

# WG21 2016-02-19 Telecon Minutes

ISO/IEC JTC1 SC22 WG21 N4581 - 2016-02-29

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Teleconference information:

Date: 2016-02-19

Time: 10:00am N.Am. Pacific Time

Duration: 2 hours

This document revises N4580, correcting some mistakes in the record of the Core report.

## 1. Opening and introductions

Sutter called the meeting to order 10:00 Pacific Time.

### 1.1 Roll call of participants

In attendance were:

- Hans Boehm (US)
- Walter E. Brown (US)
- Clark Nelson (US)
- William Miller (US)
- Marshall Clow (US)
- Nevin Liber (US)
- Thomas Plum (US)
- Michael Price (US)
- John Spicer (US)
- Herb Sutter (Convener)
- Ville Voutilainen (FI)
- Jonathan Wakely (UK)
- Michael Wong (CA)
- Jeffrey Yasskin (US)

### 1.2 Adopt agenda

The agenda in [N4427](#) 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**

Sutter noted that a new editor would be needed for a second Concurrency TS.

Boehm confirmed he does expect a Concurrency v2, but there are no proposals for it in Jacksonville. Might be good to start keeping a working draft sooner rather than later. Sutter says it's too late to have a working paper now to be adopted in Jacksonville if no volunteer for editor yet. Wong thinks the hazard pointer and RCU papers might be candidates for v2. Also Executors would be nice, but if it happens remains to be seen. Sutter asked Boehm to try to find an editor by Friday March 4th.

## **2. Status, liaison and action item reports**

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

Miller reported that CWG held a telecon for reviewing modules and two telecons for issue drafting. He is following the new procedure for moving issues in Jacksonville, so there are papers in the mailing for issues being moved ([P0167R1](#)), and issues that are tentatively ready ([P0263R0](#)). There are 51 Tentatively Ready issues, which is larger than usual number because it includes pre-Kona Tentatively Ready issues.

Core's emphasis in Jacksonville will be reviewing wording intended to go into C++17. The Core wiki page currently lists 13 papers as ready for Core review, and other papers listed in other states. That will keep Core busy. Hope for some issue processing time but probably not many will become Ready in Jacksonville. Expect more issues to be ready for Oulu in June.

Sutter is expecting to complete CD for C++17 in Oulu. Asked whether we would be able to address the outstanding important issues in time for the CD coming out of Oulu. Miller responded that they will be sure to discuss the high-priority issues in Jacksonville to ensure they have direction for resolving issues and that they will use their teleconference time before the meeting to produce as many tentatively ready resolutions for those issues as possible for voting in Oulu.

Clow reported a very full plate for Jacksonville too. Published a list of Ready and Tentatively Ready issues (in one paper, [P0165R1](#)) in the pre-meeting mailing. The number of issues has jumped, in part because Filesystem issues have been merged into the LWG lists. LWG had one issues telecon. Clow has scheduled an evening session in Jacksonville for issue processing. Expects to publish schedule by Wednesday 24th. This will be the first standard being shipped since LWG started prioritizing issues, so LWG will be looking carefully at P1 issues in Jacksonville.

Voutilainen reported that the goal for Jacksonville is to complete the design for features going into C++17. There are 50 papers in the new mailing plus some leftovers from Kona. He will be

completing an agenda soon. Unlikely to look at any EWG issues, given the need to finish work for C++17.

Yasskin reported that LEWG will also be addressing C++17 content first. There are proposals to move all library TSs to C++17, so will be looking at them. Appreciates Sutter's suggestion for quick polls in plenary to help direct focus during the meeting.

## **2.2 Liaison reports**

### **2.2.1 Study Group reports**

#### **SG1, Concurrency: Hans Boehm**

Parallelism TS v1 is being considered for 17, will be discussion of that. Concurrency TS v1 was published, no proposal to do anything with that for 17. No working draft for Parallelism v2 due to administrative glitch. 20 or so papers for SG1 to discuss during the meeting. Likely to need some joint sessions with EWG, for coroutines and some others Ville noted as having both EWG and SG1 listed as target audience.

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

TS published. Still holding telecons. One paper in the mailing that adds a new feature for TS v2, not likely to have time for EWG to deal with it in Jacksonville. Not recommending TM TS v1 for C++17, so not creating any work for other groups, but continuing to work and planning a TM v2. Sutter said that when ready, SG5 should come back to EWG and get the new work item requested. Will continue to hold telecons, and watch GCC carefully for implementation experience. New paper in the pipeline, could be looked at in Oulu. Voutilainen said that discussion could take place in Jacksonville, as discussion about opening a new work item bucket is likely to be brief.

#### **SG6, Numerics: Lawrence Crowl**

Not aware of any specific work. Brown noted that a number of papers in the mailing appear to be Numerics-related but do not list SG6 as the audience. Wong clarified that at least one came to SG14 but been redirected to SG6.

#### **SG7, Reflection: Chandler Carruth**

Voutilainen reported some papers in the mailing for SG7's attention. High hopes they will meet in Jacksonville.

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

Revision of SD-6 in the pre-meeting mailing, which urgently needs to be updated. Will start discussion on the mailing list, but not expected to meet in Jacksonville.

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

Sutter recalls that SG12 might plan to meet for half a day in Jacksonville.

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

New paper with wording for Graphics TS coming to LEWG.

Continuing to look at issues of interest to games industry, such as vectorization, but also looking at heterogeneous computing. Tuesday evening session in Jacksonville to discuss the different models for heterogeneous computing (accelerators, GPGPUs and FPGA), in conjunction with SG1. Also a paper about a packaging system, but it's an EWG issue. Fixed-point numbers proposal sent to SG6. Memory-management sent to LEWG. 2D graphics proposal, not sure what to do with it. Some papers on low-latency atomics, RCU and hazard pointers. SG14 also meeting at GDC two weeks after Jacksonville, 25 people signed up. Yasskin says that an SG13 meeting for the graphics paper would be useful, as LEWG doesn't have the expertise.

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; SG13, HMI

### **2.2.2 SC22 reports**

Sutter reports fairly quiet, not much to report. Annual plenary might be co-located with WG21 in future, but not this year. It has long been true that WG21 is the most active SC22 working group, may now be doing as much work as the rest of SC22 combined.

### **2.2.3 SC22/WG14 reports**

Nelson reports that at WG14's Kona meeting there was discussion of doing a new C standard. Lots of work on IEEE, CPLEX and reliability work has happened since the last standard. Wakely relayed some information he had received from the WG14 convener, David Keaton, that they expect to do a new standard fairly soon which would be C11+TCs, so including new proposals would not happen until the next round, some time after 2020.

## **3. New business**

### **3.1 Review priorities and target dates**

Sutter asked whether a Ranges PDTS or Networking PDTS should be expected to come out of Jacksonville. Clow reported that little progress has been made since Kona.

Wakely reported that the Networking WP in the mailing contains no new content, only editorial work. There may be some changes waiting to be applied, but time would need to be scheduled for reviewing those if we hope to change anything in Jacksonville. Wakely will discuss with Kohlhoff to determine how much work is in the queue and how urgent it is.

There are four proposals for Jacksonville to include TSs in 17: Filesystem TS, Parallelism, Concepts, Fundamentals. Also a proposal for special math in 17. Need an orderly discussion in Jacksonville about these, avoiding spending time discussing them in separate sub-groups then repeating the discussion again in plenary. Sutter will contact HODs and let them know that there will be a discussion at the end of Monday plenary to see which of those proposals have support. Voutilainen suggests scheduling Concepts last, as it is likely to involve a lot of discussion. Clow says that picking and choosing pieces of Fundamentals could take time too. Sutter is not interested in discussing technical details of the proposals, just getting a feeling for whether there are positive or negative views on each proposal, including each major subpart of Library Fundamentals which is a collection of proposals. Yasskin will prepare a list of pieces of LFv1 worth considering.

The special math discussion will resume, based on the new paper, [P0226R0](#).

### **3.2 Review of current mailings**

There were some mis-labelled papers in the mailing, that's being addressed. Spicer reported that there have been a number of requests that more effort be devoted to describing the changes from one version of the document to another. Given the volume of papers, revision history becomes more important.

Clow asked whether the mailing deadline could be moved a week earlier, to give more time to read 160 papers before the meeting. Spicer said that that has been mentioned before and should be discussed. Spicer proposed moving it five days earlier, to a Monday deadline, and having a hard cut-off of 9AM Eastern. Spicer suggested also moving the post-meeting mailing to a Monday. No objections.

Spicer will update the guidelines on proposal headers to say that detailed revision histories should be included. Yasskin requested that to go on isocpp.org, not only in an email. Sutter suggested also requiring an abstract in every paper.

### **3.3 Any other business**

None.

## **4. Review**

### **4.1 Review and approve resolutions and issues**

None.

### **4.2 Review action items**

None.

## **5. Closing process**

## **5.1 Establish next agenda**

Sutter proposes using same agenda as basis, but updating the link for other timezones. No objections.

## **5.2 Future meetings**

Deferred to face-to-face meeting.

## **5.3 Future mailings**

Deferred to face-to-face meeting.

## **5.4 Adjourn**

Sutter adjourned the meeting at 10:24.