

NAME

event - semaphore operations

SYNOPSIS

(event = 63.; not in assembler)
sys event; func; sema
(old value in r0)

p(sema);
v(sema);
test(sema);
post(sema);
block(sema);

DESCRIPTION

The indicated function () is performed on the specified semaphore (). These operations are used to synchronize processes and lock files. The assignment of semaphores is done on a system-wide basis. The file /compool/sema.h is used to record these assignments, and consequently should be edited and updated whenever a user allocates a semaphore for his usage. By convention, semaphore numbers < 0 are reserved for system programmers; semaphore numbers >= 0 are available for application programmers.

The functions are defined as follows:

if func is 0 (post(sema) from C), any users doing a block operation on the specified semaphore are awakened. As a side effect, the specified semaphore is incremented.

if func is 1 (block(sema) from C), the current user is put to sleep until a post or v operation is performed.

if func is 2 (p(sema) from C), an attempt is made to decrement the specified semaphore if it is non-zero before returning to the user. If the semaphore is already zero, however, the user is put to sleep until the semaphore becomes a one, at which time another attempt to decrement and return is made.

if func is 3 (v(sema) from C), the specified semaphore is incremented.

if func is 4 (test(sema) from C), the specified semaphore is decremented (if it is non-zero).

In all cases, if the function is successfully performed, the system returns the old semaphore value (in R0).

SEE ALSO

p(),v(),block(),post(),test()

EVENT:O(2L)

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DIAGNOSTICS

NRSEM is the number of semaphores reserved for system programming. Error bit (c-bit) is set for undefined function or semaphore $< -NRSEM$ or $\geq 256-NRSEM$; from C, a -1 value is returned.

