

WG14 N2512
Meeting notes

C Floating Point Study Group Teleconference

2020-03-18
8 AM PDT / 11 AM EDT / 3 PM UTC

Attendees: Rajan, Jim, Fred, David,

New agenda items:
None.

Carry over 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. See CFP 1386. - Keep open

Jim: Look at seeing what would be involved in removing Annex J types that already have the same basic types. - Done.

Last meeting action items:

Jim: Post new teleconference number to the CFP mailing list. - Done.

Jim: Remove 'IEEE 754 revision' from the agenda. - Done.

Jim+David: Look into Jim's duplicated CFP messages. Also some missing messages if the person was in the To list (while CFP was cc'd). David to upgrade mailman.

Fred: Rework CFP1437 based on CFP1488. - Done.

Jim: Create a WG14 proposal to add in CFP1460. - Done.

Jim: Replace N2475 with a newer example given in CFP1468. - Done.

Jim: Change the footnote for http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_powr_justification_wording-20200203.pdf as per CFP1465. - Done.

Rajan: Check with Joseph as to why <http://man7.org/linux/man-pages/man3/strfromd.3.html> seems to say you can have strfromd given non-null terminated strings. - Done.

Rajan: Check to see if a cast on a constant expression is still a constant expression with WG14. - Done.

Jim: Write a note for _Float16 getting infinity as a _Float16 type in Part 3 as an annex. - Done.

Jim: Get document numbers for updates to C to IEEE-2019, add in a link to the background document, and submit to WG14. - Done.

New action items:

Jim: See if N2478 changes anything for our proposals (which reference n2454).

Fred: Get a paper number for CFP 1538 and submit it.

Jim: Get a paper number for the paper referenced in CFP 1516 and submit it.

Jim: Add in a note to CFP 1526 to say the cast raises no floating point exceptions.

Next Meeting(s):

Wednesday, April 15th, 2020, 11:00 AM EDT, 8:00 AM PDT, 3:00 PM UTC

New teleconference number. Use the current one as backup.

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

Discussion:

WG14 meeting:

Now telecon only, around 4am Pacific time.

Time: Mar 30, 2020 13:30 Amsterdam, Berlin, Rome, Stockholm, Vienna
Mar 30, 2020 13:30
Mar 31, 2020 13:30
Apr 1, 2020 13:30
Apr 2, 2020 13:30
Apr 3, 2020 13:30
3.5hrs each day.
6:30am CST

C++ Liaison:
Nothing.

C2X integration (<http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2478.pdf>):

Part 3 - Investigating updates

Part 4b

Part 5a,b,c,d - May want to re-propose non-control flow 5d pragmas.

AI: Jim: See if N2478 changes anything for our proposals (which reference n2454).

Proposals for IEEE-2019 support have been submitted.

Action item details:

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

Jim: Look at seeing what would be involved in removing TS-3 types that already have the same basic types.

See [Cfp-interest 1521] request for input

[Cfp-interest 1522] Re: request for input

[Cfp-interest 1524] Re: request for input

[Cfp-interest 1525] Re: request for input

Rajan: Different compilers will have different costs associated with adding in the redundant types. What is expensive for one (ex. New types) may be cheap for another compiler, while the inverse may be true for things like suffixes.

Jim: Testing is costly though for new functions.

Fred: The Fortran standard has parts specifically to interact with C and they would like real functions.

Jim: Perhaps we can simplify tgmth to say it can use any function that is wide enough without needing to give an algorithm for it. Joseph pointed out issues with the integer arguments. It could lose precision on integral arguments in unpredictable ways.

Fred: Perhaps disallow integers to be tgmth functions.

Jim: That would break existing code, but is possible.

Jim: Should this attempt be abandoned? No bandwidth to change directions.

Jim: Should the annex change from referring to type to referring to format? Types seems a better name for it.

David: We used format to allow language standards to use types.

Jim: It is important we give a direction and stick to it.

Fred: Rework CFP1437 based on CFP1488.

See [Cfp-interest 1502] Range errors

[Cfp-interest 1532] Re: Range errors

Fred: Already missed the mailing deadline so not urgent.

AI: Fred: Get a paper number for CFP 1538 and submit it.

Jim: Create a WG14 proposal to add in CFP1460.

See [Cfp-interest 1516] AI about proposal regarding math function properties

(http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_math_function_properties-20200221.pdf)

Looks good.

AI: Jim: Get a paper number for the paper referenced in CFP 1516 and submit it.

Jim: Replace N2475 with a newer example given in CFP1468.

See [Cfp-interest 1517] AIs for submitting documents.

Submitted as N2490.

Jim: Change the footnote for http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-_powr_justification_wording-20200203.pdf as per CFP1465.

See [Cfp-interest 1517] AIs for submitting documents

Looks good.

Rajan: Check with Joseph as to why <http://man7.org/linux/man-pages/man3/strfromd.3.html> seems to say you can have strfromd given non-null terminated strings.

See [Cfp-interest 1507] Fw: Re: Question about strfromd in glibc

Looks good (glibc doc is wrong and it follows the standard).

Fred: Will be submitting a document that talks to apparent contradictory text in sprintf.

Rajan: Check to see if a cast on a constant expression is still a constant expression with WG14.

See [Cfp-interest 1486] Re: Action item: Constant expressions _Float16

Looks like we are good with the suggestion of adding in the text about casting.

Jim: Write a note for _Float16 getting infinity as a _Float16 type in Part 3 as an annex.

See [Cfp-interest 1526] AI about INFINITY and NAN macros and _Float16

Looks good.

Fred: NaN payloads may change if cast.

Fred: Should we say casting INF or NAN to _Float16 does not raise any FP exceptions?

AI: Jim: Add in a note to CFP 1526 to say the cast raises no floating point exceptions.

Jim: Get document numbers for updates to C to IEEE-2019, add in a link to the background document, and submit to WG14.

See [Cfp-interest 1517] AIs for submitting documents (N2488)

Looks good.

Other issues:

Proposal for short float, floating type extensions for C++ and C.

Fred: Some versions want more exponent bits some want more mantissa. So no standard format.

Jim: It is not congruent with what we are doing (IEEE _Float16). The conversions being different from what we have specified would be an issue.

Rajan: We don't have anyone here as part of the C++ committee so we can't directly influence it there.