

NAME

feclearexcept, **fegetexceptflag**, **feraiseexcept**, **fesetexceptflag**, **fetestexcept** - floating-point exception flag manipulation

LIBRARY

Math Library (libm, -lm)

SYNOPSIS

```
#include <fenv.h>
```

```
#pragma STDC FENV_ACCESS ON
```

int

```
feclearexcept(int excepts);
```

int

```
fegetexceptflag(fexcept_t *flagp, int excepts);
```

int

```
feraiseexcept(int excepts);
```

int

```
fesetexceptflag(const fexcept_t *flagp, int excepts);
```

int

```
fetestexcept(int excepts);
```

DESCRIPTION

The **feclearexcept**() routine clears the floating-point exception flags specified by *excepts*, whereas **feraiseexcept**() raises the specified exceptions. Raising an exception causes the corresponding flag to be set, and a SIGFPE is delivered to the process if the exception is unmasked.

The **fetestexcept**() function determines which flags are currently set, of those specified by *excepts*.

The **fegetexceptflag**() function stores the state of the exception flags specified in *excepts* in the opaque object pointed to by *flagp*. Similarly, **fesetexceptflag**() changes the specified exception flags to reflect the state stored in the object pointed to by *flagp*. Note that the flags restored with **fesetexceptflag**() must be a (not necessarily proper) subset of the flags recorded by a prior call to **fegetexceptflag**().

For all of these functions, the possible types of exceptions include those described in `fenv(3)`. Some

architectures may define other types of floating-point exceptions.

IMPLEMENTATION NOTES

On some architectures, raising an overflow or underflow exception also causes an inexact exception to be raised. In these cases, the overflow or underflow will be raised first.

The **fegetexceptflag()** and **fesetexceptflag()** routines are preferred to **fetestexcept()** and **feraiseexcept()**, respectively, for saving and restoring exception flags. The latter do not re-raise exceptions and may preserve architecture-specific information such as addresses where exceptions occurred.

RETURN VALUES

The **feclearexcept()**, **fegetexceptflag()**, **feraiseexcept()**, and **fesetexceptflag()** functions return 0 upon success, and non-zero otherwise. The **fetestexcept()** function returns the bitwise OR of the values of the current exception flags that were requested.

SEE ALSO

sigaction(2), feholdexcept(3), fenv(3), feupdateenv(3), fpgetsticky(3), fpresetsticky(3)

STANDARDS

The **feclearexcept()**, **fegetexceptflag()**, **feraiseexcept()**, **fesetexceptflag()**, and **fetestexcept()** routines conform to ISO/IEC 9899:1999 ("ISO C99").

HISTORY

These functions first appeared in FreeBSD 5.3.