NAME

nan, **nanf**, **nanl** - quiet NaNs

LIBRARY

Math Library (libm, -lm)

SYNOPSIS

#include <math.h>

double
nan(*const char *s*);

float
nanf(*const char *s*);

long double
nanl(*const char *s*);

DESCRIPTION

The NAN macro expands to a quiet NaN (Not A Number). Similarly, each of the **nan**(), **nanf**(), and **nanl**() functions generate a quiet NaN value without raising an invalid exception. The argument *s* should point to either an empty string or a hexadecimal representation of a non-negative integer (e.g., "0x1234".) In the latter case, the integer is encoded in some free bits in the representation of the NaN, which sometimes store machine-specific information about why a particular NaN was generated. There are 22 such bits available for *float* variables, 51 bits for *double* variables, and at least 51 bits for a *long double*. If *s* is improperly formatted or represents an integer that is too large, then the particular encoding of the quiet NaN that is returned is indeterminate.

COMPATIBILITY

Calling these functions with a non-empty string isn't portable. Another operating system may translate the string into a different NaN encoding, and furthermore, the meaning of a given NaN encoding varies across machine architectures. If you understood the innards of a particular platform well enough to know what string to use, then you would have no need for these functions anyway, so don't use them. Use the NAN macro instead.

SEE ALSO

fenv(3), ieee(3), isnan(3), math(3), strtod(3)

STANDARDS

The **nan**(), **nanf**(), and **nanl**() functions and the NAN macro conform to ISO/IEC 9899:1999

("ISO C99").