Minutes of WG21 Meeting, August 2, 2010

1. Opening activities

Clamage called the meeting to order at 09:00 (UTC+2) on Monday, August 2, 2010.

1.1 Opening comments, welcome from host

The host welcomed the attendees and provided some organizational information.

1.2 Introductions

Clamage welcomed Mr. J.C. Van Winkel back to the committee meetings.

Nelson explained the attendance sheet and what the PL22.16 members and non-members should mark into it.

Clamage had the attendees introduce themselves.

1.3 Meeting guidelines (Anti-Trust)

Clamage reviewed the patent disclosure rules.

The following materials were displayed without any further interpretation or discussion:

http://www.incits.org/inatrust.htm

http://www.incits.org/pat_slides.pdf

1.4 Membership, voting rights, and procedures for the meeting

Clamage reviewed the rules for membership and voting rights, explaining that the PL22.16 votes and National Body votes will be taken separately in this meeting.

Miller asked who would be representing the US until the Head of Delegation was present. Clamage asked Nelson to stand in for Hedquist. Nelson agreed to do so.

1.5 Agenda review and approval

Clamage presented the agenda (document PL22.16/09-0204 = WG21/N3014).

Motion to approve the agenda:

Moved by: Nelson

Seconded by: Hinnant

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

1.6 Distribution of position papers, WG progress reports, WG work plans for the week, and other documents that were not distributed before the meeting.

Each of the Working Group chairs presented their plans for the coming week.

Core Working Group (CWG)

Adamczyk said that there was no progress to report at the time apart from that made at a single unofficial teleconference. He stated that the plan for the week was to categorize the NB comments and make core issues out of the NB comments.

Library Working Group (LWG)

Hinnant stated there were nine new issues on the issues list, but that the plan for this meeting was to handle NB comments.

Plauger asked what it meant to have new issues when the plan was to respond to NB comments.

Hinnant explained that even after FDIS, the issues list will likely not be empty. He added that if something was reported broken, the LWG could address such issues even in the absence of a related NB comment.

Meredith said that new issues had been automatically bumped to the end of the issues list.

Hinnant announced that Meredith would follow him as the LWG chair after Hinnant's five-year tenure ending at this meeting. Clamage thanked Hinnant for doing a terrific job and also thanked Meredith for picking up the LWG chair role.

Halpern said that he would rather handle reported problems now than wait for a TC, keeping in mind the priority.

Sutter reiterated that all NB comments had to be responded to, even if the response were to postpone.

Sutter said that it would be much preferred if issue lists were empty. Miller noted that the core issues list would not be empty due to issues related to arcane corners of the language, and that the priority system would take care of that in practice. He added that issues prioritized as extensions were usually conveyed through Evolution or as papers are requested.

Stroustrup pointed out that no products ship without defects. He stated that it was more important to have a standard than having an empty issues list, and stated that Evolution was closed.

Crowl reported about WG14 support for atomics. There was some discussion on the appropriate venues for discussion. T. Plauger asked whether Crowl would chair Concurrency for Monday, and Crowl confirmed he would. Crowl said that there was triaging to do, particularly for atomics and the memory model. Hinnant said that a joint LWG and concurrency session would be a good idea.

Evolution Working Group (EWG)

Nothing to report.

WG21 Report

Sutter noted the National Body delegations present:

8 official: Canada, Finland, France, Netherlands, Spain, Swiss, UK, US

3 unofficial: Norway, Iran, Germany

Sutter briefly explained the administrative teleconferences held and how these replace the administrative meetings previously held on Sundays. Sutter mentioned that regarding WG14 liaison, alignment syntax and atomics is a compatibility issue and mentioned that people who are interested in this should take note.

Becker asked about the C schedule as multiple NB comments asked for synchronization with C. Sutter said that C is doing C0x and is planning to publish in 2012. Nelson clarified that WG14 is preparing a CD.

Sutter asked Plum to summarize the compatibility issues. Plum said that C has align as a keyword, and said that WG21 members have asked C++0x align to be converted from an attribute to a keyword. Plum explained that the C keyword is spelled _Alignas, and C++ would use a reserved word with a proper define.

Nelson added that WG14 is not interested in adding attributes and said that there's desire to go back to keyword.

Hinnant asked about align_of. Nelson explained the difference between align_of and align.

Meredith said that his understanding is that Crowl's paper reverts the attribute to a keyword, but Meredith was worried about whether parameter packs still work. Vandevoorde expressed concern about supporting template metaprogramming if changes are made.

Wong explained the way WG14 has implemented atomics and explained how there will be subtle differences between C++ and C, C having atomic as a type qualifier.

Plum said that he, Crowl, Boehm and McKenney worked on the WG14 atomics compatibility. Plum explained a facility that allows a simple compatibility solution that allows for templates. Crowl had requested WG14 to support angle brackets for some cases, but WG14 had rejected it. Plum explained the bare minimum required, and was of the opinion that type qualifiers are not needed but _Atomic(T) will suffice. He continued to mention that atomic types may have alignment different from non-atomic counterparts. WG14 is still debating the atomics support. Plum finished by saying that he thinks there is a syntax that provides the compatibility necessary.

Sutter asked where these compatibility issues should be discussed. Plum said that whatever subgroup Crowl is joining will be the correct one. Sutter proposed that Core should take it. Adamczyk said he's ok with that but didn't want to exclude anyone.

Sutter said that WG14 and WG21 have worked relatively well, WG21 adopting a lot of stuff from C, and WG14 considering threading and memory model in context with C++.

Sutter lamented that WG14 considers C++ compatibility important but not primary. There are still divergent things coming in from WG14. Plauger said that the WG14

had merely said that there are multiple ways to achieve compatibility and that WG14 shouldn't slavishly follow C++ but should rather provide for an intersection that's safe to program in. Stroustrup said that compatibility seems to be taken much more seriously in WG21 than in WG14.

Sutter then explained the meeting schedule for next year, and requested feedback on whether to have two or three meetings. March meeting is a done deal, but scheduling for next year needs to be decided by the end of the week.

Sutter said that FCD means bugfixes and editorial fixes, but not adding new features, and he called for the subgroups and the group as a whole to pay attention and to be conservative.

Meredith expressed concerns about the churn on the document and going straight to an FDIS. He said, however that delaying the standard with another FCD is not desirable either. He further said that he thinks the scope should be agreed on in the beginning of the week, and mentioned as an example unimplemented features that have been requested to be removed. Meredith's opinion was that removing anything is a large change but he also expressed concerns about unimplemented features.

Sutter said that adding or removing a feature is a scope question, and that you don't want to break consensus, and explained that FCD is supposed to have a frozen feature set. Adding or removing features runs the risk of breaking consensus and should thus be avoided.

Plauger said that his biggest concern is adding features, and repeated the characterization by Benito which said that if you need to think about whether something is a new feature, it's a new feature.

Spicer said he wants to see whether there are actual requests for adding or removing features and that he doesn't wish to discuss something like that in the abstract. Spicer thought that the group is not in the position to make that kind of decisions now.

Stroustrup said that yanking features now is not a good idea and brings problems for the implementors.

Sutter said that the expectation is to publish an FDIS, but there's still the possibility to issue another FCD if the group wants to, but it takes a schedule extension.

Witt said he doesn't think removing features is not a question of implementation schedule, but that unimplemented features are risky.

Gregor said that he prefers holes in the language to embarrassing mistakes.

Spertus agreed with Gregor and reminded the group about the ill fate of export.

Sutter urged the subgroups to discuss the specific features.

Meredith requested early discussion on constexpr and template aliases in Core. Sutter also requested prompt handling of removal requests.

Hinnant mentioned delegating constructors as an example of a removal request but that it's fundamentally important for implementing std::pair.

Meredith asked to establish how to categorize what consists adding a feature, and mentioned noexcept as the foremost example. It has a good core specification but it's not used in the library widely. Meredith asked whether adding noexcept to the library is a new feature, and explained how without noexcept the library can't move when doing push_back, thus losing the optimization opportunity for which move semantics were added in the first place. Sutter said that this decision is something that should be made by the LWG. Sutter said that he doesn't want the full group to engage in that discussion.

Stroustrup said that until features are voted into a document, it's hard to see how features interact. He requested that the group should not mess with the feature set at this point.

Plauger said that the group has to distinguish between features that implementors can use and things that require decorating the full library text. Plauger said that he thinks vendors should be able to use noexcept regardless of whether the standard requires it. Meredith pointed out that having noexcept or not is an ABI issue. Sutter said that people should keep this in mind but it should be discussed in subgroups.

Sutter said that SC22 has a meeting next month in Ottawa, and MISRA had indicated to the group that they wished to ask SC22 to set up a liaison between MISRA and WG21. Sutter asked if there are people wishing to act in such a role.

Much discussion on the merits of having such a liaison ensued.

A poll was taking. Assuming that documents are available and meetings are open for WG21 people to attend, should the MISRA liaison role be created:

Strongly For	2
Weakly For	19
Weakly Against	14
Strongly Against	2

No consensus, Sutter will so advise SC22.

1.7 Approval of the minutes of the previous meeting

Motion to approve the minutes

Moved by: Crowl

Seconded by: Hinnant

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

1.8 Liaison reports

Vollman requested to know the outcome of the FCD poll. Sutter said that some official paperwork is still coming and that Hedquist will be able to report the details later. Sutter gave a summary, which is 15 approved (7 without comments, 8 with comments), 1 disapproved (Switzerland), 3 abstained.

1.9 Editor's report

Becker said that there's not much to report before work resumes, and that he's skimmed through the ballot comments for the editorial comments and doesn't see any controversial ones. There are fewer editorial comments than on the CD, which is encouraging.

1.10 New business requiring actions by the committee

No new business.

2. Organize subgroups, establish working procedures.

Clamage announced that those present would be breaking up into working groups until Friday. He noted that the committee was in recess until then.

Crowl pointed out that some issues need to be split up, and suggested that Concurrency takes sections 1.9 and 1.10, and chapters 29 and 30. Hinnant agreed.

3. WG sessions (Core and Library, possibly Concurrency, Evolution).

The group broke up to meet in separate working group sessions.

Tuesday, Aug 3, 8:30am-5:30pm

4. WG sessions continue.

Wednesday, Aug 4, 8:30am-5:30pm

5. WG sessions continue.

Thursday, Aug 5, 8:30am-5:30pm

6. WG sessions continue.

Friday, Aug 6, 8:30am–12 noon

7. WG sessions continue.

Friday, Aug 6, 1:30pm–5:30pm

8. General session.

8.1 WG status and progress reports.

Adamczyk gave an update on the progress from CWG this week.

Some discussion ensued.

8.2 Presentation and discussion of proposed responses to public comments. Straw votes taken.

The following motions had discussion prior to the taking of straw votes.

Move we apply the proposed wording for National Body Comment US 107 from N3102 to the C++0X Working Paper.

Sutter: Does it do anything else, like use allocators in other places?

Hinnant: No.

Move we apply the proposed wording for National Body Comment GB 57 from N3102 to the C++0X Working Paper.

Nelson: A freestanding implementation doesn't need to provide threads. So what is the need of this?

Crowl: Quite reasonable for people to implement their own threading system. Atomics are quite spread around, and compiler-related.

Meredith: Parts of our memory model in Clause 1 are defined in terms of Clause 29, so without atomics it is not clear what our memory model is on freestanding implementations.

Maurer: Disagrees.

Plum: May be some work for the C committee.

PJ Plauger: Just a question of how the C standard subsets things. Could be addressed. Believes C++ atomics and threads are sufficiently disjoint.

Move we apply N3047 Fixing is_constructible and is_explicitly_convertible (Addresses DE19) to the C++0X Working Paper.

Vandevoorde: Does this bring in new requirements for core language?

Kruegler: Core-related issues will be resolved separately.

Hinnant: Intent of LWG to follow SFINAE rules set down by Core.

Move we apply the proposed wording for National Body Comments JP3 & JP4 from N3102 to the C++0X Working Paper.

Maurer: Explicit was not meaningful for constructors other than single-argument constructors, until initializer list construction was introduced. Was LWG aware of this when discussing?

Hinnant: Yes, LWG was aware and discussed it.

Move we apply N3106 to address National Body Comment US 122 to the C++0X Working Paper.

Maurer: What is the status of performance measurements taken relative to this?

Hinnant: Believes this was discussed in Pittsburgh, and there was a decision to use the initializer_list version, regardless of performance implementations. But was not discussed here.

Josuttis: These words apply our exact intent from Pittsburgh, simply placed into proper form.

Move we apply the proposed wording for National Body Comment DE 21 from N3102 to the C++0X Working Paper.

Vollmar: Was it considered to use noexcept instead of throw().

Hinnant: Agreement to handle all throw() to noexcept conversions in one sweep, apply consistently for now.

Move we apply the proposed wording for National Body Comment GB 112 from N3102 to the C++0X Working Paper.

Plum: What was the problem with making this implementation-defined?

Halpern: Would require implementation to document that it crashes.

Plum: So this is effectively an out of bounds access?

Halpern: Yes.

Move we apply the proposed wording for National Body Comment DE 23 from N3102 to the C++0X Working Paper.

Nelson: There was discussion in the concurrency group about the fact that C99 has a similar macro that works the other way.

Hinnant: Was not aware of that discussion.

Nelson: C1X adopted a benign subsetting proposal. A few features from C99 were considered not necessary to implement, as was determined with threads, as long as one defines a macro STDC_NO_THREAD__. This must be handled as a liaison issue.

Josuttis: Independent of the lack of double underscores in C++.

Nelson: Correct, purely raising it for additional information.

Meredith: C++0x draft has language that requires thread header to exist, but possibly empty. Also interacts with this.

Joly: Considers positive macros to be easier than negative ones.

PJ Plauger: C committee has their reasons for making this change, but we clearly need to reconcile.

Meredith: Could be worth readdressing by library group this week in discussions.

Move we apply the proposed wording for National Body Comment CH 32 from [N3102](N3102) to the C++0X Working Paper.

Halpern: Was not in the room when this was discussed. Why call this one out specifically – every type may separately have or not have a native handle.

Vollman: The point is that we cannot see any operating system ever providing a native handle in this case, because it would need to be a user-defined mutex type.

Move we apply the proposed wording for National Body Comment US 198 from [N3102](N3102) to the C++0X Working Paper.

Maurer: Would like some clarification on this.

Vollman: For the exception_ptr, rethrow_exception has the same precondition that it may not be null. So this precondition was added to the promise set_exception as well so they are consistent.

Becker: There is a practical motivation. On a system where the library cannot hook into the exception system, all necessary in current_exception is to return a null pointer, and then an implementation-specific exception can be rethrown. Can still do futures on top of such a system.

Plum: Is Becker arguing in favor of the resolution?

Becker: Correct.

Plum: If all undefined behaviors should be avoided, what would an implementation do?

Becker: Not pass a null pointer in in that case.

Becker: set_exception is in std::promise, part of the futures mechanism. If that member function is called with a null pointer, one gets undefined behavior. The only place one would wish to do this were in the implementation of packaged_task.

Plum: So it would be easy to detect this robustly.

Becker: Yes.

Plum: Projects who care strongly about safety and security will therefore not have a serious problem with this.

Sutter: If it's used by a sentinel, that can also be done with a special well-known location. Is undefined behavior really necessary?

Becker: Undefined behavior is not really new, because rethrow_exception takes an exception pointer, and if one passes in null, one gets UB. Passing a null pointer to set_exception, would therefore eventually lead to undefined behavior.

Move we apply N3109 to address National Body Comment US 108 to the C++0X Working Paper (this is a different resolution than US 108 proposes).

Kruegler: Rationale is that the constructors were invented to support a convenient migration path, but support the C++0x way of doing this.

Move we apply the proposed wording for National Body Comment US 120 from N3102 to the C++0X Working Paper.

Joly: Also applies to ES 3.
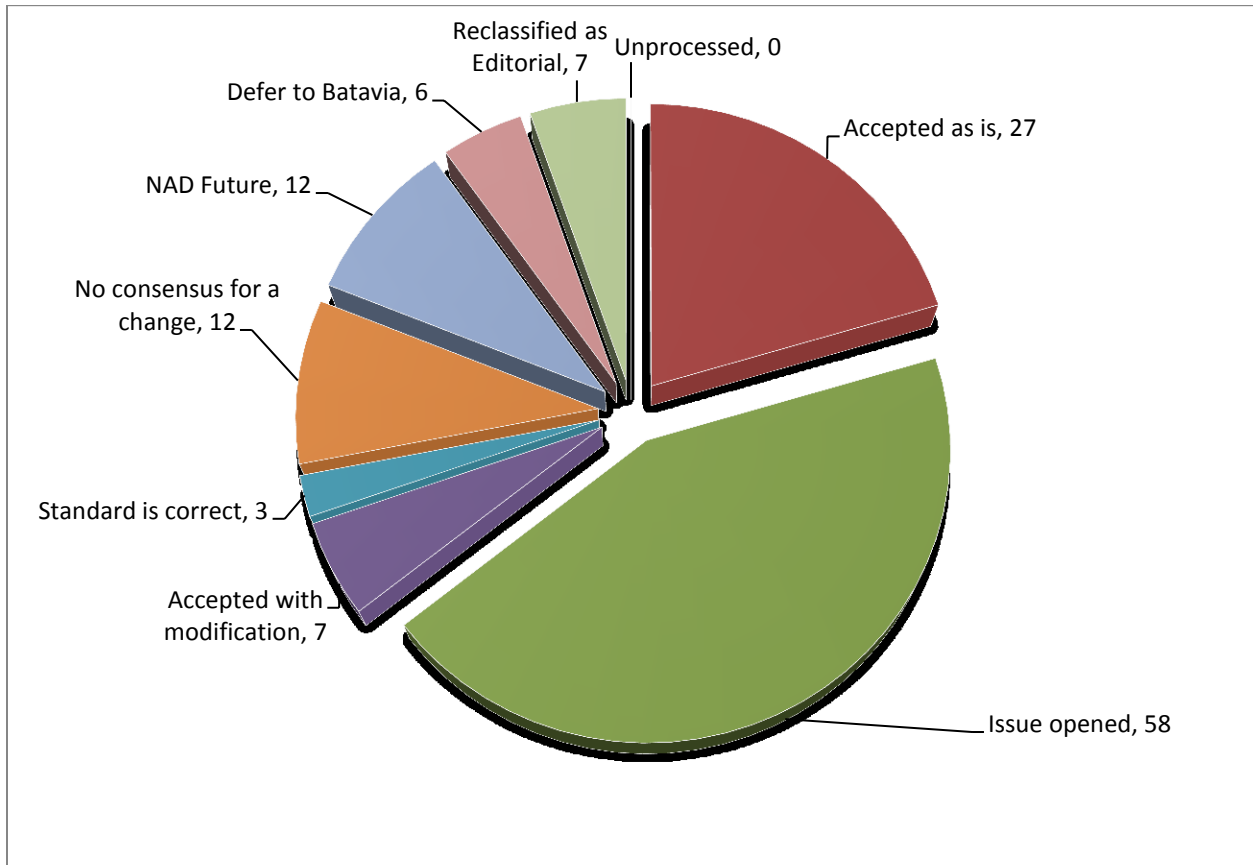
Move we apply N3110 to address National Body Comment GB 53 to the C++0X Working Paper.

Vollman: Would prefer to have this moved at the next meeting, as it was added after the LWG convened this morning. Would like to have additional time to review.

Hinnant: Will withdraw this motion.

LWG Status

Du Toit reviewed comment disposition statistics. Out of 549 comments, 221 were editorial, 34 general, and 294 technical. Of the the LWG-specific comments that were on the agenda this meeting, 132 comments were classified as follows, leaving no comment unprocessed:

Disposition of comments

Meredith stated that there had been much discussion about what to do with regards to noexcept in the library, and that he would be writing one or more papers to handle this. He explained that there were several categories of changes: First, empty exception specifiers, which are trivial to change. Second, empty throws clauses, which are still uncontroversial. Third, move constructors, move assignments, and swaps, which are slightly more difficult, but aim to address the primary goal of move semantics. Beyond this, several small places that were called out by other NB comments. He explained that the group would not be adding any others at this time.

Finally, he noted that clause 17 would be updated in terms of the freedom of implementations to strengthen noexcept specifications.

Concurrency Working Group Review

Crowl stated that the group had about 15 issues yet to address, but had already addressed the bulk of the issues. He stated that they had had a visit from people building formal models and formal verification tools for the model. As a process of that, he explained that the memory model was slightly changing. So far, he reported that the group had been adding restrictions that were believed to already be guaranteed by hardware.

9. WG sessions continue

Saturday, Aug 7, 8:30am-12 noon

10. WG sessions continue

Saturday, Aug 7, 1:30pm–5:00pm

11. Review of the meeting

Clamage noted that the count of voting members of PL22.16 present was 17.

Clamage noted that the count of voting members of WG21 present was 8.

11.1 Motions

Core Motions

Motion 1

Move we apply the resolutions of all issues in "Ready" and "Tentatively Ready" status from N3111 to the C++0X Working Paper. The issue numbers are (Ready) 96, 431, 475, 508, 575, 605, 615, 619, 621, 655, 676, 678, 691, 709, 738, 741, 773, 860, 873, 892, 924, 941, 948, and (Tentatively Ready) 373, 448, 458, 502, 532, 546, 674, 700, 864.

Mover: Steve Adamczyk

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Library Motions

Motion 1

Move we apply the resolutions to the following issues from N3087 to the C++0X Working Paper: 1187, 1206, 1278

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 2

Move we apply the proposed wording for National Body Comment US 107 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Pablo Halpern

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 3

Move we apply the proposed wording for National Body Comment GB 57 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 4

Move we apply the proposed wording for National Body Comment GB 68 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16	WG21

In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 5

Move we apply the proposed wording for National Body Comment GB 72 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 6

Move we apply the proposed wording for National Body Comment GB 76 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 7

Move we apply the proposed wording for National Body Comment US 98 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 8

Move we apply the proposed wording for National Body Comment US 99 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 9

Move we apply the proposed wording for National Body Comment US 100 from [N3102](#) *to the C++0X Working Paper.*

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 10

Move we apply [N3047](#) *Fixing is_constructible and is_explicitly_convertible (Addresses DE19) to the C++0X Working Paper.*

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 11

Move we apply <u>the first sentence</u> of the proposed wording for National Body Comment GB 85 from [N3102](#) *to the C++0X Working Paper.*

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 12

Move we apply the proposed wording for National Body Comment GB 87 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 13

Move we apply the proposed wording for National Body Comments JP3 & JP4 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 14

Move we apply the proposed wording for National Body Comment GB 100 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 15

Move we apply the proposed wording for National Body Comment JP 85 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 16

Move we apply N3106 *to address National Body Comment US 122 to the C++0X Working Paper.*

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 17

Move we apply the proposed wording for National Body Comment DE 21 from N3102 *to the C++0X Working Paper.*

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0

Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 18

Move we apply the proposed wording for National Body Comments JP 6, JP 7, JP 8, JP 9, JP 10, JP 11, JP 12, JP 13 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 19

Move we apply the proposed wording for National Body Comment GB 112 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Alisdair Meredith

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 20

Move we apply the proposed wording for National Body Comment US 117 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 21

Move we apply the proposed wording for National Body Comment DE 23 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 22

Move we apply the proposed wording for National Body Comment CH 32 from [N3102](#) to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 23

Move we apply the proposed wording for National Body Comment US 198 from [N3102](#) to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 24

Move we apply [N3109](#) to address National Body Comment US 108 to the C++0X Working Paper (this is a different resolution than US 108 proposes).

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 25

Move we apply the proposed wording for National Body Comment US 120 (which also addresses ES 3) from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 26

Move we apply N3108 to address National Body Comment US 114 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

No discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Motion 27

Move we apply the proposed wording for National Body Comment US 136 from N3102 to the C++0X Working Paper.

Mover: Howard Hinnant

Seconder: Barry Hedquist

Clamage: Any discussion?

Stroustrup: Would like to state he has nothing to say on this motion.

Clamage: Any further discussion?

No further discussion.

PL22.16		WG21	
In favor:	17	In favor:	8
Opposed:	0	Opposed:	0
Abstain:	0	Abstain:	0

Motion passes with unanimous consent.

Additional Motions

Sutter moved to thank Howard Hinnant for his excellent work as Library Working Group Chair for the last five years. Applause ensued. Sutter also thanked Alisdair Meredith for stepping up as the new Library Working Group Chair. Applause ensued.

11.2 Review of action items, decisions made, and documents adopted by the committee

Clamage noted that there were no items for discussion.

11.3 Issues delayed until today.

Clamage reported that there were no issues delayed until today.

12. Plans for the future

12.1 Next and following meetings

Sutter noted that the group was in better shape than expected during the meeting, having had unanimous consent to all motions. He added that some people had suggested we might be done after only one more meeting. He suggested strongly not to expect this, and encouraged the group to take their time keeping to the current plan of record.

Sommerlad stated that many of the outstanding issues include more controversial issues. Sutter noted that there had already been preliminary discussion of many of these controversial issues, and that many of them should be resolved by the end of the next meeting.

Sutter noted that the SC22 Secretariat has been very helpful in ensuring that documents are processed in time by ISO. Sutter reminded the group that the FDIS ballot is run by ITTF in Geneva.

Meredith asked what would happen if we decide not to ship an FDIS at the end of Madrid. Sutter noted that we could always choose to issue another FCD.

Sutter presented the meeting schedule for upcoming meetings:

Nov 8-13, 2010: Batavia, with the aim of continued ballot resolution.

Mar 11-26, 2011: Madrid, with the aim of final ballot resolution.

Sutter asked the group for a sense of whether we would prefer two meetings in 2011 rather than three meetings. Sutter recommended to the group that unless there was significant interest in doing otherwise, that the group slow down after the Madrid meeting, as it did with the first C++ Standard. He expected that the work could easily be done with two meetings per year. Therefore Sutter suggested a single second meeting in 2011, and to have this in the August timeframe of 2011 in Indiana. He noted that this was a good time for the Indiana hosts. He noted that even if the FDIS ballot is not completed by then, there would be an opportunity to process defect

reports as was previously done in the Sophia-Antopolis meeting. If, however, the FDIS were not issued at the end of the Madrid meeting, the August meeting would still give the group an opportunity to issue an FDIS in time to meet the deadline set by SC22. Sutter opened the floor for discussion on this recommendation.

Meredith stated that, as incoming LWG chair, he would be asking towards the end of the next meeting for opinions on what to do for a TR2 after shipping. He stated that he could not imagine that happening between the Madrid and August meetings. On the other hand, he noted, it would be good to send a message to the community to start receiving feedback. He stated that he would prefer two meetings next year, not three.

Sommerlad noted his interest in what the schedule for 2012 would be.

Sutter stated that he would not be scheduling those yet, but that the schedule would likely consist of something along the lines of April and October meetings. One would be in Portland, the other would be tentative. He noted that we had a tentative host for the second 2012 meeting outside the continental US, but nothing firm yet.

Crowl stated that there were proposals that were specifically deferred for TR2. So therefore, he explained that we already had some proposals available.

Meredith said he would expect these proposals to need to be reviewed and updated with changes since they were written with C++2003 in mind.

Suttter noted that, not having heard any objection to holding two meetings in 2011, he would proceed with this plan.

Sutter suggested to revert to the 4.5 day schedule previously used. He added that the primary intent of this was to allow members to return home on Friday afternoons.

Halpern asked whether the group was allowed to work on TCs during the FDIS ballot period.

Sutter responded that if the group scheduled an August meeting, they should have the FDIS done by then. If not, he stated that it should not be a problem to discuss anything since there would be no working draft or project. He noted that the group would not be taking any official action at the meeting if the FDIS ballot was not done.

Meredith stated that he found the extra day of the meeting to be incredibly valuable to getting work done. With 5 or 4.5 day meetings, he found a great portion was used for administrative portions. He noted that he would be happy if the trial votes were compressed with the real votes to happen on the same day.

Crowl seconded what Meredith said.

Vollman also seconded what Meredith said. He stated that he found the proportion of administrative work high. He asked whether we could publish issues lists, for example, while the FDIS was under ballot.

Sutter stated that as with the FCD, cannot publish technical documents related to the document under ballot. Vollman asked whether the group could publish papers related to TR2. Sutter responded that they could.

Witt stated that while he appreciated the extra time, he would still prefer being able to return Friday.

Spicer stated that we would always find more work to do, no matter how long we make the meeting.

Sommerlad stated that weekend flights might be more convenient.

Maurer stated that one could still decide to fly out later.

Tana Plauger explained that the group ended up paying a lot more for hosting if they had a weekend day. She noted that it would be much easier to find hosts with a shorter timeframe.

Sutter agreed with Plauger.

Sutter thanked Sommerlad for hosting this meeting. Applause ensued.

Sutter asked for as set of straw votes to assess consensus. He took four votes, with the options of strongly in favor (SF), weakly in favor (WF), weakly against (WA), and strongly against (SA). The outcomes were as follows:

Finish Friday AM	SF	11	WF	8	WA	5	SA	9
Finish Friday PM	SF	13	WF	12	WA	3	SA	3
Finish Saturday AM	SF	2	WF	9	WA	9	SA	11
Finish Saturday PM	SF	10	WF	3	WA	7	SA	13

Sutter stated that the saw this as consensus to end Friday in the afternoons. Sutter reported that he would schedule five full days of meetings, twice per year starting with the August 2011 meeting after Madrid.

Sutter reminded the group that the meeting notice and hotel booking information was recently posted to the C++-all reflector.

Clamage moved to thank the host. Applause and standing ovation ensued. Sommerlad thanked the organizers, Silvia, Jutta, and Mustafa, for taking care of all of the details. Applause ensued.

12.2 Mailings

Nelson reviewed the mailing deadlines:

Post-Rapperswil mailing: August 20, 2010.

Pre-Batavia mailing: October 15, 2010

13. Adjournment

Clamage asked whether there was any other business. There was no other business.

Nelson moved to adjourn. Hedquist seconded.

The meeting was adjourned at 14:30 (UTC+2) on Saturday, August 7, 2010.

Attendance

Company/Organization	NB	Representative	Mon	Tue	Wed	Thu	Fri	Sat
Apple Computer		Howard E. Hinnant	V	V	V	V	V	V
Apple Computer		Doug Gregor	A	A	A	A	A	A
Bloomberg		John Lakos		V	V	V	V	V
Bloomberg		Alisdair Meredith	A	A	A	A	A	A
Bloomberg		Dietmar Kuehl	A	A	A	A	A	
Carnegie Mellon University		David Svoboda	V	V	V	V	V	V
Cisco Systems		Martin Sebor	V	V	V	V	V	
Dinkumware		P. J. Plauger	V	V	V	V	V	V
Dinkumware		Tana Plauger	A	A	A	A	A	A
Dinkumware		Christopher Walker	A	A	A	A	A	
Edison Design Group		J. Stephen Adamczyk	V	V	V	V	V	V
Edison Design Group		Jens Maurer		A	A	A	A	A
Edison Design Group		William M. Miller	A	A	A	A	A	A
Edison Design Group		John H. Spicer	A	A	A	A	A	A
Edison Design Group		Daveed Vandevoorde	A	A	A	A	A	A
Gimpel Software		James Widman	V	V	V	V	V	V
Google		Lawrence Crowl	V	V	V	V	V	V
IBM	CA	Michael Wong	V	V	V	V	V	V
IBM	CA	Chris Cambly	A	A	A	A	A	A
Indiana University		Andrew Lumsdaine	V					
Intel		Clark Nelson	V	V	V	V	V	V
Intel		Pablo Halpern	A	A	A	A	A	A
Intel	CA	Stefanus Du Toit	A	A	A		A	A
Microsoft		Mark Hall	V	V	V	V	V	V
Microsoft		Herb Sutter	A	A	A	A	A	A
Oracle		Paolo Carlini	V	V	V	V	V	
Oracle		Stephen D.	A	A	A	A	A	A

Company/Organization	NB	Representative	Mon	Tue	Wed	Thu	Fri	Sat
		Clamage						
Perennial	US	Barry Hedquist		V	V	V	V	V
Plum Hall		Thomas Plum	V	V	V	V	V	
Red Hat		Jason Merrill	V	V	V	V	V	V
Red Hat		Benjamin Kosnik	A	A	A	A	A	A
Roundhouse Consulting		Pete Becker	A	A	A	A	A	A
Symantec		Mike Spertus	V	V	V			
Texas A&M		Bjarne Stroustrup	V	V	V	V	V	V
Zephyr Associates		Thomas Witt	V	V	V	V	V	V
	PL22.16 Non-members							
HSR	CH	Peter Sommerlad	N	N	N	N	N	N
Ixonos Plc.	FI	Ville Voutilainen	N	N	N	N	N	N
University Carlos III	ES	J. Daniel Garcia	N	N	N	N	N	N
Vollmann Engineering	CH	Detlef Vollmann	N		N	N	N	N
	DE	Nicolai Josuttis	N	N	N	N	N	
SC22 Chair		Rex Jaeschke	N					
		Andy Sawyer	N	N	N	N	N	
		Roger Orr	N	N	N	N	N	N
		Saeed Amrollahi Boyouki	N	N	N	N	N	N
ATComputing/NLUUG	NL	JC Van Winkel	N	N	N	N	N	N
Nokia Norge	NW	Zeno Albisser	A	A	A	A	A	A
	FR	Loïc Joly	N	N	N	N	N	
University of Nice	FR	Jean-Paul Rigault	N	N	N	N	N	N
		Daniel Krügler	N	N	N	N	N	N
University of Cambridge		Mark Batty		N				
University of Cambridge		Peter Sewell		N				