WG14 N2473
Meeting notes

C Floating Point Study Group Teleconference

2020-01-09
8 AM PST / 11 AM EST / 4 PM UTC

 Attendees: Rajan, Jim, Mike, Ian, David H., Damian McGuckin (new attendee)

 New agenda items:
   None.

 Carry over action items:
   CFP: Put the tgmath redefinition as a proposal to the standard once we have a base document with TS Part 3 in it.

 Last meeting action items:
   Fred: Update erange proposal based on CFP 1437 and CFP teleconference discussion. - Unknown.
   Jim: Submit http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_NaN_and_infinity_macros_-_20191108.pdf to WG14. - Done.
   Rajan: Compile example code in http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_why_no_wide_string_strfrom_functions_v2.pdf. - Done.
   Jim: Choose how to attach footnote in http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_why_no_wide_string_strfrom_functions_v2.pdf; mention the other approach in the problem description. - Done.
   Jim: Draft a paper proposing changing the "cr" prefix for correctly rounded functions to "cr_". Include with other suggested changes in response to Jens's naming paper. - Done.
   David H: Draft words to recommend honoring properties (Ex. even/odd, periodicity) of math functions that would follow automatically from correct rounding. - Not done.
    Jim: Find a place for words about math function properties. Coordinate with David H (previous AI). - Not done.
      Comments:
       Ian: Monoticity as well and making correctly rounded be recommended practice.
       David: We can say if it is correctly rounded, they get the properties anyways.
   Jim: Draft a proposal to change the return words for powr and add the footnote (presented in the meeting) to justify powr. - Done.

 New action items:
   Jim: Look at seeing what would be involved in removing Annex J types that already have the same basic types.
   Jim: Get a WG14 document number and submit C2x_proposal_-_why_no_wide_string_strfrom_functions- 20191230.pdf.
   Jim: Get a WG14 document number and submit C2x_proposal_-_names_and_locations-20200105.pdf.
   Jim: Ensure natural log is written as log in the standard (regarding C2x_proposal_-_powr_justification_wording-20200104.pdf).
   Jim: Ensure thin spaces are put where needed in C2x_proposal_-_powr_justification_wording-20200104.pdf. Ex. Between the e and y in the "e^y log x" in three places.
   Jim: Update links on the C FP wiki to point to the latest drafts of the TS parts and look into having a section for working drafts.

Rajan: Ensure casting to _Float16 won't cause a problem with the using INFINITY wherever a constant expression can be used change we proposed.

Next Meeting(s):
Wednesday, February 19th, 2020, 11:00 EST, 8:00 PST, 4PM UTC
Same teleconference number.
Please notify the group if this time slot does not work.
Jim away Jan. 14-28th.

Discussion:
754 revision:
Done!
CFP 1443 has the paper/article David wrote.
Drop this agenda item.

C++ Liaison:
Nothing.

C2X integration (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2433.pdf):
Draft with TS 1, 2, and 4a (Latest C2X draft: http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2454.pdf, also as link on CFP wiki)
Part 3 - Was in a branch as work in progress prior to Jens stepping down as editor. As Annex J.
Part 4b - Looking as an updated TS.
Part 5a,b,c,d

C2X target: 2023
Jim: Idea is to propose IEEE 2019 binding in the next C meeting. We can discuss next CFP meeting.

Jim: Question: Should we remove value redundant types from Annex J? Ex. _Float32 being the same as float, _Float64 being the same as double, _Float32x being the same as double or long double. We added this as consistency, but the initial goal was just to provide nomenclature for the types.
AI: Jim: Look at seeing what would be involved in removing Annex J types that already have the same basic types.

Action item details:
Fred: Update erange proposal based on CFP 1437 and CFP teleconference discussion.

Jim: Submit http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_NaN_and_infinity_macros_-_20191108.pdf to WG14. (http://wiki.edg.com/pub/CFP/WebHome/n2469.pdf)
Looks good.

Rajan: Compile example code in http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_why_no_wide_string_strfrom_functions_v2.pdf. (See Rajan's CFP 1441)
Looks good.

Jim: Choose how to attach footnote in http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_why_no_wide_string_strfrom_functions_v2.pdf; mention the other approach in the problem description. http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_why_no_wide_string_strfrom_functions-20191230.pdf
Looks good.
AI: Jim: Get a WG14 document number and submit C2x_proposal_-

_why_no_wide_string_strfrom_functions- 20191230.pdf.

   Jim: Draft a paper proposing changing the "cr" prefix for correctly rounded functions to "cr_". Include with other suggested changes in response to Jens's naming paper. http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_names_and_locations-20200105.pdf
      cr_ was never proposed by any paper.
      Moving the SNAN macros does follow the suggestion of renaming, but also moves it which was not previously proposed.
      AI: Jim: Get a WG14 document number and submit C2x_proposal_-_names_and_locations-20200105.pdf.

   David H: Draft words to recommend honoring properties of math functions that would follow automatically from correct rounding.
      Still to do.

   Jim: Find a place for words about math function properties. Coordinate with David H (previous AI).
      Suggest adding a title to the table in F.3#23.
      David: Functions that IEC 60559 recommends be correctly rounded
      David: The first table title should also be changed to distinguish this table. Ex. Binding of operations required by IEC 60559; Binding of functions or operations recommended by IEC 60559.
      Jim: Or "Bindings of operations required by IEC 60559"; "Bindings of operations recommended by IEC 60559" See C FP 1453
      Suggest adding a second recommended practice to F.10.

   Jim: Draft a proposal to change the return words for powr and add the footnote (presented in the meeting) to justify powr. http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_powr_justification_wording-20200104.pdf
      AI: Jim: Ensure natural log is written as log in the standard (regarding C2x_proposal_-_powr_justification_wording-20200104.pdf).
      AI: Jim: Ensure thin spaces are put where needed in C2x_proposal_-_powr_justification_wording-20200104.pdf. Ex. Between the e and y in the "e^y log x" in three places.

   Other issues:
     WG14 editor change
     Jim and Rajan meeting with David Keaton regarding finishing off the work.

   Is "Floating-point extensions for C" still an appropriate description of CFP work? See Mike's email CFP 1445.
      Jim: "IEC 60559 Floating point support in C"?
      Sounds good.
      Jim: Also remove reference to 2008 on the website.
      Jim: Update links to the published TS's on the website.
      Rajan: Link published for all, and have working drafts for any ones with changes or that are not in C2X.
      AI: Jim: Update links on the C FP wiki to point to the latest drafts of the TS parts and look into having a section for working drafts.

   Issue for _Float16: INFINITY has type float so widens operations with _Float16 operands.
      Jim: Ideally NAN and INFINITY macros would be _Float16 if it was supported. We could add a comment suggesting putting a cast to _Float16 in front of INFINITY if you really wanted operations to stay in _Float16 type.
      Ian: Doesn't work for SNAN's.

Jim: Not an issue since we have type'd versions of those.
May be an issue for constant expressions.
AI: Rajan: Ensure casting to _Float16 won't cause a problem with the using INFINITY wherever a constant expression can be used change we proposed.