

Actividad 10.

10.2.1 Paso 1

Con el fin de determinar el tipo de CPU ejecuta el comando `lscpu`:

```
lscpu
```

El resultado:

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
Address sizes:          39 bits physical, 48 bits virtual
CPU(s):                 8
On-line CPU(s) list:   0-7
Thread(s) per core:     2
Core(s) per socket:     4
Socket(s):              1
NUMA node(s):          1
Vendor ID:              GenuineIntel
CPU family:             6
Model:                 142
Model name:             Intel(R) Core(TM) i7-10510U CPU @ 1.80GHz
Stepping:               12
CPU MHz:                818.484
CPU max MHz:            4900,0000
CPU min MHz:            400,0000
BogoMIPS:               4599.93
Virtualization:         VT-x
L1d cache:              128 KiB
L1i cache:              128 KiB
L2 cache:               1 MiB
L3 cache:               8 MiB
NUMA node0 CPU(s):     0-7
```

10.2.2 Paso 2

Visualiza el archivo `/proc/cpuinfo`:

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ cat /proc/cpuinfo
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 142
model name     : Intel(R) Core(TM) i7-10510U CPU @ 1.80GHz
stepping      : 12
microcode     : 0xd6
cpu MHz        : 900.343
cache size     : 8192 KB
physical id    : 0
siblings       : 8
core id        : 0
cpu cores      : 4
apicid         : 0
initial apicid : 0
fpu            : yes
fpu_exception  : yes
cpuid level    : 22
wp             : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdt
scp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
c cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fm
a cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes x
save avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single ss
bd ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fs
gsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid mpx rdseed adx smap clflushop
t intel_pt xsaveopt xsavec xgetbv1 xsaves dtherm ida arat pln pts hwp hwp_notify
hwp_act_window hwp_epp md_clear flush_l1d arch_capabilities
```

10.2.3 Paso 3

Para conocer el tamaño de RAM y el espacio de intercambio que está ocupado:

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ free -m
              total        used        free      shared  buff/cache   available
Mem:           15798         2268        10139          1407         3391        11803
Swap:           2047           0         2047

ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ free -g
              total        used        free      shared  buff/cache   available
Mem:              15           2           9           1           3           11
Swap:              1           0           1
```

La salida muestra la cantidad de memoria en megabytes cuando se utiliza la opción `-m` y en gigabytes cuando se utiliza la opción `-g`.

10.2.4 Paso 4

Para ver qué dispositivos están conectados al bus PCI.

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ lspci
00:00.0 Host bridge: Intel Corporation Device 9b61 (rev 0c)
00:02.0 VGA compatible controller: Intel Corporation UHD Graphics (rev 02)
00:04.0 Signal processing controller: Intel Corporation Xeon E3-1200 v5/E3-1500 v5/6th Gen Core Processor Thermal Subsystem (rev 0c)
00:08.0 System peripheral: Intel Corporation Xeon E3-1200 v5/v6 / E3-1500 v5 / 6th/7th/8th Gen Core Processor Gaussian Mixture Model
00:12.0 Signal processing controller: Intel Corporation Comet Lake Thermal Subsytem
00:14.0 USB controller: Intel Corporation Device 02ed
00:14.2 RAM memory: Intel Corporation Device 02ef
00:14.3 Network controller: Intel Corporation Wireless-AC 9462
00:15.0 Serial bus controller [0c80]: Intel Corporation Serial IO I2C Host Controller
00:16.0 Communication controller: Intel Corporation Comet Lake Management Engine Interface
00:17.0 RAID bus controller: Intel Corporation 82801 Mobile SATA Controller [RAID mode]
00:1c.0 PCI bridge: Intel Corporation Device 02bc (rev f0)
00:1d.0 PCI bridge: Intel Corporation Device 02b0 (rev f0)
00:1e.0 Communication controller: Intel Corporation Device 02a8
00:1e.3 Serial bus controller [0c80]: Intel Corporation Device 02ab
00:1f.0 ISA bridge: Intel Corporation Device 0284
00:1f.3 Audio device: Intel Corporation Device 02c8
00:1f.4 SMBus: Intel Corporation Device 02a3
00:1f.5 Serial bus controller [0c80]: Intel Corporation Comet Lake SPI (flash) Controller
01:00.0 3D controller: NVIDIA Corporation GP108BM [GeForce MX250] (rev a1)
02:00.0 Non-Volatile memory controller: Samsung Electronics Co Ltd Device a809
```

10.2.5 Paso 5

Utiliza el comando `lspci` con la opción `-k` para mostrar los dispositivos junto con el controlador del kernel y los módulos utilizados:

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ lspci -k
00:00.0 Host bridge: Intel Corporation Device 9b61 (rev 0c)
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Device 1e41
00:02.0 VGA compatible controller: Intel Corporation UHD Graphics (rev 02)
    DeviceName: Onboard - Video
    Subsystem: ASUSTeK Computer Inc. UHD Graphics
    Kernel driver in use: i915
    Kernel modules: i915
00:04.0 Signal processing controller: Intel Corporation Xeon E3-1200 v5/E3-1500 v5/6th Gen Core Processor Thermal Subsystem (rev 0c)
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Xeon E3-1200 v5/E3-1500 v5/6th Gen Core Processor Thermal Subsystem
    Kernel driver in use: proc_thermal
    Kernel modules: processor_thermal_device
00:08.0 System peripheral: Intel Corporation Xeon E3-1200 v5/v6 / E3-1500 v5 / 6th/7th/8th Gen Core Processor Gaussian Mixture Model
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Xeon E3-1200 v5/v6 / E3-1500 v5 / 6th/7th/8th Gen Core Processor Gaussian Mixture Model
00:12.0 Signal processing controller: Intel Corporation Comet Lake Thermal Subsytem
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Comet Lake Thermal Subsytem
00:14.0 USB controller: Intel Corporation Device 02ed
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Device 201f
    Kernel driver in use: xhci_hcd
00:14.2 RAM memory: Intel Corporation Device 02ef
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Device 1e41
00:14.3 Network controller: Intel Corporation Wireless-AC 9462
    DeviceName: Onboard - Ethernet
    Subsystem: Intel Corporation Wireless-AC 9462
    Kernel driver in use: iwlwifi
    Kernel modules: iwlwifi
00:15.0 Serial bus controller [0c80]: Intel Corporation Serial IO I2C Host Controller
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Serial IO I2C Host Controller
    Kernel driver in use: intel-lpss
    Kernel modules: intel_lpss_pci
00:16.0 Communication controller: Intel Corporation Comet Lake Management Engine Interface
    DeviceName: Onboard - Other
    Subsystem: ASUSTeK Computer Inc. Comet Lake Management Engine Interface
    Kernel driver in use: mei_me
    Kernel modules: mei_me
00:17.0 RAID bus controller: Intel Corporation 82801 Mobile SATA Controller [RAID mode]
    DeviceName: Onboard - Other
```


10.2.6 Paso 6

Trata de enumerar los dispositivos USB conectados:

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ lsusb
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 003: ID 13d3:56dd IMC Networks USB2.0 HD UVC WebCam
Bus 001 Device 002: ID 062a:5918 MosArt Semiconductor Corp. 2.4G Keyboard Mouse
Bus 001 Device 004: ID 8087:0aaa Intel Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
```

10.2.7 Paso 7

Para que el hardware funcione, el kernel de Linux normalmente carga un controlador o módulo. Utiliza el comando

`lsmod` para ver los módulos cargados actualmente:

```
ariadna@ariadna-ZenBook-UX431FLC-UX431FL:~$ lsmod
Module                  Size  Used by
ccm                      20480  9
rfcomm                   81920  4
cmac                     16384  8
algif_hash               16384  4
algif_skcipher           16384  4
af_alg                   24576  18 algif_hash,algif_skcipher
bnep                     24576  2
snd_hda_codec_hdmi       61440  1
snd_sof_pci              20480  0
snd_sof_intel_hda_common 69632  1 snd_sof_pci
snd_soc_hdac_hda         24576  1 snd_sof_intel_hda_common
snd_sof_intel_hda        20480  1 snd_sof_intel_hda_common
snd_sof_intel_byt        20480  1 snd_sof_pci
snd_sof_intel_ipc        20480  1 snd_sof_intel_byt
snd_sof                  106496  4 snd_sof_pci,snd_sof_intel_hda_common,snd_sof_intel_byt,snd_sof_intel_
snd_sof_xtensa_dsp       16384  1 snd_sof_pci
snd_hda_ext_core         28672  3 snd_sof_intel_hda_common,snd_soc_hdac_hda,snd_sof_intel_hda
snd_soc_acpi_intel_match 32768  2 snd_sof_pci,snd_sof_intel_hda_common
snd_soc_acpi             16384  2 snd_sof_pci,snd_soc_acpi_intel_match
snd_soc_core             245760  3 snd_sof,snd_sof_intel_hda_common,snd_soc_hdac_hda
snd_compress            24576  1 snd_soc_core
snd_hda_codec_realtek    126976  1
ac97_bus                 16384  1 snd_soc_core
snd_pcm_dmaengine        16384  1 snd_soc_core
snd_hda_codec_generic    81920  1 snd_hda_codec_realtek
ledtrig_audio            16384  3 snd_hda_codec_generic,snd_hda_codec_realtek,snd_sof
mei_hdcp                 24576  0
snd_hda_intel            53248  6
snd_intel_dspcfg         24576  3 snd_hda_intel,snd_sof_pci,snd_sof_intel_hda_common
snd_hda_codec            135168  5 snd_hda_codec_generic,snd_hda_codec_hdmi,snd_hda_intel,snd_hda_codec_
intel_rapl_msr           20480  0
snd_hda_core             90112  9 snd_hda_codec_generic,snd_hda_codec_hdmi,snd_hda_intel,snd_hda_ext_co
el_hda_common,snd_soc_hdac_hda,snd_sof_intel_hda
snd_hwdep                20480  1 snd_hda_codec
x86_pkg_temp_thermal     20480  0
snd_pcm                  106496  10 snd_hda_codec_hdmi,snd_hda_intel,snd_hda_codec,snd_sof,snd_sof_intel
ngine
intel_powerclamp         20480  0
coretemp                 20480  0
kvm_intel                282624  0
```

10.2.8 Paso 8

La tarjeta madre de muchas computadoras contiene lo que se conoce como Basic Input and Output System (BIOS). System Management BIOS (SMBIOS) es el estándar que define las estructuras de datos y cómo se comunica la información acerca del hardware de la computadora. El comando `dmidecode` puede leer e imprimir la información del SMBIOS de muchos sistemas. No vamos a demostrar este comando aquí, ya que no funciona correctamente en un entorno virtual.

El comando `fdisk` se puede utilizar de dos maneras: de forma interactiva y no interactiva.

Cuando se utiliza la opción `-l` con `fdisk`, entonces el comando listará de manera no interactiva los dispositivos de bloque, que incluyen los discos (discos físicos) y los volúmenes lógicos.

Sin la opción `-l` el comando `fdisk` entra en un modo interactivo que normalmente se utiliza para modificar las particiones en un dispositivo de disco.

```
root@ariadna-ZenBook-UX431FLC-UX431FL:/home/ariadna# dmidecode
# dmidecode 3.2
Getting SMBIOS data from sysfs.
SMBIOS 3.2.0 present.
Table at 0x99D08000.

Handle 0x0000, DMI type 0, 26 bytes
BIOS Information
    Vendor: American Megatrends Inc.
    Version: UX431FLC.203
    Release Date: 10/09/2019
    Address: 0xF0000
    Runtime Size: 64 kB
    ROM Size: 16 MB
    Characteristics:
        PCI is supported
        BIOS is upgradeable
        BIOS shadowing is allowed
        Boot from CD is supported
        Selectable boot is supported
        BIOS ROM is socketed
        EDD is supported
        5.25"/1.2 MB floppy services are supported (int 13h)
        3.5"/720 kB floppy services are supported (int 13h)
        3.5"/2.88 MB floppy services are supported (int 13h)
        Print screen service is supported (int 5h)
        8042 keyboard services are supported (int 9h)
        Serial services are supported (int 14h)
        Printer services are supported (int 17h)
        ACPI is supported
        USB legacy is supported
        BIOS boot specification is supported
        Targeted content distribution is supported
        UEFI is supported
    BIOS Revision: 5.16
```



```

root@ariadna-ZenBook-UX431FLC-UX431FL:/home/ariadna# fdisk -l
Disk /dev/loop0: 240,79 MiB, 252465152 bytes, 493096 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/loop1: 97,76 MiB, 102486016 bytes, 200168 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/loop2: 97,72 MiB, 102445056 bytes, 200088 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/loop3: 162,89 MiB, 170778624 bytes, 333552 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/loop4: 240,79 MiB, 252469248 bytes, 493104 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/loop5: 87,82 MiB, 92065792 bytes, 179816 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

```

10.2.9 Paso 9

Ejecuta el comando `fdisk` para listar los dispositivos de disco de forma no interactiva, en sectores, y sin advertencias de compatibilidad DOS:

```

Disk /dev/sda: 21.5 GB, 21474836480 bytes
255 heads, 63 sectors/track, 2610 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x000571a2

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1    *           1         2481     19921920   83  Linux
/dev/sda2             2481         2611      1046529    5  Extended
/dev/sda5             2481         2611      1046528   82  Linux swap / Solaris

```

EXAMEN 10.

1. Una bandera CPU...

...no es un término válido.

...define cuántos dispositivos se pueden conectar al sistema.

...define el fabricante de la CPU.

☒ ...define las características que soporta la CPU.

2. Las plataformas de 64 bit pueden acceder a más memoria que las plataformas de 32 bit. Verdadero o falso?

☒ Verdadero

Falso

3. ¿Qué comando muestra la información de SMBIOS?

showbios

dmibios

☒ dmidecode

smbios

4. Una división de una unidad de disco duro puede ser denominada como un/una _____.

porción

☒ partición

bloque

etiqueta

5. El comando fdisk es una herramienta que se utiliza para trabajar con los discos con una partición MBR. Verdadero o falso?

Falso

☒ Verdadero

6. ¿Cuál de los siguientes es el nombre del archivo de dispositivo válido para el primer disco duro IDE en el sistema?

/dev/sda

/dev/ide

☒ /dev/hda

/dev/hd1