Draft Minutes for PL22.3 (J3) Meeting 218

Document No. PL22.3-2019-00102-draft-minutes

| Document Date: | February 21, 2019 |
| --- | --- |
| Reply To: | [Dan Nagle](mailto:lbarra@itic.org) |
| Subject: | Draft Minutes of INCITS PL22.3 Working group for Fortran  February 11-15, 2019 (8:00AM – 5:00PM Pacific), In-person |

1. **Administrative**
   1. Call to Order and Chairman’s Remarks February 11, 2019 8:00 AM by the chairman, Dan Nagle. Lorri Menard acted as Recording Secretary.
   2. INCITS Patent Policy and Antitrust

**Reference:** <http://www.incits.org/standards-information/legal-info>

* 1. Membership Report
     1. Member organizations:

(Note: Voting members are “YES;” non-voting but attending are “yes”)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Company | First Name | Participant Class | Membership Class | In Attendance |
| Corbett | Robert Corbett | Principal | Voting | YES |
| Cray Inc | Bill Long | Principal | Voting | YES |
| IBM Corporation | Daniel Chen | Principal | Voting | YES |
| Kelvin Li | Alternate | Voting |  |
| Rafik Zurob | Alternate | Voting |  |
| Intel Corporation | Raghu Maddhipatla | Alternate | Voting |  |
| Divya Mangudi | Alternate | Voting |  |
| Lorri Menard | Principal | Voting | YES |
| Jon Steidel | Alternate | Voting | yes |
| Jet Propulsion Laboratory | Van Snyder | Principal | Voting | YES |
| Kernelyze LLC | Thomas Knox | Principal | Voting |  |
|  |  |  |  |
| Lawrence Berkeley National Laboratory | Bryce Adelstein-Lelbach | Principal | Voting |  |
|  | Brian Friesen | Alternate | Voting | YES |
| Lionel | Steve Lionel | Principal | Voting | YES |
| Malcolm Cohen | Alternate | Voting | yes |
| Vipul Parekh | Alternate | Voting | yes |
| NASA | Thomas Clune | Principal | Voting | YES |
|  | Henry Jin | Alternate | Voting |  |
| National Center for Atmospheric Research (NCAR) | Dan Nagle | Principal | Voting | YES |
| John Reid | Alternate | Voting |  |
| John Wallin | Alternate | Voting |  |
|  |  |  |  |  |
| NVidia Corporation | Gary Klimowicz | Principal | Voting | YES |
| Mark LeAir | Alternate | Voting |  |
|  |  |  |  |  |
| United States Dept of Energy | Aleksandar Donev | Alternate | Voting |  |
| Karla Morris | Principal | Voting |  |
| Damian Rouson | Alternate | Voting | YES |
| Craig Rasmussen | Guest |  | yes |
| Oak Ridge National Labs | David E. Berhnoldt | Principal | Voting |  |
| Reuben Budiardja |  | observer |  |
| Guests | Srinath Vadlamani | ARM | Guests |  |
|  | Ondrej Certik | Los Alamos |  |  |
|  | Craig Rasmussen | Lawrence Livermore |  |  |

* + 1. Member organizations with voting rights:

There are 12 member organizations with voting rights, and one organization that is pending (Oak Ridge National Labs). The pending organization has not yet completed the prerequisite observation meeting, although that will happen at this meeting.  
Eleven of the 12 voting organizations are represented at this meeting.

* + 1. Member organizations gaining voting rights at this meeting:

Oak Ridge will gain voting rights at this meeting

* + 1. Member organizations that have lost voting rights due to lack of attendance:   
       No organizations have lost voting rights due to attendance
    2. Member organizations in attendance jeopardy:   
       No organizations are in attendance jeopardy
    3. Member organizations in ballot jeopardy:   
       DOE is in ballot jeopardy
  1. Approval of Previous Meeting Minutes

**Reference:**

https://standards.incits.org/apps/org/workgroup/pl22.3/download.php/103319/pl22.3-2018-00285-PL22.3%20minutes%20for%20m217.docx

Motion to approve by Lionel, seconded by Clune; passed with unanimous consent

* 1. Review of Action Items

There were no action items

* 1. Approval of the Draft Agenda

**Reference:**

https://standards.incits.org/apps/org/workgroup/pl22.3/download.php/104934/PL22.3-2019-00105-Draft%20Agenda%20Feb%202019-m218.docx

Motion to approve by Steidel, seconded Snyder, and passed with unanimous consent

1.7 Review of Ad Hocs

# **2. Agenda**

# 1. Monday, February 11 2019 8:00 am

## 1.1 Opening business D. Nagle

|  |  |
| --- | --- |
| Remarks from the chair  Dan noted there was a lack of clarity in procedure. We need to leave a better record when a subgroup wishes to kill a feature; write a paper and bring to plenary for final dispensation.  The task for this meeting is to work on the US wish list, and try to get as much done as possible for the Tokyo meeting  Second priority is interpretations. | D. Nagle |
| Adoption of agenda  Motion made by Steidel/seconded Snyder to adopt the agenda, and unanimous consent (UC) | D. Nagle |
| Approval of Meeting m217 minutes  Motion made by Lionel/seconded Clune to approve the m217 minutes - UC | D. Nagle |
| INCITS report (if any)  Dan’s 3-year term as chairman of PL22.3 is up; does anyone else want to do this? | D. Nagle |
| IEEE/754 report (if any)   IEEE committee failed to complete standard by 2018. Going to take another year. LIkely to have some features that are less specified in the 2019 version. Problems with 2018 ballot were with new features late in process. (New features related to bit-for-bit reproduceability) IEEE has the rule that only one exception allowed per compare, the "invalid" exception. | R. Corbett |
| WG23 report (if any)  Dan will be working on WG23 again. | D. Nagle |
|  |  |
| ***WG9 report (if any)*** Paper 19-128 describes some issues going on with WG9.  19-118 is the notice of the Ada-Europe 24th International Conference | V. Snyder |
| MPI Liaison report (if any) B. Long  Nothing new to report | |
| OpenMP Liaison report (if any) B. Long  The 5.0 specification was released at SC last November. A book of the  specification is being sold on Amazon, if people want a hard copy:  https://www.amazon.com/dp/1795759887  The OpenMP language committee held a F2F meeting last week, hosted by  NVIDIA at its Santa Clara office. A TR release is scheduled for SC'19,  and 5.1 is scheduled for SC'20. 5.1 is a minor release, and we don't  plan on adding any major features, or at least any major features that  would require a significant amount of implementation work. The next  major release, 6.0, is expected to be release at SC'22.  Here are some of the topics that were discussed in the various  subcommittees, along with the projected release version it will be  introduced in:  -- Miscellaneous Topics  [5.1] loop construct refinements (proposed by NVIDIA): the OMP LOOP  construct was added in 5.0, and it allows loops to be executed  in parallel using a team, parallel, or SIMD-level  parallelism. The committee wants to add clauses to the loop  construct to give more control to the user on how the loops is  parallelized using the construct.  [5.1] SIMD extensions (proposed by Intel): allow use of function  pointers in SIMD regions; new SIMD clauses for compress, expand,  conflict, and "allow early exit" support  [6.0] Loop transformation clauses (proposed by Argonne National Lab):  a set of clauses that can be applied to a loop nest to specify a  variety of desired loop transformations (e.g. interchange,  stripmining, loop fusion, loop peeling, unrolling, loop  reversal, etc.).  [6.0] General Induction Support (proposed by Intel)  -- Affinity Topics  [5.1] Affinity control for teams construct  [5.1] Expressing affinity between tasks and devices  -- Accelerator topics  A large number of topics, as usual, were discussed within the  accelerator subcommittee:  [5.1] add Fortran versions of device memory routines  (omp\_target\_alloc, omp\_target\_free, omp\_target\_associate\_ptr,  omp\_target\_disassociate\_ptr, omp\_target\_memcpy,  omp\_target\_memcpy\_rect, omp\_target\_is\_present).  [5.1] device-specific environment variables  [5.1] improved pointer initialization in target regions  [5.1] add is\_present clause or map-type for device constructs  [5.1] allow use of function pointers within target regions  [5.1] provide asynchronous versions of the device memory routines  [5.1] add "omp promise" directive, where the users asserts certain  properties about a given OpenMP region that would enable more  efficient implementation of the region.  [5.1] support callls to contain functions (for Fortran) in target  regions  [5.1/6.0] expose underlying streams for asynchronous execution/data  transfer (e.g. CUDA streams)  [5.1/6.0] enhance deep copy support with serialize/deserialize  functions  [6.0+] operating on classes with virtual methods in target regions  -- Tasking topics  [5.1] add task-data affinity control and dependences for taskloop  construct  [5.1] add schedule clause to taskloop  [6.0+] Support repeatable task graphs  [6.0+] Support real time applications.  [6.0+] task width (reserves N number of threads for execution of a  given task)  [6.0+] Allow threads that don't bind to a parallel region to be  available for task execution ("unshackled" threads)  -- Fortran topics  [5.1] Define restrictions for coarray usage with OpenMP -- coindexed  list items not allowed in clauses, privatized coarrays  effectively lose "coarray" property, image control statements  may only appear in sequential part of program, and coindexed  references must be serialized within a given image and cannot  occur on target devices.  [5.1/6.0] Improve support for usage of array syntax in target regions  to take advantage of parallel teams and parallel threads.  [5.1/6.0] Allowing loop or workshare constructs to be applied to DO  CONCURRENT loops  -- C/C++  [5.1] Adopt attribute syntax as substitute for various declarative  directives  [5.1] Define behavior for use of noreturn, move operations, and  alignment  [5.1] Define behavior for use of base language atomic and fence  operations | |
| ***UPC/PGAS Liaison report (if any)*** | B. Friesen |
| Quiet, little new code is being written.  More focus on GASNet. |  |
|  |  |
| ***OpenACC Liaison report (if any)*** | G. Klimowicz |
| Information about OpenACC, including the current standard document,  training materials, and upcoming events can be found at  http://www.openacc.org/.  The current OpenACC 2.6 standard includes support for manual deep copy of data structures to target processors.  There are over 110 applications in production or development using  OpenACC, including:  - Gaussian 16  - ANSYS Fluent  - VASP  - MPAS-A  - COSMO  - GAMERA for GPU  - Quantum Espresso  There are more "hackathons" coming up in 2019, where researchers bring their codes to work alongside with OpenACC experts to accelerate their applications.  Event dates are posted at https://www.openacc.org/events.  OpenACC has ratified version 2.7:  1. Make it clear that the host can be a device.  2. Listing which fortran intrinsics and math.h functions should be supported.  3. Fortran bindings for API routines.  4. Treat reduction as a data clause (for parallel loop reduction).  5. Clarify that the host data construct used without "use device"  means nothing  6. Array reductions  7. "acc parallel self" - run this in parallel on the current device  Version 2.7 of the OpenACC specification can be found at  https://www.openacc.org/specification.  We also understand that at the OpenMP face-to-face meeting last fall that the OpenMP group is planning to create a roadmap for how OpenACC constructs are mapped to OpenMP constructs. This would effectively mean that "#pragma acc" would be treated as a new way to spell "#pragma omp" and dramatically reduce the porting problem for codes that used both. |  |
| ***Flang open source report (if any)*** | G. Klimowicz |
| Flang is an open source compiler for Fortran, sponsored by the US  Department of Energy (particularly, LLNL, Sandia and LANL).  The goals of the project are to  - Create a new, open source Fortran 2018 compiler with  Apache 2.0 licensing,  - that can be used for language and parallelization  experimentation,  - that exists as a peer in the LLVM community of languages,  like Clang,  - that can rely on LLVM code generation and parallelism support for CPUs and GPUs.  There are flang-dev and flang-announce mailing lists you can join  for discussion of Flang at http://lists.flang-compiler.org/ and a  Slack channel, http://flang-compiler.slack.com/ for more  There is a biweekly half-hour conference call providing status updates on Flang, every other Wednesday at 8:30 AM Pacific time (the next is February 20, 2018). If you are interested in participating in these calls, please let Gary Klimowicz (gklimowicz@nvidia.com) know and he will forward the meeting invitation.  Current Flang Compiler  ----------------------  The initial version of Flang is derived from the PGI Fortran compiler, with some proprietary features removed (OpenACC support, inter-procedure analysis). It was published on GitHub in May 2017 at github.com/flang-compiler, and consists of several subprojects (including the Flang driver and compiler itself, and changes to LLVM to support Fortran debug metadata to be upstreamed). The current compiler supports Fortran 2003 and some Fortran 2008 features.  Recent improvements to Flang include  - many bug fixes and enhancements from the PGI compiler;  - many improvements in the libpgmath library;  - initial support for OpenMP target offload based on  Clang's LLVM 7.0 work.  Flang is available for Linux on x86-64, OpenPOWER and Arm processors, and is the basis of the Arm commercial Fortran compiler. AMD has indicated their interest in adopting flang as well. Members of the community are also working on ports to Mac OS X and packages for OpenBSD and FreeBSD.  Contributions to this version of the compiler are encouraged, but require executing a contributor license agreement (CLA) with NVIDIA due to the nature of the way we combine internal and external improvements to Flang.  Interactive communication with the Flang community.  The New F18 Compiler  --------------------  The older code base used to seed the initial Flang compiler is not going to meet the long-term goals of the project. NVIDIA has begun a new project to rewrite the Fortran front-end in C++ to better align with the LLVM and Clang communities and to better leverage the existing tools and techniques from these communities.  This new front-end, which we call F18, is available at [https://github.com/flang-compiler/f18. All development for F18](https://github.com/flang-compiler/f18.%20All%20development%20for%20F18) is being done on the open source repository, and you can follow the pull request activity from our developers there.  No contributor license agreement is needed to contribute to F18, which is being developed under the Apache 2.0 license with LLVM extensions (the same as LLVM and Clang).  The current state of F18 is  - written in modern C++ following LLVM conventions;  - parses all of Fortran 2018 to abstract syntax trees (AST);  - implements preprocessing directives;  - recognizes most common comment-based directives  (including OpenMP), though there is limited semantic  processing;  - implements semantic analysis for types and symbols, including  derived types, modules and submodules, constants and constant  expressions;  - has initial "Fortran Intermediate Representation" tree  definition for defining a control flow graph above that provided  by LLVM IR.  We are at a point where people interested in Fortran tooling (formatters, preprocessors, source-to-source compilers) can use the F18 parser. We are encouraging people to do so and to provide feedback and enhancements to F18.  Upcoming work includes  - continued work on statement and expression semantics, lowering  from AST to FIR trees;  - definition of runtime environment;  - implementation of Fortran I/O semantics and runtime.  We plan to be able to compile single-threaded Fortran 2018 programs this year. |  |
| ***Beginning Treasurer's report*** | J. Steidel |
| 11 Feb 2019 Opening balance $ 3382.36 |  |
| **Beginning membership report** | L. Menard |
| 12 member organizations, one more pending, 11 represented here.  Total Membership at beginning of Meeting 217 : 12 (plus one pending)  Majority [1 over half] : 7  Quorum [1/3 of voting members, min 4 present] : 4  Attendance is recorded above. |  |
| ***Local arrangements*** | C. Rasmussen |
| Craig is taking requests for snacks. Marriott will provide soft drinks and water. |  |
| ***Comments from members*** |  |
| On meeting schedules; particularly the February meeting.  Can we move the February meeting to first or third week of Feb?  Meeting will move to the week of last Monday in Feb. |  |
|  |  |

## 1.2 Tutorials (if needed)

## 1.3 Subgroup organization D. Nagle

**/JoR:** Dan Nagle (head), Steve Lionel, Lorri Menard, Gary Klimowicz  
 Papers assigned:  
 19-107,19-108,19-110r1,19-111,19-113,19-120,19-121,  
 19-122,19-123,19-133

**/Data:** Malcolm Cohen (head), Tom Clune, Ondrej Certik, Reuben Budiardja, Van Snyder,   
 Bob Corbett, Damien Rouson, Craig Rasmussen, Vipul Parekh .  
 Papers assigned:  
 19-112, 19-125, 19-126, 19-127  
  
 **/HPC:** Bill Long (head), Srinath Vadlamani, Jon Steidel, Brian Friesen, and Daniel Chen.  
 Papers assigned:  
 19-109,19-132

**/INTERP:** Malcolm Cohen (head)  
 Papers assigned:  
 19-114, 19-119, 19-124, 19-129, 19-130, 19-131

**/EDIT:** Malcolm Cohen (head)  
 Papers assigned:  
 19-115, 19-116, 19-117

Recessed to subgroup meetings at 9:08

## 1.4 Subgroup meetings

## 1.5 Subgroup reports (4:30 pm)

**/JoR**

For vote tomorrow:   
 19-107r1, 19-108r1, 19-111r1,19-137,19-138,19-139

**/Data**

For vote tomorrow:  
 19-135 (with straw) Supercedes 18-265, 19-112  
 19-141 reply to 19-126,19-127

**/HPC**   
 For vote tomorrow:  
 19-140 (reply to 19-109)

**/EDIT** Disposing of these papers:  
 18-267 - needs to be either an interp, or a suggestion for a future revision  
 (Lionel) suggestion for next   
 18-116 - Withdrawn

**/INTERP** Discussed:  
 19-136 - rejected, no action because the results ARE as-if it had been done in array-element order.  
 (Will do a 136r1)

Recessed for the day at 5:00 PM

# 2. Tuesday February 12,2019 8:00 am

## ---------------------------------------------------------------

## 2.1 F202x Plenary (19-010) Subgroup Heads

**/JoR:**   
\*\* Motion 19-107r1 "Irregularities (index variables)" [Snyder/Lionel]  
 (Nagle/Lionel) UC

\*\* Motion 19-108r1 "Medium-grain parallelism" [Snyder/Nagle]  
 (Nagle/Lionel) Vote: 11 (For) - 1(Against)

\*\* Motion 19-111r1 "Instead of += etc" [Snyder/Klimowicz]   
 (Nagle/Clune) UC

\*\* Motion 19-137 "Specifications and Edits of AT" - Spec and Syntax only   
 [Nagle] (Nagle/Klimowicz) UC (to repeat, on spec/syntax only)

\*\* Motion 19-138 "Specification and Edits for longer statements" [Nagle]  
 (Nagle/Snyder) through discussion some questions were answered:  
 "10,000" is in decimal.  
 One million is enough.  
 Continuation line limit is removed.  
 Straw Vote (SV) to require that overline-limit be diagnosed:  
 13 - 0 - 3 (y/n/u)  
 To be amended and returned.

\*\* Motion 19-139 "Specifications and Edits for log<n> & friends" [Nagle]  
 (Nagle/Clune) UC

**/Data:**   
\*\* Motion 19-135 "Protected types and components" [Cohen]  
 (Cohen/Snyder) Straw vote was conducted to determine if should  
 focus on protected types or protected components:  
 SV: Types - Components - Neither – Undecided  
 0 - 9 - 3 - 6  
 As amended to focus on components UC

\*\* Motion 19-141 "Abstract procedures not proceeding" [Snyder]  
 (Cohen/Clune) UC

**/HPC**\*\* Motion 19-140 "Reply for paper 19-109" [Long] (Long/Steidel) UC

**/Edit** No business today

**/Interp** No business today

## 2.2 Tutorials (if needed)

Ondrej gave a tutorial on Demo of LFortran, an interactive LLVM-based Fortran compiler.  
(https://nbviewer.jupyter.org/gist/certik/f1d28a486510810d824869ab0c491b1c)  
LFortran can execute user's code interactively in the Jupyter notebook to allow exploratory work (much like Python, MATLAB or Julia). The demo showed simple statements and control flow as well as interactive plotting.

Recessed to subgroup meetings at 9:15

## 2.3 Subgroup meetings

## 2.4 Subgroup reports (4:30 pm)

**/JoR:**   
 For vote and/or discussion tomorrow:  
 19-110r2, 19-122, 19-133r1, 19-137r1, 19-138r1, 19-139r1, 19-145

**/Data:**   
 For vote tomorrow: 19-142

**/HPC:**

For vote tomorrow: 19-146 (reply 132)

**/Interp:**

For vote tomorrow:   
19-114r1, 19-119r1, 19-124, 19-129, 19-130, 19-131, 19-136r1

Recessed at 5:00.

# 3. Wednesday, February 13, 2019 8:00 am

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## 3.1 F202x Plenary (19-010) Subgroup Heads

**/JoR**:  
\*\* Motion 19-110r2 "Supporting rank genericity -- NOT VECTOR SUBSCRIPTS!"  
 [Snyder/Menard] (Nagle/Lionel) 8 - 1 - rest out of the room

\*\* Motion 19-122r1 "Supporting generic programming -- updaters"   
 [Snyder/Klimowicz] (Nagle/Long) 9 - 1 - rest out of the room

19-133r1 "Use cases for exception handling" [Clune/Nagle/Lionel/Klimowicz]   
(For discussion, no vote)

\*\* Motion 19-137r1 "Specifications and Edits of AT" [Nagle]  
 (Nagle/Menard) As amended UC

\*\* Motion 19-138r1 "Specification and Edits for longer statements" [Nagle]  
 Specification only: (Nagle/Menard)

SV: Hard limit - processor dependent - no opinion  
 7 6 4

Now a vote: 11 – 1 Specification passed.  
 Vote the edits: 11 – 1 Edits passed.

\*\* Motion 19-139r1 "Specifications and Edits for log<n> & friends" [Nagle]  
 Specs: (Nagle/Cohen) UC  
 Edits: (Nagle/Lionel) UC

-- Motion 19-145 “Degree trigonometric functions" [Menard] (Nagle/Clune)  
 Withdrawn for rework

**/Data:**\*\* Motion 19-142 "TYPEOF and CLASSOF" [Cohen](Cohen/Snyder)  
 As amended UC

**/HPC:**  
 \*\* Motion 19-146 "Response to 19-132" [Steidel] (Long/Steidel)  
 As amended UC

**/Edit:**\*\* Motion 18-267 "Syntax errors in example codes" [Friesen]  
 (Cohen/Long) UC  
\*\* Motion 19-115 "Making note of Statement Entities" [Lionel]  
 (Cohen/Steidel) UC  
\*\* Motion 19-117 "Coarrays of type TEAM\_TYPE" [Steidel](Cohen/Steidel) UC  
\*\* Motion 19-143 "remaining block data subprogram" [Corbett]   
 (Cohen/Klimowicz) UC  
\*\* Motion 19-144 "procedure pointer components" [Corbett]  
 (Cohen/Corbett) UC

**/Interp:**

\*\* Motion 19-114r1 "Problems with C\_FUNLOC and C\_F\_PROCPOINTER being PURE"  
 [Long/Steidel] (Long/Steidel) As amended UC  
\*\* Motion 19-119r1 "Contradiction with assumed rank" [Snyder/Cohen]   
 (Cohen/Snyder) UC  
\*\* Motion 19-124 "Bad examples?" [Steidel] (Cohen/Steidel) UC  
\*\* Motion 19-129 "Program completion" [Cohen] (Cohen/Clune) As amended UC  
\*\* Motion 19-130 "Connection of INPUT\_UNIT and \*" [Cohen]   
 (Cohen/Long) As amended UC  
\*\* Motion 19-131 "Connection of INPUT\_UNIT" [Cohen]   
 (Cohen/Steidel) As amended UC  
\*\* Motion 19-136r1 "F2018 interp: In array element order execution should apply to IMPURE elemental function only" [Chen/Cohen]   
(Cohen/Klimowicz) UC   
  
Recessed to subgroup 12:00

## 3.2 Tutorials (if needed)

## 3.3 Subgroup meetings

## 3.4 Subgroup reports (4:30 pm)

**/JoR:**

For vote tomorrow: 19-133r2, 19-147r1, 19-149

**/Data:**

For vote tomorrow: 19-152, 19-150

**/HPC**

No papers.

**/Edit**

No papers.

**/Interp**

For vote tomorrow: 19-151

Recessed until tomorrow at 5:00

# 4. Thursday, February 14, 2019 8:00 am

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## 4.1 F202x Plenary (19-010) Subgroup Heads

**/JoR**  
\*\* Motion 19-133r2 "Use cases for exception handling"   
 [Clune/Nagle/Lionel/Klimowicz]  
 Discussion SV: Continue with investigation - drop – undecided  
 16 - 0 - 1

\*\* Motion 19-147r1 "SELECTED\_LOGICAL\_KIND" [Snyder/Nagle]   
 (Nagle/Snyder) UC  
\*\* Motion 19-149 "Require reports of ignorance" [Nagle] (Nagle/Lionel)  
 As amended UC

**/Data**

\*\* Motion 19-150 "Rank-agnostic array element and section denotation"   
 [Cohen] (Cohen/Snyder) UC  
\*\* Motion 19-152 "BOUNDS and RANK attributes" [Clune] (Cohen/Clune)  
 As amended UC

**/HPC** No papers

**/Edit** No papers

**/Interp**

\*\* Motion 19-151 "Categories of pure procedures" [Corbett] (Cohen/Rouson) UC

Recessed to subgroup at 10:30

## 4.2 Tutorials (if needed)

## 4.3 Subgroup meetings

## 4.4 US TAG (4:15 pm) D. Nagle

No TAG required this meeting.

## 4.5 Subgroup reports (4:30 pm)

**/JoR**   
 For vote tomorrow: 19-145r1, 19-156, 19-157, 19-158, 19-160

**/DATA**  
 For vote tomorrow: 19-155 - voting on the use cases.

**/HPC**   
 For information only: 19-159

**/Edit** For vote tomorrow: 19-162

**/Interp**

For vote tomorrow: 19-153

Recessed for the evening at 4:43PM.

# 5. Friday, October 19, 2018 8:00 am

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## 5.1 F202x Plenary (19-010) Subgroup Heads

**/JoR**  
 \*\* Motion 19-145r1 "Degree trigonometric functions" [Menard]  
 (Nagle/Klimowicz) As amended to fix COS and to remove COMPLEX. UC  
\*\* Motion 19-156 "Control of leading zero in formatted numeric output"   
 [Lionel] (Nagle/Lionel)  
 Straw vote on keywords:  
 Present - Print - Provide - Produce Don’t care  
 0 6 0 5 2  
 as amended: UC  
\*\* Motion 19-157 IEEE Circular trigonometric functions [Menard]  
 (Nagle/Menard) As amended to repair intervals and complex. UC

-- Motion 19-158 "Add reductions to DO CONCURRENT" [Klimowicz]  
 (Nagle/Klimowicz)  
 Straw Vote: Continue with this? Y - N - U 11 - 0 – 1  
 Straw Vote 2: Intrinsic operations on intrinsic types   
 Withdrawn for more work.  
\*\* Motion 19-160 "Part 2 Procedures"[Nagle] (Nagle/Lionel) UC **/DATA**  
 19-154 "Macro processing facility" [Cohen] For information only.  
 19-161 "Protected components" [Snyder/Cohen] For information only.  
!! Motion 19-155 "Restricting generic parameters" [Clune]  
 (Lionel/Klimowicz) Paper failed, 1 yes 7 no

**/HPC**

19-159 "BITS” For information only

**/Edit**  
 \*\* Motion 19-162 "C\_PTRDIFF\_T" [Lionel] (Lionel/Chen) UC

**/Interp**

\*\* Motion 19-153 "Categories of elemental procedures" [Corbett]  
 (Corbett/Chen) As amended UC

## 5.2 Closing business

## 5.3 Review of action items (if any)

None.

## 5.4 Future meetings D. Nagle

*2019 Meeting dates:*

*m219 Aug 5-9. 2019  
 Tokyo, Japan  
 Joint with WG5.*

*m220 Oct 14-18 2019   
 Las Vegas NV USA  
 Host: Van Snyder*

*2020 Meeting dates:*

*m221 Feb 24-28 2020   
 Las Vegas NV USA  
 Host: Jon Steidel*

## 5.5 Treasurer's report J. Steidel

11 Feb 2019 Opening balance $ 3382.36

11 Feb 2019 Meeting fees waived + 0.00

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Subtotal $ 3382.36

14 Feb 2019 Snacks for mtg 218 - 95.04

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Subtotal $ 3287.32

15 Feb 2019 Refreshments Residence Inn - 243.75

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15 Feb 2019 Closing balance $ 3043.57

## 5.6 Closing membership report L. Menard

Because Reuben Budiardja attended this meeting, Oak Ridge has now completed its observation meeting, and will obtain voting membership next meeting.

Los Alamos might be able to piggy-back on its C++ membership; Ondrej to investigate.

ARM has applied for PL22.3 membership, but the paperwork has not yet gone through.

## 5.7 Comments from members

This [19-155] was the first paper that was voted against in recent history.

## Adjournment 11:30

**3. Other Business**

**4. Future Meetings**

*2019 Meeting dates:*

*m219 Aug 5-9. 2019  
 Tokyo, Japan  
 Joint with WG5.*

*m220 Oct 14-18 2019   
 Las Vegas NV USA  
 Host: Van Snyder*

*2020 Meeting dates:*

*m221 Feb 24-28 2020   
 Las Vegas NV USA  
 Host: Jon Steidel*

**5. Adjournment**

Meeting adjourned 11:30 AM