

Написал стандартный "Hello, world!" на плюсах, собрал программу и сгенерировал ассемблерный листинг.

```
dataflex@DESKTOP-Q4B6UII:/mnt/c$ cd asm
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm$ mkdir lab-0
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm$ cd lab-0/
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ vim HW.cpp
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ g++ HW.cpp
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ ./a.out
Hello, world!
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ g++ HW.cpp -o HW.s -S
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ ls
HW.cpp HW.s a.out
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ vim HW.s
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0$ █
```

```
dataflex@DESKTOP-Q4B6UII:/mnt/c/asm/lab-0
.file "HW.cpp"
.text
.local _ZStL8_iinit
.comm _ZStL8_iinit,1,1
.section .rodata
.LC0:
.string "Hello, world!"
.text
.globl main
.type main, @function
main:
.LFB1731:
.cfi_startproc
endbr64
pushq %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq %rsp, %rbp
.cfi_def_cfa_register 6
leaq .LC0(%rip), %rax
movq %rax, %rsi
leaq _ZSt4cout(%rip), %rax
movq %rax, %rdi
call _ZStlsISt11char_traitsIcEERSt13basic_ostreamIcT_ES5_PKc@PLT
movq _ZSt4endlIcSt11char_traitsIcEERSt13basic_ostreamIT_T0_ES6_@GOTPCREL(%rip), %rdx
movq %rdx, %rsi
movq %rax, %rdi
call _ZNStlsEPFRSoS_E@PLT
movl $0, %eax
```

Написал простейшую арифметическую программу, собрал, сгенерировал листинг. В листинге заменил команду `addl` на `subl`. Построил новый экзешник из листинга.

dataflex@DESKTOP-Q4B6UUI: /mnt/c/asm/lab-0

```
#include <iostream>
using namespace std;

int main() {
    int x = 0, y = 0, z = 0;
    x = 9;
    y = 5;
    z = x + y;
    cout << z << endl;
}
```

dataflex@DESKTOP-Q4B6UUI: /mnt/c/asm/lab-0

```
.local __ZStL8__ioint
.comm __ZStL8__ioint,1,1
.globl main
.type main, @function

main:
.LFB1731:
.cfi_startproc
endbr64
pushq %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq %rsp, %rbp
.cfi_def_cfa_register 6
subq $16, %rsp
movl $0, -12(%rbp)
movl $0, -8(%rbp)
movl $0, -4(%rbp)
movl $9, -12(%rbp)
movl $5, -8(%rbp)
movl -12(%rbp), %edx
movl -8(%rbp), %eax
addl %edx, %eax
movl %eax, -4(%rbp)
movl -4(%rbp), %eax
movl %eax, %esi
leaq __ZSt4cout(%rip), %rax
movq %rax, %rdi
call __ZNSolsEi@PLT
movq __ZSt4endlCSt11char_traitsIcEERSt13basic_ostreamIT_0_ES6@GOTPCREL(%rip), %rdx
movq %rdx, %rsi
movq %rax, %rdi
call __ZNSolsEPFRSoS_E@PLT
movl $0, %eax
leave
.cfi_def_cfa 7, 8
ret
.cfi_endproc

.LFE1731:
.size main, .-main
.type __Z41__static_initialization_and_destruction_0ii, @function
__Z41__static_initialization_and_destruction_0ii:
.LFB2231:
```

```

dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0
.local _ZStL8_ioint
.comm _ZStL8_ioint,1,1
.globl main
.type main,@function

main:
.LFB1731:
.cfi_startproc
endbr64
pushq %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq %rsp, %rbp
.cfi_def_cfa_register 6
subq $16, %rsp
movl $0, -12(%rbp)
movl $0, -8(%rbp)
movl $0, -4(%rbp)
movl $9, -12(%rbp)
movl $5, -8(%rbp)
movl -12(%rbp), %edx
movl -8(%rbp), %eax
subl %edx, %eax
movl %eax, -4(%rbp)
movl -4(%rbp), %eax
movl %eax, %esi
leaq _ZSt4cout(%rip), %rax
movq %rax, %rdi
call _ZNSt6cout@PLT
movq _ZSt4endlcSt11char_traitsIcEERSt13basic_ostreamIT_0_ES6_@GOTPCREL(%rip), %rdx
movq %rdx, %rsi
movq %rax, %rdi
call _ZNSt6cout@PLT
movl $0, %eax
leave
.cfi_def_cfa 7, 8
ret
.cfi_endproc
.LFE1731:
.size main,.-main
.type _Z41_static_initialization_and_destruction_0ii,@function
_Z41_static_initialization_and_destruction_0ii:
.LFB2231:

```

```

dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0
'G:\0 E-Manual_V1.0.pdf' 'Program Files (x86)' Windows swapfile.sys
$WinREAgent' Recovery appverifui.dll vfcmapat.dll
Documents and Settings' ShipID.txt hiberfil.sys
DumpStack.log.tmp System Volume Information pagefile.sys
G:\0 E-Manual_V1.0.pdf 'Program Files' Users
dataflex@DESKTOP-Q4B6U1I: /mnt/c/$ mkdir asm
dataflex@DESKTOP-Q4B6U1I: /mnt/c/$ ls
ls: cannot access 'DumpStack.log.tmp': Permission denied
ls: cannot access 'hiberfil.sys': Permission denied
ls: cannot access 'pagefile.sys': Permission denied
ls: cannot access 'swapfile.sys': Permission denied
'G:\0 E-Manual_V1.0.pdf' 'Program Files (x86)' Windows swapfile.sys
$WinREAgent' Recovery appverifui.dll vfcmapat.dll
Documents and Settings' ShipID.txt hiberfil.sys
DumpStack.log.tmp System Volume Information pagefile.sys
Users
'G:\0 E-Manual_V1.0.pdf' 'Program Files'
dataflex@DESKTOP-Q4B6U1I: /mnt/c/$ cd asm
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm$ mkdir lab-0
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm$ cd lab-0/
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ vim HW.cpp
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ g++ HW.cpp
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ ./a.out
Hello, world!
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ g++ HW.cpp -o HW.s -S
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ ls
HW.cpp HW.s a.out
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ vim HW.s
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ vim arithmetic.cpp
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ g++ arithmetic.cpp
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ ./a.out
14
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ g++ arithmetic.cpp -o arithmetic.s -S
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ vim arithmetic.s
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ g++ arithmetic.
arithmetic.cpp arithmetic.s
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ g++ arithmetic.s
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$ ./a.out
-4
dataflex@DESKTOP-Q4B6U1I: /mnt/c/asm/lab-0$

```