DEPARTMENT OF INFORMATION TECHNOLOGY NITK SURATHKAL
IT 301 Parallel Computing (Minor)
Lab 2
Date: 07th January 2021

Objectives:
To understand the system configuration with respect to number of processors, memory etc.

Note:

(i) Screen shot must be attached for each question. If the content of each command is very long, then put screen shot of first page obtained in each command execution.

(ii) System name must be visible in the screen shot.
itadmin@mysystem:~$ cat /proc/cpuinfo

(iii)Marks for each question:

Q No	Marks
1	3 marks
2	2 marks
3	2 marks
4	2 marks
5	1 mark

Reference material : https://www.tecmint.com/check-linux-cpu-information/

Question 1. To get CPU information using cat command
You can simply view the information of your system CPU by viewing the contents of the /proc/cpuinfo **file with the help of cat command as follows:**

cat /proc/cpuinfo

```
itadmin@mysystem:~$ cat /proc/cpuinfo
processor       : 0
vendor_id       : GenuineIntel
cpu family      : 6
model           : 158
model name      : Intel(R) Core(TM) i7-9700 CPU @ 3.00GHz
stepping        : 13
microcode       : 0xde
cpu MHz                 : 812.236
cache size      : 12288 KB
physical id     : 0
siblings        : 8
core id         : 0
cpu cores       : 8
apicid          : 0
initial apicid  : 0
fpu             : yes
```

fpu_exception : yes
cpuid level : 22
wp : yes
…….(long list of information for each processor)

Write your observation with respect to following parameters
a. How many processors are there in your system?

b. Whether any graphics card is available in your system?

c. Write following information with respect to each processor in you system.

Processor	Processor id	Speed of processor (MHz)	Model name	Cache size
1				
2				
…..				

Question 2. Following commands can be used to get specific information.

```
$ cat /proc/cpuinfo | grep 'vendor' | uniq            #view vendor name
$ cat /proc/cpuinfo | grep 'model name' | uniq        #display model name
$ cat /proc/cpuinfo | grep processor | wc -l         #count the number of processing
$ cat /proc/cpuinfo | grep 'core id'                 #show individual cores
```

Run each of the above commands and Paste the picture of the results here.
a) to view vendor name

b)To display model name

c) Count the number of processing elements

d) Show individual cores

Question 3. The command lscpu **prints CPU architecture information from** sysfs **and** /proc/cpuinfo **as shown below:**

itadmin@mysystem:~$ lscpu
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 8
On-line CPU(s) list: 0-7
Thread(s) per core: 1
Core(s) per socket: 8
Socket(s): 1
NUMA node(s): 1

Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Core(TM) i7-9700 CPU @ 3.00GHz
Stepping: 13
CPU MHz: 900.045
CPU max MHz: 4700.0000
CPU min MHz: 800.0000
BogoMIPS: 6000.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-7

a) Note down the architecture, byte order, number of CPU, types of cache present and its size.

Question 4. The command cpuid **dumps complete information about the CPU(s) collected from the CPUID instruction, and also discover the exact model of x86 CPU(s) from that information.**

itadmin@mysystem:~$ cpuid

Command 'cpuid' not found, but can be installed with:

sudo apt install cpuid

itadmin@mysystem:~$ sudo apt install cpuid
[sudo] password for itadmin:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
linux-headers-5.4.0-56-generic linux-hwe-5.4-headers-5.4.0-42

…….. (long list of information)

itadmin@mysystem:~$ cpuid
CPU 0:
vendor_id = "GenuineIntel"
version information (1/eax):
processor type = primary processor (0)
family = Intel Pentium Pro/II/III/Celeron/Core/Core 2/Atom, AMD Athlon/Duron, Cyrix M2, VIA C3 (6)
model = 0xe (14)
stepping id = 0xd (13)
extended family = 0x0 (0)
extended model = 0x9 (9)

(simple synth) = Intel Core i5-7000 / i5-7000K / i5-7000T / i7-7000 / E3-15x5MV6 / i3-7100H / i5-7000HQ / i7-7000HQ (Kaby Lake), 14nm
miscellaneous (1/ebx):

…….. [large list of information]

a) Write /highlight the information about Translation Lookaside Buffer (TLB).

Question 5. To find number of processes present in a system use nproc command.

itadmin@mysystem:~$ nproc
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