G3 New Work Item Proposal

March 2007

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: YYYY-MM-DD	Proposer: ISO/IEC JTC 1/SC 22/WG 14
Secretariat: ANSI (United States)	**ISO/IEC JTC 1 N** XXXX ISO/IEC JTC 1/SC 22 N XXX

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer.

Title *Floating-point extensions for C*

Scope

This multi-part Technical Specification will specify:

- Part 1 updates ISO/IEC 9899:2011 (Information technology — Programming languages, their environments and system software interfaces — *Programming Language C*), Annex F in particular, to support all required features of ISO/IEC/IEEE 60559:2011 (Information technology — Microprocessor Systems — *Floating-point arithmetic*).
- Part 2 supersedes ISO/IEC TR 24732:2008 (Information technology – Programming languages, their environments and system software interfaces – *Extension for the programming language C to support decimal floating-point arithmetic*).
- Parts 3-5 specify extensions to ISO/IEC 9899:2011 for features recommended in ISO/IEC/IEEE 60559:2011.

This International Standard will not specify:

Purpose and justification

The purpose of this Technical Specification is to provide a C language binding for IEC 60559:2011, based on the 9899:2011 standard, that delivers the goals of IEC 60559 to users and is feasible to implement. It is organized into five Parts.

- Part 1 – provides suggested changes to 9899:2011 that cover all the requirements, plus some basic recommendations, of IEC 60559:2011 for binary floating-point arithmetic. C implementations intending to support IEC 60559:2011 are expected to conform to conditionally normative Annex F as enhanced by the suggested changes in Part 1.
- Part 2 – enhances TR 24732 to cover all the requirements, plus some basic recommendations, of IEC 60559:2011 for decimal floating-point arithmetic. C implementations intending to provide an extension for decimal floating-point arithmetic supporting IEC 60559-2011 are expected to conform to Part 2.
- Part 3 – covers the interchange and extended types, covered by the recommended features of IEC 60559:2011
- Part 4 – covers the supplementary functions, covered by the recommended features of IEC 60559:2011
- Part 5 – covers the supplementary attributes, cover recommended features of IEC 60559:2011.

C implementations intending to provide the extensions covered in Parts 3-5 are expected to conform to the corresponding Part.

Programme of work

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

___ a single International Standard
___ more than one International Standard (expected number: .....)
___ a multi-part International Standard consisting of ..... parts
___ an amendment or amendments to the following International Standard(s)
_X_ a multi-part technical report, type II, *Technical Specification* consisting of *5* parts
___ a technical report, type II, *Technical Specification*

And which standard development track is recommended for the approved new work item?

___ a. Default Timeframe
___ b. Accelerated Timeframe
_X_ c. Extended Timeframe

Relevant documents to be considered

- [ISO/IEC 9899:2012] Programming Languages – C.
- [ISO/IEC 9899:2012] Cor–1:2012, Programming Languages – C – Technical Corrigendum 1.
- [ISO/IEC/IEEE 60559:2011] Information technology — Microprocessor Systems — Floating-point arithmetic
- [ISO/IEC TR 24732:2008] Information technology – Programming languages, their environments and system software interfaces – Extension for the programming language C to support decimal floating-point

Co-operation and liaison

Preparatory work offered with target date(s)
A preliminary working draft for *Part 1: Binary floating-point arithmetic* is circulated with this New Work Item Proposal

Signature:

Will the service of a maintenance agency or registration authority be required? .....No.....
- If yes, have you identified a potential candidate? .....
- If yes, indicate name .....

Are there any known requirements for coding? .....No.....
-If yes, please specify on a separate page

Does the proposed standard concern known patented items? .....No.....
- If yes, please provide full information in an annex

Are there any known accessibility requirements and/or dependencies (see: http://www.jtc1access.org)?.....No.....
-If yes, please specify on a separate page

Are there any known requirements for cultural and linguistic adaptability?.....No.....
-If yes, please specify on a separate page

Comments and recommendations of the JTC 1 or SC 22 Secretariat - attach a separate page as an annex, if necessary

Comments with respect to the proposal in general, and recommendations thereon:
It is proposed to assign this new item to JTC 1/SC 22

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation: YYYY-MM-DD	Closing date for voting: YYYY-MM-DD	Signature of Secretary:

NEW WORK ITEM PROPOSAL -		

PROJECT ACCEPTANCE CRITERIA		
Criterion	**Validity**	**Explanation**
A. Business Requirement		
A.1 Market Requirement	Essential _X__ Desirable ___ Supportive ___	An essential element of numerical programming in the C programming language is a well-documented binding to IEC 60559.
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes ___ No__X_	
B.2 Commitment to other organization	Yes ___ No__X_	
B.3 Other Source of standards	Yes ___ No__X_	
C. Technical Status		
C.1 Mature Technology	Yes ___ No_X__	The immaturity of the technology is the reasoning behind requesting a TS.
C.2 Prospective Technology	Yes ___ No_X_	
C.3 Models/Tools	Yes ___ No_X_	
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes ___ No_X_	
D.2 Interoperability	Yes ___ No__X_	
E. Adaptability to Culture, Language, Human Functioning and Context of Use		
E.1 Cultural and Linguistic Adaptability	Yes ___ No__X_	We believe the technology being developed for the C language binding for IEC 60559:2011 will support cultural and linguistic adaptability.
E.2 Adaptability to Human Functioning and Context of Use	Yes ___ No__X_	
F. Other Justification		

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or for a external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

D. Conformity Assessment and Interoperability Any other aspects of background information justifying this NP shall be indicated here.

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

E. Adaptability to Culture, Language, Human Functioning and Context of Use
NOTE: The following criteria do not mandate any feature for adaptability to culture, language, human functioning or context of use. The following criteria require that if any features are provided for adapting to culture, language, human functioning or context of use by the new Work Item proposal, then the proposer is required to identify these features.

E.1 Cultural and Linguistic Adaptability. Indicate here if cultural and natural language adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

ISO/IEC TR 19764 (Guidelines, methodology, and reference criteria for cultural and linguistic adaptability in information technology products) now defines it in a simplified way:
- "ability for a product, while keeping its portability and interoperability properties, to:
- be internationalized, that is, be adapted to the special characteristics of natural languages and the commonly accepted rules for their se, or of cultures in a given geographical region;

- take into account the usual needs of any category of users, with the exception of specific needs related to physical constraints

Examples of characteristics of natural languages are: national characters and associated elements (such as hyphens, dashes, and punctuation marks), writing systems, correct transformation of characters, dates and measures, sorting and searching rules, coding of national entities (such as country and currency codes), presentation of telephone numbers and keyboard layouts. Related terms are localization, jurisdiction and multilingualism.

E.2 Adaptability to Human Functioning and Context of Use. Indicate here whether the proposed standard takes into account diverse human functioning and diverse contexts of use. If so, indicate how it is addressed in your project plan.
NOTE:
1. Human functioning is defined by the World Health Organization at http://www3.who.int/icf/beginners/bg.pdf as: << In ICF (International Classification of Functioning, Disability and Health), the term functioning refers to all body functions, activities and participation. >>
2. Content of use is defined in ISO 9241-11:1998 (Ergonomic requirements for office work with visual display terminals (VDTs) Part 11: Guidance on usability) as: << Users, tasks, equipment (hardware, software and materials), and the physical and societal environments in which a product is used.>>
3. Guidance for Standard Developers to address the needs of older persons and persons with disabilities).

F. Other Justification Any other aspects of background information justifying this NP shall be indicated here.