

WG14 N3049

Meeting notes

C Floating Point Study Group Teleconference

2022-07-27

8 AM PDT / 10 PM EDT / 3 PM UTC

Attendees: Rajan, Jim, Damian, Fred, Ian, Mike, Vivian, David H.

New agenda items (https://wiki.edg.com/pub/CFP/WebHome/CFP_meeting_agenda_20220727-update.pdf1):

Discuss national body comment handling.

Next Meeting(s):

August 12, 2022, 3PM UTC

ISO Zoom teleconference

Note the (temporary) new day: Friday

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

Carry over action items:

Done unless specified otherwise. Details below in "Carry-over action items results" section.

Last meeting action items:

Done unless specified otherwise. Details below in "Action items results" section.

New action items:

Jim: Post links to the C++ standard in our wiki.

Rajan/Jim/Fred/Damien/Mike: Review the CD draft sections as below once it is out to ensure CFP changes were done correctly:

2: References: Fred

4: Freestanding: Rajan

5.2.4.2.2: BFP model: Jim

5.2.4.2.3: DFP model: Mike

6: Language: Jim

7.3: complex.h: Damien

7.6: Floating point environment: Damien

7.12: math.h: Fred

7.22.6: Formatted I/O:

7.23.1, 7.30.4.1: Numeric conversion: Rajan

7.26: tgmth:

7.32.4/5/8/13: Future directions:

Jim: Look again at N2570 to ensure proper integration into C23 was done.

Jim: Check with JeanHeyd on issues found in CFP2455 to ensure it is in before the latest C draft.

WG14 meeting:

July 18-22, 2022 (Virtual) See CFP2465, CFP2466.

Next meeting: January 9-13, 2023: Ballot resolution meeting

Rajan: All papers went in.

Jim: We don't have a draft and we need to see if things were integrated correctly. How do we add comments for bad integration without a draft?

Fred: Need an editorial review committee but we didn't set one up. I recall Keaton wanted a draft a week after the meeting. It seems tight given how many papers were voted in.

Jim: Looking at the WG14 schedule, we have August 8th as the date for the new draft to be out.

Mike: We can meet two weeks earlier (on the 10th, instead of the 24th of August) to hit the right timing after the draft comes out?

Jim: We can schedule a tentative meeting somewhere in between. We can organize the review before the draft comes out. How about August 12th instead of the 24th.

Agreed. Moving the meeting from the 24th to the 12th (of August).

Jim: Need to check clause 2 for the floating point references. Fred?

Fred: OK.

Jim: Review of our changes. Those comments have been made so far to the existing draft, and they need to be validated with the new draft.

Rajan: Including the new papers voted in.

Jim: Clause 4 for freestanding. Rajan?

Rajan: OK.

Jim: 5.2.4.2.2 (Jim), Mike, can you do the decimal part? 5.2.4.2.3?

Mike: Decimal can be handled by a diff to something that we know is good.

Jim: Not sure if we can do a diff. Acrobat reader does not allow that.

Mike: OK. Need the first draft after the decimal TS made it in.

Jim: February 2020 at least has it. The drafts are on the wiki under references. N2478. May be there before that draft too.

Jim: Clause 6, floating point parts are scattered throughout it. Searching for "floating" may help review there (Jim).

Jim: 7.6 is the floating point library with some changes (Damien), 7.12 is the math library with many changes (Fred), 7.22.6(?), 7.23.1 and 7.30.4.1 numeric conversion functions (Rajan), 7.26 for tgmath, then 7.32.4,5,8,13 for future directions.

Jim: The review is just to make sure the changes were made correctly, not to look for new problems.

C++ liaison:

Fred's C++ numerics subgroup meeting.

Fred: They were happy with the changes in C. Planning on doing equivalent changes for C++ for *_HAS_SUBNORM. No words on operations on the formats for them.

^Jim: David Olsen posted links to the C++ standard. I can post them on our wiki.

C23 integration:

New draft available. N2912.

Revised C23 schedule: <https://www.open-std.org/jtc1/sc22/wg14/www/docs/n2984.pdf>

^Rajan: Review assignment summary once the CD draft is out:

Clause 2: References: Fred

Clause 4: Freestanding: Rajan

5.2.4.2.2: BFP model: Jim

5.2.4.2.3: DFP model: Mike

Clause 6: Language: Jim

7.3: complex.h: Damien

7.6: Floating point environment: Damien

7.12: math.h: Fred

7.22.6: Formatted I/O:

7.23.1, 7.30.4.1: Numeric conversion: Rajan

7.26: tgmth:

7.32.4/5/8/13: Future directions:

Fred: What about fenv.h and complex.h?

Jim: Damien's is fenv.h, and no changes to complex.h.

Damien: I can look at complex.h in case something went in that we didn't expect.

Mike: You can do diff via export as plain text.

Carry-over action items results:

David H: Get an example for the scaled reduction functions (perhaps by asking Jason or Jim or looking into the IEEE references).

David: Not handled yet.

Jim: Focus should be on C23 review. After August however we can look at this in September for the first TS update that includes these.

David H: Get an example for the augmented arithmetic functions (perhaps by asking Jason or Jim or looking into the IEEE references).

David: Not handled yet.

Action items results (from previous meeting):

Jim: Make a list of the documents from CFP submitted to WG14.

See [Cfp-interest 2447] CFP proposals for C23

Fred: See which proposals are missing from the latest C23 draft N2912.

Fred: I mainly looked at mine and a few of yours (Jim), and I found a couple.

Jim: We can do this individually to make sure as part of the review.

Fred: I sent an email to JeanHeyd, you (Jim), and Rajan with these. N2570 with nothing in the C draft.

Jim: I thought that one was in OK.

Fred: N2600 item 11, 12 were not done.

Jim: I caught those in my comments to JeanHeyd.

Fred: I did send a list of what was done OK.

^Jim: I will look again at N2570.

Fred, Rajan, Jim: Review CFP proposals each person submitted to ensure they were integrated correctly into C23.

See [Cfp-interest 2448, 2452, 2449, 2455]

Rajan: All good, still need to review the paper that was just voted into C23 last week.

Fred: My comments sent in via the email I was just talking about.

Jim: My comments sent in via the emails listed in the CFP list.

Fred: I did notice that the two set of functions that differ only on inexact or rounding, one set is missing a condition while the other has it. It is not a problem in integration, but we never gave the complete set. It will have to get in as a NB comment. I sent an email about this.

Jim: Was that for one of my proposals? Can you send that email number?

Fred: Yes, got to find it. CFP2455 is part of the discussion. It is the width issue.

^Jim: Send JeanHeyd something about CFP2455 to ensure it is in before the latest C draft to avoid an NB comment.

Fred: Update C26 issue list as per discussion in the CFP June meeting.

See [Cfp-interest 2469] Re: CFP meeting minutes 2022/06/22

<https://wiki.edg.com/pub/CFP/WebHome/C26.HTM>

Jim: We can put more attention to this after the review.

Fred: Look to get an excerpt of the C++ standard in the subnormal traits area relating to the HAS_SUBNORMAL paper.

See [Cfp-interest 2445, 2446] C++ and subnormals

Rajan: Report to WG14 that CFP will be looking at the new C2X draft to ensure everything was integrated correctly.

Done.

Other issues

Quantum exponent for ++ operator

See [Cfp-interest 2466 and replies] Likely upcoming work for CFP from WG14's meeting today

Jim: I want to propose new words instead of what I posted in CFP2468.

Fred: The standard says "1 of the appropriate type" now due to bit-precise types.

Rajan: Has to change via a NB comment.

Jim: "If E has DFP type, the added 1 has quantum exponent zero."

Mike: No reason one of us can't propose the comment.

Jim: Yes, the comment and the fix.

Fred: It is for ++/--, prefix and postfix.

Jim: -- is specified as being "++ except that", so not expecting issues there.

Review TS part 4 revision

See [Cfp-interest 2454] Re: post-C23 update for TS 18661-4

Jim: Updated the want macros based on how C23 did them.

Obsoleting *_HAS_SUBNORM macros – follow up

See <https://www.open-std.org/jtc1/sc22/wg14/www/docs/n2993.htm>

cr_XXX functions, integration of

See N2715 cr_ prefix, CFP 2463, 2464

Fred: The word 'potentially' is missing in one place, and the list of functions need to be removed. It has been communicated to JeanHeyd.

CORE-MATH Project

See [Cfp-interest 2456 and follow up] The CORE-MATH Project

Fred: Binary only?

Jim: Yes, I believe it is true. Freely distributed source. I would have loved this for a reference implementation. Good to test your accuracy.

Jim: Any thought to testing this?

Fred: I hadn't. After the next three months, I may.

Others?

None.

Regards,

Rajan Bhakta

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