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Rocky Enterprise Linux 9.2 Manual Pages on command 'cacheflush.2'

\$ man cacheflush.2

CACHEFLUSH(2) Linux Programmer's Manual CACHEFLUSH(2)

NAME

cacheflush - flush contents of instruction and/or data cache

SYNOPSIS

```
#include <asm/cachectl.h>
```

```
int cacheflush(char *addr, int nbytes, int cache);
```

Note: On some architectures, there is no glibc wrapper for this system call; see NOTES.

DESCRIPTION

cacheflush() flushes the contents of the indicated cache(s) for the user addresses in the range `addr` to `(addr+nbytes-1)`. `cache` may be one of:

ICACHE Flush the instruction cache.

DCACHE Write back to memory and invalidate the affected valid cache lines.

BCACHE Same as (ICACHE|DCACHE).

RETURN VALUE

cacheflush() returns 0 on success or -1 on error. If errors are detected, `errno` will indicate the error.

ERRORS

EFAULT Some or all of the address range `addr` to `(addr+nbytes-1)` is not accessible.

EINVAL `cache` is not one of ICACHE, DCACHE, or BCACHE (but see BUGS).

CONFORMING TO

Historically, this system call was available on all MIPS UNIX variants including RISC/os, IRIX, Ultrix, NetBSD, OpenBSD, and FreeBSD (and also on some non-UNIX MIPS operating systems), so that the existence of this call in MIPS operating systems is a de-facto stan?

dard.

Caveat

cache flush() should not be used in programs intended to be portable. On Linux, this call first appeared on the MIPS architecture, but nowadays, Linux provides a cache flush() system call on some other architectures, but with different arguments.

NOTES

Architecture-specific variants

Glibc provides a wrapper for this system call, with the prototype shown in SYNOPSIS, for the following architectures: ARC, CSKY, MIPS, and NIOS2.

On some other architectures, Linux provides this system call, with different arguments:

M68K:

```
int cache flush(unsigned long addr, int scope, int cache,
                unsigned long len);
```

SH:

```
int cache flush(unsigned long addr, unsigned long len, int op);
```

NDS32:

```
int cache flush(unsigned int start, unsigned int end, int cache);
```

On the above architectures, glibc does not provide a wrapper for this system call; call it using syscall(2).

GCC alternative

Unless you need the finer grained control that this system call provides, you probably want to use the GCC built-in function `__builtin__clear_cache()`, which provides a portable interface across platforms supported by GCC and compatible compilers:

```
void __builtin__clear_cache(void *begin, void *end);
```

On platforms that don't require instruction cache flushes, `__builtin__clear_cache()` has no effect.

Note: On some GCC-compatible compilers, the prototype for this built-in function uses `char *` instead of `void *` for the parameters.

BUGS

Linux kernels older than version 2.6.11 ignore the `addr` and `nbytes` arguments, making this function fairly expensive. Therefore, the whole cache is always flushed.

This function always behaves as if `BCACHE` has been passed for the `cache` argument and does not do any error checking on the `cache` argument.

COLOPHON

This page is part of release 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

Linux

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