InterNational Committee for Information Technology Standards (INCITS)
Secretariat: Information Technology Industry Council (ITI)
1101 K Street NW, Suite 610, Washington, DC 20005
www.INCITS.org

WG14 N2141
INCITS PL22.11-2016-00007
Date: 2016-10-20
Reply To The Attention Of: Barry Hedquist
PL22.11 Secretary
Email: beh@peren.com

MINUTES
17–21 October, 2016
MEETING OF ISO/IEC JTC 1/SC 22/WG 14
AND
INCITS PL22.11

Dates and Times

17 October, 2016 09:00 – 12:00 Lunch 13:30 – 16:30

18 October, 2016 09:00 – 12:00 Lunch 13:30 – 16:00

19 October, 2016 09:00 – 12:00 Lunch 13:30 – 16:30

20 October, 2016 09:00 – 12:00 Lunch 13:30 – 16:30

21 October, 2016 09:00 – 12:00

Meeting Location

Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213

Meeting information

Venue information: N 2047

N2057 Updated Venue for October 2016 Pittsburgh PA

Local contact information

Dan Plakosh (dplakosh@cert.org)

1. Opening Activities

1.1 Opening Comments (Plakosh, Keaton)

Bob Schiela, CERT, welcomed us to beautiful and scenic Pittsburgh.

1.2 Introduction of Participants/Roll Call

Name	***Organization***	***NB***	***Comments***
Jens Gustedt	INRIA	France	
David Keaton	Keaton Consulting	USA	WG14 Convener
Daniel Plakosh	CERT/SEI/CMU	USA	WG14 ISO eCommittee Secretary
Lars Bjonnes	Cisco	USA	
Blaine Garst	Garst	USA	
Rajan Bhakta	IBM	Canada	
John Parks	Intel	USA	PL22.11 Chair
Clark Nelson	Intel	USA	
Bill Seymour	Seymour	USA	
Robert Secord	CERT/SEI/CMU	USA	
Douglas Walls	Oracle	USA	
Barry Hedquist	Perennial	USA	PL22.11 Secretary
Tom Plum	Plum Hall	USA	dialed in
Martin Sebor	Red Hat	USA	
Larry Jones	Siemens PLM Software	USA	Project Editor
Aaron Ballman	CERT/SEI/CMU	USA	
Peter Sewell	University of Cambridge	UK	
Jim Thomas	Tydeman Consulting	USA	
Keld Simonson	Denmark	Denmark	

Clive Pygott	LDRA	USA	
Will Klieber	CERT	USA	
David Svoboda	CERT	USA	
Robert Schiela	CERT	USA	
David Svoboda	CERT	USA	
Aaron Ballman	CERT	USA	

1.3 Procedures for this Meeting (Keaton)

The Meeting Chair and WG14 Convener, David Keaton, announced that procedures would be as per normal. Everyone was encouraged to participate in the discussion and straw polls.

Straw polls are an informal WG14 mechanism used to determine if there is consensus to pursue a particular technical approach or possibly drop a matter for lack of consensus. Straw polls are not formal votes, and do not in any way represent any National Body position. National Body positions are established in accordance with the procedures established by each National Body.

INCITS PL22.11 members reviewed the INCITS Anti-Trust and Patent Policy Guidelines at:

http://www.incits.org/standards-information/legal-info

All 'N' document numbers in these minutes refer to JTC1 SC22/WG14 documents unless otherwise noted.

The primary emphasis of this meeting was to review the progress of our subgroups and work on Defect Reports.

David Keaton is the meeting Chair.
Barry Hedquist is the Recording Secretary.

1.4 Approval of Previous Minutes [N 2036]

N2036, 2016/05/05, Hedquist, MINUTES (Draft) 11-14 April, 2016, MEETING OF ISO/IEC JTC 1 SC 22/WG 14 AND INCITS PL22.11

The previous minutes have been amended for typos, etc.
They are approved by unanimous consent (Garst/Hedquist)

The final approved Chiswick minutes are N2099.
The draft Pittsburgh minutes are N2100.

1.5 Review of Action Items and Resolutions

ACTION: Jens to develop new material based on DR 486 and write new papers that are SD-3 material, and DR material, as needed.
DONE N2027

ACTION: Convener to forward PDTS 18661-5 to SC22 for DTS Ballot
DONE

ACTION: Boris Fomitchev and Sergei Nikolaev to develop the next iteration of N2016.
OPEN

ACTION: Convener to add to the C2X charter a guideline for future APIs, size should be specified prior to an array.
DONE N2086

ACTION: Convener to add N2008 to SD3.
DONE N2087

ACTION: Convener to prepare a draft New Work Item Proposal for CPLEX by the SC22 Plenary in September 2016.
DONE

ACTION: Convener to add “Secure Coding TS Update” to the agenda Pittsburgh.
DONE Agenda 8.1.2

ACTION: Blaine to write up DR 494 and DR 495 with Clark’s assistance from N 2027.
DONE

ACTION: Blaine to take the words from N2028 and construct a Proposed TC.
DONE Add for DR 444 as well.

ACTION: Blaine to reconcile N2019 and N2026 for DR 469.
OPEN Recorded direction, more work needed.

ACTION: Blaine to strike the L portion in the DR 476 Resolution paper.
DONE - L from informal paper, as directed in DR 476

ACTION: Blaine to look at adding DR 479 to DR 469.
DONE – Committee Discussion DR 469

ACTION: Blaine to write a Proposed Committee Response for DR 489
DONE

ACTION: Blaine to write a Proposed Committee Response to DR 490.
DONE

ACTION: Blaine to adopt the first bullet of the Suggested TC as the Proposed TC for, including ‘by the program’ for DR 491.
DONE

ACTION: Blaine to write a Proposed Committee Response for DR 492.
DONE

ACTION: Convener to add N2034 to SD3, and track its state with WG21.
DONE N2087

ACTION: Willem and Jens to work with Larry to get him up to speed on the use of LaTeX.
DONE

1.6 Approval of Agenda

N2048, 2016/05/30, Keaton, Preliminary Agenda for October, 2016, Pittsburgh PA.

N2088, Keaton, Agenda for October, 2016.

Revisions to the Revised Agenda are posted and reflected here.

Added Items: None

Deleted Items: The first two items, DR 488, and DR 489 moved to DR section.

Agenda approved by unanimous consent. (Garst/Secord)

1.7 Identify National Bodies Sending Experts

USA, Canada, Denmark.

2. Reports on Liaison Activities

2.1 SC 22

WG14 tried to make a correction to C Secure Coding Rules. Asked JTC1 to relax the rules.

2.2 PL22.11/WG 14

N2070, Convener's Report and Business Plans.

N2087, Keaton, Updated Standing Document 3.

Part 5 of the C Floating Point TS was published.

21938 – CPLEX TS, Part 1 is in ballot.

ACTION: Convener to get final published version of C11.

2.3 PL22.16/WG 21

ISO/IEC CD 14882 ballot for C++ 2017 closed on Oct 16, 2016. WG21 will meet in Issaquah, WA, Nov 7-12, 2016, and conduct ballot resolution.

ACTION – Convener to add discussion of 'P' docs to agenda for Markham.

2.4 PL22.

Chris Tandy, IBM, new Chair for PL22.

2.5 WG 23

Work continues on its TR.

2.6 MISRA C

N2035, Banks, MISRA C - WG14 Liaison Report
N2073, Banks, MISRA C Liaison Report

2.7 Other Liaison Activities

None

3. Reports from Study Groups

3.1 C Floating Point activity report

C Floating Point Study Group meets once a month via telecon. Below are the minutes for each meeting since the last WG14 meeting in Chiswick, England.

N2045 - March CFP Teleconference Minutes

N2046 - April 2016 CFP Teleconference Agenda

N2054 - April CFP Teleconference Minutes

N2055 - May CFP Teleconference Minutes

N2056 - June 2016 CFP Teleconference Agenda

N2062 - June CFP Teleconference Minutes

N2065 - July CFP Teleconference Minutes

N2075 - August CFP Teleconference Minutes

N2094 - Proposed FP DRs for TS 18661 and C, update to N2077

N2095 - Slide Deck for N2078, N2079, (C2x proposals for TS 18661-1, 2)

N2096 - September 2016 CFP teleconference minutes

N2097 - October 2016 CFP teleconference agenda

N2041 - Thomas, TS 18661-5 DTS draft

N2058 - Thomas, TS 18661-5 Publication Draft

Working on DRs to TS's. Parts 1 & 2, this meeting.

3.2 CPLEX activity report

N2071, NWIP for CPLEX TS Part 1 (SC22 N5149)

This NWIP went out for ballot to SC22 on Aug 19, 2016, and will close on Nov 12, 2016 at SC22.

The Draft TS is WG14 N2017.

CPLEX looking at array section, discussion later this week.

4. Teleconference Meeting Reports

4.1 Report on any teleconference meetings held

See C Floating Point, 3.1.

5. Future Meetings & Mailings

5.1 Future Meeting Schedule

- Spring 2017 – Markham, ON, Canada, 3–6 April, 2017

  WG 23 currently plans to meet in the same location, 6–7 April, 2017
  See WG 23 for their definitive schedule.

- Fall 2017 – Preferably western US to be reasonably near the WG 21 meeting
- Spring 2018 - Brno, CZ.
- Spring 2019 – Denmark (tentative)

5.2 Future Mailings

- Post Pittsburgh: 14-November-2016
- Pre Markham: 06-March-2017
- Post Markham: 01-May-2017

6. Document Review

6.1 Determine whether to categorize these documents as Defect Reports

1. mblen, mbtowc, and wctomb thread-safety [N 2037]
See DR 498, done last meeting

2. Anonymous structure in union behavior [N 2038]
See DR 499, done last meeting

3. _Pragma problem example [N 2039]
NOT A DEFECT

4. Clarification of unspecified value [N 2042]
Accept as a DR 6-9-4 = no
NOT A DEFECT

5. Definition of out-of-bounds store [N 2043]
Looks like a future change rather than a defect.
NOT A DEFECT
ACTION: Convener to add N2043 to SD3

6. Using aligned_alloc to allocate smaller objects than alignment, [N 2072]
DR 460 Reopen DR 460 (CLOSED)? New DR ?

Below is the DR460 wording reflecting the preference expressed during the discussion of N2072 today (10/18/2016) to allow aligned_alloc to accept zero size requests:

The aligned_alloc function allocates space for an object whose alignment is specified by alignment, whose size is specified by size, and whose value is indeterminate. If the value of alignment is not a valid alignment supported by the implementation the function shall fail by returning a null pointer.

The above words seem to work. Adopt the above words as PTC.

Straw Poll: Move to REVIEW ? 10-2-3 - YES

Moved to REVIEW

7. Function declarations with [static] arrays, [N 2074]
Not a defect today, but may be worth changing in the future.
Folks do not want to banish [*], but Martin contends that form is not analyzable.

ACTION – Convener to add N 2074 to SD3.
NOT A DEFECT

8. Proposed Floating Point DRs for TS 18661 and C, [N 2077]

C11
DDR 1 – DR 500
DDR 2 – DR 501

TS 18661
DDR 3 – DR 5, CFP Part 1
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

DDR 4 – DR 6, CFP Pt 1
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

DDR 5 – DR 7, CFP Pt 1
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

DDR 6 – DR 8, CFP, Pt 2
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

DDR 7 – DR 9, CFP Pt 3
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

DDR 8 – DR 10, CFP Pt 1
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

DDR 9 – DR 11, CFP Pt 2
Suggested TC exists. Adopt STC as Proposed TC.
Remains OPEN

9. Flexible array member in an anonymous struct, [N 2080]
DR 502

10. Hexadecimal floating-point and strtod, [N 2082]
DR 503

11. Unnecessary restriction on structures with nested flexible array members, [N 2083]
NOT A DEFECT – A new requirement.
Straw Poll: A defect ? 3-14-1 Not a defect.
ACTION: Convener to add N2083 to SD 3

12. Clarifying Unspecified Values, [N 2089]
NOT A DEFECT
ACTION: Convener to add N2089 to SD 3
Move to 6.3.13

13. Clarifying Pointer Provenance, [N 2090]
Provenance is not a term used in C11. Is this a defect?
SP: Defect? 2-13-1
NOT A DEFECT Do we want to deal with this problem via our defect report process? No.

ACTION: Convener to add N2090 to SD 3.

Agenda 6.3.14

14. Clarifying Trap Representations, [N 2091]
Same as above. Do we want to deal with this problem via our defect report process?
DR Process? 5-9-4 No
ACTION: Convener to add N2091 to SD 3.
Agenda 6.3.15

6.2 Other Documents

1. Comma omission and comma deletion v2, [N 2044]

Skipped. The author states that this paper is simply an update on his progress, and did not plan on presenting.

2. Attributes in C, [N 2049]

Presented by Aaron Ballman. Most of the discussion on this paper centered on the use of double square brackets, [[ ]], vs something else. C++ uses the double square brackets.

Straw Poll: Do we want the concept of attributes as presented in N2049, ignoring the syntax of [[ ]] double square brackets. 16-1-3 YES

Straw Poll: Can we live with double square brackets [[ ]] as presented in the paper w/o an additional key word. 12-4-3. YES

ACTION: Convener to add N 2049 to SD3.

3. The deprecated attribute, [N 2050]

Presented by Aaron Ballman. This attribute is in C++. Blaine is concerned about adding full expressions with this, or any other attribute.

Straw Poll: Do we like ‘deprecated as a concept’. No Objection.

ACTION: Convener to Add N 2050 to SD 3.

4. The nodiscard attribute [N 2051]

Allows the API designer to designate intent. Expression implicitly discards the result value when the result is crucial to correctly using the API. In general, the proposal is liked. The specification of such should be compatible with C++. C++ does not presently allow this attribute to appertain to typedefs, and it may be reasonable to propose it. Interest also in the relationship of this proposal to TS 17961.

ACTION: Convener to add nodiscard attribute to SD3 (N2051, or follow-on papers.)

5. The fallthrough attribute [N 2052]

This attribute is scheduled for C++17. Allows the "fallthrough" from one case block into another case block. Implemented by GCC.

ACTION: Convener to add fallthrough attribute to SD3 (N2052, or follow-on papers.)

6. The maybe_unused attribute [N 2053]

This attribute is also in C++17. Was implemented in GCC under a different name. Applies to types as well as variable declarations. Rajan sees this as a QOI item, rather than something for the Standard. Clive likes it.

ACTION: Convener to add maybe_unused attribute to SD3 (N2053, or follow-on papers.)

7. The register overhaul, [N 2067]

The register storage class is perhaps the least understood, less esteemed and most underestimated tools of the C language. It merits better, since it can be used to force a very economic use of the & operator in code that is sensible to optimization. In particular, objects that are declared register can't alias, and, if they are const qualified in addition, they can often be completely optimized out.
The goals of this proposal are multiple:
Goal 1. Use const qualified register objects as typed compile time constants.
Goal 2. Extend the optimization opportunities of register to file scope objects.
Goal 3. Create new optimization opportunities for functions that are local to a TU.
Goal 4. Improve the interplay between objects and functions that are local to a TU.
Goal 5. Impose bounds checking for constant array subscripts.

Jens presented his paper, a proposal for C2X, on making better use of the register storage class.

After some discussion, Jens decided on making some adjustments to his proposal for C2X. However, C++ does this differently. It ignores the pragmatics of the keyword 'register', as opposed to sematics, which the Standard does address. The C++ solution introduces a backward compatibility problem.

Named constants are something we like. There could be different syntax, and possibly another keyword. Jens would need help to look at the C++ approach. There is some sentiment to doing it the C++ way.

Work on the concepts here will continue.

8. Type generic string interfaces, [N 2068]

Jens presented N2068, a proposal for C2X. In several places, C library functions break the const contract of user code by returning an unqualified pointer to a const qualified object. This situation arises because these library functions are meant to deal with both, const qualified and unqualified pointer targets. With C11's _Generic such a break of const can easily avoided and it can be used to provide type generic interfaces that are const correct. As additional fall out, such type generic interfaces can combine the functionality of narrow and wide character support functions.

Jens has a reference implementation which we can use, and provide feedback.   In general, we liked this proposal, and encourage continued work. Can Jens generate some usability data? Yes, but so can other committee members.

9. Mandatory C library headers, [N 2069]

Jens Gustedt presented.   This is a proposal for C2X. The proposal addresses 'how' to construct library headers in a way to make transition to upgraded library functions easier.

ACTION:– Clark to forward paper for C++ on '__has_ include__' to the reflector.

10. C2x proposal — TS 18661-1, [N 2078]

Also See N2095, Slide Deck for presentation.
Presented by Rajan. The work on Part 1 was initially based on the original TR done several years ago. Slide deck is included in our papers. Some question on exactly what is 'required' for conformance. Binary, decimal or both. C11 does not have signaling NaNs, just NaNs. The use of an SNAN does not mean a trap is taken. Signal, in IEEE, is a synonym for 'raise' in C.

11. C2x proposal, TS 18661-2, [N 2079]

Proposal for Decimal Floating Point, presented by Rajan. Requires Part 1 to be implemented.

12. Array sections for C, [N 2081]

Clark Nelson presented. This really comes from FORTRAN. There are a couple of new sections, but in general it's old. The paper also applies to C++. This paper is report from the CPLEX group.

13. Clarifying Unspecified Values, [N 2089]

Peter Sewell presented. This is material targeting C2X.

14. Clarifying Pointer Provenance, [N 2090]

Peter Sewell presented. This proposal is for consideration for C2X
The basic idea is to associate a provenance with every pointer value, essentially identifying the original allocation the pointer is derived from. This is for the "C abstract machine" as defined in the standard: compilers might rely on provenance in their alias analysis and optimisation, but one would not expect normal implementations to record or manipulate provenance at runtime (though dynamic or static analysis tools might). Accordingly, provenances do not have any representation.

What is the practical value of adding this work into the Standard? Eliminate a lot of existing confusion. But, really? Blaine believes the approach here is more mathematical and there is a practical benefit to compiler implementers. Clark believes we need ways to write portable programs, but does not see the approach here as beneficial.
Would this proposal of this kind be consistent with what a compiler is doing? Maybe.
How far does the provenance of the pointer go, where does it end?

Where to go next. Reflector, subgroup? Start on the main reflector with discussion ?
Yes – main reflector.

7. Defect Reports

7.1 Discussion on the Defect Report Process

Changes to the process. Assign DRs to small groups of one or more for review and discussion tomorrow. There's a problem with everyone being 'ready' to discuss DRs. People have not done their homework. Have the Committee review the work of the tech leads for DRs.

7.2 ISO/IEC 9899:2011 Defect Reports, N2059

DR 460 reopened. See N2072. Larry would like to separate the two concepts. Separate alignment and size. Clark says N2072 will not break C++. Larry: is zero a valid size or not? Do we want to do that? It is implementation defined in C11 to be either 0 as valid input, or it is an error. Adopting N2072 may be inappropriate as it could change existing behavior in the field.

7.2.1 Prior DRs in REVIEW Status Ready to CLOSE

DR 409 – Moved to CLOSED

DR 427 - Moved to CLOSED

DR 439 w/o point D - Moved to CLOSED

DR 453 - Moved to CLOSED

DR 465 - Moved to CLOSED

DR 475 - Moved to CLOSED

DR 477 - Moved to CLOSED

DR 478 - Moved to CLOSED

DR 483 - Moved to CLOSED - PCR

DR 484 - Moved to CLOSED - PCR

DR 486 - Moved to OPEN, Suggested TC, N2064.

Jens presented N2064, the minimal things to clarify in the Standard. Can we editorially check the paragraph numbers? There are changes to the STC, this will be targeted to C2X. Can atomic_fetch_add be used with a pointer? Not clear. Are atomic operations on pointers well specified in the language? Blaine thinks they are. Martin believe that operations on pointers are OK, since they came from C++ which allows it. Clark: We deleted atomic address type, but did not delete the remaining items associated with that. 7.17 seems to have two uses of the word 'address' that should be deleted.
7.17.7.5;p3, deletes undefined behavior reference, Douglas wants it to remain. Wording as is.
7.17.7.5;p5, Douglas does not think a change is needed. Leave as is. Still to be resolved.

7.2.2 Prior DRs in OPEN Status

DR 444
N2028, 2016/03/21 Nelson, Resolving DR444

PTC exists.
Martin – alignment specifier, C++ has an extension that C does not. The type specifier is not allowed in C. We'll go with the PTC, as we have discussed this in the past. If we want to be compatible with C++, another DR can be written or proposed.
Straw Poll: Move to REVIEW? 11-1-5
Moved to REVIEW

DR 467
Moved to REVIEW

DR 469
Several DRs tied into a need for a rewrite. No resolution is in sight. DR 479, 480, 493. This work is slated for C2X.

Proposed Committee Response: "This will be addressed in a future revision of the C Standard."
A number of people are not comfortable with that approach.
Leave OPEN

DR 473
Moved to REVIEW

DR 476 - `volatile` semantics for lvalues [N1956], (Sebor)
Skipped

DR 479
Slated for C2X
Leave OPEN

DR 480
Proposed TC exists.
Moved to REVIEW

DR 481
PTC Exists
Moved to REVIEW

DR 482
Moved to REVIEW

DR 485
PTC does not exist.
ACTION: Clark to review, and write up input for DR 485 – DONE

Suggested TC for DR 485 – SC22WG14.14484, Clark Nelson

The Synopsis for ATOMIC_VAR_INIT currently reads:

```
#include <stdatomic.h>
#define ATOMIC_VAR_INIT(C value)
```

I suggest that it should instead read:

```
#include <stdatomic.h>
#define ATOMIC_VAR_INIT(...)
A x = ATOMIC_VAR_INIT(y);
```

The first sentence of paragraph 2 should be changed to:

The ATOMIC_VAR_INIT macro expands to a token sequence suitable as an initializer for an atomic object of type A. Its argument shall be a token sequence suitable as an initializer for an object of the corresponding non-atomic type C.

Leave OPEN

DR 487
Formatting error, PTC is listed as a STC
Moved to REVIEW
ACTION:– Blaine to correct editing error on DR 487

DR 488
N2040, Krause, Suggested Technical Corrigendum for DR 488

Change 7.28.1.2#3-4 from:
If s is not a null pointer, the c16rtomb function determines the number of bytes needed to represent the multibyte character that corresponds to the wide character given by c16 (including any shift sequences), and stores the multibyte character representation in the array whose first element is pointed to by s. At most MB_CUR_MAX bytes are stored. If c16 is a null wide character, a null byte is stored, preceded by any shift sequence needed to restore the initial shift state; the resulting state described is the initial conversion state.
The c16rtomb function returns the number of bytes stored in the array object (including any shift sequences). When c16 is not a valid wide character, an encoding error occurs: the function stores the value of the macro EILSEQ in errno and returns (size_t)(-1); the conversion state is unspecified.

To:

If s is not a null pointer, and c16 completes a sequence of char16_t corresponding to a valid multibyte character, the c16rtomb function determines the number of bytes needed to represent the multibyte character (including any shift sequences), and stores the multibyte character representation in the array whose first element is pointed to by s. At most MB_CUR_MAX bytes are stored. If the multibyte character is a null character, a null byte is stored, preceded by any shift sequence needed to restore the initial shift state; the resulting state described is the initial conversion state.
The c16rtomb function returns the number of bytes stored in the array object (including any shift sequences). If c16 does not contribute to a sequence of char16_t corresponding to a valid multibyte character an encoding error occurs: the function stores the value of the macro EILSEQ in errno and returns (size_t)(-1); the conversion state is unspecified.

The above is a STC, no PTC exists. The STC does not reference issues raised about the first call, linking the first call to the surrogate pair to the second. It's incomplete.

Words submitted by Rajan:

Change 7.28.1.2#3 as follows:
"... the wide character given by c16 ..." -> "... the wide character given or completed by c16 ..."
"... pointed to by s. ..." -> "... pointed to by s, or stores nothing if c16 does not represent a complete character."

No change needed in 7.28.1.2#4 due to the "or stores nothing" implying returning 0.

Leave OPEN

DR 489
October - Pittsburgh
PCR Improvement proposal, N2085, Tydeman

I believe the existing Proposed Committee Response (PCR) in DR 489:
Extending integer constant expressions could be considered for the next revision of the standard. To the question, unevaluated operands of integer constant expressions must adhere to the constraints of 6.6.

The wording would be clearer if it were replaced with:

Extending integer constant expressions could be considered for the next revision of the standard.

While the 'except' clause in 6.6#3 applies to the general constant expression, it does not apply to integer constant expressions. *(added sentence)*

To the question, unevaluated operands of integer constant expressions must adhere to the requirements of 6.6#6.

The added sentence is not viewed as an improvement by the Committee.

Moved to REVIEW.

DR 490
Moved to REVIEW

DR 491
Moved to REVIEW

DR 492
Moved to REVIEW

DR 493
ACTION: DR 493 Blaine to correct statement regarding mtx_t issues. They are NOT implementation defined, but 'not specified'.

Leave OPEN

DR 494
N2027, Nelson, Concerning Point D of DR 439

ACTION: Clark will add words to DR 494.
Leave OPEN

DR 495
N2027, 2016/03/21 Nelson, Concerning Point D of DR 439

Needs more work. Leave OPEN

DR 496
No STC exists. Martin believes a number of the points here do need clarification. Some have misinterpreted the words that exist.

ACTION: Blaine to write up additional words for DR 496.

Leave OPEN

DR 497
N2032, Whitespace Character

Submitted by Fred Tydeman. What is the real definition of ‘white-space character’ ?
Disagree with #1 STC, like 2 & 4. We are not sure about #3.
ACTION: Rajan will write up a Committee Discussion on DR 497
Leave OPEN

DR 498
N2037, mblen, mbtowc, wctomb thread-safety

The functions mblen(), mbtowc() and wctomb() need not keep the internal state if the encoding is not state-dependent. These functions are not thread safe.

ACTION:– Martin to write up as a PCR saying these functions are not intended to be thread safe.
Leave OPEN

DR 499
N2038, Anonymous structure in union behavior
Should be non-overlapping. B1 thru B4 should not overlap. Need to add ‘for what purpose’ to ‘are considered’.

See also: N2080, DR 502

ACTION: Clark will draft ‘something’ on DR 499 and post it to the reflector.

Leave OPEN

7.2.3 New DRs – OPEN Status

DR 500 – N2077
DDR #1 Suggested TC exists. Adopt Suggested TC as Proposed TC

Jim Thomas: Current text is ambiguous. Might be read to imply unary operators must widen. That is not the intention. Doing that would be incompatible with 60559. Widening can cause signaling NaNs to be triggered and representations to be canonicalized. x = SNAN can signal if assignment is implemented as convertFormat. Format conversion can be convertFormat or copy but it doesn’t have to signal because SNAN is widened before the conversion. Does any implementation widen unary operators?

Leave OPEN

DR 501 – N2077
DDR #2 Suggested TC exists. Adopt Suggested TC as Proposed TC

This could use some examples. Asked CFP to provide one or several.

ACTION:– Rajan to provide an example for DR 501

Leave OPEN

DR 502 - Flexible array member in an anonymous struct [N 2080]

Martin Sebor presented N2080. Clark thinks his clarification on N2038 may also resolve DR 502.

Leave OPEN

DR 503 - Hexadecimal floating-point and strtod [N 2082]

Larry wrote some input for this as a Proposed Committee Response.

Leave OPEN

7.3 TS 17961:2013 Defect Reports N2060

DR 2 – OPEN
PTC exists
Moved to REVIEW

7.4 TS 18661 Defect Reports N2061

TS 18662-1
DR 1, 7.4.1 Typos – 2
C 7.6.1a#4 - function should be 'function'
C7.6.24a#3 – fetestexcept should be fettestexceptflag

DR 1 Moved to Review
DR 2 Moved to Review
DR 3 Moved to Review
DR 4 Moved to Review

TS 18662-2
DR 1 – Typos – not a DR, editorial

TS 18662-3
Typos – not a DR, editorial
DR 1 - Error in function name. 'scoshdNx' should be 'coshdNx'. editorial.

8. Other Business

8.1 Review/discuss strategy for document development and maintenance

1. ISO/IEC 9899:2011 — The C Standard

    1. Updated C2X Charter N 2086

2. TS 17961:2013+Cor 1:2016 — C Secure Coding Rules

    ACTION:– Robert Secord to write up a schedule for future action with TS 17961.

3. TS 18661 Parts 1-5 — Floating-point

    Systematic Review for TS's is 3 years.

4. TS 21938-1 and future Parts — Parallelism

CPLEX TR. We have Part 1 in SC22 Ballot right now. We have six National Bodies willing to participate in the work. Part 2 is somewhat open in terms of exactly where and how to proceed. Array Sections and Vector Loops which could blur the lines. Blaine spoke to other forms of implementations that he can demonstrate at the next meeting, and go beyond the scope of CPLEX. Keld is looking for support for POSIX, and pthreads. Rajan proposed a documentation approach similar to that followed by CFP. We need a title for each part that corresponds to the material contained therein. For example, a part that covers thread safe locales. The title for Part 1 is Thread Based Parallelism, which may or may not be a problem. C11 makes threads optional. Rajan sees locales outside the scope of CPLEX. Part 2 should be specific to vector 'stuff', and maybe a separate document to implement array sections with array threading. Tom disagrees, but sees C2x as a way to rethink. David would like to see array sections come out 'in some form'.

5. Thread Safe Libraries
    David looking for a list of those willing to work on Thread Safe Libraries. Keld, David, Blaine, Martin. Future work – TBD.

9. Resolutions and Decisions Reached

9.1 Review of Decisions Reached

None

9.2 Review of Action Items

Old

ACTION: Blaine to reconcile N2019 and N2026 for DR 469.

New

ACTION: Convener to add discussion of ‘P’ docs to agenda for Markham.
ACTION: Convener to get final published version of C11
ACTION: Convener to add N2043 to SD 3
ACTION: Convener to add N2017 to SD 3
ACTION: Convener to add N2074 to SD 3
ACTION: Convener to add N2089 to SD 3
ACTION: Convener to add N2090 to SD 3
ACTION: Convener to add N2091 to SD 3.
ACTION: Convener to add N2049 to SD 3.
ACTION: Convener to Add N2050 to SD 3.
ACTION: Convener to add nodiscard attribute to SD3 (N2051, or follow-on papers.)
ACTION: Convener to add fallthrough attribute to SD3 (N2052, or follow-on papers.)
ACTION: Convener to add maybe_unused attribute to SD3 (N2053, or follow-on papers.)
ACTION: Clark to forward paper for C++ on ‘__has_ include__’ to the reflector.
ACTION: Clark to review, and write up input for DR 485
ACTION: Blaine to correct editing error on DR 487
ACTION: DR 493 Blaine to correct statement regarding mtx_t issues. They are NOT implementation defined, but ‘not specified’.
ACTION: Clark will add words to DR 494.
ACTION: Blaine to write up additional words for DR 496.
ACTION: Clark will draft ‘something’ on DR 499 and post it to the reflector.
ACTION: Rajan to provide an example for DR 501
ACTION: Rajan will write up a Committee Discussion on DR 497
ACTION: Robert Secord to write up a schedule for future action with TS 17961.
ACTION: Blaine to write up a compendium report for DRs.

10. Thanks to Host

Special Thanks to CERT for the meeting facilities, great food and weather.

11. Adjournment

Meeting adjourned October 20, 2016, 3:27 PM (Garst/Parks)

Minutes (Draft) for the PL22.11/US TAG Meeting

Tuesday October 18, 2016 at 16:00

Name	***Organization***	***Principal/Alternate***	***Comments***
David Keaton	Keaton Consulting	Principal (Prospective)	
Daniel Plakosh	CERT/SEI/CMU	Principal	
Jens Gustedt	INRIA - France		
Lars Bionnes	Cisco	Principal	
Blaine Garst	Garst	Principal	
Rajan Bhakta	IBM	Principal	
Robert Secord	CERT/SEI/CMU	Non-voting	
John Parks	Intel	Principal	PL22.11 Chair
Clark Nelson	Intel	Alternate	
Clive Pygott	LDRA	Principal	
Douglas Walls	Oracle	Principal	PL22.11 IR
Barry Hedquist	Perennial	Principal	PL22.11 Secretary
Tom Plum	Plum Hall, Inc.	Principal	
Martin Sebor	Red Hat	Principal	
Aaron Ballman	CERT/SEI/CMU		
Bill Seymour	Seymour		
Peter Sewell	University of Cambridge		

1. **Approval of Agenda**

   Items added: Ballot: Systematic Review, INCITS/ISO/IEC 9899:2011
   Items deleted: none

   The Agenda was approved by unanimous consent (Ballman/Garst)

2. **Approval of Previous Minutes (PL22.11-2016-00002)**

   The prior meeting minutes for Chiswick, April 2016, were amended for typos, et al, and approved by unanimous consent. (Garst/Keayton)

3. **INCITS Antitrust Guidelines and Patent Policy**

   Reviewed the Antitrust Guidelines and Patent Policy

4. **INCITS official designated member/alternate information**

   Be sure to let Lynn Berra know of any changes.

5. **Identification of PL22.11 Voting Members**

   1. **PL22.11 Members Attaining Voting Rights at this Meeting**

   2. **Prospective PL22.11 Members Attending their First Meeting**

      Keaton Consulting

6. **Members in Jeopardy**

   1. **Members in jeopardy due to failure to return Letter Ballots**

      none

   2. **Members in jeopardy due to failure to attend Meetings**

      1. Members in jeopardy for failure to attend this meeting.

         none

      2. Members who regained voting rights by attending this meeting

         none

      3. Members who lost voting rights for failure to attend this meeting

         none

   3. **Members who previously lost voting rights who are attending this meeting**

      none

7. **Procedures for Forming a US Position**

   per normal

8. **New Business**

1. N2071, N2017, NWIP for CPLEX TS Part 1 (SC22 N5149)

See Also PL22.11-2016-00006 (Requires Login ID)

Question: Do you approve of the answers provided for the NWIP CPLEX, Part 1, SC22 N5149? (Walls/Garst)

Ballot: Roll Call

CERT/SEI/CMU - YES
Cisco - Yes
Garst - Yes
IBM - YES
Intel - YES
LDRA - YES
Oracle - YES
Perennial - YES
Plum Hall - YES
Red Hat - YES
Tydeman Consulting – YES
10 - 0 – 0 Passes

2. Systematic Review, INCITS/ISO/IEC 9899:2011 (3Ed)

See Also: PL22.11-2016-00005 (Requires Login ID)

QUESTION: Do you approve the ANSI Systematic Review form as presented?

(Ballman/Garst)

BALLOT: Roll Call

CERT/SEI/CMU - YES
Cisco - YES
Garst - YES
IBM - YES
Intel - YES
LDRA - YES
Oracle - YES
Perennial - YES
Plum Hall - YES
Red Hat - YES
Tydeman Consulting - YES

10-0-0 Passes

9. Next Meeting

The next meeting of PL22.11 will be in Markham, Ontario, April 4, 2017, N2084

10. Adjournment

Meeting adjourned by unanimous consent (Garst/Ballman) at 16:30 hours, Oct 18, 2016.