
The Open Group Base Specifications Issue 7, 2018 edition
IEEE Std 1003.1-2017 (Revision of IEEE Std 1003.1-2008)
Copyright © 2001-2018 IEEE and The Open Group

NAME

semaphore.h - semaphores

SYNOPSIS

```
#include <semaphore.h>
```

DESCRIPTION

The `<semaphore.h>` header shall define the `sem_t` type, used in performing semaphore operations. The semaphore may be implemented using a file descriptor, in which case applications are able to open up at least a total of {OPEN_MAX} files and semaphores.

The `<semaphore.h>` header shall define the symbolic constant SEM_FAILED which shall have type `sem_t *`.

The following shall be declared as functions and may also be defined as macros. Function prototypes shall be provided.

```
int    sem_close(sem_t *);
int    sem_destroy(sem_t *);
int    sem_getvalue(sem_t *restrict, int *restrict);
int    sem_init(sem_t *, int, unsigned);
sem_t *sem_open(const char *, int, ...);
int    sem_post(sem_t *);
int    sem_timedwait(sem_t *restrict, const struct timespec *restrict);
int    sem_trywait(sem_t *);
int    sem_unlink(const char *);
int    sem_wait(sem_t *);
```

Inclusion of the `<semaphore.h>` header may make visible symbols defined in the [<fcntl.h>](#) and [<time.h>](#) headers.

The following sections are informative.

APPLICATION USAGE

None.

RATIONALE

None.

FUTURE DIRECTIONS

None.

SEE ALSO

[<fcntl.h>](#), [<sys/types.h>](#), [<time.h>](#)

XSH [sem_close](#), [sem_destroy](#), [sem_getvalue](#), [sem_init](#), [sem_open](#), [sem_post](#), [sem_timedwait](#),
[sem_trywait](#), [sem_unlink](#)

CHANGE HISTORY

First released in Issue 5. Included for alignment with the POSIX Realtime Extension.

Issue 6

The <semaphore.h> header is marked as part of the Semaphores option.

The Open Group Corrigendum U021/3 is applied, adding a description of SEM_FAILED.

The [sem_timedwait\(\)](#) function is added for alignment with IEEE Std 1003.1d-1999.

The **restrict** keyword is added to the prototypes for [sem_getvalue\(\)](#) and [sem_timedwait\(\)](#).

Issue 7

SD5-XBD-ERN-57 is applied, allowing the header to make visible symbols from the [<time.h>](#) header.

The <semaphore.h> header is moved from the Semaphores option to the Base.

This reference page is clarified with respect to macros and symbolic constants.

End of informative text.

[return to top of page](#)

UNIX ® is a registered Trademark of The Open Group.
POSIX ™ is a Trademark of The IEEE.
Copyright © 2001-2018 IEEE and The Open Group, All Rights Reserved
[[Main Index](#) | [XBD](#) | [XSH](#) | [XCU](#) | [XRAT](#)]

[<<< Previous](#)

[Home](#)

[Next >>>](#)
