

WG11/61320
XJ11/94-004

Changes to Floating-Point C Extensions

WG14/N320, X3J11/94-004

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This is a list of changes to "Floating-Point C Extensions", Final Report, Draft #1 (X3J11.1/93-028). The changes were approved by NCEG at its December 1994 meeting and have been incorporated into Draft #2 (WG14/N319, X3J11/94-003).

The next five changes address the problem noted in Randy Meyers' ballot comment:

§4.2.1.2 P27 L37 Replace the sentence beginning with "However, ..." with:

However, if the correct value is outside the range of representable values, `strtouf` and `strtold` return `HUGE_VALF` and `HUGE_VALL`, respectively, with the appropriate sign. (`HUGE_VALF` and `HUGE_VALL` are introduced in §4.3.)

§4.2.1.2 P27 L41 Delete the rationale (one sentence).

§4.3 P32 L37 Insert the paragraph:

The macros

`HUGE_VALF`
`HUGE_VALL`

are float and long double analogs of `HUGE_VAL`. They expand to positive float and long double expressions, respectively. Like `HUGE_VAL`, each can be a positive infinity in an implementation that supports infinities.

§C.3 P63 L44 Replace the line with:

`HUGE_VAL`
`HUGE_VALF`
`HUGE_VALL`

§F P67 L38 Replace the sentence with:

The Standard C macro `HUGE_VAL` and its float and long double analogs, `HUGE_VALF` and `HUGE_VALL`, expand to expressions whose values are positive infinities; their evaluations raise no exceptions.

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The next two changes address a name space issue:

- §4.1 P27 L8 Replace the sentence beginning with "The new headers ..." with:

The identifiers with external linkage declared in either `<fp.h>` or `<fenv.h>` are reserved for use as identifiers with external linkage only if at least one inclusion of either `<fp.h>` or `<fenv.h>` occurs in one or more of the translation units that constitute the program. In other regards, `<fp.h>` and `<fenv.h>` follow the Standard C specification for standard headers and reserved identifiers (ISO §7.1.2, 7.1.2.1; ANSI §4.1.2, 4.1.2.1).

- §4.1 P27 L12 Insert in rationale the paragraph:

This specification for new identifiers with external linkage follows that in [25].

where [25] is "Amendment #1 to ISO C standard" (ISO/IEC 9899:1990/Amendment 1:1994(E)).

The next three changes address a minor document inconsistency noted in Fred Tydeman's ballot comments:

- §4.3.4.11 P42 L31 Interchange lines 31 and 32.

- §C.3 P64 L33 Interchange lines 33 and 34.

- §F.3.11 P72 L43 Interchange lines 43 and 44.

The next change fixes a simple bug:

- §F.6.7 P76 L47 Replace "roundtol differs from rinttol just in that ..." with "roundtol differs from rinttol with the default rounding direction just in that ...".

The next change clarifies intent, which previously was explicit only in the rationale:

- §3.2.4 P21 L16 Add the sentence:

The `fp_wide_function_returns` and `fp_wide_function_parameters` pragmas may affect function definitions or calls but not prototypes.

The next change is for clarification only:

- §3.3.1 P22 L16 Add rationale:

The IEEE floating-point standards require that, given default rounding precision, these operations be rounded to the precision of their evaluation format.

The next change reflects the uncertain status of exception handling specification:

§2 P8 L20 Delete “, which will be covered by a separate NCEG/X3J11.1 subgroup focusing on exception handling,”.