WG14 N3208
Meeting notes

C Floating Point Study Group Teleconference
2023-11-08
8 AM PST / 11 PM EST / 4 PM UTC

Attendees: Rajan, Jim, Mike, Fred, Jerome Coonen, Joshua, Damian, David

None.

Previous meeting notes:
See CFP2903 (http://mailman.oakapple.net/pipermail/cfp-interest/2023-October/002917.html).

Next Meeting(s):
December 6, 2023, 4PM UTC
ISO Zoom teleconference
Please notify the group if this time slot does not work.

New action items:
Jim: Part 4: Add a footnote anchored on something that says "For an example of emulating augmented arithmetic, see <paper on augmented arithmetic emulation from CFP2949>" and add it to the bibliography in part 4.
Fred: Fix Issue 2 in C26B "reported by" text to be in the correct column.
Fred: Add CFP2904 as a reference for C26B issue 12.
Fred: Add CFP2905 as a reference for C26B issue 14.
Fred: Add CFP2913 and CFP2918 to the C26B list.
Fred: Add CFP2947 as a new issue to the C26B list.
Fred: Add CFP2888 and follow ons to the C26B list.
Jim: Add a footnote to Part 4, Clause 6 when it describes dN for N != 32, 64, 128 to say N = 32, 64, 128 are covered due to them being 60559 types and covered in Annex F.
Fred: Review the bibliography in part 4.
Fred: Review the bibliography in part 5.
Jim: Part 4: Add a subclause to 5 (perhaps 5.4) for reserving prefixes, possibly referring to C 7.33.
Rajan: Send a note to JeanHeyd and cc Aaron to give CFP's recommendation for fixing the typo in H.2.1: Use "binary digits (bits)" for the first table second row, and "decimal digits" for the second table, second row.

Action items to be carried over:
Fred: C26B Issue 1, nowhere else in the C standard are pole errors listed as a "shall", just as "may". This could be a problem for the proposed change.
Fred: C26B Issue 2, the problem may not be an issue as it seems to be clear what is the expected result.
Fred: C26B Issue 6, consider explicit definitions instead of implicit references.
Fred: C26B Issue 8, hyphenate floating-point.
Fred: C26B Issue 13, mention "long double" in the issue text. Ex. "Annex F and long double including double-double needs to be clarified."

C23/WG14:
WG14 meeting summary:
See CFP2919, CFP2922

C2X working draft N3149 (for CFP only)

Next WG14 meeting: January 22-26, 2024.

Status of C23 integration:
See CFP2939, CFP2940

C++ liaison:
[Cfp-interest 2799] Attn WG 14, question about atomic_fetch_* and floating point re: [isocpp-lib-ext] P0493 Atomic max/min
- No update/responses yet. Will drop from agenda unless something comes up.

Carry-over action items results:
None.

Action items results (from previous meeting):
All: Notify Rajan before the October 16th of any known implementations of the proposed TS part 4 or 5.
Done late. See CFP2949.
Jim: The paper in the email seems to be useful for this.
Rajan: Can add this as a footnote anchored on something that says "For an example of emulating augmented arithmetic, see <paper>" and add it to the bibliography in part 4.
Jim: Part 4: Add a footnote anchored on something that says "For an example of emulating augmented arithmetic, see <paper on augmented arithmetic emulation from CFP2949>" and add it to the bibliography in part 4.

Jim: Update slide deck with typo (Ex. slide 17 should TS-5 instead of TS-4) and formatting fixes (Ex. subscript for the pi, qi's in the sumProduct operation descriptions)
Done. See CFP2908

Jim: Change TS-4 page 12, line 1, "As for other" -> "Like other".
Done. See review of TS-4 below.

https://wiki.edg.com/pub/CFP/WebHome/C26B.HTM
Fred: C26B Issue 1, nowhere else in the C standard are pole errors listed as a "shall", just as "may". This could be a problem for the proposed change.
Fred: C26B Issue 2, the problem may not be an issue as it seems to be clear what is the expected result.

Fred: C26B Issue 6, consider explicit definitions instead of implicit references.

Fred: C26B Issue 8, hyphenate floating-point.

Fred: C26B Issue 13, mention "long double" in the issue text. Ex. "Annex F and long double including double-double needs to be clarified."

Rajan: C26B Issues 12, 14, need CFP messages. Write some up and send them to the list.

Rajan: Vincent’s responses were very useful. We can’t talk about it here though right now.

Fred: Add CFP2904 as a reference for C26B issue 12.

Fred: Add CFP2905 as a reference for C26B issue 14.

Mike: Ask Michel about CFP2899.

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Jim/David: Check IEEE-754 if there is a similar issue to CFP2899.

Jim: This is not a problem in 754 since it says use round to nearest. However C 5.2.4.2.2 has \texttt{<type>\_DIG} doesn't say round to nearest which needs to be fixed.

Fred: Add CFP2947 as a new issue to the C26B list.

From previous meeting minutes:

%a/%A formatting. See CFP2888 and follow ons. OK with adding this to the future issues list.

Fred: Add CFP2888 and follow ons to the C26B list.

Fred: Does this also cover rounding bumping the leading digit above a one?

Jim: Yes.

Review of TS-4 and TS-5 revisions

See CFP29\{17,20,21,24,25,30,32,41,43,44\} and follow ons.

Part 4 (without the header changes):

OK with all the changes except for:

Rajan: For the section 6 changes, \_Decimal\{32,64,128\} does not seem to be covered.

Jim: They are specified in Annex F since they have to be IEC 60559 types.

Rajan: Perhaps have a footnote there to make it clear.

Jim: Add a footnote to Part 4, Clause 6 when it describes dN for N != 32, 64, 128 to say N = 32, 64, 128 are covered due to them being 60559 types and covered in Annex F.

Fred: Review the bibliography in part 4.

Part 5:

OK with all the changes.

Fred: Review the bibliography in part 5.

Part 4 (with the header changes):
See CFP2946 along with the document.
Joshua: Perhaps say the headers here are standard headers in 7.1.2.
Rajan: That's in the CFP message.
Joshua: OK, was looking at the wrong text.
Rajan: No reserved name changes?
Jim: Can add a 5.4 for this referring to 7.33.
^Jim: Part 4: Add a subclause to 5 (perhaps 5.4) for reserving prefixes, possibly referring to C 7.33.
Otherwise OK with the changes.
Rajan: Suggest only one part 4 with everything in it (not one without the headers as well).
General agreement.
Damian: For CFP2945, it is for 754. Not for C.
Jim: You may want to send it to 754.

Other issues
Editorial fix for H.2.1
See CFP2939 and CFP2940.
Jim: For decimal, it should be precision in "digits" rather than bits.
Damian: Even in binary it should be "digits". Ex. "p, precision in binary digits"
Joshua: It was right in the TS. Just wrongly transferred to the C standard.
Mike: Binary digits sounds wrong, should keep it.
Rajan: But the C standard in 5.2.4.2.2 says digits so we should do the same for it in binary. It has a direct link to that section in the standard that says digits.
Mike: Use "binary digits (bits)" for the first table.
^Rajan: Send a note to JeanHeyd and cc Aaron to give CFP’s recommendation for fixing the typo in H.2.1: Use "binary digits (bits)" for the first table second row, and "decimal digits" for the second table, second row.

Forum for discussion about implementation
See CFP2942.
Damian: Got an email from David on this already. (Rajan: See CFP2952)

IEEE-754 2029
See CFP2948.
David: Not planning on taking an active role for 2029 since I don't expect to live that long!
Planning to participate in the first few study group meetings at least though.
Jim: First few meetings may be interesting to see the scope of things that will be covered.