WG14 N2550
Meeting notes

C Floating Point Study Group Teleconference

2020-07-22
8 AM PDT / 11 AM EDT / 3 PM UTC

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

New agenda items:
None.

Carry over action items:
Jim: Check WANT macro issue in CFP 1581 - Done.

Last meeting action items:
All: Need ideas on how to convert Word to good PDF with links. Jim: Add hex to annex draft. - Done.
Fred: Write paper saying 'const' missing in *payload. - Done.
Jim: Rewrite CFP 1643: Rnd ties away issue. - Done.
Jim+Fred: Re no prototype vs varargs prototype, find where in C where float is promoted to double. - Done.

New action items:
Jim: Create a proposal based on CFP 1709 updates to Annex B with the addition of N and M parameter descriptions.
Jim: For cfp3x-annex-20200706.pdf, Annex X, new example (page 33), change the magic number 40 (which needs to be verified) to be a macro and add in a descriptive definition of that macro.
Jim: For cfp3x-annex-20200706.pdf, Annex X, strtoencdecd* function declarations (page 35), make the pointers into arrays to allow giving a size for the array.
Fred: Submit the paper in CFP 1703 to WG14 as a CFP paper.
Jim: Submit CFP 1653's changes (appropriately colorized or changed to highlight the changes) to WG14.
Jim: Put CFP 1634 (with the correction: 'prototype is extended' -> 'prototype is expanded') into TS3 as an annex.
Fred: Submit CFP 1704 to WG14 as a proposal from CFP.
Jim: Prepare a suggested change to C2X proposal based on CFP 1687 option 3.
Fred: Submit CFP 1702 to WG14 as a CFP paper.
David H: Come up with a sentence to add to footnote 295 (as per CFP 1697) to point out the possible numerical differences in output.

Next Meeting(s):
Wednesday, August 19th, 2020, 8 AM PDT / 11 AM EDT / 3 PM UTC
ISO Zoom teleconference
Please notify the group if this time slot does not work.

C++ liaison
C/C++ compatibility for extensions floating types
See [Cfp-interest 1638, 1701] C++ floating-point work David Olsen
Difference between C++ and our TS in determination of types. C++ picks standard types

whereas we pick the interchange types. It was an issue for the tgmath functions before the rework (Ex. Functions that round to narrower type).

In C++ you can have these new IEEE types and non-IEEE standard types.

C2X Integration:

Latest C2X draft: http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2478.pdf

Part 1

Part 2

Part 3

Part 4ab

Part 5abcd

IEEE 754-2019 support

Action item details

Jim: Check WANT macro issue in [CFP 1581]

Some of the macros are missing in N2478 as well.

Rajan: Add in some text to describe what N and M are.

Resolve as per CFP 1709.

AI: Jim: Create a proposal based on CFP 1709 updates to Annex B with the addition of N and M parameter descriptions.

All: Need ideas on how to convert Word to good PDF with links.

Adobe's online version does not work. The old Adobe Pro 9 works on PC. Jim to try on Mac (has been ordered).

Jim: Add hex to annex draft [CFP 1684]

New example added (page 33).

Mike: Don't like seeing the "40" constant in the example.

Jim: Wasn't there a macro added for the maximum size Fred?

Fred: I don't think so.

Rajan: Do a "#define MAX_VALUE 40 // Max hex digits" and use that in the declaration and strfromenc call.

Resolve as per CFP 1692.

AI: Jim: For cfp3x-annex-20200706.pdf, Annex X, new example (page 33), change the magic number 40 (review if this is big enough) to be a macro and add in a descriptive definition of that macro.

AI: Jim: For cfp3x-annex-20200706.pdf, Annex X, strtoencdecd* function declarations (page 35), make the pointers into arrays to allow giving a size for the array.

Fred: Write paper saying ‘const’ missing in *payload [CFP 1655]

See CFP 1703.

AI: Fred to submit the paper in CFP 1703 to WG14 as a CFP paper.

Jim: Rewrite CFP 1643: Rnd ties away issue.

See CFP 1653.

AI: Jim: Submit CFP 1653's changes (appropriately colorized or changed to highlight the changes) to WG14.

Jim+Fred: Re no prototype vs varargs prototype, find where in C where float is promoted to double

See CFP 1688.

Fred: This is a change to the standard.

Jim: No, this is a change to the TS3 annex as per CFP 1634 (with the correction: 'prototype is extended' -> 'prototype is expanded').

AI: Jim: Put CFP 1634 (with the correction: 'prototype is extended' -> 'prototype is expanded') into TS3 as an annex.

Other issues

Constant expressions evaluated in translation environment [CFP 1579]

See CFP 1704.

AI: Fred: Submit CFP 1704 to WG14 as a proposal from CFP.

WANT macros for Annex F interfaces [CFP 1627]

See CFP 1687.

Option 1 is editorial, while 2 and 3 are changes.

Most seem to prefer option 3.

Suggested change to C2X.

AI: Jim: Prepare a suggested change to C2X proposal based on CFP 1687 option 3.

WANT macros for decimal and math functions [CFP 1657]

See CFP 1707.

Fred: Current version of Annex X has the __STDC_WANT_IEC_60559_TYPES_EXT__ want macro in it.

Fred: Withdrawing my issue.

intmax_t removal [CFP 1617]

See CFP 1702.

Jim: The naming in the compoundn functions is different from other functions like scalbn and scalbln to reflect the long argument.

Rajan: The change in return value from unspecified value to NaN may cause questions.

AI: Fred: Submit CFP 1702 to WG14 as a CFP paper.

%a with formatting precision [CFP 1693]

See CFP 1700.

Ian: Should we be making a recommendation instead of a requirement?

Fred: Required to be correctly rounded.

Jim: Only within the possible representable set of values.

We could add a note that is essentially a warning.

David H: For portable code, they shouldn't get close to this case.

Jim: We could disallow a formatting precision of zero.

David H: That would be different from Decimal.

Fred: The problem is this applies to any precision lower than the full precision needed for the value.

Jim: Different implementations can give different results. So not portable.

Fred: Even with %a trailing zeros can be trimmed so not portable.

Ian: What is this useful for?

Jim: For showing what is in memory.

David H: If the conversion is less than full precision, the leading digit has to be between 8-F.

Jim: Are we agreed we need a note about this?

David H: For precisions less than full, the choice of a leading digit can differ between implementations.

Jim/David H: We should point out the numerical difference in the output by expanding the footnote.

AI: David H: Come up with a sentence to add to footnote 295 (as per CFP 1697) to point out the possible numerical differences in output.

Triple (1,0,0) [CFP 1675]

Discuss next meeting.