NAME

arch_prctl − set architecture-specific thread state

SYNOPSIS

#include <asm/prctl.h>
#include <sys/prctl.h>

int arch_prctl(int *code***, unsigned long** *addr***);**
int arch_prctl(int *code***, unsigned long *****addr***);**

DESCRIPTION

The **arch_prctl**() function sets architecture-specific process or thread state. *code* selects a subfunction and passes argument *addr* to it; *addr* is interpreted as either an *unsigned long* for the "set" operations, or as an *unsigned long* *, for the "get" operations.

Sub functions for x86-64 are:

ARCH_SET_FS
Set the 64-bit base for the *FS* register to *addr*.

ARCH_GET_FS
Return the 64-bit base value for the *FS* register of the current thread in the *unsigned long* pointed to by *addr*.

ARCH_SET_GS
Set the 64-bit base for the *GS* register to *addr*.

ARCH_GET_GS
Return the 64-bit base value for the *GS* register of the current thread in the *unsigned long* pointed to by *addr*.

RETURN VALUE

On success, **arch_prctl**() returns 0; on error, −1 is returned, and *errno* is set to indicate the error.

ERRORS

EFAULT
addr points to an unmapped address or is outside the process address space.

EINVAL
code is not a valid subcommand.

EPERM
addr is outside the process address space.

CONFORMING TO

arch_prctl() is a Linux/x86-64 extension and should not be used in programs intended to be portable.

NOTES

arch_prctl() is only supported on Linux/x86-64 for 64-bit programs currently.

The 64-bit base changes when a new 32-bit segment selector is loaded.

ARCH_SET_GS is disabled in some kernels.

Context switches for 64-bit segment bases are rather expensive. It may be a faster alternative to set a 32-bit base using a segment selector by setting up an LDT with **modify_ldt**(2) or using the **set_thread_area**(2) system call in kernel 2.5 or later. **arch_prctl**() is only needed when you want to set bases that are larger than 4GB. Memory in the first 2GB of address space can be allocated by using **mmap**(2) with the **MAP_32BIT** flag.

As of version 2.7, glibc provides no prototype for **arch_prctl**(). You have to declare it yourself for now. This may be fixed in future glibc versions.

FS may be already used by the threading library.

SEE ALSO

mmap(2), **modify_ldt**(2), **prctl**(2), **set_thread_area**(2)

AMD X86-64 Programmer's manual

COLOPHON

This page is part of release 3.22 of the Linux *man-pages* project. A description of the project, and information about reporting bugs, can be found at http://www.kernel.org/doc/man-pages/.