WG14 N3386
Meeting notes

C Floating Point Study Group Teleconference
2024/10/16: 8 AM PDT / 11 AM EDT / 3 PM UTC

[The minutes appear in agenda order, with carry-over and new agenda items precipitating out at the end.]

2024/10/16: 8 AM PDT
Attendees
   Rajan, Jim, Jerome, Fred, Damian, David, Joshua

New agenda items
   https://wiki.edg.com/pub/CFP/WebHome/n3375.pdf

Previous meeting notes
   https://wiki.edg.com/pub/CFP/WebHome/n3374.pdf

Next Meeting(s)
   November 20, 2024, 4PM UTC (Note the change to 4PM due to U.S. change to Standard Time)
   ISO Zoom teleconference
    Please notify the group if this time slot does not work.

C documents
   The working C2y draft is n3301 - 28 July 2024 - For CFP review only. Do not distribute.

IEEE 754 liaison
  Jerome: Continued work on accumulated errata, with some suggestions around reorganization to make the standard more readable. The definition of "integer format" continues to be an issue.

C++ liaison
   None

WG14 meeting
   N3288 (Give consistent wording for SNAN initialization) RAJAN BHAKTA
      Rajan: Contention over "translation time" wording. Committee voted for that choice -- alternative 1in N3364.

   WG14 CFP papers results part 2 RAJAN BHAKTA
      Rajan: All others accepted without discussion. As a side note, the "abstain" votes are a mix of people not fully informed and some who are not interested.

C23 integration
   None.

Carry-over action items from last meeting
   suggestions for fadd/fsub/fma error reporting --Jerome
      Done, discussed below.

Action items from last meeting
   Jim: Update Complex suggestions (3262) for Annex G migration.
      Done n3285.

Jim: Update frexp for double double (3154) per discussion, to leave undefined result for non-model numbers, and submit the proposal to WG14.
Done n3357.

Fred: Send note to WG14 about constexper exceptional case issue.
Done.

Fred: Send nan() email to WG14 (3259).
Done.

David : Draft reply to WG14 re. midpoint and interpolation.
Carry over.

Jim: Submit to WG14 a proposal about lingering references to imaginary
Done n3358.

Fred: Draft a proposal for the "cannot" vs. "can not" change (3162).
Done & submitted, discussed below.

Fred: Revise the proposal for SIGFPE and I/O, in light of further discussion N3378
Done & submitted, discussed below.

All: Please send comments to Damian by Monday 30 Sept on the first of 4 sets of proposals (3247), including comments on Jim's responses (3279).
Done, discussed below.

Jim: Write up a proposal for ilogb() and llogb() (3266).
Done, discussed below.

TS-4 and TS-5 revisions
Jim: Many comments from ISO editors (bolding, margins, bullets, references, comments, "requirement verbs"). Jim caught some misspelled feature names. Jim is working on (hopefully) final drafts, to be resubmitted to ISO and posted to CFP.
Fred: It's not a standard, just a report, so why all of the scrutiny of the form.
Jim: Because that's the process.

C2y issues
None.

Discussion of issues
SIGFPE
Fred: Summarized clarifying language.
Rajan: The wording around the raise function is not in the style of current usage.
David: Provided a suggestion that Fred will implement.

fadd/fsub and fma "error may occur" issues
Jerome: Two topics -- details of the special cases & weakening of the requirements to "may occur".
Jim: The main body of the standard generally avoids references to infinity, hence the use of "may occur" for errors involving infinity. But fsqrt is long accepted as having domain errors, to remove the suggestion to weaken that usage to "may occur". In fsub, reverse the wording to "...and either both of the same sign or unsigned", which pushes the obscure unsigned infinity case to the end.

Treatment of error conditions
Jerome & Jim: Discuss what it really means for an error to "occur", a seemingly obvious usage that is closely tied to whether the error is actually reported.

Changes to 6.X and 7.X

Damian & Jim & Jerome: "complex floating type" is just one issue that is to be gathered into the editorial slice of this large project. See the New Action Items for the more substantive issues of complex.h and cproj as well.

Deeper TOC for annexes
Jim: The one line of TOC provides no guidance to the contents of the annexes.
Fred: Agree.
Rajan: From a non-CFP point of view, some of the annexes have long lists of sections no one wants to see in the TOC.
Joshua: **HOT TIP** about using Acrobat's Bookmarks tab to produce a synthetic TOC in the margin.

Moving complex ops spec from Annex G to main body
Jim: The addition expands the language of the body of the standard, and explains how the complex operations work.
Rajan: The operations may need to be expressed recursively, to capture elaborate expressions.
Jim, Rajan, Jerome: This is not about the grammar, just the definitions of the base-level computations. This seemed to resolve Rajan's issue.

Reply to WG14 re. midpoint and interpolation
Carried over.

"cannot" vs "can not"
Fred: Vincent caught a subtle problem with "can not". The fix has been submitted.

Range errors for ilogb and llogb
Jim: Idea is to make the range error more explicit while simultaneously removing the possibility of range error in selected functions with a result of integer type. In order not to break existing implementations, the language does allow range errors in principle for a function with an integer return type.
Rajan: The "obsolescent feature" nature of the range error is an element the C standard would like to phase out.

ERANGE question
Jim, et al.: This issue arose as a rather innocent question about values that round fortuitously to DBL_MAX (even though the infinitely precise value might exceed DBL_MAX), but then devolved to subtleties of the sense of precision in the double-double type. Time expired and the value is to be carried over.

Other issues:
None.

Adjournment
10:07 AM PDT

Action items to be carried over:
David : Draft reply to WG14 re. midpoint and interpolation.

New action items:
Fred: Submit update to SIGFPE proposal N3378, with the suggested new wording re. the raise function.

Jerome: Draft a proposal fadd, etc. (3314) following the discussion above, and adhering to the practice of new text in green and removed text in red strike-thru.

Jerome: Draft proposal re. changes for "treatment of error con, watching for interaction with Jim's change re. range error in 7.12.2#4. Add a note to the editor that Jim's change below comes first, then this tweak of the verb.

Damian: Split doc into 3 documents: complex.h intro, cproj, and editorial suggestions.

Jim: Submit proposal re. range errors for ilogb and llogb (3300).

Jim: Submit proposal re moving complex ops spec from Annex G to main body (3285), with an eye to fixing the rogue underscore-u references that Fred spotted.

Discussion issues to be carried over:
ERANGE and values that round to DBL_MAX.

Respectfully submitted.

-Jerome Coonen
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