

Ответы на задание

1. Создание файла-скрипта script.sh.

```
touch ~/script.sh
chmod +x ~/script.sh
```

Команда `touch` создаёт пустой файл, а `chmod +x` делает его исполняемым.

2. Добавление задач в cron.

Открыть редактор crontab:

```
crontab -e
```

Добавить строки для автоматического выполнения скрипта в нужное время:

```
0 18 * * 1 ~/script.sh # Запуск каждый понедельник в 18:00
0 12 * * * ~/script.sh # Запуск каждый день в 12:00
0 0 * * 1-5 ~/script.sh # Запуск в полночь с понедельника по пятницу
```

Каждая строка указывает время выполнения: **минуты часы день месяц день_недели команда**.

3. Выполнение команд для вывода информации об устройствах (запускать команды по очереди).

```
lspci # Вывод информации о PCI-устройствах
lsusb # Вывод информации о USB-устройствах
lsscsi # Вывод информации о SCSI-устройствах
lscpu # Вывод информации о процессоре
lshw # Подробная информация об аппаратном обеспечении
```

4. Установка и запуск hardinfo.

```
sudo apt-get install hardinfo
hardinfo
```

Вывод команд

```
GNU nano 8.1 /tmp/cr
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command

#*****

#Every Monday at 18:00
0 18 * * 1 /home/ubuntu/script.sh

#Everyday at 12:00
0 12 * * * /home/ubuntu/script.sh

#Monday-Friday at 24:00
0 0 * * 1-5 /home/ubuntu/script.sh_
```

Здесь и далее — изображения Skillbox

```
ubuntu@ubuntu:~$ lspci
00:00.0 Host bridge: Intel Corporation 440FX - 82441FX PMC [Natoma] (rev 02)
00:01.0 ISA bridge: Intel Corporation 82371SB PIIX3 ISA [Natoma/Triton II]
00:01.1 IDE interface: Intel Corporation 82371AB/EB/MB PIIX4 IDE (rev 01)
00:02.0 VGA compatible controller: VMware SVGA II Adapter
00:03.0 Ethernet controller: Intel Corporation 82540EM Gigabit Ethernet Controller (rev 02)
00:04.0 System peripheral: InnoTek Systemberatung GmbH VirtualBox Guest Service
00:05.0 Multimedia audio controller: Intel Corporation 82801AA AC'97 Audio Controller (rev 01)
00:06.0 USB controller: Apple Inc. KeyLargo/Intrepid USB
00:07.0 Bridge: Intel Corporation 82371AB/EB/MB PIIX4 ACPI (rev 08)
00:0b.0 USB controller: Intel Corporation 82801FB/FBM/FR/FW/FRM (ICH6 Family) USB2 EHCI Controller
00:0d.0 SATA controller: Intel Corporation 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller [AHCI mode] (rev 02)
ubuntu@ubuntu:~$ lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 002 Device 002: ID 80ee:0021 VirtualBox USB Tablet
ubuntu@ubuntu:~$ ls SCSI
[1:0:0:0]    cd/dvd    VBOX      CD-ROM          1.0    /dev/sr0
[2:0:0:0]    disk      ATA       VBOX HARDDISK   1.0    /dev/sda
ubuntu@ubuntu:~$
```

```

ubuntu@ubuntu:~$ lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          39 bits physical, 48 bits virtual
Byte Order:             Little Endian
CPU(s):                 1
On-line CPU(s) list:   0
Vendor ID:              GenuineIntel
Model name:             Intel(R) Core(TM) i5-8350U CPU @ 1.70GHz
CPU family:             6
Model:                 142
Thread(s) per core:    1
Core(s) per socket:    1
Socket(s):              1
Stepping:               10
BogoMIPS:               3792.00
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx rdtscp lm constant_tsc
                        rep_good nopl xtopology nonstop_tsc cpuid tsc_known_freq pni pclmulqdq ssse3 cx16 pcid sse4_1 sse4_2 movbe popcnt aes rdrand hypervisor
                        or lahf_lm abm 3dnowprefetch pt1 fsgsbase bmi1 bmi2 invpcid rdseed adx clflushopt arat md_clear flush_l1d arch_capabilities

Virtualization features:
Hypervisor vendor:     KVM
Virtualization type:   full
Caches (sum of all):
  L1d:                  32 KiB (1 instance)
  L1i:                  32 KiB (1 instance)
  L2:                   256 KiB (1 instance)
  L3:                   6 MiB (1 instance)
NUMA:
NUMA node(s):          1
NUMA node0 CPU(s):    0
Vulnerabilities:
Gather data sampling:  Not affected
Itlb multihit:        KVM: Mitigation: VMX unsupported
L1tf:                 Mitigation: PTE Inversion
Mds:                  Mitigation; Clear CPU buffers; SMT Host state unknown
Meltdown:             Mitigation; PTI
Mmio stale data:      Mitigation; Clear CPU buffers; SMT Host state unknown
Reg file data sampling: Not affected
Retbleed:             Vulnerable
Spec rstack overflow: Not affected
Spec store bypass:    Vulnerable
Spectre v1:           Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Spectre v2:           Mitigation; Retpolines; STIBP disabled; RSB filling; PBSRB-eIBRS Not affected; BHI Retpoline
Srbds:                Unknown: Dependent on hypervisor status
Tsx async abort:      Not affected
ubuntu@ubuntu:~$

```

```

version: 02
width: 32 bits
clock: 33MHz
capabilities: sata ahci_1.0 bus_master cap_list
configuration: driver=ahci latency=64
resources: irq:21 ioport:d240(size=8) ioport:d248(size=4) ioport:d250(size=8) ioport:d258(size=4) ioport:d260(size=16) memory:f0806000-f0807fff

*-input:0
  product: Power Button
  physical id: 1
  logical name: input0
  logical name: /dev/input/event0
  capabilities: platform

*-input:1
  product: Sleep Button
  physical id: 2
  logical name: input1
  logical name: /dev/input/event1
  capabilities: platform

*-input:2
  product: AT Translated Set 2 keyboard
  physical id: 3
  logical name: input2
  logical name: /dev/input/event2
  logical name: input2::capslock
  logical name: input2::numlock
  logical name: input2::scrolllock
  capabilities: i8042

*-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.
ubuntu@ubuntu:~$

```

```
Intel Core i7-5820K      12x 3600.00 MHz 5499.06
Intel Core i3-2100      4x 3100.00 MHz 4786.00
* This Machine Intel Core i5-6350U      1x 1896.00 MHz 4734.00
Intel Core i5-6260U      2x 1800.00 MHz 3235.00
Amlogic (VIM3)          4x 2208.00 MHz + 2x 1800.00 MHz 2689.42
Intel Core 2 Duo E8400    2x 2997.00 MHz 1835.00
Intel Atom x5-28500       4x 2240.00 MHz 1792.43
Intel Celeron 847         2x 1100.00 MHz 1714.42
Amlogic (C2)            4x 1536.00 MHz 1374.63
Intel Pentium 4           2x 3192.00 MHz 1228.00
Broadcom BCM2837         4x 1200.00 MHz 570.17
Rockchip RK33xx-family   4x 1296.00 MHz 525.29
Broadcom (RPi4)          4x 2000.00 MHz 281.27
Intel Atom N270          2x 1600.00 MHz 112.20
Broadcom BCM2835         1x 700.00 MHz 97.50

SysBench Memory (Multi-thread)
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-SysBench Memory (Multi-thread)-
AMD Ryzen 5 5600X 6-Core 12x 3693.09 MHz 20009.70
Intel Core i7-7700K      8x 4500.00 MHz 20084.00
Intel Core i7-5820K      12x 3600.00 MHz 16215.60
Intel Xeon X5677         8x 3459.00 MHz 14834.33
AMD Ryzen 9 5950X        32x 3400.03 MHz 14656.53
Intel Core i5-8400       6x 4000.00 MHz 13540.00
AMD Ryzen 9 7950X        32x 4499.89 MHz 12131.25
Intel Core i3-2100       4x 3100.00 MHz 11502.00
Intel Core i7-1065G7      8x 1497.60 MHz 11389.75
AMD EPYC 9354P           64x 3250.03 MHz 10827.02
Amlogic (VIM3)          4x 2208.00 MHz + 2x 1800.00 MHz 6281.99
Amlogic (C2)            4x 1536.00 MHz 5616.01
* This Machine Intel Core i5-6350U      1x 1896.00 MHz 4277.27
Intel Atom x5-28500       4x 2240.00 MHz 4163.21
Intel Core 2 Duo E8400    2x 2997.00 MHz 3898.00
Intel Core i5-6260U      2x 1800.00 MHz 3761.00
AMD EPYC 7F32            16x 3700.00 MHz 3018.00
Intel Celeron 847         2x 1100.00 MHz 2331.54
Broadcom BCM2837         4x 1200.00 MHz 2184.59
Intel Pentium 4           2x 3192.00 MHz 1917.00
Rockchip RK33xx-family   4x 1296.00 MHz 1800.31
Broadcom (RPi4)          4x 2000.00 MHz 1084.03
Intel Atom N270          2x 1600.00 MHz 215.20
Broadcom BCM2835         1x 700.00 MHz 97.00

GPU Drawing
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-GPU Drawing-
ubuntu@ubuntu:~$
```

Сравнение hardinfo и утилит

- Утилиты (**lspci**, **lsusb** и так далее) дают детальную информацию, но требуют знания команд.
- **Hardinfo** удобен для визуального просмотра и быстрого анализа.

Выбор зависит от задачи. Для автоматизации и скриптов удобнее терминальные утилиты, а для разового просмотра — **hardinfo**. Чтобы быстро получить данные без сложных команд, подойдёт **hardinfo**. Но для автоматизации и работы в терминале лучше использовать встроенные утилиты.