NAME

flockfile, ftrylockfile, funlockfile − lock FILE for stdio

SYNOPSIS

#include <stdio.h>

void flockfile(FILE * *filehandle*);
int ftrylockfile(FILE * *filehandle*);
void funlockfile(FILE * *filehandle*);

Feature Test Macro Requirements for glibc (see **feature_test_macros**(7)):

All functions shown above:

```
/* Since glibc 2.24: */ _POSIX_C_SOURCE >= 199309L
  || /* Glibc versions <= 2.23: */ _POSIX_C_SOURCE
  || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

The stdio functions are thread-safe. This is achieved by assigning to each *FILE* object a lockcount and (if the lockcount is nonzero) an owning thread. For each library call, these functions wait until the *FILE* object is no longer locked by a different thread, then lock it, do the requested I/O, and unlock the object again.

(Note: this locking has nothing to do with the file locking done by functions like **flock**(2) and **lockf**(3).)

All this is invisible to the C-programmer, but there may be two reasons to wish for more detailed control. On the one hand, maybe a series of I/O actions by one thread belongs together, and should not be interrupted by the I/O of some other thread. On the other hand, maybe the locking overhead should be avoided for greater efficiency.

To this end, a thread can explicitly lock the *FILE* object, then do its series of I/O actions, then unlock. This prevents other threads from coming in between. If the reason for doing this was to achieve greater efficiency, one does the I/O with the nonlocking versions of the stdio functions: with **getc_unlocked**(3) and **putc_unlocked**(3) instead of **getc**(3) and **putc**(3).

The **flockfile**() function waits for **filehandle* to be no longer locked by a different thread, then makes the current thread owner of **filehandle*, and increments the lockcount.

The **funlockfile**() function decrements the lock count.

The **ftrylockfile**() function is a nonblocking version of **flockfile**(). It does nothing in case some other thread owns **filehandle*, and it obtains ownership and increments the lockcount otherwise.

RETURN VALUE

The **ftrylockfile**() function returns zero for success (the lock was obtained), and nonzero for failure.

ERRORS

None.

ATTRIBUTES

For an explanation of the terms used in this section, see **attributes**(7).

Interface	Attribute	Value
flockfile(), **ftrylockfile**(), **funlockfile**()	Thread safety	MT-Safe

CONFORMING TO

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

AVAILABILITY

These functions are available when **_POSIX_THREAD_SAFE_FUNCTIONS** is defined.

SEE ALSO

unlocked_stdio(3)

COLOPHON

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