Minutes (February 2014)
PL22.16 Meeting No. 62
10-15 February 2014 – Issaquah, Washington, USA

1 Opening activities
Clark Nelson calls the meeting to order on Monday 10 February 2014 at 9:06 a.m. PST (17:06 UTC).

1.1 Opening comments, welcome from host

1.2 Introductions

1.3 Meeting guidelines (Patent and Anti-Trust)
Nelson directs group to the following websites without further comment:

- http://www.incits.org/standards-information/legal-info
- http://www.incits.org/dotAsset/63b6e457-53b9-4933-9835-7c74e77ca2fd.pdf

1.4 Membership, voting rights, and procedures for the meeting
Nelson explains attendance and voting procedure.

1.5 Agenda review and approval

Motion: to accept agenda in N3799.
Unanimous consent.

1.6 Approval of the minutes of the previous meeting

Motion: to accept minutes from previous meeting (N3768 and N3769).
Unanimous consent.

1.7 Editor’s report, approval of draft
Sutter introduces and explains working drafts being tracked by isocpp.org/std/status.

Motion: to accept N3797 as the working draft for Programming Language C++.
Moved by: Brown
Seconded by: Clow
Unanimous consent.

Motion: to accept N3790 as the working draft for File Systems TS.
Moved by: Orr
Seconded by: Carruth

Unanimous consent.

Motion: to accept N3848 as the working draft for Library Fundamentals TS.
Moved by: Yasskin
Seconded by: Meredith

Unanimous consent.

Motion: to accept N3820 as the working draft for Arrays TS.
Moved by: Carruth
Seconded by: Clow

Unanimous consent.

1.8 Liaison reports (including WG21 study groups)
SC22 report:
Sutter reports.

SC22/WG14 (C) report:
Plum reports.

1.9 WG and SG progress reports and work plans for the week
Each working group presents reports.

1.10 New business requiring actions by the committee
Nelson asks if there is any new business. No response.
2 Organize Working Groups and Study Groups, establish working procedures

3 WG and SG sessions
Monday 10 February 2014 until 17:30

4 WG and SG sessions continue
Tuesday 11 February 2014 8:30 – 17:30

5 WG and SG sessions continue
Wednesday 12 February 2014 8:30 – 17:30

6 WG and SG sessions continue
Thursday 13 February 2014 8:30 – 17:30

7 WG and SG sessions continue
Friday 14 February 2014 8:30 – 12:00

8 General session
Friday 14 February 2014 13:30 – 17:30

8.1 WG and SG status and progress reports
Core working group (CWG):
Miller presents CWG report.

CWG motion 1 passes with unanimous consent.
CWG motion 2 passes with unanimous consent.
CWG motion 3 passes with unanimous consent.
CWG motion 4 passes with unanimous consent.
CWG motion 5 passes with unanimous consent.
CWG motion 6 passes with unanimous consent.
CWG motion 7 passes with unanimous consent.

Evolution working group (EWG):
Stroustrup give EWG report.

Library working group (LWG):
Meredith gives LWG report.

LWG motion 1 passes with unanimous consent.
LWG motion 2 passes with unanimous consent.
LWG motion 3 passes with unanimous consent.
LWG motion 4 passes with unanimous consent.
LWG motion 5 passes with unanimous consent.
LWG motion 6 passes with unanimous consent.

Straw poll: LWG motion 7

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>unanimous consent</td>
<td></td>
</tr>
<tr>
<td>WG21</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

LWG motion 7 passes.
LWG motion 8 passes with unanimous consent.
LWG motion 9 passes with unanimous consent.

Straw poll: LWG motion 10

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>WG21</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

LWG motion 10 passes.
LWG motion 11 passes with unanimous consent.
LWG motion 12 passes with unanimous consent.
LWG motion 13 passes with unanimous consent.

Straw poll: LWG motion 14

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>unanimous consent</td>
<td></td>
</tr>
<tr>
<td>WG21</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

LWG motion 14 passes.
LWG motion 15 passes with unanimous consent.
LWG motion 16 passes with unanimous consent.
LWG motion 17 passes with unanimous consent.
LWG motion 18 passes with unanimous consent.
LWG motion 19 passes with unanimous consent.

LWG motion 20 passes with unanimous consent.

LWG motion 21 passes with unanimous consent.

<table>
<thead>
<tr>
<th>Straw poll: LWG motion 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
</tr>
<tr>
<td>PL 22.16</td>
</tr>
<tr>
<td>WG21</td>
</tr>
</tbody>
</table>

LWG motion 22 passes.

Library Evolution working group (LEWG):
Yasskin presents LEWG report.

Study group 1 – Concurrency (SG1):
Boehm presents SG1 report.

<table>
<thead>
<tr>
<th>Straw poll: SG1 motion 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
</tr>
<tr>
<td>PL 22.16</td>
</tr>
<tr>
<td>WG21</td>
</tr>
</tbody>
</table>

SG1 motion 1 passes.

SG1 motion 2 passes with unanimous consent.

SG1 motion 3 passes with unanimous consent.

SG1 motion 4 passes with unanimous consent.

SG1 motion 5 passes with unanimous consent.

Study group 2 – Modules (SG2):
Group did not meet.

Study group 3 – File System (SG3):
Nothing more to report.

Study group 4 – Networking (SG4):
Kloeppe reports.

Study group 5 – Transactional Memory (SG5):
Wong reports.

SG5 motion 1 passes with unanimous consent.
Sutter directs the room to isocpp.org/std/status. He notes that for future TS creation the initial working draft should be present at the same time that the TS work item is requested.

**Study group 6 – Numerics (SG6):**
Crowl presents SG6 report.

**Study group 7 – Reflection (SG7):**
Carruth reports.

**Study group 8 – Concepts (SG8):**
Nothing further to report.

**Study group 9 – Ranges (SG9):**
Clow has nothing further to report.

**Study group 10 – Feature Test (SG10):**
Nelson reports.

**Study group 12 – Undefined and Unspecified Behavior (SG12):**
Dos Reis reports group did not meet.

**Study group 13 – Graphics (SG13):**
Sutter reports group met for two hours and group gave good feedback to author of N3888.

**WG21:**
WG21 motion 1 passes with unanimous consent.

**8.2** Presentation and discussion of proposals. Straw votes taken.

**9** WG and SG sessions continue

**10** WG and SG sessions continue

**11** Review of the meeting

<table>
<thead>
<tr>
<th>Core</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWG 1</td>
<td>carried</td>
</tr>
<tr>
<td>CWG 2</td>
<td>carried</td>
</tr>
<tr>
<td>CWG 3</td>
<td>carried</td>
</tr>
<tr>
<td>CWG 4</td>
<td>carried</td>
</tr>
<tr>
<td>CWG 5</td>
<td>carried</td>
</tr>
<tr>
<td>CWG 6</td>
<td>carried</td>
</tr>
<tr>
<td>CWG 7</td>
<td>carried</td>
</tr>
</tbody>
</table>
Library
LWG 1  carried
LWG 2  carried
LWG 3  carried
LWG 4  carried
LWG 5  carried
LWG 6  carried
LWG 7  carried
LWG 8  carried
LWG 9  carried
LWG 10 carried
LWG 11 carried
LWG 12 carried
LWG 13 carried
LWG 14 carried
LWG 15 carried
LWG 16 carried
LWG 17 carried
LWG 18 carried
LWG 19 carried
LWG 20 carried
LWG 21 carried
LWG 22 carried

Concurrency
SG1 1  carried
SG1 2  carried
SG1 3  carried
SG1 4  carried
SG1 5  carried

Transactional Memory
SG5 1  carried

WG21
WG21 1  carried

11.1 WG21 motions
Core motions:

CWG motion 1: Move we accept as Defect Reports the following issues in "ready" status from N3833 and apply their proposed resolutions to the C++ working paper:
1344 1376 1493 1579 1604 1607 1612 1613 1662 1664 1690 1691 1692 1740 1741 1762 1764 1765 1767 1770 1772 1773 1775
Moved by: Miller
Seconded by: Nelson
CWG motion 2: Move we accept as Defect Reports the following issues in "tentatively ready" status from N3833 and apply their proposed resolutions to the C++ working paper:

1598 1611 1629 1658 1660 1666 1687 1689 1693 1707 1716 1732 1737 1738 1739 1746 1747 1769

Moved by: Miller
Seconded by: Orr

yes no abstain
PL 22.16 unanimous consent
WG21 unanimous consent

CWG motion 3: Move we apply the proposed resolutions of the following issues in "ready" status from N3833 to the C++ working paper:

1681 1717 1760

Moved by: Miller
Seconded by: Meredith

yes no abstain
PL 22.16 unanimous consent
WG21 unanimous consent

CWG motion 4: Move we apply the proposed resolutions of the following issues in "tentatively ready" status from N3833 to the C++ working paper:

1674 1669 1684

Moved by: Miller
Seconded by: Merrill

yes no abstain
PL 22.16 unanimous consent
WG21 unanimous consent
CWG motion 5: Move we apply the proposed resolution of issue 1778 from N3833 to the C++ working paper.
Moved by: Miller
Seconded by: Hedquist

    yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent

CWG motion 6: Move we apply N3914, "Additional Core Language Issue Resolutions," to the C++ working paper.
Moved by: Miller
Seconded by: Smith

    yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent

CWG motion 7: Move to direct the project editor for the Concepts Lite Technical Specification to produce an initial working paper based on N3929 and incorporating modifications suggested by the review at this meeting.
Moved by: Miller
Seconded by: van Winkel

    yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent

Library motions:

LWG motion 1: Move we apply the resolutions of the following issues in "Ready" status from N3754 to the C++ Working Paper:
LWG2135 (Unclear requirement for exceptions thrown in condition_variable::wait())
LWG2141 (std::hash is vulnerable to collision DoS attack)
LWG2142 (packaged_task::operator() synchronization too broad?)
LWG2240 (Probable misuse of term "function scope" in [thread.condition])
LWG2252 (Strong guarantee on vector::push_back() still broken with C++11?)
LWG2257 (Simplify container requirements with the new algorithms)
LWG2268 (Setting a default argument in the declaration of a member function assign of std::basic_string)
LWG2271 (regex_traits::lookup_classname specification unclear)
LWG2272 (quoted should use char_traits::eq for character comparison)
LWG2278 (User-defined literals for Standard Library types)
LWG2280 (begin / end for arrays should be constexpr and noexcept)
LWG2285 (make_reverse_iterator)
Moved by: Meredith
Seconded by: Dennett

yes  no  abstain

PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 2: NB comment ES 16
Move we apply the resolutions of the following issues in document N3930 to the C++ Working Paper:
LWG 2299 Effects of inaccessible key_compare::is_transparent type are not clear
Moved by: Meredith
Seconded by: Halpern

yes  no  abstain

PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 3: Move we apply the resolutions of the following issues in document N3930 to the C++ Working Paper:
LWG 1450 Contradiction in regex_constants
LWG 2003 String exception inconsistency in erase.
LWG 2112 User-defined classes that cannot be derived from
LWG 2132 std::function ambiguity
LWG 2182 Container::{const_}reference types are misleadingly specified
LWG 2188 Reverse iterator does not fully support targets that overload operator&
LWG 2193 Default constructors for standard library containers are explicit
LWG 2205 Problematic postconditions of regex_match and regex_search
LWG 2213 Return value of std::regex_replace
Moved by: Meredith
Seconded by: Nishanov

yes  no  abstain

PL 22.16 unanimous consent
LWG motion 4: Move we apply the resolutions of the following issues in document N3930 to the C++ Working Paper:

- LWG 2258 a.erase(q1, q2) unable to directly return q2
- LWG 2263 Comparing iterators and allocator pointers with different const-character
- LWG 2293 Wrong facet used by num_put::do_put
- LWG 2301 Why is std::tie not constexpr?
- LWG 2304 Complexity of count in unordered associative containers
- LWG 2306 match_results::reference should be value_type&, not const value_type&
- LWG 2308 Clarify container destructor requirements w.r.t. std::array
- LWG 2313 tuple_size should always derive from integral_constant
- LWG 2314 apply() should return decltype(auto) and use decay_t before tuple_size
- LWG 2315 weak_ptr should be movable
- LWG 2316 weak_ptr::lock() should be atomic
- LWG 2317 The type property queries should be UnaryTypeTraits returning size_t
- LWG 2320 select_on_container_copy_construction() takes allocators, not containers
- LWG 2322 Associative(initializer_list, stuff) constructors are underspecified
- LWG 2323 vector::resize(n, t)'s specification should be simplified
- LWG 2324 Insert iterator constructors should use addressof()
- LWG 2329 regex_match()/regex_search() with match_results should forbid temporary strings
- LWG 2330 regex("meow", regex::icase) is technically forbidden but should be permitted
- LWG 2332 regex_iterator/regex_token_iterator should forbid temporary regexes
- LWG 2339 Wording issue in nth_element
- LWG 2341 Inconsistency between basic_ostream::seekp(pos) and basic_ostream::seekp(off, dir)
- LWG 2344 quoted()'s interaction with padding is unclear
- LWG 2346 integral_constant's member functions should be marked noexcept
- LWG 2350 min, max, and minmax should be constexpr
- LWG 2356 Stability of erasure in unordered associative containers
- LWG 2357 Remaining "Assignable" requirement
- LWG 2359 How does regex_constants::nosubs affect basic_regex::mark_count()?
- LWG 2360 reverse_iterator::operator*() is unimplementable

Moved by: Meredith
Seconded by: Halpern

yes  no  abstain
<table>
<thead>
<tr>
<th>PL 22.16</th>
<th>unanimous consent</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG21</td>
<td>unanimous consent</td>
</tr>
</tbody>
</table>

**LWG motion 5: NB comment US 21**
Move we apply to the Working Paper the Proposed Wording from N3924, "Discouraging rand() in C++14"
Moved by: Meredith
Seconded by: Halpern

```
yes  no  abstain
PL 22.16 unanimous consent
WG21  unanimous consent
```

**LWG motion 6: Move we apply to the Working Paper the Proposed Wording from N3887, "Consistent Metafunction Aliases"**
Moved by: Meredith
Seconded by: Halpern

```
yes  no  abstain
PL 22.16 unanimous consent
WG21  unanimous consent
```

**LWG motion 7: Move we apply the resolutions of the following issues in document N3931 to the Filesystem TS Working Paper:**
- **SG3 2** Tighten specification when there is no reasonable behavior
- **SG3 3** Filename length needs bullet item
- **SG3 6** Path depth is underspecified
- **SG3 7** Unhelpful comment for struct space_info
- **SG3 8** file_time_type underspecified
- **SG3 9** Unclear why range-based-for functions return different types
- **SG3 14** Incorrect postconditions for path copy/move constructor
- **SG3 15** Missing behavior for characters with no representation
- **SG3 16** Append behavior underspecified if target is empty
- **SG3 18** is_absolute() return clause confusing
- **SG3 19** Consider using quoted manipulators
- **SG3 21** directory_entry operator== needs clarification
- **SG3 24** Incorrect effects clause for path copy
- **SG3 29** Unclear semantics of read_symlink on error
- **SG3 32** system_complete() example needs clarification
- **SG3 33** unique_path() is a security vulnerability
- **SG3 44** enum classes copy_options and perms should be bitmask types
**SG3 47** last_write_time() uses ill-formed cast
**SG3 50** `path::compare(const string& s)` wrong argument type
**SG3 52** Better to avoid deriving from `std::iterator`
**SG3 55** Clarify Error reporting
Moved by: Meredith
Seconded by: Orr

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>unanimous consent</td>
<td></td>
</tr>
<tr>
<td>WG21</td>
<td>unanimous consent</td>
<td></td>
</tr>
</tbody>
</table>

**LWG motion 8:** Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3921 string_view library
Moved by: Meredith
Seconded by: Halpern

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>unanimous consent</td>
<td></td>
</tr>
<tr>
<td>WG21</td>
<td>unanimous consent</td>
<td></td>
</tr>
</tbody>
</table>

**LWG motion 9:** Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3804 any library
Moved by: Meredith
Seconded by: Seymour

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>unanimous consent</td>
<td></td>
</tr>
<tr>
<td>WG21</td>
<td>unanimous consent</td>
<td></td>
</tr>
</tbody>
</table>

**LWG motion 10:** Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3916, "Polymorphic Memory Resources"
Moved by: Meredith
Seconded by: Halpern

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 22.16</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>WG21</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>
LWG motion 11: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3905 Faster string searching (Boyer-Moore et al.)
Moved by: Meredith
Seconded by: Orr

   yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 12: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3925 A sample proposal (data sampling, real proposal!)
Moved by: Meredith
Seconded by: van Winkel

   yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 13: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3932 Variable Templates For Type Traits
Moved by: Meredith
Seconded by: Halpern

   yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 14: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3915, "make apply normative"
Moved by: Meredith
Seconded by: Garcia

   yes  no  abstain
PL 22.16 unanimous consent
WG21 unanimous consent
LWG motion 15: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3923 A SFINAE-Friendly std::iterator_traits
Moved by: Meredith
Seconded by: Halpern

- yes
- no
- abstain

PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 16: Move we apply to the Library Fundamentals TS Working Paper option 2 of the Proposed Wording from N3843 A SFINAE-Friendly std::common_type
Moved by: Meredith
Seconded by: Halpern

- yes
- no
- abstain

PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 17: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3920 Extending shared_ptr to Support Arrays
Moved by: Meredith
Seconded by: Halpern

- yes
- no
- abstain

PL 22.16 unanimous consent
WG21 unanimous consent

LWG motion 18: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3783, "Network Byte Order Conversion."
Moved by: Meredith
Seconded by: Orr

- yes
- no
- abstain

PL 22.16 unanimous consent
WG21 unanimous consent
LWG motion 19: Move we apply to the Library Fundamentals TS Working Paper the amendments recommended by N3793, "Proposal to add a utility class to represent optional objects (Revision 5)"
Moved by: Meredith
Seconded by: Halpern

yes  no  abstain
PL 22.16  unanimous consent
WG21   unanimous consent

LWG motion 20: Move we apply to the Library Fundamentals TS Working Paper the Proposed Wording from N3866, "Invocation type traits (Rev. 2)", but dropping function_call_operator.
Moved by: Meredith
Seconded by: Nishanov

yes  no  abstain
PL 22.16  unanimous consent
WG21   unanimous consent

LWG motion 21: Move to direct the project editor for the Parallelism Technical Specification to produce an initial working paper based on N3850.
Moved by: Boehm
Seconded by: Carruth

yes  no  abstain
PL 22.16  unanimous consent
WG21   unanimous consent

LWG motion 22: Move to direct the project editor for the Concurrency Technical Specification to produce an initial working paper based on N3785 and N3857 and incorporating modifications suggested by the reviews at this meeting.
Moved by: Boehm
Seconded by: Carruth

yes  no  abstain
PL 22.16  15  0  5
WG21   5  0  2
Concurrent motions:

SG1 motion 1: Move we apply N3891, "A proposal to rename shared_mutex to shared_timed_mutex", to the C++14 WP.
Moved by: Boehm
Seconded by: Nishanov

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pl 22.16 unanimous consent
WG21 6 0 1

SG1 motion 2: Move we apply the resolution of LWG 2288, currently in new status, to the C++14 WP, taking care to rename shared_mutex as in N3891 (if accepted).
Moved by: Boehm
Seconded by: Carruth

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pl 22.16 unanimous consent
WG21 unanimous consent

SG1 motion 3: Move we apply N3910, "What can signal handlers do? (CWG 1441)" (US3) into the C++14 WP.
Moved by: Boehm
Seconded by: Carruth

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pl 22.16 unanimous consent
WG21 unanimous consent

SG1 motion 4: Move we apply N3927 "Definition of lock-free" (LWG 2075, US5) to the C++14 WP.
Moved by: Boehm
Seconded by: Carruth

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pl 22.16 unanimous consent
WG21 unanimous consent
SG1 motion 5: Move we apply the resolutions of issues LWG 2104, LWG 2186 (US27), which were intended to be in ready status, but not listed as such, to the C++14 WP.
Moved by: Boehm
Seconded by: Carruth

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PL 22.16 unanimous consent
WG21 unanimous consent

Transactional Memory motions:

SG5 motion 1: Move to direct the Convener to request a New Work item for a Technical Specification for C++ Transactional Memory based on N3919 as an indication of its content.
Moved by: Wong
Seconded by: Boehm

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PL 22.16 unanimous consent
WG21 unanimous consent

WG21 motions:

WG21 motion 1: Move to appoint an editing committee composed of Daniel Krügler, Alisdair Meredith, Mike Miller, Bjarne Stroustrup, and Jeffrey Yasskin to approve the correctness of the C++ working paper as modified by the motions approved at this meeting, and to direct the Convener to transmit the approved updated C++ working paper to ITTF for DIS ballot.
Moved by: Hedquist
Seconded by: van Winkel

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PL 22.16 unanimous consent
WG21 unanimous consent

11.2 PL22.16 motions
11.3 Review of action items, decisions made, and documents adopted by the committee
11.4 Issues delayed until today
No issues.
12 Plans for the future
12.1 Next and following meetings
Sutter explains the upcoming C++ meetings.

12.2 Mailings

13 Adjournment

Motion: to adjourn
Moved by: Hedquist
Seconded by: Orr

Unanimous consent.

Adjourned Saturday 15 February 2014.

14 Attendance
14.1 PL22.16 members
Principal representative designated with *.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Representative</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD</td>
<td>Robin Maffeo*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argonne National Lab</td>
<td>Hal Finkel</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloomberg</td>
<td>John Lakos*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Bloomberg</td>
<td>Alisdair Meredith</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Bloomberg</td>
<td>Dietmar Kühl</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>Walter E. Brown</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinkumware</td>
<td>P.J. Plauger*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Dinkumware</td>
<td>Tana Plauger</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRW Holdings</td>
<td>Thomas Rodgers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Edison Design Group</td>
<td>Daveed Vandevoorde</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edison Design Group</td>
<td>Jens Maurer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edison Design Group</td>
<td>John H. Spicer*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edison Design Group</td>
<td>William M. Miller</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embarcadero Technologies</td>
<td>Dawn Perchik*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FlightSafety International</td>
<td>Billy Baker*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gimpel Software</td>
<td>James Widman</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>James Dennett</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>JC van Winkel</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>Chandler Carruth</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company</td>
<td>Name</td>
<td>Checkmarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------</td>
<td>------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>Jeffery Yasskin</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>Richard Smith</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Google</td>
<td>Geoffrey Romer</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GreenWireSoft</td>
<td>Juan Alday*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hewlett-Packard Development</td>
<td>Hans Boehm</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM</td>
<td>Michael Wong*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM</td>
<td>Maged Michael</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM</td>
<td>Paul E. McKenney</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiana University</td>
<td>Larisse Voufo</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>Clark Nelson*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>Pablo Halpern</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>Robert Geva</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>Justin Gottschlich</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>Tatiana Shpeiseman</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCG Holdings</td>
<td>Robert Douglas*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lexmark International</td>
<td>Michael Price*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lexmark International</td>
<td>Christopher Sammis</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Louisiana State University</td>
<td>Hartmut Kaiser*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Louisiana State University</td>
<td>Agustin Berge</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Jonathan Caves*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Herb Sutter</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Artur Laksberg</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Stephan T Lavavej</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Gabriel Dos Reis</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Gor Nishanov</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Vinny Romano</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>James McNellis</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft</td>
<td>Mark Hall</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NVidia</td>
<td>Olivier Giroux</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NVidia</td>
<td>Jared Hoberock</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle</td>
<td>Stephen D. Clamage</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle</td>
<td>Victor Luchangco</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perennial</td>
<td>Barry Hedquist*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perennial</td>
<td>Beman G. Dawes</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perennial</td>
<td>Lawrence Crowl</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plum Hall</td>
<td>Thomas Plum*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programming Research Group</td>
<td>Christof Meerwald</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualcomm</td>
<td>Marshall Clow*</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>Representative</td>
<td>M</td>
<td>T</td>
<td>W</td>
<td>R</td>
<td>F</td>
<td>S</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Red Hat</td>
<td>Jason Merrill*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Red Hat</td>
<td>Jonathan Wakely</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Red Hat</td>
<td>Torvald Riegel</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Riverbed</td>
<td>Kyle Kloeper*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Sandia National Labs</td>
<td>Carter Edwards</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Seymour</td>
<td>Bill Seymour*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Symantec</td>
<td>Mike Spertus*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>Bjarne Stroustrup*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Members Attaining Voting Rights at This Meeting

<table>
<thead>
<tr>
<th>Organization</th>
<th>Representative</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argonne National Lab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FlightSafety International</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GreenWireSoft</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCG Holdings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lexmark International</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandia National Labs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14.2 PL22.16 non-members

<table>
<thead>
<tr>
<th>Organization</th>
<th>Representative</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob Taco Industries</td>
<td>Michael McLaughlin</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CryptoTec</td>
<td>Mikael Kilpelainen</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Datasift</td>
<td>Dinka Ranns</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>HSR</td>
<td>Peter Sommerlad</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTK Engineering</td>
<td>Alan Talbot</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reliable Software</td>
<td>Bartosz Milewski</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roundhouse Consulting</td>
<td>Pete Becker</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Carlos III</td>
<td>J. Daniel Garcia</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Akron</td>
<td>Andrew Sutton</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vollmann Engineering</td>
<td>Detlef Vollmann</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thalmic Labs</td>
<td>Stefanus Du Toit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nicolai Josuttis</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ville Voutilainen</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roger Orr</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mozilla</td>
<td>Botond Ballo</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cassio Neri</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Faisal Vali</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nat Goodspeed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Country</td>
<td>Role</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhihao Yuan</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eric Niebler</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuriy Solodkyy</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F5 Networks</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michael VanLoon</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeff Snyder</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xiang Fan</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Josh Petrie</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERT</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aaron Ballman</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amazon</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victor Bogado</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marc Singer</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 14.3 JTC1/SC22/WG21 technical experts
Heads of delegation designated with *.

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>JC van Winkel*</td>
</tr>
<tr>
<td>Canada</td>
<td>Michael Wong*</td>
</tr>
<tr>
<td>Canada</td>
<td>Stefanus Du Toit</td>
</tr>
<tr>
<td>United States</td>
<td>Barry Hedquist*</td>
</tr>
<tr>
<td>Germany</td>
<td>Nicolai Josuttis</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Peter Sommerlad</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Detlef Vollmann*</td>
</tr>
<tr>
<td>Spain</td>
<td>J. Daniel Garcia*</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Roger Orr*</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Jeff Snyder</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Cassio Neri</td>
</tr>
<tr>
<td>Finland</td>
<td>Ville Voutilainen*</td>
</tr>
<tr>
<td>Finland</td>
<td>Mikael Kilpelainen</td>
</tr>
</tbody>
</table>