C Floating Point Study Group Teleconference

2023-06-07
8 AM PDT / 11 PM EDT / 3 PM UTC

 Attendees: Rajan, Jim, Fred, Mike, David H, Ian, Gabriel Dos Reis (Microsoft France, AFNOR)

 New agenda items (https://wiki.edg.com/pub/CFP/WebHome/CFP_meeting_agenda-20230607-update.pdf):
   None.

 Next Meeting(s):
   July 5, 2023, 3 PM UTC
   ISO Zoom teleconference
   Please notify the group if this time slot does not work.

 New action items:
   Jim: Add in an agenda item for Mike's Arith 2023 report after their September meeting.
   Jim: Update CFP recommendations for CD2 ballot comments with:
     GB-005: Mike: Perhaps say "make" instead of "return" (alternative is "provide").
     CA-022: Make a note of the difference - Need a hyphen.
     US-087: Clarify that there should not be any replacement (original text is fine), just adding the new recommended practice words.
     US-117: CFP recommendation: "If a floating result overflows and default rounding is in effect and the integer expression math_errhandling & MATH_ERRNO is nonzero, then the integer expression errno acquires the value ERANGE."
     GB-188: Change "ininfinite" to "isinfinte" in the proposed change.
     US-201: Annex G does *NOT* specify the behavior of SNANs (typo, need to fix)
   Fred: Validate the list of functions for GB-181's proposed response.
   Rajan: For US-117, at the WG14 meeting say an alternative is having comma's after the "and"s.
   Fred: Add CFP2745 to the list of issues for C2Y.

 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.
   CD2 comments out. See Other Issues: CD2.
   WG14 CD2 ballot resolution meeting on 2023/06/20-2023/06/23.

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):
   All: TS part 5: Consider what to do for issue 3 (which headers contain which pragmas) as per the spreadsheet (current vs alternative 1).
   See CFP 2755.

   Rajan: In the next WG14 meeting, ask about when to bring up TS-4 and TS-5 for revision.
   Asked via email already. We can bring it up for the October 16-20 WG14 meeting.

Other issues:
   CD2:
   Comment review: See CFP2758.
      Jim: Generally agree with proposed changes, with my comments in the observations column. Will only bring up items to discuss if not trivial here, but let me know if anyone wants to talk about one that we skipped.
      GB-005:
       ^GB-005: Mike: Perhaps say "make" instead of "return" (alternative is "provide").
       All: Agreed.
       Mike: Does this apply to zero as well?
       Jim: Depends on the implementation as it is open in C.
       Rajan: Better than "sign bit".
       Mike: Agreed.
      US-021: Based on CFP274{8,9}.
       Looks good.
      CA-022:
       OK with first change.
       Note change: Just need to hyphenate floating-point.
       ^Mike: Make a note of the difference - Need a hyphen.
      US-087:
       "Conditional feature" is not the same meaning as in the standard.
       ^US-087: Clarify that there should not be any replacement (original text is fine), just adding the new recommended practice words.
       Discussion on using "encouraged to emit a diagnostic" instead of "diagnose", but resolved to keep it as is as the standard uses both forms.
      US-105: See CFP2728.
      US-106: See CFP2728.
      US-113: See CFP2728.
      US-114:
       Fred: Can't we require it to be real floating types?
       Jim: We considered it and said no since it comes with a lot of overhead in terms of required functions for example.

US-117:

Mike: Adding a comma there changes the meaning. The correct change is to remove the first comma.

Jim: No, that's not right.

Mike: You can replace the comma with a "then".

Jim: No, that is wrong too.

David: Is the intent that "A and B and C, then the integer expression errno acquires ..."

Mike's proposal: "If a floating result overflows and default rounding is in effect and the integer expression math_errhandling & MATH_ERRNO is nonzero, then the integer expression errno acquires the value ERANGE."

David'/Jim's proposal: "If a floating result overflows, and default rounding is in effect, and the integer expression math_errhandling & MATH_ERRNO is nonzero, then the integer expression errno acquires the value ERANGE."

Fred: A book called "Bugs in writing" says put commas in USA and not in UK.

Mike: For perfect clarity, remove the commas so it will work both ways.

Rajan: Perhaps use a bullet list?

Mike: Too heavy for this.

David: I like the bullet list.

^Rajan: At the WG14 meeting say an alternative is having comma's after the "and"s.

Resolved to put in the no comma approach and talk to the comma one.

^US-117: CFP recommendation: "If a floating result overflows and default rounding is in effect and the integer expression math_errhandling & MATH_ERRNO is nonzero, then the integer expression errno acquires the value ERANGE."

US-120:

OK with the proposed change.

US-125: See CFP2731 thread.

Rajan: Why was the original text different?

Jim: Don't know.

GB-152:

Rajan: Why do we say "direction"? Dropping it seems better.

Jim: Used normally.

Rajan: No, both are used.

GB-181:

The additions are not subject to being conditional on DFP support.

^AI: Fred: Validate the list of functions for GB-181's proposed response.

GB-188:

^GB-188: Change "ininfinite" to "isinfinte" in the proposed change.

GB-192:

Mike: 754 is an American standard so that is different from ISO.

US-200:

Fred: Say "and the values of the exceptions are not used"?

Jim: What does "value of an exception" mean?

Fred: The result of the expression.

Jim: The regular sequencing rules are still in effect. FP doesn't loosen them. Making the change would invalidate useful optimizations.

Mike: The signal handling case should behave the same way despite optimizations.

Rajan: The current wording does not say that. It just says the signal handler has to be called at least once.

Mike: Yes, missed that > 1 part.
US-201:
^US-201: Annex G does *NOT* specify the behavior of SNANs (typo, need to fix)
Jim: The proposed change contradicts F.2.1.
Jim: Does not require signaling, though it can. Ex. Unused argument.
Fred: My change should say you need to signal.
Jim: Shouldn't be just for one spot.
Fred: We should reject this change.
No objections.

Comments for CD2: Item 8: Change "unsigned and unsigned zeros" -> "unsigned zeros and"
Jim: Should be "signed" not "unsigned".
Jim: US-195 captures this.

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."
Jim: US-114 captures this.

Damian: Rework the carg description to say phase instead of phase angle using the spreadsheet form.
See CFP2734.
CFP2741 has the wording.
Rajan: Too late for CD2. Needs to be a comment for DIS by a National Body.

Other CD2 related issues:
CFP2744: Comparison macros and conversion to semantic type
Jim: US-125 addresses this.

CFP2745: double double OP float128_t
Jim: Not addressed in any comment. We can add this to our next C revision list.
^AI: Fred: Add CFP2745 to the list of issues for C2Y.

CFP2746: {FLT, DBL, LDBL}_IS_IEC_60559 macros: clarification needed
Jim: CA-022 addresses most of this. Which IEC-60559 formats are included is still open. Interchange, extended?

CFP2747/CFP2750: FLT_TRUE_MIN and DBL_TRUE_MIN in 5.2.4.2.2p29 example
Jim: Unclear what the issue is for CFP2749.
Jim: US-021 addresses CFP2750.

CFP2748: macros like DBL_MAX and FLT_EVAL_METHOD
Jim: See US-021 for this.

US-200 re F.9.1 #3
See CFP27{59-68}
Issue from Hans on what is normative text.

Jim: Part of the text should have been broken out as an example. Probably a lot of this in Annex F that needs to be examples or notes.

TS part 4 revision:
See CFP2710.

TS part 5 revision:
See CFP2753.

Regards,

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