

WG14 N3130
Meeting notes

C Floating Point Study Group Teleconference

2023-05-10

8 AM PDT / 11 PM EDT / 3 PM UTC

Attendees: Rajan, Jim, Fred, David H.

New agenda items (<https://wiki.edg.com/pub/CFP/WebHome/n3126.pdf>):

None.

Next Meeting(s):

June 7, 2023, 3PM UTC

ISO Zoom teleconference

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

May move depending on the amount and content of the comments for CD2 that we need to respond to.

New action items:

All: TS part 3: Consider what to do for issue 3 (which headers contain which pragmas) as per the spreadsheet (current vs alternative 1).

Rajan: In the next WG14 meeting, ask about when to bring up TS-4 and TS-5 for revision.

C++ liaison:

None.

C23:

Last draft: <http://www.open-std.org/jtc1/sc22/wg14/www/docs/n3096.pdf> (CD2 equivalent)

Link on the wiki to the official CD2 document.

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). - Not done.

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

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

Action items results (from previous meeting):

Jim: Comments for CD2: Item 8: Change "unsigned and unsigned zeros" -> "unsigned zeros and" (Deferred due to CD2 ballot being out right now)

Jim: CD2 comment for float_t/double_t re floating type vs real floating type: Add "If the types are not real floating types, the behavior is implementation-defined." (Deferred due to CD2 ballot being out right now)

All: Consider: {FLT/DEC}_EVAL_METHOD in TS-5: Instead of allowing them to change with the #pragma FENV_FLT_EVAL_METHOD, create new macros that can change with the pragma. The existing macros give the default evaluation method, and are available for #if/#elif, while the new macros have the same value as the original macros at the beginning but can change based on the #pragma FENV_FLT_EVAL_METHOD setting and are not valid for use in #if/#elif.

Discussed in Other issues.

Damian: Rework the carg description to say phase instead of phase angle using the spreadsheet form. (Deferred due to CD2 ballot being out right now)

See CFP2734 and chain

Other issues:

CD2 related issues (deferred due to CD2 ballot being out right now):

See CFP2744-9.

TS part 4 revision:

See CFP2710.

No changes since last time.

TS part 5 revision:

See CFP2708,2730.

Jim: Newer version (diff file) present (May 7th, 2023). This is the one we'll be looking at.

Issue 1: A CD2 item so will not be discussed here.

Issue 2: Evaluation method macros.

Addition of Effective evaluation macros.

Fred: Why is it not function calls instead of macros?

Rajan: Constraints implementations. Macros can expand to anything (functions, global variables, magic).

Fred: OK. This is a runtime query right?

Jim: No, it is a translation time variable since it changes at different points in the program.

Fred: Can it be used in a variable in an assignment statement?

Jim: Yes.

Fred: Can 7.3 line 13 be "at translation time" at the end of the sentence to make it clear?

Rajan: The phrase "shall not be used in conditional expression inclusion preprocessing directives" may go too far. Perhaps implementation defined or unspecified?

Jim: We can keep it as is, and if there are objections, we can change it.

Issue 3: Are the pragmas in the right headers?

Jim: We could conceptually expand the floating point environment into translation environment as well.

Rajan: May be confusing for cross-compilation.

Fred: The subnormal one changes the floating point environment.

Jim: It may underneath the covers. Like the round pragmas which does not require dynamic environment changing, but can be by an implementation.

Fred: ARM has a bit in the floating point environment that says whether to flush subnormals or not.

Jim: Looking at current and alternative 1, leaning towards current. Let's review it later.

Agree to obsolesce FP_CONTRACT in math.h.

Regards,

Rajan Bhakta

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