WG14 N2135
Meeting notes

C Floating Point Study Group Teleconference

2017-02-28
9 AM PST / 12 PM EST

Attendees: Rajan, Jim, David C., Mike, Marius, Fred, David H.

New agenda items:
  None.

Last meeting action items:
  All: Review the posted proposals (on CFP wiki with date 2016/09/01) by next meeting as it is
    the last one before the Markham mailing. - Done.
  Jim: DRS2: DDR7: Look to see if there is a simpler way of showing the change. - Done
    (2017/02/20 email).
  Rajan: DRS2: DDR9: Add code examples for implementers to test out and send it out via email.
    - Done.
  Jim: DRS2: DDR2: Write a paper with this text (DECIMAL_DIG_obsolescence.pdf) for WG14. -
    Done.
  Jim: Make SC22WG14.14586 a proposal for C2X. - Done.
  Jim: Respond to Joseph's comments on SC22WG14.14586, SC22WG14.14587 via WG14
    reflector. - Done.

New action items:
  Rajan: Submit DRS2:DDR9 example as a paper for a supplement to the STC in the DR and
    change all the %A to %a (ensuring it conforms to the specification for %a).
  Jim: Create a DR against part 2 to specify the capitalization effects of %a.
  Jim: DRs2:DDR2: DECIMAL_DIG: Have DECIMAL_DIG to be the largest supported floating
    type as a new replacement Suggested TC for DRs2:DDR2.
  Jim: Add in the encoding *_DIG macros (as per
    http://wiki.edg.com/pub/CFP/WebHome/characteristics_for_non-arith_formats.pdf) and
    obsolescing DECIMAL_DIG as a proposal to WG14 as a new enhancement.
  Jim: Include Type-generic macros for functions that round result to narrower type as part of the
    third set of DR's.
  Fred: Propose adding in #pragma STDC FENV_ROUND DEFAULT as a means to set the
    static rounding mode to the default rounding mode.

Next Meeting:
  Tuesday March 21st, 2017, 12:00 EDT, 9:00 PDT
  Same teleconference number.

Discussion:

  IEEE 754 revision:
    Next meeting will be the last one for any substantive changes.
    min/max: Not reflective of NaNs. Can have them as most important or least important.
      Recommendations so won't break anyone.
    We will need to name it too somehow.

  C++ liaison:
    Ian not present.

  What should be proposed for the C standard (C2X):
    Part 3 is one proposal. Extended, interchange, and support for interchange formats. Can split
      it up if needed.
     Keep it as one proposal, but mention it can be split up if needed.
    Part 4 is two proposals: transcendental functions and reduction functions.
     Keep it as two proposals.
     Jim: Is 754's thinking changing with regards to the reduction functions?
      David H: Been talked about due to vectorization but leaving it as is since it is too big an
        item to handle right now.
      Jim: Should we lower the priority or not push for this due to the expected future changes?
      David H: How stringent things are about exceptions is likely to change. The basic
        functionality should be the same and shouldn't contract but may be enhanced.
    Part 5 is 4 proposals: Expression evaluation, optimization, reproducibility, alternate exception
      handling
     Leave it as is.
     Jim: The alternate exception handling has a natural split on ones that change control flow.
      The ones that don't change control flow are fairly straightforward, so may be easier to pass
      since less invention.
    We do have a reputation of being flexible so it should not be a problem about doing parts and
      not others.
    We have draft documents for everything and prior art.
    2017/02/02 email for proposal for C2X for FE_TONEARESTFROMZERO rounding direction
      (http://wiki.edg.com/pub/CFP/WebHome/C2x_proposal_-
      _FE_TONEARESTFROMZERO.pdf)
     Go ahead with the proposal.

  DRs:
    Discuss suggestion in Jim's Feb 20 email "simplify DRs2:DDR7"
     Jim: Should be non-substantive change in part 2, but not sure. This means the part 3 tgmath
      will rely on the usual arithmetic conversions.
     Treat this as a new paper for a new simpler suggested TC for DDR7 so the committee has a
      choice on which TC to take.

    Follow-up on DRs2:DDR9 a-style formatting not IEC 60559 conformant.
     See code examples in Rajan's Jan 24 email "Examples to add for Defect report set 2, Draft
      defect report 9".
     Fred: Change return 55 to return 0.
     *Rajan: Submit this as a paper for a supplement to the TC in the DR.

Discuss Jim's Jan 24 email "RE: Examples to add for Defect report set 2, Draft defect
  report 9" about effect of %a vs %A for decimal.
 *Jim: Should we create a DR against part 2 to specify the capitalization effects?
  Yes.
 Rajan: Check the specification now to make sure the example conforms to what is currently
  specified.

Discuss DRs2:DDR2. See Jim's Feb 1 email "AI: DECIMAL_DIG obsolescence" and Joseph
  Myers's Feb 20 email "Re: (SC22WG14.14602) N2108 and 18661-3 definition of
  DECIMAL_DIG". See also Ian's Jan 20 email "Re: AI: proposal to obsolesce
  DECIMAL_DIG".
 Due to the encoding functions, we need a size to allow buffers for non-arithmetic types.
 Even with http://wiki.edg.com/pub/CFP/WebHome/characteristics_for_non-
  arith_formats.pdfwe need to make DECIMAL_DIG equivalent to LDBL_DECIMAL_DIG or
  maybe just make it the largest supported floating type (Ian's suggestion).
 *Jim: DECIMAL_DIG: Have DECIMAL_DIG to be the largest supported floating type as a
  new replacement Suggested TC for DRs2:DDR2.
 *Jim: Add in the encoding *_DIG macros (as per
  http://wiki.edg.com/pub/CFP/WebHome/characteristics_for_non-arith_formats.pdf) and
  obsolescing DECIMAL_DIG as a proposal to WG14 as a new enhancement.

Discuss DRs3:DDR2 Type-generic macros for functions that round result to narrower type.
 See posted DDRs3-20170121.pdf.
 *Jim: Include Type-generic macros for functions that round result to narrower type as part of
  the third set of DR's.

Discuss suggestion in Fred's Feb 22 email "Part 1: FENV_ROUND DEFAULT".
 Sounds good for non IEEE floating point types.
 *Fred: Propose adding in #pragma STDC FENV_ROUND DEFAULT as a means to set the
  static rounding mode to the default rounding mode.

Other:
 None.