

UF5. Manteniment d'equips microinformàtics

A3 – Diagnosi i rendiment, Linux

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Índex

- Comandes per veure el maquinari
- Sensors
- Gestió de processos
- Gestió dels discs durs i particions
- Benchmarking

Comandes per veure el maquinari

- lshw

```
super@ORD201011:~$ sudo lshw
[sudo] password for super:
ord201011
  description: Desktop Computer
  product: H81M-D2V (To be filled by O.E.M.)
  vendor: Gigabyte Technology Co., Ltd.
  version: To be filled by O.E.M.
  serial: To be filled by O.E.M.
  width: 64 bits
  capabilities: smbios-2.7 dmi-2.7 vsyscall32
  configuration: boot=normal chassis=desktop family=To be filled by O.E.M. sku
=To be filled by O.E.M. uuid=FC02AA03-1404-A505-BB06-CA0700080009
*-core
  description: Motherboard
  product: H81M-D2V
  vendor: Gigabyte Technology Co., Ltd.
  physical id: 0
  version: x.x
  serial: To be filled by O.E.M.
  slot: To be filled by O.E.M.
*-firmware
  description: BIOS
```

- lspci

```
super@ORD201011:~$ sudo lspci
00:00.0 Host bridge: Intel Corporation 4th Gen Core Processor DRAM Controller (r
ev 06)
00:02.0 VGA compatible controller: Intel Corporation Xeon E3-1200 v3/4th Gen Cor
e Processor Integrated Graphics Controller (rev 06)
00:03.0 Audio device: Intel Corporation Xeon E3-1200 v3/4th Gen Core Processor H
D Audio Controller (rev 06)
00:14.0 USB controller: Intel Corporation 8 Series/C220 Series Chipset Family US
B xHCI (rev 05)
00:16.0 Communication controller: Intel Corporation 8 Series/C220 Series Chipset
 Family MEI Controller #1 (rev 04)
00:1a.0 USB controller: Intel Corporation 8 Series/C220 Series Chipset Family US
B EHCI #2 (rev 05)
00:1b.0 Audio device: Intel Corporation 8 Series/C220 Series Chipset High Defini
tion Audio Controller (rev 05)
00:1c.0 PCI bridge: Intel Corporation 8 Series/C220 Series Chipset Family PCI Ex
press Root Port #1 (rev d5)
00:1c.2 PCI bridge: Intel Corporation 8 Series/C220 Series Chipset Family PCI Ex
press Root Port #3 (rev d5)
00:1c.3 PCI bridge: Intel Corporation 8 Series/C220 Series Chipset Family PCI Ex
press Root Port #4 (rev d5)
```

Comandes per veure el maquinari

- `cat /proc/cpuinfo`

```
super@ORD201011:~$ cat /proc/cpuinfo
processor       : 0
vendor_id     : GenuineIntel
cpu family    : 6
model        : 60
model name    : Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz
stepping     : 3
microcode    : 0x12
cpu MHz      : 1066.125
cache size   : 6144 KB
physical id  : 0
siblings     : 4
core id      : 0
cpu cores    : 4
apicid       : 0
initial apicid : 0
fpu          : yes
fpu_exception : yes
cpuid level  : 13
wp           : yes
flags        : fpu vme de pse tsc msr pae mce cx8 apic s
```

- `cat /proc/meminfo`

```
super@ORD201011:~$ cat /proc/meminfo
MemTotal:      8042620 kB
MemFree:       4810100 kB
MemAvailable:  6122048 kB
```

- `free`

```
super@ORD201011:~$ free
              total        used         free       shared    buffers     cached
Mem:           8042620    3227904    4814716       308504     121764     1632068
-/+ buffers/cache:    1474072    6568548
Swap:          4095996           0       4095996
```

Comandes per veure el maquinari

- Es pot fer servir la comanda `grep` per filtrar el text.
Exemple: `lspci | grep USB`

```
super@ORD201011:~$ lspci | grep USB
00:14.0 USB controller: Intel Corporation 8 Series/C220 Series Chipset Family USB xHCI (rev 05)
00:1a.0 USB controller: Intel Corporation 8 Series/C220 Series Chipset Family USB EHCI #2 (rev 05)
00:1d.0 USB controller: Intel Corporation 8 Series/C220 Series Chipset Family USB EHCI #1 (rev 05)
03:00.0 USB controller: VIA Technologies, Inc. VL805 USB 3.0 Host Controller (rev 01)
```

- També es pot redireccionar la sortida a un arxiu de text per poder obbri-lo amb un editor. Exemple: `lshw > maquinari.txt`

Comandes per veure el maquinari

- Amb la comanda `hardinfo`, cal instal·lar-la, es pot veure tota la informació en un entorn gràfic.

The screenshot displays the 'Processor - System Information' application window. The window has a menu bar with 'Information', 'View', and 'Help'. Below the menu bar are three buttons: 'Refresh', 'Copy to Clipboard', and 'Generate Report'. The main content area is divided into two panes. The left pane shows a tree view of system information categories, with 'Processor' selected under the 'Devices' category. The right pane displays a table of system information.

Processor - System Information

Information View Help

Refresh Copy to Clipboard Generate Report

Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz	2532,00MHz
Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz	1099,00MHz
Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz	2347,00MHz
Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz	937,00MHz

Information View Help

Refresh Copy to Clipboard Generate Report

Host bridge	Intel Corporation 4th Gen Core Processor DRAM Cont
VGA compatible controller	Intel Corporation Xeon E3-1200 v3/4th Gen Core Proce
Audio device	Intel Corporation Xeon E3-1200 v3/4th Gen Core Proce
USB controller	Intel Corporation 8 Series/C220 Series Chipset Family
Communication controller	Intel Corporation 8 Series/C220 Series Chipset Family
USB controller	Intel Corporation 8 Series/C220 Series Chipset Family
Audio device	Intel Corporation 8 Series/C220 Series Chipset High D
PCI bridge	Intel Corporation 8 Series/C220 Series Chipset Family
PCI bridge	Intel Corporation 8 Series/C220 Series Chipset Family
PCI bridge	Intel Corporation 8 Series/C220 Series Chipset Family
USB controller	Intel Corporation 8 Series/C220 Series Chipset Family
ISA bridge	Intel Corporation C220 Series Chipset Family H81 Exp
SATA controller	Intel Corporation 8 Series/C220 Series Chipset Family
SMBus	Intel Corporation 8 Series/C220 Series Chipset Family

Comandes per veure el maquinari

- També es pot fer servir la comanda phoronix-test-suite, cal instal·lar-la, per veure característiques del maquinari i fer diferents tests.

```
capestudis@ORD047152:~$ phoronix-test-suite detailed_system_info

Phoronix Test Suite v4.8.3
System Information

Hardware:
Processor: Intel Pentium E5300 @ 2.60GHz (2 Cores), Motherboard: ASUS P5KPL-AM SE, Chipset: Intel 82G33/G31/P35/P31 + ICH7, Memory: 2048MB, Disk: 500GB Seagate ST3500418AS, Graphics: Intel 82G33/G31 IGP, Audio: Intel NM10/ICH7, Network: Realtek RTL8101/2/6E

Software:
OS: Ubuntu 14.04, Kernel: 3.19.0-51-generic (x86_64), Desktop: Unity 7.2.6, Display Server: X Server 1.17.1, Display Driver: intel 2.99.917, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

PROCESSOR:

Core Count: 2
Thread Count: 2
Cache Size: 2048 KB
Instruction Set Extensions: SSE 2
AES Encryption: NO
Energy Performance Bias: NO
Virtualization: VT-x
Compiler Configuration: --build=x86_64-linux-gnu --disable-browser-plugin --disable-libmudflap --disable-werror --enable-checking=release --enable-clocale=gnu -
```

```
capestudis@ORD047152:~$ phoronix-test-suite diagnostics

Variables That Can Be Used As Result Identifiers / File Names
VIDEO_RESOLUTION = 1920x1080
VIDEO_CARD = Intel 82G33/G31 IGP
VIDEO_DRIVER = intel 2.99.917
OPENGL_DRIVER =
OPERATING_SYSTEM = Ubuntu 14.04
PROCESSOR = Intel Pentium E5300 @ 2.60GHz (2 Cores)
MOTHERBOARD = ASUS P5KPL-AM SE
CHIPSET = Intel 82G33/G31/P35/P31 + ICH7
KERNEL_VERSION = 3.19.0-51-generic
COMPILER = GCC 4.8
HOSTNAME = ORD047152
```

Sensors

- Si volem veure les temperatures, voltatges i RPM podem instal·lar el paquet lm-sensors i executar sensors-detect per tal de detectar els sensors.
- Un cop instal·lat es poden veure els valors amb la comanda sensors.

```
capestudis@ORD047152:~$ sensors
atk0110-acpi-0
Adapter: ACPI interface
Vcore Voltage:      +1.16 V (min = +0.85 V, max = +1.60 V)
+3.3 Voltage:      +3.31 V (min = +2.97 V, max = +3.63 V)
+5 Voltage:        +5.22 V (min = +4.50 V, max = +5.50 V)
+12 Voltage:       +12.51 V (min = +10.20 V, max = +13.80 V)
CPU FAN Speed:     927 RPM (min = 600 RPM, max = 7200 RPM)
CHASSIS FAN Speed: 0 RPM (min = 800 RPM, max = 7200 RPM)
CPU Temperature:  +26.0°C (high = +60.0°C, crit = +95.0°C)
MB Temperature:   +37.0°C (high = +45.0°C, crit = +95.0°C)

coretemp-isa-0000
Adapter: ISA adapter
Core 0:            +41.0°C (high = +76.0°C, crit = +100.0°C)
Core 1:            +38.0°C (high = +76.0°C, crit = +100.0°C)
```


Sensors

- També es poden veure les temperatures dels discs durs. Per això cal instal·lar hddtemp.
- Per veure la temperatura d'un disc cal executar `hddtemp /dev/nom_disc`.

```
capestudis@ORD047152:~$ sudo hddtemp /dev/sda  
/dev/sda: ST3500418AS: 31°C
```

Sensors

- Per fer un test d'estabilitat de forma semblant a com ho fa Everest es pot fer servir la comanda stress.

```
capestudis@ORD047152:~$ stress --cpu 8
stress: info: [18940] dispatching hogs: 8 cpu, 0 io, 0 vm, 0 hdd
```

```
top - 19:43:45 up 4:29, 3 users, load average: 5,83, 2,82, 1,73
Tasks: 196 total, 10 running, 186 sleeping, 0 stopped, 0 zombie
%Cpu(s): 97,7 us, 2,0 sy, 0,0 ni, 0,0 id, 0,0 wa, 0,0 hi, 0,3 si, 0,0 st
KiB Mem: 2039276 total, 1787640 used, 251636 free, 13360 buffers
KiB Swap: 3998716 total, 640280 used, 3358436 free. 532840 cached Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
18942	capestu+	20	0	7312	100	0	R	23,3	0,0	0:10.28	stress
18943	capestu+	20	0	7312	100	0	R	23,3	0,0	0:10.27	stress
18945	capestu+	20	0	7312	100	0	R	23,3	0,0	0:10.34	stress
18946	capestu+	20	0	7312	100	0	R	23,3	0,0	0:10.28	stress
18948	capestu+	20	0	7312	100	0	R	23,3	0,0	0:10.2	
18941	capestu+	20	0	7312	100	0	R	21,9	0,0	0:10.2	
18947	capestu+	20	0	7312	100	0	R	21,9	0,0	0:10.3	

```
capestudis@ORD047152:~$ sensors
```

```
atk0110-acpi-0
Adapter: ACPI interface
Vcore Voltage: +1.28 V (min = +0.85 V, max = +1.60 V)
+3.3 Voltage: +3.30 V (min = +2.97 V, max = +3.63 V)
+5 Voltage: +5.22 V (min = +4.50 V, max = +5.50 V)
+12 Voltage: +12.46 V (min = +10.20 V, max = +13.80 V)
CPU FAN Speed: 907 RPM (min = 600 RPM, max = 7200 RPM)
CHASSIS FAN Speed: 0 RPM (min = 800 RPM, max = 7200 RPM)
CPU Temperature: +51.0°C (high = +60.0°C, crit = +95.0°C)
MB Temperature: +37.0°C (high = +45.0°C, crit = +95.0°C)

coretemp-isa-0000
Adapter: ISA adapter
Core 0: +63.0°C (high = +76.0°C, crit = +100.0°C)
Core 1: +56.0°C (high = +76.0°C, crit = +100.0°C)
```

Gestió de processos

- Per veure l'ús de CPU i memòria i els processos oberts es pot fer amb top o htop (aquest últim cal instal·lar-lo).
- Amb htop es pot tancar un procés (també amb la comanda kill -9 PID).

```
top - 16:34:27 up 1:20, 2 users, load average: 0,35, 0,21, 0,27
Tasks: 174 total, 2 running, 172 sleeping, 0 stopped, 0 zombie
%Cpu(s): 25,8 us, 5,1 sy, 0,0 ni, 55,0 id, 13,9 wa, 0,0 hi, 0,2 si, 0,0 st
KiB Mem: 2039276 total, 1960712 used, 78564 free, 38816 buffers
KiB Swap: 3998716 total, 27656 used, 3971060 free. 845620 cached Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
2814	capestu+	20	0	1068316	97980	36560	S	25,2	4,8	0:01.61	shutter
1513	capestu+	20	0	1242896	99024	45980	S	19,9	4,9	0:45.22	compiz
1053	root	20	0	495404	80532	65528	S	5,6	3,9	1:04.61	Xorg
1224	capestu+	20	0	661728	35912	21704	S	2,3	1,8	0:03.31	unity-pane+
38	root	20	0	0	0	0	S	1,7	0,0	0:00.61	kswapd0
1137	capestu+	20	0	40124	3372	2032	S	1,0	0,2	0:01.03	dbus-daemon
1193	capestu+	20	0	363980	7328	5448	S	1,0	0,4	0:02.28	ibus-daemon
2788	capestu+	20	0	656800	31892	23328	S	1,0	1,6	0:00.34	gnome-term+
1213	capestu+	20	0	719156	41944	29848	S	0,7	2,1	0:02.18	hud-service
1257	capestu+	20	0	558020	22044	17004	S	0,7	1,1	0:01.14	bamfdaemon
1704	capestu+	20	0	1242008	62260	40780	S	0,3	3,1	0:07.36	nautilus
1802	capestu+	20	0	287612	5528	4928	S	0,3	0,3	0:00.01	gvfs-afc-v+
2149	capestu+	20	0	1654184	461988	86088	S	0,3	22,7	6:50.14	firefox
2421	root	20	0	0	0	0	S	0,3	0,0	0:00.98	kworker/0:3
2497	root	20	0	0	0	0	R	0,3	0,0	0:00.51	kworker/1:1
2508	root	20	0	0	0	0	S	0,3	0,0	0:00.14	kworker/u8+
2747	capestu+	20	0	1368080	182324	94024	S	0,3	8,9	0:11.80	soffice.bin

```
1 [|||] 3.9% Tasks: 107, 262 thr; 1 running
2 [||] 1.9% Load average: 0.76 0.36 0.32
Mem[|||||||||||||||||] 1065/1991MB Uptime: 01:21:47
Swp[|] 81/3904MB
```

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
3273	capestudi	20	0	31552	3860	3164	R	2.0	0.2	0:00.17	htop
1053	root	20	0	486M	78988	62592	S	1.3	3.9	1:06.65	/usr/bin/X -core
2788	capestudi	20	0	641M	29892	23232	S	0.7	1.5	0:00.71	gnome-terminal
1227	capestudi	20	0	355M	7316	5436	S	0.7	0.4	0:01.52	/usr/bin/ibus-dae
1513	capestudi	20	0	1213M	90840	37796	S	0.7	4.5	0:46.56	compiz
2191	capestudi	20	0	1614M	416M	67728	S	0.0	20.9	0:02.20	/usr/lib/firefox/
2149	capestudi	20	0	1614M	416M	67728	S	0.0	20.9	6:52.06	/usr/lib/firefox/
1	root	20	0	33844	4208	2508	S	0.0	0.2	0:01.15	/sbin/init
275	root	20	0	19480	176	0	S	0.0	0.0	0:00.13	upstart-udev-brid
281	root	20	0	52128	3380	2400	S	0.0	0.2	0:00.07	/lib/systemd/syst
484	root	20	0	15516	1860	1420	S	0.0	0.1	0:00.05	upstart-socket-br
583	root	20	0	266M	11144	9276	S	0.0	0.5	0:00.16	smbd -F
601	messagebu	20	0	40180	3492	2228	S	0.0	0.2	0:00.68	dbus-daemon --sys
607	root	20	0	15280	244	0	S	0.0	0.0	0:00.03	upstart-file-brid
626	syslog	20	0	249M	2328	1896	S	0.0	0.1	0:00.01	rsyslogd
627	syslog	20	0	249M	2328	1896	S	0.0	0.1	0:00.00	rsyslogd

F1 Help F2 Setup F3 Search F4 Filter F5 Tree F6 SortBy F7 Nice F8 Nice + F9 Kill F10 Quit

Gestió de discs durs i particions

- A `/dev` es pot veure tots els discs i particions. Els discs són `sdx` (on `x` és el disc: `a`, `b`...) o bé `hdx` (si són disc vells IDE). Les particions tenen el mateix nom del disc al que pertanyen però afegint el número de partició (`sda1`, `sda2`...).

```
capestudis@ORD047152:~$ ls /dev/sd*  
/dev/sda    /dev/sda2  /dev/sda5  /dev/sdb  
/dev/sda1  /dev/sda3  /dev/sda6  /dev/sdb1
```

Gestió de discs durs i particions

- És poden veure les característiques de les particions amb `fdisk -l`.

```
capestudis@ORD047152:~$ sudo fdisk -l
Disk /dev/sda: 500.1 GB, 500107862016 bytes
255 heads, 63 sectors/track, 60801 cylinders, total 976773168 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 identifier: 0x29c74819

Dispositiu Arrenc.  InicI          Final         Blocs        Id Sistema
/dev/sda1 *         63            362378204    181189071    7  HPFS/NTFS/exFAT
/dev/sda2           362378205     771975167    204798481+   7  HPFS/NTFS/exFAT
/dev/sda3           771977214     976771071    102396929    5  Estesa
/dev/sda5           771977216     779974655    3998720      82  Intercanvi Linux / Solar
ts
/dev/sda6           779976704     976771071    98397184     83  Linux

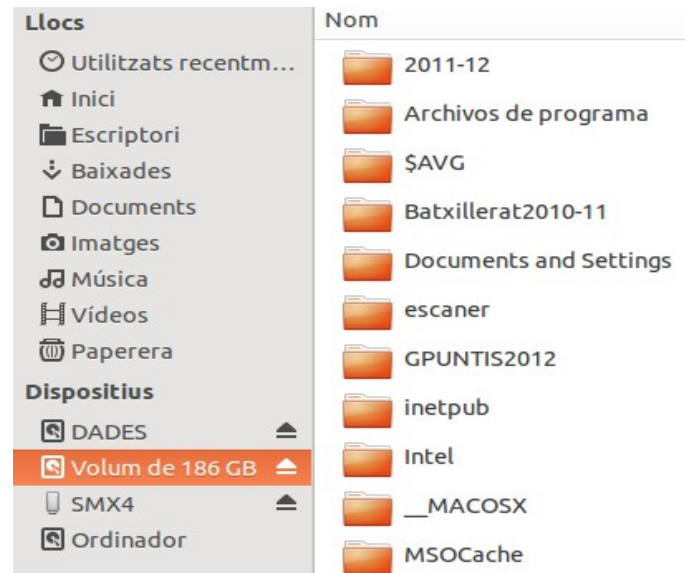
Disk /dev/sdb: 64.4 GB, 64424509440 bytes
255 heads, 63 sectors/track, 7832 cylinders, total 125829120 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0xc3072e18

Dispositiu Arrenc.  InicI          Final         Blocs        Id Sistema
/dev/sdb1           2048          125829119    62913536     7  HPFS/NTFS/exFAT
```

- Amb `fdisk /dev/sda` es poden gestionar les particions del disc sda (crear o eliminar les particions). Gràficament es pot fer amb `gparted`.

Gestió de discs durs i particions

- Als entorns gràfics es pot muntar una partició simplement fent clic, o desmuntar-la amb el botó dret.



- També es poden muntar amb `mount /dev/nom_particio /punt_muntatge`, i desmuntar amb `umount /punt_muntatge` o bé `umount /dev/nom_particio`. A l'arxiu `/etc/fstab` hi ha les particions que es munten de forma automàtica.

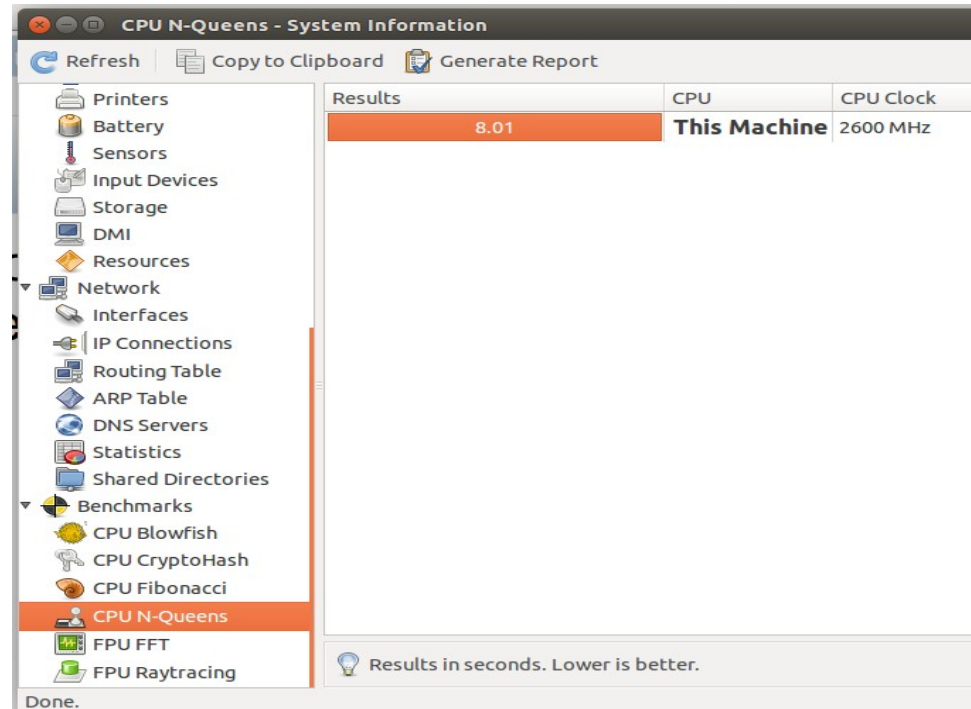
Gestió de discs durs i particions

- Amb la comanda `df -h` es poden veure les particions muntades, mida, espai ocupat i espai lliure.

```
capestudis@ORD047152:~$ df -h
S. fitxers      Mida En ús Lliure  %Ús Muntat a
udev            986M  4,0K   986M   1% /dev
tmpfs           200M  1,4M   198M   1% /run
/dev/sda6       93G   13G    76G   14% /
none            4,0K   0      4,0K   0% /sys/fs/cgroup
none            5,0M   0      5,0M   0% /run/lock
none            996M  80K    996M   1% /run/shm
none            100M  44K    100M   1% /run/user
/dev/sdb1       60G   52G    8,4G  87% /media/capestudis/SMX4
/dev/sda2       196G  23G   173G  12% /media/capestudis/DADES
/dev/sda1       173G  30G   144G  18% /media/capestudis/4064F13F64F1386C
```

Benchmarking

- Tant amb hardinfo com amb phoronix-test-suite es poden realitzar diferents benchmark o proves de rendiment.



The screenshot shows a window titled "CPU N-Queens - System Information". The window has a menu bar with "Refresh", "Copy to Clipboard", and "Generate Report". On the left, there is a tree view of system information categories, with "CPU N-Queens" selected. The main area displays a table of results for the CPU N-Queens benchmark.

Results	CPU	CPU Clock
8.01	This Machine	2600 MHz

At the bottom of the window, there is a status bar that says "Done." and a lightbulb icon with the text "Results in seconds. Lower is better."

Benchmarking

- Amb phoronix es poden instal·lar i executar diferents benchmark (<http://openbenchmarking.org>)

```

capestudis@ORD047152:~$ phoronix-test-suite info n-queens
Phoronix Test Suite v4.8.3
N-Queens 1.0

Run Identifier: pts/n-queens-1.1.0
Profile Version: 1.1.0
Maintainer: Michael Larabel
Test Type: Processor
Software Type: Utility
License Type: Free
Test Status: Verified
Project Web-Site: http://www.arch.cs.titech.ac.jp/~kise/nq/index.htm
Estimated Run-Time: 386 Seconds
Download Size: 0.2 MB
Environment Size: 1.4 MB

Description: This is a test of the OpenMP version of a test that solves the
N-Queens problem. The board problem size is 18.

Test Installed: No

Software Dependencies:
- Compiler

capestudis@ORD047152:~$ phoronix-test-suite install n-queens
Phoronix Test Suite v4.8.3

To Install: pts/n-queens-1.1.0

Determining File Requirements .....
Searching Download Caches .....

1 Test To Install
  1 File To Download [0.20MB]
  2MB Of Disk Space Is Needed

pts/n-queens-1.1.0:
  Test Installation 1 of 1
  1 File Needed [0.2 MB / 1 Minute]
  Downloading: qn24b-version1.0.tgz [0.20MB]
  Estimated Download Time: 1m .....

capestudis@ORD047152:~$ phoronix-test-suite run n-queens
Phoronix Test Suite v4.8.3
System Information

Hardware:
Processor: Intel Pentium E5300 @ 2.60GHz (2 Cores), Motherboard: ASUS P5KPL-AM S
E, Chipset: Intel 82G33/G31/P35/P31 + ICH7, Memory: 2048MB, Disk: 500GB Seagate
ST3500418AS, Graphics: Intel 82G33/G31 IGP, Audio: Intel NM10/ICH7, Network: Real
tek RTL8101/2/6E

Software:
OS: Ubuntu 14.04, Kernel: 3.19.0-51-generic (x86_64), Desktop: Unity 7.2.6, Displ
ay Server: X Server 1.17.1, Display Driver: intel 2.99.917, OpenGL: 1.4 Mesa 10
.5.9, Compiler: GCC 4.8, File-System: ext4, Screen Resolution: 1920x1080

Would you like to save these test results (Y/n): n

RAMspeed SMP 3.5.0:
pts/ramspeed-1.4.0 [Type: Average - Benchmark: Integer]
Test 1 of 2
Estimated Trial Run Count: 1
Estimated Test Run-Time: 6 Minutes
Estimated Time To Completion: 11 Minutes
Started Run 1 @ 18:58:13

Test Results:
2327.77

Average: 2327.77 MB/s

N-Queens 1.0:
pts/n-queens-1.1
Test 1 of 1
Estimated Trial
Estimated Time T
Started Run
Started Run
Started Run

Test Results:
186.86
187.234
188.752

Average: 187.62

RAMspeed SMP 3.5.0:
pts/ramspeed-1.4.0 [Type: Average - Benchmark: Floating Point]
Test 2 of 2
Estimated Trial Run Count: 1
Estimated Time To Completion: 6 Minutes
Started Run 1 @ 19:10:54

Test Results:
2541.58

Average: 2541.58 MB/s

```