Week 1: Linux Installation and Basic Command-Line Practice

1. Aim of the Week

The aim of Week 1 was to install a Linux operating system using VirtualBox and to become familiar with basic Linux commands. This lab helped me understand how to navigate the Linux file system, manage files and directories, and use the terminal to interact with the operating system.

Before this week, I had very limited experience using Linux, so the main focus was learning the basics and building confidence with the command line.

2. VirtualBox and Linux Setup

VirtualBox was installed on my computer to allow me to run a Linux operating system inside a virtual environment. Ubuntu was then installed as the guest operating system. Using a virtual machine provides a safe environment to practise Linux commands without affecting the host system.

Once Ubuntu was installed successfully, I accessed the terminal to begin practising command-line operations.

3. Exploring the Linux File System

To understand how Linux organises files, I explored different system directories using commands such as cd, ls, and pwd. Key directories including /etc, /bin, /usr/bin, /sbin, /tmp, and /boot were visited.

This helped me understand that:

- /etc stores configuration files
- /bin and /usr/bin contain important system commands
- /tmp is used for temporary files

- /boot contains files required during system startup

These directories are essential for the functioning of the operating system.

4. File and Directory Management

Basic file and directory management was practised in the home directory. A directory called folder_1 was created, and inside it a file named test_1 was added. The file was opened using a text editor and some text content was written into it.

The file test_1 was then copied to create a second file named test_2. After returning to the home directory, another directory called folder_2 was created, and the file test_1 was copied from folder_1 into folder_2.

This exercise helped me understand how to create, copy, and organise files and directories using Linux commands.

5. File Comparison and System Management

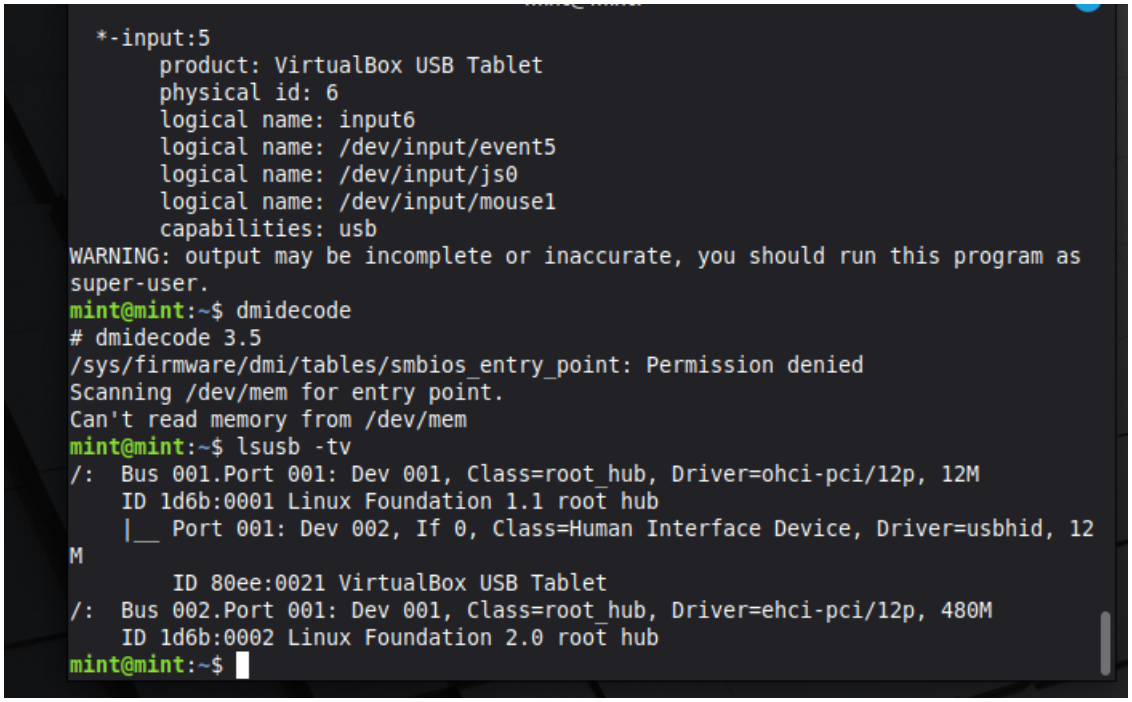
To confirm that the file copying was successful, the contents of test_1 in folder_2 were compared with test_2 in folder_1. Both files contained the same information, confirming that the copy process worked correctly.

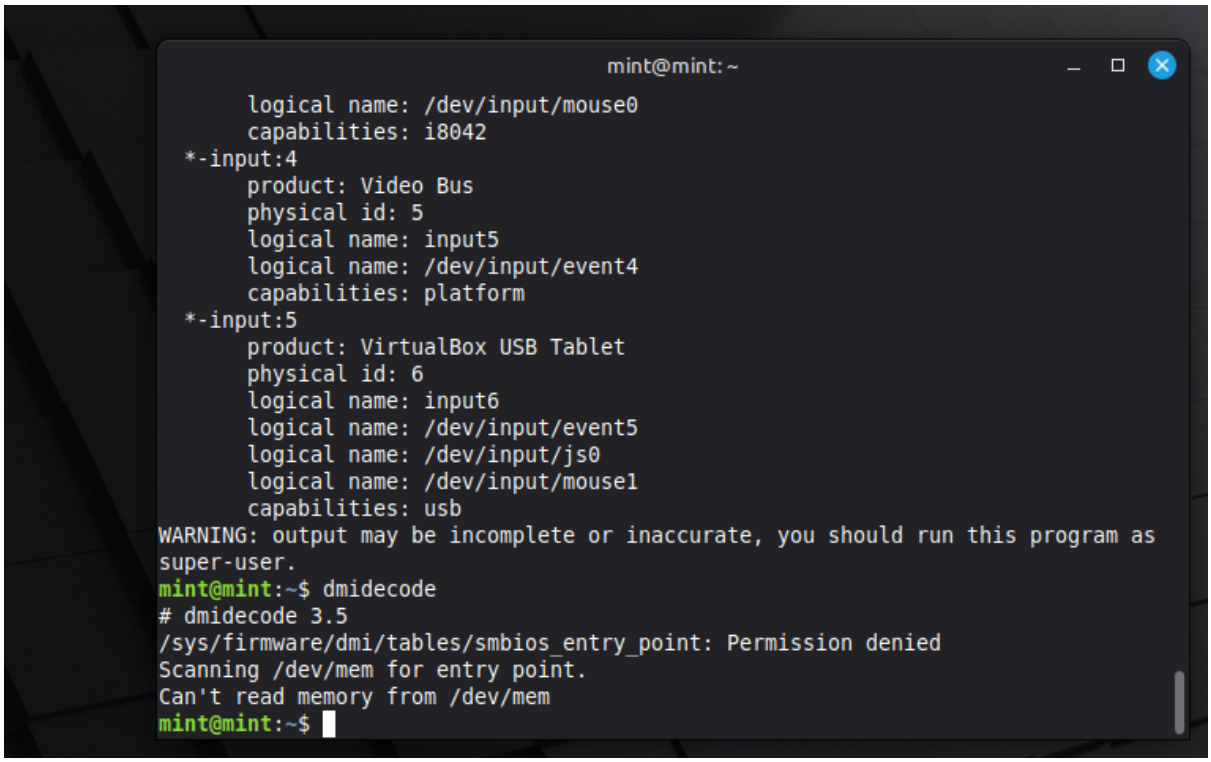
As part of basic system management, a system shutdown was scheduled for 10 minutes using the command line. The system was then restarted, demonstrating how Linux allows system power operations to be managed through terminal commands.

6. Reflection

This week was challenging at first because I was unfamiliar with Linux and terminal commands. However, by following the lab instructions and practising the commands step by step, I became more comfortable navigating the file system and managing files.

This lab provided a strong foundation for understanding how Linux works, which will be important for later weeks when configuring security settings and managing the system remotely.


*-input:5
product: VirtualBox USB Tablet
physical id: 6
logical name: input6
logical name: /dev/input/event5
logical name: /dev/input/js0
logical name: /dev/input/mouse1
capabilities: usb
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.
mint@mint:~$ dmidecode
dmidecode 3.5
/sys/firmware/dmi/tables/smbios_entry_point: Permission denied
Scanning /dev/mem for entry point.
Can't read memory from /dev/mem
mint@mint:~$ lsusb -tv
/: Bus 001.Port 001: Dev 001, Class=root_hub, Driver=ohci-pci/12p, 12M
ID 1d6b:0001 Linux Foundation 1.1 root hub
|__ Port 001: Dev 002, If 0, Class=Human Interface Device, Driver=usbhid, 12M
ID 80ee:0021 VirtualBox USB Tablet
/: Bus 002.Port 001: Dev 001, Class=root_hub, Driver=ehci-pci/12p, 480M
ID 1d6b:0002 Linux Foundation 2.0 root hub
mint@mint:~$


mint@mint: ~
logical name: /dev/input/mouse0
capabilities: i8042
*-input:4
product: Video Bus
physical id: 5
logical name: input5
logical name: /dev/input/event4
capabilities: platform
*-input:5
product: VirtualBox USB Tablet
physical id: 6
logical name: input6
logical name: /dev/input/event5
logical name: /dev/input/js0
logical name: /dev/input/mouse1
capabilities: usb
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/sys/firmware/dmi/tables/smbios_entry_point: Permission denied
Scanning /dev/mem for entry point.
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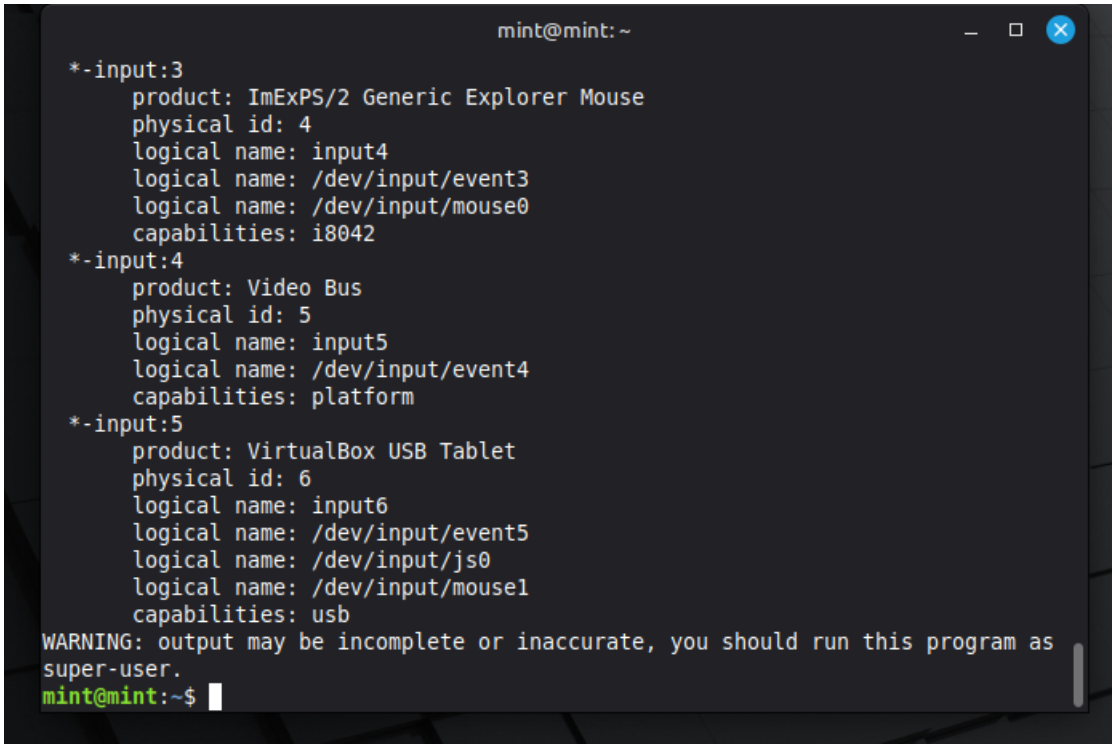
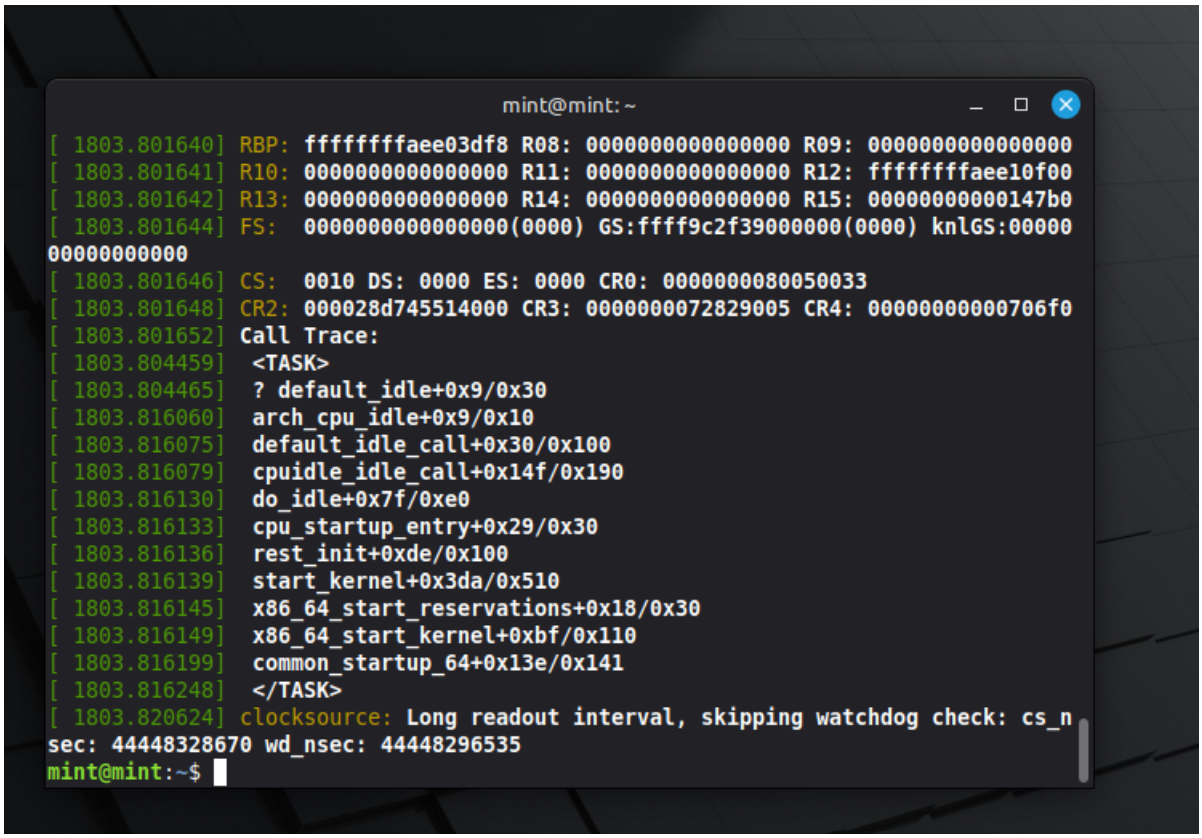
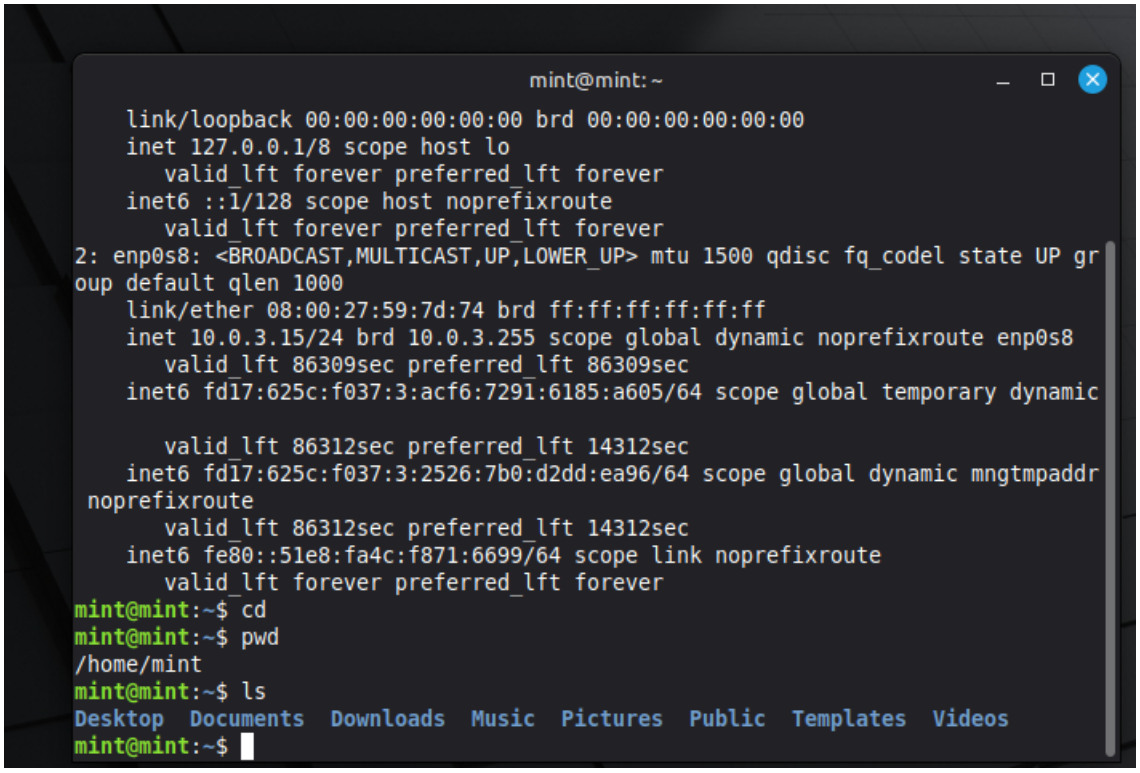
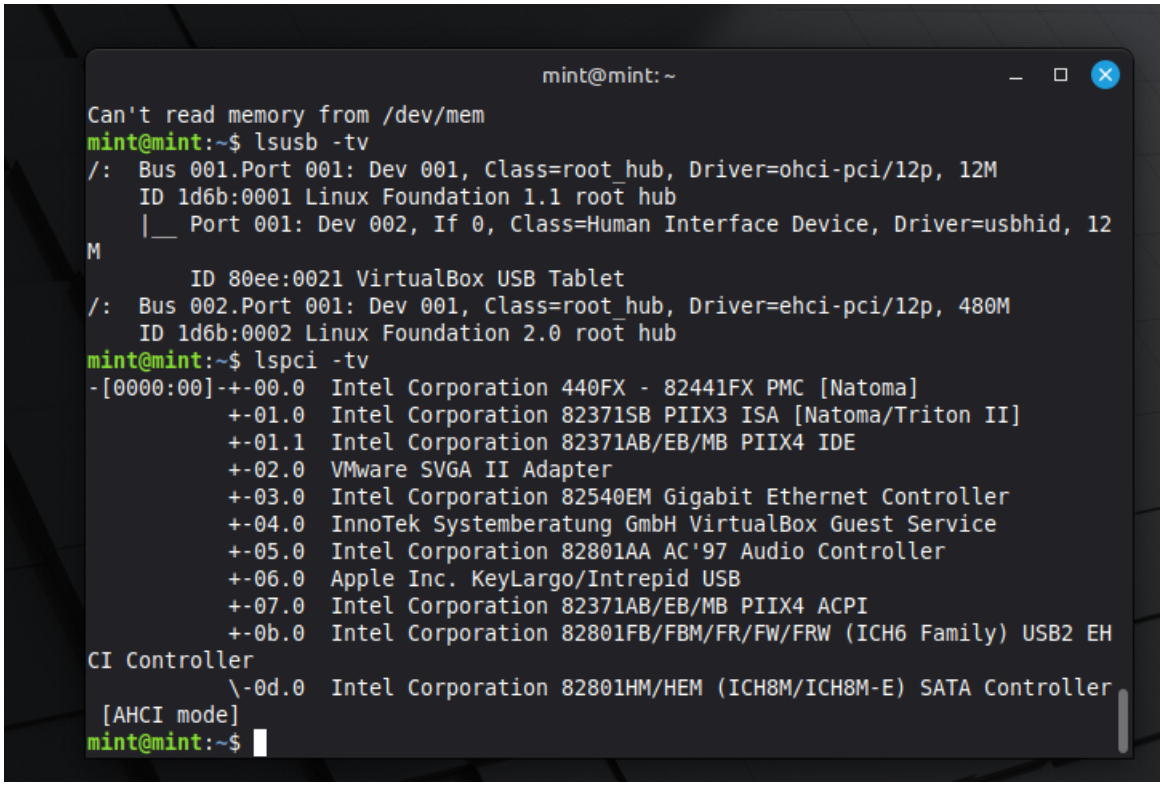

mint@mint: ~
*-input:3
product: ImExPS/2 Generic Explorer Mouse
physical id: 4
logical name: input4
logical name: /dev/input/event3
logical name: /dev/input/mouse0
capabilities: i8042
*-input:4
product: Video Bus
physical id: 5
logical name: input5
logical name: /dev/input/event4
capabilities: platform
*-input:5
product: VirtualBox USB Tablet
physical id: 6
logical name: input6
logical name: /dev/input/event5
logical name: /dev/input/js0
logical name: /dev/input/mouse1
capabilities: usb
WARNING: output may be incomplete or inaccurate, you should run this program as super-user.
mint@mint:~$


mint@mint: ~
[1803.801640] RBP: ffffffffaee03df8 R08: 0000000000000000 R09: 0000000000000000
[1803.801641] R10: 0000000000000000 R11: 0000000000000000 R12: ffffffffaee10f00
[1803.801642] R13: 0000000000000000 R14: 0000000000000000 R15: 00000000000147b0
[1803.801644] FS: 0000000000000000(0000) GS:ffff9c2f39000000(0000) knlGS:00000
00000000000
[1803.801646] CS: 0010 DS: 0000 ES: 0000 CR0: 0000000080050033
[1803.801648] CR2: 000028d745514000 CR3: 0000000072829005 CR4: 0000000000706f0
[1803.801652] Call Trace:
[1803.804459] <TASK>
[1803.804465] ? default_idle+0x9/0x30
[1803.816060] arch_cpu_idle+0x9/0x10
[1803.816075] default_idle_call+0x30/0x100
[1803.816079] cpuidle_idle_call+0x14f/0x190
[1803.816130] do_idle+0x7f/0xe0
[1803.816133] cpu_startup_entry+0x29/0x30
[1803.816136] rest_init+0xde/0x100
[1803.816139] start_kernel+0x3da/0x510
[1803.816145] x86_64_start_reservations+0x18/0x30
[1803.816149] x86_64_start_kernel+0xbf/0x110
[1803.816199] common_startup_64+0x13e/0x141
[1803.816248] </TASK>
[1803.820624] clocksource: Long readout interval, skipping watchdog check: cs_n
sec: 44448328670 wd_nsec: 44448296535
mint@mint:~$


mint@mint: ~
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host noprefixroute
valid_lft forever preferred_lft forever
2: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
link/ether 08:00:27:59:7d:74 brd ff:ff:ff:ff:ff:ff
inet 10.0.3.15/24 brd 10.0.3.255 scope global dynamic noprefixroute enp0s8
valid_lft 86309sec preferred_lft 86309sec
inet6 fd17:625c:f037:3:acf6:7291:6185:a605/64 scope global temporary dynamic
valid_lft 86312sec preferred_lft 14312sec
inet6 fd17:625c:f037:3:2526:7b0:d2dd:ea96/64 scope global dynamic mngtmpaddr
noprefixroute
valid_lft 86312sec preferred_lft 14312sec
inet6 fe80::51e8:fa4c:f871:6699/64 scope link noprefixroute
valid_lft forever preferred_lft forever
mint@mint:~$ cd
mint@mint:~$ pwd
/home/mint
mint@mint:~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
mint@mint:~$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|__ Port 001: Dev 002, If 0, Class=Human Interface Device, Driver=usbhid, 12
M
ID 80ee:0021 VirtualBox USB Tablet
/: Bus 002.Port 001: Dev 001, Class=root_hub, Driver=ehci-pci/12p, 480M
ID 1d6b:0002 Linux Foundation 2.0 root hub
mint@mint:~$ lspci -tv
-[0000:00]-+-00.0 Intel Corporation 440FX - 82441FX PMC [Natoma]
+-01.0 Intel Corporation 82371SB PIIX3 ISA [Natoma/Triton II]
+-01.1 Intel Corporation 82371AB/EB/MB PIIX4 IDE
+-02.0 VMware SVGA II Adapter
+-03.0 Intel Corporation 82540EM Gigabit Ethernet Controller
+-04.0 InnoTek Systemberatung GmbH VirtualBox Guest Service
+-05.0 Intel Corporation 82801AA AC'97 Audio Controller
+-06.0 Apple Inc. KeyLargo/Intrepid USB
+-07.0 Intel Corporation 82371AB/EB/MB PIIX4 ACPI
+-0b.0 Intel Corporation 82801FB/FBM/FR/FW/FRW (ICH6 Family) USB2 EH
CI Controller
\-0d.0 Intel Corporation 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller
[AHCI mode]
mint@mint:~$