WG21 2016-10-28 Telecon Minutes

ISO/IEC JTC1 SC22 WG21 N4615 — 2016-10-28

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Teleconference information:

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Date:     2016-10-28
Time:     8:00am N.Am. Pacific Time
Duration: 2 hours
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1. Opening and introductions

1.1 Roll call of participants

- Marshall Clow
- Herb Sutter
- Clark Nelson
- Casey Carter
- Chandler Carruth
- Detlef Vollmann
- Gabriel Dos Reis
- Hubert Tong
- Jens Maurer
- John Spicer
- Jonathan Wakely
- Lawrence Crowl
- Thomas Plum
- Ville Voutilainen
- Walter Brown
- Barry Hedquist

1.2 Adopt agenda

The agenda in N4614 was adopted by unanimous consent.

1.3 Approve minutes from previous meeting (deferred to face-to-face meeting)

1.4 Review action items from previous meeting (deferred to face-to-face meeting)

1.5 Review of project editor and liaison assignments

[Current Status](#) shows assignments.

Nelson and Plum are the C committee liaisons.

2. Status, liaison and action item reports

2.1 Subgroup status reports (CWG, EWG, LWG, LEWG)

Core report

Miller was unable to attend the call but gave the following report:

1. Our major emphasis will be, of course, ballot resolution. Based on the triaging done by Jens and Ville, we will go through the list of items identified as belonging to CWG and do our normal categorization: editorial, no consensus for change, or open an issue. Jens has provided drafting for many of the issues if CWG agrees with the comment, so many of those issues could end up as being "ready" for adoption in Kona. Some may require some additional work, consultation with EWG, etc., and so might not be completed in time for Kona, but we won't know that until we meet.

2. We will also review the drafts for TSes with an eye toward moving those appropriately at the end of the meeting.

3. We'll look at anything that EWG passes along to us.

4. I'm in the process of creating an updated issues list with new issues, which I haven't done for a while because we wouldn't have gotten to them with the other stuff on our plate. I'm hopeful, based on the initial triage, that we may actually have some time this meeting to do issues processing.

Tong noted there's a comment requesting all issues to be dealt with, so issue processing should be prioritized before TS draft review. Sutter clarified that issue processing is allowed following a ballot, and NB comments are unnecessary for us to process issues, at any time.

Evolution report

Voutilainen said EWG will also be addressing NB comments first. About half the comments they will address are resurrecting previously discussed features. There are three dozen papers in the mailing for EWG, some on material seen before, but others for new material targetting post-C++17 which will be given lower priority.

Library report

Clow gave a similar report, saying comments will be addressed first. There are also a lot of issues being moved which were already dealt with between meetings or at the Chicago meeting. There are about 220 non-editorial NB comments for library. A third should go to LEWG for consideration, a third for LWG, and a third for Filesystem. There will be triage early in the week, to separate them

into ones with no consensus for change, ones that can be resolved, and ones which will need further research.

Voutilainen asked what the status was of ballot resolution for LFTSv2. Clow noted there are issue resolutions that LWG would like to apply to the TS if it is open for changes.

Library Evolution report

Sutter said that there is no LEWG report, and that Jeffrey Yasskin will not be at the meeting, Neil MacIntosh will be standing in for him.

Brown expressed concern about proposals that make it through evolutionary design sessions but then surprise the library groups with unexpected consequences on the library. Suggested that making library evolution aware sooner of new core features coming down the pipeline might allow them to start evaluating the impact on the library sooner. Voutilainen agreed and suggested potentially holding features up until a library review has been completed. Clow agreed. Sutter pointed out that anybody is able to ask in plenary whether library impact for a feature has been explored.

Tong said that especially regarding traits and `constexpr` proposals have gone to library that affect the core language. It's not always clear when a library proposal will affect the core language.

2.2 Liaison reports

2.2.1 Study Group reports

Reports from the following active SGs:

- **SG1, Concurrency**: Hans Boehm

NB comments and the feature-complete goals for the two TSes will more than keep SG1 occupied for the week.

It may make sense to meet with EWG to discuss some of the coroutine proposals like P99.

Will probably also look at the interrupt paper, P0434. But it may make sense to have EWG decide first if there is interest.

- **SG5, Transactional Memory**: Michael Wong

No report.

- **SG6, Numerics**: Lawrence Crowl

Crowl confirmed they would look at some issues and a few papers, but more importantly hold an evening session to try and get some real work organized. Tong noted that there are some core issues (not NB comments) forwarded to Numerics for their attention.

- **SG7, Reflection**: Chandler Carruth

There are two papers, really one proposal split into design and wording parts. Hoping to have an evening session to get some feedback for the authors. There are a couple of high-level issues raised last time it was looked at. Expect to be able to clarify the scope of those issues soon and bring something to EWG. Not likely to take up any EWG time at this meeting.

- **SG10, Feature Test**: Clark Nelson

Most work is done between meetings, with a slight slowdown since Oulu. Hoping that will pick up again afterr Issaquah. Noted the group is thinking of splitting the rationale section of SD-6 into a separate document, so the actual recommendations are in a more compact document.

- **SG12, Undefined and Unspecified Behavior**: Gabriel Dos Reis

One paper (P0465R0) in SG12's jurisdiction, but based on the agenda for Issaquah they are not planning to meet or schedule any sessions.

Carruth asked whether the paper should be seen by SG12 before going to EWG, and Dos Reis confirmed that was the case.

- **SG13, HMI**: Herb Sutter

One paper on input. Have a quorum of experts, but also been discussing it with Michael Wong and might involve SG14 in discussions. The author of the 2D graphics paper will be at the meeting; although there is no update of the paper yet, will be one for Kona.

- **SG14, Low Latency**: Michael Wong

Sutter reported that SG14 had a meeting at Cppcon last month.

Note that the following are currently complete and handled in the core subgroups: SG2, Modules; SG3, File System; SG4, Networking; SG8, Concepts; SG9, Ranges; SG11, Databases

2.2.2 SC22 report

SC22 had a plenary in September. WG21 reported, but nothing specific to report. They were pleased to hear we had some new national bodies participating. Nothing exciting to report at the ISO level.

2.2.3 SC22/WG14 (C) report

Nelson said the New Work Item for CPLEX was approved and will go forward. WG14 hasn't looked at it yet, but `__has_include` was mentioned at the last meeting and should be discussed for inclusion in the next C standard. There was also discussion about including in the next C standard the TS material for mappings to the latest floating-point standard, including decimal floating point types.

Tong said he'd heard some noise about volatile and atomics, but asked what that related to. Crowl said that the committee's position was that `volatile` is for device I/O, so volatile atomics would

have some difficulty with certain operations needed for atomics. Vollmann said there is an NB comment about volatile atomics, which originated with C. The definition is not what everybody expects, an issue raised by Martin Sebor, and it became clear that the same issue exists with the C++ atomics spec.

Voutilainen asked what our plans were for decimal FP in C++. There was a TR which is due for update, but no updated paper has appeared.

3. New business

3.1 Review of priorities and target dates

Current Status -- work on Technical Specifications is progressing.

3.2 Review of current mailings

Working group chairs are aware of which papers are assigned to their groups. Sutter encouraged chairs to continue to apply the rule that a paper author or a suitable domain expert be present and prepared to present it, because otherwise discussing papers is not a productive use of time.

3.3 Any other business

Maurer asked whether there would be a poll in Monday's plenary about inclusion of features which NB comments request the inclusion or removal of. Sutter affirmed that we will be spending some time on Monday to get a feel for whether there is any point spending time during the week revisiting past decisions, and added the following:

General note: As we enter CD ballot comment processing, the main point to remember is that any change we make in resolving a CD comment needs to increase consensus.

Per discussion on the admin@ reflector, some NB comments are requesting to add a feature that was not in the C++17 CD, or in one case to remove a feature in the CD. Some have already had plenary discussion that ended in lack of consensus to include the feature in the C++17 CD:

- ES 4, US 2, Late5: concepts (all or part)
- ES 5, US 68: unified call syntax P0301R0
- ES 7, US 5, US 69, RU 5, Late7, Late14: default comparisons P0221R2 (all or part)

or consensus to include it:

- ES 1, US 65, Late13: remove inline variables

Others were progressing but did not finish wording review in time to be brought to plenary to determine whether there was consensus to include the feature for C++17:

- GB 44, FI 5: elementary string conversions P0067R4
- US 18, US 70: remove dynamic exception specifications P0003R4

- US 22, CA 11, Late11: std::byte P0298R1
- ES 6, US 21, US 67, Late8, Late10: operator dot P0252R2

On Monday, I intend to take a poll on the above features to determine whether there is a chance that work on them during the week might reach a consensus to make a change. The poll for each will be:

> "How many people have already studied the proposal(s) to adopt/remove *<feature X>* for C++17, and have already firmly decided that they are opposed to the proposed change in any form for C++17, and that nothing we could do during the week could persuade them otherwise?"

If a lot of people raise their hands, it will be clear we can't increase consensus and so shouldn't spend further subgroup time on the comment. The WG21 response will be 'there was no consensus for the proposed change.'

However, this Monday poll isn't intended to prejudge comments that "might" make it. Even if a few people raise their hands, that will be informative but we will nevertheless spend subgroup time on them and not prejudge the result of that discussion and the actual change (if any) brought forward to plenary on Friday.

Finally, for Friday polls: When CD-related change proposals come before us for Friday plenary polls in Issaquah and Kona, most of the time it will be clear whether a proposed change increases consensus, but where that's not obvious to me I'm planning to take two polls (3-way or possibly 5-way depending which I think is better at the time) – one poll for support for the status quo, and one poll for support for the proposed change, and if the latter number is stronger then we're increasing consensus.

Tong suggested it would make sense to list the specific features on the agenda for Monday and Nelson agreed to do that.

Recall that from 1990 through 2014, WG21 conducted Friday polls at two levels: First a poll of U.S. members where each company has one vote to determine the U.S. position, then a poll of WG21 HoDs where each country has one vote.

Since 2014, ISO switched to not having delegations (and therefore no HoDs == heads of delegations) at the WG level. Instead, each person in the ISO Global Directory is an individual participant. So we switched to having Friday polls be a flat poll of all participants in the Global Directory where each person has one vote. This has been somewhat unwieldy to conduct polls numerically with our large group, and it has also weighted the U.S., and U.S.-domiciled companies, much more strongly than WG21 has ever done in the past. Earlier this year, the U.S. caucused and by unanimous consent agreed that we would prefer to return to the previous polling structure as much as ISO rules allow.

Therefore, starting in Issaquah, for Friday polls we will be returning to one vote per U.S. company. Although a U.S.-domiciled company may have many members listed in the ISO Global Directory, as we used to do each company will determine which of their representatives will cast their company's vote (typically the principal member, but it doesn't really matter and it can be a different person for each poll).

4. Review

4.1 Review and approve resolutions and issues

None.

4.2 Review action items

Voutilainen and Sutter to consider how library impact of proposals can be assessed sooner.

Sutter to check status of LFTSv2 ballot resolution.

5. Closing process

5.1 Establish next agenda

Will be based on current meeting agenda.

5.2 Future meetings (deferred to face-to-face meeting)

5.3 Future mailings (deferred to face-to-face meeting)

5.4 Adjourn

Approved by unanimous consent.