WG14 N2520
Meeting notes

C Floating Point Study Group Teleconference

2020-04-15
8 AM PDT / 11 AM EDT / 3 PM UTC

Attendees: Rajan, Jim, Mike, Fred, David C., David H., David Olsen (C++ Standards committee), Ian

New agenda items:
TS 3 as an annex

Carry over action items:
CFP: Put the tgmath redefinition as a proposal to the standard once we have a base document with TS Part 3 in it. See CFP 1386. - Done.
Added into the draft Jim sent CFP 1554.
David: Look into Jim's duplicated CFP messages. Also some missing messages if the person was in the To list (while CFP was cc'd). David to upgrade mailman. - Not done.
Still an issue.

Last meeting action items:
Jim: See if N2478 changes anything for our proposals (which reference n2454). - Done.
Fred: Get a paper number for CFP 1538 and submit it. - Done.
Jim: Get a paper number for the paper referenced in CFP 1516 and submit it. - Done.
Jim: Add in a note to CFP 1526 to say the cast raises no floating point exceptions. - Done.

New action items:
Jim: Add a note to Part 3 as an Annex to mention the redundant decimal suffixes (df, dd, dl vs d32, d64, d128).
Jim: Add a forward reference in X.3 to a new example for the use of encoding conversion in the encoding functions section.
Jim: Need to look into seeing if _Imaginary types should be added to the list of types for carg, cimag, conj, cproj, creal (p32, line 5 of http://wiki.edg.com/pub/CFP/WebHome/cfp3x-annex-20200414.pdf)

Next Meeting(s):
Wednesday, May 20th, 2020, 11 AM EDT, 8 AM PDT, 3 PM UTC
ISO Zoom teleconference
Please notify the group if this time slot does not work.

Zoom - Working well with the new meeting information in the email (CFP 1562).

Discussion:
C++ Liaison:
David O. joining. Interested in part 3 and Float16.

WG14 meeting:
See [Cfp-interest 1552] Fw: WG14 meeting summary of items of interest to CFP - Filled in missing votes in 8.1
Other CFP papers were not discussed. Should be on the main agenda in the August 3-7th

WG14 Freiburg meeting.

C2X integration (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2478.pdf):
Part 3 - Investigating updates
Part 4b
Part 5a,b,c,d
Proposals for IEEE-2019 support have been submitted.

Action item details:
CFP: Put the tgmath redefinition as a proposal to the standard once we have a base document with TS Part 3 in it.
AI: Jim: Add a note to Part 3 as an Annex to mention the redundant decimal suffixes (df, dd, dl vs d32, d64, d128).
We can ask WG14 to see what they want.
X.8 change to refer to Annex B is good with the current WG14 direction of having part 3 as an annex.
Fred: For the encode functions, add an example showing the usage for _Float16 to something like _Float32.
Jim: Should be there in p9 (X.3). We can add a forward reference in X.3 to an example for that in the encoding functions section.
AI: Jim: Add a forward reference in X.3 to a new example for the use of encoding conversion in the encoding functions section.
Fred: p32 line 5: Should imaginary be mentioned?
AI: Jim: Need to look into seeing if _Imaginary types should be added to the list of types for carg, cimag, conj, cproj, creal (p32, line 5 of http://wiki.edg.com/pub/CFP/WebHome/cfp3x-annex-20200414.pdf)

David: Look into Jim's duplicated CFP messages. Also some missing messages if the person was in the To list (while CFP was cc'd). David to upgrade mailman.
Still to do.

Jim: See if N2478 changes anything for our proposals (which reference n2454). See [Cfp-interest 1548] AI about newer C draft
Good as is.

Fred: Get a paper number for CFP 1538 and submit it. See N2506: Range errors and math functions
Submitted as is. Nothing new.

Jim: Get a paper number for the paper referenced in CFP 1516 and submit it.
See [Cfp-interest 1549] AI to submit paper about math function properties
Submitted N2492.

Jim: Add in a note to CFP 1526 to say the cast raises no floating-point exceptions.
See [Cfp-interest 1550] AI to update note about INFINITY and NAN macros and _Float16
David O: It looks compatible with C++.

Other issues
Proposal for short float, floating type extensions for C++ and C. Others?
David O.: Short float was rejected in C++ two years ago. Don't want it for C since C++ already said no. It is underspecified. Needs to be a specific format and can't be a generic one.
N2487: David O: Opposed to this.
David H: From IEEE's point of view, some have implemented it the IEEE way and want it standardized. Machine learning evolving so rapidly it is hard to say which is the most useful and so doubt there will be quick consensus on the right format.
David O: There are 2 formats in the wild now, IEEE (1/5/10) and bfloat16, 1 bit sign/8 bit

exponent/7 bit mantissa. Next Nvidia chip will support both formats in hardware. I want the same in the standard (2 separate types with defined interactions).

David H: Block floats may be used too with a vector of integers (8 or 16 bit) with a single integer exponent field. The 754 email log on this is on the 754 website.

David O: Just want to standardize existing practice and fit in new hardware short floats into the existing framework.

David H: What determines critical mass to standardize?

David O: Just want to have the framework so adding new types is easy and rules are there for how it interacts with other types.