

**WG14 N2615**  
**Meeting notes**

**C Floating Point Study Group Teleconference**

2020-10-21  
8 AM PDT / 11 AM EDT / 3 PM UTC

**Attendees:** Rajan, Jim, Fred, Mike, David H, Ian, David O, Damian

**New agenda items:**  
None.

**Carry over action items:**  
None.

**Last meeting action items:**

Fred: Get a paper number and submit CFP 1760 to WG14.  
Jim: Submit CFP 1758 with the addition of a reference to the property referenced in Problem 2.  
Fred: Rework CFP 1759 to better word and position the footnote.  
Jim: Remove default argument promotion from slide deck and proposal for Part 3 as an Annex.  
Submit them as WG14 updated papers.

**New action items:**

Fred: Look into other places to update references to DEC\_EVAL\_METHOD as per N2546.  
Rajan: Discuss with JeanHyde on what to do for N2558 (and mention our plans for N2559).  
Jim: Update N2559 to add 'superseded' and update the bibliography as per Josephs comments.  
Jim: Get an N# and submit the new draft of TS Part 3 as an annex.  
Fred: Rework CFP 1797 to address the comments in the message.  
Fred: Write a paper to remove the fminfN/fmaxfN/fmindN/... functions from part 3 as an annex.  
Fred: Create a paper for the missing cases for compound{n} as per CFP 1793.  
Jim: Submit the need for editorial changes along the lines of CFP 1794 to JeanHyde.

**Next Meeting(s):**

Wednesday, November 25th, 2020, 8 AM PDT / 11 AM EDT / 4PM UTC  
ISO Zoom teleconference  
Please notify the group if this time slot does not work.

**C++ liaison:**  
None.

**WG14 October meeting (CFP 1795):**

N2546: May need updates to a footnote for atomic compound assignment.  
\*AI: Fred: Look into other places to update references to DEC\_EVAL\_METHOD as per N2546.

N2548: Jim has an update with this change along with others.

N2558:

\*AI: Rajan: Discuss with JeanHyde on what to do for this (and mention our plans for N2559).

N2559:

\*AI: Jim: Update N2559 to add 'superseded' and update the bibliography as per Josephs comments.

Should we get a N# document for these?

We can submit this as editorial, and not need agenda time.

N2561: A new draft with the annex changes was submitted.

\*AI: Jim: Get an N# and submit the new draft.

N2570: Jim: There is one other use of the radix specific WANT macros, so we may need to make another change.

We should monitor the change to ensure it is in correctly and nothing is missed like the additional use of the macro.

### **C2X Integration:**

Latest C2X draft: <http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2573.pdf>

Part 1 - In, or will be in soon.

Part 2 - In, or will be in soon.

Part 3 - In, or will be in soon.

Part 4a - In, or will be in soon.

Part 4b

Part 5abcd

IEC 60559:2020 support - In, or will be in soon.

### **Action item details**

Fred: Get a paper number and submit CFP 1760 to WG14.

N2580 DFP triples.

Mike: Want to ensure the minus signs are minus and not hypens.

Jim: Submit CFP 1758 with the addition of a reference to the property referenced in Problem 2.

[Cfp-interest 1788] AI about sufficient formatting precision

Added a reference at Problem 2.

Fred: Rework CFP 1759 to better word and position the footnote.

[Cfp-interest 1778] Exact subnormal results

See CFP 1797 with Jim's suggestions.

Fred: Agree with the first two of Jim's changes. Annex F does list a lot of exact cases. 754 allows flush to zero so don't have to have subnormals. WG14 has not adopted it yet though.

Jim: Those Annex F lists are for special values. Nothing for every case.

Fred: I don't think so. Almost every function has something about this.

Jim: The power function has a bazillion exact cases but they are not all listed.

\*AI: Fred: Rework the CFP 1797 to address the comments.

Jim: Remove default argument promotion from slide deck and proposal for Part 3 as an Annex. Submit them as WG14 updated papers.

N2579 2020/10/04 Thomas, C2X proposal - TS 18661-3 annex update 2

N2578 2020/10/04 Thomas, TS 18661-3 annex update - slide deck

### **WG14 meeting followup**

TS3 annex

[Cfp-interest 1791] TS3 annex update - post WG14 meeting

Moved SNAN macros from math.h into float.h.

Removed the intmax\_t's.

The new min/max functions were added.

Removed maxmag, minimal functions.

Fred: Given we're obsolescing fmin/fmax, should we be added those to this annex?

Jim: They are not obsolesced, but the question is still valid.

Rajan: We should remove them if it is easy to do since IEEE considers them fundamentally flawed.

\*Al: Fred: Write a paper to remove the fminfN/fmaxfN/fmindN/... functions from part 3 as an annex.

### Other issues

Missing cases for compoundn

[Cfp-interest 1792] compoundn(+inf,n)

[Cfp-interest 1793] Re: compoundn(+inf,n)

Jim: Not sure how we missed them. They are in 754.

\*Al: Fred: Create a paper for the missing cases for compound{n} as per CFP 1793.

Infinity and NaN macros cleanup

[Cfp-interest 1794] NaN and infinity macros cleanup Jim Thomas

Fred: Is this a new paper or editorial?

Jim: I hope it is editorial. Certainly was the intent.

\*Al: Jim: Submit the need for editorial changes along the lines of CFP 1794 to JeanHyde.

Gradual overflow

[Cfp-interest 1780] Gradual overflow Fred J. Tydeman

[Cfp-interest 1781] Re: Gradual overflow David Hough CFP

Fred: I see only double-double as a case where this would matter.

Jim: With these changes, double-double implementations would end up breaking if they did conform before these changes.

TS 18661 updates

For part 4b and part 5.

We need to submit a WG14 paper asking to revise the TS's (before February). In one of the spring meetings, WG14 would decide whether to do it or not. By August, SC22 would agree to update the TS's. By August 2023, we'd have to have the final ballot for the updated TS. August 2024 would be the deadline for final publication.

Fred: Do we really need to revise them?

Jim: Part 4 would allow us to bring in the augmented arithmetic functions.

For part 5, it may be a fair question, though it refers to an obsolete version to the standard. It could be written more like a standard.

Jim: Would the new additions be a new edition and have the same number? Ex. 18661-4 2nd edition?

Jim: Do we want to re-propose TS part 5 to WG14 as part of C? I think having standard pragmas for floating point semantics would be useful and move the industry forward.

Jim: I'll bring another look at it up in the agenda for next CFP meeting.

Jim: I got information on a new template for the TS's.

Jim: Is it valuable to have the background section there and repeated as before?

Library functions returning `_Bool`

[Cfp-interest 1786] totalorder Fred J. Tydeman

[Cfp-interest 1787] Re: totalorder Jim Thomas Others?

Jim: Should we have WG14 tell us to do that? I'd rather have WG14 tell us they want all new functions to follow that rather than us doing changes to some functions.