

**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

The **pthread\_attr\_getaffinity\_np** and **pthread\_attr\_setaffinity\_np** functions were written by David Xu <davidxu@FreeBSD.org>, and this manpage was written by Xin LI <delphij@FreeBSD.org>.