

NAME

pthread_getcpuclockid – retrieve ID of a thread's CPU time clock

SYNOPSIS

```
#include <pthread.h>
```

```
#include <time.h>
```

```
int pthread_getcpuclockid(pthread_t thread, clockid_t *clock_id);
```

Compile and link with `-pthread`.

DESCRIPTION

The `pthread_getcpuclockid()` function returns the clock ID for the CPU time clock of the thread *thread*.

RETURN VALUE

On success, this function returns 0; on error, it returns a nonzero error number.

ERRORS**ENOENT**

Per-thread CPU time clocks are not supported by the system.

ESRCH

No thread with the ID *thread* could be found.

VERSIONS

This function is available in glibc since version 2.2.

ATTRIBUTES

For an explanation of the terms used in this section, see [attributes\(7\)](#).

Interface	Attribute	Value
<code>pthread_getcpuclockid()</code>	Thread safety	MT-Safe

CONFORMING TO

POSIX.1-2001, POSIX.1-2008.

NOTES

When *thread* refers to the calling thread, this function returns an identifier that refers to the same clock manipulated by `clock_gettime(2)` and `clock_settime(2)` when given the clock ID `CLOCK_THREAD_CPUTIME_ID`.

EXAMPLE

The program below creates a thread and then uses `clock_gettime(2)` to retrieve the total process CPU time, and the per-thread CPU time consumed by the two threads. The following shell session shows an example run:

```
$ ./a.out
Main thread sleeping
Subthread starting infinite loop
Main thread consuming some CPU time...
Process total CPU time:    1.368
Main thread CPU time:     0.376
Subthread CPU time:       0.992
```

Program source

```
/* Link with "-lrt" */

#include <time.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <pthread.h>
```

```
#include <string.h>
#include <errno.h>

#define handle_error(msg) \
    do { perror(msg); exit(EXIT_FAILURE); } while (0)

#define handle_error_en(en, msg) \
    do { errno = en; perror(msg); exit(EXIT_FAILURE); } while (0)

static void *
thread_start(void *arg)
{
    printf("Subthread starting infinite loop\n");
    for (;;)
        continue;
}

static void
pclock(char *msg, clockid_t cid)
{
    struct timespec ts;

    printf("%s", msg);
    if (clock_gettime(cid, &ts) == -1)
        handle_error("clock_gettime");
    printf("%4ld.%03ld\n", ts.tv_sec, ts.tv_nsec / 1000000);
}

int
main(int argc, char *argv[])
{
    pthread_t thread;
    clockid_t cid;
    int j, s;

    s = pthread_create(&thread, NULL, thread_start, NULL);
    if (s != 0)
        handle_error_en(s, "pthread_create");

    printf("Main thread sleeping\n");
    sleep(1);

    printf("Main thread consuming some CPU time...\n");
    for (j = 0; j < 2000000; j++)
        getppid();

    pclock("Process total CPU time: ", CLOCK_PROCESS_CPUTIME_ID);

    s = pthread_getcpuclockid(pthread_self(), &cid);
    if (s != 0)
        handle_error_en(s, "pthread_getcpuclockid");
    pclock("Main thread CPU time:   ", cid);

    /* The preceding 4 lines of code could have been replaced by:
```

```
    pclock("Main thread CPU time:  ", CLOCK_THREAD_CPUTIME_ID); */

    s = pthread_getcpuclockid(thread, &cid);
    if (s != 0)
        handle_error_en(s, "pthread_getcpuclockid");
    pclock("Subthread CPU time: 1  ", cid);

    exit(EXIT_SUCCESS);          /* Terminates both threads */
}
```

SEE ALSO

clock_gettime(2), **clock_settime(2)**, **timer_create(2)**, **clock_getcpuclockid(3)**, **pthread_self(3)**, **pthreads(7)**, **time(7)**

COLOPHON

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