

Activities Leafpad

Sun 22:52

factorial.c

```
#include <stdio.h>
int factorial(int n)
{
    int result = 1;
    for(int i=1; i<=n; i++)
    {
        result*=i;
    }
    return result;
}

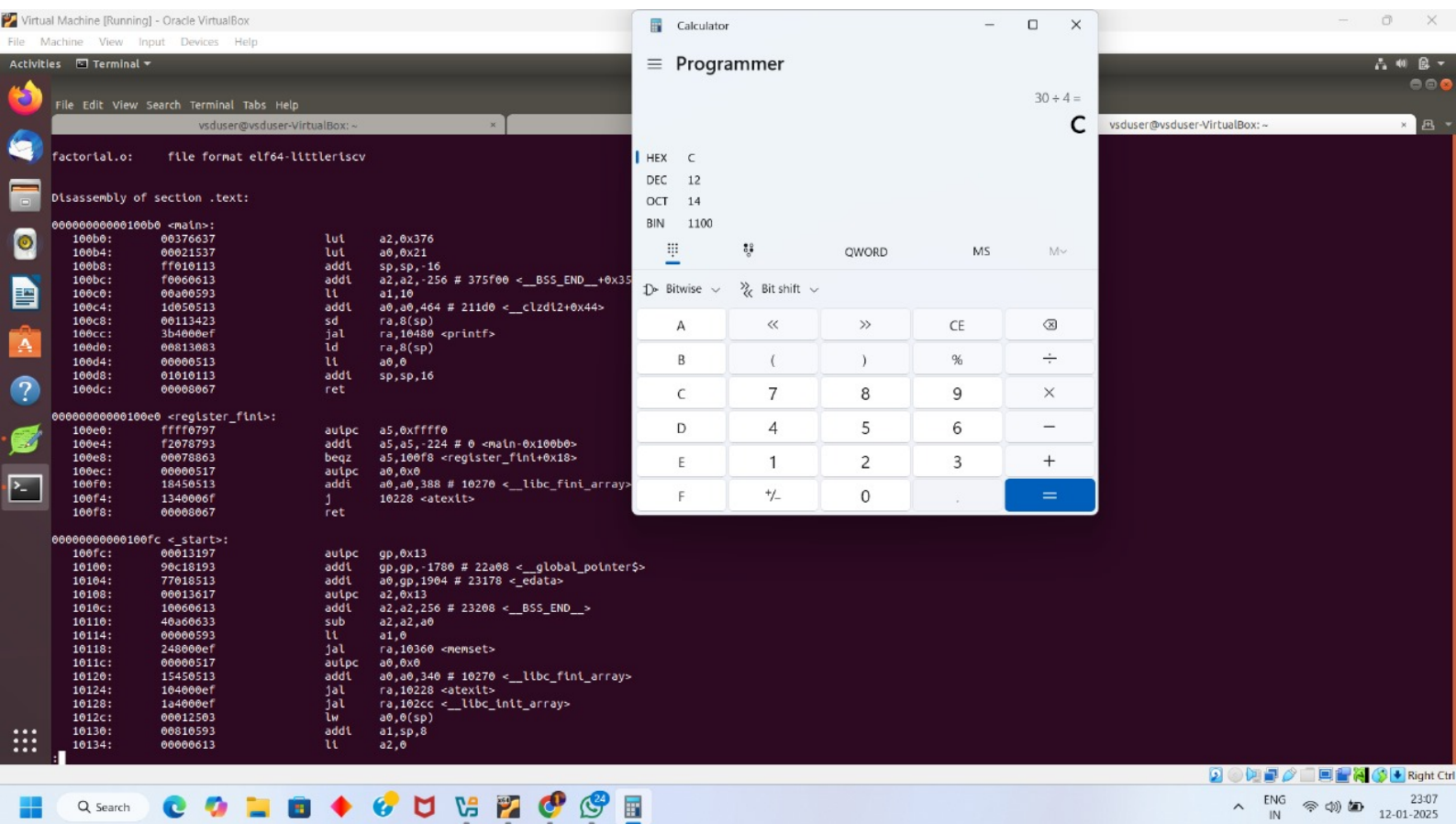
int main()
{
    int num=10;
    printf("Factorial of %d is %d\n",num,factorial(num));
    return 0;
}
```

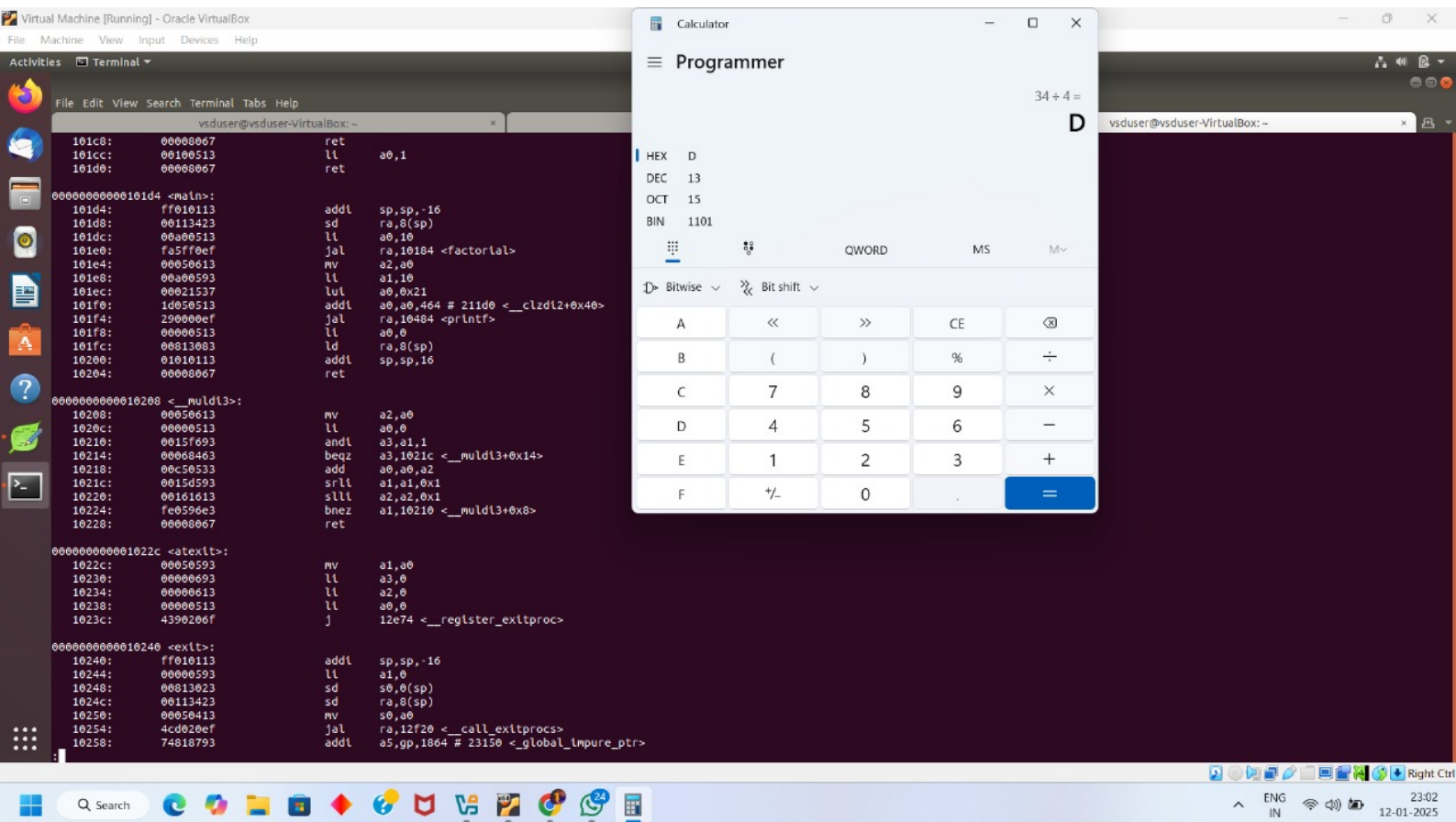
```
Activities Terminal v Sun 22:52 vsduser@vsduser-VirtualBox: ~
File Edit View Search Terminal Help
vsduser@vsduser-VirtualBox:~$ cd
vsduser@vsduser-VirtualBox:~$ leafpad factorial.c &
[1] 2453
vsduser@vsduser-VirtualBox:~$ Gtk-Message: 22:44:40.941: Failed to load module "canberra-gtk-module"
vsduser@vsduser-VirtualBox:~$ gcc factorial.c
vsduser@vsduser-VirtualBox:~$ ./a.out
Factorial of 5 is 120
vsduser@vsduser-VirtualBox:~$ gcc factorial.c
vsduser@vsduser-VirtualBox:~$ ./a.out
Factorial of 26 is -1853882368
vsduser@vsduser-VirtualBox:~$ gcc factorial.c
vsduser@vsduser-VirtualBox:~$ ./a.out
Factorial of 10 is 3628800
vsduser@vsduser-VirtualBox:~$
```

Activities Terminal Sun 23:07 vsduser@vsduser-VirtualBox: ~

```
File Edit View Search Terminal Tabs Help
vsduser@vsduser-VirtualBox: ~
vsduser@vsduser-VirtualBox:~$ cat factorial.c
#include <stdio.h>
int factorial(int n)
{
    int result = 1;
    for(int i=1; i<=n; i++)
    {
        result*=i;
    }
    return result;
}

int main()
{
    int num=10;
    printf("Factorial of %d is %d\n",num,factorial(num));
    return 0;
}
vsduser@vsduser-VirtualBox:~$ riscv64-unknown-elf-gcc -O1 -mabi=lp64 -march=rv64i -o factorial.o factorial.c
vsduser@vsduser-VirtualBox:~$ ls -ltr factorial.o
-rwxrwxr-x 1 vsduser vsduser 167544 Jan 12 22:54 factorial.o
vsduser@vsduser-VirtualBox:~$ riscv64-unknown-elf-gcc -Ofast -mabi=lp64 -march=rv64i -o factorial.o factorial.c
vsduser@vsduser-VirtualBox:~$
```





```
Activities Terminal v Sun 23:49 vsduser@vsduser-VirtualBox: ~
File Edit View Search Terminal Tabs Help
vsduser@vsduser-VirtualBox: ~
vsduser@vsduser-VirtualBox:~$ riscv64-unknown-elf-gcc -Ofast -mabi=lp64 -march=rv64i -o factorial.o factorial.c
vsduser@vsduser-VirtualBox:~$ gcc factorial.c
vsduser@vsduser-VirtualBox:~$ ./a.out
Factorial of 10 is 3628800
vsduser@vsduser-VirtualBox:~$ riscv64-unknown-elf-gcc -Ofast -mabi=lp64 -march=rv64i -o factorial.o factorial.c
vsduser@vsduser-VirtualBox:~$ spike pk factorial.o
bbl loader
Factorial of 10 is 3628800
vsduser@vsduser-VirtualBox:~$ spike -d pk factorial.o
(spike) until pc 0 100b0
bbl loader
(spike) reg 0 a2
0x0000000000000000
(spike)
core 0: 0x000000000000100b0 (0x00376637) lui a2, 0x376
(spike) reg 0 a2
0x000000000000376000
(spike)
core 0: 0x000000000000100b4 (0x00021537) lui a0, 0x21
(spike) reg 0 a0
0x00000000000021000
(spike)
core 0: 0x000000000000100b8 (0xff010113) addi sp, sp, -16
(spike) reg 0 sp
0x00000003ffffffb40
(spike)
core 0: 0x000000000000100bc (0xf0000613) addi a2, a2, -256
(spike) q
vsduser@vsduser-VirtualBox:~$ spike -d pk factorial.o
(spike) until pc 0 100b8
bbl loader
(spike) reg 0 sp
0x00000003ffffffb50
(spike)
core 0: 0x000000000000100b8 (0xff010113) addi sp, sp, -16
(spike) reg 0 sp
0x00000003ffffffb40
(spike)
core 0: 0x000000000000100bc (0xf0000613) addi a2, a2, -256
(spike)
[ ]
```

```
Activities Terminal v
Sun 23:49
vsduser@vsduser-VirtualBox: ~
File Edit View Search Terminal Tabs Help
vsduser@vsduser-VirtualBox: ~
vsduser@vsduser-VirtualBox: ~
factorial.o: file format elf64-littleriscv

Disassembly of section .text:

0000000000100b0 <main>:
100b0: 00376637 lui a2,0x376
100b4: 00021537 lui a0,0x21
100b8: ff010113 addi sp,sp,-16
100bc: f0000613 addi a2,a2,-256 # 375f00 <__BSS_END__+0x352cf8>
100c0: 00a00593 li a1,10
100c4: 1d050513 addi a0,a0,464 # 211d0 <__clzdl2+0x44>
100c8: 00113423 sd ra,8(sp)
100cc: 3b4000ef jal ra,10400 <printf>
100d0: 00013083 ld ra,8(sp)
100d4: 00000513 li a0,0
100d8: 01010113 addi sp,sp,16
100dc: 00000067 ret

0000000000100e0 <register_fini>:
100e0: ffff0797 auipc a5,0xfffff0
100e4: f2078793 addi a5,a5,-224 # 0 <main-0x100b0>
100e8: 00078863 beqz a5,100f8 <register_fini+0x18>
100ec: 00000517 auipc a0,0x0
100f0: 18450513 addi a0,a0,388 # 10270 <__libc_fini_array>
100f4: 1340006f j 10228 <atexit>
100f8: 00000067 ret

0000000000100fc <_start>:
100fc: 00013197 auipc gp,0x13
10100: 90c10193 addi gp,gp,-1700 # 22a08 <_global_pointer$>
10104: 77010513 addi a0,gp,1904 # 23178 <edata>
10108: 00013617 auipc a2,0x13
1010c: 10060613 addi a2,a2,256 # 23208 <__BSS_END__>
10110: 40a60633 sub a2,a2,a0
10114: 00000593 li a1,0
10118: 248000ef jal ra,10360 <mempset>
1011c: 00000517 auipc a0,0x0
10120: 15450513 addi a0,a0,340 # 10270 <__libc_fini_array>
10124: 104000ef jal ra,10228 <atexit>
10128: 1a4000ef jal ra,102cc <__libc_init_array>
1012c: 00012503 lw a0,0(sp)
10130: 00010593 addi a1,sp,8
10134: 00000613 li a2,0
```

```
Activities Terminal Mon 11:15 vsduser@vsduser-VirtualBox: ~
File Edit View Search Terminal Tabs Help
vsduser@vsduser-VirtualBox: ~
vsduser@vsduser-VirtualBox:~$ riscv64-unknown-elf-gcc -O1 -mabi=lp64 -march=rv64i -o factorial.o factorial.c
vsduser@vsduser-VirtualBox:~$ gcc factorial.c
vsduser@vsduser-VirtualBox:~$ ./a.out
Factorial of 10 is 3628800
vsduser@vsduser-VirtualBox:~$ riscv64-unknown-elf-gcc -O1 -mabi=lp64 -march=rv64i -o factorial.o factorial.c
vsduser@vsduser-VirtualBox:~$ spike pk factorial.o
bbl loader
Factorial of 10 is 3628800
vsduser@vsduser-VirtualBox:~$ spike -d pk factorial.o
(spike) until pc 0 101d4
bbl loader
(spike) reg 0 sp
0x0000003fffffff7b50
(spike)
core 0: 0x000000000000101d4 (0xff010113) addi sp, sp, -16
(spike) reg 0 sp
0x0000003fffffff7b40
(spike)
core 0: 0x000000000000101d8 (0x00113423) sd ra, 8(sp)
(spike) reg 0 ra
0x0000000000001010c
(spike)
core 0: 0x000000000000101dc (0x00a00513) li a0, 10
(spike)
```