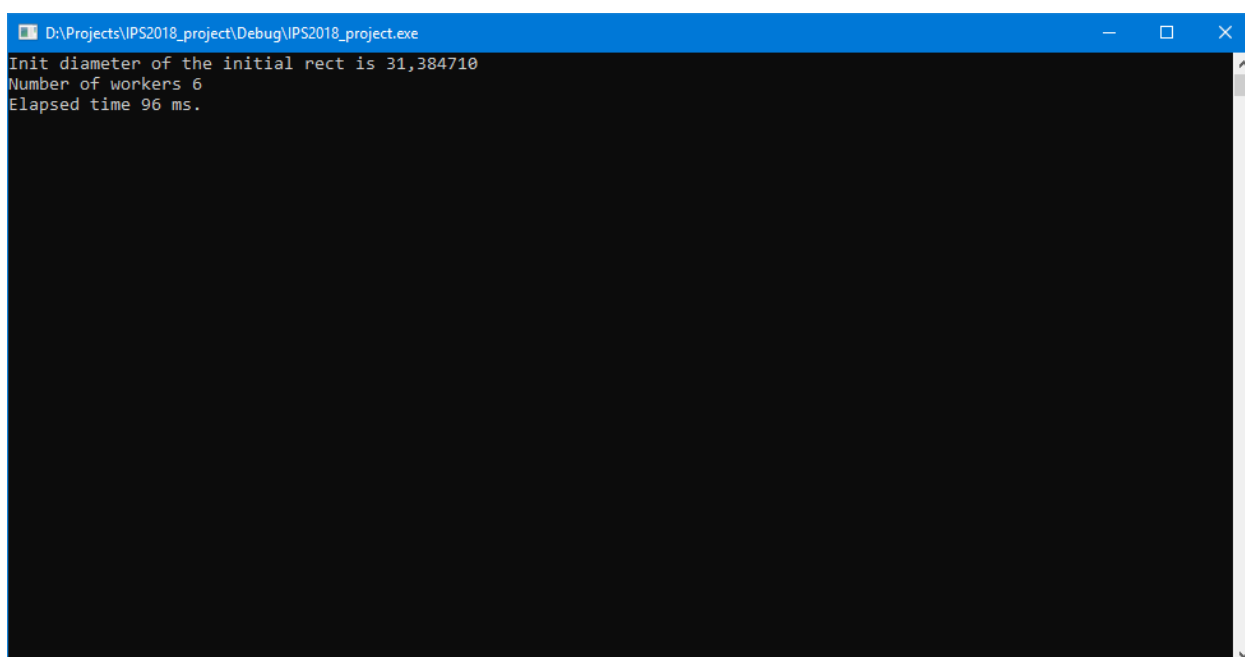
Timeline
LcxCallInitRoutine (13576)

Ошибки из других библиотек

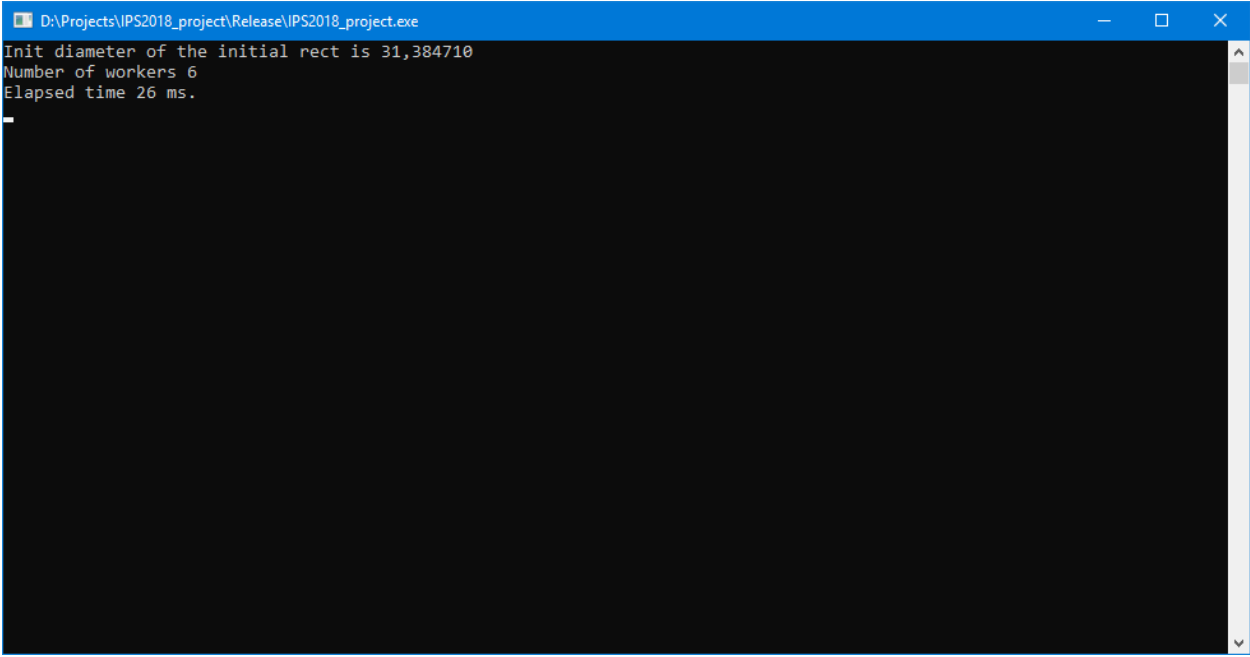


После оптимизаций

Время работы программы в режиме Debug (96 ms)



Время работы программы в режиме Release (26 ms)

A screenshot of a Windows command prompt window. The title bar is blue and contains the text "D:\Projects\IPS2018_project\Release\IPS2018_project.exe" along with standard window controls (minimize, maximize, close). The main area of the window is black with white text. The text displayed is: "Init diameter of the initial rect is 31,384710", "Number of workers 6", and "Elapsed time 26 ms.". There is a small white cursor at the end of the last line.

```
D:\Projects\IPS2018_project\Release\IPS2018_project.exe
Init diameter of the initial rect is 31,384710
Number of workers 6
Elapsed time 26 ms.
```