

WG14 N2784

Title: TS 18661-4 revision
Author, affiliation: C FP group
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Reference: N2274

David Keaton (the convener) is requesting a Part 4 revision along with the request for the Part 5 revision and so this is being provided for completeness.

TS 18661 specified a C language binding for IEC 60559:2008. It was developed and published as five parts. For discussion about inclusion in C23, parts 4 and 5 were divided into sub-parts that could be considered separately.

Part 1 – Binary floating-point arithmetic
Part 2 – Decimal floating-point arithmetic
Part 3 – Interchange and extended types
Part 4a – Supplementary functions – Mathematical functions
Part 4b – Supplementary functions – Reduction functions
Part 5a – Supplementary attributes – Evaluation formats
Part 5b – Supplementary attributes – Optimization controls
Part 5c – Supplementary attributes -- Reproducibility
Part 5d – Supplementary attributes – Alternate exception handling

Parts 1, 2 and 4a have been incorporated into draft C23 and the content of Part 3 is being added as an annex. As a related enhancement, C23 is being updated to be based on IEC 60559:2020.

This paper proposes that WG 14 develop a revision of Part 4 (to be drafted by the C FP group) that would include:

- Regression functions -- essentially Part 4b, updated for IEC 60559:2020; and
- Augmented arithmetic functions -- new in IEC 60559:2020.

A detailed specification for the augmented arithmetic functions is included in N2274, which was an earlier proposal to add these functions to an update of Part 4.

Both current Part 4b and N2274 are written as changes to C. We would like to draft the revision as a stand-alone specification of extensions to C, in the manner of an annex (though we are not suggesting it as a C23 annex).

If WG 14 approves this work, we ask that the necessary request be submitted to the SC 22 plenary.

A separate proposal addresses Part 5.