

NAME

aio_read – asynchronous read

LIBRARY

Real-time library (*librt*, *-lrt*)

SYNOPSIS

```
#include <aio.h>
```

```
int aio_read(struct aiocb *aiocbp);
```

DESCRIPTION

The **aio_read()** function queues the I/O request described by the buffer pointed to by *aiocbp*. This function is the asynchronous analog of **read(2)**. The arguments of the call

```
read(fd, buf, count)
```

correspond (in order) to the fields *aio_fildes*, *aio_buf*, and *aio_nbytes* of the structure pointed to by *aiocbp*. (See **aio(7)** for a description of the *aiocb* structure.)

The data is read starting at the absolute position *aiocbp->aio_offset*, regardless of the file offset. After the call, the value of the file offset is unspecified.

The "asynchronous" means that this call returns as soon as the request has been enqueued; the read may or may not have completed when the call returns. One tests for completion using **aio_error(3)**. The return status of a completed I/O operation can be obtained by **aio_return(3)**. Asynchronous notification of I/O completion can be obtained by setting *aiocbp->aio_sigevent* appropriately; see **sigevent(7)** for details.

If **_POSIX_PRIORITIZED_IO** is defined, and this file supports it, then the asynchronous operation is submitted at a priority equal to that of the calling process minus *aiocbp->aio_reqprio*.

The field *aiocbp->aio_lio_opcode* is ignored.

No data is read from a regular file beyond its maximum offset.

RETURN VALUE

On success, 0 is returned. On error, the request is not enqueued, -1 is returned, and *errno* is set to indicate the error. If an error is detected only later, it will be reported via **aio_return(3)** (returns status -1) and **aio_error(3)** (error status—whatever one would have gotten in *errno*, such as **EBADF**).

ERRORS**EAGAIN**

Out of resources.

EBADF

aio_fildes is not a valid file descriptor open for reading.

EINVAL

One or more of *aio_offset*, *aio_reqprio*, or *aio_nbytes* are invalid.

ENOSYS

aio_read() is not implemented.

E_OVERFLOW

The file is a regular file, we start reading before end-of-file and want at least one byte, but the starting position is past the maximum offset for this file.

VERSIONS

The **aio_read()** function is available since glibc 2.1.

ATTRIBUTES

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

Interface	Attribute	Value
aio_read()	Thread safety	MT-Safe

STANDARDS

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

NOTES

It is a good idea to zero out the control block before use. The control block must not be changed while the read operation is in progress. The buffer area being read into must not be accessed during the operation or undefined results may occur. The memory areas involved must remain valid.

Simultaneous I/O operations specifying the same *aio*cb structure produce undefined results.

EXAMPLES

See **aio**(7).

SEE ALSO

aio_cancel(3), **aio_error**(3), **aio_fsync**(3), **aio_return**(3), **aio_suspend**(3), **aio_write**(3), **lio_listio**(3), **aio**(7)