

**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.

Subfunctions 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 supported only 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 needed only 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**

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