

WG14 N2452

Meeting notes

C Floating Point Study Group Teleconference

2019-10-16

8 AM PDT / 11 AM EDT / 3 PM UTC

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

New agenda items:

None.

Carry over action items:

Fred: Rewrite the proposed CFP1360 paper using the CFP recommendations. - Done.

Last meeting action items:

CFP: Put the tgmth redefinition as a proposal to the standard once we have a base document with TS Part 3 in it. - Carry over (no base document with part 3 yet)

Jim: Respond to Fred's question in CFP1377 about where the SNANF information is stated. - Done.

CFP: Look at naming issue and propose responses to the questions in the paper. - Done.

New action items:

CFP: Follow up on CFP1419 via email.

Jim: Create a WG14 paper for the next Spring 2020 WG14 meeting along the lines of CFP1411.

Next Meeting(s):

Wednesday, November 20th, 2019, 11:00 EST, 8:00 PST, 4PM UTC

Same teleconference number.

Please notify the group if this time slot does not work.

Discussion:

754 revision:

Looking for new 754 chair.

In maintenance mode right now. Nothing to do until someone wants to be chair.

Jim: A lot of ideas for new features for the next 754 revision. Can have a group per idea to push the individual ideas.

C++ Liaison:

Nothing.

C2X integration (<http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2433.pdf>):

Draft with TS 1, 2, and 4a

Part 3

Part 4b - Looking as an updated TS.

Part 5a,b,c,d

Jim: Haven't yet checked to make sure all comments for part 4a integration were addressed, but don't see problems there.

Action item details:

Fred: Rewrite the proposed CFP1360 paper using the CFP recommendations. See thread starting with [Cfp-interest 1388] Math functions & range errors (see CFP 1419).

Fred: Too late for WG14 meeting.

Still an ambiguity with "small".

Jim: Still has the question of zero possible being too close to zero.

Fred: exp is an example, and I can add in "non-zero" x being too close to zero.

Jim: Are there cases that don't say magnitude being too small?

Fred: More of a general thing of saying too small.

Jim: This mirrors the too large.

Jim: Still some issues with the "may occur for finite x" changes.

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

Postpone until we have a base document.

Jim: Respond to Fred's question in CFP1377 about where the SNANF information is stated (see CFP 1411).

Ian: Should we redefine constant expression instead?

Rajan: That would have impacts across C so I wouldn't want to do it.

Mike: It would be a bigger change than just fixing NaNs.

Mike: Can have a new kind of constant expression as well if we want instead of this.

AI: Jim: Create a WG14 paper for the next Spring 2020 WG14 meeting along the lines of CFP1411.

CFP: Look at naming issue and propose responses to the questions in the paper (<http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2426.pdf>, http://wiki.edg.com/pub/CFP/WebHome/responses_to_naming_questions.pdf, Joseph Myers email SC22WG14.17170).

WG1417170: Agree with points 1, 2, 3 (diagnostic outside scope of CFP but we agree with it), 5. 4 is outside our scope.

Question 1: Ian, Rajan like removing the `_Float32/64` since it's easier for users and implementers.

Jim: Lose the portability aspect of `_Float32x`. `_Float128` is still useful too for portability.

Suggest we say "No" but if there is a request for change, we can propose what is in the `responses_to_naming_questions.pdf` paper to remove redundant types and only leave true extensions.

Question 2: "No". Agree with Jim's paper.

Question 3: "No". Agree with Jim's paper and Joseph's reflector response.

Question 4: "No". Agree with Jim's paper.

Question 5: "No". Agree with Jim's paper.

Question 6: "Neutral". Agree with Jim's paper.

Question 7: "Neutral". Agree with Jim's paper.

Question 8: "No". Agree with Jim's paper.

Question 9: "No". Agree with Jim's paper and Joseph's reflector response.

Question 10: "No". Agree with Jim's paper.

Question 11: "No". Agree with Jim's paper.

Question 12: "No". Agree with Jim's paper. Note "cr" is not reserved as a prefix nor is `crsqrt` an ambiguity.

David: No information on implementers right now on this. Usually in private libraries rather than language extensions. Implementations (Sun, Oracle) are common for these functions, but naming may not be. Lots of papers with it too.

Jim: Having reserved names will help make them be externalized. Also 754 requires correctly rounded functions.

David: Having a simple prefix will help externalize those functions and make them portable. This allows programmers to choose between performance/accuracy tradeoffs in an accurate way.

Question 13: "No". Agree with Jim's paper.

Question 14: "No". Agree with Jim's paper.

Question 15: "No". Agree with Jim's paper.

Question 16: "No". Agree with Jim's paper.

*Question 17: "No". Though if it is a real demonstrated conflict, we are OK with it, and are OK with the changes here or other ones.

Fred: Can add in an underbar for ones that may be an issue (f_add) for example.

Rajan: Joseph at least has implemented this so suggest "No."

Question 18: "No". Agree with Jim's paper.

Question 19: "No". Agree with Jim's paper.

Question 20: "No". Agree with Jim's paper.

*Question 21: "No". Already implemented as is (Joseph for example).

Question 22: "No". Agree with Jim's paper.

Question 23: "No". Agree with Jim's paper.

Question 24: "No". Agree with Jim's paper.

Question 25: "No". Agree with Jim's paper.

Other issues:

Joseph Myers (SC22WG14.17150) N2361 inconsistency with implementation techniques
Defer.

Followup on what does "normalized" mean in C? See CFP 1399
Defer.

Specifying more special cases for math functions, e.g., periodicity for half-revolution trig functions. Perhaps as recommended practice.
Defer.

For WG14 meeting 21-25 October, 2019 – Ithaca, New York, US [N 2327]
N2384 Thomas, C2X proposal - F.8 update
N2400 Thomas, C2X proposal - why no wide string strfrom functions
N2406 Tydeman, SNAN: initialization and unary +
N2407 Thomas, Proposal for C2X - TS 18661-5abc supplementary attributes
N2416 Thomas, Proposal for C2X - floating-point negation and conversion
N2421 Thomas, TS 18661-5abc for C2X - slides
N2424 Thomas, Proposal for C2X proposal – Why logp1?
No new comments.

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