

# Презентация по лабораторной работе №1

Основы информационной безопасности

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Для специалиста важно уметь устанавливать новые дистрибутивы на свое устройство и уметь работать с ними

- установить и настроить новейшую версию дистрибутива Rocky
- сделать задания и найти:
  1. Версия ядра Linux (Linux version).
  2. Частота процессора (Detected Mhz processor).
  3. Модель процессора (CPU0).
  4. Объем доступной оперативной памяти (Memory available).
  5. Тип обнаруженного гипервизора (Hypervisor detected).
  6. Тип файловой системы корневого раздела.

# Предварительная установка

Выделяю оперативную память и кол-во ядер процессора (рис1.)

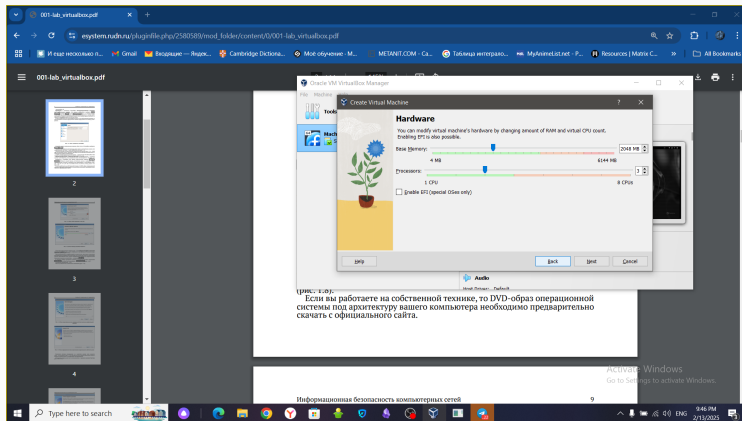


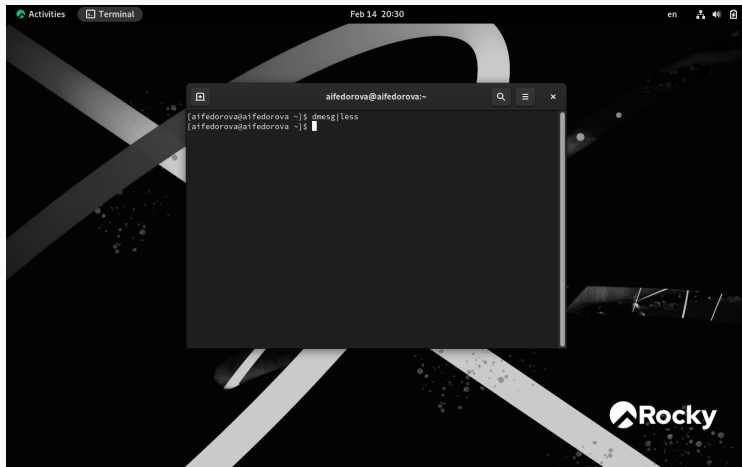
Рис. 1: рис.1

После проведения всех необходимых настроек, ждем, пока все настройки установятся и система загрузится. (рис.4)

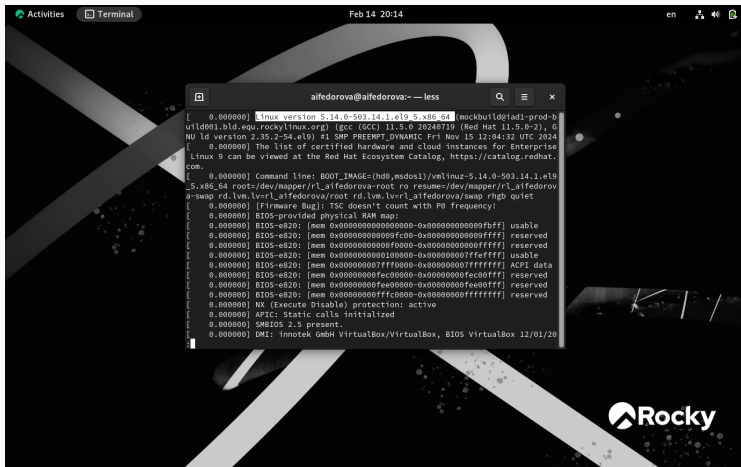


## выполнение задания

Теперь будем выполнять второе задание. Открываю терминал, в нем прописываю `dmesg | less` (рис. 15).



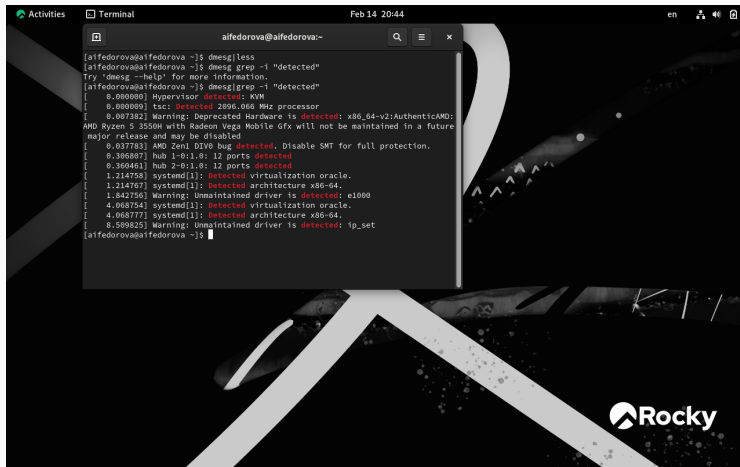
Версия ядра 5.14.0-503.14.1.el9\_5.x86\_64 (рис. 16).



```
aifedorova@aifedorova:~ -- less
[ 0.000000] Linux version 5.14.0-503.14.1.el9_5.x86_64 (mockbuild@iadi-prod-b
uild001.bld.equ.rockylinux.org) (gcc (GCC) 11.5.0 20240719 (Red Hat 11.5.0-2), G
NU ld version 2.35.2-54.el9) #1 SMP PREEMPT_DYNAMIC Fri Nov 15 12:04:32 UTC 2024
[ 0.000000] The list of certified hardware and cloud instances for Enterprise
Linux 9 can be viewed at the Red Hat Ecosystem Catalog, https://catalog.redhat.
com.
[ 0.000000] Command line: BOOT_IMAGE=(hdd,msdos1)/vmlinuz-5.14.0-503.14.1.el9
_5.x86_64 root=/dev/mapper/rl_aifedorova-root ro resume=/dev/mapper/rl_aifedorov
a-swap rd.lvm.lv=rl_aifedorova/root rd.lvm.lv=rl_aifedorova/swap rhgb quiet
[ 0.000000] [Firmware Bug]: TSC doesn't count with P0 frequency!
[ 0.000000] BIOS-provided physical RAM map:
[ 0.000000] BIOS-e820: [mem 0x0000000000000000-0x000000000009fbff] usable
[ 0.000000] BIOS-e820: [mem 0x000000000009fc00-0x000000000009ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000000f0000-0x00000000000fffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000001000000-0x0000000007ffff] usable
[ 0.000000] BIOS-e820: [mem 0x0000000007ffff0000-0x0000000007ffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000ffff0000-0x00000000ffff] reserved
[ 0.000000] NX (Execute Disable) protection: active
[ 0.000000] APIC: Static calls initialized
[ 0.000000] SMBIOS 2.5 present.
[ 0.000000] DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/20
```

Рис. 6: рис.16

Частота процессора 2096.006 МГц (рис. 17).



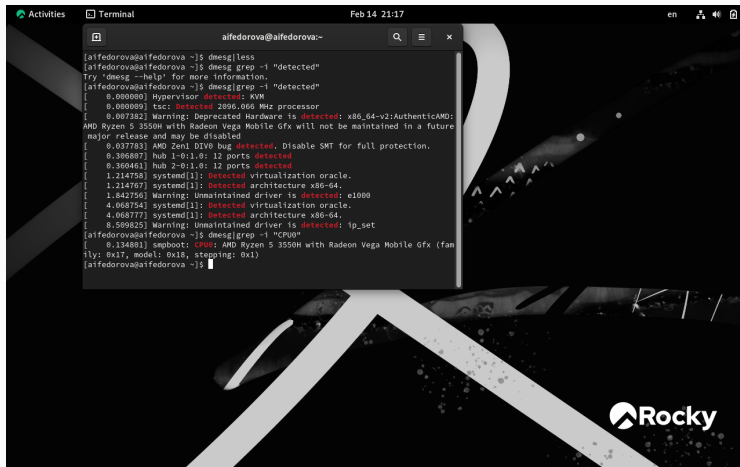
The screenshot shows a terminal window titled 'Terminal' with the prompt 'aifedorova@aifedorova:~'. The user has entered the command 'dmesg | less'. The output of the command is displayed, showing various system messages. The most relevant information for the task is the line: 'tsc: Detected 2096.066 MHz processor'. Other messages include warnings about deprecated hardware and virtualization oracles. The terminal window is set against a dark background with a large white 'X' and the 'Rocky' logo in the bottom right corner.

```
aifedorova@aifedorova:~$ dmesg | less
aifedorova@aifedorova:~$ dmesg grep -i "detected"
Try 'dmesg --help' for more information.
aifedorova@aifedorova:~$ dmesg | grep -i "detected"
[ 0.000000] Hypervisor detected: KVM
[ 0.000009] tsc: Detected 2096.066 MHz processor
[ 0.007382] Warning: Deprecated Hardware is detected: x86_64-v2:AuthenticAMD:
AMD Ryzen 5 3550H with Radeon Vega Mobile Gfx will not be maintained in a future
major release and may be disabled
[ 0.037793] AMD Zen1 DIO bug detected. Disable SMT for full protection.
[ 0.386897] hub 1-0:1.0: 12 ports detected
[ 0.369461] hub 2-0:1.0: 12 ports detected
[ 1.214758] system[1]: Detected virtualization oracle.
[ 1.214767] system[1]: Detected architecture x86-64.
[ 1.842756] Warning: Unmaintained driver is detected: e1000
[ 4.068754] system[1]: Detected virtualization oracle.
[ 4.068777] system[1]: Detected architecture x86-64.
[ 8.509825] Warning: Unmaintained driver is detected: ip_set
aifedorova@aifedorova:~$
```

Рис. 7: рис.17



## Модель процессора AMD Ryzen 3550H (рис. 18).

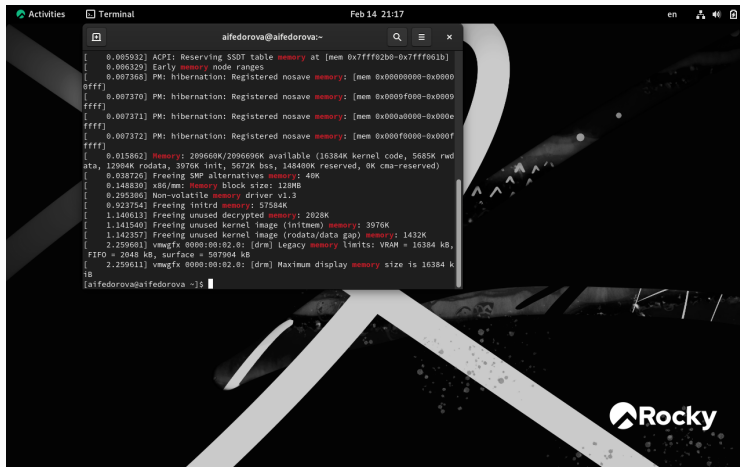


The screenshot shows a terminal window titled 'aifedorova@aifedorova:~' with the following output from the `dmesg` command:

```
[aifedorova@aifedorova ~]$ dmesg | less
[aifedorova@aifedorova ~]$ dmesg | grep -i "detected"
Try 'dmesg --help' for more information.
[aifedorova@aifedorova ~]$ dmesg | grep -i "detected"
[ 0.000000] Hypervisor detected: KVM
[ 0.000009] tsc: Detected 2696.066 MHz processor
[ 0.007382] Warning: Deprecated Hardware is detected: x86_64-v2:AuthenticAMD:
AMD Ryzen 5 3550H with Radeon Vega Mobile Gfx will not be maintained in a future
major release and may be disabled
[ 0.037793] AMD Zen1 DIO bug detected. Disable SMT for full protection.
[ 0.386887] hub 1-0:1.0: 12 ports detected
[ 0.360461] hub 2-0:1.0: 12 ports detected
[ 1.214758] system[1]: Detected virtualization oracle.
[ 1.214767] system[1]: Detected architecture x86-64.
[ 1.842756] Warning: Unmaintained driver is detected: e1000
[ 4.068754] system[1]: Detected virtualization oracle.
[ 4.068777] system[1]: Detected architecture x86-64.
[ 8.509825] Warning: Unmaintained driver is detected: ip_set
[aifedorova@aifedorova ~]$ dmesg | grep -i "CPU0"
[ 0.134881] smpboot: CPU0: AMD Ryzen 5 3550H with Radeon Vega Mobile Gfx (fam
ily: 0x18, model: 0x18, stepping: 0x1)
[aifedorova@aifedorova ~]$
```

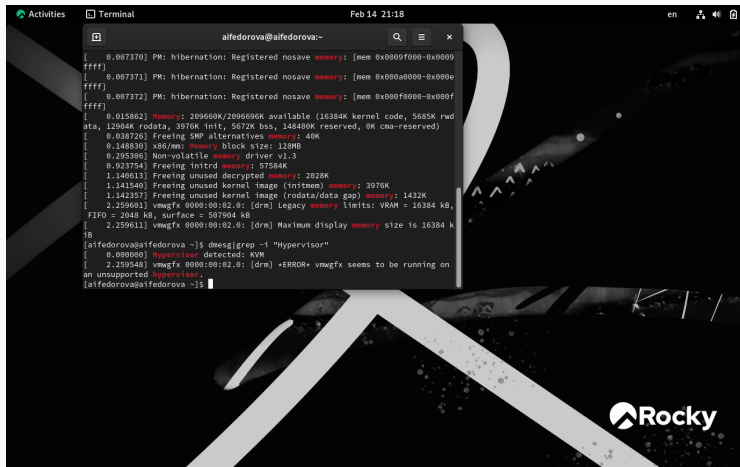
Рис. 8: рис.18

Доступно 209660 Кб из 2096696 Кб (рис. 19).



```
aifedorova@aifedorova:~  
[ 0.005932] ACPI: Reserving SSDT table memory at [mem 0x7fff02b0-0x7fff061b]  
[ 0.006329] Early memory node ranges  
[ 0.007368] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x0000  
0fff]  
[ 0.007370] PM: hibernation: Registered nosave memory: [mem 0x0000f000-0x0000  
ffff]  
[ 0.007371] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000e  
ffff]  
[ 0.007372] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000f  
ffff]  
[ 0.015862] Memory: 209660K/2096696K available (16384K kernel code, 5685K rwd  
ata, 12984K rodata, 3976K init, 5672K bss, 148480K reserved, 8K cma-reserved)  
[ 0.038726] Freeing SMP alternatives memory: 48K  
[ 0.148830] x86/mm: Memory block size: 128MB  
[ 0.295306] Non-volatile memory driver v1.3  
[ 0.923754] Freeing initrd memory: 57584K  
[ 1.140613] Freeing unused decrypted memory: 2028K  
[ 1.141540] Freeing unused kernel image (initmem) memory: 3976K  
[ 1.142357] Freeing unused kernel image (rodata/data gap) memory: 1432K  
[ 2.259681] vmwgfx 0000:00:02.0: [drm] legacy memory limits: VRAM = 16384 KB,  
FIFO = 2048 KB, surface = 507904 KB  
[ 2.259611] vmwgfx 0000:00:02.0: [drm] Maximum display memory size is 16384 k  
B  
[aifedorova@aifedorova ~]$
```

Обнаруженный гипервизор типа KVM (рис. 20).

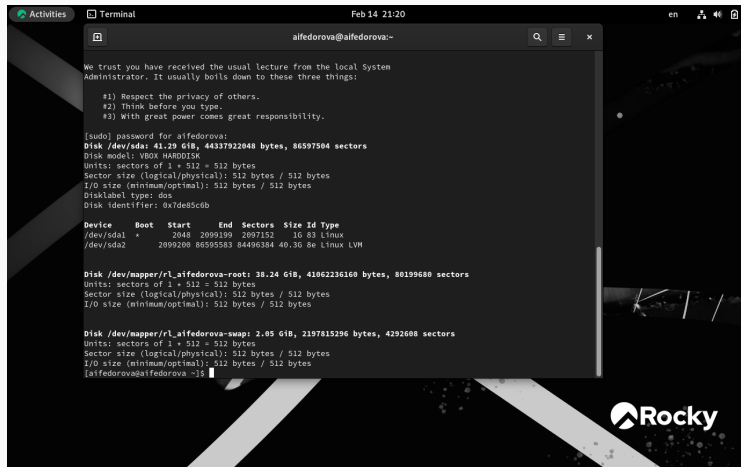


The screenshot shows a terminal window titled 'Terminal' with the user 'aifedorova@aifedorova:~'. The terminal displays kernel boot logs, including messages about hibernation, memory allocation, and freeing. The logs show the system is running on a KVM hypervisor. The user enters the command `dmesg|grep -i "Hypervisor"`, and the output shows `Hypervisor detected: KVM`. The terminal also shows the `vmwgfx` driver loading and its memory limits.

```
[ 0.007370] PM: hibernation: Registered nosave memory: [mem 0x0009f000-0x0009ffff]
[ 0.007371] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000affff]
[ 0.007372] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
[ 0.015862] Memory: 209660K/2096696K available (16384K kernel code, 5685K rwd
ata, 12904K rodata, 3976K init, 5072K bss, 148400K reserved, 0K cma-reserved)
[ 0.038726] Freeing SMP alternatives memory: 40K
[ 0.148830] x86/mm: Memory block size: 128MB
[ 0.298386] Non-volatile memory driver v1.3
[ 0.923754] Freeing initrd memory: 57584K
[ 1.140613] Freeing unused decrypted memory: 2628K
[ 1.141540] Freeing unused kernel image (initmem) memory: 3976K
[ 1.142357] Freeing unused kernel image (rodata/data gap) memory: 1432K
[ 2.259601] vmwgfx 0000:00:02.0: [drm] Legacy memory limits: VRAM = 16384 kB,
FIPO = 2048 kB, surface = 507904 kB
[ 2.259611] vmwgfx 0000:00:02.0: [drm] Maximum display memory size is 16384 K
B
[aifedorova@aifedorova ~]$ dmesg|grep -i "Hypervisor"
[ 0.000000] Hypervisor detected: KVM
[ 2.259548] vmwgfx 0000:00:02.0: [drm] *ERROR* vmwgfx seems to be running on
an unsupported hypervisor.
[aifedorova@aifedorova ~]$
```

Рис. 10: рис. 20

`sudo fdisk -l` показывает тип файловой системы, типа Linux, Linux LVM (рис. 21).



```
Activities Terminal Feb 14 21:20 en
aifedorova@aifedorova:~

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

[sudo] password for aifedorova:
Disk /dev/sda: 41.29 GiB, 44337922048 bytes, 86597504 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x7de85c0b

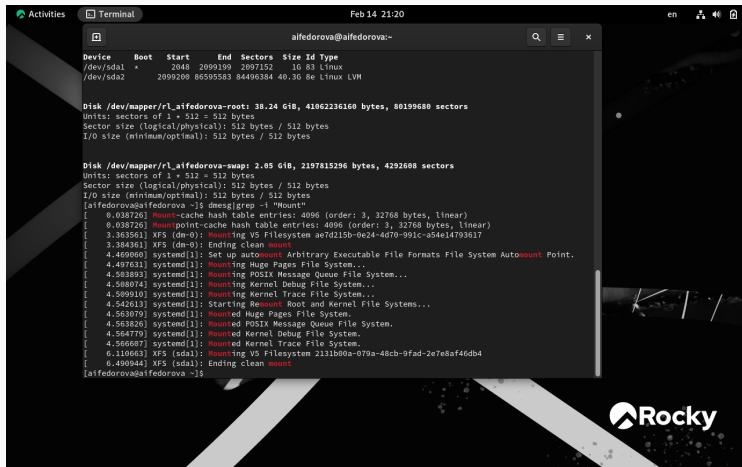
Device Boot Start End Sectors Size Id Type
/dev/sda1 * 2048 2099199 2097152 1G 83 Linux
/dev/sda2 2099208 86595583 84496384 40.3G 8e Linux LVM

Disk /dev/mapper/r1_aifedorova-root: 38.24 GiB, 41062236160 bytes, 80199680 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mapper/r1_aifedorova-swap: 2.05 GiB, 2197815296 bytes, 4292608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
[aifedorova@aifedorova ~]$
```

Рис. 11: рис.21

Далее показана последовательно монтирования файловых систем (рис. 22).



```
Activities Terminal Feb 14 21:20 en [Icons] [Search] [Menu] [Close]

aifedorova@aifedorova:~

Device Boot Start End Sectors Size Id Type
/dev/sda1 * 2048 2099199 2097152 16 GiB Linux
/dev/sda2 2099200 86595583 84496384 40.3G 8e Linux LVM

Disk /dev/mapper/rl_aifedorova-root: 38.24 GiB, 41062236160 bytes, 80199680 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mapper/rl_aifedorova-swap: 2.05 GiB, 2197815296 bytes, 4292608 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

[aifedorova@aifedorova ~]$ dmesg | grep -i "Mount"
[ 0.038726] Mount-cache hash table entries: 4096 (order: 3, 32768 bytes, linear)
[ 0.038726] Mountpoint-cache hash table entries: 4096 (order: 3, 32768 bytes, linear)
[ 3.363561] XFS (dm-0): Mounting V5 Filesystem ae7d215b-0e24-4d70-991c-a54e14793617
[ 3.384361] XFS (dm-0): Ending clean mount
[ 4.469060] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
[ 4.497631] systemd[1]: Mounting Huge Pages File System...
[ 4.503893] systemd[1]: Mounting POSIX Message Queue File System...
[ 4.508074] systemd[1]: Mounting Kernel Debug File System...
[ 4.509910] systemd[1]: Mounting Kernel Trace File System...
[ 4.542613] systemd[1]: Starting Remount Root and Kernel File Systems...
[ 4.563079] systemd[1]: Mounted Huge Pages File System.
[ 4.563826] systemd[1]: Mounted POSIX Message Queue File System.
[ 4.564779] systemd[1]: Mounted Kernel Debug File System.
[ 4.566687] systemd[1]: Mounted Kernel Trace File System.
[ 6.110663] XFS (sda1): Mounting V5 Filesystem 2131b80a-079a-48cb-9fad-2e7e8af46db4
[ 6.490944] XFS (sda1): Ending clean mount
[aifedorova@aifedorova ~]$
```

Рис. 12: рис.22

Я переустановила систему и вывела необходимые характеристики своего устройства и текущего дистрибутива.

Спасибо за внимание!