

WG14 N3161
Meeting notes

C Floating Point Study Group Teleconference

2023-08-02

8 AM PDT / 11 PM EDT / 3 PM UTC

Attendees: Rajan, Jim, Damian, David H., Ian

New agenda items (<https://wiki.edg.com/pub/CFP/WebHome/n3159.pdf>):
None.

Next Meeting(s):

August 30, 2023, 4PM UTC

ISO Zoom teleconference

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

New action items:

All: Should we hold our next CFP meeting with the WG14 meeting at the same time and together with WG14?

Jim: Look into why the pdf has funny characters in the initial copyright section for TS Part 4 and Part 5.

Jim: Be consistent with the rest of the standard for section 5.3 in the TS (the "if and only if" part).

All: Consider weakening "if and only if" to "if" to allow more implementation latitude. Comes with the cost of being less consistent with the rest of the standard.

Jim: Create a slide deck for TS part 4 as was done previously to help in understanding during the WG14 meeting.

All: Everyone look through both TS part documents, pick sections you want to review and let Jim know when they are done. Should be done a week before our next meeting. Focused review by the person listed.

Part 4:

Introduction/Background

Introduction/Additional background on supplementary functions

Clause 1-5

Clause 6: Reduction functions - Damian

Clause 7: Augmented arithmetic functions - David H.

Clause 8: Augmented arithmetic macros - Rajan

Part 5:

Introduction/Background

Introduction/Additional background on supplementary attributes

Clause 1-6

Clause 7: Evaluation formats

Clause 8: Optimization controls

Clause 9: Reproducibility - David H.

Clause 10: Alternate exception handling - David H.

Bibliographies

References and links

C++ liaison:

[Cfp-interest 2799] Attn WG 14, question about atomic_fetch_* and floating point re: [isocpp-lib- ext] P0493 Atomic max/min

Waiting on follow up from C++ on timing needed.

C23/WG14:

C2X working draft N3149 (for CFP only)

<https://wiki.edg.com/pub/CFP/WebHome/N3149.pdf>

^Rajan: Should we hold our next CFP meeting with the WG14 meeting at the same time and together with WG14? This way we can get the smallest possible turn around time for any questions or issues for the TS's.

Next WG14 meeting: October 16-20, 2023.

Carry-over action items results:

David H: Get an example for the scaled reduction functions (perhaps by asking Jason or Jim Demmel or looking into the IEEE references) by July. - Not done.

See <https://754r.ucbtest.org/background/traps-and-wraps.txt>

Jim: Can I be put in the loop for this and the next item so we can get it out to the CFP group to get it reviewed before the C meeting.

David H: Get an example for the augmented arithmetic functions (perhaps by asking Jason or Jim or looking into the IEEE references) by July. - Not done.

Action items results (from previous meeting):

Fred: Send any issues found with incorrect CD2 comment applications (Ex. DECIMAL_DIG has two entries in the suffix) to JeanHeyd and cc WG14 before the July 10th.

Need to wait for Fred.

Rajan: Submit CFP2741 as part of the US national body as an editorial comment for the DIS ballot. Not for discussion while in ballot.

Jim: Let the editor know of the page 675 "floating point" -> "floating-point" change
Done.

Jim: Update TS part 5 as per CFP2790's final suggestion.
Done.

Jim: Follow up with Hubert to see when he wants input on CFP2799.
Done.

Other issues:

TS part 4 revision:
See CFP2808.

Jim: Left the boilerplate as is as per David Keaton's suggestion.

^Jim: Look into why the pdf has funny characters in the initial copyright section.

^Jim: Be consistent with the rest of the standard for section 5.3 in the TS (the "if and only if" part).

^All: Consider weakening "if and only if" to "if" to allow more implementation latitude. Comes with the cost of being less consistent with the rest of the standard.

^Jim: Create a slide deck for TS part 4 as was done previously to help in understanding during the WG14 meeting.

TS part 5 revision:

See CFP2807.

Jim: Need a lot of review to ensure we match IEEE and of course the parts in C.

David: I can take alternate exception handling.

Jim: Need it before the next meeting. Please look at whatever you are interested in and let me know when you are done. Should be done a week before next meeting.

Jim: Everyone can look through both TS part documents, pick sections you want to review and let me know when you are done. Should be done a week before next meeting.

Part 4:

Introduction/Background

Introduction/Additional background on supplementary functions

Clause 1-5

Clause 6: Reduction functions - Damian

Clause 7: Augmented arithmetic functions - David H.

Clause 8: Augmented arithmetic macros - Rajan

Part 5:

Introduction/Background

Introduction/Additional background on supplementary attributes

Clause 1-6

Clause 7: Evaluation formats

Clause 8: Optimization controls

Clause 9: Reproducibility - David H.

Clause 10: Alternate exception handling - David H.

Bibliographies

References and links

Issues for C2Y - Need to be added to Fred's list.

No common real type

See [Cfp-interest 2745] Re: double-double OP float128_t

Jim: Should require a diagnostic for mixing types that are not subsets of each other.

Add to C2Y considerations list.

Which IEC 60559 formats

See [Cfp-interest 2746] {FLT, DBL, LDBL}_IS_IEC_60559 macros: clarification needed

Jim: I don't know how these are intended to be used. Needs discussion.

Add to C2Y considerations list.

FP_CONTRACT pragma for freestanding

See [Cfp-interest 2793, 2796] FP_CONTRACT pragma and <math.h>

Jim: Consider disassociating pragmas from headers.

Add to C2Y considerations list.

Floating vs floating-point

See [Cfp-interest 2794] "floating" vs "floating-point", and hyphens

Jim: Hyphens has been resolved. The difference between the terms still needs more discussion.

Add to C2Y considerations list.

Non-IEC 60559 long double with Annex F

See [Cfp-interest 2795] operations on long double when not an IEC 60559 format

Jim: Needs some more thought.

Add to C2Y considerations list.

Whitespace issue for strtod

See [Cfp-interest 2803] major white-space issue for functions like strtod

Jim: strtol would have the same problem.

Damian: So other locales could have "-" be whitespace and not minus sign?

Jim/Rajan: The specification allows it, but don't know of any locales that do that.

Whitespace issue for strtod/strtol: Should be a WG14 issue, not CFP. We need to pass it off to them.

Subnormal, flush to zero, IEC 60559 conformance

See [Cfp-interest 2805, 2806] Subnormals and flush-to-zero and IEC 60559 conformance macros

Jim: I agree with the general conclusion Hans has.

Damian: How many people still flush to zero?

No issue for us?

We can wait and see what materializes from this from Hans.

Regards,

Rajan Bhakta

z/OS XL C/C++ Compiler Technical Architect

ISO C Standards Representative (Canada, USA), INCITS/C Chair

C/C++ Compiler Development

rbhakta@us.ibm.com