

NAME

taskset – set or retrieve a process's CPU affinity

SYNOPSIS

taskset [options] *mask command* [*argument...*]

taskset [options] **-p** [*mask*] *pid*

DESCRIPTION

taskset is used to set or retrieve the CPU affinity of a running process given its *pid*, or to launch a new *command* with a given CPU affinity. CPU affinity is a scheduler property that "bonds" a process to a given set of CPUs on the system. The Linux scheduler will honor the given CPU affinity and the process will not run on any other CPUs. Note that the Linux scheduler also supports natural CPU affinity: the scheduler attempts to keep processes on the same CPU as long as practical for performance reasons. Therefore, forcing a specific CPU affinity is useful only in certain applications.

The CPU affinity is represented as a bitmask, with the lowest order bit corresponding to the first logical CPU and the highest order bit corresponding to the last logical CPU. Not all CPUs may exist on a given system but a mask may specify more CPUs than are present. A retrieved mask will reflect only the bits that correspond to CPUs physically on the system. If an invalid mask is given (i.e., one that corresponds to no valid CPUs on the current system) an error is returned. The masks may be specified in hexadecimal (with or without a leading "0x"), or as a CPU list with the **--cpu-list** option. For example,

0x00000001 is processor #0,

0x00000003 is processors #0 and #1,

0xFFFFFFFF
is processors #0 through #31,

32 is processors #1, #4, and #5,

--cpu-list 0-2,6
is processors #0, #1, #2, and #6.

--cpu-list 0-10:2
is processors #0, #2, #4, #6, #8 and #10. The suffix ":N" specifies stride in the range, for example 0-10:3 is interpreted as 0,3,6,9 list.

When **taskset** returns, it is guaranteed that the given program has been scheduled to a legal CPU.

OPTIONS

-a, --all-tasks

Set or retrieve the CPU affinity of all the tasks (threads) for a given PID.

-c, --cpu-list

Interpret *mask* as numerical list of processors instead of a bitmask. Numbers are separated by commas and may include ranges. For example: **0,5,8-11**.

-p, --pid

Operate on an existing PID and do not launch a new task.

-V, --version

Display version information and exit.

-h, --help

Display help text and exit.

USAGE

The default behavior is to run a new command with a given affinity mask:

taskset *mask command* [*arguments*]

You can also retrieve the CPU affinity of an existing task:

taskset -p *pid*

Or set it:

taskset -p *mask pid*

PERMISSIONS

A user can change the CPU affinity of a process belonging to the same user. A user must possess **CAP_SYS_NICE** to change the CPU affinity of a process belonging to another user. A user can retrieve the affinity mask of any process.

SEE ALSO

chrt(1), **nice(1)**, **renice(1)**, **sched_getaffinity(2)**, **sched_setaffinity(2)**

See **sched(7)** for a description of the Linux scheduling scheme.

AUTHOR

Written by Robert M. Love.

COPYRIGHT

Copyright © 2004 Robert M. Love. This is free software; see the source for copying conditions. There is NO warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

AVAILABILITY

The taskset command is part of the util-linux package and is available from <https://www.kernel.org/pub/linux/utils/util-linux/>.