NAME

pthread_attr_getaffinity_np, **pthread_attr_setaffinity_np** - manage CPU affinity in thread attribute objects

LIBRARY

POSIX Threads Library (libpthread, -lpthread)

SYNOPSIS

#include <pthread_np.h>

int
pthread_attr_getaffinity_np(*const pthread_attr_t *pattr, size_t cpusetsize, cpuset_t *cpusetp*);

int
pthread_attr_setaffinity_np(*pthread_attr_t *pattr*, *size_t cpusetsize*, *const cpuset_t *cpusetp*);

DESCRIPTION

The **pthread_attr_getaffinity_np**() and **pthread_attr_setaffinity_np**() functions allow the manipulation of sets of CPUs available to the specified thread attribute object.

Masks of type *cpuset_t* are composed using the CPU_SET macros. If the user-supplied mask is not large enough to fit all of the matching CPUs, **pthread_attr_getaffinity_np**() fails with ERANGE. Calls to **pthread_attr_setaffinity_np**() tolerate masks of any size with no restrictions. **pthread_attr_setaffinity_np**() uses the meaningful part of the mask, where the upper bound is the maximum CPU id present in the system. If bits for non-existing CPUs are set, calls to **pthread_attr_setaffinity_np**() fail with EINVAL.

The supplied mask should have a size of *cpusetsize* bytes. This size is usually provided by calling sizeof(cpuset_t) which is ultimately determined by the value of CPU_SETSIZE as defined in <*sys/cpuset.h*>.

pthread_attr_getaffinity_np() retrieves the mask from the thread attribute object specified by *pattr*, and stores it in the space provided by *cpusetp*.

pthread_attr_setaffinity_np() sets the mask for the thread attribute object specified by *pattr* to the value in *cpusetp*.

RETURN VALUES

If successful, the **pthread_attr_getaffinity_np**() and **pthread_attr_setaffinity_np**() functions will return zero. Otherwise an error number will be returned to indicate the error.

ERRORS

The **pthread_attr_getaffinity_np**() functions will fail if:

[EINVAL] The *pattr* or the attribute specified by it is NULL.

[ERANGE] The *cpusetsize* is too small.

The **pthread_attr_setaffinity_np**() function will fail if:

[EINVAL] The *pattr* or the attribute specified by it is NULL.

[EINVAL] The *cpusetp* specified a CPU that was outside the set supported by the kernel.

[ENOMEM] Insufficient memory exists to store the cpuset mask.

SEE ALSO

cpuset(1), cpuset(2), cpuset_getid(2), cpuset_setid(2), pthread_getaffinity_np(3), pthread_np(3), pthread_setaffinity_np(3)

STANDARDS

The **pthread_attr_getaffinity_np** and **pthread_attr_setaffinity_np** functions are non-standard FreeBSD extensions and may be not available on other operating systems.

HISTORY

The **pthread_attr_getaffinity_np** and **pthread_attr_setaffinity_np** functions first appeared in FreeBSD 7.2.

AUTHORS

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