WG14 N2205
Meeting notes

C Floating Point Study Group Teleconference

2018-02-20
9 AM PST / 12 PM EST

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

New agenda items:
None

Last meeting 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) - Keep open (Hubert: Not defined and left up to C)
Jim: Update the binding table in parts 1 and 2 to handle the new IEEE-754:2018 functions when published. - Keep open.

All: Look into why the cbrt macro (DR16) has the parameters inside the generic selection.
All: exp10m1: Look at exp10m1 difference between the TS and 754 in more detail. - Done (review today).
Jim: pow: Add a note to F10.4.4 pow to say it is the same as IEEE-754. - Done (review today).
Jim: reduc_sumprod: "computed sum" -> "computed dot product" for clarity. - Done.
Jim: Add preferred exponents functions list to part 4. - Done (DR review below).
Jim: Get a N# and post the new TC for DR13 to WG14. - Done (N2202).
Jim: Create a new DR for arguments for comparison macros (http://wiki.edg.com/pub/CFP/WebHome/DR_for_incommensurate_arguments_for_comparison_macros.pdf) - Done (N2203).
Fred: Draft a note for roundTiesToEven for the exceptional case of two odd values. - Done (review today).
Jim: Draft a proposal for CR_DECIMAL_DIG corrections (with the removal of DECIMAL_DIG) and updating the footnote (F.5). - Done (review today).
Jim: DR15: Make the Suggested TC the Proposed TC. - Done (review today).
Jim: Re-update activities list. - Not done.

New action items:
Rajan: Ask Ian if he knows of someone who can take over the C++ liaison role for him.
Unassigned: C footnote 232 uses the extraordinary roundoff error aspect from IEEE that was taken out in the IEEE 2008 draft. Fix this?
Jim: Add in part of the note for the pow function in part 1 somewhere as a change to F.3 to restate that the specifications should match IEC 60559.
Jim: Get a DR against part 4 for http://wiki.edg.com/pub/CFP/WebHome/DR_for_missing_specification_of_preferred_quantum_exponents.pdf.
Fred: Put the words for the roundTiesToEven with a change to Annex F as a part 1 DR as per his note on 2018/02/18 with the change of "which could produce" -> "whose nearest neighbors are".
Jim: http://wiki.edg.com/pub/CFP/WebHome/changes_for_obsolescing_DECIMAL_DIG.pdf:Make the changes to the type_ to reflect the FLT, DBL and LDBL prefixes.
Jim: TS DR15 (http://wiki.edg.com/pub/CFP/WebHome/DR_for_macros_for_non-arith_formats-20180211.pdf):

Change "Suggested" to "Proposed", "into a proposed" -> "as is into a proposed"
Fred, Rajan: Check if the _Generic replacement suppress macro expansion.
Jim: Get a new N document for the new proposed TC for TS DR16.
Jim: Write up the TS DR13 2018/02/18 Jim's email as a suggested TC.
David: Look into the IEEE binding differences to see if they are real issues (from Fred's email on 2018/02/18).

Issues:
Does CR_DECIMAL_DIG have the same issues as DECIMAL_DIG?

Next Meetings:
March 13th, 2018, 12:00 EDT, 9:00 PDT
Same teleconference number.

Discussion:
IEEE 754 revision:
Still finding little items that need to be looked at, but getting smaller and less contentious.
Looking good for completion. Good shape to move forward for ballot. March 23rd will possibly be the final technical draft.

C++ liaison:
Nothing. Need a successor for this role.
*Rajan: Ask Ian if he knows of someone who can take over the C++ liaison role for him.

Action item details:
exp10m1 underflow: Want to say the same thing as exp2m1.
*Jim: C footnote 232 uses the extraordinary roundoff error aspect from IEEE that was taken out in the IEEE 2008 draft. Unassigned action item.
Fred: Sounds like a C11 DR.
Jim: We shouldn't change the definition of range error, but should change the footnote.
pow consistency with 754 (Jim's email on 2018/02/06): Seem to have already said this.
Fred: I think we need the note. But can have it as a general sentence in F.1.
David: Should we have a special case for pow?
Rajan: We should not add it for pow due to out of sync and too many extra additions making the standard less readable/too large. OK with making the last sentence of the note an editorial addition to F.3.
*preferred exponents for part 4 (http://wiki.edg.com/pub/CFP/WebHome/DR_for_missing_specification_of_preferred_quantum_exponents.pdf): Expected DR19.
*roundTiesToEven for case of two odd neighbors (Fred's email on 2018/02/18):
Jim: roundTiesToEven is a 754 term. It needs to be qualified with a preamble to link it to the TS-1.
Jim: Should this be in Annex F or the main part of the standard? Yes.
David: Should say the nearest neighbors are, not that we produce both of them.
"which could produce" -> "whose nearest neighbors are"
fix-ups for removal of DECIMAL_DIG (Jim's email on 2018/02/17, http://wiki.edg.com/pub/CFP/WebHome/changes_for_obsolescing_DECIMAL_DIG.pdf):
Fred: The type_DECIMAL_DIG should have type_ be the type prefix (FLT, DBL, LDBL).
Jim: Yes, this needs to be fixed throughout the proposal.
Jim: The F.5 fix needed the to-nearest rounding to get the identity function (it is incorrect in C11).
*Jim: Make the changes to the type_ to reflect the FLT, DBL and LDBL prefixes.

TS DR15 (http://wiki.edg.com/pub/CFP/WebHome/DR_for_macros_for_non-arith_formats-20180211.pdf):
Need to change "Suggested" to "Proposed", "into a proposed" -> "as is into a proposed"

TS DR16: Parenthesis movement: Unknown why that was done.
Jim: Does the _Generic replacement suppress macro expansion?

*Fred, Rajan: Check if the _Generic replacement suppress macro expansion?
*Jim: Get a new N document for the new proposed TC for TS DR16.

Email Issues:
TS DR13: Jim's email (2018/02/18) for part 3 type generic macros in response to Josephs email:
Jim: Ex. for fM prefix, _FloatMx or _FloatN has to be present otherwise the macro wouldn't be present.
It is possible arguments may be coerced so the macros won't be correctly rounded.
Could have not specified functions and just say a single rounding and let the implementation decide how to do it, but did not choose that route. This current way can have multiple roundings.
*Jim: Write up the TS DR13 2018/02/18 Jim's email as a suggested TC.

Classification macros and clearing flags (2018/02/09):
Jim: F.8.6 seems to cover it.

Fred's email 2018/02/18:
Jim: The C specification is spread out (ex. general description, annex F, general NaN information, etc.).
First one is covered by the general NaN rules.
Fred: Agree.
Second: remainder(+/-0, y): Seems to be an issue.
*David: Look into these IEEE binding differences to see if they are real issues.
Fred: min/max and payload still need to be looked at from the latest draft.

Other issues:
TS updates:
Jim: The editors draft is available but is not up to date with the DRs.
Keeping as Word format (no conversion into LaTeX).
See if we should keep the documents up to date for each meeting regardless of whether the drafts have been accepted or not.

Binding for IEEE 754-2018: Didn't get to. Next meeting.

C2X integration: Didn't get to. Next meeting.

Activities (http://wiki.edg.com/pub/CFP/WebHome/in_flight-20171004.pdf): Didn't get to. Next meeting.

C Standard use of "Floating" vs "Floating-point": Didn't get to. Next meeting.