WG14 N2382
Meeting notes

C Floating Point Study Group Teleconference

2019-04-23
8 AM PDT / 11 PM EDT / 3 PM UTC

 Attendees: Rajan, Fred, Jim, Mike, Ian, David H,

 New agenda items:
   None.

 Carry over action items:
   Ian: See if there is an incompatibility between C and C++ for constants being evaluated to a wider format (Ex. FLT_EVAL_METHOD affects constants in C++, and wider return values) - Close.
     Hubert said using the C header you inherit FLT_EVAL_METHOD macro, casting follows C, return acts as an initialization not assignment. Promotion preserves the value on return. Not all compilers set the FLT_EVAL_METHOD correctly (command line options can change the value but don't).
     Ian to forward the message.
   All: Review the rationale for part 5 a, b, c proposal. - Carry over.
   Rajan: Say to WG14 that CFP supports removing the WANT macros and leaving the rest as is due to Fred's reasoning. - Close.
   Fred: Create papers for the SNAN initialization and unary + operation as CFP papers (CFP 1249, 1253, 1247, 1250) for future submission to WG14. - Carry over.

 Last meeting action items:
   Jim/Rajan: Create a slide deck to show the changes made to make Part 3 into an Annex as WG14 requested. - Done.
   Jim: Make CFP 1277 into a C2X proposal. - Done.
   Jim: Propose a footnote to describe why there are no wide string strfrom functions (compose strfrom with wide string conversion functions is sufficient) - Done.

 New action items:
   Jim: Post the IEEE 2019 draft for the CFP group on the wiki.
   Jim: Ensure that the quantum exponents table defines dN sufficiently in C2X.
   Jim: Get an N number for CFP1277 and submit it.
   Jim: Get an N number for CFP1282 as a proposal and submit it (possibly after CFP review?).

 Next Meeting(s):
   Tuesday, May 21st, 2019, 11:00 EDT, 8:00 PDT, 3PM UTC
   Same teleconference number.

 Discussion:
   754 revision:
     Going to rev com - IEEE committee to review process, next meeting is June 12th. Then goes on to the IEEE standards body. Expecting still in 2019. Not expecting any more working group meetings other than one for background doc updates. We can use the April 9th 2.50 draft. Mike: 2.51 has an extra "shall" but no other changes and don't expect any more either.
     AI: Jim: Post the IEEE 2019 draft for the CFP group on the wiki.

C++ Liaison:
Ian: The C++ standard header files that bring in the C functions will need to change.

WG14 meeting (April 29th-May 3rd):
Meeting information: http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2370.htm, Venue information N2308 (linked to in the agenda).

CFP agenda items:
P1 integration
P2 integration
P3 as annex – N2342, N2374 (slides)
P4a proposal – N2355, N2373 (slides)
Update for C2X payload functions – N2356
P4 CR for rootn case differs from IEEE 754 – N2309
Unclosed CR/DRs
P3 DR 13 - Type-generic macros for functions that round result to narrower type
P1 DR 16r - tgmath cbrt macro
P1 DR 20 - P1 CR for obsolescing DECIMAL_DIG
P1 DR 21 - printf of one-digit character string
P3 DR 22 - P3 CR for obsolescing DECIMAL_DIG
P2 CR 23 - llquantexp invalid case
P1 CR 24 - remainder NaN case
P1 CR 25 – totalorder parameters
DR 500 - Ambiguous specification for FLT_EVAL_METHOD – marked as C2x
DR 501 - Can DECIMAL_DIG be larger than necessary?

C2X integration:
Part 1 – integration completed. See SC22WG14.16214 N2346
Part 2 – initial draft mostly complete, some issues http://wiki.edg.com/pub/CFP/WebHome/all-diffC2x-TS-18661-2.pdf Jens and Jim resolved issues to clear way for next draft. Additions:
No conditional checks for identifiers assuming WG14 will agree to it.
More wording to clarify that Decimal floating types are optional.
Mike: It should not say "needs not".
Jim: I have a later draft that is "need not".
String to decimal conversion details (co-efficient, quantum exponent) moved to the floating point constant section (including copying and adapting the example).
Added an intro to re-encoding functions.
Mike to review actual text when it is out.
Preserving future direction.
Table for quantum exponents using dN suffixes.
Mike: Don't see where N is defined or explained.
AI: Jim: Ensure that the quantum exponents table defines dN sufficiently.
Conversion specifiers. Instead of 'double' Jens said it was 'floating point', but this change may be reverted.
Part 3 – draft as annex complete N2342
Slides available to present.
Part 4ab – proposal for integration of Part 4a, intention to update Part 4b N2355
Slides available to present for part 4a.
Part 5abcd – considering new proposals for abc

Action item details:
Fred: Create papers for the SNAN initialization and unary + operation as CFP papers (CFP 1249, 1253, 1247, 1250) for future submission to WG14.

Rajan: Say to WG14 that CFP supports removing the WANT macros and leaving the rest as is

due to Fred's reasoning. Note: Also mention CFP's appreciation to Jens for the integration editing (done really well).

    See Rajan, Fred, and Jim's email CFP 1242, 1243, 1244, 1261.

    See WG14 email 15982 – 15983, 15985.

    N2359:

     1) Remove WANT macros: OK

     2) Header version: Not a CFP issue directly

     3) Renaming functions: Against, since already implemented as is, names fit with pre-part 1 C, consistent with existing C standard, names fit function

      For the 'from' functions, we didn't do 'to' for consistency. Ex. strftime

      Fromfp takes three arguments, it is not a simple conversion. It can't be generalized due to the number of arguments (3 for fromfp due to rounding mode and width arguments).

     4) Reserving prefixes: Not a CFP issue directly

    Looks like all the width macros are not present in the appendix to this document listing the proposed changes.

   All: Review the rationale for part 5 a, b, c proposal.

   Jim/Rajan: Create a slide deck to show the changes made to make Part 3 into an Annex as WG14 requested.

    http://wiki.edg.com/pub/CFP/WebHome/n2374.pdf

   Jim: Make CFP 1277 into a C2X proposal.

    http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_F.8_update.pdf

    AI: Jim: Get an N number for CFP1277 and submit it.

   Jim: Propose a footnote to describe why there are no wide string strfrom functions (compose strfrom with wide string conversion functions is sufficient)

    See CFP 1282.

    Looks good.

    AI: Jim: Get an N number for CFP1282 as a proposal and submit it.

Other issues

   Slide deck for proposal to add part 4a to C2X http://wiki.edg.com/pub/CFP/WebHome/n2373.pdf

    David: We don't even require exp and log, yet C does, so we should support these.

    David: Sun Solaris supports 'compound' as well.

   Fred's WG 14 papers

   See Fred's CFP 1246 and Jim's CFP 1283.