**NAME**

pthread.h - threads

**SYNOPSIS**

#include <pthread.h>

**DESCRIPTION**

The *<pthread.h>* header defines the following symbols:

PTHREAD\_CANCEL\_ASYNCHRONOUS

PTHREAD\_CANCEL\_ENABLE

PTHREAD\_CANCEL\_DEFERRED

PTHREAD\_CANCEL\_DISABLE

PTHREAD\_CANCELED

PTHREAD\_COND\_INITIALIZER

PTHREAD\_CREATE\_DETACHED

PTHREAD\_CREATE\_JOINABLE

PTHREAD\_EXPLICIT\_SCHED

PTHREAD\_INHERIT\_SCHED

PTHREAD\_MUTEX\_DEFAULT

PTHREAD\_MUTEX\_ERRORCHECK

PTHREAD\_MUTEX\_NORMAL

PTHREAD\_MUTEX\_INITIALIZER

PTHREAD\_MUTEX\_RECURSIVE

PTHREAD\_ONCE\_INIT

PTHREAD\_PRIO\_INHERIT

PTHREAD\_PRIO\_NONE

PTHREAD\_PRIO\_PROTECT

PTHREAD\_PROCESS\_SHARED

PTHREAD\_PROCESS\_PRIVATE

PTHREAD\_RWLOCK\_INITIALIZER

PTHREAD\_SCOPE\_PROCESS

PTHREAD\_SCOPE\_SYSTEM

The **pthread\_attr\_t**, **pthread\_cond\_t**, **pthread\_condattr\_t**, **pthread\_key\_t**, **pthread\_mutex\_t**, **pthread\_mutexattr\_t**, **pthread\_once\_t**, **pthread\_rwlock\_t**, **pthread\_rwlockattr\_t** and **pthread\_t** types are defined as described in [*<sys/types.h>*](http://pubs.opengroup.org/onlinepubs/7908799/xsh/systypes.h.html).

The following are declared as functions and may also be declared as macros. Function prototypes must be provided for use with an ISO C compiler.

int [pthread\_attr\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_destroy.html)(pthread\_attr\_t \*);

int [pthread\_attr\_getdetachstate](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getdetachstate.html)(const pthread\_attr\_t \*, int \*);

int [pthread\_attr\_getguardsize](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getguardsize.html)(const pthread\_attr\_t \*, size\_t \*);

int [pthread\_attr\_getinheritsched](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getinheritsched.html)(const pthread\_attr\_t \*, int \*);

int [pthread\_attr\_getschedparam](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getschedparam.html)(const pthread\_attr\_t \*,

struct sched\_param \*);

int [pthread\_attr\_getschedpolicy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getschedpolicy.html)(const pthread\_attr\_t \*, int \*);

int [pthread\_attr\_getscope](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getscope.html)(const pthread\_attr\_t \*, int \*);

int [pthread\_attr\_getstackaddr](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getstackaddr.html)(const pthread\_attr\_t \*, void \*\*);

int [pthread\_attr\_getstacksize](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_getstacksize.html)(const pthread\_attr\_t \*, size\_t \*);

int [pthread\_attr\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_init.html)(pthread\_attr\_t \*);

int [pthread\_attr\_setdetachstate](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setdetachstate.html)(pthread\_attr\_t \*, int);

int [pthread\_attr\_setguardsize](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setguardsize.html)(pthread\_attr\_t \*, size\_t);

int [pthread\_attr\_setinheritsched](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setinheritsched.html)(pthread\_attr\_t \*, int);

int [pthread\_attr\_setschedparam](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setschedparam.html)(pthread\_attr\_t \*,

const struct sched\_param \*);

int [pthread\_attr\_setschedpolicy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setschedpolicy.html)(pthread\_attr\_t \*, int);

int [pthread\_attr\_setscope](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setscope.html)(pthread\_attr\_t \*, int);

int [pthread\_attr\_setstackaddr](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setstackaddr.html)(pthread\_attr\_t \*, void \*);

int [pthread\_attr\_setstacksize](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_attr_setstacksize.html)(pthread\_attr\_t \*, size\_t);

int [pthread\_cancel](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cancel.html)(pthread\_t);

void [pthread\_cleanup\_push](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cleanup_push.html)(void\*), void \*);

void [pthread\_cleanup\_pop](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cleanup_pop.html)(int);

int [pthread\_cond\_broadcast](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cond_broadcast.html)(pthread\_cond\_t \*);

int [pthread\_cond\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cond_destroy.html)(pthread\_cond\_t \*);

int [pthread\_cond\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cond_init.html)(pthread\_cond\_t \*, const pthread\_condattr\_t \*);

int [pthread\_cond\_signal](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cond_signal.html)(pthread\_cond\_t \*);

int [pthread\_cond\_timedwait](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cond_timedwait.html)(pthread\_cond\_t \*,

pthread\_mutex\_t \*, const struct timespec \*);

int [pthread\_cond\_wait](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_cond_wait.html)(pthread\_cond\_t \*, pthread\_mutex\_t \*);

int [pthread\_condattr\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_condattr_destroy.html)(pthread\_condattr\_t \*);

int [pthread\_condattr\_getpshared](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_condattr_getpshared.html)(const pthread\_condattr\_t \*, int \*);

int [pthread\_condattr\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_condattr_init.html)(pthread\_condattr\_t \*);

int [pthread\_condattr\_setpshared](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_condattr_setpshared.html)(pthread\_condattr\_t \*, int);

int [pthread\_create](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_create.html)(pthread\_t \*, const pthread\_attr\_t \*,

void \*(\*)(void \*), void \*);

int [pthread\_detach](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_detach.html)(pthread\_t);

int [pthread\_equal](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_equal.html)(pthread\_t, pthread\_t);

void [pthread\_exit](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_exit.html)(void \*);

int [pthread\_getconcurrency](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_getconcurrency.html)(void);

int [pthread\_getschedparam](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_getschedparam.html)(pthread\_t, int \*, struct sched\_param \*);

void \*[pthread\_getspecific](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_getspecific.html)(pthread\_key\_t);

int [pthread\_join](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_join.html)(pthread\_t, void \*\*);

int [pthread\_key\_create](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_key_create.html)(pthread\_key\_t \*, void (\*)(void \*));

int [pthread\_key\_delete](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_key_delete.html)(pthread\_key\_t);

int [pthread\_mutex\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_destroy.html)(pthread\_mutex\_t \*);

int [pthread\_mutex\_getprioceiling](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_getprioceiling.html)(const pthread\_mutex\_t \*, int \*);

int [pthread\_mutex\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_init.html)(pthread\_mutex\_t \*, const pthread\_mutexattr\_t \*);

int [pthread\_mutex\_lock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_lock.html)(pthread\_mutex\_t \*);

int [pthread\_mutex\_setprioceiling](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_setprioceiling.html)(pthread\_mutex\_t \*, int, int \*);

int [pthread\_mutex\_trylock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_trylock.html)(pthread\_mutex\_t \*);

int [pthread\_mutex\_unlock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutex_unlock.html)(pthread\_mutex\_t \*);

int [pthread\_mutexattr\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_destroy.html)(pthread\_mutexattr\_t \*);

int [pthread\_mutexattr\_getprioceiling](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_getprioceiling.html)(const pthread\_mutexattr\_t \*,

int \*);

int [pthread\_mutexattr\_getprotocol](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_getprotocol.html)(const pthread\_mutexattr\_t \*, int \*);

int [pthread\_mutexattr\_getpshared](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_getpshared.html)(const pthread\_mutexattr\_t \*, int \*);

int [pthread\_mutexattr\_gettype](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_gettype.html)(const pthread\_mutexattr\_t \*, int \*);

int [pthread\_mutexattr\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_init.html)(pthread\_mutexattr\_t \*);

int [pthread\_mutexattr\_setprioceiling](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_setprioceiling.html)(pthread\_mutexattr\_t \*, int);

int [pthread\_mutexattr\_setprotocol](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_setprotocol.html)(pthread\_mutexattr\_t \*, int);

int [pthread\_mutexattr\_setpshared](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_setpshared.html)(pthread\_mutexattr\_t \*, int);

int [pthread\_mutexattr\_settype](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_mutexattr_settype.html)(pthread\_mutexattr\_t \*, int);

int [pthread\_once](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_once.html)(pthread\_once\_t \*, void (\*)(void));

int [pthread\_rwlock\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_destroy.html)(pthread\_rwlock\_t \*);

int [pthread\_rwlock\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_init.html)(pthread\_rwlock\_t \*,

const pthread\_rwlockattr\_t \*);

int [pthread\_rwlock\_rdlock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_rdlock.html)(pthread\_rwlock\_t \*);

int [pthread\_rwlock\_tryrdlock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_tryrdlock.html)(pthread\_rwlock\_t \*);

int [pthread\_rwlock\_trywrlock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_trywrlock.html)(pthread\_rwlock\_t \*);

int [pthread\_rwlock\_unlock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_unlock.html)(pthread\_rwlock\_t \*);

int [pthread\_rwlock\_wrlock](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlock_wrlock.html)(pthread\_rwlock\_t \*);

int [pthread\_rwlockattr\_destroy](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlockattr_destroy.html)(pthread\_rwlockattr\_t \*);

int [pthread\_rwlockattr\_getpshared](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlockattr_getpshared.html)(const pthread\_rwlockattr\_t \*,

int \*);

int [pthread\_rwlockattr\_init](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlockattr_init.html)(pthread\_rwlockattr\_t \*);

int [pthread\_rwlockattr\_setpshared](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_rwlockattr_setpshared.html)(pthread\_rwlockattr\_t \*, int);

pthread\_t

[pthread\_self](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_self.html)(void);

int [pthread\_setcancelstate](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_setcancelstate.html)(int, int \*);

int [pthread\_setcanceltype](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_setcanceltype.html)(int, int \*);

int [pthread\_setconcurrency](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_setconcurrency.html)(int);

int [pthread\_setschedparam](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_setschedparam.html)(pthread\_t, int ,

const struct sched\_param \*);

int [pthread\_setspecific](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_setspecific.html)(pthread\_key\_t, const void \*);

void [pthread\_testcancel](http://pubs.opengroup.org/onlinepubs/7908799/xsh/pthread_testcancel.html)(void);

Inclusion of the *<pthread.h>* header will make visible symbols defined in the headers [*<sched.h>*](http://pubs.opengroup.org/onlinepubs/7908799/xsh/sched.h.html) and [*<time.h>*](http://pubs.opengroup.org/onlinepubs/7908799/xsh/time.h.html).

**APPLICATION USAGE**

An interpretation request has been filed with IEEE PASC concerning requirements for visibility of symbols in this header.