

Minutes of Meeting of ISO/IEC JTC1/SC22/WG5

June 8-12, 1998

University of Trollhättan/Uddevalla
Trollhättan, Sweden

1 Opening of the meeting

The meeting was called to order by the Convenor at 9.00 am on June 8th, 1998.

2 Opening business

2.1 Introductory Remarks

The Convenor outlined the business of the meeting for the week and noted that there had not been many papers submitted to WG5.

2.2 Welcome from the Hosts

The president of University of Trollhättan/Uddevalla, Olof Blomqvist, welcomed the WG5 participants and gave an interesting talk about the University and the city.

2.3 Local Arrangements

Lars Mossberg gave an account of the local arrangements made for the meeting.

2.4 Appointments for this meeting

The following appointments were made:

Secretary: Keng Low

Librarian: Kurt Hirschert

Drafting Committee: Kurt Hirschert, Lars Mossberg, David Muxworthy (Chairman), Wolfgang Walter, Masayuki Takata.

2.5 Adoption of the Agenda

An additional item 8.5.1 on Parallelism in Fortran was added to the agenda. The revised agenda was adopted unanimously.

2.6 Approval of the Minutes of the Vienna Meeting [N1291]

The minutes of the Vienna meeting, July 21-25, 1997 (N1291) were unanimously approved, with the addition of a note to the effect that Sweden had provided a verbal report of its national activity.

3 Matters arising from the minutes of the previous meeting

There were none that were not already on the Agenda.

4 Status of Vienna Resolutions [N1290]

V1 - (Revised Strategic Plan)

The revised plan would be reviewed again at this meeting.

V2 - (WG5 Document Repository and Web Site)

No progress had been made.

V3 - (PDTRs on Floating Point Exception Handling and Enhanced Data Type Facilities)

The PDTRs had been approved.

V4 - (Interoperability of Fortran and C)

Progress was to be reviewed at this meeting.

V5 - (Project Editor for Fortran 2000 Revision)

SC22 has appointed the project editor, as requested.

V6 - (Part 2 of the Fortran Standard (Varying Length Strings))

The normative part had been revised, subject to review by WG5, but a revision of the informative part is still required.

V7 - (Part 3 of the Fortran Standard (Conditional Compilation))

This has passed its final CD ballot and has been forwarded for its DIS ballot.

V8 - (Interval Arithmetic Requirement)

J3 has found difficulties with the proposed content and requested further guidance.

5 Reports

5.1 SC22 Matters

There were no significant matters to report from SC22 other than that the US has decided to continue to provide the Secretariat for SC22. Current JTC1 reorganisation will have no effect on WG5.

5.2 National Activity Reports

France's national activity report is in document N1312.

Germany's national activity report is in document N1314.

Japan's national activity report is in document N1315.

Sweden reported that due to unforeseen circumstances their national body's meeting, which was to be held a week before the WG5 meeting, was cancelled.

UK's national activity report is in document N1313.

US national activity report is in document N1311.

5.3 Report from Primary Development Body

The J3 chair reported that there had been a drop in the membership of J3, but that this had affected only one item of work, R4 (Interval Arithmetic Enabling Technologies).

The status of Primary Development Body work in progress is in document N1318.

5.4 Reports from Other Development Bodies

The heads of the other development bodies all reported that their work was progressing well.

6 Update of WG5 Strategic Plan

Two subgroups were formed to have a fresh look at the Strategic Plan and its procedures. Both subgroups required additional time in which to arrive at recommendations. In the event, insufficient agenda time was available and no changes were made to the Strategic Plan at this meeting.

7 Review of Progress on Fortran 2000

The state of progress of most items is indicated in document N1318.

Subgroups were formed to look at Interoperability with C, Derived type I/O, Interval Arithmetic and Internationalization.

7.1 Floating Point Exception Handling (as in DTR 15580)

Edits and Integration remain to be done for the integration of the Floating Point Exception Handling DTR.

7.2 Allocatable Components (as in DTR 15581)

Edits and Integration remain to be done for the integration of the Allocatable Components DTR.

7.3 Interoperability with C

The Primary Development body, in response to the comments received from SC22 ballot on PDTR 15815, proposed document N1321 as a way to implement Interoperability with C. A subgroup formed to study the document reported that it agreed with the direction taken by the primary development body in document N1321, and commented that there was still more work to be done.

7.4 Asynchronous I/O

This was in the final stages, requiring edits/integration.

7.5 Constructors/Destructors

This was in the final stages, requiring edits/integration.

7.6 Derived type I/O

Germany noted that the derived type i/o proposal currently in the draft of the new standard was too restrictive for their requirements. It was agreed that derived type i/o should be extended as proposed in document N1322, and that individual members who wished to suggest particular models reflecting the agreed requirements should submit their proposals to the primary development body before August 1998.

7.7 Inheritance

This was in the final stages, requiring edits/integration.

7.8 Internationalization

The primary development body had sought clarification from WG5 regarding requirements for Internationalisation and the status of technical reports available from WG20. A copy of the

Technical Report prepared by WG20, Framework for Internationalisation (TR 11017), was given to a member of the primary development body.

A subgroup was formed whose aim was to specify requirements for Internationalisation in Fortran 2000 after reference to the Framework for Internationalisation technical report. After further subgroup and plenary meetings a document, N1320, was produced which specified the requirements for Internationalization in Fortran 2000.

7.9 Interval Arithmetic

The primary development body believed that Interval Arithmetic was not ready for standardisation in the F2000 timeframe, due to technical difficulties in the subject as well as in implementation, and recommended that "Enabling Technologies", which would allow this and similar arithmetic packages to be developed as a module, be pursued instead. A further problem was that the primary development body's Interval Arithmetic subgroup had more or less ceased to exist, with some members having left the committee and others having been reassigned to other tasks (e.g. Interoperability with C).

A subgroup was formed to study the Interval Arithmetic enabling technologies proposed by the primary development body. The subgroup recommended that the substituted enabling technologies for Interval Arithmetic be accepted only if Control of I/O Rounding (R4d) and Constants for Opaque Types (R4f) were made firm requirements and Control of Operation Rounding (R4c) and Flexible Optimization Control (R4a) were pursued as minor technical enhancements (MTEs).

There was some concern that these new requirements could affect the Fortran 2000 schedule. The question was raised as to whether the Fortran 2000 schedule should be allowed to slip to include these new requirements. It was pointed out that WG5 had decided in a previous meeting that items of work would be dropped if they could not be fitted within the schedule.

The following straw vote was taken regarding the subgroup's proposals and their effect on the Fortran 2000 schedule:

- | | |
|--|---|
| • Drop all R4 work items. | 3 |
| • Implement subgroup recommended without "slipping" Fortran 2000. | 8 |
| • Implement subgroup recommended requirements and let Fortran 2000 schedule slip | 0 |
| • Undecided | 2 |

The Working Group therefore agreed that the subgroup's recommendations be implemented by the primary development body provided that it did not delay the Fortran 2000 schedule.

7.10 Parameterized derived types

This was in the final stages, requiring edits/integration.

7.11 Polymorphism

This was in the final stages, requiring edits/integration.

7.12 Procedure pointers

This was in the final stages, requiring edits/integration.

7.13 Minor Technical Enhancements

Most MTEs were in the final stages requiring edits/integration, except the VOLATILE attribute which would be progressed at the next J3 meeting.

8 Other Technical Issues

8.1 Fortran Part 2 (Varying Length Strings) - IS 1539-2:1994

Steve Morgan presented a document, N1316, describing the current status of the Varying String Standard carried out by project editor Lawrie Schonfelder and outlined the issues that needed addressing. One of the issues addressed was that the project editor did not have the resources to produce, from its current HTML version, a fully formatted version of the revised Varying String Standard which follows ISO guide lines. John Reid volunteered to make this conversion from the HTML format. After much discussion the committee agreed to create a development body to carry out the remaining work.

A subgroup was formed to review the revised Varying String Standard document and the changes proposed by the subgroup are documented in N1319.

The Working Group was aware that the sample module for the revised Varying String Standard, when implemented under the current Fortran 95 standard, would have an unexpected behaviour for intrinsic assignment of a structure with a component of type VARYING_STRING (intrinsic assignment when derived assignment is expected and needed). It was agreed that the sample module should contain a note to indicate this unexpected behaviour, and that the problem would be resolved when a corrigendum to Fortran 95 on derived type assignment is published. It was also agreed that there was no need to rush out a corrigendum containing just the fix for derived type assignment.

A straw vote was taken regarding the following:

- Have a machine-readable sample module only 7
- Put a sample module in the standard 1
- Undecided 5

After much discussion, the results of straw votes taken regarding "Inclusion of the text version of the demonstration implementation of the Varying String module in the standard" were as follows:

- Do not include the text version of the module in the standard 12
- Include text version of the module 0
- Undecided 3

8.2 Fortran Part 3 (Conditional Compilation) - FCD 1539-3

No action was needed on Conditional Compilation at this meeting.

8.3 Technical Report on Floating Point Exception Handling - DTR15580

No action was needed on DTR 15580 at this meeting.

8.4 Technical Report on Allocatable Components - DTR 15581

No action was needed on DTR 15581 at this meeting.

8.5 Other Technical Items

8.5.1 John Reid gave a tutorial on Co-array Fortran for parallel programming (document N1317).

8.5.2 Malcolm Cohen gave a tutorial on the Object-oriented Features in Fortran 2000.

9 Closing Business

9.1 Future Meetings

It was suggested that in February or March 2001, a joint WG5/J3 meeting, or WG5 and J3 meetings held back to back, should take place in either Canada or USA, so as to ensure a big turnout and to have the technical expertise of the primary development body members to hand. The Convenor urged Heads of Delegations to encourage WG5 delegates to attend this meeting, whose purpose would be to discuss the comments received from the first CD ballot.

A further WG5 meeting around July 2001 will be required to approve J3 changes resulting from the ballot comments before submission of the final CD for approval in August 2001.

On the assumption that the final CD ballot comments would be available in February 2002 it was agreed that WG5 would probably conduct an electronic ballot to approve the draft DIS in March 2002.

The next meeting will be held in France, 21-25 June 1999 and the following meeting in Finland in the year 2000. [Note: subsequent to the meeting the dates for the 1999 meeting were altered to 14-18 June.]

9.2 Any other business

There was none.

10 Resolutions

The resolutions and the voting on them are recorded in N1323.

11 Adjournment

The meeting closed at 2pm on Friday, June 12, 1998.